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VAPOR-LIQUID EQUILIBRIUM AT LOW PRESSURES: CORRELATION OF BINARY AND PREDICTION OF MULTICOMPONENT DATA

BY

NORMAN I. SILVERMAN

Vol. 1

A THESIS

PRESENTED IN PARTIAL FULFILLMENT OF

THE REQUIREMENTS FOR THE DEGREE

OF

MASTER OF SCIENCE IN CHEMICAL ENGINEERING

AT

NEW JERSEY INSTITUTE OF TECHNOLOGY

Newark, New Jersey

1977

To Dimitrios Tassios and to Sara Silverman.

.....For the one, without whose support this could not have been begun.

.....For the second, without whose support this could not have been completed.

APPROVAL OF THESIS

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ABSTRACT

The Wilson equation is chosen as typical of the new correlations for activity coefficients gaining wide distribution for use in the correlation and prediction of vapor-liquid equilibria today. Vapor-liquid equilibrium data for 247 binary systems have been regressed against each of ten (10) objective functions and values of the Wilson energy parameters obtained. For the typical binary system, a wide variation of the Wilson energy parameters are observed when different objective functions are used with the given set of binary data. These are each examined with respect to their capability to correlate multicomponent vapor-liquid equilibrium data for seventy-three (73) systems. In general the best results are obtained from the objective function that minimizes the relative error between the calculated and experimentally derived values of the binary activity coefficients.

The number of parameter sets for the Wilson equation that can be obtained from a given set of binary vapor-liquid equilibrium data is also examined. It is proven mathematically that only one set of Wilson energy parameter values exist for the case of positive deviations from Raoult's Law; however, as many as three parameter sets can be derived from experimental data for the case of negative deviations from ideal behavior. The criteria with which to determine the number of such sets is developed. Best correlation of both binary and multicomponent vapor-liquid equilibrium data appear to result from the set of Wilson energy parameters that are smallest in absolute value.

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I. INTRODUCTORY REMARKS

Liquid phase non-idealities in the region of the commercially interesting concentrations are such that the composition and temperature dependence of the liquid phase activity coefficient is generally estimated with the aid of semi-empirical solution models. Since the early researches of Margules and Van Laar many such empirical models have been proposed (Black, 1959; Carlson, 1942; Wohl, 1946). The parameters in these models must then be evaluated in some manner from vapor-liquid equilibrium data.

During the last decade, several interesting correlations for the activity coefficient have been developed from entropic arguments (Bruin, 1970). These can be generalized from binary to multicomponent form without the introduction of any additional parameters. These equations can be used to predict multicomponent vapor-liquid equilibria at moderate pressures over the entire composition range with parameters evaluated from binary data only.

Wilson Equation Typical of the New Correlations

Three of the new correlations (Wilson, NRTL, LEMF) are based upon introducing some definition of local mole fractions (Cukor, 1969) into an existing liquid solution theory. In each case, the local mole

fraction is defined as the bulk mole fraction weighted by a Boltzmann distribution. The energy parameters in the distribution are suggested as being proportional to the interaction energies of the species present. Introducing local volume fractions into the Flory-Huggins (Flory, 1942; Huggins, 1942) equations, Wilson (1964) developed an equation with excellent capabilities in modeling the behavior of miscible systems (Holmes, 1970; Hudson, 1969; Neretnieks, 1969; Orye, 1965; Wiehe, 1971). Extending modeling capabilities to immiscible systems, Renon and Prausnitz (1968, 1969) in their nonrandom, two-liquid (NRTL) equation, have modified the definition of local mole fraction to include a multiplicative factor in the Boltzmann distribution to reflect the nonrandomness of mixing in the liquid phase. The authors suggest that this nonrandomness factor is proportional to the inverse of the coordination number in the cell theory of liquids. They suggest values in the range of 0.2 to 0.47. Marina and Tassios (1971), in their local effective mole fraction (LEMF) equation, further modified the local volume fraction concept by setting the Renon and Prausnitz nonrandomness factor equal to -1.0 for all systems.

The Wilson equation has been chosen as representative of these equations and is used in this study. For completely miscible systems, the Wilson equation provides results that are normally comparable to the other equations. It does have the advantage of reducing one degree of complexity, except, as will be developed later, for systems with negative deviations from ideality (Tassios, 1977). Wilson parameter values obtained by regression against binary data are independent of the initial

guesses that must be supplied to the regression routine. The binary form of the Wilson equation is:

$$\ln \gamma_1 = -\ln (x_1 + \Lambda_{12} x_2) + x_2 \left[\frac{\Lambda_{12}}{x_1 + \Lambda_{12} x_2} - \frac{\Lambda_{21}}{\Lambda_{21} x_1 + x_2} \right] \quad (1)$$

and

$$\ln \gamma_2 = -\ln (\Lambda_{21} x_1 + x_2) - x_1 \left[\frac{\Lambda_{12}}{x_1 + \Lambda_{12} x_2} - \frac{\Lambda_{21}}{\Lambda_{21} x_1 + x_2} \right] \quad (2)$$

where

$$\Lambda_{ij} \equiv \frac{v_j^L}{v_i^L} e^{-(\lambda_{ij} - \lambda_{ii})/RT} \quad (3)$$

for i and j each set equal to 1 and 2.

The only parameters that appear in the Wilson equation are the Λ_{12} and Λ_{21}. They appear non-linearly in the equation and are further defined as exponentials of the binary two-body interaction parameters, $(\lambda_{12} - \lambda_{11})$ and $(\lambda_{12} - \lambda_{22})$. The Wilson equation accounts for interactions between unlike species as two-at-a-time interactions only. No three body or higher interactions are considered. For this reason, the equation can be generalized to multicomponent form without the inclusion of any multicomponent parameters. The multicomponent form of the equation is:

$$\ln \gamma_i = 1 - \ln \left[\sum_{j=1}^{N} \Lambda_{ij} x_j \right] - \sum_{k=1}^{N} \left[\frac{\Lambda_{ki} x_k}{\sum_{j=1}^{N} \Lambda_{kj} x_j} \right] \quad (4)$$

Purpose of the Current Study

What has been lacking in the previous investigations of the Wilson equation is a systematic study of the minimization functions through which the Wilson energy parameters are extracted from the binary vapor-liquid equilibrium data. The purpose of this thesis is to examine the manner in which the choice of the minimization function affects the values of the Wilson energy parameters so obtained and to evaluate in a systematic, albeit empirical, fashion the way these, in turn, affect the accuracy with which multicomponent equilibria are predicted.

During the course of this study it will become necessary to also investigate the uniqueness of the set of parameter values derived from experimental binary vapor-liquid equilibrium data. The circumstances under which this uniqueness may be doubted will be defined, and the number of multiple sets of Wilson energy parameter values that can be obtained from a single set of binary VLE data will be ascertained. Finally, the impact of these multiple parameter sets upon the accuracy of the predicted multicomponent data will be assessed.

Correlation of Binary Data and Prediction of Ternary Data -- Confusion on Approach

For systems with positive deviations from Raoult's Law, where regression of all the binary data yields one set of parameters and use of one datum point yields, in general, another set (with no multiple roots in either case), the question arises as to which set of paramters should be used for the prediction of binary and multicomponent data.

In the prediction of binary VLE data, Hudson and Van Winkle (1970) found that parameters obtained from one point (around $x = 0.5$ where experimental accuracy is best) or by regressing all available data gave equally good results. For the one system (benzene-methyl acetate, parameters presented in Table 1) presented in their paper, however, the parameters obtained by regression seem to yield a lower maximum deviation in predicted y (about 2%) than the parameters obtained from one point (about 5%). On the other hand, Hankinson, et al, (1972) indicated that for five systems studied, parameters obtained by regressing all the data and by using the two infinite dilution activity coefficients gave equally good results. In a similar comparison, Schreiber and Eckert (1971) report that for 31 binary systems parameters obtained by regression of all the data gave an average absolute error in y of 0.0075, while for the parameters obtained from the γ^{∞} values the error was 0.0086.

Considering the prediction of multicomponent data, the accuracy of the predicted vapor phase compositions from parameters obtained (A) by regressing all binary data and (B) from one point - and this includes use of the two γ^{∞} values - is compared for the two methods in Table 2 . The comparison indicates that on the average the two yield equally good results. However, as will be shown in this study method (B) is unreliable. Even though it generally gave comparable results to those obtained by regression of all binary data, it occasionally gave very poor results.

TABLE 1

WILSON PARAMETERS (P = 760 mmHg)

	ALL BINARY DATA		ONE BINARY POINT	
BINARY SYSTEMS (1-2)	$\lambda_{12} - \lambda_{11}$	$\lambda_{12} - \lambda_{22}$	$\lambda_{12} - \lambda_{11}$	$\lambda_{12} - \lambda_{22}$
ACETONE-ETHANOL	38.2	418.9	856.9	10.1
ACETONE-METHANOL	-215.0	664.3	46.4	444.9
BENZENE-CHLOROFORM	148.4	-208.5	-783.1	1461.4
BENZENE-METHYL ACETATE	200.5	-10.2	-288.9	432.0
CELLOSOLVE-ETHYL BENZENE	747.4	129.8	1255.2	-280.2
CYCLOHEXANE-TOLUENE	-416.3	911.5	179.6	53.2
HEPTANE-TOLUENE	-45.1	264.4	241.7	79.4
METHANOL-2-PROPANOL	85.7	-25.5	1448.6	-1047.2

TABLE 2

PREDICTION OF MULTICOMPONENT DATA:

NUMBER OF SYSTEMS WHERE, WITHIN 10%, THE REGRESSION PARAMETERS GIVE

SOURCE	TYPE AND NUMBER OF SYSTEMS		ACCURACY IN PREDICTED y (WITHIN 10%) BETTER ALL DATA	BETTER ONE POINT	EQUAL
HUDSON and VAN WINKLE	QUINARY	(1)	1	0	0
	QUATERNARY	(3)	3	0	0
	TERNARY	(20)	8	2	10
HANKINSON et al.	QUINARY	(1)	0	1	0
	QUATERNARY	(3)	0	2	1
	TERNARY	(4)	0	2	2
SCHREIDER and ECKERT	TERNARY	(5)	3	1	1

In the prediction of binary data for negative deviations from Raoult's Law, Aristovich, et al (1968), indicated that for the two systems studied with γ's less than one, all three sets of Wilson parameters gave very good fit of all data (within 2%) except for one set of roots where one of the values were negative. Such negative values are, however, unacceptable since the value of $(x_i + \Lambda_{ij} x_j)$ will be zero at some value of x_i and γ_i will become infinite. On the other hand, the study of Miyahara, et al (1970), using infinite dilution activity coefficients, shows that for the system acetone-chloroform only one set of parameters fit successfully all the data. The other gives a poor fit and the third an unacceptable one. All roots were positive. This is further supported by the results presented in Tables 11 and 12 where it is clearly shown that not all parameters give good fit of the binary data.

Correlation of Experimental Data

The vapor-liquid equilibria are calculated by demanding that, at equilibrium between the two phases, the liquid phase fugacity be equal to the vapor phase fugacity. These terms are calculated from the following equations:

$$f_i^V = \hat{\phi}_i \, y_i \, P \tag{5}$$

and

$$f_i^L = \gamma_i \, x_i \, f_i^{oL} \tag{6}$$

The reference state for the liquid fugacity is taken as the pure component at the temperature of the system and corrected to zero pressure. It is calculated from the equilibrium relationship for a pure component liquid under its own vapor pressure:

$$\therefore \quad f_i^{oL} = \phi_i^s P_i^s e^{-P_i^s v_i^L / RT} \tag{7}$$

The activity coefficient is also corrected to zero pressure by the Poynting correction to finally give an expression for the liquid phase activity coefficient in terms of known parameters:

$$\gamma_i = \frac{\hat{\phi}_i y_i P}{x_i f_i^{oL} e^{v_i^L P / RT}} \tag{8}$$

The fugactiy coefficients were calculated from the virial equation of state truncated after the second term:

$$\hat{\phi}_i = \frac{1}{Z_{mix}} e^{2(y_i B_{ii} + y_j B_{ij})/v_{mix}} \qquad i,j = 1,2 \tag{9}$$

The second virial coefficients were developed from the O'Connel and Prausnitz (1967) extension of the Pitzer and Curl correlation. Pure component vapor pressures have been represented by the Antoine equation.

$$\log P_i^s = A_i - \frac{B_i}{C_i + t} \tag{10}$$

Pure component molar volumes have been represented by an equation quadratic in absolute temperature

$$\mathcal{V}_i^L = A_i + B_i T + C_i T^2 \tag{11}$$

The coefficients were developed by curve-fitting molar volume and temperature data. In data-limited circumstances, the higher order coefficients were set to zero.

The pure component vapor fugacity coefficient required to evaluate the pure component liquid phase fugacity in the reference state by equation (7) can be obtained from equation (9) evaluated for a single pure component (i.e., set $y_i = 1.0$, $y_j + B_{ij}$ to zero, and evaluate both z_{MIX} and v_{MIX} for pure component vapors).

The compressibility factor is evaluated directly from the definition for either the pure component or mixed cases:

$$z_i \equiv P\mathcal{V}_i / RT$$

and

$$z_{MIX} \equiv P v_{MIX} / RT$$

as required.

The volume term is evaluated using the virial equation truncated to the linear term. The equation can then be manipulated into standard quadratic form and solved for the volume. Thus:

$$\frac{P\mathcal{V}_i}{RT} = z_i = 1 + \frac{B_{ii}}{\mathcal{V}_i}$$

$$\mathcal{V}_i^2 - \frac{1}{P/RT}\mathcal{V}_i - \frac{B_{ii}}{P/RT} = 0$$

$$\nu_i = \frac{0.5 \pm \sqrt{0.25 + B_{ii} P/RT}}{P/RT}$$

The positive root is used in the calculation.

These equations were used to calculate the experimental activity coefficients for data reduction of the binary systems. They were also used in the bubble point calculations in binary and multicomponent systems. For the bubble point calculations the Wilson activity coefficients were used. The methods of Prausitz, et al (1967) were adapted to the current investigation.

Thermodynamic Consistency Test for Binary VLE Data

The binary vapor-liquid equilibrium data for each system investigated has been tested for thermodynamic consistency. For a binary system the Gibbs-Duhem equation becomes:

$$x_1 \frac{\partial \ln \gamma_1}{\partial x_1} + x_2 \frac{\partial \ln \gamma_2}{\partial x_1} = 0 \qquad (12)$$

Experimental data can be reduced as shown in the previous section to obtain the experimentally derived activity coefficents. To be

thermodynamically consistent, the data must conform to the equality expressed by the Gibbs-Duhem equation. This is difficult to apply in practice because of the uncertainty in calculating the required slopes at each point.

To avoid this difficulty an integral test is desired. The disadvantage of such a test is that the consistency of an individual data point cannot be determined; rather, the overall consistency of the data set must be calculated. To develop this test, the excess Gibbs free energy, defined in terms of the binary activity coefficients as

$$g^E/RT = x_1 \ln \gamma_1 + x_2 \ln \gamma_2 \tag{13}$$

is differentiated, combined with the Gibbs-Duhem equation, and then integrated under the boundary conditions of zero excess Gibbs energy at the pure component. The resulting equation

$$\int_{x_1=0}^{1} \ln \frac{\gamma_1}{\gamma_2} \, dx_1 = 0 \tag{14}$$

provides the required test. The area under the $\ln \frac{\gamma_1}{\gamma_2}$ curve must sum to zero across the range of x_1 values. If the cross-over point (i.e., the value of x_1 at which $\ln \frac{\gamma_1}{\gamma_2}$ attains a value of zero) is called x_o then we have

$$\int_{x_1=0}^{x_o} \ln \frac{\gamma_1}{\gamma_2} \, dx_1 + \int_{x_1=x_o}^{1} \ln \frac{\gamma_1}{\gamma_2} \, dx_1 = 0 \tag{15}$$

which leads directly to a quantitative measure of the thermodynamic consistency. Letting the first integral be denoted APOS, and the

second be denoted ANEG, we can define

$$CI = \left| \frac{APOS + ANEG}{APOS - ANEG} \right| \times 100 \qquad (16)$$

as the consistency index. Note that the absolute value notation will allow a positive value for CI even in the case of negative deviations from ideality.

The equality derived above is strictly true only under conditions of constant temperature and constant pressure. For a binary system at given liquid composition, the phase rule indicates only one remaining degree of freedom. Thus either pressure or temperature can be held fixed across the composition range, but not both conditions. Under such conditions the equality is only approximately true, and there is a non-zero error term that can be defined. Under isothermal conditions, this error term is a function of the excess molar volume of the liquid phase. This is normally small, and we can say that data having consistency index values not in excess of five can be considered thermodynamically consistent. Under isobaric conditions, however, this error term is a function of the excess molar enthalpy of the liquid, a term not normally negligible.

To test the thermodynamic consistency of binary data under isobaric conditions, Herington (1951) has proposed a semiempirical modification to the area test. After an extensive investigation of heat of mixing data, Herington has proposed to define the consistency index as

$$CI = \left| \frac{APOS + ANEG}{APOS - ANEG} \right| \times 100 - J \qquad (17)$$

where J has been defined as

$$J = 150 \frac{T_{MAX} - T_{MIN}}{T_{MIN} + 273.15} \qquad (18)$$

where Tmax and Tmin are the maximum and minimum temperatures, respectively, observed across the composition range. Except in the case of azeotropes, the minimum and maximum temperatures were those of the pure component boiling points evaluated under system pressure by the Antoine equation. Isobaric data was considered thermodynamically inconsistent for CI values in excess of ten.

The natural logarithm of the ratio of the experimentally derived activity coefficients was curve fit to an equation quadratic in mole fraction:

$$\ln \frac{\gamma_1}{\gamma_2} = A + B x_1 + C x_1^2 \qquad (19)$$

This equation was solved with $\ln \frac{\gamma_1}{\gamma_2}$ set to zero to obtain the value of the cross-over point (i.e., x_o). The equation for the area test is readily integrated analytically and used to calculate the required areas. Approximately twenty per cent of the systems reviewed were of questionable consistency.

Since the above equations were being programmed into a FORTRAN program, error checks on the value of X_o were instituted. In the course of these checks, several systems were found in which the cross-over point was either non-existant or outside the range of composition. This was taken as an indicator of highly inconsistent data. Five per cent of the systems compiled fell into this category.

This curve fit has also been used, it should be noted, to obtain the binary activity coefficients at infinite dilution. These values are quickly obtained by setting X_1 to zero

$$\ln \frac{\gamma_1^\infty}{1} = A \tag{20}$$

or unity

$$\ln \frac{1}{\gamma_2^\infty} = A + B + C \tag{21}$$

respectively.

II. ABSTRACTING PARAMETER VALUES FROM BINARY DATA

In theory one could obtain parameter values for a two-parameter equation from one experimental binary data point. A pair of binary activity coefficients can be calculated from the experimental data in the manner described previously; and, the system of two equations

(binary form of the Wilson equation) in two unknowns (set of Wilson parameters) can be solved. When data limited, azeotropic points or mid-composition points have commonly been used. This method can fail to give satisfactory results with correlations such as the Wilson equation that are non-linear in their parameters. The parameter estimates can vary widely from point to point along the equilibrium curve.

In practice the parameters are estimated by regressing a series of data points against the Wilson equation until some objective function is minimized. The objective function is a statement of the discrepancy between the experimental and calculated values of some variable of interest. A particular set of parameter estimates are used for each evaluation of the objective function. The parameter values are varied until a minimum value of the objective function is obtained. Both Nagahama, et al, (1971) and Verhoeye (1970) have shown that the parameter estimates are insensitive to the manner in which they are varied in the regression routine. They are, however, very sensitive to the form of the objective function. This becomes the key factor in the regression.

It should be noted that regression of all binary data can give distinctly different results from calculations from one data point. Hudson and Van Winkle (1970) point this out. Table 1 presents some of their data. This alone, however, does not cast doubt on the uniqueness of the Wilson parameter values.

Objective Functions

Ten objective functions (see Table 3) are evaluated in this study. Each is composed of some variable of interest in the prediction of multicomponent vapor-liquid equilibria. The objective function measures the residual error between the experimental value of that variable and the value calculated with the Wilson equation used to calculate the activity coefficients. The square of the residuals summed over all data points has been chosed to obtain a total error independent of the sign of the residual.

The first objective function measures the discrepancy, or residual, in the activity coefficient extrapolated to infinite dilution. An objection function of this type was found to be useful by Eckert (1971) and by Hankinson, et al. (1972). These investigators reported that results obtained using parameters regressed from the infinite dilution points were, in some cases, better than those obtained from regressing all the available binary data. The measurement of "better" in these studies was the deviation in vapor phase composition between experimentally derived and calculated values. In this study the natural log of the ratio of the binary activity coefficients was curve fit to an equation polynomial in liquid mole fraction. This procedure was chosen in lieu of merely fitting each activity coefficient independently to a function of liquid mole fraction because the activity coefficients are not independent of each other. A function quadratic in liquid mole fraction was chosen because it

TABLE 3

OBJECTIVE FUNCTIONS

MODEL 1 $$Q = (\gamma^{\infty}_{1,exp} - \gamma^{\infty}_{1,calc})^2 + (\gamma^{\infty}_{2,exp} - \gamma^{\infty}_{2,calc})^2$$

MODEL 2 $$Q = \sum_{i=1}^{n} (g^{E}_{exp} - g^{E}_{calc})^2_i \; / \; RT$$

MODEL 3 $$Q = \sum_{i=1}^{n} \left[(\gamma_{1,exp} - \gamma_{1,calc})^2_i + (\gamma_{2,exp} - \gamma_{2,calc})^2_i \right]$$

MODEL 4 $$Q = \sum_{i=1}^{n} \left(\frac{\gamma_{1,exp} - \gamma_{1,calc}}{\gamma_{i,exp}} \right)^2_i + \left(\frac{\gamma_{2,exp} - \gamma_{2,calc}}{\gamma_{2,exp}} \right)^2_i$$

MODEL 5 $$Q = \sum_{i=1}^{n} \left[(y_{1,exp} - y_{1,calc})^2_i + (y_{2,exp} - y_{2,calc})^2_i + \left(\frac{P_{exp} - P_{calc}}{P_{exp}} \right)^2_i \right]$$

MODEL 6,7 $$Q = \sum_{i=1}^{n} \left[(y_{1,exp} - y_{1,calc})^2_i + (y_{2,exp} - y_{2,calc})^2_i \right]$$

MODEL 8,9 $$Q = \sum_{i=1}^{n} \left(\frac{P_{exp} - P_{calc}}{P_{exp}} \right)^2_i$$

MODEL 10 $$Q = \frac{1}{W_1} \sum_{i=1}^{n} (\gamma_{1,exp} - \gamma_{1,calc})^2_i + \frac{1}{W_2} \sum_{i=1}^{n} (\gamma_{2,exp} - \gamma_{2,calc})^2_i$$

$$W_1 = \sum_{i=1}^{n} (\gamma_{1,exp} - 1)^2_i$$

$$W_2 = \sum_{i=1}^{n} (\gamma_{2,exp} - 1)^2_i$$

adequately fit the data. Additional terms require data of greater precision than that normally available. This function was then extrapolated to obtain a pair of infinite dilution activity coefficients.

Model two measures the residuals in the excess Gibbs free energy. Nagahama, et al. (1971) reported good results with this model. While binary data can be fit well with this model, only limited information is available on its extension to multicomponent systems.

Models three and four measure the absolute and relative errors, respectively, directly in the activity coefficient. These are common procedures in various types of regression analysis. As such, both are worthy of consideration. In addition to these two, model ten also measures the absolute error in the activity coefficients. The error terms are, however, weighted by a pair of factors reflecting the deviation of the experiment activity coefficients from unity. Unless the weighting factor term is the same for both components, use of this model has the effect of skewing the search in the three-space defined by the Wilson parameters and the objective function relative to that of model three. This method was used by Hudson and Van Winkle (1970).

The remaining five models, on the other hand, measure errors in derived variables. Brief logic diagrams are included here to

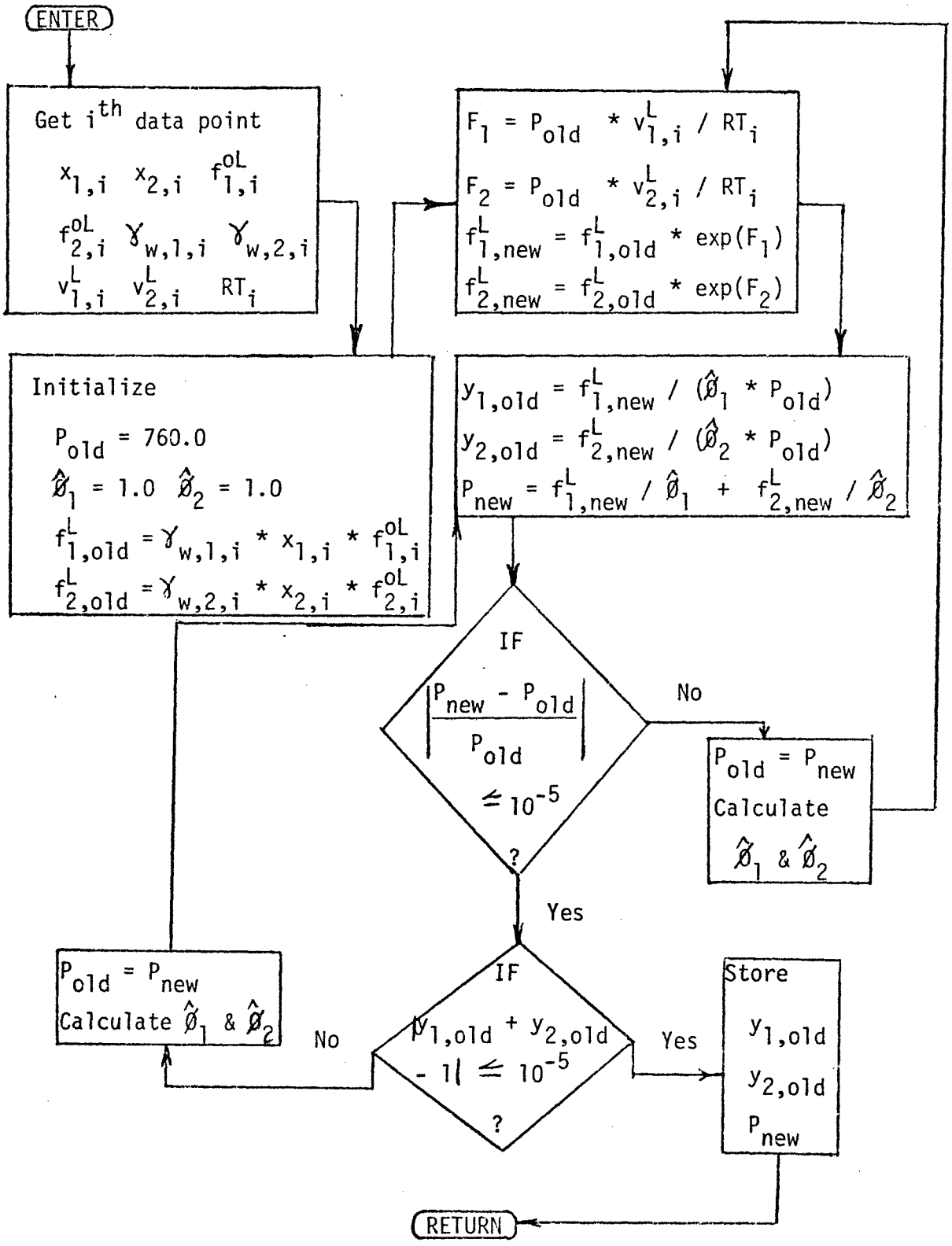
aid the reader in understanding the algorithms involved.

The residuals in both vapor phase composition and total pressure are measured simultaneously by model five. The relative error in pressure is used to obtain values for the error term on the same order of magnitude as those for the composition error terms. On each pass of the regression routine a particular set of parameter values are obtained. These are used (subroutine FN) to calculate the activity coefficients from the Wilson equation at each of the data points of the binary system (i.e., at each x and T value). This information is used in a bubble point pressure calculation (subroutine YPCALC) to obtain corresponding calculated values of system pressure and vapor phase composition. The logic diagram for this is shown in Figure 1. Convergence of the calculation is accepted when the system pressure does not change from pass to pass and at the same time the sum of the vapor phase mole fractions is unity. This information is returned to subroutine FN where the objective function for model five is calculated and used to direct further search by the regression algorithm.

Models six and seven are formally the same in that both measure the residuals in the calculated vapor phase composition. Model six uses the vapor composition calculated from the bubble point pressure calculation (subroutine YPCALC) just described. Model seven, however, uses a modification of this (subroutine YCALC) in which the

FIGURE 1

Subroutine YPCALC



pressure, as well as temperature and liquid composition, can be assumed known. Both models are used in the manner described above; namely, parameter estimates are used to calculate Wilson activity coefficients which are then combined with experimental data in a trial-and-error algorithm to obtain vapor composition from which to re-evaluate the objective function. The calculation is assumed converged when successive calculations result in no change in both of the vapor phase compositions (Figure 2). Additional comments on these objective functions will be presented at the end of section III.

Similarly, models eight and nine are formally the same. Each measures the relative error in total pressure. Model eight obtains the calculated pressure from the bubble point pressure calculation (subroutine YPCALC) already described. Note that while both vapor composition and pressure are calculated in this algorithm from the current Wilson parameter estimates, only the capability to fit the measured pressure is used to direct the search algorithm. Model nine, however, uses a modification of this (subroutine PCALC) in which vapor composition, as well as temperature and liquid composition, can be assumed known. The calculation is converged when successive passes through the algorithm do not produce a change in calculated pressure (Figure 3). Model eight has received wide exposure (e.g., Funk, 1970; Hudson, 1970) in recent years.

FIGURE 2

Subroutine YCALC

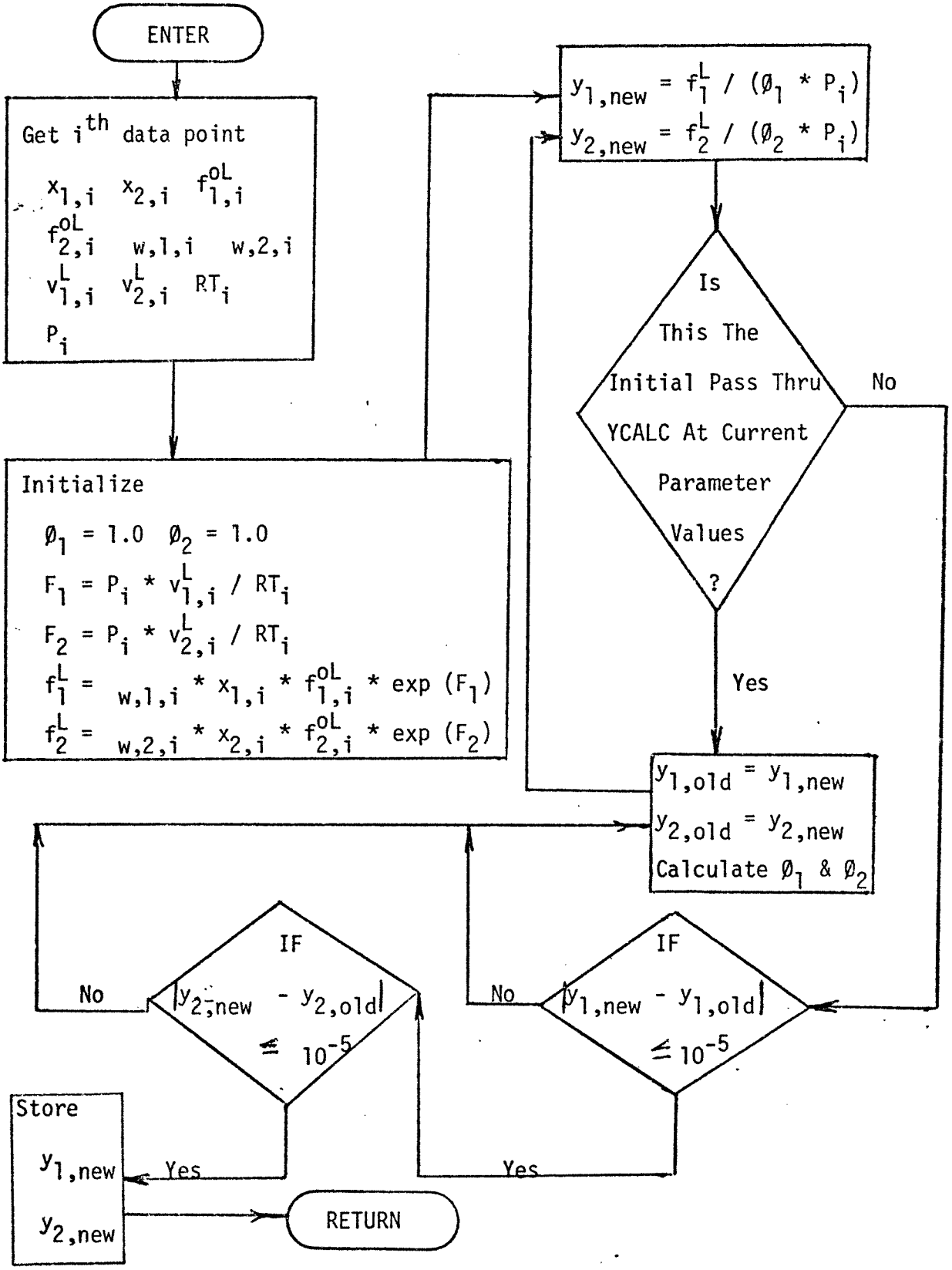
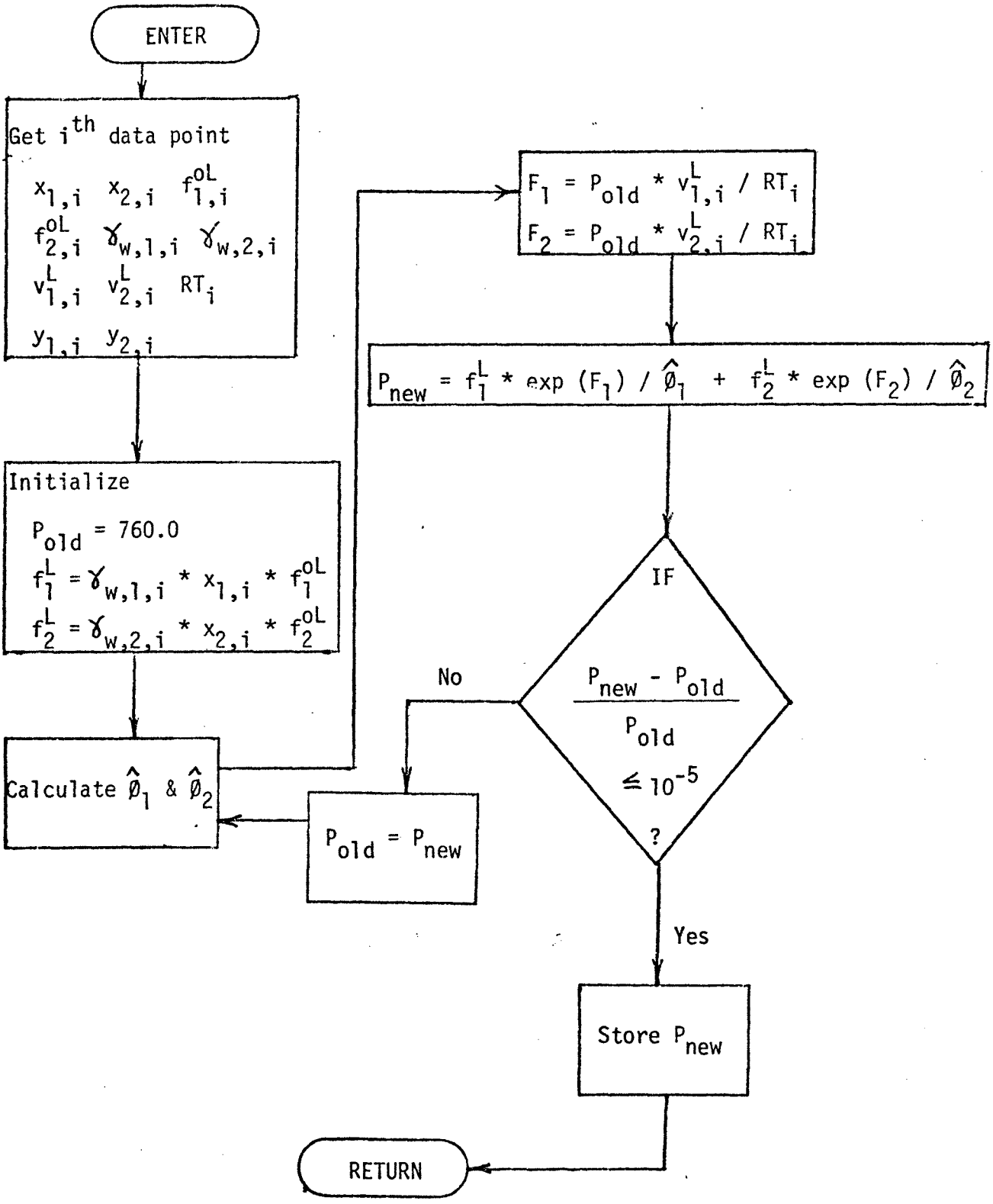


FIGURE 3

Subroutine PCALC



In each case the two Wilson parameters combine with the given objective function to define a three-space through which the regression program searches for the minimum valley height. The search is guided by values of the objective function returned by subroutine FN.

III. CORRELATION OF THE BINARY DATA

The Wilson energy parameters have been estimated for 247 binary systems (see Table 4), covering an extensive range of properties and conditions. The only restriction imposed upon the data set was that the pressure be near or below atmospheric pressure. The binary data sets have each been regressed against each of the objective functions described previously in this thesis. The effectiveness with which the resulting Wilson parameter values were able to correlate the binary vapor-liquid equilibrium data has been assessed by means of bubble point calculations.

Immediately upon examining the derived data, the reader will be concerned with the question of the uniqueness of the sets of Wilson parameter values that have been developed. Assuming for the moment that the parameter values are, indeed, unique, we will progress with a discussion of the results of the investigation. The anxious reader is reffered to Section IV where the conditions for, and consequences of, multiplicity are

explored. Where multiple sets of parameter values may be obtained, the set of parameter values utilized in the investigations to be reported below are those resulting from the recommended procedures in Section IV.

Wide Variation Observed In The Wilson Parameters

The spread in parameter estimates varied from system to system, some having little or no spread in values, and some having a dramatic variation in values. Typical results are shown in Table 5. On the average, a spread of several hundred calories/mole was observed. While this is large in an absolute sense, the exponential nature of the parameters tends to depress this change at normal temperatures. The true test of the significance of this observed variation in parameter values must lie in the prediction of the vapor composition in multicomponent systems.

Binary Results

A listing of the parameter values extracted from each binary data set appears in Table 6, indexed by system number and by model number. In the same fashion, Table 7 lists the minimum values obtained for each of the objective functions at the parameter values listed. The search for parameter values by the regression routine was essentially unconstrained. The only restriction

TABLE 4

BINARY SYSTEM IDENTIFICATION NUMBERS

Components (Volatility Inversion?) (1)	Conditions	System No.	Reference	ID No.
Acetic Acid-Ethylbenzene	725mm Hg	001	Bagga,1970	1
Acetic Acid-p-Xylene	725mm Hg	002	Bagga,1970	2
Acetone-Acetic Acid	760mm Hg	003	Chu,1950	3
Acetone-Acetonitrile	45°C	004	Hala,1968	4
Acetone-Benzene	760mm Hg	005	Chu,1956	5
Acetone-Carbon Tetrachloride	50°C	006	Severns,1955	6
Acetone-Chloroform	50°C	007A	Severns,1955	7
Acetone-Chloroform	55°C	007B	Kudryavtseva,1963	285
Acetone-Chloroform	760mm Hg	007C	Kudryavtseva,1963	286
Acetone-Ethanol	48°C	008A	Hala,1968	8
Acetone-Ethanol	760mm Hg	008B	Hala,1968	9
Acetone-Hexane	55°C	147	Kudryavtseva,1963	284
Acetone-2-Propanol	55°C	009A	Freshwater,1967	10
Acetone-2-Propanol	760mm Hg	009B	Freshwater,1967	11
Acetone-Methanol	50°C	010A	Severns,1955	12
Acetone-Methanol	55°C	010B	Freshwater,1967	13
Acetone-Methyl Acetate	50°C	011	Severns,1955	14

(1) See page 39.

TABLE 4 (Continued)

Components (Volatility Inversion?)	Components	No.	Reference	ID No.
Acetone-Methyl Ethyl Ketone	760mm Hg	012	Chu,1956	15
Acetone-Methyl Isobutyl Ketone	760mm Hg	013	Karr,1951	16
Acetone-Water	760mm Hg	014	Chu,1956	17
Acetonitrile-Water	150mm Hg	015A	Othmer,1947	18
Acetonitrile-Water	300mm Hg	015B	Othmer,1947	19
Acetonitrile-Water	760mm Hg	015C	Othmer,1947	20
Acetonitrile-Water	760mm Hg	015D	Maslan,1956	21
Acetonitrile-Water	760mm Hg	015E	Hala,1968	22
Acrylonitrile-Acetonitrile	760mm Hg	016	Blackford,1965	23
Acrylonitrile-Water	25°C	134A	Chu,1956	222
Acrylonitrile-Water	40°C	134B	Chu,1956	223
Allyl Alcohol-Water	760mm Hg	017	Grabner,1965	24
Benzene-Acetic Acid	758mm Hg	136	Othmer,1928	225
Benzene-Chlorobenzene	70°C	135	Chu,1956	224
Benzene-Cyclohexane	40°C	018A	Hala,1968	25

TABLE 4 (cont.)

Components (Volatility Inversion?)	Conditions	System No.	Reference	ID No.
Benzene-Cyclohexane	70°C	018B	Hala,1968	26
Benzene-Cyclohexane	70°C	018C	Susarev,1963	232
Benzene-Cyclohexane	760mm Hg	018D	Ridgway,1967	27
Benzene-Cyclohexane	760mm Hg	018E	Nagata,1962	28
Benzene-Ethanol (Yes)	25°C	019A	Smith,1970	29
Benzene-Ethanol (Yes)	760mm Hg	019B	Landwehr,1958	30
Benzene-Furfural	760mm Hg	020	Chu,1956	31
Benzene-Heptane	80°C	021A	Hala,1968	32
Benzene-Heptane	180mm Hg	021B	Nielsen,1959	33
Benzene-Heptane	400mm Hg	021C	Nielsen,1959	34
Benzene-Heptane	760mm Hg	021D	Michishita,1971	35
Benzene-Hexane (Yes)	760mm Hg	022	Ridgway,1967	36
Benzene-Hexylenegylcol	400mm Hg	023	Stephenson,1962	37
Benzene-Methylcellosolve	760mm Hg	024	Chu,1956	38
Benzene-Methylcyclohexane	760mm Hg	140	Myers,1956	229
Benzene-2-propanol	50°C	025A	Zharov,1965	233
Benzene-2-Propanol	760mm Hg	025B	Nagata,1965	39

TABLE 4 (continued)

Components (Volatility Inversion?)	Conditions	System No.	Reference	ID No.
Benzene-2-Propanol	760mm Hg	025C	Zharov,1965	234
Benzene-Toluene	760mm Hg	026	Michishita,1971	40
Benzene-p-Xylene	760mm Hg	027	Michishita,1971	41
1-Butanol-Benzene (Yes)	760mm Hg	028	Mann,1963	42
1-Butanol-Toluene (Yes)	760mm Hg	029	Mann,1963	43
Carbon Tetrachloride-Benzene	40°C	030A	Hala,1968	44
Carbon Tetrachloride-Benzene	40°C	030B	Chu,1950	45
Carbon Tetrachloride-Benzene	70°C	030C	Chu,1950	46
Carbon Tetrachloride-Benzene	760mm Hg	030D	Chu,1950	47
Carbon Tetrachloride-Cyclohexane	760mm Hg	031	Lu,1963	48
Carbon Tetrachloride-2-Propanol	70°C	032A	Hala,1968	49
Carbon Tetrachloride-2-Propanol	760mm Hg	032B	Nagata,1965	50
Cellosolve-Hexane (Yes)	760mm Hg	033	Suryanarayana,1966	51
Cellosolve-1-Hexene (Yes)	760mm Hg	034	Suryanarayana,1966	52
Chloroform-Benzene	50°C	035A	Nagata,1970	53
Chloroform-Benzene	760mm Hg	035B	Nagata,1962	54
Chloroform-Ethyl Acetate	760mm Hg	036	Hala,1968	55
Chloroform-Hexane	55°C	146	Kudryavtseva,1963	283

TABLE 4 (continued)

Components (Volatility Inversion?)	Conditions	System No.	Reference	ID No.
Chloroform-Methanol	50°C	037A	Severns,1955	56
Chloroform-Methanol	760mm Hg	037B	Hala,1968	57
Chloroform-Methyl Isobutyl Ketone	760mm Hg	038	Karr,1951	58
Cyclohexane-Cyclohexene	760mm Hg	039	Mesnage,1971	59
Cyclohexane-1,2-Dichloroethane	760mm Hg	040	Mesnage,1971	60
Cyclohexane-Furfural	760mm Hg	041	Chu,1956	61
Cyclohexane-Hexane (Yes)	70°C	042A	Susarev,1963	235
Cyclohexane-Hexane (Yes)	760mm Hg	042B	Ridgway,1967	62
Cyclohexane-Methylcellosolve	760mm Hg	043	Chu,1956	63
Cyclohexane-Methyl Ethyl Ketone(Yes)	760mm Hg	148	Donald,1956	288
Cyclohexane-2-Propanol	500mm Hg	044A	Nagata,1965	64
Cyclohexane-2-Propanol	760mm Hg	044B	Lu,1963	65
Cyclohexane-Toluene	760mm Hg	139	Myers,1956	228
Cyclohexene-1,2-Dichloroethane	760mm Hg	045	Mesnage,1971	66
Decane-1-Butanol (Yes)	100°C	046	Lee,1967	67
2,3-Dimethylbutane-Acetone (Yes)	760mm Hg	047	Willock,1970	68
2,3-Dimethylbutane-Chloroform	760mm Hg	048	Willock,1970	69
2,3-Dimethylbutane-Methanol	760mm Hg	049	Willock,1970	70
2,4-Dimethylpentane-Benzene (Yes)	400mm Hg	050	Stephenson,1962	71

TABLE 4 (continued)

Components (Volatility Inversion?)	Conditions	System No.	Reference	ID No.
2,4-Dimethylpentane-Hexylene Glycol	400mm Hg	051	Stephenson,1962	72
1,4-Dioxane-Ethanol (Yes)	760mm Hg	052	Hopkins,1939	73
1,4-Dioxane-Hexane (Yes)	760mm Hg	053	Suryanarayana,1966	74
1,4-Dioxane-1-Hexene (Yes)	760mm Hg	054	Suryanarayana,1966	75
Ethanol-Benzene	40°C	055A	Hala,1968	76
Ethanol-Benzene	50°C	055B	Hala,1968	77
Ethanol-Benzene	60°C	055C	Hala,1968	78
Ethanol-Benzene	180mm Hg	055D	Nielsen,1959	79
Ethanol-Benzene	400mm Hg	055E	Nielsen,1959	80
Ethanol-Ethyl Acetate (Yes)	40°C	056A	Murti,1958	81
Ethanol-Ethyl Acetate (Yes)	40°C	056B	Mertl,1972	82
Ethanol-Ethyl Acetate (Yes)	55°C	056C	Mertl,1972	83
Ethanol-Ethyl Acetate (Yes)	60°C	056D	Murti,1958	84
Ethanol-Ethyl Acetate (Yes)	70°C	056E	Mertl,1972	85
Ethanol-Ethyl Acetate (Yes)	760mm Hg	056F	Murti,1958	86
Ethanol-Chloroform (Yes)	55°C	145	Scatchard,1938	281
Ethanol-Heptane	30°C	057A	Chu,1956	87
Ethanol-Heptane	760mm Hg	057B	Van Ness, 1967	88
Ethanol-Hexane (Yes)	25°C	058A	Smith,1970	89
Ethanol-Hexane (Yes)	55°C	058B	Kudryavtseva,1963	282

TABLE 4 (continued)

Components (Volatility Inversion?)	Conditions	System No.	Reference	ID No.
Ethanol-Hexane (Yes)	760mm Hg	058C	Sinor,1960	90
Ethanol-Methylcyclopentane (Yes)	760mm Hg	059	Sinor,1960	91
Ethanol-Propanol	760mm Hg	060	Ochi,1969	92
Ethanol-2-Propanol	760mm Hg	061	Kojima,1968	93
Ethanol-Toluene	30°C	062A	Van Ness,1967	94
Ethanol-Toluene	45°C	062B	Van Ness,1967	95
Ethanol-Toluene	60°C	062C	Van Ness,1967	96
Ethanol-Water	40°C	063A	Hala,1968	97
Ethanol-Water	40°C	063B	Mertl,1972	98
Ethanol-Water	50°C	063C	Hala,1968	99
Ethanol-Water	55°C	063D	Mertl,1972	100
Ethanol-Water	60°C	063E	Hala,1968	101
Ethanol-Water	70°C	063F	Mertl,1972	102
Ethanol-Water	760mm Hg	063G	Hala,1968	103
Ethanol-Water	760mm Hg	063H	Kojima,1968	104
Ethyl Acetate-Benzene	760mm Hg	064	Carr,1962	105
Ethyl Acetate-Toluene	760mm Hg	065	Carr,1962	106
Ethyl Acetate-p-Xylene	760mm Hg	066	Carr,1962	107
Ethyl Acetate-Water	40°C	067A	Mertl,1972	108

TABLE 4 (Continued)

Components (Volatility Inversion?)	Conditions	System No.	Reference	ID No.
Ethyl Acetate-Water	55°C	067B	Mertl,1972	109
Ethyl Acetate-Water	70°C	067C	Mertl, 1972	110
Ethyl Acetate-Water	760mm Hg	067D	Chu,1956	111
Ethylbenzene-Furfural	723mm Hg	068	Puri,1970	112
Ethyl Ether-Ethanol	40°C	069A	Hala,1968	113
Ethyl Ether-Ethanol	50°C	069B	Hala,1968	114
Heptane-Aniline	742mm Hg	070	Chu,1956	115
Heptane-1-Butanol	684mm Hg	071	Vijayaraghavan,1966	116
Heptane-Toluene	760mm Hg	072A	Hala,1968	117
Heptane-Toluene	760mm Hg	072B	Michishita,1971	118
Heptane-p-Xylene	760mm Hg	073	Michishita,1971	119
Hexane-Benzene	25°C	074A	Smith,1970	120
Hexane-Benzene	70°C	074B	Susarev,1963	236
Hexane-Benzene	760mm Hg	074C	Prabhu,1963	121
Hexane-Benzene	760mm Hg	074D	Michishita,1971	122
Hexane-Chlorobenzene	65°C	075A	Chu,1956	123
Hexane-Chlorobenzene	759.8mm Hg	075B	Chu,1956	124

TABLE 4 (Continued)

Components (Volatility Inversion?)	Conditions	System No.	Reference	ID No.
Hexane-1-Hexene (Yes)	760mm Hg	076	Suryanarayana,1966	125
Hexane-p-Xylene	760mm Hg	077	Michishita,1971	126
Hexane-Toluene	760mm Hg	078A	Michishita,1971	127
Hexane-Toluene	760mm Hg	078B	Chu,1956	128
Isononane-Phenol	760mm Hg	079	Drickamer,1945	129
Iso-octanc-Methylcyclohexane	741mm Hg	080	Hala,1968	130
Iso-octane-Phenol	760mm Hg	081	Drickamer,1945	131
Iso-octane-Toluene	100°C	082	Ramalho,1968	132
Isopropylether-Water	760mm Hg	133	Yorizane,1967	221
Methanol-Benzene	35°C	083A	Hala,1968	133
Methanol-Benzene	55°C	083B	Hala,1968	134
Methanol-Benzene	760mm Hg	083C	Hudson,1969	135
Methanol-Carbon Tetrachloride	35°C	084 A	Hala,1968	136
Methanol-Carbon Tetrachloride	55°C	084B	Hala,1968	137
Methanol-1,4-Dioxane	760mm Hg	141	Padgitt,1942	230
Methanol-Ethanol	760mm Hg	085	Hala,1968	138
Methanol-Ethyl Acetate	40°C	086A	Murti,1958	139
Methanol-Ethyl Acetate	50°C	086B	Murti,1958	140

TABLE 4 (Continued)

Components (Volatility Inversion?)	Conditions	System No.	Reference	ID No.
Methanol-Ethyl Acetate	60°C	086C	Murti,1958	141
Methanol-Ethyl Acetate	730mm Hg	086D	Nakanishi,1967	142
Methanol-Ethyl Acetate	760mm Hg	086E	Murti,1958	143
Methanol-Ethyl Acetate	760mm Hg	086F	Akita,1963	144
Methanol-Ethyl Acetate	760mm Hg	086G	Hala,1968	145
Methanol-Heptane	760mm Hg	087	Hala,1968	146
Methanol-Hexane	45°C	088	Hala,1968	147
Methanol-Isoprene (Yes)	745mm Hg	089	Hala,1968	148
Methanol-Isopropylether	730mm Hg	090	Nakanishi,1967	149
Methanol-Methyl Ethyl Ketone	760mm Hg	091	Privott,1966	150
Methanol-2-Methylpentane (Yes)	745mm Hg	092	Hala,1968	151
Methanol-3-Methylpentane (Yes)	745mm Hg	093	Hala,1968	152
Methanol-1-Propanol	760mm Hg	094	Ochi,1969	153
Methanol-2-Propanol	55°C	095A	Freshwater,1967	154
Methanol-2-Propanol	760mm Hg	095B	Ochi,1969	155
Methanol-Toluene	760mm Hg	096	Burke,1964	156
Methanol-Water	760mm Hg	097	Hala,1968	157

TABLE 4 (Continued)

Components (Volatility Inversion?)	Conditions	System No.	Reference	ID No.
Methyl Acetate-Benzene	25°C	093A	Chu,1950	158
Methyl Acetate-Benzene	35°C	098B	Chu,1950	159
Methyl Acetate-Benzene	50°C	098C	Nagata,1970	160
Methyl Acetate-Benzene	760mm Hg	098D	Hudson,1969	161
Methyl Acetate-Benzene	760mm Hg	098E	Nagata,1962	162
Methyl Acetate-Chloroform	50°C	099A	Nagata,1970	163
Methyl Acetate-Chloroform	760mm Hg	099B	Nagata,1962	164
Methyl Acetate-Cyclohexane	760mm Hg	100	Nagata,1962	165
Methyl Acetate-Methanol	50°C	101	Severns,1955	166
Methyl Ethyl Ketone-Benzene	50°C	143A	Zharov,1965	237
Methyl Ethyl Ketone-Benzene	760mm Hg	143B	Zharov,1965	238
Methyl Ethyl Ketone-Heptane	760mm Hg	102	Chu,1950	167
Methyl Ethyl Ketone-2-Propanol	50°C	144A	Zharov,1965	239
Methyl Ethyl Ketone-2-Propanol	760mm Hg	144B	Zharov,1965	240
Methyl Ethyl Ketone-Toluene	760mm Hg	103	Chu,1950	168
Methyl Ethyl Ketone-Water	760mm Hg	104	Chu,1956	169
Methylcyclohexane-1-Butanol	760mm Hg	105	Raju,1969	170
Methylcyclohexane-Phenol	760mm Hg	106	Drickamer,1945	171

TABLE 4 (Continued)

Components (Volatility Inversion?)	Conditions	System No.	Reference	ID No.
Methylcyclohexane-Toluene	100°C	107	Hala,1968	172
Methylcyclopentane-Benzene	760mm Hg	108	Myers,1956	173
Methylcyclopentane-Cyclohexane	760mm Hg	137	Weatherford,1970	226
Methylcyclopentane-Hexane (Yes)	760mm Hg	109	Myers,1956	174
Methylcyclopentane-Toluene	760mm Hg	138	Myers,1956	227
3-Methylpyridene-Water	89.8°C	142	Tassios,1974	231
Octane-Ethylcyclohexane	50mm Hg	110A	Prabhu,1964	175
Octane-Ethylcyclohexane	100mm Hg	110B	Prabhu,1964	176
Octane-Ethylcyclohexane	400mm Hg	110C	Prabhu,1964	177
Octane-Ethylcyclohexane	500mm Hg	110D	Prabhu,1964	178
Octane-Ethylcyclohexane	760mm Hg	110E	Prabhu,1964	179
1-Propanol-Ethyl Acetate (Yes)	40°C	111A	Murti,1958	180
1-Propanol-Ethyl Acetate (Yes)	60°C	111B	Murti,1958	181
1-Propanol-Ethyl Acetate (Yes)	760mm Hg	111C	Murti,1958	182
1-Propanol-Heptane	30°C	112A	Van Ness,1967	183
1-Propanol-Heptane	45°C	112B	Van Ness,1967	184
1-Propanol-Heptane	60°C	112C	Van Ness,1967	185
1-Propanol-Heptane (Yes)	75°C	112D	Lee,1967	186
1-Propanol-Heptane	760mm Hg	112E	Gurukul,1966	187

TABLE 4 (Continued)

Components (Volatility Inversion?)	Conditions	System No.	Reference	ID No.
1-Propanol-Methylcyclohexane	760mm Hg	113	Raju,1969	188
1-Propanol-Water	40°C	114A	Murti,1958	189
1-Propanol-Water	60°C	114B	Murti,1958	190
1-Propanol-Water	760mm Hg	114C	Murti,1958	191
2-Propanol-Carbon Tetrachloride (Yes)	760mm Hg	115	Lu,1963	192
2-Propanol-Ethyl Acetate (Yes)	40°C	116A	Murti,1958	193
2-Propanol-Ethyl Acetate (Yes)	60°C	116B	Murti,1958	194
2-Propanol-Ethyl Acetate (Yes)	760mm Hg	116C	Murti,1958	195
2-Propanol-Heptane	30°C	117A	Van Ness,1967	196
2-Propanol-Heptane	45°C	117B	Van Ness,1967	197
2-Propanol-Heptane	60°C	117C	Van Ness,1967	198
2-Propanol-Isopropylether (Yes)	760mm Hg	118	Vorizane,1967	199
2-Propanol-Methylcyclohexane	500mm Hg	119	Nagata,1965	200
2-Propanol-Water	760mm Hg	120A	Yorizane,1967	201
2-Propanol-Water	760mm Hg	120B	Kojima,1968	202
Tetrahydrofuran-Dimethylformamide	760mm Hg	121	Shah,1970	203
Tetrahydrofuran-Water	50°C	122	Tassios,1974	204
Toluene-Ethanol (Yes)	756mm Hg	123	Landwehr,1958	205
Toluene-Isoamyl Alcohol	80°C	124A	Reddy,1965	206

TABLE 4 (continued)

Components (Volatility Inversion?)	Conditions	System No.	Reference	ID No.
Toluene-Isoamyl Alcohol	107°C	124B	Reddy, 1965	207
Toluene-Octane	760mm Hg	125	Michishita, 1971	208
Toluene-Phenol	760mm Hg	126	Drickamer, 1945	209
1,2,3-Trichloropropane-Hexane (Yes)	760mm Hg	127	Suryanarayana, 1966	210
1,2,3-Trichloropropane-Hexene (yes)	760mm Hg	128	Suryanarayana, 1966	211
Vinyl Acetate-2,4-Dimethylpentane	760mm Hg	129	Swamy, 1965	212
Water-Acetic Acid	125mm Hg	130A	Gilmont, 1944	213
Water-Acetic Acid	250mm Hg	130B	Gilmont, 1944	214
Water-Acetic Acid	500mm Hg	130C	Gilmont, 1944	215
Water-Acetic Acid	760mm Hg	130D	Gilmont, 1944	216
Water-Acetic Acid	760mm Hg	130E	Chu, 1950	217
Water-Acetic Acid	760mm Hg	130F	Hala, 1968	218
Water-1,4-Dioxane	25°C	131	Chu, 1956	219
p-Xylene-Furfural	723mm Hg	132	Puri, 1970	220

Note (1): Before utilizing the binary data, the components were checked to ensure that component 1 was the more volatile of the two. If this was not the case, the data was sorted to make it so. A "yes" answer to the "volatility inversion?" question adjacent to the component names in Table 4 indicates that such sorting was done. In such case, the second component identified is component 1 in the binary output.

TABLE 5

TYPICAL VARIATION IN WILSON PARAMETERS

MODEL	ACETONE-ACETONITRILE		ACETONE-CHLOROFORM		HEXANE-BENZENE		HEPTANE-TOLUENE	
NO.	$\lambda_{12}-\lambda_{11}$	$\lambda_{12}-\lambda_{22}$	$\lambda_{12}-\lambda_{11}$	$\lambda_{12}-\lambda_{22}$	$\lambda_{12}-\lambda_{11}$	$\lambda_{12}-\lambda_{22}$	$\lambda_{12}-\lambda_{11}$	$\lambda_{12}-\lambda_{22}$
1	-86.42	124.13	-34.11	-374.41	221.94	131.40	126.12	135.35
2	43.67	24.98	31.94	-424.48	162.80	194.06	-19.35	255.12
3	1.59	55.41	-12.91	-394.61	243.56	131.66	66.92	185.15
4	21.42	40.55	-34.41	-376.35	253.80	125.96	51.02	197.14
5	274.60	-118.24	58.35	-448.15	242.44	135.68	-21.01	257.80
6	302.91	-133.20	74.45	-460.00	297.03	104.63	-37.33	271.32
7	315.67	-140.89	31.28	-456.54	338.67	75.78	-37.93	272.15
8	227.50	-92.97	87.15	-464.36	97.59	232.53	8.23	233.68

TABLE 6

PARAMETER SUMMARY
****

ID NO.	MODEL NUMBER 1		2		3		4		5	
001	698.82	351.35	1461.84	-164.23	796.23	372.19	796.39	336.87	868.35	304.26
002	1937.03	-458.01	643.57	354.55	2630.35	-600.42	1120.47	-114.27	903.01	140.37
003	-643.45	82.33	6383.52	-552.08	-36.42	-195.33	-117.77	-191.79	232.01	-265.19
004	82.75	-3.40	-511.75	670.00	-47.67	98.81	-43.42	95.28	7.67	56.64
005	486.67	-121.64	-266.07	684.28	560.56	-224.46	551.60	-224.12	392.19	-189.55
006	975.10	-326.02	774.58	-152.43	953.46	-292.03	946.79	-289.62	899.84	-239.97
007A	-52.71	-359.16	122.81	-479.71	-2.08	-399.43	-34.57	-372.87	123.21	-485.15
007B	24.34	-457.66	55.79	-425.86	36.13	-451.30	20.51	-444.20	76.31	-449.27
007C	-81.41	-298.95	27.88	-366.72	-13.40	-349.72	-54.45	-314.83	72.68	-409.69
008A	350.45	112.43	169.73	346.15	254.11	221.30	244.62	230.70	94.48	402.74
008B	184.02	270.26	92.27	438.42	139.04	317.06	204.25	258.96	198.54	260.44
009A	282.33	131.22	1577.75	-245.22	332.90	143.76	359.84	124.74	365.73	184.71
009B	151.74	243.67	480.87	103.64	164.89	276.67	156.71	293.28	51.65	511.62
010A	-9.09	457.59	-224.80	662.70	-21.83	481.55	-43.17	496.24	-207.74	653.12
010B	-181.80	629.03	-214.48	687.47	-192.53	652.11	-190.53	648.36	-196.55	669.53
011	411.18	-251.49	-241.42	458.65	396.56	-237.64	367.45	-222.95	-260.06	487.20
012	-237.87	470.66	-411.51	1027.51	-221.18	464.65	-234.39	487.13	-206.11	443.73
13	-67.63	301.69	1335.07	-753.92	140.92	14.45	145.69	2.05	67.62	178.92
014	673.05	1085.08	781.73	1445.58	792.58	1223.55	526.94	1440.16	425.21	1567.86
015A	210.85	1487.92	484.46	1658.63	321.34	1500.48	324.43	1500.80	352.26	1663.76
015B	177.94	1824.68	-41.96	1808.84	188.43	1987.08	130.49	1977.10	403.32	1728.36
015C	1159.99	1287.26	362.02	1454.23	2677.78	659.67	1383.38	1369.01	1354.18	1248.46
015D	330.05	1468.51	944.75	1267.71	417.57	1577.85	470.20	1515.84	623.34	1403.58
015E	277.52	1308.71	779.54	1329.58	609.37	1390.80	470.55	1457.51	554.80	1442.85
016	13.30	79.39	330.26	-137.10	-464.55	699.43	-326.55	463.82	728.09	-318.51
017	571.42	1025.13	632.28	1041.39	705.57	1056.99	630.56	1109.98	607.86	1110.31
018A	172.25	119.03	201.60	105.29	186.82	111.12	193.44	103.84	209.94	90.50
018B	120.13	148.28	181.57	82.72	137.47	132.62	154.82	111.10	211.46	47.87
018C	154.18	172.68	54.56	205.33	112.18	198.55	92.56	220.51	56.56	230.78
018D	45.86	219.56	217.22	26.43	100.46	154.99	110.74	142.30	180.53	65.19
018E	211.35	50.83	121.41	152.02	182.76	81.47	183.39	80.31	164.33	100.55
019A	107.69	1228.11	194.23	1550.85	171.47	1638.01	183.50	1595.84	180.95	1588.74
019B	729.69	615.03	851.57	752.74	768.33	678.91	798.17	673.45	792.74	730.04
020	556.98	38.31	-121.01	467.07	393.41	95.79	331.05	134.42	321.07	165.93
021A	177.77	155.83	185.06	178.34	164.48	206.33	171.43	193.43	191.34	159.74
021B	362.77	52.46	339.50	69.66	342.79	81.47	324.44	105.83	328.31	103.69
021C	305.00	60.59	217.74	190.22	263.40	129.23	236.96	170.45	218.24	211.43
021D	165.65	169.50	153.34	234.36	177.42	179.86	174.00	185.61	145.21	242.08
022	210.60	129.05	277.70	43.75	215.04	130.26	220.14	122.23	266.44	54.99
023	671.25	457.01	2517.36	599.60	694.35	331.57	736.69	273.38	610.06	503.80
024	-103.70	1136.93	-53.00	1480.86	-128.29	1513.66	-114.42	1493.21	-145.23	1719.58
025A	293.62	753.80	668.60	847.89	366.99	905.48	504.70	749.99	447.44	850.28
025B	177.67	1083.03	260.13	1078.26	218.16	1171.72	226.64	1137.16	244.00	1067.45
025C	218.50	825.20	126.74	1120.47	210.25	935.97	173.08	1009.70	156.38	1056.98
026	-365.94	632.80	-314.13	458.00	-382.44	680.49	-377.68	666.15	-88.20	97.90

ID NO.	MODEL NUMBER 1		2		3		4		5	
027	394.84	-391.12	-142.87	267.20	65.42	-58.11	64.98	-58.21	33.90	-20.57
028	188.24	754.62	-6.14	1201.08	200.87	792.03	174.88	830.25	109.94	1008.75
029	1044.71	-100.63	-102.85	10270.91	589.05	310.85	-182.04	1417.12	-146.28	8669.14
030A	-112.53	190.26	141.36	-49.87	-157.67	210.81	-153.88	206.82	115.92	-22.59
030B	-320.61	408.82	41.59	64.25	-107.14	184.24	-90.49	169.83	38.62	67.27
030C	-404.99	485.23	-106.95	200.91	-246.78	319.98	-234.29	308.59	-120.33	211.77
030D	-239.82	314.68	-52.78	154.83	-65.00	170.91	-65.66	171.18	-86.88	181.38
031	1178.33	-473.34	-28.10	124.17	901.23	-312.10	844.45	-298.45	381.91	-134.90
032A	-284.70	1442.26	-116.39	1661.94	-136.97	1416.68	-140.47	1431.11	-152.59	1558.33
032B	-288.63	1506.89	-99.54	1467.24	-203.90	1532.65	-203.32	1539.07	-186.60	1550.99
033	963.02	469.33	1000.94	1685.33	1154.93	559.26	1238.53	559.28	1722.38	391.00
034	550.83	453.98	555.97	2932.14	674.52	474.31	699.46	489.24	1359.25	190.52
035A	-437.53	437.63	-544.00	830.90	-420.98	421.50	-437.83	437.89	-599.15	1071.23
035B	-344.67	363.73	-598.22	1104.06	-224.22	166.73	-230.64	175.85	-29.27	-75.51
036	-449.25	95.03	-266.55	-206.87	-354.31	-98.96	-391.66	-50.97	-281.45	-186.31
037A	-554.70	1835.90	-410.14	1969.90	-478.36	2071.55	-481.58	2082.57	-403.48	1940.78
037B	-443.45	1578.07	-409.05	1904.05	-348.27	1676.05	-371.13	1701.03	-369.39	1762.70
038	-408.85	65.99	-562.84	829.38	-451.83	178.98	-486.55	213.73	-160.09	-256.32
039	-166.61	277.04	-401.45	585.12	198.01	-128.76	151.75	-92.05	-308.34	426.53
040	317.12	508.26	271.43	381.07	359.66	471.80	327.79	478.62	273.91	443.23
041	985.19	1250.34	812.43	1438.37	937.81	1580.54	890.28	1558.63	879.05	1405.31
042A	706.70	-378.57	-289.24	345.81	-383.22	493.69	-400.47	520.08	-402.76	519.33
042B	148.51	-93.50	4.69	35.96	-15.71	85.67	-21.04	91.83	-102.61	190.86
043	363.95	1750.21	950.63	2080.36	377.07	2544.62	399.49	2397.26	367.01	2204.11
044A	158.31	1348.20	493.74	1417.35	242.96	1562.80	266.16	1525.57	309.02	1502.41
044B	-114.47	1865.40	311.09	1593.69	-312.42	2854.03	42.25	2063.37	157.78	1761.25
045	-32.21	554.26	-101.02	428.87	-102.50	618.53	-50.10	532.08	18.94	372.15
046	469.02	1152.73	73.28	1529.06	1060.44	736.70	493.34	1188.36	-12.61	1921.01
047	134.62	973.59	370.29	958.58	226.54	963.13	246.12	958.13	288.79	966.97
048	-124.87	407.64	345.00	145.87	-11.07	329.85	34.10	296.13	256.07	175.48
049	236.49	2394.98	1005.34	2192.30	464.65	2767.24	484.99	2758.61	541.22	2726.51
050	294.99	187.52	-5.18	332.74	343.46	168.04	317.58	176.92	164.02	231.05
051	22955.66	-2764.54	5830.41	9316.68	220.35	2983.08	229.91	2504.69	216.75	3258.59
052	230.89	463.95	507.77	190.40	322.05	365.58	285.46	369.05	377.26	333.90
053	731.68	181.85	579.54	520.00	736.97	240.22	676.98	314.98	659.94	327.68
054	452.00	206.83	245.38	623.05	408.69	292.30	418.53	281.67	490.33	223.43
055A	1387.70	177.80	1649.35	128.35	1613.28	223.96	1613.76	206.68	1612.77	178.16
055B	1382.57	188.26	1496.43	158.72	1559.53	230.92	1563.43	219.08	1556.56	191.99
055C	1358.69	208.07	1435.87	134.04	1470.42	255.38	1488.70	233.14	1503.66	187.66
055D	1274.55	100.01	1553.97	195.82	1654.96	153.50	1578.46	180.06	1576.46	178.79
055E	1228.33	197.55	1440.16	176.66	1445.54	230.18	1440.15	218.57	1419.65	213.43
056A	731.82	-24.77	701.47	115.68	765.61	-12.90	768.72	-15.52	768.09	6.79
056B	16.80	703.97	156.69	606.75	23.29	712.56	31.74	704.93	86.40	657.49
056C	77.81	617.37	107.15	595.65	85.54	621.91	86.29	619.56	104.61	597.50
056D	854.45	-162.81	607.44	36.18	905.66	-180.99	865.34	-168.52	728.98	-80.22

ID NO.	MODEL NUMBER 1		2		3		4		5	
056E	16.27	636.79	112.64	540.33	29.04	631.24	38.14	617.49	63.69	584.98
056F	854.69	-190.68	597.83	-30.84	849.00	-186.09	817.71	-172.11	698.50	-107.28
057A	1528.03	178.35	1840.93	628.99	2001.63	273.11	2017.27	282.46	1938.08	387.48
057B	1897.85	263.58	2049.37	368.73	1929.45	445.99	1941.02	432.10	1994.33	397.25
058A	237.93	1427.32	408.23	2120.03	397.11	2034.51	395.89	2065.63	388.25	2119.58
058B	204.94	1658.59	201.33	2190.91	342.70	2327.07	299.85	2398.59	337.78	2210.09
058C	1884.24	218.99	2035.82	427.13	2079.09	340.19	2094.66	330.23	2156.88	334.99
059	1927.56	66.07	2372.61	282.16	2160.42	166.03	2167.99	178.16	2178.04	250.22
060	-246.50	492.93	249.48	-193.74	-179.44	383.00	-188.98	399.03	-169.08	363.68
061	-494.92	1008.88	-10.49	29.93	-317.96	606.47	-318.83	602.55	-179.58	292.45
062A	1600.13	14.41	2329.25	129.33	1704.96	195.32	1703.80	199.50	1725.70	192.80
062B	1549.84	35.34	1803.89	137.86	1610.33	190.84	1612.63	187.23	1633.04	171.09
062C	1490.75	49.61	1575.91	149.34	1521.79	180.51	1524.26	176.15	1538.92	161.49
063A	119.11	755.67	706.77	813.18	-75.16	1006.69	20.96	925.60	116.88	880.71
063B	146.95	830.75	273.22	875.79	139.89	910.20	178.06	892.85	127.09	927.45
063C	66.00	849.25	999.19	819.13	45.73	945.17	104.40	920.30	166.89	915.64
063D	210.06	831.32	622.07	843.71	293.09	905.10	339.00	889.81	330.33	906.01
063E	163.26	809.81	1569.19	844.20	134.94	938.30	223.57	903.80	314.73	891.14
063F	231.45	860.09	710.10	875.23	423.51	909.02	469.89	898.73	438.44	921.88
063G	559.90	724.65	274.83	968.97	411.78	943.25	393.61	952.21	355.54	961.80
063H	313.33	908.17	573.99	896.98	252.67	1023.99	270.44	1001.27	410.09	958.37
064	124.52	-33.16	474.74	-294.14	270.54	-149.65	268.98	-148.95	337.99	-209.76
065	309.15	-137.10	94.48	32.80	403.81	-209.53	383.76	-196.72	28.09	132.08
066	692.69	-246.04	671.90	-293.07	774.00	-300.69	759.42	-298.03	509.43	-88.73
067A	86.64	1993.76	6795.95	1834.30	7821.40	-100.13	7788.11	-99.75	7749.03	-4.32
067B	202.46	1972.34	9186.32	1864.62	172.94	2112.55	171.79	2109.89	266.84	2110.88
067C	455.21	1760.00	-1269.81	2795.86	383.77	2045.65	343.41	2037.85	436.15	2067.47
067D	-2722.58	8098.94	1996.46	1972.05	4324.54	2008.22	4549.23	2005.41	6748.73	2004.21
068	33.78	828.28	-209.93	1521.34	34.20	886.05	56.50	867.07	-58.17	1138.38
069A	17.04	749.98	-446.12	4371.15	-11.64	886.75	-155.55	1066.32	-305.30	2132.01
069B	15.27	748.21	-487.67	2628.78	-15.86	871.29	-188.47	1069.76	-314.05	1848.00
070	835.67	1258.95	2030.77	1124.73	915.48	1496.25	1118.16	1350.52	1099.67	1229.71
071	285.26	1365.86	-41.96	2514.83	445.36	1411.83	260.63	1539.50	260.36	1762.26
072A	126.11	135.35	-19.48	255.25	67.07	185.00	50.51	197.48	-21.02	257.82
072B	68.99	166.93	151.69	135.91	59.38	182.13	66.34	177.13	129.90	141.01
073	5.73	181.29	201.42	71.23	99.21	108.19	132.98	80.47	255.72	-7.23
074A	399.73	89.50	304.53	212.06	392.77	141.85	375.35	151.05	320.07	193.93
074B	338.21	-7.81	522.83	-228.41	388.36	-72.63	453.93	-142.46	539.75	-224.20
074C	221.94	131.41	163.01	193.97	244.12	131.11	253.86	125.96	241.86	136.15
074D	48.13	287.18	173.82	166.72	81.49	251.02	113.00	226.74	207.29	151.33
075A	-137.13	599.03	1625.57	-52.19	140.08	380.72	252.82	288.54	120.99	371.47
075B	-329.81	766.78	11464.71	-125.73	34.67	448.53	102.83	374.79	155.39	342.44
076	364.99	-255.17	-149.35	224.23	66.09	-24.57	61.97	-21.31	-256.71	364.32
077	190.22	41.43	138.38	229.28	150.74	89.08	159.58	77.13	-148.33	369.56
078A	70.32	200.39	255.06	99.81	119.58	163.54	145.41	142.77	130.70	157.39

ID NO.	MODEL NUMBER 1		2		3		4		5	
078B	-82.36	344.84	-243.05	575.12	-47.41	318.69	-36.13	306.96	-136.88	408.27
079	-3304.53	3109.03	1997.32	152.38	9049.06	1282.96	9303.69	1283.67	9464.00	550.75
080	1164.12	-519.50	-2.02	55.12	728.50	-321.54	744.79	-330.08	330.66	-161.42
081	1073.08	1824.80	-598.94	1958.70	7309.00	1764.92	328.77	2061.05	459.45	976.18
082	163.27	155.74	77.09	211.79	102.62	201.73	80.58	215.88	-0.74	274.18
083A	1705.28	-14.38	1895.90	170.75	1814.92	167.56	1808.24	171.59	1816.27	181.39
083B	1700.14	-18.13	1768.98	193.09	1783.92	180.55	1800.04	160.14	1809.94	167.17
083C	1638.61	127.82	1740.44	176.26	1698.63	215.18	1704.04	211.42	1714.37	196.48
084A	2331.35	-311.79	2388.32	-4.11	2599.76	-37.27	2588.47	-26.53	2585.70	-30.54
084B	2260.33	-319.27	2408.64	-45.96	2571.55	-94.05	2558.27	-85.77	2551.25	-81.66
085	-551.31	1430.04	-318.18	837.43	-270.40	704.92	-277.59	710.87	-285.60	677.28
086A	1161.61	-337.89	981.86	-156.01	1247.09	-349.46	1093.06	-230.98	1057.79	-199.51
086B	867.76	-44.81	836.71	-89.24	856.35	15.80	857.60	-15.42	906.18	-118.77
086C	1158.25	-302.27	858.52	-135.54	1240.27	-347.08	1157.70	-306.11	1058.78	-269.14
086D	1162.87	-336.49	765.58	-154.47	1152.62	-357.60	1049.53	-304.56	970.91	-304.59
086E	1069.26	-246.94	849.39	-124.57	1054.78	-244.52	1018.32	-226.85	960.25	-196.83
086F	1083.02	-292.52	905.72	-155.69	1104.50	-307.06	1061.25	-281.29	931.62	-170.17
086G	1110.42	-317.03	862.09	-126.66	1113.67	-311.95	1052.71	-272.29	947.94	-188.43
087	1903.58	399.47	2642.76	869.42	2673.83	739.33	2672.92	754.25	2538.81	833.94
088	1797.93	290.12	2271.49	795.79	2557.71	1050.68	2451.17	967.66	2416.02	939.19
089	1947.54	219.78	2326.78	-169.03	2251.97	281.67	2263.70	236.06	1839.80	310.70
090	1301.22	-212.84	916.79	-170.33	1178.77	-141.51	1140.45	-147.43	1083.56	-206.88
091	735.27	-229.40	780.19	-286.68	728.97	-225.16	726.59	-223.31	740.61	-236.84
092	1822.36	146.67	2185.77	886.40	1830.54	666.17	1870.36	619.27	1910.98	698.00
093	1855.00	-99.55	2208.64	946.71	1728.86	780.34	1816.16	600.63	1826.77	844.96
094	1845.13	-1136.54	-24.11	244.26	1143.08	-858.06	1114.90	-892.13	107.07	284.36
095A	986.32	-808.05	1836.15	-964.96	1236.38	-876.63	1253.74	-887.30	1402.65	-906.16
095B	-292.88	818.01	193.93	-205.83	-173.99	541.89	-175.48	543.99	-157.40	529.38
096	1522.72	269.79	1148.38	705.91	1423.33	392.92	1403.39	425.95	1365.74	600.85
097	756.65	140.83	-13.41	555.51	456.71	344.15	483.13	322.45	102.66	560.29
098A	782.11	-233.43	529.17	69.45	692.08	-108.07	645.69	-81.03	463.57	92.86
098B	811.07	-284.93	444.42	42.48	690.55	-161.08	641.25	-134.29	465.86	16.40
098C	143.20	56.59	123.05	132.21	132.00	78.73	134.19	77.56	33.00	218.94
098D	245.89	-30.55	-399.93	841.97	137.07	45.95	55.75	130.41	81.52	47.11
098E	269.87	-53.45	276.01	-21.67	243.70	-24.98	282.53	-61.56	447.10	-194.18
099A	41.12	-417.90	109.52	-479.17	70.46	-452.60	30.64	-422.11	127.46	-492.88
099B	320.65	-558.23	26.77	-381.88	87.43	-435.09	122.15	-460.68	1.40	-366.69
100	721.49	267.82	955.20	140.39	724.97	304.59	748.68	277.97	783.84	240.82
101	-103.17	874.94	-84.38	813.88	-116.24	902.28	-110.41	888.00	-53.11	803.77
102	1342.81	-103.15	740.97	199.54	2621.82	-696.41	1080.01	-3.08	922.92	59.84
103	395.65	-120.51	321.77	-79.24	390.82	-117.94	397.20	-126.99	495.16	-209.38
104	782.10	1895.69	10029.63	1840.47	898.56	2156.45	964.87	2016.90	1119.19	1983.00
105	85.75	1194.56	254.94	1106.72	142.39	1243.03	152.11	1216.71	157.62	1160.63
106	-547.51	2501.18	-970.43	3399.25	196.12	1898.05	-410.24	2474.37	-167.48	1036.14
107	107.59	91.65	37.74	151.24	83.40	113.22	80.15	115.79	62.54	130.16

ID NO.	MODEL NUMBER 1		2		3		4		5	
108	94.55	158.37	-136.83	377.27	83.24	167.78	67.27	180.08	-86.31	322.52
109	333.69	-430.17	-292.75	338.18	775.48	-388.14	704.45	-365.52	-366.99	453.84
110A	43.60	-4.03	-1.12	3.49	224.25	-147.15	232.93	-153.06	274.41	-191.22
110B	98.99	-44.07	-479.32	644.22	297.59	-187.45	316.24	-199.14	339.37	-226.58
110C	204.66	-124.71	-17.27	18.25	441.15	-275.56	462.94	-287.66	532.25	-336.06
110D	-504.30	697.44	-244.34	249.33	-515.00	701.29	-465.69	605.52	-178.99	178.30
110E	-181.09	229.90	-631.77	874.74	-6.38	38.28	115.58	-63.47	106.77	-80.67
111A	470.51	83.30	310.39	511.61	484.39	127.40	444.30	173.67	533.17	72.05
111B	527.05	-42.93	143.11	492.01	485.03	4.68	466.25	22.79	424.95	77.98
111C	477.79	-33.98	305.67	119.12	447.21	-13.77	460.29	-30.22	401.36	16.91
112A	1932.01	94.63	1659.51	694.01	2301.09	204.01	2249.35	245.38	2169.22	276.86
112B	1875.70	112.23	1705.45	499.38	2124.17	223.47	2101.37	235.10	2029.38	261.11
112C	1790.96	125.77	1696.19	397.87	1953.90	224.59	1943.59	226.16	1891.82	247.46
112D	-19.31	1584.82	8160.98	1055.48	8939.41	273.71	8939.85	273.71	8943.53	614.40
112E	1504.07	-12.66	1260.62	585.42	1582.00	129.82	1459.46	222.33	1414.97	300.38
113	1442.08	170.86	1504.09	87.11	1527.25	200.16	1533.43	192.07	1519.50	178.22
114A	479.74	922.17	1766.81	1376.33	1741.31	1204.35	1520.41	1188.77	1955.78	1234.10
114B	467.97	1058.57	1035.30	1272.79	938.61	1242.66	1016.71	1202.18	1020.98	1230.00
114C	1857.31	-39.74	998.74	379.43	1903.69	297.45	2084.40	191.19	1864.95	220.34
115	1247.53	-99.37	1283.59	120.46	1399.27	-60.46	1271.77	7.62	1263.08	37.19
116A	747.51	-104.78	6.06	8804.51	-369.48	8906.75	-350.18	9213.89	-196.24	9252.29
116B	589.25	-41.30	142.92	526.24	568.82	-13.73	497.35	35.00	279.80	262.21
116C	299.02	73.15	354.24	-8.15	294.45	65.46	312.57	45.69	366.64	-14.58
117A	1816.45	-138.67	1683.31	10843.15	2233.03	297.36	2057.09	401.34	1934.26	601.24
117B	1768.49	90.18	1291.71	1467.58	2002.35	264.91	1978.84	268.80	1870.13	371.72
117C	1632.63	139.21	1491.11	460.49	1786.70	255.15	1775.65	237.69	1749.47	233.47
118	1380.28	-450.16	433.12	195.94	1345.55	-406.48	1294.12	-389.09	638.37	-10.69
119	1629.50	91.35	1759.53	205.66	1864.43	172.29	1800.91	181.73	1764.62	202.14
120A	508.42	1262.86	940.99	1227.60	670.94	1362.84	680.99	1338.22	758.94	1284.82
120B	718.14	1037.42	918.85	1208.88	587.32	1316.04	666.72	1237.51	736.76	1257.58
121	-269.14	1995.14	861.87	140.93	30.70	2676.12	-112.25	2300.45	1002.45	-95.53
122	426.71	1656.95	1081.84	1915.39	919.08	1827.78	956.33	1835.35	857.03	1978.56
123	4516.66	-614.20	-434.57	10123.03	2943.15	993.03	1947.97	-2061.90	-538.53	10100.31
124A	198.79	673.31	1236.09	179.05	277.31	686.50	335.04	606.77	375.30	553.35
124B	-164.40	875.83	-3.12	855.33	-24.84	742.85	-7.00	723.24	-125.34	1026.81
125	111.42	134.64	124.60	149.01	117.75	146.33	111.92	155.96	107.13	176.99
126	216.27	596.79	317.88	495.70	156.82	644.35	170.37	627.77	199.04	563.23
127	814.89	365.41	1607.10	-255.95	1003.97	201.71	937.82	214.46	585.43	467.72
128	428.69	376.49	806.15	-102.24	565.49	162.26	603.52	118.05	448.63	269.14
129	641.18	222.18	760.86	98.71	646.34	223.74	664.81	206.19	737.40	130.40
130A	977.59	-854.18	10706.72	-1211.00	1157.45	-908.95	1178.81	-926.56	2044.30	-1155.10
130B	229.83	633.89	9568.44	-1184.88	9406.73	-1534.62	449.94	375.13	2076.55	-1132.63
130C	691.99	-553.04	7539.20	-1256.09	1169.58	-912.23	1186.45	-930.40	1504.59	-891.04
130D	1383.41	-1094.44	4312.33	-1285.02	1227.50	-918.71	1246.89	-931.88	1231.83	-669.54
130E	446.11	-112.43	1843.77	-1217.62	624.02	-351.75	612.80	-334.65	1022.49	-791.66

ID NO.	MODEL NUMBER 1		2		3		4		5	
130F	528.86	-251.01	2039.91	-1304.56	597.50	-324.79	528.46	-210.37	1733.29	-1279.51
131	1728.87	-402.51	1873.37	-424.94	1795.79	-350.12	1810.43	-355.38	1846.62	-343.62
132	179.97	719.50	159.06	1004.02	183.48	775.93	199.94	765.10	154.95	865.52
133	972.76	2786.40	3031.39	2352.93	2090.26	3334.55	2111.14	3216.60	2341.65	2621.27
134A	3535.92	-124.50	1796.41	950.29	948.15	10563.45	957.19	9338.96	1005.42	9345.20
134B	2089.01	-488.91	1883.82	864.43	976.06	10535.05	991.84	10137.15	1028.27	10356.29
135	-807.00	1954.69	9557.63	-712.99	9478.18	-840.63	9444.72	-884.14	9385.80	-875.91
136	517.80	509.11	2322.48	351.49	629.31	529.26	626.45	526.62	406.94	825.40
137	536.80	-367.61	147.95	-123.75	487.58	-336.78	485.73	-335.84	342.53	-256.95
138	-391.27	791.81	-97.31	343.20	-420.05	928.38	-372.50	803.55	-106.65	333.36
139	-416.64	914.96	-148.37	407.18	-429.14	1055.73	-347.04	810.01	-4.13	211.93
140	31.74	295.29	13.40	355.46	86.06	222.43	84.21	224.90	81.63	226.20
141	977.73	-163.51	252.05	687.92	1107.85	-337.35	846.57	-201.29	968.05	-23.79
142	1398.00	854.49	8570.12	1287.72	8734.95	838.18	8743.65	1089.68	8637.59	1286.27
143A	-12.76	130.10	343.75	-166.89	72.60	44.95	74.62	42.74	166.83	-38.87
143B	427.88	-222.90	446.00	-231.94	460.60	-235.23	463.27	-237.13	477.99	-249.61
144A	388.11	85.68	485.08	153.56	505.82	65.23	430.46	104.49	220.09	320.83
144B	57.09	256.87	-89.95	443.89	8.27	294.30	-125.35	433.40	-324.13	821.00
145	1327.96	-370.17	1546.30	-297.28	1314.79	-264.54	1369.29	-279.20	1550.89	-289.14
146	166.57	210.68	135.44	324.03	171.53	242.54	170.71	244.89	163.57	265.67
147	878.77	357.39	876.82	400.39	893.29	441.70	906.71	425.07	915.72	396.87
148	-18.56	881.07	-241.16	894.47	-132.23	1130.52	-116.63	1039.03	-134.67	910.80

ID NO.	MODEL NUMBER 6		7		8		9		10	
001	673.92	440.82	701.71	613.58	1066.67	126.73	1067.03	126.21	816.72	352.09
002	834.04	305.43	748.22	456.69	991.22	-2.43	991.22	-2.43	2509.72	-505.99
003	-131.24	-298.82	284.72	-319.50	81.38	-79.56	76.47	-76.25	-182.97	-92.16
004	210.14	-80.82	-9.03	66.82	-476.41	596.34	-476.41	596.34	-57.73	107.21
005	554.57	-174.22	519.11	-267.68	-102.88	317.25	-102.30	316.36	474.53	-154.19
006	938.40	-267.73	875.90	-218.51	857.49	-210.12	857.38	-210.13	959.91	-300.95
007A	71.39	-488.62	140.14	-496.91	192.05	-524.41	192.05	-524.41	0.08	-398.50
007B	23.85	-492.04	72.43	-442.94	100.02	-451.30	100.25	-451.51	33.78	-449.50
007C	21.79	-410.15	77.08	-411.97	50.79	-381.23	50.71	-381.18	-15.07	-349.53
008A	167.61	306.38	68.96	426.93	69.61	437.62	69.31	438.03	326.21	153.56
008B	496.40	26.64	302.27	174.00	-75.63	559.99	-75.63	559.99	142.02	320.67
009A	368.82	51.81	304.67	215.75	500.95	117.84	500.93	117.83	382.61	100.10
009B	39.78	418.73	5.77	566.02	97.76	477.49	97.76	477.49	215.40	216.27
010A	-245.53	695.94	-269.92	722.72	-154.50	600.12	-154.50	600.11	-22.04	473.00
010B	-208.20	675.02	-220.61	693.80	-187.53	662.45	-177.75	652.82	-190.49	648.71
011	-261.76	465.46	-290.06	548.21	-239.49	454.93	-239.67	455.31	382.10	-229.48
012	-11.69	166.86	-221.59	468.93	-402.72	949.27	-402.77	949.45	-238.32	498.49
13	560.43	-529.85	-34.36	355.23	229.32	-48.90	228.43	-47.68	20.61	220.75
014	449.43	1493.62	375.23	1593.54	435.33	1569.87	435.32	1569.87	696.26	1313.04
015A	260.79	1587.86	285.76	1824.30	383.65	1707.29	383.76	1707.60	321.66	1499.28
015B	350.38	1950.89	435.35	1771.61	439.38	1643.00	439.27	1642.76	193.35	1987.23
015C	1378.60	1367.78	1212.93	1295.21	1279.00	1224.23	1278.97	1224.24	1725.17	1496.49
015D	521.04	1495.29	657.57	1379.60	687.75	1363.71	688.87	1364.08	422.82	1566.15
015E	337.87	1523.86	489.08	1478.80	760.35	1364.54	753.89	1365.90	596.35	1380.34
016	739.21	-318.15	827.76	-355.45	837.34	-357.37	837.97	-357.49	-243.53	348.43
017	547.63	1179.72	607.39	1126.03	643.69	1069.53	643.69	1069.53	654.23	1104.23
018A	215.31	71.45	219.30	79.28	194.25	112.51	194.25	112.51	186.38	111.51
018B	229.35	24.19	225.92	32.00	173.72	91.38	173.72	91.38	136.94	132.96
018C	66.01	298.67	51.65	242.70	75.21	182.29	75.22	182.28	107.84	203.96
018D	167.06	76.70	186.59	58.34	210.82	33.10	211.02	32.87	96.03	159.97
018E	188.18	74.68	163.69	101.61	126.27	145.96	126.29	145.94	186.74	77.35
019A	187.09	1577.37	184.86	1571.71	174.27	1606.71	174.25	1606.78	167.16	1644.70
019B	882.98	631.92	879.05	678.68	669.24	836.51	669.51	836.43	772.24	676.76
020	331.72	258.21	413.55	116.39	281.55	183.91	270.36	194.62	379.53	101.21
021A	215.19	108.88	195.10	151.41	170.47	198.48	170.62	198.20	165.15	205.51
021B	288.56	186.09	316.53	125.88	370.22	42.63	370.09	42.69	344.17	80.12
021C	179.68	311.93	206.15	238.99	260.76	136.55	260.76	136.55	263.84	128.56
021D	155.61	207.82	140.15	248.81	139.36	256.86	139.37	256.85	174.66	184.41
022	225.61	109.32	250.10	77.91	317.00	-10.25	316.52	-9.67	211.19	134.55
023	1344.51	-445.67	600.89	505.77	618.24	495.43	618.02	495.77	1226.29	-219.33
024	-115.46	1512.02	-110.29	1621.92	-150.83	1749.17	-150.83	1749.17	-157.65	1616.89
025A	594.54	514.78	462.84	776.22	316.86	1129.04	316.74	1128.97	339.53	925.00
025B	245.29	1033.14	247.85	1042.10	235.10	1095.75	234.73	1096.49	223.41	1163.76
025C	156.24	1051.27	145.89	1081.77	157.16	1057.67	157.16	1057.66	209.33	938.12
026	36.02	-28.35	-67.80	73.67	-96.57	99.94	-97.54	101.25	-316.44	508.44

ID NO.	MODEL NUMBER 6		7		8		9		10	
027	38.90	-26.98	85.10	-86.69	66.05	-62.01	65.88	-61.80	68.93	-61.98
028	125.82	1044.10	100.94	1046.39	96.73	1023.28	96.91	1022.90	205.98	788.68
029	-264.09	10836.96	-143.72	10743.21	-86.63	3608.93	-97.07	10256.89	-39.30	849.54
030A	-14.70	111.44	75.36	6.40	200.44	-82.40	197.36	-80.81	-7.13	86.51
030B	43.58	69.34	66.98	48.56	33.37	69.65	33.45	69.60	-88.92	166.61
030C	-125.34	218.94	-101.60	197.88	-108.80	202.17	-109.15	202.46	-236.29	309.47
030D	-45.08	164.53	-94.62	186.94	-22.50	134.93	-22.42	134.88	-135.57	222.13
031	547.91	-208.34	395.55	-140.88	-32.87	126.71	-32.87	126.71	655.41	-241.45
032A	-209.51	1494.71	-188.03	1617.46	-127.39	1590.15	-127.42	1590.08	-146.38	1428.65
032B	-221.61	1553.10	-201.28	1576.55	-157.42	1520.41	-157.47	1520.47	-216.35	1545.50
033	1120.24	405.06	1716.19	369.44	1719.93	400.99	1719.94	400.99	1090.28	606.04
034	550.14	439.66	1354.43	166.52	1325.93	224.92	1325.98	224.90	615.21	532.12
035A	-613.04	1160.73	-608.60	1128.91	-587.37	1020.76	-586.90	1018.85	-395.61	395.23
035B	-258.20	203.33	-47.70	-57.28	344.88	-387.02	349.98	-390.37	-241.36	193.14
036	-330.01	-124.21	-276.20	-192.07	-229.65	-251.11	-229.63	-251.15	-355.53	-98.23
037A	-395.87	1904.93	-392.92	1904.97	-411.52	1977.34	-412.61	1984.88	-491.51	2101.66
037B	-367.37	1753.89	-371.95	1793.79	-373.09	1775.47	-373.10	1775.48	-373.79	1689.54
038	-336.91	-153.86	-150.77	-291.68	-204.31	-151.10	-203.61	-152.19	-468.85	219.37
039	-245.98	405.63	-324.03	453.96	-343.16	472.51	-343.16	472.51	-442.12	766.99
040	263.47	524.17	277.24	451.15	290.45	392.27	290.45	392.27	349.43	482.44
041	1126.81	1368.97	876.69	1409.80	791.21	1475.52	791.21	1475.53	938.97	1577.80
042A	-458.60	632.60	-465.96	630.38	-242.78	292.20	-244.30	294.04	-266.79	289.54
042B	-116.41	239.90	-111.97	205.79	-115.36	203.02	-115.40	203.07	-25.11	98.00
043	389.81	2024.14	423.71	1748.96	358.09	2277.59	358.09	2277.59	319.38	2675.46
044A	266.98	1365.27	294.68	1472.99	323.46	1561.65	323.43	1561.36	236.62	1566.65
044B	161.76	1401.27	213.80	1521.45	107.39	2036.71	107.87	2034.59	33.39	2391.65
045	80.79	427.35	-16.72	415.41	9.10	338.86	9.09	338.86	-95.70	611.34
046	130.33	1777.32	6.78	1932.55	-42.59	1981.64	-42.45	1981.17	551.32	1386.21
047	212.43	927.61	294.09	951.58	310.27	981.35	310.34	981.41	222.07	966.00
048	237.68	148.21	336.29	133.13	251.94	189.81	251.83	189.88	-13.93	331.00
049	492.47	2744.18	539.54	2708.20	574.73	2702.84	574.92	2702.36	463.82	2767.92
050	217.75	244.54	148.50	242.13	40.35	301.95	41.17	301.38	291.10	195.39
051	170.52	10254.54	208.05	3247.18	218.60	3245.92	218.55	3247.93	561.68	974.15
052	574.71	290.10	447.08	311.60	272.77	385.09	272.79	385.09	274.79	414.99
053	597.98	329.69	655.32	317.38	683.94	313.61	684.77	312.83	736.13	237.64
054	528.49	141.08	510.48	197.31	466.38	266.01	466.56	265.56	397.51	304.01
055A	1641.72	200.03	1614.84	184.31	1597.35	168.92	1596.83	169.09	1608.57	228.96
055B	1593.68	230.75	1554.49	202.32	1531.98	177.51	1531.76	177.58	1558.00	231.50
055C	1547.89	256.96	1501.07	203.21	1491.93	154.70	1491.74	154.77	1470.77	253.14
055D	1545.39	191.87	1555.62	186.25	1631.57	158.48	1631.59	158.48	1669.11	145.80
055E	1470.32	233.69	1418.78	217.38	1418.29	201.30	1418.37	201.33	1436.97	234.89
056A	711.36	0.27	749.24	11.05	777.12	22.98	777.12	22.98	764.87	-9.42
056B	73.03	655.51	88.40	653.00	105.94	645.00	105.79	645.11	24.02	712.12
056C	110.16	595.73	116.09	587.88	98.35	601.63	98.33	601.68	83.22	625.48
056D	771.42	-113.57	719.22	-72.73	668.86	-25.53	669.61	-26.25	907.23	-182.03

ID NO.	MODEL NUMBER 6		7		8		9		10	
056E	50.08	608.05	64.16	586.15	100.23	551.35	100.23	551.35	28.15	632.23
056F	740.73	-95.20	666.47	-74.24	657.81	-85.27	658.92	-86.42	827.31	-171.41
057A	1969.48	225.34	1929.52	373.55	1887.56	477.19	1987.50	477.19	2000.64	273.62
057B	1980.95	398.90	2005.21	382.18	2004.43	392.27	2004.43	392.27	1930.35	442.03
058A	384.36	2039.64	385.17	2122.53	388.05	2134.35	388.06	2134.22	396.68	2036.90
058B	348.52	3077.13	349.86	2256.30	376.49	2041.58	376.35	2043.87	345.48	2324.79
058C	2157.49	306.45	2169.70	325.72	2139.68	355.46	2139.14	355.69	2080.51	336.31
059	2140.74	204.41	2181.36	252.61	2214.55	269.06	2214.18	269.11	2169.37	156.17
060	-257.10	540.89	-153.09	337.01	-5.58	103.50	-6.94	105.36	-179.08	381.10
061	-229.66	370.39	-165.65	266.57	-29.84	56.98	-16.50	38.71	-313.64	588.40
062A	1702.80	148.32	1714.20	180.77	1758.70	198.37	1758.76	198.27	1700.10	207.66
062B	1615.11	160.18	1626.93	166.54	1653.01	167.55	1653.09	167.52	1608.42	195.58
062C	1525.95	167.16	1536.25	161.03	1549.69	155.72	1549.72	155.65	1521.40	181.19
063A	295.35	710.78	217.38	801.93	51.40	958.66	51.42	958.64	-54.41	1001.62
063B	245.55	865.63	183.44	896.15	68.52	961.99	68.38	962.12	171.70	890.96
063C	317.98	753.89	256.79	844.73	105.69	988.01	105.66	988.04	50.74	943.02
063D	338.28	876.93	347.96	892.55	327.30	917.84	327.28	917.84	320.71	890.92
063E	552.92	691.96	455.01	798.65	189.68	1001.65	189.73	1001.63	139.74	937.66
063F	453.97	890.37	453.07	911.37	415.48	941.01	416.23	940.76	449.86	898.73
063G	379.91	979.99	374.41	960.09	322.47	965.10	322.47	965.10	423.31	931.48
063H	425.03	955.49	447.68	945.97	410.40	954.89	396.91	961.77	282.56	993.38
064	299.13	-156.77	318.77	-196.36	504.66	-308.82	500.22	-306.61	236.01	-125.27
065	-185.54	455.12	-57.41	241.14	240.89	-80.84	238.14	-78.47	385.20	-199.55
066	338.73	121.01	436.48	-17.13	496.80	-85.67	496.80	-85.67	730.57	-290.08
067A	7739.05	-16.46	7755.77	-19.71	532.49	2008.42	532.28	2008.42	59.06	2116.17
067B	202.39	2149.80	239.52	2131.22	359.67	2056.55	362.66	2055.64	173.32	2112.50
067C	442.86	2082.13	456.71	2074.11	409.55	2047.02	408.63	2047.20	384.15	2045.67
067D	6705.68	2011.21	6722.51	2008.57	6732.51	1993.43	6734.35	1993.60	6682.84	1960.30
068	70.36	817.37	-87.37	1145.22	-148.78	1335.96	-149.20	1336.92	28.18	894.18
069A	-254.33	1765.90	-330.28	2397.07	-313.06	2183.42	-313.09	2183.83	-24.34	882.24
069B	-280.86	1746.81	-342.97	2029.82	-328.13	1901.86	-324.11	1882.29	-38.57	872.93
070	1052.59	1158.12	1093.93	1219.40	1101.07	1230.23	1102.08	1229.87	916.44	1497.87
071	260.88	1834.51	199.01	2001.45	283.35	1695.40	272.17	1714.83	465.20	1403.70
072A	-37.83	271.90	-36.47	270.56	9.42	232.75	8.14	233.79	66.74	184.61
072B	153.35	105.99	177.35	107.16	81.74	183.11	82.54	182.53	77.69	169.61
073	475.57	-173.04	340.38	-66.56	9.49	194.01	11.64	192.02	93.24	111.48
074A	332.64	166.22	309.94	197.09	286.54	220.68	286.54	220.68	402.22	135.68
074B	652.33	-279.73	588.52	-260.80	407.62	-110.49	407.86	-110.73	406.88	-97.83
074C	336.20	76.68	297.29	104.44	94.83	234.79	94.64	234.75	235.37	134.24
074D	227.72	158.77	235.95	135.41	180.31	162.21	180.55	162.04	74.48	257.69
075A	440.88	-13.37	108.47	354.09	166.83	350.19	166.83	350.19	102.96	401.41
075B	421.42	-39.83	88.93	355.09	414.59	207.43	414.59	207.43	4.23	461.41
076	-388.05	558.65	-316.98	463.20	-59.59	117.24	-33.72	89.79	325.41	-225.75
077	687.88	-324.75	-3.60	184.23	-269.08	555.18	-269.08	555.18	108.35	109.79
078A	265.44	29.41	160.81	128.49	92.31	198.30	92.16	198.43	156.12	140.80

ID NO.	MODEL NUMBER 6		7		8		9		10	
078B	29.25	223.93	-130.31	395.48	-232.94	530.91	-230.04	527.02	-54.13	324.06
079	9339.64	1344.34	9620.88	829.17	-1947.16	593.99	-1948.26	600.97	-2589.31	2607.36
080	431.56	-207.08	-54.04	97.65	71.17	0.68	70.84	0.97	721.50	-356.73
081	1224.71	7100.82	1088.82	912.33	1098.51	846.53	1081.44	848.22	-629.93	2767.00
082	-53.01	326.88	-34.42	301.48	94.39	204.22	94.40	204.21	104.93	197.34
083A	1817.56	158.10	1815.39	178.95	1818.11	190.21	1817.83	190.75	1819.39	160.45
083B	1809.16	157.05	1810.89	167.23	1811.61	170.13	1811.56	170.16	1800.15	151.38
083C	1711.50	201.05	1723.84	183.56	1716.47	193.81	1716.40	193.91	1699.24	215.42
084A	2533.04	-11.12	2583.19	-26.17	2584.57	-38.02	2584.83	-38.27	2592.24	-26.03
084B	2552.02	-76.18	2546.89	-77.96	2550.03	-83.31	2550.11	-83.34	2570.91	-93.75
085	-200.35	396.14	-236.56	525.45	-324.32	821.63	-324.32	821.63	-298.67	755.43
086A	1006.89	-123.40	1008.75	-150.09	1123.37	-263.52	1124.06	-264.13	1213.15	-333.27
086B	882.57	-4.15	902.65	-108.70	937.03	-174.44	937.03	-174.44	870.10	0.01
086C	1016.22	-143.05	1015.56	-221.05	1104.95	-336.65	1105.02	-336.79	1186.23	-301.74
086D	1022.96	-202.97	965.07	-285.41	943.05	-318.70	943.77	-319.30	1145.47	-352.41
086E	944.55	-104.63	941.22	-170.78	979.06	-235.92	976.68	-234.23	1050.92	-242.37
086F	882.26	-107.04	885.22	-119.68	1005.91	-239.42	1005.53	-239.14	1097.75	-302.55
086G	935.55	-134.20	920.98	-152.78	963.72	-217.53	963.27	-217.16	1092.80	-297.37
087	2653.48	736.80	2510.20	839.35	2487.10	891.45	2487.85	892.48	2558.19	765.30
088	2735.91	1278.42	2435.91	960.89	2374.95	905.21	2374.95	905.21	2557.79	1050.63
089	2297.73	329.17	1852.68	328.06	1702.67	302.14	1702.07	302.30	2247.99	290.74
090	1203.03	-121.19	1108.38	-207.64	955.76	-147.32	956.32	-148.24	1258.38	-207.94
091	695.93	-180.68	733.47	-226.13	778.79	-279.11	778.79	-279.11	732.00	-227.38
092	1979.01	348.74	1997.18	560.34	1821.64	1027.50	1821.64	1027.50	1832.46	685.23
093	2014.11	107.10	1928.94	558.11	1708.01	8169.90	1707.98	8204.07	1653.85	8458.87
094	-115.27	10434.52	63.22	450.97	215.46	23.85	215.46	23.84	1101.02	-895.92
095A	1241.46	-920.14	1489.93	-935.33	1360.76	-870.28	1360.77	-870.28	1217.00	-874.11
095B	-229.55	722.37	-162.84	545.70	-29.55	197.93	-29.55	197.93	-144.74	445.70
096	1430.14	588.75	1390.97	637.24	1340.91	621.04	1341.16	621.50	1414.76	404.55
097	-21.64	692.09	68.31	591.59	116.77	540.63	116.74	540.66	720.49	189.35
098A	528.85	-20.83	414.90	123.30	439.26	130.45	439.26	130.53	719.07	-126.07
098B	506.77	-46.79	427.27	41.46	444.71	41.47	445.42	40.98	713.37	-176.59
098C	163.69	32.52	48.99	193.19	-28.31	316.50	-28.31	316.50	126.48	84.58
098D	30.02	220.60	85.56	53.82	118.28	-23.93	118.29	-23.93	58.12	132.53
098E	643.80	-337.11	549.03	-265.32	214.91	7.25	214.71	7.42	240.80	-20.81
099A	118.78	-500.47	135.50	-498.37	135.56	-496.04	136.06	-496.35	72.34	-454.32
099B	-13.69	-379.13	-16.27	-351.27	14.15	-371.74	7.74	-366.54	93.40	-435.06
100	778.64	205.32	781.90	233.62	800.49	237.81	800.49	237.81	724.80	305.62
101	-54.66	836.34	-45.41	798.04	-57.31	795.81	-57.23	795.77	-117.51	903.48
102	891.57	116.53	864.72	116.29	960.81	20.41	961.84	19.62	1850.53	-193.62
103	573.35	-255.81	467.69	-189.93	440.21	-173.13	440.21	-173.13	370.62	-101.50
104	980.90	2077.56	1129.61	1955.08	1200.35	1944.17	1200.23	1944.26	915.47	2105.47
105	196.13	1060.77	176.79	1095.78	117.57	1237.66	117.90	1236.95	124.70	1251.41
106	-465.13	2920.02	-136.42	1019.17	-125.48	941.55	-125.35	941.31	-518.47	2626.80
107	70.68	124.61	51.84	139.44	51.08	139.67	51.08	139.67	82.08	114.22

ID NO.	MODEL NUMBER 6		7		8		9		10	
108	-70.81	305.72	-101.59	338.19	-116.46	355.17	-116.42	355.17	89.35	163.61
109	-360.84	472.71	-396.92	503.52	-226.83	254.38	-214.79	239.86	307.05	-202.41
110A	363.25	-220.75	303.64	-207.25	82.06	-65.78	76.99	-61.76	324.33	-209.30
110B	486.45	-284.91	386.52	-252.19	-82.35	84.19	-82.35	84.19	423.23	-259.34
110C	740.66	-398.72	600.65	-366.19	10.35	-8.44	7.27	-5.87	576.18	-346.57
110D	716.49	-395.79	613.24	-373.41	313.12	-226.24	313.25	-226.32	650.57	-384.47
110E	569.50	-330.69	302.70	-215.32	15.98	-15.41	15.93	-15.55	529.56	-321.91
111A	163.48	396.83	468.01	103.62	585.39	49.46	585.41	49.52	521.40	77.26
111B	428.21	32.24	419.22	76.67	376.31	145.26	376.64	144.97	458.52	29.51
111C	404.12	20.73	365.88	57.53	404.96	10.76	405.05	10.96	460.19	-22.92
112A	2186.64	202.96	2115.08	257.77	2140.28	320.21	2139.92	320.31	2282.20	241.05
112B	2046.94	210.68	1990.08	249.71	1995.61	296.41	1995.61	296.41	2118.21	235.74
112C	1900.57	211.13	1863.53	240.93	1869.85	275.63	1869.87	275.65	1951.90	223.31
112D	106.22	1521.17	343.95	1469.52	560.38	1502.21	560.63	1502.22	44.57	2041.91
112E	1350.85	244.17	1376.39	321.22	1431.89	322.01	1421.57	322.18	1586.42	118.00
113	1555.98	238.02	1518.55	188.47	1521.20	142.52	1520.94	142.73	1528.68	200.17
114A	821.11	1162.08	1629.91	1216.81	7545.23	1268.60	7618.68	1268.52	7723.94	1134.35
114B	928.47	1211.02	985.79	1228.09	1055.07	1239.06	1067.31	1238.02	1044.40	1189.14
114C	2149.94	316.79	1829.08	260.64	1726.17	177.49	1725.81	177.55	2252.83	122.32
115	1015.68	152.70	1177.87	81.17	1512.25	-84.41	1512.55	-84.65	1403.04	-70.07
116A	-315.45	9113.02	-214.10	9077.46	251.28	696.40	251.20	696.50	659.22	45.61
116B	255.99	236.04	230.61	315.58	267.65	303.15	267.65	303.15	575.97	-15.66
116C	357.12	15.17	388.05	-29.14	363.29	-16.80	362.99	-16.55	293.16	62.81
117A	1909.16	269.22	1866.80	525.82	1990.33	719.08	1990.33	719.08	2302.79	220.85
117B	1947.10	189.63	1851.19	332.03	1767.40	535.23	1766.65	535.59	1997.84	272.16
117C	1779.98	171.86	1733.24	224.07	1714.08	279.66	1713.89	279.64	1782.50	260.69
118	981.69	-207.27	613.14	33.70	495.63	134.85	495.52	134.86	1343.97	-414.55
119	1812.02	176.58	1755.42	208.74	1727.30	221.05	1727.26	221.23	1860.18	173.56
120A	708.17	1318.40	742.67	1292.97	789.75	1270.32	789.74	1270.32	649.17	1381.54
120B	721.13	1267.23	765.56	1250.49	745.27	1252.40	745.25	1252.39	696.01	1205.26
121	1779.29	-263.08	1142.95	-148.69	928.29	-67.11	928.28	-67.10	-209.48	3103.47
122	885.42	1906.80	853.56	1985.80	851.10	1991.18	851.10	1991.18	937.04	1807.41
123	4609.54	-9348.09	2174.79	-2321.25	-210.29	5051.61	-203.84	5166.63	-1051.78	2236.23
124A	449.64	281.66	354.09	524.22	439.35	540.24	439.35	540.23	278.28	685.95
124B	-122.20	904.82	-138.74	1042.78	-139.96	1097.65	-139.96	1097.65	-35.87	759.97
125	85.64	205.25	79.52	223.23	131.07	140.83	131.08	140.79	119.02	143.70
126	234.70	532.98	261.60	509.46	192.21	567.37	190.79	569.46	120.45	669.78
127	963.84	295.31	588.23	478.99	583.97	463.19	583.97	463.19	958.11	276.99
128	580.75	266.92	437.52	295.07	458.25	252.21	458.25	252.21	546.36	182.93
129	726.77	157.26	749.36	120.37	762.56	100.33	762.85	100.08	638.38	230.52
130A	2081.13	-1325.00	10031.06	-1342.42	2112.87	-1092.06	2113.20	-1092.16	1015.92	-818.23
130B	2004.16	-1347.45	2773.88	-1281.43	2035.86	-1017.12	2037.37	-1017.41	405.53	505.84
130C	767.29	-662.52	1243.89	-744.14	1904.43	-971.54	1904.49	-971.57	1183.61	-923.40
130D	875.30	-702.29	914.49	-338.42	2126.87	-1042.27	2123.86	-1041.34	1255.72	-942.92
130E	825.09	-810.54	1180.97	-956.47	1044.76	-741.22	1044.76	-741.21	500.26	-122.74

ID NO.	MODEL NUMBER 6		7		8		9		10	
130F	2122.43	-1540.37	2164.84	-1437.43	1342.48	-1008.59	1342.53	-1008.63	573.92	-287.89
131	1896.46	-363.28	1889.48	-350.06	1801.65	-320.27	1801.58	-320.25	1788.59	-351.51
132	296.91	599.21	157.02	826.56	60.15	1027.71	60.15	1027.70	182.43	776.44
133	2195.64	3299.09	2380.54	2600.27	2416.61	2506.57	2418.83	2505.65	2089.25	3333.52
134A	963.14	9264.09	1016.96	9749.23	1018.00	9766.80	1018.00	9866.80	806.68	8060.20
134B	1001.93	10731.55	1039.31	10629.47	1038.18	10931.79	1038.18	10316.54	2031.87	-488.91
135	9424.90	-958.80	9644.27	-888.19	9648.94	-839.48	9708.63	-839.51	-637.12	1548.72
136	444.22	599.31	318.66	884.16	475.83	828.82	475.86	828.76	640.14	515.24
137	350.59	-258.13	288.08	-222.27	239.96	-191.35	239.84	-191.26	349.29	-263.73
138	-47.41	238.62	-82.56	299.73	-108.89	342.33	-108.91	342.35	-415.54	907.21
139	61.80	141.02	32.34	170.61	-65.17	284.10	-65.17	284.10	-416.58	987.34
140	138.42	144.57	112.02	177.67	14.75	340.12	14.75	340.12	67.00	248.52
141	1015.41	-39.15	872.56	231.29	927.26	-2.98	928.59	-4.10	1102.12	-349.04
142	8646.07	1261.82	8905.36	1293.48	9013.81	1291.83	9110.75	1291.83	9332.11	930.07
143A	-3.99	115.18	137.21	-13.86	345.13	-168.19	345.13	-168.19	72.53	44.93
143B	504.27	-261.13	468.98	-244.32	452.10	-235.45	452.19	-235.50	454.55	-231.72
144A	84.77	360.28	117.50	412.22	342.97	250.26	343.27	250.04	493.47	75.90
144B	-452.52	1139.45	-408.04	1033.48	7.09	345.93	6.92	346.07	-6.95	303.69
145	1567.88	-294.26	1534.36	-274.71	1536.47	-285.18	1536.70	-285.22	1349.49	-280.21
146	181.97	226.17	164.26	263.78	135.63	321.52	135.85	321.07	168.92	247.33
147	933.74	439.08	932.16	384.72	909.15	385.60	908.57	386.36	892.15	442.92
148	24.62	900.22	-54.37	763.04	-380.39	1398.72	-381.08	1402.12	-49.53	976.90

TABLE 7

OBJECTIVE FUNCTION SUMMARY

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ID NO.	MODEL NUMBER 1	2	3	4	5	6	7	8	9	10
001	0.4547E-10	0.1206E-01	0.4752E 00	0.1126E 00	0.2638E-01	0.4874E-02	0.2492E-01	0.5513E-02	0.5512E-02	0.2636E-01
002	0.9095E-12	0.2530E-02	0.3302E 01	0.6837E 00	0.5207E-01	0.4286E-01	0.2954E-01	0.7869E-02	0.7856E-02	0.1195E 00
003	0.1311E-09	0.4883E-01	0.6691E 00	0.6725E 00	0.1750E 00	0.3559E-02	0.1509E 00	0.3790E-01	0.3787E-01	0.9297E 00
004	0.1819E-11	0.1172E-03	0.1164E-02	0.1119E-02	0.4033E-03	0.3730E-04	0.4053E-03	0.2504E-03	0.2505E-03	0.1656E 00
005	0.4547E-11	0.6749E-02	0.5656E-01	0.4760E-01	0.1245E-01	0.4643E-03	0.1430E-01	0.1870E-02	0.1868E-02	0.1103E 00
006	0.3365E-10	0.5938E-03	0.1140E 00	0.2161E-01	0.1914E-02	0.1392E-02	0.2078E-02	0.3696E-03	0.3697E-03	0.1004E-01
007A	0.9237E-13	0.1833E-02	0.2860E-01	0.5722E-01	0.6063E-02	0.2539E-02	0.6563E-02	0.2191E-02	0.2192E-02	0.1481E-01
007B	0.3020E-12	0.9965E-04	0.7025E-02	0.1020E-01	0.2250E-02	0.1383E-03	0.2817E-02	0.2885E-03	0.2888E-03	0.1319E-01
007C	0.8882E-13	0.3204E-03	0.3680E-02	0.6303E-02	0.1010E-02	0.7627E-04	0.1151E-02	0.3994E-03	0.3995E-03	0.8348E-02
008A	0.1819E-11	0.8073E-04	0.2418E-01	0.1333E-01	0.1224E-02	0.4875E-03	0.1571E-02	0.2187E-03	0.2189E-03	0.9850E-02
008B	0.1819E-11	0.6135E-03	0.6206E-01	0.3392E-01	0.6207E-02	0.1061E-02	0.3713E-02	0.9912E-04	0.9906E-04	0.4462E-01
009A	0.1819E-11	0.4501E-02	0.1276E 00	0.7280E-01	0.1565E-01	0.6991E-03	0.1513E-01	0.1533E-02	0.1533E-02	0.7263E-01
009B	0.0	0.7125E-03	0.3820E-01	0.2289E-01	0.3796E-02	0.2243E-03	0.3700E-02	0.3411E-03	0.3413E-03	0.3067E-01
010A	0.0	0.1232E-02	0.1062E 00	0.6176E-01	0.8152E-02	0.6957E-02	0.6784E-02	0.9952E-03	0.9954E-03	0.2687E-01
010B	0.0	0.1126E-02	0.7670E-01	0.2763E-01	0.2321E-02	0.1337E-02	0.2469E-02	0.9161E-03	0.9152E-03	0.1983E-01
011	0.9095E-12	0.2830E-03	0.5950E-01	0.4489E-01	0.1226E-02	0.7553E-03	0.1105E-02	0.3041E-03	0.3042E-03	0.4013E 00
012	0.0	0.2451E-02	0.3918E-01	0.3464E-01	0.6522E-02	0.3450E-02	0.5739E-02	0.1682E-02	0.1682E-02	0.6900E 00
13	0.0	0.1291E-02	0.4052E-01	0.3588E-01	0.5242E-02	0.1898E-03	0.4806E-02	0.1433E-02	0.1424E-02	0.5568E 00
014	0.3638E-10	0.4572E-02	0.2847E 01	0.6865E-01	0.1431E-01	0.4850E-02	0.8397E-02	0.8826E-02	0.8825E-02	0.1193E-01
015A	0.4820E-10	0.6175E-02	0.7538E 00	0.5927E-01	0.1154E-01	0.5046E-02	0.1033E-01	0.2504E-02	0.2504E-02	0.6867E-02
015B	0.3638E-11	0.1575E-02	0.9815E 01	0.1919E 00	0.2482E-01	0.1265E-01	0.1454E-01	0.9000E-02	0.9000E-02	0.6306E-01
015C	0.9350E-09	0.3393E-02	0.7077E 02	0.6488E 00	0.7751E-01	0.4313E-01	0.4459E-01	0.2516E-01	0.2521E-01	0.9241E-01
015D	0.9622E-09	0.2689E-02	0.2063E 01	0.8123E-01	0.1891E-01	0.1067E-01	0.1560E-01	0.6619E-02	0.6604E-02	0.1844E-01
015E	0.7276E-11	0.5338E-02	0.4263E-01	0.1398E-01	0.4098E-02	0.4831E-03	0.2909E-02	0.8363E-03	0.8351E-03	0.3689E-02
016	0.3211E-09	0.1017E-01	0.2889E-01	0.2557E-01	0.9743E-02	0.4190E-03	0.7763E-02	0.9333E-02	0.9333E-02	0.7904E 00
017	0.2638E-10	0.5319E-02	0.1802E 01	0.5390E-01	0.1154E-01	0.3586E-02	0.1068E-01	0.5271E-02	0.5272E-02	0.7730E-02
018A	0.9095E-12	0.5464E-06	0.4632E-03	0.3431E-03	0.7745E-04	0.3243E-04	0.7633E-04	0.2337E-06	0.2342E-06	0.1588E-02
018B	0.1819E-11	0.4529E-06	0.9111E-03	0.6479E-03	0.7119E-04	0.6054E-04	0.6200E-04	0.3421E-06	0.3431E-06	0.5077E-02
018C	0.9095E-12	0.1593E-03	0.5450E-02	0.4401E-02	0.1085E-02	0.6311E-04	0.1316E-02	0.7867E-04	0.7866E-04	0.2337E-01
018D	0.9095E-12	0.9335E-04	0.4032E-02	0.2924E-02	0.2919E-03	0.1863E-03	0.3282E-03	0.8256E-04	0.8254E-04	0.6308E-02
018E	0.1819E-11	0.2597E-04	0.1030E-02	0.6713E-03	0.9625E-04	0.5363E-04	0.8230E-04	0.2960E-04	0.2960E-04	0.2835E-02
019A	0.7693E-08	0.8274E-05	0.1291E-01	0.1564E-02	0.2717E-03	0.2385E-03	0.2351E-03	0.1796E-04	0.1796E-04	0.5653E-03
019B	0.1328E-08	0.5939E-02	0.2090E 00	0.3164E-01	0.9090E-02	0.2142E-02	0.9197E-02	0.2761E-02	0.2762E-02	0.6158E-02
020	0.0	0.1452E-01	0.6901E-01	0.5728E-01	0.1843E-01	0.7237E-03	0.1735E-01	0.1445E-01	0.1552E-01	0.7060E-01
021A	0.1819E-11	0.3364E-05	0.5559E-03	0.4153E-03	0.5237E-04	0.1612E-04	0.4405E-04	0.4099E-05	0.4028E-05	0.1934E-02
021B	0.9095E-12	0.3344E-04	0.3320E-02	0.1904E-02	0.2926E-03	0.9748E-04	0.1966E-03	0.3759E-04	0.3759E-04	0.4353E-02
021C	0.9095E-12	0.5451E-04	0.4909E-02	0.3152E-02	0.3807E-03	0.1595E-03	0.2694E-03	0.4788E-04	0.4789E-04	0.1070E-01
021D	0.9095E-12	0.5229E-04	0.4276E-02	0.2509E-02	0.2450E-03	0.1165E-03	0.2318E-03	0.6074E-04	0.5961E-04	0.5827E-02
022	0.1819E-11	0.1959E-03	0.5681E-02	0.3163E-02	0.3940E-03	0.1325E-03	0.2962E-03	0.1926E-03	0.1926E-03	0.5587E-02
023	0.4547E-11	0.6639E-02	0.3033E 00	0.1189E 00	0.5366E-02	0.2058E-07	0.3807E-02	0.4609E-02	0.4609E-02	0.5772E 00
024	0.1819E-11	0.3257E-02	0.4628E-01	0.1651E-01	0.5398E-02	0.3347E-03	0.3344E-02	0.4973E-02	0.4973E-02	0.1491E-01
025A	0.4093E-10	0.1415E-03	0.1117E 00	0.3380E-01	0.9378E-02	0.2057E-02	0.7283E-02	0.1017E-03	0.1017E-03	0.2077E-01
025B	0.1819E-11	0.5317E-03	0.1722E 00	0.1792E-01	0.2324E-02	0.1463E-02	0.1736E-02	0.6672E-03	0.6672E-03	0.6726E-02
025C	0.2274E-10	0.3888E-04	0.5984E-02	0.1783E-02	0.3249E-03	0.2670E-03	0.2665E-03	0.5597E-04	0.5597E-04	0.1952E-02
026	0.2956E-11	0.5735E-03	0.1144E-01	0.1091E-01	0.1451E-02	0.2870E-03	0.1623E-02	0.7118E-03	0.7115E-03	0.1720E 01

ID NO.	MODEL NUMBER 1	2	3	4	5	6	7	8	9	10
027	0.2061E-12	0.7626E-03	0.4133E-02	0.4047E-02	0.1016E-02	0.1893E-03	0.8323E-03	0.8265E-03	0.8265E-03	0.1551E 01
028	0.9186E-10	0.1315E-02	0.4471E-01	0.2536E-01	0.2413E-02	0.9611E-03	0.1696E-02	0.8177E-03	0.8178E-03	0.2749E-02
029	0.2638E-10	0.1642E 00	0.5837E 01	0.2198E 01	0.3966E 00	0.3035E 00	0.4472E 00	0.7368E-01	0.7418E-01	0.6284E 00
030A	0.0	0.7939E-03	0.4702E-02	0.4750E-02	0.1777E-02	0.1426E-04	0.2262E-02	0.8494E-03	0.8494E-03	0.3203E 00
030B	0.9095E-12	0.1655E-04	0.6788E-03	0.6097E-03	0.7048E-04	0.4042E-04	0.8199E-04	0.1957E-04	0.1957E-04	0.4351E-01
030C	0.0	0.6305E-05	0.2415E-03	0.2189E-03	0.2463E-04	0.1421E-04	0.2803E-04	0.7363E-05	0.7363E-05	0.1867E-01
030D	0.0	0.8141E-05	0.4300E-03	0.4080E-03	0.9446E-04	0.3525E-04	0.9700E-04	0.9338E-05	0.9338E-05	0.4916E-01
031	0.1421E-11	0.5003E-04	0.1910E-01	0.1645E-01	0.1437E-02	0.1021E-02	0.1407E-02	0.3730E-04	0.3732E-04	0.2668E 00
032A	0.1182E-10	0.1055E-02	0.6277E-01	0.1435E-01	0.3941E-02	0.2982E-03	0.4037E-02	0.1396E-03	0.1398E-03	0.4487E-02
032B	0.9095E-11	0.8692E-03	0.1984E 00	0.1763E-01	0.3272E-02	0.8760E-03	0.2403E-02	0.1507E-02	0.1507E-02	0.5632E-02
033	0.1081E-08	0.3229E-02	0.2676E 00	0.8785E-01	0.3764E-02	0.3517E-04	0.2326E-02	0.4756E-03	0.4756E-03	0.1487E-01
034	0.4547E-11	0.3683E-03	0.3548E 00	0.1323E 00	0.6188E-02	0.8549E-05	0.3709E-02	0.4466E-03	0.4466E-03	0.5166E-01
035A	0.4103E-02	0.2715E-03	0.3648E-01	0.5555E-01	0.8351E-03	0.5577E-03	0.7400E-03	0.2415E-03	0.2414E-03	0.1585E 00
035B	0.7555E-04	0.1030E-03	0.2023E-02	0.2266E-02	0.7210E-03	0.1296E-03	0.6568E-03	0.2307E-03	0.2308E-03	0.2365E-01
036	0.3197E-13	0.4378E-03	0.5372E-02	0.1099E-01	0.9912E-03	0.3450E-03	0.1256E-02	0.3665E-03	0.3664E-03	0.4453E-02
037A	0.2808E-06	0.3224E-03	0.7458E 00	0.1466E 00	0.5716E-02	0.4520E-02	0.4507E-02	0.1074E-02	0.1079E-02	0.2664E-01
037B	0.2638E-10	0.3702E-03	0.9713E-01	0.2368E-01	0.3849E-02	0.3103E-02	0.3078E-02	0.7362E-03	0.7359E-03	0.5813E-02
038	0.2416E-12	0.1397E-02	0.4219E-01	0.6460E-01	0.9237E-02	0.2659E-03	0.9419E-02	0.1958E-02	0.1958E-02	0.4414E-01
039	0.3065E-09	0.5699E-04	0.1426E-01	0.1295E-01	0.1682E-02	0.4839E-03	0.1689E-02	0.6672E-04	0.6676E-04	0.1094E 01
040	0.9095E-12	0.2897E-02	0.6488E 00	0.1045E 00	0.8502E-02	0.2668E-02	0.9897E-02	0.1948E-02	0.1947E-02	0.2980E-01
041	0.7649E-09	0.1987E-01	0.6307E 00	0.6515E-01	0.1249E-01	0.5556E-03	0.1393E-01	0.2261E-02	0.2260E-02	0.6733E-02
042A	0.4203E-09	0.1015E-04	0.2531E-02	0.2406E-02	0.2644E-03	0.2090E-03	0.2037E-03	0.2012E-04	0.2013E-04	0.1628E 01
042B	0.9095E-12	0.4149E-04	0.4284E-02	0.3982E-02	0.4847E-03	0.2022E-03	0.5716E-03	0.6000E-04	0.5997E-04	0.3217E 00
043	0.1902E-06	0.4828E-02	0.2001E 01	0.1629E 00	0.1462E-01	0.1141E-01	0.9704E-02	0.3052E-02	0.3052E-02	0.1822E-01
044A	0.2083E-09	0.1077E-01	0.1977E 00	0.5533E-01	0.1885E-01	0.4449E-02	0.1632E-01	0.9130E-02	0.9130E-02	0.3841E-02
044B	0.3647E-09	0.1118E-01	0.2715E 02	0.6952E 00	0.7696E-01	0.4673E-01	0.4995E-01	0.1636E-01	0.1637E-01	0.6609E-01
045	0.0	0.8641E-03	0.4364E 00	0.1591E 00	0.1406E-01	0.4584E-02	0.1530E-01	0.3064E-03	0.3062E-03	0.7466E-01
046	0.2289E-07	0.1359E-01	0.9745E 01	0.4406E 00	0.1030E-01	0.6554E-02	0.1018E-01	0.2567E-02	0.2567E-02	0.7898E-01
047	0.3464E-08	0.7292E-03	0.3191E-01	0.1236E-01	0.3719E-02	0.7284E-03	0.3837E-02	0.4265E-04	0.4273E-04	0.2017E-02
048	0.0	0.1134E-03	0.1127E-01	0.7952E-02	0.1302E-02	0.5271E-03	0.1343E-02	0.6737E-04	0.6737E-04	0.2741E-01
049	0.2603E-06	0.1558E-02	0.1673E 01	0.2785E-01	0.6191E-02	0.3116E-02	0.5345E-02	0.1821E-02	0.1815E-02	0.2541E-02
050	0.4547E-11	0.3170E-03	0.1872E-01	0.1220E-01	0.1725E-02	0.2209E-03	0.1762E-02	0.2782E-03	0.2782E-03	0.2003E-01
051	0.1226E-02	0.1958E 00	0.2671E 01	0.4378E 00	0.8885E-01	0.4758E-02	0.9669E-01	0.8393E-01	0.8394E-01	0.9305E 00
052	0.0	0.5190E-03	0.7283E 00	0.1666E 00	0.1332E-01	0.7697E-02	0.9928E-02	0.1363E-02	0.1365E-02	0.7690E-01
053	0.1819E-11	0.3986E-03	0.2370E-01	0.9745E-02	0.1830E-02	0.5410E-03	0.1424E-02	0.2710E-03	0.2708E-03	0.4228E-02
054	0.1819E-11	0.5938E-03	0.1735E-01	0.8327E-02	0.2533E-02	0.6288E-04	0.1864E-02	0.1685E-02	0.1680E-02	0.5380E-02
055A	0.1783E-09	0.3868E-03	0.3008E 00	0.1588E-01	0.1459E-02	0.5734E-03	0.1082E-02	0.3218E-03	0.3219E-03	0.5888E-02
055B	0.3365E-10	0.7564E-03	0.6295E-01	0.8084E-02	0.1813E-02	0.2321E-03	0.1688E-02	0.1232E-03	0.1232E-03	0.1533E-02
055C	0.1137E-09	0.1429E-02	0.1625E 00	0.1819E-01	0.4640E-02	0.8161E-03	0.4521E-02	0.5488E-04	0.5512E-04	0.2728E-02
055D	0.9641E-10	0.4362E-03	0.3032E-01	0.4186E-02	0.1173E-02	0.3763E-03	0.7222E-03	0.6997E-03	0.6997E-03	0.1723E-02
055E	0.2956E-09	0.5640E-03	0.1541E-01	0.3440E-02	0.1095E-02	0.1209E-03	0.7772E-03	0.4753E-03	0.4754E-03	0.9343E-03
056A	0.3647E-09	0.2484E-02	0.1096E 00	0.3106E-01	0.6743E-02	0.2336E-02	0.6495E-02	0.1792E-02	0.1792E-02	0.1124E-01
056B	0.8328E-08	0.1436E-03	0.2074E-01	0.5263E-02	0.5983E-03	0.3639E-03	0.6082E-03	0.1129E-03	0.1129E-03	0.2393E-02
056C	0.5912E-10	0.1025E-03	0.1097E-01	0.2758E-02	0.3450E-03	0.2726E-03	0.3472E-03	0.6477E-04	0.6477E-04	0.1369E-02
056D	0.3365E-10	0.1112E-02	0.2306E 00	0.6139E-01	0.5797E-02	0.4678E-02	0.5303E-02	0.8993E-03	0.8993E-03	0.3161E-01

ID NO.	MODEL NUMBER									
	1	2	3	4	5	6	7	8	9	10
056E	0.1819E-11	0.1941E-03	0.4720E-01	0.1178E-01	0.6776E-03	0.3948E-03	0.6818E-03	0.1801E-03	0.1800E-03	0.9070E-02
056F	0.9095E-12	0.4793E-03	0.4354E-01	0.1979E-01	0.3059E-02	0.1715E-02	0.3206E-02	0.2662E-03	0.2663E-03	0.1480E-01
057A	0.3569E-07	0.2275E-02	0.2350E 00	0.2928E-01	0.8269E-02	0.2224E-02	0.7917E-02	0.4669E-03	0.4666E-03	0.2080E-02
057B	0.3320E-09	0.9831E-04	0.1526E 01	0.1889E-01	0.2605E-02	0.1437E-02	0.1525E-02	0.1075E-02	0.1070E-02	0.4753E-02
058A	0.1022E-08	0.4750E-04	0.3035E-02	0.5299E-03	0.1059E-03	0.2730E-04	0.1055E-03	0.1347E-04	0.1347E-04	0.7212E-04
058B	0.8185E-11	0.9991E-03	0.4182E-01	0.1604E-01	0.4059E-02	0.7229E-03	0.3538E-02	0.4739E-04	0.5791E-04	0.9384E-03
058C	0.3565E-09	0.9186E-03	0.2154E 01	0.2532E-01	0.3126E-02	0.1572E-02	0.2081E-02	0.1060E-02	0.1056E-02	0.7468E-02
059	0.1546E-10	0.3956E-03	0.7957E 00	0.3675E-01	0.5892E-02	0.1871E-02	0.3828E-02	0.2110E-02	0.2107E-02	0.7618E-02
060	0.9095E-12	0.4813E-03	0.9377E-02	0.8681E-02	0.1893E-02	0.1304E-02	0.1795E-02	0.4601E-03	0.4599E-03	0.7271E 00
061	0.2061E-11	0.8490E-04	0.1129E-01	0.1112E-01	0.1459E-02	0.1320E-02	0.1529E-02	0.8248E-04	0.8246E-04	0.1597E 01
062A	0.4916E-06	0.3206E-02	0.9763E-01	0.1758E-01	0.5932E-02	0.1091E-02	0.5172E-02	0.1013E-02	0.1013E-02	0.7554E-03
062B	0.9095E-12	0.9869E-03	0.3987E-01	0.4648E-02	0.1485E-02	0.3629E-03	0.1354E-02	0.3721E-03	0.3721E-03	0.1880E-03
062C	0.1077E-08	0.1925E-03	0.1356E-01	0.1446E-02	0.4307E-03	0.1605E-03	0.4111E-03	0.1618E-03	0.1618E-03	0.7826E-04
063A	0.2046E-09	0.2038E-02	0.2482E 00	0.9206E-01	0.1920E-01	0.9864E-02	0.1356E-01	0.1705E-02	0.1705E-02	0.3930E-01
063B	0.3638E-11	0.1449E-01	0.1913E 00	0.4064E-01	0.1658E-01	0.1003E-02	0.9964E-02	0.1441E-01	0.1441E-01	0.1261E-01
063C	0.8267E-09	0.6977E-03	0.1963E 00	0.6570E-01	0.1304E-01	0.6275E-02	0.9216E-02	0.9311E-03	0.9312E-03	0.2076E-01
063D	0.3638E-11	0.9552E-04	0.6552E-01	0.1239E-01	0.2431E-02	0.1041E-02	0.1763E-02	0.6980E-03	0.6979E-03	0.5011E-02
063E	0.6899E-08	0.8523E-03	0.3837E 00	0.1311E 00	0.2864E-01	0.1678E-01	0.2127E-01	0.6730E-03	0.6730E-03	0.3981E-01
063F	0.8822E-10	0.3242E-04	0.2979E-01	0.7373E-02	0.1502E-02	0.4901E-03	0.1099E-02	0.2859E-03	0.2858E-03	0.2733E-02
063G	0.1137E-09	0.9680E-03	0.3303E-01	0.5393E-02	0.1704E-02	0.2257E-03	0.1438E-02	0.7975E-03	0.7974E-03	0.2526E-02
063H	0.7367E-10	0.4545E-02	0.1520E 01	0.7038E-01	0.6212E-02	0.4064E-02	0.5228E-02	0.1704E-02	0.2097E-02	0.1880E-01
064	0.0	0.3258E-03	0.3802E-02	0.3616E-02	0.1066E-02	0.7585E-04	0.1417E-02	0.3723E-03	0.3720E-03	0.7972E-01
065	0.9095E-12	0.5186E-03	0.1363E-01	0.1145E-01	0.1188E-02	0.2972E-03	0.7982E-03	0.4985E-03	0.4987E-03	0.7302E-01
066	0.0	0.7781E-03	0.9606E-01	0.6997E-01	0.3269E-02	0.1177E-02	0.2212E-02	0.1264E-02	0.1264E-02	0.1015E 00
067A	0.2274E-10	0.6213E-04	0.3965E 03	0.3675E 01	0.5222E-01	0.3568E-01	0.1907E-01	0.5567E-04	0.5567E-04	0.7224E-02
067B	0.5837E-08	0.5452E-05	0.3336E 01	0.2925E-01	0.3275E-03	0.1898E-03	0.2863E-03	0.3205E-04	0.3206E-04	0.9643E-02
067C	0.1136E-08	0.8807E-05	0.4200E 02	0.1821E 00	0.3172E-03	0.2474E-03	0.2193E-03	0.3912E-04	0.3910E-04	0.4022E-01
067D	0.1306E-07	0.6378E-04	0.5546E 00	0.9337E-02	0.1709E-03	0.5837E-04	0.1086E-03	0.1058E-03	0.1058E-03	0.1017E 01
068	0.4547E-11	0.7339E-02	0.1647E 00	0.6097E-01	0.1437E-01	0.2772E-02	0.1763E-01	0.5584E-02	0.5586E-02	0.1528E-01
069A	0.2274E-10	0.2785E-02	0.8913E 00	0.3328E 00	0.2179E-01	0.6670E-02	0.2861E-01	0.1467E-01	0.1468E-01	0.6982E-01
069B	0.5912E-10	0.2390E-02	0.8218E 00	0.3192E 00	0.2115E-01	0.8526E-02	0.2627E-01	0.1220E-01	0.1219E-01	0.7623E-01
070	0.4093E-10	0.2518E-02	0.4161E 00	0.5371E-01	0.3982E-02	0.5648E-03	0.4676E-02	0.3312E-02	0.3335E-02	0.1146E-01
071	0.1819E-11	0.1275E-02	0.5835E 00	0.1287E 00	0.1958E-01	0.1360E-01	0.1441E-01	0.5507E-02	0.5651E-02	0.1277E-01
072A	0.9095E-12	0.8699E-04	0.6853E-03	0.5416E-03	0.1328E-03	0.3202E-04	0.1383E-03	0.9846E-04	0.9845E-04	0.4356E-02
072B	0.3638E-10	0.2824E-04	0.2279E-02	0.1747E-02	0.3130E-03	0.8455E-04	0.3031E-03	0.3053E-04	0.2887E-04	0.9425E-02
073	0.0	0.2786E-03	0.3100E-01	0.2422E-01	0.2959E-02	0.1075E-02	0.2080E-02	0.7242E-04	0.6875E-04	0.9506E-01
074A	0.4093E-10	0.2514E-03	0.5312E-02	0.3507E-02	0.8510E-03	0.3000E-03	0.1018E-02	0.2613E-03	0.2613E-03	0.5264E-02
074B	0.9095E-12	0.4428E-04	0.7411E-02	0.5000E-02	0.7008E-03	0.2869E-03	0.5391E-03	0.3320E-04	0.3340E-04	0.2761E-01
074C	0.9095E-12	0.6583E-04	0.7390E-02	0.4594E-02	0.5937E-03	0.3433E-03	0.4449E-03	0.4985E-04	0.4984E-04	0.1292E-01
074D	0.1819E-11	0.2617E-03	0.4794E-02	0.3454E-02	0.6956E-03	0.2231E-03	0.7521E-03	0.2734E-03	0.2735E-03	0.1140E-01
075A	0.9095E-11	0.2184E-02	0.2288E 00	0.1257E 00	0.1069E-01	0.1207E-02	0.6794E-02	0.1247E-03	0.1247E-03	0.1172E 00
075B	0.9095E-11	0.1314E-01	0.5039E 00	0.2671E 00	0.4139E-01	0.3282E-02	0.3810E-01	0.8300E-02	0.8297E-02	0.2059E 00
076	0.0	0.2226E-04	0.6185E-02	0.5699E-02	0.7021E-03	0.3323E-03	0.6243E-03	0.2119E-04	0.2091E-04	0.5052E 00
077	0.9095E-12	0.3322E-02	0.1319E 00	0.8431E-01	0.4007E-02	0.1271E-02	0.2166E-02	0.5694E-03	0.5695E-03	0.2598E 00
078A	0.0	0.7761E-03	0.3559E-01	0.2454E-01	0.3686E-02	0.1408E-02	0.3048E-02	0.2325E-03	0.2299E-03	0.4055E-01

ID NO.	MODEL NUMBER									
	1	2	3	4	5	6	7	8	9	10
078B	0.9095E-12	0.1016E-02	0.1097E-01	0.7849E-02	0.2381E-02	0.1941E-03	0.1783E-02	0.1614E-02	0.1611E-02	0.1694E-01
079	0.3854E 02	0.1573E-04	0.1636E-01	0.3317E-02	0.1936E-02	0.5221E-06	0.3423E-02	0.2925E-04	0.2929E-04	0.1461E 01
080	0.8777E-10	0.1158E-04	0.1828E-01	0.1651E-01	0.1153E-02	0.1082E-02	0.1172E-02	0.2714E-04	0.2714E-04	0.1094E 01
081	0.2310E-09	0.1128E-02	0.4001E 01	0.2972E 00	0.1001E-01	0.2869E-03	0.1622E-01	0.5018E-02	0.5022E-02	0.2187E 00
082	0.1819E-11	0.6465E-04	0.2269E-02	0.1665E-02	0.2476E-03	0.1014E-03	0.1860E-03	0.6744E-04	0.6909E-04	0.1219E-01
083A	0.1064E-08	0.1389E-03	0.1331E 01	0.1041E-01	0.1639E-02	0.1059E-02	0.1057E-02	0.4319E-03	0.4318E-03	0.5370E-02
083B	0.3617E-08	0.2663E-03	0.4249E 00	0.6759E-02	0.1353E-02	0.1091E-02	0.1083E-02	0.2343E-03	0.2343E-03	0.3083E-02
083C	0.2201E-09	0.1761E-03	0.1637E-01	0.2443E-02	0.6018E-03	0.5135E-03	0.5558E-03	0.8536E-04	0.8539E-04	0.2324E-03
084A	0.3988E-08	0.1931E-05	0.1623E 00	0.1636E-02	0.4982E-03	0.2141E-03	0.3756E-03	0.1834E-03	0.1834E-03	0.2492E-03
084B	0.1573E-08	0.3908E-04	0.3771E-02	0.9963E-03	0.2852E-03	0.1948E-03	0.2553E-03	0.8409E-04	0.8403E-04	0.8892E-04
085	0.1741E-12	0.8017E-04	0.3504E-01	0.3671E-01	0.2546E-02	0.1807E-02	0.1829E-02	0.3256E-03	0.3255E-03	0.1472E 01
086A	0.7265E-08	0.1488E-02	0.4463E 00	0.6166E-01	0.9546E-02	0.5747E-02	0.6093E-02	0.3015E-02	0.3015E-02	0.3402E-01
086B	0.2274E-10	0.6157E-03	0.1080E 00	0.2812E-01	0.4544E-02	0.1746E-02	0.3673E-02	0.5102E-03	0.5102E-03	0.1519E-01
086C	0.1637E-10	0.4107E-03	0.3024E 00	0.7068E-01	0.8129E-02	0.3375E-02	0.5881E-02	0.1134E-02	0.1134E-02	0.3535E-01
086D	0.4547E-11	0.5333E-02	0.2267E 00	0.8720E-01	0.1612E-01	0.3446E-02	0.1799E-01	0.1456E-02	0.1465E-02	0.2850E-01
086E	0.9095E-12	0.1218E-02	0.2808E 00	0.5745E-01	0.5855E-02	0.2821E-02	0.5145E-02	0.9614E-03	0.9548E-03	0.3053E-01
086F	0.9095E-12	0.7135E-03	0.1052E 00	0.3487E-01	0.3468E-02	0.1987E-02	0.2194E-02	0.1098E-02	0.1095E-02	0.1236E-01
086G	0.1819E-11	0.1019E-02	0.1934E 00	0.4444E-01	0.4223E-02	0.2595E-02	0.3721E-02	0.7522E-03	0.7441E-03	0.2024E-01
087	0.3365E-10	0.3554E-04	0.6942E-01	0.2233E-02	0.6875E-03	0.1436E-03	0.5191E-03	0.3371E-03	0.3370E-03	0.7277E-03
088	0.1028E-08	0.1996E-03	0.3950E-01	0.7650E-02	0.2651E-02	0.1651E-04	0.2086E-02	0.8074E-03	0.8082E-03	0.4906E-03
089	0.2337E-09	0.3499E-02	0.2714E 00	0.3607E-01	0.6573E-02	0.6385E-03	0.5789E-02	0.1008E-02	0.1007E-02	0.1026E-02
090	0.4547E-11	0.1212E-01	0.4651E 00	0.1241E 00	0.3034E-01	0.5641E-02	0.3729E-01	0.1850E-02	0.1843E-02	0.2430E-01
091	0.3638E-11	0.1489E-03	0.3675E-02	0.1761E-02	0.4363E-03	0.1377E-03	0.3209E-03	0.2099E-03	0.2100E-03	0.1972E-02
092	0.3729E-10	0.7217E-02	0.2191E 00	0.4402E-01	0.1758E-01	0.2752E-02	0.1534E-01	0.1478E-01	0.1479E-01	0.5918E-02
093	0.9095E-12	0.3780E-02	0.2245E 00	0.3724E-01	0.1584E-01	0.1600E-02	0.1194E-01	0.3697E-02	0.3714E-02	0.2593E-01
094	0.3053E-10	0.4011E-03	0.2022E 00	0.1839E 00	0.9449E-02	0.1825E-02	0.6611E-02	0.7182E-04	0.7189E-04	0.1816E 01
095A	0.9415E-12	0.4785E-02	0.9682E-01	0.9158E-01	0.1436E-01	0.1777E-02	0.1334E-01	0.4394E-02	0.4395E-02	0.1150E 01
095B	0.5983E-11	0.4160E-03	0.5717E-02	0.6067E-02	0.1719E-02	0.4750E-03	0.1753E-02	0.3590E-03	0.3588E-03	0.1920E 00
096	0.5275E-10	0.4791E-02	0.2474E 00	0.4584E-01	0.1070E-01	0.2863E-02	0.9493E-02	0.6960E-02	0.6964E-02	0.8845E-02
097	0.3865E-09	0.2447E-02	0.3879E 00	0.2185E 00	0.7852E-02	0.2343E-02	0.5296E-02	0.2416E-02	0.2415E-02	0.2378E 00
098A	0.9095E-12	0.1477E-02	0.4303E-01	0.2641E-01	0.5137E-02	0.9325E-03	0.6496E-02	0.1944E-02	0.1944E-02	0.2563E-01
098B	0.4547E-11	0.9230E-03	0.2571E-01	0.1610E-01	0.2714E-02	0.6356E-03	0.3602E-02	0.1484E-02	0.1484E-02	0.2273E-01
098C	0.1819E-11	0.2453E-03	0.8359E-02	0.6310E-02	0.1257E-02	0.2047E-03	0.1009E-02	0.2692E-03	0.2692E-03	0.1911E-01
098D	0.0	0.4179E-03	0.3287E-01	0.2794E-01	0.5317E-02	0.3502E-03	0.5236E-02	0.3116E-04	0.3119E-04	0.1488E 00
098E	0.9095E-12	0.1613E-03	0.1743E-01	0.1284E-01	0.1816E-02	0.6316E-03	0.1203E-02	0.2318E-03	0.2318E-03	0.5734E-01
099A	0.1297E-10	0.3796E-03	0.5658E-02	0.1362E-01	0.9531E-03	0.4228E-03	0.9609E-03	0.4379E-03	0.4381E-03	0.6192E-02
099B	0.3197E-12	0.2462E-03	0.6257E-02	0.1221E-01	0.8796E-03	0.2781E-03	0.9854E-03	0.3229E-03	0.3222E-03	0.9492E-02
100	0.3529E-09	0.3670E-03	0.2014E-01	0.7537E-02	0.1738E-02	0.6440E-03	0.1511E-02	0.4972E-03	0.4970E-03	0.1725E-02
101	0.3729E-10	0.8011E-04	0.6222E-01	0.1216E-01	0.7498E-03	0.2993E-03	0.7293E-03	0.4989E-04	0.4988E-04	0.5224E-02
102	0.4457E-10	0.5275E-03	0.1560E 02	0.5342E 00	0.9935E-02	0.5671E-02	0.4643E-02	0.3860E-02	0.3861E-02	0.2483E 00
103	0.4547E-11	0.1213E-03	0.3558E-01	0.1963E-01	0.8189E-03	0.2968E-03	0.6647E-03	0.3874E-03	0.3875E-03	0.4247E-01
104	0.4800E-07	0.1193E-01	0.6879E 02	0.3171E 00	0.4432E-01	0.2603E-01	0.4109E-01	0.1148E-01	0.1147E-01	0.5437E-01
105	0.4547E-10	0.4050E-03	0.2079E 00	0.3666E-01	0.5830E-02	0.4587E-02	0.4692E-02	0.7159E-03	0.7157E-03	0.1240E-01
106	0.1319E-08	0.3591E-03	0.7325E 01	0.2069E 00	0.2794E-02	0.2109E-03	0.2322E-02	0.1258E-03	0.1256E-03	0.7644E-01
107	0.9095E-12	0.6608E-05	0.3150E-03	0.2481E-03	0.3996E-04	0.2999E-04	0.3505E-04	0.8514E-05	0.8514E-05	0.1966E-02

ID NO.	MODEL NUMBER 1	2	3	4	5	6	7	8	9	10
108	0.9095E-12	0.2537E-03	0.2636E-02	0.1998E-02	0.3431E-03	0.8388E-04	0.3341E-03	0.2538E-03	0.2538E-03	0.5089E-02
109	0.9237E-12	0.3631E-04	0.3644E-01	0.3288E-01	0.1272E-02	0.8866E-03	0.1309E-02	0.2168E-04	0.2157E-04	0.1825E 01
110A	0.0	0.1668E-04	0.1753E-02	0.1731E-02	0.2893E-03	0.5671E-04	0.3298E-03	0.1567E-04	0.1567E-04	0.8499E 00
110B	0.0	0.1425E-04	0.2793E-02	0.2698E-02	0.2973E-03	0.7587E-04	0.2201E-03	0.3593E-04	0.3595E-04	0.7497E 00
110C	0.0	0.3817E-04	0.4243E-02	0.4164E-02	0.5575E-03	0.1601E-03	0.4764E-03	0.2533E-04	0.2532E-04	0.1267E 01
110D	0.9095E-12	0.1994E-04	0.8552E-02	0.8074E-02	0.5866E-03	0.1929E-03	0.4692E-03	0.2051E-04	0.2049E-04	0.1446E 01
110E	0.9095E-12	0.8473E-04	0.4509E-02	0.4373E-02	0.5313E-03	0.1089E-03	0.5772E-03	0.1044E-03	0.1037E-03	0.1243E 01
111A	0.3365E-10	0.7823E-03	0.1489E 00	0.6289E-01	0.8113E-02	0.2610E-02	0.5289E-02	0.7799E-03	0.7799E-03	0.3902E-01
111B	0.0	0.9604E-03	0.2714E-01	0.1528E-01	0.4216E-02	0.9101E-03	0.3702E-02	0.1379E-02	0.1379E-02	0.1438E-01
111C	0.0	0.1031E-02	0.4960E-01	0.2041E-01	0.2101E-02	0.6894E-03	0.1665E-02	0.1392E-02	0.1392E-02	0.2719E-01
112A	0.4599E-08	0.1011E-01	0.4949E 01	0.7476E-01	0.1649E-01	0.5526E-02	0.1411E-01	0.3501E-02	0.3501E-02	0.2233E-02
112B	0.4957E-09	0.4348E-02	0.1283E 01	0.3715E-01	0.8769E-02	0.3436E-02	0.7401E-02	0.2446E-02	0.2446E-02	0.1121E-02
112C	0.7276E-10	0.2171E-02	0.3251E 00	0.1975E-01	0.5151E-02	0.2164E-02	0.4269E-02	0.1711E-02	0.1711E-02	0.5757E-03
112D	0.3729E-10	0.6604E-02	0.1200E 03	0.3947E 01	0.5948E 00	0.3963E-01	0.1135E 00	0.8241E-02	0.8243E-02	0.1705E-01
112E	0.7275E-11	0.5922E-03	0.1302E 00	0.3286E-01	0.8034E-02	0.5313E-02	0.7433E-02	0.7840E-03	0.7833E-03	0.7847E-02
113	0.3638E-11	0.1186E-02	0.8931E-01	0.1979E-01	0.6714E-02	0.2170E-02	0.5456E-02	0.2225E-02	0.2220E-02	0.3319E-02
114A	0.4729E-10	0.6994E-02	0.6493E 00	0.9502E-01	0.2191E-01	0.7500E-02	0.2066E-01	0.7000E-03	0.6999E-03	0.2403E-01
114B	0.5275E-09	0.1800E-02	0.2001E 01	0.1078E 00	0.2017E-01	0.1239E-01	0.1391E-01	0.6446E-02	0.6442E-02	0.2671E-01
114C	0.4547E-10	0.1212E-01	0.2028E 01	0.1373E 00	0.3412E-01	0.1092E-01	0.3189E-01	0.4639E-02	0.4639E-02	0.3907E-01
115	0.9095E-11	0.1063E-01	0.9044E 00	0.2104E 00	0.4607E-01	0.2700E-01	0.3889E-01	0.2327E-02	0.2327E-02	0.3107E-01
116A	0.1182E-10	0.1094E-01	0.5288E 01	0.1448E 01	0.2126E 00	0.8512E-01	0.1446E 00	0.3221E-02	0.3220E-02	0.1123E 00
116B	0.1819E-11	0.1000E-02	0.1699E 00	0.7281E-01	0.8250E-02	0.5250E-02	0.8212E-02	0.7431E-03	0.7430E-03	0.4259E-01
116C	0.0	0.1097E-02	0.3476E-02	0.2920E-02	0.1417E-02	0.2880E-03	0.1385E-02	0.1029E-02	0.1028E-02	0.9236E-02
117A	0.2474E-09	0.1212E-01	0.2161E 01	0.3751E 00	0.1084E 00	0.7720E-01	0.9752E-01	0.2557E-02	0.2557E-02	0.8208E-02
117B	0.2956E-09	0.2302E-01	0.1291E 01	0.1475E 00	0.5481E-01	0.2186E-01	0.5491E-01	0.1458E-01	0.1457E-01	0.3462E-02
117C	0.7731E-10	0.4452E-02	0.8398E 00	0.5738E-01	0.1510E-01	0.6686E-02	0.1255E-01	0.6918E-02	0.6918E-02	0.3786E-02
118	0.1546E-10	0.1300E-01	0.2418E 00	0.1325E 00	0.2891E-01	0.5989E-02	0.3984E-01	0.1562E-01	0.1563E-01	0.3736E-01
119	0.1404E-08	0.1824E-01	0.4861E 00	0.5921E-01	0.2162E-01	0.5781E-02	0.1442E-01	0.1551E-01	0.1551E-01	0.5857E-02
120A	0.5463E-06	0.1135E-02	0.2238E 01	0.5876E-01	0.4797E-02	0.2653E-02	0.3233E-02	0.1604E-02	0.1604E-02	0.1554E-01
120B	0.9860E-08	0.5298E-03	0.4297E 01	0.8152E-01	0.7332E-02	0.3841E-02	0.5051E-02	0.3664E-02	0.3664E-02	0.1833E-01
121	0.9095E-10	0.3308E-01	0.2626E 01	0.6263E 00	0.4999E-01	0.3875E-02	0.6212E-01	0.4455E-01	0.4455E-01	0.2563E 00
122	0.4375E-09	0.8467E-03	0.4650E 01	0.5006E-01	0.1024E-01	0.1687E-02	0.8752E-02	0.8047E-02	0.8047E-02	0.7819E-02
123	0.2474E-09	0.5493E 01	0.1954E 03	0.1940E 02	0.6689E 01	0.2191E 01	0.5629E 01	0.1240E 01	0.1203E 01	0.1724E 01
124A	0.1819E-11	0.6818E-02	0.2580E 00	0.1098E 00	0.2287E-01	0.5293E-02	0.1788E-01	0.2815E-02	0.2815E-02	0.3203E-01
124B	0.9095E-11	0.6543E-03	0.7021E-01	0.2171E-01	0.2604E-02	0.2630E-03	0.1621E-02	0.1018E-02	0.1018E-02	0.2244E-01
125	0.1819E-11	0.2285E-03	0.5676E-02	0.4437E-02	0.6987E-03	0.4517E-03	0.7156E-03	0.2109E-03	0.2100E-03	0.1840E-01
126	0.1182E-10	0.5595E-01	0.3754E 00	0.1417E 00	0.3695E-01	0.2533E-02	0.2678E-01	0.3436E-01	0.3435E-01	0.2979E-01
127	0.6776E-09	0.4948E-03	0.9218E-01	0.4638E-01	0.2224E-02	0.8668E-05	0.1645E-02	0.1328E-02	0.1324E-02	0.1265E-01
128	0.9095E-12	0.6844E-02	0.3005E-01	0.2347E-01	0.2778E-02	0.8154E-04	0.1755E-02	0.1556E-02	0.1556E-02	0.8694E-02
129	0.5822E-08	0.4884E-03	0.3229E-01	0.9391E-02	0.1380E-02	0.1268E-02	0.1458E-02	0.3878E-04	0.3884E-04	0.8864E-02
130A	0.1819E-11	0.9871E-03	0.2544E 00	0.1655E 00	0.3625E-01	0.9251E-02	0.3127E-01	0.1241E-02	0.1241E-02	0.4739E 00
130B	0.9095E-12	0.1462E-02	0.3283E 01	0.2582E 00	0.5138E-01	0.8006E-02	0.4907E-01	0.1094E-02	0.1094E-02	0.2337E 00
130C	0.0	0.1026E-02	0.2892E 00	0.1926E 00	0.4186E-01	0.2481E-03	0.4183E-01	0.1189E-02	0.1189E-02	0.7943E 00
130D	0.9095E-12	0.2309E-03	0.1428E 00	0.9507E-01	0.1454E-01	0.2274E-03	0.1059E-01	0.6763E-03	0.6757E-03	0.3855E 00
130E	0.8185E-11	0.2379E-03	0.6997E-01	0.5603E-01	0.1515E-01	0.1960E-02	0.1459E-01	0.2399E-03	0.2399E-03	0.3402E 00

ID NO.	MODEL NUMBER 1	2	3	4	5	6	7	8	9	10
130F	0.9095E-12	0.2448E-03	0.1847E 00	0.1883E 00	0.1781E-01	0.1861E-02	0.1639E-01	0.3503E-03	0.3499E-03	0.7507E 00
131	0.5275E-10	0.4954E-03	0.2348E 00	0.2260E-01	0.4123E-02	0.3516E-02	0.3504E-02	0.3123E-03	0.3123E-03	0.7653E-02
132	0.4547E-11	0.6958E-02	0.1144E 00	0.5190E-01	0.1749E-01	0.2526E-02	0.1841E-01	0.5634E-02	0.5640E-02	0.9192E-02
133	0.5960E-07	0.4984E-01	0.1325E 03	0.2840E 00	0.6561E-01	0.1024E-01	0.9559E-01	0.2407E-01	0.2403E-01	0.1435E-01
134A	0.3654E 00	0.6687E-04	0.3049E 03	0.2585E 00	0.1203E 00	0.2366E-01	0.9489E-01	0.9238E-01	0.9238E-01	0.6601E 00
134B	0.1246E 47	0.2296E-04	0.4845E 02	0.4837E-01	0.1917E-01	0.4734E-02	0.1425E-01	0.1352E-01	0.1352E-01	0.1596E 01
135	0.1587E-07	0.2945E-02	0.9569E 00	0.7147E 00	0.4184E-01	0.9572E-02	0.3088E-01	0.9849E-02	0.9855E-02	0.1305E 01
136	0.0	0.2690E-02	0.2302E 00	0.7255E-01	0.1177E-01	0.2926E-02	0.1049E-01	0.1257E-03	0.1253E-03	0.3527E-01
137	0.6004E-12	0.2591E-07	0.6790E-04	0.6732E-04	0.8551E-05	0.5688E-05	0.1025E-04	0.8456E-07	0.8603E-07	0.9361E 00
138	0.1819E-11	0.7375E-03	0.6897E-01	0.4646E-01	0.2006E-02	0.1178E-02	0.1652E-02	0.4628E-03	0.4630E-03	0.1019E 00
139	0.0	0.2510E-03	0.8530E-01	0.5625E-01	0.1142E-02	0.7858E-03	0.9197E-03	0.2770E-03	0.2770E-03	0.1250E 00
140	0.1819E-11	0.3188E-02	0.2584E-01	0.1785E-01	0.3952E-02	0.6473E-03	0.2591E-02	0.3100E-02	0.3100E-02	0.3765E-01
141	0.1819E-11	0.3609E-02	0.4348E 01	0.7677E 00	0.6315E-01	0.5037E-01	0.4473E-01	0.1156E-01	0.1159E-01	0.2650E 00
142	0.3865E-09	0.1402E-02	0.2233E 03	0.1098E 01	0.1172E-01	0.6676E-02	0.6289E-02	0.4802E-02	0.4802E-02	0.3343E 00
143A	0.1819E-11	0.2078E-05	0.4215E-03	0.3719E-03	0.9266E-04	0.3238E-04	0.8900E-04	0.1760E-05	0.1760E-05	0.1469E-01
143B	0.0	0.1156E-05	0.5087E-03	0.4355E-03	0.5748E-04	0.5317E-04	0.6030E-04	0.8496E-06	0.8478E-06	0.1714E-01
144A	0.3638E-11	0.1009E-03	0.2561E-01	0.1455E-01	0.1839E-02	0.4382E-03	0.1714E-02	0.1838E-04	0.1887E-04	0.4777E-01
144B	0.4547E-11	0.2328E-04	0.4216E-01	0.2754E-01	0.3245E-02	0.2122E-02	0.1972E-02	0.6138E-04	0.6148E-04	0.1792E 00
145	0.3365E-10	0.7080E-03	0.2439E 00	0.7397E-01	0.9813E-02	0.5746E-02	0.6736E-02	0.4050E-02	0.4050E-02	0.2531E-01
146	0.4547E-11	0.2475E-04	0.1453E-02	0.9106E-03	0.1427E-03	0.8212E-04	0.1240E-03	0.2988E-04	0.2988E-04	0.3783E-02
147	0.8185E-11	0.4267E-03	0.2224E-01	0.5450E-02	0.1534E-02	0.7467E-03	0.1454E-02	0.1751E-03	0.1755E-03	0.1965E-02
148	0.1637E-10	0.7046E-02	0.1634E 00	0.8633E-01	0.2906E-01	0.4990E-03	0.1922E-01	0.1307E-01	0.1306E-01	0.4984E-01

applied to the regression search was to demand that the parameter values not exceed the range ±10000 cal/gmole. If this range of feasible values was, in fact, exceeded the search was restarted at new initial guesses. This option could be exercised three times; beyond this, the search was allowed to continue unconstrained.

A bubble point calculation was made for each system to calculate the pressure and vapor composition consistent with each set of Wilson parameter values. The results appear in Tables 8 and 9 as the mean absolute deviations in calculated pressure and composition from the experimental data, respectively. These values are the absolute deviations between experimental and calculated variables averaged over all the data points. In the following paragraphs, we will concentrate on the composition data.

An examination of the data discloses that all of the models were able, on the average, to correlate the binary data in an acceptable fashion. Clearly, models one and two are of inferior quality relative to the performance of the remaining models. This is seen both on the average absolute deviation (about 0.02 mole fraction as compared to about 0.01 mole fraction) and in specific binary systems where average absolute composition deviations climbed as high as 0.5 mole fraction and more. The performances of models four through seven are of superior quality relative to the other models.

Composition data for two systems within the set of 247 were poorly fit by all of the models. Both systems (numbered 029 and 123 on Table 14) appeared to be of highly inconsistent data.

TABLE 8

SUMMARY OF MEAN ABSOLUTE DEVIATIONS IN PRESSURE

ID NO.	MODEL NUMBER									
	1	2	3	4	5	6	7	8	9	10
001	39.63	27.69	22.45	25.39	18.05	36.78	20.76	13.38	13.39	21.18
002	30.63	21.22	39.75	11.97	11.37	16.63	18.10	9.36	9.36	46.50
003	152.84	76.60	76.03	93.34	46.51	128.09	54.54	32.18	32.18	78.23
004	2.23	1.79	1.74	1.74	1.76	2.39	1.74	1.50	1.50	1.74
005	43.79	8.13	31.41	30.08	13.04	42.67	15.30	7.70	7.70	34.08
006	6.06	2.05	3.83	3.86	2.19	2.77	1.89	1.60	1.60	4.31
007A	5.97	4.19	5.37	5.65	4.10	9.32	4.07	4.06	4.06	5.12
007B	13.60	3.32	10.67	11.64	4.38	20.10	3.76	3.07	3.06	10.67
007C	9.15	4.15	6.84	7.19	4.64	13.77	4.48	4.18	4.18	7.12
008A	12.82	2.89	7.05	6.75	1.70	5.01	1.83	1.38	1.38	9.41
008B	9.26	15.09	7.36	9.25	9.41	20.76	12.71	1.65	1.65	6.88
009A	24.23	20.81	16.42	16.07	6.96	25.89	9.60	3.65	3.65	17.15
009B	32.99	15.56	23.35	21.86	6.58	25.83	9.45	3.37	3.37	24.77
010A	4.59	2.57	3.47	3.34	2.30	2.56	2.74	2.43	2.43	3.89
010B	5.91	3.09	3.76	4.06	2.96	3.10	3.15	3.04	3.07	3.99
011	4.62	1.66	4.27	4.37	1.67	3.67	1.81	1.66	1.66	4.26
012	9.22	7.33	7.80	7.96	7.42	10.53	7.64	6.82	6.82	7.80
13	31.11	28.97	15.99	17.00	8.11	37.35	12.65	7.66	7.66	15.68
014	100.31	33.95	58.19	26.45	10.69	18.97	8.39	10.86	10.86	45.01
015A	7.65	3.32	5.15	5.10	2.94	5.30	3.16	2.51	2.51	5.16
015B	10.93	14.89	12.24	12.28	8.19	11.16	9.34	7.00	7.00	12.23
015C	22.95	41.96	88.17	34.89	25.85	34.56	24.32	23.82	23.82	70.63
015D	28.09	12.90	26.78	22.98	15.80	21.30	14.37	13.49	13.50	26.11
015E	56.05	8.61	9.08	10.30	7.81	13.70	9.90	7.09	7.12	11.03
016	18.28	17.49	20.87	20.00	14.89	15.31	13.75	13.79	13.79	19.42
017	15.69	10.47	10.23	11.23	10.33	16.14	12.03	9.10	9.10	11.66
018A	1.05	0.08	0.55	0.53	0.23	0.98	0.28	0.03	0.03	0.56
018B	1.19	0.12	0.43	0.39	0.41	1.00	0.58	0.11	0.11	0.46
018C	13.53	1.82	9.49	8.88	3.47	14.33	4.13	1.63	1.63	9.44
018D	3.53	0.98	2.04	1.93	0.95	1.40	0.95	0.97	0.97	2.16
018E	1.24	1.00	0.99	1.00	0.92	1.04	0.91	0.98	0.98	1.02
019A	7.66	0.26	0.25	0.20	0.15	0.18	0.18	0.15	0.15	0.20
019B	33.71	10.66	20.57	19.27	10.56	20.31	13.78	8.23	8.23	20.63
020	25.54	34.35	21.52	22.28	22.55	34.22	23.19	20.11	22.73	21.40
021A	3.67	0.61	0.44	0.53	0.66	2.11	0.89	0.33	0.33	0.42
021B	0.25	0.71	0.28	0.40	0.41	1.36	0.59	0.28	0.28	0.28
021C	1.44	1.45	0.89	0.90	0.97	3.20	1.43	0.74	0.74	0.89
021D	6.03	1.14	1.83	1.82	1.13	3.01	1.33	1.03	1.03	1.83
022	2.18	1.80	2.00	1.97	1.82	2.01	1.84	1.82	1.82	2.04
023	14.13	830.52	17.53	19.07	13.05	62.14	12.93	13.11	13.11	41.41
024	41.41	16.94	18.73	18.14	16.45	17.75	16.63	16.47	16.47	18.73
025A	23.47	8.97	8.23	9.03	6.27	21.13	9.53	1.22	1.22	9.22
025B	8.89	3.40	3.95	3.27	2.97	4.11	3.52	2.78	2.77	4.02
025C	17.89	2.36	5.77	3.37	2.52	2.68	2.38	2.46	2.46	5.67
026	8.29	3.93	9.00	8.76	3.91	7.88	4.13	3.74	3.74	6.90

ID NO.	MODEL NUMBER									
	1	2	3	4	5	6	7	8	9	10
027	4.53	5.57	4.49	4.50	4.53	4.53	4.56	4.52	4.52	4.52
028	11.67	9.39	7.94	7.00	3.85	8.38	4.19	3.75	3.75	8.24
029	90.83	35.57	72.74	84.43	41.45	62.05	41.05	33.80	35.08	92.73
030A	4.35	1.40	3.26	3.23	1.57	4.36	1.80	1.41	1.41	3.22
030B	0.70	0.25	0.46	0.45	0.24	0.58	0.26	0.25	0.25	0.31
030C	1.20	0.43	0.80	0.79	0.50	0.95	0.54	0.41	0.42	0.67
030D	4.18	0.70	2.15	2.10	0.92	4.21	0.94	0.68	0.68	2.17
031	27.68	0.96	8.60	7.74	2.46	3.98	2.56	0.83	0.83	5.40
032A	44.05	8.87	19.34	18.44	7.98	24.82	9.79	2.29	2.29	19.78
032B	27.07	8.12	9.92	9.45	6.73	11.33	7.16	6.54	6.54	10.98
033	86.71	115.99	38.86	30.49	4.95	72.34	8.81	4.53	4.53	42.59
034	87.13	234.10	56.47	49.93	6.25	89.76	11.15	4.83	4.83	58.97
035A	6.93	1.71	5.72	6.95	1.04	1.30	1.11	1.10	1.10	4.14
035B	4.00	2.28	3.67	3.70	2.67	4.76	2.84	2.28	2.28	3.75
036	9.66	3.12	6.18	7.81	3.25	4.73	3.12	2.80	2.80	6.30
037A	30.21	3.12	8.57	8.80	3.25	3.46	3.45	3.10	3.11	9.87
037B	32.92	4.77	8.06	6.83	3.59	3.63	3.42	3.63	3.63	8.09
038	27.24	14.99	24.55	30.55	11.12	39.94	14.89	7.67	7.68	24.48
039	12.99	1.10	8.33	8.10	2.57	14.40	2.56	1.10	1.10	9.75
040	20.15	6.29	19.61	17.17	6.89	16.35	8.18	4.39	4.39	20.03
041	21.31	10.63	31.67	24.24	14.56	34.77	14.48	10.31	10.31	31.53
042A	10.02	1.27	1.71	1.60	1.25	3.26	1.74	0.97	0.97	6.24
042B	7.38	1.28	4.89	4.72	1.62	6.20	1.71	1.24	1.24	4.85
043	27.97	118.36	17.41	15.27	16.50	17.87	25.91	16.08	16.08	17.37
044A	33.97	13.00	11.95	11.46	9.12	20.02	11.40	8.31	8.30	12.41
044B	54.92	17.51	65.67	17.47	11.88	37.60	18.50	12.80	12.79	14.93
045	26.13	3.41	23.80	20.26	7.13	24.09	8.52	1.90	1.90	23.94
046	12.27	5.20	22.59	13.18	2.69	7.31	3.13	2.75	2.75	18.13
047	30.54	5.50	16.53	14.13	5.85	24.69	7.59	1.27	1.27	16.80
048	12.56	2.05	8.47	8.41	3.55	13.46	4.24	1.54	1.54	8.72
049	53.87	32.23	11.01	10.02	7.20	9.54	7.34	6.91	6.92	11.05
050	5.52	1.24	6.22	5.66	1.88	7.46	1.96	1.22	1.22	6.32
051	347.75	706.47	51.59	52.77	51.24	53.29	51.86	51.14	51.14	67.04
052	5.94	10.84	5.33	4.08	6.56	19.60	10.16	4.16	4.16	7.06
053	12.33	8.19	3.42	3.24	4.62	17.12	6.42	3.05	3.04	3.60
054	16.73	14.96	11.74	11.36	7.43	13.53	8.40	7.52	7.50	12.25
055A	4.73	1.58	3.60	2.68	1.12	2.92	1.48	0.68	0.68	3.77
055B	5.27	3.15	5.65	4.84	2.38	6.89	3.15	0.62	0.62	5.64
055C	3.16	6.09	11.39	9.80	4.99	16.46	6.81	0.85	0.85	11.14
055D	10.54	1.12	1.22	1.15	1.16	1.16	1.17	1.20	1.20	1.24
055E	12.40	2.26	4.52	3.39	2.17	5.98	2.36	1.79	1.79	4.49
056A	4.78	2.05	2.66	2.66	1.72	4.44	2.21	1.46	1.46	2.51
056B	1.46	0.59	0.98	0.90	0.59	1.04	0.65	0.42	0.42	0.97
056C	0.77	0.61	0.95	0.81	0.59	0.69	0.70	0.58	0.58	1.09
056D	4.75	2.48	6.34	4.97	2.59	3.13	2.46	2.13	2.14	6.36

ID NO.	MODEL NUMBER									
	1	2	3	4	5	6	7	8	9	10
056E	3.11	1.80	3.90	3.01	1.55	3.09	1.66	1.72	1.72	3.93
056F	14.18	3.70	14.17	11.91	4.09	13.32	4.27	3.11	3.11	13.56
057A	10.71	2.00	3.02	2.77	1.36	4.37	1.63	0.51	0.51	3.01
057B	27.82	5.47	7.17	6.33	4.38	4.62	4.31	4.57	4.57	6.98
058A	19.64	0.50	1.08	0.67	0.24	1.42	0.30	0.21	0.21	1.06
058B	48.74	13.29	10.68	9.40	5.09	31.01	8.39	1.34	1.35	10.91
058C	36.06	7.35	7.10	7.63	5.95	8.26	6.31	5.52	5.52	7.45
059	50.88	11.66	20.55	18.65	9.51	16.95	9.05	7.39	7.39	21.31
060	6.35	4.84	5.25	5.31	5.15	6.14	5.04	4.27	4.27	5.23
061	18.10	1.88	2.80	3.06	2.12	3.81	2.10	1.88	1.87	3.01
062A	5.81	4.51	0.82	0.78	0.67	1.80	1.00	0.49	0.49	0.70
062B	8.27	2.90	0.73	0.74	0.75	1.44	0.97	0.61	0.61	0.72
062C	11.19	1.35	1.08	0.93	0.85	1.04	0.95	0.76	0.76	1.10
063A	5.97	5.38	1.70	1.72	1.62	5.17	2.94	1.06	1.06	1.55
063B	3.83	1.66	2.14	2.04	2.10	1.86	1.95	2.41	2.41	2.12
063C	7.52	5.70	3.24	3.14	2.36	7.75	4.34	1.27	1.27	3.22
063D	10.22	2.63	2.20	2.08	1.66	2.72	1.83	1.51	1.51	2.32
063E	15.71	12.73	6.35	6.23	5.22	16.11	9.70	1.90	1.90	6.23
063F	21.94	3.99	4.05	3.62	2.44	5.40	2.83	1.99	1.99	4.28
063G	45.39	6.02	6.33	6.56	6.24	11.48	6.66	5.59	5.59	5.95
063H	15.41	7.50	9.40	8.99	7.42	7.36	7.20	6.54	7.48	8.71
064	8.56	2.63	6.58	6.52	2.99	8.95	3.31	2.67	2.66	6.79
065	3.18	5.38	3.55	3.56	3.61	7.59	4.24	3.15	3.15	3.75
066	7.89	19.53	9.23	9.59	5.71	14.59	6.93	5.43	5.43	10.45
067A	0.99	48.50	8.17	8.17	8.06	8.04	8.03	0.35	0.35	0.66
067B	1.83	110.87	0.73	0.68	0.91	1.50	1.23	0.56	0.56	0.73
067C	6.80	3.54	1.04	1.13	0.95	1.36	1.18	1.01	1.01	1.04
067D	43.54	3.53	2.42	2.47	2.49	2.36	2.41	2.70	2.70	3.69
068	32.01	12.97	25.78	25.38	14.05	29.31	15.07	10.52	10.52	25.58
069A	85.74	19.44	67.78	65.18	16.41	16.92	17.18	16.41	16.41	70.39
069B	104.53	26.30	82.38	80.62	20.80	22.43	22.15	20.70	20.74	86.77
070	28.65	38.63	32.46	26.38	14.46	21.50	15.20	14.39	14.38	32.64
071	30.50	24.55	18.81	19.57	13.41	13.96	14.58	14.14	14.05	18.93
072A	2.68	1.63	1.26	1.27	1.70	1.82	1.80	1.50	1.51	1.32
072B	5.49	1.40	3.92	3.85	1.67	5.53	1.99	0.95	0.95	3.64
073	3.89	7.53	2.46	2.76	3.29	12.36	4.92	1.09	1.09	2.80
074A	4.00	0.62	1.38	1.34	0.61	1.69	0.72	0.58	0.58	1.47
074B	4.79	2.21	3.34	2.92	3.25	10.25	4.25	1.16	1.16	2.28
074C	4.04	2.02	2.40	2.48	2.16	3.77	2.80	1.38	1.37	2.45
074D	8.62	2.90	6.08	5.74	3.08	7.67	3.31	2.91	2.91	6.42
075A	6.27	19.88	1.67	2.52	2.32	28.80	5.85	1.09	1.09	1.37
075B	35.52	107.71	14.87	17.05	14.81	65.75	23.95	11.73	11.73	17.48
076	7.10	0.87	3.90	4.00	1.66	6.60	2.10	0.77	0.75	5.68
077	8.12	35.53	8.46	8.28	4.99	20.05	8.01	3.98	3.98	6.71
078A	4.82	8.07	3.71	3.85	3.03	12.02	4.54	1.49	1.49	2.42

ID NO.	MODEL NUMBER									
	1	2	3	4	5	6	7	8	9	10
078B	5.87	6.62	5.62	5.72	5.33	8.26	5.81	5.03	5.02	5.64
079	49.96	8.85	18.21	18.22	11.02	19.10	13.01	1.62	1.63	10.86
080	15.35	1.00	5.57	5.28	1.32	2.40	1.01	1.02	1.02	5.51
081	64.18	24.75	65.96	63.05	17.00	77.07	19.03	17.41	17.40	37.15
082	1.88	1.78	1.79	1.81	1.99	3.86	2.21	1.71	1.71	1.69
083A	16.69	1.42	1.98	1.89	1.28	2.43	1.39	0.95	0.94	2.27
083B	36.93	2.63	1.90	2.80	1.70	2.68	1.69	1.73	1.73	3.86
083C	20.27	2.34	2.64	2.38	1.89	2.05	1.63	1.80	1.81	2.64
084A	26.91	3.31	1.11	1.23	1.13	1.94	1.20	1.05	1.05	1.26
084B	56.06	3.36	1.86	1.75	1.90	2.13	2.06	1.83	1.83	1.84
085	35.39	4.49	6.91	5.40	3.59	9.24	5.38	3.29	3.29	3.78
086A	4.91	3.09	3.46	2.72	2.75	4.25	2.94	2.70	2.71	3.33
086B	8.21	2.71	10.67	7.99	3.52	11.68	3.96	2.14	2.14	10.66
086C	13.28	7.68	15.95	12.70	7.03	17.87	8.11	3.97	3.97	16.45
086D	34.27	7.98	28.19	22.39	8.95	37.63	11.60	5.09	5.09	28.17
086E	13.16	6.19	11.38	8.73	5.23	16.89	6.17	4.86	4.86	11.16
086F	5.61	4.90	5.93	5.07	4.78	6.22	5.43	4.26	4.26	5.83
086G	8.75	5.86	9.92	7.11	3.88	9.52	4.54	3.58	3.59	9.17
087	80.42	4.56	7.97	7.19	5.13	8.30	5.21	4.30	4.27	7.83
088	75.09	8.71	14.37	7.45	6.47	26.61	7.11	5.25	5.25	14.37
089	15.79	46.68	34.05	27.34	14.69	44.32	17.39	9.02	9.01	35.29
090	55.12	12.84	45.64	37.52	17.40	51.09	21.87	6.10	6.10	48.65
091	2.73	2.33	2.74	2.78	2.49	3.96	2.87	1.85	1.85	2.70
092	71.48	45.55	35.39	35.45	27.28	47.12	34.54	34.17	34.17	34.94
093	92.66	41.68	36.88	39.80	31.88	60.66	38.59	19.34	19.34	21.61
094	55.29	38.66	27.00	40.13	8.53	70.55	16.93	2.22	2.22	42.84
095A	10.36	4.92	7.12	7.61	5.14	11.92	5.73	4.01	4.01	7.53
095B	24.18	3.75	7.68	7.96	4.60	10.88	4.75	3.29	3.29	7.48
096	26.57	26.31	18.14	16.02	16.92	19.18	19.41	16.70	16.72	17.43
097	50.19	18.92	17.27	19.66	5.99	18.63	8.33	4.35	4.35	36.68
098A	12.05	2.13	6.21	5.92	1.98	6.24	2.27	1.94	1.94	6.58
098B	13.87	2.54	6.58	6.32	2.46	5.26	2.58	2.53	2.53	7.07
098C	5.29	2.35	4.31	4.22	2.00	5.67	2.37	1.51	1.51	4.29
098D	24.78	7.85	18.38	17.12	6.53	28.21	8.72	0.85	0.85	18.08
098E	3.43	6.07	2.98	3.28	4.79	9.96	6.03	2.59	2.59	2.86
099A	3.00	2.16	2.38	2.67	2.03	3.48	1.99	2.10	2.10	2.36
099B	7.07	2.55	3.36	3.72	3.00	8.20	3.00	2.56	2.57	2.86
100	8.02	7.26	5.28	4.71	4.42	10.34	5.07	3.71	3.71	5.28
101	4.65	1.16	6.27	5.33	1.67	5.58	1.78	0.66	0.66	6.27
102	23.65	9.70	58.04	13.38	7.59	10.05	8.21	7.84	7.85	45.08
103	3.89	2.63	3.81	3.50	2.63	3.19	2.63	2.50	2.50	3.88
104	28.26	68.93	30.55	18.21	12.58	22.16	11.88	11.18	11.18	26.29
105	11.16	10.59	6.10	5.83	5.84	8.76	7.75	5.49	5.49	5.78
106	13.12	72.51	163.99	43.20	5.21	41.08	8.94	2.34	2.34	22.40
107	0.53	0.42	0.47	0.46	0.41	0.49	0.42	0.41	0.41	0.46

ID NO.	MODEL NUMBER									
	1	2	3	4	5	6	7	8	9	10
108	3.23	2.46	3.12	2.99	2.40	2.47	2.41	2.37	2.37	3.21
109	4.96	0.60	5.52	4.85	1.19	6.06	1.38	0.56	0.56	1.70
110A	0.51	0.05	0.35	0.34	0.12	0.51	0.14	0.05	0.05	0.32
110B	0.97	0.15	0.67	0.65	0.28	0.81	0.30	0.14	0.14	0.61
110C	3.84	0.65	2.83	2.73	1.35	4.35	1.54	0.59	0.59	2.24
110D	5.10	0.66	4.53	4.13	0.78	4.80	1.47	0.63	0.63	2.21
110E	10.70	1.70	7.23	6.98	2.23	8.88	2.54	2.02	2.03	6.16
111A	2.78	3.62	1.32	1.51	1.29	6.24	2.23	0.96	0.96	1.43
111B	4.94	5.05	4.05	3.85	2.88	5.37	3.11	2.48	2.48	3.81
111C	7.52	6.87	6.68	6.56	6.25	6.25	6.23	6.30	6.30	6.90
112A	4.22	3.60	1.22	0.88	0.69	1.49	0.98	0.64	0.64	0.92
112B	6.55	3.93	1.65	1.55	1.31	1.96	1.47	1.19	1.19	1.56
112C	9.67	4.43	2.45	2.40	2.22	2.86	2.38	2.09	2.09	2.41
112D	54.94	45.09	84.79	84.79	52.23	44.90	23.81	8.41	8.41	32.66
112E	46.22	10.68	15.81	12.73	7.66	22.79	8.94	5.95	5.95	17.17
113	8.11	11.53	13.86	13.37	11.05	20.99	12.09	9.11	9.11	13.95
114A	13.69	1.91	2.33	3.03	1.38	5.73	2.15	0.52	0.52	3.48
114B	19.58	3.06	3.42	4.37	3.40	4.51	3.60	3.02	3.00	4.80
114C	41.80	35.04	38.51	23.92	19.53	56.10	25.75	12.80	12.80	14.64
115	35.63	14.01	9.08	12.87	10.54	27.17	15.03	4.98	4.98	10.41
116A	11.66	9.80	22.44	21.09	12.56	18.62	13.25	1.90	1.91	7.18
116B	5.29	3.51	4.91	4.13	2.79	7.65	3.57	1.79	1.79	4.98
116C	7.50	7.05	7.20	7.04	6.76	7.64	6.54	6.97	6.98	7.33
117A	17.27	4.66	5.12	4.30	2.25	7.84	3.93	1.15	1.15	6.20
117B	14.82	12.24	5.67	5.70	4.35	8.08	5.23	3.75	3.74	5.55
117C	13.62	7.56	5.82	5.49	5.60	6.89	5.93	5.58	5.58	5.84
118	37.20	18.36	38.89	37.23	17.50	35.98	18.01	16.50	16.50	37.82
119	21.24	9.67	11.44	10.17	9.69	10.34	9.65	9.57	9.57	11.37
120A	21.41	8.71	13.31	10.10	6.06	7.69	6.47	5.59	5.59	15.44
120B	47.13	10.50	12.85	9.32	8.62	9.88	9.11	8.99	8.99	12.30
121	96.17	96.92	214.06	143.56	55.31	71.61	55.76	56.15	56.15	129.54
122	45.71	5.80	11.87	10.63	5.90	6.48	6.01	6.09	6.09	13.20
123	336.31	188.58	301.76	466.05	203.24	647.42	505.50	162.66	162.07	289.55
124A	7.98	11.60	3.05	3.35	3.75	14.85	5.96	2.18	2.18	3.04
124B	21.66	6.00	11.50	11.11	5.41	12.35	5.96	4.59	4.59	11.47
125	5.85	1.66	2.85	2.82	1.61	2.17	1.77	1.68	1.68	2.93
126	23.53	24.17	22.73	22.58	21.89	22.34	22.71	21.76	21.76	21.97
127	32.02	65.38	33.99	27.38	6.79	45.95	7.87	6.82	6.82	31.52
128	17.48	22.02	11.47	11.67	6.10	34.52	6.70	6.28	6.28	10.99
129	4.92	1.33	4.71	4.01	1.68	3.91	1.66	1.08	1.09	5.01
130A	9.19	2.75	7.01	7.13	3.12	9.33	5.11	1.33	1.33	7.35
130B	26.56	5.88	26.73	17.29	8.31	27.10	11.93	2.48	2.48	18.30
130C	56.40	14.89	43.04	43.69	14.21	57.42	17.90	5.10	5.10	43.11
130D	57.68	29.47	45.82	45.73	12.43	60.11	15.76	6.24	6.24	46.48
130E	36.12	12.01	23.30	23.63	11.49	46.74	15.73	2.51	2.51	25.22

ID NO.	MODEL NUMBER									
	1	2	3	4	5	6	7	8	9	10
130F	23.12	9.54	18.44	20.16	9.83	31.38	12.63	2.48	2.48	19.06
131	1.39	0.69	0.42	0.32	0.30	0.41	0.41	0.21	0.21	0.41
132	27.12	14.25	19.40	18.90	12.54	30.64	16.09	11.10	11.10	19.46
133	81.13	27.97	69.18	62.96	24.24	68.51	22.80	20.79	20.80	69.11
134A	47.25	15.79	6.94	6.72	5.56	6.58	5.32	5.30	5.30	11.67
134B	91.76	36.24	7.03	6.53	5.41	6.22	5.27	5.28	5.28	91.78
135	18.86	11.26	5.31	7.27	6.81	13.14	7.60	5.27	5.27	8.99
136	55.40	97.46	37.05	37.96	12.35	47.35	17.02	2.74	2.74	38.62
137	1.75	0.16	1.21	1.20	0.47	1.20	0.34	0.13	0.13	0.47
138	6.54	3.99	7.90	6.36	2.56	6.53	3.00	2.25	2.25	7.52
139	7.40	2.80	13.30	9.62	1.94	2.30	2.14	1.90	1.90	10.41
140	2.94	4.80	3.84	3.77	3.38	4.14	3.26	3.58	3.58	3.19
141	17.19	32.75	25.12	29.78	15.15	15.97	26.02	14.67	14.67	26.43
142	68.88	7.05	61.33	29.12	7.09	8.75	6.91	6.95	6.95	49.22
143A	1.18	0.15	0.89	0.89	0.62	1.26	0.71	0.15	0.15	0.89
143B	0.58	0.26	1.40	1.31	0.38	1.13	0.39	0.24	0.24	1.38
144A	10.27	1.30	6.92	6.99	1.72	7.09	2.09	0.35	0.35	6.58
144B	6.78	3.59	8.71	10.62	8.11	12.84	11.36	2.23	2.23	9.84
145	28.02	5.90	10.95	10.17	5.54	5.73	5.38	5.42	5.43	11.36
146	6.24	0.91	1.86	1.78	1.12	1.78	1.18	0.87	0.87	1.83
147	11.14	4.73	6.45	6.42	3.96	14.48	4.77	3.04	3.04	6.43
148	43.91	24.14	45.48	40.91	28.15	53.50	27.93	22.95	22.96	47.79
AVERAGE	24.17	20.04	15.96	14.36	7.53	18.17	9.71	5.80	5.82	14.82

TABLE 9

SUMMARY OF MEAN ABSOLUTE DEVIATIONS IN VAPOR COMPOSITION X 1000

ID NO.	MODEL NUMBER									
	1	2	3	4	5	6	7	8	9	10
001	12.23	49.29	15.28	13.94	20.43	11.93	16.01	32.39	32.40	16.61
002	39.02	31.69	40.21	29.61	28.88	29.54	29.75	28.79	28.79	41.55
003	16.49	74.32	30.21	20.92	47.32	8.25	42.20	64.52	64.51	29.65
004	1.33	3.17	1.63	1.61	1.63	1.16	1.45	2.64	2.64	1.66
005	3.88	25.81	6.94	7.62	17.13	3.71	15.42	24.06	24.05	6.28
006	5.79	7.07	5.22	5.24	5.15	5.02	5.46	5.66	5.66	5.30
007A	5.71	6.18	5.54	5.61	6.03	5.07	6.17	6.79	6.79	5.58
007B	3.93	9.43	5.15	4.68	8.55	2.24	8.93	10.21	10.20	5.16
007C	4.11	5.58	4.13	4.43	4.59	1.72	4.71	5.83	5.83	4.02
008A	8.64	7.03	4.36	4.14	4.53	3.04	4.75	5.34	5.35	6.11
008B	11.07	19.06	12.16	11.16	10.97	5.35	9.30	16.25	16.25	12.44
009A	4.64	42.53	8.26	8.71	14.83	4.13	12.41	19.98	19.97	8.30
009B	4.45	20.67	4.90	5.20	9.49	2.58	8.17	12.27	12.27	5.51
010A	9.02	7.95	8.75	8.62	7.95	7.87	7.86	8.11	8.11	8.81
010B	4.32	4.29	4.29	4.29	4.39	4.28	4.28	4.47	4.53	4.29
011	5.87	3.39	5.96	5.70	3.37	3.21	3.57	3.38	3.38	5.86
012	8.25	10.41	7.92	8.00	7.79	7.89	7.89	9.98	9.98	7.98
13	3.98	22.82	8.53	8.23	10.89	2.84	9.22	12.63	12.63	8.38
014	28.59	22.87	17.39	12.48	10.25	10.87	9.59	10.58	10.58	15.45
015A	16.40	28.50	12.62	12.78	21.28	13.08	24.37	25.06	25.08	12.61
015B	24.08	34.61	21.34	22.30	23.60	20.50	22.73	25.12	25.13	21.30
015C	31.15	52.16	72.80	30.79	33.43	30.79	31.12	34.83	34.83	38.28
015D	24.76	19.12	17.50	16.72	16.27	15.58	16.59	16.64	16.59	17.48
015E	19.01	16.67	12.00	7.39	10.80	4.53	8.58	16.87	16.68	11.27
016	7.16	6.05	9.99	8.50	4.72	4.68	5.13	5.15	5.15	7.90
017	20.97	15.42	11.86	9.10	9.31	6.84	8.37	11.89	11.89	9.37
018A	1.40	2.13	1.31	1.29	1.62	1.29	1.61	2.03	2.03	1.30
018B	2.53	2.03	2.32	2.20	2.02	1.96	2.04	2.08	2.08	2.32
018C	3.01	8.94	3.60	3.46	6.57	1.77	6.15	8.55	8.55	3.54
018D	2.42	1.54	1.82	1.74	1.33	1.41	1.31	1.46	1.47	1.86
018E	1.28	1.56	1.26	1.26	1.28	1.25	1.27	1.49	1.49	1.27
019A	22.16	2.88	3.26	2.88	2.82	2.86	2.83	2.90	2.90	3.36
019B	12.63	14.93	8.90	8.59	11.74	7.67	10.03	16.51	16.51	8.83
020	4.96	16.99	7.56	8.28	7.00	4.37	5.43	7.81	7.91	7.90
021A	1.56	1.65	1.44	1.36	1.25	0.67	1.13	1.52	1.52	1.45
021B	3.86	4.15	3.40	3.17	3.12	1.84	2.77	4.00	4.00	3.41
021C	5.54	4.46	4.74	4.39	3.84	2.39	3.48	4.61	4.61	4.74
021D	1.84	1.63	1.40	1.36	1.37	1.27	1.32	1.52	1.52	1.37
022	1.32	1.55	1.23	1.23	1.43	1.29	1.32	1.95	1.95	1.24
023	13.39	84.41	9.73	10.49	9.89	0.05	9.14	10.29	10.28	15.40
024	8.05	5.15	3.50	3.42	5.03	3.59	4.83	5.20	5.20	4.11
025A	18.94	32.99	22.04	18.16	21.84	11.95	18.91	31.67	31.66	22.47
025B	8.80	6.92	8.67	7.80	6.43	6.02	6.13	6.75	6.76	8.59
025C	10.13	4.92	6.31	4.86	4.03	4.06	4.10	4.02	4.02	6.27
026	2.71	4.41	2.75	2.74	3.35	1.98	3.17	3.93	3.93	2.65

ID NO.	MODEL NUMBER									
	1	2	3	4	5	6	7	8	9	10
027	2.42	2.76	2.16	2.13	2.03	2.04	2.02	2.03	2.03	2.19
028	7.94	8.96	5.65	5.92	5.16	3.94	4.93	5.54	5.54	5.49
029	128.64	94.12	125.33	101.28	92.54	88.54	92.63	96.04	94.34	107.75
030A	0.72	6.71	2.27	2.31	5.28	0.65	4.85	6.70	6.70	2.23
030B	3.04	1.31	1.96	1.89	1.29	1.30	1.40	1.32	1.32	1.87
030C	1.82	0.82	1.18	1.13	0.81	0.83	0.83	0.82	0.82	1.13
030D	1.56	1.98	1.38	1.39	1.70	1.22	1.69	2.02	2.02	1.52
031	13.78	5.69	5.94	5.62	4.33	4.20	4.33	5.66	5.66	4.62
032A	11.94	20.84	5.99	5.99	11.05	3.42	9.82	15.82	15.81	5.51
032B	10.88	10.63	4.38	4.53	5.59	4.39	5.36	7.08	7.08	4.35
033	2.19	25.24	6.13	7.58	9.80	1.23	9.12	10.05	10.05	6.69
034	1.22	56.94	8.61	10.72	15.19	0.69	13.50	16.65	16.65	8.95
035A	7.08	4.23	6.57	7.09	3.29	3.30	3.29	3.40	3.41	5.87
035B	1.70	4.29	1.73	1.72	2.08	1.52	1.99	4.00	4.01	1.77
036	5.29	3.61	2.89	3.72	3.22	2.63	3.33	4.52	4.52	2.92
037A	27.27	8.22	12.24	12.49	8.27	8.33	8.40	8.23	8.30	13.43
037B	18.85	8.08	7.30	7.15	6.92	6.93	6.96	6.91	6.91	7.29
038	7.35	21.00	8.76	7.13	12.55	2.41	10.89	15.44	15.43	8.92
039	3.05	6.63	3.92	3.88	5.51	2.99	5.54	6.38	6.38	4.58
040	6.18	15.07	6.71	6.33	9.73	5.96	8.85	12.90	12.90	6.58
041	8.16	10.25	6.91	8.04	9.12	4.14	9.14	10.46	10.46	6.90
042A	9.10	4.00	3.92	3.95	3.95	4.06	4.07	4.01	4.01	5.06
042B	2.57	3.30	2.36	2.37	2.83	2.21	2.81	3.27	3.27	2.36
043	30.46	59.64	27.71	28.87	26.74	27.55	29.38	26.49	26.49	25.71
044A	16.30	23.47	13.71	13.54	14.58	11.68	13.56	18.24	18.23	13.63
044B	34.10	29.56	48.84	31.65	28.48	20.71	24.50	32.06	32.04	34.46
045	7.48	15.75	8.22	7.46	10.49	6.36	9.98	13.97	13.97	8.12
046	13.50	12.30	24.10	13.24	12.38	10.84	12.24	12.77	12.77	13.31
047	6.90	15.48	5.29	6.41	10.31	4.41	9.54	12.97	12.98	5.17
048	7.98	7.31	7.08	6.64	5.72	4.79	5.88	6.63	6.63	7.10
049	32.35	35.97	8.97	8.76	9.34	8.72	9.42	10.20	10.21	8.98
050	3.35	7.58	3.85	3.61	5.02	2.23	4.86	6.76	6.74	3.02
051	330.23	116.19	16.53	17.03	16.35	17.14	16.67	16.30	16.30	14.85
052	14.11	15.20	13.74	14.61	13.33	10.41	12.36	14.45	14.45	13.48
053	7.15	8.05	7.87	7.04	6.63	4.08	6.18	7.33	7.35	7.80
054	2.86	11.74	3.65	3.49	4.70	1.38	4.23	6.14	6.12	3.81
055A	15.73	9.75	4.76	4.28	5.27	3.97	4.93	6.62	6.62	5.03
055B	15.96	12.92	3.28	3.72	6.60	2.71	5.52	9.26	9.26	3.33
055C	15.69	18.53	5.98	6.52	9.87	4.62	8.48	13.80	13.80	6.04
055D	18.43	3.13	5.71	4.01	4.09	3.38	3.69	5.32	5.32	6.16
055E	14.17	6.23	2.53	2.95	3.75	2.26	3.60	4.33	4.33	2.58
056A	6.03	13.32	7.73	7.74	9.05	6.46	8.24	11.10	11.10	7.89
056B	3.73	4.58	3.67	3.54	2.91	2.90	2.88	3.17	3.16	3.66
056C	2.57	2.52	2.36	2.33	2.51	2.48	2.59	2.50	2.50	2.38
056D	9.64	9.60	10.30	9.75	9.13	9.19	9.14	9.14	9.14	10.32

ID NO.	MODEL NUMBER									
	1	2	3	4	5	6	7	8	9	10
056E	2.96	3.70	2.84	2.75	2.79	2.68	2.77	3.44	3.44	2.85
056F	6.96	9.54	6.92	6.82	8.17	6.43	7.99	9.00	9.01	6.78
057A	24.90	21.33	5.91	6.83	10.23	7.35	9.06	14.06	14.06	5.89
057B	14.72	5.80	6.70	6.13	4.77	4.82	4.83	4.83	4.83	6.62
058A	28.81	2.55	1.39	1.58	1.82	1.22	1.74	2.04	2.03	1.39
058B	35.14	18.37	8.62	9.21	11.20	5.66	9.85	14.59	14.53	8.58
058C	17.24	11.20	6.92	6.73	7.32	6.44	7.12	7.82	7.83	6.82
059	23.49	15.26	7.23	6.87	8.46	6.40	8.66	10.30	10.29	7.58
060	7.23	7.70	7.12	7.13	7.13	7.06	7.13	7.31	7.31	7.13
061	10.62	7.80	7.78	7.69	7.73	7.34	7.72	7.81	7.81	7.69
062A	26.77	46.82	6.88	7.04	8.19	4.25	6.68	10.97	10.97	7.33
062B	20.72	16.63	3.34	3.32	4.12	2.47	3.39	5.53	5.54	3.47
062C	15.87	4.65	1.46	1.48	2.07	1.59	1.90	2.66	2.66	1.46
063A	23.40	44.84	20.62	20.20	22.07	21.39	21.00	25.06	25.06	21.70
063B	15.42	6.39	6.86	5.72	6.14	5.00	5.24	7.98	7.98	6.30
063C	18.19	30.37	15.45	15.72	17.36	16.24	16.04	21.52	21.53	15.47
063D	17.07	8.98	5.49	5.02	6.13	5.11	5.43	7.31	7.31	5.07
063E	26.48	42.92	24.30	24.37	25.85	24.57	24.71	31.07	31.07	24.40
063F	17.16	6.90	3.69	3.58	5.23	3.23	4.50	6.83	6.83	3.41
063G	31.17	8.12	4.75	4.35	4.91	2.79	4.23	6.08	6.08	5.46
063H	13.18	8.10	6.64	6.22	6.05	6.08	6.23	6.02	6.02	6.11
064	1.46	4.40	1.53	1.55	3.20	1.15	3.01	4.44	4.43	1.48
065	3.99	4.21	4.25	4.23	3.30	2.53	3.00	3.81	3.80	4.27
066	6.83	12.72	6.84	7.50	5.84	4.59	5.75	6.40	6.40	8.56
067A	7.24	247.21	42.26	42.26	44.65	44.23	44.13	5.90	5.89	2.93
067B	7.05	296.62	3.13	3.15	3.35	2.86	3.11	4.11	4.13	3.13
067C	10.88	10.03	3.10	3.55	2.78	2.68	2.76	2.97	2.97	3.10
067D	60.77	3.26	2.22	2.25	2.27	2.18	2.21	2.40	2.40	3.50
068	6.92	20.56	7.71	7.87	12.81	6.86	12.03	16.46	16.48	7.76
069A	23.67	13.86	19.61	19.67	9.73	10.85	9.54	9.75	9.74	20.23
069B	25.86	16.34	22.12	22.19	12.50	12.34	11.89	12.52	12.55	22.85
070	5.94	7.48	7.51	7.06	5.83	5.17	5.75	5.84	5.84	7.53
071	31.51	28.38	26.00	27.34	24.69	24.06	24.26	24.89	24.92	25.80
072A	2.16	1.16	1.67	1.56	1.15	1.11	1.11	1.27	1.26	1.68
072B	1.57	3.13	1.94	1.91	2.25	1.45	2.02	3.15	3.14	1.88
073	6.66	8.93	6.60	6.39	5.88	4.14	5.19	7.55	7.54	6.53
074A	6.97	5.21	3.43	3.49	4.07	3.62	3.86	5.29	5.29	3.43
074B	7.32	6.46	6.76	6.05	5.39	3.46	4.87	6.90	6.90	6.60
074C	3.53	3.71	3.11	3.10	3.22	3.13	3.10	4.21	4.21	3.15
074D	3.98	3.79	3.32	2.90	3.06	2.23	2.94	3.82	3.82	3.42
075A	13.84	24.75	17.47	17.18	16.16	6.47	14.68	17.03	17.03	16.89
075B	13.90	69.02	21.12	20.70	21.61	8.73	18.78	25.91	25.91	20.09
076	3.69	4.28	3.32	3.29	3.59	2.08	3.54	4.29	4.35	3.61
077	9.25	19.72	10.25	9.95	8.54	5.35	7.62	9.23	9.23	9.17
078A	5.33	8.66	5.46	5.30	5.66	3.84	5.03	6.75	6.75	5.83

ID NO.	MODEL NUMBER									
	1	2	3	4	5	6	7	8	9	10
078B	2.38	5.24	2.59	2.52	2.83	1.68	2.60	3.89	3.85	2.54
079	14.47	10.88	0.76	0.75	8.48	0.27	6.18	14.41	14.41	14.46
080	14.12	6.12	6.82	6.97	5.62	5.60	6.17	6.05	6.06	7.81
081	4.58	13.22	4.63	4.33	15.57	3.58	15.85	16.52	16.50	9.61
082	3.80	3.12	3.22	3.07	2.46	2.01	2.24	3.20	3.20	3.28
083A	24.28	6.53	4.31	4.53	5.20	4.27	5.03	5.78	5.82	4.23
083B	23.30	6.30	5.91	5.86	6.05	5.94	6.06	6.09	6.09	5.78
083C	14.38	5.16	4.02	4.13	4.36	4.27	4.67	4.43	4.43	4.04
084A	44.89	9.73	3.58	3.12	3.26	3.14	3.08	3.74	3.75	3.15
084B	31.84	4.83	3.10	3.06	3.11	3.16	3.16	3.12	3.12	3.09
085	19.83	8.85	8.74	8.53	7.99	8.05	7.59	8.55	8.55	8.49
086A	16.08	12.13	16.71	13.83	13.13	12.06	12.12	14.43	14.44	16.16
086B	6.02	10.29	6.08	5.88	8.43	6.55	7.96	10.71	10.71	6.04
086C	11.47	15.90	12.56	11.59	12.75	8.93	11.71	15.33	15.33	11.31
086D	9.60	19.59	9.90	9.68	14.26	7.65	13.13	17.34	17.34	9.76
086E	9.46	10.75	9.46	9.23	9.02	7.59	8.53	10.09	10.09	9.43
086F	8.32	5.92	8.83	7.80	6.22	6.03	5.85	7.17	7.16	8.66
086G	9.74	7.96	9.85	8.53	7.90	6.67	7.37	8.56	8.56	9.27
087	31.54	4.07	2.81	2.82	3.78	2.74	4.02	4.72	4.73	2.92
088	42.28	11.32	3.80	5.75	6.56	0.71	6.01	7.69	7.69	3.80
089	23.99	49.85	10.92	13.67	21.31	7.17	19.81	26.00	26.01	10.42
090	14.63	40.49	11.85	11.62	22.57	12.39	19.86	33.27	33.27	13.59
091	2.14	2.96	2.08	2.06	2.20	2.01	2.12	2.66	2.66	2.11
092	20.86	33.36	19.81	17.74	19.14	13.15	17.07	25.46	25.46	19.82
093	27.17	40.92	24.87	22.77	28.98	10.88	24.66	41.51	41.51	39.52
094	47.50	37.10	35.51	38.40	23.18	9.50	20.78	25.99	25.99	38.97
095A	6.57	14.20	7.45	6.97	9.63	5.50	9.06	12.44	12.44	7.06
095B	8.24	8.49	3.90	3.90	4.92	4.00	4.82	7.76	7.76	4.02
096	11.88	19.46	10.22	10.25	10.58	9.33	10.16	11.20	11.19	10.20
097	36.16	19.90	16.85	18.28	9.16	4.99	7.82	10.73	10.72	28.57
098A	11.46	11.88	8.21	7.13	9.63	5.27	9.05	11.69	11.70	8.72
098B	11.13	6.80	7.22	6.52	5.69	4.50	6.04	6.71	6.72	7.63
098C	1.81	5.49	2.16	2.18	3.81	1.71	3.42	4.96	4.96	2.18
098D	4.08	16.96	5.65	5.69	10.02	3.06	9.01	13.14	13.14	5.38
098E	7.08	10.07	7.48	7.26	6.47	4.45	5.75	7.90	7.90	7.59
099A	4.66	3.37	3.40	4.14	3.30	2.62	3.33	3.46	3.46	3.38
099B	7.16	3.68	4.00	4.45	3.40	2.19	3.62	3.70	3.71	4.16
100	5.46	9.66	5.97	5.56	4.98	3.95	4.73	5.13	5.13	6.00
101	2.84	5.37	2.90	2.76	3.39	2.61	3.22	4.43	4.42	2.90
102	22.26	10.12	44.84	12.93	10.30	9.31	9.68	10.83	10.84	38.26
103	2.82	2.97	2.80	2.64	2.15	2.19	2.21	2.26	2.26	2.88
104	29.51	52.05	20.09	20.27	21.29	19.58	21.85	22.66	22.65	19.91
105	14.24	13.95	13.95	13.41	13.05	12.09	12.51	13.95	13.95	14.16
106	9.98	37.45	23.83	3.69	13.74	3.61	12.65	14.76	14.76	7.01
107	0.90	0.91	0.81	0.80	0.80	0.78	0.85	0.86	0.86	0.80

ID NO.	MODEL NUMBER									
	1	2	3	4	5	6	7	9	9	10
108	2.11	1.73	2.03	1.92	1.48	1.45	1.52	1.59	1.59	2.08
109	8.68	3.92	7.76	7.14	3.67	3.38	3.64	3.96	3.97	4.81
110A	2.14	3.76	2.18	2.18	3.03	1.55	2.87	3.83	3.82	2.08
110B	2.55	5.29	2.13	2.07	2.88	1.70	2.67	3.96	3.96	1.78
110C	4.39	5.41	3.77	3.70	3.94	2.59	3.52	5.55	5.55	3.27
110D	6.21	4.90	6.14	5.73	4.79	2.49	3.09	4.66	4.66	2.58
110E	3.27	6.24	3.13	2.98	4.22	2.07	3.90	4.68	4.69	2.23
111A	12.29	20.41	14.29	14.24	14.22	9.73	12.84	15.32	15.32	13.96
111B	4.88	17.19	5.21	5.29	6.32	4.60	5.94	8.61	8.61	5.28
111C	4.50	4.72	4.27	4.15	4.16	4.13	4.30	4.18	4.17	4.35
112A	25.84	49.85	10.29	13.46	15.28	9.69	13.63	18.71	18.71	13.41
112B	20.79	29.70	8.50	9.15	10.82	7.56	9.55	13.55	13.55	9.41
112C	15.87	18.61	6.63	6.58	7.86	5.73	7.33	9.91	9.91	6.91
112D	28.50	81.99	84.89	84.89	73.27	25.39	35.64	52.50	52.52	31.64
112E	22.75	21.02	19.44	16.72	15.24	14.88	15.00	15.81	15.81	19.62
113	14.42	19.67	7.78	8.08	9.82	7.66	8.94	13.25	13.24	7.72
114A	43.26	32.25	20.17	19.25	21.57	15.37	19.86	24.69	24.69	23.94
114B	32.36	15.76	13.71	14.22	14.27	13.42	13.99	14.70	14.78	14.65
114C	59.41	52.99	21.08	24.40	25.53	20.00	24.08	32.05	32.06	29.10
115	21.22	22.39	22.92	20.48	20.25	16.65	18.51	25.80	25.81	22.95
116A	27.44	71.53	51.04	50.79	52.41	50.40	51.71	49.06	49.06	36.70
116B	14.94	14.82	15.01	13.95	11.49	9.81	10.55	12.50	12.50	15.23
116C	3.62	4.62	4.16	4.16	4.36	3.68	4.09	4.60	4.60	4.33
117A	72.06	50.07	49.58	48.21	47.38	51.94	47.69	49.70	49.70	50.15
117B	29.85	69.38	21.02	21.08	25.44	19.27	23.39	32.81	32.83	21.28
117C	15.91	22.40	12.87	11.87	11.86	11.40	11.89	13.66	13.66	13.09
118	14.86	20.81	12.99	12.84	15.69	11.76	15.56	18.77	18.78	13.18
119	17.85	11.51	11.76	11.25	11.43	11.34	11.60	11.87	11.88	11.73
120A	17.56	11.54	7.11	6.38	7.39	6.45	7.05	8.04	8.04	7.85
120B	28.65	11.14	11.46	10.81	8.62	8.56	8.86	8.54	8.54	11.40
121	26.13	25.00	34.13	24.13	19.65	14.98	18.84	20.35	20.35	24.77
122	29.55	5.69	6.06	5.67	5.67	5.10	5.78	5.86	5.86	6.49
123	329.70	407.57	414.49	279.13	400.35	233.34	270.62	419.77	420.01	351.67
124A	17.04	42.48	20.92	20.51	20.22	11.26	17.83	22.88	22.88	20.95
124B	7.20	9.67	4.06	4.61	6.58	2.89	6.21	8.63	8.63	3.75
125	2.57	2.52	2.25	2.23	2.43	2.24	2.37	2.62	2.62	2.25
126	4.95	4.71	5.29	5.23	5.25	5.06	4.93	5.30	5.30	5.52
127	1.63	16.49	2.83	3.66	5.29	0.54	4.95	5.44	5.44	2.73
128	2.20	7.08	3.38	3.71	3.91	1.62	3.61	4.06	4.06	3.29
129	8.94	6.68	8.66	8.19	6.78	6.67	6.64	6.68	6.68	8.88
130A	21.94	34.62	23.79	23.52	24.99	19.17	20.80	33.22	33.21	23.85
130B	28.46	49.13	28.62	38.66	33.62	18.93	26.82	48.00	48.01	37.68
130C	3.13	55.64	11.75	11.25	35.46	2.91	32.44	47.35	47.35	11.70
130D	4.47	56.65	8.00	8.18	21.68	2.92	18.59	34.79	34.77	7.95
130E	10.99	27.09	12.77	12.69	17.77	8.74	15.76	23.98	23.98	12.70

ID NO.	MODEL NUMBER									
	1	2	3	4	5	6	7	8	9	10
130F	9.81	19.64	10.50	10.42	12.56	5.41	11.63	17.31	17.31	10.46
131	20.78	14.29	14.46	13.96	13.29	13.00	13.30	14.20	14.20	14.40
132	6.55	21.51	7.67	7.88	11.78	6.55	9.42	16.62	16.62	7.64
133	53.26	30.68	14.78	14.90	22.71	14.10	22.79	25.46	25.48	14.79
134A	554.08	82.26	27.36	27.26	26.92	27.20	27.05	27.09	27.09	47.06
134B	557.40	98.82	14.37	14.85	16.19	15.20	16.63	16.59	16.59	557.43
135	15.35	43.36	25.79	20.45	21.09	16.59	20.14	25.95	25.94	30.28
136	13.35	72.71	13.08	12.95	20.95	11.35	20.56	27.50	27.50	12.94
137	1.41	1.18	1.13	1.13	0.94	0.94	0.88	1.00	1.00	0.95
138	5.80	4.06	7.04	6.15	3.10	3.12	2.90	3.35	3.35	6.76
139	7.98	3.82	9.70	7.51	3.07	2.96	2.97	3.17	3.17	8.64
140	3.65	3.86	3.08	3.10	3.12	2.80	2.91	3.75	3.75	3.23
141	29.89	39.22	28.29	30.48	32.44	32.87	35.54	32.19	32.19	28.05
142	40.21	9.17	37.78	19.27	9.18	9.25	9.16	9.16	9.16	30.83
143A	1.63	3.05	1.76	1.77	2.17	1.62	2.02	3.03	3.03	1.76
143B	2.29	2.18	1.93	1.92	2.14	1.95	2.13	2.18	2.19	1.96
144A	9.92	15.38	10.93	9.87	10.88	5.91	10.68	13.86	13.96	10.77
144B	19.15	17.99	18.62	17.34	15.06	12.60	13.51	19.06	19.06	18.44
145	21.32	10.24	10.85	10.70	10.18	10.24	10.11	10.15	10.15	11.01
146	3.16	2.55	1.57	1.61	2.01	1.57	1.98	2.47	2.47	1.62
147	11.81	9.41	6.24	6.20	6.81	5.12	6.52	7.54	7.53	6.25
148	8.13	37.23	9.47	10.71	21.13	4.12	21.83	34.89	34.89	6.51
AVERAGE	21.12	21.45	12.40	10.95	12.21	8.36	10.97	13.89	13.89	13.81

In the first system, the consistency index was 75.0, while in the second system the consistency index could not be evaluated as the value of the natural logarithm of the activity coefficient ratio was positive for each data point. Furthermore, the activity coefficient for one component of system 123 was greater than unity while the activity coefficient for the other component was less then unity. Removing these two systems reduces the average absolute deviation of each model by approximately 15%.

An examination of the pressure data leads to similar conclusions. Here models five and seven through nine have superior capability for correlating the binary data. The average absolute deviations are under 10 mm Hg.

Comments On The Objective Functions

Before examining the prediction of multicomponent data, however, a word on certain of the objective functions is in order. It has been already noted that both models eight and nine are structurally the same. Both measure the relative error in total pressure, but as calculated from two different algorithms. The parameter values calculated by minimizing each of these objective functions were essentially the same. For this reason models eight and nine will be treated as a single model when examining the performance of the

various models in predicting multicomponent data. Clearly model nine is preferred as it consumes somewhat less computation time than does model eight.

Additionally, models six and seven are functionally the same, each measuring errors in the calculated vapor phase composition. An examination of the Wilson parameter values obtained by minimizing these two objective functions discloses that in many cases there are large differences in the parameter values. Model seven uses the simplified algorithm in which experimental total pressure data is used in the calculation of vapor phase composition. Convergence of the algorithm is achieved when successive calculations show a negligible change in each of the vapor phase composition values, each taken independently. No penalty is exacted in the algorithm for the potential condition that the sum of the converged composition values are different from unity. Thus it is conceivable that the search for better parameter estimates could be directed in such a way as to deliver parameter values that generate vapor composition values that do not sum to unity. Such circumstances did, indeed, arise with the inevitable result that the mean absolute deviation in binary system vapor phase composition from model seven exceeded that from model six by over 30%. Several systems for which the compositions did not sum to unity were tested again with an additional step: namely, that the compositions be normalized to sum to unity and that the normalized values be used in the parameter search. With this

modification, the two models delivered essentially the same parameter values for the systems tested.

Originally an oversight, the omission of the normalization step in subroutine YCALC was not corrected once the error was uncovered. It was left in the original form in order to ascertain the capability of the model to correlate multicomponent data. It was already clearly and understandably poorer in the correlation of binary data, but it was felt that a check of multicomponent data would be of interest.

IV. ON THE UNIQUENESS OF THE WILSON PARAMETER VALUES

There have already been several indications that it is possible to derive more than one set of values for the Wilson parameters for a given binary system. Evidence has been presented indicating more than one set of parameter values when calculating the values from point data at various locations on the equilibrium curve. Additionally, when regressing all the binary data against different objective functions, different values are obtained. These results should not, however, be interpreted as indicating the existence of a multiplicity of roots for the Wilson equation.

Rather than evidence of the multiplicity of sets of Wilson

parameter values this is evidence for the impact of the nonlinear nature of the parameters on their estimation. It will be proven next that for a given set of binary activity coefficients, there exists a unique set of Wilson parameters that best fit the data for positive deviations from Raoult's Law. For systems with negative deviations, on the other hand, three such sets may exist.

Parameter Values From One Binary Data Point

Following the suggestion of Aristovich, et al (1969) define a translation of coordinates as:

$$t = x_1 + \Lambda_{12} x_2 \tag{22}$$

$$z = \Lambda_{21} x_1 + x_2 \tag{23}$$

Substitution of equation (22) into equation (1) will give

$$\Lambda_{21} = \frac{-\ln(\gamma_1 t) + \frac{t - x_1}{t}}{1 - \frac{x_1}{x_2}\left[-\ln(\gamma_1 t) + \frac{t - x_1}{t}\right]} \tag{24}$$

Further substitutions of equations (24) and (22) into equation (2) will yield an expression for γ_2 as a function of γ_1, t and x (i.e., γ_1, Λ_{12}, and x):

$$\gamma_2 = \frac{(\gamma_1 t)^{-x_1/x_2}}{x_2}\left[1 - \frac{x_1}{x_2}\left(-\ln(\gamma_1 t) + \frac{t - x_1}{t}\right)\right] \equiv g_2(\gamma_1, t, x) \tag{25}$$

A similar manipulation will yield

$$\gamma_1 = \frac{(\gamma_2 z)^{-x_2/x_1}}{x_1}\left[1 - \frac{x_2}{x_1}\left(-\ln(\gamma_2 z) + \frac{z - x_2}{z}\right)\right] \equiv g_1(\gamma_2, z, x) \tag{26}$$

which represents γ_1 as a function of γ_2, z and x.

For a given composition (set of x_1, x_2 values) and the corresponding values for the activity coefficients (γ_1, γ_2), a plot of γ_2 as a function of γ_1 and t (Λ_{12}, x) can be made. Examples of these are presented in Figure 4 for $x_1 = x_2 = 0.5$ and for γ_1 = 1.01, 1.5, 7.5. From the known value of γ_2, one and only one corresponding value of t, hence Λ_{12}, can be obtained. For example, let γ_1 = 1.5 and γ_2 = 1.4; then t = 0.65 and Λ_{12} = 0.3. This single value of Λ_{12} will yield a single value of Λ_{21} from equation (24). On the other hand, consider the case of negative deviations from Raoult's Law as shown in Figure 5. Three values of t, hence Λ_{12}, can be found to correspond to a given γ_2.

These observations can be quantified and proven to be generally

Figure 4

Dependence of γ_2 On t

Positive Deviations From Ideality

$$\gamma_2 = \frac{(\gamma_1 * t)^{-x_1/x_2}}{x_2^2}\left[x_2 + x_1 * \ln(\gamma_1 * t) - x_1 + \frac{x_1^2}{t}\right]$$

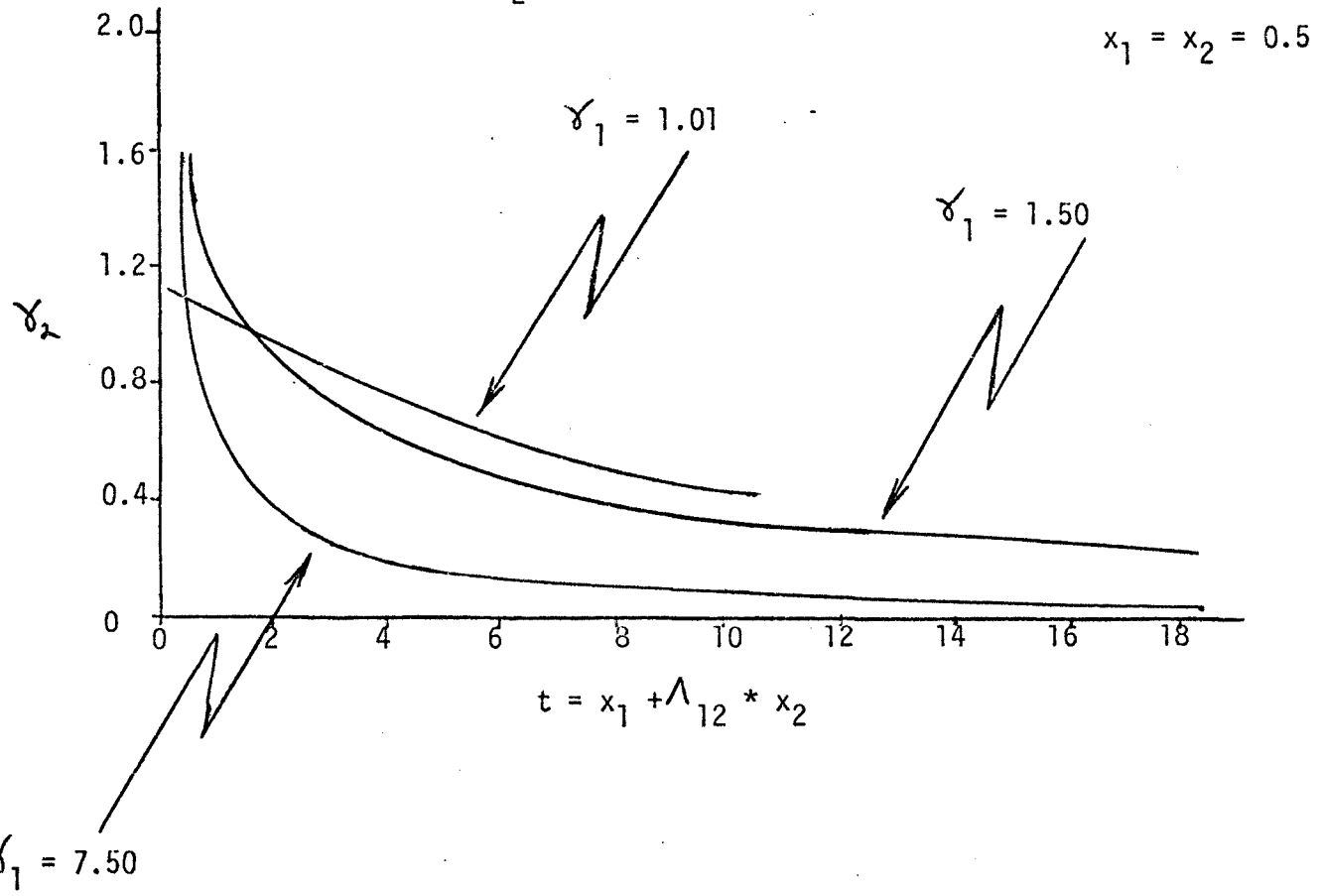


Figure 5

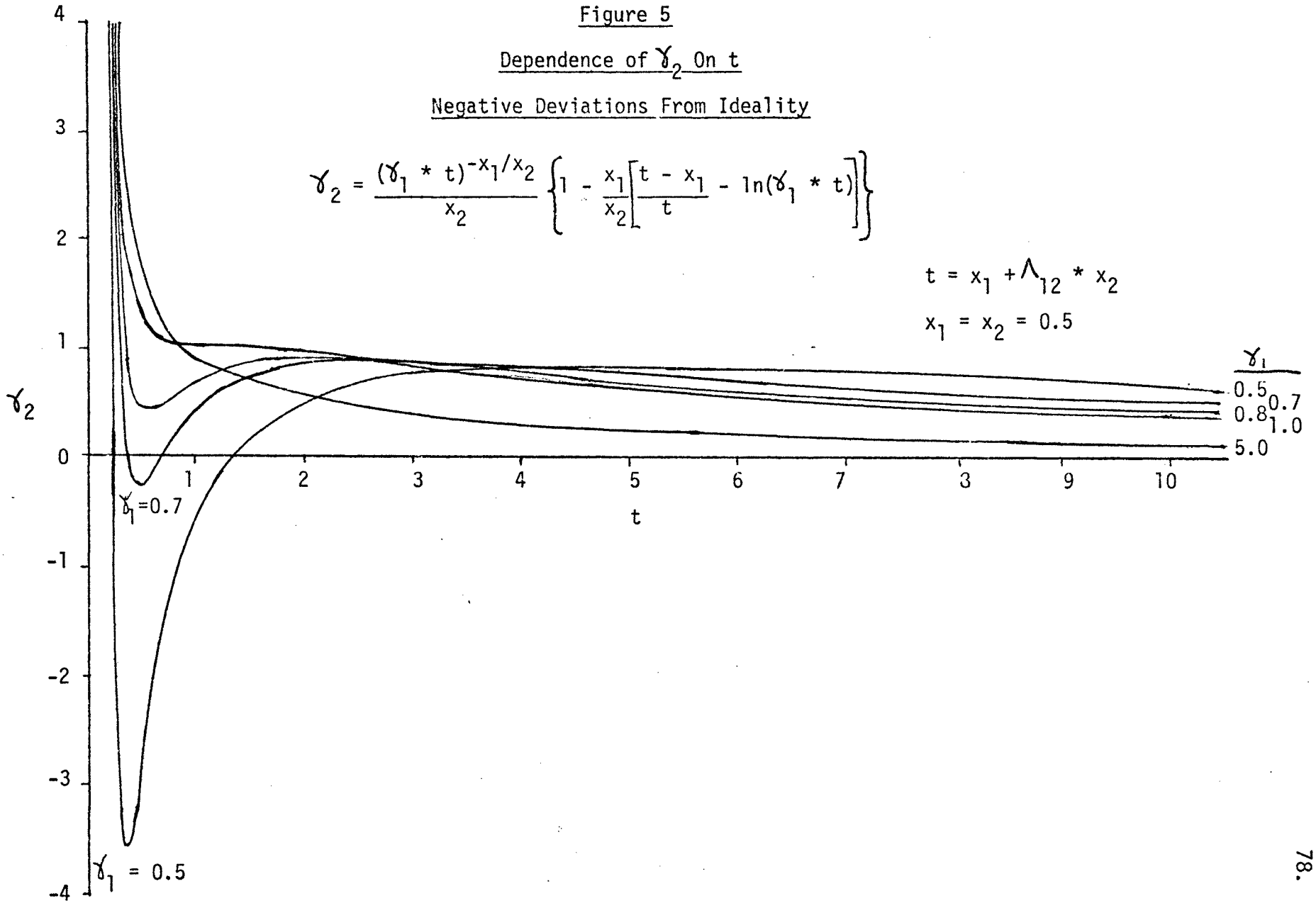
Dependence of γ_2 On t

Negative Deviations From Ideality

$$\gamma_2 = \frac{(\gamma_1 * t)^{-x_1/x_2}}{x_2} \left\{ 1 - \frac{x_1}{x_2} \left[\frac{t - x_1}{t} - \ln(\gamma_1 * t) \right] \right\}$$

$t = x_1 + \Lambda_{12} * x_2$

$x_1 = x_2 = 0.5$



true. Consider the first derivative of γ_2 with respect to the transformed parameter t:

$$\frac{\partial \gamma_2}{\partial t} = \frac{x_1^2 (\gamma_1 t)^{-x_1/x_2}}{x_2^3 t} \left[1 - \frac{1}{t} - \ln(\gamma_1 t)\right] \equiv g_2'(\gamma_1, t, x) \tag{27}$$

Define the quantity

$$F(\gamma_1, t) \equiv 1 - \frac{1}{t} - \ln(\gamma_1 t) \tag{28}$$

If F (γ_1 , t) never takes on the value of zero, then g'_2 (γ_1 ,t,x) can never be zero. Hence, γ_2 , must be a monotonically changing function of t for given γ_1 and x. Clearly under these conditions there can only be unique solutions to the Wilson equation. If, on the other hand, F (γ_1 ,t) is zero at some value of $t > 0$, then multiple roots may, in fact, exist. The implications of F (γ_1 ,t) taking on zero values must be examined in some detail.

The values of γ_1 and t for which F (γ_1 , t) is zero define the points at which the uniqueness of solutions of the Wilson equation must be examined. Solving the equation F (γ_1 ,t) = 0 will define any restrictions on the possible values of γ_1 and t that may exist. Solving for γ_1 gives

$$\gamma_1 = \frac{1}{t} e^{(t-1)/t} \equiv f_1(t) \tag{29}$$

To completely describe the values that γ_1 and t can take on for which $g'_2(\gamma_1,t,x)$ will be zero, the first and second derivatives are required:

$$\frac{d\gamma_1}{dt} = \frac{1}{t^2}\left[\frac{1}{t} - 1\right] e^{(t-1)/t} \equiv f_1'(t) \tag{30}$$

$$\frac{d^2\gamma_1}{dt^2} = \frac{1}{t^4}\left[\frac{1}{t} + 2t - 4\right] e^{(t-1)/t} \equiv f_1''(t) \tag{31}$$

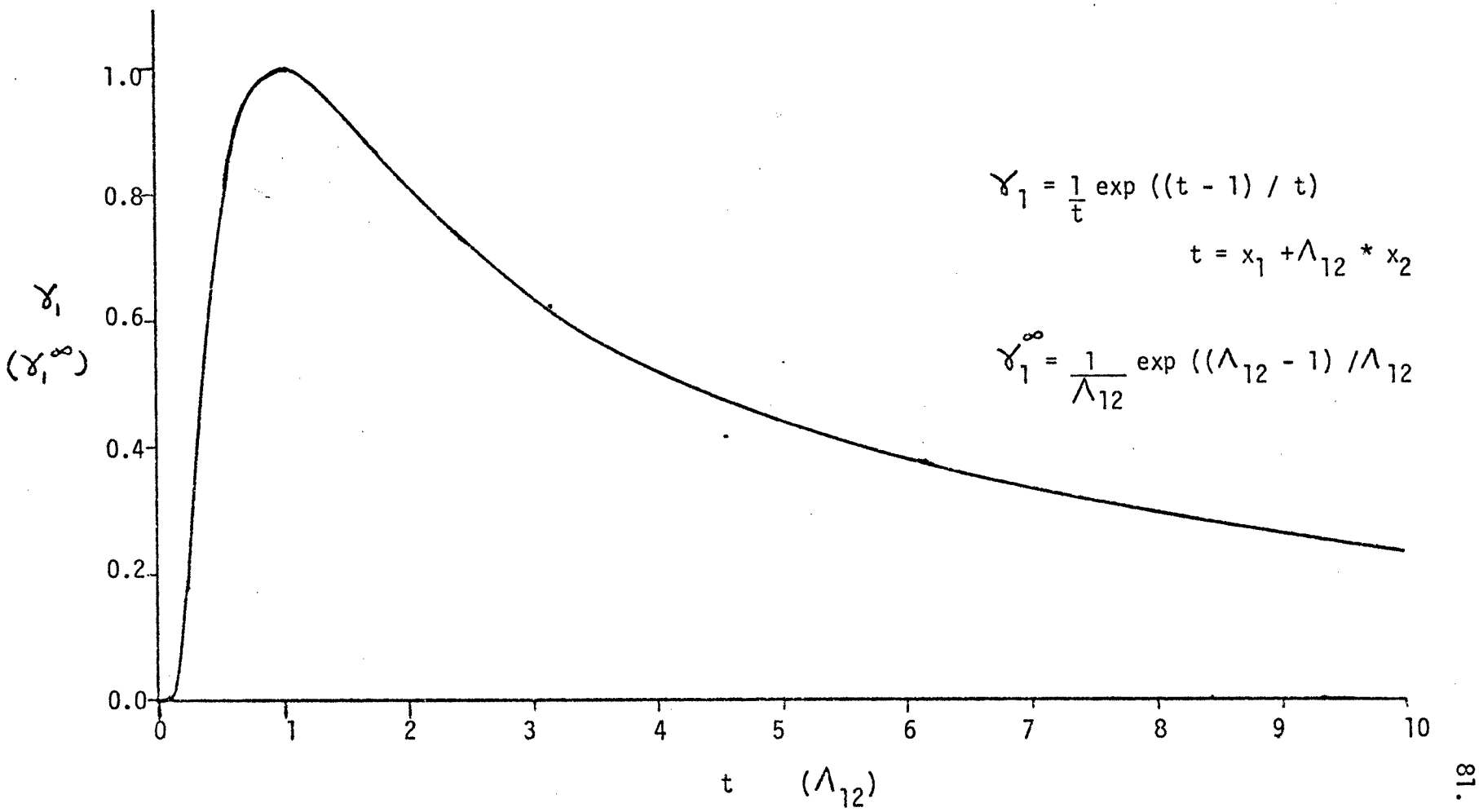
Equation (30) indicates that $f_1(t)$ attains a position of zero slope for only one value of t (call that value t_o) in the range $t>0$, and that that value is unity. Equation (31) indicates that $f_1(t)$ attains a maximum value at t_o. Equation (29) indicates that this maximum value of γ_1 (attained at $t = t_o$) is unity. Thus, $F(\gamma_1,t)$ is zero only for values of γ_1 less than unity, i.e., only for systems having negative deviations from ideality. Figure 6 depicts the relationship between γ_1 and t that must exist if $F(\gamma_1,t)$ is zero. Clearly for any given $\gamma_1 < 1$ there will be two values of t for which $F(\gamma_1,t)$ will be zero; these are $t_1 < 1$ and $t_2 > 1$.

While this defines the relationship that must exist between γ_1 and t, it does not completely describe the relationship between γ_2 and t. Consider the second derivative of γ_2 with respect to t:

$$\frac{\partial^2\gamma_2}{\partial t^2} = -\frac{x_1^2(\gamma_1 t)^{-x_1/x_2}}{x_2^3 t^2}\left[\left(1+\frac{x_1}{x_2}\right)F(\gamma_1,t) + \frac{t-1}{t}\right] \equiv g_2''(\gamma_1,t,x) \tag{32}$$

FIGURE 6

Dependance of γ_1 On t For $F(\gamma_1, t) = 0$



Clearly $F(\gamma_1, t)$ is zero at $t = t_1$ and $t = t_2$. Thus $g_2(\gamma_1, t, x)$ attains a minima at $t = t_1$ and a maxima at $t = t_2$. There is a point of inflection at $t = t_o$ and at no other values of t. This describes the general shape of curves for γ_2 vs. t with γ_1 as a parameter (see Figure 5).

It is proven, therefore, that γ_2 is a monotonically decreasing function of t at given γ_1 and x for systems with positive deviations from ideality. This behavior is illustrated in Figure 4. For systems with negative deviations from ideality, however, γ_2 goes through a relative minimum at a $t_1 < 1$ and a relative maximum at a $t_2 > 1$. The actual values of t_1 and t_2 are those for which $F(\gamma_1, t) = 0$ (see Figure 6). In consequence, there can be three values of t (hence three pairs of Wilson parameters) that describe the given experimental conditions of x, γ_1, γ_2. The necessary and sufficient condition for the existence of multiple roots is that the experimental value of γ_2 lie between the minima and maxima defined for γ_2 at t_1 and t_2. This behavior is illustrated in Figure 5. For example, if $x_1 = 0.5$ and $\gamma_1 = 0.7$, then any $\gamma_2 > 0.88$ will yield only a single set of values for the Wilson parameters. On the other hand, for $\gamma_2 < 0.88$ there will be three sets of Wilson parameters.

For the case of infinite dilution activity coefficients, the Wilson equation can be transformed into the following expressions

$$\gamma_1^\infty = \frac{1}{1 - \ln(\Lambda_{21}\gamma_2^\infty)} e^{1-\Lambda_{21}} \tag{33}$$

and

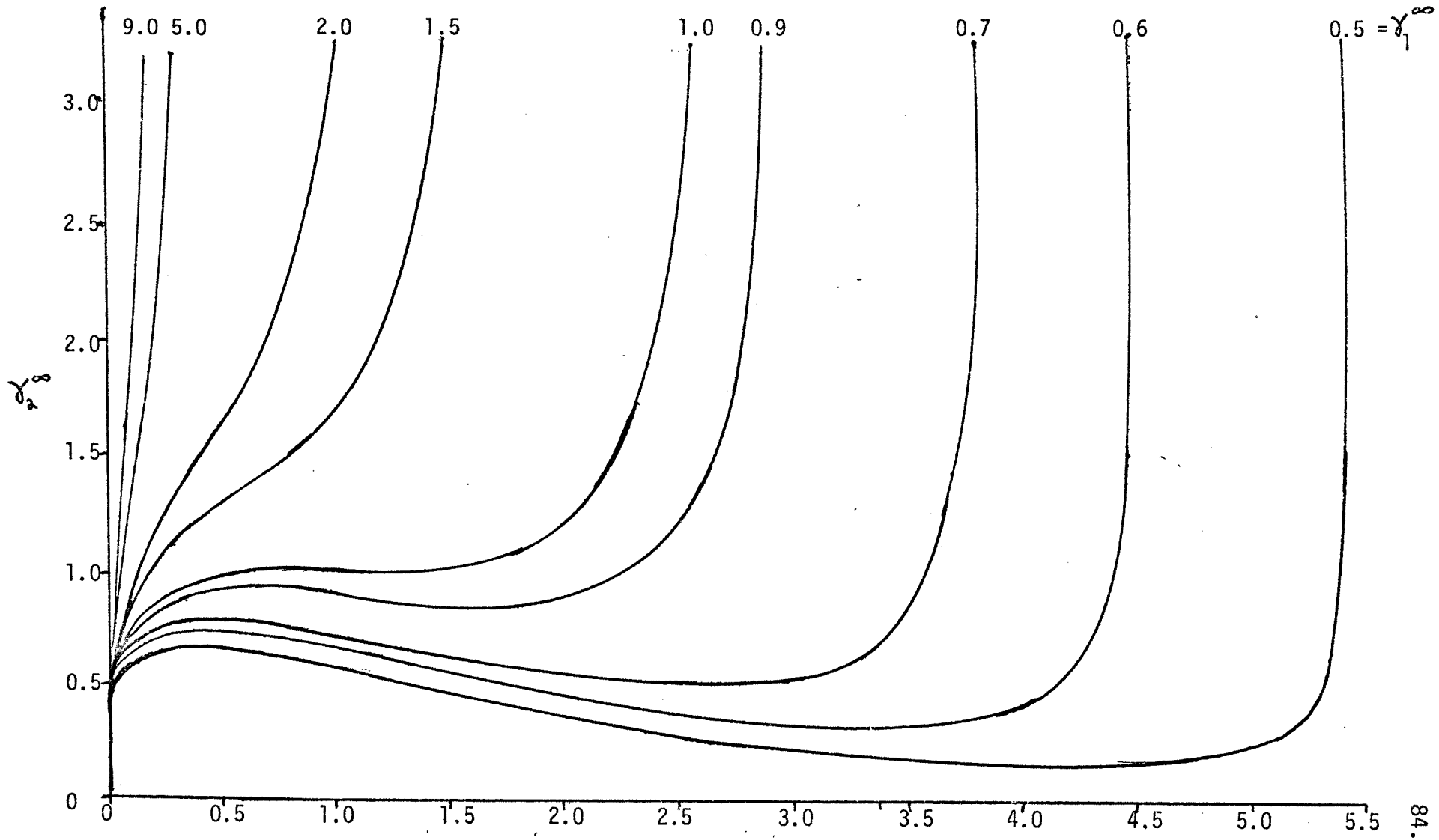
$$\gamma_2^\infty = \frac{1}{1 - \ln(\Lambda_{12}\gamma_1^\infty)} e^{1-\Lambda_{12}} \tag{34}$$

An analysis similar to that performed above leads to analogous conclusions. For infinite dilution activity coefficients larger than unity, only a single set of Wilson parameters are obtained. The necessary condition for multiple parameter values is that the infinite dilution activity coefficients be less than unity. Furthermore, the necessary and sufficient condition is that γ_2^∞ lie within the range defined by the relative maxima and minima for the given value of γ_1^∞. This behavior is illustrated in Figure 7.

In addition, the values of the relative maxima and minima for γ_2^∞ are defined as a function of γ_1^∞ and Λ_{12} by the same expression used to define the relative maxima and minima of γ_2 as a function of γ_1 and t. Here γ_1^∞ replaces γ_1, and Λ_{12} replaces t. Again Figure 6 is used.

Figure 7: Wilson Equation

Infinite Dilution Form



$$\gamma_2^\infty = \frac{1}{1 - \ln \gamma_1^\infty \Lambda_{12}^\infty} e^{1 - \Lambda_{12}^\infty}$$

As indicated in Figure 7, the curves for $\gamma_2^\infty(\gamma_1^\infty, \Lambda_{12})$ approach infinity at the values of $\Lambda_{12} = \frac{e}{\gamma_1^\infty}$. This is defined by the forms of equations (33) and (34).

Parameters from Regression of All Binary Data

In regressing a set of binary data, one is searching for a pair of parameter values $(\lambda_{12} - \lambda_{11})$ and $(\lambda_{12} - \lambda_{11})$ that minimize the objective function chosen as a measure of the degree of fit of the experimental data. For this part of the study model 4 was chosen for use.

$$Q \equiv \sum_{i=1}^{N} \left[\left(\frac{\gamma_{1,exp} - \gamma_{1,calc}}{\gamma_{1,exp}} \right)_i^2 + \left(\frac{\gamma_{2,exp} - \gamma_{2,calc}}{\gamma_{2,exp}} \right)_i^2 \right] \quad (35)$$

Other minimization functions can be used, but the approach is the same. Starting with a set of initial guesses to the parameter values, the regression subroutine varies them until Q assumes a minimum value.

Considering the complexities of equation (35) no parametric substitution can lead to meaningful conclusions about the number of sets of parameters that minimize Q. Instead two approaches have been considered.

The first approach is demonstrated in Figure 8 (Larson, 1971) for the system Methyl Acetate-Benzene ($\gamma > 1$) where lines for constant values of S:

$$S = \sqrt{\frac{Q}{2N-1}} \tag{36}$$

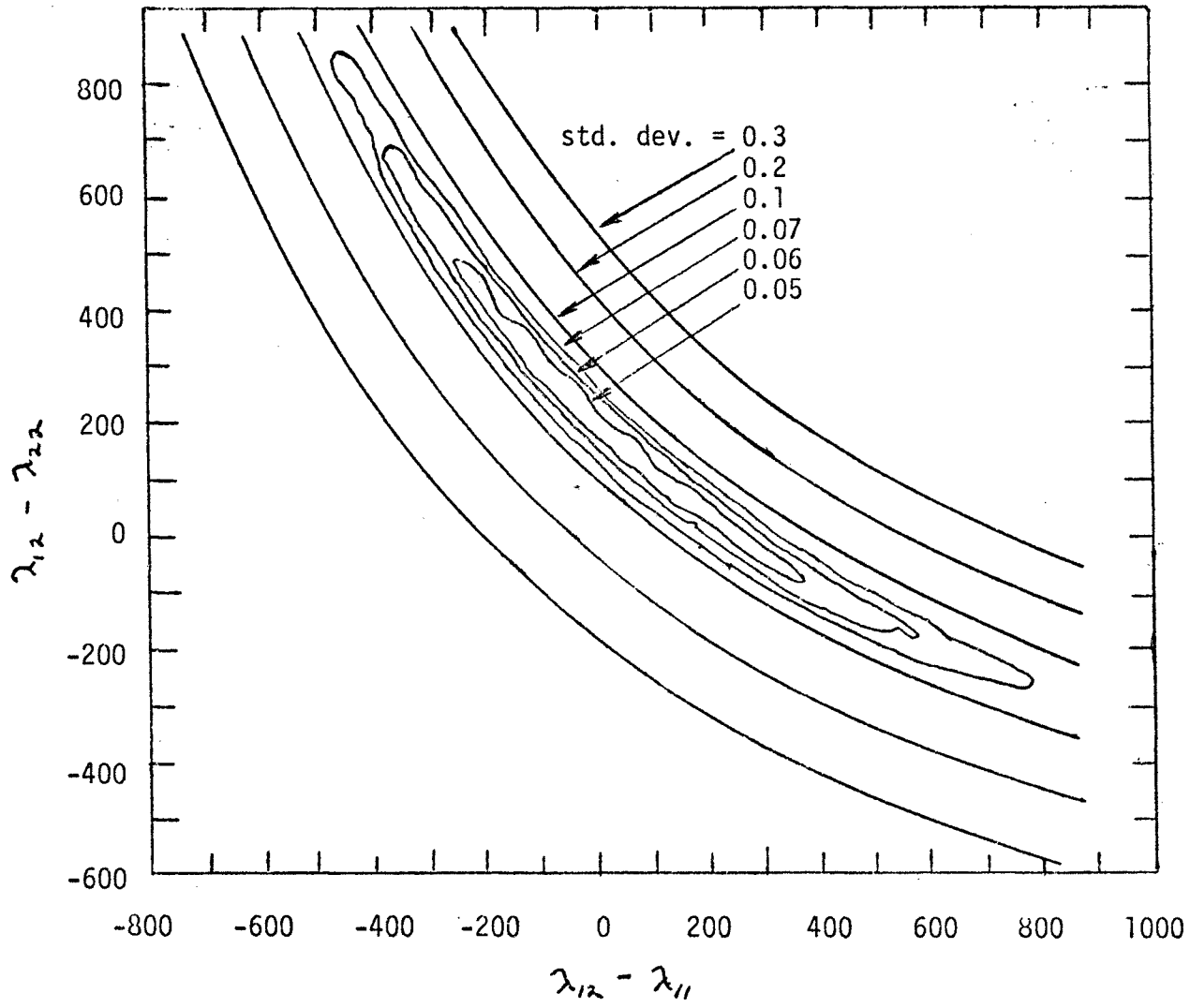
are plotted as functions of the corresponding values for ($\lambda_{12} - \lambda_{11}$) and ($\lambda_{12} - \lambda_{22}$). The plot suggests that only one pair of the Wilson parameters, lying inside the island characterized by S = 0.05, exists for which S assumes a minimum value. Finding this unique set of values by this method would require, of course, a very large number of ($\lambda_{12} - \lambda_{11}$) and ($\lambda_{12} - \lambda_{22}$) sets. The plot also explains why several sets of parameters, widely different, will give small values for the standard deviations.

In the second approach, the data were regressed through a non-linear (simplex) regression subroutine (Gardener, 1960). A set of initial guesses for ($\lambda_{12} - \lambda_{11}$) and ($\lambda_{12} - \lambda_{22}$) are supplied to the subroutine which varies the parameter values until a minimum value for Q is obtained. If more than one set of roots exists, they can be obtained by using different values for the initial guesses provided, of course, that these roots do not lie too far away from the initial guesses. For this purpose, ten initial guesses covering the range -3000 to +3000 were used in this study. This represents the field of reasonable values for ($\lambda_{12} - \lambda_{11}$) and ($\lambda_{12} - \lambda_{22}$). For systems with γ 's larger than unity, all initial guesses lead

Figure 8: Typical Contour Plot

Standard Deviation in Activity Coefficients for Various Wilson Parameters

Methyl Acetate(1) - Benzene(2) (Nagata, 1962)



to the same roots for a given system. For systems with γ 's less than unity this is not the case. Eight such binary systems (Table 10) were studied; each yielded three sets of parameters. The values of these parameters and the quality of the fit of the binary data obtained from their use are documented in Table 11.

Parameters from Regression of Infinite
Dilution Activity Coefficients

Direct solution of the Wilson equation from either one binary data point or from a pair of infinite dilution activity coefficients has already been described. A trial-and-error regression search for the parameter values has also been described. By suitably modifying the objective function, Q, whose value is to be minimized, the trial-and-error solution of the Wilson equation can be applied to the infinite dilution activity coefficients.

For this case Q has been defined as (model 1):

$$Q = \left(\gamma_{1,exp}^{\infty} - \gamma_{1,calc}^{\infty}\right)^2 + \left(\gamma_{2,exp}^{\infty} - \gamma_{2,calc}^{\infty}\right)^2 \qquad (37)$$

and the searches performed as described previously. The results, including quality of fit of all the binary data, are documented in Table 12. In two of the eight systems, two sets of parameter values were obtained. This was not, it should be stated, the result of inexhaustive search. However, the analysis for a single binary point and for a pair of infinite dilution values both suggest that

TABLE 10

BINARY SYSTEMS EXHIBITING NEGATIVE DEVIATIONS FROM IDEALITY

Systems ID	Components	Conditions	Reference
007A	Acetone-Chloroform	50°C	Severns (1955)
007B	Acetone-Chloroform	55°C	Kudryavtseva (1963)
035A	Chloroform-Benzene	50°C	Nagata (1970)
035B	Chloroform-Benzene	760mm Hg	Nagata (1962)
036	Chloroform-Ethyl Acetate	760mm Hg	Nagata (1962)
038	Chloroform-Methyl Isobutyl Ketone	760mm Hg	Karr (1951)
099A	Methyl Acetate-Chloroform	50°C	Nagata (1970)
099B	Methyl Acetate-Chloroform	760mm Hg	Nagata (1962)

TABLE 11

PARAMETER VALUES AND QUALITY OF FIT FOR SYSTEMS WITH γ's $\prec$ 1

Binary System	Parameter Values		Objective Function	Mean Absolute Deviations In Pressure	Mean Absolute Deviations In Composition X 10^3	Root Code
007A	-34.85	-372.73	0.05722	5.66	5.61	A
	1877.86	-996.31	0.1657	3.73	7.51	B
	-875.84	1850.33	0.1844	10.29	14.47	C
007B	55.43	-475.76	0.009377	12.74	4.73	A
	5136.50	-1066.87	0.009636	7.86	4.74	B
	-912.30	2806.71	0.06993	8.95	17.14	C
035A	-213.15	91.51	0.02474	3.64	5.42	A
	1135.53	-728.32	0.02842	2.40	4.33	B
	-616.25	1103.12	0.02261	1.97	3.74	C

TABLE II (cont.)

Binary System	Parameter Values		Objective Function	Mean Absolute Deviations In Pressure	Mean Absolute Deviations In Composition X 10^3	Root Code
035B	-226.83	170.29	0.002266	3.68	1.72	A
	987.90	-681.27	0.002719	3.51	1.55	B
	-392.09	458.86	0.002402	3.91	3.91	C
036	-346.57	-104.25	0.007821	5.37	2.74	A
	-955.01	7166.10	0.009829	8.35	3.81	C
	2748.51	-1158.63	0.1341	26.90	15.70	B
038	-482.70	201.59	0.06379	29.74	6.94	A
	8970.31	-1484.86	0.7721	23.60	19.07	B
	-869.70	7234.66	0.1368	30.93	7.17	C

TABLE 11 (cont.)

Binary System	Parameter Values		Objective Function	Mean Absolute Deviations In Pressure	Mean Absolute Deviations In Composition X 10^3	Root Code
099A	30.60	-422.09	0.01362	2.67	4.14	A
	2127.15	-966.66	0.01999	3.82	4.00	B
	-949.86	2862.82	0.1899	10.93	18.44	C
099B	121.55	-460.33	0.01221	3.73	4.44	A
	2235.39	-971.20	0.002807	4.55	3.00	B
	-941.25	2025.03	0.09658	13.20	15.01	C

TABLE 12

PARAMETER VALUES AND QUALITY OF FIT FROM INFINITE DILUTION COEFFICIENTS IN SYSTEMS WITH $\gamma^{\infty} < 1$

Binary System	Parameter Values		Objective Function	Mean Absolute Deviations In Pressure	Mean Absolute Deviations In Composition X 10^3	Root Code
007A	-52.70	-359.16	1.001×10^{-10}	5.96	5.71	A
	2146.26	-1090.22	5.478×10^{-11}	16.64	11.51	B
	-1077.04	2609.30	3.812×10^{-12}	36.72	35.93	C
007B	166.90	-565.33	4.732×10^{-10}	14.69	5.15	A
	1841.25	-1070.06	1.879×10^{-12}	22.52	10.01	B
	-1264.25	3795.72	2.484×10^{-10}	94.76	63.08	C
035A	-406.66	406.70	4.791×10^{-4}	4.89	6.58	B
	1596.51	-883.86	7.883×10^{-11}	13.62	14.30	A
035B	-344.52	363.46	7.548×10^{-5}	4.00	1.70	B
	1082.00	-732.05	9.743×10^{-11}	8.40	4.02	A

TABLE 12 (cont.)

Binary System	Parameter Values		Objective Function	Mean Absolute Deviations In Pressure	Mean Absolute Deviations In Composition X 10^3	Root Code
036	-439.56	79.14	4.864×10^{-12}	9.70	5.32	A
	-888.71	1588.66	2.078×10^{-12}	12.47	7.02	C
	3858.52	-1484.51	5.162×10^{-12}	74.55	54.56	B
038	-410.11	69.50	2.135×10^{-12}	26.02	7.35	A
	-811.88	1643.95	2.103×10^{-12}	34.87	6.64	C
	4502.51	-1828.73	1.170×10^{-11}	98.27	59.26	B
099A	41.09	-417.90	1.970×10^{-11}	3.00	4.66	A
	1787.19	-993.83	6.441×10^{-12}	7.33	7.47	B
	-1137.07	2823.44	2.088×10^{-11}	38.53	42.94	C
099B	320.58	-558.19	1.581×10^{-12}	7.07	7.16	A
	1111.60	-843.05	4.379×10^{-11}	7.53	9.15	B
	-1201.90	3219.19	7.524×10^{-11}	77.49	44.41	C

there must be either one or three sets of parameter values.

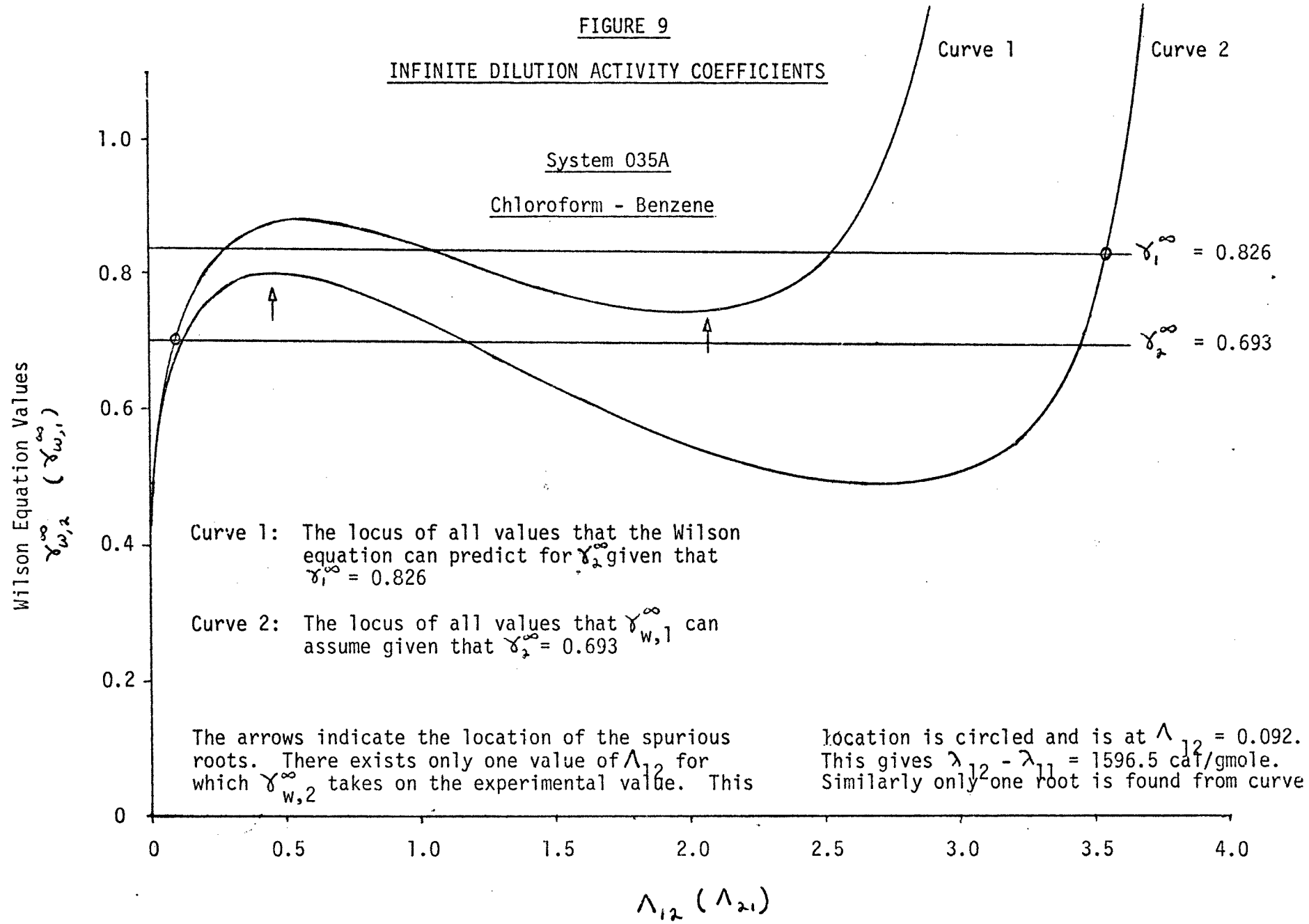
To explain this apparent discrepancy, consider the case where the observed value of γ_2^∞ lies either just above the relative maxima or just below the relative minima of the calculated function $\gamma_2^\infty(\gamma_1^\infty, \Lambda_{12})$. The latter case is illustrated for the binary system chloroform-benzene in Figure 9. If a nonlinear regression routine is utilized to obtain the best values of the Wilson parameters from a set of initial guesses in the neighborhood of the relative minima, then the program may converge to a set of pseudo-roots (i.e., false roots), at or near the relative minima simply because the search pattern will only see larger values of the objective function for any test more away from the area of the relative minima. The resulting sets of real and pseudo-roots are well within the normally accepted range of values for Wilson parameters. As a result, the existence of the pseudo-root is not obvious from inspection alone.

V. PREDICTION OF MULTICOMPONENT DATA

Until this point data analysis has been principally concerned with the effectiveness of the various minimization functions with respect to the correlation of binary data. The true test of the significance of variations already defined must be the capability of the functions to deliver good prediction of multicomponent

FIGURE 9

INFINITE DILUTION ACTIVITY COEFFICIENTS



Curve 1: The locus of all values that the Wilson equation can predict for γ_2^∞ given that $\gamma_1^\infty = 0.826$

Curve 2: The locus of all values that $\gamma_{w,1}^\infty$ can assume given that $\gamma_2^\infty = 0.693$

The arrows indicate the location of the spurious roots. There exists only one value of Λ_{12} for which $\gamma_{w,2}^\infty$ takes on the experimental value. This location is circled and is at $\Lambda_{12} = 0.092$. This gives $\lambda_{12} - \lambda_{11} = 1596.5$ cal/gmole. Similarly only one root is found from curve

vapor liquid equilibria.

Bubble point calculations for 75 multicomponent systems covering a range of properties were performed with the parameter estimates derived with each objective function. The results, summarized as the mean absolute deviation in pressure and in vapor phase composition, are tabulated in Tables 15 and 16. These values are the absolute deviations between experimental and calculated variables averaged over all the data points. The composition means are also averaged over the number of components present. The remainder of this discussion will concentrate on the composition results. Table 13 lists the systems investigated along with their identification numbers. Table 14 lists the distribution of binary systems among the multicomponent systems.

Significant Differences in Vapor Compositions Observed

The average mean deviation for composition is seen to be in the range of 0.01 mole fraction. Table 17 presents a comparison of the ten objective functions on an absolute basis. For each multicomponent system the objective function whose parameters delivered the minimum average deviation was ascertained. Table 17 is a summary of this survey. An analysis of the results is inconclusive. Excepting model one, all of the models appear to fit the multicomponent vapor composition data in an adequate, and comparable fashion. The spread in average mean absolute deviations is less than 0.002 mole

TABLE 13

MULTICOMPONENT SYSTEMS INVESTIGATED

System ID	Components	Conditions	Reference
001	Benzene-Chloroform-Methanol-Methyl Acetate-Acetone	760mm Hg	Hudson (1969)
002	Hexane-Methylcyclopentane-Cyclohexane-Benzene-Toluene	760mm Hg	Weatherford (1970
003	Benzene-Chloroform-Methanol-Methyl Acetate	760mm Hg	Hudson (1969)
004	2,3-Dimethylbutane-Methanol-Acetone-Chloroform	760mm Hg	Willock (1970)
005	Ethanol-Benzene-Methylcyclopentane-Hexane	760mm Hg	Belknap (1961),Kaes (1962), Sinor (1960)
006	Iso-Octane-Methylcyclohexane-Toluene-Phenol	760mm Hg	Drickamer (1945)
007	Acetone-Acetonitrile-Water	---	Chu (1956)
008	Acetone-Carbon Tetrachloride-Benzene	760mm Hg	Subbarao (1966)
009	Acetone-Chloroform-2,3-Dimethylbutane	760mm Hg	Garrett (1969)
010	Acetone-Methanol-Chloroform	50°C	Severns (1955)
011	Acetone-Methanol-Ethanol	760mm Hg	Hala (1968)
012	Acetone-Methanol-2-Propanol	55°C	Freshwater (1967)
013	Acetone-Methanol-2-Propanol	760mm Hg	Freshwater (1967)
014	Acetone-Methanol-Water	760mm Hg	Chu (1950)
015	Acetone-Methanol-Water	760mm Hg	Chu (1950)
016	Acetone-Methyl Acetate-Methanol	50°C	Severns (1955)

TABLE 13

MULTICOMPONENT SYSTEMS INVESTIGATED

Systems ID	Components	Conditions	References
017	Methyl Ethyl Ketone-Benzene-2-Propanol	50°C	Zharov (1965)
018	Methyl Ethyl Ketone-Benzene-2-Propanol	760mm Hg	Zharov (1965)
019	Benzene-Cyclohexane-Furfural	760mm Hg	Chu (1956)
020	Benzene-Cyclohexane-Hexane	760mm Hg	Ridgway (1967)
021	Benzene-Cyclohexane-Methylcellosolve	760mm Hg	Chu (1956)
022	Benzene-Ethanol-Hexane	760mm Hg	Waldo (1963)
023	Benzene-Methylcyclopentane-Hexane	760mm Hg	Belknap (1961)
024	Carbon Tetrachloride-Benzene-2-Propanol	760mm Hg	Nagata (1965)
025	Carbon Tetrachloride-Cyclohexane-2-Propanol	760mm Hg	Lu (1963)
026	Chloroform-Methanol-Ethyl Acetate	760mm Hg	Nagata (1962)
027	Chloroform-Methanol-Methyl Acetate	760mm Hg	Hudson (1969)
028	Cyclohexane-Cyclohexene-1,2-Dichloroethane	760mm Hg	Mesnage (1971)
029	2,3-Dimethylbutane-Methanol-Acetone	760mm Hg	Willock (1970)
030	2,3-Dimethylbutane-Methanol-Chloroform	760mm Hg	Kirby (1970)
031	2,4-Dimethylpentane-Benzene-Hexylene Glycol	400mm Hg	Stephenson (1962)
032	Ethanol-Benzene-Heptane	180mm Hg	Oakeson (1960)

TABLE 13

MULTICOMPONENT SYSTEMS INVESTIGATED

Systems ID	Components	Conditions	References
033	Ethanol-Benzene-Heptane	400mm Hg	Nielsen (1959)
034	Ethanol-Benzene-Methylcyclopentane	760mm Hg	Sinor (1960)
035	Ethanol-Ethyl Acetate-Water	760mm Hg	Chu (1950)
036	Ethanol-Methylcyclopentane-Hexane	760mm Hg	Kaes (1962)
037	Benzene-Hexane-Cyclohexane	70°C	Susarev (1963)
038	Ethanol-1-Propanol-Water	760mm Hg	Ochi (1969)
039	Ethanol-2-Propanol-Water	760mm Hg	Kojima (1968)
040	Ethanol-Water-1,4-Dioxane	760mm Hg	Chu (1950)
041	Ethyl Acetate-Ethanol-Water	40°C	Mertl (1972)
042	Ethyl Acetate-Ethanol-Water	55°C	Mertl (1972)
043	Ethyl Acetate-Ethanol-Water	70°C	Mertl (1972)
044	Hexane-Benzene-Chlorobenzene	760mm Hg	Arai (1969)
045	Hexane-Benzene-Toluene	760mm Hg	Arai (1969)
046	Hexane-Benzene-Toluene	760mm Hg	Michishita (1971)
047	Hexane-Benzene-p-Xylene	760mm Hg	Michishita (1971)
048	Hexane-Ethanol-Benzene	~55°C	Lu (1963)
049	Hexane-1-Hexene-Cellosolve	760mm Hg	Suryanarayana (1966)

TABLE 13

MULTICOMPONENT SYSTEMS INVESTIGATED

Systems ID	Components	Conditions	References
050	Hexane-1-Hexene-1,4-Dioxane	760mm Hg	Suryanarayana (1966)
051	Hexane-1-Hexene-1,2,3-Trichloropropane	760mm Hg	Suryanarayana (1966)
052	Methanol-Carbon Tetrachloride-Benzene	34.68°C	Hala (1968)
053	Methanol-Carbon Tetrachloride-Benzene	55°C	Hala (1968)
054	Methanol-Ethanol-1,4-Dioxane	760mm Hg	Kato (1971)
055	Methanol-Ethanol-Water	760mm Hg	Delzenne (1958)
056	Methanol-Ethyl Acetate-Water	760mm Hg	Akita (1963)
057	Methanol-Heptane-Toluene	760mm Hg	Hala (1968)
058	Methanol-1-Propanol-Water	760mm Hg	Ochi (1969)
059	Methanol-2-Propanol-Water	760mm Hg	Ochi (1969)
060	Methyl Acetate-Benzene-Cyclohexane	760mm Hg	Nagata (1962)
061	Methyl Acetate-Chloroform-Benzene	50° C	Nagata (1970)
062	Methyl Acetate-Chloroform-Benzene	760mm Hg	Nagata (1962)
063	Methylcyclohexane-Toluene-Phenol	760mm Hg	Drickamer (1945)
064	Methyl Ethyl Ketone-Heptane-Toluene	88°C	Chu (1950)
065	Acetone-Methyl Ethyl Ketone-Water	760mm Hg	Chu (1956)
066	Acetone-Chloroform-Methyl Isobutyl Ketone	760mm Hg	Karr (1951)

TABLE 13

MULTICOMPONENT SYSTEMS INVESTIGATED

Systems ID	Components	Conditions	References
067	Ethanol-Chloroform-Acetone-Hexane	55°C	Vinichenko (1965)
068	Cyclohexane-Benzene-2-Propanol-Methyl Ethyl Ketone	760mm Hg	Lutugina (1968)
069	Cyclohexane-Benzene-2-Propanol-Methyl Ethyl Ketone	500mm Hg	Lutugina (1968)
070	Cyclohexane-Benzene-2-Propanol-Methyl Ethyl Ketone	~360mm Hg	Lutugina (1968)
071	Methyl Ethyl Ketone-2-Propanol-Water	760mm Hg	Matocha (1971)
072	Hexane-Cyclohexane-Benzene	10°C	Lu (1974)
073	Hexane-Cyclohexane-Benzene	15°C	Lu (1974)
074	Hexane-Cyclohexane-Benzene	25°C	Lu (1974)
075	Hexane-Cyclohexane-Benzene	70°C	Lu (1974)

TABLE 14

DISTRIBUTION OF BINARY SYSTEMS WITHIN THE MULTICOMPONENT SYSTEMS

System No.	Constituent Binary System ID Numbers									
	1	2	3	4	5	6	7	8	9	10
001	035A	083B	098C	005	037A	099A	007A	101	010B	011
002	109	042B	074C	078B	137	108	138	018D	139	026
003	035A	083B	098C	037A	099A	101				
004	049	047	048	010B	037B	007A				
005	055C	059	058C	108	022	109				
006	080	082	081	107	106	126				
007	004	014	015E							
008	006	005	030C							
009	007A	047	048							
010	010B	007A	037B							
011	010B	008B	085							
012	010B	009A	095A							
013	010B	009B	095B							
014	010A	014	097							
015	010A	014	097							
016	011	010A	101							
017	143A	144A	025A							
018	143B	144B	025C							
019	018E	020	041							

TABLE 14 (cont.)

System No.	Constituent Binary ID Numbers									
	1	2	3	4	5	6	7	8	9	10
020	018D	022	042B							
021	018C	024	043							
022	019A	022	058B							
023	108	022	109							
024	030D	032B	025B							
025	031	032B	044A							
026	037B	036	086F							
027	037A	099A	101							
028	039	040	045							
029	049	047	010A							
030	049	048	037B							
031	050	051	023							
032	055D	057A	021B							
033	055E	057B	021C							
034	055C	059	108							
035	056F	063H	067D							
036	059	058C	109							
037	074B	018C	042A							
038	060	063G	114B							
039	061	063G	120A							
040	063H	052	131							

TABLE 14 (cont.)

System No.	Constituent Binary System ID Numbers									
	1	2	3	4	5	6	7	8	9	10
041	056B	067A	063B							
042	056D	067B	063E							
043	056E	067D	063F							
044	022	075A	135							
045	022	078B	026							
046	022	078A	026							
047	022	077	027							
048	058C	074C	055E							
049	076	033	034							
050	076	053	054							
051	076	127	128							
052	084A	083A	030B							
053	084B	083B	030C							
054	085	086D	052							
055	085	097	063G							
056	086E	097	067D							
057	087	096	072A							
058	094	097	114B							
059	095B	097	120A							
060	098E	100	018D							

TABLE 14 (cont.)

System No.	Constituent Binary System ID Numbers									
	1	2	3	4	5	6	7	8	9	10
061	099A	098C	035A							
062	099B	098E	035B							
063	107	106	126							
064	102	103	072A							
065	012	014	104							
066	007A	013	038							
067	145	008A	058B	007B	146	147				
068	018D	044B	148	025C	143B	144B				
069	018C	044A	148	025A	143A	144A				
070	018C	044A	148	025A	143A	144A				
071	144B	104	120A							
072	042A	074A	018A							
073	042A	074A	018A							
074	042A	074A	018A							
075	042A	074B	018C							

Table 15

PERFORMANCE SUMMARY OF THE ERROR MINIMIZING FUNCTIONS

SYSTEM NO.	MEAN ABSOLUTE DEVIATIONS IN PRESSURE MODEL NO.									
	1	2	3	4	5	6	7	8	9	10
1	8.07	24.09	18.99	17.13	18.57	18.70	17.23	23.36	23.33	19.50
2	21.36	13.23	9.49	10.59	18.02	18.60	10.41	14.93	14.63	9.73
3	11.32	17.83	16.81	14.80	18.64	16.96	18.19	19.23	19.29	15.89
4	25.87	42.75	7.32	10.43	30.44	13.22	33.09	35.69	35.61	6.92
5	33.93	7.51	6.20	5.90	6.90	6.94	15.40	6.83	6.80	6.34
6	44.73	87.22	91.10	30.78	48.44	56.38	41.31	43.89	43.86	54.07
7	44.47	25.48	20.49	20.92	27.52	23.27	28.56	30.73	30.70	17.53
8	11.17	25.68	10.45	10.27	12.37	13.44	12.52	22.00	21.99	10.57
9	12.98	26.96	5.59	5.54	16.59	6.30	17.54	23.11	23.11	5.55
10	15.27	15.60	14.48	14.28	15.49	13.24	15.67	15.70	15.70	14.44
11	22.02	10.40	5.67	5.80	5.01	10.41	6.02	6.18	6.30	4.82
12	9.68	8.29	6.01	6.14	3.50	10.30	4.90	5.08	5.09	6.03
13	33.93	7.08	18.66	17.75	11.14	20.15	12.00	10.65	10.68	19.32
14	32.51	34.48	16.97	17.27	43.19	43.46	45.29	42.34	42.35	12.67
15	33.32	20.29	11.60	9.58	23.93	26.91	24.66	23.13	23.28	17.02
16	9.65	11.21	12.24	11.17	11.75	12.19	12.06	11.36	11.36	12.15
17	15.46	2.97	7.90	7.23	2.35	10.76	3.30	1.21	1.21	8.04
18	12.35	3.41	6.20	5.60	5.44	7.24	7.08	3.10	3.10	6.60
19	39.41	39.32	45.07	42.18	37.64	54.41	46.20	35.08	35.07	45.19
20	4.60	4.16	4.72	4.69	3.89	5.28	26.26	3.58	3.56	4.54
21	69.22	43.73	41.34	40.68	45.60	43.16	35.20	47.34	47.34	44.69
22	52.80	5.64	23.51	22.70	14.39	46.15	46.86	9.29	9.24	23.50
23	8.46	6.34	4.90	4.60	6.99	6.12	11.49	5.22	4.91	4.69
24	11.21	22.50	17.95	17.69	16.89	13.34	32.85	18.51	18.52	18.51
25	73.00	16.91	31.90	31.38	22.94	35.32	41.20	16.28	16.30	30.20
26	18.42	13.38	15.69	14.24	14.55	13.33	14.10	17.14	17.14	15.48
27	11.16	10.33	13.61	12.61	11.21	12.95	11.18	10.43	10.53	13.25
28	39.39	9.84	39.97	35.02	8.50	35.43	9.70	4.98	4.96	25.33
29	101.50	30.80	64.77	59.82	39.84	53.03	36.56	37.84	37.84	66.58
30	42.90	24.63	6.50	6.90	16.71	8.61	19.29	19.82	19.83	6.53
31	84.97	47.64	26.32	28.51	23.32	59.76	29.45	23.96	23.99	53.90
32	16.96	2.56	4.12	4.06	3.42	4.76	10.24	3.04	3.04	4.16
33	17.54	3.74	5.43	4.96	4.35	6.67	21.23	4.07	4.07	5.43
34	36.91	8.74	12.20	11.39	7.25	9.33	6.62	7.53	7.53	12.78
35	122.32	10.94	11.64	9.81	7.30	11.19	7.53	6.99	7.00	10.12

36	37.72	12.89	4.48	4.40	5.01	4.86	4.85	8.35	8.67	5.85
37	4.55	4.02	4.88	4.55	2.05	11.26	2.65	2.13	2.13	2.66
38	43.46	7.16	11.08	10.76	11.88	13.49	12.09	10.62	10.64	9.19
39	33.27	6.03	13.92	12.20	9.05	11.66	9.61	7.98	8.13	13.63
40	18.91	9.55	13.89	12.60	16.12	27.38	19.38	13.37	13.37	14.01
42	22.82	22.63	17.34	17.33	17.71	21.74	19.52	17.48	17.48	17.31
43	110.96	11.31	9.33	8.92	9.88	8.83	9.55	11.37	11.35	9.58
44	41.75	25.85	13.65	21.52	23.75	70.31	23.38	34.05	34.09	26.65
45	12.92	11.48	13.03	13.23	12.20	12.93	55.72	11.96	12.00	12.73
46	8.71	7.42	7.30	7.68	8.42	7.05	48.57	10.24	10.32	6.83
47	6.54	12.09	3.72	4.07	8.78	18.16	30.98	9.41	9.45	5.23
48	31.77	5.94	7.99	8.43	7.21	7.74	7.35	7.12	7.13	8.35
49	76.50	23.82	43.59	36.31	12.85	73.18	11.23	17.71	17.71	51.84
50	26.20	16.32	17.55	16.46	14.74	27.11	16.60	11.44	11.42	20.28
51	31.69	63.16	42.78	41.30	28.66	41.49	27.48	29.34	29.34	39.80
52	23.14	0.78	1.34	1.13	1.09	1.06	3.97	1.04	1.04	1.33
53	49.92	2.33	2.01	1.85	2.59	2.58	4.83	2.65	2.65	1.95
54	41.31	18.84	26.09	23.34	22.66	33.13	22.60	23.05	23.05	27.64
55	89.77	18.84	17.89	20.66	14.15	21.41	15.41	13.67	13.67	37.93
56	150.26	17.43	20.91	22.92	9.23	21.14	9.15	12.03	12.06	35.25
57	45.91	8.88	10.25	8.81	5.09	5.52	6.29	6.30	6.28	10.39
58	90.20	21.42	37.79	49.80	15.95	64.72	23.16	9.77	9.77	62.85
59	46.43	9.53	14.56	15.77	10.88	16.52	12.53	10.11	10.25	23.45
60	6.57	8.71	6.10	6.08	6.55	9.83	7.00	6.19	6.19	6.11
61	3.02	5.79	3.18	3.11	5.66	3.45	5.41	6.94	6.93	3.41
62	9.38	6.26	4.54	4.37	3.21	12.07	3.98	5.51	5.52	5.34
64	24.79	8.17	30.56	13.18	2.06	5.12	2.62	1.87	1.85	44.74
65	52.77	45.44	36.19	40.11	54.60	54.81	54.34	52.82	52.82	33.81
66	27.39	28.79	19.29	22.70	13.92	43.05	18.38	12.20	12.20	17.67
67	32.98	23.68	19.60	18.85	32.22	30.61	34.75	34.05	34.13	16.46
68	30.79	6.51	30.09	14.75	9.40	16.75	11.75	7.35	7.14	8.02
69	23.55	5.37	13.86	14.73	8.51	20.91	11.33	4.06	3.96	4.56
70	27.76	7.45	17.91	18.61	13.76	22.66	15.44	9.04	8.85	9.20
71	20.02	22.84	24.21	17.40	20.08	27.86	20.41	18.00	18.21	20.37
72	2.49	1.11	1.74	1.98	1.67	2.40	2.08	0.93	0.93	1.75
73	2.96	1.08	2.02	2.31	1.92	2.61	2.40	0.83	0.83	2.05
74	3.89	1.21	2.53	2.96	2.44	3.68	3.17	0.85	0.85	2.68
75	6.50	7.40	1.13	0.96	3.35	7.71	3.28	5.91	5.91	2.32
	33.92	16.54	16.77	15.32	14.43	21.02	18.14	14.48	14.49	17.20

Table 16

PERFORMANCE SUMMARY OF THE ERROR MINIMIZING FUNCTIONS

SYSTEM NO.	GRAND MEAN ABSOLUTE DEVIATION IN VAPOR PHASE COMPOSITION X 1000 MODEL NO.									
	1	2	3	4	5	6	7	8	9	10
1	4.74	7.75	7.51	7.53	8.47	8.14	8.76	7.87	7.87	7.18
2	5.45	4.43	4.74	4.54	4.43	4.49	9.79	4.06	4.01	4.16
3	7.11	6.61	7.15	6.88	6.58	6.33	6.34	6.88	6.89	7.18
4	4.23	10.53	6.43	6.90	9.45	7.93	9.57	10.63	10.61	6.28
5	10.73	6.75	6.68	6.46	6.74	7.21	8.55	6.28	6.25	6.39
6	31.80	54.39	22.51	23.57	31.84	31.69	28.42	29.88	29.90	39.47
7	18.70	14.31	10.38	10.36	11.21	12.15	11.24	13.00	12.99	10.04
8	6.30	12.31	5.56	5.39	6.18	6.76	8.29	10.43	10.42	5.51
9	6.11	13.29	5.35	5.70	9.85	5.95	10.72	11.60	11.60	5.35
10	10.15	11.37	10.47	10.61	11.30	11.32	11.56	11.17	11.17	10.37
11	12.66	10.14	8.41	8.71	8.77	9.07	8.65	8.91	8.90	8.88
12	5.53	17.45	5.95	5.95	6.89	5.31	6.58	8.80	8.80	6.05
13	10.44	11.59	7.63	7.67	8.87	8.00	8.55	9.86	9.86	7.57
14	32.23	23.40	33.42	26.54	26.58	30.76	26.19	26.34	26.34	25.72
15	15.13	15.20	10.62	11.54	12.53	11.51	12.21	13.02	13.08	13.72
16	10.05	10.13	10.37	10.17	9.89	9.84	9.91	10.00	10.01	10.37
17	9.29	13.68	8.21	9.58	9.88	10.91	10.05	9.99	9.99	7.96
18	9.41	10.23	10.37	10.79	9.63	9.52	9.73	9.76	9.76	10.53
19	14.67	18.19	17.90	17.05	14.69	14.78	39.90	14.21	14.21	18.04
20	4.41	4.56	4.25	4.27	4.47	4.49	11.06	4.66	4.67	4.24
21	26.70	28.72	23.56	23.03	24.98	23.64	31.21	25.51	25.51	25.02
22	22.71	6.25	12.65	12.43	9.34	22.08	13.75	7.85	7.88	12.73
23	4.25	3.88	3.75	3.59	4.04	4.30	9.35	3.67	3.62	2.75
24	8.87	7.97	8.60	8.18	7.29	7.16	9.51	7.39	7.39	8.74
25	32.54	30.20	28.11	27.96	27.45	27.62	30.69	28.32	28.32	27.76
26	11.90	9.69	12.04	11.68	10.05	9.62	9.58	10.91	10.91	11.97
27	10.02	6.67	7.89	7.67	6.59	7.09	6.47	6.58	6.62	8.04
28	12.57	18.94	13.11	12.50	14.32	12.11	14.27	16.60	16.58	13.87
29	35.24	21.16	25.71	23.90	20.02	23.99	19.48	19.64	19.65	25.76
30	17.72	12.84	7.44	6.38	5.86	6.05	6.60	6.31	6.31	7.45
31	120.12	16.58	20.95	21.24	22.01	25.59	17.44	22.46	22.47	16.94
32	25.62	8.40	10.63	9.87	8.26	13.41	16.93	7.17	7.17	10.73
33	15.88	8.35	9.46	9.44	9.29	10.23	21.99	8.95	8.94	9.54
34	14.02	6.50	9.72	8.97	6.53	10.17	6.89	5.70	5.70	9.89
35	81.65	14.98	19.29	18.52	16.30	18.08	16.13	15.73	15.73	18.65

36	16.23	7.81	9.75	9.08	6.68	8.26	6.65	6.59	6.60	8.81
37	8.20	7.03	5.71	5.79	5.98	5.49	5.97	6.26	6.26	6.04
38	23.28	11.19	10.63	11.19	10.52	11.47	10.79	10.51	10.50	11.54
39	16.44	8.89	10.22	9.65	8.87	9.13	8.88	8.96	9.05	10.71
40	15.45	11.34	14.61	13.50	13.99	17.01	14.31	13.61	13.61	15.15
42	19.21	31.13	16.13	15.96	17.27	16.43	16.91	18.41	18.40	16.11
43	97.07	16.00	13.39	13.22	13.31	12.96	13.27	13.53	13.53	13.42
44	17.56	13.90	9.23	10.14	10.04	17.10	17.23	10.11	10.13	9.72
45	10.29	6.91	9.79	9.75	8.54	10.67	28.63	8.20	8.21	9.32
46	4.82	6.46	4.90	4.88	4.60	3.43	17.14	5.39	5.38	4.33
47	4.63	10.17	4.81	4.72	5.12	5.72	14.21	5.89	5.90	4.61
48	18.33	17.33	15.73	15.89	16.49	16.05	16.42	16.98	16.98	15.65
49	3.34	6.42	11.21	11.63	9.48	11.54	9.97	8.64	8.64	10.98
50	7.74	6.04	5.81	5.22	5.93	8.56	6.63	5.55	5.55	6.11
51	10.94	26.37	15.70	15.43	13.04	11.90	12.56	13.71	13.71	15.09
52	16.12	2.39	2.84	2.98	2.59	3.09	9.26	2.64	2.65	3.03
53	17.31	0.95	1.92	1.95	1.92	2.33	3.63	1.87	1.88	2.28
54	26.13	14.11	18.84	17.35	16.31	20.97	16.40	15.66	15.66	19.06
55	58.93	29.02	32.52	33.96	26.33	23.24	25.65	27.39	27.39	42.34
56	107.30	14.25	14.11	13.33	14.39	16.63	14.59	14.43	14.42	14.68
57	10.96	9.50	4.42	4.71	6.58	5.96	6.89	7.10	7.09	4.60
58	31.34	13.77	18.88	21.06	15.69	31.95	18.12	13.52	13.51	24.90
59	24.64	11.54	15.77	15.84	10.07	11.39	10.04	9.92	9.95	21.42
60	8.36	10.12	8.84	8.67	7.99	6.64	7.62	8.32	8.32	8.96
61	5.90	7.59	5.83	5.94	7.19	4.35	6.88	8.21	8.20	5.58
62	6.93	5.16	4.91	4.92	3.48	3.39	3.59	5.33	5.34	5.14
64	7.50	6.85	24.26	3.96	4.83	4.08	4.84	4.80	4.80	13.69
65	22.77	14.54	17.75	13.17	13.16	14.05	13.27	13.20	13.20	15.04
66	5.66	13.43	8.40	9.19	7.30	6.28	6.92	8.52	8.52	8.62
67	10.18	9.40	8.44	8.16	9.18	10.80	9.44	9.98	9.98	8.65
68	11.56	9.03	14.38	10.65	10.06	11.39	10.39	9.61	9.55	9.59
69	10.41	13.95	10.48	11.38	10.66	9.78	10.27	10.00	9.84	4.50
70	14.59	13.34	12.54	12.80	12.27	12.10	12.09	11.99	11.83	7.54
71	12.56	13.16	13.70	11.89	10.09	13.22	10.52	9.11	9.19	13.82
72	8.66	4.96	6.41	7.44	6.89	8.95	8.42	4.44	4.45	6.25
73	6.76	5.07	5.97	6.79	6.22	8.26	7.55	5.10	5.10	5.58
74	7.34	5.39	5.63	6.14	5.84	6.80	6.59	5.40	5.40	6.15
75	7.16	3.30	2.56	2.69	2.45	4.48	2.60	2.61	2.61	3.64
	19.20	12.27	11.42	10.91	10.58	11.55	12.49	10.71	10.71	11.47

TABLE 17

ABSOLUTE COMPARISON OF MODELS

Number of Systems for Which Each Model Delivered the Minimum Composition Deviation

Model Number	1	2	3	4	5	6	7	8/9	10
Quinary (2)	1							1	
Quaternary (8)	1	2	1			2		2	
Ternary (63)	4	12	6	7	4	11	3	9	7
Total (73)	6	14	7	7	4	13	3	12	7

fraction. It would appear, however, that models two, six, and eight/nine deliver the best performance.

Examination of Table 16 from the point of view of model breakdown is in order. Breakdown of a model is defined as an instance in which the mean deviation is 100% or more poorer than the minimum deviation for the system. Table 18 summarizes this analysis. From this, models one, two, seven, and ten are rejected as being of decidediy inferior reliability when compared to the other models.

At this point it is worthwhile to consider the performance of the several models in conjuction with their definitions. Model three, the error in the activity coefficients, can be eliminated relative to model four, the relative error in the activity coefficients, because model four delivers a five per cent better overall mean deviation with less model breakdown and no additional computational effort. In a similar vein model six is eliminated relative to model eight/nine. Model eight/nine gives a better overall fit (8%), is marginally more reliable, and is computationally the same as model six. Clearly, of course, model nine is preferred over model eight if the vapor composition data is available. Lastly, eliminate model five in favor of either model four or nine. Model five, while being computationally more obstruse, delivers neither a more reliable nor significantly closer fit of the data.

TABLE 18

OBJECTIVE FUNCTION BREAKDOWNS

Model Number	Number of Systems in Which the Average Deviation Exceeded the Minimum Average Deviation for the Given System by 100%
1	19
2	10
3	3
4	1
5	2
6	4
7	13
8/9	2
10	7

Model Four is Best General Choice of Objective Function

To further define the ranking of the objective function models, the performance of the several models were all compared to that of model four. If the mean deviation in vapor phase composition associated with a given model differed by less than 10% from that associated with model four, their performance was declared equivalent. Table 19 summarizes these results.

Analysis of this data substantiates previously drawn conclusions. Of the eight different models listed, only two, five, and nine provide better predictions of multicomponent data enough times to be considered further. The unreliability of model two is easily seen by the number of times it delivers results poorer then those delivered by model four.

For ease of computation and minimized computer cost, model four is recommended for general use over models five and nine. It is judged that the few improvements in prediction generated by the use of the other models do not warrant their use. There is no correlation of performance among the three best models with multicomponent system parameters. Table 20 provides a summary of these considerations.

A similar analysis (Table 21) of the mean deviations in total pressure predictions has also been carried out. Identical conclusions

TABLE 19

COMPARISON OF MODELS RELATIVE TO MODEL 4

Number of Systems for Which Any Given Model Delivers Predictions of Vapor Phase Composition That Are (To Within 10%) Better Than, Equal To, or Poorer Than the Predictions Delivered By Model 4

Model Number	Better Than	Equal To	Poorer Than
1	7	19	47
2	24	18	31
3	4	62	7
5	21	38	14
6	11	34	28
7	13	29	31
8/9	21	35	17
10	6	47	20
Total	107	282	195
Percentage	18%	49%	33%

TABLE 20

LOGIC SUMMARY

From An Examination of Table No.:	Eliminate Models No.:	Models Remaining								
		1	2	3	4	5	6	7	8/9	10
16	1		X	X	X	X	X	X	X	X
17	5 & 7		X	X	X		X		X	X
18	2 & 10			X	X		X		X	
19	3 & 6				X				X	

TABLE 21

COMPARISON OF OBJECTIVE FUNCTIONS

BASED ON PREDICTING TOTAL SYSTEM PRESSURE

Number of Systems for Which Each Model Delivered the

Minimum Average Deviation in Total System Pressure

Model Number	1	2	3	4	5	6	7	8/9	10
Quinary (2)	1		1						
Quaternary (8)	1	2		2				1	2
Ternary (63)	3	14	2	11	5	2	5	15	6
Total (73)	5	16	3	13	5	2	5	16	8
Number of Model Breakdowns	49	21	20	17	12	30	30	12	22

are reached: The best models to use are numbers four, five, and nine; model four is recommended for general use.

Impact of the Presence of Multiple Roots on The Prediction of Multicomponent VLE

In order to gauge the impact that the presence of binary systems having multiple roots may have upon the prediction of multicomponent vapor-liquid equilibria, an extensive survey of such systems has been undertaken. Ten multicomponent systems (Table 22) comprising from three to five components and each containing from one to three binary systems with multiple roots (Table 23) have been studied. The results of this investigation are documented in Tables 24 and 25 in terms of the degree of fit of the multicomponent data expressed as the mean absolute deviation in vapor phase composition.

Tables 24 and 25 present the effect upon the quality of fit of multicomponent data for systems containing one binary with multiple roots and for systems containing more than one binary with multiple roots, respectively. Each table uses parameter values obtained from both the regression of all available binary data and from regression against the infinite dilution activity coefficients. The root code (see Tables 11 and 12) merely designates which one of the three possible roots for each binary of interest have been used in correlating the

TABLE 22

MULTICOMPONENT SYSTEMS OF INTEREST

System ID	Components	Conditions	Reference
001	Benzene-Chloroform-Methanol-Methyl Acetate-Acetone	760 mm Hg	Hudson (1969)
003	Benzene-Chloroform-Methanol-Methyl Acetate	760 mm Hg	Hudson (1969)
004	2,3-Dimethylbutane-Methanol-Acetone-Chloroform	760 mm Hg	Willock (1970)
009	Acetone-Chloroform-2,3-Dimethylbutane	760 mm Hg	Garrett (1969)
010	Acetone-Methanol-Chloroform	50° C	Severns (1955)
026	Chloroform-Methanol-Ethyl Acetate	760 mm Hg	Nagata (1962)
061	Methyl Acetate-Chloroform-Benzene	50° C	Nagata (1970)
062	Methyl Acetate-Chloroform-Benzene	760 mm Hg	Nagata (1962)
066	Acetone-Chloroform-Methyl Isobutyl Ketone	760 mm Hg	Karr (1951)
067	Ethanol-Chloroform-Acetone-Hexane	55° C	Vinichenko (1965)

TABLE 23

DISTRIBUTION OF BINARIES WITH γ's<1 In THE MULTICOMPONENT SYSTEMS

Multicomponent System ID	Binary System ID				
001	035B	099B	007A	--	--
003	035B	099B	--	--	--
004	--	--	007A	--	--
009	--	--	007A	--	--
010	--	--	007A	--	--
026	--	--	--	036	--
061	035A	099A	--	--	--
062	035B	099B	--	--	--
066	--	--	007A	--	038
067	--	--	007B	--	--

TABLE 24

PREDICTION OF MULTICOMPONENT VAPOR-LIQUID EQUILIBRIA

ONE BINARY WITH $\gamma \leq 1$

Multicomponent System ID	Binary of Interest ID	Root Code*	$\lvert\Delta Y\rvert_{avg} \times 1000$ All Binary Data Points	$\lvert\Delta Y\rvert_{avg} \times 1000$ Infinite Dilution Points
004	007A	A	6.9	4.2
		B	10.9	10.8
		C	14.0	21.4
009	007A	A	29.7	30.1
		B	30.6	34.9
		C	46.0	56.2

TABLE 24 (cont.)

Multicomponent System ID	Binary of Interest ID	Root Code*	$\frac{\lvert\Delta Y\rvert_{avg} \times 1000}{}$ All Binary Data Points	Infinite Dilution Points
010	007A	A	25.4	24.9
		B	23.9	28.7
		C	29.0	40.7
026	036	A	26.8	27.1
		B	32.6	45.2
		C	25.5	28.4
067	007B	A	9.8	11.4
		B	12.1	13.1
		C	23.1	41.2

* Root codes defined in Tables 11 and 12.

multicomponent data. For the systems documented in Table 25, unlike those of Table 24, an extra complexity is added: that of combining the roots when more than one binary with multiple roots is present. The mixed cases were developed by allowing that a case be run with parameters of the same root code combined (i.e., A-A,B-B,C-C for the binaries of interest). The mixed code cases were developed by choosing those parameters that resulted in the best(and then second best) correlation of the binary data as measured by mean absolute deviation both in total pressure and in vapor phase composition.

Conclusions on Multiplicity of Roots

With binary systems having positive deviations from Raoult's Law, a single set of roots (i.e., parameter values) can be obtained by the direct solution of the Wilson equation for one data point (and this includes the infinite dilution activity coefficients). An unique set of parameters is also obtained by regressing all the available binary data, but its value is, in general, different from that obtained from only one data point. Correlation of binary data can be accomplished with about equally good accuracy by both approaches. For the correlation of multicomponent data, use of one binary point and regression of all binary data sometimes provides comparable accuracies. Regression of all binary data is recommended, however, as use of one point can lead to poor results.

From systems with negative deviations, three sets of parameter

TABLE 25

PREDICTION OF MULTICOMPONENT VLE: TWO OR MORE BINARIES WITH γ's < 1

Multicomponent System I.D.	Binary of Interest I.D.	Root Code Combination	Mean Absolute Deviation In Composition X 10^3	
			All Binary Data	Infinite Dilution Data
003	035B	A-A	5.6	11.3
	099B	B-B	11.7	5.8
		C-C	12.7	-
		B-A	7.5	6.2
		A-B	3.8	13.1
		A-C	-	20.8
		B-C	-	23.4
066	007A	A-A	23.6	29.9
	038	B-B	60.5	88.0
		C-C	38.5	56.0
		B-C	29.1	34.2
		A-C	-	32.4
		B-A	-	34.5

TABLE 25 (cont.)

Multicomponent System I.D.	Binary of Interest I.D.	Root Code Combination	Mean Absolute Deviation In Composition X 10^3	
			All Binary Data	Infinite Dilution Data
061	099A	A-A	4.6	29.9
	035A	B-B	28.8	14.7
		C-C	26.5	-
		A-C	5.0	-
		B-C	6.7	-
		A-B	13.9	14.8
		B-A	-	47.1
		C-A	-	29.5
		C-B	-	44.2
062	099B	A-A	4.9	22.8
	035B	B-B	23.5	14.7
		C-C	24.7	-
		A-B	11.5	14.5
		B-A	6.0	29.6

TABLE 25 (cont.)

Multicomponent System I.D.	Binary of Interest I.D.	Root Code Combination	Mean Absolute Deviation In Composition X 10^3	
			All Binary Data	Infinite Dilution Data
		C-A	-	33.1
		C-B	-	49.9
001	035B	A-A-A	7.1	8.5
	099B	A-B-B	-	13.2
	007A	A-C-C	-	14.5
		B-A-A	-	4.6
		B-B-B	11.4	6.6
		B-C-C	-	19.5
		C-C-C	14.5	-
		C-A-B	6.1	-
		C-B-A	8.3	-
		B-B-A	12.2	-
		B-A-B	32.3	-
		C-A-A	7.4	-

values can be obtained which may yield significantly different degrees of accuracy in the correlation of binary and multicomponent vapor-liquid equilibria. In the correlation of binary data, the best -- or close to the best -- degree of fit of binary vapor phase composition is achieved with the set of roots that are smallest in absolute value. With only one exception (system 007B), the same conclusion holds for the degree of fit of total pressure data. This observation applies to correlations based on the infinite dilution values or on regression of all data. With reference to Figures 5 and 7, this root set would correspond to the middle root of the three obtained by direct solution.

With respect to the correlation of multicomponent data, the situation is somewhat less clear. With parameter values derived from the regression of all available binary data, the same conclusion holds. With parameter values derived from the infinite dilution activity coefficients, however, no generalization can be made. It should be noted that the degree of fit obtained from parameters derived from the infinite dilution points is <u>at best</u> only comparable, and often poorer, than that obtained from parameters derived from regression of all data. This observation, when coupled with the capability of choosing the roots smallest in absolute value and knowing good correlation is obtained, leads to the recommendation that the all-data parameter values be used in the prediction of multicomponent data.

The parameter values appearing in Table 6 are those consistent with the above recommendations, i.e., they are the values smallest in absolute value.

VI. THE HALA CONSTRAINT

Recently Hala (1972) has disclosed that the binary Wilson parameters are subject to certain constraints when they are used in multicomponent systems. Hala concludes that the Wilson parameters evaluated from binary data alone cannot directly be used to predict multicomponent systems. To be consistent with the Wilson model, the parameter values must be adjusted in such a manner that the constraint conditions are met. Hala has generalized that, for an n-component system, there are

$$0.5\ n\ (n-3)\ +1$$

constraints which must be met.

Brinkman, et al (1974) wondered whether or not the existance of these relationships could be used to reduce the number of binary systems required for the prediction of multicomponent data. The authors suggest that inclusion of the Hala constraint will sometimes improve and sometimes degrade the accuracy of multicomponent vapor liquid equilibria prediction.

Both Hala and Brinkman formulated the Hala constraint with the Λ_{ij} values. In this study, the Hala constraint has been formulated directly from the interaction parameters, $\lambda_{ij} - \lambda_{ii}$, themselves. This has the value that the Hala constraint becomes obvious from inspection alone as well as removing some of the conceptual difficulty

associated with isobaric data. The Hala constraint is described in Figure 10.

Although excluded from the scope of these studies, the impact of the Hala constraint upon the evaluation of the binary Wilson parameters merits investigation. Perhaps the most direct approach is to include the Hala constraint equations as part of the regression routine. All of the constituent binaries for a given multicomponent system will be processed simultaneously; the data will be regressed against any given minimization function (recognizing all the component pairs present); and, the parameter values delivered by the constrained optimizer will be used to predict multicomponent data.

The procedures outlined above preclude using the Hala constraint to reduce the amount of binary data required to predict multicomponent vapor-liquid equilibria. The reason is simple: the Hala constraint is a set of criteria defining the interaction of the Wilson parameters with each other, no one set being independent of any other. Use of the Hala constraint to eliminate regression of parameter values from binary data for any binary constituent within a multicomponent system violates the basic premise of the constraint. In any case, it is not now possible to calculate the individual Wilson parameters from a knowledge of their difference.

It is of interest to note that when all the binary systems are independently evaluated and the Hala constraint value (consistency

FIGURE 10

The Hala Constraint

	1	2	3	4
	$\lambda_{12} - \lambda_{11}$	$\lambda_{13} - \lambda_{11}$	$\lambda_{14} - \lambda_{11}$	$\lambda_{15} - \lambda_{11}$
1	$\underline{\lambda_{12} - \lambda_{22}}$	$\underline{\lambda_{13} - \lambda_{33}}$	$\underline{\lambda_{14} - \lambda_{44}}$	$\underline{\lambda_{15} - \lambda_{55}}$
	$\lambda_{22} - \lambda_{11}$	$\lambda_{33} - \lambda_{11}$	$\lambda_{44} - \lambda_{11}$	$\lambda_{55} - \lambda_{11}$
		$\lambda_{23} - \lambda_{22}$	$\lambda_{24} - \lambda_{22}$	$\lambda_{25} - \lambda_{22}$
2		$\underline{\lambda_{23} - \lambda_{33}}$	$\underline{\lambda_{24} - \lambda_{44}}$	$\underline{\lambda_{25} - \lambda_{55}}$
		$\lambda_{33} - \lambda_{22}$	$\lambda_{44} - \lambda_{22}$	$\lambda_{55} - \lambda_{22}$
			$\lambda_{34} - \lambda_{33}$	$\lambda_{35} - \lambda_{33}$
3			$\underline{\lambda_{34} - \lambda_{44}}$	$\underline{\lambda_{35} - \lambda_{55}}$
			$\lambda_{44} - \lambda_{33}$	$\lambda_{55} - \lambda_{33}$
				$\lambda_{45} - \lambda_{44}$
4				$\underline{\lambda_{45} - \lambda_{55}}$
				$\lambda_{55} - \lambda_{44}$

FIGURE 10 (cont.)

	1	2	3	4
1	$\lambda_{22} - \lambda_{11}$	$\lambda_{33} - \lambda_{11}$	$\lambda_{44} - \lambda_{11}$	$\lambda_{55} - \lambda_{11}$
2		$\lambda_{33} - \lambda_{22}$	$\lambda_{44} - \lambda_{22}$	$\lambda_{55} - \lambda_{22}$
3			$\lambda_{44} - \lambda_{33}$	$\lambda_{55} - \lambda_{33}$
4				$\lambda_{55} - \lambda_{44}$

$$CI(1) = (\lambda_{33} - \lambda_{22}) + (\lambda_{22} - \lambda_{11}) / (\lambda_{33} - \lambda_{11}) = 1.0$$

$$CI(2) = (\lambda_{44} - \lambda_{33}) + (\lambda_{33} - \lambda_{22}) / (\lambda_{44} - \lambda_{22}) = 1.0$$

$$CI(3) = (\lambda_{55} - \lambda_{44}) + (\lambda_{44} - \lambda_{33}) / (\lambda_{55} - \lambda_{33}) = 1.0$$

$$CI(4) = (\lambda_{44} - \lambda_{33}) + (\lambda_{33} - \lambda_{22}) + (\lambda_{22} - \lambda_{11}) / (\lambda_{44} - \lambda_{11}) = 1.0$$

$$CI(5) = (\lambda_{55} - \lambda_{44}) + (\lambda_{44} - \lambda_{33}) + (\lambda_{33} - \lambda_{22}) / (\lambda_{55} - \lambda_{22}) = 1.0$$

$$CI(6) = (\lambda_{55} - \lambda_{44}) + (\lambda_{44} - \lambda_{33}) + (\lambda_{33} - \lambda_{22}) + (\lambda_{22} - \lambda_{11}) / (\lambda_{55} - \lambda_{11}) = 1.0$$

The Wilson difference parameters for each of the constituent binaries of up to a 5-component system are conveneintly arranged as a triangular array as indicated by the subscripts. The parameter value of the second component are aubtracted from that of the first for each binary eliminating the λ_{ii} term and leaving only $\lambda_{jj} - \lambda_{ii}$. These terms are also conveninetly placed in a triangular array from which, by moving and expanding triangles, we can obtain the terms required for each of the consistency indices required by the Hala test. These are listed.

index) is calculated from the regressed data, the constraint value is dependent upon the ordering of the components. Taking, for example, a ternary system, there are six permutations by which to order the components. Excluding mirror images, there are three independent sequences. There will be three values of the Hala consistency index. Table 26 contains a summary of the Hala consistency index values for all of the multicomponent systems investigated. Even when the susceptibility of the Hala consistency index to the ordering of components is weighed, Table 26 shows a remarkable lack of consistency across the systems investigated. There is no reason to expect, except by chance, that pairs of parameter values independently obtained from binary data, should conform to the Hala constraint.

There is a fundamental conflict that the Hala constraint does not address. In essence, the Hala constraint defines the interaction of the Wilson parameters with each other within the multicomponent environment. No pair of Wilson parameters can be viewed as independent of any other pair within a multicomponent system. Beyond this, if a binary component set is moved from one multicomponent system to another, the value of the Wilson parameters for the fixed binary will be subtley altered by its changing environment. Behavior such as this tends to argue for the existance of a third adjustable parameter, one dependent on the multicomponent vapor-liquid equilibrium data and not susceptible to evaluation from binary data alone. This takes us back to the Margules-type equations. Furthermore, the concept refutes the basic premise of the Wilson equation; namely, only two-

Table 26

PERFORMANCE SUMMARY OF THE ERROR MINIMIZING FUNCTIONS

SUMMARY OF HALA CONSISTENCY PARAMETER VALUES

SYSTEM NO.	MODEL NO. 1	2	3	4	5	6	7	8	9	10
1	1.13	1.56	0.94	0.97	2.44	3.15	2.93	2.09	2.08	0.91
	0.33	0.40	0.34	0.29	0.42	0.44	0.44	0.41	0.41	0.33
	2.57	0.56	2.19	2.05	0.54	0.55	0.54	0.54	0.54	2.05
	0.16	-0.10	0.08	0.08	1.00	-0.36	0.51	5.11	5.51	0.05
	0.15	0.77	0.18	0.16	0.82	0.82	1.03	0.85	0.84	0.18
	0.51	1.61	0.59	0.61	-0.62	-0.66	-0.70	0.55	0.56	0.45
2	-0.11	-0.11	0.05	0.06	-1.29	-1.53	-0.80	-3.31	-9.98	0.11
	-0.06	-6.09	-0.10	-0.13	-0.85	-0.73	-1.15	-1.85	-1.85	-0.11
	1.61	0.58	1.47	1.14	0.68	0.69	-35.15	0.94	0.95	1.85
	0.04	0.06	0.06	0.07	-0.31	-0.80	-0.37	0.51	0.67	0.08
	-14.92	0.64	7.34	6.24	-1.55	-0.58	-0.74	-7.44	-7.43	9.16
	-0.32	0.63	-0.37	-0.39	1.01	0.56	1.36	1.62	1.88	-1.04
3	1.13	1.56	0.94	0.97	2.44	3.15	2.93	2.09	2.08	0.91
	0.33	0.40	0.34	0.29	0.42	0.44	0.44	0.41	0.41	0.33
	0.16	-0.10	0.08	0.08	1.00	-0.36	0.51	5.11	5.51	0.05
4	0.62	2.07	0.51	0.50	0.52	0.52	0.52	0.52	0.52	0.51
	1.81	1.54	1.65	1.76	1.45	1.47	1.40	1.38	1.39	1.67
	0.51	0.62	0.32	0.24	-0.11	-0.11	-0.33	-0.10	-0.10	0.32
5	1.53	1.15	1.53	1.46	1.12	1.16	1.11	1.08	1.08	1.56
	-0.07	0.21	-0.08	-0.10	0.17	0.10	-0.11	0.32	0.35	-0.18
	-33.93	0.66	12.84	5.94	0.72	0.74	0.70	0.76	0.78	2.22
6	0.00	0.78	-0.10	-0.13	-0.67	-0.64	4.80	7.72	5.60	-0.09
	8.37	14.88	3.28	5.84	2.78	9.62	3.45	2.31	2.29	5.41
	-0.59	7.21	16.59	-2.98	-9.99	-2.97	-0.52	-0.59	-0.58	-6.85
7	0.44	0.38	0.46	0.31	1.23	1.15	1.16	0.68	0.68	0.65
8	0.32	-1.32	0.78	0.77	0.66	0.73	0.82	-0.46	-0.46	0.70
9	1.00	1.45	1.00	1.19	1.28	1.53	1.51	1.02	1.02	1.00
10	0.25	0.43	0.33	0.27	0.48	0.45	0.51	0.55	0.54	0.33
11	0.03	0.17	0.10	0.03	0.03	-0.32	-0.08	0.32	0.32	0.09
12	0.15	0.96	0.15	0.18	0.13	0.25	0.06	0.28	0.27	0.23
13	0.05	-0.74	0.07	0.09	0.31	0.21	0.35	0.36	0.36	0.00
14	-2.76	0.46	1.10	2.41	0.86	0.63	0.80	0.96	0.96	-16.69
15	2.11	0.45	0.59	1.35	0.86	0.65	0.85	0.90	0.90	2.01
16	2.57	0.56	2.19	2.05	0.54	0.55	0.54	0.54	0.54	2.05
17	-0.50	1.01	-0.86	-1.51	0.50	6.80	1.80	-0.31	-0.31	-0.75
18	-4.51	1.70	9.53	4.04	6.71	12.44	6.52	1.59	1.59	7.21
19	-4.96	0.89	-0.55	-0.34	-0.34	-0.54	-22.15	-0.11	-0.11	-0.53
20	1.20	1.56	-0.52	-0.70	-1.24	-0.44	0.77	-2.30	-2.35	-0.41

21	0.88	1.20	0.73	0.76	0.93	0.87	0.94	0.94	0.94	0.72
22	0.24	0.37	0.16	0.14	0.46	0.09	-0.28	1.39	1.39	0.15
23	-0.07	0.21	-0.08	-0.10	0.17	0.10	-0.11	0.32	0.35	-0.18
24	1.23	1.53	1.46	1.52	1.60	1.78	2.08	1.65	1.64	1.36
25	-3.89	1.46	16.50	15.71	2.56	5.19	1.90	1.20	1.20	4.07
26	0.84	0.05	0.40	0.47	0.09	0.18	0.07	-0.02	-0.02	0.39
27	0.33	0.40	0.34	0.29	0.42	0.44	0.44	0.41	0.41	0.33
28	0.19	0.07	0.28	0.45	0.16	0.26	0.14	0.09	0.09	0.07
29	-0.50	-1.97	-0.41	-0.41	-0.51	-0.54	-0.56	-0.49	-0.49	-0.41
30	3.89	0.17	1.32	1.29	-1.78	-0.69	-49.47	2.85	2.83	1.43
31	71.26	-1.95	-5.14	-3.77	-79.30	-5.62	16.25	21.80	22.11	-0.27
32	0.91	0.75	0.98	1.07	0.96	1.20	1.19	0.78	0.78	0.97
33	1.27	1.20	1.10	1.17	1.32	1.43	1.89	1.20	1.20	1.11
34	1.53	1.15	1.53	1.46	1.12	1.16	1.11	1.08	1.08	1.56
35	0.10	-1.09	-0.86	-0.14	-0.11	-0.11	-0.11	-0.12	-0.12	-0.14
36	2.79	0.59	2.09	1.92	0.66	0.67	0.65	0.72	0.74	1.16
37	-0.01	-1.31	0.27	0.39	1.08	1.41	0.78	9.42	9.12	1.91
38	0.12	-1.78	0.61	0.72	0.82	0.56	0.80	2.20	2.25	0.72
39	0.07	2.36	0.33	0.35	0.61	0.50	0.59	1.09	1.23	0.31
40	0.13	-0.20	0.03	0.05	-0.03	-0.17	-0.08	0.08	0.08	0.09
42	1.07	36.82	1.03	1.13	1.34	1.90	1.67	1.12	1.12	1.03
43	5.66	0.56	0.13	-4.06	-3.98	-4.19	-4.03	-4.09	-4.19	-4.03
44	0.26	0.22	0.15	0.02	0.38	-0.34	0.47	-0.10	-0.10	-0.41
45	0.40	0.82	0.32	0.30	1.32	1.39	-1.92	1.47	1.45	0.42
46	0.40	0.82	0.32	0.30	1.32	1.39	-1.92	1.47	1.45	0.42
47	0.21	0.14	1.48	3.83	3.89	-21.47	-0.57	3.23	3.17	-0.03
48	-0.14	0.09	-0.21	-0.23	-0.17	-0.42	-0.30	0.25	0.25	-0.19
49	-0.94	0.34	5.63	5.17	0.74	0.67	0.68	1.07	1.07	-1.04
50	-1.47	-31.16	23.07	6.23	0.37	0.20	0.31	1.13	1.13	-1.09
51	-0.79	1.45	2.60	1.78	-0.15	0.53	0.12	0.37	0.37	-3.92
52	0.90	0.73	0.70	0.69	0.63	0.65	0.58	0.63	0.63	0.70
53	1.02	0.73	0.76	0.78	0.72	0.72	0.70	0.71	0.71	0.78
54	-0.87	-0.63	-1.62	-1.49	-1.28	-1.40	-1.39	-1.21	-1.21	-1.64
55	-0.29	0.31	-0.07	-0.10	0.30	0.60	0.39	0.24	0.24	-0.34
56	-0.11	-0.89	0.10	0.03	-0.09	-0.14	-0.10	-0.08	-0.08	0.10
57	0.84	0.30	0.57	0.55	0.54	0.52	0.55	0.52	0.53	0.60
59	0.26	1.12	0.07	0.09	1.21	0.07	0.83	-27.65	-21.41	0.29
59	-0.33	-5.14	-0.08	-0.12	0.39	0.46	0.42	0.60	0.60	-0.40
60	3.03	1.67	1.96	1.52	0.72	0.53	0.58	1.46	1.46	2.11
61	-0.21	0.01	-0.17	-0.13	0.17	-0.11	0.13	0.35	0.35	-0.16

62	1.88	-0.23	2.03	1.97	1.56	-9.76	2.36	0.19	0.19	2.79
64	0.36	1.51	0.16	0.56	1.21	1.78	1.49	0.85	0.85	0.24
65	0.25	-0.24	0.24	0.54	0.77	0.84	0.82	0.55	0.55	0.36
66	2.13	-2.48	-0.58	-0.45	-0.15	3.75	-0.49	0.37	0.37	0.73
67	-0.20	0.13	-0.03	-0.01	0.23	0.10	0.28	0.29	0.29	-0.15
	-1.12	60.84	1.94	-4.14	16.91	2.07	-3.06	6.36	6.25	2.31
	0.84	1.03	1.29	1.26	1.02	1.49	1.03	0.93	0.93	1.24
68	4.57	1.09	4.71	2.51	1.58	1.26	1.23	1.79	1.79	3.56
	1.60	1.49	1.58	2.49	-2.96	-1.09	-1.41	1.22	1.22	1.64
	6.97	2.79	4.13	6.67	-14.19	-3.01	-4.80	2.46	2.45	3.84
69	2.70	29.28	2.92	10.53	5.20	-3.53	9.71	1.76	1.75	2.72
	-0.19	1.00	0.03	0.06	0.67	0.34	6.27	0.57	0.57	0.03
	2.18	4.99	1.79	3.73	14.12	-3.14	-10.82	2.28	2.27	1.49
70	2.70	29.28	2.92	10.53	5.20	-3.53	9.71	1.76	1.75	2.72
	-0.19	1.00	0.03	0.06	0.67	0.34	6.27	0.57	0.57	0.03
	2.18	4.99	1.79	3.73	14.12	-3.14	-10.82	2.28	2.27	1.49
71	1.02	-5.20	1.10	0.79	0.50	0.48	0.40	0.87	0.86	0.93
72	0.30	-0.12	-0.29	-0.22	-0.12	-0.13	-0.09	-0.11	-0.11	-0.42
73	0.30	-0.12	-0.29	-0.22	-0.12	-0.13	-0.09	-0.11	-0.11	-0.42
74	0.30	-0.12	-0.29	-0.22	-0.12	-0.13	-0.09	-0.11	-0.11	-0.42
75	-0.31	1.53	0.66	0.75	1.02	1.08	0.94	1.22	1.22	1.10

body interactions are recognized. Higher order interactions are ignored, thus permitting generalization to multicomponent systems without reference to multicomponent data.

While algebraically sound, the basis of the Hala constraint is apparantly inconsistent with the basis upon which the Wilson parameters are themselves founded. Additional efforts in this area are clearly required.

VII. BINARY DATA REDUCTION PROGRAMS

The computer programs documented in this section are designed to regress a set of binary vapor-liquid equilibrium data (pressure, temperature, and liquid and vapor phase composition against the Wilson equation and to extract the Wilson parameters using a series of error minimization functions. As the Wilson parameters appear nonlinearly in the Wilson equation, the regression algorithms employed require an initial estimate of the parameter values. To protect the final parameter estimates from the arbitrariness of the initial guess, the calculations were stepped through the list of objective functions in a circular manner, the initial guess to the current objective function being the final estimate from the preceding objective function. The first objective function was used twice, once to start the circle, and once to finalize the parameter values using as initial guess the final estimate from the last objective function.

The algorithms have been organized with a modular approach, both for ease of understanding and ease of maintainance. The programs are readily modified to, for example, substitute the NRTL equation for the Wilson equation. Essentially all input and calculated data are held in common storage and are thus readily available to all subroutines. Tables 27 and 28 define the COMMON statements in use and document their distribution through the subroutines. The logic upon which the algorithms are organized is generally straight forward. Pertinent comments appear with each listing. A few of these are, however, worthy of special note.

All data required for computation is entered to the programs through subroutine INPUT (see Figure 11). Pure component physical property data required for subsequent data reduction are hard coded into a general library routine VLELIB. Consequently, no provision has been made for additional pure component physical property data entry. This can, however, be easily added.

The ten objective functions used in this study have been coded intosubroutine FN. The regression calculations are directed by subroutine MAIN to proceed sequentially from the first objective function of interest (specified during input processing by parameter MDINIT) to the last (specified by parameter MDEND). Control parameter MD serves as the counter by which to move through the list of objective functions. Each evaluation of the objective function required by the

TABLE 27

BINARY VLE DATA REGRESSION PROGRAM COMMON STATEMENTS

```
1   NSYSTM,NAME(300),TITLE(20),ID(2),NCASE
2   MDINIT,MDEND,NDATA
3   X1(75),X2(75),Y1(75),Y2(75),P(75),T(75),TABS(75)
4   V1(75),V2(75),RT(75)
5   TC(3),PC(3),VC(3),OMEGA(3),OMEGAH(3),DIPOLE(3),ETA(3)
6   AP1,BP1,CP1,AP2,BP2,CP2,AV1,BV1,CV1,AV2,BV2,CV2
7   T1(2),V1(2),T2(2),V2(2),T3(2),V3(2)
8   B11(75),B22(75),B12(75)
9   F1OL(75),F2OL(75),PHI1(75),PHI2(75)
10  G1EXP(75),G2EXP(75),LNG1G2(75),W1,W2
11  G1INF,G2INF,T1INF,T2INF
12  A1,B1,C1,A2,C2,SD1,SD2,NEQ
13  X,APOS,ANEG,D,JFACT,CI
14  NPUNCH,NREG,NSTUDY,NTRANS,ICASE,LS,ICOUNT,NPASS
15  NP1,NP2,NBP1,NBP2,IORDER
```

TABLE 27 (cont.)

```
16      NPARMT,LSTOP,DX,E,STEP(2),NRD,RDFACT,IO,FINT,ICMAX
17      B1INIT,B2INIT
18      MD,B(2),SUMX
19      BETA(10,2),Q(10)
20      G1CALC(75),G2CALC(75),GAMMA1(10,75),GAMMA2(10,75)
21      Y1CALC(10,75),PCALC(10,75),Y1MEAN(10),PMEAN(10)
22      CALCY1,CALCY2,CALCP
23      FUGCO1,FUGCO2,Y1OLD,Y2OLD,POLD
24      TMIN(75),TMAX(75),G2MIN(75),G2MAX(75),NROOT(75)
25      IERR,LSQLIM(301)
```

TABLE 28

BINARY VLE DATA REGRESSION PROGRAMS

	Common Groups																								
Subroutines	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1. MAIN	X	X			X									X	X		X	X							X
2. INPUT	X	X	X											X		X	X								
3. OUTPUT	X	X	X	X	X	X		X	X	X	X	X	X	X	X		X		X	X	X			X	
4. LSQ	X															X		X							X
5. PATERN																X		X							
6. FN	X	X	X	X						X	X			X				X		X		X			
7. BOUNDS																		X							
8. INFDIL						X					X							X		X					
9. LSDATA																X	X								
10. SAVEBQ														X				X	X						
11. WILSON		X	X	X															X	X					

TABLE 28 (cont.)

Subroutines	Common Groups																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
12. BUBLPT		X	X																	X	X	X			
13. UPDATE		X	X							X				X						X					
14. RSTART		X												X					X						
15. HOLD	X	X												X					X		X				X
16. STUDY	X													X			X								
17. LIMITS		X	X							X														X	
18. RANGE																									
19. VLELIB	X	X			X	X	X								X										
20. SORT	X	X	X												X		X								
21. IDEAL			X					X																	
22. VIRIAL			X		X			X							X										
23. RSTATE	X		X	X		X		X	X		X		X												
24. TCONST		X	X	X					X	X															

TABLE 28 (cont.)

Common Groups

Subroutines	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
25. ACTCO		X	X	X				X	X	X															
26. CVFIT		X	X							X	X	X													
27. TEST	X											X	X												
28. MOLVOL						X	X																		
29. YPCALC			X	X					X											X		X	X		
30. YCALC			X	X					X											X		X	X		
31. PCALC			X	X					X											X		X	X		
32. PHIMIX			X	X				X															X		

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PROGRAM | JOB NO. | BY | DATE

Figure 11

0	NPUNCH	NREG							
1	CASE IDENTIFICATION								
2	ID(1)	ID(2)	MDINIT	MDEND	NCASE	NTRANS	NSTUDY	NREAD	
3	B1INIT		B2INIT		DX	E	STEPCD	STEP(2)	RDFACT	FINT
	NPARMT	LSTOP	NRD	IO	ICMAX					
4	P		T		X1	Y1				

FIGURE 11 (cont.)

Card Type	Comments
0	Two data words, both in right-justified integer fields. The first determines whether the binary parameter values are to be punched to cards or not (zero value). The second defines the regression routine to be used (default to LSQ2).
1	Descriptive information (up to 80 characters).
2	Eight data words, each in a right-justified integer field. ID(1) -- first component identification number for entry into VLELIB for pure component physical property data ID(2) -- same for second component MDINIT -- identification number for the first of the ten preprogrammed models to be tested against the given vapor-liquid equilibrium data MDEND -- identification number of the last of the models to be tested against the given VLE data; the model counter is incremented by unity from MDINIT to MDEND NCASE -- data-type control parameter alerts the program to the pressence of isothermal data (value of unity) or isobaric data (value of two) NTRANS -- a nonzero value here authorizes the program to

FIGURE 11 (cont.)

Card Type	Comments
	to perform a translation of coordinates in the parameter space of the Wilson parameters NSTUDY -- a positive value here authorizes the program to search for multiple roots NREAD -- regression routine parameter initialization source data word; a value of zero here sets the source of initialization data as subroutine LSDATA; a nonzero value alerts the program to card input of the required data
3	Card input for the initialization of the three regression subroutines is provided by this pair of cards. The first collects all floating point data while the second collects all right-justified integer data.
4	VLE data (including decimal point), one card per data point followed by a blank card at the end of the data set.

regression routine necessitates a call to subroutine FN. If derivative variables must be evaluated in order to calculate the objective function value (e.g., vapor phase composition for objective function 7), the appropriate subroutine is invoked from subroutine FN.

Varying the values used by the several regression algorithms by which the search is directed has been investigated. Parameter values used during this study were hard coded into subroutine LSDATA for convenience. These pre-defined values can be bypassed by assigning some nonzero integer value to control parameter NREAD.

Analysis of the quality of fit of the binary data using the final parameter estimates obtained from each objective function is accomplished through subroutines WILSON and BUBLPT. The former calculates the activity coefficients at each data point from the regressed parameter values. The latter subroutine uses this data to calculate vapor phase composition and total pressure. Mean absolute deviations are used to measure quality of fit.

After all calculations for the current binary data set are complete, but before data are stored for summary print outs, subroutine UPDATE is called upon. The function of this subroutine is to bias the data in favor of the Wilson equation. The manouver is predicated upon the proposition that the Wilson equation should adequately fit all of the binary data. If the final parameter values do not yield activity coefficients that reproduce the binary data

to within a specified tolerance (15% chosen for this study), the offending datum is deleted from the data arrays. The remaining data is completely reprocessed through the regression routines. As the purpose of this study is to define a means by which to obtain good prediction of multicomponent data, operation of this subroutine does not violate the spirit of the study. In practice, however, very few data points were found to be outside of this constraint.

This set of computer programs has been provided with several subroutines with which to check and search for the presence of multiple values for the sets of Wilson parameters. Subroutine STUDY provides a straight forward search basis for multiple roots. Ten pairs of initial guesses for the Wilson parameters are hard coded into STUDY: control parameter NSTUDY is used to ensure that each objective function starts with the same set of initial guesses (thus breaking the circular pattern normally used). If several local minima exist in the three-space defined by the pair of Wilson parameters and the objective function, and if they lie in the direction of search away from the established initial guesses, then they will be uncovered by the regression algorithm.

Subroutines LIMITS and RANGE provide a point-by-point search through the input data for the existance of multiple roots. The methods defined in section IV of this study have been utilized in these subroutines.

Several different optimization tools were screened (Barneson, 1970; Marquardt, 1959; Rosenbrock, 1960; Wilde, 1964) before deciding on use of the simplex and pattern search routines. An advantage of both of these methods is that neither analytical nor numerical derivatives are required.

For a two parameter equation, the simplex routine moves through the parameter space in sets of triangles. The test point is reflected from the vertex with the highest objective function value across the opposite side of the triangle. The step size is varied in magnitude and direction depending upon success or failure of the trial.

The pattern routine is a deceptively simple numerical search, moving from point-to-point asking only one question after each function evaluation. "Is this point an improvement over the previous point?" Basically, the pattern is an arrow in the three-space of the parameters and the objective function. The search is always from the existing base point of the arrow to the new arrow head. One parameter is varied at a time in the search for the new location of the arrow head. A few successes allows the search to dramatically take off. The technique appears admirably suited for curve fitting problems such as these herein investigated, where ridges may be evident.

Both techniques were used extensively. Essentially, the same results were obtained from each.

VIII. MULTICOMPONENT DATA REDUCTION PROGRAMS

The computer programs documented in this section are designed to use previously defined values of the Wilson parameters to predict multicomponent vapor liquid equilibrium data. Comparisons between predicted and experimental data are drawn, and statistical data is furnished. As with the binary programs, the multicomponent algorithms are organized along a modular approach. Comments have likewise been built into each subroutine listing as appropriate. All pertinent data are held in common storage (Tables 29 and 30).

All data is entered into the programs through subroutine INPUT (see Figure 12). Pure component physical property data is stored in library subroutine VLELIB. No provision is made for pure component property data entry from punched cards. Sets of Wilson parameter values are stored in subroutine PARLIB. For the binary parameter values, however, provision has been made for data entry from punched cards. This option can be exercised by setting either the objective function counter (MD) to an integer value less than unity, or setting the parameter library control data word (NLIB) to an integer value different from zero.

When using previously stored Wilson parameter values for predicting multicomponent vapor-liquid equilibria, care must be exercised to maintain consistant sequencing between the binary sets required in the multicomponent system and the ordering of components

TABLE 29

MULTICOMPONENT PROGRAM COMMON STATEMENTS

```
1   NCASE,NDATA,NCOMP,NCOMP1,NCOMP2,NLIB,NBNRY
2   TC(10,10),PC(10,10),VC(10,10),OMEGA(10),OMEGAH(10),DIPOLE(10,10),ETA(10,10)
3   AP(10),BP(10),CP(10),AV(10),BV(10),CV(10)
4   T1(10),V1(10),T2(10),V2(10),T3(10),V3(10)
5   P(75),T(75),X(10,75),Y(10,75)
6   TABS(75),RT(75),V(10,75),FIOL(10,75),GAMMA(10,75)
7   FUGCO(10,75),YCALC(10,75),PCALC(75),YTOTAL,NPASS(75)
8   B(10,10,75)
9   PRES(75),YRES(10,75),STDVP,MEANP,STDVY(75),MEANY(75),STDVYI(10),MEANYI(75)
10  CI(15),KCI,SAVECI(100,10,6),NUMBCI(100)
11  BETA(10,2,45),LAMBDA(10,10)
12  GRNDMN,SAVEP(100,10),SAVEY(100,10),SAVEPM(100,10),SAVEYM(100,10)
13  MDINIT,MDEND,MD
14  TITLE(20),ISYSTM,NSYSTM(100)
15  ID(10),IDENT(10,2),IDBNRY(45),IORDER(45)
16  MDMIN,MDMAX
```

TABLE 30

DISTRIBUTION OF COMMON STATEMENTS WITHIN MULTICOMPONENT PROGRAM SUBROUTINES

Subroutines	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. MAIN	X	X									X	X	X	X		
2. OUTPUT	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
3. INPUT	X				X						X		X	X	X	X
4. SAVE	X								X	X		X	X	X		
5. PARAM	X										X		X		X	
6. VLELIB	X	X	X	X											X	
7. PARLIB	X										X				X	
8. IDEAL	X							X								
9. VIRIAL	X	X			X	X		X								
10. RSTATE	X		X		X	X		X								
11. TCONST	X				X	X		X								
12. MOLVOL	X		X	X												

TABLE 30 (cont.)

Subroutines	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
13. HALA	X									X	X					
14. WILSON	X				X	X					X					
15. YPCALC	X				X	X	X									
16. PHIMIX	X					X	X	X								
17. STAT	X				X		X		X							

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80 COLUMN DATA SHEET

PROGRAM | JOB NO. | BY | DATE

Figure 12

1	CASE IDENTIFICATION					
2	IDSYST	MDINIT	MDEND	NCASE	NLIB	NPRINT
3	ID		IDENT(1,2)			
4	BINARY ID NUMBER					
	BINARY SEQUENCE NUMBER					
5	P	T				
	X DATA					
	Y DATA					
6	$\lambda_{ij} - \lambda_{ij}$	$\lambda_{ij} - \lambda_{jj}$				

FIGURE 12 (cont.)

Card Type	Comments
1	Descriptive information (up to 80 characters).
2	Six data words, each in a right-justified integer field. IDSYST -- multicomponent system identification number MDINIT -- identification number for the first available set of Wilson parameters for the given VLE data set; a negative value alerts the program to the existence of parameter values not stored in subroutine PARLIB MDEND -- identification number of the last available set of Wilson parameters; the parameter set counter is incremented in steps of unity from MDINIT to MDEND NCASE -- isothermal data control parameter; a nonzero value alerts the program to nonisothermal data NLIB -- Wilson parameter availability data word; a nonzero value here alerts the program to the existence of parameter values not stored in subroutine PARLIB NPRINT -- output control parameter; a value of zero gives the complete output; a value of unity gives only the summary output; and, a value of two gives a partial output plus the summary
3	Component identification cards, one per component, followed

FIGURE 12 (cont.)

Card Type	Comments
	by a blank card. The identification number, a right-justified integer, is used to enter subroutine VLELIB for pure component physical property data. Two words per component are reserved for alphameric descriptions.
4	The number of binaries to be supplied is the combination of the number of components taken two at a time. Their identification numbers (right-justified) are input as integers in the first of this pair of cards. The second card of the pair contains the right-justified integer unity for each binary pair whose parameter values must be inverted from that of the order supplied in subroutine PARLIB (see subroutine PARAM for details) in order to conform to the sequence of data entry in card type 5. Repeat card type 4 until all the binaries have been input.
5	Input the VLE data with decimal points. Repeat card type 5 until all the data have been entered. End with a blank card.
6	Input additional parameter sets not stored in subroutine PARLIB with decimal point, one binary pair at a time.

within the constituent binaries. The manner chosen to define constituent binaries for a given multicomponent system for this study has been to sequence from left to right; thus, the A-B-C-D quaternary has the six binaries A-B, A-C, A-D, B-C, B-D, C-D. If the library data has stored the parameter values for the third binary as the D-A binary, the parameter values must be inverted in sequence. The program must be alerted to this condition by setting the appropriate data words (one per binary, in sequence) in the array IORDER to the value unity. Subroutine PARAM will take appropriate action.

Bubble point calculations (subroutines YPCALC and PHIMIX) are used to calculate vapor phase composition and total pressure from the Wilson activity coefficients (subroutine WILSON). Comparison with experimental data is accomplished in subroutine STAT.

NOMENCLATURE

General

B_{ii}	second virial coefficient for species i, cc/gmole
B_{ij}	second virial coefficient for species i-j, cc/gmole
CI	thermodynamic consistency index
f_i^{oL}	reference state fugacity for species i, mm Hg
f_i^{L}	liquid phase fugacity for species i, mm Hg
f_i^{V}	vapor phase fugacity for species i, mm Hg
g^{E}	excess Gibb's free energy, cal/gmole
J	Herington factor for the thermodynamic consistency test
N	number of data points
P	total pressure, mm Hg
P_i^{S}	equilibrium vapor pressure of species i, mm Hg
Q_k	objective function number k
R	gas constant
t	temperature, °C
T	temperature, °K
v_i^{L}	liquid molar volume of species i, cc/gmole
x_i	liquid mole fraction of species i
y_i	vapor mole fraction of species i
γ_i	activity coefficient of species i
γ_i^{∞}	activity coefficient of species i at infinite dilution
$\lambda_{ij} - \lambda_{ii}$	Wilson parameter, cal/gmole

NOMENCLATURE (cont.)

Λ_{ij}	transformed Wilson parameter
$\hat{\phi}_i$	fugacity coefficient of species i
ϕ_{is}	fugacity coefficient of species i at saturation

Specific

F	variable defining the uniqueness of the Wilson parameter
f_1	values that γ_1 may assume when the Wilson parameters do not have unique values
f_1'	first derivative of γ_1 with respect to t
f_1''	second derivative of γ_1 with respect to t
g_1	the Wilson activity coefficient for species 1
g_2	the Wilson activity coefficient for species 2
g_2'	first derivative of g_2 with respect to t
g_2''	second derivative of g_2 with respect to t
t	transformed coordinate
z	transformed coordinate

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APPENDIX I

Binary Data Reduction Programs

```
      COMMON/GRP1/NSYSTM,NAME(300),TITLE(20),ID(2),NCASE
      COMMON/GRP2/MDINIT,MDEND,NDATA
      COMMON/GRP5/TC(3),PC(3),VC(3),OMEGA(3),OMEGAH(3),DIPOLE(3),ETA(3)
      COMMON/GRP14/NPUNCH,NREG,NSTUDY,NTRANS,ICASE,LS,ICOUNT,NPASS
      COMMON/GRP15/NP1,NP2,NBP1,NBP2,IORDER
      COMMON/GRP17/B1INIT,B2INIT
      COMMON/GRP18/MD,B(2),SUMX
      COMMON/GRP25/IERR,LSQLIM(301)
      CALL FTMASK(10,13)
      CALL HOLDO
C
C     THIS SUBROUTINE IS THE MAIN CALLING SUBROUTINE FOR THE EXTRACTION
C     OF THE BINARY PARAMETERS FOR THE WILSON EQUATION.  IT DIRECTS THE
C     SEQUENCING OF ALL OTHER SUBROUTINES AS REQUIRED FOR THE DESIRED
C     OPTIONS.  AS CURRENTLY CONSTITUTED, PROVISION HAS BEEN MADE FOR AN
C     INVESTIGATION OF THE WILSON PARAMETER VALUES THAT CAN BE EXTRACTED
C     FROM BINARY VLE DATA BY ONE OF THREE NONLINEAR REGRESSION ROUTINES
C     AND AGAINST FROM ONE TO TEN OBJECTIVE FUNCTIONS.  PROVISION HAS
C     BEEN MADE TO AVOID ANY EFFECT ON THE REGRESSION AS A RESULT OF THE
C     ARBITRARINESS OF THE INITIAL ESTIMATES OF THE PARAMETER VLAUES.
C     THIS IS ACCOMPLISHED BY CIRCULARIZING THE CALCULATION THROUGH THE
C     DESIRED MODELS (I.E., THE FINAL ACCEPTED VALUES FOR ANY GIVEN
C     MODEL BECOMES THE INITIAL GUESS TO THE NEXT MODEL IN SEQUENCE,
C     INCLUDING A SECOND CALCULATION OF THE FIRST MODEL USING THE FINAL
C     VALUES OF THE LAST).  PROVISION FOR SEARCH WITHIN THE DATA FOR
C     MULTIPLE ROOTS FOR THE WILSON EQUATION HAS ALSO BEEN MADE.
C
C     MODIFICATION OF THIS SET OF PROGRAMS TO OPERATE EQUATIONS OTHER
C     THAN THE WILSON EQUATION (E.G., NRTL, LEMF) CAN BE READILY MADE.
C     SUBROUTINES FN AND INFDIL WILL HAVE TO BE MODIFIED TO INCLUDE THE
C     NEW EQUATIONS AND A SUBROUTINE FOR THE NEW EQUATION WILL HAVE TO
C     REPLACE SUBROUTINE WILSON.
C
      IERR = 0
      NSYSTM = 0
  101 ICASE = 0
  102 IORDER = 0
      NPASS = 0
      IF (ICASE .GT. 0) GO TO 107
      CALL INPUT(&100)
      CALL VLELIB
      CALL MOLVOL
  103 IF (NCASE .EQ. 1) GO TO 104
      KEND = NDATA
      GO TO 105
  104 KEND = 1
  105 IF ((TC(1) .EQ. 0.0) .OR. (TC(2) .EQ. 0.0)) CALL IDEAL(KEND,&106)
      CALL VIRIAL(KEND)
  106 CALL RSTATE(KEND)
      IF (NCASE .EQ. 1) CALL TCONST
      CALL ACTCO
      CALL CVFIT
      CALL TEST
      IF (NSTUDY .GT. 0) CALL LIMITS
```

```
      IF (NPASS .GT. 0) GO TO 108
  107 IF (NSTUDY .GT. 0) CALL STUDY(&101)
  108 B(1) = B1INIT
      B(2) = B2INIT
      IPASS = 0
      LS = 0
      ICOUNT = 0
  109 MD = MDINIT
  110 GO TO (120,130,140), NREG
  120 CALL LSQ2(&113)
      GO TO 115
  130 CALL PATERN(&113)
      GO TO 115
  140 CALL RHOM(&113)
  115 CALL SAVEBQ
      IF (IPASS .GT. 0) GO TO 112
      MD = MD + 1
      LS = 0
      ICOUNT = 0
      IF (MD .GT. MDEND) GO TO 111
      IF (NSTUDY .EQ. 0) GO TO 110
      B(1) = B1INIT
      B(2) = B2INIT
      GO TO 110
  111 IF (NSTUDY .NE. 0) GO TO 112
      IPASS = 1
      GO TO 109
  112 CALL WILSON
      CALL BUBLPT
      NPASS = NPASS + 1
      CALL OUTPUT
      IF (NPASS .LT. 2) CALL UPDATE(&103)
      CALL HOLD
      IF (NTRANS .NE. 1) CALL RSTART(&108)
      GO TO 102
  113 GO TO (110,102,110,115), LS
  100 CALL HOLD1
      STOP
      END
```

```
      SUBROUTINE INPUT(*)
      COMMON/GRP1/NSYSTM,NAME(300),TITLE(20),ID(2),NCASE
      COMMON/GRP2/MDINIT,MDEND,NDATA
      COMMON/GRP3/X1(75),X2(75),Y1(75),Y2(75),P(75),T(75),TABS(75)
      COMMON/GRP14/NPUNCH,NREG,NSTUDY,NTRANS,ICASE,LS,ICOUNT,NPASS
      COMMON/GRP16/NPARMT,LSTOP,DX,E,STEP(2),NRD,RDFACT,IO,FINT,ICMAX
      COMMON/GRP17/B1INIT,B2INIT
C
C     THIS SUBROUTINE READS ALL DATA REQUIRED FOR SUBSEQUENT OPERATIONS
C     FROM PUNCHED CARDS.
C
C
C     BEFORE DATA FOR THE FIRST SYSTEM IS READ INTO STORAGE, AND ONLY
C     BEFORE THE FIRST SYSTEM, THE PROGRAM IS TOLD WHETHER OR NOT IT IS
C     TO PUNCH THE FINAL PARAMETER VALUES ON CARDS (AS DETERMINED BY
C     CONTROL PARAMETER NPUNCH).  IT ALSO DETERMINES AT THIS TIME WHICH
C     REGRESSION ROUTINE TO USE (AS DETERMINED BY CONTROL PARAMETER
C     NREG).  IF NREG IS SET OUT OF RANGE, THE ERROR CONDITION IS
C     DETECTED AND THE PROGRAM FAILS TO NREG = 1.
C
      IF (NSYSTM .EQ. 0) READ (5,202) NPUNCH,NREG
      READ (5,201,END=100) TITLE
      NSYSTM = NSYSTM + 1
      CALL MOVE(4,TITLE,58,1,NAME,(NSYSTM-1)*4+1,1)
      READ (5,202) ID(1),ID(2),MDINIT,MDEND,NCASE,NTRANS,NSTUDY,NREAD
      IF (NREAD .EQ. 0) CALL LSDATA(&101)
      READ (5,203) B1INIT,B2INIT,DX,E,STEP(1),STEP(2),RDFACT,FINT,
     1             NPARMT,LSTOP,NRD,IO,ICMAX
C
C     READ VLE DATA AND COUNT NUMBER OF DATA POINTS (STORED AS PARAMETER
C     NDATA), ARBITRARILY SET TO A MAXIMUM OF 75.  IF NDATA EXCEEDS THIS
C     MAXIMUM, THE PROGRAM IS PROTECTED BY MAINTAINING COUNTER K AT THIS
C     MAXIMUM VALUE.  THIS PROCEDURE ALLOWS CONTINUATION OF CALCULATIONS
C     WITH ONLY A WARNING PRINTED.
C
  101 NDATA = 0
      K = 1
  102 READ (5,204) P(K),T(K),X1(K),Y1(K)
      IF (P(K) .EQ. 0.0) GO TO 103
      NDATA = NDATA + 1
      K = K + 1
      IF (K .GT. 75) K = 75
      GO TO 102
  103 IF (NDATA .GT. 75) GO TO 105
C
C     CONTROL PARAMETER NCASE IDENTIFIES THE VLE DATA AS BEING EITHER
C     ISOTHERMAL (NCASE = 1) OR ISOBARIC (NCASE = 2).  IF ONE OF THESE
C     VALUES IS NOT ENTERED INTO NCASE, IDENTIFY THIS ERROR CONDITION
C     AND FAIL TO NCASE = 2.  THIS FAILURE MODE ALLOWS CONTINUED
C     OPERATION ON THE DATA SET WITHOUT DISTORTING THE DATA.
C
  104 IF ((NCASE .NE. 1) .AND. (NCASE .NE. 2)) GO TO 106
  108 IF ((NREG .LT. 1) .OR. (NREG .GT. 3)) GO TO 109
      GO TO 107
```

```
      105 WRITE (6,301) NDATA
          NDATA = 75
          GO TO 104
      106 WRITE (6,302) NCASE
          NCASE = 2
          GO TO 108
      109 WRITE (6,303) NREG
          NREG = 1
      107 RETURN
      100 RETURN 1
      201 FORMAT (20A4)
      202 FORMAT (9I5)
      203 FORMAT (8F10.4/5I5)
      204 FORMAT (4F10.4)
      301 FORMAT (1H1,4X,'**DIAGNOSTIC**'/12X,'NDATA EXCEEDS MACIMUM ',
         1        'LIMIT'/12X,'NDATA COUNTED AS ',I2,' DATA POINTS',/12X,
         2        'NDATA SET EQUAL TO 50 AND CALCULATIONS ARE CONTINUED')
      302 FORMAT (1H1,4X,'**DIAGNOSTIC**'/12X,'CONTROL PARAMETER NCASE ',
         1        'SET OUT OF RANGE AT A VALUE OF ',I5/12X,'NCASE SET',
         2        ' EQUAL TO TWO AND CALCULATIONS ARE CONTINUED')
      303 FORMAT (1H1,41X,'**DIAGNOSTIC**'/12X,'CONTROL PARAMETER NREG ',
         1        'SET OUT OF RANGE AT A VALUE OF ',I5/12X,'NREG SET ',
         2        'EQUAL TO ONE AND CALCULATIONS ARE CONTINUED')
          END
```

```
      SUBROUTINE OUTPUT
      COMMON/GRP1/NSYSTM,NAME(300),TITLE(20),ID(2),NCASE
      COMMON/GRP2/MDINIT,MDEND,NDATA
      COMMON/GRP3/X1(75),X2(75),Y1(75),Y2(75),P(75),T(75),TABS(75)
      COMMON/GRP4/V1(75),V2(75),RT(75)
      COMMON/GRP5/TC(3),PC(3),VC(3),OMEGA(3),OMEGAH(3),DIPOLE(3),ETA(3)
      COMMON/GRP6/AP1,BP1,CP1,AP2,BP2,CP2,AV1,BV1,CV1,AV2,BV2,CV2
      COMMON/GRP8/B11(75),B22(75),B12(75)
      COMMON/GRP9/F1OL(75),F2OL(75),PHI1(75),PHI2(75)
      COMMON/GRP10/G1EXP(75),G2EXP(75),LNG1G2(75),W1,W2
      COMMON/GRP11/G1INF,G2INF,T1INF,T2INF
      COMMON/GRP12/A1,B1,C1,A2,C2,SD1,SD2,NEQ
      COMMON/GRP13/X,APOS,ANEG,D,JFACT,CI
      COMMON/GRP14/NPUNCH,NREG,NSTUDY,NTRANS,ICASE,LS,ICOUNT,NPASS
      COMMON/GRP15/NP1,NP2,NBP1,NBP2,IORDER
      COMMON/GRP17/B1INIT,B2INIT
      COMMON/GRP19/BETA(10,2),Q(10)
      COMMON/GRP20/G1CALC(75),G2CALC(75),GAMMA1(10,75),GAMMA2(10,75)
      COMMON/GRP21/Y1CALC(10,75),PCALC(10,75),Y1MEAN(10),PMEAN(10)
      COMMON/GRP24/TMIN(75),TMAX(75),G2MIN(75),G2MAX(75),NROOT(75)
      DIMENSION TYPE(11)
      DATA TYPE/4HEXPE,4HCT I,4HSOTH,4HERMA,4HL DA,4HTA  ,4HEXPE,4HCT I,
     1          4HSOBA,4HRIC ,4HDATA/
      REAL NBP1,NBP2,JFACT
C
C     ALL NORMAL OPERATION OUTPUT IS WRITTEN FROM THIS SUBROUTINE.
C     SPECIAL DIAGNOSTIC MESSAGES ARE WRITTEN AS THE NEED ARISES BY THE
C     SUBROUTINE DETECTING THE CONDITION.
C
      IF (NDATA .GE. 25) GO TO 300
      IF (NDATA .GE. 15) GO TO 301
      GO TO 302
  300 NPRINT = 0
      GO TO 113
  301 NPRINT = 1
      GO TO 113
  302 NPRINT = 2
  113 IF (NCASE .EQ. 2) GO TO 114
      WRITE (6,96) TITLE,(TYPE(K),K=1,6)
      GO TO 115
  114 WRITE (6,96) TITLE,(TYPE(K),K=7,11)
  115 IF (IORDER .EQ. 1) WRITE (6,77)
      IF (ICASE .GT. 1) GO TO 25
      WRITE (6,95)
      WRITE (6,94) (K,P(K),T(K),X1(K),Y1(K),F1OL(K),F2OL(K),PHI1(K),
     1              PH12(K),G1EXP(K),G2EXP(K),LNG1G2(K),B11(K),B22(K),
     2              B12(K),K=1,NDATA)
      IF (NPRINT .EQ. 0) WRITE (6,73)
      WRITE (6,92)
      WRITE (6,91) (K,TC(K),PC(K),VC(K),OMEGA(K),OMEGAH(K),DIPOLE(K),
     1              ETA(K),K=1,2)
      PP1 = 10.0 ** (AP1 - (BP1 / (CP1 + NBP1)))
      PP2 = 10.0 ** (AP2 - (BP2 / (CP2 + NBP2)))
      WRITE (6,90)
```

```
      K = 1
      WRITE (6,89) K,AP1,BP1,CP1,NBP1,PP1
      K = 2
      WRITE (6,89) K,AP2,BP2,CP2,NBP2,PP2
      WRITE (6,88)
      K = 1
      WRITE (6,97)K,AV1,BV1,CV1,ID(K)
      K = 2
      WRITE (6,97)K,AV2,BV2,CV2,ID(K)
      G11 = EXP(A1)
      ARG = - A1 - B1 - C1
      IF (ABS(ARG) .GT. 174.673) ARG = 0.0
      G21 = EXP(ARG)
      G12 = EXP(A2)
      ARG = - A2 - C2
      IF (ABS(ARG) .GT. 174.673) ARG = 0.0
      G22 = EXP(ARG)
      TEMPT1 = T1INF - 273.15
      TEMPT2 = T2INF - 273.15
      WRITE (6,87) A1,B1,C1,A2,C2,SD1,SD2,G11,G21,G12,G22,TEMPT1,TEMPT2,
     1             TEMPT1,TEMPT2
      IF (NEQ .EQ. 1) GO TO 80
      WRITE (6,79)
      GO TO 72
   80 WRITE (6,78)
   72 IF (NPRINT .EQ. 1) WRITE (6,73)
      WRITE (6,76) APOS,ANEG,X,D
      IF (NCASE .EQ. 2) WRITE (6,75) JFACT
      WRITE (6,74) CI
      IF (NPRINT .EQ. 2) WRITE (6,73)
      IF (NTRANS .EQ. 1) WRITE (6,68)
   25 WRITE (6,86)
      WRITE (6,85) (I,BETA(I,1),BETA(I,2),Q(I),I=MDINIT,MDEND)
      WRITE (6,71) B1INIT,B2INIT
      IF (NPRINT .EQ. 0) WRITE (6,73)
      WRITE (6,84) (K,K=MDINIT,MDEND)
      WRITE (6,81)
      DO 82 I=1,NDATA
   82 WRITE (6,83) I,(GAMMA1(L,I),GAMMA2(L,I),L=MDINIT,MDEND)
      WRITE (6,81)
      WRITE (6,50) (K,K=MDINIT,MDEND)
      DO 41 K=1,NDATA
   41 WRITE (6,51) (K,P(K),(PCALC(M,K),M=MDINIT,MDEND))
      WRITE (6,54) (PMEAN(M),M=MDINIT,MDEND)
      WRITE (6,52) (K,K=MDINIT,MDEND)
      DO 42 K=1,NDATA
   42 WRITE (6,53) (K,Y1(K),(Y1CALC(M,K),M=MDINIT,MDEND))
      WRITE (6,55) (Y1MEAN(M),M=MDINIT,MDEND)
      IF (ICASE .NE. 1) RETURN
      WRITE (6,30)
      WRITE (6,31) (I,X1(I),G1EXP(I),TMIN(I),TMAX(I),G2MIN(I),G2EXP(I),
     1              G2MAX(I),NROOT(I),I=1,NDATA)
      RETURN
   30 FORMAT (1H1,4X,'SUMMARY OF LIMITS CALCULATIONS FOR EXISTANCE OF ',
```

```
     1        'MULTIPLE ROOTS'//5X,'NO.',4X,'X1',5X,'G1EXP',4X,'TMIN',
     2        3X,'TMAX',3X,'G2MIN',4X,'G2EXP',4X,'G2MAX',3X,
     3        'MULT. ROOTS?'/)
    31 FORMAT (5X,I2,3X,F6.4,2X,F7.4,2X,F5.3,2X,F5.3,2X,F7.4,2X,F7.4,2X,
     1        F7.4,6X,A4)
    50 FORMAT (1H1,4X,'SUMMARY OF BUBBLE POINT CALCULATIONS USING THE ',
     1        'FINAL WILSON PARAMETERS'//20X,'PCALC VALUES DERIVED ',
     2        'FROM THE FOLLOWING NUMBERED MINIMIZING FUNCTIONS'//5X,
     3        'NO.',3X,'PEXP',3X,10(5X,I2,3X)/)
    51 FORMAT (5X,I2,11(3X,F7.2))
    52 FORMAT (//20X,'Y1CALC VALUES DERIVED FROM THE FOLLOWING NUMBERED',
     1        ' MINIMIZING FUNCTIONS'//5X,'NO.',3X,'Y1EXP',2X,10(5X,
     2        I2,3X)/)
    53 FORMAT (5X,I2,11(4X,F6.4))
    54 FORMAT (/3X,'MEAN ABS. DEV.',10(3X,F7.2))
    55 FORMAT (/3X,'MEAN ABS. DEV.',10(4X,F6.4))
    68 FORMAT (/10X,'CALCULATIONS PERFORMED IN TRANSFORMED PARAMETER ',
     1        ' SPACE')
    71 FORMAT (1HO,9X,'B11NIT = ',F7.1,5X,'B2INIT = ',F7.1)
    73 FORMAT (1H1)
    74 FORMAT (15X,'CONSISTANCY INDEX IS ',F6.2)
    75 FORMAT (15X,'HERRINGTON J-FACTOR IS ',F6.2)
    76 FORMAT (//10X,'RESULTS OF THERMODYNAMIC CONSISTENCY TEST'/15X,
     1        'AREA ABOVE THE X-AXIS IS ',F8.4/15X,'AREA BELOW THE ',
     2        'X-AXIS 1S ',F8.4/15X,'CROSS/OVER PPOINT IS X = ',F4.2/
     3        15X,'NORMALIZED AREA DIFFERENCE IS ',F8.4)
    77 FORMAT (//5X,'**DIAGNOSTIC**'/12X'ORDERING OF COMPONENTS ',
     1        'INDICATED IN TITLE IS NOT THAT OF DECREASING ',
     2        'VOLATILITIES'/12X,'CORRECT ORDERING HAS BEEN ',
     3        'IMPLEMENTED FOR ALL CALCULATIONS')
    78 FORMAT (15X,'FULL QUADRATIC EQUATION GIVES BEST FIT OF DATA')
    79 FORMAT (15X,'PARTIAL QUADRATIC EQUATION GIVES BEST FIT OF DATA')
    81 FORMAT (1X,125('*'))
    83 FORMAT (1X,'*',I3,10('*',F5.2,1X,F5.2),'*')
    84 FORMAT (//10X,'ACTIVITY COEFFICIENTS CALCULATED WITH THE ',
     1        'WILSON EQUATION'//45X,'MINIMIZING FUNCTION MODEL ',
     2        'NUMBERS'//1X,125('*')/1X,'*NO.*',4X,9(I2,5X,'*',4X),I2,
     3        5X,'*')
    85 FORMAT (18X,I2,3X,F9.2,2X,F9.2,6X,E10.4)
    86 FORMAT (//10X,28HSUMMARY OF WILSON PARAMETERS/15X,9HMODEL NO.,3X,
     1        16HPARAMETER VALUES,3X,18HOBJECTIVE FUNCTION/)
    87 FORMAT (//10X,'MIXTURE PROPERTIES'/15X,'ACTIVITY RATIO EQUATION ',
     1        'COEFFICIENTS'/25X,'FULL QUADRATIC EQUATION',T80,
     2        'PARTIAL QUADRATIC EQUATION'/25X,'A = ',E11.5,3X,'B = ',
     3        E11.5,3X,'C = ',E11.5,T80,'A = ',E11.5,3X,'C = ',E11.5/25X
     4        'STANDARD DEVIATION = ',E11.5,T80,'STANDARD DEVIATION = ',
     5        E11.5/15X,'INFINITE DILUTION ACTIVITY COEFFICIENTS'/25X,
     6        'FULL QUADRATIC EQUATION',T80,'PARTIAL QUADRATIC ',
     7        'EQUATION'/25X,'G1INF = ',F7.4,3X,'G2INF = ',F7.4,T80,
     8        'G1INF = ',F7.4,3X,'G2INF = ',F7.4/25X,'T1INF = ',F6.2,
     9        4X,'T2INF = ',F6.2,T80,'T1INF = ',F6.2,4X,'T2INF = ',F6.2)
    88 FORMAT (15X,'MOLAR VOLUME EQUATION COEFFICIENTS',47X,'COMPONENT ',
     1        'ID ECHO CHECK')
    89 FORMAT (20X,I1,4X,4HA = ,E11.5,3X,4HB = ,E11.5,3X,4HC = ,E11.5,
```

```
     1        25X,4HT = ,F5.1,8H AT P = ,F5.1)
  90 FORMAT (15X,36HVAPOR PRESSURE EQUATION COEFFICIENTS,45X,
     1        21HNORMAL BOILING POINTS)
  91 FORMAT (20X,I1,4X,4HT = ,F6.2,3X,4HP = ,F5.2,3X,4HV = ,F7.2,3X,
     1        8HOMEGA = ,F5.3,3X,9HOMEGAH = ,F5.3,3X,9HDIPOLE = ,F5.2,
     2        3X,6HETA = ,F5.2)
  92 FORMAT (//10X,25HPURE COMPONENT PROPERTIES/15X,
     1        19HCRITICAL PROPERTIES)
  94 FORMAT (2X,I2,2X,F7.2,2X,F5.1,2X,F6.4,2X,F6.4,2X,F7.2,2X,F7.2,2X,
     1        F6.4,2X,F6.4,2X,F7.4,2X,F7.4,2X,F7.4,2X,F8.2,2X,F8.2,2X,
     2        F8.2)
  95 FORMAT (1HO,///44H  SUMMARY VLE DATA AND CALCULATED PROPERTIES//
     1        5H  NO.,4X,1HP,7X,1HT,6X,2HX1,6X,2HY1,6X,4HF1OL,5X,4HF2OL,
     2        4X,4HPHI1,4X,4HPHI2,6X,2HG1,7X,2HG2,3X,9HLN(G1/G2),4X,
     3        3HB11,7X,3HB22,7X,3HB12/)
  96 FORMAT (1H1,20A4,20X,6A4)
  97 FORMAT (20X,I1,4X,'A = ',E11.5,3X,'B = ',E11.5,3X,'C = ',E11.5,
     1        25X,'ID NUMBER = ',I2)
      END
```

```
      SUBROUTINE LSQ2(*)
      COMMON/GRP1/NSYSTM,NAME(300),TITLE(20),ID(2),NCASE
      COMMON/GRP16/NPARMT,LSTOP,DX,E,STEP(2),NRD,RDFACT,IO,FINT,ICMAX
      COMMON/GRP18/MD,XT(2),SUMX
      COMMON/GRP25/IERR,LSQLIM(301)
      DIMENSION A(3,3),JJ(3),X(2,5),Y(3)
C
C     THIS IS AN IBM NONPROPRIETARY REGRESSION TOOL.
C
      M = NPARMT
      L = LSTOP
      M1 = M + 1
      M3 = M + 3
      L1C = 0
      IF (L .LE. 0) GO TO 50
      IHC = M1 + 1
      EN = M
      EN = EN * 1.5
      L1 = L
      L = - L
      L2 = ((3 * M) / 2) + 5
      K3 = 2
      IF (M .GE. 3) K3 = 3
      K4 = K3 - 1
      G = K3 * 2
      G = 1.0 / G
      DO 100 I=1,M
  100 X(I,1) = XT(I)
      CALL FN(&999)
      Y(1) = SUMX
      DO 106 J=2,M1
      XT(J-1) = XT(J-1) + DX
      DO 104 I=1,M
  104 X(I,J) = XT(I)
      CALL FN(&999)
      Y(J) = SUMX
      XT(J-1) = X(J-1,1)
  106 CONTINUE
      L2C = 0
      FLG = 1.0
      GO TO 50
  108 L1C = L1C + 1
      IF (L1C .GE. L1) GO TO 399
   50 YL = 1.0E+38
      YH = - YL
      Y2 = YH
      Y3 = YL
      DO 110 J=1,M1
      IF (Y(J) .LT. YH) GO TO 1091
      Y2 = YH
      I2 = IH
      YH = Y(J)
      IH = J
      GO TO 109
```

```
1091 IF (Y(J) .LT. Y2) GO TO 109
     Y2 = Y(J)
     I2 = J
 109 IF (Y(J) .GT. YL) GO TO 1101
     Y3 = YL
     I3 = IL
     IL = J
     YL = Y(J)
     GO TO 110
1101 IF (Y(J) .GT. Y3) GO TO 110
     Y3 = Y(J)
     I3 = J
 110 CONTINUE
     L2C = L2C + 1
     IF (L2C .LT. L2) GO TO 111
     L2C = 0
     JJ(1) = IL
     JJ(2) = I2
     JJ(3) = I3
     DO 60 K1=1,K3
     J1 = JJ(K1)
     DO 60 K2=K1,K3
     J2 = JJ(K2)
     S = 0.0
     DO 55 I=1,M
  55 S = S + ((X(I,J1) - X(I,IH)) * (X(I,J2) - X(I,IH)))
  60 A(K1,K2) = S
     D = (A(1,1) * A(2,2)) - (A(1,2) ** 2)
     GO TO (62,61),K4
  61 D1 = (A(1,1) * A(2,3)) - (A(1,2) * A(1,3))
     D =  ((((A(1,1) * A(3,3)) - (A(1,3) ** 2)) * D) - (D1 * D1)) /
    1      (A(1,1) * 9.0)
  62 IF (D .EQ. 0.0) GO TO 65
     IF (D .LT. 0.0) D = ABS(D)
     D = (D / 4.0) ** G
     IF (D .LT. E) GO TO 65
     FLG = 1.0
     GO TO 111
  65 IF (FLG .LT. 0.0) GO TO 400
     FLG = - 1.0
 111 DO 115 I=1,M
     XT(I) = 0.0
     DO 112 J=1,M1
     IF (J .NE. IH) XT(I) = XT(I) + X(I,J)
 112 CONTINUE
 115 XT(I) = (((3.0 * XT(I)) + X(I,I2) - X(I,IL)) / EN) - X(I,IH)
 121 CALL FN(&999)
     YT = SUMX
     IF (YT .GE. Y2) GO TO 167
     IHC = M1 + 1
     IF (YT .GE. YL) GO TO 140
     YTT = YT
     DO 135 I=1,M
 135 XT(I) = (1.5 * XT(I)) - (0.5 * X(I,IH))
```

```
      CALL FN(&999)
      YT = SUMX
      IF (YT .LE. YL) GO TO 140
      DO 138 I=1,M
  138 X(I,IH) = ((2.0 * XT(I)) + X(I,IH)) / 3.0
      Y(IH) = YTT
      GO TO 108
  140 DO 142 I=1,M
  142 X(I,IH) = XT(I)
      Y(IH) = YT
      GO TO 108
  167 IHC = IHC - 1
      IF (IHC .EQ. 0) GO TO 300
      IF (YT .GE. YH) GO TO 173
      DO 168 I=1,M
      XS = XT(I)
      XT(I) = X(I,IH)
  168 X(I,IH) = XS
  173 DO 174 I=1,M
  174 XT(I) = (0.75 * X(I,IH)) + (0.25 * XT(I))
      CALL FN(&999)
      YT = SUMX
      IF (YT .GT. YH) GO TO 180
      Y(1H) = YT
      DO 175 I=1,M
  175 X(I,IH) = XT(I)
      GO TO 108
  180 DO 185 J=1,M1
      IF (J .EQ. IL) GO TO 185
      DO 182 I=1,M
      XT(I) = (X(I,J) + X(I,IL)) / 2.0
  182 X(I,J) = XT(I)
      CALL FN(&999)
      Y(J) = SUMX
  185 CONTINUE
      GO TO 108
  300 IHC = 2 * M1
      IF (M .GE. 3) GO TO 350
      S = 0.0
      DO 302 I=1,M
      X(I,M+2) = X(I,IH) - X(I,IL)
      X(I,M+3) = X(I,IH) - X(I,I3)
  302 S = S + (X(I,M+2) ** 2)
      IF (S .EQ. 0.0) S = 1.0E-07
  303 S = SQRT(S)
      U = - X(2,M+2) / S
      X(2,M+2) = X(1,M+2) / S
      X(1,M+2) = U
      S = (X(1,M+2) * X(1,M+3)) + (X(2,M+2) * X(2,M+3))
      DO 305 I=1,M
  305 X(I,M+2) = X(I,M+2) * S
  306 DO 307 I=1,M
  307 XT(I) = X(I,IH) + X(I,M+2)
      CALL FN(&999)
```

```
      YT = SUMX
      DO 309 I=1,M
  309 XT(I) = X(I,IH) - X(I,M+2)
      CALL FN(&999)
      YTT = SUMX
      IF (YTT .LE. YT) GO TO 320
      DO 311 I=1,M
  311 XT(I) = X(I,IH) + X(I,M+2)
      YTT = YT
  320 Y(IH) = YTT
      DO 321 I=1,M
  321 X(I,IH) = XT(I)
      GO TO 108
  350 DO 352 I=1,M
      XT(I) = X(I,IH) - X(I,IL)
      X(I,M+2) = X(I,IH) - X(I,I2)
  352 X(I,M+3) = X(I,IH) - X(I,I3)
      S = 0.0
      S1 = 0.0
      DO 355 I=1,M
      S = S + (XT(I) ** 2)
  355 S1 = S1 + (X(I,M+3) ** 2)
      S = SQRT(S)
      S1 = SQRT(S1)
      S2 = 0.0
      DO 357 I=1,M
      XT(I) = XT(I) / S
      S2 = S2 + (XT(I) * X(I,M+2))
  357 X(I,M+3) = X(I,M+3) / S1
      DO 360 I=1,M
  360 X(I,M+2) = X(I,M+2) - (XT(I) * S2)
      S1 = 0.0
      DO 362 I=1,M
  362 S1 = S1 + (X(I,M+2) ** 2)
      S1 = SQRT(S1)
      DO 365 I=1,M
  365 X(I,M+2) = X(I,M+2) / S1
      S1 = 0.0
      S2 = 0.0
      DO 367 I=1,M
      S1 = S1 + (XT(I) * X(I,M+3))
  367 S2 = S2 + (X(I,M+2) * X(I,M+3))
      DO 370 I=1,M
  370 X(I,M+2) = S * ((S1 * XT(I)) + (S2 * X(I,M+2)) - X(I,M+3))
      GO TO 306
  399 WRITE (6,500) TITLE,MD
      IF (IERR .EQ. 0) GO TO 398
      IF (LSQLIM(IERR) .EQ. NAME(NSYSTM)) GO TO 400
  398 IERR = IERR + 1
      LSQLIM(IERR) = NAME(NSYSTM)
  400 S = Y(1)
      Y(1) = Y(IL)
      Y(IL) = S
      DO 402 I=1,M
```

```
      XT(I) = X(I,IL)
      X(I,IL) = X(I,1)
  402 X(I,1) = XT(I)
  403 CONTINUE
      RETURN
  999 RETURN 1
  500 FORMAT (1H1,20A4///5X,'**DIAGNOSTIC**'/12X,'MAXIMUM NUMBER OF ',
     1        'ITTERATIONS FOR LSQ2 EXCEEDED'/12X,'CALCULATIONS ',
     2        'TERMINATED FOR MODEL NUMBER ',I2)
      END
```

```
      SUBROUTINE PATERN(*)
C                                                                      PTRN
C     GENERAL MULTIVARIABLE SEARCH PROGRAM TO MINIMIZE A COST FUNCTION PTRN
C     USING PATTERN SEARCH MODIFIED TO INCLUDE CONSTRAINTS             PTRN
C                                                                      PTRN
      COMMON/GRP16/NPARMT,LSTOP,DX,E,STEP(2),NRD,RDFACT,IO,FINT,ICMAX
      COMMON/GRP18/MD,P(2),SUMX
C                                                                      PTRN
C     DEFINITIONS                                                      PTRN
C     NP----NUMBER OF PARAMETERS TO BE SEARCHED (INTEGER)              PTRN
C     P-----PARAMETERS TO BE SEARCHED (VECTOR OF LENGTH NP)            PTRN
C     STEP--INITIAL STEP SIZE OF EACH PARAMETER (VECTOR OF LENTH NP)   PTRN
C     NPASS-NUMBER OF PASSES THROUGH PATTERN WITH THE STEP SIZE OF EACH PTRN
C         PARAMETER REDUCED BY A FACTOR OF 10                          PTRN
C     IO----OUTPUT OPTION AVAILABLE IN SUBROUTINE PATERN               PTRN
C              IO=0....NO OUTPUT                                       PTRN
C              IO=1....FINAL ANSWER ONLY, PRINTED                      PTRN
C              IO=2....RESULTS OF EACH ITTERATION PRINTED              PTRN
C              IO=3....RESULTS OF EACH STEP PRINTED                    PTRN
C     COST--CURRENT VALUE OF THE CRITERION FUNCTION BEING MINIMIZED    PTRN
C                                                                      PTRN
C     BOUNDS(P,IOUT)---SUBROUTINE WRITTEN BY USER TO CHECK FOR BOUNDARY PTRN
C     VIOLATIONS FOR A PARTICULAR VALUE OF THE VECTOR P.  PROGRAM      PTRN
C     SHOULD BE WRITTEN SO WHEN A VIOLATION OCCURS IOUT IS SET EQUAL   PTRN
C     TO ONE AND WHEN NO VIOLATION OCCURS SET EQUAL TO ZERO            PTRN
C                                                                      PTRN
C     PROC(P,COST)-----SUBROUTINE WRITTEN BY USER TO CALCULATE A VALUE PTRN
C     OF COST FOR A PARTICULAR SET OF PARAMETERS, P.                   PTRN
C                                                                      PTRN
      DIMENSION B1(10),B2(10),T(10),S(10)
C                                                                      PTRN
C     NOTE:  VECTORS B1,B2,T,S NEED ONLY BE DIMENSIONED BY A NUMBER    PTRN
C            EQUAL TO THE NUMBER OF PARAMETERS, NP.                    PTRN
C                                                                      PTRN
C     STARTING POINT                                                   PTRN
C
      NP = NPARMT
      L=1                                                              PTRN
      ICK=2                                                            PTRN
      ITTER=0                                                          PTRN
      DO5 I=1,NP                                                       PTRN
      B1(I)=P(I)                                                       PTRN
      B2(I)=P(I)                                                       PTRN
      T(I)=P(I)                                                        PTRN
    5 S(I) = STEP(I) * RDFACT
C
C     INITIAL BOUNDARY CHECK AND COST EVALUATION                       PTRN
C
      CALL BOUNDS(IOUT)
      IF(IOUT.LE.0)GOTO10                                              PTRN
                   IF(IO.LE.0)GOTO6                                    PTRN
                   WRITE(6,1005)                                       PTRN
                   WRITE(6,1000)(J,P(J),J=1,NP)                        PTRN
    6 RETURN                                                           PTRN
```

```
   10 CALL FN(&999)
      C1 = SUMX
                    IF(IO.LE.1)GOTO11                                  PTRN
                    WRITE(6,1001)ITTER,C1                              PTRN
                    WRITE(6,1000)(J,P(J),J=1,NP)                       PTRN
C
C     BEGINNING OF PATTERN SEARCH STRATEGY                            PTRN00
C
   11 DO99 INRD=1,NRD                                                  PTRN
      DO12 I=1,NP                                                      PTRN
   12 S(I) = S(I) / RDFACT
                    IF(IO.LE.1)GOTO20                                  PTRN
                    WRITE(6,1003)                                      PTRN
                    WRITE(6,1000)(J,S(J),J=1,NP)                       PTRN
   20 IFAIL=0.0                                                        PTRN
C
C     PRETURDATION ABOUT T                                             PTRN
C
      DO30 I=1,NP                                                      PTRN
      IC=0                                                             PTRN
   21 P(I)=T(I)+S(I)                                                   PTRN
      IC=IC+1                                                          PTRN
      CALL BOUNDS(IOUT)
      IF(IOUT.GT.0)GOTO23                                              PTRN
      CALL FN(&999)
      C2 = SUMX
                    L=L+1                                              PTRN
      IF (L .GT. LSTOP) GO TO 90
                    IF(IO.LT.3)GOTO22                                  PTRN
                    WRITE(6,1002)L,C2                                  PTRN
                    WRITE(6,1000)(J,P(J),J=1,NP)                       PTRN
   22 IF(C1-C2)23,23,25                                                PTRN
   23 IF(IC.GE.2)GOTO24                                                PTRN
      S(I)=-S(I)                                                       PTRN
      GOTO21                                                           PTRN
   24 IFAIL=IFAIL+1                                                    PTRN
      P(I)=T(I)                                                        PTRN
      GOTO30                                                           PTRN
   25 T(I)=P(I)                                                        PTRN
      C1=C2                                                            PTRN
   30 CONTINUE                                                         PTRN
      IF(IFAIL.LT.NP)GOTO35                                            PTRN
      IF(ICK.EQ.2)GOTO90                                               PTRN
      IF(ICK.EQ.1)GOTO35                                               PTRN
      CALL FN(&999)
      C2 = SUMX
                    L=L+1                                              PTRN
      IF (L .GT. LSTOP) GO TO 90
                    IF(IO.LT.3)GOTO31                                  PTRN
                    WRITE(6,1002)L,C2                                  PTRN
                    WRITE(6,1000)(J,T(J),J=1,NP)                       PTRN
   31 IF(C1-C2)32,34,34                                                PTRN
   32 ICK=1                                                            PTRN
      DO33 I=1,NP                                                      PTRN
```

```
      B1(I)=B2(I)                                                        PTRN
      P(I)=B2(I)                                                         PTRN
   33 T(I)=B2(I)                                                         PTRN
      GOTO20                                                             PTRN
   34 C1=C2                                                              PTRN
   35 IB1=0                                                              PTRN
      DO39 I=1,NP                                                        PTRN
      B2(I)=T(I)                                                         PTRN
      IF(ABS(B1(I)-B2(I)).LT..01*ABS(S(I))) IB1=IB1+1                    PTRN
   39 CONTINUE                                                           PTRN
      IF(IB1.EQ.NP)GOTO90                                                PTRN
      ICK=0                                                              PTRN
                  ITTER=ITTER+1                                          PTRN
                  IF(IO.LT.2)GOTO40                                      PTRN
                  WRITE(6,1001)ITTER,C1                                  PTRN
                  WRITE(6,1000)(J,T(J),J=1,NP)                           PTRN
C
C     ACCELERATION STEP                                                  PTRN
C
   40 SJ=1.0                                                             PTRN
      DO45 II=1,11                                                       PTRN
      DO42 I=1,NP                                                        PTRN
      T(I)=B2(I)+SJ*(B2(I)-B1(I))                                        PTRN
   42 P(I)=T(I)                                                          PTRN
      SJ=SJ-.1                                                           PTRN
      CALL BOUNDS(IOUT)
      IF(IOUT.LT.1)GOTO46                                                PTRN
      IF(II.EQ.11)ICK=1                                                  PTRN
   45 CONTINUE                                                           PTRN
   46 DO47 I=1,NP                                                        PTRN
   47 B1(I)=B2(I)                                                        PTRN
      GOTO20                                                             PTRN
   90 DO91 I=1,NP                                                        PTRN
   91 T(I)=B2(I)                                                         PTRN
   99 CONTINUE                                                           PTRN
  101 DO 100 I=1,NP
  100 P(I)=T(I)                                                         PTRN
      SUMX = C1
      IF (L .GT. LSTOP) WRITE (6,1006)
                  IF(IO.LE.0)RETURN                                      PTRN
                  WRITE(6,1004)L,C1                                      PTRN
                  WRITE(6,1000)(J,P(J),J=1,NP)                           PTRN
      RETURN                                                             PTRN
  999 RETURN 1
 1000 FORMAT(10X,5(I7,E13.6)/)                                           PTRN
 1001 FORMAT(//1X14HITTERATION NO.  ,I5/5X,5HCOST= ,E15.6,20X,           PTRN
     1   10HPARAMETERS)                                                 PTRN
 1002 FORMAT(10X3HNO.,I4, 8X5HCOST=,E15.6)                              PTRN
 1003 FORMAT(/1X28HSTEP SIZE FOR EACH PARAMETER   )                      PTRN
 1004 FORMAT(1H113HANSWERS AFTER ,I3,2X,23HFUNCTIONAL EVALUATIONS   //  PTRN
     1   5X5HCOST=,E15.6,20X,18HOPTIMAL PARAMETERS  )                   PTRN
 1005 FORMAT(1H135HINITIAL PARAMETERS OUT OF BOUNDS        )             PTRN
 1006 FORMAT (1H1,11X,'**DIAGNOSTIC**'/12X,'MAXIMUM NUMBER OF ',
     1        'FUNCTION EVALUATIONS EXCEEDED'/12X,'REGRESSION ROUTINE ',
```

```
      2          'TERMINATED AT CURRENT VALUE')
       END
```

```
      SUBROUTINE FN(*)
      COMMON/GRP1/NSYSTM,NAME(300),TITLE(20),ID(2),NCASE
      COMMON/GRP2/MDINIT,MDEND,NDATA
      COMMON/GRP3/X1(75),X2(75),Y1(75),Y2(75),P(75),T(75),TABS(75)
      COMMON/GRP4/V1(75),V2(75),RT(75)
      COMMON/GRP10/G1EXP(75),G2EXP(75),LNG1G2(75),W1,W2
      COMMON/GRP11/G1INF,G2INF,T1INF,T2INF
      COMMON/GRP14/NPUNCH,NREG,NSTUDY,NTRANS,ICASE,LS,ICOUNT,NPASS
      COMMON/GRP18/MD,B(2),SUMX
      COMMON/GRP20/G1CALC(75),G2CALC(75),GAMMA1(10,75),GAMMA2(10,75)
      COMMON/GRP22/CALCY1,CALCY2,CALCP
      REAL L12,L21,LNG1G2
C
C     EVALUATE THE OBJECTIVE FUNCTION CURRENTLY IN USE (AS DESCRIBED
C     BY CONTROL PARAMETER MD) FOR THE CURRENT SET OF PARAMETER ESTI-
C     MATES.  CALCULATIONS MAY BE PERFORMED IN A TRANSFORMED PARAMETER
C     SPACE (AS INDICATED BY CONTROL PARAMETER NTRANS).
C
      SUMX = 0.0
      DO 100 I=1,NDATA
      IF (LS .EQ. 3) GO TO 98
      IF ((ABS(B(1)).GT.10000.0) .OR. (ABS(B(2)).GT.10000.0)) GO TO 200
   98 IF (MD .EQ. 1) CALL INFDIL(I,&104,&204)
      RTNEW = 1.9872 * TABS(I)
      IF (NTRANS .EQ. 0) GO TO 101
      ARG1 = - 0.5 * (B(1) + B(2)) / RTNEW
      ARG2 = - 0.5 * (B(1) - B(2)) / RTNEW
      GO TO 102
  101 ARG1 = - B(1) / RTNEW
      ARG2 = - B(2) / RTNEW
  102 IF ((ARG1 .GT. 170.0) .OR. (ARG2 .GT. 170.0)) GO TO 204
      L12 = (V2(I) / V1(I)) * EXP(ARG1)
      L21 = (V1(I) / V2(I)) * EXP(ARG2)
      F1 = X1(I) + (L12 * X2(I))
      F2 = (L21 * X1(I)) + X2(I)
      F0 = (L12/F1) - (L21/F2)
      G1CALC(I) = EXP(X2(I) * F0) / F1
      G2CALC(I) = EXP(-X1(I) * F0) / F2
C
C     DEFINE THE ERROR MINIMIZATION (I.E., OBJECTIVE) FUNCTIONS IN THE
C     FOLLOWING STATEMENTS.
C
      GO TO (104,105,106,107,108,109,110,112,113,115), MD
  104 X = (((G1INF - G1CALC(I))**2) + ((G2INF - G2CALC(I))**2))
      GO TO 99
  105 X = ((X1(I) * ALOG(G1EXP(I) / G1CALC(I))) +
     1    (X2(I) * ALOG(G2EXP(I) / G2CALC(I)))) ** 2
      GO TO 100
  106 X = (((G1EXP(I) - G1CALC(I))**2)+((G2EXP(I) - G2CALC(I))**2))
      GO TO 100
  107 X = ((((G1EXP(I) - G1CALC(I)) / G1EXP(I)) ** 2) +
     1    (((G2EXP(I) - G2CALC(I)) / G2EXP(I)) ** 2))
      GO TO 100
  108 CALL YPCALC(I,&206)
```

```
      X = (((Y1(I) - CALCY1) ** 2) + ((Y2(I) - CALCY2) ** 2) +          185.
     1    (((P(I) - CALCP) / P(I)) ** 2))
      GO TO 100
  109 CALL YPCALC(I,&206)
      GO TO 111
  110 CALL YCALC(I,&206)
  111 X = (((Y1(I) - CALCY1) ** 2) + ((Y2(I) - CALCY2) ** 2))
      GO TO 100
  112 CALL YPCALC(I,&206)
      GO TO 114
  113 CALL PCALC(I,&206)
  114 X = (((P(I) - CALCP) / P(I)) ** 2)
      GO TO 100
  115 X = (((G1EXP(I)-G1CALC(I))**2)/W1)+(((G2EXP(I)-G2CALC(I))**2)/W2)
  100 SUMX = SUMX + X
      RETURN
   99 SUMX = X
      RETURN
C
C     THE FOLLOWING SECTION CONTAINS THE DIAGNOSTIC MESSAGES TO BE
C     WRITTEN WHEN AN ERROR CONDITION IS DISCOVERED.
C
  200 IF (ICOUNT .EQ. 0) WRITE (6,300) TITLE
      ICOUNT = ICOUNT + 1
      IF (ICOUNT .GT. 3) GO TO 205
      IF (ABS(B(1)) .GT. 10000.0) GO TO 201
      WRITE (6,302) B(2)
      B(2) =-B(2) / 10.0
      GO TO 203
  201 IF (ABS(B(2)) .GT. 10000.0) GO TO 202
      WRITE (6,301) B(1)
      B(1) =-B(1) / 10.0
      GO TO 203
  202 WRITE (6,303) B(1),B(2)
      B(1) =-B(1) / 10.0
      B(2) = B(2) / 10.0
  203 WRITE (6,304) MD,B(1),B(2)
      LS = 1
      GO TO 207
  204 WRITE (6,300)
      WRITE (6,305) B(1),B(2),MD
      LS = 2
      GO TO 207
  205 WRITE (6,306)
      LS = 3
      ICOUNT = 0
      GO TO 207
  206 WRITE (6,300) TITLE
      WRITE (6,308) MD
      WRITE (6,307) MD
      B(1) = 0.0
      B(2) = 0.0
      SUMX = 0.0
      LS = 4
```

```
      207 RETURN 1
      300 FORMAT (1H1,20A4)
      301 FORMAT (1HO,4X,'**DIAGNOSTIC**'/12X,'CURRENT ESTIMATE OF ',
         1        'PARAMETER VALUE EXCEEDS FEASIBLE LIMITS:  B(1) = ',E11.4/
         2        12X,'REDUCE PARAMETER VALUE BY ONE ORDER OF MAGNITUDE')
      302 FORMAT (1HO,4X,'**DIAGNOSTIC**'/12X,'CURRENT ESTIMATE OF ',
         1        'PARAMETER VALUE EXCEEDS FEASIBLE LIMITS:  B(2) = ',E11.4/
         2        12X,'REDUCE PARAMETER VALUE BY ONE ORDER OF MAGNITUDE')
      303 FORMAT (1HO,4X,'**DIAGNOSTIC**'/12X,'CURRENT ESTIMATES OF ',
         1        'PARAMETER VALUES EXCEED FEASIBLE LIMITS:  B(1) = ',E11.4,
         2        ' B(2) = ',E11.4/12X,'REDUCE PARAMETER VALUES BY ONE ',
         3        'ORDER OF MAGNITUDE')
      304 FORMAT (12X,'RESTART CALCULATIONS AT POINT OF INTERRUPT'/12X,
         1        'MODEL IN USE IS NUMBER ',I2/12X,'PARAMETER INITIAL ',
         2        'GUESSES ARE:  B(1) = ',E11.4,' B(2) = ',E11.4)
      305 FORMAT (1HO,4X,'**DIAGNOSTIC**'/12X,'ONE OR BOTH ARGUEMENTS ',
         1        'EXCEED RANGE OF SUBROUTINE EXP'/12X,'CORRESPONDING ',
         2        'PARAMETER ESTIMATES ARE:  B(1) = ',E11.4,' B(2) = ',
         3        E11.4/12X,'INTERRUPT OCCURS IN MODEL ',I2/12X,'RECEIPT ',
         4        'OF THIS ERROR MESSAGE IMPLIES BYPASSING OF INDIVIDUAL ',
         5        'PARAMETER ABSOLUTE MAGNITUDE CONTROL'//12X,
         6        '**CALCULATIONS TERMINATED**')
      306 FORMAT (1HO,4X,'**DIAGNOSTIC**'/12X,'MAXIMUM NUMBER OF RESTARTS ',
         1        'EXCEEDED'/12X,'**RESTART OPTION DISCONTINUED**')
      307 FORMAT (1HO,4X,'**DIAGNOSTIC**'/12X,'SUBROUTINE PHIMIX IS USED ',
         1        'TO CALCULATE FUGACITY COEFFICIENTS'/12X,'THESE ARE ',
         2        'ESTIMATES USED IN ALL BUBBLE POINT CALCULATIONS'/12X,
         3        'THE FOLLOWING DISCRIMINANT MUST BE EVALUATED DURING ',
         4        'CALCULATIONS:  DISCRM = 0.2. + (PORT * BMIX)'/12X,
         5        'A NEGATIVE VALUE HAS BEEN OBTAINED DURING THE CURRENT ',
         6        'CALCULATIONS; MODEL ',I1,' IS CURRENTLY IN USE'/12X,
         7        'CALCULATIONS ARE DISCONTINUED AND A VALUE OF 0.0 IS ',
         8        'STORED FOR THE PARAMETERS AND OBJECTIVE FUNCTION')
      308 FORMAT (1HO,4X,'**DIAGNOSTIC**'/12X,'MODEL ',I1,' FAILS TO ',
         1        'CONVERGE')
          END
```

```
      SUBROUTINE BOUNDS(IOUT)
      COMMON/GRP18/MD,B(2),SUMX
      IOUT = 0
      RETURN
      END
```

```
      SUBROUTINE INFDIL(I,*,*)
      COMMON/GRP6/AP1,BP1,CP1,AP2,BP2,CP2,AV1,BV1,CV1,AV2,BV2,CV2
      COMMON/GRP11/G1INF,G2INF,T1INF,T2INF
      COMMON/GRP18/MD,B(2),SUMX
      COMMON/GRP20/G1CALC(75),G2CALC(75),GAMMA1(10,75),GAMMA2(10,75)
      REAL L12,L21
C
C     CALCULATE THE INFINITE DILUTION VALUES FOR THE ACTIVITY COEFFIC-
C     IENTS FROM THE CURRENT ESTIMATES OF THE WILSON PARAMETERS.
C
      J = 1
      TT = T1INF
  100 ARG1 = - B(1) / (1.9872 * TT)
      ARG2 = - B(2) / (1.9872 * TT)
      IF ((ARG1 .GT. 170.0) .OR. (ARG2 .GT. 170.0)) RETURN 2
      V1INF = AV1 + (BV1 * TT) + (CV1 * (TT ** 2))
      V2INF = AV2 + (BV2 * TT) + (CV2 * (TT ** 2))
      L12 = (V2INF / V1INF) * EXP(ARG1)
      L21 = (V1INF / V2INF) * EXP(ARG2)
      GO TO (101,102), J
  101 G1CALC(I) = EXP(1.0 - L21) / L12
      J = 2
      TT = T2INF
      GO TO 100
  102 G2CALC(I) = EXP(1.0 - L12) / L21
      RETURN 1
      END
```

```
      SUBROUTINE LSDATA(*)
      COMMON/GRP16/NPARMT,LSTOP,DX,E,STEP(2),NRD,RDFACT,IO,FINT,ICMAX
      COMMON/GRP17/B1INIT,B2INIT
C
C     STORE COMMONLY USED VALUES FOR THE VARIOUS PARAMETERS REQUIRED BY
C     THE SEVERAL REGRESSION ROUTINES.
C
      NPARMT = 2
      B1INIT = 0.0
      B2INIT = 0.0
      LSTOP = 1000
      DX = 100.0
      E = 0.001
      STEP(1) = 100.0
      STEP(2) = 100.0
      NRD = 8
      RDFACT = 4.0
      IO = 0
      FINT=0.001                                                    RHCM
      ICMAX=100                                                     RHCM
      RETURN1
      END
```

```
      SUBROUTINE SAVEBQ
      COMMON/GRP14/NPUNCH,NREG,NSTUDY,NTRANS,ICASE,LS,ICOUNT,NPASS
      COMMON/GRP18/MD,B(2),SUMX
      COMMON/GRP19/BETA(10,2),Q(10)
C
C     STORE THE FINALIZED PARAMETER AND OBJECTIVE FUNCTION VALUES FOR
C     THE BINARY SYSTEM CURRENTLY UNDER CONSIDERATION.
C
      IF (NTRANS .EQ. 0) GO TO 101
      IF (MD .EQ. 1) GO TO 101
      BETA(MD,1) = 0.5 * (B(1) + B(2))
      BETA(MD,2) = 0.5 * (B(1) - B(2))
      GO TO 102
  101 BETA(MD,1) = B(1)
      BETA(MD,2) = B(2)
  102 Q(MD) = SUMX
      RETURN
      END
```

```
      SUBROUTINE WILSON
      COMMON/GRP2/MDINIT,MDEND,NDATA
      COMMON/GRP3/X1(75),X2(75),Y1(75),Y2(75),P(75),T(75),TABS(75)
      COMMON/GRP4/V1(75),V2(75),RT(75)
      COMMON/GRP19/BETA(10,2),Q(10)
      COMMON/GRP20/G1CALC(75),G2CALC(75),GAMMA1(10,75),GAMMA2(10,75)
C
C     CALCULATE THE WILSON ACTIVITY COEFFICIENTS FROM THE REGRESSED
C     PARAMETER VALUES FOR EACH OBJECTIVE FUNCTION.
C
      REAL L12,L21
      DO 101 MD=MDINIT,MDEND
      DO 101 I=1,NDATA
      RTNEW = 1.9872 * TABS(I)
      L12 = (V2(I) / V1(I)) * EXP(-BETA(MD,1) / RTNEW)
      L21 = (V1(I) / V2(I)) * EXP(-BETA(MD,2) / RTNEW)
      F1 = X1(I) + (L12 * X2(I))
      F2 = (L21 * X1(I)) + X2(I)
      F0 = (L12 / F1) - (L21 / F2)
      GAMMA1(MD,I) = EXP(X2(I) * F0) / F1
      GAMMA2(MD,I) = EXP(-X1(I) * F0) / F2
  101 CONTINUE
      RETURN
      END
```

```
      SUBROUTINE BUBLPT                                              192.
      COMMON/GRP2/MDINIT,MDEND,NDATA
      COMMON/GRP3/X1(75),X2(75),Y1(75),Y2(75),P(75),T(75),TABS(75)
      COMMON/GRP20/G1CALC(75),G2CALC(75),GAMMA1(10,75),GAMMA2(10,75)
      COMMON/GRP21/Y1CALC(10,75),PCALC(10,75),Y1MEAN(10),PMEAN(10)
      COMMON/GRP22/CALCY1,CALCY2,CALCP
C
C     PERFORM BUBBLE POINT CALCULATIONS USING THE FINALIZED  PARAMETER
C     VALUES.  CALCULATE THE MEAN ABSOLUTE DEVIATIONS IN BOTH PRESSURE
C     AND VAPOR PHASE COMPOSITION.  THIS IS A MEASURE OF THE QUALITY OF
C     FIT OF THE BINARY DATA OBTAINED WITH THE PARAMETER VALUES.
C
      DATA = NDATA
      DO 102 J=MDINIT,MDEND
      Y1MEAN(J) = 0.0
      PMEAN(J) = 0.0
      DO 101 I=1,NDATA
      G1CALC(I) = GAMMA1(J,I)
      G2CALC(I) = GAMMA2(J,I)
      CALL YPCALC(I)
      Y1CALC(J,I) = CALCY1
      PCALC(J,I) = CALCP
      Y1MEAN(J) = Y1MEAN(J) + ABS(Y1CALC(J,I) - Y1(I))
      PMEAN(J) = PMEAN(J) + ABS(PCALC(J,I) - P(I))
  101 CONTINUE
      Y1MEAN(J) = Y1MEAN(J) / DATA
      PMEAN(J) = PMEAN(J) / DATA
  102 CONTINUE
      RETURN
      END
```

```
      SUBROUTINE UPDATE(*)
      COMMON/GRP2/MDINIT,MDEND,NDATA
      COMMON/GRP3/X1(75),X2(75),Y1(75),Y2(75),P(75),T(75),TABS(75)
      COMMON/GRP10/G1EXP(75),G2EXP(75),LNG1G2(75),W1,W2
      COMMON/GRP14/NPUNCH,NREG,NSTUDY,NTRANS,ICASE,LS,ICOUNT,NPASS
      COMMON/GRP20/G1CALC(75),G2CALC(75),GAMMA1(10,75),GAMMA2(10,75)
      DIMENSION NUMB(75),DUMMY(6,75)
C
C     UPDATE THE BINARY DATA BY DELETING THOSE POINTS FOR WHICH THE
C     CALCULATED ACTIVITY COEFFICIENTS DISAGREE WITH THE DATA BY MORE
C     THAN A SELECTED THRESHHOLD VALUE.  THEIS VALUE HAD BEEN SET AT
C     15% FOR CURRENT PURPOSES.
C
C     STORE ORIGINAL DATA IN DUMMY ARRAY.  IF ALL DATA IS OUTSIDE
C     ACCEPTABLE LIMITS, RETURN ALL ORIGINAL DATA TO DATA ARRAYS.
C
      DO 101 I=1,NDATA
      DUMMY(1,I) = X1(I)
      DUMMY(2,I) = Y1(I)
      DUMMY(3,I) = P(I)
      DUMMY(4,I) = T(I)
      DUMMY(5,I) = G1EXP(I)
      DUMMY(6,I) = G2EXP(I)
  101 CONTINUE
      N = NDATA
      KOUT = 0
      JSTART = MDINIT
C
C     MODEL ONE IS NOT USED AS A BASIS UPON WHICH TO DELETE DATA BECAUSE
C     IT IS BASED UPON THE USE OF THE INFINITE DILUTION ACTIVITY
C     COIEFFICIENTS AND NOT DIRECTLY UPON ALL OF THE DATA.
C
      IF (JSTART .EQ. 1) JSTART = 2
      DO 206 I=1,N
      DO 201 J=JSTART,MDEND
      IF ((ABS((GAMMA1(J,I)/G1EXP(I))-1.0) .LT. 0.15) .AND.
     1   (ABS((GAMMA2(J,I)/G2EXP(I))-1.0) .LT. 0.15)) GO TO 206
  201 CONTINUE
C
C     KOUT IS THE NUMBER OF DATA POINTS DELETED AND NUMB IS THEIR
C     ADDRESS IN THE ORIGINAL DATA SET.
C
      KOUT = KOUT + 1
      NUMB(KOUT) = I
  206 CONTINUE
      IF (KOUT .EQ. 0) RETURN
C
C     DELETE THOSE POINTS TO BE REJECTED FROM THE ORIGINAL DATA ARRAYS
C     AND COMPACT THE ARRAYS.
C
C     I IS THE LOCATION COUNTER WITHIN THE ORIGINAL DATA ARRAYS,  L IS
C     THE LOCATION COUNTER WITHIN THE COMPACTED DATA ARRAYS, AND K IS
C     THE COUNTER WITHIN THE ARRAY OF ADDRESSES OF DATA TO BE DELETED.
C
```

```
      I = 0
      L = 0
      DO 203 K=1,KOUT
  202 I = I + 1
C
C     DELETION CRITERIA
C
      IF (NUMB(K) .EQ. I) GO TO 203
      L = L + 1
      X1(L) = X1(I)
      Y1(L) = Y1(I)
      P(L) = P(I)
      T(L) = T(I)
      G1EXP(L) = G1EXP(I)
      G2EXP(L) = G2EXP(I)
      GO TO 202
  203 CONTINUE
C
C     ADD ANY REMAINING DATA TO THE COMPACTED ARRAYS.
C
      I1 = I + 1
      IF (I1 .GT. N) GO TO 205
      DO 204 I=I1,N
      L = L + 1
      X1(L) = X1(I)
      Y1(L) = Y1(I)
      P(L) = P(I)
      T(L) = T(I)
      G1EXP(L) = G1EXP(I)
      G2EXP(L) = G2EXP(I)
  204 CONTINUE
  205 N = N - KOUT
      IF (N .LE. 3) GO TO 209
      NDATA = N
      WRITE (6,302) KOUT,NDATA
      IF (ICASE .GT. 0) ICASE = 1
      RETURN 1
  209 WRITE (6,301) N
      DO 102 I=1,NDATA
      X1(I) = DUMMY(1,I)
      Y1(I) = DUMMY(2,I)
      P(I) = DUMMY(3,I)
      T(I) = DUMMY(4,I)
      G1EXP(I) = DUMMY(5,I)
      G2EXP(I) = DUMMY(6,I)
  102 CONTINUE
      RETURN
  301 FORMAT (1H0,4X,'**DIAGNOSTIC**'/12X,'ALL DATA POINTS FOUND TO BE',
     1        ' OUTSIDE ACCEPTABLE RANGE WITH N EQUAL TO ',I3)
  302 FORMAT (1H0,4X,'**DIAGNOSTIC**'/8X,I2,' DATA POINTS FOUND TO BE ',
     1        'OUTSIDE ACCEPTABLE RANGE'/8X,'DATA RERUN WITH  ',I2,
     2        ' DATA POINTS')
      END
```

```
      SUBROUTINE RSTART(*)
      COMMON/GRP2/MDINIT,MDEND,NDATA
      COMMON/GRP14/NPUNCH,NREG,NSTUDY,NTRANS,ICASE,LS,ICOUNT,NPASS
      COMMON/GRP19/BETA(10,2),Q(10)
C
C     TEST FINAL PARAMETER VALUES TO DETERMINE IF ANY EXCEED FEASIBLE   E
C     LIMITS.  IF SO, RESTART CALCULATIONS IN THE TRANSFORMED PARAMETER
C     SPACE DEFINED BY THE SUM OF THE PARAMETERS.
C
      DO 101 I=MDINIT,MDEND
      DO 101 J=1,2
      IF (BETA(I,J) .GT. 15000.0) GO TO 102
  101 CONTINUE
      RETURN
  102 NTRANS = 1
      NPASS = 0
      WRITE (6,307)
      RETURN 1
  307 FORMAT (1H1,4X,'**DIAGNOSTIC**'/12X,'RESTART CALCULATIONS IN ',
     1        'TRANSFORMED PARAMETER SPACE')
      END
```

```
      SUBROUTINE HOLD
      COMMON/GRP1/NSYSTM,NAME(300),TITLE(20),ID(2),NCASE
      COMMON/GRP2/MDINIT,MDEND,NDATA
      COMMON/GRP14/NPUNCH,NREG,NSTUDY,NTRANS,ICASE,LS,ICOUNT,NPASS
      COMMON/GRP19/BETA(10,2),Q(10)
      COMMON/GRP21/Y1CALC(10,75),PCALC(10,75),Y1MEAN(10),PMEAN(10)
      COMMON/GRP25/IERR,LSQLIM(301)
      DIMENSION PARAM(10,2,300),OBJFUN(10,300)
      DIMENSION MEANY1(10,300),MEANP(10,300),Y1TOT(10),PTOT(10)
      REAL MEANY1,MEANP
C
C     STORE FINAL PARAMETER VALUES, OBJECTIVE FUNCTION VALUE, AND
C     QUALITY OF FIT (I.E., BUBBLE POINT CALCULATION RESULTS) DATA FOR
C     EACH MODEL INVESTIGATED.  DO NOT STORE INFORMATION FOR VALUES OF
C     MODEL NUMBER LESS THAN UNITY.
C
      IF (MDINIT .LT. 1) GO TO 101
      MDGO = MDINIT
      GO TO 102
  101 MDGO = 1
  102 DO 103 MD=MDGO,MDEND
      PARAM(MD,1,NSYSTM) = BETA(MD,1)
      PARAM(MD,2,NSYSTM) = BETA(MD,2)
      OBJFUN(MD,NSYSTM) = Q(MD)
      MEANY1(MD,NSYSTM) = Y1MEAN(MD) * 1000.0
  103 MEANP(MD,NSYSTM) = PMEAN(MD)
      RETURN
C
C     WRITE SUMMARY TABLES OF THE PARAMETER VALUES, OBJECTIVE FUNCTION
C     VALUES, AND QUALITY OF FIT DATA (I.E., MEAN ABSOLUTE DEVIATIONS IN
C     BOTH TOTAL PRESSURE AND VAPOR PHASE COMPOSITION) FOR UP TO TEN
C     OBJECTIVE FUNCTIONS.  INCLUDE GRAND MEAN ABSOLUTE DEVIATIONS IN
C     BOTH TOTAL PRESSURE AND VAPOR PHASE COMPOSITION.  ALSO INCLUDE, IF
C     NECESSARY, A LISTING OF ALL SYSTEMS FOR WHICH LSQ2 EXCEEDED ITS
C     MAXIMUM NUMBER OF ITTERATIONS.
C
      ENTRY HOLD1
      DO 299 MD=MDGO,MDEND
      PTOT(MD) = 0.0
      Y1TOT(MD) = 0.0
      DO 298 N=1,NSYSTM
      PTOT(MD) = PTOT(MD) + MEANP(MD,N)
      Y1TOT(MD) = Y1TOT(MD) + MEANY1(MD,N)
  298 CONTINUE
      PTOT(MD) = PTOT(MD) / NSYSTM
      Y1TOT(MD) = Y1TOT(MD) / NSYSTM
  299 CONTINUE
      MDGO4 = MDGO + 4
      MDGO5 = MDGO + 5
      IF (MDGO4 .GT. MDEND) MDGO4 = MDEND
      WRITE (6,401)
      WRITE (6,402) (MD,MD=MDGO,MDGO4)
      DO 201 N=1,NSYSTM
  201 WRITE (6,403) NAME(N),((PARAM(MD,I,N),I=1,2),MD=MDGO,MDGO4)
```

```
      IF (MDGO4 .EQ. MDEND) GO TO 203
      WRITE (6,402) (MD,MD=MDGO5,MDEND)
      DO 202 N=1,NSYSTM
  202 WRITE (6,403) NAME(N),((PARAM(MD,I,N),I=1,2),MD=MDGO5,MDEND)
  203 WRITE (6,404)
      WRITE (6,405) (MD,MD=MDGO,MDEND)
      DO 204 N=1,NSYSTM
  204 WRITE (6,406) NAME(N),(OBJFUN(MD,N),MD=MDGO,MDEND)
      WRITE (6,407)
      WRITE (6,405) (MD,MD=MDGO,MDEND)
      DO 205 N=1,NSYSTM
  205 WRITE (6,408) NAME(N),(MEANP(MD,N),MD=MDGO,MDEND)
      WRITE (6,411) (PTOT(MD),MD=MDGO,MDEND)
      WRITE (6,409)
      WRITE (6,405) (MD,MD=MDGO,MDEND)
      DO 206 N=1,NSYSTM
  206 WRITE (6,410) NAME(N),(MEANY1(MD,N),MD=MDGO,MDEND)
      WRITE (6,412) (Y1TOT(MD),MD=MDGO,MDEND)
      IF (IERR .EQ. 0) GO TO 300
      WRITE (6,413)
      WRITE (6,414) (LSQLIM(I),I=1,IERR)
  300 IF (NPUNCH .EQ. 0) RETURN
      DO 301 MD=MDGO,MDEND
      DO 301 I=1,2
      WRITE (7,501) MD,I
      DO 301 N=1,NSYSTM,6
      JSTOP = N + 5
      IF (JSTOP .GT. NSYSTM) JSTOP = NSYSTM
      WRITE (7,502) (PARAM(MD,I,J),J=N,JSTOP)
  301 CONTINUE
      RETURN
      ENTRY HOLDO
      DO 601 I=1,10
      DO 601 J=1,2
      DO 601 K=1,300
  601 PARAM(I,J,K) = 0.0
      RETURN
  401 FORMAT (1H1,52X,'PARAMETER SUMMARY'/53X,17('*'))
  402 FORMAT (//1X,'ID NO.',49X,'MODEL NUMBER'/7X,5(10X,I2,10X)/)
  403 FORMAT (2X,A4,1X,5(2X,F8.2,2X,F8.2,2X))
  404 FORMAT (1H1,48X,'OBJECTIVE FUNCTION SUMMARY'/49X,26('*'))
  405 FORMAT (//1X,'ID NO.',49X,'MODEL NUMBER'/7X,10(5X,I2,5X)/)
  406 FORMAT (2X,A4,1X,10(1X,E10.4,1X))
  407 FORMAT (1H1,37X,'SUMMARY OF MEAN ABSOLUTE DEVIATIONS IN ',
     1        'PRESSURE'/38X,47('*'))
  408 FORMAT (2X,A4,1X,10(3X,F7.2,2X))
  409 FORMAT (1H1,28X,'SUMMARY OF MEAN ABSOLUTE DEVIATIONS IN ',
     1        'VAPOR COMPOSITION X 1000'/30X,63('*'))
  410 FORMAT (2X,A4,1X,10(3X,F6.2,3X))
  411 FORMAT (/1X,'AVERAGE',2X,F7.2,2X,9(3X,F7.2,2X))
  412 FORMAT (/1X,'AVERAGE',2X,F6.2,3X,9(3X,F6.2,3X))
  413 FORMAT (1H1,2X,'LISTING OF SYSTEMS FOR WHICH MAXIMUM NUMBER OF ',
     1        'ITTERATIONS IN LSQ2 WERE EXCEEDED'//)
  414 FORMAT (10(3X,A4))
```

```
      501 FORMAT (5X,'THE FOLLOWING CARDS CONTAIN VALUES FOR MODEL ',I2,
     1         ' PARAMETER ',I1)
      502 FORMAT (5X,'A',9X,6(F8.2,','))
          END
```

```
      SUBROUTINE STUDY(*)
      COMMON/GRP1/NSYSTM,NAME(300),TITLE(20),ID(2),NCASE
      COMMON/GRP14/NPUNCH,NREG,NSTUDY,NTRANS,ICASE,LS,ICOUNT,NPASS
      COMMON/GRP17/B1INIT,B2INIT
C
C     WHEN MULTIPLE ROOTS ARE SUSPECTED, INITIATE CASE STUDIES OF THE
C     BINARY VLE DATA COMMENCING FROM TEN SETS OF INITIAL STARTING
C     VALUES (AS SPECIFIED IN THE DATA WORDS).  UNDER THIS SPECIAL SET
C     OF CIRCUMSTANCES, ALL MODELS ARE EVALUATED FROM THE SAME SET OF
C     INITIAL GUESSES (IN LIEU OF USING THE FINAL VALUE FROM MODEL I AS
C     THE INITIAL GUESS FOR MODEL I+1).
C
      DIMENSION PARAM1(10),PARAM2(10)
      DATA PARAM1/0.0,2000.0,500.0,1000.0,-1000.0,-1500.0,0.0,3000.0,
     1            3500.,2500.0/
      DATA PARAM2/0.0,500.0,1000.0,-1500.0,-500.0,1500.0,3000.0,2000.0,
     1            -500.0,-2000.0/
      DATA IBLNK/4H    /
      IF (ICASE .EQ. 10) RETURN 1
      ICASE = ICASE + 1
      IF (ICASE .EQ. 1) GO TO 101
C
C     AFTER THE FIRST CASE STUDY (ICASE = 1), INCREMENT DATA HISTORY,
C     BUT STORE A BLANK FOR THE SYSTEM NAME.
C
      NSYSTM = NSYSTM + 1
      NAME(NSYSTM) = IBLNK
  101 B1INIT = PARAM1(ICASE)
      B2INIT = PARAM2(ICASE)
      RETURN
      END
```

200.

```
      SUBROUTINE LIMITS
      COMMON/GRP2/MDINIT,MDEND,NDATA
      COMMON/GRP3/X1(75),X2(75),Y1(75),Y2(75),P(75),TT(75),TABS(75)
      COMMON/GRP10/G1EXP(75),G2EXP(75),LNG1G2(75),W1,W2
      COMMON/GRP24/TMIN(75),TMAX(75),G2MIN(75),G2MAX(75),NROOT(75)
C
C     THIS SUBROUTINE DETERMINES WHETHER OR NOT THREE ROOTS ACTUALLY
C     EXIST FOR EACH EXPERIMENTAL DATA POINT BY CHECKING THE EXPERI-
C     MENTAL VALUES OF GAMMA 2 AGAINST THE MINIMUM AND MAXIMUM VALUES
C     ALLOWABLE FOR GAMMA 2 WISTHIN WHICH MULTIPLE ROOTS MAY EXIST.  THE
C     LOCUS OF ALL VALUES OF GAMMA 2 IS GIVEN BY THE FUNCTION G2, WHICH
C     IS EVALUATED FOR THE RELATIVE MINIMA AND MAXIMA AT THE VALUES OF T
C     DETERMINED BY SUBROUTINE RANGE.
C
      INTEGER YESNO
      DIMENSION YESNO(3)
      DATA YESNO/4H YES,4H NO ,4H    /
      DO 101 I=1,NDATA
      NROOT(I) = YESNO(1)
      IAREA = 1
      G1 = G1EXP(I)
      CALL RANGE(G1,T1,T2,&105)
      TMIN(I) = T1
      TMAX(I) = T2
      R = -X1(I) / X2(I)
      T = T1
      GO TO 103
  102 T = T2
  103 ARG = T * G1
      G2 = (1.0 + (R*(((T-X1(I))/T)-ALOG(ARG)))) * (ARG**R) / X2(I)
      IF (IAREA .EQ. 2) GO TO 104
      G2MIN(I) = G2
      IAREA = 2
      GO TO 102
  104 G2MAX(I) = G2
      IF ((G2EXP(I) .LT. G2MIN(I)) .OR. (G2EXP(I) .GT. G2MAX(I)))
     1   NROOT(I) = YESNO(2)
      GO TO 101
  105 TMIN(I) = 0.0
      TMAX(I) = 0.0
      G2MIN(I) = 0.0
      G2MAX(I) = 0.0
      NROOT(I) = YESNO(3)
  101 CONTINUE
      RETURN
      END
```

```
      SUBROUTINE RANGE(G1,T1,T2,*)
C
C     FOR BINARY SYSTEMS WITH NEGATIVE DEVIATIONS FROM IDEALITY, THREE
C     SETS OF WILSON PARAMETERS MAY BE OBTAINED FOR THE GIVEN EXPERI-
C     MENTAL DATA.  A PLOT OF THE ACTIVITY COEFFICIENT OF COMPONENT 2
C     (GAMMA 2) AGAINST A TRANFORMED VERSION OF THE WILSON PARAMETERS
C     WILL SHOW A RELATIVE MINIMA AND A RELATIVE MAXIMA UNDER THESE
C     CIRCUMSTANCES.  FUNCTION F IS THE LOCUS OF ALL POSSIBLE VALUES
C     THAT GAMMA 1 CAN TAKE ON AS A FUNCTION OF THE TRANSFORMED WILSON
C     PARAMETER T.  INTERVAL BISECTION IS USED TO LOCATE THE VALUES OF
C     T THAT CORRESPOND TO THE RELATIVE MINIMA (I.E., T1) AND THE RELA-
C     TIVE MAXIMA (I.E., T2) FOR EACH EXPERIMENTAL DATA POINT.  WHETHER
C     OR NOT THREE PARAMETER VALUES (I.E., ROOTS) ACTUALLY DO EXIST WILL
C     DEPEND ON WHETHER OR NOT THE EXPERIMENTAL VALUES OF GAMMA 2 LIE
C     WITHIN THE LIMITS IMPOSED ON GAMMA 2 VALUES BY T1 AND T2.  THIS
C     IS DETERMINED BY THE CALLING SUBROUTINE (I.E., SUBROUTINE LIMITS).
C
      IF (G1 .GT. 1.0) RETURN 1
      IAREA = 1
      TA = 0.4
      FACTOR = 0.5
  101 TA = TA * FACTOR
  102 F = EXP((TA - 1.0) / TA) / TA
      IF (F .GT. G1) GO TO 101
      TB = 1.0
  103 T = (TA + TB) / 2.0
      F = EXP((T - 1.0) / T) / T
      IF (ABS(F - G1) .LT. 0.00001) GO TO 106
      IF (F .GT. G1) GO TO 105
  104 TA = T
      GO TO 103
  105 TB = T
      GO TO 103
  106 IF (IAREA .EQ. 2) GO TO 107
      T1 = T
      IAREA = 2
      TA = 5.0
      FACTOR = 2.0
      GO TO 101
  107 T2 = T
      RETURN
      END
```

```
      SUBROUTINE VLELIB
      COMMON/GRP1/NSYSTM,NAME(300),TITLE(20),ID(2),NCASE
      COMMON/GRP2/MDINIT,MDEND,NDATA
      COMMON/GRP5/TC(3),PC(3),VC(3),OMEGA(3),OMEGAH(3),DIPOLE(3),ETA(3)
      COMMON/GRP6/AP1,BP1,CP1,AP2,BP2,CP2,AV1,BV1,CV1,AV2,BV2,CV2
      COMMON/GRP7/T1(2),V1(2),T2(2),V2(2),T3(2),V3(2)
      COMMON/GRP15/NP1,NP2,NBP1,NBP2,IORDER
      INTEGER A17
      REAL NBP1,NBP2
      DIMENSION A1(60),A2(60),A3(60),A4(60),A5(60),A6(60),A7(60),A8(60),
     1          A9(60),A10(60),A11(60),A12(60),A13(60),A14(60),A15(60),
     2          A16(60),A17(60),A18(60)
C
C     ALL PURE COMPONENT DATA REQUIRED FOR SUBSEQUENT CALCULATIONS ARE
C     STORED IN THIS LIBRARY SUBROUTINE.
C
      DATA A1/594.8,508.7,547.9,699.2,562.0,556.4,0.0,  536.6,553.2,
     1        585.2,516.0,523.3,503.9,467.0,656.0,540.2,542.2,507.9,
     2        555.3,544.1,484.3,508.5,513.2,506.9,0.0,  572.3,532.8,
     3        533.2,575.1,497.9,504.4,692.2,594.0,647.4,500.3,616.3,
     4        540.7,504.0,632.1,0.0,  568.8,594.5,562.9,617.7,617.2,
     5        500.1,  0.0,545.2,525.2,520.3,559.2,579.2,541.2,647.2,
     6        744.0,632.4,4*0.0/
      DATA A2/57.1,46.6,47.7,52.4,48.6,45.0,0.00,54.0,40.0,50.7,63.0,
     1        37.8,55.3,36.2,38.4,27.0,28.0,29.9,19.8,25.4,38.0,47.0,
     2        78.5,46.3,0.00,34.3,37.4,39.5,36.1,29.9,30.8,60.5,40.0,
     3        218.3,31.0,34.6,51.0,32.1,38.1,0.00,24.5,27.5,43.6,20.7,
     4        37.0,28.4,0.00,56.5,41.4,27.4,41.8,64.5,51.2,44.2,54.8,
     5        44.6,4*0.0/
      DATA A3/171.3,213.5,173.1,296.8,260.1,279.6,0.0,  276.0,311.2,
     1        244.7,161.3,286.0,214.9,284.0,375.2,431.9,404.5,372.4,
     2        596.4,468.9,272.4,218.5,118.0,228.0,0.0,  372.4,319.0,
     3        288.4,338.5,367.3,367.0,229.5,331.1,55.2,358.0,369.4,
     4        220.0,350.7,347.6,0.0, 493.1,390.9,223.3,620.0,366.0,
     5        382.0,0.0,  203.1,265.7,420.0,285.2,191.4,223.9,264.8,
     6        311.0,307.8,4*0.0/
      DATA A4/0.444,0.309,0.321,0.383,0.211,0.193,0.0,  0.214,0.210,
     1        0.288,0.637,0.373,0.0,  0.283,0.292,0.349,0.347,0.298,
     2        0.398,0.303,0.175,0.663,0.557,0.326,0.0,  0.235,0.231,
     3        0.337,0.400,0.278,0.276,0.449,0.241,0.344,0.247,0.324,
     4        0.612,0.285,0.446,0.0,  0.394,0.243,0.667,0.490,0.301,
     5        0.350,0.0,  0.568,0.0,  0.306,0.205,0.235,0.211,0.0,
     6        0.148,0.252,4*0.0/
      DATA A5/0.187,0.187,0.152,0.211,2*0.0,0.0,  0.187,2*0.0,0.152,
     1        0.278,0.152,0.252,0.270,6*0.0,0.187,0.105,0.215,0.000,
     2        2*0.0,0.215,0.302,2*0.0,0.241,0.0,0.010,2*0.0,0.201,0.0,
     3        0.275,3*0.0,0.252,2*0.0,0.306,0.279,0.187,0.278,2*0.0,
     4        0.193,0.192,0.227,0.338,0.241,4*0.0/
      DATA A6/1.75,2.88,3.94,1.53,2*0.0,1.63,1.02,2*0.0,1.69,1.78,2.03,
     1        1.16,2.00,6*0.0,1.60,1.66,1.72,0.0, 2*0.0,2.70,1.65,2*0.0,
     2        1.45,0.0,1.85,2*0.0,1.68,2*0.0,3.83,2*0.0,1.65,0.0,0.0,
     3        2*0.0,1.60,1.35,0.0,0.0, 1.35,2*0.0,2.1,1.7,4*0.0/
      DATA A7/7*0.0,0.28,2*0.0,1.10,0.50,0.0,0.28,8*0.0,1.21,0.62,4*0.0,
     1        0.50,7*0.0,0.57,5*0.0,0.45,17*0.0/
```

```
      DATA A8/7.18807,7.02000,7.07354,7.24179,6.90565,6.9339,7.8844,
     1        6.90328,6.84498,7.43155,8.04494,7.09808,6.91995,7.75666,
     2      8.7299,6.9024,6.93364,6.87776,6.8353,6.81189,6.90334,6.6604,
     3        7.87863,6.98944,8.329819,6.82689,6.86283,6.97421,6.8256,
     4        6.8391,6.84887,7.57893,6.95334,7.96681,6.80983,6.99052,
     5        7.99733,6.86572,6.98716,7.851016,6.92377,6.87041,7.36366,
     6        6.95367,6.95719,7.904664,9.687948,9.143231,8.242088,
     7        6.82621,6.88617,6.95222,6.99515,6.99608,7.8876,7.717535,
     8        6.99397,3*0.0/
      DATA A9/1416.7,1161.0,1279.2,1675.3,1211.033,1242.43,1742.96,
     1        1163.03,1203.526,1554.679,1554.3,1238.71,1090.81,
     2        1517.74,2537.79,1268.115,1290.2,1171.53,1324.049,1257.84,
     3        1080.996,813.055,1473.11,1111.04,2161.8,1272.864,
     4        1186.059,1209.6,1256.7, 1135.41,1152.368,1817.0,1343.943,
     5        1668.21,1127.187,1453.43,1569.7,1152.971,1502.3,1735.2,
     6        1355.126,1384.036,1305.198,1501.268,1424.255,1699.34,
     7        2730.79,2311.23,1850.78,1192.041,1229.973,1247.8,1202.29,
     8        1437.84,1890.38,1981.21,1462.639,3*0.0/
      DATA A10/211.0,224.0,224.0,200.0,220.79,230.,213.33,227.4,222.863,
     1         240.337,222.65,217.0,231.71,2*273.15,216.9,220.0,224.366,
     2         210.737,220.735,234.668,132.93,230.,213.51,273.15,221.63,
     3         226.042,216.0,202.4,226.572,227.129,205.0,219.377,228.0,
     4         228.9,215.307,209.5,226.0,209.0,273.15,209.517,215.128,
     5         173.427,194.48,213.206,4*273.15,221.634,224.104,223.0,
     6         226.254,199.83,180.46,273.15,211.6,3*0.0/
      DATA A11/293.15,228.15,3*273.15,127.61,293.15,209.85,288.15,
     1         293.15,6*273.15,293.15,273.15,293.15,5*273.15,298.15,
     2         303.15,2*273.15,293.15,2*273.15,323.15,303.15,277.13,
     3         273.15,2*293.15,273.15,2*293.15,273.15,293.15,273.15,
     4         253.15,273.15,2*293.15,2*273.15,298.15,288.15,293.15,
     5         3*273.15,293.15,288.15,3*0.0/
      DATA A12/57.232,67.38,51.092,89.634,86.783,50.979,96.8,72.661,
     1         107.47,85.24,57.141,95.318,73.141,100.679,81.348,143.045,
     2         140.02,127.301,181.35,161.373,97.023,75.019,39.556,
     3         77.221,79.4,129.116,109.67,87.336,124.935,128.385,
     4         126.411,89.68,107.415,18.06,126.8,123.73,74.785,121.97,
     5         106.22,65.83,158.97,142.48,89.873,192.18,119.82,140.77,
     6         108.96,66.76,88.49,149.82,107.47,78.97,79.06,72.01,122.2,
     7         101.73,96.87,3*0.0/
      DATA A13/373.15,273.15,288.15,373.15,323.15,158.16,353.15,273.15,
     1         306.3,333.15,323.15,2*373.15,303.15,298.15,323.15,298.15,
     2         323.15,298.15,323.15,4*373.15,333.15,333.85,303.15,
     3         333.15,329.15,288.15,293.15,373.15,353.15,323.15,303.15,
     4         393.15,343.15,373.15,353.15,298.15,333.15,353.15,343.15,
     5         333.15,353.15,0.0,   0.0,   2*373.15,323.15,306.3,298.15,
     6         3*373.15,303.15,298.15,3*0.0/
      DATA A14/62.55,71.483,52.13,97.785,92.263,56.454,104.1,78.218,
     1         109.841,89.3,60.356,110.522,86.492,105.599,83.229,
     2         152.303,140.884,136.388,182.38,171.27,116.031,85.234,
     3         44.874,90.111,82.3,133.833,113.81,94.5,129.506,130.96,
     4         129.78,93.79,113.717,18.278,132.06,138.23,78.962,143.37,
     5         112.6,66.29,170.63,152.1,97.8,208.99,130.74,0.0,   0.0,
     6         74.94,102.26,154.06,109.841,79.43,90.13,81.03,135.0,
     7         102.73,97.87,3*0.0/
```

```
      DATA A15/473.15,323.15,303.15,473.15,373.15,188.72,413.15,303.15,
     1          352.35,2*373.15,2*473.15,333.15,323.15,373.15,303.15,
     2          373.15,303.15,373.15,4*473.15,373.15,372.65,2*373.15,
     3          383.15,293.15,313.15,423.15,400.,373.15,333.15,493.15,
     4         393.15,473.15,433.15,0.0,   393.15,2*413.15,423.15,473.15,
     5          0.0,  0.0,   2*473.15,348.15,352.35,0.0,   3*473.15,
     6          313.15,4*0.0/
      DATA A16/72.646,76.826,53.214,108.291,98.537,65.061,114.0,81.185,
     1          116.63,93.9,64.371,141.881,114.716,113.472,85.147,
     2          163.619,141.759,148.211,183.42,184.822,177.833,114.023,
     3          57.939,121.443,86.0,140.609,126.2,100.0,137.999,131.842,
     4          133.437,98.64,120.879,18.844,138.03,161.09,84.515,193.47,
     5          124.1,0.0,   185.182,163.9,108.7,233.56,154.3,0.0,   0.0,
     6          92.48,130.26,157.98,116.63,0.0,   115.92,93.11,154.11,
     7          103.76,4*0.0/
      DATA A17/4*1,0,0,1,1,0,0,5*1,6*0,4*1,0,0,1,1,0,0,1,0,1,0,0,1,0,1,
     1          3*0,1,0,0,4*1,0,0,1,0,0,0,1,4*0/
      DATA A18/118.1,56.5,81.8,184.4,80.1,76.8,135.0,61.3,80.7,101.1,
     1          78.4,77.1,38.4,34.6,161.8,98.4,98.0,68.7,124.1,99.2,34.1,
     2          82.5,64.7,57.8,124.0,100.9,71.8,79.6,116.188,60.3,63.3,
     3          181.9,110.6,100.0,58.0,138.35,97.2,63.485,156.85,77.3,
     4          125.665,131.783,118.0,174.123,136.186,68.3,132.0,97.1,
     5          72.7,80.5,82.979,83.47,65.965,149.56,196.0,132.1,144.0,
     6          3*0.0/
      INDEX = ID(1)
      NBP1 = A18(INDEX)
      INDEX = ID(2)
      NBP2 = A18(INDEX)
      IF (NBP1 .GT. NBP2) CALL SORT
      DO 101 L=1,2
      INDEX = ID(L)
      TC(L) = A1(INDEX)
      PC(L) = A2(INDEX)
      VC(L) = A3(INDEX)
      OMEGA(L) = A4(INDEX)
      OMEGAH(L) = A5(INDEX)
      DIPOLE(L) = A6(INDEX)
      ETA(L) = A7(INDEX)
      T1(L) = A11(INDEX)
      V1(L) = A12(INDEX)
      T2(L) = A13(INDEX)
      V2(L) = A14(INDEX)
      T3(L) = A15(INDEX)
      V3(L) = A16(INDEX)
  101 CONTINUE
      INDEX = ID(1)
      AP1 = A8(INDEX)
      BP1 = A9(INDEX)
      CP1 = A10(INDEX)
      NP1 = A17(INDEX)
      NBP1 = A18(INDEX)
      INDEX = ID(2)
      AP2 = A8(INDEX)
      BP2 = A9(INDEX)
```

```
      CP2 = A10(INDEX)
      NP2 = A17(INDEX)
      NBP2 = A18(INDEX)
      RETURN
      END
```

```
      SUBROUTINE SORT
      COMMON/GRP1/NSYSTM,NAME(300),TITLE(20),ID(2),NCASE
      COMMON/GRP2/MDINIT,MDEND,NDATA
      COMMON/GRP3/X1(75),X2(75),Y1(75),Y2(75),P(75),T(75),TABS(75)
      COMMON/GRP15/NP1,NP2,NBP1,NBP2,IORDER
      COMMON/GRP17/B1INIT,B2INIT
C
C     IF THE DATA IS READ INTO SUBROUTINE INPUT SUCH THAT COMPONENT 1 IS
C     NOT THE MORE VOLATILE COMPONENT, THEN THIS SUBROUTINE IS CALLED
C     UPON (BY SUBROUTINE VLELIB) TO REVERSE THE ORDER OF THE VLE DATA.
C
      DO 101 K=1,NDATA
      X1(K) = 1.0 - X1(K)
      Y1(K) = 1.0 - Y1(K)
  101 CONTINUE
      TEMP = B1INIT
      B1INIT = B2INIT
      B2INIT = TEMP
      TEMP = ID(1)
      ID(1) = ID(2)
      ID(2) = TEMP
      IORDER = 1
      RETURN
      END
```

```
      SUBROUTINE IDEAL(KEND,*)
      COMMON/GRP3/X1(75),X2(75),Y1(75),Y2(75),P(75),T(75),TABS(75)
      COMMON/GRP8/B11(75),B22(75),B12(75)
C
C     IF DATA WITH WHICH TO CALCULATE THE VIRIAL COEFFICIENTS ARE NOT
C     AVAILABLE FROM VLELIB, ASSUME THAT THE IDEAL GAS STATE PREVAILS.
C     THIS IS ACCOMPLISHED BY SETTING ALL VIRIAL COEFFICIENTS TO ZERO.
C     THIS SUBROUTINE ALSO CALCULATES THE ABSOLUTE TEMPERATURE, A TASK
C     NORMALLY PERFORMED IN SUBROUTINE VIRIAL.
C
      DO 101 K=1,KEND
      TABS(K) = T(K) + 273.15
      B11(K) = 0.0
      B22(K) = 0.0
  101 B12(K) = 0.0
      RETURN 1
      END
```

```
      SUBROUTINE VIRIAL(KEND)
      COMMON/GRP3/X1(75),X2(75),Y1(75),Y2(75),P(75),T(75),TABS(75)
      COMMON/GRP5/TC(3),PC(3),VC(3),OMEGA(3),OMEGAH(3),DIPOLE(3),ETA(3)
      COMMON/GRP8/B11(75),B22(75),B12(75)
      COMMON/GRP15/NP1,NP2,NBP1,NBP2,IORDER
C
C     CALCULATE THE SECOND VIRIAL COEFFICIENTS FROM THE O'CONNELL-
C     PRAUSNITZ MODIFICATION OF THE PITZER-CURL CORRELATION.  TRUNCATE
C     THE VIRIAL EQUATION AFTER THE SECOND TERM.
C
      DIMENSION C(50,3)
      TC(3) = (TC(1) * TC(2)) ** 0.5
      VC(3) = (((VC(1) ** 0.33333) + (VC(2) ** 0.33333)) ** 3) / 8.0
      PC(3)=(((PC(1)*VC(1)/TC(1))+(PC(2)*VC(2)/TC(2)))*TC(3))/(2.*VC(3))
      IF (NP1 - NP2) 103,100,102
  100 IF (NP1 .EQ. 1) GO TO 104
  101 OMEGA(3) = (OMEGA(1) + OMEGA(2)) / 2.0
      GO TO 105
  102 OMEGA(3) = (OMEGAH(1) + OMEGA(2)) / 2.0
      GO TO 105
  103 OMEGA(3) = (OMEGA(1) + OMEGAH(2)) / 2.0
      GO TO 105
  104 OMEGAH(3) = (OMEGAH(1) + OMEGAH(2)) / 2.0
  105 DIPOLE(3) = (DIPOLE(1) * DIPOLE(2)) ** 0.5
      ETA(3) = (ETA(1) + ETA(2)) / 2.0
  106 DO 201 J=1,3
      DO 201 K=1,KEND
      TABS(K) = T(K) + 273.15
      TR1 = TABS(K) / TC(J)
      TR2 = TR1 ** 2
      TR3 = TR1 ** 3
      TR8 = TR1 ** 8
      FB0 = 0.1445 - (0.33/TR1) - (0.1385/TR2) - (0.0121/TR3)
      FB1 = 0.073 + (0.46/TR1) - (0.5/TR2) - (0.097/TR3) - (0.0073/TR8)
      IF (DIPOLE(J) .EQ. 0.0) GO TO 202
      W = OMEGAH(J)
      RD = (1.0E05) * (DIPOLE(J) ** 2) * PC(J) / (TC(J) ** 2)
      IF (RD .LE. 4.0) GO TO 203
      A1 = ALOG(RD)
      A2 = A1 ** 2
      A3 = A1 ** 3
      FBMU = - 5.23722 + (5.665807*A1) - (2.133816*A2) + (0.2525373*A3)
     1       + ((5.76977 - (6.181427*A1) + (2.28327*A2) -
     2       (0.2649074*A3)) / TR1)
      IF (ETA(J) .EQ. 0.0) GO TO 204
      FBA =-EXP(6.6 * (0.7 - TR1))
      GO TO 205
  202 W = OMEGA(J)
  203 FBMU = 0.0
  204 FBA = 0.0
  205 C(K,J) = (FB0+(W*FB1)+FBMU+(ETA(J)*FBA)) * 82.057 * TC(J) / PC(J)
  201 CONTINUE
  301 DO 302 K=1,KEND
      B11(K) = C(K,1)
```

```
      B22(K) = C(K,2)
  302 B12(K) = C(K,3)
      RETURN
      END
```

```
      SUBROUTINE RSTATE(KEND)
      COMMON/GRP1/NSYSTM,NAME(300),TITLE(20),ID(2),NCASE
      COMMON/GRP3/X1(75),X2(75),Y1(75),Y2(75),P(75),T(75),TABS(75)
      COMMON/GRP4/V1(75),V2(75),RT(75)
      COMMON/GRP6/AP1,BP1,CP1,AP2,BP2,CP2,AV1,BV1,CV1,AV2,BV2,CV2
      COMMON/GRP8/B11(75),B22(75),B12(75)
      COMMON/GRP9/F1OL(75),F2OL(75),PHI1(75),PHI2(75)
      COMMON/GRP11/G1INF,G2INF,T1INF,T2INF
      COMMON/GRP13/X,APOS,ANEG,D,JFACT,CI
      DIMENSION P1(75),P2(75)
      REAL JFACT
C
C     ALL REFERENCE DATA REQUIRED FOR FURTHER OPERATIONS ARE CALCULATED
C     IN THIS SUBROUTINE.  DATA REQUIRED BY THE HERRINGTON TEST FOR
C     THERMODYNAMIC CONSISTANCY IS ALSO DEVELOPED HERE.  IF ISOTHERMAL
C     DATA (CONTROL PARAMETER NCASE EQUAL TO UNITY) ARE BEING DEVELOPED,
C     THE DO LOOP IS ITERATED ONLY ONCE (CONTROL PARAMETER KEND EQUAL
C     TO UNITY); ONLY THE FIRST ELEMENT OF EACH OF THE ARRAYS ARE FILLED
C     IN WITH DATA.  SUBROUTINE TCONST MUST BE CALLED UPON TO COMPLETE
C     THE ARRAYS.
C
      TMIN = T(1)
      TMAX = T(1)
  100 DO 101 K=1,KEND
      X2(K) = 1.0 - X1(K)
      Y2(K) = 1.0 - Y1(K)
      V1(K) = AV1 + (BV1 * TABS(K)) + (CV1 * (TABS(K) ** 2))
      V2(K) = AV2 + (BV2 * TABS(K)) + (CV2 * (TABS(K) ** 2))
      P1(K) = 10.0 ** (AP1 - (BP1 / (CP1 + T(K))))
      P2(K) = 10.0 ** (AP2 - (BP2 / (CP2 + T(K))))
      RT(K) = 82.057 * 760.0 * TABS(K)
      POYNT1 = EXP(-P1(K) * V1(K) / RT(K))
      POYNT2 = EXP(-P2(K) * V2(K) / RT(K))
      PORT1 = P1(K) / RT(K)
      PORT2 = P2(K) / RT(K)
      ARG1 = 0.25 + (PORT1 * B11(K))
      ARG2 = 0.25 + (PORT2 * B22(K))
      IF ((ARG1 .LT. 0.0) .OR. (ARG2 .LT. 0.0)) GO TO 301
      V1S = (0.5 + (ARG1 ** 0.5)) / PORT1
      V2S = (0.5 + (ARG2 ** 0.5)) / PORT2
      PHI1S = EXP(2.0 * B11(K) / V1S) / (PORT1 * V1S)
      PHI2S = EXP(2.0 * B22(K) / V2S) / (PORT2 * V2S)
      F1OL(K) = PHI1S * P1(K) * POYNT1
      F2OL(K) = PHI2S * P2(K) * POYNT2
      IF (T(K) .LT. TMIN) TMIN = T(K)
      IF (T(K) .GT. TMAX) TMAX = T(K)
  101 CONTINUE
      IF (KEND .EQ. 1) GO TO 103
      PB = P(1)
      TBP1 = (BP1 / (AP1 - ALOG10(PB))) - CP1
      TBP2 = (BP2 / (AP2 - ALOG10(PB))) - CP2
      T1INF = TBP2 + 273.15
      T2INF = TBP1 + 273.15
      IF (TBP1 .GT. TBP2) GO TO 302
```

```
  102 IF (TBP1 .LT. TMIN) TMIN = TBP1
      IF (TBP2 .GT. TMAX) TMAX = TBP2
      JFACT = 150.0 * (TMAX - TMIN) / (TMIN + 273.15)
      RETURN
  103 T1INF = T(1) + 273.15
      T2INF = T1INF
      JFACT = 0.0
      RETURN
  301 WRITE (6,201) TITLE
      WRITE (6,203)
      CALL IDEAL(KEND,&100)
  302 WRITE (6,201) TITLE
      WRITE (6,202)
      GO TO 102
  201 FORMAT (1H1,20A4)
  202 FORMAT (1H1,4X,'**DIAGNOSTIC**'/12X,'ANTOINE EQUATION YIELDS ',
     1        'BOILING POINT OF COMPONENT 1 GREATER THAN THAT OF ',
     2        'COMPONENT 2'/12X,'NO CORRECTIVE ACTION HAS BEEN TAKEN')
  203 FORMAT (1H0,4X,'**DIAGNOSTIC**'/12X,'ERROR CONDITION OBSERVED IN',
     1        ' SUBROUTINE RSTATE'/12X,'DISCRIMINANT REQUIRED IN CALCU',
     2        'LATION OF PURE COMPONENT MOLAR VOLUME AT SATURATION ',
     3        'TEMPERATURE IS NEGATIVE'/12X,'CALCULATIONS DEFAULT TO ',
     4        'IDEAL GAS STATE TO CORRECT THIS CONDITION')
       END
```

```
      SUBROUTINE TCONST
      COMMON/GRP2/MDINIT,MDEND,NDATA
      COMMON/GRP3/X1(75),X2(75),Y1(75),Y2(75),P(75),T(75),TABS(75)
      COMMON/GRP4/V1(75),V2(75),RT(75)
      COMMON/GRP8/B11(75),B22(75),B12(75)
      COMMON/GRP9/F1OL(75),F2OL(75),PHI1(75),PHI2(75)
C
C     WHEN ISOTHERMAL (CONTROL PARAMETER NCASE EQUAL TO UNITY) DATA ARE
C     BEING DEVELOPED, THEN VARIABLES DEPENDENT ON TEMPERATURE ALONE
C     TAKE ON ONLY ONE VALUE THROUGH EACH OF THE DATA POINTS.  THUS THE
C     ARRAYS OF INTEREST CAN BE FILLED WITH VALUES EQUAL TO THAT OF THE
C     FIRST ELEMENT OF EACH ARRAY (AS FILLED IN BY SUBROUTINE RSTATE).
C
      DO 101 K=2,NDATA
      X2(K) = 1.0 - X1(K)
      Y2(K) = 1.0 - Y1(K)
      TABS(K) = TABS(1)
      B11(K) = B11(1)
      B22(K) = B22(1)
      B12(K) = B12(1)
      V1(K) = V1(1)
      V2(K) = V2(1)
      RT(K) = RT(1)
      F1OL(K) = F1OL(1)
      F2OL(K) = F2OL(1)
  101 CONTINUE
      RETURN
      END
```

```
      SUBROUTINE ACTCO                                                  214.
      COMMON/GRP2/MDINIT,MDEND,NDATA
      COMMON/GRP3/X1(75),X2(75),Y1(75),Y2(75),P(75),T(75),TABS(75)
      COMMON/GRP4/V1(75),V2(75),RT(75)
      COMMON/GRP8/B11(75),B22(75),B12(75)
      COMMON/GRP9/F1OL(75),F2OL(75),PHI1(75),PHI2(75)
      COMMON/GRP10/G1EXP(75),G2EXP(75),LNG1G2(75),W1,W2
      REAL LNG1G2
C
C     THIS SUBROUTINE CALCULATES THE EXPERIMENTAL VALUES FOR THE
C     ACTIVITY COEFFICIENTS, REDUCED TO ZERO PRESSURE, FROM THE
C     EXPERIMENTAL VLE DATA.
C
      W1 = 0.0
      W2 = 0.0
      DO 101 I=1,NDATA
      PORT = P(I) / RT(I)
      BMIX = ((Y1(I) ** 2) * B11(I)) + (2.0 * Y1(I) * Y2(I) * B12(I)) +
     1       ((Y2(I) ** 2) * B22(I))
      VMIX = (0.5 + ((0.25 + (PORT * BMIX)) ** 0.5)) / PORT
      ZMIX = PORT * VMIX
      PHI1(I)=EXP(((Y1(I) * B11(I)) + (Y2(I) * B12(I))) * 2./VMIX)/ZMIX
      PHI2(I)=EXP(((Y2(I) * B22(I)) + (Y1(I) * B12(I))) * 2./VMIX)/ZMIX
      FACT1 = P(I) * V1(I) / RT(I)
      FACT2 = FACT1 * V2(I) / V1(I)
      G1EXP(I) = (PHI1(I) * Y1(I) * P(I)) / (X1(I) * F1OL(I)*EXP(FACT1))
      G2EXP(I) = (PHI2(I) * Y2(I) * P(I)) / (X2(I) * F2OL(I)*EXP(FACT2))
      LNG1G2(I) = ALOG(G1EXP(I) / G2EXP(I))
      W1 = W1 + ((G1EXP(I) - 1.0) ** 2)
      W2 = W2 + ((G2EXP(I) - 1.0) ** 2)
  101 CONTINUE
      RETURN
      END
```

```
      SUBROUTINE CVFIT
      COMMON/GRP2/MDINIT,MDEND,NDATA
      COMMON/GRP3/X1(75),X2(75),Y1(75),Y2(75),P(75),T(75),TABS(75)
      COMMON/GRP10/G1EXP(75),G2EXP(75),LNG1G2(75),W1,W2
      COMMON/GRP11/G1INF,G2INF,T1INF,T2INF
      COMMON/GRP12/A1,B1,C1,A2,C2,SD1,SD2,NEQ
      DIMENSION R1(50),R2(50)
      REAL LNG1G2
C
C     FIT NATURAL LOG OF RATIO OF EXPERIMENTAL ACTIVITY COEFFICIENTS
C     TO QUADRATIC (OR PARTIAL QUADRATIC) EQUATION.  THE EQUATION IS
C     EXTRAPOLATED TO OBTAIN THE INFINITE DILUTION ACTIVITY COEFFICIENTS
C     FOR USE IN OTHER SUBROUTINES.
C
      SD1 = 0.0
      SD2 = 0.0
      SUM = 0.0
      SUMX = 0.0
      SUMX2 = 0.0
      SUMX3 = 0.0
      SUMX4 = 0.0
      SUMY = 0.0
      SUMYX = 0.0
      SUMYX2 = 0.0
      DO 101 K=1,NDATA
      SUM = SUM + 1.0
      SUMX = SUMX + X1(K)
      SUMX2 = SUMX2 + (X1(K) ** 2)
      SUMX3 = SUMX3 + (X1(K) ** 3)
      SUMX4 = SUMX4 + (X1(K) ** 4)
      SUMY = SUMY + LNG1G2(K)
      SUMYX = SUMYX + (LNG1G2(K) * X1(K))
      SUMYX2 = SUMYX2 + (LNG1G2(K) * (X1(K) ** 2))
  101 CONTINUE
      D = (SUM * ((SUMX2 * SUMX4) - (SUMX3 ** 2))) -
     1    (SUMX * ((SUMX * SUMX4) - (SUMX2 * SUMX3))) +
     2    (SUMX2 * ((SUMX * SUMX3) - (SUMX2 ** 2)))
      DA = (SUMY * ((SUMX2 * SUMX4) - (SUMX3 ** 2))) -
     1     (SUMX * ((SUMYX * SUMX4) - (SUMYX2 * SUMX3))) +
     2     (SUMX2 * ((SUMYX * SUMX3) - (SUMYX2 * SUMX2)))
      DB = (SUM * ((SUMYX * SUMX4) - (SUMYX2 * SUMX3))) -
     1     (SUMY * ((SUMX * SUMX4) - (SUMX2 * SUMX3))) +
     2     (SUMX2 * ((SUMX * SUMYX2) - (SUMYX * SUMX2)))
      DC = (SUM * ((SUMX2 * SUMYX2) - (SUMYX * SUMX3))) -
     1     (SUMX * ((SUMX * SUMYX2) - (SUMYX * SUMX2))) +
     2     (SUMY * ((SUMX * SUMX3) - (SUMX2 ** 2)))
      A1 = DA / D
      B1 = DB / D
      C1 = DC / D
      D = (SUM * SUMX3) - (SUMX2 * SUMX)
      DA = (SUMY * SUMX3) - (SUMX2 * SUMYX)
      DC = (SUM * SUMYX) - (SUMY * SUMX)
      A2 = DA / D
      C2 = DC / D
```

```
      SUMR1 = 0.0
      SUMR2 = 0.0
      DO 102 K=1,NDATA
      R1(K) = LNG1G2(K) - (A1 + (B1 * X1(K)) + (C1 * (X1(K) ** 2)))
      R2(K) = LNG1G2(K) - (A2 + (C2 * (X1(K) ** 2)))
      SUMR1 = SUMR1 + (R1(K) ** 2)
      SUMR2 = SUMR2 + (R2(K) ** 2)
  102 CONTINUE
      IF (SUMR1 .LT. SUMR2) GO TO 103
      NEQ = 2
      G1INF = EXP(A2)
      G2INF = EXP(- A2 - C2)
      GO TO 104
  103 NEQ = 1
      G1INF = EXP(A1)
      G2INF = EXP(- A1 - B1 - C1)
  104 IF (NDATA .LE. 2) RETURN
      IF (NDATA .LE. 3) GO TO 105
      DF = NDATA - 3
      SD1 = (SUMR1 / DF) ** 0.5
  105 DF = NDATA - 2
      SD2 = (SUMR2 / DF) ** 0.5
      RETURN
      END
```

```
      SUBROUTINE TEST
      COMMON/GRP1/NSYSTM,NAME(300),TITLE(20),ID(2),NCASE
      COMMON/GRP12/A1,B1,C1,A2,C2,SD1,SD2,NEQ
      COMMON/GRP13/X,APOS,ANEG,D,JFACT,CI
      REAL JFACT
C
C     CHECK THE THERMODYNAMIC CONSISTANCY OF THE BINARY DATA.  THE
C     HERRINGTON J-FACTOR IS USED FOR ISOBARIC DATA.  THE AREAS ARE
C     DETERMINED BY INTEGRATING THE EQUATION FOR LN(G1/G2) DEVELOPED
C     IN SUBROUTINE CVFIT.
C
      IF (NEQ .EQ. 1) GO TO 101
      ARG = - A2 / C2
      IF (ARG .LT. 0.0) GO TO 201
      X = ARG ** 0.5
      APOS = (A2 * X) + (C2 * (X ** 3) / 3.0)
      ANEG = A2 + (C2 / 3.0) - APOS
      GO TO 105
  101 DISCRM = (B1 ** 2) - (4.0 * A1 * C1)
      IF (DISCRM .LT. 0.0) GO TO 202
      X1 = ( - B1 + (DISCRM ** 0.5)) / (2.0 * C1)
      X2 = ( - B1 - (DISCRM ** 0.5)) / (2.0 * C1)
      IF ((X1 .GT. 0.0) .AND. (X1 .LT. 1.0)) GO TO 102
      IF ((X2 .GT. 0.0) .AND. (X2 .LT. 1.0)) GO TO 103
      GO TO 203
  102 IF ((X2 .GT. 0.0) .AND. (X2 .LT. 1.0)) GO TO 204
      X = X1
      GO TO 104
  103 X = X2
  104 APOS = (A1 * X) + (B1 * (X ** 2) / 2.0) + (C1 * (X ** 3) / 3.0)
      ANEG = A1 + (B1 / 2.0) + (C1 / 3.0) - APOS
  105 D = (APOS + ANEG) / (APOS - ANEG)
      CI = (ABS(D) * 100.0) - JFACT
      RETURN
  201 WRITE (6,300) TITLE
      WRITE (6,301) A2,C2
      WRITE (6,302) ARG
      GO TO 999
  202 WRITE (6,300) TITLE
      WRITE (6,303) A1,B1,C1
      WRITE (6,302) DISCRM
      GO TO 999
  203 WRITE (6,300) TITLE
      WRITE (6,303) A1,B1,C1
      WRITE (6,304) X1,X2
      WRITE (6,305)
      GO TO 999
  204 WRITE (6,300) TITLE
      WRITE (6,303) A1,B1,C1
      WRITE (6,304) X1,X2
      WRITE (6,306)
  999 WRITE (6,307)
      APOS = 0.0
      ANEG = 0.0
```

```
      X = 0.0
      D = 0.0
      JFACT = 0.0
      CI = 0.0
      RETURN
  300 FORMAT (1H1,20A4/)
  301 FORMAT (1H0,4X,'**DIAGNOSTIC**'/12X,'PARTIAL QUADRATIC EQUATION ',
     1        'ACCEPTED AS BEST FIT OF DATA'/12X,'COEFFICIENTS ARE:  ',
     2        'A2 = ',E11.5,'AND C2 = ',E11.5)
  302 FORMAT (12X,'SQUARE ROOT OF NEGATIVE ARGUEMENT REQUIRED TO ',
     1        'OBTAIN X-INTERCEPT'/12X,'VALUE OF REQUIRED ARGUEMENT ',
     2        'IS ',E11.5)
  303 FORMAT (1H0,4X,'**DIAGNOSTIC**'/12X,'FULL QUADRATIC EQUATION ',
     1        'ACCEPTED AS BEST FIT OF DATA'/12X,'COEFFICIENTS ARE:  ',
     2        'A1 = ',E11.5,3X,'B1 = ',E11.5,3X,'C1 = ',E11.5)
  304 FORMAT (12X,'EQUATION SOLVED FOR X-INTERCEPT'/12X,'ROOTS ARE:  ',
     1        'X = ',E11.5,' AND X = ',E11.5)
  305 FORMAT (12X,'NEITHER ROOT IS WITHIN THE RANGE 0 TO 1')
  306 FORMAT (12X,'BOTH ROOTS ARE WITHIN THE RANGE 0 TO 1')
  307 FORMAT (12X,'EXECUTION OF SUBROUTINE TEST IS TERMINATED'/12X,
     1        'EXECUTION OF DATA SET CONTINUES')
      END
```

```
      SUBROUTINE MOLVOL
      COMMON/GRP6/AP1,BP1,CP1,AP2,BP2,CP2,AV1,BV1,CV1,AV2,BV2,CV2
      COMMON/GRP7/T1(2),V1(2),T2(2),V2(2),T3(2),V3(2)
      DIMENSION X(2),Y(2),Z(2)
C
C     FIT PURE COMPONENT LIQUID MOLAR VOULME DATA TO AN EQUATION OF THE
C     FORM     V = AV + (BV * T) + (CV * T * T).  THE EQUATION CAN BE
C     MADE ZEROTH, FIRST, OR SECOND ORDER IN ABSOLUTE TEMPERATURE AS
C     DETERMINED BY THE DATA AVAILABLE IN SUBROUTINE VLELIB.
C
      DO 100 L=1,2
      T12 = T1(L) ** 2
      T22 = T2(L) ** 2
      T32 = T3(L) ** 2
      T2T1 = T2(L) - T1(L)
      T3T1 = T3(L) - T1(L)
      V2V1 = V2(L) - V1(L)
      V3V1 = V3(L) - V1(L)
      IF (V2(L) .EQ. 0.0) GO TO 98
      IF (V3(L) .EQ. 0.0) GO TO 96
      Z(L)=((T3T1*V2V1)-(T2T1*V3V1))/(((T22-T12)*T3T1)-((T32-T12)*T2T1))
      GO TO 97
   96 Z(L) = 0.0
   97 Y(L) = (V2V1 - (Z(L) * (T22 - T12))) / T2T1
      GO TO 99
   98 Z(L) = 0.0
      Y(L) = 0.0
   99 X(L) = V1(L) - (Y(L) * T1(L)) - (Z(L) * T12)
  100 CONTINUE
      AV1 = X(1)
      BV1 = Y(1)
      CV1 = Z(1)
      AV2 = X(2)
      BV2 = Y(2)
      CV2 = Z(2)
      RETURN
      END
```

```
      SUBROUTINE YPCALC(I,*)
      COMMON/GRP3/X1(75),X2(75),Y1(75),Y2(75),P(75),T(75),TABS(75)
      COMMON/GRP4/V1(75),V2(75),RT(75)
      COMMON/GRP9/F1OL(75),F2OL(75),PHI1(75),PHI2(75)
      COMMON/GRP20/G1CALC(75),G2CALC(75),GAMMA1(10,75),GAMMA2(10,75)
      COMMON/GRP22/CALCY1,CALCY2,CALCP
      COMMON/GRP23/FUGCO1,FUGCO2,Y1OLD,Y2OLD,POLD
C
C     THIS SUBROUTINE PERFORMS BUBBLE POINT CALCULATIONS USING THE
C     CURRENT SET OF WILSON PARAMETERS.  IT IS CALLED BY SUBROUTINE FN
C     FOR USE WITH OBJECTIVE FUNCTION MODELS 5, 6 AND 8.  CONVERGENCE IS
C     OBTAINED WHEN THE DIFFERENCE BETWEEN SUCCESSIVE CALCULATIONS OF
C     TOTAL PRESSURE DIFFER BY LESS THAN 0.001% OF THE PREVIOUSLY
C     CALCULATED VALUE AND, SIMULTANEOUSLY, THE SUM OF THE CALCULATED
C     VAPOR PHASE MOLE FRACTIONS DIFFERS FROM UNITY BY LESS THAN 0.001%.
C
      NHUNT = 3
      POLD = 760.0
      FUGCO1 = 1.0
      FUGCO2 = 1.0
      F1LOLD = G1CALC(I) * X1(I) * F1OL(I)
      F2LOLD = G2CALC(I) * X2(I) * F2OL(I)
  101 FACT1 = POLD * V1(I) / RT(I)
      FACT2 = FACT1 * V2(I) / V1(I)
      F1LNEW = F1LOLD * EXP(FACT1)
      F2LNEW = F2LOLD * EXP(FACT2)
  102 Y1OLD = F1LNEW / (FUGCO1 * POLD)
      Y2OLD = F2LNEW / (FUGCO2 * POLD)
      PNEW = (F1LNEW / FUGCO1) + (F2LNEW / FUGCO2)
      IF (ABS((PNEW - POLD) / POLD) .LE. 0.00001) GO TO 103
      POLD = PNEW
      CALL PHIMIX(I,NHUNT,&105)
      GO TO 101
  103 SUMY = Y1OLD + Y2OLD
      IF (ABS(SUMY - 1.0) .LE. 0.00001) GO TO 104
      POLD = PNEW
      CALL PHIMIX(I,NHUNT,&105)
      GO TO 102
  104 CALCY1 = Y1OLD
      CALCY2 = Y2OLD
      CALCP = PNEW
      RETURN
  105 RETURN 1
      END
```

```
      SUBROUTINE YCALC(I,*)
      COMMON/GRP3/X1(75),X2(75),Y1(75),Y2(75),P(75),T(75),TABS(75)
      COMMON/GRP4/V1(75),V2(75),RT(75)
      COMMON/GRP9/F1OL(75),F2OL(75),PHI1(75),PHI2(75)
      COMMON/GRP20/G1CALC(75),G2CALC(75),GAMMA1(10,75),GAMMA2(10,75)
      COMMON/GRP22/CALCY1,CALCY2,CALCP
      COMMON/GRP23/FUGCO1,FUGCO2,Y1OLD,Y2OLD,POLD
C
C     THIS SUBROUTINE PERFORMS BUBBLE POINT CALCULATIONS USING THE
C     CURRENT SET OF WILSON PARAMETERS.  IT IS CALLED BY SUBROUTINE FN
C     FOR USE WITH OBJECTIVE FUNCTION MODEL 7.  THIS CALCULATION DIFFERS
C     FROM THAT PERFORMED BY SUBROUTINE YPCALC IN THAT THE EXPERIMENTAL
C     TOTAL PRESSURE DATA IS AVAILABLE TO THE SUBROUTINE.  CONVERGENCE
C     IS OBTAINED WHEN SUCCESSIVE CALCULATIONS OF THE VAPOR PHASE MOLE
C     FRACTION DIFFER BY LESS THAN 0.00001 SIMULTANEOUSLY FOR BOTH
C     COMPONENTS.  NO ATTEMPT IS MADE TO GUARANTEE THAT THE SUM OF THE
C     MOLE FRACTIONS WILL BE UNITY.  NORMALLY, IN FACT, THE SUM WILL NOT
C     BE UNITY WITHOUT A NORMALIZATION STEP.
C
      NHUNT = 1
      NPASS = 1
      FUGCO1 = 1.0
      FUGCO2 = 1.0
      FACT1 = P(I) * V1(I) / RT(I)
      FACT2 = FACT1 * V2(I) / V1(I)
      F1L = G1CALC(I) * X1(I) * F1OL(I) * EXP(FACT1)
      F2L = G2CALC(I) * X2(I) * F2OL(I) * EXP(FACT2)
  101 Y1NEW = F1L / (FUGCO1 * P(I))
      Y2NEW = F2L / (FUGCO2 * P(I))
      IF (NPASS .GT. 1) GO TO 103
  102 Y1OLD = Y1NEW
      Y2OLD = Y2NEW
      CALL PHIMIX(I,NHUNT,&105)
      NPASS = NPASS + 1
      GO TO 101
  103 IF ((ABS(Y1NEW - Y1OLD) .LE. 0.00001) .AND.
     1     (ABS(Y2NEW - Y2OLD) .LE. 0.00001)) GO TO 104
      GO TO 102
  104 CALCY1 = Y1NEW
      CALCY2 = Y2NEW
      RETURN
  105 RETURN 1
      END
```

```
      SUBROUTINE PCALC(I,*)
      COMMON/GRP3/X1(75),X2(75),Y1(75),Y2(75),P(75),T(75),TABS(75)
      COMMON/GRP4/V1(75),V2(75),RT(75)
      COMMON/GRP9/F1OL(75),F2OL(75),PHI1(75),PHI2(75)
      COMMON/GRP20/G1CALC(75),G2CALC(75),GAMMA1(10,75),GAMMA2(10,75)
      COMMON/GRP22/CALCY1,CALCY2,CALCP
      COMMON/GRP23/FUGCO1,FUGCO2,Y1OLD,Y2OLD,POLD
C
C     THIS SUBROUTINE PERFORMS BUBBLE POINT CALCULATIONS USING THE
C     CURRENT SET OF WILSON PARAMETERS.  IT IS CALLED BY SUBROUTINE FN
C     FOR USE WITH OBJECTIVE FUNCTION MODEL 9.  THIS CALCULATION DIFFERS
C     FROM THAT PERFORMED BY SUBROUTINE YPCALC IN THAT THE EXPERIMENTAL
C     VAPOR PHASE COMPOSTION DATA IS AVAILABLE TO THE SUBROUTINE.
C     CONVERGENCE IS OBTAINED WHEN SUCCESSIVE CALCULATIONS OF THE TOTAL
C     PRESSURE DIFFERS BY LESS THAN 0.001% OF THE PREVIOULSY CALCULATED
C     VALUE.
C
      NHUNT = 2
      POLD = 760.0
      F1L = G1CALC(I) * X1(I) * F1OL(I)
      F2L = G2CALC(I) * X2(I) * F2OL(I)
  101 CALL PHIMIX(I,NHUNT,&103)
      FACT1 = POLD * V1(I) / RT(I)
      FACT2 = FACT1 * V2(I) / V1(I)
      PNEW = (F1L * EXP(FACT1) / FUGCO1) + (F2L * EXP(FACT2) / FUGCO2)
      IF (ABS((PNEW - POLD) / POLD) .LE. 0.00001) GO TO 102
      POLD = PNEW
      GO TO 101
  102 CALCP = PNEW
      RETURN
  103 RETURN 1
      END
```

```
      SUBROUTINE PHIMIX(I,NHUNT,*)
      COMMON/GRP3/X1(75),X2(75),Y1(75),Y2(75),P(75),T(75),TABS(75)
      COMMON/GRP4/V1(75),V2(75),RT(75)
      COMMON/GRP8/B11(75),B22(75),B12(75)
      COMMON/GRP23/FUGCO1,FUGCO2,Y1OLD,Y2OLD,POLD
C
C     CALCULATE FUGACITY COEFFICIENTS FOR EACH COMPONENT AT EACH DATA
C     POINT FOR THE BUBBLE POINT CALCULATIONS.  THE FORM OF THE CALCULA-
C     TION IS DETERMINED BY THE CALLING SUBROUTINE (AS INDICATED BY
C     CONTROL PARAMETER NHUNT).
C
      GO TO (101,102,102), NHUNT
  101 PORT = P(I) / RT(I)
  103 BMIX = ((Y1OLD ** 2) * B11(I)) + (2.0 * Y1OLD * Y2OLD * B12(I)) +
     1       ((Y2OLD ** 2) * B22(I))
      BMIX = BMIX / ((Y1OLD + Y2OLD) ** 2)
      DISCRM = 0.25 + (PORT * BMIX)
      IF (DISCRM .LE. 0.0) RETURN 1
      VMIX = (0.5 + (DISCRM ** 0.5)) / PORT
      ZMIX = PORT * VMIX
      FUGCO1 = EXP(((Y1OLD * B11(I)) + (Y2OLD * B12(I))) * 2./VMIX)/ZMIX
      FUGCO2 = EXP(((Y2OLD * B22(I)) + (Y1OLD * B12(I))) * 2./VMIX)/ZMIX
      RETURN
  102 PORT = POLD / RT(I)
      IF (NHUNT .EQ. 3) GO TO 103
      BMIX = ((Y1(I) ** 2) * B11(I)) + (2.0 * Y1(I) * Y2(I) * B12(I)) +
     1       ((Y2(I) ** 2) * B22(I))
      DISCRM = 0.25 + (PORT * BMIX)
      IF (DISCRM .LE. 0.0) RETURN 1
      VMIX = (0.5 + (DISCRM ** 0.5)) / PORT
      ZMIX = PORT * VMIX
      FUGCO1 = EXP(((Y1(I) * B11(I)) + (Y2(I) * B12(I))) * 2./VMIX)/ZMIX
      FUGCO2 = EXP(((Y2(I) * B22(I)) + (Y1(I) * B12(I))) * 2./VMIX)/ZMIX
      RETURN
      END
```

APPENDIX II

Multicomponent Data Reduction Programs

```
      COMMON/GRP1/NCASE,NDATA,NCOMP,NCOMP1,NCOMP2,NLIB,NBNRY
      COMMON/GRP2/TC(10,10),PC(10,10),VC(10,10),OMEGA(10),OMEGAH(10),
     1            DIPOLE(10,10),ETA(10,10)
      COMMON/GRP11/BETA(10,2,45),LAMBDA(10,10)
      COMMON/GRP12/GRNDMN,SAVEP(100,10),SAVEY(100,10),SAVEPM(100,10),
     1             SAVEYM(100,10)
      COMMON/GRP13/MDINIT,MDEND,MD
      COMMON/GRP14/TITLE(20),ISYSTM,NSYSTM(100)
      REAL LAMBDA
C
C     CLEAR ARRAYS SAVEP AND SAVEY FOR SUBSEQUENT STORAGE OF MEAN
C     ABSOLUTE DEVIATIONS IN TOTAL PRESSURE AND IN VAPOR PHASE
C     COMPOSITION FOR USE WITH SUMMARY PRINT-OUT.  DO THE SAME FOR
C     SAVEPM AND SAVEYM IN WHICH WILL BE STORED THE RESPECTIVE
C     MAXIMUM DEVIATIONS.
C
      DO 100 J=1,10
      DO 100 I=1,100
      SAVEP(I,J) = 0.0
      SAVEY(I,J) = 0.0
      SAVEPM(I,J) = 0.0
  100 SAVEYM(I,J) = 0.0
C
C     SET MULTICOMPONENT SYSTEM COUNTER (ISYSTM) TO ZERO BEFORE STARTING
C     CALCULATIONS.
C
      ISYSTM = 0
  101 CALL INPUT(NPRINT,&108,&110)
      MD = MDINIT
      CALL VLELIB
      IF (NLIB .EQ. 0) CALL PARLIB
      DO 102 I=1,NCOMP
  102 LAMBDA(I,I) = 0.0
C
C     FOR ISOTHERMAL DATA (CONTROL PARAMETER NCASE = 0) SET KEND = 1 TO
C     REDUCE CALCULATION STEPS REQUIRED IN SUBROUTINES VIRIAL AND RSTATE
C     USE SUBROUTINE TCONST TO FILL IN REMAINDER OF TEMPERATURE
C     DEPENDENT ARRAYS.
C
      IF (NCASE .NE. 0) GO TO 103
      KEND = 1
      GO TO 104
  103 KEND = NDATA
C
C     IF PURE COMPONENT CRITICAL PROPERTY DATA IS NOT AVAILABLE IN
C     SUBROUTINE VLELIB, VIRIAL COEFFICIENTS CANNOT BE CALCULATED WITH
C     O'CONNELL-PRAUSNITZ CORRELATION.  THIS CONDITION IS DETECTED
C     BY DISCOVERING A ZERO VALUE FORTHE CRITICAL TEMPERATURE OF ONE OF
C     THE COMPONENTS.  ALTERNATE ACTION ASSUMES IDEAL GAS BEHAVIOR.
C
  104 DO 105 I=1,NCOMP
  105 IF (TC(I,I) .EQ. 0.0) CALL IDEAL(KEND,&106)
      CALL VIRIAL(KEND)
  106 CALL RSTATE(KEND)
```

```
      IF (NCASE .EQ. 0) CALL TCONST
  107 IF ((MD .LT. 1) .OR. (NLIB .NE. 0)) CALL INPUT1(&108,&110)
      CALL PARAM
  108 CALL HALA
      CALL WILSON(KEND)
      CALL YPCALC
      CALL STAT
      CALL SAVE
      IF (NPRINT .EQ. 1) GO TO 109
      CALL OUTPUT(KEND,NPRINT)
  109 MD = MD + 1
      IF (MD .LE. MDEND) GO TO 107
      GO TO 101
  110 CALL OUT1
      STOP
      END
```

```
      SUBROUTINE OUTPUT(KEND,NPRINT)
      COMMON/GRP1/NCASE,NDATA,NCOMP,NCOMP1,NCOMP2,NLIB,NBNRY
      COMMON/GRP2/TC(10,10),PC(10,10),VC(10,10),OMEGA(10),OMEGAH(10),
     1            DIPOLE(10,10),ETA(10,10)
      COMMON/GRP3/AP(10),BP(10),CP(10),AV(10),BV(10),CV(10)
      COMMON/GRP5/P(75),T(75),X(10,75),Y(10,75)
      COMMON/GRP6/TABS(75),RT(75),V(10,75),FICL(10,75),GAMMA(10,75)
      COMMON/GRP7/FUGCO(10,75),YCALC(10,75),PCALC(75),YTOTAL,NPASS(75)
      COMMON/GRP8/B(10,10,75)
      COMMON/GRP9/PRES(75),YRES(10,75),STDVP,MEANP,STDVY(75),MEANY(75),
     1            STDVYI(10),MEANYI(75)
      COMMON/GRP10/CI(15),KCI,SAVECI(100,10,6),NUMBCI(100)
      COMMON/GRP11/BETA(10,2,45),LAMBDA(10,10)
      COMMON/GRP12/GRNDMN,SAVEP(100,10),SAVEY(100,10),SAVEPM(100,10),
     1             SAVEYM(100,10)
      COMMON/GRP13/MDINIT,MDEND,MD
      COMMON/GRP14/TITLE(20),ISYSTM,NSYSTM(100)
      COMMON/GRP15/ID(10),IDENT(10,2),IDBNRY(45),IORDER(45)
      COMMON/GRP16/MDMIN,MDMAX
      DIMENSION AVGP(10),AVGY(10),AVGPM(10),AVGYM(10)
      WRITE (6,301) TITLE
      WRITE (6,302)
      WRITE (6,303) (TC(I,I),PC(I,I),VC(I,I),OMEGA(I),OMEGAH(I),
     1              DIPOLE(I,I),ETA(I,I),IDENT(I,1),IDENT(I,2),ID(I),I=1,
     2              NCOMP)
      WRITE (6,304)
      WRITE (6,305) (AP(I),BP(I),CP(I),IDENT(I,1),IDENT(I,2),I=1,NCOMP)
      WRITE (6,306)
      WRITE (6,305) (AV(I),BV(I),CV(I),IDENT(I,1),IDENT(I,2),I=1,NCOMP)
      WRITE (6,307) MD
      K = 0
      DO 106 I=1,NCOMP1
      JSTART = I + 1
      DO 106 J=JSTART,NCOMP
      K = K + 1
      WRITE (6,308) LAMBDA(I,J),LAMBDA(J,I),IDENT(I,1),IDENT(I,2),
     1              IDENT(J,1),IDENT(J,2),IDBNRY(K),IORDER(K)
  106 CONTINUE
      WRITE (6,321)
      WRITE (6,322) (K,CI(K),K=1,KCI)
      IF (NPRINT .EQ. 2) RETURN
      WRITE (6,309)
      DO 107 K=1,NDATA
      WRITE (6,310) K,T(K),X(1,K),P(K),PCALC(K),Y(1,K),YCALC(1,K),
     1              FIOL(1,K),GAMMA(1,K),FUGCO(1,K),IDENT(1,1),
     2              IDENT(1,2),STDVY(K),NPASS(K)
      WRITE (6,311) (X(I,K),Y(I,K),YCALC(I,K),FIOL(I,K),GAMMA(I,K),
     1              FUGCO(I,K),IDENT(I,1),IDENT(I,2),I=2,NCOMP)
      WRITE (6,312)
  107 CONTINUE
      WRITE (6,312)
      WRITE (6,317) STDVP
      WRITE (6,318) (I,STDVYI(I),I=1,NCOMP)
      WRITE (6,312)
```

```
      WRITE (6,319) MEANP
      WRITE (6,318) (I,MEANYI(I),I=1,NCOMP)
      GO TO (423,433,443), NCOMP2
  423 WRITE (6,323)
      GO TO 501
  433 WRITE (6,333)
      GO TO 501
  443 WRITE (6,343)
  501 IF (NCOMP .GT. 5) GO TO 111
      DO 110 K=1,NDATA
  110 WRITE (6,324) K,PRES(K),(YRES(I,K),I=1,NCOMP),MEANY(K)
      GO TO 113
  111 DO 112 K=1,NDATA
      WRITE (6,324) K,PRES(K),(YRES(I,K),I=1,5)
  112 WRITE (6,325) (YRES(I,K),I=6,NCOMP),MEANY(K)
  113 WRITE (6,326) MEANP,(MEANYI(I),I=1,NCOMP)
      GO TO (427,437,447), NCOMP2
  427 WRITE (6,327) GRNDMN
      GO TO 502
  437 WRITE (6,337) GRNDMN
      GO TO 502
  447 WRITE (6,347) GRNDMN
  502 IF (MD .GT. MDINIT) RETURN
      WRITE (6,313)
      DO 108 K=1,KEND
      WRITE (6,314) K,(L,L=1,NCOMP)
      DO 109 I=1,NCOMP
  109 WRITE (6,315) I,(B(I,J,K),J=1,I)
      WRITE (6,312)
  108 CONTINUE
      RETURN
      ENTRY OUT1
      DO 600 J=MDMIN,MDMAX
      JSYSTM = 0
      AVGP(J) = 0.0
      AVGY(J) = 0.0
      AVGPM(J) = 0.0
      AVGYM(J) = 0.0
      DO 599 I=1,ISYSTM
      AVGP(J) = AVGP(J) + SAVEP(I,J)
      AVGY(J) = AVGY(J) + SAVEY(I,J)
      AVGPM(J) = AVGPM(J) + SAVEPM(I,J)
      AVGYM(J) = AVGYM(J) + SAVEYM(I,J)
      IF ((SAVEP(I,J).NE.0.0) .OR. (SAVEY(I,J).NE.0.0)) JSYSTM=JSYSTM+1
  599 CONTINUE
      IF (JSYSTM .EQ. 0) GO TO 600
      AVGP(J) = AVGP(J) / JSYSTM
      AVGY(J) = AVGY(J) / JSYSTM
      AVGPM(J) = AVGPM(J) / JSYSTM
      AVGYM(J) = AVGYM(J) / JSYSTM
  600 CONTINUE
      WRITE (6,700)
      WRITE (6,701) (K,K=MDMIN,MDMAX)
      DO 601 I=1,ISYSTM
```

```
  601 WRITE (6,702) NSYSTM(I),(SAVEP(I,J),J=MDMIN,MDMAX)
      WRITE (6,704) (AVGP(J),J=MDMIN,MDMAX)
      WRITE (6,700)
      WRITE (6,703) (K,K=MDMIN,MDMAX)
      DO 602 I=1,ISYSTM
  602 WRITE (6,702) NSYSTM(I),(SAVEY(I,J),J=MDMIN,MDMAX)
      WRITE (6,704) (AVGY(J),J=MDMIN,MDMAX)
      WRITE (6,700)
      WRITE (6,707) (K,K=MDMIN,MDMAX)
      DO 605 I=1,ISYSTM
  605 WRITE (6,702) NSYSTM(I),(SAVEPM(I,J),J=MDMIN,MDMAX)
      WRITE (6,704) (AVGPM(J),J=MDMIN,MDMAX)
      WRITE (6,700)
      WRITE (6,708) (K,K=MDMIN,MDMAX)
      DO 606 I=1,ISYSTM
  606 WRITE (6,702) NSYSTM(I),(SAVEYM(I,J),J=MDMIN,MDMAX)
      WRITE (6,704) (AVGYM(J),J=MDMIN,MDMAX)
      WRITE (6,700)
      WRITE (6,705) (K,K=MDMIN,MDMAX)
      DO 603 I=1,ISYSTM
      KEND = NUMBCI(I)
      WRITE (6,702) NSYSTM(I),(SAVECI(I,J,1),J=MDMIN,MDMAX)
      IF (KEND .EQ. 1) GO TO 603
      DO 604 K=2,KEND
  604 WRITE (6,706) (SAVECI(I,J,K),J=MDMIN,MDMAX)
  603 CONTINUE
      RETURN
  301 FORMAT (1H1,1X,20A4/)
  302 FORMAT (/3X,25HPURE COMPONENT PROPERTIES//8X,2HTC,6X,2HPC 7X,2HVC,
     1         5X,5HOMEGA,3X,6HOMEGAH,2X,6HDIPOLE,3X,3HETA,3X
     2         9HCOMPONENT,2X,2HID/)
  303 FORMAT (5X,F7.2,2X,F6.2,2X,F7.2,3X,F5.3,4X,F5.3,3X,F6.3,2X,F5.2,
     1         2X,2A4,2X,I2)
  304 FORMAT (/3X,35HPURE COMPONENT PREDICTIVE EQUATIONS//8X,
     1         13HCOEFFICIENTS:,19X,1HA,15X,1HB,15X,1HC,8X,
     2         9HCOMPONENT//13X,14HVAPOR PRESSURE)
  305 FORMAT (34X,E13.6,3X,E13.6,3X,E13.6,3X,2A4)
  306 FORMAT (/13X,12HMOLAR VOLUME)
  307 FORMAT (//3X,'BINARY INTERACTION PARAMETERS'/5X,'MODEL NUMBER ',
     1         I2,40X,'BINARY ID NUMBERS',5X,'ORDER'/)
  308 FORMAT (8X,F8.2,4X,F8.2,4X,2A4,3H - ,2A4,16X,I3,14X,I1)
  309 FORMAT (1H1,2X,'MULTICOMPONENT SOLUTION PROPERTIES'//T106,
     1         'COMPOSITION',4X,'YPCALC'/5X,'NO.',5X,'T',8X,'X',7X,
     2         'PEXP',5X,'PCALC',5X,'YEXP',4X,'YCALC',6X,'FIOL',5X,
     3         'GAMMA',6X,'PHI',3X,'COMPONENT',3X,'STD. DEV.',3X,
     4         'ITERATIONS'/)
  310 FORMAT (5X,I2,3X,F6.2,3X,F6.4,3X,F7.2,3X,F7.2,3X,F6.4,3X,F6.4,3X,
     1         F7.2,3X,F7.4,3X,F6.4,3X,2A4,3X,F10.4,5X,I2)
  311 FORMAT (19X,F6.4,23X,F6.4,3X,F6.4,3X,F7.2,3X,F7.4,3X,F6.4,3X,2A4)
  312 FORMAT ( )
  313 FORMAT (1H1,2X,26HSECOND VIRIAL COEFFICIENTS/)
  314 FORMAT (5X,I2,3X,10(5X,I2,5X))
  315 FORMAT (8X,I2,10(1X,F10.3,1X))
  317 FORMAT (//25X,'SUMMARY OF STATISTICAL INFORMATION'//30X,
```

```
     1        'STD. DEV. OF PRESSURE CALCS.',12X,E11.4/30X,'STD. DEV. ',
     2        'OF COMPOSITION CALCS.')
  318 FORMAT (49X,10HCOMPONENT ,I2,9X,E11.4)
  319 FORMAT (30X,33HMEAN ABS. DEV. OF PRESSURE CALCS.,7X,E11.4/
     1        30X,36HMEAN ABS. DEV. OF COMPOSITION CALCS.)
  321 FORMAT (//3X,21HHALA CONSISTANCY TEST/)
  322 FORMAT (8X,3HCI(,I2,2H) ,5X,F10.4)
  323 FORMAT (1H1,2X,23HRESIDUALS  (EXP - CALC)//5X,3HNO.,2X,8HPRESSURE,
     1        7X,'VAPOR PHASE MOLE FRACTION',T71,'MEAN ABS. RES.'/)
  333 FORMAT (1H1,2X,23HRESIDUALS  (EXP - CALC)//5X,3HNO.,2X,8HPRESSURE,
     1        7X,'VAPOR PHASE MOLE FRACTION',T86,'MEAN ABS. RES.'/)
  343 FORMAT (1H1,2X,23HRESIDUALS  (EXP - CALC)//5X,3HNO.,2X,8HPRESSURE,
     1        7X,'VAPOR PHASE MOLE FRACTION',T101,'MEAN ABS. RES.'/)
  324 FORMAT (5X,I2,7(3X,E12.5))
  325 FORMAT (22X,6(3X,E12.5))
  326 FORMAT (//3X,'MEAN'/3X,'ABS.',6(3X,E12.5))
  327 FORMAT (3X,'RES.',T71,E12.5)
  337 FORMAT (3X,'RES.',T86,E12.5)
  347 FORMAT (3X,'RES.',T101,E12.5)
  700 FORMAT (1H1,4X,'PERFORMANCE SUMMARY OF THE ERROR MINIMIZING ',
     1        'FUNCTIONS'///)
  701 FORMAT (20X,'MEAN ABSOLUTE DEVIATION IN PRESSURE'/5X,'SYSTEM NO.',
     1        5X,'MODEL NO.'/20X,10(2X,I2,4X)/)
  702 FORMAT (8X,I3,9X,10(F6.2,2X))
  703 FORMAT (20X,'GRAND MEAN ABSOLUTE DEVIATION IN VAPOR PHASE ',
     1        'COMPOSITION X 1000'/5X,'SYSTEM NO.',5X,'MODEL NO.'/20X,
     2        10(2X,I2,4X)/)
  704 FORMAT (/20X,10(F6.2,2X))
  705 FORMAT (20X,'SUMMARY OF HALA CONSISTENCY PARAMETER VALUES'//
     1        5X,'SYSTEM NO.',5X,'MODEL NO.'/20X,10(2X,I2,4X)/)
  706 FORMAT (20X,10(F6.2,2X))
  707 FORMAT (20X,'MAXIMUM ABSOLUTE DEVIATION IN PRESSURE'/5X,
     1        'SYSTEM NO.',5X,'MODEL NO.'/20X,10(2X,I2,4X)/)
  708 FORMAT (20X,'MAXIMUM ABSOLUTE DEVIATION IN VAPOR PHASE ',
     1        'COMPOSITION X 1000'/5X,'SYSTEM NO.',5X,'MODEL NO.'/20X,
     2        10(2X,I2,4X)/)
      END
```

```
      SUBROUTINE INPUT(NPRINT,*,*)
      COMMON/GRP1/NCASE,NDATA,NCOMP,NCOMP1,NCOMP2,NLIB,NBNRY
      COMMON/GRP5/P(75),T(75),X(10,75),Y(10,75)
      COMMON/GRP11/BETA(10,2,45),LAMBDA(10,10)
      COMMON/GRP13/MDINIT,MDEND,MD
      COMMON/GRP14/TITLE(20),ISYSTM,NSYSTM(100)
      COMMON/GRP15/ID(10),IDENT(10,2),IDBNRY(45),IORDER(45)
      COMMON/GRP16/MDMIN,MDMAX
      REAL LAMBDA
  101 LS = 0
      READ (5,201,END=100) TITLE
      READ (5,202) IDSYST,MDINIT,MDEND,NCASE,NLIB,NPRINT
      NPRINT = 1
C
C     IMMEDIATELY UPON ENCOUNTERING A NEW DATA SET, INCREMENT SYSTEM
C     COUNTER (ISYSTM) AND STORE SYSTEM IDENTIFICATION CODE(IDSYST) IN
C     ARRAY NSYSTM.
C
      ISYSTM = ISYSTM + 1
      NSYSTM(ISYSTM) = IDSYST
C
C     READ PURE COMPONENT IDENTIFICATION (BOTH ID NUMBER WITH WHICH TO
C     ENTER VLELIB AND ALPHAMERIC CHARACTERS FOR OUTPUT IDENTIFICATION).
C     ALSO COUNT THE NUMBER OF PURE COMPONENTS (STORED AS PARAMETER
C     NCOMP), ARBITRARILY RESTRICTED TO A MAXIMUM OF TEN.  IF NCOMP
C     EXCEEDS THIS, REINITIALIZE COUNTER K TO UNITY AND READ ALL DATA
C     CARDS REMAINING.  THIS PROTECTS THE ARRAY DIMENSIONS AND PREVENTS
C     ABORTING THE RUN.  SET NCOMP = 10 TO READ THE REMAINING DATA.  SET
C     COUNTER LS = 1 TO TERMINATE THE CURRENT DATA SET ONLY.
C
      NCOMP = 0
      K = 1
  102 READ (5,203) ID(K),IDENT(K,1),IDENT(K,2)
      IF (ID(K) .EQ. 0) GO TO 103
      NCOMP = NCOMP + 1
      K = K + 1
      IF (K .GT. 10) K = 1
      GO TO 102
  103 IF (NCOMP .GT. 10) GO TO 199
  104 NCOMP1 = NCOMP - 1
      NCOMP2 = NCOMP - 2
C
C     IF BINARY PARAMETER VALUES ARE AVAILABLE IN PARLIB (AS INDICATED
C     BY CONTROL PARAMETER NLIB), READ THE CONSTITUENT BINARY SYSTEM ID
C     NUMBERS WITH WHICH TO ENTER PARLIB.
C
      IF (NLIB .NE. 0) GO TO 105
      NBNRY = NCOMP * NCOMP1 / 2
      READ (5,202) (IDBNRY(I),I=1,NBNRY)
      READ (5,202) (IORDER(I),I=1,NBNRY)
C
C     READ VLE DATA AND COUNT NUMBER OF DATA POINTS (STORED AS PARAMETER
C     NDATA), ARBITRARILY RESTRICTED TO A MAXIMUM OF 75.  IF NDATA
C     EXCEEDS THIS MAXIMUM, MAINTAIN COUNTER K AT THIS MAXIMUM VALUE TO
```

```
C     PROTECT ARRAY DIMENSIONS.  THIS PROCEDURE ALLOWS CONTINUATION OF
C     CALCULATIONS FOR THE CURRENT SYSTEM.  A WARNING IS PRINTED.
C
  105 NDATA = 0
      K = 1
  106 READ (5,204) P(K),T(K)
      IF (P(K) .EQ. 0.0) GO TO 107
      READ (5,205) (X(I,K),I=1,NCOMP)
      READ (5,205) (Y(I,K),I=1,NCOMP)
      NDATA = NDATA + 1
      K = K + 1
      IF (K .GT. 75) K = 75
      GO TO 106
  107 IF (NDATA .GT. 75) GO TO 198
  108 IF (LS .EQ. 1) GO TO 197
C
C     SET PARAMETERS MDMIN AND MDMAX TO CONTROL SUMMARY PRINT-OUT FROM
C     SUBROUTINE OUTPUT (ENTRY OUT1).
C
      IF (ISYSTM .EQ. 1) GO TO 109
      IF (MDINIT .LT. MDMIN) MDMIN = MDINIT
      IF (MDMIN .LE. 0) MDMIN = 1
      IF (MDEND .GT. MDMAX) MDMAX = MDEND
      RETURN
  109 MDMIN = MDINIT
      IF (MDMIN .LE. 0) MDMIN = 1
      MDMAX = MDEND
      RETURN
      ENTRY INPUT1(*,*)
C
C     READ BINARY PARAMETER VALUES FROM CARDS IF THEY ARE NOT AVAILABLE
C     IN SUBROUTINE PARLIB.
C
      DO 110 I=1,NCOMP1
      JSTART = I + 1
      DO 110 J=JSTART,NCOMP
  110 READ (5,204) LAMBDA(I,J),LAMBDA(J,I)
      RETURN 1
  100 RETURN 2
  199 WRITE (6,301) TITLE
      WRITE (6,302) NCOMP
      IEND = NCOMP - 1
      JEND = NCOMP
      NCOMP = 10
      LS = 1
      GO TO 104
  198 WRITE (6,301) TITLE
      WRITE (6,303) NDATA
      NDATA = 75
      GO TO 108
  197 DO 196 MD=MDINIT,MDEND
      IF ((MD .GT. 0) .AND. (NLIB .EQ. 0)) GO TO 195
      DO 196 I=1,IEND
      JSTART = I + 1
```

```
      DO 196 J=JSTART,JEND
  196 READ (5,204) LAMBDA(I,J),LAMBDA(J,I)
  195 ISYSTM = ISYSTM - 1
      GO TO 101
  201 FORMAT (20A4)
  202 FORMAT (16I5)
  203 FORMAT (I5,5X,2A4)
  204 FORMAT (2F10.5)
  205 FORMAT (8F10.5)
  301 FORMAT (1H1,1X,20A4/)
  302 FORMAT (1H ,11X,'**DIAGNOSTIC**'/12X,'NCOMP EXCEEDS MAXIMUM ',
     1        'LIMIT'/12X,'NCOMP COUNTED AS ',I2,' COMPONENTS'/12X,
     2        'EXECUTION OF DATA SET TERMINATED')
  303 FORMAT (1H ,11X,'**DIAGNOSTIC**'/12X,'NDATA EXCEEDS MAXIMUM ',
     1        'LIMIT'/12X,'NDATA COUNTED AS ',I3,' DATA POINTS'/12X,
     2        'NDATA SET EQUAL TO 75'/12X,'EXECUTION OF DATA SET',
     3        'CONTINUES')
       END
```

```
      SUBROUTINE SAVE
      COMMON/GRP1/NCASE,NDATA,NCOMP,NCOMP1,NCOMP2,NLIB,NBNRY
      COMMON/GRP9/PRES(75),YRES(10,75),STDVP,MEANP,STDVY(75),MEANY(75),
     1            STDVYI(10),MEANYI(75)
      COMMON/GRP10/CI(15),KCI,SAVECI(100,10,6),NUMBCI(100)
      COMMON/GRP12/GRNDMN,SAVEP(100,10),SAVEY(100,10),SAVEPM(100,10),
     1             SAVEYM(100,10)
      COMMON/GRP13/MDINIT,MDEND,MD
      COMMON/GRP14/TITLE(20),ISYSTM,NSYSTM(100)
      REAL MEANP,MEANYI
C
C     SAVE THE ABSOLUTE MEAN DEVIATION IN TOTAL PRESSURE AND IN VAPOR
C     PHASE COMPOSITION IN ARRAYS SAVEP AND SAVEY, RESPECTIVELY.  TO
C     PROTECT THE ARRAY DIMENSIONS FROM AND INDEX VALUE LESS THAN UNITY,
C     DO NOT STORE RESULTS FOR MD LESS THAN UNITY.
C
      SUM = 0.0
      DO 101 I=1,NCOMP
  101 SUM = SUM + MEANYI(I)
      GRNDMN = SUM / NCOMP
      IF (MD .LT. 1) RETURN
      SAVEP(ISYSTM,MD) = MEANP
      SAVEY(ISYSTM,MD) = GRNDMN * 1000.0
      DO 102 K=1,KCI
  102 SAVECI(ISYSTM,MD,K) = CI(K)
      NUMBCI(ISYSTM) = KCI
      SAVEPM(ISYSTM,MD) = ABS(PRES(1))
      SAVEYM(ISYSTM,MD) = ABS(YRES(1,1))
      DO 103 J=1,NDATA
      IF (ABS(PRES(J)) .GT. SAVEPM(ISYSTM,MD))
     1    SAVEPM(ISYSTM,MD) = ABS(PRES(J))
      DO 103 I=1,NCOMP
      IF (ABS(YRES(I,J)) .GT. SAVEYM(ISYSTM,MD))
     1    SAVEYM(ISYSTM,MD) = ABS(YRES(I,J))
  103 CONTINUE
      SAVEYM(ISYSTM,MD) = SAVEYM(ISYSTM,MD) * 1000.
      RETURN
      END
```

```
      SUBROUTINE PARAM
      COMMON/GRP1/NCASE,NDATA,NCOMP,NCOMP1,NCOMP2,NLIB,NBNRY
      COMMON/GRP11/BETA(10,2,45),LAMBDA(10,10)
      COMMON/GRP13/MDINIT,MDEND,MD
      COMMON/GRP15/ID(10),IDENT(10,2),IDBNRY(45),IORDER(45)
      REAL LAMBDA
C
C     BINARY PARAMETER VALUES OBTAINED FROM SUBROUTINE PARLIB AND STORED
C     IN ARRAY BETA ARE STORED IN WORKING ARRAY LAMBDA.  THE ORDER OF
C     STORAGE IS CONTROLLED BY ENTRIES IN ARRAY IORDER IN A MANNER
C     APPROPRIATE TO THE ORDERING OF COMPONENTS IN THE MULTICOMPONENT
C     VLE DATA (READ FROM LEFT-TO-RIGHT TO DETERMINE THE BINARY SYSTEMS:
C     1-2,1-3,1-4,...,1-NCOMP,2-3,2-4,...,2-NCOMP,...NCOMP1-NCOMP)
C
      L = 0
      DO 102 I=1,NCOMP1
      JSTART = I + 1
      DO 102 J=JSTART,NCOMP
      L = L + 1
      IF (IORDER(L) .EQ. 1) GO TO 101
      LAMBDA(I,J) = BETA(MD,1,L)
      LAMBDA(J,I) = BETA(MD,2,L)
      GO TO 102
  101 LAMBDA(I,J) = BETA(MD,2,L)
      LAMBDA(J,I) = BETA(MD,1,L)
  102 CONTINUE
      RETURN
      END
```

```
      SUBROUTINE VLELIB
      COMMON/GRP1/NCASE,NDATA,NCOMP,NCOMP1,NCOMP2,NLIB,NBNRY
      COMMON/GRP2/TC(10,10),PC(10,10),VC(10,10),OMEGA(10),OMEGAH(10),
     1            DIPOLE(10,10),ETA(10,10)
      COMMON/GRP3/AP(10),BP(10),CP(10),AV(10),BV(10),CV(10)
      COMMON/GRP4/T1(10),V1(10),T2(10),V2(10),T3(10),V3(10)
      COMMON/GRP15/ID(10),IDENT(10,2),IDBNRY(45),IORDER(45)
      DIMENSION A1(60),A2(60),A3(60),A4(60),A5(60),A6(60),A7(60),A8(60),
     1          A9(60),A10(60),A11(60),A12(60),A13(60),A14(60),A15(60),
     2          A16(60)
C
C     ALL PURE COMPONENT DATA REQUIRED FOR SUBSEQUENT CALCULATIONS ARE
C     STORED IN THIS LIBRARY SUBROUTINE.
C
      DATA A1/594.8,508.7,547.9,699.2,562.0,556.4,0.0,  536.6,553.2,
     1        585.2,516.0,523.3,503.9,467.0,656.0,540.2,542.2,507.9,
     2        555.3,544.1,484.3,508.5,513.2,506.9,0.0,  572.3,532.8,
     3        533.2,575.1,497.9,504.4,692.2,594.0,647.4,500.3,616.3,
     4        540.7,504.0,632.1,0.0,  568.8,594.5,562.9,617.7,617.2,
     5        500.1,  0.0,545.2,525.2,520.3,559.2,579.2,541.2,647.2,
     6        744.0,632.4,4*0.0/
      DATA A2/57.1,46.6,47.7,52.4,48.6,45.0,0.00,54.0,40.0,50.7,63.0,
     1        37.8,55.3,36.2,38.4,27.0,28.0,29.9,19.8,25.4,38.0,47.0,
     2        78.5,46.3,0.00,34.3,37.4,39.5,36.1,29.9,30.8,60.5,40.0,
     3        218.3,31.0,34.6,51.0,32.1,38.1,0.00,24.5,27.5,43.6,20.7,
     4        37.0,28.4,0.00,56.5,41.4,27.4,41.8,64.5,51.2,44.2,54.8,
     5        44.6,4*0.0/
      DATA A3/171.3,213.5,173.1,296.8,260.1,279.6,0.0,  276.0,311.2,
     1        244.7,161.3,286.0,214.9,284.0,375.2,431.9,404.5,372.4,
     2        596.4,468.9,272.4,218.5,118.0,228.0,0.0,  372.4,319.0,
     3        288.4,338.5,367.3,367.0,229.5,331.1,55.2,358.0,369.4,
     4        220.0,350.7,347.6,0.0, 493.1,390.9,223.3,620.0,366.0,
     5        382.0,0.0,  203.1,265.7,420.0,285.2,191.4,223.9,264.8,
     6        311.0,307.8,4*0.0/
      DATA A4/0.444,0.309,0.321,0.383,0.211,0.193,0.0,  0.214,0.210,
     1        0.288,0.637,0.373,0.0,  0.283,0.292,0.349,0.347,0.298,
     2        0.398,0.303,0.175,0.663,0.557,0.326,0.0,  0.235,0.231,
     3        0.337,0.400,0.278,0.276,0.449,0.241,0.344,0.247,0.324,
     4        0.612,0.285,0.446,0.0,  0.394,0.243,0.667,0.490,0.301,
     5        0.350,0.0,  0.568,0.0,  0.306,0.205,0.235,0.211,0.0,
     6        0.148,0.252,4*0.0/
      DATA A5/0.187,0.187,0.152,0.211,2*0.0,0.0,  0.187,2*0.0,0.152,
     1        0.278,0.152,0.252,0.270,6*0.0,0.187,0.105,0.215,0.000,
     2        2*0.0,0.215,0.302,2*0.0,0.241,0.0,0.010,2*0.0,0.201,0.0,
     3        0.275,3*0.0,0.252,2*0.0,0.306,0.279,0.187,0.278,2*0.0,
     4        0.193,0.192,0.227,0.338,0.241,4*0.0/
      DATA A6/1.75,2.88,3.94,1.53,2*0.0,1.63,1.02,2*0.0,1.69,1.78,2.03,
     1        1.16,2.00,6*0.0,1.60,1.66,1.72,0.0, 2*0.0,2.70,1.65,2*0.0,
     2        1.45,0.0,1.85,2*0.0,1.68,2*0.0,3.83,2*0.0,1.65,0.0,0.0,
     3        2*0.0,1.60,1.35,0.0,0.0, 1.35,2*0.0,2.1,1.7,4*0.0/
      DATA A7/7*0.0,0.28,2*0.0,1.10,0.50,0.0,0.28,8*0.0,1.21,0.62,4*0.0,
     1        0.50,7*0.0,0.57,5*0.0,0.45,17*0.0/
      DATA A8/7.18807,7.02000,7.07354,7.24179,6.90565,6.9339,7.8844,
     1        6.90328,6.84498,7.43155,8.04494,7.09808,6.91995,7.75666,
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     2      8.7299,6.9024,6.93364,6.87776,6.8353,6.81189,6.90334,6.6604,
     3        7.87863,6.98944,8.329819,6.82689,6.86283,6.97421,6.8256,
     4        6.8391,6.84887,7.57893,6.95334,7.96681,6.80983,6.99052,
     5        7.99733,6.86572,6.98716,7.851016,6.92377,6.87041,7.36366,
     6        6.95367,6.95719,7.904664,9.687948,9.143231,8.242088,
     7        6.82621,6.88617,6.95222,6.99515,6.99608,7.8876,7.717535,
     8        6.99397,3*0.0/
      DATA A9/1416.7,1161.0,1279.2,1675.3,1211.033,1242.43,1742.96,
     1        1163.03,1203.526,1554.679,1554.3,1238.71,1090.81,
     2        1517.74,2537.79,1268.115,1290.2,1171.53,1324.049,1257.84,
     3        1080.996,813.055,1473.11,1111.04,2161.8,1272.864,
     4        1186.059,1209.6,1256.7, 1135.41,1152.368,1817.0,1343.943,
     5        1668.21,1127.187,1453.43,1569.7,1152.971,1502.3,1735.2,
     6        1355.126,1384.036,1305.198,1501.268,1424.255,1699.34,
     7        2730.79,2311.23,1850.78,1192.041,1229.973,1247.8,1202.29,
     8        1437.84,1890.38,1981.21,1462.639,3*0.0/
      DATA A10/211.0,224.0,224.0,200.0,220.79,230.,213.33,227.4,222.863,
     1         240.337,222.65,217.0,231.71,2*273.15,216.9,220.0,224.366,
     2         210.737,220.735,234.668,132.93,230.,213.51,273.15,221.63,
     3         226.042,216.0,202.4,226.572,227.129,205.0,219.377,228.0,
     4         228.9,215.307,209.5,226.0,209.0,273.15,209.517,215.128,
     5         173.427,194.48,213.206,4*273.15,221.634,224.104,223.0,
     6         226.254,199.83,180.46,273.15,211.6,3*0.0/
      DATA A11/293.15,228.15,3*273.15,127.61,293.15,209.85,288.15,
     1         293.15,6*273.15,293.15,273.15,293.15,5*273.15,298.15,
     2         303.15,2*273.15,293.15,2*273.15,323.15,303.15,277.13,
     3         273.15,2*293.15,273.15,2*293.15,273.15,293.15,273.15,
     4         253.15,273.15,2*293.15,2*273.15,298.15,288.15,293.15,
     5         3*273.15,293.15,288.15,3*0.0/
      DATA A12/57.232,67.38,51.092,89.634,86.783,50.979,96.8,72.661,
     1         107.47,85.24,57.141,95.318,73.141,100.679,81.348,143.045,
     2         140.02,127.301,181.35,161.373,97.023,75.019,39.556,
     3         77.221,79.4,129.116,109.67,87.336,124.935,128.385,
     4         126.411,89.68,107.415,18.06,126.8,123.73,74.785,121.97,
     5         106.22,65.83,158.97,142.48,89.873,192.18,119.82,140.77,
     6         108.96,66.76,88.49,149.82,107.47,78.97,79.06,72.01,122.2,
     7         101.73,96.87,3*0.0/
      DATA A13/373.15,273.15,288.15,373.15,323.15,158.16,353.15,273.15,
     1         306.3,333.15,323.15,2*373.15,303.15,298.15,323.15,298.15,
     2         323.15,298.15,323.15,4*373.15,333.15,333.85,303.15,
     3         333.15,329.15,288.15,293.15,373.15,353.15,323.15,303.15,
     4         393.15,343.15,373.15,353.15,298.15,333.15,353.15,343.15,
     5         333.15,353.15,0.0,   0.0,   2*373.15,323.15,306.3,298.15,
     6         3*373.15,303.15,298.15,3*0.0/
      DATA A14/62.55,71.483,52.13,97.785,92.263,56.454,104.1,78.218,
     1         109.841,89.3,60.356,110.522,86.492,105.599,83.229,
     2         152.303,140.884,136.388,182.38,171.27,116.031,85.234,
     3         44.874,90.111,82.3,133.833,113.81,94.5,129.506,130.96,
     4         129.78,93.79,113.717,18.278,132.06,138.23,78.962,143.37,
     5         112.6,66.29,170.63,152.1,97.8,208.99,130.74,0.0,   0.0,
     6         74.94,102.26,154.06,109.841,79.43,90.13,81.03,135.0,
     7         102.73,97.87,3*0.0/
      DATA A15/473.15,323.15,303.15,473.15,373.15,188.72,413.15,303.15,
     1         352.35,2*373.15,2*473.15,333.15,323.15,373.15,303.15,
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     2          373.15,303.15,373.15,4*473.15,373.15,372.65,2*373.15,
     3          383.15,293.15,313.15,423.15,400.,373.15,333.15,493.15,
     4         393.15,473.15,433.15,0.0,   393.15,2*413.15,423.15,473.15,
     5          0.0,  0.0,   2*473.15,348.15,352.35,0.0,   3*473.15,
     6          313.15,4*0.0/
      DATA A16/72.646,76.826,53.214,108.291,98.537,65.061,114.0,81.185,
     1          116.63,93.9,64.371,141.881,114.716,113.472,85.147,
     2          163.619,141.759,148.211,183.42,184.822,177.833,114.023,
     3          57.939,121.443,86.0,140.609,126.2,100.0,137.999,131.842,
     4          133.437,98.64,120.879,18.844,138.03,161.09,84.515,193.47,
     5          124.1,0.0,   185.182,163.9,108.7,233.56,154.3,0.0,   0.0,
     6          92.48,130.26,157.98,116.63,0.0,   115.92,93.11,154.11,
     7          103.76,4*0.0/
      DO 101 L=1,NCOMP
      INDEX = ID(L)
      TC(L,L) = A1(INDEX)
      PC(L,L) = A2(INDEX)
      VC(L,L) = A3(INDEX)
      OMEGA(L) = A4(INDEX)
      OMEGAH(L) = A5(INDEX)
      DIPOLE(L,L) = A6(INDEX)
      ETA(L,L) = A7(INDEX)
      AP(L) = A8(INDEX)
      BP(L) = A9(INDEX)
      CP(L) = A10(INDEX)
      T1(L) = A11(INDEX)
      V1(L) = A12(INDEX)
      T2(L) = A13(INDEX)
      V2(L) = A14(INDEX)
      T3(L) = A15(INDEX)
      V3(L) = A16(INDEX)
  101 CONTINUE
      RETURN
      END
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      SUBROUTINE PARLIB
      COMMON/GRP1/NCASE,NDATA,NCOMP,NCOMP1,NCOMP2,NLIB,NBNRY
      COMMON/GRP11/BETA(10,2,45),LAMBDA(10,10)
      COMMON/GRP15/ID(10),IDENT(10,2),IDBNRY(45),ICRDER(45)
      DIMENSION B1(120),B2(120),B3(120),B4(120),B5(120),B6(120),B7(120),
     1          B8(120),B9(120),B10(120),B11(120),B12(120),B13(120),
     2          B14(120),B15(120),B16(120),B17(120),B18(120),B19(120),
     3          B20(120)
      DIMENSION C1(120),C2(120),C3(120),C4(120),C5(120),C6(120),C7(120),
     1          C8(120),C9(120),C10(120),C11(120),C12(120),C13(120),
     2          C14(120),C15(120),C16(120),C17(120),C18(120),C19(120),
     3          C20(120)
      DIMENSION D1(26),D2(26),D3(28),D4(28)
      DIMENSION E1(7),E2(7),E3(7),E4(7),E5(7),E6(7),E7(7),E8(7),E9(7),
     1          E10(7),E11(7),E12(7),E13(7),E14(7),E15(7),E16(7),E17(7),
     2          E18(7),E19(7),E20(7)
C
C     PARAMETER VALUES FOR THE 10 OBJECTIVE FUNCTIONS UNDER STUDY HAVE
C     BEEN STORED IN THIS LIBRARY SUBROUTINE.
C
      DATA D1/-52.7,2146.26,-1077.04,1596.51,1082.,-439.56,-888.71,
     1   3858.52,41.09,1787.19,-1137.07,320.58,-1201.9,1111.6,-410.11,
     2   -811.88,4502.51,-406.66,-344.52,166.9,1841.25,-1264.25,
     3   -370.21,204.92,166.52,878.74/
      DATA D2/-359.16,-1090.22,2609.3,-883.86,-732.05,79.14,1588.66,
     1   -1481.51,-417.9,-993.83,2823.44,-558.19,3219.19,-843.05,69.5,
     2   1643.95,-1828.73,406.7,363.46,-565.33,-1070.06,3795.72,
     3   1327.95,1658.71,210.73,357.44/
      DATA D3/-34.85,1877.86,-875.84,-213.15,-226.83,-346.57,-955.01,
     1   2748.51,30.6,2127.15,-949.86,121.55,-941.25,2235.39,-482.7,
     2   -869.7,8970.31,1135.53,987.9,55.43,5136.6,-912.3,-278.92,
     3   300.01,170.93,906.81,-616.25,-392.09/
      DATA D4/-372.73,-996.31,1850.33,91.51,170.29,-104.25,7166.1,
     1   -1158.63,-422.09,-966.66,2862.82,-460.33,2025.03,-971.2,201.59,
     2   7234.66,-1484.86,-728.32,-681.27,-475.76,-1066.87,2806.71,
     3   1368.42,2398.4,244.5,425.07,1103.12,458.86/
      DATA B1/   698.83, 1906.99, -656.81,   82.79,  486.66,  975.10,
     1           -52.70,  350.45,  184.01,  282.33,  151.72,   -9.09,
     2          -181.80,  411.15, -237.88,  -67.20,  672.97,  210.94,
     3           177.98, 1159.99,  330.04,  277.63,   13.25,  571.42,
     4           172.23,  120.13,   45.85,  211.39, 1228.01,  615.10,
     5           556.97,  177.77,  362.77,  305.02,  165.68,  129.04,
     6           672.78, -103.71,  177.66, -365.96,  394.94,  188.27,
     7          -100.76, -112.45, -320.56, -404.95, -240.25, 1178.43,
     8          -284.71, -288.63,  469.24,  454.02, -437.10, -344.18,
     9          -449.26, -554.55, -443.47, -410.12, -166.71,  317.15,
     A           985.19,  -93.47,  363.92,  158.37, -114.47,  -32.22,
     1          1152.86,  973.52, -124.85,  236.48,  187.51,20751.71,
     2           463.97,  181.76,  206.84, 1387.69, 1382.76, 1358.59,
     3          1274.56, 1228.38,  -24.81,   16.79,   77.82, -162.81,
     4            16.28, -190.70, 1528.00, 1897.76,  237.94,  219.03,
     5            66.00, -246.53, -494.91, 1600.18, 1549.85, 1490.73,
     6           119.12,  146.97,   65.99,  210.07,  163.36,  231.46,
     7           560.25,  313.31,  124.55,  309.12,  692.69,   51.42,
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     8          194.65,  455.22,-2196.90,   33.81,   17.03,   15.27,
     9          835.74,  285.26,  126.09,   68.92,    5.71,  399.73/
      DATA C1/  221.94,   48.13, -137.13, -329.81, -255.16,  190.22,
     1           70.34,  -82.34,-2428.24, 1164.13, 1050.60,  163.25,
     2         1705.28, 1700.14, 1638.64, 2331.37, 2260.32, -551.36,
     3         1161.61,  887.74, 1158.26, 1162.89, 1069.24, 1083.04,
     4         1110.41, 1903.61, 1797.94,  219.69, 1301.21,  735.28,
     5          146.67,  -99.08, 1845.06,  986.32, -292.88, 1522.76,
     6          756.66,  782.11,  811.05,  143.20,  245.91,  269.90,
     7           41.10,  320.58,  721.48, -103.16, 1342.82,  395.65,
     8          804.31,   85.76, -547.42,  107.63,   94.62,  833.74,
     9           43.66,   98.83,  204.66, -504.30, -180.90,   83.29,
     A          -42.91,  -34.02, 1932.02, 1875.68, 1790.88, 1584.75,
     1         1504.09, 1442.07,  479.71,  468.06, 1857.26,  -99.47,
     2         -104.74,  -41.34,   73.16,-1089.72, 1768.47, 1632.62,
     3         -450.17, 1629.48,  508.38,  718.12, -269.12,  426.74,
     4         -614.13,  188.78, -164.37,  111.43,  216.33,  365.51,
     5          376.49,  641.20,  977.57,  229.84,  691.99, 1383.41,
     6          446.10,  528.86, 1728.87,  179.98,  972.72, 8064.07,
     7           92.90, -806.91,  518.00,  536.79, -391.29, -416.65,
     8           31.73,  977.75,  854.37,  154.18,  293.82,  218.59,
     9          706.68,   -7.81,  -12.71,  428.05,  388.14,   57.07/
      DATA E1/ -370.21,  204.93,  166.55,  878.76,   24.36,  -81.43,
     1          881.06/
      DATA B2/  351.41, -458.02,   89.88,   -3.42, -121.63, -326.05,
     1         -359.16,  112.42,  270.27,  131.22,  243.68,  457.57,
     2          629.03, -251.47,  470.67,  300.96, 1085.11, 1488.02,
     3         1824.71, 1287.26, 1468.49, 1308.74,   79.44, 1025.07,
     4          119.04,  148.29,  219.56,   50.82,  107.79,  729.69,
     5           38.31,  155.82,   52.48,   60.55,  169.45,  210.60,
     6          451.54, 1136.93, 1083.03,  632.83, -391.20,  754.65,
     7         1044.78,  190.20,  408.76,  485.19,  315.06, -473.37,
     8         1442.30, 1506.87,  963.04,  550.84,  436.87,  362.82,
     9           94.99, 1835.80, 1578.06,   69.51,  277.16,  508.29,
     A         1250.35,  148.48, 1750.22, 1348.30, 1865.37,  554.27,
     1          469.06,  134.68,  407.63, 2394.99,  294.97,-2672.18,
     2          200.88,  731.75,  452.12,  177.75,  188.43,  207.95,
     3           99.96,  187.49,  731.91,  703.98,  617.34,  854.49,
     4          636.80,  854.70,  178.31,  263.38, 1427.29, 1884.28,
     5         1927.49,  492.98, 1008.87,   14.35,   35.31,   49.63,
     6          755.63,  830.73,  849.25,  831.29,  809.80,  860.08,
     7          724.37,  908.22,  -33.18, -137.08, -246.04, 1797.73,
     8         1967.98, 1759.99, 4873.89,  828.29,  749.93,  748.15,
     9         1258.97, 1365.86,  135.37,  166.98,  181.31,   89.49/
      DATA C2/  131.41,  287.18,  599.03,  766.78,  364.98,   41.44,
     1          200.37,  344.87,-6228.90, -519.50, 1823.79,  155.76,
     2          -14.37,  -18.11,  127.79, -311.82, -319.28, 1430.22,
     3         -337.86,  -44.80, -302.26, -336.49, -246.98, -292.49,
     4         -317.03,  399.47,  290.13, 1947.42, -212.82, -229.38,
     5         1822.34, 1855.20,-1136.51, -808.05,  818.00,  269.75,
     6          140.83, -233.43, -284.93,   56.61,  -30.56,  -53.48,
     7         -417.91, -558.19,  267.80,  874.97, -103.12, -120.51,
     8         1777.41, 1194.55, 2500.99,   91.60,  158.83, -430.19,
     9           -4.08,  -44.00, -124.71,  687.43,  229.69,  470.50,
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A            527.00,  477.73,   94.58,  112.22,  125.72,  -19.34,
1            -12.67,  170.89,  922.18, 1058.53,  -39.71, 1247.66,
2            747.49,  589.24,  299.02,-1885.59,   90.14,  139.19,
3           1380.32,   91.34, 1262.99, 1037.45, 1995.14, 1656.95,
4           4516.35,  673.27,  875.77,  134.61,  596.78,  814.89,
5            428.71,  222.17, -854.15,  633.87, -553.04,-1094.44,
6           -112.42, -251.01, -402.50,  719.52, 2786.39, -708.62,
7           9718.41, 1954.31,  509.03, -367.60,  791.83,  914.98,
8            295.30, -163.51, 1398.08,  172.68,  753.85,  825.33,
9           -378.56,  338.22,  130.07, -222.99,   85.73,  256.92/
 DATA E2/  1327.95, 1658.69,  210.69,  357.40, -457.67, -298.94,
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 DATA B3/  1462.78,  642.92, 8339.24, -509.07, -266.19,  775.53,
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     3         -414.66, 1859.96,  649.15,  696.00, -209.70,  937.17,
     4         7285.91,  278.08,  -35.82,  119.08,  120.52,  226.97,
     5          182.95,  638.38, 1014.80,  406.17, 1185.12, 1257.10,
     6          500.14,  574.06, 1788.42,  182.17, 2089.32,  948.55,
     7           35.76,  405.78,  640.22,  349.58, -415.89, -417.07,
     8           67.03, 1102.34, 1285.11,  107.44,  339.70,  209.78,
     9         -265.45,  -96.72,   72.93,  453.48,  494.16,   -7.32/
      DATA E19/-280.03,  345.48,  168.92,  892.24,   33.75,  -14.86,
     1          977.15/
      DATA B20/ 352.03, -506.04,   15.15,  104.68, -154.67, -300.85,
     1         -398.41,  153.45,  321.06,   99.83,  217.00,  472.89,
     2          648.56, -229.93,  499.93,  223.17, 1313.19, 1499.34,
     3         1987.25, 1496.61, 1566.17, 1380.19,  333.16, 1104.25,
     4          111.57,  132.62,  160.61,   77.02,  167.20,  772.46,
     5          101.18,  205.38,   80.12,  129.62,  184.39,  211.29,
     6         -220.21, 1617.11, 1163.85,  507.24,  -61.71,  788.86,
     7         -483.04,   87.90,  166.14,  311.22,  220.72, -241.48,
     8         1428.83, 1545.52, 1090.17,  615.11,  395.25,  192.74,
     9          -98.25, 2102.03, 1689.72,  211.46,  764.11,  482.36,
     A         1577.89,  -25.13, 2675.89, 1566.57, 2391.82,  611.73,
     1          551.58,  221.83,  330.51, 2767.99,  290.52,  975.91,
     2          274.98,  735.94,  397.35,  228.82,  231.48,  253.06,
     3          145.62,  234.89,  764.98,  711.92,  625.45,  906.94,
     4          632.37,  827.52,  273.59,  442.03, 2037.00, 2080.40,
     5         2168.71,  384.65,  588.15,  207.68,  195.59,  181.20,
     6         1001.77,  890.86,  943.12,  890.97,  937.94,  898.68,
     7          931.49,  993.35, -125.43, -199.54, -290.06, -111.92,
     8         2112.43, 2045.76, 1952.76,  894.25,  882.38,  873.03,
     9         1498.09, 1403.81,  184.42,  169.92,  110.96,  135.68/
      DATA C20/ 134.40,  257.78,  401.82,  461.68,  324.74,  109.77,
     1          140.50,  324.07,-6228.91, -356.68, 2765.50,  197.48,
     2          160.40,  151.33,  215.41,  -25.90,  -93.73,  755.39,
     3         -333.44,    0.43, -300.98, -352.29, -242.49, -302.54,
     4         -297.39,  765.30, 1050.76, 2247.95, -207.93, -227.32,
     5         1832.60, 1653.72, -895.70, -874.14,  444.94,  404.55,
     6          189.25, -126.34, -176.36,   84.69,  133.56,  -21.94,
     7         -454.27, -434.98,  305.60,  903.57, -193.29, -101.16,
     8         1960.94, 1251.64, 2626.47,  114.35,  164.05, -202.13,
     9         -209.81, -260.03, -347.08, -384.79, -322.35,  521.67,
```

```
     A          458.41,  460.58,  241.12,  235.79,  228.32,   44.58,
     1          117.90,  200.05, 1143.28, 1189.25,  122.51, 1402.99,
     2          659.01,  575.69,  292.68,   -5.85,  272.13,  260.72,
     3         1344.01,  173.67, 1381.47, 1205.34, 3106.08, 1807.32,
     4        -1136.51,  686.12,  759.81,  143.61,  669.79,  958.35,
     5          546.36,  230.51, -817.29,  503.87, -924.52, -944.03,
     6         -122.63, -288.14, -351.47,  776.73, 3333.59, 8454.60,
     7         9718.42, -405.76,  515.04, -263.91,  908.05,  988.77,
     8          248.46, -349.25, 1901.96,  204.53,  925.00,  937.53,
     9          287.89,  405.80,   44.52, -231.08,   75.51,  304.09/
      DATA E20/ 1349.18, 2324.65,  247.37,  442.89, -449.53, -349.68,
     1          -49.72/
      DO 102 L=1,NBNRY
      INDEX = IDBNRY(L)
      IF ((INDEX .LE. 240) .OR. (INDEX .GE. 281)) GO TO 999
      INDEX = INDEX - 240
      BETA(1,1,L) = D1(INDEX)
      BETA(1,2,L) = D2(INDEX)
      BETA(4,1,L) = D3(INDEX)
      BETA(4,2,L) = D4(INDEX)
      GO TO 102
  999 CONTINUE
      IF (INDEX .GT. 280) GO TO 103
      IF (INDEX .GT. 120) GO TO 101
      BETA(1,1,L) = B1(INDEX)
      BETA(1,2,L) = B2(INDEX)
      BETA(2,1,L) = B3(INDEX)
      BETA(2,2,L) = B4(INDEX)
      BETA(3,1,L) = B5(INDEX)
      BETA(3,2,L) = B6(INDEX)
      BETA(4,1,L) = B7(INDEX)
      BETA(4,2,L) = B8(INDEX)
      BETA(5,1,L) = B9(INDEX)
      BETA(5,2,L) = B10(INDEX)
      BETA(6,1,L) = B11(INDEX)
      BETA(6,2,L) = B12(INDEX)
      BETA(7,1,L) = B13(INDEX)
      BETA(7,2,L) = B14(INDEX)
      BETA(8,1,L) = B15(INDEX)
      BETA(8,2,L) = B16(INDEX)
      BETA(9,1,L) = B17(INDEX)
      BETA(9,2,L) = B18(INDEX)
      BETA(10,1,L) = B19(INDEX)
      BETA(10,2,L) = B20(INDEX)
      GO TO 102
  101 INDEX = INDEX - 120
      BETA(1,1,L) = C1(INDEX)
      BETA(1,2,L) = C2(INDEX)
      BETA(2,1,L) = C3(INDEX)
      BETA(2,2,L) = C4(INDEX)
      BETA(3,1,L) = C5(INDEX)
      BETA(3,2,L) = C6(INDEX)
      BETA(4,1,L) = C7(INDEX)
      BETA(4,2,L) = C8(INDEX)
```

```
      BETA(5,1,L) = C9(INDEX)
      BETA(5,2,L) = C10(INDEX)
      BETA(6,1,L) = C11(INDEX)
      BETA(6,2,L) = C12(INDEX)
      BETA(7,1,L) = C13(INDEX)
      BETA(7,2,L) = C14(INDEX)
      BETA(8,1,L) = C15(INDEX)
      BETA(8,2,L) = C16(INDEX)
      BETA(9,1,L) = C17(INDEX)
      BETA(9,2,L) = C18(INDEX)
      BETA(10,1,L) = C19(INDEX)
      BETA(10,2,L) = C20(INDEX)
      GO TO 102
  103 CONTINUE
      INDEX = INDEX - 280
      BETA(1,1,L) = E1(INDEX)
      BETA(1,2,L) = E2(INDEX)
      BETA(2,1,L) = E3(INDEX)
      BETA(2,2,L) = E4(INDEX)
      BETA(3,1,L) = E5(INDEX)
      BETA(3,2,L) = E6(INDEX)
      BETA(4,1,L) = E7(INDEX)
      BETA(4,2,L) = E8(INDEX)
      BETA(5,1,L) = E9(INDEX)
      BETA(5,2,L) = E10(INDEX)
      BETA(6,1,L) = E11(INDEX)
      BETA(6,2,L) = E12(INDEX)
      BETA(7,1,L) = E13(INDEX)
      BETA(7,2,L) = E14(INDEX)
      BETA(8,1,L) = E15(INDEX)
      BETA(8,2,L) = E16(INDEX)
      BETA(9,1,L) = E17(INDEX)
      BETA(9,2,L) = E18(INDEX)
      BETA(10,1,L) = E19(INDEX)
      BETA(10,2,L) = E20(INDEX)
  102 CONTINUE
      RETURN
      END
```

```
      SUBROUTINE IDEAL(KEND,*)
      COMMON/GPP1/NCASE,NDATA,NCOMP,NCOMP1,NCOMP2,NLIB,NBNRY
      COMMON/GPP8/B(10,10,75)
C
C     IF PURE COMPONENT DATA FROM WHICH TO CALCULATE VAPOR PHASE NON-
C     IDEALITY IS NOT AVAILABLE IN SUBROUTINE VLELIB, ASSUME THE IDEAL
C     GAS STATE BY SETTING THE SECOND VIRIAL COEFFICIENTS TO ZERO.
C
      DO 101 K=1,KEND
      DO 101 I=1,NCOMP
      DO 101 J=1,NCOMP
      B(I,J,K) = 0.0
      B(J,I,K) = 0.0
  101 CONTINUE
      RETURN 1
      END
```

```
      SUBROUTINE VIRIAL(KEND)
      COMMON/GRP1/NCASE,NDATA,NCOMP,NCOMP1,NCOMP2,NLIB,NBNRY
      COMMON/GRP2/TC(10,10),PC(10,10),VC(10,10),OMEGA(10),OMEGAH(10),
     1            DIPOLE(10,10),ETA(10,10)
      COMMON/GRP5/P(75),T(75),X(10,75),Y(10,75)
      COMMON/GRP6/TABS(75),RT(75),V(10,75),FIOL(10,75),GAMMA(10,75)
      COMMON/GRP8/B(10,10,75)
      DIMENSION W(10,10)
C
C     O'CONNELL-PRAUSNITZ CORREATION FOR SECOND VIRIAL COEFFICIENTS.
C
      DO 101 I=1,NCOMP
      IF (DIPOLE(I,I) .EQ. 0.0) GO TO 102
      W(I,I) = OMEGAH(I)
      GO TO 101
  102 W(I,I) = OMEGA(I)
  101 CONTINUE
      DO 103 I=1,NCOMP1
      JSTART = I + 1
      DO 103 J=JSTART,NCOMP
      TC(I,J) = (TC(I,I) * TC(J,J)) ** 0.5
      VC(I,J) = (((VC(I,I) ** 0.33333) + (VC(J,J) ** 0.33333)) ** 3)/8.0
      PC(I,J) = (((PC(I,I)*VC(I,I)/TC(I,I)) + (PC(J,J)*VC(J,J)/TC(J,J)))
     1          * TC(I,J)) / (2.0 * VC(I,J))
      ETA(I,J) = (ETA(I,I) + ETA(J,J)) / 2.0
      DIPOLE(I,J) = DIPOLE(I,I) * DIPOLE(J,J)
      W(I,J) = (W(I,I) + W(J,J)) / 2.0
  103 CONTINUE
      DO 201 K=1,KEND
      TABS(K) = T(K) + 273.15
      DO 201 I=1,NCOMP
      DO 201 J=I,NCOMP
      TR1 = TABS(K) / TC(I,J)
      TR2 = TR1 ** 2
      TR3 = TR1 ** 3
      TR8 = TR1 ** 8
      FB0 = 0.1445 - (0.33/TR1) - (0.1385/TR2) - (0.0121/TR3)
      FB1 = 0.073 + (0.46/TR1) - (0.5/TR2) - (0.097/TR3) - (0.0073/TR8)
      IF (DIPOLE(I,J) .EQ. 0.0) GO TO 202
      RD = (1.0E05) * DIPOLE(I,J) * PC(I,J) / (TC(I,J) ** 2)
      IF (RD .LE. 4.0) GO TO 202
      A1 = ALOG(RD)
      A2 = A1 ** 2
      A3 = A1 ** 3
      FBMU = - 5.23722 + (5.665807*A1) - (2.133816*A2) + (0.2525373*A3)
     1       + ((5.76977 - (6.181427*A1) + (2.28327*A2)
     2       - (0.2649074*A3)) / TR1)
      IF (ETA(I,J) .EQ. 0.0) GO TO 203
      FBA = - EXP(6.6 * (0.7 - TR1))
      GO TO 204
  202 FBMU = 0.0
  203 FBA = 0.0
  204 B(I,J,K) = (FB0 + (W(I,J) * FB1) + FBMU + (ETA(I,J) * FBA))
     1           * 82.057 * TC(I,J) / PC(I,J)
```

```
      B(J,I,K) = B(I,J,K)
  201 CONTINUE
      RETURN
      END
```

```
      SUBROUTINE RSTATE(KEND)
      COMMON/GRP1/NCASE,NDATA,NCOMP,NCOMP1,NCOMP2,NLIB,NBNRY
      COMMON/GRP3/AP(10),BP(10),CP(10),AV(10),BV(10),CV(10)
      COMMON/GRP5/P(75),T(75),X(10,75),Y(10,75)
      COMMON/GRP6/TABS(75),RT(75),V(10,75),FIGL(10,75),GAMMA(10,75)
      COMMON/GRP8/B(10,10,75)
C
C     CALCULATE ALL TEMPERATURE DEPENDENT PURE COMPONENT PROPERTIES.  IN
C     ADDITION CALCULATE THE LAST COMPONENT LIQUID AND VAPOR MOLE
C     FRACTION BY DIFFERENCE.
C
      CALL MOLVOL
      DO 101 K=1,KEND
      SUMX = 0.0
      SUMY = 0.0
      X(NCOMP,K) = 0.0
      Y(NCOMP,K) = 0.0
      RT(K) = 82.057 * 760.0 * TABS(K)
      DO 102 I=1,NCOMP
      SUMX = SUMX + X(I,K)
      SUMY = SUMY + Y(I,K)
      V(I,K) = AV(I) + (BV(I) * TABS(K)) + (CV(I) * (TABS(K) ** 2))
      PS = 10.0 ** (AP(I) - (BP(I) / (CP(I) + T(K))))
      POYNT = EXP(-PS * V(I,K) / RT(K))
      PORT = PS / RT(K)
      VS = (0.5 + ((0.25 + (PORT * B(I,I,K))) ** 0.5)) / PORT
      PHIS = EXP(2.0 * B(I,I,K) / VS) / (PORT * VS)
      FIGL(I,K) = PHIS * PS * POYNT
  102 CONTINUE
      X(NCOMP,K) = 1.0 - SUMX
      Y(NCOMP,K) = 1.0 - SUMY
  101 CONTINUE
      RETURN
      END
```

```
      SUBROUTINE TCONST
      COMMON/GRP1/NCASE,NDATA,NCOMP,NCOMP1,NCOMP2,NLIB,NBNRY
      COMMON/GRP5/P(75),T(75),X(10,75),Y(10,75)
      COMMON/GRP6/TABS(75),RT(75),V(10,75),FIOL(10,75),GAMMA(10,75)
      COMMON/GRP8/B(10,10,75)
      DO 101 K=2,NDATA
      SUMX = 0.0
      SUMY = 0.0
      X(NCOMP,K) = 0.0
      Y(NCOMP,K) = 0.0
      RT(K) = RT(1)
      TABS(K) = TABS(1)
      DO 102 I=1,NCOMP
      SUMX = SUMX + X(I,K)
      SUMY = SUMY + Y(I,K)
      V(I,K) = V(I,1)
      FIOL(I,K) = FIOL(I,1)
      DO 103 J=1,NCOMP
  103 B(I,J,K) = B(I,J,1)
  102 CONTINUE
      X(NCOMP,K) = 1.0 - SUMX
      Y(NCOMP,K) = 1.0 - SUMY
  101 CONTINUE
      RETURN
      END
```

```
      SUBROUTINE MOLVOL
      COMMON/GRP1/NCASE,NDATA,NCOMP,NCOMP1,NCOMP2,NLIB,NBNRY
      COMMON/GRP3/AP(10),BP(10),CP(10),AV(10),BV(10),CV(10)
      COMMON/GRP4/T1(10),V1(10),T2(10),V2(10),T3(10),V3(10)
C
C     CALCULATE MOLAR VOLUME COEFFICIENTS FROM PURE COMPONENT TEMPERA-
C     TURE AND VOLUME DATA.
C
C     USE EQUATIONS THAT ARE QUADRATIC IN, LINEAR WITH, OR INDEPENDENT
C     OF TEMPERATURE DEPENDING ON THE AVAILABLE DATA.
C
      DO 101 I=1,NCOMP
      T12 = T1(I) ** 2
      T22 = T2(I) ** 2
      T32 = T3(I) ** 2
      T2T1 = T2(I) - T1(I)
      T3T1 = T3(I) - T1(I)
      V2V1 = V2(I) - V1(I)
      V3V1 = V3(I) - V1(I)
      IF (V2(I) .EQ. 0.0) GO TO 98
      IF (V3(I) .EQ. 0.0) GO TO 96
      CV(I) = ((T3T1 * V2V1) - (T2T1 * V3V1)) / (((T22 - T12) * T3T1) -
     1        ((T32 - T12) * T2T1))
      GO TO 97
   96 CV(I) = 0.0
   97 BV(I) = (V2V1 - (CV(I) * (T22 - T12))) / T2T1
      GO TO 99
   98 CV(I) = 0.0
      BV(I) = 0.0
   99 AV(I) = V1(I) - (BV(I) * T1(I)) - (CV(I) *T12)
  101 CONTINUE
      RETURN
      END
```

```
      SUBROUTINE HALA
      COMMON/GRP1/NCASE,NDATA,NCOMP,NCOMP1,NCOMP2,NLIB,NBNRY
      COMMON/GRP10/CI(15),KCI,SAVECI(100,10,6),NUMBCI(100)
      COMMON/GRP11/BETA(10,2,45),LAMBDA(10,10)
      REAL LAMBDA
      DIMENSION DLAM(9,9)
C
C     CALCULATE THE HALA CONSISTENCY TEST INDEX (CI VALUES) FROM THE
C     UNTRANSFORMED WILSON ENERGY DIFFERENCE PARAMETERS.
C
      DO 101 I=1,NCOMP1
      JSTART = I + 1
      DO 101 J=JSTART,NCOMP
  101 DLAM(I,J-1) = LAMBDA(I,J) - LAMBDA(J,I)
      GO TO (201,202,203), NCOMP2
  201 CI(1) = DLAM(1,2) / (DLAM(1,1) + DLAM(2,2))
      KCI = 1
      GO TO 102
  202 CI(1) = DLAM(1,2) / (DLAM(1,1) + DLAM(2,2))
      CI(2) = DLAM(2,3) / (DLAM(2,2) + DLAM(3,3))
      CI(3) = DLAM(1,3) / (DLAM(1,1) + DLAM(2,2) + DLAM(3,3))
      KCI = 3
      GO TO 102
  203 CI(1) = DLAM(1,2) / (DLAM(1,1) + DLAM(2,2))
      CI(2) = DLAM(2,3) / (DLAM(2,2) + DLAM(3,3))
      CI(3) = DLAM(3,4) / (DLAM(3,3) + DLAM(4,4))
      CI(4) = DLAM(1,3) / (DLAM(1,1) + DLAM(2,2) + DLAM(3,3))
      CI(5) = DLAM(2,4) / (DLAM(2,2) + DLAM(3,3) + DLAM(4,4))
      CI(6) = DLAM(1,4) /(DLAM(1,1) + DLAM(2,2) + DLAM(3,3) + DLAM(4,4))
      KCI = 6
  102 RETURN
      END
```

```
      SUBROUTINE WILSON(KEND)
      COMMON/GRP1/NCASE,NDATA,NCOMP,NCOMP1,NCOMP2,NLIB,NBNRY
      COMMON/GRP5/P(75),T(75),X(10,75),Y(10,75)
      COMMON/GRP6/TABS(75),RT(75),V(10,75),FIOL(10,75),GAMMA(10,75)
      COMMON/GRP11/BETA(10,2,45),LAMBDA(10,10)
      DIMENSION LMDA(10,10,75),RTNEW(75)
C
C     CALCULATE THE WILSON ACTIVITY COEFFICIENTS FOR THE MULTICOMPONENT
C     DATA SET AND STORE THEM IN ARRAY GAMMA.
C
      REAL LAMBDA,LMDA
      DO 101 K=1,KEND
      RTNEW(K) = 1.9872 * TABS(K)
C
C     IN THE WILSON EQUATION THE ENERGY DIFFERENCE PARAMETERS (LAMBDA)
C     HAVE MEANING ONLY FOR INDEX I NOT EQUAL TO INDEX J.  THE TRANS-
C     FORMED PARAMETERS (LMDA) TAKE ON THE VALUE OF UNITY FOR THE
C     CONDITION OF I EQUAL TO J.  TO ALLOW THIS, THE LAMBDA HAVE BEEN
C     SET EQUAL TO ZERO FOR THE CASES WHERE I EQUAL TO J (SUBROUTINE
C     MAIN DOES THIS).
C
      DO 101 I=1,NCOMP
      DO 101 J=1,NCOMP
  101 LMDA(I,J,K) = (V(J,K) / V(I,K)) * EXP(-LAMBDA(I,J) / RTNEW(K))
      IF (KEND .EQ. 1) GO TO 102
      GO TO 104
  102 DO 103 K=2,NDATA
      RTNEW(K) = RTNEW(1)
      DO 103 I=1,NCOMP
      DO 103 J=1,NCOMP
  103 LMDA(I,J,K) = LMDA(I,J,1)
  104 DO 201 K=1,NDATA
      DO 201 I=1,NCOMP
      SUMXL = 0.0
      SUMX = 0.0
      DO 202 J=1,NCOMP
      SUMXL = SUMXL + (X(J,K) * LMDA(I,J,K))
      SUMX1 = 0.0
      DO 203 L=1,NCOMP
  203 SUMX1 = SUMX1 + (X(L,K) * LMDA(J,L,K))
  202 SUMX = SUMX + (X(J,K) * LMDA(J,I,K) / SUMX1)
  201 GAMMA(I,K) = EXP(1.0 - SUMX) / SUMXL
      RETURN
      END
```

```
      SUBROUTINE YPCALC
C
C     DIRECT SUBSTITUTION ROUTINE FOR BUBBLE POINT PRESSURE CALCULATION
C
      COMMON/GRP1/NCASE,NDATA,NCOMP,NCOMP1,NCOMP2,NLIB,NBNRY
      COMMON/GRP5/P(75),T(75),X(10,75),Y(10,75)
      COMMON/GRP6/TABS(75),RT(75),V(10,75),FIOL(10,75),GAMMA(10,75)
      COMMON/GRP7/FUGCO(10,75),YCALC(10,75),PCALC(75),YTOTAL,NPASS(75)
      DIMENSION FILOLD(10)
      DO 106 K=1,NDATA
C
C     INITIALIZE TRIAL-AND-ERROR ITTERATION COUNTER
C
      NPASS(K) = 1
C
C     INITIALIZE ESTIMATE OF TOTAL PRESSURE, SET FUGACITY COEFFICIENT
C     EQUAL TO UNITY IN ABSENSE OF VAPOR PHASE COMPOSITION INFOR-
C     MATION, AND CALCULATE LIQUID PHASE FUGACITY REFERENCE.
C
      PGUESS = 760.0
      DO 101 I=1,NCOMP
      FUGCO(I,K) = 1.0
  101 FILOLD(I) = GAMMA(I,K) * X(I,K) * FIOL(I,K)
C
C     INITIALIZE SUMMING FUNCTIONS FOR VAPOR PHASE COMPOSITIONS
C     AND FOR PARTIAL PRESSURES.
C
  102 YTOTAL = 0.0
      PCALC(K) = 0.0
C
C     CALCULATE VAPOR PHASE COMPOSITION FROM LIQUID PHASE FUGACITY
C     CORRECTED FOR TEMPERATURE AND ASSUMED PRESSURE AND FROM
C     ASSUMED VAPOR PHASE FUGACITY COEFFICIENTS.  TOTAL PRESSURE
C     IS SUM OF PARTIAL PRESSURES.
C
      DO 103 I=1,NCOMP
      FILNEW = FILOLD(I) * EXP(PGUESS * V(I,K) / RT(K))
      YCALC(I,K) = FILNEW / (FUGCO(I,K) * PGUESS)
      YTOTAL = YTOTAL + YCALC(I,K)
  103 PCALC(K) = PCALC(K) + (FILNEW / FUGCO(I,K))
      IF (ABS((PCALC(K) - PGUESS) / PGUESS) .LE. 0.00001) GO TO 105
C
C     INCREMENT AND TEST ITTERATION COUNTER.
C
C     USE PREVIOUSLY CALCULATED PRESSURE AND VAPOR PHASE COMPO-
C     SITION TO UPDATE FUGACITY COEFFICIENTS IN SUBROUTINE PHIMIX.
C
  104 NPASS(K) = NPASS(K) + 1
      IF (NPASS(K) .GT. 99) GO TO 107
      PGUESS = PCALC(K)
      CALL PHIMIX(K)
      GO TO 102
  105 IF (ABS(YTOTAL - 1.0) .LE. 0.00001) GO TO 106
      GO TO 104
```

```
      106 CONTINUE
          GO TO 108
      107 WRITE (6,201)
      108 RETURN
      201 FORMAT (1H1,23HMAX ITERATIONS EXCEEDED)
          END
```

```
      SUBROUTINE PHIMIX(K)
      COMMON/GRP1/NCASE,NDATA,NCOMP,NCOMP1,NCOMP2,NLIB,NBNRY
      COMMON/GRP6/TABS(75),RT(75),V(10,75),FIOL(10,75),GAMMA(10,75)
      COMMON/GRP7/FUGCO(10,75),YCALC(10,75),PCALC(75),YTOTAL,NPASS(75)
      COMMON/GRP8/B(10,10,75)
      PORT = PCALC(K) / RT(K)
      BMIX = 0.0
      DO 101 I=1,NCOMP
      DO 101 J=1,NCOMP
  101 BMIX = BMIX + (YCALC(I,K) * YCALC(J,K) * B(I,J,K))
      BMIX = BMIX / (YTOTAL ** 2)
      VMIX = (0.5 + ((0.25 + (PORT * BMIX)) ** 0.5)) / PORT
      ZMIX = PORT * VMIX
      DO 102 I=1,NCOMP
      SUMYB = 0.0
      DO 103 J=1,NCOMP
  103 SUMYB = SUMYB + (YCALC(J,K) * B(I,J,K))
  102 FUGCO(I,K) = EXP(SUMYB * 2.0 / VMIX) / ZMIX
      RETURN
      END
```

```
      SUBROUTINE STAT
      COMMON/GRP1/NCASE,NDATA,NCOMP,NCOMP1,NCOMP2,NLIB,NBNRY
      COMMON/GRP5/P(75),T(75),X(10,75),Y(10,75)
      COMMON/GRP7/FUGCO(10,75),YCALC(10,75),PCALC(75),YTOTAL,NPASS(75)
      COMMON/GRP9/PRES(75),YRES(10,75),STDVP,MEANP,STDVY(75),MEANY(75),
     1            STDVYI(10),MEANYI(75)
      DIMENSION SUMY(75),ASUMY(75),YSUM(10),AYSUM(10)
      REAL MEANP,MEANY,MEANYI
      DF = NDATA - 1
      DF1 = NCOMP - 1
      SUMP = 0.0
      ASUMP = 0.0
      DO 101 K=1,NDATA
      PRES(K) = P(K) - PCALC(K)
      SUMP = SUMP + (PRES(K) ** 2)
      ASUMP = ASUMP + ABS(PRES(K))
      SUMY(K) = 0.0
      ASUMY(K) = 0.0
      DO 101 I=1,NCOMP
      YRES(I,K) = Y(I,K) - YCALC(I,K)
      SUMY(K) = SUMY(K) + (YRES(I,K) ** 2)
  101 ASUMY(K) = ASUMY(K) + ABS(YRES(I,K))
      STDVP = (SUMP / DF) ** 0.5
      MEANP = ASUMP / NDATA
      DO 102 K=1,NDATA
      STDVY(K) = (SUMY(K) / DF1) ** 0.5
  102 MEANY(K) = ASUMY(K) / NCOMP
      DO 103 I=1,NCOMP
      YSUM(I) = 0.0
      AYSUM(I) = 0.0
      DO 103 K=1,NDATA
      YSUM(I) = YSUM(I) + (YRES(I,K) ** 2)
  103 AYSUM(I) = AYSUM(I) + ABS(YRES(I,K))
      DO 104 I=1,NCOMP
      STDVYI(I) = (YSUM(I) / DF) **  0.5
  104 MEANYI(I) = AYSUM(I) / NDATA
      RETURN
      END
```

APPENDIX III

MISCELLANEOUS DATA

The uniqueness of the parameter sets obtained for the Wilson model has already been studied from several different viewpoints within this thesis. It has been proven for a single binary data point, and demonstrated by regression against many points across the full composition range of a binary system, that there can, indeed, be as many as three sets of parameter values for the Wilson equation. It has also been demonstrated that regression of binary data from a given system against several different objective functions can yield remarkably different values for the Wilson parameters.

Both of the above studies have dealt with a specific binary data source. Both have attempted to define the conditions under which the uniqueness of the derived parameter values may be questioned, and, if questioned, which of the several parameter sets provide the best multicomponent results. In the attached table the results of an additional, albeit cursory, study of the uniqueness of the Wilson parameters are summarized. This additional study investigates the impact of the availability of more than one data set (either different conditions or different source under the same conditions) upon the uniqueness of the derived parameter values.

An examination of the entries in Table 4 will disclose that many of the binary systems investigated for this thesis are represented by more than one data set. These include data sets obtained at the same conditions (temperature or pressure) but from different sources, as well as data sets obtained at different conditions from the same or different sources. An examination of Table 13 will disclose that sixteen of the multicomponent systems used in this thesis contain among

their constituent binaries one or more for which alternate sources are available. Parameter values regressed from these alternates (see Table 6) were very different from one another in some instances but very similar in other instances. The alternate parameter values were used, one set at a time, to predict the multicomponent data for the sixteen systems of interest. Thus a set of cases was developed for each of these multicomponent systems. The number of such cases was a direct function of the number of alternate binary data sources that were available. In each case the objective function delivering the lowest value for the mean absoluate deviation was chosen as giving the best multicomponent fit. Table III-1 summarizes the objective function value as well as the objective function number delivering this "best" fit.

If each data source provided binary data points that were equally useful for predicting multicomponent VLE data, then the objective function value and number itemized in Table III-1 would remain unchanged from case to case. This has been chosen as the appropriate measure of the sensitivity of the Wilson equation to the binary data rather than the parameter values themselves for two reasons. Firstly, the objective of all of these calculations is to predict multicomponent data. That, then provides the best measure. Secondly, the double exponential nature of the Wilson equation tends to dampen the impact of variations in the parameter values upon the calculated equilibria.

An examination of Table III-1 disclosed that for some multicomponent systems significant changes in both the degree of fit of the composition data and in the model supplying that fit are observed (see, for example, system 022). For others, however, little change in either degree of fit

or model number can be discerned (see, for example, system 021). Still other systems present a mixture of both effects (see, for example, systems 017 and 025).

While these observations may be a fruitful area for future research, they have been presented here merely for completeness. At this time it is recommended that, whenever possible, all the constituent binaries to be used to develop Wilson parameters for prediction of multicomponent vapor-liquid equilibria be obtained from the same investigators using the same equipment and procedures.

TABLE III-1

Effect on Prediction of Multicomponent Vapor Phase Composition Data By Changing Source of Binary VLE Data

System ID Number	Lowest Values of Mean Absolute Deviation X 1000 Case Number					
	1	2	3	4	5	6
014	23.65	23.40	---	---	---	---
017	31.87	30.98	35.64	35.45	35.34	---
018	40.56	40.84	39.06	41.65	42.23	38.83
019	15.25	14.21	---	---	---	---
021	24.28	24.28	23.03	24.07	23.63	---
022	15.76	6.25	---	---	---	---
025	27.46	27.62	27.81	27.45	---	---
029	20.47	19.48	---	---	---	---
030	23.09	23.54	---	---	---	---
035	18.98	15.64	14.93	---	---	---
042	17.42	24.39	15.96	16.66	18.24	17.74
043	17.36	22.19	19.17	12.96	---	---
048	19.07	17.41	15.65	16.57	16.48	16.05
054	25.30	25.19	25.56	26.35	22.89	25.49
055	23.24	23.56	25.26	28.16	26.78	29.77
056	22.50	15.93	16.37	16.02	15.54	16.57

TABLE III-1 (Cont.)

System ID Number	Model Number With Lowest Mean Absolute Deviation — Case Number 1	2	3	4	5	6
014	2	2	-	-	-	-
017	10	10	10	10	10	-
018	8	9	6	7	8	6
019	8	9	-	-	-	-
021	4	4	4	4	4	-
022	8	2	-	-	-	-
025	10	5	5	5	-	-
029	8	7	-	-	-	-
030	5	6	-	-	-	-
035	7	2	2	-	-	-
042	6	1	4	6	2	10
043	6	2	6	6	-	-
048	6	8	10	2	10	10
054	2	2	2	2	2	2
055	6	6	6	8	6	8
056	7	4	4	4	4	4

APPENDIX IV

SUMMARY OF BINARY THERMODYNAMIC CONSISTENCY DATA

TABLE IV-1
Summary of Binary System Thermodynamic
Consistency Index Values

System No.	Experimental Conditions Isobaric	Isothermal	Number Data Points	Consistency Index
001	x		13	0.43
002	x		12	10.24
003	x		15	2.40
004		x	10	6.42
005	x		11	- 0.45
006		x	17	7.70
007A		x	29	8.19
007B		x	9	0.54
007C	x		9	0.59
008A		x	14	12.69
008B	x		13	8.60
009A		x	14	8.08
009B	x		11	- 6.29
010A		x	35	12.22
010B		x	28	4.12
011		x	23	38.44
012	x		14	-10.41
013	x		9	65.08
014	x		13	- 8.21
015A	x		7	6.84
015B	x		10	- 3.33
015C	x		15	- 6.42
015D	x		13	- 8.26
015E	x		8	- 6.98
016	x		7	46.19
017	x		18	- 3.50
018A		x	7	2.55
018B		x	7	4.68
018C		x	7	5.07
018D	x		30	4.68
018E	x		12	0.32
019A		x	9	0.49
019B	x		14	-0.23
020	x		10	-19.94
021A		x	10	2.42
021B	x		9	- 3.93
021C	x		9	0.45
021D	x		22	- 5.82
022	x		24	- 2.62
023	x		3	- 5.02
024	x		7	-15.40
025A		x	5	11.31
025B	x		14	- 0.56
025C	x		5	0.23
026	x		21	--
027	x		12	33.10
028	x		20	-10.38
029	x		17	74.98

TABLE IV-1 (continued)

System No.	Experimental Conditions Isobaric	Isothermal	Number Data Points	Consistency Index
030A		x	11	6.32
030B		x	8	20.52
030C		x	8	13.85
030D	x		9	9.78
031	x		19	--
032A		x	9	1.16
032B	x		15	- 3.75
033	x		10	- 9.13
034	x		7	-15.85
035A		x	19	30.24
035B	x		19	- 4.15
036	x		18	1.68
037A		x	23	2.14
037B	x		22	- 2.04
038	x		12	-21.01
039	x		17	5.86
040	x		21	- 1.13
041	x		10	-31.45
042A		x	6	--
042B	x		16	15.32
043	x		5	0.13
044A	x		14	0.48
044B	x		26	6.03
045	x		27	3.76
046		x	19	0.64
047	x		11	- 2.60
048	x		9	14.47
049	x		17	- 4.36
050	x		16	2.00
051	x		4	--
052	x		23	7.79
053	x		10	1.21
054	x		11	-10.07
055A		x	11	0.57
055B		x	11	1.38
055C		x	12	0.08
055D	x		10	- 3.26
055E	x		10	- 2.66
056A		x	18	3.48
056B		x	14	3.36
056C		x	14	2.30
056D		x	19	4.06
056E		x	15	2.11
056F	x		13	3.96
057A		x	12	1.73
057B	x		15	-10.75
058A		x	8	1.79
058B		x	9	4.33
058C	x		15	- 7.11
059	x		13	- 5.63
060	x		9	- 2.63
061	x		10	--
062A		x	19	1.74
062B		x	19	0.62
062C		x	19	0.31

TABLE IV-1 (continued)

System No.	Experimental Conditions Isobaric	Isothermal	Number Data Points	Consistency Index
063A		x	10	15.51
063B		x	13	3.65
063C		x	10	15.38
063D		x	13	4.03
063E		x	10	23.32
063F		x	13	4.36
063G	x		11	- 6.43
063H	x		19	- 8.51
064	x		19	13.46
065	x		18	9.53
066	x		20	- 0.05
067A		x	6	49.89
067B		x	7	54.95
067C		x	8	80.65
067D	x		5	--
068	x		16	- 9.60
069A		x	19	31.47
069B		x	19	32.15
070	x		8	-21.59
071	x		10	2.75
072A	x		9	0.24
072B	x		13	2.06
073	x		23	13.97
074A		x	9	4.86
074B		x	7	13.65
074C	x		12	3.53
074D	x		10	3.91
075A		x	12	36.87
075B	x		16	23.30
076	x		16	72.28
077	x		13	23.29
078A	x		33	- 1.85
078B	x		25	- 9.69
079	x		3	--
080	x		11	--
081	x		7	-32.65
082		x	9	9.82
083A		x	9	3.95
083B		x	9	4.10
083C	x		10	- 8.94
084A		x	9	8.25
084B		x	8	5.54
085	x		12	--
086A		x	14	7.94
086B		x	13	2.56
086C		x	15	7.73
086D	x		20	0.05
086E	x		17	- 0.22
086F	x		19	0.89
086G	x		20	0.82

TABLE IV-1 (continued)

System No.	Experimental Conditions Isobaric	Isothermal	Number Data Points	Consistency Index
087	x		7	-14.84
088		x	9	0.15
089	x		4	- 7.47
090	x		14	6.81
091	x		12	- 5.54
092	x		6	- 4.48
093	x		4	- 4.05
094	x		7	--
095A		x	20	--
095B	x		12	3.60
096	x		9	-15.57
097	x		21	19.39
098A		x	11	13.91
098B		x	11	14.90
098C		x	17	2.89
098D	x		13	1.96
098E	x		12	15.44
099A		x	16	3.37
099B	x		15	5.22
100	x		14	- 6.41
101		x	15	0.51
102	x		16	0.66
103	x		22	-13.15
104	x		26	1.42
105	x		11	1.30
106	x		5	3.82
107		x	15	2.20
108	x		15	2.80
109	x		29	--
110A	x		9	34.14
110B	x		9	34.34
110C	x		9	60.96
110D	x		9	78.93
110E	x		9	37.66
111A		x	12	19.25
111B		x	14	6.50
111C	x		13	- 1.24
112A		x	19	8.05
112B		x	19	5.94
112C		x	19	4.29
112D		x	20	15.36
112E	x		9	3.19
113	x		11	- 3.83
114A		x	11	7.26
114B		x	18	3.47
114C	x		10	3.89
115	x		31	4.32
116A		x	14	35.15
116B		x	19	18.86
116C	x		8	0.79

TABLE IV-1 (continued)

System No.	Experimental Conditions Isobaric	Isothermal	Number Data Points	Consistency Index
117A		x	13	24.27
117B		x	18	10.22
117C		x	18	4.21
118	x		17	8.57
119	x		15	- 4.30
120A	x		20	- 3.04
120B	x		18	- 7.40
121	x		6	16.09
122		x	20	0.63
123	x		16	--
124A		x	14	17.82
124B		x	11	0.78
125	x		26	- 1.96
126	x		21	-17.18
127	x		10	-16.90
128	x		12	-20.48
129	x		8	- 1.72
130A	x		10	76.66
130B	x		9	84.55
130C	x		9	18.12
130D	x		8	7.98
130E	x		11	83.82
130F	x		18	74.97
131		x	8	5.21
132	x		20	- 2.31
133	x		19	-16.52
134A		x	14	--
134B		x	9	96.65
135		x	13	--
136	x		7	- 8.65
137	x		3	--
138	x		27	3.86
139	x		31	14.07
140	x		28	1.95
141	x		17	32.53
142		x	16	3.19
143A		x	5	1.18
143B	x		5	0.06
144A		x	5	13.75
144B	x		5	36.08
145		x	23	2.34
146		x	9	0.99
147		x	9	0.34
148	x		10	0.11

NISilverman:jt
October 24, 1978

VAPOR-LIQUID EQUILIBRIUM AT LOW PRESSURES:

CORRELATION OF BINARY AND PREDICTION OF MULTICOMPONENT DATA

Volume II

Binary Data and Computer Results

by Norman I. Silverman

```
    1    1
 ACETIC ACID(1) - ETHYLBENZE(2)                          SYSTEM 001
    1   45    1   10    2
725.       127.       .05        .175
725.       126.       .06        .2
725.       125.       .075       .225
725.       123.       .09        .27
725.       121.       .145       .355
725.       120.       .175       .385
725.       117.       .29        .505
725.       113.       .55        .695
725.       112.       .72        .765
725.       112.2      .82        .805
725.       113.       .907       .87
725.       114.       .96        .92
725.       115.       .98        .95

 ACETIC ACID(1) - P-XYLENE(2)                            SYSTEM 002
    1   36    1   10    2
725.       132.       .01        .16
725.       125.5      .11        .32
725.       122.5      .185       .44
725.       120.       .24        .52
725.       118.       .32        .585
725.       116.5      .36        .645
725.       115.       .51        .72
725.       114.1      .745       .785
725.       114.       .837       .834
725.       114.2      .87        .855
725.       114.8      .925       .895
725.       115.3      .955       .93
725.       116.3      .996       .992

 ACETONE(1) - ACETIC ACID(2)                             SYSTEM 003
    2    1    1   10    2
760.       112.1      .042       .108
760.       107.4      .103       .257
760.       106.3      .12        .289
760.       106.1      .127       .31
760.       105.4      .118       .303
760.       104.6      .158       .356
760.       101.4      .194       .433
760.       98.7       .186       .464
760.       94.3       .226       .564
760.       92.5       .236       .58
760.       90.4       .271       .63
760.       87.0       .294       .66
760.       86.3       .307       .709
760.       78.6       .433       .844
760.       74.2       .538       .92
760.       70.8       .55        .918
760.       65.6       .668       .966
760.       63.6       .761       .981
760.       60.7       .935       .997

 ACETONE(1) - ACETONITRILE(2)                            SYSTEM 004
    2    3    1   10    1
225.3      45.        .052       .12
```

239.9	45.	.095	.206
268.5	45.	.192	.367
302.7	45.	.305	.51
331.7	45.	.403	.611
355.2	45.	.481	.682
393.2	45.	.606	.781
423.6	45.	.706	.849
454.1	45.	.807	.904
481.4	45.	.896	.951

ACETONE(1) - BENZENE(2) SYSTEM 005

2	5	1	10	2
760.	79.5	.02		.063
760.	78.3	.05		.14
760.	76.4	.1		.243
760.	72.8	.2		.4
760.	69.6	.3		.512
760.	66.7	.4		.594
760.	64.3	.5		.665
760.	62.4	.6		.73
760.	60.7	.7		.795
760.	59.6	.8		.863
760.	58.8	.9		.932

ACETONE(1) - CARBON TETRACHLORIDE(2) SYSTEM 006

2	6	1	10	1
328.	50.	.0115		.0513
336.	50.	.0201		.091
362.	50.	.0385		.159
359.	50.	.0395		.1767
402.	50.	.0668		.2849
457.	50.	.1699		.412
507.5	50.	.286		.5134
553.	50.	.4396		.6093
566.5	50.	.5073		.6511
579.5	50.	.561		.6856
592.	50.	.6465		.73
599.	50.	.7031		.7669
605.	50.	.7649		.8055
610.	50.	.8293		.8492
612.5	50.	.8759		.8856
614.	50.	.947		.9468
615.	50.	.9763		.9755

ACETONE(1) - CHLOROFORM(2) SYSTEM 007A

2	8	1	10	1
514.	50.	.0213		.0115
506.	50.	.0526		.0318
505.	50.	.0574		.035
494.	50.	.0967		.0646
483.	50.	.144		.109
469.	50.	.207		.172
461.	50.	.261		.232
457.	50.	.311		.29
457.	50.	.335		.322
457.	50.	.365		.363
457.	50.	.382		.381
459.	50.	.431		.458

466.	50.	.492	.546
469.	50.	.509	.57
474.	50.	.54	.618
483.	50.	.581	.677
494.	50.	.624	.727
511.	50.	.688	.789
520.	50.	.709	.794
532.	50.	.751	.83
547.	50.	.797	.886
551.	50.	.816	.894
559.	50.	.834	.915
572.	50.	.871	.934
582.	50.	.904	.954
592.	50.	.935	.97
599.	50.	.961	.982
606.	50.	.978	.99
607.	50.	.981	.991

ACETONE(1) - CHLOROFORM(2) SYSTEM 007B

2	8	1 10	1
586.8	55.	.1003	.063
563.2	55.	.2003	.147
548.6	55.	.3008	.27
547.1	55.	.398	.411
560.1	55.	.4883	.545
578.3	55.	.5925	.678
613.3	55.	.6951	.795
646.4	55.	.7945	.883
686.1	55.	.8951	.947

ACETONE(1) - CHLOROFORM(2) SYSTEM 007C

2	8	1 10	2
760.	62.63	.6064	.6887
760.	63.66	.5211	.5788
760.	62.03	.6448	.7311
760.	60.39	.7474	.8337
760.	58.77	.8391	.9045
760.	62.06	.0563	.0387
760.	63.22	.1491	.1126
760.	64.35	.2747	.2495
760.	64.07	.2224	.1885

ACETONE(1) - ETHANOL(2) SYSTEM 008A

2	11	1 10	1
223.3	48.	.025	.121
244.1	48.	.05	.2155
263.6	48.	.075	.289
281.6	48.	.1	.346
314.2	48.	.15	.437
341.5	48.	.2	.507
365.5	48.	.25	.56
387.	48.	.3	.602
424.9	48.	.4	.67
457.4	48.	.5	.731
485.	48.	.6	.785
510.1	48.	.7	.838
533.	48.	.8	.889
553.6	48.	.9	.942

ACETONE(1) - ETHANOL(2) SYSTEM 008B

2	11	1	10	2
760.	75.4	.05	.155	
760.	73.	.1	.262	
760.	71.	.15	.348	
760.	69.	.2	.417	
760.	67.3	.25	.478	
760.	65.9	.3	.524	
760.	64.7	.35	.566	
760.	63.6	.4	.605	
760.	61.8	.5	.674	
760.	60.4	.6	.739	
760.	59.1	.7	.802	
760.	58.	.8	.865	
760.	57.	.9	.929	

ACETONE(1) - 2-PROPANOL(2) SYSTEM 009A

2	22	1	10	1
707.37	55.	.9214	.9629	
684.21	55.	.8569	.924	
644.62	55.	.7338	.8729	
637.84	55.	.7216	.8617	
602.2	55.	.6084	.8098	
563.06	55.	.5234	.7655	
533.87	55.	.4314	.7284	
517.54	55.	.3879	.6995	
456.4	55.	.2687	.6024	
442.9	55.	.2353	.5722	
390.23	55.	.1591	.4762	
331.59	55.	.0971	.3625	
299.5	55.	.0642	.2777	
257.97	55.	.0237	.1166	

ACETONE(1) - 2-PROPANOL(2) SYSTEM 009B

2	22	1	10	2
760.	56.78	.9249	.9614	
760.	58.75	.7691	.8873	
760.	61.19	.6077	.8081	
760.	63.8	.4629	.7242	
760.	64.6	.4215	.6974	
760.	65.01	.3997	.686	
760.	69.32	.2486	.5261	
760.	71.63	.1927	.4525	
760.	73.41	.1468	.3793	
760.	75.41	.108	.3018	
760.	79.78	.0359	.1135	

ACETONE(1) - METHANOL(2) SYSTEM 010A

2	23	1	10	1
421.	50.	.0031	.0086	
424.	50.	.0073	.0203	
430.	50.	.0162	.0452	
434.	50.	.0221	.0603	
442.	50.	.0339	.091	
465.	50.	.0709	.169	
471.	50.	.0807	.189	
489.	50.	.121	.256	

499.	50.	.136	.266
510.	50.	.167	.315
524.	50.	.206	.352
544.	50.	.257	.39
542.	50.	.26	.4
560.	50.	.316	.455
569.	50.	.338	.479
570.	50.	.357	.499
580.	50.	.396	.533
581.	50.	.405	.538
583.	50.	.412	.543
593.	50.	.452	.574
602.	50.	.502	.57
613.	50.	.578	.658
621.	50.	.662	.7
615.	50.	.674	.728
623.	50.	.677	.711
624.	50.	.691	.718
623.	50.	.696	.728
624.	50.	.721	.746
621.	50.	.736	.754
625.	50.	.767	.782
624.	50.	.798	.816
626.	50.	.812	.81
625.	50.	.881	.871
623.	50.	.924	.917
619.	50.	.949	.941

ACETONE(1) - METHANOL(2) SYSTEM 010B

2	23	1	10	1
542.17	55.		.0287	.0647
564.61	55.		.0570	.1295
569.56	55.		.0644	.1407
581.45	55.		.0858	.1848
592.15	55.		.1046	.219
610.13	55.		.1357	.2637
618.98	55.		.1452	.2694
628.16	55.		.1663	.3055
650.74	55.		.2173	.3633
657.7	55.		.239	.3863
675.68	55.		.2787	.4184
699.07	55.		.3579	.4779
712.65	55.		.405	.5135
722.76	55.		.448	.5512
732.37	55.		.5052	.5844
738.49	55.		.5432	.6174
748.61	55.		.6332	.6772
752.18	55.		.6538	.6849
749.65	55.		.6605	.6926
752.11	55.		.6945	.7124
753.53	55.		.7327	.7383
753.85	55.		.7525	.7618
757.52	55.		.7752	.7729
757.97	55.		.7922	.7876
749.1	55.		.908	.8959
750.31	55.		.9088	.8963
750.47	55.		.9197	.8941
748.52	55.		.9448	.9336

ACETONE(1) - METHYL ACETATE(2) SYSTEM 011

2 24 1 10 1

595.	50.	.019	.025
596.	50.	.04	.045
599.	50.	.087	.101
607.	50.	.189	.207
610.	50.	.253	.271
612.5	50.	.313	.334
614.5	50.	.371	.387
626.	50.	.454	.468
622.5	50.	.471	.484
624.	50.	.554	.561
620.2	50.	.586	.591
621.7	50.	.628	.636
624.2	50.	.688	.688
622.2	50.	.723	.717
623.9	50.	.748	.75
622.4	50.	.778	.774
620.7	50.	.803	.805
619.6	50.	.837	.838
618.	50.	.871	.865
616.7	50.	.946	.936
613.7	50.	.959	.954
613.2	50.	.983	.982
610.	50.	.991	.991

ACETONE(1) - METHYL ETHYL KETONE(2) SYSTEM 012

2 28 1 10 2

760.	78.5	.026	.05
760.	76.6	.081	.153
760.	74.2	.153	.29
760.	71.4	.245	.437
760.	69.	.373	.571
760.	67.	.45	.64
760.	65.1	.51	.657
760.	64.1	.544	.715
760.	62.1	.62	.775
760.	61.1	.676	.817
760.	60.3	.727	.84
760.	58.9	.817	.903
760.	57.9	.891	.942
760.	56.9	.95	.972

ACETONE(1) - METHYL ISOBUTYL KETONE(2 SYSTEM 013

2 29 1 10 2

760.	110.13	.034	.145
760.	99.03	.124	.432
760.	91.59	.21	.596
760.	84.09	.303	.722
760.	76.67	.423	.819
760.	70.88	.546	.885
760.	65.78	.679	.933
760.	61.64	.7935	.967
760.	58.56	.91	.985

ACETONE(1) - WATER(2) SYSTEM 014

2 34 1 10 2

760.	87.8	.01	.335
760.	83.	.023	.462
760.	76.5	.041	.585
760.	66.2	.12	.756
760.	61.8	.264	.802
760.	61.1	.3	.809
760.	60.	.444	.832
760.	59.7	.506	.837
760.	59.5	.538	.84
760.	58.9	.609	.847
760.	58.5	.661	.86
760.	57.4	.793	.9
760.	57.1	.85	.917

ACETONITRILE(1) - WATER(2) SYSTEM 015A

3	34	1	10	2
150.	36.6	.98		.955
150.	36.0	.955		.91
150.	34.6	.9		.86
150.	34.1	.772		.835
150.	34.5	.513		.81
150.	36.7	.168		.732
150.	44.8	.052		.507
150.	58.7	.003		.064

ACETONITRILE(1) - WATER(2) SYSTEM 015B

3	34	1	10	2
300.	53.2	.99		.953
300.	52.3	.98		.914
300.	51.6	.914		.835
300.	51.2	.86		.808
300.	51.1	.7		.772
300.	51.4	.52		.746
300.	51.7	.311		.732
300.	54.0	.118		.686
300.	64.7	.03		.42
300.	73.5	.008		.107

ACETONITRILE(1) - WATER(2) SYSTEM 015C

3	34	1	10	2
760.	79.2	.96		.879
760.	78.8	.95		.851
760.	77.9	.914		.835
760.	77.1	.88		.795
760.	76.3	.795		.740
760.	76.0	.726		.726
760.	76.3	.597		.693
760.	78.2	.349		.645
760.	78.4	.279		.627
760.	79.3	.188		.585
760.	80.9	.099		.550
760.	85.2	.039		.447
760.	90.1	.015		.320
760.	91.7	.006		.279
760.	95.0	.002		.180

ACETONITRILE(1) - WATER(2) SYSTEM 015D

3	34	1	10	2

760.	90.3	.031	.285
760.	84.2	.054	.458
760.	80.9	.103	.549
760.	80.7	.105	.554
760.	78.0	.192	.598
760.	77.2	.443	.609
760.	76.8	.622	.672
760.	77.2	.663	.684
760.	77.0	.685	.691
760.	76.8	.725	.697
760.	77.0	.802	.733
760.	78.1	.903	.825
760.	79.4	.964	.903

ACETONITRILE(1) - WATER(2) SYSTEM 015E

3 34 1 10 2

760.	86.5	.029	.263
760.	81.1	.093	.505
760.	80.	.142	.559
760.	78.6	.254	.617
760.	77.4	.402	.655
760.	76.7	.507	.664
760.	76.6	.527	.673
760.	76.	.718	.728
760.	76.6	.839	.78
760.	76.8	.856	.761
760.	80.4	.986	.945

ACRYLONITRILE(1) - ACETONITRILE(2) SYSTEM 016

40 3 1 10 2

760.	79.8	.079	.098
760.	79.2	.168	.206
760.	78.5	.317	.35
760.	78.2	.406	.431
760.	77.7	.557	.586
760.	77.4	.78	.791
760.	73.3	.917	.921

ALLYL ALCOHOL(1) - WATER(2) SYSTEM 017

48 34 1 10 2

760.	99.18	.0025	.0309
760.	98.68	.0049	.0554
760.	97.54	.0113	.0994
760.	96.14	.0193	.1446
760.	95.18	.0267	.178
760.	94.04	.0397	.226
760.	93.06	.0556	.2634
760.	92.48	.0622	.2793
760.	90.58	.1058	.3456
760.	89.96	.168	.3658
760.	89.14	.4216	.4336
760.	89.06	.5517	.475
760.	90.04	.6921	.5747
760.	90.88	.7658	.6338
760.	92.18	.8340	.7058
760.	93.16	.8813	.769
760.	94.96	.9402	.8696
760.	96.58	.9824	.9596

BENZENE(1) - CYCLOHEXANE(2) SYSTEM 018A

5	9	1	10	1
194.94	39.99	.1282	.1657	
200.65	39.99	.2354	.2766	
204.75	39.99	.3685	.3912	
206.12	39.99	.4932	.495	
205.18	39.99	.6143	.5909	
201.73	39.99	.7428	.6979	
195.04	39.99	.8656	.8205	

BENZENE(1) - CYCLOHEXANE(2) SYSTEM 018B

5	9	1	10	1
567.6	69.98	.1186	.1486	
584.9	69.98	.2409	.2805	
596.16	69.98	.3759	.3982	
600.27	69.98	.4945	.4975	
599.32	69.98	.618	.6027	
593.48	69.98	.7248	.6962	
577.79	69.98	.8659	.8311	

BENZENE(1) - CYCLOHEXANE(2) SYSTEM 018C

5	9	1	10	1
563.4	70.	.125	.167	
579.	70.	.25	.297	
590.5	70.	.375	.412	
596.6	70.	.5	.511	
596.2	70.	.625	.611	
589.4	70.	.75	.716	
570.9	70.	.875	.834	

BENZENE(1) - CYCLOHEXANE(2) SYSTEM 018D

5	9	1	10	2
760.	79.8	.077	.096	
760.	79.5	.096	.118	
760.	79.25	.118	.145	
760.	79.05	.145	.176	
760.	78.85	.176	.208	
760.	78.7	.208	.243	
760.	78.5	.245	.28	
760.	78.25	.28	.314	
760.	78.1	.314	.346	
760.	77.95	.346	.375	
760.	77.85	.375	.402	
760.	77.75	.402	.426	
760.	77.6	.507	.512	
760.	77.6	.512	.516	
760.	77.6	.516	.519	
760.	77.55	.519	.522	
760.	77.55	.522	.524	
760.	77.55	.524	.526	
760.	77.65	.628	.612	
760.	77.7	.645	.628	
760.	77.75	.663	.645	
760.	77.8	.685	.663	
760.	77.9	.712	.685	
760.	78.	.742	.712	
760.	78.05	.775	.744	

760.	78.3	.806	.775
760.	78.55	.836	.806
760.	78.8	.865	.836
760.	79.05	.892	.865
760.	79.25	.916	.892

BENZENE(1) - CYCLOHEXANE(2) SYSTEM 018E

5	9	1	10	2
760.	79.5	.101		.131
760.	78.9	.171		.211
760.	78.4	.256		.293
760.	77.8	.343		.376
760.	77.5	.428		.445
760.	77.4	.525		.529
760.	77.4	.571		.564
760.	77.6	.665		.645
760.	77.9	.759		.728
760.	78.2	.81		.777
760.	78.6	.863		.834
760.	79.3	.945		.926

BENZENE(1) - ETHANOL(2) SYSTEM 019A

5	11	1	10	1
89.5	25.	.1		.397
106.5	25.	.2		.53
115.7	25.	.3		.594
120.8	25.	.4		.632
123.5	25.	.5		.658
124.4	25.	.6		.672
124.9	25.	.7		.688
124.5	25.	.8		.7
121.2	25.	.9		.74

BENZENE(1) - ETHANOL(2) SYSTEM 019B

5	11	1	10	2
760.	75.55	.03		.142
760.	72.3	.065		.244
760.	70.4	.114		.309
760.	68.7	.216		.374
760.	68.15	.317		.41
760.	68.	.406		.435
760.	68.	.544		.48
760.	68.45	.639		.515
760.	69.4	.749		.575
760.	70.6	.828		.642
760.	72.7	.896		.74
760.	74.8	.943		.837
760.	76.15	.968		.9
760.	77.15	.984		.948

BENZENE(1) - FURFURAL(2) SYSTEM 020

5	15	1	10	2
760.	154.7	.0299		.29
760.	130.	.1271		.6832
760.	121.7	.174		.7789
760.	105.7	.3274		.902
760.	100.5	.4675		.9297
760.	94.1	.6167		.9599

760.	90.6	.7079	.969
760.	87.1	.7945	.9804
760.	84.	.875	.9891
760.	82.7	.9248	.9933

BENZENE(1) - HEPTANE(2) SYSTEM 021A

5 16 1 10 1

454.62	80.	.0464	.0988
476.25	80.	.0861	.1729
534.38	80.	.2004	.3473
569.49	80.	.2792	.4412
613.53	80.	.3842	.5464
650.16	80.	.4857	.6304
679.74	80.	.5824	.7009
708.78	80.	.6904	.7759
729.77	80.	.7842	.8384
748.46	80.	.8972	.9149

BENZENE(1) - HEPTANE(2) SYSTEM 021B

5 16 1 10 2

180.	51.5	.1	.245
180.	48.3	.2	.404
180.	45.9	.3	.516
180.	44.2	.4	.603
180.	42.8	.5	.672
180.	41.7	.6	.734
180.	40.9	.7	.79
180.	40.4	.8	.848
180.	39.8	.9	.914

BENZENE(1) - HEPTANE(2) SYSTEM 021C

5 16 1 10 2

400.	73.9	.1	.218
400.	70.5	.2	.373
400.	68.	.3	.49
400.	66.	.4	.583
400.	64.4	.5	.66
400.	63.3	.6	.727
400.	62.1	.7	.788
400.	61.4	.8	.849
400.	60.8	.9	.916

BENZENE(1) - HEPTANE(2) SYSTEM 021D

5 16 1 10 2

760.	97.4	.023	.048
760.	94.	.116	.217
760.	91.7	.192	.325
760.	92.9	.151	.269
760.	90.3	.244	.39
760.	87.8	.342	.502
760.	86.6	.406	.561
760.	88.1	.332	.487
760.	88.	.334	.494
760.	88.3	.323	.483
760.	85.7	.448	.599
760.	84.1	.549	.679
760.	83.2	.61	.723
760.	82.4	.675	.768

760.	82.1	.699	.782
760.	81.8	.729	.802
760.	81.6	.745	.813
760.	81.3	.768	.827
760.	80.9	.825	.864
760.	80.6	.881	.901
760.	80.4	.903	.922
760.	80.2	.94	.949

BENZENE(1) + HEXANE(2) SYSTEM 022

5	18	1	10	2
760.	68.7	.08	.078	
760.	68.75	.082	.08	
760.	68.75	.085	.082	
760.	68.8	.088	.085	
760.	68.8	.091	.088	
760.	68.8	.095	.091	
760.	68.85	.144	.137	
760.	68.9	.152	.144	
760.	68.95	.16	.152	
760.	68.95	.17	.16	
760.	69.	.183	.17	
760.	69.	.199	.183	
760.	69.	.252	.226	
760.	69.15	.281	.252	
760.	69.35	.318	.281	
760.	69.65	.366	.318	
760.	70.05	.43	.366	
760.	70.65	.512	.43	
760.	71.35	.583	.489	
760.	72.7	.69	.583	
760.	74.55	.797	.69	
760.	76.65	.881	.797	
760.	78.1	.94	.881	
760.	79.1	.972	.94	

BENZENE(1) - HEXYLENE GLYCOL(2) SYSTEM 023

5	55	1	10	2
400.	137.1	.042	.785	
400.	121.1	.060	.881	
400.	77.1	.327	.990	

BENZENE(1) - METHYL CELLOSOLVE(2) SYSTEM 024

5	25	1	10	2
760.	117.6	.0426	.2411	
760.	92.5	.2724	.7384	
760.	86.9	.4274	.8154	
760.	82.7	.6314	.8756	
760.	81.6	.61	.8733	
760.	80.3	.782	.9082	
760.	80.2	.9058	.9361	

BENZENE(1) - 2-PROPANOL(2) SYSTEM 025A

5	22	1	10	1
327.	50.	.845	.76	
336.7	50.	.7	.68	
330.2	50.	.5	.609	
306.7	50.	.3	.523	

266.3	50.	.155	.421

BENZENE(1) - 2-PROPANOL(2) SYSTEM 025B

5 22 1 10 2

500.	69.5	.039	.148
500.	67.1	.089	.262
500.	65.4	.142	.35
500.	63.9	.197	.424
500.	62.9	.255	.469
500.	61.8	.335	.525
500.	61.	.414	.563
500.	60.9	.495	.6
500.	60.3	.566	.626
500.	60.2	.64	.647
500.	60.1	.716	.674
500.	60.3	.797	.707
500.	63.	.942	.828
500.	64.7	.976	.896

BENZENE(1) - 2-PROPANOL(2) SYSTEM 025C

5 22 1 10 2

760.	73.05	.845	.728
760.	71.86	.7	.648
760.	71.94	.5	.572
760.	73.39	.3	.472
760.	76.18	.155	.33

BENZENE(1) - TOLUENE(2) SYSTEM 026

5 33 1 10 2

760.	108.7	.052	.110
760.	107.2	.083	.172
760.	105.9	.119	.238
760.	105.1	.141	.274
760.	103.9	.173	.322
760.	102.8	.194	.360
760.	101.5	.224	.402
760.	100.6	.253	.434
760.	99.	.299	.501
760.	98.3	.314	.523
760.	96.6	.366	.581
760.	94.7	.433	.643
760.	92.7	.502	.706
760.	90.7	.571	.761
760.	89.1	.621	.801
760.	87.1	.705	.853
760.	85.3	.769	.889
760.	84.2	.820	.919
760.	83.1	.879	.946
760.	81.8	.931	.968
760.	81.3	.961	.983

BENZENE(1) - P-XYLENE(2) SYSTEM 027

5 36 1 10 2

760.	129.	.086	.285
760.	125.	.124	.382
760.	124.7	.131	.396
760.	120.2	.179	.497
760.	115.1	.238	.602

760.	111.8	.287	.66
760.	107.1	.362	.793
760.	105.	.402	.77
760.	101.1	.466	.816
760.	93.8	.596	.888
760.	89.4	.718	.934
760.	86.4	.802	.96
760.	83.6	.886	.979

1-BUTANOL(2) - BENZENE(1) SYSTEM 028

5 43 1 10 2

760.	80.16	.954	.966
760.	80.21	.948	.963
760.	80.28	.942	.96
760.	80.39	.928	.952
760.	80.67	.897	.947
760.	80.87	.848	.92
760.	81.36	.79	.904
760.	81.98	.714	.885
760.	83.19	.631	.867
760.	84.54	.56	.847
760.	86.39	.475	.819
760.	88.28	.397	.787
760.	89.69	.369	.779
760.	92.25	.308	.724
760.	95.6	.234	.66
760.	98.7	.18	.59
760.	100.22	.161	.56
760.	102.22	.134	.51
760.	107.1	.085	.38
760.	112.	.04	.217
760.	116.9	.004	.025

1-BUTANOL(1) - TOLUENE(2) SYSTEM 029

43 33 1 10 2

760.	116.05	.028	.075
760.	112.9	.096	.221
760.	110.5	.165	.321
760.	109.	.227	.399
760.	107.6	.318	.487
760.	106.4	.415	.554
760.	106.	.487	.595
760.	105.8	.532	.617
760.	105.7	.558	.627
760.	105.6	.614	.653
760.	105.5	.668	.675
760.	105.5	.675	.676
760.	105.5	.701	.687
760.	105.6	.766	.72
760.	106.3	.859	.784
760.	106.5	.871	.794
760.	108.1	.948	.894

CARBON TETRACHLORIDE(1) - BENZENE(2) SYSTEM 030A

6 5 1 10 1

185.	40.	.0994	.1244
189.	40.	.1858	.2233
195.	40.	.3401	.3824

198.	40.	.4393	.4815
201.	40.	.5324	.5681
203.	40.	.6063	.6363
205.	40.	.6815	.7043
207.	40.	.7812	.7964
209.	40.	.8926	.8990
210.	40.	.9529	.9555
210.	40.	.9632	.9653

CARBON TETRACHLORIDE(1) - BENZENE(2) SYSTEM 030B

6	5	1 10 1	
190.18	40.	.1398	.1703
194.7	40.	.2378	.2774
200.07	40.	.3735	.4159
204.02	40.	.4919	.5295
204.2	40.	.4986	.5359
207.44	40.	.6201	.6475
210.37	40.	.7585	.7739
211.97	40.	.8718	.8783

CARBON TETRACHLORIDE(1) - BENZENE(2) SYSTEM 030C

6	5	1 10 1	
568.89	70.	.1428	.1666
579.13	70.	.2394	.2702
591.62	70.	.3791	.4105
600.77	70.	.4930	.5204
599.67	70.	.4939	.5215
607.22	70.	.6224	.6411
613.08	70.	.7624	.7719
616.02	70.	.8750	.8780

CARBON TETRACHLORIDE(1) - BENZENE(2) SYSTEM 030D

6	5	1 10 2	
760.	79.3	.1364	.1582
760.	78.8	.2157	.2415
760.	78.6	.2573	.288
760.	78.5	.2944	.3215
760.	78.2	.3634	.3915
760.	78.	.4057	.435
760.	77.6	.5269	.548
760.	77.4	.6202	.638
760.	77.1	.7223	.733

CARBON TETRACHLORIDE(1) - CYCLOHEXANE(2) SYSTEM 031

6	9	1 10 2	
760.	80.34	.045	.068
760.	79.6	.124	.155
760.	79.66	.134	.163
760.	79.17	.201	.23
760.	78.88	.256	.273
760.	79.1	.201	.22
760.	76.74	.791	.805
760.	77.06	.675	.693
760.	77.07	.685	.696
760.	77.4	.579	.6
760.	77.53	.54	.569
760.	77.63	.519	.545
760.	78.06	.412	.436

760.	78.46	.314	.345
760.	78.8	.26	.285
760.	79.25	.198	.23
760.	79.54	.146	.171
760.	79.73	.113	.135
760.	78.07	.404	.427

CARBON TETRACHLORIDE(1) - 2-PROPANOL(2) SYSTEM 032A

6 22 1 10 1

579.6	70.	.086	.255
659.	70.	.166	.392
707.8	70.	.238	.469
766.3	70.	.384	.561
798.2	70.	.559	.634
804.3	70.	.711	.686
793.8	70.	.815	.733
723.5	70.	.945	.846
675.1	70.	.975	.916

CARBON TETRACHLORIDE(1) - 2-PROPANOL(2) SYSTEM 032B

6 22 1 10 2

760.	79.9	.034	.114
760.	78.5	.062	.185
760.	76.8	.092	.252
760.	74.	.173	.376
760.	72.8	.224	.442
760.	70.6	.342	.534
760.	69.7	.412	.575
760.	69.1	.486	.604
760.	69.	.578	.64
760.	68.8	.647	.665
760.	68.9	.73	.692
760.	69.1	.804	.719
760.	70.2	.88	.76
760.	72.2	.943	.821
760.	74.1	.97	.893

CELLOSOLVE(1) - HEXANE(2) SYSTEM 033

7 18 1 10 2

760.	94.	.905	.223
760.	91.4	.893	.2
760.	82.1	.822	.125
760.	76.1	.717	.088
760.	72.5	.558	.067
760.	71.7	.469	.063
760.	71.4	.447	.061
760.	70.2	.296	.052
760.	69.9	.287	.05
760.	69.7	.133	.035

CELLOSOLVE(1) - 1-HEXENE(2) SYSTEM 034

7 38 1 10 2

760.	110.5	.95	.435
760.	94.7	.895	.237
760.	95.	.833	.15
760.	73.9	.672	.082
760.	71.2	.573	.065
760.	68.5	.423	.049

760.	66.2	.227	.03
760.	65.1	.124	.018

CHLOROFORM(1) - BENZENE(2) SYSTEM 035A

8	5	1	10	1
276.2	50.		.034	.055
278.8	50.		.055	.077
288.6	50.		.121	.182
294.7	50.		.149	.218
302.3	50.		.184	.271
317.6	50.		.276	.395
329.4	50.		.314	.438
348.4	50.		.406	.554
353.	50.		.434	.581
363.6	50.		.479	.636
384.	50.		.547	.702
388.4	50.		.564	.715
410.8	50.		.647	.791
424.	50.		.693	.824
437.6	50.		.746	.863
467.7	50.		.833	.922
478.2	50.		.868	.942
499.8	50.		.946	.980
501.6	50.		.951	.983

CHLOROFORM(1) - BENZENE(2) SYSTEM 035B

8	5	1	10	2
760.	79.2		.06	.089
760.	79.		.068	.1
760.	78.4		.116	.167
760.	77.9		.133	.19
760.	76.9		.193	.27
760.	76.2		.229	.316
760.	75.7		.266	.361
760.	74.7		.318	.429
760.	74.4		.333	.443
760.	73.3		.388	.508
760.	72.2		.443	.57
760.	71.6		.467	.601
760.	70.8		.517	.652
760.	69.7		.57	.702
760.	68.3		.637	.762
760.	67.		.7	.814
760.	65.4		.783	.875
760.	64.1		.853	.922
760.	62.6		.934	.968

CHLOROFORM(1) - ETHYL ACETATE(2) SYSTEM 036

8	12	1	10	2
760.	77.5		.071	.064
760.	77.6		.11	.102
760.	77.7		.14	.134
760.	77.8		.174	.171
760.	77.8		.223	.227
760.	77.5		.259	.27
760.	77.3		.301	.323
760.	76.8		.365	.408
760.	76.		.448	.522

760.	75.1	.504	.596
760.	74.7	.528	.628
760.	73.5	.581	.7
760.	71.8	.65	.78
760.	70.4	.704	.839
760.	68.9	.751	.879
760.	67.7	.79	.91
760.	65.6	.856	.95
760.	63.7	.922	.978

CHLOROFORM(1) - METHANOL(2) SYSTEM 037A

8 23 1 10 1

420.	50.	.006	.0151
424.	50.	.0122	.0312
428.	50.	.018	.0438
442.	50.	.0341	.0855
479.	50.	.08	.199
495.	50.	.10	.24
496.	50.	.102	.243
527.	50.	.143	.309
526.	50.	.145	.316
548.	50.	.178	.352
549.	50.	.179	.359
583.	50.	.234	.434
598.	50.	.262	.468
656.	50.	.427	.593
664.	50.	.536	.613
662.	50.	.554	.617
666.	50.	.653	.663
669.	50.	.704	.67
666.	50.	.785	.695
658.	50.	.852	.727
624.	50.	.935	.789
606.	50.	.957	.834
583.	50.	.977	.871

CHLOROFORM(1) - METHANOL(2) SYSTEM 037B

8 23 1 10 2

760.	63.	.04	.102
760.	62.	.065	.154
760.	60.9	.095	.215
760.	59.3	.146	.304
760.	57.8	.196	.378
760.	57.	.23	.42
760.	55.9	.287	.472
760.	55.3	.332	.507
760.	54.7	.383	.54
760.	54.3	.425	.564
760.	54.	.459	.58
760.	53.8	.52	.607
760.	53.7	.557	.619
760.	53.5	.628	.643
760.	53.5	.636	.646
760.	53.5	.667	.655
760.	53.7	.753	.684
760.	53.9	.797	.701
760.	54.4	.855	.73
760.	55.2	.904	.768

760.	56.3	.937	.812
760.	57.9	.97	.875

CHLOROFORM(1) - METHYL ISOBUTYL KETONE SYSTEM 038

8	29	1	10	2
760.	113.45	.045		.0944
760.	112.31	.067		.1385
760.	109.3	.1091		.2254
760.	107.9	.147		.2935
760.	102.2	.2437		.4736
760.	97.38	.3225		.6002
760.	92.08	.4055		.7158
760.	85.47	.5069		.8245
760.	78.12	.6411		.9097
760.	73.27	.7325		.9481
760.	66.37	.8516		.986
760.	63.07	.9358		.997
760.	61.85	.9774		.999

CYCLOHEXANE(1) - CYCLOHEXENE(2) SYSTEM 039

9	51	1	10	2
760.	82.92	.0281		.0321
760.	82.85	.0276		.0312
760.	82.64	.0627		.0758
760.	82.81	.0997		.1139
760.	82.58	.1742		.1902
760.	82.45	.2211		.2428
760.	82.15	.2939		.3128
760.	82.17	.3149		.3438
760.	82.	.377		.402
760.	81.93	.4291		.461
760.	81.86	.4538		.4798
760.	81.8	.4886		.5085
760.	81.67	.5395		.5546
760.	81.52	.5776		.5868
760.	81.46	.5998		.61
760.	81.35	.6547		.6677
760.	81.12	.707		.714

CYCLOHEXANE(1) - 1,2-DICHLOROETHANE(2) SYSTEM 040

9	52	1	10	2
760.	83.24	.0065		.0209
760.	82.8	.0113		.0426
760.	82.86	.0123		.0498
760.	82.42	.0165		.0646
760.	82.25	.0206		.0661
760.	81.69	.0321		.0891
760.	81.55	.0326		.0878
760.	80.95	.0537		.1279
760.	78.9	.1165		.2357
760.	77.5	.1804		.2869
760.	76.47	.2582		.3712
760.	75.7	.3533		.4478
760.	75.08	.5631		.5489
760.	75.42	.6979		.617
760.	75.7	.7473		.656
760.	76.38	.8103		.7158
760.	76.75	.8395		.7579

760.	77.6	.8826	.8015
760.	78.7	.928	.8598
760.	79.32	.9521	.9007
760.	80.3	.9545	.9024
760.	80.8	.9731	.9369
760.	80.	.9754	.9424
760.	80.5	.993	.9771

CYCLOHEXANE(1) - FURFURAL(2) SYSTEM 041

9 15 1 10 2

760.	147.9	.01	.4171
760.	99.2	.1116	.8936
760.	91.7	.2001	.9265
760.	85.8	.379	.9489
760.	84.8	.4536	.9466
760.	84.1	.4822	.9543
760.	84.6	.6022	.9471
760.	83.	.8435	.9626
760.	82.8	.8897	.9625
760.	81.8	.9521	.9756

CYCLOHEXANE(2) - HEXANE(1) SYSTEM 042A

18 9 1 10 1

580.	70.	.125	.179
612.1	70.	.25	.336
642.6	70.	.375	.465
675.3	70.	.5	.59
705.2	70.	.625	.708
734.8	70.	.742	.806

CYCLOHEXANE(1) - HEXANE(2) SYSTEM 042B

9 18 1 10 2

760.	70.05	.123	.096
760.	70.4	.16	.123
760.	70.85	.203	.16
760.	71.4	.26	.203
760.	72.05	.329	.26
760.	72.9	.409	.329
760.	73.7	.477	.398
760.	74.7	.562	.477
760.	75.4	.616	.532
760.	75.7	.647	.562
760.	76.4	.7	.616
760.	76.75	.73	.647
760.	77.35	.774	.7
760.	78.2	.833	.774
760.	79.	.879	.833
760.	79.5	.918	.879

CYCLOHEXANE(1) - METHYL CELLOSOLVE(2) SYSTEM 043

9 25 1 10 2

760.	105.1	.056	.4849
760.	97.	.084	.6105
760.	79.8	.2756	.75
760.	79.	.3622	.7475
760.	78.1	.5726	.7934
760.	77.5	.8327	.8365
760.	78.5	.9556	.8843

CYCLOHEXANE(1) - 2-PROPANOL(2) SYSTEM 044A

9	22	1	10	2
500.	67.3	.029	.132	
500.	67.	.068	.253	
500.	63.1	.138	.394	
500.	61.2	.213	.476	
500.	60.1	.266	.517	
500.	59.1	.313	.538	
500.	58.3	.408	.578	
500.	58.	.475	.598	
500.	57.8	.556	.619	
500.	57.8	.637	.632	
500.	57.9	.734	.664	
500.	58.5	.818	.687	
500.	59.1	.884	.713	
500.	61.9	.963	.816	

CYCLOHEXANE(1) - 2-PROPANOL(2) SYSTEM 044B

9	22	1	10	2
760.	69.35	.473	.555	
760.	69.37	.442	.55	
760.	69.01	.538	.582	
760.	69.1	.708	.627	
760.	69.45	.784	.66	
760.	69.2	.516	.57	
760.	68.8	.528	.583	
760.	69.21	.631	.605	
760.	69.42	.742	.649	
760.	69.66	.807	.673	
760.	70.11	.862	.697	
760.	71.5	.921	.773	
760.	74.01	.99	.838	
760.	76.73	.995	.893	
760.	74.96	.116	.283	
760.	74.8	.12	.276	
760.	72.28	.191	.271	
760.	70.19	.306	.489	
760.	69.11	.518	.568	
760.	69.14	.516	.572	
760.	69.02	.485	.548	
760.	69.08	.571	.582	
760.	69.06	.64	.595	
760.	74.74	.978	.85	
760.	70.31	.873	.709	
760.	78.71	.027	.112	
760.	76.91	.07	.218	

CYCLOHEXENE(1) - 1,2-DICHLOROETHANE(2) SYSTEM 045

51	52	1	10	2
760.	82.9	.9935	.9852	
760.	82.72	.9854	.9672	
760.	82.5	.9735	.9514	
760.	82.1	.9385	.901	
760.	81.6	.9276	.8835	
760.	81.2	.8775	.827	
760.	80.8	.8428	.7918	
760.	80.48	.8124	.7598	

760.	80.22	.7808	.7251
760.	79.9	.7318	.6743
760.	79.75	.7047	.6547
760.	79.45	.6349	.5944
760.	79.1	.5144	.504
760.	79.18	.5056	.5059
760.	79.38	.4512	.4629
760.	79.55	.3564	.4042
760.	79.55	.3387	.4079
760.	79.72	.2978	.3752
760.	80.2	.2401	.3382
760.	80.82	.1671	.256
760.	81.5	.1215	.1886
760.	81.8	.0969	.159
760.	82.2	.0719	.1214
760.	82.8	.0367	.0673
760.	83.28	.02	.0398
760.	83.65	.004	.0078
760.	83.65	.0038	.0069

DECANE(1) - 1-BUTANOL(2) SYSTEM 046

44	43	1	10	1
386.1	100.	.01	.02	
385.	100.	.025	.04	
384.3	100.	.033	.039	
385.	100.	.045	.045	
384.7	100.	.048	.047	
380.7	100.	.096	.062	
380.	100.	.127	.082	
376.5	100.	.153	.093	
371.7	100.	.215	.106	
364.	100.	.284	.122	
359.8	100.	.312	.142	
354.	100.	.375	.14	
350.7	100.	.398	.156	
334.3	100.	.563	.163	
319.5	100.	.65	.19	
315.1	100.	.68	.225	
292.8	100.	.78	.212	
273.4	100.	.845	.22	
278.1	100.	.87	.232	

2,3-DIMETHYLBUTANE(1) - ACETONE(2) SYSTEM 047

35	2	1	10	2
760.	50.8	.071	.198	
760.	47.5	.173	.337	
760.	46.0	.297	.407	
760.	45.8	.322	.415	
760.	45.7	.397	.456	
760.	45.6	.496	.494	
760.	45.6	.536	.511	
760.	46.0	.669	.557	
760.	46.6	.749	.595	
760.	50.6	.910	.748	
760.	55.2	.975	.904	

2,3-DIMETHYLBUTANE(1) - CHLOROFORM(2) SYSTEM 048

35	8	1	10	2

760.	59.2	.087	.130
760.	58.1	.176	.230
760.	57.0	.275	.326
760.	56.5	.367	.406
760.	56.0	.509	.525
760.	56.0	.588	.588
760.	56.1	.688	.671
760.	56.5	.785	.760
760.	57.0	.894	.872

2,3-DIMETHYLBUTANE(1) - METHANOL(2) SYSTEM 049

35 23 1 10 2

760.	60.4	.009	.139
760.	55.3	.024	.297
760.	51.4	.045	.420
760.	46.6	.096	.536
760.	45.4	.149	.563
760.	44.6	.216	.579
760.	44.5	.296	.594
760.	44.6	.408	.604
760.	44.5	.507	.608
760.	44.5	.532	.606
760.	44.5	.585	.608
760.	44.5	.610	.607
760.	44.6	.726	.609
760.	44.6	.847	.615
760.	45.8	.949	.658
760.	48.9	.983	.734
760.	51.3	.991	.810

2,4-DIMETHYLPENTANE(1) - BENZENE(2) SYSTEM 050

50 5 1 10 2

400.	60.	.953	.931
400.	59.2	.87	.83
400.	58.5	.799	.743
400.	57.8	.691	.645
400.	57.5	.627	.588
400.	57.5	.548	.521
400.	57.4	.519	.502
400.	57.4	.461	.461
400.	57.1	.459	.459
400.	57.4	.407	.415
400.	57.7	.389	.404
400.	57.5	.331	.361
400.	58.1	.219	.271
400.	58.8	.134	.192
400.	59.4	.063	.108
400.	60.	.037	.07

2,4-DIMETHYLPENTANE(1) - HEXYLENE GLYCOL(2) SYSTEM 051

50 55 1 10 2

400.	147.7	.020	.675
400.	127.0	.048	.837
400.	69.5	.210	.990
400.	66.6	.276	.996

1,4-DIOXANE(1) - ETHANOL(2) SYSTEM 052

10 11 1 10 2

760.	78.22	.0079	.0116
760.	78.19	.0268	.0284
760.	78.13	.0509	.0509
760.	78.17	.0725	.0648
760.	78.23	.0955	.0833
760.	78.35	.1285	.1048
760.	78.36	.1975	.1464
760.	79.10	.2747	.1867
760.	79.87	.3804	.2373
760.	80.15	.4045	.2482
760.	80.18	.4243	.2561
760.	80.93	.4894	.2854
760.	81.32	.5116	.3005
760.	81.40	.5321	.3039
760.	82.33	.5857	.3291
760.	84.42	.6752	.4045
760.	85.43	.7447	.4427
760.	87.17	.7686	.4916
760.	89.08	.8280	.5555
760.	92.02	.8793	.6496
760.	93.	.8912	.6766
760.	94.89	.9316	.7477
760.	97.99	.9754	.8658
760.	99.05	.9773	.9051

1,4-DIOXANE(1) - HEXANE(2) SYSTEM 053

10	18	1	10	2
760.	84.9	.89	.565	
760.	79.2	.783	.429	
760.	76.5	.713	.37	
760.	75.3	.676	.348	
760.	74.3	.627	.325	
760.	71.7	.457	.26	
760.	70.8	.363	.217	
760.	69.6	.23	.163	
760.	68.9	.138	.114	
760.	68.8	.113	.1	

1,4-DIOXANE(1) - 1-HEXENE(2) SYSTEM 054

10	38	1	10	2
760.	87.6	.902	.61	
760.	85.2	.875	.55	
760.	83.1	.845	.498	
760.	79.3	.79	.424	
760.	76.9	.723	.363	
760.	72.9	.624	.29	
760.	71.6	.53	.245	
760.	69.	.393	.19	
760.	67.4	.265	.135	
760.	65.2	.128	.07	
760.	64.8	.068	.04	

ETHANOL(1) - BENZENE(2) SYSTEM 055A

11	5	1	10	1
208.4	40.	.02	.145	
239.8	40.	.095	.28	
249.1	40.	.204	.332	
252.3	40.	.378	.362	

248.8	40.	.49	.384
245.7	40.	.592	.405
237.3	40.	.702	.44
219.4	40.	.802	.507
196.3	40.	.88	.605
169.5	40.	.943	.747
145.6	40.	.987	.912

ETHANOL(1) - BENZENE(2) SYSTEM 055B

11	5	1	10	1
314.7	50.	.025	.165	
358.7	50.	.089	.3	
378.3	50.	.206	.36	
384.6	50.	.385	.392	
383.2	50.	.486	.411	
378.1	50.	.586	.434	
366.9	50.	.694	.47	
344.4	50.	.79	.526	
316.8	50.	.866	.61	
276.8	50.	.936	.745	
239.6	50.	.984	.909	

ETHANOL(1) - BENZENE(2) SYSTEM 055C

11	5	1	10	1
452.7	60.	.026	.161	
518.2	60.	.08	.31	
553.7	60.	.185	.375	
565.	60.	.322	.408	
568.	60.	.398	.42	
566.6	60.	.484	.436	
562.6	60.	.568	.455	
548.7	60.	.68	.49	
524.2	60.	.771	.537	
485.	60.	.859	.625	
431.6	60.	.929	.747	
377.4	60.	.981	.904	

ETHANOL(1) - BENZENE(2) SYSTEM 055D

11	5	1	10	2
180.	33.6	.1	.277	
180.	32.8	.2	.314	
180.	32.5	.3	.331	
180.	32.5	.338	.338	
180.	32.6	.4	.349	
180.	32.9	.5	.37	
180.	33.3	.6	.399	
180.	34.	.7	.434	
180.	35.5	.8	.5	
180.	39.3	.9	.652	

ETHANOL(1) - BENZENE(2) SYSTEM 055E

11	5	1	10	2
400.	52.8	.1	.301	
400.	51.6	.2	.353	
400.	51.3	.3	.377	
400.	51.2	.399	.399	
400.	51.2	.4	.399	
400.	51.3	.5	.424	

400.	51.6	.6	.453
400.	52.2	.7	.491
400.	54.1	.8	.554
400.	56.3	.9	.68

ETHANOL(1) - ETHYL ACETATE(2) SYSTEM 056A

11	12	1	10	1
206.	40.	.0757		.1226
212.	40.	.1285		.1874
213.5	40.	.2256		.2745
216.	40.	.2316		.2614
216.	40.	.3441		.3414
215.5	40.	.3554		.3307
216.	40.	.4389		.4022
211.	40.	.541		.4317
204.5	40.	.6359		.491
200.5	40.	.7166		.5315
191.5	40.	.7576		.576
191.5	40.	.7715		.583
184.	40.	.826		.6442
176.	40.	.8638		.6921
165.	40.	.9009		.7544
158.	40.	.9312		.8164
151.5	40.	.9636		.8868
146.	40.	.9776		.9192

ETHANOL(2) - ETHYL ACETATE(1) SYSTEM 056B

12	11	1	10	1
136.6	40.	.006		.022
150.9	40.	.044		.144
163.1	40.	.084		.227
183.0	40.	.187		.370
191.9	40.	.242		.428
199.7	40.	.320		.484
208.3	40.	.454		.560
210.2	40.	.495		.574
211.8	40.	.552		.607
213.2	40.	.663		.664
212.1	40.	.749		.716
204.6	40.	.885		.829
200.6	40.	.920		.871
195.3	40.	.960		.928

ETHANOL(2) - ETHYL ACETATE(1) SYSTEM 056C

12	11	1	10	1
284.3	55.	.0055		.0185
302.5	55.	.037		.104
325.2	55.	.083		.201
349.7	55.	.151		.297
360.3	55.	.196		.348
371.6	55.	.243		.389
386.4	55.	.340		.453
397.5	55.	.464		.521
402.0	55.	.592		.601
400.9	55.	.682		.652
399.5	55.	.715		.674
385.2	55.	.853		.786
376.5	55.	.898		.839

365.0	55.	.944	.902

ETHANOL(1) - ETHYL ACETATE(2) SYSTEM 056D

11	12	1	10	1
444.	60.	.0505		.1107
444.5	60.	.0595		.11
464.	60.	.1319		.2023
478.	60.	.2286		.2801
478.5	60.	.2286		.2889
484.5	60.	.3279		.3257
485.	60.	.4437		.4244
481.	60.	.5011		.4578
479.5	60.	.5229		.4625
474.	60.	.586		.4865
473.	60.	.62		.5294
466.	60.	.687		.588
454.	60.	.7541		.6285
444.5	60.	.8064		.68
421.5	60.	.8559		.726
411.	60.	.894		.773
389.	60.	.9247		.8491
375.	60.	.9565		.8849
361.5	60.	.976		.9393

ETHANOL(2) - ETHYL ACETATE(1) SYSTEM 056E

12	11	1	10	1
548.6	70.	.0065		.0175
559.4	70.	.018		.046
633.6	70.	.131		.237
664.6	70.	.210		.321
680.4	70.	.263		.367
703.8	70.	.387		.454
710.0	70.	.452		.493
712.2	70.	.488		.517
711.2	70.	.625		.597
706.4	70.	.691		.641
697.8	70.	.755		.681
679.2	70.	.822		.747
651.6	70.	.903		.839
635.4	70.	.932		.888
615.6	70.	.975		.948

ETHANOL(1) - ETHYL ACETATE(2) SYSTEM 056F

11	12	1	10	2
760.	75.55	.0505		.1036
760.	73.82	.126		.2146
760.	73.78	.1343		.2146
760.	73.04	.2271		.296
760.	72.5	.3128		.3634
760.	72.28	.3358		.3643
760.	72.18	.5052		.4803
760.	72.35	.5441		.5074
760.	72.7	.6442		.5618
760.	72.9	.6828		.6092
760.	74.14	.786		.6819
760.	75.5	.8774		.7908
760.	76.7	.9482		.8924

ETHANOL(1) - HEPTANE(2) SYSTEM 057A

11	16	1	10	1
78.	30.	.04	.282	
103.6	30.	.0684	.4556	
112.5	30.	.1236	.4986	
117.7	30.	.2803	.5344	
118.	30.	.3342	.5381	
119.9	30.	.5151	.5496	
119.9	30.	.5934	.5679	
119.6	30.	.7174	.5828	
118.9	30.	.7687	.5971	
117.	30.	.8154	.6282	
114.5	30.	.855	.6454	
111.3	30.	.8902	.7116	
106.3	30.	.9173	.8269	
97.1	30.	.9545	.8958	
82.5	30.	.9913	.943	

ETHANOL(1) - HEPTANE(2) SYSTEM 057B

11	16	1	10	2
760.	92.07	.01	.1669	
760.	85.04	.025	.3371	
760.	78.81	.05	.4667	
760.	76.3	.075	.511	
760.	75.01	.1	.5396	
760.	72.62	.2	.5853	
760.	71.84	.3	.6029	
760.	71.49	.4	.614	
760.	71.28	.5	.625	
760.	71.22	.6	.6302	
760.	71.25	.7	.6495	
760.	71.57	.8	.6634	
760.	72.65	.9	.7449	
760.	74.31	.95	.8214	
760.	75.78	.975	.8869	

ETHANOL(2) - HEXANE(1) SYSTEM 058A

18	11	1	10	1
145.2	25.	.1	.62	
172.1	25.	.2	.694	
182.8	25.	.3	.721	
187.5	25.	.4	.734	
189.1	25.	.5	.739	
190.	25.	.6	.794	
190.4	25.	.7	.749	
190.4	25.	.8	.758	
189.4	25.	.9	.776	

ETHANOL(1) - HEXANE(2) SYSTEM 058B

18	11	1	10	1
528.6	55.	.0978	.511	
615.4	55.	.1983	.615	
650.4	55.	.2995	.655	
664.9	55.	.3984	.662	
667.7	55.	.498	.666	
669.2	55.	.5995	.671	
669.5	55.	.699	.675	
668.0	55.	.803	.679	

652.5 55. .9012 .693

ETHANOL(2) - HEXANE(1) SYSTEM 058C

11	18	1	10	2
760.	66.7	.006	.065	
760.	63.5	.01	.16	
760.	60.2	.045	.255	
760.	59.15	.102	.29	
760.	58.45	.235	.325	
760.	58.25	.275	.33	
760.	58.	.33	.34	
760.	58.1	.412	.35	
760.	58.35	.548	.36	
760.	58.7	.667	.37	
760.	59.4	.755	.395	
760.	61.8	.848	.468	
760.	65.9	.92	.58	
760.	67.4	.94	.635	
760.	73.2	.98	.807	
760.	76.	.99	.905	

ETHANOL(1) - METHYLCYCLOPENTANE(2) SYSTEM 059

11	27	1	10	2
760.	66.3	.015	.15	
760.	63.7	.03	.222	
760.	61.25	.085	.295	
760.	60.3	.216	.332	
760.	60.05	.348	.35	
760.	60.1	.467	.361	
760.	60.3	.58	.382	
760.	61.2	.713	.413	
760.	62.8	.8	.46	
760.	64.6	.857	.519	
760.	67.	.898	.593	
760.	73.65	.965	.815	
760.	76.1	.985	.908	

ETHANOL(1) - 1-PROPANOL(2) SYSTEM 060

11	37	1	10	2
760.	93.85	.126	.24	
760.	92.66	.188	.318	
760.	91.6	.210	.339	
760.	88.32	.358	.55	
760.	86.25	.461	.65	
760.	84.98	.546	.711	
760.	84.13	.6	.76	
760.	83.06	.663	.799	
760.	80.59	.844	.914	

ETHANOL(1) - 2-PROPANOL(2) SYSTEM 061

11	22	1	10	2
760.	81.5	.18	.1935	
760.	81.15	.302	.3235	
760.	80.88	.3655	.414	
760.	80.68	.401	.4275	
760.	80.27	.514	.56	
760.	80.1	.541	.5725	
760.	79.9	.629	.662	

760.	79.57	.7182	.7536
760.	79.03	.7916	.825
760.	78.95	.8606	.8705

ETHANOL(1) - TOLUENE(2) SYSTEM 062A

11	33	1	10	1
43.8	30.	.005		.138
48.85	30.	.01		.23
53.2	30.	.015		.295
56.9	30.	.02		.343
66.95	30.	.04		.449
73.3	30.	.06		.502
77.2	30.	.08		.531
79.5	30.	.1		.547
83.05	30.	.15		.572
85.4	30.	.2		.588
88.3	30.	.3		.611
90.	30.	.4		.628
91.3	30.	.5		.645
92.1	30.	.6		.665
92.4	30.	.7		.691
91.55	30.	.8		.735
90.3	30.	.85		.77
88.1	30.	.9		.818
84.45	30.	.95		.889

ETHANOL(1) - TOLUENE(2) SYSTEM 062B

11	33	1	10	1
85.2	45.	.005		.119
94.0	45.	.01		.204
101.8	45.	.015		.268
108.8	45.	.02		.318
130.1	45.	.04		.438
143.9	45.	.06		.497
153.15	45.	.08		.532
159.6	45.	.10		.555
169.55	45.	.15		.588
175.7	45.	.2		.608
183.1	45.	.3		.634
187.8	45.	.4		.653
191.3	45.	.5		.672
193.65	45.	.6		.693
194.9	45.	.7		.719
194.3	45.	.8		.761
192.55	45.	.85		.794
189.1	45.	.9		.838
183.0	45.	.95		.902

ETHANOL(1) - TOLUENE(2) SYSTEM 062C

11	33	1	10	1
155.4	60.	.005		.103
169.55	60.	.01		.181
182.55	60.	.015		.242
194.4	60.	.02		.291
232.6	60.	.04		.416
260.4	60.	.06		.485
281.2	60.	.08		.529
296.45	60.	.1		.557

319.7	60.	.15	.597
333.5	60.	.2	.62
351.65	60.	.3	.652
363.7	60.	.4	.675
371.6	60.	.5	.695
377.7	60.	.6	.717
381.7	60.	.7	.743
382.65	60.	.8	.785
380.7	60.	.85	.814
375.9	60.	.9	.856
366.8	60.	.95	.914

ETHANOL(1) - WATER(2) SYSTEM 063A

11	34	1	10	1
66.3	40.	.025		.18
79.6	40.	.058		.316
91.9	40.	.099		.424
99.6	40.	.13		.473
115.2	40.	.293		.536
121.	40.	.398		.595
127.4	40.	.56		.686
130.5	40.	.676		.744
132.9	40.	.779		.808
134.	40.	.86		.869

ETHANOL(1) - WATER(2) SYSTEM 063B

11	34	1	10	1
75.14	40.	.062		.374
89.	40.	.077		.406
94.6	40.	.098		.450
101.5	40.	.128		.488
109.	40.	.181		.543
116.9	40.	.319		.598
121.05	40.	.399		.628
125.5	40.	.511		.676
130.4	40.	.663		.746
132.5	40.	.774		.809
132.8	40.	.810		.829
133.5	40.	.875		.879
133.8	40.	.957		.956

ETHANOL(1) - WATER(2) SYSTEM 063C

11	34	1	10	1
115.7	50.	.029		.208
161.	50.	.11		.439
187.9	50.	.246		.521
204.8	50.	.451		.623
213.4	50.	.581		.685
218.1	50.	.682		.74
222.8	50.	.862		.87
222.9	50.	.885		.891
223.	50.	.926		.929
223.1	50.	.947		.945

ETHANOL(1) - WATER(2) SYSTEM 063D

11	34	1	10	1
173.35	55.	.051		.336
197.8	55.	.085		.428

207.5	55.	.106	.461
227.3	55.	.18	.524
236.3	55.	.23	.555
248.2	55.	.324	.589
258.	55.	.429	.628
267.	55.	.553	.680
274.9	55.	.685	.746
278.4	55.	.774	.801
279.4	55.	.810	.829
280.6	55.	.894	.898
280.5	55.	.954	.952

ETHANOL(1) - WATER(2) SYSTEM 063E

11	34	1	10	1
195.7	60.	.033	.233	
270.	60.	.125	.446	
306.5	60.	.267	.511	
330.8	60.	.459	.58	
343.1	60.	.597	.664	
349.4	60.	.682	.738	
354.2	60.	.865	.875	
355.4	60.	.891	.89	
355.	60.	.928	.928	
354.6	60.	.949	.949	

ETHANOL(1) - WATER(2) SYSTEM 063F

11	34	1	10	1
362.5	70.	.062	.374	
399.	70.	.095	.439	
424.	70.	.131	.482	
450.9	70.	.194	.524	
468.	70.	.252	.552	
485.5	70.	.334	.583	
497.6	70.	.401	.611	
525.9	70.	.593	.691	
534.3	70.	.680	.739	
542.7	70.	.793	.816	
543.1	70.	.810	.826	
544.5	70.	.943	.941	
544.5	70.	.947	.945	

ETHANOL(1) - WATER(2) SYSTEM 063G

11	34	1	10	2
760.	95.5	.018	.179	
760.	90.6	.054	.3375	
760.	85.4	.124	.47	
760.	83.7	.176	.514	
760.	82.75	.23	.542	
760.	82.	.288	.57	
760.	81.	.385	.612	
760.	80.5	.44	.633	
760.	79.8	.514	.657	
760.	78.9	.673	.735	
760.	78.26	.84	.85	

ETHANOL(1) - WATER(2) SYSTEM 063H

11	34	1	10	2
760.	98.62	.0051	.0486	

760.	98.06	.0069	.0752
760.	95.97	.0162	.1442
760.	92.95	.0316	.2929
760.	87.07	.0823	.3985
760.	85.67	.1065	.4513
760.	84.53	.1368	.4812
760.	84.24	.145	.4805
760.	83.5	.177	.5095
760.	80.59	.4034	.612
760.	79.35	.5733	.6849
760.	78.63	.7152	.7607
760.	78.43	.7715	.7961
760.	78.32	.816	.8246
760.	78.31	.818	.8322
760.	78.28	.8386	.845
760.	78.24	.878	.8789
760.	78.22	.9167	.9117
760.	78.37	.991	.9892
760.	84.	.489	.906

ETHYL ACETATE(1) - BENZENE(2) SYSTEM 064

12	5	1	10	2
760.	77.19	.95		.951
760.	77.23	.912		.914
760.	77.29	.857		.86
760.	77.31	.841		.845
760.	77.32	.834		.838
760.	77.38	.774		.780
760.	77.49	.697		.707
760.	77.67	.587		.605
760.	77.84	.528		.547
760.	78.12	.441		.465
760.	78.19	.422		.448
760.	78.43	.359		.387
760.	78.66	.3		.329
760.	78.96	.23		.256
760.	79.28	.16		.184
760.	79.40	.136		.157
760.	79.77	.06		.071
760.	79.95	.027		.033
760.	80.01	.016		.02

ETHYL ACETATE(1) - TOLUENE(2) SYSTEM 065

12	33	1	10	2
760.	77.6	.97		.987
760.	77.81	.954		.98
760.	78.39	.922		.967
760.	78.8	.891		.953
760.	79.91	.835		.928
760.	81.14	.773		.899
760.	82.25	.715		.867
760.	83.55	.656		.837
760.	85.16	.598		.8
760.	89.22	.452		.703
760.	92.09	.365		.629
760.	95.02	.283		.545
760.	95.51	.27		.528
760.	99.8	.175		.391

760.	103.46	.107	.265
760.	106.94	.048	.137
760.	107.87	.032	.097
760.	108.82	.021	.064

ETHYL ACETATE(1) - P-XYLENE(2) SYSTEM 066

12	36	1	10	2
760.	77.92	.965		.992
760.	78.17	.949		.989
760.	79.2	.912		.981
760.	80.91	.846		.967
760.	83.1	.765		.948
760.	85.65	.667		.925
760.	86.54	.635		.916
760.	90.12	.524		.878
760.	93.17	.44		.847
760.	95.	.399		.825
760.	99.62	.31		.771
760.	105.05	.235		.695
760.	111.13	.165		.612
760.	115.97	.124		.53
760.	119.08	.1		.475
760.	123.44	.07		.384
760.	127.88	.044		.28
760.	130.03	.033		.22
760.	133.12	.019		.138
760.	136.54	.006		.048

ETHYL ACETATE(1) - WATER(2) SYSTEM 067A

12	34	1	10	1
55.66	40.	.00011		.0038
55.84	40.	.00012		.0054
55.84	40.	.00012		.0055
202.1	40.	.9648		.9022
199.1	40.	.9746		.9246
197.1	40.	.9807		.9431
193.4	40.	.9879		.9649
190.4	40.	.9942		.9884

ETHYL ACETATE(1) - WATER(2) SYSTEM 067B

12	34	1	10	1
118.85	55.	.00012		.0052
119.25	55.	.00017		.0081
119.30	55.	.00018		.0081
372.0	55.	.9695		.9093
371.7	55.	.9699		.9085
364.7	55.	.9780		.9382
358.0	55.	.9894		.9676
352.2	55.	.9927		.9846

ETHYL ACETATE(1) - WATER(2) SYSTEM 067C

12	34	1	10	1
233.9	70.	.00004		.0015
234.9	70.	.00010		.0056
235.7	70.	.00015		.0084
235.7	70.	.00016		.0085
646.3	70.	.9676		.9059
641.1	70.	.9723		.9173

630.6	70.	.9788	.9395
623.1	70.	.9855	.9630
610.3	70.	.9927	.9826

ETHYL ACETATE(1) - WATER(2) SYSTEM 067D

12	34	1	10	2
760.	74.8	.971	.914	
760.	75.	.974	.927	
760.	75.6	.983	.947	
760.	75.7	.986	.954	
760.	75.9	.984	.953	

ETHYLBENZENE(1) - FURFURAL(2) SYSTEM 068

45	15	1	10	2
723.	132.7	.979	.974	
723.	132.5	.96	.955	
723.	132.3	.942	.942	
723.	132.45	.93	.931	
723.	132.5	.923	.926	
723.	132.6	.847	.867	
723.	132.7	.775	.835	
723.	133.5	.654	.762	
723.	134.	.6	.732	
723.	134.5	.558	.709	
723.	136.4	.467	.657	
723.	138.5	.381	.642	
723.	144.9	.181	.468	
723.	149.8	.092	.297	
723.	152.5	.05	.177	
723.	154.5	.035	.138	

ETHYL ETHER(1) - ETHANOL(2) SYSTEM 069A

14	11	1	10	1
238.	40.	.05	.4618	
330.3	40.	.1	.6303	
408.5	40.	.15	.7150	
473.2	40.	.2	.7650	
529.5	40.	.25	.7992	
577.	40.	.3	.8234	
617.6	40.	.35	.8420	
653.7	40.	.4	.8571	
687.6	40.	.45	.8706	
717.6	40.	.5	.8820	
742.	40.	.55	.8912	
764.3	40.	.6	.8998	
785.2	40.	.65	.9083	
805.9	40.	.7	.9167	
826.5	40.	.75	.9257	
846.8	40.	.8	.9357	
866.	40.	.85	.9466	
885.	40.	.9	.9598	
903.3	40.	.95	.9762	

ETHYL ETHER(1) - ETHANOL(2) SYSTEM 069B

14	11	1	10	1
364.	50.	.05	.4203	
486.1	50.	.1	.5863	
584.6	50.	.15	.6723	

674.	50.	.2	.7285
748.8	50.	.25	.7666
813.	50.	.3	.7946
868.8	50.	.35	.8161
919.6	50.	.4	.8341
967.5	50.	.45	.8496
1006.8	50.	.5	.8621
1041.	50.	.55	.8732
1070.7	50.	.6	.8835
1100.8	50.	.65	.8939
1128.3	50.	.7	.9040
1157.4	50.	.75	.9148
1183.6	50.	.8	.9268
1209.0	50.	.85	.9396
1233.3	50.	.9	.9543
1255.2	50.	.95	.9727

HEPTANE(1) - ANILINE(2) SYSTEM 070

16	4	1	10	2
742.	117.	.088	.87	
742.	112.2	.154	.897	
742.	106.5	.267	.923	
742.	105.4	.367	.925	
742.	104.7	.413	.925	
742.	103.8	.633	.932	
742.	101.1	.845	.951	
742.	100.2	.899	.9645	

HEPTANE(1) - 1-BUTANOL(2) SYSTEM 071

16	43	1	10	2
684.	103.8	.057	.37	
684.	98.2	.142	.544	
684.	95.2	.221	.621	
684.	92.2	.329	.693	
684.	90.2	.434	.73	
684.	89.5	.552	.758	
684.	89.	.614	.774	
684.	88.8	.738	.795	
684.	89.3	.911	.846	
684.	93.4	.98	.935	

HEPTANE(1) - TOLUENE(2) SYSTEM 072A

16	33	1	10	2
760.	107.73	.1	.166	
760.	105.62	.2	.294	
760.	103.88	.3	.4005	
760.	102.59	.4	.497	
760.	101.52	.5	.5825	
760.	100.60	.6	.664	
760.	99.82	.7	.744	
760.	99.26	.8	.8275	
760.	98.43	.9	.912	

HEPTANE(1) - TOLUENE(2) SYSTEM 072B

16	33	1	10	2
760.	109.1	.048	.083	
760.	108.4	.069	.118	
760.	107.1	.123	.193	

760.	106.2	.166	.246
760.	105.	.224	.317
760.	104.	.291	.387
760.	102.9	.365	.46
760.	102.1	.434	.521
760.	101.1	.539	.608
760.	100.2	.641	.694
760.	99.5	.739	.775
760.	98.7	.901	.913
760.	98.6	.912	.922

HEPTANE(1) - P-XYLENE(2) SYSTEM 073

16	36	1	10	2
760.	136.3	.022	.07	
760.	134.	.05	.145	
760.	132.1	.075	.202	
760.	130.2	.102	.204	
760.	128.2	.13	.32	
760.	124.1	.198	.434	
760.	121.	.259	.518	
760.	120.9	.26	.521	
760.	120.8	.262	.52	
760.	120.4	.27	.536	
760.	117.2	.341	.61	
760.	115.7	.381	.64	
760.	113.5	.439	.693	
760.	113.1	.448	.698	
760.	113.1	.45	.694	
760.	112.8	.455	.7	
760.	110.7	.521	.75	
760.	108.2	.599	.806	
760.	108.1	.607	.812	
760.	105.6	.694	.858	
760.	103.4	.779	.902	
760.	101.6	.851	.938	
760.	100.7	.894	.956	
760.	99.7	.94	.975	

HEXANE(1) - BENZENE(2) SYSTEM 074A

18	5	1	10	1
115.4	25.	.1	.242	
126.4	25.	.2	.363	
134.5	25.	.3	.456	
140.4	25.	.4	.529	
144.5	25.	.5	.592	
147.7	25.	.6	.661	
150.6	25.	.7	.744	
153.	25.	.8	.82	
154.3	25.	.9	.904	

HEXANE(2) - BENZENE(1) SYSTEM 074B

5	18	1	10	1
791.6	70.	.125	.12	
785.2	70.	.25	.225	
768.7	70.	.375	.3125	
744.7	70.	.5	.405	
711.6	70.	.625	.505	
676.5	70.	.75	.625	

620.9	70.	.875	.773

HEXANE(1) - BENZENE(2) SYSTEM 074C

18	5	1	10	2
760.	77.6	.073		.14
760.	75.1	.172		.268
760.	73.4	.268		.376
760.	72.	.372		.46
760.	70.9	.462		.54
760.	70.	.585		.644
760.	69.4	.692		.725
760.	69.1	.792		.807
760.	69.	.828		.838
760.	68.9	.883		.888
760.	68.8	.947		.95
760.	68.8	.962		.964

HEXANE(1) - BENZENE(2) SYSTEM 074D

18	5	1	10	2
760.	77.7	.079		.149
760.	75.6	.151		.251
760.	74.0	.226		.338
760.	72.9	.305		.412
760.	71.7	.414		.507
760.	71.0	.484		.561
760.	70.3	.589		.644
760.	69.7	.666		.696
760.	69.4	.772		.791
760.	69.2	.920		.919

HEXANE(1) - CHLOROBENZENE(2) SYSTEM 075A

18	56	1	10	1
166.4	65.	.083		.544
222.3	65.	.144		.679
264.1	65.	.201		.744
319.7	65.	.284		.803
382.3	65.	.394		.852
403.9	65.	.438		.866
428.3	65.	.485		.882
453.8	65.	.54		.896
477.9	65.	.591		.91
516.3	65.	.679		.929
578.	65.	.806		.957
638.4	65.	.927		.984

HEXANE(1) - CHLOROBENZENE(2) SYSTEM 075B

18	56	1	10	2
759.8	127.56	.018		.118
759.8	121.06	.049		.282
759.8	115.66	.081		.406
759.8	111.53	.109		.491
759.8	106.62	.146		.527
759.8	101.04	.2		.666
759.8	92.7	.309		.769
759.8	86.84	.419		.835
759.8	82.66	.516		.872
759.8	80.19	.591		.896
759.8	80.13	.593		.896

759.8	80.17	.594	.896
759.8	78.31	.644	.912
759.8	75.7	.737	.934
759.8	74.17	.79	.95
759.8	74.14	.793	.96
759.8	72.72	.847	.965

HEXANE(1) - 1-HEXENE(2) SYSTEM 076

18	38	1	10	2
760.	67.9	.903	.887	
760.	67.8	.895	.877	
760.	67.2	.807	.78	
760.	66.5	.708	.674	
760.	65.9	.614	.577	
760.	65.7	.588	.55	
760.	65.4	.523	.485	
760.	64.8	.413	.378	
760.	64.8	.408	.374	
760.	64.7	.397	.373	
760.	64.4	.324	.293	
760.	64.3	.285	.256	
760.	64.1	.220	.197	
760.	64.	.214	.192	
760.	63.7	.116	.103	
760.	63.7	.108	.1	

HEXANE(1) - P-XYLENE(2) SYSTEM 077

18	36	1	10	2
760.	136.1	.011	.069	
760.	130.	.042	.224	
760.	118.3	.123	.486	
760.	112.1	.165	.587	
760.	109.7	.192	.625	
760.	96.3	.338	.785	
760.	91.3	.409	.831	
760.	86.6	.497	.867	
760.	82.9	.578	.898	
760.	78.2	.701	.941	
760.	74.8	.797	.966	
760.	70.	.953	.993	
760.	72.6	.868	.978	

HEXANE(1) - TOLUENE(2) SYSTEM 078A

18	33	1	10	2
760.	103.5	.069	.228	
760.	103.3	.070	.229	
760.	103.1	.072	.253	
760.	100.5	.104	.314	
760.	99.4	.116	.346	
760.	99.2	.120	.345	
760.	97.9	.137	.380	
760.	97.6	.140	.391	
760.	97.5	.142	.388	
760.	95.1	.177	.459	
760.	94.9	.181	.463	
760.	94.8	.182	.462	
760.	91.1	.246	.553	
760.	90.8	.254	.565	

760.	90.5	.260	.571
760.	89.	.293	.609
760.	88.	.309	.621
760.	86.6	.345	.651
760.	86.1	.356	.659
760.	83.4	.429	.721
760.	83.1	.434	.724
760.	83.	.441	.733
760.	81.1	.499	.763
760.	80.9	.503	.768
760.	80.7	.510	.776
760.	79.	.568	.806
760.	78.7	.578	.809
760.	76.7	.652	.852
760.	76.6	.658	.852
760.	73.1	.796	.918
760.	72.5	.820	.927
760.	72.1	.834	.935
760.	70.9	.884	.955

HEXANE(1) - TOLUENE(2) SYSTEM 078B

18	33	1	10	2
760.	102.1	.09	.282	
760.	100.95	.1	.31	
760.	96.05	.18	.459	
760.	94.4	.196	.484	
760.	93.	.217	.518	
760.	90.85	.254	.563	
760.	89.8	.28	.593	
760.	86.85	.339	.657	
760.	86.35	.352	.664	
760.	85.35	.392	.697	
760.	82.5	.443	.742	
760.	82.4	.464	.751	
760.	81.95	.473	.757	
760.	80.85	.491	.769	
760.	81.	.508	.777	
760.	78.5	.579	.822	
760.	77.8	.605	.832	
760.	76.75	.64	.848	
760.	74.85	.707	.88	
760.	74.2	.73	.89	
760.	73.5	.77	.907	
760.	72.25	.813	.927	
760.	72.15	.822	.93	
760.	71.5	.862	.946	
760.	71.15	.869	.948	

ISONONANE(1) - PHENOL(2) SYSTEM 079

19	32	1	10	2
760.	126.1	.9648	.9659	
760.	124.4	.9936	.9936	
760.	124.4	.9971	.9971	

ISO-OCTANE(1) - METHYLCYCLOHEXANE(2) SYSTEM 080

20	26	1	10	2
741.	99.8	.04	.048	
741.	99.65	.088	.107	

741.	99.5	.14	.163
741.	99.4	.19	.204
741.	99.3	.245	.257
741.	99.1	.34	.35
741.	98.95	.407	.416
741.	98.85	.476	.49
741.	98.55	.695	.707
741.	98.4	.794	.809
741.	98.3	.879	.888

ISO-OCTANE(1) - PHENOL(2) SYSTEM 081

20	32	1	10	2
760.	125.6	.238	.888	
760.	113.3	.427	.9364	
760.	107.8	.666	.914	
760.	103.9	.9015	.9459	
760.	101.1	.953	.9693	
760.	101.1	.9546	.9704	
760.	100.6	.9795	.9864	
760.	100.6	.9892	.9914	
760.	100.	.9959	.9966	

ISO-OCTANE(1) - TOLUENE(2) SYSTEM 082

20	33	1	10	1
604.3	100.	.1	.1703	
643.6	100.	.2	.298	
676.	100.	.3	.4022	
702.	100.	.4	.4905	
721.3	100.	.5	.5753	
736.2	100.	.6	.6559	
748.4	100.	.7	.7395	
758.5	100.	.8	.8223	
769.5	100.	.9	.9092	

METHANOL(1) - BENZENE(2) SYSTEM 083A

23	5	1	10	1
203.29	35.	.0242	.2733	
211.10	35.	.0254	.3128	
274.25	35.	.1302	.4858	
288.47	35.	.3107	.5304	
292.50	35.	.4989	.5546	
292.70	35.	.5191	.5571	
292.49	35.	.6305	.5790	
283.58	35.	.7965	.6421	
255.82	35.	.9197	.7688	

METHANOL(1) - BENZENE(2) SYSTEM 083B

23	5	1	10	1
465.84	55.	.0304	.3019	
527.12	55.	.0493	.4051	
597.48	55.	.1031	.4841	
664.24	55.	.3297	.5540	
675.62	55.	.4874	.5845	
675.99	55.	.4984	.5858	
678.44	55.	.6076	.6078	
664.91	55.	.7896	.6716	
622.29	55.	.9014	.7697	

METHANOL(1) - BENZENE(2) SYSTEM 083C

23	5	1	10	2
760.	70.67	.026	.267	
760.	66.44	.05	.371	
760.	62.87	.088	.457	
760.	60.2	.164	.526	
760.	58.64	.333	.559	
760.	58.02	.549	.595	
760.	58.1	.699	.633	
760.	58.47	.782	.665	
760.	59.9	.898	.76	
760.	62.71	.973	.907	

METHANOL(1) - CARBON TETRACHLORIDE(2) SYSTEM 084A

23	6	1	10	1
259.13	35.	.0169	.3297	
262.31	35.	.0189	.3374	
315.12	35.	.1349	.4630	
324.64	35.	.3560	.4915	
325.71	35.	.4776	.5030	
325.71	35.	.4939	.5056	
323.81	35.	.6557	.5302	
312.61	35.	.7912	.5792	
277.37	35.	.9120	.7024	

METHANOL(1) - CARBON TETRACHLORIDE(2) SYSTEM 084B

23	6	1	10	1
580.66	55.	.0254	.3619	
591.16	55.	.0579	.3639	
716.95	55.	.1493	.4981	
741.36	55.	.3647	.5284	
745.60	55.	.4893	.5431	
745.72	55.	.4946	.5438	
744.54	55.	.6448	.5686	
724.28	55.	.7903	.6187	
658.37	55.	.9089	.7337	

METHANOL(1) - ETHANOL(2) SYSTEM 085

23	11	1	10	2
760.	76.60	.134	.183	
760.	75.00	.242	.326	
760.	73.60	.320	.428	
760.	72.30	.401	.529	
760.	71.70	.435	.566	
760.	70.00	.542	.676	
760.	68.60	.652	.759	
760.	67.70	.728	.813	
760.	66.90	.790	.858	
760.	66.60	.814	.875	
760.	65.80	.873	.919	
760.	65.60	.910	.937	

METHANOL(1) - ETHYL ACETATE(2) SYSTEM 086A

23	12	1	10	1
231.5	40.	.05	.2115	
231.5	40.	.067	.213	
240.	40.	.097	.262	
259.	40.	.154	.3718	

268.5	40.	.2175	.4242
284.	40.	.262	.4695
289.5	40.	.3	.4912
296.5	40.	.382	.5356
298.	40.	.45	.536
304.	40.	.568	.615
305.	40.	.656	.66
302.	40.	.719	.694
303.5	40.	.78	.73
301.5	40.	.81	.7495

METHANOL(1) - ETHYL ACETATE(2) SYSTEM 086B

23	12	1	10	1
330.5	50.	.0525		.17
373.5	50.	.126		.3375
405.5	50.	.2315		.436
435.	50.	.3435		.5125
455.5	50.	.45		.5685
459.5	50.	.5425		.617
460.5	50.	.568		.6325
461.5	50.0	.6350		.6640
463.	50.	.706		.6975
461.5	50.	.758		.729
457.5	50.	.8215		.7655
452.5	50.	.8755		.81
444.5	50.	.925		.855

METHANOL(1) - ETHYL ACETATE(2) SYSTEM 086C

23	12	1	10	1
456.	60.	.0190		.095
490.5	60.	.0495		.1785
545.	60.	.1090		.310
558.	60.	.1360		.345
591.5	60.	.1900		.416
611.	60.	.2375		.435
644.	60.	.3590		.532
660.	60.	.4020		.550
673.	60.	.4950		.594
684.5	60.	.5900		.643
690.	60.	.6990		.702
687.5	60.	.7350		.728
688.	60.	.7480		.732
677.	60.	.8980		.847
674.5	60.	.9100		.8535

METHANOL(1) - ETHYL ACETATE(2) SYSTEM 086D

23	12	1	10	2
730.	73.5	.034		.142
730.	70.6	.089		.26
730.	68.7	.127		.335
730.	66.8	.206		.407
730.	65.2	.273		.476
730.	64.2	.325		.5
730.	64.1	.348		.521
730.	63.5	.398		.547
730.	63.4	.414		.559
730.	63.1	.505		.594
730.	62.5	.552		.636

730.	62.3	.598	.652
730.	62.6	.602	.643
730.	62.3	.617	.645
730.	62.2	.67	.69
730.	62.2	.812	.779
730.	62.4	.852	.81
730.	62.8	.894	.856
730.	63.5	.937	.903
730.	63.6	.958	.928

METHANOL(1) - ETHYL ACETATE(2) SYSTEM 086E

23	12	1	10	2
760.	76.1	.0125		.0475
760.	74.15	.032		.133
760.	71.24	.08		.2475
760.	67.75	.155		.365
760.	65.6	.251		.455
760.	64.1	.3465		.5205
760.	64.	.402		.556
760.	63.25	.4975		.597
760.	62.97	.561		.638
760.	62.5	.589		.656
760.	62.65	.622		.667
760.	62.5	.696		.7
760.	62.35	.765		.742
760.	62.6	.825		.789
760.	62.8	.855		.807
760.	63.21	.916		.86
760.	63.9	.955		.929

METHANOL(1) - ETHYL ACETATE(2) SYSTEM 086F

23	12	1	10	2
760.	74.8	.019		.079
760.	74.	.024		.093
760.	72.3	.056		.181
760.	67.1	.181		.384
760.	64.7	.311		.492
760.	64.2	.35		.52
760.	63.6	.403		.557
760.	62.6	.566		.64
760.	62.4	.616		.675
760.	62.4	.646		.678
760.	62.3	.708		.711
760.	62.1	.720		.716
760.	62.3	.734		.717
760.	62.5	.743		.732
760.	62.6	.744		.733
760.	62.5	.81		.779
760.	62.4	.815		.784
760.	62.8	.889		.846
760.	63.3	.939		.903

METHANOL(1) - ETHYL ACETATE(2) SYSTEM 086G

23	12	1	10	2
760.	74.4	.028		.12
760.	74.	.037		.133
760.	71.5	.073		.22
760.	69.3	.123		.31

760.	66.4	.211	.42
760.	66.	.236	.442
760.	65.8	.239	.44
760.	65.3	.265	.468
760.	64.	.352	.526
760.	63.7	.408	.558
760.	63.6	.44	.573
760.	63.1	.533	.62
760.	62.9	.585	.647
760.	62.4	.664	.687
760.	62.4	.708	.711
760.	62.4	.748	.737
760.	62.4	.793	.768
760.	62.5	.822	.79
760.	62.8	.883	.842
760.	64.	.961	.934

METHANOL(1) - HEPTANE(2) SYSTEM 087

23	16	1	10	2
760.	60.60	.138	.720	
760.	59.47	.178	.733	
760.	58.93	.390	.739	
760.	58.82	.668	.746	
760.	58.81	.810	.748	
760.	59.01	.885	.765	
760.	59.90	.946	.809	

METHANOL(1) - HEXANE(2) SYSTEM 088

23	18	1	10	1
615.	45.	.1	.481	
626.	45.	.2	.492	
627.	45.	.3	.494	
627.	45.	.4	.496	
627.	45.	.5	.496	
627.	45.	.6	.498	
627.	45.	.7	.498	
627.	45.	.8	.498	
616.	45.	.9	.511	

METHANOL(1) - ISOPRENE(2) SYSTEM 089

23	21	1	10	2
745.	32.6	.014	.084	
745.	30.1	.154	.154	
745.	32.8	.638	.190	
745.	37.5	.810	.240	
745.	44.0	.910	.342	
745.	51.5	.967	.550	

METHANOL(1) - ISOPROPYL ETHER(2) SYSTEM 090

23	46	1	10	2
730.	62.4	.07	.198	
730.	60.7	.124	.29	
730.	58.	.285	.418	
730.	57.4	.42	.48	
730.	57.	.551	.534	
730.	57.2	.65	.577	
730.	57.8	.727	.613	
730.	58.1	.762	.633	

730.	58.5	.82	.679
730.	58.9	.839	.695
730.	60.	.888	.75
730.	60.1	.901	.762
730.	60.9	.927	.796
730.	62.8	.968	.881

METHANOL(1) - METHYL ETHYL KETONE(2) SYSTEM 091

23	28	1	10	2
760.	75.3	.076	.193	
760.	72.2	.147	.308	
760.	70.7	.197	.377	
760.	68.8	.265	.453	
760.	67.5	.356	.528	
760.	65.9	.498	.622	
760.	65.1	.622	.695	
760.	64.4	.747	.777	
760.	64.3	.829	.832	
760.	64.3	.841	.842	
760.	64.3	.873	.869	
760.	64.4	.936	.926	

METHANOL(1) - 2-METHYLPENTANE(2) SYSTEM 092

23	30	1	10	2
745.	54.	.04	.234	
745.	47.8	.127	.336	
745.	44.7	.395	.395	
745.	44.9	.566	.417	
745.	44.9	.568	.415	
745.	48.4	.881	.492	

METHANOL(1) - 3-METHYLPENTANE(2) SYSTEM 093

23	31	1	10	2
745.	52.7	.079	.321	
745.	47.8	.190	.380	
745.	46.2	.425	.425	
745.	47.4	.782	.472	
745.	56.4	.932	.569	

METHANOL(1) - 1-PROPANOL(2) SYSTEM 094

23	37	1	10	2
760.	88.3	.155	.437	
760.	83.5	.265	.595	
760.	81.6	.31	.66	
760.	78.8	.386	.725	
760.	72.6	.61	.872	
760.	67.2	.86	.965	
760.	66.5	.895	.975	

METHANOL(1) - 2-PROPANOL(2) SYSTEM 095A

23	22	1	10	1
494.8	55.	.9529	.9816	
488.41	55.	.9232	.9636	
478.39	55.	.8854	.9479	
466.47	55.	.8432	.9191	
460.54	55.	.7946	.8915	
445.49	55.	.7372	.8596	
432.97	55.	.6983	.833	

402.85	55.	.599	.7693
383.3	55.	.531	.7189
364.13	55.	.4682	.6664
346.22	55.	.3986	.6027
320.89	55.	.3498	.546
312.66	55.	.2739	.4626
297.66	55.	.2314	.407
287.66	55.	.2107	.3711
289.25	55.	.1902	.3428
273.03	55.	.1638	.3062
258.93	55.	.1069	.2056
250.9	55.	.0822	.1702
247.02	55.	.0451	.112

METHANOL(1)1- 2-PROPANOL(2) SYSTEM 095B

23	22	1	10	2
760.	79.9	.135	.205	
760.	79.7	.14	.21	
760.	79.4	.165	.255	
760.	78.3	.215	.315	
760.	78.	.22	.327	
760.	77.6	.255	.38	
760.	73.7	.467	.637	
760.	73.1	.49	.665	
760.	71.2	.597	.755	
760.	70.2	.665	.808	
760.	69.5	.7	.835	
760.	66.4	.91	.958	

METHANOL(1) - TOLUENE(2) SYSTEM 096

23	33	1	10	2
760.	89.9	.046	.519	
760.	84.3	.058	.627	
760.	80.4	.070	.704	
760.	74.75	.094	.777	
760.	71.3	.114	.793	
760.	69.7	.132	.801	
760.	66.75	.234	.813	
760.	65.75	.330	.822	
760.	65.1	.439	.828	
760.	64.15	.675	.842	
760.	63.7	.830	.866	
760.	63.6	.870	.878	
760.	63.7	.930	.912	
760.	64.1	.974	.957	

METHANOL(1) - WATER(2) SYSTEM 097

23	34	1	10	2
760.	95.2	.0293	.1831	
760.	94.5	.0346	.2107	
760.	93.7	.0406	.2363	
760.	92.8	.0422	.2652	
760.	91.8	.0557	.2978	
760.	90.9	.0644	.3265	
760.	90.0	.0737	.3608	
760.	89.1	.0838	.3861	
760.	89.2	.0948	.4142	
760.	78.8	.2601	.6621	

760.	77.6	.3004	.6882
760.	77.6	.3212	.6882
760.	76.9	.3435	.7002
760.	76.2	.3664	.7178
760.	75.7	.3909	.7274
760.	75.1	.4141	.7428
760.	74.6	.4391	.7597
760.	74.0	.4637	.7668
760.	67.2	.8457	.9360
760.	66.6	.8869	.9632
760.	65.7	.9293	.9771

METHYL ACETATE(1) - BENZENE(2) SYSTEM 098A

24	5	1	10	1
131.3	25.	.1		.3232
152.5	25.	.2		.4661
167.3	25.	.3		.5531
178.7	25.	.4		.6210
188.3	25.	.5		.6810
190.3	25.	.5223		.6922
197.1	25.	.6		.7380
205.3	25.	.7		.8007
206.8	25.	.7399		.83
213.1	25.	.8		.864
220.3	25.	.9		.9307

METHYL ACETATE(1) - BENZENE(2) SYSTEM 098B

24	5	1	10	1
195.8	35.0	.10		.3037
226.2	35.0	.20		.4483
248.2	35.0	.30		.5414
265.6	35.0	.40		.6158
280.8	35.0	.50		.6785
283.7	35.0	.5273		.6940
294.6	35.0	.6		.7408
307.6	35.0	.7		.8040
312.6	35.0	.7399		.8284
320.1	35.0	.8		.8660
334.7	35.0	.9		.9349

METHYL ACETATE(1) - BENZENE(2) SYSTEM 098C

24	5	1	10	1
291.	50.	.041		.105
309.8	50.	.08		.194
334.3	50.	.133		.288
349.3	50.	.171		.341
387.	50.	.254		.461
405.2	50.	.303		.509
432.7	50.	.371		.577
445.7	50.	.414		.614
464.4	50.	.466		.657
483.7	50.	.548		.716
506.3	50.	.616		.766
525.1	50.	.702		.816
540.	50.	.759		.851
555.3	50.	.811		.884
570.7	50.	.882		.928
581.2	50.	.927		.955

583. 50. .943 .965

METHYL ACETATE(1) - BENZENE(2) SYSTEM 098D

24	5	1	10	2
760.	77.81	.052		.13
760.	76.76	.084		.193
760.	73.12	.192		.369
760.	72.4	.214		.403
760.	71.17	.255		.456
760.	69.28	.328		.532
760.	66.87	.427		.62
760.	64.81	.522		.697
760.	63.03	.616		.767
760.	61.31	.711		.827
760.	59.75	.806		.885
760.	58.58	.887		.929
760.	57.78	.939		.962

METHYL ACETATE(1) - BENZENE(2) SYSTEM 098E

24	5	1	10	2
760.	57.9	.895		.933
760.	58.4	.863		.914
760.	60.1	.735		.832
760.	61.8	.62		.749
760.	63.8	.505		.665
760.	66.8	.362		.545
760.	67.5	.338		.528
760.	71.	.212		.387
760.	71.8	.189		.356
760.	73.5	.139		.282
760.	75.9	.076		.175
760.	76.9	.055		.133

METHYL ACETATE(1) - CHLOROFORM(2) SYSTEM 099A

24	8	1	10	1
500.3	50.	.064		.04
482.	50.	.134		.089
472.1	50.	.178		.131
455.6	50.	.258		.22
450.1	50.	.314		.308
449.1	50.	.356		.354
450.6	50.	.394		.405
453.8	50.	.438		.47
458.1	50.	.477		.526
465.3	50.	.525		.584
483.6	50.	.612		.698
508.	50.	.707		.796
512.8	50.	.726		.814
518.	50.	.747		.835
535.2	50.	.815		.886
571.9	50.	.935		.966

METHYL ACETATE(1) - CHLOROFORM(2) SYSTEM 099B

24	8	1	10	2
760.	58.1	.92		.953
760.	59.2	.851		.907
760.	60.3	.782		.854
760.	61.4	.706		.791

760.	62.4	.64	.719
760.	63.2	.563	.631
760.	63.7	.532	.592
760.	64.2	.463	.502
760.	64.7	.406	.425
760.	64.7	.335	.327
760.	64.6	.263	.236
760.	64.2	.224	.191
760.	63.7	.171	.13
760.	63.5	.159	.117
760.	62.2	.064	.04

METHYL ACETATE(1) - CYCLOHEXANE(2) SYSTEM 100

24 9 1 10 2

760.	74.3	.033	.182
760.	68.4	.085	.35
760.	64.9	.142	.443
760.	59.7	.283	.575
760.	59.	.313	.594
760.	57.9	.373	.625
760.	56.8	.475	.664
760.	56.7	.507	.673
760.	56.	.616	.714
760.	55.8	.688	.744
760.	55.7	.722	.759
760.	55.5	.781	.789
760.	55.55	.835	.82
760.	55.8	.94	.914

METHYL ACETATE(1) - METHANOL(2) SYSTEM 101

24 23 1 10 1

418.5	50.	.005	.018
429.	50.	.0125	.047
451.	50.	.0315	.109
480.5	50.	.06	.189
567.	50.	.188	.381
596.	50.	.259	.443
641.	50.	.428	.556
651.	50.	.5	.58
660.5	50.	.608	.638
660.5	50.	.729	.707
657.	50.	.783	.743
654.	50.	.816	.766
645.5	50.	.864	.807
632.5	50.	.911	.855
607.5	50.	.972	.944

METHYLETHYLKETONE(1)-HEPTANE(2) SYSTEM 102

28 16 1 10 2

760.	96.1	.0033	.06
760.	93.7	.027	.141
760.	89.4	.074	.285
760.	86.4	.122	.3755
760.	82.25	.230	.4950
760.	79.95	.354	.572
760.	80.05	.369	.578
760.	78.35	.475	.632
760.	78.2	.507	.645

760.	77.45	.6115	.691
760.	77.15	.706	.736
760.	77.0	.765	.7685
760.	77.25	.864	.832
760.	78.10	.932	.908
760.	78.70	.973	.954
760.	79.05	.994	.987

METHYL ETHYL KETONE(1) - TOLUENE(2) SYSTEM 103

28 33 1 10 2

760.	110.2	.0045	.014
760.	109.88	.0085	.029
760.	109.25	.0175	.0555
760.	107.2	.0405	.1281
760.	104.2	.0850	.2350
760.	102.28	.1190	.3043
760.	99.55	.18	.395
760.	98.7	.1981	.42
760.	97.1	.2359	.4709
760.	94.3	.3127	.5521
760.	91.85	.3982	.628
760.	89.9	.4682	.6854
760.	87.85	.5479	.7428
760.	86.75	.5858	.7708
760.	85.8	.642	.8027
760.	84.85	.6924	.8342
760.	84.4	.7012	.8396
760.	83.15	.7846	.8858
760.	82.65	.8015	.8955
760.	81.8	.8611	.9281
760.	80.5	.935	.9629
760.	79.85	.9774	.9878
760.	79.5	.9939	.9954

METHYL ETHYL KETONE(1) - WATER(2) SYSTEM 104

28 34 1 10 2

760.	97.6	.002	.085
760.	93.2	.004	.184
760.	92.	.005	.207
760.	84.6	.011	.394
760.	81.2	.017	.515
760.	75.5	.036	.618
760.	74.4	.197	.645
760.	74.4	.55	.645
760.	73.8	.635	.654
760.	73.3	.655	.655
760.	73.6	.665	.657
760.	73.5	.667	.661
760.	73.9	.709	.671
760.	73.8	.721	.676
760.	73.7	.729	.676
760.	73.8	.744	.683
760.	74.	.775	.696
760.	73.5	.784	.698
760.	73.9	.8	.707
760.	73.9	.803	.707
760.	74.1	.836	.728
760.	73.8	.848	.736

760.	74.5	.88	.767
760.	75.3	.912	.816
760.	76.4	.958	.898
760.	77.	.977	.929
760.	78.3	.993	.963

METHYLCYCLOHEXANE(1) - 1-BUTANOL(2) SYSTEM 105

26 43 1 10 2

760.	112.5	.05	.207
760.	108.6	.1	.324
760.	104.	.2	.473
760.	101.3	.3	.558
760.	99.4	.4	.619
760.	97.9	.5	.665
760.	96.9	.6	.706
760.	96.6	.7	.733
760.	96.6	.8	.756
760.	97.6	.9	.824
760.	98.6	.95	.895

METHYLCYCLOHEXANE(1) - PHENOL(2) SYSTEM 106

26 32 1 10 2

760.	150.	.114	.6775
760.	130.	.262	.871
760.	120.	.38	.884
760.	112.2	.652	.9088
760.	105.6	.9026	.9384
760.	102.5	.9518	.9683
760.	102.2	.9611	.9741
760.	101.7	.9874	.9914
760.	101.1	.9952	.9963

METHYLCYCLOHEXANE(1) - TOLUENE(2) SYSTEM 107

26 33 1 10 1

593.84	100.02	.1002	.1523
624.22	100.02	.2	.2775
624.59	100.02	.2	.2772
648.85	100.02	.299	.38
649.59	100.02	.3005	.3815
671.34	100.02	.4003	.4775
670.58	100.02	.4003	.4785
689.38	100.02	.4995	.5655
705.29	100.02	.5995	.6505
705.59	100.02	.6	.65
717.89	100.02	.6995	.736
719.13	100.02	.7002	.7365
727.49	100.02	.7995	.8205
727.55	100.02	.7995	.8195
735.61	100.02	.9005	.908

METHYLCYCLOPENTANE(1) - BENZENE(2) SYSTEM 108

27 5 1 10 2

760.	79.64	.0297	.0526
760.	77.62	.108	.1668
760.	76.62	.1751	.2533
760.	74.85	.3017	.387
760.	74.	.3806	.4598
760.	73.43	.445	.5179

760.	72.84	.5737	.6255
760.	72.06	.6434	.6795
760.	71.97	.7206	.7442
760.	71.54	.8224	.8299
760.	71.47	.903	.9034
760.	71.53	.918	.9174
760.	71.65	.9373	.936
760.	71.68	.945	.9442
760.	71.8	.9518	.9503

METHYLCYCLOPENTANE(2) - HEXANE(1) SYSTEM 109

18	27	1	10	2
760.	71.75	.025		.035
760.	71.55	.0815		.098
760.	71.4	.123		.142
760.	71.2	.168		.188
760.	71.	.222		.248
760.	70.85	.273		.3
760.	70.65	.326		.353
760.	70.6	.334		.359
760.	70.5	.359		.39
760.	70.4	.393		.424
760.	70.35	.396		.422
760.	70.3	.415		.438
760.	70.25	.43		.462
760.	70.2	.45		.472
760.	70.1	.476		.502
760.	70.05	.493		.5165
760.	69.95	.532		.5625
760.	69.9	.547		.571
760.	69.75	.605		.623
760.	69.7	.626		.648
760.	69.6	.666		.685
760.	69.55	.679		.692
760.	69.4	.74		.756
760.	69.35	.758		.774
760.	69.2	.811		.82
760.	69.15	.833		.845
760.	69.1	.845		.854
760.	69.05	.882		.891
760.	68.9	.925		.934

OCTANE(1) - ETHYLCYCLOHEXANE(2) SYSTEM 110A

41	42	1	10	2
50.	52.22	.110		.127
50.	52.	.194		.215
50.	51.72	.289		.314
50.	51.44	.384		.414
50.	51.16	.481		.508
50.	50.89	.593		.616
50.	50.67	.689		.708
50.	50.39	.791		.804
50.	50.17	.898		.905

OCTANE(1) - ETHYLCYCLOHEXANE(2) SYSTEM 110B

41	42	1	10	2
100.	68.66	.099		.117
100.	68.33	.193		.217

100.	68.06	.296	.323
100.	67.67	.385	.413
100.	67.31	.492	.522
100.	66.97	.599	.627
100.	66.64	.689	.712
100.	66.31	.783	.797
100.	65.94	.889	.897

OCTANE(1) - ETHYLCYCLOHEXANE(2) SYSTEM 110C

41	42	1	10	2
400.	108.72	.095		.113
400.	108.17	.191		.215
400.	107.67	.289		.317
400.	107.11	.394		.424
400.	106.61	.481		.513
400.	106.06	.593		.623
400.	105.5	.688		.710
400.	105.	.795		.811
400.	104.6	.898		.908

OCTANE(1) - ETHYLCYCLOHEXANE(2) SYSTEM 110D

41	42	1	10	2
500.	116.11	.112		.132
500.	115.56	.190		.215
500.	115.	.290		.318
500.	114.5	.383		.416
500.	114.	.480		.512
500.	113.5	.591		.621
500.	112.89	.692		.716
500.	112.33	.791		.815
500.	111.81	.906		.910

OCTANE(1) - ETHYLCYCLOHEXANE(2) SYSTEM 110E

41	42	1	10	2
760.	131.22	.119		.143
760.	130.69	.192		.220
760.	130.06	.286		.315
760.	129.36	.388		.424
760.	128.75	.489		.525
760.	128.03	.589		.623
760.	127.44	.689		.715
760.	126.89	.785		.806
760.	126.33	.894		.902

1-PROPANOL(1) - ETHYL ACETATE(2) SYSTEM 111A

37	12	1	10	1
185.	40.	.0857		.0477
178.	40.	.1476		.0825
176.5	40.	.1799		.1
171.	40.	.255		.13
170.	40.	.2777		.1416
165.	40.	.3519		.1695
161.5	40.	.3651		.1802
154.	40.	.4874		.2285
127.5	40.	.6913		.3344
109.	40.	.7988		.413
95.	40.	.85		.4869
84.	40.	.899		.5715

1-PROPANOL(1) - ETHYL ACETATE(2) SYSTEM 111B

37	12	1	10	1
402.	60.	.0843	.056	
393.	60.	.186	.112	
379.	60.	.2977	.166	
362.5	60.	.3738	.2122	
343.	60.	.4716	.25	
324.5	60.	.5842	.3109	
305.5	60.	.6375	.3528	
285.5	60.	.7230	.4097	
262.	60.	.7811	.4768	
239.5	60.	.8404	.5405	
222.	60.	.8825	.6235	
205.	60.	.9095	.69	
189.	60.	.9362	.7575	
179.	60.	.952	.805	

1-PROPANOL(1) - ETHYL ACETATE(2) SYSTEM 111C

37	12	1	10	2
760.	78.	.0926	.0699	
760.	78.5	.1667	.1209	
760.	79.5	.268	.1764	
760.	80.38	.3623	.2381	
760.	82.8	.5316	.3373	
760.	84.15	.6178	.413	
760.	85.47	.6779	.4566	
760.	87.5	.756	.5392	
760.	89.2	.8198	.6116	
760.	90.55	.8806	.6565	
760.	91.95	.8863	.7269	
760.	93.25	.9062	.7678	
760.	94.9	.9477	.8669	
760.	96.	.9762	.9237	

1-PROPANOL(1) - HEPTANE(2) SYSTEM 112A

37	16	1	10	1
63.49	30.	.005	.079	
66.59	30.	.01	.125	
69.56	30.	.02	.166	
72.02	30.	.04	.199	
74.63	30.	.1	.238	
76.04	30.	.2	.27	
76.13	30.	.3	.281	
75.81	30.	.4	.296	
75.15	30.	.5	.308	
73.96	30.	.6	.322	
71.81	30.	.7	.343	
67.10	30.	.8	.382	
62.83	30.	.85	.419	
56.34	30.	.9	.482	
52.76	30.	.92	.522	
48.44	30.	.94	.577	
43.27	30.	.96	.657	
37.03	30.	.98	.761	
33.42	30.	.99	.873	

1-PROPANOL(1) - HEPTANE(2) SYSTEM 112B

37	16	1	10	1	
123.08	45.		.005		.067
129.1	45.		.01		.114
137.2	45.		.02		.171
143.96	45.		.04		.216
151.38	45.		.1		.266
155.57	45.		.2		.305
156.26	45.		.3		.320
156.02	45.		.4		.338
154.92	45.		.5		.353
152.73	45.		.6		.370
148.7	45.		.7		.393
139.85	45.		.8		.436
131.89	45.		.85		.475
119.78	45.		.9		.540
113.14	45.		.92		.580
105.13	45.		.94		.633
95.55	45.		.96		.708
84.03	45.		.98		.819
77.38	45.		.99		.897

1-PROPANOL(1) - HEPTANE(2) SYSTEM 112C

37	16	1	10	1	
222.79	60.		.005		.056
232.66	60.		.01		.099
248.25	60.		.02		.162
266.09	60.		.04		.226
284.32	60.		.1		.289
295.79	60.		.2		.337
298.30	60.		.3		.357
296.86	60.		.4		.379
297.42	60.		.5		.397
293.83	60.		.6		.417
286.86	60.		.7		.443
271.61	60.		.8		.489
257.93	60.		.85		.529
237.10	60.		.9		.594
225.72	60.		.92		.633
212.04	60.		.94		.684
195.70	60.		.96		.753
176.12	60.		.98		.851
164.82	60.		.99		.917

1-PROPANOL(2) - HEPTANE(1) SYSTEM 112D

16	37	1	10	1	
348.3	75.		.02		.075
388.9	75.		.037		.145
398.4	75.		.045		.18
424.4	75.		.06		.218
442.6	75.		.078		.275
467.9	75.		.094		.305
486.5	75.		.108		.338
502.4	75.		.138		.37
517.2	75.		.163		.402
541.6	75.		.207		.42
549.2	75.		.320		.47
552.3	75.		.356		.463
550.	75.		.375		.48

548.8	75.	.51	.54
547.4	75.	.565	.55
538.9	75.	.66	.57
516.6	75.	.82	.64
506.6	75.	.86	.655
497.4	75.	.88	.685
483.1	75.	.905	.71
446.1	75.	.97	.785

1-PROPANOL(1) - HEPTANE(2) SYSTEM 112E

37 16 1 10 2

760.	88.8	.1	.315
760.	86.1	.2	.4
760.	85.2	.3	.425
760.	84.7	.4	.45
760.	84.6	.5	.475
760.	84.8	.6	.51
760.	85.7	.7	.555
760.	87.1	.8	.61
760.	89.5	.9	.72

1-PROPANOL(1) - METHYLCYCLOHEXANE(2) SYSTEM 113

37 26 1 10 2

760.	93.	.05	.242
760.	88.9	.1	.325
760.	88.1	.2	.404
760.	87.4	.3	.431
760.	87.1	.4	.455
760.	87.	.5	.48
760.	87.2	.6	.492
760.	87.7	.7	.525
760.	88.3	.8	.575
760.	91.4	.9	.72
760.	93.7	.95	.832

1-PROPANOL(1) - WATER(2) SYSTEM 114A

37 34 1 10 1

85.75	40.	.0805	.341
86.5	40.	.1295	.3555
86.5	40.	.1525	.3615
86.5	40.	.305	.387
86.75	40.	.398	.3995
86.5	40.	.47	.4225
86.	40.	.5755	.454
83.5	40.	.666	.4995
81.5	40.	.7385	.5405
72.5	40.	.844	.6625
69.5	40.	.85	.726
69.	40.	.8975	.7535

1-PROPANOL(1) - WATER(2) SYSTEM 114B

37 34 1 10 1

202.5	60.	.039	.28
223.	60.	.065	.3575
228.5	60.	.1545	.367
230.5	60.	.179	.3735
228.5	60.	.196	.375
229.	60.	.262	.392

229.5	60.	.3	.394
231.	60.	.409	.412
231.	60.	.426	.4175
230.	60.	.4895	.4455
229.	60.	.566	.503
216.	60.	.705	.553
215.	60.	.735	.5575
204.5	60.	.796	.621
184.5	60.	.88	.746
178.5	60.	.894	.76
182.5	60.	.925	.785
169.5	60.	.95	.85

1-PROPANOL(1) - WATER(2) SYSTEM 114C

37 37 1 10 2

760.	92.35	.039	.281
760.	88.85	.072	.36
760.	89.05	.075	.375
760.	87.95	.179	.388
760.	88.	.2	.379
760.	87.5	.425	.426
760.	87.8	.482	.438
760.	89.2	.712	.56
760.	91.7	.85	.685
760.	95.	.94	.855

2-PROPANOL(1) - CARBON TETRACHLORIDE(2) SYSTEM 115

22 6 1 10 2

760.	79.15	.942	.862
760.	75.71	.896	.717
760.	74.9	.862	.69
760.	71.62	.764	.562
760.	69.28	.153	.258
760.	69.	.211	.292
760.	68.75	.307	.371
760.	69.15	.578	.416
760.	71.78	.775	.567
760.	70.12	.683	.503
760.	70.63	.711	.527
760.	70.51	.706	.517
760.	72.54	.81	.601
760.	74.27	.86	.604
760.	69.54	.657	.5
760.	71.4	.054	.158
760.	74.79	.011	.06
760.	78.85	.056	.854
760.	77.96	.041	.817
760.	74.48	.868	.604
760.	73.71	.842	.655
760.	70.87	.72	.537
760.	69.7	.623	.469
760.	68.86	.488	.411
760.	68.46	.506	.412
760.	68.31	.413	.381
760.	68.56	.339	.359
760.	68.76	.319	.351
760.	68.91	.259	.33
760.	68.88	.242	.325

760.	69.08	.211	.305
760.	69.28	.176	.289
760.	69.59	.146	.265
760.	69.43	.538	.442
760.	68.9	.258	.332

2-PROPANOL(1) - ETHYL ACETATE(2) SYSTEM 116A

22 12 1 10 1

118.	40.	.962	.8653
120.5	40.	.95	.834
126.	40.	.93	.7825
137.	40.	.8845	.6935
148.5	40.	.85	.627
152.5	40.	.801	.577
161.5	40.	.73	.505
164.	40.	.71	.496
174.	40.	.615	.422
178.	40.	.5385	.3775
183.5	40.	.46	.3335
191.	40.	.3595	.288
194.	40.	.186	.185
192.	40.	.0915	.1014

2-PROPANOL(1) - ETHYL ACETATE(2) SYSTEM 116B

22 12 1 10 1

425.	60.	.0775	.1068
432.	60.	.0805	.1
430.5	60.	.165	.1795
434.	60.	.2475	.2555
432.	60.	.32	.3023
430.5	60.	.4095	.3578
420.	60.	.5085	.4168
413.	60.	.568	.4587
411.5	60.	.5725	.4631
404.5	60.	.64	.5119
394.	60.	.6865	.5387
385.	60.	.7335	.5787
358.5	60.	.8245	.6795
355.	60.	.841	.702
343.	60.	.8705	.7372
330.5	60.	.9065	.7824
329.5	60.	.9145	.81
321.5	60.	.926	.8415
312.5	60.	.9545	.8746

2-PROPANOL(1) - ETHYL ACETATE(2) SYSTEM 116C

22 12 1 10 2

760.	76.85	.096	.1114
760.	75.92	.385	.3538
760.	76.4	.539	.4662
760.	76.85	.5985	.524
760.	77.25	.6555	.575
760.	78.7	.771	.675
760.	79.38	.8295	.741
760.	80.3	.8815	.8068

2-PROPANOL(1) - HEPTANE(2) SYSTEM 117A

22 16 1 10 1

66.5	30.	.005	.121
72.33	30.	.01	.194
82.75	30.	.03	.302
85.61	30.	.05	.328
90.61	30.	.1	.374
93.23	30.	.15	.399
94.64	30.	.2	.414
96.38	30.	.3	.44
97.18	30.	.4	.459
97.28	30.	.5	.476
96.81	30.	.6	.496
95.3	30.	.7	.523
91.8	30.	.8	.567
88.8	30.	.85	.6
83.94	30.	.9	.652
75.2	30.	.95	.753
66.76	30.	.98	.87
63.18	30.	.99	.927

2-PROPANOL(1) - HEPTANE(2) SYSTEM 117B

22	16	1	10	1
127.75	45.		.005	.101
138.51	45.		.01	.173
163.45	45.		.03	.307
172.33	45.		.05	.347
184.57	45.		.1	.399
191.31	45.		.15	.429
195.59	45.		.2	.449
200.09	45.		.3	.476
202.93	45.		.4	.5
203.84	45.		.5	.52
203.5	45.		.6	.542
201.17	45.		.7	.571
195.17	45.		.8	.617
189.85	45.		.85	.65
181.21	45.		.9	.7
165.59	45.		.95	.793
150.53	45.		.98	.894
144.16	45.		.99	.941

2-PROPANOL(1) - HEPTANE(2) SYSTEM 117C

22	16	1	10	1
229.1	60.		.005	.082
245.78	60.		.01	.147
294.64	60.		.03	.297
318.61	60.		.05	.356
347.43	60.		.1	.419
362.44	60.		.15	.452
373.32	60.		.2	.474
384.23	60.		.3	.507
391.83	60.		.4	.534
395.3	60.		.5	.558
396.17	60.		.6	.583
393.29	60.		.7	.614
384.11	60.		.8	.661
375.54	60.		.85	.693
361.39	60.		.9	.741
335.93	60.		.95	.826

311.31	60.	.98	.913
300.92	60.	.99	.952

2-PROPANOL(1) - ISOPROPYLETHER(2) SYSTEM 118

22 46 1 10 2

760.	80.6	.975	.923
760.	78.9	.94	.83
760.	77.2	.91	.74
760.	74.3	.84	.61
760.	72.3	.778	.53
760.	70.5	.705	.45
760.	68.9	.6	.385
760.	68.2	.545	.355
760.	67.	.383	.279
760.	66.6	.31	.245
760.	66.5	.295	.24
760.	66.2	.27	.2
760.	66.2	.16	.17
760.	66.4	.135	.16
760.	66.6	.06	.085
760.	66.8	.03	.055
760.	67.3	.01	.02

2-PROPANOL(2) - METHYLCYCLOHEXANE(2) SYSTEM 119

22 26 1 10 2

500.	75.4	.03	.344
500.	71.	.077	.434
500.	64.8	.18	.491
500.	68.	.25	.511
500.	67.	.331	.54
500.	66.8	.427	.558
500.	66.7	.509	.581
500.	66.6	.581	.6
500.	66.5	.668	.623
500.	66.5	.735	.65
500.	67.	.788	.682
500.	67.5	.843	.719
500.	68.1	.887	.768
500.	69.2	.935	.835
500.	70.3	.965	.899

2-PROPANOL(1) - WATER(2) SYSTEM 120A

22 34 1 10 2

760.	97.6	.005	.06
760.	95.	.008	.16
760.	91.3	.016	.285
760.	89.8	.025	.325
760.	88.2	.032	.365
760.	84.9	.065	.435
760.	83.	.11	.49
760.	81.6	.235	.546
760.	81.1	.34	.57
760.	80.7	.42	.59
760.	80.3	.55	.625
760.	80.2	.56	.635
760.	80.1	.59	.65
760.	80.	.72	.7
760.	80.	.75	.73

760.	80.1	.78	.75
760.	80.2	.83	.79
760.	80.9	.87	.82
760.	80.6	.9	.85
760.	81.	.945	.9
760.	81.2	.96	.92
760.	81.7	.99	.965

2-PROPANOL(1) - WATER(2) SYSTEM 1208

22	34	1	10	2
760.	97.57	.0045		.0815
760.	96.2	.0069		.1405
760.	93.66	.0127		.2185
760.	87.84	.0357		.3692
760.	84.28	.0678		.4647
760.	82.84	.133		.5036
760.	82.52	.1651		.5153
760.	81.52	.3204		.5456
760.	81.45	.3336		.5489
760.	81.19	.3752		.5615
760.	80.77	.472		.586
760.	80.73	.4756		.5886
760.	80.58	.5197		.6033
760.	80.52	.5945		.633
760.	80.46	.788		.7546
760.	80.55	.802		.768
760.	81.32	.9303		.901
760.	81.85	.966		.9525

TETRAHYDROFURAN(1) - DIMETHYLFORMAMIDE(2) SYSTEM 121

53	54	1	10	2
760.	114.3	.087		.69
760.	109.	.134		.754
760.	96.	.212		.81
760.	77.6	.679		.939
760.	74.	.885		.958
760.	70.2	.96		.974

TETRAHYDROFURAN(1) - WATER(2) SYSTEM 122

53	34	1	10	1
303.2	50.0	0.028		0.700
359.8	50.0	0.038		0.745
383.4	50.0	0.046		0.767
420.5	50.0	0.075		0.781
440.4	50.0	0.1165		0.797
445.4	50.0	0.183		0.800
447.0	50.0	0.228		0.802
447.8	50.0	0.264		0.800
449.4	50.0	0.354		0.802
451.1	50.0	0.441		0.803
453.5	50.0	0.531		0.805
456.2	50.0	0.611		0.810
459.8	50.0	0.698		0.820
463.4	50.0	0.765		0.832
464.8	50.0	0.796		0.840
465.4	50.0	0.868		0.865
464.3	50.0	0.888		0.870
462.1	50.0	0.922		0.901

456.4	50.0	0.956	0.936
450.0	50.0	0.979	0.965

TOLUENE(1) - ETHANOL(2) SYSTEM 123

33	11	1	10	2
756.	91.06	.0666		.4478
756.	88.2	.0908		.5083
756.	87.45	.0985		.5224
756.	85.6	.1191		.557
756.	83.4	.1576		.5991
756.	80.6	.2523		.6536
756.	79.1	.3469		.683
756.	78.4	.4283		.7018
756.	77.95	.489		.7141
756.	77.3	.633		.7444
756.	77.04	.731		.7751
756.	77.	.8082		.8094
756.	77.15	.8794		.8554
756.	77.4	.9262		.8975
756.	77.45	.9382		.9099
756.	77.6	.9545		.9304

TOLUENE(1) - ISOAMYL ALCOHOL(2) SYSTEM 124A

33	47	1	10	1
135.	80.	.055		.312
143.	80.	.074		.345
162.	80.	.112		.455
201.	80.	.236		.605
210.	80.	.241		.61
212.	80.	.256		.63
246.	80.	.432		.721
258.	80.	.52		.755
264.	80.	.566		.786
268.	80.	.578		.778
280.	80.	.73		.832
282.	80.	.813		.864
285.	80.	.82		.872
295.	80.	.914		.928

TOLUENE(1) - ISOAMYL ALCOHOL(2) SYSTEM 124B

33	47	1	10	1
415.	107.	.11		.3
470.	107.	.191		.436
525.	107.	.251		.512
536.	107.	.289		.551
547.	107.	.296		.561
594.	107.	.398		.644
643.	107.	.511		.709
669.	107.	.629		.763
680.	107.	.694		.793
690.	107.	.964		.964
683.	107.	.96		.976

TOLUENE(1) - OCTANE(2) SYSTEM 125

33	41	1	10	2
760.	124.4	.035		.059
760.	124.4	.035		.058
760.	122.3	.118		.184

760.	121.3	.159	.25
760.	121.2	.164	.251
760.	121.1	.169	.262
760.	119.4	.252	.366
760.	119.4	.252	.36
760.	119.3	.256	.366
760.	119.2	.26	.369
760.	117.5	.356	.467
760.	117.4	.357	.471
760.	117.4	.36	.483
760.	116.3	.427	.542
760.	116.2	.429	.546
760.	114.6	.539	.64
760.	114.5	.539	.641
760.	113.	.67	.745
760.	113.	.67	.748
760.	112.8	.693	.76
760.	112.3	.74	.797
760.	111.7	.807	.848
760.	111.6	.821	.857
760.	111.1	.879	.902
760.	110.9	.916	.93
760.	110.9	.915	.929

TOLUENE(1) - PHENOL(2) SYSTEM 126

33	32	1	10	2
760.	172.7	.0435		.341
760.	159.4	.0872		.512
760.	153.8	.1186		.621
760.	149.4	.1248		.625
760.	142.2	.219		.785
760.	133.8	.275		.807
760.	128.3	.408		.8725
760.	126.7	.48		.8901
760.	122.2	.5898		.9159
760.	120.2	.6348		.928
760.	120.	.6512		.926
760.	119.7	.74		.9463
760.	119.4	.773		.9536
760.	115.6	.8012		.9545
760.	112.7	.884		.975
760.	112.2	.9108		.9796
760.	113.3	.9394		.9861
760.	111.1	.977		.9948
760.	111.1	.991		.998
760.	110.5	.9939		.9986
760.	110.5	.9973		.9993

1,2,3-TRICHLOROPROPANE(1) - HEXANE(2) SYSTEM 127

39	18	1	10	2
760.	112.6	.908		.247
760.	99.3	.837		.146
760.	88.7	.713		.089
760.	82.6	.553		.062
760.	79.7	.427		.052
760.	76.4	.33		.042
760.	76.3	.308		.04
760.	73.8	.203		.033

760.	73.4	.202	.032
760.	70.7	.105	.02

1,2,3-TRICHLOROPROPANE(1) - 1-HEXENE(2) SYSTEM 128

39	38	1	10	2
760.	117.1	.903	.269	
760.	101.1	.832	.16	
760.	90.3	.726	.097	
760.	83.6	.622	.067	
760.	81.3	.571	.058	
760.	77.4	.482	.047	
760.	77.2	.473	.045	
760.	75.6	.422	.039	
760.	72.8	.321	.031	
760.	68.4	.17	.017	
760.	67.7	.157	.016	
760.	66.1	.084	.009	

VINYL ACETATE(1) - 2,4-DIMETHYLPENTANE(2) SYSTEM 129

49	50	1	10	2
760.	75.	.073	.187	
760.	70.8	.188	.381	
760.	67.7	.421	.513	
760.	67.4	.47	.541	
760.	67.2	.606	.606	
760.	67.37	.709	.662	
760.	68.9	.879	.792	
760.	71.	.965	.922	

WATER(1) - ACETIC ACID(2) SYSTEM 130A

34	1	1	10	2
125.	64.25	.039	.071	
125.	61.53	.107	.17	
125.	59.83	.214	.298	
125.	58.61	.356	.447	
125.	58.1	.457	.538	
125.	57.58	.601	.662	
125.	57.28	.713	.756	
125.	56.92	.822	.854	
125.	56.68	.902	.925	
125.	56.57	.948	.963	

WATER(1) - ACETIC ACID(2) SYSTEM 130B

34	1	1	10	2
250.	80.42	.046	.083	
250.	77.33	.105	.175	
250.	75.86	.165	.255	
250.	75.12	.208	.307	
250.	73.76	.342	.446	
250.	73.09	.45	.55	
250.	72.51	.61	.682	
250.	72.33	.708	.761	
250.	71.87	.839	.875	
250.	71.63	.957	.938	

WATER(1) - ACETIC ACID(2) SYSTEM 130C

34	1	1	10	2
500.	99.55	.05	.091	

500.	94.28	.14	.233
500.	92.54	.228	.348
500.	91.43	.316	.454
500.	90.74	.407	.550
500.	89.94	.518	.654
500.	89.53	.634	.740
500.	89.20	.749	.822
500.	88.98	.866	.908
500.	88.83	.955	.970

WATER(1) - ACETIC ACID(2) SYSTEM 130D

34	1	1	10	2
760.	117.5	.0045		.0115
760.	109.1	.089		.156
760.	105.6	.173		.281
760.	103.0	.3285		.476
760.	101.6	.474		.624
760.	101.2	.5575		.685
760.	100.9	.636		.745
760.	100.59	.743		.817
760.	100.37	.840		.886
760.	100.12	.954		.968

WATER(1) - ACETIC ACID(2) SYSTEM 130E

34	1	1	10	2
760.	115.4	.05		.092
760.	113.8	.1		.167
760.	110.1	.2		.302
760.	107.5	.3		.425
760.	105.8	.4		.530
760.	104.4	.5		.626
760.	103.2	.6		.716
760.	102.1	.7		.795
760.	101.3	.8		.864
760.	100.6	.9		.930
760.	100.3	.95		.963

WATER(1) -ACETIC ACID(2) SYSTEM 130F

34	1	1	10	2
760.	117.96	.0002		.0002
760.	117.92	.0002		.0003
760.	117.91	.0002		.0004
760.	117.64	.0034		.0069
760.	117.51	.0055		.0112
760.	115.03	.0474		.0979
760.	113.81	.0812		.1446
760.	111.51	.1497		.2382
760.	109.84	.2198		.3273
760.	108.16	.2917		.4071
760.	107.36	.3378		.4573
760.	105.85	.4198		.5496
760.	104.17	.5359		.6591
760.	102.86	.6463		.7524
760.	101.92	.7388		.8217
760.	101.24	.8251		.8783
760.	100.54	.9210		.9429
760.	100.24	.9676		.9761
760.	100.07	.9891		.9921

WATER(1) - DIOXANE(2) SYSTEM 131

34 10 1	10 1	
42.7	25.	.05 .1545
45.2	25.	.1 .241
47.5	25.	.24 .31
47.7	25.	.45 .35
45.5	25.	.72 .405
43.9	25.	.77 .44
37.5	25.	.89 .56
30.	25.	.96 .77

P-XYLENE(1) - FURFURAL(2) SYSTEM 132

36 15 1	10 2	
723.	135.2	.962 .954
723.	134.8	.946 .942
723.	134.6	.933 .925
723.	134.4	.917 .911
723.	134.2	.899 .897
723.	134.4	.85 .859
723.	134.6	.765 .8
723.	135.3	.686 .752
723.	136.2	.604 .714
723.	136.8	.542 .684
723.	137.6	.473 .634
723.	138.8	.416 .632
723.	140.	.345 .562
723.	141.3	.295 .526
723.	144.8	.195 .46
723.	148.	.125 .352
723.	149.5	.093 .289
723.	151.5	.064 .232
723.	153.2	.044 .164
723.	155.8	.022 .096

ISOPROPYLETHER(1) - WATER(2) SYSTEM 133

46 34 1	10 2	
760.	67.	.994 .928
760.	66.	.988 .9
760.	65.	.976 .87
760.	64.	.96 .846
760.	63.	.936 .82
760.	62.2	.9 .78
760.	62.2	.85 .78
760.	62.2	.78 .78
760.	62.2	.7 .78
760.	62.2	.6 .78
760.	62.2	.5 .78
760.	62.2	.4 .78
760.	62.2	.3 .78
760.	62.2	.2 .78
760.	62.2	.1 .78
760.	62.2	.05 .78
760.	62.2	.01 .78
760.	64.	.005 .762
760.	68.	.004 .735
760.	82.	.001 .692
760.	86.	.001 .655

760.	90.	.0005	.586
760.	95.	.0002	.415

ACRYLONITRILE(1) - WATER(2) SYSTEM 134A

40	34	1	10	1
29.6	25.	.0012	.199	
34.2	25.	.0026	.31	
39.4	25.	.0035	.401	
44.5	25.	.0051	.57	
48.2	25.	.0064	.51	
55.3	25.	.0089	.575	
67.4	25.	.0108	.653	
74.3	25.	.0132	.665	
81.4	25.	.0154	.713	
86.6	25.	.0172	.732	
94.2	25.	.0198	.754	
97.6	25.	.0201	.762	
96.9	25.	.0207	.76	
106.9	25.	.0214	.783	
103.6	25.	.0233	.777	
103.8	25.	.0244	.777	
108.	25.	.0251	.786	
109.4	25.	.0258	.788	

ACRYLONITRILE(1) - WATER(2) SYSTEM 134B

40	34	1	10	1
67.	40.	.0013	.176	
77.2	40.	.0025	.285	
95.3	40.	.0049	.422	
133.9	40.	.0113	.592	
171.5	40.	.0172	.683	
186.4	40.	.0224	.709	
194.2	40.	.0241	.722	
199.9	40.	.0258	.731	
191.9	40.	.0273	.72	

BENZENE(1) - CHLOROBENZENE(2) SYSTEM 135

5	56	1	10	1
126.1	70.0	.068	.241	
128.8	70.	.0787	.272	
166.9	70.	.1628	.486	
169.7	70.	.1639	.503	
206.7	70.	.2728	.632	
251.3	70.	.3758	.74	
315.5	70.	.4948	.8321	
347.2	70.	.5862	.8675	
367.1	70.	.6062	.8849	
435.	70.	.7744	.9395	
493.5	70.	.8885	.9734	
525.2	70.	.9503	.9893	
535.2	70.	.9715	.9933	

BENZENE(1) - ACETIC ACID(2) SYSTEM 136

5	1	1	10	2
758.	79.8	.9499	.9613	
758.	80.	.8823	.9309	
758.	82.8	.5325	.7932	
758.	85.8	.3407	.7032	

758.	91.5	.1731	.5924
758.	100.	.0738	.3948
758.	109.	.0279	.2407
758.	115.1	.0093	.0603

METHYLCYCLOPENTANE(1) - CYCLOHEXANE(2) SYSTEM 137

27 9 1 10 2

760.	79.68	.102	.131
760.	76.17	.477	.541
760.	73.65	.771	.814

METHYLCYCLOPENTANE(1) - TOLUENE(2) SYSTEM 138

27 33 1 10 2

760.	108.8	.023	.068
760.	107.2	.040	.127
760.	105.35	.0635	.193
760.	103.4	.092	.2375
760.	102.3	.106	.290
760.	102.0	.110	.296
760.	99.3	.151	.3725
760.	96.8	.191	.446
760.	95.3	.220	.488
760.	92.9	.267	.549
760.	90.75	.3125	.602
760.	89.85	.3335	.625
760.	88.5	.371	.657
760.	87.0	.4125	.695
760.	85.35	.455	.725
760.	84.1	.498	.748
760.	83.05	.531	.777
760.	82.3	.5525	.792
760.	81.8	.568	.802
760.	80.3	.622	.831
760.	78.95	.675	.857
760.	77.7	.727	.8825
760.	76.05	.796	.915
760.	74.8	.846	.936
760.	73.7	.892	.954
760.	72.9	.929	.969
760.	72.2	.966	.9825

CYCLOHEXANE(1) - TOLUENE(2) SYSTEM 139

9 33 1 10 2

760.	108.25	.041	.102
760.	105.45	.091	.212
760.	103.85	.118	.264
760.	102.85	.143	.308
760.	101.75	.164	.348
760.	100.55	.192	.386
760.	99.5	.217	.422
760.	98.35	.245	.457
760.	98.35	.243	.46
760.	97.4	.273	.492
760.	96.95	.283	.504
760.	96.35	.304	.523
760.	95.5	.323	.547
760.	95.25	.336	.56
760.	94.2	.368	.596

760.	93.8	.379	.599
760.	92.75	.416	.633
760.	91.85	.452	.662
760.	90.55	.504	.702
760.	89.75	.533	.724
760.	88.85	.559	.749
760.	87.95	.599	.774
760.	88.	.602	.777
760.	87.35	.634	.794
760.	86.55	.672	.811
760.	85.25	.727	.852
760.	84.8	.763	.864
760.	84.45	.76	.877
760.	83.75	.814	.895
760.	82.7	.874	.926
760.	81.1	.964	.973

BENZENE(1) - METHYLCYCLOHEXANE(2) SYSTEM 140

5 26 1 10 2

760.	100.4	.015	.026
760.	99.5	.035	.072
760.	98.65	.052	.1095
760.	97.6	.083	.1635
760.	96.5	.1095	.2075
760.	94.5	.167	.297
760.	93.2	.2035	.352
760.	92.4	.231	.3855
760.	91.3	.269	.436
760.	90.25	.307	.483
760.	89.5	.337	.5115
760.	88.9	.361	.532
760.	88.35	.3885	.555
760.	87.7	.42	.582
760.	87.15	.448	.6085
760.	86.5	.483	.637
760.	85.95	.51	.655
760.	85.5	.5315	.675
760.	84.9	.573	.7025
760.	82.25	.617	.733
760.	83.5	.665	.767
760.	83.05	.705	.7895
760.	82.55	.739	.815
760.	82.1	.777	.838
760.	81.65	.821	.867
760.	81.2	.8605	.896
760.	80.9	.9	.923
760.	80.6	.9335	.948
760.	80.35	.965	.973

METHANOL(1) - 1.4-DIOXANE(2) SYSTEM 141

23 10 1 10 2

760.	64.72	.9870	.9930
760.	64.9	.9689	.9781
760.	64.96	.9472	.9689
760.	65.1	.9302	.9587
760.	65.27	.9070	.9454
760.	65.34	.8955	.9406
760.	65.55	.8635	.9247

760.	65.78	.8158	.9065
760.	66.5	.7678	.8955
760.	66.94	.7206	.8793
760.	67.1	.6355	.8772
760.	67.6	.5386	.8663
760.	67.89	.5290	.8533
760.	68.2	.4074	.8428
760.	68.5	.3603	.8296
760.	69.3	.3336	.8209
760.	70.4	.2280	.7983
760.	73.2	.1493	.7539
760.	78.2	.1004	.6845
760.	82.8	.0956	.5503
760.	89.2	.0633	.3936
760.	93.5	.0428	.2556
760.	96.04	.0190	.2076
760.	100.38	.0082	.0506
760.	100.54	.0082	.0480

3-METHYL PYRIDINE(1) - WATER(2) TASSIOS DATA SYSTEM 142

57	34	1	10	1	
547.8		89.83	0.00306	0.04263	
580.6		89.83	0.0167	0.1048	
584.1		89.83	0.0605	0.1119	
584.1		89.83	0.0941	0.1120	
584.0		89.83	0.1371	0.1123	
584.0		89.83	0.1900	0.1135	
582.3		89.83	0.2410	0.1157	
577.6		89.83	0.3018	0.1210	
566.8		89.83	0.3748	0.1309	
553.3		89.83	0.4267	0.1403	
542.0		89.83	0.4641	0.1488	
512.8		89.83	0.5386	0.1685	
482.4		89.83	0.5976	0.1900	
417.4		89.83	0.7118	0.2508	
368.9		89.83	0.7818	0.2948	
171.4		89.83	0.9747	0.7947	

METHYL ETHYL KETONE(1) - BENZENE(2) SYSTEM 143A

28	5	1	10	1	
273.7		50.	.845	.825	
278.5		50.	.7	.685	
282.3		50.	.5	.497	
282.1		50.	.3	.309	
278.6		50.	.155	.17	

METHYL ETHYL KETONE(1) - BENZENE(2) SYSTEM 143B

28	5	1	10	2	
760.		78.97	.845	.83	
760.		78.59	.7	.69	
760.		78.34	.5	.495	
760.		78.54	.3	.315	
760.		79.01	.155	.177	

METHYL ETHYL KETONE(1) - 2-PROPANOL(2) SYSTEM 144A

28	22	1	10	1	
226.1		50.	.2	.38	
253.2		50.	.4	.55	

267.4	50.	.6	.69
272.5	50.	.8	.82
272.4	50.	.92	.925

METHYL ETHYL KETONE(1) - 2-PROPANOL(2) SYSTEM 1448

28	22	1	10	2
760.	79.62	.2	.28	
760.	78.1	.4	.478	
760.	77.41	.6	.65	
760.	77.83	.8	.785	
760.	78.73	.92	.907	

ETHANOL(1) - CHLOROFORM(2) SYSTEM 145

11	8	1	10	1
626.79	55.	.0348	.0592	
644.24	55.	.057	.085	
650.38	55.	.0963	.1202	
653.11	55.	.161	.1583	
650.96	55.	.2236	.1819	
646.79	55.	.2731	.199	
641.49	55.	.3149	.2143	
632.14	55.	.3789	.2361	
623.67	55.	.427	.2473	
599.03	55.	.5206	.2839	
569.02	55.	.6035	.324	
566.74	55.	.6096	.328	
560.25	55.	.6233	.3359	
545.72	55.	.6555	.3581	
543.53	55.	.6588	.3593	
508.78	55.	.7194	.4058	
469.41	55.	.7799	.4729	
441.04	55.	.8131	.5205	
407.9	55.	.8521	.5965	
367.01	55.	.8971	.6877	
346.89	55.	.9198	.7467	
339.69	55.	.9288	.7698	
306.38	55.	.9669	.8838	

CHLOROFORM(1) - HEXANE(2) SYSTEM 146

8	18	1	10	1
519.4	55.	.1035	.161	
552.1	55.	.2035	.296	
575.1	55.	.2905	.385	
595.6	55.	.3964	.484	
617.3	55.	.4992	.569	
627.6	55.	.5965	.64	
635.1	55.	.6991	.72	
636.9	55.	.8	.794	
631.2	55.	.9003	.883	

ACETONE(1) - HEXANE(2) SYSTEM 147

2	18	1	10	1
669.8	55.	.0926	.33	
780.9	55.	.1846	.476	
851.8	55.	.2989	.54	
873.8	55.	.3933	.578	
893.4	55.	.4975	.602	
905.2	55.	.5998	.628	

899.8	55.	.6993	.661
883.4	55.	.8021	.7
841.3	55.	.909	.795

CYCLOHEXANE(1) - METHYL ETHYL KETONE(2) SYSTEM 148

9 28 1 10 1

760.	75.3	.124	.223
760.	74.0	.196	.302
760.	78.0	.264	.366
760.	72.1	.355	.426
760.	71.5	.520	.535
760.	71.8	.631	.58
760.	72.6	.758	.644
760.	73.7	.825	.701
760.	74.7	.869	.747
760.	77.0	.940	.836

ACETIC ACID(1) — ETHYLBENZE(2) SYSTEM 001

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	725.00	127.C	C.0500	0.1750	974.32	568.15	0.9840	0.9585	2.5580	1.0579	0.8830	-392.19	-1421.42	-1028.50
2	725.00	126.0	0.0600	0.2000	947.19	552.65	0.9842	0.9580	2.5063	1.0653	0.8556	-394.21	-1430.67	-1034.81
3	725.00	125.0	0.0750	0.2250	920.65	537.48	C.9843	0.9576	2.3211	1.0778	0.7671	-396.26	-1440.01	-1041.18
4	725.00	123.0	C.C900	0.2700	869.32	508.09	0.9846	0.9567	2.4587	1.0506	0.8129	-400.46	-1459.01	-1054.12
5	725.00	121.0	0.1450	0.3550	820.26	479.97	0.9852	C.9555	2.1278	1.0844	0.6741	-404.77	-1478.44	-1067.33
6	725.00	120.C	0.175C	0.3850	796.55	466.36	0.9853	0.9549	1.9693	1.1021	0.5804	-406.98	-1488.32	-1074.05
7	725.00	117.0	0.2900	0.5050	728.65	427.33	C.9859	0.9529	1.7050	1.1225	0.4180	-413.79	-1518.63	-1094.61
8	725.00	113.0	C.5500	0.6950	645.31	379.30	0.9866	0.9495	1.3980	1.2251	0.1320	-423.35	-1560.71	-1123.09
9	725.00	112.0	0.7200	0.7650	625.7C	367.98	C.9868	0.9483	1.2125	1.5617	-0.2531	-425.83	-1571.54	-1130.40
10	725.00	112.2	0.8200	0.8050	629.58	370.22	0.9869	C.9480	1.1135	2.0029	-0.5870	-425.33	-1569.36	-1128.93
11	725.00	113.0	0.9070	0.8700	645.31	379.30	0.9871	0.9476	1.0618	2.5216	-0.8650	-423.35	-1560.71	-1123.09
12	725.00	114.0	0.9600	0.9200	665.40	390.89	0.9873	0.9475	1.0290	3.5004	-1.2243	-420.91	-1550.01	-1115.85
13	725.00	115.0	C.9800	0.950C	685.98	402.76	0.9874	0.9476	1.0097	4.2470	-1.4365	-418.50	-1539.43	-1108.69

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 594.80 P = 57.10 V = 171.3C OMEGA = 0.444 OMEGAH = 0.187 DIPOLE = 1.75 ETA = 0.0

2 T = 617.20 P = 37.00 V = 366.00 OMEGA = 0.301 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.71881E 01 B = 0.14167E 04 C = 0.21100F 03

2 A = 0.69572E C1 B = 0.14243E 04 C = 0.21321F 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.58702E 02 B = -.61178E-01 C = 0.19158E-03

2 A = 0.11139E 03 B = -.50868F-01 C = 0.29917E-03

VAPOR PRESSURE AT NBP

P = 764.4 AT T = 118.1

P = 760.0 AT T = 136.2

COMPONENT ID ECHO CHECK

ID NUMBER = 1

ID NUMBER = 45

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.79920E 00 B = -.19600E 00 C = -.19505E 01

STANDARD DEVIATION = 0.11168E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.2238 G2INF = 3.8469

T1INF = 134.44 T2INF = 116.35

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3039

AREA BELOW THE X-AXIS IS -0.2528

CROSS-OVER POINT IS X = 0.59

NORMALIZED AREA DIFFERENCE IS 0.0917

HERINGTON J-FACTOR IS 8.74

CONSISTENCY INDEX IS 0.43

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	698.82	351.35	0.4547E-10	39.63	0.01223
2	1461.84	164.23	0.1206E-01	27.69	0.04929
3	796.23	372.19	0.4752E 00	22.45	0.01528
4	796.39	336.87	0.1126E 00	25.39	0.01394
5	868.35	306.26	0.2688E-01	18.05	0.02043
6	673.92	440.82	0.4874E-02	36.78	0.01193
7	701.71	613.58	0.2492E-01	20.76	0.01601
8	1066.67	126.73	0.5513E-02	13.38	0.03239
9	1067.03	126.21	0.5512E-02	13.39	0.03240
10	816.72	352.09	0.2636E-01	21.18	0.01661

ACETIC ACID(1) P-XYLENE(2) SYSTEM 002

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	725.00	132.0	0.0100	0.1600	1119.15	612.85	0.9850	0.9569	10.1909	0.9566	2.3658	-382.49	-1495.93	-1044.98
2	725.00	125.5	0.1100	0.3200	933.85	512.62	0.9858	0.9539	2.2222	1.0265	0.7723	-395.23	-1560.72	-1087.37
3	725.00	122.5	0.1850	0.4400	856.85	470.86	0.9864	0.9520	1.9812	1.0031	0.6806	-401.53	-1592.22	-1107.90
4	725.00	120.0	0.2400	0.5200	796.55	438.12	0.9866	0.9505	1.9419	0.9893	0.6744	-406.98	-1619.28	-1125.51
5	725.00	118.0	0.3200	0.5850	750.76	413.22	0.9867	0.9491	1.7387	1.0121	0.5411	-411.49	-1641.50	-1139.94
6	725.00	116.5	0.3600	0.6450	717.79	395.29	0.9869	0.9480	1.7825	0.9605	0.6183	-414.96	-1658.50	-1150.96
7	725.00	114.1	0.7450	0.7850	667.43	367.86	0.9871	0.9456	1.1276	1.5649	-0.3277	-420.67	-1686.32	-1168.99
8	725.00	114.0	0.8370	0.8340	665.40	366.75	0.9872	0.9451	1.0697	1.8949	-0.5718	-420.91	-1687.50	-1169.75
9	725.00	114.2	0.8700	0.8550	669.47	368.97	0.9873	0.9450	1.0487	2.0626	-0.6764	-420.43	-1685.15	-1168.22
10	725.00	114.8	0.9250	0.8950	681.82	375.70	0.9874	0.9449	1.0139	2.5423	-0.9193	-418.98	-1678.13	-1163.68
11	725.00	115.3	0.9550	0.9300	692.25	381.38	0.9875	0.9448	1.0052	2.7824	-1.0182	-417.79	-1672.31	-1159.92
12	725.00	116.3	0.9960	0.9920	713.48	392.54	0.9876	0.9446	0.9976	3.4716	-1.2470	-415.42	-1660.79	-1152.45

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 594.80 P = 57.10 V = 171.30 OMEGA = 0.444 OMEGAH = 0.187 DIPOLE = 1.75 ETA = 0.0

2 T = 616.30 P = 34.60 V = 369.40 OMEGA = 0.324 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.71881E 01 B = 0.14167E 04 C = 0.21100E 03

2 A = 0.69905E 01 B = 0.14534E 04 C = 0.21531E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.58702E 02 B = -.61178E-01 C = 0.19158E-03

2 A = 0.12940E 03 B = -.14187E 00 C = 0.41800E-03

VAPOR PRESSURE AT NBP

P = 764.4 AT T = 118.1

P = 760.0 AT T = 138.3

COMPONENT ID ECHO CHECK

ID NUMBER = 1

ID NUMBER = 36

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.17603E 01 B = -.42747E 01 C = 0.15231E 01

STANDARD DEVIATION = 0.34536E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 5.8144 G2INF = 2.6946

T1INF = 136.60 T2INF = 116.35

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4093

AREA BELOW THE X-AXIS IS -0.2786

CROSS-OVER POINT IS X = 0.50

NORMALIZED AREA DIFFERENCE IS 0.1900

HERINGTON J-FACTOR IS 8.76

CONSISTENCY INDEX IS 10.24

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1907.03	-458.01	0.9095E-12	30.68	0.03902
2	643.57	354.55	0.2530E-02	21.22	0.03169
3	2630.35	-600.42	0.3302E 01	39.75	0.04021
4	1120.47	-114.27	0.6837E 00	11.97	0.02961
5	903.01	140.37	0.5207E-01	11.37	0.02888
6	834.04	305.43	0.4286E-01	16.63	0.02954
7	748.22	456.69	0.2954E-01	18.10	0.02975
8	991.22	-2.43	0.7869E-02	9.36	0.02879
9	991.22	-2.43	0.7856E-02	9.36	0.02879
10	2509.72	-505.99	0.1195E 00	46.50	0.04155

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION
SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

ACETONE(1) — ACETIC ACID(2) SYSTEM 003

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	112.1	0.0420	0.1080	3186.41	627.63	0.9786	0.9866	0.5986	1.1101	-0.6176	-794.64	-425.58	-535.90
2	760.00	107.4	0.1030	0.2570	2873.51	541.49	0.9763	0.9863	0.6426	1.1444	-0.5771	-828.09	-437.74	-553.02
3	760.00	106.3	0.1200	0.2890	2803.43	522.75	0.9758	0.9863	0.6354	1.1562	-0.5986	-836.08	-440.71	-557.14
4	760.00	106.1	0.1270	0.3100	2790.82	519.41	0.9756	0.9863	0.6468	1.1384	-0.5654	-837.54	-441.26	-557.90
5	760.00	105.4	0.1180	0.3030	2746.99	507.82	0.9755	0.9862	0.6911	1.1640	-0.5213	-842.67	-443.18	-560.55
6	760.00	104.6	0.1580	0.3560	2697.47	494.82	0.9745	0.9863	0.6172	1.1563	-0.6278	-848.55	-445.41	-563.61
7	760.00	94.3	0.2260	0.5640	2113.93	350.02	0.9705	0.9863	0.8683	1.2038	-0.3267	-927.45	-476.68	-605.31
8	760.00	92.5	0.2360	0.5800	2021.93	328.66	0.9698	0.9862	0.8934	1.2511	-0.3367	-941.86	-482.69	-613.08
9	760.00	90.4	0.2710	0.6300	1918.19	305.08	0.9688	0.9864	0.8899	1.2445	-0.3354	-958.92	-489.93	-622.34
10	760.00	86.3	0.3070	0.7090	1726.62	262.99	0.9670	0.9867	0.9802	1.1948	-0.1980	-993.02	-504.82	-641.06
11	760.00	78.6	0.4330	0.8440	1404.45	196.70	0.9635	0.9875	1.0134	1.0476	-0.0332	-1060.10	-535.73	-678.70
12	760.00	74.2	0.5380	0.9200	1241.26	165.43	0.9614	0.9883	1.0038	0.7846	0.2465	-1100.34	-555.34	-701.81
13	760.00	70.8	0.5500	0.9180	1125.00	144.17	0.9599	0.9880	1.0793	0.9470	0.1308	-1132.46	-571.59	-720.54
14	760.00	65.6	0.6680	0.9660	963.00	116.05	0.9574	0.9884	1.0896	0.6614	0.4991	-1183.40	-598.47	-750.80
15	760.00	63.6	0.7610	0.9810	905.57	106.52	0.9564	0.9885	1.0318	0.5594	0.6121	-1203.62	-609.52	-762.99

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.70 P = 46.60 V = 213.50 OMEGA = 0.309 OMEGAH = 0.187 DIPOLE = 2.88 ETA = 0.0

2 T = 594.80 P = 57.10 V = 171.30 OMEGA = 0.444 OMEGAH = 0.187 DIPOLE = 1.75 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70200E 01 B = 0.11610E 04 C = 0.22400E 03

2 A = 0.71881E 01 B = 0.14167E 04 C = 0.21100E 03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 56.5

P = 764.4 AT T = 118.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.56865E 02 B = -0.84265E-02 C = 0.16507E-03

2 A = 0.58702E 02 B = -.61178E-01 C = 0.19158E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 2

ID NUMBER = 1

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = -.73955E 00 B = 0.14755E 01 C = 0.44929E 00

STANDARD DEVIATION = 0.61674E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 0.4773 G2INF = 0.3057

T1INF = 117.91 T2INF = 56.49

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS -0.1698

AREA BELOW THE X-AXIS IS 0.3178

CROSS-OVER POINT IS X = 0.44

NORMALIZED AREA DIFFERENCE IS -0.3035

HERINGTON J-FACTOR IS 27.95

CONSISTENCY INDEX IS 2.40

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-643.45	82.33	0.1311E-09	152.84	0.01649
2	6383.52	-552.68	0.4883E-01	76.60	0.07432
3	-36.42	-195.33	0.6691E 00	76.03	0.03021
4	-117.77	-191.79	0.6725E 00	93.34	0.02092
5	232.01	-265.19	0.1750E 00	46.51	0.04732
6	-131.24	-298.82	0.3559E-02	128.09	0.00825
7	284.72	-319.50	0.1509E 00	54.54	0.04220
8	81.38	-79.56	0.3790E-01	32.18	0.06452
9	76.47	-76.25	0.3787E-01	32.18	0.06451
10	-182.97	-92.16	0.9297E 00	78.23	0.02965

DIAGNOSTIC

4 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION
SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

ACETENE(1) ACETENITRILE(2) SYSTEM 004

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	225.30	45.0	0.0520	0.1200	486.69	201.02	0.9870	0.9641	1.0534	1.0024	0.0496	-1410.53	-3163.44	-2130.11
2	239.90	45.0	0.0950	0.2060	486.69	201.02	0.9855	0.9619	1.0524	1.0065	0.0446	-1410.53	-3163.44	-2130.11
3	268.50	45.0	0.1920	0.3670	486.69	201.02	0.9827	0.9578	1.0353	1.0015	0.0332	-1410.53	-3163.44	-2130.11
4	302.70	45.0	0.3050	0.5100	486.69	201.02	0.9797	0.9530	1.0177	1.0110	0.0067	-1410.53	-3163.44	-2130.11
5	331.70	45.0	0.4030	0.6110	486.69	201.02	0.9773	0.9492	1.0085	1.0196	-0.0109	-1410.53	-3163.44	-2130.11
6	355.20	45.0	0.4810	0.6820	486.69	201.02	0.9754	0.9461	1.0079	1.0233	-0.0152	-1410.53	-3163.44	-2130.11
7	393.20	45.0	0.6060	0.7810	486.69	201.02	0.9724	0.9414	1.0109	1.0224	-0.0113	-1410.53	-3163.44	-2130.11
8	423.60	45.0	0.7060	0.8490	486.69	201.02	0.9700	0.9376	1.0136	1.0136	0.0000	-1410.53	-3163.44	-2130.11
9	454.10	45.0	0.8070	0.9040	486.69	201.02	0.9678	0.9339	1.0097	1.0480	-0.0372	-1410.53	-3163.44	-2130.11
10	481.40	45.0	0.8960	0.9510	486.69	201.02	0.9658	0.9307	1.0120	1.0487	-0.0356	-1410.53	-3163.44	-2130.11

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.70 P = 46.60 V = 213.50 OMEGA = 0.309 OMEGAH = 0.187 DIPOLE = 2.88 ETA = 0.0

2 T = 547.90 P = 47.70 V = 173.10 OMEGA = 0.321 OMEGAH = 0.152 DIPOLE = 3.94 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70206E 01 B = 0.11610E 04 C = 0.22400E 03

2 A = 0.70735E 01 B = 0.12792E 04 C = 0.22400E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.56865E 02 B = 0.84265E-02 C = 0.16507E-03

2 A = 0.40237E 02 B = 0.11816E-01 C = 0.10223E-03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 56.5

P = 777.0 AT T = 81.8

COMPONENT ID ECHO CHECK

ID NUMBER = 2

ID NUMBER = 3

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.58891E-01 B = -.18323E 00 C = 0.93689E-01

STANDARD DEVIATION = 0.11804E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.0607 G2INF = 1.0311

T1INF = 45.00 T2INF = 45.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0109

AREA BELOW THE X-AXIS IS -0.0124

CROSS-OVER POINT IS X = 0.41

NORMALIZED AREA DIFFERENCE IS -0.0642

CONSISTENCY INDEX IS 6.42

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	62.75	-3.40	0.1819E-11	2.23	0.00133
2	-511.75	670.00	0.1172E-03	1.79	0.00317
3	-47.67	98.81	0.1164E-02	1.74	0.00163
4	-43.42	95.28	0.1119E-02	1.74	0.00161
5	7.67	56.64	0.4033E-03	1.76	0.00163
6	210.14	-80.82	0.3730E-04	2.39	0.00116
7	-9.03	66.82	0.4058E-03	1.74	0.00145
8	-476.41	596.34	0.2504E-03	1.50	0.00264
9	-476.41	596.34	0.2505E-03	1.50	0.00264
10	-57.73	107.21	0.1656E 00	1.74	0.00166

ACETONE(1) — BENZENE(2) SYSTEM 005

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	79.5	0.0200	0.0630	1439.67	719.04	0.9749	0.9664	1.6166	0.9734	0.5073	-1052.05	-974.42	-828.73
2	760.00	78.3	0.0500	0.1400	1392.85	693.42	0.9728	0.9662	1.4821	0.9554	0.4390	-1062.80	-982.61	-835.38
3	760.00	76.4	0.1000	0.2430	1321.02	654.28	0.97CC	0.9661	1.3523	0.9407	0.3629	-1080.04	-995.83	-846.10
4	760.00	72.8	0.2000	0.4000	1192.36	584.76	0.9658	0.9663	1.2278	0.9387	0.2685	-1113.46	-1021.74	-867.06
5	760.00	69.6	0.3000	0.5120	1085.95	527.87	0.9628	0.9667	1.1468	0.9670	0.1705	-1144.01	-1045.77	-886.43
6	760.00	66.7	0.4000	0.5940	995.73	480.09	0.9665	0.9671	1.0856	1.0325	0.0501	-1172.43	-1068.42	-904.64
7	760.00	64.3	0.5000	0.6650	925.37	443.13	0.9566	0.9678	1.0441	1.1083	-0.0597	-1196.50	-1087.83	-920.19
8	760.00	62.4	0.6000	0.7300	872.37	415.48	0.9570	0.9687	1.0115	1.1920	-0.1642	-1215.92	-1103.64	-932.84
9	760.00	60.7	0.7000	0.7950	826.90	391.90	0.9557	0.9699	0.9947	1.2809	-0.2529	-1233.57	-1118.14	-944.41
10	760.00	59.6	0.8000	0.8630	798.44	377.21	0.9547	0.9716	0.9775	1.3364	-0.3127	-1245.14	-1127.70	-952.03
11	760.00	58.8	0.9000	0.9320	778.21	366.80	0.9540	0.9736	0.9621	1.3671	-0.3513	-1253.63	-1134.75	-957.63

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.70 P = 46.60 V = 213.50 OMEGA = 0.309 OMEGAH = 0.187 DIPOLE = 2.88 ETA = 0.0

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70200E 01 B = 0.11610E 04 C = 0.22400E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.56865E 02 B = 0.84265E-02 C = 0.16507E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 56.5

P = 760.0 AT T = 80.1

COMPONENT ID ECHO CHECK

ID NUMBER = 2

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.51999E 00 B = -.13774E 01 C = 0.43192E 00

STANDARD DEVIATION = 0.18505E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.6820 G2INF = 1.5303

T1INF = 80.10 T2INF = 56.49

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1077

AREA BELOW THE X-AXIS IS -0.1325

CROSS-OVER POINT IS X = 0.44

NORMALIZED AREA DIFFERENCE IS -0.1029

HERINGTON J-FACTOR IS 10.74

CONSISTENCY INDEX IS -0.45

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	486.67	-121.64	0.4547E-11	43.79	0.00388
2	-266.07	684.28	0.6749E-02	8.13	0.02581
3	560.56	-224.46	0.5656E-01	31.41	0.00694
4	551.60	-224.12	0.4760E-01	30.08	0.00762
5	392.19	-189.55	0.1245E-01	13.04	0.01713
6	554.57	-174.22	0.4643E-03	42.67	0.00371
7	519.11	-267.68	0.1430E-01	15.30	0.01542
8	-102.88	317.25	0.1870E-02	7.70	0.02406
9	-102.30	316.36	0.1868E-02	7.70	0.02405
10	474.53	-154.18	0.1103E 00	34.08	0.00628

ACETONE(1) - CARBON TETRACHLORIDE(2) SYSTEM 006

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	328.00	50.0	0.0115	0.0513	580.40	307.08	0.9856	0.9799	2.4816	1.0022	0.9067	-1351.26	-1237.37	-1034.73
2	336.00	50.0	0.0201	0.0910	580.40	307.08	0.9846	0.9794	2.5773	0.9918	0.9550	-1351.26	-1237.37	-1034.73
3	362.00	50.0	0.0385	0.1590	580.40	307.08	0.9823	0.9780	2.5268	1.0059	0.9211	-1351.26	-1237.37	-1034.73
4	359.00	50.0	0.0395	0.1767	580.40	307.08	0.9822	0.9782	2.7140	0.9778	1.0208	-1351.26	-1237.37	-1034.73
5	402.00	50.0	0.0868	0.2849	580.40	307.08	0.9783	0.9762	2.2207	0.9979	0.7999	-1351.26	-1237.37	-1034.73
6	457.00	50.0	0.1695	0.4120	580.40	307.08	0.9734	0.9739	1.8554	1.0234	0.5949	-1351.26	-1237.37	-1034.73
7	507.50	50.0	0.2860	0.5134	580.40	307.08	0.9691	0.9723	1.5181	1.0912	0.3302	-1351.26	-1237.37	-1034.73
8	553.00	50.0	0.4396	0.6093	580.40	307.08	0.9651	0.9713	1.2718	1.2148	0.0458	-1351.26	-1237.37	-1034.73
9	566.50	50.0	0.5073	0.6511	580.40	307.08	0.9638	0.9714	1.2047	1.2640	-0.0480	-1351.26	-1237.37	-1034.73
10	579.50	50.0	0.5610	0.6856	580.40	307.08	0.9626	0.9714	1.1720	1.3076	-0.1095	-1351.26	-1237.37	-1034.73
11	592.00	50.0	0.6465	0.7300	580.40	307.08	0.9614	0.9718	1.1048	1.4251	-0.2546	-1351.26	-1237.37	-1034.73
12	599.00	50.0	0.7031	0.7665	580.40	307.08	0.9607	0.9723	1.0789	1.4829	-0.3180	-1351.26	-1237.37	-1034.73
13	605.00	50.0	0.7649	0.8055	580.40	307.08	0.9600	0.9730	1.0514	1.5793	-0.4069	-1351.26	-1237.37	-1034.73
14	610.00	50.0	0.8293	0.8492	580.40	307.08	0.9594	0.9740	1.0302	1.7019	-0.5021	-1351.26	-1237.37	-1034.73
15	612.50	50.0	0.8759	0.8856	580.40	307.08	0.9591	0.9749	1.0210	1.7849	-0.5586	-1351.26	-1237.37	-1034.73
16	614.00	50.0	0.9470	0.9468	580.40	307.08	0.9589	0.9766	1.0118	1.9518	-0.6570	-1351.26	-1237.37	-1034.73
17	615.00	50.0	0.9763	0.9755	580.40	307.08	0.9587	0.9775	1.0127	2.0151	-0.6881	-1351.26	-1237.37	-1034.73

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.70 P = 46.60 V = 213.50 OMEGA = 0.309 OMEGAH = 0.187 DIPOLE = 2.88 ETA = 0.0

2 T = 556.40 P = 45.00 V = 279.60 OMEGA = 0.193 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70200E 01 B = 0.11610E 04 C = 0.22400E 03

2 A = 0.69339E 01 B = 0.12424E 04 C = 0.23000E 03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 56.5

P = 766.0 AT T = 76.8

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.56865E 02 B = 0.84265E-02 C = 0.16507E-03

2 A = 0.61938E 02 B = -.29977E 00 C = 0.16761E-02

COMPONENT ID ECHO CHECK

ID NUMBER = 2

ID NUMBER = 6

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10066E 01 B = -.24423E 01 C = 0.74211E 00

STANDARD DEVIATION = 0.39845E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.7362 G2INF = 2.0010

T1INF = 50.00 T2INF = 50.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2292

AREA BELOW THE X-AXIS IS -0.1964

CROSS-OVER POINT IS X = 0.48

NORMALIZED AREA DIFFERENCE IS 0.0770

CONSISTENCY INDEX IS 7.70

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	975.10	-326.02	0.3365E-10	6.06	0.00579
2	774.58	-152.43	0.5938E-03	2.05	0.00707
3	953.46	-292.03	0.1140E 00	3.83	0.00522
4	946.79	-289.62	0.2161E-01	3.86	0.00524
5	899.84	-239.97	0.1914E-02	2.19	0.00515
6	938.40	-267.73	0.1392E-02	2.77	0.00502
7	875.90	-218.51	0.2078E-02	1.89	0.00546
8	857.49	-210.12	0.3696E-03	1.60	0.00566
9	857.38	-210.13	0.3697E-03	1.60	0.00566
10	959.91	-300.95	0.1004E-01	4.31	0.00530

ACETONE(1) — CHLOROFORM(2) SYSTEM 007A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	514.00	50.0	0.0213	0.0115	580.40	499.37	0.9900	0.9742	0.4724	1.0107	-0.7605	-1351.26	-1009.80	-692.78
2	506.00	50.0	0.0526	0.0318	580.40	499.37	0.9891	0.9747	0.5203	1.0072	-0.6604	-1351.26	-1009.80	-692.78
3	505.00	50.0	0.0574	0.0350	580.40	499.37	0.9890	0.9747	0.5237	1.0070	-0.6539	-1351.26	-1009.80	-692.78
4	494.00	50.0	0.0967	0.0646	580.40	499.37	0.9879	0.9753	0.5606	0.9971	-0.5758	-1351.26	-1009.80	-692.78
5	483.00	50.0	0.1440	0.1090	580.40	499.37	0.9862	0.9761	0.6201	0.9807	-0.4584	-1351.26	-1009.80	-692.78
6	469.00	50.0	0.2070	0.1720	580.40	499.37	0.9841	0.9772	0.6596	0.9564	-0.3715	-1351.26	-1009.80	-692.78
7	461.00	50.0	0.2610	0.2320	580.40	499.37	0.9823	0.9781	0.6923	0.9366	-0.3023	-1351.26	-1009.80	-692.78
8	457.00	50.0	0.3110	0.2900	580.40	499.37	0.9805	0.9790	0.7187	0.9215	-0.2486	-1351.26	-1009.80	-692.78
9	457.00	50.0	0.3350	0.3220	580.40	499.37	0.9795	0.9794	0.7400	0.9121	-0.2090	-1351.26	-1009.80	-692.78
10	457.00	50.0	0.3650	0.3630	580.40	499.37	0.9783	0.9800	0.7648	0.8980	-0.1606	-1351.26	-1009.80	-692.78
11	457.00	50.0	0.3820	0.3810	580.40	499.37	0.9778	0.9803	0.7666	0.8969	-0.1570	-1351.26	-1009.80	-692.78
12	459.00	50.0	0.4310	0.4580	580.40	499.37	0.9758	0.9817	0.8186	0.8579	-0.0469	-1351.26	-1009.80	-692.78
13	466.00	50.0	0.4920	0.5460	580.40	499.37	0.9734	0.9834	0.8658	0.8186	0.0561	-1351.26	-1009.80	-692.78
14	469.00	50.0	0.5090	0.5700	580.40	499.37	0.9728	0.9839	0.8787	0.8077	0.0842	-1351.26	-1009.80	-692.78
15	474.00	50.0	0.5400	0.6180	580.40	499.37	0.9716	0.9850	0.9064	0.7749	0.1567	-1351.26	-1009.80	-692.78
16	483.00	50.0	0.5810	0.6770	580.40	499.37	0.9701	0.9866	0.9389	0.7341	0.2460	-1351.26	-1009.80	-692.78
17	494.00	50.0	0.6240	0.7270	580.40	499.37	0.9687	0.9880	0.9587	0.7082	0.3029	-1351.26	-1009.80	-692.78
18	511.00	50.0	0.6980	0.7890	580.40	499.37	0.9668	0.9900	0.9743	0.6837	0.3543	-1351.26	-1009.80	-692.78
19	520.00	50.0	0.7090	0.7940	580.40	499.37	0.9662	0.9900	0.9675	0.7282	0.2841	-1351.26	-1009.80	-692.78
20	532.00	50.0	0.7510	0.8300	580.40	499.37	0.9651	0.9913	0.9757	0.7195	0.3046	-1351.26	-1009.80	-692.78
21	547.00	50.0	0.7970	0.8860	580.40	499.37	0.9637	0.9938	1.0075	0.6099	0.5019	-1351.26	-1009.80	-692.78
22	551.00	50.0	0.8160	0.8940	580.40	499.37	0.9633	0.9941	0.9999	0.6305	0.4611	-1351.26	-1009.80	-692.78
23	559.00	50.0	0.8340	0.9150	580.40	499.37	0.9627	0.9951	1.0151	0.5691	0.5787	-1351.26	-1009.80	-692.78
24	572.00	50.0	0.8710	0.9340	580.40	499.37	0.9617	0.9960	1.0142	0.5823	0.5548	-1351.26	-1009.80	-692.78
25	592.00	50.0	0.9040	0.9540	580.40	499.37	0.9610	0.9971	1.0147	0.5555	0.6025	-1351.26	-1009.80	-692.78
26	592.00	50.0	0.9350	0.9700	580.40	499.37	0.9603	0.9980	1.0139	0.5447	0.6212	-1351.26	-1009.80	-692.78
27	599.00	50.0	0.9610	0.9820	580.40	499.37	0.9598	0.9987	1.0099	0.5516	0.6049	-1351.26	-1009.80	-692.78
28	606.00	50.0	0.9780	0.9900	580.40	499.37	0.9593	0.9992	1.0116	0.5498	0.6097	-1351.26	-1009.80	-692.78
29	607.00	50.0	0.9810	0.9910	580.40	499.37	0.9593	0.9993	1.0111	0.5739	0.5663	-1351.26	-1009.80	-692.78

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1	T = 508.70	P = 46.60	V = 213.50	OMEGA = 0.309	OMEGAH = 0.187	DIPOLE = 2.88	ETA = 0.0
2	T = 536.60	P = 54.00	V = 276.00	OMEGA = 0.214	OMEGAH = 0.187	DIPOLE = 1.02	ETA = 0.28

VAPOR PRESSURE EQUATION COEFFICIENTS

1	A = 0.70200E 01	B = 0.11610E 04	C = 0.22400F 03
2	A = 0.69033F 01	B = 0.11630F 04	C = 0.22740F 03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 56.5

P = 749.5 AT T = 61.3

MOLAR VOLUME EQUATION COEFFICIENTS

1	A = 0.56865F 02	B = 0.84265E-02	C = 0.16507F-03
2	A = 0.61065E 02	B = 0.30264E-01	C = 0.11910F-03

COMPONENT ID ECHO CHECK

ID NUMBER = 2

ID NUMBER = 8

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = -.77659E CC B = 0.19735E 01 C = -.54149E 00

STANDARD DEVIATION = 0.44320F-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 0.4600 G2INF = 0.5192

T1INF = 50.00 T2INF = 50.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS -0.1661

AREA BELOW THE X-AXIS IS 0.1957

CROSS-OVER POINT IS X = 0.45

NORMALIZED AREA DIFFERENCE IS -0.0819

CONSISTENCY INDEX IS 8.19

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-52.71	-359.16	0.9237E-13	5.97	0.00571
2	122.81	-479.71	0.1833F-02	4.19	0.00618
3	-2.08	-399.43	0.2860F-01	5.37	0.00554
4	-34.57	-372.87	0.5722E-01	5.65	0.00561
5	123.21	-485.15	0.6063F-02	4.10	0.00603
6	71.39	-488.62	0.2539F-02	9.32	0.00507
7	140.14	-496.91	0.6563F-02	4.07	0.00617
8	192.05	-524.41	0.2191E-02	4.06	0.00679
9	192.05	-524.41	0.2192F-02	4.06	0.00679
10	0.08	-398.50	0.1481E-01	5.12	0.00558

ACETONE(1) — CHLOROFORM(2) SYSTEM 0078

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	586.80	55.0	0.1003	0.0630	687.37	590.44	0.9865	0.9725	0.5278	1.0041	-0.6432	-1294.80	-963.12	-661.69
2	563.20	55.0	0.2003	0.1470	687.37	590.44	0.9831	0.9740	0.5899	0.9888	-0.5165	-1294.80	-963.12	-661.69
3	548.60	55.0	0.3008	0.2700	687.37	590.44	0.9786	0.9760	0.6996	0.9447	-0.3003	-1294.80	-963.12	-661.69
4	547.10	55.0	0.3980	0.4110	687.37	590.44	0.9740	0.9785	0.7989	0.8851	-0.1024	-1294.80	-963.12	-661.69
5	560.10	55.0	0.4883	0.5450	687.37	590.44	0.9699	0.9813	0.8802	0.8258	0.0638	-1294.80	-963.12	-661.69
6	578.30	55.0	0.5925	0.6780	687.37	590.44	0.9662	0.9850	0.9281	0.7605	0.1991	-1294.80	-963.12	-661.69
7	613.30	55.0	0.6951	0.7950	687.37	590.44	0.9624	0.9891	0.9798	0.6890	0.3521	-1294.80	-963.12	-661.69
8	646.40	55.0	0.7945	0.8830	687.37	590.44	0.9595	0.9931	1.0004	0.6173	0.4827	-1294.80	-963.12	-661.69
9	686.10	55.0	0.8951	0.9470	687.37	590.44	0.9567	0.9966	1.0076	0.5835	0.5464	-1294.80	-963.12	-661.69

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.70 P = 46.60 V = 213.50 OMEGA = 0.309 OMEGAH = 0.187 DIPOLE = 2.88 ETA = 0.0

2 T = 536.60 P = 54.00 V = 276.00 OMEGA = 0.214 OMEGAH = 0.187 DIPOLE = 1.02 ETA = 0.28

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70200E 01 B = 0.11610E 04 C = 0.22400E 03

2 A = 0.69033E 01 B = 0.11630E 04 C = 0.22740E 03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 56.5

P = 749.5 AT T = 61.3

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.56865E 02 B = 0.84265E-02 C = 0.16507E-03

2 A = 0.61065E 02 B = 0.30264E-01 C = 0.11910E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 2

ID NUMBER = 8

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = -.90533E 00 B = 0.23032E 01 C = -.73246E 00

STANDARD DEVIATION = 0.29542E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 0.4044 G2INF = 0.5141

T1INF = 55.00 T2INF = 55.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS -0.1965

AREA BELOW THE X-AXIS IS 0.1987

CROSS-OVER POINT IS X = 0.46

NORMALIZED AREA DIFFERENCE IS -0.0054

CONSISTENCY INDEX IS 0.54

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	24.34	-457.66	0.3020E-12	13.60	0.00393
2	55.79	-425.86	0.9965E-04	3.32	0.00943
3	36.13	-451.30	0.7025E-02	10.67	0.00515
4	20.51	-444.20	0.1020E-01	11.64	0.00468
5	76.31	-449.27	0.2250E-02	4.38	0.00855
6	23.85	-492.04	0.1383E-03	20.10	0.00224
7	72.43	-442.94	0.2817E-02	3.76	0.00893
8	100.02	-451.30	0.2885E-03	3.07	0.01021
9	100.25	-451.51	0.2888E-03	3.06	0.01020
10	33.78	-449.50	0.1318E-01	10.67	0.00516

ACETONE(1) — CHLOROFORM(2) SYSTEM 007C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	62.6	C.6064	0.6887	878.66	753.44	0.9590	0.9826	0.9394	0.7815	0.1840	-1213.55	-898.13	-618.62
2	760.00	63.7	0.5211	0.5788	907.26	777.83	0.9620	C.9784	0.8926	0.8382	0.0629	-1203.01	-889.88	-613.17
3	760.00	62.0	0.6448	0.7311	862.31	739.50	0.9580	0.9845	0.9546	0.7636	0.2233	-1219.74	-902.99	-621.83
4	760.00	60.4	0.7474	0.8337	818.80	702.41	C.9557	C.9856	0.9867	0.7028	0.3393	-1236.82	-916.48	-630.75
5	760.00	58.8	0.8391	0.9045	777.46	667.18	0.9542	0.9937	1.0026	0.6698	0.4034	-1253.95	-930.12	-639.79
6	760.00	62.1	C.0563	0.0387	863.12	746.20	0.9854	C.9672	0.5947	1.0085	-0.5282	-1219.43	-902.74	-621.67
7	760.00	63.2	0.1491	0.1126	894.96	767.34	0.9811	0.9680	0.6274	0.9968	-0.4629	-1207.50	-893.39	-615.49
8	760.00	64.3	0.2747	0.2495	926.80	794.50	0.9743	0.9700	0.7236	0.9572	-0.2797	-1196.00	-884.43	-609.57
9	760.00	64.1	0.2224	0.1885	918.83	787.71	0.9772	C.9691	0.6832	0.9727	-0.3534	-1198.84	-886.64	-611.03

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.70 P = 46.60 V = 213.50 OMEGA = 0.309 OMEGAH = 0.187 DIPOLE = 2.88 ETA = 0.0

2 T = 536.60 P = 54.CC V = 276.00 OMEGA = 0.214 OMEGAH = 0.187 DIPOLE = 1.02 ETA = 0.28

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70200E 01 B = 0.11610E 04 C = 0.224C0F 03

2 A = 0.69033E 01 B = 0.11630E 04 C = 0.22740F 03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 56.5

P = 749.5 AT T = 61.3

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.56865E 02 B = 0.84265E-02 C = 0.165C7E-03

2 A = 0.61C65E 02 B = 0.30264E-01 C = 0.11910F-03

COMPONENT ID ECHO CHECK

ID NUMBER = 2

ID NUMBER = 8

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = -.64977E 00 B = 0.14719E 01 C = -.21932E 00

STANDARD DEVIATION = 0.27887E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 0.5222 G2INF = 0.5472

T1INF = 61.73 T2INF = 56.49

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS -0.1504

AREA BELOW THE X-AXIS IS 0.1635

CROSS-OVER POINT IS X = 0.48

NORMALIZED AREA DIFFERENCE IS -0.0417

HERINGTON J-FACTOR IS 3.58

CONSISTENCY INDEX IS 0.59

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-81.41	-298.95	0.8882E-13	9.15	0.00411
2	27.88	-366.72	C.3204E-03	4.15	0.00558
3	-13.40	-349.72	0.3680E-02	6.84	0.00413
4	-54.45	-314.93	0.6303E-02	7.19	0.00443
5	72.68	-409.69	C.1010E-02	4.64	0.00459
6	21.79	-410.15	0.7627E-04	13.77	0.00172
7	77.08	-411.97	0.1151E-02	4.48	0.00471
8	50.79	-381.23	C.3994E-03	4.18	0.00583
9	50.71	-381.18	C.3995E-03	4.18	0.00583
10	-15.07	-349.53	0.8348E-02	7.12	0.00402

ACETONE(1) — ETHANOL(2) SYSTEM 008A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	223.30	48.0	0.0250	0.1210	541.39	197.06	0.9860	0.9816	1.9667	1.0021	0.6742	-1374.62	-1649.95	-1433.64
2	244.10	48.0	0.0500	0.2155	541.39	197.06	0.9844	0.9800	1.9112	1.0017	0.6461	-1374.62	-1649.95	-1433.64
3	263.60	48.0	0.0750	0.2890	541.39	197.06	0.9830	0.9785	1.8423	1.0052	0.6058	-1374.62	-1649.95	-1433.64
4	281.60	48.0	0.1000	0.3460	541.39	197.06	0.9816	0.9771	1.7647	1.0137	0.5544	-1374.62	-1649.95	-1433.64
5	314.20	48.0	0.1500	0.4370	541.39	197.06	0.9792	0.9746	1.6536	1.0283	0.4751	-1374.62	-1649.95	-1433.64
6	341.50	48.0	0.2000	0.5070	541.39	197.06	0.9772	0.9726	1.5606	1.0376	0.4082	-1374.62	-1649.95	-1433.64
7	365.50	48.0	0.2500	0.5600	541.39	197.06	0.9755	0.9708	1.4731	1.0552	0.3337	-1374.62	-1649.95	-1433.64
8	387.00	48.0	0.3000	0.6020	541.39	197.06	0.9739	0.9692	1.3949	1.0810	0.2550	-1374.62	-1649.95	-1433.64
9	424.90	48.0	0.4000	0.6700	541.39	197.06	0.9712	0.9665	1.2746	1.1447	0.1075	-1374.62	-1649.95	-1433.64
10	457.40	48.0	0.5000	0.7310	541.39	197.06	0.9689	0.9642	1.1946	1.2024	-0.0065	-1374.62	-1649.95	-1433.64
11	485.00	48.0	0.6000	0.7850	541.39	197.06	0.9669	0.9624	1.1311	1.2713	-0.1168	-1374.62	-1649.95	-1433.64
12	510.10	48.0	0.7000	0.8380	541.39	197.06	0.9651	0.9608	1.0864	1.3409	-0.2104	-1374.62	-1649.95	-1433.64
13	533.00	48.0	0.8000	0.8890	541.39	197.06	0.9635	0.9594	1.0519	1.4378	-0.3126	-1374.62	-1649.95	-1433.64
14	553.60	48.0	0.9000	0.9420	541.39	197.06	0.9620	0.9582	1.0274	1.5587	-0.4168	-1374.62	-1649.95	-1433.64

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.70 P = 46.60 V = 213.50 OMEGA = 0.309 OMEGAH = 0.187 DIPCLE = 2.88 ETA = 0.0

2 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70200E 01 B = -0.11610E 04 C = 0.22400E 03

2 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 56.5

P = 762.1 AT T = 78.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.56865E 02 B = 0.84265E-02 C = 0.16507E-03

2 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 2

ID NUMBER = 11

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.72318E 00 B = -.17003E 01 C = 0.49552E 00

STANDARD DEVIATION = 0.87008E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.0610 G2INF = 1.6186

T1INF = 48.00 T2INF = 48.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1697

AREA BELOW THE X-AXIS IS -0.1315

CROSS-OVER POINT IS X = 0.50

NORMALIZED AREA DIFFERENCE IS 0.1269

CONSISTENCY INDEX IS 12.69

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER	VALUES	OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	350.45	112.43	0.1819E-11	12.82	0.00864
2	169.73	346.15	0.8073E-04	2.89	0.00703
3	254.11	221.30	C.2418E-01	7.05	0.00436
4	244.62	230.70	0.1333E-01	6.75	0.00414
5	94.48	402.74	0.1224E-02	1.70	0.00453
6	167.61	306.38	0.4875E-03	5.01	0.00304
7	68.96	426.93	0.1571E-02	1.83	0.00475
8	69.61	437.62	C.2187E-03	1.38	0.00534
9	69.31	438.03	0.2189E-03	1.38	0.00535
10	326.21	153.56	0.8850E-02	9.41	0.00611

ACETONE(1) — ETHANOL(2) — SYSTEM 0068

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	75.4	0.0500	0.1550	1284.31	649.37	0.9653	0.9577	1.7659	0.9948	0.5739	-1089.23	-1212.38	-1082.26
2	760.00	73.0	0.1000	0.2620	1199.27	590.60	0.9635	0.9565	1.5953	1.0071	0.4600	-1111.57	-1244.80	-1108.64
3	760.00	71.0	0.1500	0.3480	1131.61	545.00	0.9621	0.9555	1.4948	1.0198	0.3824	-1130.54	-1272.59	-1131.20
4	760.00	69.0	0.2000	0.4170	1066.81	502.30	0.9608	0.9545	1.4231	1.0501	0.3039	-1149.83	-1301.11	-1154.31
5	760.00	67.3	0.2500	0.4780	1013.92	468.20	0.9596	0.9537	1.3714	1.0751	0.2435	-1166.50	-1325.94	-1174.38
6	760.00	65.9	0.3000	0.5240	971.85	441.56	0.9587	0.9530	1.3058	1.1129	0.1599	-1180.40	-1346.80	-1191.21
7	760.00	64.7	0.3500	0.5660	936.84	419.73	0.9580	0.9524	1.2532	1.1489	0.0869	-1192.46	-1364.99	-1205.87
8	760.00	63.6	0.4000	0.6050	905.57	400.50	0.9572	0.9519	1.2116	1.1865	0.0209	-1203.62	-1381.91	-1219.49
9	760.00	61.8	0.5000	0.6740	856.11	370.61	0.9561	0.9511	1.1409	1.2688	-0.1063	-1222.12	-1410.12	-1242.17
10	760.00	60.4	0.6000	0.7390	819.06	348.65	0.9552	0.9506	1.0885	1.3491	-0.2146	-1236.72	-1432.52	-1260.16
11	760.00	59.1	0.7000	0.8020	785.75	329.23	0.9543	0.9502	1.0545	1.4444	-0.3146	-1250.44	-1453.70	-1277.13
12	760.00	58.0	0.8000	0.8650	758.38	313.51	0.9536	0.9499	1.0304	1.5509	-0.4089	-1262.18	-1471.89	-1291.70
13	760.00	57.0	0.9000	0.9290	734.12	299.76	0.9530	0.9498	1.0155	1.7059	-0.5188	-1272.95	-1488.67	-1305.12

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.70 P = 46.60 V = 213.50 OMEGA = 0.309 OMEGAH = 0.187 DIPOLE = 2.88 ETA = 0.0

2 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70200E 01 B = 0.11610E 04 C = 0.22400E 03

2 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 56.5

P = 762.1 AT T = 78.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.56865E 02 B = 0.84265E-02 C = 0.16507E-03

2 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 2

ID NUMBER = 11

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.64133E 00 B = -.17590E 01 C = 0.54037E 00

STANDARD DEVIATION = 0.10873E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.8990 G2INF = 1.7812

T1INF = 78.33 T2INF = 56.49

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1276

AREA BELOW THE X-AXIS IS -0.1856

CROSS-OVER POINT IS X = 0.42

NORMALIZED AREA DIFFERENCE IS -0.1854

HERINGTON J-FACTOR IS 9.94

CONSISTENCY INDEX IS 8.60

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	184.02	270.26	0.1819E-11	9.26	0.01107
2	92.27	438.42	0.6135E-03	15.09	0.01906
3	139.04	317.06	0.6206E-01	7.36	0.01216
4	204.25	258.96	0.3392E-01	9.25	0.01116
5	198.54	260.44	0.6207E-02	9.41	0.01097
6	496.40	26.64	0.1061E-02	20.76	0.00535
7	302.27	174.00	0.3713E-02	12.71	0.00930
8	-75.63	559.99	0.9912E-04	1.65	0.01625
9	-75.63	559.99	0.9906E-04	1.65	0.01625
10	142.02	320.67	0.4462E-01	6.88	0.01244

ACETONE(1) 2-PROPANOL(2) SYSTEM COSA

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	707.37	55.0	0.9214	0.9629	687.37	214.61	0.9552	0.9994	1.0246	1.5507	-0.4144	-1294.80	-438.13	-654.42
2	684.21	55.0	0.8569	0.9240	687.37	214.61	0.9568	0.9982	1.0243	1.6858	-0.4982	-1294.80	-438.13	-654.42
3	644.62	55.0	0.7338	0.8729	687.37	214.61	0.9594	0.9970	1.0677	1.4262	-0.2895	-1294.80	-438.13	-654.42
4	637.84	55.0	0.7216	0.8617	687.37	214.61	0.9599	0.9967	1.0611	1.4679	-0.3246	-1294.80	-438.13	-654.42
5	602.20	55.0	0.6084	0.8098	687.37	214.61	0.9624	0.9957	1.1197	1.3538	-0.1899	-1294.80	-438.13	-654.42
6	563.06	55.0	0.5234	0.7655	687.37	214.61	0.9650	0.9951	1.1537	1.2817	-0.1053	-1294.80	-438.13	-654.42
7	533.87	55.0	0.4314	0.7284	687.37	214.61	0.9671	0.9947	1.2656	1.1795	0.0705	-1294.80	-438.13	-654.42
8	517.54	55.0	0.3879	0.6995	687.37	214.61	0.9682	0.9943	1.3121	1.1749	0.1105	-1294.80	-438.13	-654.42
9	456.40	55.0	0.2687	0.6024	687.37	214.61	0.9726	0.9937	1.4454	1.1470	0.2312	-1294.80	-438.13	-654.42
10	442.90	55.0	0.2353	0.5722	687.37	214.61	0.9737	0.9936	1.5231	1.1452	0.2852	-1294.80	-438.13	-654.42
11	390.23	55.0	0.1591	0.4762	687.37	214.61	0.9776	0.9935	1.6586	1.1236	0.3895	-1294.80	-438.13	-654.42
12	331.59	55.0	0.0971	0.3625	687.37	214.61	0.9818	0.9938	1.7660	1.0828	0.4892	-1294.80	-438.13	-654.42
13	299.50	55.0	0.0642	0.2777	687.37	214.61	0.9843	0.9941	1.8531	1.0695	0.5496	-1294.80	-438.13	-654.42
14	257.97	55.0	0.0237	0.1166	687.37	214.61	0.9879	0.9946	1.8222	1.0806	0.5225	-1294.80	-438.13	-654.42

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.70 P = 46.60 V = 213.50 OMEGA = 0.309 OMEGAH = 0.187 DIPOLE = 2.88 ETA = 0.0

2 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70200E 01 B = 0.11610E 04 C = 0.22400E 03

2 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293E 03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 56.5

P = 769.7 AT T = 82.5

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.56865E 02 B = 0.84265E-02 C = 0.16507E-03

2 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 2

ID NUMBER = 22

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.61299E 00 B = -.14812E 01 C = 0.31137E 00

STANDARD DEVIATION = 0.41711E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.8459 G2INF = 1.7451

T1INF = 55.00 T2INF = 55.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1354

AREA BELOW THE X-AXIS IS -0.1592

CROSS-OVER POINT IS X = 0.46

NORMALIZED AREA DIFFERENCE IS -0.0808

CONSISTENCY INDEX IS 8.08

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	282.33	131.22	0.1819E-11	24.23	0.00464
2	1577.75	-245.22	0.4501E-02	20.81	0.04253
3	332.90	141.76	0.1276E 00	16.42	0.00826
4	359.84	124.74	0.7280E-01	16.07	0.00871
5	365.73	184.71	0.1565E-01	6.96	0.01483
6	368.82	51.81	0.6991E-03	25.89	0.00413
7	304.67	215.75	0.1513E-01	9.60	0.01241
8	500.95	117.84	0.1533E-02	3.65	0.01998
9	500.93	117.83	0.1533E-02	3.65	0.01997
10	382.61	100.10	0.7263E-01	17.15	0.00830

ACETONE(1) — 2-PROPANOL(2) SYSTEM 0098

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	56.8	0.9249	0.9614	728.86	235.54	0.9529	0.9994	1.0298	1.6526	-0.4729	-1275.34	-432.89	-645.22
2	760.00	58.8	0.7691	0.8873	776.96	260.54	0.9541	0.9970	1.0736	1.4153	-0.2763	-1254.16	-427.28	-635.28
3	760.00	61.2	0.6077	0.8081	839.82	294.37	0.9558	0.9948	1.1469	1.2527	-0.0883	-1228.46	-420.60	-623.31
4	760.00	63.8	0.4629	0.7242	911.20	334.28	0.9576	0.9929	1.2461	1.1558	0.0752	-1201.58	-413.76	-610.90
5	760.00	64.6	0.4215	0.6974	933.96	347.32	0.9583	0.9923	1.2865	1.1325	0.1275	-1193.47	-411.72	-607.17
6	760.00	65.0	0.3957	0.6866	945.79	354.16	0.9586	0.9921	1.3183	1.1104	0.1716	-1189.33	-410.69	-605.28
7	760.00	69.3	0.2486	0.5261	1076.98	432.58	0.9623	0.9896	1.4330	1.0934	0.2705	-1146.73	-400.27	-585.91
8	760.00	71.6	0.1927	0.4525	1152.61	479.81	0.9642	0.9888	1.4888	1.0591	0.3405	-1124.53	-394.99	-575.93
9	760.00	73.4	0.1468	0.3793	1213.49	518.85	0.9660	0.9881	1.5589	1.0500	0.3952	-1107.72	-391.06	-568.42
10	760.00	75.4	0.1080	0.3018	1284.68	565.57	0.9681	0.9876	1.5959	1.0359	0.4322	-1089.13	-386.79	-560.17
11	760.00	79.8	0.0359	0.1135	1450.74	678.83	0.9731	0.9871	1.6072	1.0133	0.4613	-1049.56	-377.92	-542.76

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.70 P = 46.60 V = 213.50 OMEGA = 0.309 OMEGAH = 0.187 DIPOLE = 2.88 ETA = 0.0

2 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70200E 01 B = 0.11610E 04 C = 0.22400E 03

2 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293E 03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 56.5

P = 769.7 AT T = 82.5

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.56865E 02 B = 0.84265E-02 C = 0.16507E-03

2 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 2

ID NUMBER = 22

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.50178E 00 B = -.75657E 00 C = -.32635E 00

STANDARD DEVIATION = 0.15244E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.6517 G2INF = 1.7881

T1INF = 82.19 T2INF = 56.49

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1435

AREA BELOW THE X-AXIS IS -0.1288

CROSS-OVER POINT IS X = 0.54

NORMALIZED AREA DIFFERENCE IS 0.0540

HERINGTON J-FACTOR IS 11.69

CONSISTENCY INDEX IS -6.29

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER	VALUES	OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	151.74	243.67	0.0	32.99	0.00445
2	480.87	103.64	0.7125E-03	15.56	0.02067
3	164.89	276.67	0.3820E-01	23.35	0.00490
4	156.71	293.28	0.2289E-01	21.86	0.00520
5	51.65	511.62	0.3796E-02	6.58	0.00949
6	39.78	418.73	0.2243E-03	25.83	0.00258
7	5.77	566.02	0.3700E-02	9.45	0.00817
8	97.76	477.49	0.3411E-03	3.37	0.01227
9	97.76	477.49	0.3413E-03	3.37	0.01227
10	215.40	216.27	0.3067E-01	24.77	0.00551

ACETONE(1) - METHANOL(2) SYSTEM 01CA

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	421.00	50.0	0.0031	0.0086	580.40	402.25	0.9719	0.9708	1.9527	1.0096	0.6597	-1351.26	-1395.64	-1369.09
2	424.00	50.0	0.0073	0.0203	580.40	402.25	0.9717	0.9706	1.9709	1.0088	0.6697	-1351.26	-1395.64	-1369.09
3	430.00	50.0	0.0162	0.0452	580.40	402.25	0.9713	0.9702	2.0045	1.0057	0.6898	-1351.26	-1395.64	-1369.09
4	434.00	50.0	0.0221	0.0603	580.40	402.25	0.9711	0.9699	1.9779	1.0047	0.6774	-1351.26	-1395.64	-1369.09
5	442.00	50.0	0.0339	0.0910	580.40	402.25	0.9705	0.9694	1.9806	1.0013	0.6821	-1351.26	-1395.64	-1369.09
6	465.00	50.0	0.0709	0.1690	580.40	402.25	0.9689	0.9678	1.8471	0.9997	0.6140	-1351.26	-1395.64	-1369.09
7	471.00	50.0	0.0807	0.1890	580.40	402.25	0.9685	0.9674	1.8375	0.9983	0.6101	-1351.26	-1395.64	-1369.09
8	469.00	50.0	0.1210	0.2560	580.40	402.25	0.9673	0.9661	1.7210	0.9931	0.5499	-1351.26	-1395.64	-1369.09
9	499.00	50.0	0.1360	0.2660	580.40	402.25	0.9666	0.9654	1.6224	1.0164	0.4676	-1351.26	-1395.64	-1369.09
10	510.00	50.0	0.1670	0.3150	580.40	402.25	0.9659	0.9647	1.5978	1.0047	0.4639	-1351.26	-1395.64	-1369.09
11	524.00	50.0	0.2060	0.3520	580.40	402.25	0.9649	0.9637	1.4856	1.0235	0.3727	-1351.26	-1395.64	-1369.09
12	544.00	50.0	0.2570	0.3900	580.40	402.25	0.9636	0.9623	1.3677	1.0673	0.2480	-1351.26	-1395.64	-1369.09
13	542.00	50.0	0.2600	0.4000	580.40	402.25	0.9637	0.9625	1.3817	1.0503	0.2742	-1351.26	-1395.64	-1369.09
14	560.00	50.0	0.3160	0.4550	580.40	402.25	0.9625	0.9612	1.3343	1.0650	0.2254	-1351.26	-1395.64	-1369.09
15	569.00	50.0	0.3380	0.4790	580.40	402.25	0.9619	0.9606	1.3335	1.0682	0.2218	-1351.26	-1395.64	-1369.09
16	570.00	50.0	0.3570	0.4990	580.40	402.25	0.9618	0.9606	1.3174	1.0593	0.2181	-1351.26	-1395.64	-1369.09
17	590.00	50.0	0.3960	0.5330	580.40	402.25	0.9611	0.9599	1.2899	1.0688	0.1880	-1351.26	-1395.64	-1369.09
18	581.60	50.0	0.4050	0.5380	580.40	402.25	0.9611	0.9598	1.2752	1.0752	0.1706	-1351.26	-1395.64	-1369.09
19	583.00	50.0	0.4120	0.5430	580.40	402.25	0.9609	0.9597	1.2693	1.0797	0.1618	-1351.26	-1395.64	-1369.09
20	593.00	50.0	0.4520	0.5740	580.40	402.25	0.9603	0.9590	1.2431	1.0977	0.1244	-1351.26	-1395.64	-1369.09
21	602.00	50.0	0.5020	0.5700	580.40	402.25	0.9597	0.9584	1.1276	1.2369	-0.0925	-1351.26	-1395.64	-1369.09
22	613.00	50.0	0.5780	0.6580	580.40	402.25	0.9589	0.9576	1.1502	1.1812	-0.0266	-1351.26	-1395.64	-1369.09
23	621.00	50.0	0.6620	0.7000	580.40	402.25	0.9584	0.9571	1.0817	1.3098	-0.1913	-1351.26	-1395.64	-1369.09
24	615.00	50.0	0.6740	0.7280	580.40	402.25	0.9588	0.9575	1.0947	1.2199	-0.1083	-1351.26	-1395.64	-1369.09
25	623.00	50.0	0.6770	0.7110	580.40	402.25	0.9582	0.9570	1.0776	1.3244	-0.2062	-1351.26	-1395.64	-1369.09
26	624.00	50.0	0.6910	0.7180	580.40	402.25	0.9582	0.9569	1.0678	1.3530	-0.2367	-1351.26	-1395.64	-1369.09
27	623.00	50.0	0.6960	0.7280	580.40	402.25	0.9582	0.9570	1.0733	1.3244	-0.2103	-1351.26	-1395.64	-1369.09
28	624.00	50.0	0.7210	0.7460	580.40	402.25	0.9582	0.9569	1.0633	1.3497	-0.2385	-1351.26	-1395.64	-1369.09
29	621.00	50.0	0.7360	0.7540	580.40	402.25	0.9584	0.9571	1.0480	1.3751	-0.2717	-1351.26	-1395.64	-1369.09
30	625.00	50.0	0.7670	0.7820	580.40	402.25	0.9581	0.9569	1.0494	1.3892	-0.2805	-1351.26	-1395.64	-1369.09
31	624.00	50.0	0.7980	0.8160	580.40	402.25	0.9581	0.9569	1.0508	1.3505	-0.2508	-1351.26	-1395.64	-1369.09
32	626.00	50.0	0.8120	0.8100	580.40	402.25	0.9580	0.9568	1.0283	1.5029	-0.3795	-1351.26	-1395.64	-1369.09
33	625.00	50.0	0.8810	0.8710	580.40	402.25	0.9581	0.9569	1.0175	1.6096	-0.4586	-1351.26	-1395.64	-1369.09
34	623.00	50.0	0.9240	0.9170	580.40	402.25	0.9582	0.9571	1.0183	1.6167	-0.4622	-1351.26	-1395.64	-1369.09
35	619.00	50.0	0.9490	0.9410	580.40	402.25	0.9585	0.9573	1.0112	1.7021	-0.5207	-1351.26	-1395.64	-1369.09

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1	T = 508.70	P = 46.60	V = 213.50	OMEGA = 0.309	OMEGAH = 0.187	DIPOLE = 2.88	ETA = 0.0
2	T = 513.20	P = 78.50	V = 118.00	OMEGA = 0.557	OMEGAH = 0.105	DIPOLE = 1.66	ETA = 1.21

VAPOR PRESSURE EQUATION COEFFICIENTS

1	A = 0.70200E 01	B = 0.11616E 04	C = 0.22400E 03
2	A = 0.78786E 01	B = 0.14731E 04	C = 0.23000E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1	A = 0.56865E 02	B = 0.84265E-02	C = 0.16507E-03
2	A = 0.64511E 02	B = -.19716E 00	C = 0.38735E-03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 56.5

P = 758.5 AT T = 64.7

COMPONENT ID ECHO CHECK

ID NUMBER = 2

ID NUMBER = 23

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.69443E 00 B = -.14579E 01 C = 0.21743E 00

STANDARD DEVIATION = 0.42094E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.0026 G2INF = 1.7264

T1INF = 50.00 T2INF = 50.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1742

AREA BELOW THE X-AXIS IS -0.1362

CROSS-OVER POINT IS X = 0.52

NORMALIZED AREA DIFFERENCE IS 0.1222

CONSISTENCY INDEX IS 12.22

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-9.09	457.59	0.0	4.59	0.00902
2	-224.80	662.70	0.1232E-02	2.57	0.00795
3	-21.83	481.55	0.1062E 00	3.47	0.00875
4	-43.17	496.24	0.6176E-01	3.34	0.00862
5	-207.74	653.12	0.8152E-02	2.30	0.00795
6	-245.53	695.94	0.6957E-02	2.56	0.00787
7	-269.92	722.72	0.6784E-02	2.74	0.00786
8	-154.50	600.12	0.9952E-03	2.43	0.00811
9	-154.50	600.11	0.9954E-03	2.43	0.00811
10	-22.04	473.00	0.2687E-01	3.89	0.00881

ACETONE(1) — METHANOL(2) — SYSTEM 01CB

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	542.17	55.0	0.0287	0.0647	687.37	495.20	0.9660	0.9651	1.7142	1.0163	0.5228	-1294.80	-1318.35	-1299.54
2	564.61	55.0	0.0570	0.1295	687.37	495.20	0.9646	0.9636	1.7962	1.0131	0.5727	-1294.80	-1318.35	-1299.54
3	569.56	55.0	0.0644	0.1407	687.37	495.20	0.9642	0.9633	1.7418	1.0164	0.5386	-1294.80	-1318.35	-1299.54
4	581.45	55.0	0.0858	0.1848	687.37	495.20	0.9635	0.9625	1.7515	1.0066	0.5539	-1294.80	-1318.35	-1299.54
5	592.15	55.0	0.1046	0.2190	687.37	495.20	0.9628	0.9619	1.7326	1.0020	0.5476	-1294.80	-1318.35	-1299.54
6	610.13	55.0	0.1357	0.2637	687.37	495.20	0.9616	0.9607	1.6548	1.0071	0.4966	-1294.80	-1318.35	-1299.54
7	618.98	55.0	0.1452	0.2694	687.37	495.20	0.9610	0.9601	1.6019	1.0245	0.4470	-1294.80	-1318.35	-1299.54
8	628.16	55.0	0.1663	0.3055	687.37	495.20	0.9604	0.9595	1.6086	1.0127	0.4628	-1294.80	-1318.35	-1299.54
9	650.74	55.0	0.2173	0.3633	687.37	495.20	0.9590	0.9581	1.5141	1.0228	0.3923	-1294.80	-1318.35	-1299.54
10	667.70	55.0	0.2390	0.3863	687.37	495.20	0.9585	0.9577	1.4787	1.0244	0.3671	-1294.80	-1318.35	-1299.54
11	675.68	55.0	0.2787	0.4184	687.37	495.20	0.9574	0.9565	1.4092	1.0509	0.2934	-1294.80	-1318.35	-1299.54
12	699.07	55.0	0.3579	0.4779	687.37	495.20	0.9559	0.9550	1.2947	1.0947	0.1678	-1294.80	-1318.35	-1299.54
13	712.65	55.0	0.4050	0.5135	687.37	495.20	0.9550	0.9542	1.2520	1.1212	0.1104	-1294.80	-1318.35	-1299.54
14	722.76	55.0	0.4480	0.5512	687.37	495.20	0.9543	0.9536	1.2313	1.1299	0.0859	-1294.80	-1318.35	-1299.54
15	732.37	55.0	0.5052	0.5844	687.37	495.20	0.9537	0.9530	1.1722	1.1820	-0.0083	-1294.80	-1318.35	-1299.54
16	738.49	55.0	0.5432	0.6174	687.37	495.20	0.9533	0.9526	1.1609	1.1880	-0.0231	-1294.80	-1318.35	-1299.54
17	748.61	55.0	0.6332	0.6772	687.37	495.20	0.9526	0.9520	1.1065	1.2646	-0.1335	-1294.80	-1318.35	-1299.54
18	752.18	55.0	0.6536	0.6849	687.37	495.20	0.9524	0.9517	1.0887	1.3138	-0.1879	-1294.80	-1318.35	-1299.54
19	749.65	55.0	0.6605	0.6926	687.37	495.20	0.9526	0.9519	1.0863	1.3028	-0.1817	-1294.80	-1318.35	-1299.54
20	752.11	55.0	0.6945	0.7124	687.37	495.20	0.9524	0.9518	1.0659	1.3588	-0.2427	-1294.80	-1318.35	-1299.54
21	753.53	55.0	0.7327	0.7383	687.37	495.20	0.9523	0.9517	1.0490	1.4157	-0.2998	-1294.80	-1318.35	-1299.54
22	753.85	55.0	0.7525	0.7618	687.37	495.20	0.9523	0.9517	1.0543	1.3922	-0.2780	-1294.80	-1318.35	-1299.54
23	757.52	55.0	0.7752	0.7729	687.37	495.20	0.9521	0.9515	1.0431	1.4681	-0.3418	-1294.80	-1318.35	-1299.54
24	757.57	55.0	0.7922	0.7876	687.37	495.20	0.9520	0.9515	1.0407	1.4863	-0.3564	-1294.80	-1318.35	-1299.54
25	749.10	55.0	0.9080	0.8959	687.37	495.20	0.9526	0.9521	1.0214	1.6272	-0.4657	-1294.80	-1318.35	-1299.54
26	750.31	55.0	0.9088	0.8963	687.37	495.20	0.9525	0.9520	1.0225	1.6377	-0.4710	-1294.80	-1318.35	-1299.54
27	750.47	55.0	0.9197	0.8941	687.37	495.20	0.9525	0.9520	1.0081	1.8999	-0.6337	-1294.80	-1318.35	-1299.54
28	748.52	55.0	0.9448	0.9336	687.37	495.20	0.9526	0.9522	1.0222	1.7287	-0.5254	-1294.80	-1318.35	-1299.54

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1	T = 508.70	P = 46.60	V = 213.50	OMEGA = 0.309	OMEGAH = 0.187	DIPOLE = 2.88	ETA = 0.0
2	T = 513.20	P = 78.50	V = 118.00	OMEGA = 0.557	OMEGAH = 0.105	DIPOLE = 1.66	ETA = 1.21

VAPOR PRESSURE EQUATION COEFFICIENTS

1	A = 0.70200E 01	B = -0.11610E 04	C = 0.22400E 03
2	A = 0.78786E 01	B = 0.14731E 04	C = 0.23000E 03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 56.5

P = 758.5 AT T = 64.7

MOLAR VOLUME EQUATION COEFFICIENTS

1	A = 0.56865E 02	B = 0.84265E-02	C = 0.16507E-03
2	A = 0.64511E 02	B = -.15716E-00	C = 0.38735E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 2

ID NUMBER = 23

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.63354E 00 B = -.11900E 01 C = -.76377E-01

STANDARD DEVIATION = 0.35464E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.8843 G2INF = 1.8830

T1INF = 55.00 T2INF = 55.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1650

AREA BELOW THE X-AXIS IS -0.1515

CROSS-OVER POINT IS X = 0.52

NORMALIZED AREA DIFFERENCE IS 0.0412

CONSISTENCY INDEX IS 4.12

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER	VALUES	OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-181.80	629.03	0.0	5.51	0.00432
2	-214.48	687.47	0.1126E-02	3.09	0.00429
3	-192.53	652.11	0.7670E-01	3.76	0.00429
4	-190.53	648.36	0.2763E-01	4.06	0.00429
5	-196.55	669.53	0.2321E-02	2.96	0.00439
6	-208.20	675.02	0.1337E-02	3.10	0.00428
7	-220.61	693.80	0.2469E-02	3.15	0.00428
8	-187.53	662.45	0.9161E-03	3.04	0.00447
9	-177.75	652.82	0.9152E-03	3.07	0.00453
10	-190.49	648.71	0.1983E-01	3.99	0.00429

ACETONE(1) - METHYL ACETATE(2) SYSTEM 011

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	595.00	50.0	0.0190	0.0250	580.40	568.21	0.97C2	C.9602	1.3C57	0.9969	0.2698	-1351.26	-1346.77	-1170.82
2	596.00	50.0	0.0400	0.0450	580.40	568.21	0.9697	0.9602	1.1177	0.9995	0.1118	-1351.26	-1346.77	-1170.82
3	599.00	50.0	0.0870	0.1010	580.4C	568.21	0.9684	C.9601	1.1576	0.9941	0.1522	-1351.26	-1346.77	-1170.82
4	607.00	50.0	0.1890	0.2070	580.40	568.21	0.9660	0.9599	1.1040	1.0002	0.0987	-1351.26	-1346.77	-1170.82
5	610.00	50.0	0.2530	0.271C	580.4C	568.21	0.9648	0.9600	1.0836	1.0033	0.0770	-1351.26	-1346.77	-1170.82
6	612.50	50.0	0.3130	0.3340	580.40	568.21	0.9637	C.9603	1.0827	1.0010	0.0785	-1351.26	-1346.77	-1170.82
7	614.50	50.0	0.3710	0.3870	580.40	568.21	0.9629	0.9605	1.0609	1.0099	0.0493	-1351.26	-1346.77	-1170.82
8	626.00	50.0	0.4540	0.4630	580.4C	568.21	0.9611	C.9606	1.0661	1.0285	0.0359	-1351.26	-1346.77	-1170.82
9	622.50	50.0	0.4710	0.4840	580.4C	568.21	C.9612	C.9610	1.0568	1.0243	0.0312	-1351.26	-1346.77	-1170.82
10	624.00	50.0	0.5540	0.5610	580.40	568.21	0.9603	C.9618	1.0430	1.0370	0.0057	-1351.26	-1346.77	-1170.82
11	620.20	50.0	C.5860	0.591C	580.4C	568.21	0.9602	0.9624	1.0324	1.0351	-0.0027	-1351.26	-1346.77	-1170.82
12	621.70	50.0	0.6280	0.6360	580.4C	568.21	0.9597	C.9629	1.0387	1.0283	0.0100	-1351.26	-1346.77	-1170.82
13	624.20	50.0	0.6880	0.6880	580.40	568.21	0.9592	0.9635	1.0291	1.0558	-0.0256	-1351.26	-1346.77	-1170.82
14	622.20	50.0	C.7230	0.7170	580.4C	568.21	0.9591	0.9641	1.0173	1.0758	-0.0560	-1351.26	-1346.77	-1170.82
15	623.90	50.0	0.7480	0.7500	580.40	568.21	0.9588	0.9645	1.0310	1.0480	-0.0163	-1351.26	-1346.77	-1170.82
16	622.40	50.0	C.7760	0.7740	580.4C	568.21	0.9588	0.9650	1.0205	1.0734	-0.0505	-1351.26	-1346.77	-1170.82
17	620.70	50.0	0.8030	0.805C	580.40	568.21	0.9588	C.9656	1.0255	1.0415	-0.0155	-1351.26	-1346.77	-1170.82
18	619.60	50.0	0.8370	0.8380	580.4C	568.21	0.9587	C.9663	1.0223	1.0446	-0.0216	-1351.26	-1346.77	-1170.82
19	618.00	50.0	0.8710	0.8650	580.40	568.21	0.9587	C.9669	1.0114	1.0978	-0.0819	-1351.26	-1346.77	-1170.82
20	616.70	50.0	0.9460	0.9360	580.4C	568.21	0.9587	0.9684	1.0055	1.2425	-0.2117	-1351.26	-1346.77	-1170.82
21	613.70	50.0	0.9590	0.9540	580.40	568.21	0.9588	C.9689	1.0062	1.1712	-0.1518	-1351.26	-1346.77	-1170.82
22	613.20	50.0	0.9830	0.9820	580.40	568.21	0.9589	0.9695	1.0097	1.1051	-0.0903	-1351.26	-1346.77	-1170.82
23	610.00	50.0	0.9910	0.9910	580.4C	568.21	C.9591	C.9699	1.0056	1.0386	-0.0323	-1351.26	-1346.77	-1170.82

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.70 P = 46.60 V = 213.50 OMEGA = 0.309 OMEGAH = 0.187 DIPOLE = 2.88 ETA = 0.0

2 T = 506.90 P = 46.30 V = 228.00 OMEGA = 0.326 OMEGAH = 0.215 DIPOLE = 1.72 ETA = 0.62

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70200E 01 B = 0.11610E 04 C = 0.22400E 03

2 A = 0.69894E 01 B = 0.11110E 04 C = 0.21351E 03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 56.5

P = 784.0 AT T = 57.8

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.56865E 02 B = 0.84265E-02 C = 0.16507E-03

2 A = 0.13600E 03 B = -.46705E 00 C = 0.92210E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 2

ID NUMBER = 24

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.18601E 00 B = -.35539E 00 C = 0.61905E-01

STANDARD DEVIATION = 0.45233E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.2044 G2INF = 1.1135

T1INF = 50.00 T2INF = 50.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0521

AREA BELOW THE X-AXIS IS -0.0232

CROSS-OVER POINT IS X = 0.58

NORMALIZED AREA DIFFERENCE IS 0.3844

CONSISTENCY INDEX IS 38.44

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	411.18	-251.49	0.9095E-12	4.62	0.00587
2	-241.42	458.65	0.2830E-03	1.66	0.00339
3	396.56	-237.64	0.5950E-01	4.27	0.00596
4	367.45	-222.95	0.4489E-01	4.37	0.00570
5	-260.06	487.20	0.1226E-02	1.67	0.00337
6	-261.76	465.46	0.7553E-03	3.67	0.00321
7	-290.06	548.21	0.1106E-02	1.81	0.00357
8	-239.49	454.93	0.3041E-03	1.66	0.00338
9	-239.67	455.31	0.3042E-03	1.66	0.00338
10	382.10	-229.48	0.4013E 00	4.26	0.00586

ACETONE(1) - METHYL ETHYL KETONE(2) SYSTEM 012

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	78.5	0.0260	0.0500	1400.58	709.57	0.9635	0.9661	1.0027	1.0059	-0.0032	-1061.00	-977.98	-1014.82
2	760.00	76.6	0.0810	0.1530	1328.45	668.34	0.9627	0.9654	1.0374	1.0084	0.0283	-1078.22	-992.72	-1030.56
3	760.00	74.2	0.1530	0.2900	1241.26	618.92	0.9616	0.9645	1.1128	0.9895	0.1175	-1100.34	-1011.77	-1050.85
4	760.00	71.4	0.2450	0.4370	1144.91	564.87	0.9603	0.9635	1.1338	0.9634	0.1629	-1126.72	-1034.65	-1075.11
5	760.00	69.0	0.3730	0.5710	1066.81	521.51	0.9591	0.9625	1.0430	0.9565	0.0866	-1149.83	-1054.84	-1096.43
6	760.00	67.0	0.4500	0.6400	1004.80	487.39	0.9581	0.9618	1.0278	0.9783	0.0494	-1169.46	-1072.09	-1114.58
7	760.00	65.1	0.5100	0.6570	948.40	456.62	0.9572	0.9610	0.9854	1.1158	-0.1243	-1188.42	-1088.86	-1132.17
8	760.00	64.1	0.5440	0.7150	919.68	441.04	0.9567	0.9606	1.0362	1.0310	0.0050	-1198.53	-1097.83	-1141.55
9	760.00	62.1	0.6200	0.7750	864.21	411.13	0.9557	0.9597	1.0476	1.0468	0.0007	-1219.02	-1116.09	-1160.62
10	760.00	61.1	0.6760	0.8170	837.43	396.79	0.9552	0.9593	1.0447	1.0342	0.0100	-1229.40	-1125.39	-1170.30
11	760.00	60.3	0.7270	0.8400	816.46	385.60	0.9547	0.9590	1.0239	1.1039	-0.0752	-1237.77	-1132.91	-1178.12
12	760.00	58.9	0.8170	0.9030	780.72	366.61	0.9540	0.9584	1.0235	1.0494	-0.0250	-1252.56	-1146.25	-1191.95
13	760.00	57.9	0.8910	0.9420	755.92	353.51	0.9535	0.9579	1.0106	1.0920	-0.0775	-1263.25	-1155.92	-1201.96
14	760.00	56.9	0.9500	0.9720	731.72	340.78	0.9529	0.9575	1.0098	1.1917	-0.1656	-1274.03	-1165.71	-1212.07

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.70 P = 46.60 V = 213.50 OMEGA = 0.309 OMEGAH = 0.187 DIPOLE = 2.88 ETA = 0.0

2 T = 533.20 P = 39.50 V = 288.40 OMEGA = 0.337 OMEGAH = 0.215 DIPOLE = 2.70 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70200E 01 B = -0.11610E 04 C = 0.22400E 03

2 A = 0.69742E 01 B = 0.12096E 04 C = 0.21600E 03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 56.5

P = 762.4 AT T = 79.6

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.56865E 02 B = 0.84265E-02 C = 0.16507E-03

2 A = 0.71193E 02 B = 0.96599E-02 C = 0.18100E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 2

ID NUMBER = 28

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.48523E-01 B = 0.14212E 00 C = -.35864E 00

STANDARD DEVIATION = 0.66244E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.0497 G2INF = 1.1829

T1INF = 79.50 T2INF = 56.49

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0289

AREA BELOW THE X-AXIS IS -0.0289

CROSS-OVER POINT IS X = 0.62

NORMALIZED AREA DIFFERENCE IS 0.0006

HERINGTON J-FACTOR IS 10.47

CONSISTENCY INDEX IS -10.41

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	-237.87	470.66	0.0	9.22	0.00825
2	-411.51	1027.51	0.2451E-02	7.33	0.01041
3	-221.18	464.65	0.3918E-01	7.80	0.00792
4	-234.39	487.13	0.3464E-01	7.96	0.00800
5	-206.11	443.73	0.6522E-02	7.42	0.00779
6	-11.69	166.86	0.3450E-02	10.53	0.00789
7	-221.59	468.93	0.5739E-02	7.64	0.00789
8	-402.72	949.27	0.1682E-02	6.82	0.00998
9	-402.77	949.45	0.1682E-02	6.82	0.00998
10	-238.32	498.49	0.6900E-00	7.80	0.00798

ACETONE(1) — METHYL ISOBUTYL KETONE(2 SYSTEM 013

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	110.1	0.0340	0.1450	3052.57	608.55	0.9923	0.9504	1.0508	1.0459	0.0046	-808.53	-1574.56	-818.70
2	760.00	99.0	0.1240	0.4320	2369.65	436.80	0.9799	0.9481	1.0919	1.0649	0.0250	-890.48	-1741.64	-897.13
3	760.00	91.6	0.2100	0.5960	1976.50	344.49	0.9733	0.9484	1.0592	1.0652	-0.0056	-949.22	-1867.96	-956.12
4	760.00	84.1	0.3030	0.7220	1629.23	267.57	0.9681	0.9489	1.0731	1.0701	0.0028	-1011.86	-2008.62	-1021.56
5	760.00	76.7	0.4230	0.8190	1331.06	205.46	0.9637	0.9493	1.0624	1.0965	-0.0316	-1077.58	-2162.60	-1092.95
6	760.00	70.9	0.5460	0.8850	1127.64	165.45	0.9604	0.9498	1.0462	1.1000	-0.0501	-1131.69	-2294.25	-1153.80
7	760.00	65.8	0.6790	0.9330	968.30	135.61	0.9577	0.9499	1.0299	1.1059	-0.0712	-1181.60	-2419.47	-1211.56
8	760.00	61.6	0.7935	0.9670	851.81	114.71	0.9555	0.9498	1.0359	1.0008	0.0345	-1223.78	-2528.09	-1261.56
9	760.00	58.6	0.9100	0.9850	772.22	100.92	0.9538	0.9492	1.0132	1.1856	-0.1571	-1256.19	-2613.27	-1300.72

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.70 P = 46.60 V = 213.50 OMEGA = 0.309 OMEGAH = 0.187 DIPOLE = 2.88 ETA = 0.0

2 T = 575.10 P = 36.10 V = 338.50 OMEGA = 0.400 OMEGAH = 0.302 DIPOLE = 1.65 ETA = 0.50

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70200E 01 B = 0.11610E 04 C = 0.22400E 03

2 A = 0.68256E 01 B = 0.12567E 04 C = 0.20240E 03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 56.5

P = 760.3 AT T = 116.2

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.56865E 02 B = 0.84265E-02 C = 0.16507E-03

2 A = 0.12020E 03 B = -.82574E-01 C = 0.33673E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 2

ID NUMBER = 29

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.74631E-02 B = 0.89016E-02 C = -.13802E 00

STANDARD DEVIATION = 0.52459E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.0075 G2INF = 1.1294

T1INF = 116.17 T2INF = 56.49

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0014

AREA BELOW THE X-AXIS IS -0.0355

CROSS-OVER POINT IS X = 0.27

NORMALIZED AREA DIFFERENCE IS -0.9224

HERINGTON J-FACTOR IS 27.16

CONSISTENCY INDEX IS 65.08

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	-67.63	301.69	0.0	31.11	0.00398
2	1335.07	-753.92	0.1291E-02	28.97	0.02282
3	140.92	14.45	0.4052E-01	15.99	0.00853
4	145.69	2.05	0.3588E-01	17.00	0.00823
5	67.62	178.92	0.5242E-02	8.11	0.01089
6	560.43	-529.85	0.1898E-03	37.35	0.00284
7	-34.36	355.23	0.4806E-02	12.65	0.00922
8	229.32	-48.90	0.1433E-02	7.66	0.01263
9	228.43	-47.68	0.1424E-02	7.66	0.01263
10	20.61	220.75	0.5568E 00	15.68	0.00838

ACETONE(1) -- WATER(2) SYSTEM 014

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	87.8	0.0100	0.3350	1795.05	477.48	0.9677	0.9815	13.6874	1.0488	2.5689	-980.42	-553.02	-741.73
2	760.00	83.0	0.0230	0.4620	1582.69	396.42	0.9656	0.9809	9.2883	1.0349	2.1944	-1021.27	-569.64	-768.05
3	760.00	76.5	0.0410	0.5850	1324.73	305.16	0.9628	0.9801	7.8590	1.0556	2.0075	-1079.13	-593.01	-805.33
4	760.00	66.2	0.1200	0.7560	980.75	196.71	0.9579	0.9789	4.6630	1.0480	1.4928	-1177.41	-632.24	-868.75
5	760.00	61.8	0.2640	0.8020	856.11	161.48	0.9556	0.9783	2.5698	1.2379	0.7305	-1222.12	-649.89	-897.63
6	760.00	61.1	0.3000	0.8090	837.43	156.40	0.9553	0.9782	2.3312	1.2962	0.5870	-1229.40	-652.75	-902.33
7	760.00	60.0	0.4440	0.8320	808.70	148.70	0.9547	0.9782	1.6764	1.5096	0.1048	-1240.92	-657.27	-909.78
8	760.00	59.7	0.5060	0.8370	801.00	146.65	0.9545	0.9781	1.4938	1.6715	-0.1124	-1244.09	-658.51	-911.83
9	760.00	59.5	0.5380	0.8400	795.95	145.30	0.9544	0.9781	1.4189	1.7706	-0.2215	-1246.20	-659.34	-913.20
10	760.00	58.9	0.6090	0.8470	780.72	141.31	0.9541	0.9780	1.2880	2.0569	-0.4681	-1252.56	-661.84	-917.31
11	760.00	58.5	0.6610	0.8600	770.73	138.70	0.9538	0.9780	1.2202	2.2116	-0.5947	-1256.83	-663.50	-920.07
12	760.00	57.4	0.7930	0.9000	743.75	131.74	0.9532	0.9781	1.1023	2.7239	-0.9047	-1268.63	-668.11	-927.70
13	760.00	57.1	0.8500	0.9170	736.51	129.90	0.9531	0.9781	1.0579	3.1645	-1.0957	-1271.87	-669.38	-929.80

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.70 P = 46.60 V = 213.50 OMEGA = 0.309 OMEGAH = 0.187 DIPOLE = 2.88 ETA = 0.0

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70200E 01 B = 0.11610E 04 C = 0.22400E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.56865E 02 B = 0.84265E-02 C = 0.16507E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 56.5

P = 760.0 AT T = 100.0

COMPONENT ID ECHO CHECK

ID NUMBER = 2

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.23708E 01 B = -.66116E 01 C = 0.31116E 01

STANDARD DEVIATION = 0.11804E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 10.7056 G2INF = 3.0932

T1INF = 100.00 T2INF = 56.49

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4920

AREA BELOW THE X-AXIS IS -0.3899

CROSS-OVER POINT IS X = 0.46

NORMALIZED AREA DIFFERENCE IS 0.1159

HERINGTON J-FACTOR IS 19.80

CONSISTENCY INDEX IS -8.21

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	673.05	1085.08	0.3638E-10	100.31	0.02859
2	781.73	1445.58	0.4572E-02	33.95	0.02287
3	792.58	1223.55	0.2847E 01	58.19	0.01739
4	526.94	1440.16	0.6865E-01	26.45	0.01248
5	425.21	1567.86	0.1431E-01	10.69	0.01025
6	449.43	1493.62	0.4850E-02	16.97	0.01087
7	375.23	1593.54	0.8387E-02	8.39	0.00959
8	435.33	1569.87	0.8826E-02	10.86	0.01058
9	435.32	1569.87	0.8825E-02	10.86	0.01058
10	696.26	1313.04	0.1193E-01	45.01	0.01545

ACETONITRILE(1) - WATER(2) SYSTEM 015A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	150.00	36.6	C.9800	0.9550	142.37	45.85	0.9737	1.0004	0.9993	7.3630	-1.9971	-3382.10	-763.04	-1646.52
2	150.00	36.0	0.9550	0.9100	138.78	44.37	0.9736	0.9999	1.0023	6.7601	-1.9087	-3398.37	-766.02	-1653.92
3	150.00	34.6	0.9000	0.8600	130.68	41.06	0.9733	0.9992	1.0671	5.1100	-1.5662	-3436.72	-773.02	-1671.38
4	150.00	34.1	C.7720	0.8350	127.88	39.93	0.9732	0.9989	1.2342	2.7152	-0.7885	-3450.54	-775.55	-1677.67
5	150.00	36.7	0.1680	0.7320	142.98	46.10	0.9743	0.9978	4.4516	1.0455	1.4487	-3379.39	-762.54	-1645.29
6	150.00	44.8	0.0520	0.5070	199.43	70.88	0.9775	0.9961	7.1656	1.0961	1.8775	-3168.46	-723.76	-1549.57
7	150.00	58.7	0.0030	0.0640	336.18	140.00	0.9839	0.9952	9.3620	1.0009	2.2357	-2839.60	-662.67	-1401.14

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 547.90 P = 47.70 V = 173.10 OMEGA = 0.321 OMEGAH = 0.152 DIPOLE = 3.94 ETA = 0.0

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70735E 01 B = 0.12792E 04 C = 0.22400E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

VAPOR PRESSURE AT NBP

P = 777.0 AT T = 81.8

P = 760.0 AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.40237E 02 B = C.11816E-01 C = 0.10223E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 3

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.21052E 01 B = -.29886E 01 C = -.12052E 01

STANDARD DEVIATION = 0.12254E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 8.2087 G2INF = 8.0741

T1INF = 60.08 T2INF = 37.20

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.6401

AREA BELOW THE X-AXIS IS -C.4309

CROSS-OVER POINT IS X = 0.57

NORMALIZED AREA DIFFERENCE IS 0.1953

HERINGTON J-FACTOR IS 12.69

CONSISTENCY INDEX IS 6.84

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	210.85	1487.92	0.4820E-10	7.65	0.01640
2	484.46	1658.63	0.6175E-02	3.32	0.02850
3	321.34	1500.48	0.7538E 00	5.15	0.01262
4	324.43	1500.80	0.5927E-01	5.10	0.01278
5	352.26	1663.76	0.1154E-01	2.94	0.02128
6	260.79	1587.86	0.5046E-02	5.30	0.01308
7	285.76	1824.30	0.1033E-01	3.16	0.02437
8	383.65	1707.29	C.2504E-02	2.51	0.02506
9	383.76	1707.60	0.2504E-02	2.51	0.02508
10	321.66	1499.28	0.6867E-02	5.16	0.01261

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

ACETONITRILE(1) — WATER(2) SYSTEM 0158

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	300.00	53.2	0.9910	0.9530	275.35	107.82	0.9563	1.0007	1.0022	13.0826	-2.5691	-2965.14	-686.07	-1457.69
2	300.00	52.3	0.9800	0.9140	266.27	103.21	0.9559	0.9998	1.0037	12.4934	-2.5215	-2986.24	-690.00	-1467.20
3	300.00	51.6	0.9140	0.8350	259.38	99.74	0.9558	0.9981	1.0091	5.7585	-1.7416	-3002.75	-693.07	-1474.66
4	300.00	51.2	0.8600	0.8080	255.50	97.80	0.9557	0.9976	1.0535	4.1954	-1.3819	-3012.23	-694.83	-1478.93
5	300.00	51.1	0.7000	0.7720	254.54	97.32	0.9559	0.9969	1.2415	2.3348	-0.6316	-3014.61	-695.27	-1480.01
6	300.00	51.4	0.5200	0.7460	257.43	98.76	0.9562	0.9964	1.5973	1.6011	-0.0024	-3007.49	-693.95	-1476.79
7	300.00	51.7	0.3110	0.7320	260.35	100.23	0.9564	0.9961	2.5918	1.1594	0.8044	-3000.39	-692.63	-1473.59
8	300.00	54.0	0.1180	0.6860	283.62	112.07	0.9578	0.9954	5.8850	0.9483	1.8255	-2946.52	-682.61	-1449.29
9	300.00	64.7	0.0300	0.4200	413.87	184.04	0.9647	0.9926	9.7824	0.9673	2.3139	-2708.85	-638.19	-1342.39
10	300.00	73.5	0.0080	0.1070	551.72	269.38	0.9718	0.9917	7.0623	0.9940	1.9608	-2527.74	-604.14	-1261.23

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 547.90 P = 47.70 V = 173.10 OMEGA = 0.321 OMEGAH = 0.152 DIPOLE = 3.94 ETA = 0.0

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70735E 01 B = -0.12792E 04 C = 0.22400E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.40237E 02 B = 0.11816E-01 C = 0.10223E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

VAPOR PRESSURE AT NBP

P = 777.0 AT T = 81.8

P = 760.0 AT T = 100.0

COMPONENT ID ECHO CHECK

ID NUMBER = 3

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.21562E 01 B = -.31579E 01 C = -.14485E 01

STANDARD DEVIATION = 0.22468E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 8.6382 G2INF = 11.5903

T1INF = 75.88 T2INF = 54.30

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.6280

AREA BELOW THE X-AXIS IS -0.5336

CROSS-OVER POINT IS X = 0.55

NORMALIZED AREA DIFFERENCE IS 0.0813

HERINGTON J-FACTOR IS 11.46

CONSISTENCY INDEX IS -3.33

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	177.94	1824.68	0.3638E-11	10.93	0.02408
2	-41.96	1808.84	0.1575E-02	14.89	0.03461
3	188.43	1987.08	0.9815E 01	12.24	0.02134
4	130.49	1977.10	0.1919E 00	12.28	0.02230
5	403.32	1728.36	0.2482E-01	8.19	0.02360
6	350.38	1950.89	0.1265E-01	11.16	0.02050
7	435.35	1771.61	0.1454E-01	9.34	0.02273
8	439.38	1643.00	0.9000E-02	7.00	0.02512
9	439.27	1642.76	0.9000E-02	7.00	0.02513
10	193.35	1987.23	0.6306E-01	12.23	0.02130

ACETONITRILE(1) — WATER(2) SYSTEM 015C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	79.2	0.9600	0.8790	657.74	340.67	0.9165	0.9982	0.9678	6.7323	-1.9397	-2416.60	-583.17	-1211.56
2	760.00	78.8	0.9500	0.8510	649.84	335.20	0.9164	0.9970	0.9581	6.7321	-1.9497	-2424.25	-584.62	-1214.97
3	760.00	77.9	0.9140	0.8350	632.33	323.16	0.9157	0.9964	1.0034	4.4928	-1.4991	-2441.54	-587.89	-1222.70
4	760.00	77.1	0.8800	0.7950	617.06	312.77	0.9153	0.9947	1.0164	4.1265	-1.4012	-2457.01	-590.81	-1229.61
5	760.00	76.3	0.7950	0.7400	602.06	302.65	0.9152	0.9925	1.0732	3.1590	-1.0796	-2472.57	-593.74	-1236.56
6	760.00	76.0	0.7260	0.7260	596.52	298.93	0.9151	0.9920	1.1636	2.5204	-0.7729	-2478.42	-594.85	-1239.18
7	760.00	76.3	0.5970	0.6930	602.06	302.65	0.9158	0.9908	1.3393	1.8941	-0.3466	-2472.57	-593.74	-1236.56
8	760.00	78.2	0.3490	0.6450	638.13	327.13	0.9182	0.9893	2.0171	1.2525	0.4765	-2435.77	-586.79	-1220.12
9	760.00	78.4	0.2790	0.6270	642.02	329.80	0.9187	0.9887	2.4392	1.1779	0.7279	-2431.92	-586.07	-1218.40
10	760.00	79.3	0.1880	0.5850	659.72	342.04	0.9202	0.9876	3.2921	1.1208	1.0775	-2414.69	-582.81	-1210.70
11	760.00	80.9	0.0990	0.5500	692.09	364.74	0.9222	0.9868	5.6149	1.0262	1.6995	-2384.33	-577.08	-1197.15
12	760.00	85.2	0.0390	0.4470	784.86	432.03	0.9277	0.9850	10.2762	0.9964	2.3334	-2304.42	-561.96	-1161.50
13	760.00	90.1	0.0150	0.3200	901.22	520.92	0.9342	0.9836	16.7742	0.9901	2.8298	-2216.22	-545.24	-1122.21
14	760.00	91.7	0.0060	0.2790	941.76	553.02	0.9363	0.9834	35.0670	0.9797	3.5778	-2188.06	-539.90	-1109.68
15	760.00	95.0	0.0020	0.1800	1029.46	624.39	0.9410	0.9830	62.4008	0.9825	4.1512	-2130.91	-529.05	-1084.26

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 547.90 P = 47.70 V = 173.10 OMEGA = 0.321 OMEGAH = 0.152 DIPOLE = 3.94 ETA = 0.0

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70735E 01 B = 0.12792E 04 C = 0.22400E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

VAPOR PRESSURE AT NBP

P = 777.0 AT T = 81.8

P = 760.0 AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.40237E 02 B = 0.11816E-01 C = 0.10223E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 3

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.31530E 01 B = -.90450E 01 C = 0.42507E 01

STANDARD DEVIATION = 0.48639E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 23.4060 G2INF = 5.1615

T1INF = 100.00 T2INF = 81.10

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.6325

AREA BELOW THE X-AXIS IS -0.5850

CROSS-OVER POINT IS X = 0.44

NORMALIZED AREA DIFFERENCE IS 0.0390

HERINGTON J-FACTOR IS 10.31

CONSISTENCY INDEX IS -6.42

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	1159.99	1287.26	0.9350E-09	22.95	0.03115
2	362.02	1454.23	0.3393E-02	41.96	0.05216
3	2677.78	659.67	0.7077E 02	88.17	0.07280
4	1383.38	1369.01	0.6488E 00	34.89	0.03079
5	1354.18	1248.46	0.7751E-01	25.85	0.03343
6	1378.60	1367.78	0.4313E-01	34.56	0.03079
7	1212.93	1295.21	0.4459E-01	24.32	0.03112
8	1279.00	1224.23	0.2516E-01	23.82	0.03483
9	1278.97	1224.24	0.2521E-01	23.82	0.03483
10	1725.17	1496.49	0.9241E-01	70.63	0.03828

ACETONITRILE(1) WATER(2) SYSTEM 015D

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	90.3	0.0310	0.2850	906.21	524.84	0.9352	0.9832	7.1967	1.0499	1.9249	-2212.69	-544.57	-1120.64
2	760.00	84.2	0.0540	0.4580	762.52	415.53	0.9267	0.9850	7.8186	1.0316	2.0254	-2322.79	-565.43	-1169.69
3	760.00	80.9	0.1030	0.5490	692.09	364.74	0.9222	0.9867	5.3871	1.0331	1.6515	-2384.33	-577.08	-1197.15
4	760.00	80.7	0.1050	0.5540	687.99	361.84	0.9220	0.9868	5.3630	1.0322	1.6478	-2388.11	-577.79	-1198.83
5	760.00	78.0	0.1920	0.5980	634.26	324.48	0.9188	0.9878	3.4224	1.1504	1.0902	-2439.61	-587.52	-1221.84
6	760.00	77.2	0.4430	0.6090	618.96	314.05	0.9180	0.9881	1.5464	1.6775	-0.0813	-2455.07	-590.44	-1228.74
7	760.00	76.8	0.6220	0.6720	611.40	308.94	0.9166	0.9901	1.2285	2.1121	-0.5419	-2462.84	-591.91	-1232.21
8	760.00	77.2	0.6630	0.6840	618.96	314.05	0.9167	0.9905	1.1590	2.2462	-0.6617	-2455.07	-590.44	-1228.74
9	760.00	77.0	0.6850	0.6910	615.17	311.49	0.9165	0.9907	1.1399	2.3697	-0.7319	-2458.95	-591.17	-1230.47
10	760.00	76.8	0.7250	0.6970	611.40	308.94	0.9162	0.9909	1.0927	2.6842	-0.8987	-2462.84	-591.91	-1232.21
11	760.00	77.0	0.8020	0.7330	615.17	311.49	0.9159	0.9923	1.0321	3.2626	-1.1509	-2458.95	-591.17	-1230.47
12	760.00	78.1	0.9030	0.8250	636.15	325.80	0.9159	0.9959	0.9977	4.1886	-1.4347	-2437.69	-587.16	-1220.98
13	760.00	79.4	0.9640	0.9030	661.71	343.43	0.9166	0.9993	0.9842	5.9549	-1.8002	-2412.78	-582.45	-1209.85

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 547.90 P = 47.70 V = 173.10 OMEGA = 0.321 OMEGAH = 0.152 DIPOLE = 3.94 ETA = 0.0

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70735E 01 B = 0.12792E 04 C = 0.22400E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

VAPOR PRESSURE AT NBP

P = 777.0 AT T = 81.8

P = 760.0 AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.40237E 02 B = 0.11816E-01 C = 0.10223E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 3

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.21532E 01 B = -.51959E 01 C = 0.12847E 01

STANDARD DEVIATION = 0.10538E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 8.6121 G2INF = 5.8010

T1INF = 100.00 T2INF = 81.10

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4826

AREA BELOW THE X-AXIS IS -0.4991

CROSS-OVER POINT IS X = 0.47

NORMALIZED AREA DIFFERENCE IS -0.0169

HERINGTON J-FACTOR IS 9.94

CONSISTENCY INDEX IS -8.26

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	330.05	1468.51	0.9622E-09	28.09	0.02476
2	944.75	1267.71	0.2689E-02	12.90	0.01912
3	417.57	1577.85	0.2063E 01	26.78	0.01750
4	470.20	1515.84	0.8123E-01	22.98	0.01672
5	623.34	1403.58	0.1891E-01	15.80	0.01627
6	521.04	1495.29	0.1067E-01	21.30	0.01558
7	657.57	1379.60	0.1560E-01	14.37	0.01659
8	687.75	1363.71	0.6619E-02	13.49	0.01664
9	638.87	1364.08	0.6604E-02	13.50	0.01659
10	422.82	1566.15	0.1844E-01	26.11	0.01748

ACETONITRILE(1) — WATER(2) SYSTEM 015E

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	81.1	0.0930	0.5050	696.22	367.66	0.9233	0.9857	5.4619	1.1113	1.5923	-2380.56	-576.36	-1195.46
2	760.00	80.0	0.1420	0.5590	673.75	351.83	0.9213	0.9869	4.0829	1.0951	1.3160	-2401.36	-580.30	-1204.75
3	760.00	78.6	0.2540	0.6170	645.92	332.49	0.9190	0.9884	2.6216	1.1592	0.8160	-2428.08	-585.34	-1216.68
4	760.00	77.4	0.4020	0.6550	622.76	316.63	0.9174	0.9895	1.8205	1.3694	0.2847	-2451.20	-589.71	-1227.01
5	760.00	76.7	0.5070	0.6640	609.53	307.68	0.9166	0.9898	1.4938	1.6653	-0.1087	-2464.78	-592.27	-1233.08
6	760.00	76.6	0.5270	0.6730	607.66	306.41	0.9164	0.9901	1.4607	1.6967	-0.1497	-2466.72	-592.64	-1233.95
7	760.00	76.0	0.7180	0.7280	596.52	298.93	0.9150	0.9921	1.1797	2.4312	-0.7231	-2478.42	-594.85	-1239.18
8	760.00	76.6	0.8390	0.7800	607.66	306.41	0.9150	0.9941	1.0618	3.3671	-1.1541	-2466.72	-592.64	-1233.95

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 547.90 P = 47.70 V = 173.10 OMEGA = 0.321 OMEGAH = 0.152 DIPOLE = 3.94 ETA = 0.0

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70735E 01 B = -0.12792E 04 C = -0.22400E 03

2 A = 0.79668E 01 B = -0.16682E 04 C = -0.22800E 03

VAPOR PRESSURE AT NBP

P = 777.0 AT T = 81.8

P = 760.0 AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.40237E 02 B = 0.11816E-01 C = 0.10223E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 3

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.19786E 01 B = -.47091E 01 C = 0.12152E 01

STANDARD DEVIATION = 0.41551E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 7.2328 G2INF = 4.5567

T1INF = 100.00 T2INF = 81.10

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4521

AREA BELOW THE X-AXIS IS -0.4229

CROSS-OVER POINT IS X = 0.48

NORMALIZED AREA DIFFERENCE IS 0.0333

HERINGTON J-FACTOR IS 10.31

CONSISTENCY INDEX IS -6.98

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	277.52	1308.71	0.7276F-11	56.05	0.01901
2	779.54	1329.58	0.5338E-02	8.61	0.01667
3	609.37	1390.80	0.4263F-01	9.08	0.01200
4	470.55	1457.51	0.1398E-01	10.30	0.00739
5	554.80	1442.85	0.4088F-02	7.81	0.01080
6	337.87	1523.86	0.4831E-03	13.70	0.00453
7	489.08	1478.80	0.2909E-02	9.90	0.00858
8	760.35	1364.54	0.8363F-03	7.09	0.01687
9	753.89	1365.90	0.8351F-03	7.12	0.01668
10	596.35	1380.34	0.3689F-02	11.03	0.01127

DIAGNOSTIC

3 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

ACRYLONITRILE(1) - ACETONITRILE(2) SYSTEM 016

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	79.8	0.0790	0.0980	858.07	727.86	1.0000	1.0000	1.0960	1.0206	0.0713	0.0	0.0	0.0
2	760.00	79.2	0.1680	0.2060	841.73	714.06	1.0000	1.0000	1.1044	1.0137	0.0857	0.0	0.0	0.0
3	760.00	79.5	0.3170	0.3500	823.00	698.21	1.0000	1.0000	1.0171	1.0339	-0.0164	0.0	0.0	0.0
4	760.00	78.2	0.4060	0.4310	815.07	691.51	1.0000	1.0000	0.9874	1.0507	-0.0621	0.0	0.0	0.0
5	760.00	77.7	0.5570	0.5860	802.00	680.45	1.0000	1.0000	0.9945	1.0417	-0.0464	0.0	0.0	0.0
6	760.00	77.4	0.7800	0.7910	794.24	673.88	1.0000	1.0000	0.9680	1.0693	-0.0995	0.0	0.0	0.0
7	760.00	78.3	0.9170	0.9210	694.23	589.03	1.0000	1.0000	1.0968	1.2256	-0.1111	0.0	0.0	0.0

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 0.0 P = 0.0 V = 0.0 OMEGA = 0.0 OMEGAH = 0.0 DIPOLE = 3.83 ETA = 0.0

2 T = 547.90 P = 47.70 V = 173.10 OMEGA = 0.321 OMEGAH = 0.152 DIPOLE = 3.94 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78510E 01 B = 0.17352E 04 C = 0.27315E 03

2 A = 0.70735E 01 B = 0.12792E 04 C = 0.22400E 03

VAPOR PRESSURE AT NBP

P = 793.7 AT T = 77.3

P = 777.0 AT T = 81.8

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.38860E 02 B = 0.92001E-01 C = 0.0

2 A = 0.40237E 02 B = 0.11816E-01 C = 0.10223E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 40

ID NUMBER = 3

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.12554E 00 B = -.45728E 00 C = 0.26509E 00

STANDARD DEVIATION = 0.27877E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.1338 G2INF = 1.1125

T1INF = 81.10 T2INF = 75.97

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0177

AREA BELOW THE X-AXIS IS -0.0524

CROSS-OVER POINT IS X = 0.30

NORMALIZED AREA DIFFERENCE IS -0.4957

HERINGTON J-FACTOR IS 3.38

CONSISTENCY INDEX IS 46.19

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	13.30	79.39	0.3211F-09	18.28	0.00716
2	330.26	-137.10	0.1017F-01	17.49	0.00605
3	-464.55	699.43	0.2889E-01	20.87	0.00999
4	-326.55	463.82	0.2557F-01	20.00	0.00850
5	728.09	-318.51	0.9743F-02	14.89	0.00472
6	739.21	-318.15	0.4190F-03	15.31	0.00468
7	827.76	-355.45	0.7763F-02	13.75	0.00513
8	827.34	-357.37	0.9333E-02	13.79	0.00515
9	827.97	-357.49	0.9333F-02	13.79	0.00515
10	-243.53	348.43	0.7904F 00	19.42	0.00790

ALLYL ALCOHOL(1) - WATER(2) SYSTEM 017

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	99.2	0.0025	0.0309	848.87	725.47	0.9942	0.9831	10.9752	1.0000	2.3957	-350.98	-515.63	-341.22
2	760.00	98.7	0.0049	0.0554	832.92	712.72	0.9939	0.9831	10.2284	0.9945	2.3307	-351.91	-517.22	-342.32
3	760.00	97.5	0.0113	0.0994	797.50	684.32	0.9933	0.9829	8.3066	0.9938	2.1233	-354.04	-520.85	-344.86
4	760.00	96.1	0.0193	0.1446	755.76	650.73	0.9928	0.9828	7.4613	1.0005	2.0092	-356.72	-525.35	-348.02
5	760.00	95.2	0.0267	0.1780	728.22	628.49	0.9923	0.9827	6.8873	1.0030	1.9267	-358.59	-528.46	-350.21
6	760.00	94.0	0.0397	0.2260	696.63	602.88	0.9918	0.9827	6.1443	0.9978	1.8177	-360.84	-532.18	-352.84
7	760.00	93.1	0.0556	0.2634	670.41	581.57	0.9913	0.9826	5.3109	1.0009	1.6688	-362.81	-535.40	-355.13
8	760.00	92.5	0.0622	0.2793	655.30	569.25	0.9911	0.9826	5.1490	1.0075	1.6313	-363.99	-537.31	-356.50
9	760.00	90.6	0.1058	0.3456	607.79	530.38	0.9904	0.9825	4.0354	1.0297	1.3658	-367.93	-543.63	-361.03
10	760.00	90.0	0.1680	0.3658	592.94	518.19	0.9902	0.9825	2.7566	1.0978	0.9207	-369.25	-545.71	-362.53
11	760.00	89.1	0.4216	0.4336	573.78	502.41	0.9896	0.9828	1.3447	1.4549	-0.0787	-371.00	-548.47	-364.53
12	760.00	89.1	0.5517	0.4750	571.94	500.89	0.9893	0.9830	1.1290	1.7456	-0.4357	-371.17	-548.74	-364.73
13	760.00	90.0	0.6921	0.5747	594.84	519.74	0.9888	0.9838	1.0464	1.9858	-0.6407	-369.08	-545.44	-362.34
14	760.00	90.9	0.7658	0.6338	615.09	536.37	0.9886	0.9844	1.0084	2.1796	-0.7708	-367.30	-542.63	-360.31
15	760.00	92.2	0.8340	0.7058	647.59	562.96	0.9884	0.9852	0.9792	2.3557	-0.8778	-364.61	-538.30	-357.21
16	760.00	93.2	0.8813	0.7690	673.05	583.72	0.9883	0.9859	0.9713	2.4965	-0.9440	-362.61	-535.07	-354.90
17	760.00	95.0	0.9402	0.8696	722.03	623.48	0.9882	0.9872	0.9597	2.6223	-1.0052	-359.02	-529.18	-350.72
18	760.00	96.6	0.9824	0.9596	768.67	661.14	0.9883	0.9884	0.9521	2.6064	-1.0070	-355.87	-523.93	-347.02

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 545.20 P = 56.50 V = 203.10 OMEGA = 0.568 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.91432E 01 B = 0.23112E 04 C = 0.27315E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

VAPOR PRESSURE AT NBP

P = 795.9 AT T = 97.1

P = 760.0 AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.92118E 02 B = -.22067E 00 C = 0.46800E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 48

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.21531E 01 B = -.68512E 01 C = 0.37928E 01

STANDARD DEVIATION = 0.12563E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 8.6112 G2INF = 2.4726

T1INF = 100.00 T2INF = 95.91

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3941

AREA BELOW THE X-AXIS IS -0.4023

CROSS-OVER POINT IS X = 0.41

NORMALIZED AREA DIFFERENCE IS -0.0103

HERINGTON J-FACTOR IS 4.53

CONSISTENCY INDEX IS -3.50

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	571.42	1025.13	0.2638F-10	15.69	0.02097
2	632.28	1041.39	0.5319F-02	10.47	0.01542
3	705.57	1056.99	C.18C2F 01	10.23	0.01186
4	630.56	1109.98	C.5390E-01	11.23	0.00910
5	607.86	111C.31	C.1154F-01	10.33	0.00931
6	547.63	1179.72	0.3586F-02	16.14	0.00684
7	607.39	1126.03	0.1068F-01	12.03	0.00837
8	643.69	1069.53	0.5271F-02	9.10	0.01189
9	643.69	1069.53	0.5272F-02	9.10	0.01189
10	654.23	1104.23	0.7730F-02	11.66	0.00937

BENZENE(1) — CYCLOHEXANE(2) SYSTEM 01GA

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	194.94	40.0	0.1282	0.1657	180.29	181.78	0.9868	0.9849	1.3778	1.0096	0.3109	-1326.70	-1517.20	-1420.40
2	200.65	40.0	0.2354	0.2766	180.29	181.78	0.9864	0.9844	1.2887	1.0269	0.2271	-1326.70	-1517.20	-1420.40
3	204.75	40.0	0.3685	0.3912	180.29	181.78	0.9861	0.9841	1.1878	1.0674	0.1069	-1326.70	-1517.20	-1420.40
4	206.12	40.0	0.4932	0.4950	180.29	181.78	0.9860	0.9840	1.1303	1.1105	0.0177	-1326.70	-1517.20	-1420.40
5	205.18	40.0	0.6143	0.5909	180.29	181.78	0.9861	0.9841	1.0784	1.1768	-0.0873	-1326.70	-1517.20	-1420.40
6	201.73	40.0	0.7428	0.6979	180.29	181.78	0.9863	0.9843	1.0359	1.2816	-0.2128	-1326.70	-1517.20	-1420.40
7	195.04	40.0	0.8656	0.8205	180.29	181.78	0.9868	0.9849	1.0110	1.4098	-0.3325	-1326.70	-1517.20	-1420.40

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 553.20 P = 40.00 V = 311.20 OMEGA = 0.210 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

2 A = 0.68450E 01 B = 0.12035E 04 C = 0.22286E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 759.1 AT T = 80.7

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = 0.92914E 02 B = -.24859E-01 C = 0.26157E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 9

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.40206E 00 B = -.71158E 00 C = -.15536E 00

STANDARD DEVIATION = 0.73364E-02

INFINITE-DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.4949 G2INF = 1.5918

T1INF = 39.99 T2INF = 39.99

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1056

AREA BELOW THE X-AXIS IS -0.1112

CROSS-OVER POINT IS X = 0.51

NORMALIZED AREA DIFFERENCE IS -0.0255

CONSISTENCY INDEX IS 2.55

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	172.25	119.03	0.9095E-12	1.05	0.00140
2	201.60	105.29	0.5464E-06	0.08	0.00213
3	186.82	111.12	0.4632E-03	0.55	0.00131
4	193.44	103.84	0.3431E-03	0.53	0.00129
5	209.94	90.50	0.7745E-04	0.23	0.00162
6	215.31	71.45	0.3243E-04	0.98	0.00129
7	219.30	79.28	0.7633E-04	0.28	0.00161
8	194.25	112.51	0.2337E-06	0.03	0.00203
9	194.25	112.51	0.2342E-06	0.03	0.00203
10	186.38	111.51	0.1588E-02	0.56	0.00130

BENZENE(1) — CYCLOHEXANE(2) SYSTEM 0188

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	567.60	70.0	0.1186	0.1486	534.39	525.40	0.9724	0.9682	1.2908	1.0073	0.2480	-1042.86	-1197.74	-1118.97
2	584.90	70.0	0.2409	0.2805	534.39	525.40	0.9715	0.9673	1.2350	1.0174	0.1938	-1042.86	-1197.74	-1118.97
3	596.16	70.0	0.3759	0.3982	534.39	525.40	0.9710	0.9666	1.1444	1.0542	0.0821	-1042.86	-1197.74	-1118.97
4	600.27	70.0	0.4945	0.4975	534.39	525.40	0.9708	0.9664	1.0941	1.0940	0.0001	-1042.86	-1197.74	-1118.97
5	599.32	70.0	0.6180	0.6027	534.39	525.40	0.9708	0.9665	1.0590	1.1429	-0.0763	-1042.86	-1197.74	-1118.97
6	593.48	70.0	0.7248	0.6962	534.39	525.40	0.9711	0.9668	1.0332	1.2017	-0.1511	-1042.86	-1197.74	-1118.97
7	577.79	70.0	0.8659	0.8311	534.39	525.40	0.9718	0.9677	1.0060	1.3362	-0.2839	-1042.86	-1197.74	-1118.97

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 553.20 P = 40.00 V = 311.20 OMEGA = 0.210 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

2 A = 0.68450E 01 B = 0.12035E 04 C = 0.22286E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 759.1 AT T = 80.7

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = -0.14907E-01 C = 0.15880E-03

2 A = 0.92914E 02 B = -.24859E-01 C = 0.26157E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 9

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.31881E 00 B = -.53846E 00 C = -.17386E 00

STANDARD DEVIATION = 0.12469E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.3755 G2INF = 1.4821

T1INF = 69.98 T2INF = 69.98

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0849

AREA BELOW THE X-AXIS IS -0.0932

CROSS-OVER POINT IS X = 0.51

NORMALIZED AREA DIFFERENCE IS -0.0468

CONSISTENCY INDEX IS 4.68

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	120.13	148.28	0.1819E-11	1.18	0.00253
2	181.57	82.72	0.4529E-06	0.12	0.00203
3	137.47	132.62	0.9111E-03	0.43	0.00232
4	154.82	111.10	0.6479E-03	0.39	0.00220
5	211.46	47.87	0.7119E-04	0.41	0.00202
6	229.35	24.19	0.6054E-04	1.00	0.00196
7	225.92	32.00	0.6200E-04	0.58	0.00204
8	173.72	91.38	0.3421E-06	0.11	0.00208
9	173.72	91.38	0.3431E-06	0.11	0.00208
10	136.94	132.96	0.5077E-02	0.46	0.00232

BENZENE(1) CYCLOHEXANE(2) SYSTEM 0188

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	553.40	70.0	0.1250	0.1670	534.74	525.73	0.9726	0.9685	1.3656	0.9851	0.3267	-1042.71	-1197.56	-1118.80
2	579.00	70.0	0.2500	0.2970	534.74	525.73	0.9718	0.9676	1.2469	0.9958	0.2249	-1042.71	-1197.56	-1118.80
3	590.50	70.0	0.3750	0.4120	534.74	525.73	0.9712	0.9670	1.1753	1.0186	0.1431	-1042.71	-1197.56	-1118.80
4	596.60	70.0	0.5000	0.5110	534.74	525.73	0.9709	0.9666	1.1042	1.0694	0.0320	-1042.71	-1197.56	-1118.80
5	596.20	70.0	0.6250	0.6110	534.74	525.73	0.9710	0.9667	1.0555	1.1335	-0.0713	-1042.71	-1197.56	-1118.80
6	589.40	70.0	0.7500	0.7160	534.74	525.73	0.9713	0.9670	1.0194	1.2277	-0.1860	-1042.71	-1197.56	-1118.80
7	570.90	70.0	0.8750	0.8340	534.74	525.73	0.9722	0.9681	0.9868	1.3918	-0.3439	-1042.71	-1197.56	-1118.80

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.60 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 553.20 P = 40.00 V = 311.20 OMEGA = 0.210 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

2 A = 0.68450E 01 B = 0.12035E 04 C = 0.22286E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = 0.92914E 02 B = -.24859E-01 C = 0.26157E-03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 759.1 AT T = 80.7

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 9

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.39196E 00 B = -.54337E 00 C = -.32748E 00

STANDARD DEVIATION = 0.11399E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.4799 G2INF = 1.6143

T1INF = 70.00 T2INF = 70.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1153

AREA BELOW THE X-AXIS IS -0.1041

CROSS-OVER POINT IS X = 0.54

NORMALIZED AREA DIFFERENCE IS 0.0507

CONSISTENCY INDEX IS 5.07

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	154.18	172.68	0.9095E-12	13.53	0.00301
2	54.56	205.33	0.1593E-03	1.82	0.00894
3	112.18	198.55	0.5450E-02	9.49	0.00360
4	92.56	220.51	0.4401E-02	8.88	0.00346
5	56.56	230.78	0.1085E-02	3.47	0.00657
6	66.01	298.67	0.6311E-04	14.33	0.00177
7	51.65	242.70	0.1316E-02	4.13	0.00615
8	75.21	182.29	0.7867E-04	1.63	0.00855
9	75.22	182.28	0.7866E-04	1.63	0.00855
10	107.84	203.96	0.2337E-01	9.44	0.00354

BENZENE(1) — CYCLOHEXANE(2) SYSTEM 0186

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	79.8	0.0770	0.0960	725.56	708.28	0.9665	0.9614	1.2580	1.0063	0.2233	-972.39	-1117.87	-1043.86
2	760.00	79.5	0.0960	0.1180	719.04	702.06	0.9664	0.9613	1.2514	1.0112	0.2131	-974.42	-1120.17	-1046.03
3	760.00	79.3	0.1180	0.1450	713.64	696.92	0.9663	0.9612	1.2604	1.0120	0.2195	-976.12	-1122.09	-1047.84
4	760.00	79.0	0.1450	0.1760	709.35	692.82	0.9662	0.9611	1.2524	1.0120	0.2132	-977.48	-1123.64	-1049.29
5	760.00	78.8	0.1760	0.2080	705.07	688.74	0.9662	0.9610	1.2267	1.0152	0.1893	-978.84	-1125.19	-1050.74
6	760.00	78.7	0.2080	0.2430	701.88	685.70	0.9661	0.9610	1.2181	1.0139	0.1834	-979.87	-1126.35	-1051.84
7	760.00	78.5	0.2450	0.2800	697.64	681.65	0.9660	0.9609	1.1987	1.0176	0.1639	-981.24	-1127.91	-1053.30
8	760.00	78.3	0.2800	0.3140	692.36	676.62	0.9659	0.9608	1.1851	1.0241	0.1460	-982.96	-1129.85	-1055.13
9	760.00	78.1	0.3140	0.3460	689.22	673.61	0.9659	0.9607	1.1697	1.0292	0.1280	-983.99	-1131.03	-1056.23
10	760.00	77.9	0.3460	0.3750	686.08	670.62	0.9658	0.9607	1.1557	1.0363	0.1091	-985.03	-1132.20	-1057.33
11	760.00	77.8	0.3750	0.4020	683.99	668.62	0.9658	0.9607	1.1466	1.0406	0.0970	-985.72	-1132.99	-1058.07
12	760.00	77.8	0.4020	0.4260	681.91	666.64	0.9658	0.9606	1.1368	1.0470	0.0824	-986.41	-1133.77	-1058.81
13	760.00	77.6	0.5070	0.5120	678.80	663.66	0.9657	0.9606	1.0883	1.0845	0.0035	-987.45	-1134.95	-1059.92
14	760.00	77.6	0.5120	0.5160	678.80	663.66	0.9657	0.9606	1.0861	1.0866	-0.0005	-987.45	-1134.95	-1059.92
15	760.00	77.6	0.5160	0.5190	678.80	663.66	0.9657	0.9606	1.0839	1.0888	-0.0045	-987.45	-1134.95	-1059.92
16	760.00	77.5	0.5190	0.5220	677.76	662.68	0.9657	0.9606	1.0855	1.0903	-0.0044	-987.79	-1135.34	-1060.29
17	760.00	77.5	0.5220	0.5240	677.76	662.68	0.9657	0.9606	1.0834	1.0926	-0.0084	-987.79	-1135.34	-1060.29
18	760.00	77.5	0.5240	0.5260	677.76	662.68	0.9657	0.9606	1.0834	1.0926	-0.0084	-987.79	-1135.34	-1060.29
19	760.00	77.6	0.6280	0.6120	679.83	664.66	0.9657	0.9606	1.0486	1.1410	-0.0845	-987.10	-1134.56	-1059.55
20	760.00	77.7	0.6450	0.6280	680.87	665.65	0.9657	0.9606	1.0461	1.1447	-0.0901	-986.75	-1134.16	-1059.18
21	760.00	77.8	0.6630	0.6450	681.91	666.64	0.9657	0.9606	1.0436	1.1490	-0.0962	-986.41	-1133.77	-1058.81
22	760.00	77.8	0.6850	0.6630	682.95	667.63	0.9658	0.9607	1.0367	1.1652	-0.1168	-986.06	-1133.38	-1058.44
23	760.00	77.9	0.7120	0.6850	685.03	669.62	0.9658	0.9607	1.0274	1.1878	-0.1450	-985.37	-1132.59	-1057.70
24	760.00	78.0	0.7420	0.7120	687.12	671.61	0.9658	0.9608	1.0217	1.2087	-0.1681	-984.68	-1131.81	-1056.97
25	760.00	78.0	0.7750	0.7440	688.17	672.61	0.9658	0.9608	1.0206	1.2302	-0.1868	-984.34	-1131.42	-1056.60
26	760.00	78.3	0.8060	0.7750	693.42	677.62	0.9659	0.9609	1.0146	1.2449	-0.2046	-982.61	-1129.47	-1054.76
27	760.00	78.5	0.8360	0.8060	698.70	682.66	0.9660	0.9610	1.0097	1.2604	-0.2218	-980.90	-1127.52	-1052.93
28	760.00	78.8	0.8650	0.8360	704.01	687.73	0.9661	0.9611	1.0046	1.2850	-0.2462	-979.19	-1125.58	-1051.11
29	760.00	79.0	0.8920	0.8650	709.35	692.82	0.9662	0.9612	1.0005	1.3127	-0.2716	-977.48	-1123.64	-1049.29
30	760.00	79.3	0.9160	0.8920	713.64	696.92	0.9662	0.9613	0.9987	1.3423	-0.2957	-976.12	-1122.09	-1047.84

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1	T = 562.00	P = 48.60	V = 260.10	OMEGA = 0.211	OMEGAH = 0.0	DIPOLE = 0.0	ETA = 0.0
2	T = 553.20	P = 40.00	V = 311.20	OMEGA = 0.210	OMEGAH = 0.0	DIPOLE = 0.0	ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1	A = 0.69056E 01	B = 0.12110E 04	C = 0.22079E 03
2	A = 0.68450E 01	B = 0.12035E 04	C = 0.22286E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 759.1 AT T = 80.7

MOLAR VOLUME EQUATION COEFFICIENTS

1	A = 0.70863E 02	B = 0.14907E-01	C = 0.15880E-03
2	A = 0.92914E 02	B = -.24859E-01	C = 0.26157E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 9

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.26743E 00 B = -.38930E 00 C = -.24724E 00

STANDARD DEVIATION = 0.75677E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.3066 G2INF = 1.4464

T1INF = 80.74 T2INF = 80.10

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0748

AREA BELOW THE X-AXIS IS -0.0845

CROSS-OVER POINT IS X = 0.52

NORMALIZED AREA DIFFERENCE IS -0.0604

HERINGTON J-FACTOR IS 1.36

CONSISTENCY INDEX IS 4.68

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	45.86	219.56	0.9095E-12	3.53	0.00242
2	217.22	26.43	0.9335E-04	0.98	0.00154
3	100.46	154.99	0.4032E-02	2.04	0.00182
4	110.74	142.30	0.2924E-02	1.93	0.00174
5	180.53	65.19	0.2919E-03	0.95	0.00133
6	167.06	76.70	0.1863E-03	1.40	0.00141
7	186.59	58.34	0.3282E-03	0.95	0.00131
8	210.82	33.10	0.8256E-04	0.97	0.00146
9	211.02	32.87	0.8254E-04	0.97	0.00147
10	96.03	159.97	0.6308E-02	2.16	0.00186

BENZENE(1) - CYCLOHEXANE(2) SYSTEM 018F

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	79.5	0.1010	0.1310	719.04	702.06	0.9664	0.9613	1.3205	1.0018	0.2762	-974.42	-1120.17	-1046.03
2	760.00	78.9	0.1710	0.2110	706.14	689.76	0.9662	0.9610	1.2789	1.0038	0.2422	-978.50	-1124.80	-1050.38
3	760.00	78.4	0.2560	0.2930	695.53	679.63	0.9660	0.9609	1.2041	1.0169	0.1689	-981.93	-1128.69	-1054.03
4	760.00	77.8	0.3430	0.3760	682.95	667.63	0.9658	0.9606	1.1742	1.0344	0.1268	-986.06	-1133.38	-1058.44
5	760.00	77.5	0.4280	0.4450	676.72	661.69	0.9657	0.9605	1.1238	1.0661	0.0527	-988.14	-1135.74	-1060.66
6	760.00	77.4	0.5250	0.5290	674.66	659.72	0.9656	0.9605	1.0924	1.0928	-0.0003	-988.84	-1136.52	-1061.40
7	760.00	77.4	0.5710	0.5640	674.66	659.72	0.9656	0.9605	1.0709	1.1200	-0.0449	-988.84	-1136.52	-1061.40
8	760.00	77.6	0.6650	0.6450	678.80	663.66	0.9657	0.9606	1.0452	1.1610	-0.1051	-987.45	-1134.95	-1059.92
9	760.00	77.9	0.7590	0.7280	685.03	669.62	0.9658	0.9607	1.0243	1.2257	-0.1795	-985.37	-1132.59	-1057.70
10	760.00	78.2	0.8100	0.7770	691.32	675.62	0.9659	0.9608	1.0152	1.2635	-0.2188	-983.30	-1130.25	-1055.50
11	760.00	78.6	0.8630	0.8340	699.76	683.67	0.9660	0.9610	1.0106	1.2892	-0.2435	-980.55	-1127.13	-1052.57
12	760.00	79.3	0.9450	0.9260	714.72	697.54	0.9662	0.9613	1.0035	1.4027	-0.3349	-975.78	-1121.71	-1047.48

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 553.20 P = 40.00 V = 311.20 OMEGA = 0.210 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = -0.12110E 04 C = -0.22079E 03

2 A = 0.68450E 01 B = -0.12035E 04 C = -0.22286E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 759.1 AT T = 80.7

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = 0.92914E 02 B = -.24859E 01 C = 0.26157E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 9

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.33972E 00 B = -.60393E 00 C = -.10398E 00

STANDARD DEVIATION = 0.90365E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.4045 G2INF = 1.4451

T1INF = 80.74 T2INF = 80.10

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0901

AREA BELOW THE X-AXIS IS -0.0870

CROSS-OVER POINT IS X = 0.52

NORMALIZED AREA DIFFERENCE IS 0.0174

HERINGTON J-FACTOR IS 1.43

CONSISTENCY INDEX IS 0.32

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	211.35	50.83	0.1819E-11	1.24	0.00128
2	121.41	152.02	0.2597E-04	1.00	0.00156
3	182.76	81.47	0.1030E-02	0.99	0.00126
4	183.39	80.31	0.6713E-03	1.00	0.00126
5	164.33	100.55	0.9625E-04	0.92	0.00128
6	188.18	74.68	0.5363E-04	1.04	0.00125
7	163.69	101.61	0.8230E-04	0.91	0.00127
8	126.27	145.96	0.2960E-04	0.98	0.00149
9	126.29	145.94	0.2960E-04	0.98	0.00149
10	186.74	77.35	0.2835E-02	1.02	0.00127

BENZENE(1) - ETHANOL(2) SYSTEM 019A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	89.50	25.0	0.1000	0.3970	94.39	58.30	0.9953	0.9907	3.7449	1.0187	1.3019	-1527.45	-2161.86	-1094.33
2	106.50	25.0	0.2000	0.5300	94.39	58.30	0.9932	0.9900	2.9679	1.0621	1.0276	-1527.45	-2161.86	-1094.33
3	115.70	25.0	0.3000	0.5940	94.39	58.30	0.9920	0.9898	2.4063	1.1389	0.7480	-1527.45	-2161.86	-1094.33
4	120.80	25.0	0.4000	0.6320	94.39	58.30	0.9914	0.9898	2.0035	1.2574	0.4658	-1527.45	-2161.86	-1094.33
5	123.50	25.0	0.5000	0.6580	94.39	58.30	0.9910	0.9900	1.7053	1.4338	0.1735	-1527.45	-2161.86	-1094.33
6	124.40	25.0	0.6000	0.6720	94.39	58.30	0.9909	0.9901	1.4617	1.7316	-0.1694	-1527.45	-2161.86	-1094.33
7	124.90	25.0	0.7000	0.6880	94.39	58.30	0.9907	0.9902	1.2877	2.2054	-0.5381	-1527.45	-2161.86	-1094.33
8	124.50	25.0	0.8000	0.7000	94.39	58.30	0.9907	0.9904	1.1426	3.1713	-1.0208	-1527.45	-2161.86	-1094.33
9	121.20	25.0	0.9000	0.7400	94.39	58.30	0.9907	0.9913	1.0453	5.3556	-1.6338	-1527.45	-2161.86	-1094.33

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

VAPOR-PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

2 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 762.1 AT T = 78.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 11

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.14117E 01 B = -.14125E 01 C = -.21034E 01

STANDARD DEVIATION = 0.57608E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 4.1031 G2INF = 8.2001

T1INF = 25.00 T2INF = 25.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4462

AREA BELOW THE X-AXIS IS -0.4418

CROSS-OVER POINT IS X = 0.55

NORMALIZED AREA DIFFERENCE IS 0.0049

CONSISTENCY INDEX IS 0.49

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	107.69	1228.11	0.7693E-08	7.66	0.02216
2	194.23	1550.85	0.8274E-05	0.26	0.00288
3	171.47	1638.01	0.1291E-01	0.25	0.00326
4	183.50	1595.84	0.1564E-02	0.20	0.00288
5	180.95	1588.74	0.2717E-03	0.15	0.00282
6	187.09	1577.37	0.2385E-03	0.18	0.00286
7	184.86	1571.71	0.2351E-03	0.18	0.00283
8	174.27	1606.71	0.1796E-04	0.15	0.00290
9	174.25	1606.78	0.1796E-04	0.15	0.00290
10	167.16	1644.70	0.5653E-03	0.20	0.00336

BENZENE(1) ETHANOL(2) SYSTEM 0150

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	75.5	0.0300	0.1420	637.32	653.20	0.9840	0.9582	5.5357	0.9840	1.7274	-1001.84	-1210.39	-741.63
2	760.00	72.3	0.0650	0.2440	575.58	574.30	0.9794	0.9573	4.8382	1.0221	1.5547	-1025.43	-1254.45	-758.01
3	760.00	70.4	0.1140	0.3090	541.68	531.89	0.9765	0.9572	3.7012	1.0644	1.2463	-1039.67	-1281.07	-767.88
4	760.00	68.7	0.2160	0.3740	512.66	496.14	0.9738	0.9575	2.4911	1.1685	0.7570	-1052.70	-1305.46	-776.89
5	760.00	68.1	0.3170	0.4100	503.54	485.00	0.9724	0.9580	1.8918	1.2939	0.3799	-1056.98	-1313.46	-779.85
6	760.00	68.0	0.4060	0.4350	501.07	482.66	0.9715	0.9585	1.5734	1.4343	0.0926	-1058.16	-1315.65	-780.66
7	760.00	69.0	0.5440	0.4800	501.07	482.66	0.9701	0.9597	1.2939	1.7217	-0.2857	-1058.16	-1315.65	-780.66
8	760.00	68.4	0.6390	0.5150	508.50	491.05	0.9691	0.9609	1.1635	1.9937	-0.5386	-1054.65	-1309.09	-778.23
9	760.00	69.4	0.7490	0.5750	524.46	510.61	0.9678	0.9633	1.0731	2.4223	-0.8142	-1047.30	-1295.35	-773.16
10	760.00	70.6	0.8280	0.6420	545.17	536.23	0.9667	0.9661	1.0414	2.8437	-1.0045	-1038.15	-1278.24	-766.83
11	760.00	72.7	0.8960	0.7400	582.92	583.57	0.9658	0.9706	1.0364	3.1533	-1.1127	-1022.47	-1248.92	-755.96
12	760.00	74.8	0.9430	0.8370	622.64	634.26	0.9654	0.9754	1.0424	3.3349	-1.1629	-1007.20	-1220.39	-745.35
13	760.00	76.1	0.9680	0.9000	649.26	668.68	0.9654	0.9785	1.0472	3.4680	-1.1974	-997.59	-1202.45	-738.67
14	760.00	77.1	0.9840	0.9480	669.52	695.14	0.9656	0.9810	1.0525	3.4782	-1.1954	-990.58	-1189.36	-733.78

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = -0.12110E 04 C = 0.22079E 03

2 A = 0.80449E 01 B = -0.15543E 04 C = 0.22265E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 762.1 AT T = 78.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 11

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.18359E 01 B = -.51060E 01 C = 0.20507E 01

STANDARD DEVIATION = 0.40953E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 6.2707 G2INF = 3.3850

T1INF = 78.33 T2INF = 80.10

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3718

AREA BELOW THE X-AXIS IS -0.4053

CROSS-OVER POINT IS X = 0.44

NORMALIZED AREA DIFFERENCE IS -0.0431

HERINGTON J-FACTOR IS 4.54

CONSISTENCY INDEX IS -0.23

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	729.69	615.03	0.1328E-08	33.71	0.01263
2	851.57	752.74	0.5939E-02	10.66	0.01493
3	768.33	678.91	0.2090E 00	20.57	0.00890
4	798.17	673.45	0.3164E-01	19.27	0.00859
5	792.74	730.04	0.9090E-02	10.56	0.01174
6	892.98	631.92	0.2142E-02	20.31	0.00767
7	879.05	678.68	0.9197E-02	13.78	0.01003
8	669.24	836.51	0.2761E-02	8.23	0.01651
9	669.51	836.43	0.2762E-02	8.23	0.01651
10	772.24	676.76	0.6158E-02	20.63	0.00883

BENZENE(1) FURFURAL(2) SYSTEM 020

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	154.7	0.0299	0.2900	4173.51	615.67	0.9758	0.9766	1.7183	0.8800	0.6692	-621.C8	-783.57	-928.32
2	760.00	130.0	0.1271	0.6832	2581.39	269.30	0.9770	0.9651	1.5413	0.9857	0.4470	-710.89	-915.05	-1070.10
3	760.00	121.7	0.1740	0.7789	2155.11	199.02	0.9762	0.9601	1.5362	C.9786	0.4509	-745.64	-971.61	-1125.87
4	760.00	105.7	0.3274	0.9020	1476.09	106.87	0.9734	0.9497	1.3764	0.9812	0.3384	-820.81	-1104.89	-1248.29
5	760.00	100.5	0.4675	0.9297	1293.11	86.30	0.9722	0.9462	1.1327	1.0969	0.0321	-847.93	-1156.66	-1293.09
6	760.00	94.1	0.6167	0.9599	1091.32	65.76	C.97C6	0.9415	1.0487	1.1349	-0.0790	-883.41	-1227.33	-1352.20
7	760.00	90.6	0.7079	0.9690	991.34	56.45	0.9697	0.9390	1.0143	1.3377	-0.2768	-903.88	-1269.61	-1386.57
8	760.00	87.1	C.7945	C.9804	898.34	48.31	0.9687	0.9363	1.0080	1.4007	-0.3290	-925.16	-1314.74	-1422.52
9	760.00	84.0	0.8750	0.9891	821.56	41.98	C.9677	C.9339	1.0C87	1.4699	-0.3766	-944.72	-1357.30	-1455.75
10	760.00	82.7	0.9248	0.9933	790.88	39.55	0.9673	G.9328	0.9951	1.5923	-0.4700	-953.14	-1375.91	-1470.11

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 656.00 P = 38.40 V = 375.2C OMEGA = 0.292 OMEGAH = 0.270 DIPOLE = 2.00 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

2 A = 0.87299E 01 B = 0.25378E 04 C = 0.27315E 03

VAPOR PRESSURE AT NBP

P = 760.C AT T = 80.1

P = 785.6 AT T = 161.8

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = 0.63207E 02 B = 0.58328E-01 C = 0.29602E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 15

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.6866CE 00 B = -.138C5E 01 C = 0.14387E 00

STANDARD DEVIATION = 0.5357CE-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.9869 G2INF = 1.7333

T1INF = 16C.73 T2INF = 8C.10

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1772

AREA BELOW THE X-AXIS IS -0.1328

CROSS-OVER POINT IS X = 0.53

NORMALIZED AREA DIFFERENCE IS 0.1430

HERINGTON J-FACTOR IS 34.24

CONSISTENCY INDEX IS -19.94

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	556.98	38.31	0.0	25.54	0.0C496
2	-121.01	467.C7	0.1452E-C1	34.35	0.01699
3	393.41	95.79	C.69C1E-01	21.52	0.00756
4	331.05	134.42	0.5728E-01	22.28	0.00828
5	321.07	165.93	C.1843E-C1	22.55	0.00700
6	331.72	258.21	0.7237E-03	34.22	0.00437
7	413.55	116.39	C.1735E-01	23.19	0.00543
8	281.55	183.91	0.1445E-01	20.11	0.00781
9	270.36	194.62	0.1552E-01	22.73	0.00791
10	379.53	101.21	0.7060E-01	21.40	0.00790

BENZENE(1) — HEPTANE(2) — SYSTEM 021A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	454.62	80.0	0.0464	0.0988	729.92	412.00	0.9813	0.9640	1.2988	1.0020	0.2595	-971.04	-1744.29	-1321.53
2	476.25	80.0	0.0861	0.1729	729.92	412.00	0.9802	0.9623	1.2816	1.0033	0.2448	-971.04	-1744.29	-1321.53
3	534.38	80.0	0.2004	0.3473	729.92	412.00	0.9773	0.9579	1.2370	1.0103	0.2025	-971.04	-1744.29	-1321.53
4	569.49	80.0	0.2792	0.4412	729.92	412.00	0.9755	0.9553	1.1998	1.0195	0.1628	-971.04	-1744.29	-1321.53
5	613.53	80.0	0.3842	0.5464	729.92	412.00	0.9734	0.9520	1.1605	1.0397	0.1099	-971.04	-1744.29	-1321.53
6	650.16	80.0	0.4857	0.6304	729.92	412.00	0.9717	0.9494	1.1201	1.0717	0.0442	-971.04	-1744.29	-1321.53
7	679.74	80.0	0.5824	0.7009	729.92	412.00	0.9702	0.9474	1.0842	1.1140	-0.0271	-971.04	-1744.29	-1321.53
8	708.78	80.0	0.6904	0.7759	729.92	412.00	0.9689	0.9454	1.0541	1.1712	-0.1054	-971.04	-1744.29	-1321.53
9	729.77	80.0	0.7842	0.8384	729.92	412.00	0.9679	0.9440	1.0313	1.2456	-0.1888	-971.04	-1744.29	-1321.53
10	748.46	80.0	0.8972	0.9149	729.92	412.00	0.9670	0.9430	1.0078	1.4105	-0.3361	-971.04	-1744.29	-1321.53

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 540.20 P = 27.00 V = 431.90 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = -0.12110E 04 C = -0.22079E 03

2 A = 0.69024E 01 B = -0.12681E 04 C = -0.21690E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = -0.14907E-01 C = 0.15880E-03

2 A = 0.12880E 03 B = -.60277E-01 C = 0.41160E-03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 759.4 AT T = 98.4

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 16

MIXTURE PROPERTIES

ACTIVITY-RATIO EQUATION COEFFICIENTS

A = 0.26534E 00 B = -.20521E 00 C = -.50119E 00

STANDARD DEVIATION = 0.92806E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.3039 G2INF = 1.5544

T1INF = 80.00 T2INF = 80.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0871

AREA BELOW THE X-AXIS IS -0.0914

CROSS-OVER POINT IS X = 0.55

NORMALIZED AREA DIFFERENCE IS -0.0242

CONSISTENCY INDEX IS 2.42

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	177.77	155.83	0.1819E-11	3.67	0.00156
2	185.06	178.34	0.3364E-05	0.61	0.00165
3	164.48	206.33	0.5559E-03	0.44	0.00144
4	171.43	193.43	0.4153E-03	0.53	0.00136
5	191.34	159.74	0.5237E-04	0.66	0.00125
6	215.19	108.88	0.1612E-04	2.11	0.00067
7	195.10	151.41	0.4405E-04	0.89	0.00113
8	170.47	198.48	0.4099E-05	0.33	0.00152
9	170.62	198.20	0.4028E-05	0.33	0.00152
10	165.15	205.51	0.1934E-02	0.42	0.00145

BENZENE(1) - HEPTANE(2) SYSTEM 0218

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	180.00	51.5	0.1000	0.2450	281.85	147.92	0.9898	0.9805	1.5475	0.9996	0.4370	-1202.90	-2199.98	-1653.94
2	180.00	48.3	0.2000	0.4040	249.92	129.93	0.9892	0.9798	1.4380	1.0099	0.3534	-1235.15	-2263.81	-1700.41
3	180.00	45.9	0.3000	0.5160	227.92	117.63	0.9888	0.9793	1.3420	1.0347	0.2601	-1260.38	-2313.82	-1736.81
4	180.00	44.2	0.4000	0.6030	213.30	109.51	0.9885	0.9790	1.2565	1.0633	0.1670	-1278.82	-2350.42	-1763.43
5	180.00	42.8	0.5000	0.6720	201.82	103.16	0.9883	0.9787	1.1836	1.1187	0.0565	-1294.39	-2381.33	-1785.92
6	180.00	41.7	0.6000	0.7340	193.16	98.39	0.9881	0.9785	1.1255	1.1888	-0.0547	-1306.86	-2406.11	-1803.94
7	180.00	40.9	0.7000	0.7900	187.05	95.03	0.9879	0.9784	1.0721	1.2953	-0.1892	-1316.08	-2424.43	-1817.26
8	180.00	40.4	0.8000	0.8480	183.31	92.98	0.9879	0.9783	1.0274	1.4373	-0.3358	-1321.90	-2435.99	-1825.67
9	180.00	39.8	0.9000	0.9140	178.90	90.57	0.9878	0.9783	1.0084	1.6697	-0.5042	-1328.94	-2450.00	-1835.86

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 540.20 P = 27.00 V = 431.90 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03 VAPOR PRESSURE AT NBP P = 760.0 AT T = 80.1

2 A = 0.69024E 01 B = 0.12681E 04 C = 0.21690E 03 P = 759.4 AT T = 98.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = 0.12880E 03 B = -.60277E-01 C = 0.41160E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 16

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.49411E 00 B = -.57837E 00 C = -.58044E 00

STANDARD DEVIATION = 0.70511E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.6390 G2INF = 1.9439

T1INF = 55.98 T2INF = 39.63

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1521

AREA BELOW THE X-AXIS IS -0.1406

CROSS-OVER POINT IS X = 0.55

NORMALIZED AREA DIFFERENCE IS 0.0391

HERINGTON J-FACTOR IS 7.84

CONSISTENCY INDEX IS -3.93

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	362.77	52.46	0.9095E-12	0.25	0.00386
2	339.50	69.66	0.3344E-04	0.71	0.00415
3	342.79	81.47	0.3320E-02	0.28	0.00340
4	324.44	105.83	0.1904E-02	0.40	0.00317
5	328.31	103.69	0.2926E-03	0.41	0.00312
6	288.56	186.09	0.8748E-04	1.36	0.00184
7	316.53	125.88	0.1966E-03	0.59	0.00277
8	370.22	42.63	0.3759E-04	0.28	0.00400
9	370.09	42.69	0.3759E-04	0.28	0.00400
10	344.17	80.12	0.4353E-02	0.28	0.00341

BENZENE(1) - HEPTANE(2) SYSTEM 021C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	400.00	73.9	0.1000	0.2180	605.37	336.94	C.9822	C.9663	1.4123	0.9938	0.3514	-1013.70	-1827.65	-1382.44
2	400.00	70.5	0.2000	0.3730	543.42	300.00	0.9812	0.9652	1.3447	1.0057	0.2905	-1038.91	-1877.04	-1418.50
3	400.00	68.0	C.3000	C.4900	501.07	274.52	C.9805	C.9644	1.2762	1.0193	0.2248	-1058.16	-1914.79	-1446.05
4	400.00	66.0	0.4000	0.5830	469.07	256.07	C.9800	C.9638	1.2158	1.0432	0.1531	-1074.01	-1945.92	-1468.77
5	400.00	64.4	0.5000	0.6600	444.63	241.74	C.9795	0.9633	1.1611	1.0807	0.0718	-1087.00	-1971.45	-1487.39
6	400.00	63.3	0.6000	0.7270	428.41	232.26	C.9792	C.9630	1.1058	1.1286	-0.0203	-1096.10	-1989.33	-1500.44
7	400.00	62.1	0.7000	0.7880	411.24	222.25	0.9789	0.9626	1.0699	1.2207	-0.1318	-1106.17	-2009.15	-1514.89
8	400.00	61.4	0.8000	0.8490	401.48	216.57	C.9787	C.9625	1.0330	1.3382	-0.2589	-1112.13	-2020.87	-1523.43
9	400.00	60.8	0.9000	0.9160	393.26	211.80	0.9786	0.9625	1.0112	1.5224	-C.4091	-1117.28	-2031.00	-1530.83

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.60 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 540.20 P = 27.00 V = 431.90 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E C1 B = 0.1211CE 04 C = 0.22079E 03

2 A = 0.69024E 01 B = 0.12681E 04 C = 0.21690E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 759.4 AT T = 98.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = C.1288CE C3 B = -.60277E-C1 C = 0.41160E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 16

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.37921E 00 B = -.29841E 00 C = -.63111E 00

STANDARD DEVIATION = 0.78671E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.4611 G2INF = 1.7338

T1INF = 77.99 T2INF = 60.61

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1287

AREA BELOW THE X-AXIS IS -C.1091

CROSS-OVER POINT IS X = 0.57

NORMALIZED AREA DIFFERENCE IS 0.0826

HERINGTON J-FACTOR IS 7.81

CONSISTENCY INDEX IS C.45

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	305.00	60.59	0.9055F-12	1.44	0.00554
2	217.74	190.22	0.5451E-C4	1.45	0.00446
3	263.40	129.23	0.4909E-02	0.89	0.00474
4	236.96	17C.45	0.3152E-02	0.90	0.00439
5	218.24	211.43	0.3807E-03	0.97	0.00384
6	179.68	311.93	0.1595E-03	3.20	0.CC239
7	206.15	238.99	0.2694E-03	1.43	0.00348
8	260.76	136.55	0.4788E-C4	C.74	0.00461
9	260.76	136.55	0.4789E-04	0.74	0.00461
10	263.84	128.56	0.1070E-C1	0.89	0.00474

BENZENE(1) HEPTANE(2) SYSTEM 021D

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	97.4	0.0230	0.0480	1192.24	697.49	0.9737	0.9494	1.2912	1.0026	0.2530	-864.82	-1537.71	-1170.34
2	760.00	94.0	0.1160	0.2170	1088.36	632.58	0.9722	0.9478	1.2658	1.0032	0.2325	-883.98	-1574.87	-1197.56
3	760.00	91.7	0.1920	0.3250	1022.00	591.30	0.9712	0.9467	1.2185	1.0111	0.1866	-897.36	-1600.83	-1216.57
4	760.00	92.9	0.1510	0.2690	1056.24	612.58	0.9717	0.9473	1.2415	1.0065	0.2098	-890.34	-1587.21	-1206.59
5	760.00	90.3	0.2440	0.3900	983.10	567.20	0.9706	0.9461	1.1954	1.0174	0.1612	-905.67	-1616.98	-1228.39
6	760.00	87.9	0.3420	0.5020	916.39	526.01	0.9695	0.9450	1.1764	1.0278	0.1351	-920.83	-1646.46	-1249.97
7	760.00	86.6	0.4060	0.5610	885.60	507.06	0.9691	0.9445	1.1453	1.0406	0.0959	-928.27	-1660.92	-1260.55
8	760.00	88.1	0.3320	0.4870	924.21	530.83	0.9697	0.9451	1.1658	1.0336	0.1204	-918.99	-1642.87	-1247.35
9	760.00	88.0	0.3340	0.4940	921.60	529.22	0.9696	0.9451	1.1788	1.0256	0.1392	-919.60	-1644.06	-1248.22
10	760.00	88.3	0.3230	0.4830	929.45	534.06	0.9697	0.9452	1.1819	1.0217	0.1457	-917.77	-1640.49	-1245.60
11	760.00	85.7	0.4480	0.5990	863.03	493.20	0.9687	0.9441	1.1368	1.0511	0.0784	-933.91	-1671.90	-1268.59
12	760.00	84.1	0.5490	0.6790	823.96	469.27	0.9681	0.9435	1.1007	1.0816	0.0175	-944.08	-1691.72	-1283.08
13	760.00	83.2	0.6100	0.7230	802.58	456.20	0.9677	0.9431	1.0826	1.1099	-0.0249	-949.85	-1703.03	-1291.36
14	760.00	82.4	0.6750	0.7680	783.92	444.83	0.9674	0.9428	1.0636	1.1437	-0.0726	-955.10	-1713.20	-1298.79
15	760.00	82.1	0.6990	0.7820	777.01	440.62	0.9673	0.9427	1.0550	1.1713	-0.1046	-957.07	-1717.04	-1301.60
16	760.00	81.8	0.7290	0.8020	770.15	436.44	0.9672	0.9426	1.0465	1.1928	-0.1308	-959.05	-1720.89	-1304.41
17	760.00	81.6	0.7450	0.8130	765.60	433.67	0.9671	0.9426	1.0442	1.2047	-0.1430	-960.37	-1723.46	-1306.30
18	760.00	81.3	0.7680	0.8270	758.81	429.54	0.9670	0.9425	1.0395	1.2367	-0.1737	-962.35	-1727.34	-1309.13
19	760.00	80.9	0.8250	0.8640	749.83	424.08	0.9668	0.9424	1.0229	1.3053	-0.2438	-965.01	-1732.52	-1312.92
20	760.00	80.6	0.8810	0.9010	743.15	420.02	0.9667	0.9424	1.0077	1.4109	-0.3365	-967.02	-1736.43	-1315.78
21	760.00	80.4	0.9030	0.9220	738.72	417.34	0.9666	0.9424	1.0120	1.3725	-0.3046	-968.36	-1739.05	-1317.69
22	760.00	80.2	0.9400	0.9490	734.32	414.66	0.9666	0.9424	1.0066	1.4601	-0.3720	-969.70	-1741.67	-1319.61

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 540.20 P = 27.00 V = 431.90 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

2 A = 0.69024E 01 B = 0.12681E 04 C = 0.21690E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 759.4 AT T = 98.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = 0.12880E 03 B = -.60277E-01 C = 0.41160E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 16

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.23865E 00 B = -.98894E-01 C = -.57775E 00

STANDARD DEVIATION = 0.15117E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.2695 G2INF = 1.5496

T1INF = 98.43 T2INF = 80.10

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0843

AREA BELOW THE X-AXIS IS -0.0877

CROSS-OVER POINT IS X = 0.56

NORMALIZED AREA DIFFERENCE IS -0.0197

HERINGTON J-FACTOR IS 7.78

CONSISTENCY INDEX IS -5.82

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	165.65	169.50	0.9095E-12	6.03	0.00184
2	153.34	234.36	0.5228E-04	1.14	0.00163
3	177.42	179.86	0.4276E-02	1.83	0.00140
4	174.00	185.61	0.2509E-02	1.82	0.00136
5	145.21	242.08	0.2450E-03	1.13	0.00137
6	155.61	207.82	0.1165E-03	3.01	0.00127
7	140.15	248.81	0.2318E-03	1.33	0.00132
8	139.36	256.86	0.6074E-04	1.03	0.00152
9	139.37	256.85	0.5961E-04	1.03	0.00152
10	174.66	184.41	0.5827E-02	1.83	0.00137

BENZENE(1) + HEXANE(2) SYSTEM 022

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	68.7	0.0800	0.0780	512.66	719.95	0.9623	0.9532	1.3862	1.0034	0.3232	-1052.70	-1311.84	-1185.40
2	760.00	68.8	0.0820	0.0800	513.50	721.04	0.9623	0.9532	1.3849	1.0019	0.3237	-1052.32	-1311.35	-1184.97
3	760.00	68.8	0.0850	0.0820	513.50	721.04	0.9623	0.9532	1.3694	1.0030	0.3114	-1052.32	-1311.35	-1184.97
4	760.00	68.8	0.0880	0.0850	514.33	722.12	0.9623	0.9532	1.3689	1.0015	0.3125	-1051.93	-1310.87	-1184.53
5	760.00	68.8	0.0910	0.0880	514.33	722.12	0.9623	0.9532	1.3705	1.0015	0.3136	-1051.93	-1310.87	-1184.53
6	760.00	68.8	0.0950	0.0910	514.33	722.12	0.9623	0.9532	1.3575	1.0026	0.3030	-1051.93	-1310.87	-1184.53
7	760.00	68.8	0.1440	0.1370	515.17	723.21	0.9624	0.9533	1.3462	1.0049	0.2924	-1051.54	-1310.39	-1184.10
8	760.00	68.9	0.1520	0.1440	516.01	724.31	0.9624	0.9533	1.3383	1.0047	0.2868	-1051.16	-1309.90	-1183.66
9	760.00	68.9	0.1600	0.1520	516.85	725.40	0.9624	0.9533	1.3399	1.0033	0.2893	-1050.77	-1309.42	-1183.23
10	760.00	68.9	0.1700	0.1600	516.85	725.40	0.9624	0.9533	1.3275	1.0058	0.2775	-1050.77	-1309.42	-1183.23
11	760.00	69.0	0.1830	0.1700	517.69	726.50	0.9624	0.9533	1.3081	1.0081	0.2605	-1050.38	-1308.94	-1182.79
12	760.00	69.0	0.1990	0.1830	517.69	726.50	0.9625	0.9533	1.2956	1.0121	0.2464	-1050.38	-1308.94	-1182.79
13	760.00	69.0	0.2520	0.2260	517.69	726.50	0.9625	0.9533	1.2629	1.0268	0.2070	-1050.38	-1308.94	-1182.79
14	760.00	69.1	0.2810	0.2520	520.22	729.79	0.9625	0.9534	1.2568	1.0278	0.2012	-1049.23	-1307.49	-1181.49
15	760.00	69.3	0.3180	0.2810	523.61	734.19	0.9626	0.9535	1.2305	1.0354	0.1726	-1047.69	-1305.57	-1179.75
16	760.00	69.6	0.3660	0.3180	528.72	740.84	0.9627	0.9536	1.1983	1.0471	0.1349	-1045.38	-1302.70	-1177.16
17	760.00	70.0	0.4300	0.3660	535.60	749.77	0.9629	0.9538	1.1591	1.0700	0.0799	-1042.33	-1298.88	-1173.72
18	760.00	70.6	0.5120	0.4300	546.05	763.31	0.9631	0.9541	1.1221	1.1040	0.0162	-1037.77	-1293.19	-1168.59
19	760.00	71.3	0.5830	0.4890	558.43	779.34	0.9634	0.9544	1.0961	1.1348	-0.0348	-1032.50	-1286.60	-1162.65
20	760.00	72.7	0.6900	0.5830	582.92	810.96	0.9639	0.9550	1.0583	1.1979	-0.1239	-1022.47	-1274.04	-1151.33
21	760.00	74.5	0.7970	0.6900	617.81	855.81	0.9646	0.9558	1.0239	1.2898	-0.2309	-1009.00	-1257.16	-1136.13
22	760.00	76.6	0.8810	0.7970	659.33	908.91	0.9653	0.9567	1.0033	1.3579	-0.3026	-994.07	-1238.42	-1119.28
23	760.00	78.1	0.9400	0.8810	689.22	946.96	0.9658	0.9573	0.9949	1.5163	-0.4214	-983.99	-1225.74	-1107.88
24	760.00	79.1	0.9720	0.9400	710.42	973.86	0.9662	0.9577	0.9963	1.5937	-0.4698	-977.14	-1217.11	-1100.13

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 507.90 P = 29.90 V = 372.40 OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

2 A = 0.68778E 01 B = 0.11715E 04 C = 0.22437E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = 0.12596E 03 B = -.14456E 00 C = 0.54720E-03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 759.0 AT T = 68.7

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 18

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.35723E 00 B = -.44706E 00 C = -.38882E 00

STANDARD DEVIATION = 0.13002E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.4294 G2INF = 1.6139

T1INF = 68.74 T2INF = 80.10

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1073

AREA BELOW THE X-AXIS IS -0.1032

CROSS-OVER POINT IS X = 0.54

NORMALIZED AREA DIFFERENCE IS 0.0195

HERINGTON J-FACTOR IS 4.56

CONSISTENCY INDEX IS -2.62

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER	VALUES	OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	210.60	129.05	0.1819E-11	2.18	0.00132
2	277.70	43.75	0.1959E-03	1.80	0.00155
3	215.04	130.26	0.5681E-02	2.00	0.00123
4	220.14	122.23	0.3163E-02	1.97	0.00123
5	266.44	54.99	0.3940E-03	1.82	0.00143
6	225.61	109.32	0.1325E-03	2.01	0.00129
7	250.10	77.91	0.2962E-03	1.84	0.00132
8	317.00	-10.25	0.1926E-03	1.82	0.00195
9	316.52	-9.67	0.1926E-03	1.82	0.00195
10	211.19	134.55	0.5587E-02	2.04	0.00124

BENZENE(1) HEXYLENE GLYCOL(2) SYSTEM 023

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	400.00	137.1	0.0420	0.7850	2988.57	85.67	0.9892	0.9803	2.4707	1.0250	0.8798	-683.13	-1200.41	-993.32
2	400.00	121.1	0.0600	0.8810	2126.32	41.48	0.9878	0.9768	2.7241	1.1899	0.8283	-748.26	-1407.19	-1092.28
3	400.00	77.1	0.3270	0.9900	668.50	3.53	0.9819	0.9639	1.7756	1.6187	0.0925	-990.93	-2429.06	-1482.09

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 49.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 744.00 P = 54.80 V = 311.00 OMEGA = 0.148 OMEGAH = 0.338 DIPOLE = 2.10 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

2 A = 0.78876E 01 B = 0.18904E 04 C = 0.18046E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = 0.11939E 03 B = -.75907E-01 C = 0.31550E-03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 734.7 AT T = 196.0

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 55

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10017E 01 B = -.29114E 01 C = 0.39960E 00

STANDARD DEVIATION = 0.0

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.7230 G2INF = 4.5270

T1INF = 177.15 T2INF = 60.61

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1782

AREA BELOW THE X-AXIS IS -0.4989

CROSS-OVER POINT IS X = 0.36

NORMALIZED AREA DIFFERENCE IS -0.4737

HERINGTON J-FACTOR IS 52.39

CONSISTENCY INDEX IS -5.02

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	671.25	457.01	0.4547E-11	14.13	0.01339
2	2517.36	599.60	0.6639E-02	830.52	0.08441
3	694.35	331.57	0.3033E 00	17.53	0.00973
4	736.69	273.38	0.1189E 00	19.07	0.01049
5	610.06	503.80	0.5366E-02	13.05	0.00989
6	1344.51	-445.67	0.2058E-07	62.14	0.00005
7	600.89	505.77	0.3807E-02	12.93	0.00914
8	618.24	495.43	0.4609E-02	13.11	0.01029
9	618.02	495.77	0.4609E-02	13.11	0.01028
10	1226.29	-219.33	0.5772E 00	41.41	0.01540

BENZENE(1) — METHYL CELLOSOLVE(2) — SYSTEM 024

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	117.6	C.C426	C.2411	2103.88	625.74	1.0CC0	1.C000	2.0380	0.9601	0.7527	0.0	C.C	0.0
2	760.00	92.5	0.2724	0.7384	1091.63	261.33	1.0000	1.0000	1.8811	1.0427	0.5901	0.0	0.0	0.0
3	760.CO	86.9	C.4274	0.8154	929.00	211.50	1.0000	1.0000	1.5557	1.1552	0.2976	C.C	C.0	0.0
4	760.00	82.7	0.6314	0.8756	819.87	179.68	1.0000	1.0000	1.2813	1.4234	-0.1052	0.0	0.0	0.0
5	760.00	81.6	0.610C	0.8733	793.00	172.05	1.0000	1.0000	1.3675	1.4309	-0.0453	0.0	0.0	0.0
6	760.00	80.3	0.7820	0.9082	762.15	163.40	1.0CC0	1.C000	1.1543	1.6529	-0.5258	0.0	0.0	0.0
7	760.00	80.2	0.9058	0.9361	759.82	162.75	1.0000	1.0000	1.0303	3.1584	-1.1202	0.0	0.0	0.0

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.1C OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 0.0 P = 0.0 V = 0.0 OMEGA = 0.0 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = 0.12110E C4 C = 0.22079E 03

2 A = 0.83298E 01 B = 0.21618E 04 C = 0.27315E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 770.1 AT T = 124.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.149C7E-01 C = 0.15880E-03

2 A = 0.67468E C2 B = 0.16858E-02 C = 0.12858E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 25

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.73734E 00 B = 0.99193E-01 C = -.23083E-01

STANDARD DEVIATION = 0.55349E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.C904 G2INF = 4.3568

T1INF = 123.58 T2INF = 80.10

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2943

AREA BELOW THE X-AXIS IS -C.2768

CROSS-OVER POINT IS X = 0.59

NORMALIZED AREA DIFFERENCE IS 0.0307

HERINGTON J-FACTOR IS 18.46

CONSISTENCY INDEX IS -15.40

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-103.70	1136.93	0.1819E-11	41.41	0.00805
2	-53.00	1480.96	0.3257E-02	16.94	0.CC515
3	-128.29	1513.66	0.4628E-01	18.73	0.00350
4	-114.42	1493.21	0.1651E-01	18.14	0.00342
5	-145.23	1719.58	0.5398E-02	16.45	0.00503
6	-115.46	1512.C2	C.3347E-03	17.75	0.00359
7	-110.29	1621.92	0.3344E-02	16.63	0.00483
8	-150.83	1749.17	0.4973E-02	16.47	0.00520
9	-150.83	1749.17	0.4973E-02	16.47	0.00520
10	-157.65	1616.89	0.1491E-01	18.73	0.00411

BENZENE(1) 2-PROPANOL(2) SYSTEM 025A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	327.00	50.0	0.845C	C.760C	266.5C	163.64	0.9799	0.9892	1.0798	3.0569	-1.0407	-1217.82	-453.8C	-1018.93
2	336.70	50.0	0.7000	0.6090	266.50	163.64	0.9790	0.9896	1.1997	2.1691	-0.5922	-1217.82	-453.80	-1018.93
3	330.20	50.C	0.5000	0.4090	266.50	163.64	0.9791	0.9904	1.4754	1.5608	-0.0562	-1217.82	-453.80	-1018.93
4	306.70	50.0	0.3000	0.5230	266.5C	163.64	0.9802	0.9916	1.9638	1.2649	0.4399	-1217.82	-453.80	-1018.93
5	266.30	50.0	0.1550	0.4210	266.5C	163.64	C.9823	C.9932	2.6628	1.1063	0.8783	-1217.82	-453.80	-1018.93

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E C1 B = 0.12110E 04 C = 0.22079E 03

2 A = 0.66604E 01 B = 0.81305E-03 C = 0.13293E-03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 769.7 AT T = 82.5

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 22

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.12610E 01 B = -.25694E 01 C = -.16121E 00

STANDARD DEVIATION = 0.35705E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 3.5291 G2INF = 4.3474

T1INF = 50.00 T2INF = 50.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3034

AREA BELOW THE X-AXIS IS -0.3808

CROSS-OVER POINT IS X = 0.48

NORMALIZED AREA DIFFERENCE IS -0.1131

CONSISTENCY INDEX IS 11.31

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	293.62	753.8C	0.4093E-10	23.47	0.01894
2	668.60	847.89	0.1415E-03	8.97	0.03299
3	366.99	905.48	0.1117E C0	8.23	0.02204
4	504.70	749.99	0.3380E-01	9.03	0.01816
5	447.44	85C.28	0.9378E-02	6.27	0.02184
6	594.54	514.78	0.2057E-02	21.13	0.01195
7	462.84	776.22	0.7283E-02	9.53	0.01891
8	316.86	1129.04	C.1017E-03	1.22	0.03167
9	316.74	1128.97	0.1017E-03	1.22	0.03166
10	339.53	925.00	0.2077E-01	9.22	0.02247

BENZENE(1) 2-PROPANOL(2) SYSTEM 0258

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	500.00	69.5	0.0390	0.1480	526.16	436.13	0.9702	0.9905	3.4911	1.0049	1.2454	-1046.53	-399.85	-883.24
2	500.00	67.1	0.0890	0.2620	486.47	390.67	0.9708	0.9899	2.9309	1.0244	1.0511	-1065.24	-405.54	-898.21
3	500.00	65.4	0.1420	0.3500	459.79	360.76	0.9712	0.9894	2.5974	1.0368	0.9183	-1078.85	-409.72	-909.08
4	500.00	63.9	0.1970	0.4240	437.20	335.89	0.9715	0.9888	2.3859	1.0538	0.8172	-1091.12	-413.50	-918.86
5	500.00	62.9	0.2550	0.4690	422.63	320.07	0.9715	0.9883	2.1093	1.0984	0.6525	-1099.44	-416.08	-925.48
6	500.00	61.8	0.3350	0.5250	407.04	303.34	0.9717	0.9878	1.8663	1.1608	0.4749	-1108.72	-418.97	-932.86
7	500.00	61.0	0.4140	0.5630	395.98	291.62	0.9717	0.9874	1.6648	1.2601	0.2785	-1115.55	-421.11	-938.29
8	500.00	60.9	0.4950	0.6000	394.62	290.18	0.9719	0.9870	1.4893	1.3445	0.1023	-1116.41	-421.38	-938.97
9	500.00	60.3	0.5660	0.6260	386.51	281.65	0.9719	0.9867	1.3874	1.5065	-0.0824	-1121.60	-423.00	-943.09
10	500.00	60.2	0.6400	0.6470	385.17	280.25	0.9720	0.9864	1.2727	1.7224	-0.3026	-1122.47	-423.28	-943.77
11	500.00	60.1	0.7160	0.6740	383.83	278.85	0.9721	0.9861	1.1894	2.0258	-0.5326	-1123.34	-423.55	-944.46
12	500.00	60.3	0.7970	0.7070	386.51	281.65	0.9723	0.9858	1.1133	2.5210	-0.8174	-1121.60	-423.00	-943.09
13	500.00	63.0	0.9420	0.8280	424.06	321.62	0.9736	0.9846	1.0067	4.5309	-1.5042	-1098.60	-415.82	-924.81
14	500.00	64.7	0.9760	0.8960	449.14	348.98	0.9742	0.9840	0.9934	6.0975	-1.8145	-1084.55	-411.47	-913.62

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

2 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 769.7 AT T = 82.5

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 22

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.11800E 01 B = -.13725E 01 C = -.15918E 01

STANDARD DEVIATION = 0.80966E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 3.2545 G2INF = 5.9548

T1INF = 72.31 T2INF = 67.09

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3537

AREA BELOW THE X-AXIS IS -0.3905

CROSS-OVER POINT IS X = 0.53

NORMALIZED AREA DIFFERENCE IS -0.0494

HERINGTON J-FACTOR IS 5.50

CONSISTENCY INDEX IS -0.56

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	177.67	1083.03	C.1819E-11	8.89	0.00880
2	260.13	1078.26	0.5317E-03	3.40	0.00692
3	218.16	1171.72	0.1722E 00	3.95	0.00867
4	226.64	1137.16	0.1792E-01	3.27	0.00780
5	244.00	1067.45	0.2324E-02	2.97	0.00643
6	245.29	1033.14	0.1463E-02	4.11	0.00602
7	247.85	1042.10	0.1736E-02	3.52	0.00613
8	235.10	1095.75	0.6672E-03	2.78	0.00675
9	234.73	1096.49	0.6672E-03	2.77	0.00676
10	223.41	1163.76	0.6726E-02	4.02	0.00859

BENZENE(1) 2-PROPANOL(2) SYSTEM 025C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	73.0	0.8450	0.7280	589.40	510.76	0.9633	0.9805	1.0665	2.5529	-0.8728	-1019.90	-391.85	-861.86
2	760.00	71.9	0.7000	0.6480	567.59	484.72	0.9623	0.9815	1.1888	1.8005	-0.4151	-1028.69	-394.48	-868.93
3	760.00	71.9	0.5000	0.5720	569.03	486.44	0.9617	0.9825	1.4645	1.3103	0.1112	-1028.10	-394.30	-868.45
4	760.00	73.4	0.3000	0.4720	595.75	518.39	0.9612	0.9839	1.9228	1.0849	0.5723	-1017.41	-391.11	-859.86
5	760.00	76.2	0.1550	0.3300	649.86	584.39	0.9606	0.9854	2.3837	1.0133	0.8555	-997.38	-385.18	-843.72

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

2 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 769.7 AT T = 82.5

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 22

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.11042E 01 B = -.14561E 01 C = -.10392E 01

STANDARD DEVIATION = 0.82882E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 3.0168 G2INF = 4.0195

T1INF = 82.19 T2INF = 80.10

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3295

AREA BELOW THE X-AXIS IS -0.2997

CROSS-OVER POINT IS X = 0.55

NORMALIZED AREA DIFFERENCE IS 0.0472

HERINGTON J-FACTOR IS 4.49

CONSISTENCY INDEX IS 0.23

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	218.50	825.20	0.2274E-10	17.89	0.01013
2	126.74	1120.47	0.3888E-04	2.36	0.00492
3	210.25	935.97	0.5984E-02	5.77	0.00631
4	173.08	1009.70	0.1783E-02	3.37	0.00486
5	156.38	1056.98	0.3249E-03	2.52	0.00403
6	156.24	1051.27	0.2670E-03	2.68	0.00406
7	145.89	1081.77	0.2665E-03	2.38	0.00410
8	157.16	1057.67	0.5597E-04	2.46	0.00402
9	157.16	1057.66	0.5597E-04	2.46	0.00402
10	209.33	938.12	0.1952E-02	5.67	0.00627

BENZENE(1) TOLUENE(2) SYSTEM 026

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2DL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	108.7	0.0520	0.1100	1589.77	690.37	0.9754	0.9611	0.9832	0.9896	-0.0064	-805.81	-1217.82	-991.63
2	760.00	107.2	0.0830	0.1720	1532.18	661.93	0.9749	0.9606	0.9989	0.9921	0.0068	-813.25	-1229.78	-1001.06
3	760.00	105.9	0.1190	0.2380	1483.48	638.01	0.9745	0.9602	0.9953	0.9855	0.0098	-819.80	-1240.31	-1009.36
4	760.00	105.1	0.1410	0.2740	1454.08	623.63	0.9742	0.9599	0.9863	0.9850	0.0014	-823.87	-1246.86	-1014.52
5	760.00	103.9	0.1730	0.3220	1410.76	602.51	0.9738	0.9595	0.9733	0.9885	-0.0154	-830.04	-1256.80	-1022.34
6	760.00	102.8	0.1940	0.3600	1371.88	583.64	0.9735	0.9591	0.9976	0.9880	0.0097	-835.76	-1266.04	-1029.61
7	760.00	101.5	0.2240	0.4020	1326.94	561.93	0.9731	0.9587	0.9970	0.9954	0.0017	-842.60	-1277.10	-1038.30
8	760.00	100.6	0.2530	0.4340	1296.47	547.26	0.9729	0.9584	0.9752	1.0046	-0.0298	-847.40	-1284.85	-1044.39
9	760.00	99.0	0.2990	0.5010	1243.55	521.93	0.9723	0.9578	0.9925	0.9891	0.0035	-856.03	-1298.84	-1055.38
10	760.00	98.3	0.3140	0.5230	1220.91	511.12	0.9721	0.9576	1.0047	0.9863	0.0185	-859.86	-1305.05	-1060.24
11	760.00	96.6	0.3660	0.5810	1167.17	485.62	0.9716	0.9570	1.0011	0.9860	0.0151	-869.26	-1320.32	-1072.22
12	760.00	94.7	0.4330	0.6430	1109.19	458.29	0.9710	0.9563	0.9848	0.9947	-0.0100	-879.98	-1337.77	-1085.88
13	760.00	92.7	0.5020	0.7060	1050.48	430.83	0.9704	0.9556	0.9842	0.9914	-0.0073	-891.50	-1356.57	-1100.58
14	760.00	90.7	0.5710	0.7610	994.10	404.67	0.9698	0.9549	0.9850	0.9952	-0.0104	-903.28	-1375.83	-1115.63
15	760.00	89.1	0.6210	0.8010	950.64	384.64	0.9693	0.9543	0.9963	0.9862	0.0102	-912.89	-1391.59	-1127.93
16	760.00	87.1	0.7050	0.8530	898.34	360.71	0.9687	0.9535	0.9884	0.9972	-0.0089	-925.16	-1411.73	-1143.63
17	760.00	85.3	0.7690	0.8890	853.13	340.19	0.9682	0.9528	0.9938	1.0189	-0.0249	-936.43	-1430.31	-1158.08
18	760.00	84.2	0.8200	0.9190	826.36	328.11	0.9678	0.9524	0.9943	0.9888	0.0055	-943.44	-1441.87	-1167.07
19	760.00	83.1	0.8790	0.9460	800.23	316.37	0.9675	0.9519	0.9856	1.0166	-0.0309	-950.54	-1453.60	-1176.19
20	760.00	81.9	0.9310	0.9680	770.15	302.92	0.9671	0.9514	0.9890	1.1027	-0.1088	-959.05	-1467.68	-1187.12
21	760.00	81.3	0.9610	0.9830	758.81	297.87	0.9669	0.9512	0.9873	1.0538	-0.0651	-962.35	-1473.16	-1191.37

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 594.00 P = 40.00 V = 331.10 OMEGA = 0.241 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

2 A = 0.69533E 01 B = 0.13439E 04 C = 0.21938E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = 0.98864E 02 B = -.55774E-01 C = 0.27703E-03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 759.4 AT T = 110.6

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 33

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = -.16544E-01 B = 0.13703E 00 C = -.19557E 00

STANDARD DEVIATION = 0.20328E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 0.9836 G2INF = 1.0780

T1INF = 110.63 T2INF = 80.10

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

EQUATION SOLVED FOR X-INTERCEPT

ROOTS ARE: X = 0.15504E 00 AND X = 0.54563E 00

BOTH ROOTS ARE IN THE RANGE 0 TO 1

THERMODYNAMIC CONSISTENCY TEST IS ABORTED

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	-365.94	632.80	0.2956E-11	8.29	0.00271
2	-314.13	458.00	0.5735E-03	3.93	0.00441
3	-382.44	680.49	0.1144E-01	9.00	0.00275
4	-377.68	666.15	0.1091E-01	8.76	0.00274
5	-88.20	97.90	0.1451E-02	3.91	0.00335
6	36.02	-28.35	0.2870E-03	7.88	0.00198
7	-67.80	73.67	0.1623E-02	4.13	0.00317
8	-96.57	99.94	0.7118E-03	3.74	0.00393
9	-97.54	101.25	0.7115E-03	3.74	0.00393
10	-316.44	508.44	0.1720E 01	6.90	0.00265

BENZENE(1) - P-XYLENE(2) SYSTEM 027

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	129.0	0.0860	0.2850	2527.22	564.88	0.9809	0.9542	0.9745	1.0000	-0.0258	-714.94	-1525.27	-1043.40
2	760.00	125.0	0.1240	0.3820	2318.30	505.47	0.9796	0.9528	0.9863	1.0064	-0.0202	-731.51	-1565.90	-1069.26
3	760.00	124.7	0.1310	0.3960	2303.13	501.22	0.9795	0.9527	0.9870	0.9998	-0.0262	-732.78	-1569.02	-1071.24
4	760.00	120.2	0.1790	0.4970	2083.64	440.67	0.9781	0.9512	0.9874	1.0008	-0.0134	-752.21	-1617.09	-1101.70
5	760.00	115.1	0.2380	0.6020	1852.98	379.10	0.9766	0.9495	1.0100	0.9900	0.0200	-775.25	-1674.63	-1137.97
6	760.00	111.8	0.2870	0.6600	1713.68	343.06	0.9757	0.9484	0.9919	0.9977	-0.0058	-790.77	-1713.74	-1162.50
7	760.00	105.0	0.4020	0.7700	1450.43	277.13	0.9738	0.9459	0.9742	0.9933	-0.0194	-824.38	-1799.41	-1215.93
8	760.00	101.1	0.4660	0.8160	1313.34	244.15	0.9727	0.9443	0.9825	1.0084	-0.0260	-844.73	-1851.92	-1248.48
9	760.00	93.8	0.5960	0.8880	1082.47	190.86	0.9707	0.9410	1.0121	1.0341	-0.0215	-885.13	-1957.66	-1313.52
10	760.00	89.4	0.7180	0.9340	958.68	163.55	0.9694	0.9389	0.9964	1.0166	-0.0200	-911.08	-2026.58	-1355.59
11	760.00	86.4	0.8020	0.9600	880.55	146.81	0.9685	0.9374	0.9973	0.9760	0.0216	-929.51	-2076.06	-1385.64
12	760.00	83.6	0.8860	0.9790	812.03	132.46	0.9676	0.9358	0.9974	0.9846	0.0129	-947.30	-2124.18	-1414.74

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 616.30 P = 34.60 V = 369.40 OMEGA = 0.324 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

2 A = 0.69905E 01 B = 0.14534E 04 C = 0.21531E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = 0.12940E 03 B = -.14187E 00 C = 0.41800E-03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 760.0 AT T = 138.3

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 36

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = -.10245E-01 B = -.47812E-01 C = 0.81051E-01

STANDARD DEVIATION = 0.17315E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 0.9898 G2INF = 0.9773

T1INF = 138.35 T2INF = 80.10

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS -0.0097

AREA BELOW THE X-AXIS IS 0.0026

CROSS-OVER POINT IS X = 0.76

NORMALIZED AREA DIFFERENCE IS -0.5763

HERINGTON J-FACTOR IS 24.73

CONSISTENCY INDEX IS 33.10

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	394.84	-391.12	0.2061E-12	4.58	0.00242
2	142.87	267.20	0.7626E-03	5.57	0.00276
3	65.42	-58.11	0.4133E-02	4.49	0.00216
4	64.98	-58.21	0.4047E-02	4.50	0.00213
5	33.90	-20.57	0.1016E-02	4.53	0.00203
6	38.90	-26.98	0.1893E-03	4.53	0.00204
7	85.10	-86.69	0.8323E-03	4.56	0.00202
8	66.05	-62.01	0.8265E-03	4.52	0.00203
9	65.88	-61.80	0.8265E-03	4.52	0.00203
10	68.93	-61.98	0.1551E 01	4.52	0.00219

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

1-BUTANOL(2) BENZENE(1) SYSTEM 028

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	80.2	0.9540	0.9660	733.44	162.87	0.9665	0.9609	1.0108	3.3028	-1.1840	-969.97	-1396.27	-1042.58
2	760.00	80.2	0.9480	0.9630	734.53	163.25	0.9666	0.9608	1.0125	3.1720	-1.1419	-969.63	-1395.58	-1042.21
3	760.00	80.3	0.9420	0.9600	736.07	163.78	0.9666	0.9608	1.0137	3.0644	-1.1062	-969.16	-1394.63	-1041.70
4	760.00	80.4	0.9280	0.9520	738.50	164.61	0.9666	0.9607	1.0171	2.9469	-1.0638	-968.42	-1393.13	-1040.89
5	760.00	80.9	0.8480	0.9200	749.16	168.30	0.9668	0.9603	1.0606	2.2747	-0.7630	-965.21	-1386.62	-1037.37
6	760.00	81.4	0.7500	0.9040	760.17	172.14	0.9670	0.9603	1.1027	1.9315	-0.5606	-961.96	-1380.02	-1033.79
7	760.00	82.0	0.7140	0.8850	774.26	177.09	0.9672	0.9602	1.1729	1.6513	-0.3421	-957.86	-1371.73	-1029.30
8	760.00	83.2	0.6310	0.8670	802.34	187.10	0.9677	0.9604	1.2553	1.4014	-0.1101	-949.95	-1355.74	-1020.63
9	760.00	84.5	0.5600	0.8470	834.56	198.81	0.9681	0.9607	1.3291	1.2727	0.0433	-941.27	-1338.22	-1011.10
10	760.00	86.4	0.4750	0.8190	880.30	215.82	0.9688	0.9611	1.4374	1.1628	0.2119	-929.58	-1314.73	-998.29
11	760.00	88.3	0.3970	0.7870	928.93	234.42	0.9694	0.9614	1.5671	1.0573	0.3564	-917.89	-1291.32	-985.48
12	760.00	89.7	0.3690	0.7790	966.50	249.12	0.9698	0.9619	1.6047	1.0243	0.4489	-909.33	-1274.24	-976.10
13	760.00	92.3	0.3080	0.7240	1037.58	277.74	0.9707	0.9623	1.6660	1.0468	0.4647	-894.13	-1244.05	-959.46
14	760.00	95.6	0.2340	0.6600	1136.38	319.16	0.9719	0.9631	1.8273	1.0145	0.5885	-874.88	-1206.06	-938.40
15	760.00	98.7	0.1800	0.5900	1233.81	361.81	0.9729	0.9638	1.9581	1.0088	0.6632	-857.67	-1172.38	-919.58
16	760.00	100.2	0.1610	0.5600	1283.75	384.34	0.9734	0.9641	1.9981	0.9965	0.6957	-849.44	-1156.36	-910.58
17	760.00	102.2	0.1340	0.5100	1351.70	415.68	0.9742	0.9646	2.0779	0.9946	0.7368	-838.80	-1135.76	-898.96
18	760.00	107.1	0.0850	0.3800	1528.39	500.79	0.9759	0.9659	2.1625	0.9899	0.7814	-813.76	-1087.71	-871.61
19	760.00	112.0	0.0400	0.2170	1721.91	599.65	0.9778	0.9672	2.3338	0.9966	0.8510	-789.81	-1042.42	-845.49
20	760.00	116.9	0.0040	0.0250	1932.23	713.31	0.9798	0.9688	2.4011	1.0071	0.8689	-766.99	-999.91	-820.61

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 562.90 P = 43.60 V = 223.30 OMEGA = 0.667 OMEGAH = 0.252 DIPOLE = 1.65 ETA = 0.45

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

2 A = 0.73637E 01 B = 0.13052E 04 C = 0.17343E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 767.4 AT T = 118.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = 0.87376E 02 B = -.73723E-01 C = 0.30337E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 43

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.83966E 00 B = -.53807E 00 C = -.16192E 01

STANDARD DEVIATION = 0.28827E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.3156 G2INF = 3.7344

T1INF = 117.73 T2INF = 80.10

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2913

AREA BELOW THE X-AXIS IS -0.2604

CROSS-OVER POINT IS X = 0.57

NORMALIZED AREA DIFFERENCE IS 0.0560

HERINGTON J-FACTOR IS 15.98

CONSISTENCY INDEX IS -10.38

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	188.24	754.62	C.9186E-10	11.67	0.00794
2	-6.14	1201.08	0.1315E-02	9.39	0.00896
3	200.87	792.03	C.4471E-01	7.94	0.00565
4	174.88	830.25	0.2536E-01	7.00	0.00592
5	109.94	1008.75	0.2413E-02	3.85	0.00516
6	125.82	1044.10	0.9611E-03	8.38	0.00394
7	100.94	1046.39	0.1696E-02	4.19	0.00493
8	96.73	1023.28	C.8177E-03	3.75	0.00554
9	96.91	1022.90	0.8178E-03	3.75	0.00554
10	205.98	788.68	0.2749E-02	8.24	0.00549

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION
SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

1-PENTANOL(1) - TOLUENE(2) SYSTEM 625

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	116.0	0.0280	0.075C	692.47	843.31	0.9720	C.9636	2.8482	0.8234	1.2410	-1007.09	-1161.96	-1018.54
2	760.00	112.9	0.0960	0.2210	619.38	774.93	0.9701	0.9628	2.7312	0.8106	1.2147	-1034.41	-1185.36	-1038.82
3	760.00	110.5	0.165C	C.321C	567.88	725.71	0.9687	0.9622	2.5137	0.8164	1.1247	-1C55.98	-1203.73	-1054.72
4	760.00	109.0	0.2270	0.3990	537.45	696.17	0.9677	0.9620	2.3972	0.8135	1.0808	-1069.81	-1215.46	-1064.86
5	760.00	107.6	0.3180	0.4870	510.24	669.42	0.9667	0.9619	2.1978	0.8184	0.9879	-1082.95	-1226.57	-1074.47
6	760.00	106.4	0.4150	0.5540	487.80	647.13	0.9659	0.9619	2.0023	0.8580	0.8474	-1094.41	-1236.24	-1082.83
7	760.00	106.0	0.4870	0.5950	480.49	639.83	C.9656	C.9620	1.8598	0.8987	0.7272	-1098.27	-1239.49	-1085.64
8	760.00	105.8	0.5320	0.6170	476.87	636.20	C.9654	0.9621	1.7785	0.9370	0.6408	-1100.21	-1241.12	-1087.05
9	760.00	105.7	0.5580	0.627C	475.C7	634.39	0.9653	0.9622	1.7295	0.969C	0.5793	-1101.18	-1241.94	-1087.75
10	760.00	105.6	0.6140	0.6530	473.27	632.59	C.9652	C.9623	1.6429	1.0354	0.4617	-1102.16	-1242.76	-1088.46
11	760.00	105.5	C.6680	0.6750	471.48	630.79	0.9651	C.9624	1.5667	1.1308	0.3260	-1103.13	-1243.58	-1089.16
12	760.00	105.5	0.675C	0.6760	471.48	630.79	0.9651	0.9624	1.5628	1.1516	0.2988	-1103.13	-1243.58	-1089.16
13	760.00	105.5	0.7010	0.687C	471.48	630.79	C.965C	C.9625	1.5194	1.2094	0.2282	-1103.13	-1243.58	-1089.16
14	760.00	105.6	0.7660	0.7200	473.27	632.59	C.9649	C.9628	1.4517	1.3789	0.0514	-1102.16	-1242.76	-1088.46
15	760.00	106.3	0.8590	0.7840	485.96	645.30	0.9651	0.9635	1.3729	1.7318	-0.2322	-1C95.38	-1237.C5	-1083.53
16	760.00	106.5	0.8710	0.7940	489.63	648.97	0.9651	0.9637	1.3611	1.7954	-0.2769	-1093.45	-1235.43	-1082.13
17	760.00	108.1	0.948C	0.8940	519.83	678.88	0.9656	0.9650	1.3269	2.1938	-0.5028	-1078.23	-1222.58	-1071.02

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.90 P = 43.60 V = 223.30 OMEGA = 0.667 OMEGAH = 0.252 DIPOLE = 1.65 ETA = 0.45

2 T = 594.00 P = 40.00 V = 331.10 OMEGA = 0.241 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.73637E C1 B = 0.13052E 04 C = 0.17343E 03

2 A = 0.69533E 01 B = 0.13439E 04 C = 0.21938E 03

VAPOR PRESSURE AT NBP

P = 767.4 AT T = 118.0

P = 759.4 AT T = 110.6

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.87376E 02 B = -.73723E-01 C = 0.30337E-03

2 A = 0.98864E 02 B = -.55774E-01 C = 0.27703E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 43

ID NUMBER = 33

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.12379E 01 B = -.23628E 00 C = -.17048E 01

STANDARD DEVIATION = 0.13144E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 3.4484 G2INF = 2.0203

T1INF = 110.63 T2INF = 117.73

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.6241

AREA BELOW THE X-AXIS IS -0.0726

CROSS-OVER POINT IS X = 0.79

NORMALIZED AREA DIFFERENCE IS 0.7916

HERINGTON J-FACTOR IS 4.18

CONSISTENCY INDEX IS 74.98

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	1044.71	-100.63	0.2638E-10	90.83	0.12864
2	-102.85	10270.91	0.1642E 00	35.57	0.09412
3	589.05	310.85	0.5837E 01	72.74	0.12533
4	-182.04	1417.12	0.2198E 01	84.43	0.10128
5	-146.28	9669.14	0.3966E 00	41.45	0.09254
6	-264.09	10836.96	0.3035E 00	62.05	0.08854
7	-143.72	10743.21	0.4472E 00	41.05	0.09263
8	-86.63	3608.93	0.7368E-01	33.80	0.09604
9	-97.07	10256.89	0.7418E-01	35.08	0.09434
10	-39.30	849.54	0.6284E 00	92.73	0.10775

CARBON TETRACHLORIDE(1) — BENZENE(2) SYSTEM 0304

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	185.00	40.0	0.0994	0.1244	211.45	180.36	0.9873	0.9874	1.0797	0.9835	0.0929	-1344.05	-1326.58	-1335.35
2	189.00	40.0	0.1858	0.2233	211.45	180.36	0.9870	0.9872	1.0589	0.9859	0.0714	-1344.05	-1326.58	-1335.35
3	195.00	40.0	0.3401	0.3824	211.45	180.36	0.9866	0.9868	1.0217	0.9976	0.0239	-1344.05	-1326.58	-1335.35
4	198.00	40.0	0.4393	0.4815	211.45	180.36	0.9864	0.9865	1.0110	1.0006	0.0104	-1344.05	-1326.58	-1335.35
5	201.00	40.0	0.5324	0.5681	211.45	180.36	0.9862	0.9863	0.9989	1.0143	-0.0153	-1344.05	-1326.58	-1335.35
6	203.00	40.0	0.6063	0.6363	211.45	180.36	0.9860	0.9862	0.9921	1.0245	-0.0321	-1344.05	-1326.58	-1335.35
7	205.00	40.0	0.6815	0.7043	211.45	180.36	0.9859	0.9861	0.9864	1.0396	-0.0525	-1344.05	-1326.58	-1335.35
8	207.00	40.0	0.7812	0.7964	211.45	180.36	0.9858	0.9859	0.9824	1.0519	-0.0684	-1344.05	-1326.58	-1335.35
9	209.00	40.0	0.8926	0.8990	211.45	180.36	0.9856	0.9858	0.9798	1.0732	-0.0911	-1344.05	-1326.58	-1335.35
10	210.00	40.0	0.9529	0.9555	211.45	180.36	0.9855	0.9857	0.9801	1.0833	-0.1001	-1344.05	-1326.58	-1335.35
11	210.00	40.0	0.9637	0.9653	211.45	180.36	0.9855	0.9857	0.9795	1.0812	-0.0987	-1344.05	-1326.58	-1335.35

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 556.40 P = 45.00 V = 279.60 OMEGA = 0.193 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69339E 01 B = 0.12424E 04 C = 0.23000E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.61938E 02 B = -.29977E 00 C = 0.16761E-02

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

VAPOR PRESSURE AT NBP

P = 766.0 AT T = 76.8

P = 760.0 AT T = 80.1

COMPONENT ID ECHO CHECK

ID NUMBER = 6

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.12252E 00 B = -.29725E 00 C = 0.67341E-01

STANDARD DEVIATION = 0.33261E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.1303 G2INF = 1.1134

T1INF = 40.00 T2INF = 40.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0271

AREA BELOW THE X-AXIS IS -0.0308

CROSS-OVER POINT IS X = 0.46

NORMALIZED AREA DIFFERENCE IS -0.0632

CONSISTENCY INDEX IS 6.32

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-112.53	190.26	0.0	4.35	0.00072
2	141.36	-49.87	0.7939E-03	1.40	0.00671
3	-157.67	210.81	0.4702E-02	3.26	0.00227
4	-153.88	206.82	0.4750E-02	3.23	0.00231
5	115.92	-22.59	0.1777E-02	1.57	0.00528
6	-14.70	111.44	0.1426E-04	4.36	0.00065
7	75.36	6.40	0.2262E-02	1.80	0.00485
8	200.44	-82.40	0.8494E-03	1.41	0.00670
9	197.36	-80.81	0.8494E-03	1.41	0.00670
10	-7.13	86.51	0.3203E 00	3.22	0.00223

CARBON TETRACHLORIDE(1) - BENZENE(2) SYSTEM 03C8

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	190.18	40.0	0.1398	0.1703	211.45	180.36	0.9869	0.9871	1.0799	1.0030	0.0739	-1344.05	-1326.58	-1335.35
2	194.70	40.0	0.2378	0.2774	211.45	180.36	0.9866	0.9868	1.0583	1.0090	0.0478	-1344.05	-1326.58	-1335.35
3	200.07	40.0	0.3735	0.4159	211.45	180.36	0.9862	0.9864	1.0377	1.0192	0.0180	-1344.05	-1326.58	-1335.35
4	204.02	40.0	0.4919	0.5295	211.45	180.36	0.9860	0.9861	1.0226	1.0320	-0.0091	-1344.05	-1326.58	-1335.35
5	204.20	40.0	0.4986	0.5359	211.45	180.36	0.9859	0.9861	1.0220	1.0324	-0.0102	-1344.05	-1326.58	-1335.35
6	207.44	40.0	0.6201	0.6475	211.45	180.36	0.9857	0.9859	1.0084	1.0511	-0.0416	-1344.05	-1326.58	-1335.35
7	210.37	40.0	0.7585	0.7739	211.45	180.36	0.9855	0.9857	0.9990	1.0753	-0.0737	-1344.05	-1326.58	-1335.35
8	211.97	40.0	0.8718	0.8783	211.45	180.36	0.9854	0.9856	0.9938	1.0985	-0.1002	-1344.05	-1326.58	-1335.35

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 556.40 P = 45.00 V = 279.60 OMEGA = 0.193 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69339E 01 B = 0.12424E 04 C = 0.23000E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

VAPOR PRESSURE AT NBP

P = 766.0 AT T = 76.8

P = 760.0 AT T = 80.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.61938E 02 B = -.29977E 00 C = 0.16761E-02

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 6

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10526E 00 B = -.23196E 00 C = -.46077E-02

STANDARD DEVIATION = 0.13914E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.1110 G2INF = 1.1403

T1INF = 40.00 T2INF = 40.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0237

AREA BELOW THE X-AXIS IS -0.0360

CROSS-OVER POINT IS X = 0.45

NORMALIZED AREA DIFFERENCE IS -0.2052

CONSISTENCY INDEX IS 20.52

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-320.61	408.82	0.9095E-12	0.70	0.00304
2	41.59	64.25	0.1655E-04	0.25	0.00131
3	-107.14	184.24	0.6788E-03	0.46	0.00196
4	-90.49	169.83	0.6097E-03	0.45	0.00189
5	38.62	67.27	0.7048E-04	0.24	0.00129
6	43.58	69.34	0.4042E-04	0.58	0.00130
7	66.98	48.56	0.8199E-04	0.26	0.00140
8	33.37	69.65	0.1957E-04	0.25	0.00132
9	33.45	69.60	0.1957E-04	0.25	0.00132
10	-88.92	166.61	0.4351E-01	0.31	0.00187

CARBON TETRACHLORIDE(1) — BENZENE(2) SYSTEM 030C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	568.89	70.0	0.1428	0.1666	598.26	534.74	0.9717	0.9723	1.0735	1.0031	0.0678	-1064.38	-1042.71	-1053.56
2	579.13	70.0	0.2394	0.2702	598.26	534.74	0.9712	0.9718	1.0566	1.0072	0.0478	-1064.38	-1042.71	-1053.56
3	591.62	70.0	0.3791	0.4105	598.26	534.74	0.9706	0.9712	1.0348	1.0175	0.0169	-1064.38	-1042.71	-1053.56
4	600.77	70.0	0.4930	0.5204	598.26	534.74	0.9701	0.9707	1.0238	1.0289	-0.0050	-1064.38	-1042.71	-1053.56
5	599.67	70.0	0.4939	0.5215	598.26	534.74	0.9702	0.9708	1.0223	1.0266	-0.0041	-1064.38	-1042.71	-1053.56
6	607.22	70.0	0.6224	0.6411	598.26	534.74	0.9698	0.9704	1.0094	1.0446	-0.0342	-1064.38	-1042.71	-1053.56
7	613.08	70.0	0.7624	0.7719	598.26	534.74	0.9695	0.9701	1.0014	1.0649	-0.0615	-1064.38	-1042.71	-1053.56
8	616.02	70.0	0.8750	0.8780	598.26	534.74	0.9694	0.9700	0.9971	1.0876	-0.0870	-1064.38	-1042.71	-1053.56

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 556.40 P = 45.00 V = 279.60 OMEGA = 0.193 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69339E 01 B = -0.12424E 04 C = 0.23000E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

VAPOR PRESSURE AT NBP

P = 766.0 AT T = 76.8

P = 760.0 AT T = 80.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.61938E 02 B = -.29977E 00 C = 0.16761E-02

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 6

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.97204E-01 B = -.20607E 00 C = -.44724E-02

STANDARD DEVIATION = 0.12941E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.1021 G2INF = 1.1200

T1INF = 70.00 T2INF = 70.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0228

AREA BELOW THE X-AXIS IS -0.0301

CROSS-OVER POINT IS X = 0.47

NORMALIZED AREA DIFFERENCE IS -0.1385

CONSISTENCY INDEX IS 13.85

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-464.99	485.23	0.0	1.20	0.00182
2	-106.95	200.91	0.6305E-05	0.43	0.00082
3	-246.78	319.98	0.2415E-03	0.80	0.00118
4	-234.29	308.59	0.2189E-03	0.79	0.00113
5	-120.33	211.77	0.2463E-04	0.50	0.00081
6	-125.34	218.94	0.1421E-04	0.95	0.00083
7	-101.60	197.88	0.2803E-04	0.54	0.00083
8	-108.80	202.17	0.7363E-05	0.41	0.00082
9	-109.15	202.46	0.7363E-05	0.42	0.00082
10	-236.29	309.47	0.1867E-01	0.67	0.00113

CARBON TETRACHLORIDE(1) — BENZENE(2) SYSTEM 0300

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	79.3	0.1364	0.1582	79C.13	714.72	0.9655	0.9662	1.0710	C.9982	C.0704	-997.84	-975.78	-986.82
2	760.00	78.8	0.2157	0.2415	778.77	704.01	0.9653	0.9661	1.0488	1.0053	0.0424	-1001.23	-979.19	-990.22
3	760.00	78.6	0.2573	0.2880	774.26	699.76	0.9652	0.9660	1.0545	1.0025	0.0506	-1002.59	-980.55	-991.58
4	760.00	78.5	0.2944	0.3215	772.01	697.64	0.9652	0.9660	1.0318	1.0086	0.0228	-1003.27	-981.24	-992.27
5	760.00	78.2	0.3634	0.3915	765.30	691.32	0.9651	0.9659	1.0267	1.0116	0.0148	-1005.33	-983.30	-994.32
6	760.00	78.0	0.4057	0.4350	76C.85	687.12	0.9650	0.9658	1.0277	1.0122	0.0152	-1006.70	-984.68	-995.70
7	760.00	77.6	0.5269	0.5480	752.00	678.80	0.9649	0.9657	1.0085	1.0296	-0.0207	-1009.46	-987.45	-998.46
8	760.00	77.4	0.6202	0.6380	747.61	674.66	0.9648	0.9656	1.0033	1.0333	-0.0295	-1010.84	-988.84	-999.85
9	760.00	77.1	0.7223	0.7330	741.06	668.50	0.9647	0.9655	0.9984	1.0519	-0.0522	-1012.92	-990.93	-1001.93

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 556.40 P = 45.00 V = 279.60 OMEGA = 0.193 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69339E 01 B = 0.12424E 04 C = 0.23000E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.61938E 02 B = -.29977E 00 C = 0.16761E-02

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

VAPOR PRESSURE AT NBP

P = 766.0 AT T = 76.8

P = 760.0 AT T = 80.1

COMPONENT ID ECHO CHECK

ID NUMBER = 6

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10197E 00 B = -.25753E 00 C = 0.63737E-01

STANDARD DEVIATION = 0.75516E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.1074 G2INF = 1.0962

T1INF = 80.10 T2INF = 76.54

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0218

AREA BELOW THE X-AXIS IS -C.C273

CROSS-OVER POINT IS X = 0.44

NORMALIZED AREA DIFFERENCE IS -0.1130

HERINGTON J-FACTOR IS 1.53

CONSISTENCY INDEX IS 9.78

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-235.82	314.68	C.0	4.18	0.00156
2	-52.78	154.83	0.8141E-05	C.70	0.00198
3	-65.00	170.91	0.4300E-03	2.15	0.00138
4	-65.66	171.18	0.4080E-03	2.10	0.00139
5	-86.88	181.38	0.9446E-04	0.92	0.00170
6	-45.08	164.53	C.3525E-04	4.21	0.00122
7	-94.62	186.94	C.9700E-04	0.94	0.00169
8	-22.50	134.93	0.9338E-05	0.68	0.00202
9	-22.42	134.88	C.9333E-05	0.68	0.00202
10	-135.57	222.13	C.4916E-01	2.17	0.00152

CARBON TETRACHLORIDE(1) CYCLOHEXANE(2) SYSTEM 031

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	80.3	0.0450	0.0680	814.15	719.56	0.9659	0.9616	1.3548	0.9872	0.3165	-990.84	-1113.74	-1051.04
2	760.00	79.6	0.1240	0.1550	797.00	704.13	0.9657	0.9613	1.1445	0.9968	0.1381	-995.81	-1119.40	-1056.34
3	760.00	79.7	0.1340	0.1630	798.38	705.38	0.9657	0.9613	1.1118	0.9971	0.1090	-995.40	-1118.94	-1055.91
4	760.00	79.2	0.2010	0.2300	787.16	695.28	0.9655	0.9611	1.0606	1.0084	0.0505	-998.72	-1122.71	-1059.45
5	760.00	78.9	0.2560	0.2730	780.58	689.36	0.9654	0.9610	0.9967	1.0311	-0.0340	-1000.69	-1124.96	-1061.55
6	760.00	79.1	0.2010	0.2200	785.57	693.85	0.9655	0.9611	1.0166	1.0236	-0.0069	-999.19	-1123.25	-1059.95
7	760.00	76.7	0.7910	0.8050	733.25	646.81	0.9646	0.9603	1.0118	1.0485	-0.0356	-1015.42	-1141.75	-1077.29
8	760.00	77.1	0.6750	0.6930	740.19	653.05	0.9647	0.9604	1.0112	1.0515	-0.0390	-1013.19	-1139.21	-1074.91
9	760.00	77.1	0.6850	0.6960	740.40	653.24	0.9647	0.9604	1.0005	1.0740	-0.0709	-1013.13	-1139.13	-1074.84
10	760.00	77.4	0.5790	0.6000	747.61	659.72	0.9649	0.9605	1.0107	1.0471	-0.0354	-1010.84	-1136.52	-1072.39
11	760.00	77.5	0.5400	0.5690	750.46	662.28	0.9649	0.9605	1.0238	1.0286	-0.0047	-1009.94	-1135.50	-1071.44
12	760.00	77.6	0.5190	0.5450	752.66	664.26	0.9649	0.9606	1.0174	1.0354	-0.0176	-1009.25	-1134.71	-1070.70
13	760.00	78.1	0.4120	0.4360	762.18	672.81	0.9651	0.9607	1.0126	1.0367	-0.0235	-1006.29	-1131.34	-1067.54
14	760.00	78.5	0.3140	0.3450	771.11	680.84	0.9652	0.9609	1.0393	1.0200	0.0188	-1003.55	-1128.22	-1064.61
15	760.00	78.8	0.2600	0.2850	778.77	687.73	0.9654	0.9610	1.0268	1.0220	0.0047	-1001.23	-1125.58	-1062.13
16	760.00	79.3	0.1980	0.2300	788.99	696.92	0.9655	0.9612	1.0742	1.0023	0.0693	-998.17	-1122.09	-1058.87
17	760.00	79.5	0.1460	0.1710	795.62	702.89	0.9656	0.9613	1.0742	1.0049	0.0667	-996.21	-1119.86	-1056.78
18	760.00	79.7	0.1130	0.1350	800.00	706.82	0.9657	0.9614	1.0898	1.0040	0.0820	-994.93	-1118.40	-1055.41
19	760.00	78.1	0.4040	0.4270	762.40	673.01	0.9651	0.9607	1.0111	1.0388	-0.0271	-1006.22	-1131.26	-1067.46

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 556.40 P = 45.00 V = 279.60 OMEGA = 0.193 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 553.20 P = 40.00 V = 311.20 OMEGA = 0.210 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69339E 01 B = 0.12424E 04 C = 0.23000E 03

2 A = 0.68450E 01 B = 0.12035E 04 C = 0.22286E 03

VAPOR PRESSURE AT NBP

P = 766.0 AT T = 76.8

P = 759.1 AT T = 80.7

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.61938E 02 B = -.29977E 00 C = 0.16761E-02

2 A = 0.92914E 02 B = -.24859E-01 C = 0.26157E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 6

ID NUMBER = 9

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.24478E 00 B = -.11106E 01 C = 0.10112E 01

STANDARD DEVIATION = 0.47434E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.2773 G2INF = 0.8647

T1INF = 80.74 T2INF = 76.54

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

EQUATION SOLVED FOR X-INTERCEPT

ROOTS ARE: X = 0.79307E 00 AND X = 0.30524E 00

BOTH ROOTS ARE IN THE RANGE 0 TO 1

THERMODYNAMIC CONSISTENCY TEST IS ABORTED

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	1178.33	-473.34	0.1421E-11	27.68	0.01878
2	-28.10	124.17	0.5003E-04	0.96	0.00569
3	901.23	-312.10	0.1910E-01	8.60	0.00594
4	844.45	-298.45	0.1645E-01	7.74	0.00562
5	381.91	-134.90	0.1437E-02	2.46	0.00433
6	547.91	-208.34	0.1021E-02	3.98	0.00420
7	395.55	-140.88	0.1407E-02	2.56	0.00433
8	-32.87	126.71	0.3730E-04	0.83	0.00566
9	-32.87	126.71	0.3732E-04	0.83	0.00566
10	655.41	-241.45	0.2668E-00	5.40	0.00462

CARBON TETRACHLORIDE(1) 2-PROPANOL(2) SYSTEM 032A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	579.60	70.0	0.0860	0.2550	598.26	446.09	0.9665	0.9887	2.7647	1.0448	0.9731	-1064.38	-398.70	-891.64
2	659.00	70.0	0.1660	0.3920	598.26	446.09	0.9637	0.9862	2.4946	1.0595	0.8563	-1064.38	-398.70	-891.64
3	707.80	70.0	0.2380	0.4690	598.26	446.09	0.9619	0.9845	2.2305	1.0857	0.7202	-1064.38	-398.70	-891.64
4	766.30	70.0	0.3840	0.5610	598.26	446.09	0.9597	0.9822	1.7859	1.1990	0.3984	-1064.38	-398.70	-891.64
5	798.20	70.0	0.5590	0.6340	598.26	446.09	0.9587	0.9804	1.4423	1.4516	-0.0064	-1064.38	-398.70	-891.64
6	804.30	70.0	0.7110	0.6860	598.26	446.09	0.9588	0.9795	1.2364	1.9129	-0.4364	-1064.38	-398.70	-891.64
7	793.80	70.0	0.8150	0.7330	598.26	446.09	0.9597	0.9789	1.1386	2.5066	-0.7891	-1064.38	-398.70	-891.64
8	723.50	70.0	0.9450	0.8460	598.26	446.09	0.9637	0.9789	1.0379	4.4332	-1.4519	-1064.38	-398.70	-891.64
9	675.10	70.0	0.9750	0.9160	598.26	446.09	0.9663	0.9790	1.0194	4.9656	-1.5833	-1064.38	-398.70	-891.64

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 556.40 P = 45.00 V = 279.60 OMEGA = 0.193 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69339E 01 B = 0.12424E 04 C = 0.23000E 03

2 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293E 03

VAPOR PRESSURE AT NBP

P = 766.0 AT T = 76.8

P = 769.7 AT T = 82.5

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.61938E 02 B = -.29977E 00 C = 0.16761E-02

2 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 6

ID NUMBER = 22

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10151E 01 B = -.67564E 00 C = -.20081E 01

STANDARD DEVIATION = 0.51657E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.7598 G2INF = 5.3049

T1INF = 70.00 T2INF = 70.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3450

AREA BELOW THE X-AXIS IS -0.3371

CROSS-OVER POINT IS X = 0.56

NORMALIZED AREA DIFFERENCE IS 0.0116

CONSISTENCY INDEX IS 1.16

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-284.70	1442.26	0.1182E-10	44.05	0.01194
2	-116.39	1661.94	0.1055E-02	8.87	0.02084
3	-136.97	1416.68	0.6277E-01	19.34	0.00599
4	-140.47	1431.11	0.1435E-01	18.44	0.00599
5	-152.59	1558.33	0.3941E-02	7.98	0.01105
6	-209.51	1494.71	0.2982E-03	24.82	0.00342
7	-188.03	1617.46	0.4037E-02	9.79	0.00982
8	-127.39	1590.15	0.1396E-03	2.29	0.01582
9	-127.42	1590.08	0.1398E-03	2.29	0.01581
10	-146.38	1428.65	0.4487E-02	19.78	0.00551

CARBON TETRACHLORIDE(1) — 2-PROPANOL(2) SYSTEM 0328

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	79.9	0.034C	C.1140	803.92	682.16	0.958C	C.9868	3.0193	1.0055	1.0995	-993.79	-377.68	-834.39
2	760.00	78.5	0.0620	0.1850	772.01	644.01	0.9586	0.9865	2.7998	1.0086	1.0210	-1003.27	-380.45	-842.10
3	760.00	76.8	C.0920	0.2520	734.55	599.89	0.9589	0.9860	2.7023	1.0261	0.9683	-1015.CO	-383.89	-851.64
4	760.00	74.0	0.1730	0.3760	675.86	532.31	0.9595	0.9848	2.3320	1.C579	0.7904	-1034.84	-389.79	-867.74
5	760.00	72.8	0.224C	0.4420	651.81	505.20	0.9599	0.9841	2.1961	1.0615	0.7270	-1043.55	-392.40	-874.79
6	760.00	70.6	0.3420	0.5340	6C5.44	458.28	0.96C0	0.9828	1.8589	1.1509	0.4794	-1059.86	-397.32	-887.99
7	760.00	69.7	0.4120	0.5750	592.72	440.C9	C.9601	C.9821	1.7085	1.2224	0.3348	-1066.66	-399.39	-893.48
8	760.00	69.1	0.4860	0.6040	581.77	428.28	0.9601	0.9816	1.5501	1.3382	0.1470	-1071.23	-400.79	-897.18
9	760.00	69.0	0.5780	0.6400	579.96	426.33	0.96C3	C.9811	1.3857	1.4878	-0.0710	-1072.00	-401.02	-897.79
10	760.00	68.8	0.6470	0.6650	576.36	422.46	0.96C5	0.9807	1.2545	1.6695	-0.2544	-1073.53	-401.49	-899.03
11	760.00	68.9	0.7300	0.6920	578.16	424.40	0.9607	0.9803	1.1905	1.9969	-0.5172	-1072.76	-401.25	-898.41
12	760.00	69.1	0.8040	0.7190	581.77	428.28	0.96C9	0.9799	1.1164	2.4859	-0.8005	-1071.23	-400.79	-897.18
13	760.00	70.2	0.8800	0.7600	601.97	450.13	0.9616	0.9794	1.0427	3.2979	-1.1515	-1062.87	-398.24	-890.42
14	760.00	72.2	0.9430	0.8210	640.04	492.06	0.9626	0.9787	0.9896	4.7336	-1.5651	-1047.96	-393.72	-878.36
15	760.00	74.1	0.970C	0.8930	677.89	534.62	0.9636	0.9777	0.9890	4.9433	-1.6091	-1034.12	-389.57	-867.15

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 556.40 P = 45.CC V = 279.60 OMEGA = 0.193 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 508.50 P = 47.C0 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69339E 01 B = 0.12424E 04 C = 0.23000E 03

2 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.61938E 02 B = -.29977E 00 C = 0.16761E-02

2 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

VAPOR PRESSURE AT NBP

P = 766.0 AT T = 76.8

P = 769.7 AT T = 82.5

COMPONENT ID ECHO CHECK

ID NUMBER = 6

ID NUMBER = 22

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10612E C1 B = -.89781E 00 C = -.18817E 01

STANDARD DEVIATION = 0.61008E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.8899 G2INF = 5.5750

T1INF = 82.19 T2INF = 76.54

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3435

AREA BELOW THE X-AXIS IS -0.3584

CROSS-OVER POINT IS X = 0.55

NORMALIZED AREA DIFFERENCE IS -0.0213

HERINGTON J-FACTOR IS 5.87

CONSISTENCY INDEX IS -3.75

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-288.63	1506.89	0.9095E-11	27.07	0.01088
2	-99.54	1467.24	0.8692F-03	8.12	0.01063
3	-203.90	1532.65	0.1984F 00	9.92	0.00438
4	-203.32	1539.07	0.1763F-01	9.45	0.00453
5	-186.60	1550.99	0.3272E-02	6.73	0.00559
6	-221.61	1553.10	0.8760F-03	11.33	0.00439
7	-201.28	1576.55	0.2403F-02	7.16	0.00536
8	-157.42	1520.41	0.1507F-02	6.54	0.00708
9	-157.47	1520.47	0.1507F-02	6.54	0.00708
10	-216.35	1545.50	0.5632F-02	10.98	0.00435

CELLOSOLVE(1) — HEXANE(2) SYSTEM 033

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	94.0	C.9050	0.2230	163.22	1561.53	1.0000	1.0000	1.1433	3.9614	-1.2426	0.0	C.0	0.0
2	760.00	91.4	0.8930	0.2000	146.02	1457.25	1.0000	1.0000	1.1616	3.8803	-1.2062	0.0	0.0	0.0
3	760.00	82.1	0.8220	0.1250	96.49	1126.82	1.0000	1.0000	1.1935	3.2992	-1.0168	0.0	0.0	0.0
4	760.00	76.1	0.7170	0.0880	72.81	946.27	1.0000	1.0000	1.2765	2.5754	-0.7019	0.0	0.0	0.0
5	760.00	72.5	0.5580	0.0670	61.15	849.18	1.0000	1.0000	1.4870	1.8798	-0.2344	0.0	0.0	0.0
6	760.00	71.7	0.4690	0.0630	58.79	828.69	1.0000	1.0000	1.7304	1.6103	0.0719	0.0	0.0	0.0
7	760.00	71.4	0.4470	0.0610	57.92	821.11	1.0000	1.0000	1.7841	1.5638	0.1318	0.0	0.0	0.0
8	760.00	70.2	0.2960	0.0520	54.57	791.31	1.0000	1.0000	2.4379	1.2869	0.6389	0.0	0.0	0.0
9	760.00	69.9	0.2870	0.0500	53.76	783.99	1.0000	1.0000	2.4541	1.2852	0.6469	0.0	0.0	0.0
10	760.00	69.7	0.1330	0.0350	53.22	779.15	1.0000	1.0000	3.7444	1.0803	1.2430	0.0	0.0	0.0

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 0.0 P = 0.0 V = 0.0 OMEGA = 0.0 OMEGAH = 0.0 DIPOLE = 1.63 ETA = 0.0

2 T = 507.90 P = 29.90 V = 372.40 OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78844E 01 B = -0.17430E 04 C = -0.21333E 03

2 A = 0.68778E 01 B = -0.11715E 04 C = -0.22437E 03

VAPOR PRESSURE AT NBP

P = 759.7 AT T = 135.0

P = 759.0 AT T = 68.7

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.98518E 02 B = -.11172E 00 C = 0.36111E-03

2 A = 0.12596E 03 B = -.14456E 00 C = 0.54720E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 7

ID NUMBER = 18

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.17367E 01 B = -.38992E 01 C = 0.67515E 00

STANDARD DEVIATION = 0.13546E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 5.6785 G2INF = 4.4254

T1INF = 68.74 T2INF = 135.01

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4094

AREA BELOW THE X-AXIS IS -0.3972

CROSS-OVER POINT IS X = 0.49

NORMALIZED AREA DIFFERENCE IS 0.0150

HERINGTON J-FACTOR IS 10.63

CONSISTENCY INDEX IS -9.13

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	963.02	469.33	0.1081E-08	86.71	0.00219
2	1000.94	1685.33	0.3229E-02	115.99	0.02524
3	1154.93	559.26	0.2676E C0	38.86	0.00613
4	1238.53	559.28	0.8785E-01	30.49	0.00758
5	1722.38	391.00	0.3764E-02	4.95	0.00980
6	1120.24	405.06	0.3517E-04	72.34	0.00123
7	1716.19	369.44	0.2326E-02	8.81	0.00912
8	1719.93	400.99	0.4756E-03	4.53	0.01005
9	1719.94	400.99	0.4756E-03	4.53	0.01005
10	1090.28	606.04	0.1487E-01	42.59	0.00669

CELLOSOLVE(1) 1-HEXENE(2) SYSTEM 034

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	110.5	C.950C	0.4350	317.28	2703.99	1.0000	1.0000	1.0931	3.1612	-1.0620	0.0	0.0	0.0
2	760.00	94.7	0.8950	0.2370	168.13	1843.12	1.0000	1.0000	1.1928	2.9824	-0.9164	0.0	0.0	0.0
3	760.00	73.9	0.6720	0.0820	65.48	1043.17	1.0000	1.0000	1.4112	2.0294	-0.3633	0.0	0.0	0.0
4	760.00	71.2	0.573C	0.065C	57.35	963.04	1.0000	1.0000	1.4978	1.7199	-0.1382	0.0	0.0	0.0
5	760.00	68.5	0.4230	0.049C	50.1C	887.72	1.0000	1.0000	1.7508	1.4043	0.2205	0.0	0.0	0.0
6	760.00	66.2	0.2270	0.0300	44.56	827.22	1.0000	1.0000	2.2456	1.1474	0.6715	0.0	0.0	0.0
7	760.00	65.1	0.1240	0.0180	42.11	799.44	1.0000	1.0000	2.6105	1.0606	0.9007	0.0	0.0	0.0

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 0.0 P = 0.0 V = 0.0 OMEGA = 0.0 OMEGAH = 0.0 DIPOLE = 1.63 ETA = 0.0

2 T = 504.00 P = 32.10 V = 350.7C OMEGA = C.285 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78844E 01 B = 0.17430E 04 C = 0.21333E 03

2 A = 0.68657E 01 B = 0.11530E 04 C = 0.22600E 03

VAPOR PRESSURE AT NBP

P = 759.7 AT T = 135.0

P = 763.6 AT T = 63.5

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.98518E 02 B = -.11172E 00 C = 0.36111E-03

2 A = 0.20978E C3 B = -.71344E CC C = 0.14350E-02

COMPONENT ID ECHO CHECK

ID NUMBER = 7

ID NUMBER = 38

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.11720E C1 B = -.21665E 01 C = -.19057E 00

STANDARD DEVIATION = 0.52556E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 3.2286 G2INF = 3.2709

T1INF = 63.33 T2INF = 135.01

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3076

AREA BELOW THE X-AXIS IS -0.2824

CROSS-OVER POINT IS X = 0.52

NORMALIZED AREA DIFFERENCE IS 0.0428

HERINGTON J-FACTOR IS 20.13

CONSISTENCY INDEX IS -15.85

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	550.83	453.98	0.4547E-11	87.13	0.00122
2	555.97	2932.14	0.3683E-03	234.10	0.05694
3	674.52	474.31	0.3548E 00	56.47	0.00861
4	699.46	489.24	0.1323E 00	49.93	0.01072
5	1359.25	190.52	0.6188E-02	6.25	0.01519
6	550.14	439.66	0.8549E-05	89.76	0.00069
7	1354.43	166.52	0.37C8E-02	11.15	0.01350
8	1325.93	224.92	0.4466E-03	4.83	0.01665
9	1325.98	224.90	0.4466E-03	4.83	0.01665
10	615.21	532.12	0.5166E-01	58.97	0.00895

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

CHLOROFORM(1) BENZENE(2) SYSTEM 035A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	276.20	50.0	0.0340	0.0550	499.37	266.50	0.9880	0.9833	0.8830	0.9957	-0.1201	-1009.80	-1217.82	-1039.88
2	278.80	50.0	0.0550	0.0770	499.37	266.50	0.9878	0.9832	0.7712	1.0033	-0.2631	-1009.80	-1217.82	-1039.88
3	288.60	50.0	0.1210	0.1820	499.37	266.50	0.9870	0.9826	0.8569	0.9889	-0.1433	-1009.80	-1217.82	-1039.88
4	294.70	50.0	0.1490	0.2180	499.37	266.50	0.9866	0.9823	0.8508	0.9968	-0.1584	-1009.80	-1217.82	-1039.88
5	302.30	50.0	0.1840	0.2710	499.37	266.50	0.9860	0.9819	0.8780	0.9937	-0.1237	-1009.80	-1217.82	-1039.88
6	317.60	50.0	0.2760	0.3950	499.37	266.50	0.9849	0.9812	0.8953	0.9757	-0.0859	-1009.80	-1217.82	-1039.88
7	329.40	50.0	0.3140	0.4380	499.37	266.50	0.9843	0.9806	0.9044	0.9914	-0.0918	-1009.80	-1217.82	-1039.88
8	348.40	50.0	0.4060	0.5540	499.37	266.50	0.9831	0.9797	0.9345	0.9601	-0.0270	-1009.80	-1217.82	-1039.88
9	353.00	50.0	0.4340	0.5810	499.37	266.50	0.9828	0.9795	0.9287	0.9589	-0.0321	-1009.80	-1217.82	-1039.88
10	363.60	50.0	0.4790	0.6360	499.37	266.50	0.9821	0.9791	0.9481	0.9317	0.0174	-1009.80	-1217.82	-1039.88
11	384.00	50.0	0.5470	0.7020	499.37	266.50	0.9810	0.9782	0.9666	0.9256	0.0434	-1009.80	-1217.82	-1039.88
12	388.40	50.0	0.5640	0.7150	499.37	266.50	0.9808	0.9780	0.9655	0.9300	0.0374	-1009.80	-1217.82	-1039.88
13	410.80	50.0	0.6470	0.7910	499.37	266.50	0.9795	0.9771	0.9835	0.8900	0.0999	-1009.80	-1217.82	-1039.88
14	424.00	50.0	0.6930	0.8240	499.37	266.50	0.9788	0.9765	0.9865	0.8889	0.1042	-1009.80	-1217.82	-1039.88
15	437.60	50.0	0.7460	0.8630	499.37	266.50	0.9781	0.9759	0.9898	0.8626	0.1375	-1009.80	-1217.82	-1039.88
16	467.70	50.0	0.8330	0.9220	499.37	266.50	0.9766	0.9747	1.0104	0.7972	0.2370	-1009.80	-1217.82	-1039.88
17	478.20	50.0	0.8680	0.9420	499.37	266.50	0.9760	0.9742	1.0124	0.7664	0.2783	-1009.80	-1217.82	-1039.88
18	499.80	50.0	0.9460	0.9800	499.37	266.50	0.9750	0.9733	1.0088	0.6745	0.4025	-1009.80	-1217.82	-1039.88
19	501.60	50.0	0.9510	0.9830	499.37	266.50	0.9749	0.9732	1.0101	0.6341	0.4656	-1009.80	-1217.82	-1039.88

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 536.60 P = 54.00 V = 276.00 OMEGA = 0.214 OMEGAH = 0.187 DIPOLE = 1.02 ETA = 0.28

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69033E 01 B = 0.11630E 04 C = 0.22740E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

VAPOR PRESSURE AT NBP

P = 749.5 AT T = 61.3

P = 760.0 AT T = 80.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.61065E 02 B = 0.30264E-01 C = 0.11910E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 8

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = -.17112E 00 B = 0.62351E-01 C = 0.56118E 00

STANDARD DEVIATION = 0.39978E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 0.8427 G2INF = 0.6361

T1INF = 50.00 T2INF = 50.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS -0.0544

AREA BELOW THE X-AXIS IS 0.1015

CROSS-OVER POINT IS X = 0.50

NORMALIZED AREA DIFFERENCE IS -0.3024

CONSISTENCY INDEX IS 30.24

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	-437.53	437.63	C.4103E-02	6.93	0.00708
2	-544.00	836.90	0.2715E-03	1.71	0.00423
3	-420.98	421.50	0.3648E-01	5.72	0.00657
4	-437.83	437.99	0.5565E-01	6.95	0.00709
5	-598.15	1071.23	0.8351E-03	1.04	0.00329
6	-613.04	1160.73	0.5577E-03	1.30	0.00330
7	-608.60	1128.91	C.74C0E-03	1.11	0.00329
8	-587.37	1020.76	0.2415E-03	1.10	0.00340
9	-586.90	1018.85	0.2414E-03	1.10	0.00341
10	-395.61	395.23	0.1585E-00	4.14	0.00587

CHLOROFORM(1) — BENZENE(2) SYSTEM 0358

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	79.2	0.0600	0.0890	1223.06	712.57	0.9753	0.9662	0.8962	0.9955	-0.1050	-778.90	-976.46	-840.01
2	760.00	79.0	0.0680	0.1000	1216.35	708.28	0.9752	0.9662	0.8933	0.9978	-0.1106	-780.18	-977.82	-841.15
3	760.00	78.4	0.1160	0.1670	1196.36	695.53	0.9747	0.9660	0.8887	0.9914	-0.1093	-784.05	-981.93	-844.58
4	760.00	77.9	0.1330	0.1900	1179.89	685.03	0.9745	0.9659	0.8940	0.9978	-0.1099	-787.30	-985.37	-847.45
5	760.00	76.9	0.1930	0.2700	1147.45	664.41	0.9739	0.9656	0.8997	0.9959	-0.1016	-793.86	-992.32	-853.26
6	760.00	76.2	0.2290	0.3160	1125.15	650.26	0.9735	0.9655	0.9046	0.9978	-0.0980	-798.51	-997.24	-857.36
7	760.00	75.7	0.2660	0.3610	1109.41	640.29	0.9732	0.9654	0.9020	0.9943	-0.0973	-801.86	-1000.78	-860.31
8	760.00	74.7	0.3180	0.4290	1078.44	620.71	0.9726	0.9652	0.9219	0.9862	-0.0674	-808.62	-1007.92	-866.26
9	760.00	74.4	0.3330	0.4430	1069.27	614.92	0.9725	0.9652	0.9168	0.9928	-0.0797	-810.67	-1010.08	-868.06
10	760.00	73.3	0.3880	0.5080	1036.16	594.06	0.9720	0.9650	0.9306	0.9891	-0.0610	-818.25	-1018.07	-874.72
11	760.00	72.2	0.4430	0.5700	1003.81	573.76	0.9714	0.9648	0.9435	0.9833	-0.0413	-825.95	-1026.17	-881.47
12	760.00	71.6	0.4670	0.6010	986.49	562.90	0.9712	0.9647	0.9600	0.9718	-0.0122	-830.20	-1030.63	-885.18
13	760.00	70.8	0.5170	0.6520	963.75	548.68	0.9708	0.9647	0.9625	0.9595	0.0031	-835.92	-1036.64	-890.18
14	760.00	69.7	0.5700	0.7020	933.13	529.58	0.9703	0.9645	0.9703	0.9560	0.0148	-843.88	-1045.00	-897.13
15	760.00	68.3	0.6370	0.7620	895.22	506.01	0.9697	0.9643	0.9818	0.9464	0.0367	-854.20	-1055.82	-906.12
16	760.00	67.0	0.7000	0.8140	861.06	484.86	0.9692	0.9642	0.9917	0.9339	0.0601	-863.97	-1066.03	-914.60
17	760.00	65.4	0.7830	0.8750	820.39	459.79	0.9685	0.9640	0.9996	0.9148	0.0886	-876.23	-1078.85	-925.24
18	760.00	64.1	0.8530	0.9220	788.43	440.16	0.9680	0.9639	1.0055	0.8801	0.1331	-886.40	-1089.47	-934.04
19	760.00	62.6	0.9340	0.9680	752.73	418.33	0.9674	0.9638	1.0092	0.8461	0.1763	-898.37	-1101.96	-944.38

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 536.60 P = 54.00 V = 276.00 OMEGA = 0.214 OMEGAH = 0.187 DIPOLE = 1.02 ETA = 0.28

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69033E 01 B = 0.11630E 04 C = 0.22740E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

VAPOR PRESSURE AT NBP

P = 749.5 AT T = 61.3

P = 760.0 AT T = 80.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.61065E 02 B = 0.30264E-01 C = 0.11910E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 8

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = .12237E 00 B = 0.78978E-01 C = 0.25909E 00

STANDARD DEVIATION = 0.93353E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 0.8948 G2INF = 0.8060

T1INF = 80.10 T2INF = 61.73

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS -0.0410

AREA BELOW THE X-AXIS IS 0.0445

CROSS-OVER POINT IS X = 0.55

NORMALIZED AREA DIFFERENCE IS -0.0408

HERINGTON J-FACTOR IS 8.23

CONSISTENCY INDEX IS -4.15

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	-344.67	363.73	0.7555E-04	4.00	0.00170
2	-598.22	1104.06	0.1030E-03	2.28	0.00429
3	-224.22	166.73	0.2023E-02	3.67	0.00173
4	-230.64	175.85	0.2266E-02	3.70	0.00172
5	-29.27	-75.51	0.7210E-03	2.67	0.00208
6	-258.20	203.33	0.1296E-03	4.76	0.00152
7	-47.70	-57.28	0.6568E-03	2.84	0.00199
8	344.88	387.02	0.2307E-03	2.28	0.00400
9	349.98	-390.37	0.2308E-03	2.28	0.00401
10	-241.36	193.14	0.2365E-01	3.75	0.00177

CHLOROFORM(1) — ETHYL ACETATE(2) SYSTEM 036

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	77.5	0.0710	0.0640	1166.84	740.94	0.9764	0.9551	0.5716	0.9834	-0.5426	-789.51	-1292.89	-981.07
2	760.00	77.6	0.1100	0.1020	1170.08	743.30	0.9761	0.9551	0.5862	0.9818	-0.5158	-789.26	-1291.61	-980.17
3	760.00	77.7	0.1400	0.1340	1173.35	745.66	0.9759	0.9552	0.6032	0.9768	-0.4820	-788.60	-1290.34	-979.28
4	760.00	77.8	0.1740	0.1710	1176.62	748.03	0.9757	0.9553	0.6175	0.9706	-0.4522	-787.95	-1289.07	-978.38
5	760.00	77.8	0.2230	0.2270	1176.62	748.03	0.9753	0.9554	0.6393	0.9622	-0.4088	-787.95	-1289.07	-978.38
6	760.00	77.5	0.2590	0.2700	1166.84	740.94	0.9749	0.9554	0.6600	0.9618	-0.3767	-789.91	-1292.89	-981.07
7	760.00	77.3	0.3010	0.3230	1160.35	736.24	0.9745	0.9554	0.6829	0.9517	-0.3319	-791.23	-1295.45	-982.88
8	760.00	76.8	0.3650	0.4080	1144.25	724.59	0.9739	0.9554	0.7209	0.9308	-0.2556	-794.52	-1301.88	-987.40
9	760.00	76.0	0.4480	0.5220	1118.84	706.25	0.9731	0.9554	0.7679	0.8870	-0.1442	-799.85	-1312.26	-994.71
10	760.00	75.1	0.5040	0.5960	1090.74	686.03	0.9725	0.9552	0.7989	0.8588	-0.0722	-805.91	-1324.08	-1003.03
11	760.00	74.7	0.5280	0.6280	1078.44	677.20	0.9723	0.9552	0.8125	0.8417	-0.0353	-808.62	-1329.38	-1006.76
12	760.00	73.5	0.5810	0.7000	1042.12	651.21	0.9717	0.9549	0.8512	0.7950	0.0683	-816.86	-1345.46	-1018.09
13	760.00	71.8	0.6500	0.7800	992.25	615.70	0.9709	0.9545	0.8897	0.7378	0.1872	-828.78	-1368.71	-1034.46
14	760.00	70.4	0.7040	0.8390	952.53	587.61	0.9704	0.9541	0.9199	0.6687	0.3189	-838.80	-1388.28	-1048.25
15	760.00	68.9	0.7510	0.8790	911.32	558.62	0.9698	0.9535	0.9437	0.6281	0.4072	-849.76	-1409.67	-1063.33
16	760.00	67.7	0.7900	0.9100	879.33	536.23	0.9693	0.9530	0.9621	0.5767	0.5117	-858.69	-1427.12	-1075.62
17	760.00	65.6	0.8560	0.9500	825.39	498.74	0.9685	0.9521	0.9867	0.5019	0.6760	-874.68	-1458.38	-1097.66
18	760.00	63.7	0.9220	0.9740	778.79	466.61	0.9678	0.9512	0.9988	0.4353	0.8304	-889.57	-1487.48	-1118.18

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 536.60 P = 54.00 V = 276.00 OMEGA = 0.214 OMEGAH = 0.187 DIPOLE = 1.02 ETA = 0.28

2 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69033E 01 B = 0.11630E 04 C = 0.22740E 03

2 A = 0.70981E 01 B = 0.12387E 04 C = 0.21700E 03

VAPOR PRESSURE AT NBP

P = 749.5 AT T = 61.3

P = 769.5 AT T = 77.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.61065E 02 B = 0.30264E-01 C = 0.11910E-03

2 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

COMPONENT ID ECHO CHECK

IC NUMBER = 8

ID NUMBER = 12

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = -.56087E 00 B = 0.35987E 00 C = 0.12507E 01

STANDARD DEVIATION = 0.98208E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 0.5707 G2INF = 0.3500

T1INF = 76.72 T2INF = 61.73

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS -0.1848

AREA BELOW THE X-AXIS IS 0.2207

CROSS-OVER POINT IS X = 0.54

NORMALIZED AREA DIFFERENCE IS -0.0887

HERINGTON J-FACTOR IS 7.20

CONSISTENCY INDEX IS 1.68

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	-449.25	95.03	0.3197E-13	5.66	0.00529
2	-266.55	266.67	0.4378E-03	3.12	0.00361
3	-354.31	-98.96	0.5372E-02	6.18	0.00289
4	-391.66	-50.97	0.1099E-01	7.81	0.00372
5	-281.45	-186.31	0.9912E-03	3.25	0.00322
6	-330.01	-124.21	0.3450E-03	4.73	0.00263
7	-276.20	-192.07	0.1256E-02	3.12	0.00333
8	-229.65	-251.11	0.3665E-03	2.80	0.00452
9	-229.63	-251.15	0.3664E-03	2.80	0.00452
10	-355.53	-98.23	0.4453E-02	6.30	0.00292

CHLOROFORM(1) METHANOL(2) SYSTEM 037A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	420.00	50.0	0.0060	0.0151	499.37	402.25	0.9795	0.9709	2.0697	1.0036	0.7238	-1009.80	-1395.64	-1190.19
2	424.00	50.0	0.0122	0.0312	499.37	402.25	0.9793	0.9706	2.1227	1.0026	0.7501	-1009.80	-1395.64	-1190.19
3	428.00	50.0	0.0180	0.0438	499.37	402.25	0.9791	0.9704	2.0383	1.0044	0.7077	-1009.80	-1395.64	-1190.19
4	442.00	50.0	0.0341	0.0855	499.37	402.25	0.9783	0.9694	2.1673	1.0076	0.7659	-1009.80	-1395.64	-1190.19
5	479.00	50.0	0.0800	0.1990	499.37	402.25	0.9764	0.9668	2.3251	1.0014	0.8424	-1009.80	-1395.64	-1190.19
6	495.00	50.0	0.1030	0.2490	499.37	402.25	0.9756	0.9657	2.3162	1.0025	0.8374	-1009.80	-1395.64	-1190.19
7	496.00	50.0	0.1020	0.2430	499.37	402.25	0.9755	0.9657	2.3036	1.0027	0.8318	-1009.80	-1395.64	-1190.19
8	527.00	50.0	0.1430	0.3090	499.37	402.25	0.9739	0.9636	2.2161	1.0168	0.7791	-1009.80	-1395.64	-1190.19
9	526.00	50.0	0.1450	0.3160	499.37	402.25	0.9740	0.9636	2.2309	1.0070	0.7955	-1009.80	-1395.64	-1190.19
10	548.00	50.0	0.1780	0.3520	499.37	402.25	0.9728	0.9621	2.1064	1.0321	0.7134	-1009.80	-1395.64	-1190.19
11	549.00	50.0	0.1790	0.3590	499.37	402.25	0.9728	0.9621	2.1401	1.0240	0.7371	-1009.80	-1395.64	-1190.19
12	593.00	50.0	0.2340	0.4340	499.37	402.25	0.9710	0.9598	2.0575	1.0266	0.7145	-1009.80	-1395.64	-1190.19
13	598.00	50.0	0.2620	0.4680	499.37	402.25	0.9703	0.9587	2.0703	1.0262	0.7019	-1009.80	-1395.64	-1190.19
14	656.00	50.0	0.4270	0.5930	499.37	402.25	0.9673	0.9549	1.7599	1.1046	0.4658	-1009.80	-1395.64	-1190.19
15	654.00	50.0	0.5360	0.6130	499.37	402.25	0.9669	0.9543	1.4663	1.3121	0.1111	-1009.80	-1395.64	-1190.19
16	652.00	50.0	0.5540	0.6170	499.37	402.25	0.9669	0.9545	1.4237	1.3471	0.0553	-1009.80	-1395.64	-1190.19
17	666.00	50.0	0.6530	0.6630	499.37	402.25	0.9667	0.9542	1.3054	1.5323	-0.1602	-1009.80	-1395.64	-1190.19
18	669.00	50.0	0.7040	0.6700	499.37	402.25	0.9666	0.9540	1.2290	1.7665	-0.3628	-1009.80	-1395.64	-1190.19
19	666.00	50.0	0.7850	0.6950	499.37	402.25	0.9667	0.9543	1.1383	2.2383	-0.6762	-1009.80	-1395.64	-1190.19
20	658.00	50.0	0.8520	0.7270	499.37	402.25	0.9671	0.9549	1.0844	2.8773	-0.9758	-1009.80	-1395.64	-1190.19
21	624.00	50.0	0.9350	0.7890	499.37	402.25	0.9688	0.9573	1.0185	4.8144	-1.5529	-1009.80	-1395.64	-1190.19
22	606.00	50.0	0.9570	0.8340	499.37	402.25	0.9696	0.9586	1.0229	5.5680	-1.6944	-1009.80	-1395.64	-1190.19
23	583.00	50.0	0.9770	0.8710	499.37	402.25	0.9708	0.9602	1.0080	7.7960	-2.0457	-1009.80	-1395.64	-1190.19

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 536.60 P = 54.00 V = 276.00 OMEGA = 0.214 OMEGAH = 0.187 DIPOLE = 1.02 ETA = 0.28

2 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69033E 01 B = 0.11630E 04 C = 0.22740E 03

2 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.61065E 02 B = 0.30264E-01 C = 0.11910E-03

2 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

VAPOR PRESSURE AT ABP

P = 749.5 AT T = 61.3

P = 758.5 AT T = 64.7

COMPONENT ID ECHO CHECK

ID NUMBER = 8

ID NUMBER = 23

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.72329E 00 B = 0.97934E 00 C = -.36841E 01

STANDARD DEVIATION = 0.74741E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.0612 G2INF = 7.2535

T1INF = 50.00 T2INF = 50.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3450

AREA BELOW THE X-AXIS IS -0.3601

CROSS-OVER POINT IS X = 0.60

NORMALIZED AREA DIFFERENCE IS -0.0214

CONSISTENCY INDEX IS 2.14

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-554.70	1835.90	0.2808E-06	30.21	0.02727
2	-410.14	1969.90	0.3224E-03	3.12	0.00822
3	-478.36	2071.55	0.7458E 00	8.57	0.01224
4	-481.58	2082.57	0.1466E 00	8.80	0.01249
5	-403.48	1940.78	0.5716E-02	3.25	0.00827
6	-395.87	1904.93	0.4520E-02	3.46	0.00833
7	-392.92	1904.97	0.4507E-02	3.45	0.00840
8	-411.52	1977.34	0.1074E-02	3.10	0.00823
9	-412.61	1984.88	0.1079E-02	3.11	0.00830
10	-491.51	2101.66	0.2664E-01	9.87	0.01343

CHLOROFORM(1) — METHANOL(2) SYSTEM 0378

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	63.0	0.0400	0.1020	762.13	679.59	0.9685	0.9563	2.4553	0.9989	0.8994	-895.15	-1204.46	-1033.90
2	760.00	62.0	0.0650	0.1540	738.81	653.91	0.9680	0.9557	2.3520	1.0035	0.8518	-903.23	-1218.07	-1044.97
3	760.00	60.9	0.0950	0.2150	713.79	626.56	0.9675	0.9550	2.3241	1.0033	0.8400	-912.25	-1233.25	-1057.32
4	760.00	59.3	0.1460	0.3040	678.55	588.44	0.9666	0.9540	2.2473	1.0027	0.8071	-925.62	-1255.71	-1075.61
5	760.00	57.8	0.1960	0.3780	646.74	554.43	0.9659	0.9531	2.1822	1.0092	0.7712	-938.44	-1277.17	-1093.12
6	760.00	57.0	0.2300	0.4200	630.25	536.95	0.9655	0.9526	2.1194	1.0140	0.7372	-945.39	-1288.79	-1102.60
7	760.00	55.9	0.2870	0.4720	608.11	513.65	0.9649	0.9519	1.9772	1.0414	0.6411	-955.08	-1304.96	-1115.82
8	760.00	55.3	0.3320	0.5070	596.28	501.28	0.9646	0.9515	1.8717	1.0630	0.5657	-960.43	-1313.87	-1123.11
9	760.00	54.7	0.3830	0.5400	584.64	489.17	0.9643	0.9511	1.7619	1.1000	0.4711	-965.83	-1322.85	-1130.46
10	760.00	54.3	0.4250	0.5640	576.97	481.22	0.9641	0.9509	1.6801	1.1369	0.3905	-969.46	-1328.88	-1135.40
11	760.00	54.0	0.4590	0.5800	571.27	475.34	0.9640	0.9507	1.6154	1.1782	0.3156	-972.19	-1333.42	-1139.11
12	760.00	53.8	0.5230	0.6070	567.56	471.44	0.9639	0.9506	1.5021	1.2527	0.1815	-974.02	-1336.46	-1141.60
13	760.00	53.7	0.5570	0.6190	565.62	469.50	0.9638	0.9505	1.4347	1.3212	0.0824	-974.93	-1337.98	-1142.85
14	760.00	53.5	0.6280	0.6430	561.87	465.65	0.9637	0.9504	1.3305	1.4863	-0.1108	-976.77	-1341.03	-1145.35
15	760.00	53.5	0.6360	0.6460	561.87	465.65	0.9637	0.9504	1.3199	1.5062	-0.1321	-976.77	-1341.03	-1145.35
16	760.00	53.5	0.6670	0.6550	561.87	465.65	0.9637	0.9504	1.2760	1.6046	-0.2291	-976.77	-1341.03	-1145.35
17	760.00	53.7	0.7530	0.6840	565.62	469.50	0.9637	0.9506	1.1726	1.9656	-0.5165	-974.93	-1337.98	-1142.85
18	760.00	53.9	0.7970	0.7010	569.38	473.38	0.9638	0.9508	1.1280	2.2448	-0.6882	-973.10	-1334.94	-1140.36
19	760.00	54.4	0.8550	0.7300	578.88	483.20	0.9640	0.9512	1.0773	2.7814	-0.9485	-968.55	-1327.37	-1134.16
20	760.00	55.2	0.9040	0.7680	594.33	499.25	0.9644	0.9518	1.0444	3.4962	-1.2082	-961.33	-1315.36	-1124.33
21	760.00	56.3	0.9370	0.8120	616.09	522.02	0.9648	0.9527	1.0282	4.1325	-1.3911	-951.54	-1299.05	-1110.99
22	760.00	57.9	0.9700	0.8750	648.83	556.64	0.9655	0.9539	1.0170	5.4182	-1.6729	-937.57	-1275.73	-1091.94

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 536.60 P = 54.00 V = 276.00 OMEGA = 0.214 OMEGAH = 0.187 DIPOLE = 1.02 ETA = 0.28

2 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69033E 01 B = 0.11630E 04 C = 0.22740E 03

2 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

VAPOR PRESSURE AT NBP

P = 749.5 AT T = 61.3

P = 758.5 AT T = 64.7

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.61065E 02 B = 0.30264E-01 C = 0.11910E-03

2 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 8

ID NUMBER = 23

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.84834E 00 B = 0.13930E 00 C = -.26920E 01

STANDARD DEVIATION = 0.42469E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.3358 G2INF = 5.4979

T1INF = 64.75 T2INF = 61.73

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3405

AREA BELOW THE X-AXIS IS -0.3198

CROSS-OVER POINT IS X = 0.59

NORMALIZED AREA DIFFERENCE IS 0.0313

HERINGTON J-FACTOR IS 5.17

CONSISTENCY INDEX IS -2.04

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-443.45	1578.07	0.2638E-10	32.92	0.01885
2	-409.05	1564.65	0.3702E-03	4.77	0.00808
3	-368.27	1676.05	0.9713E-01	8.06	0.00730
4	-371.13	1701.03	0.2368E-01	6.83	0.00715
5	-369.39	1762.70	0.3849E-02	3.59	0.00692
6	-367.37	1753.89	0.3103E-02	3.63	0.00693
7	-371.95	1793.79	0.3078E-02	3.42	0.00696
8	-373.09	1775.47	0.7362E-03	3.63	0.00691
9	-373.10	1775.48	0.7359E-03	3.63	0.00691
10	-373.79	1689.54	0.5813E-02	8.09	0.00729

CHLOROFORM(1) - METHYL ISOBUTYL KETONE SYSTEM 038

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	113.4	0.0450	0.0944	2824.81	668.71	0.9879	0.9518	0.5560	1.0213	-0.6082	-602.53	-1529.04	-944.24
2	760.00	112.3	0.0670	0.1365	2755.71	647.57	0.9871	0.9513	0.5611	1.0264	-0.6038	-607.23	-1544.46	-952.83
3	760.00	109.3	0.1091	0.2254	2578.84	594.18	0.9855	0.9499	0.5983	1.0517	-0.5640	-619.56	-1586.25	-976.13
4	760.00	107.9	0.1470	0.2935	2499.29	570.51	0.9844	0.9494	0.5960	1.0429	-0.5595	-626.06	-1606.24	-987.28
5	760.00	102.2	0.2437	0.4736	2193.00	481.47	0.9815	0.9472	0.6591	1.0360	-0.4523	-652.02	-1691.45	-1034.80
6	760.00	97.4	0.3225	0.6002	1955.41	414.84	0.9794	0.9454	0.7064	1.0175	-0.3650	-675.53	-1768.60	-1077.84
7	760.00	92.1	0.4055	0.7158	1715.96	350.05	0.9774	0.9435	0.7619	0.9748	-0.2464	-703.14	-1859.25	-1128.43
8	760.00	85.5	0.5069	0.8245	1447.83	280.60	0.9752	0.9406	0.8302	0.9026	-0.0837	-740.38	-1981.66	-1196.73
9	760.00	78.1	0.6411	0.9097	1187.11	216.59	0.9728	0.9368	0.8811	0.8233	0.0679	-785.87	-2131.26	-1280.20
10	760.00	73.3	0.7325	0.9481	1035.26	181.13	0.9712	0.9338	0.9201	0.7566	0.1956	-818.46	-2238.61	-1340.08
11	760.00	66.4	0.8516	0.9860	844.87	138.82	0.9688	0.9287	1.0060	0.4774	0.7453	-868.76	-2404.51	-1432.58
12	760.00	61.8	0.9774	0.9990	735.36	115.70	0.9671	0.9248	1.0184	0.2675	1.3369	-904.45	-2522.42	-1498.28

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 536.60 P = 54.00 V = 276.00 OMEGA = 0.214 OMEGAH = 0.187 DIPOLE = 1.02 ETA = 0.28

2 T = 575.10 P = 36.10 V = 338.50 OMEGA = 0.400 OMEGAH = 0.302 DIPOLE = 1.65 ETA = 0.50

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69033E 01 B = 0.11630E 04 C = 0.22740E 03

2 A = 0.68256E 01 B = 0.12567E 04 C = 0.20240E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.61065E 02 B = 0.30264E-01 C = 0.11910E-03

2 A = 0.12020E 03 B = -.82574E-01 C = 0.33673E-03

VAPOR PRESSURE AT NBP

P = 749.5 AT T = 61.3

P = 760.3 AT T = 116.2

COMPONENT ID ECHO CHECK

ID NUMBER = 8

ID NUMBER = 29

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = -.55394E 00 B = -.32082E 00 C = 0.21919E 01

STANDARD DEVIATION = 0.91570E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 0.5747 G2INF = 0.2679

T1INF = 116.17 T2INF = 61.73

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS -0.2327

AREA BELOW THE X-AXIS IS 0.2490

CROSS-OVER POINT IS X = 0.58

NORMALIZED AREA DIFFERENCE IS -0.0338

HERINGTON J-FACTOR IS 24.38

CONSISTENCY INDEX IS -21.01

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-408.85	65.99	0.2416E-12	27.24	0.00735
2	-562.84	829.38	0.1357E-02	14.99	0.02100
3	-451.83	178.98	0.4219E-01	24.55	0.00876
4	-486.55	213.73	0.6460E-01	30.55	0.00713
5	-160.09	-256.32	0.9237E-02	11.12	0.01255
6	-336.91	-153.86	0.2659E-03	39.94	0.00241
7	-150.77	-291.68	0.9419E-02	14.89	0.01089
8	-204.31	-151.10	0.1958E-02	7.67	0.01544
9	-203.61	-152.19	0.1958E-02	7.68	0.01543
10	-468.85	219.37	0.4414E-01	24.48	0.00892

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION
SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

CYCLOHEXANE(1) — CYCLOHEXENE(2) SYSTEM 039

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	82.9	0.0281	0.0321	775.37	727.73	0.9625	0.9630	1.0734	0.9976	0.0733	-1094.38	-1080.60	-1087.36
2	760.00	82.8	0.0276	0.0312	773.81	726.24	0.9625	0.9630	1.0644	1.0000	0.0624	-1094.90	-1081.11	-1087.88
3	760.00	82.6	0.0627	0.0758	769.16	721.81	0.9624	0.9629	1.1451	0.9957	0.1398	-1096.45	-1082.65	-1089.43
4	760.00	82.8	0.0997	0.1139	772.92	725.40	0.9625	0.9630	1.0769	0.9890	0.0851	-1095.19	-1081.40	-1088.18
5	760.00	82.6	0.1742	0.1902	767.83	720.54	0.9624	0.9629	1.0359	0.9919	0.0434	-1096.90	-1083.09	-1089.87
6	760.00	82.4	0.2211	0.2428	764.97	717.81	0.9624	0.9628	1.0457	0.9870	0.0578	-1097.86	-1084.05	-1090.83
7	760.00	82.1	0.2939	0.3128	758.39	711.53	0.9623	0.9627	1.0222	0.9968	0.0252	-1100.10	-1086.26	-1093.05
8	760.00	82.2	0.3149	0.3438	758.82	711.95	0.9623	0.9627	1.0480	0.9804	0.0667	-1099.95	-1086.11	-1092.91
9	760.00	82.0	0.3770	0.4020	755.11	708.41	0.9622	0.9627	1.0285	0.9874	0.0408	-1101.22	-1087.37	-1094.17
10	760.00	81.9	0.4291	0.4610	753.59	706.96	0.9622	0.9626	1.0383	0.9731	0.0648	-1101.74	-1087.88	-1094.69
11	760.00	81.9	0.4538	0.4798	752.06	705.51	0.9621	0.9626	1.0239	0.9837	0.0401	-1102.26	-1088.40	-1095.21
12	760.00	81.3	0.4886	0.5085	750.76	704.26	0.9621	0.9626	1.0096	0.9944	0.0152	-1102.71	-1088.85	-1095.66
13	760.00	81.7	0.5395	0.5546	747.94	701.58	0.9621	0.9626	1.0009	1.0045	-0.0035	-1103.69	-1089.81	-1096.63
14	760.00	81.5	0.5776	0.5868	744.70	698.49	0.9620	0.9625	0.9934	1.0203	-0.0267	-1104.81	-1090.93	-1097.75
15	760.00	81.5	0.5998	0.6100	743.40	697.26	0.9620	0.9625	0.9962	1.0182	-0.0219	-1105.26	-1091.37	-1098.19
16	760.00	81.3	0.6547	0.6677	741.04	695.00	0.9620	0.9624	1.0021	1.0088	-0.0066	-1106.09	-1092.19	-1099.02
17	760.00	81.1	0.7070	0.7140	736.11	690.30	0.9619	0.9624	0.9985	1.0301	-0.0307	-1107.83	-1093.91	-1100.74

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 553.20 P = 40.00 V = 311.20 OMEGA = 0.210 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 559.20 P = 41.80 V = 285.20 OMEGA = 0.205 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68450E 01 B = 0.12035E 04 C = 0.22286E 03

2 A = 0.68862E 01 B = 0.12300E 04 C = 0.22410E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.92914E 02 B = -.24859E-01 C = 0.26157E-03

2 A = 0.92914E 02 B = -.24859E-01 C = 0.26157E-03

VAPOR PRESSURE AT NBP

P = 759.1 AT T = 80.7

P = 760.0 AT T = 83.0

COMPONENT ID ECHO CHECK

ID NUMBER = 9

ID NUMBER = 51

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.88495E-01 B = -.76385E-01 C = -.13671E 00

STANDARD DEVIATION = 0.24594E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.0925 G2INF = 1.1350

T1INF = 82.98 T2INF = 80.74

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0293

AREA BELOW THE X-AXIS IS -0.0255

CROSS-OVER POINT IS X = 0.57

NORMALIZED AREA DIFFERENCE IS 0.0681

HERINGTON J-FACTOR IS 0.95

CONSISTENCY INDEX IS 5.86

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	-166.61	277.04	0.3065E-09	12.99	0.00305
2	-401.45	585.12	0.5699E-04	1.10	0.00663
3	193.01	-128.76	0.1426E-01	8.33	0.00392
4	151.75	-92.05	0.1295E-01	8.10	0.00388
5	-308.34	426.53	0.1682E-02	2.57	0.00551
6	-245.98	405.63	0.4839E-03	14.40	0.00299
7	-324.03	453.96	0.1689E-02	2.56	0.00554
8	-343.16	472.51	0.6672E-04	1.10	0.00638
9	-343.16	472.51	0.6676E-04	1.10	0.00638
10	-442.12	766.99	0.1094E-01	9.75	0.00458

CYCLOHEXANE(1) 1,2-DICHLOROETHANE(2) SYSTEM 04C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	83.2	0.0065	0.0209	782.50	741.87	0.9514	0.9860	2.9594	0.9926	1.0924	-1092.02	-408.24	-930.13
2	760.00	82.8	0.0113	0.0426	772.70	732.04	0.9517	0.9860	3.5148	0.9883	1.2687	-1095.27	-409.48	-932.92
3	760.00	82.3	0.0206	0.0661	760.57	719.90	0.9520	0.9859	3.0401	0.9895	1.1224	-1099.35	-411.05	-936.43
4	760.00	81.7	0.0321	0.0891	748.38	707.70	0.9522	0.9857	2.6733	0.9933	0.9900	-1103.54	-412.66	-940.02
5	760.00	81.5	0.0326	0.0878	745.35	704.67	0.9521	0.9857	2.6042	0.9995	0.9576	-1104.59	-413.07	-940.93
6	760.00	80.9	0.0537	0.1279	732.48	691.83	0.9527	0.9855	2.3448	0.9949	0.8574	-1109.11	-414.82	-944.81
7	760.00	79.9	0.1165	0.2357	689.76	649.29	0.9538	0.9847	2.1177	0.9942	0.7561	-1124.80	-420.94	-958.29
8	760.00	77.5	0.1804	0.2869	661.69	621.43	0.9541	0.9842	1.7358	1.0442	0.5082	-1135.74	-425.25	-967.69
9	760.00	76.5	0.2582	0.3712	641.59	601.54	0.9551	0.9833	1.6199	1.0500	0.4336	-1143.90	-428.50	-974.71
10	760.00	75.7	0.3533	0.4478	626.97	586.99	0.9559	0.9824	1.4629	1.0829	0.3008	-1150.07	-430.96	-980.01
11	760.00	75.1	0.5631	0.5489	615.21	575.48	0.9569	0.9809	1.1476	1.3336	-0.1502	-1155.07	-432.98	-984.32
12	760.00	75.4	0.6979	0.6170	621.58	581.77	0.9578	0.9799	1.0311	1.6182	-0.4507	-1152.32	-431.87	-981.95
13	760.00	75.7	0.7473	0.6560	626.87	586.99	0.9583	0.9793	1.0157	1.7211	-0.5274	-1150.07	-430.96	-980.01
14	760.00	76.4	0.8103	0.7158	639.86	599.82	0.9590	0.9784	1.0022	1.8518	-0.6140	-1144.62	-428.79	-975.33
15	760.00	76.9	0.8395	0.7579	647.01	606.90	0.9595	0.9777	1.0134	1.8414	-0.5972	-1141.67	-427.61	-972.79
16	760.00	77.6	0.8826	0.8015	663.66	623.39	0.9600	0.9770	0.9943	2.0080	-0.7028	-1134.95	-424.94	-967.01
17	760.00	78.7	0.9280	0.8598	685.70	645.25	0.9607	0.9760	0.9826	2.2319	-0.8204	-1126.35	-421.55	-959.62
18	760.00	79.3	0.9521	0.9007	698.36	657.83	0.9611	0.9752	0.9855	2.3288	-0.8600	-1121.56	-419.67	-955.56
19	760.00	80.3	0.9545	0.9024	718.72	678.11	0.9614	0.9754	0.9573	2.3381	-0.8930	-1114.05	-416.74	-949.05
20	760.00	80.8	0.9731	0.9369	729.29	688.64	0.9617	0.9747	0.9610	2.5160	-0.9624	-1110.25	-415.26	-945.79
21	760.00	80.0	0.9754	0.9424	712.44	671.85	0.9614	0.9744	0.9869	2.5733	-0.9584	-1116.33	-417.63	-951.02

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 553.20 P = 40.00 V = 311.20 OMEGA = 0.210 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 579.20 P = 64.50 V = 191.40 OMEGA = 0.235 OMEGAH = 0.193 DIPOLE = 1.35 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68450E 01 B = 0.12035E 04 C = 0.22286E 03

2 A = 0.69522E 01 B = 0.12478E 04 C = 0.22300E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.92914E 02 B = -.24859E-01 C = 0.26157E-03

2 A = 0.52000E 02 B = 0.92001E-01 C = 0.0

VAPOR PRESSURE AT NBP

P = 759.1 AT T = 80.7

P = 759.8 AT T = 83.5

COMPONENT ID ECHO CHECK

ID NUMBER = 9

ID NUMBER = 52

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10967E 01 B = -.25867E 01 C = 0.55176E 00

STANDARD DEVIATION = 0.76993E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.9943 G2INF = 2.5553

T1INF = 83.48 T2INF = 80.74

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2489

AREA BELOW THE X-AXIS IS -0.2615

CROSS-OVER POINT IS X = 0.47

NORMALIZED AREA DIFFERENCE IS -0.0249

HERINGTON J-FACTOR IS 3.62

CONSISTENCY INDEX IS -1.13

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	317.12	508.26	0.9095E-12	20.15	0.00618
2	271.43	381.07	0.2897E-02	6.29	0.01507
3	359.66	471.90	C.6488E CO	19.61	0.00671
4	327.79	478.62	0.1045E 00	17.17	0.00633
5	273.91	443.23	C.85C2E-C2	6.89	0.00973
6	263.47	524.17	0.2668E-02	16.35	0.00596
7	277.24	451.15	C.9897E-02	8.18	0.00885
8	290.45	392.27	C.1548E-02	4.39	0.01290
9	290.45	392.27	0.1947E-02	4.39	0.01290
10	349.43	482.44	0.2980E-01	20.03	0.00658

DIAGNOSTIC

3 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

CYCLOHEXANE(1) FURFURAL(2) SYSTEM 041

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	147.9	0.0100	0.4171	3454.59	495.43	0.9736	0.9739	8.9002	0.8773	2.3170	-742.66	-815.13	-1030.19
2	760.00	99.2	0.1116	0.8936	1204.69	81.73	0.9675	0.9454	4.8684	1.0499	1.5341	-984.23	-1170.36	-1391.70
3	760.00	91.7	0.2001	0.9265	989.64	59.25	0.9654	0.9398	3.4191	1.1045	1.1300	-1032.56	-1256.03	-1466.69
4	760.00	85.8	0.3790	0.9489	841.41	45.56	0.9635	0.9350	2.1702	1.2796	0.5283	-1073.43	-1332.29	-1530.83
5	760.00	84.8	0.4536	0.9466	818.02	43.54	0.9631	0.9344	1.8599	1.5893	0.1572	-1080.63	-1346.08	-1542.19
6	760.00	84.1	0.4822	0.9543	801.94	42.17	0.9629	0.9336	1.7988	1.4805	0.1947	-1085.71	-1355.89	-1550.24
7	760.00	84.6	0.6022	0.9471	813.40	43.15	0.9631	0.9343	1.4095	2.1820	-0.4370	-1082.08	-1348.86	-1544.48
8	760.00	83.0	0.8435	0.9626	777.15	40.10	0.9625	0.9325	1.0699	4.2110	-1.3701	-1093.79	-1371.57	-1563.03
9	760.00	82.8	0.8897	0.9625	772.70	39.73	0.9625	0.9324	1.0200	6.0453	-1.7795	-1095.27	-1374.46	-1565.37
10	760.00	81.8	0.9521	0.9756	750.76	37.94	0.9621	0.9311	0.9940	9.4725	-2.2544	-1102.71	-1389.08	-1577.20

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 553.20 P = 40.00 V = 311.20 OMEGA = 0.210 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 656.00 P = 38.40 V = 375.20 OMEGA = 0.292 OMEGAH = 0.270 DIPOLE = 2.00 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68450E 01 B = -0.12035E 04 C = 0.22286E 03

2 A = 0.87299E 01 B = -0.25378E 04 C = 0.27315E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.92914E 02 B = -.24859E-01 C = 0.26157E-03

2 A = 0.63207E 02 B = -0.58328E-01 C = 0.29602E-04

VAPOR PRESSURE AT NBP

P = 759.1 AT T = 80.7

P = 785.6 AT T = 161.8

COMPONENT ID ECHO CHECK

ID NUMBER = 9

ID NUMBER = 15

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.21490E 01 B = -.41505E 01 C = -.30298E 00

STANDARD DEVIATION = 0.16204E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 8.5761 G2INF = 10.0197

T1INF = 160.73 T2INF = 80.74

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.5430

AREA BELOW THE X-AXIS IS -0.5703

CROSS-OVER POINT IS X = 0.50

NORMALIZED AREA DIFFERENCE IS -0.0245

HERINGTON J-FACTOR IS 33.90

CONSISTENCY INDEX IS -31.45

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	985.19	1250.34	0.7649E-09	21.31	0.00816
2	812.43	1438.37	0.1987E-01	10.63	0.01025
3	937.81	1580.54	0.6307E 00	31.67	0.00691
4	890.28	1558.63	0.6515E-01	24.24	0.00804
5	879.05	1405.31	0.1249E-01	14.56	0.00912
6	1126.81	1368.97	0.5556E-03	34.77	0.00414
7	876.69	1409.80	0.1393E-01	14.48	0.00914
8	791.21	1475.52	0.2261E-02	10.31	0.01046
9	791.21	1475.53	0.2260E-02	10.31	0.01046
10	938.97	1577.80	0.6733E-02	31.53	0.00690

CYCLOHEXANE(2) HEXANE(1) SYSTEM 042A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	580.00	70.0	0.1250	0.1790	748.65	525.73	0.9646	0.9675	1.0661	0.9984	0.0656	-1299.36	-1197.56	-1253.25
2	612.10	70.0	0.2500	0.3360	748.65	525.73	0.9627	0.9657	1.0536	0.9922	0.0601	-1299.36	-1197.56	-1253.25
3	642.60	70.0	0.3750	0.4650	748.65	525.73	0.9609	0.9640	1.0184	1.0051	0.0131	-1299.36	-1197.56	-1253.25
4	675.30	70.0	0.5000	0.5900	748.65	525.73	0.9589	0.9621	1.0161	1.0097	0.0064	-1299.36	-1197.56	-1253.25
5	705.20	70.0	0.6250	0.7080	748.65	525.73	0.9571	0.9604	1.0166	0.9993	0.0172	-1299.36	-1197.56	-1253.25
6	734.80	70.0	0.7420	0.8060	748.65	525.73	0.9553	0.9586	1.0136	1.0035	0.0100	-1299.36	-1197.56	-1253.25

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 507.90 P = 29.90 V = 372.40 OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 553.20 P = 40.20 V = 311.20 OMEGA = 0.210 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68778E 01 B = 0.11715E 04 C = 0.22437E 03

2 A = 0.68450E 01 B = 0.12035E 04 C = 0.22286E 03

VAPOR PRESSURE AT NBP

P = 759.0 AT T = 68.7

P = 759.1 AT T = 80.7

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12596E 03 B = -.14456E 00 C = 0.54720E-03

2 A = 0.92914E 02 B = -.24859E-01 C = 0.26157E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 18

ID NUMBER = 9

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10759E 00 B = -.32019E 00 C = 0.25871E 00

STANDARD DEVIATION = 0.13356E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.1136 G2INF = 0.9549

T1INF = 70.00 T2INF = 70.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

SQUARE ROOT OF NEGATIVE ARGUEMENT REQUIRED TO OBTAIN X-INTERCEPT

VALUE OF REQUIRED ARGUEMENT IS -.88118E-02

THERMODYNAMIC CONSISTENCY TEST IS ABORTED

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	706.70	-378.57	0.4208E-09	10.02	0.00910
2	-289.24	345.81	0.1015E-04	1.27	0.00400
3	-383.22	493.69	0.2531E-02	1.71	0.00392
4	-400.47	520.08	0.2406E-02	1.60	0.00395
5	-402.76	519.33	0.2644E-03	1.25	0.00395
6	-458.60	632.60	0.2090E-03	3.26	0.00406
7	-465.96	630.38	0.2037E-03	1.74	0.00407
8	-242.78	292.20	0.2012E-04	0.97	0.00401
9	-244.30	294.04	0.2013E-04	0.97	0.00401
10	-266.79	289.54	0.1628E 01	6.24	0.00506

CYCLOHEXANE(1) - HEXANE(2) SYSTEM 0428

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	70.0	0.1230	0.0960	526.56	749.77	0.9572	0.9538	1.0739	0.9917	0.0797	-1197.13	-1298.88	-1252.80
2	760.00	70.4	0.1600	0.1230	532.39	757.65	0.9574	0.9540	1.0463	0.9941	0.0512	-1194.12	-1295.56	-1249.61
3	760.00	70.8	0.2030	0.1600	539.96	767.87	0.9576	0.9542	1.0580	0.9904	0.0660	-1190.27	-1291.30	-1245.55
4	760.00	71.4	0.2600	0.2030	549.33	780.50	0.9578	0.9545	1.0304	0.9960	0.0340	-1185.59	-1286.13	-1240.60
5	760.00	72.0	0.3290	0.2600	560.55	795.62	0.9581	0.9548	1.0224	1.0008	0.0214	-1180.10	-1280.07	-1234.80
6	760.00	72.9	0.4090	0.3290	575.45	815.72	0.9585	0.9551	1.0141	1.0053	0.0087	-1172.98	-1272.20	-1227.28
7	760.00	73.7	0.4770	0.3930	589.84	834.99	0.9589	0.9555	1.0267	0.9961	0.0303	-1166.36	-1264.87	-1220.28
8	760.00	74.7	0.5620	0.4770	608.14	859.53	0.9593	0.9559	1.0134	1.0042	0.0091	-1158.16	-1255.80	-1211.61
9	760.00	75.4	0.6160	0.5320	621.21	877.03	0.9596	0.9562	1.0098	1.0049	0.0049	-1152.48	-1249.52	-1205.61
10	760.00	75.7	0.6470	0.5620	626.87	884.61	0.9597	0.9563	1.0066	1.0144	-0.0077	-1150.07	-1246.84	-1203.05
11	760.00	76.4	0.7000	0.6160	640.24	902.47	0.9600	0.9566	0.9988	1.0260	-0.0269	-1144.46	-1240.62	-1197.12
12	760.00	76.8	0.7300	0.6470	647.01	911.50	0.9602	0.9567	0.9956	1.0378	-0.0415	-1141.67	-1237.53	-1194.17
13	760.00	77.3	0.7740	0.7000	658.73	927.14	0.9604	0.9570	0.9981	1.0362	-0.0374	-1136.92	-1232.27	-1189.14
14	760.00	78.2	0.8330	0.7740	675.62	949.63	0.9608	0.9573	1.0002	1.0317	-0.0310	-1130.25	-1224.87	-1182.08
15	760.00	79.0	0.8790	0.8330	691.80	971.15	0.9611	0.9576	0.9965	1.0292	-0.0323	-1124.03	-1217.97	-1175.50
16	760.00	79.5	0.9180	0.8790	702.06	984.78	0.9613	0.9578	0.9924	1.0854	-0.0896	-1120.17	-1213.69	-1171.41

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 553.20 P = 40.00 V = 311.20 OMEGA = 0.210 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 507.90 P = 29.90 V = 372.40 OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68450E 01 B = 0.12035E 04 C = 0.22286E 03

2 A = 0.68778E 01 B = 0.11715E 04 C = 0.22437E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.92914E 02 B = -.24859E-01 C = 0.26157E-03

2 A = 0.12596E 03 B = -.14456E 00 C = 0.54720E-03

VAPOR PRESSURE AT NBP

P = 759.1 AT T = 80.7

P = 759.0 AT T = 68.7

COMPONENT ID ECHO CHECK

ID NUMBER = 9

ID NUMBER = 18

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.79037E-01 B = -.11292E 00 C = -.44310E-01

STANDARD DEVIATION = 0.15950E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.0822 G2INF = 1.0813

T1INF = 68.74 T2INF = 80.74

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0240

AREA BELOW THE X-AXIS IS -0.0162

CROSS-OVER POINT IS X = 0.57

NORMALIZED AREA DIFFERENCE IS 0.1945

HERINGTON J-FACTOR IS 4.13

CONSISTENCY INDEX IS 15.32

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	148.51	-93.50	0.9095E-12	7.38	0.00257
2	4.69	35.56	0.4149E-04	1.28	0.00330
3	-15.71	85.67	0.4284E-02	4.89	0.00236
4	-21.04	91.83	0.3982E-02	4.72	0.00237
5	-102.61	190.86	0.4847E-03	1.62	0.00283
6	-116.41	239.90	0.2022E-03	6.20	0.00221
7	-111.97	205.79	0.5716E-03	1.71	0.00281
8	-115.36	203.02	0.6000E-04	1.24	0.00327
9	-115.40	203.07	0.5997E-04	1.24	0.00327
10	-25.11	98.00	0.3217E 00	4.85	0.00236

CYCLOHEXANE(1) — METHYL CELLOSOLVE(2) SYSTEM 043

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	105.1	0.0560	0.4849	1485.74	411.05	1.0000	1.0000	4.4121	1.0061	1.4783	0.0	0.0	0.0
2	760.00	97.0	0.0840	0.6105	1201.24	308.31	1.0000	1.0000	4.5802	1.0452	1.4775	0.0	0.0	0.0
3	760.00	78.1	0.5726	0.7934	698.94	149.61	1.0000	1.0000	1.5006	2.4483	-0.4896	0.0	0.0	0.0
4	760.00	77.5	0.8327	0.8365	686.25	146.03	1.0000	1.0000	1.1080	5.0713	-1.5210	0.0	0.0	0.0
5	760.00	78.5	0.9556	0.8843	707.50	152.05	1.0000	1.0000	0.9900	12.9875	-2.5740	0.0	0.0	0.0

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 553.20 P = 40.00 V = 311.20 OMEGA = 0.210 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 0.0 P = 0.0 V = 0.0 OMEGA = 0.0 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68450E 01 B = 0.12035E 04 C = 0.22286E 03

2 A = 0.83298E 01 B = 0.21618E 04 C = 0.27315E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.92914E 02 B = -.24859E-01 C = 0.26157E-03

2 A = 0.67468E 02 B = 0.16858E-02 C = 0.12858E-03

VAPOR PRESSURE AT NBP

P = 759.1 AT T = 80.7

P = 770.1 AT T = 124.0

COMPONENT ID ECHO CHECK

ID NUMBER = 9

ID NUMBER = 25

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.16495E 01 B = -.24398E 01 C = -.19409E 01

STANDARD DEVIATION = 0.18679E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 5.2042 G2INF = 15.3526

T1INF = 123.58 T2INF = 80.74

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4392

AREA BELOW THE X-AXIS IS -0.6567

CROSS-OVER POINT IS X = 0.49

NORMALIZED AREA DIFFERENCE IS -0.1984

HERINGTON J-FACTOR IS 19.71

CONSISTENCY INDEX IS 0.13

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	363.95	1750.21	0.1502E-06	27.97	0.03046
2	950.63	2080.36	0.4828E-02	118.36	0.05964
3	377.07	2544.62	0.2001E 01	17.41	0.02771
4	399.49	2397.26	0.1629E 00	15.27	0.02887
5	367.01	2204.11	0.1462E-01	16.50	0.02674
6	389.81	2024.14	0.1141E-01	17.87	0.02755
7	423.71	1748.96	0.9704E-02	25.91	0.02938
8	358.09	2277.59	0.3052E-02	16.08	0.02649
9	358.09	2277.59	0.3052E-02	16.08	0.02649
10	319.38	2675.46	0.1822E-01	17.37	0.02571

DIAGNOSTIC

2 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

CYCLOHEXANE(1) 2-PROPANOL(2) SYSTEM 044A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	500.00	67.3	0.0290	0.1320	482.42	394.31	0.9660	0.9903	4.5451	1.1205	1.4003	-1221.27	-405.06	-965.85
2	500.00	67.0	0.0680	0.2530	477.78	388.85	0.9673	0.9900	3.7560	1.0184	1.3052	-1223.95	-405.79	-967.88
3	500.00	63.1	0.1380	0.3940	420.56	323.18	0.9673	0.9890	3.2744	1.0736	1.1151	-1259.81	-415.56	-994.96
4	500.00	61.2	0.2130	0.4760	394.69	294.51	0.9673	0.9882	2.7310	1.1150	0.8959	-1277.96	-420.57	-1008.62
5	500.00	60.1	0.2660	0.5170	380.28	278.85	0.9672	0.9878	2.4650	1.1633	0.7509	-1288.67	-423.55	-1016.69
6	500.00	59.1	0.3130	0.5380	367.54	265.20	0.9670	0.9875	2.2550	1.2497	0.5903	-1298.56	-426.30	-1024.11
7	500.00	58.3	0.4080	0.5780	357.59	254.65	0.9670	0.9871	1.9103	1.3789	0.3260	-1306.56	-428.55	-1030.12
8	500.00	58.0	0.4750	0.5980	353.91	250.79	0.9670	0.9869	1.7153	1.5037	0.1316	-1309.58	-429.39	-1032.39
9	500.00	57.8	0.5560	0.6190	351.48	248.23	0.9671	0.9866	1.5274	1.7021	-0.1083	-1311.60	-429.96	-1033.90
10	500.00	57.8	0.6370	0.6320	351.48	248.23	0.9672	0.9865	1.3613	2.0106	-0.3900	-1311.60	-429.96	-1033.90
11	500.00	57.9	0.7340	0.6640	352.70	249.51	0.9674	0.9862	1.2372	2.4916	-0.7001	-1310.59	-429.68	-1033.15
12	500.00	58.5	0.8180	0.6870	360.06	257.26	0.9677	0.9860	1.1255	3.2896	-1.0725	-1304.55	-427.98	-1028.61
13	500.00	59.1	0.8840	0.7130	367.54	265.20	0.9680	0.9858	1.0592	4.5899	-1.4663	-1298.56	-426.30	-1024.11
14	500.00	61.9	0.9630	0.8160	404.07	304.83	0.9693	0.9850	1.0136	8.0194	-2.0684	-1271.22	-418.71	-1003.55

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 553.20 P = 40.00 V = 311.20 OMEGA = 0.210 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68450E 01 B = 0.12035E 04 C = 0.22286E 03

2 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293E 03

VAPOR PRESSURE AT NBP

P = 759.1 AT T = 80.7

P = 769.7 AT T = 82.5

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.92914E 02 B = -.24859E-01 C = 0.26157E-03

2 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 9

ID NUMBER = 22

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.13901E 01 B = -.17712E 01 C = -.16976E 01

STANDARD DEVIATION = 0.8827CE-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 4.0154 G2INF = 7.9939

T1INF = 72.31 T2INF = 67.42

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4039

AREA BELOW THE X-AXIS IS -0.4652

CROSS-OVER POINT IS X = 0.52

NORMALIZED AREA DIFFERENCE IS -0.0706

HERINGTON J-FACTOR IS 6.58

CONSISTENCY INDEX IS 0.48

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	158.31	1348.20	C.2C83E-C9	33.97	0.01630
2	493.74	1417.35	0.1077E-01	13.00	0.02347
3	242.96	1562.80	C.1977E 00	11.95	0.01371
4	266.16	1525.57	0.5533E-01	11.46	0.01354
5	309.02	1502.41	0.1885E-01	9.12	0.01458
6	266.98	1365.27	C.4449E-02	20.02	0.01168
7	294.68	1472.99	C.1632E-01	11.40	0.01356
8	323.46	1561.65	0.9130E-02	8.31	C.01824
9	323.43	1561.36	C.9130E-02	8.30	0.01823
10	236.62	1566.65	0.3841E-02	12.41	0.01363

CYCLOHEXANE(1) 2-PROPANOL(2) SYSTEM 0448

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	69.3	0.4730	0.5550	515.04	433.17	0.9551	0.9826	1.6470	1.4516	0.1263	-1203.20	-400.20	-952.16
2	760.00	69.4	0.4420	0.5500	515.37	433.56	0.9551	0.9826	1.7454	1.3852	0.2312	-1203.02	-400.16	-952.03
3	760.00	69.0	0.5380	0.5820	509.51	426.53	0.9552	0.9822	1.5350	1.5789	-0.0282	-1206.16	-401.00	-954.41
4	760.00	69.1	0.7080	0.6270	510.97	428.28	0.9556	0.9817	1.2536	2.2189	-0.5710	-1205.38	-400.79	-953.81
5	760.00	69.4	0.7840	0.6600	516.67	435.14	0.9560	0.9813	1.1790	2.6900	-0.8249	-1202.33	-399.97	-951.50
6	760.00	69.2	0.5160	0.5700	512.66	430.23	0.9552	0.9824	1.5580	1.5374	0.0133	-1204.50	-400.55	-953.15
7	760.00	68.8	0.5280	0.5830	506.13	422.46	0.9551	0.9822	1.5771	1.5566	0.0131	-1208.00	-401.49	-955.80
8	760.00	69.2	0.6310	0.6050	512.76	430.43	0.9555	0.9820	1.3523	1.8507	-0.3138	-1204.42	-400.53	-953.08
9	760.00	69.4	0.7420	0.6490	516.18	434.55	0.9559	0.9814	1.2260	2.3285	-0.6415	-1202.59	-400.04	-951.70
10	760.00	69.7	0.8070	0.6730	520.12	439.30	0.9562	0.9811	1.1604	2.8677	-0.9047	-1200.51	-399.48	-950.12
11	760.00	70.1	0.8620	0.6970	527.55	448.31	0.9565	0.9808	1.1097	3.6405	-1.1881	-1196.62	-398.44	-947.17
12	760.00	71.5	0.9210	0.7730	551.04	477.05	0.9576	0.9799	1.1039	4.4730	-1.3992	-1184.74	-395.28	-938.15
13	760.00	74.0	0.9900	0.8380	595.46	532.54	0.9589	0.9793	1.0317	22.5767	-3.0857	-1163.81	-389.77	-922.24
14	760.00	76.7	0.9950	0.8930	646.62	598.13	0.9601	0.9789	1.0087	26.5411	-3.2701	-1141.83	-384.04	-905.49
15	760.00	75.0	0.1160	0.2830	612.97	554.79	0.9546	0.9857	2.8757	1.0921	0.9682	-1156.05	-387.74	-916.33
16	760.00	74.8	0.1200	0.2760	609.99	550.99	0.9544	0.9857	2.7239	1.1154	0.8928	-1157.35	-388.07	-917.32
17	760.00	70.2	0.3060	0.4890	528.89	449.93	0.9549	0.9834	2.1838	1.2197	0.5825	-1195.93	-398.26	-946.64
18	760.00	69.1	0.5180	0.5680	511.14	426.47	0.9551	0.9824	1.5509	1.5573	-0.0041	-1205.29	-400.76	-953.74
19	760.00	69.1	0.5160	0.5720	511.62	429.06	0.9552	0.9824	1.5664	1.5344	0.0207	-1205.03	-400.69	-953.55
20	760.00	69.0	0.4850	0.5480	509.68	426.72	0.9549	0.9826	1.6023	1.5316	0.0451	-1206.08	-400.97	-954.34
21	760.00	69.1	0.5710	0.5820	510.65	427.89	0.9552	0.9822	1.4431	1.6950	-0.1609	-1205.55	-400.83	-953.94
22	760.00	69.1	0.6400	0.5950	510.32	427.50	0.9553	0.9821	1.3173	1.9585	-0.3966	-1205.73	-400.88	-954.07
23	760.00	74.7	0.9780	0.8500	608.88	549.57	0.9592	0.9792	1.0363	9.2069	-2.1843	-1157.84	-388.20	-917.69
24	760.00	70.3	0.8730	0.7090	530.88	452.36	0.9567	0.9807	1.1078	3.7646	-1.2233	-1194.90	-397.98	-945.86
25	760.00	78.7	0.0270	0.1120	685.90	649.63	0.9538	0.9867	4.3661	1.0506	1.4245	-1126.27	-380.03	-893.62
26	760.00	76.9	0.0700	0.2180	650.12	602.68	0.9545	0.9862	3.4611	1.0428	1.1997	-1140.40	-383.67	-904.40

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1	T = 553.20	P = 40.00	V = 311.20	OMEGA = 0.210	OMEGAH = 0.0	DIPOLE = 0.0	ETA = 0.0
2	T = 508.50	P = 47.00	V = 218.50	OMEGA = 0.663	OMEGAH = 0.187	DIPOLE = 1.60	ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1	A = 0.68450E 01	B = 0.12035E 04	C = 0.22286E 03
2	A = 0.66604E 01	B = 0.81305E 03	C = 0.13293E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1	A = 0.92914E 02	B = -.24859E-01	C = 0.26157E-03
2	A = 0.14178E 03	B = -.49807E 00	C = 0.92870E-03

VAPOR PRESSURE AT NBP

P = 759.1 AT T = 80.7

P = 769.7 AT T = 82.5

COMPONENT ID ECHO CHECK

ID NUMBER = 9

ID NUMBER = 22

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10919E 01 B = -.66512E-01 C = -.34976E 01

STANDARD DEVIATION = 0.32068E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.9800 G2INF = 11.8480

T1INF = 82.19 T2INF = 80.74

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3965

AREA BELOW THE X-AXIS IS -0.5037

CROSS-OVER POINT IS X = 0.55

NORMALIZED AREA DIFFERENCE IS -0.1191

HERINGTON J-FACTOR IS 5.87

CONSISTENCY INDEX IS 6.03

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-114.47	1865.40	0.3647E-09	54.92	0.03410
2	311.09	1593.69	0.1118E-01	17.51	0.02956
3	-312.42	2854.03	0.2715E 02	65.67	0.04884
4	42.25	2063.37	0.6952E 00	17.47	0.03165
5	157.78	1761.25	0.7696E-01	11.88	0.02848
6	161.76	1401.27	0.4673E-01	37.60	0.02071
7	213.80	1521.45	0.4995E-01	18.50	0.02450
8	107.39	2036.71	0.1636E-01	12.80	0.03206
9	107.87	2034.59	0.1637E-01	12.79	0.03204
10	33.39	2391.65	0.6609E-01	14.93	0.03446

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

CYCLOHEXENE(1) — 1,2-DICHLOROETHANE(2) — SYSTEM 045

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	82.9	0.9935	C.9852	727.3C	734.26	0.9630	C.9742	0.9939	2.2892	-0.8344	-1080.74	-409.20	-923.72
2	760.00	82.7	0.9854	0.9672	723.50	730.27	0.9629	0.9746	0.9888	2.2720	-0.8319	-1082.06	-409.71	-924.85
3	760.00	82.5	0.9735	0.9514	718.86	725.4C	C.9628	C.9749	C.9908	1.8678	-0.6340	-1083.68	-410.34	-926.24
4	760.00	82.1	0.9385	0.9010	710.49	716.61	0.9626	0.9759	0.9846	1.6613	-0.5232	-1086.63	-411.48	-928.78
5	760.00	81.6	0.9276	0.8835	7CC.14	7C5.75	C.9624	C.9762	0.9910	1.6867	-0.5318	-1090.33	-412.92	-931.97
6	760.00	81.2	0.8775	0.8270	691.93	697.16	0.9620	C.9773	0.9918	1.5C03	-0.4138	-1093.31	-414.09	-934.53
7	760.00	80.8	0.8428	0.7918	683.8C	688.64	0.9617	0.9780	1.0002	1.4253	-0.3542	-1096.31	-415.26	-937.11
8	760.00	80.5	0.8124	0.7598	677.35	681.89	C.9614	C.9785	1.0048	1.3923	-0.3262	-1098.71	-416.20	-939.18
9	760.00	80.2	0.7808	0.7251	672.14	676.44	C.9611	C.9791	1.0051	1.3756	-0.3138	-1100.67	-416.97	-940.87
10	760.00	79.9	0.7318	0.6743	665.77	669.77	0.9606	0.9799	1.0063	1.3464	-0.2911	-1103.09	-417.93	-942.95
11	760.00	79.8	0.7047	0.6547	662.8C	666.67	0.9604	0.9802	1.0190	1.3029	-0.2458	-1104.23	-418.38	-943.93
12	760.00	79.4	0.6349	0.5944	656.90	660.50	C.9597	C.9811	1.0353	1.2505	-0.1888	-1106.51	-419.28	-945.90
13	760.00	79.1	0.5144	0.5040	650.05	653.34	0.9586	0.9823	1.0936	1.1637	-0.0622	-1109.19	-420.33	-948.20
14	760.00	79.2	0.5056	0.5059	651.61	654.97	C.9586	C.9823	1.1142	1.1358	-0.0192	-1108.57	-420.09	-947.68
15	760.00	79.4	0.4512	0.4629	655.52	659.C6	C.9581	C.9829	1.1351	1.1060	0.0260	-1107.05	-419.49	-946.36
16	760.00	79.5	0.3564	0.4042	658.86	662.55	0.9574	0.9835	1.2475	1.0414	0.1806	-1105.75	-418.98	-945.25
17	760.00	79.5	C.3387	0.4079	658.86	662.55	0.9575	0.9835	1.3247	1.0071	0.2741	-1105.75	-418.98	-945.25
18	760.00	79.7	0.2978	0.3752	662.21	666.05	0.9571	0.9838	1.3783	0.9959	0.3249	-1104.46	-418.47	-944.13
19	760.00	80.2	0.2401	0.3382	671.74	676.02	0.9567	0.9842	1.5185	C.9608	0.4577	-1100.82	-417.03	-941.00
20	760.00	80.8	0.1671	0.256C	684.21	689.06	0.9556	0.9849	1.6196	0.9675	0.5152	-1096.16	-415.20	-936.98
21	760.00	81.5	C.1215	0.1886	698.08	703.60	0.9546	0.9854	1.6068	0.9802	0.4943	-1091.07	-413.21	-932.61
22	760.00	81.8	0.0969	0.1590	704.26	710.08	0.9542	0.9855	1.6829	C.9794	0.5413	-1088.85	-412.35	-930.69
23	760.00	82.2	C.0719	0.1214	712.58	718.81	0.9536	0.9857	1.7105	C.9838	0.5531	-1085.89	-411.19	-928.15
24	760.00	82.8	0.0367	0.0673	725.19	732.64	C.9528	0.9859	1.8238	0.9882	0.6128	-1081.48	-409.48	-924.35
25	760.00	83.3	0.0200	0.0398	735.39	742.76	0.9524	0.9860	1.9509	0.9857	0.6827	-1077.97	-408.13	-921.33
26	760.00	83.6	C.004C	C.0078	743.34	751.11	0.9519	0.9861	1.8902	0.9911	C.6457	-1075.28	-407.09	-919.02
27	760.00	83.6	0.0038	0.0069	743.34	751.11	0.9519	0.9861	1.7601	0.9918	0.5736	-1075.28	-407.09	-919.02

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1	T = 559.20	P = 41.8C	V = 285.2C	OMEGA = 0.205	OMEGAH = 0.0	DIPOLE = 0.0	ETA = 0.0
2	T = 579.20	P = 64.50	V = 191.40	OMEGA = 0.235	OMEGAH = 0.193	DIPOLE = 1.35	ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1	A = 0.68862E 01	B = 0.12300E 04	C = 0.22410E 03
2	A = 0.69522E 01	B = 0.12478E 04	C = 0.22300E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1	A = 0.92914E 02	B = -.24859E-C1	C = 0.26157E-03
2	A = 0.52000E 02	B = 0.92001E-01	C = 0.0

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 83.0

P = 759.8 AT T = 83.5

COMPONENT ID ECHO CHECK

ID NUMBER = 51

ID NUMBER = 52

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.64622E CC B = -.10648E 01 C = -.28364E 00

STANDARD DEVIATION = 0.71157E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.9083 G2INF = 2.0181

T1INF = 83.48 T2INF = 82.98

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1789

AREA BELOW THE X-AXIS IS -0.1596

CROSS-OVER POINT IS X = 0.53

NORMALIZED AREA DIFFERENCE IS 0.0570

HERINGTON J-FACTOR IS 1.94

CONSISTENCY INDEX IS 3.76

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER	VALUES	OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-32.21	554.26	0.0	26.13	0.00748
2	-101.02	428.87	0.8641E-03	3.41	0.01575
3	-102.50	618.53	0.4364E 00	23.80	0.00822
4	-50.10	532.08	0.1591E 00	20.26	0.00746
5	18.94	372.15	0.1406E-01	7.13	0.01049
6	80.79	427.35	0.4584E-02	24.09	0.00636
7	-16.72	415.41	0.1530E-01	8.52	0.00998
8	9.10	338.86	0.3064E-03	1.90	0.01397
9	9.09	338.86	0.3062E-03	1.90	0.01397
10	-95.70	611.34	0.7466E-01	23.94	0.00812

DECANE(1) — 1-BUTANOL(2) SYSTEM 046

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	386.10	100.0	0.0100	0.0200	70.85	381.01	0.9532	0.9808	10.3509	0.9822	2.3551	-3711.96	-1158.66	-1983.35
2	385.00	100.0	0.0250	0.0400	70.85	381.01	0.9527	0.9809	8.2533	0.9742	2.1367	-3711.96	-1158.66	-1983.35
3	384.30	100.0	0.0330	0.0390	70.85	381.01	0.9528	0.9809	6.0859	0.9816	1.8246	-3711.96	-1158.66	-1983.35
4	385.00	100.0	0.0450	0.0450	70.85	381.01	0.9526	0.9809	5.1576	0.9895	1.6511	-3711.96	-1158.66	-1983.35
5	384.70	100.0	0.0480	0.0470	70.85	381.01	0.9526	0.9809	5.0461	0.9897	1.6289	-3711.96	-1158.66	-1983.35
6	390.70	100.0	0.0960	0.0620	70.85	381.01	0.9526	0.9811	3.2540	1.0155	1.1768	-3711.96	-1158.66	-1983.35
7	380.00	100.0	0.1270	0.0820	70.85	381.01	0.9522	0.9812	3.2856	1.0273	1.1626	-3711.96	-1158.66	-1983.35
8	376.50	100.0	0.1530	0.0930	70.85	381.01	0.9523	0.9814	3.0651	1.0368	1.0840	-3711.96	-1158.66	-1983.35
9	371.70	100.0	0.2150	0.1060	70.85	381.01	0.9526	0.9817	2.4552	1.0889	0.8131	-3711.96	-1158.66	-1983.35
10	364.00	100.0	0.2840	0.1220	70.85	381.01	0.9532	0.9821	2.0964	1.1487	0.6016	-3711.96	-1158.66	-1983.35
11	359.80	100.0	0.3120	0.1420	70.85	381.01	0.9532	0.9824	2.1956	1.1551	0.6423	-3711.96	-1158.66	-1983.35
12	354.00	100.0	0.3750	0.1400	70.85	381.01	0.9540	0.9827	1.7736	1.2543	0.3464	-3711.96	-1158.66	-1983.35
13	350.70	100.0	0.3980	0.1560	70.85	381.01	0.9541	0.9829	1.8449	1.2664	0.3762	-3711.96	-1158.66	-1983.35
14	334.30	100.0	0.5630	0.1630	70.85	381.01	0.9560	0.9837	1.3019	1.6507	-0.2374	-3711.96	-1158.66	-1983.35
15	319.50	100.0	0.6500	0.1900	70.85	381.01	0.9574	0.9846	1.2582	1.9080	-0.4164	-3711.96	-1158.66	-1983.35
16	315.10	100.0	0.6800	0.2250	70.85	381.01	0.9573	0.9850	1.4046	1.9701	-0.3383	-3711.96	-1158.66	-1983.35
17	292.80	100.0	0.7800	0.2120	70.85	381.01	0.9606	0.9859	1.0759	2.7104	-0.9239	-3711.96	-1158.66	-1983.35
18	273.40	100.0	0.8450	0.2200	70.85	381.01	0.9630	0.9869	0.9650	3.5595	-1.3052	-3711.96	-1158.66	-1983.35
19	278.10	100.0	0.9700	0.2320	70.85	381.01	0.9622	0.9868	1.0045	4.2497	-1.4424	-3711.96	-1158.66	-1983.35

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 617.70 P = 20.70 V = 620.00 OMEGA = 0.490 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 562.90 P = 43.60 V = 223.30 OMEGA = 0.667 OMEGAH = 0.252 DIPOLE = 1.65 ETA = 0.45

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69537E 01 B = 0.15013E 04 C = 0.19448E 03

2 A = 0.73637E 01 B = 0.13052E 04 C = 0.17343E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.17018E 03 B = -.67181E-02 C = 0.36985E-03

2 A = 0.87376E 02 B = -.73723E-01 C = 0.30337E-03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 174.1

P = 767.4 AT T = 118.0

COMPONENT ID ECHO CHECK

ID NUMBER = 44

ID NUMBER = 43

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.19428E 01 B = -.46513E 01 C = 0.11652E 01

STANDARD DEVIATION = 0.22223E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 6.9785 G2INF = 4.6797

T1INF = 100.00 T2INF = 100.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4397

AREA BELOW THE X-AXIS IS -0.4342

CROSS-OVER POINT IS X = 0.47

NORMALIZED AREA DIFFERENCE IS 0.0064

CONSISTENCY INDEX IS 0.64

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	469.02	1152.73	0.2289E-C7	12.27	0.01350
2	73.28	1529.06	0.1359E-01	5.20	0.01230
3	1060.44	736.7C	C.9745E 01	22.59	0.02410
4	493.34	1188.36	0.4406E 00	13.18	0.01324
5	-12.61	1921.01	0.1030E-01	2.69	0.C1238
6	130.33	1777.32	0.6554E-02	7.31	0.01084
7	6.78	1932.55	0.1018E-01	3.13	0.01224
8	-42.59	1981.64	0.2567E-02	2.75	0.01277
9	-42.45	1981.17	C.2567E-02	2.75	0.01277
10	551.32	1386.21	0.7898E-01	18.13	0.01331

2,3-DIMETHYLBUTANE(1) — ACETONE(2) SYSTEM 047

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	50.8	0.071C	0.198C	576.49	596.59	0.963C	C.9502	3.5223	1.0420	1.2180	-1308.01	-1342.C5	-1073.93
2	760.00	47.5	0.1730	0.3370	517.76	531.96	0.9577	0.9497	2.7243	1.0846	0.9210	-1341.77	-1380.53	-1101.03
3	760.CO	46.C	C.2970	0.4070	492.62	504.43	0.9552	0.9499	2.0091	1.2037	0.5123	-1357.61	-1398.44	-1113.74
4	760.00	45.8	0.3220	0.4150	489.34	500.84	0.9549	0.9499	1.9016	1.2401	0.4275	-1359.74	-1400.85	-1115.46
5	760.00	45.7	0.3970	0.4560	487.7C	499.C5	C.9540	C.9506	1.6987	1.3022	0.2658	-1360.81	-1402.C6	-1116.31
6	760.00	45.6	0.4960	0.4940	486.37	497.27	0.9531	0.9513	1.4766	1.4554	0.0145	-1361.88	-1403.27	-1117.18
7	760.00	45.6	C.5360	0.5110	486.07	497.27	0.9527	0.9516	1.4129	1.5283	-0.0785	-1361.88	-1403.27	-1117.18
8	760.00	46.0	0.6690	0.5570	492.62	504.43	0.9521	0.9528	1.2166	1.9157	-0.4540	-1357.61	-1398.44	-1113.74
9	760.00	46.6	C.7490	0.5950	502.56	515.30	0.9517	0.9540	1.1375	2.2637	-C.6882	-1351.24	-1391.25	-1108.63
10	760.00	50.6	0.9100	0.7480	572.80	592.51	0.9519	0.9600	1.0328	3.4378	-1.2026	-1310.02	-1344.34	-1075.54
11	760.00	55.2	0.975C	0.9040	662.44	691.94	0.9532	0.9666	1.0088	4.0652	-1.3937	-1265.17	-1292.60	-1039.50

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 500.30 P = 31.00 V = 358.00 OMEGA = 0.247 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 508.70 P = 46.60 V = 213.50 OMEGA = 0.309 OMEGAH = 0.187 DIPOLE = 2.88 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = C.69098E C1 B = 0.11272E 04 C = 0.22890E 03

2 A = 0.70200E 01 B = 0.11610E 04 C = 0.22400E 03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 5E.0

P = 760.3 AT T = 56.5

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.11157E 03 B = -.5198CE-01 C = 0.39444E-03

2 A = C.56865E C2 B = 0.84265E-02 C = 0.16507E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 35

ID NUMBER = 2

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.13760E 01 B = -.27145E 01 C = -.10968E 00

STANDARD DEVIATION = 0.38797E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 3.9590 G2INF = 4.2554

T1INF = 56.49 T2INF = 57.99

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3441

AREA BELOW THE X-AXIS IS -0.3619

CROSS-OVER POINT IS X = 0.50

NORMALIZED AREA DIFFERENCE IS -0.0252

HERINGTON J-FACTOR IS 5.12

CONSISTENCY INDEX IS -2.60

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	134.62	973.59	0.3464E-08	30.54	0.00690
2	370.29	958.58	0.7292E-03	5.50	0.01548
3	226.54	963.13	0.3191E-01	16.53	0.00529
4	246.12	958.13	0.1236E-01	14.13	0.00641
5	288.79	966.97	0.3719E-02	5.85	0.01031
6	212.43	927.61	0.7284E-03	24.69	0.00441
7	294.09	951.58	0.3837E-02	7.59	0.00954
8	310.27	981.35	0.4265E-04	1.27	0.01297
9	310.34	981.41	0.4273E-04	1.27	0.01298
10	222.07	966.00	0.2017E-02	16.80	0.00517

2,3-DIMETHYLBUTANE(1) CHLOROFORM(2) SYSTEM 048

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	59.2	0.0870	0.1300	748.58	676.39	0.9585	0.9661	1.4467	1.0312	0.3386	-1228.21	-926.47	-1014.47
2	760.00	58.1	0.1760	0.2300	724.11	653.01	0.9573	0.9658	1.3063	1.0471	0.2212	-1238.20	-935.85	-1022.68
3	760.00	57.0	0.2750	0.3260	700.24	630.25	0.9561	0.9656	1.2240	1.0791	0.1259	-1248.31	-945.39	-1031.00
4	760.00	56.5	0.3670	0.4060	689.58	620.11	0.9554	0.9657	1.1590	1.1072	0.0457	-1252.96	-949.77	-1034.82
5	760.00	56.0	0.5090	0.5250	679.05	610.10	0.9545	0.9661	1.0963	1.1606	-0.0570	-1257.63	-954.19	-1038.66
6	760.00	56.0	0.5880	0.5880	679.05	610.10	0.9543	0.9664	1.0626	1.2001	-0.1217	-1257.63	-954.19	-1038.66
7	760.00	56.1	0.6880	0.6710	681.14	612.09	0.9540	0.9670	1.0329	1.2622	-0.2005	-1256.70	-953.31	-1037.89
8	760.00	56.5	0.7850	0.7600	689.58	620.11	0.9539	0.9678	1.0127	1.3199	-0.2649	-1252.96	-949.77	-1034.82
9	760.00	57.0	0.8940	0.8720	700.24	630.25	0.9540	0.9689	1.0048	1.4065	-0.3363	-1248.31	-945.39	-1031.00

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 500.30 P = 31.00 V = 358.00 OMEGA = 0.247 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 536.60 P = 54.00 V = 276.00 OMEGA = 0.214 OMEGAH = 0.187 DIPOLE = 1.02 ETA = 0.28

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68098E 01 B = 0.11272E 04 C = 0.22890E 03

2 A = 0.69033E 01 B = 0.11630E 04 C = 0.22740E 03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 58.0

P = 749.5 AT T = 61.3

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.11157E 03 B = -.51980E-01 C = 0.39444E-03

2 A = 0.61065E 02 B = 0.30264E-01 C = 0.11910E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 35

ID NUMBER = 8

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.41800E 00 B = -.11064E 01 C = 0.30008E 00

STANDARD DEVIATION = 0.10666E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.5185 G2INF = 1.4745

T1INF = 61.73 T2INF = 57.99

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0854

AREA BELOW THE X-AXIS IS -0.1206

CROSS-OVER POINT IS X = 0.43

NORMALIZED AREA DIFFERENCE IS -0.1708

HERINGTON J-FACTOR IS 2.61

CONSISTENCY INDEX IS 14.47

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-124.87	407.64	0.0	12.56	0.00798
2	345.00	145.87	0.1134E-03	2.05	0.00731
3	-11.07	329.85	0.1127E-01	8.47	0.00708
4	34.10	296.13	0.7952E-02	8.41	0.00664
5	256.07	175.48	0.1302E-02	3.55	0.00572
6	237.68	148.21	0.5271E-03	13.46	0.00479
7	336.29	133.13	0.1343E-02	4.24	0.00588
8	251.94	189.81	0.6737E-04	1.54	0.00663
9	251.83	189.88	0.6737E-04	1.54	0.00663
10	-13.93	331.00	0.2741E-01	8.72	0.00710

2,3-DIMETHYLBUTANE(1) METHANOL(2) SYSTEM 049

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	60.4	0.0090	0.1390	775.96	614.44	C.98C2	0.9553	14.7520	1.0250	2.6667	-1217.47	-1240.22	-778.51
2	760.00	55.3	0.0240	0.2970	664.50	501.28	0.9709	0.9544	13.6712	1.0406	2.5755	-1264.23	-1313.87	-806.61
3	760.00	51.4	0.045C	C.420C	587.69	426.71	0.9640	0.9551	11.5754	1.0316	2.4178	-1302.03	-1373.51	-829.28
4	760.00	46.6	0.0960	0.5360	502.56	347.61	0.9574	0.9565	8.0419	1.0718	2.0154	-1351.24	-1451.10	-856.71
5	760.00	45.4	0.1490	0.5630	482.83	329.85	C.9558	C.9571	5.6557	1.1306	1.6099	-1364.03	-1471.25	-866.34
6	760.00	44.6	0.2160	0.5790	470.00	318.42	0.9546	0.9574	4.1177	1.2251	1.2123	-1372.68	-1484.86	-871.50
7	760.00	44.5	0.2960	0.5940	468.42	317.02	0.9543	0.9581	3.0912	1.3225	0.8490	-1373.76	-1486.57	-872.15
8	760.00	44.6	0.4080	0.6040	470.00	318.42	0.9540	0.9586	2.2720	1.5281	0.3966	-1372.68	-1484.86	-871.50
9	760.00	44.5	0.5070	0.6080	468.42	317.02	0.9538	C.9588	1.8463	1.8247	0.0117	-1373.76	-1486.57	-872.15
10	760.00	44.5	0.5320	0.6060	468.42	317.02	0.9539	0.9587	1.7539	1.9318	-0.0966	-1373.76	-1486.57	-872.15
11	760.00	44.5	0.5850	0.6080	468.42	317.02	0.9538	0.9588	1.6001	2.1677	-0.3036	-1373.76	-1486.57	-872.15
12	760.00	44.5	0.6190	0.6070	468.42	317.02	0.9539	0.9587	1.5321	2.3124	-0.4117	-1373.76	-1486.57	-872.15
13	760.00	44.6	0.7260	0.6090	470.00	318.42	C.9539	C.9589	1.2872	3.2608	-0.9295	-1372.68	-1484.86	-871.50
14	760.00	44.6	0.8470	0.6150	470.00	318.42	0.9537	0.9592	1.1139	5.7519	-1.6416	-1372.68	-1484.86	-871.50
15	760.00	45.8	0.9490	0.6580	489.34	335.68	C.9529	C.9622	1.0209	14.5855	-2.6594	-1359.74	-1464.50	-863.78
16	760.00	48.9	C.9830	0.7340	542.09	383.85	0.9526	0.9680	0.9921	29.9425	-3.4072	-1327.27	-1413.32	-844.38
17	760.00	51.3	0.9910	0.8100	585.81	424.92	0.9524	0.9736	1.0048	36.7053	-3.5982	-1303.03	-1375.08	-829.87

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 500.30 P = 31.00 V = 358.0C OMEGA = 0.247 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 513.20 P = 78.5C V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68098E 01 B = 0.11272E 04 C = 0.22890E 03

2 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 58.0

P = 758.5 AT T = 64.7

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.11157E 03 B = -.5198CE-01 C = 0.39444E-03

2 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 35

ID NUMBER = 23

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.24533E 01 B = -.37896E 01 C = -.18978E 01

STANDARD DEVIATION = 0.28651E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 11.6266 G2INF = 25.3830

T1INF = 64.75 T2INF = 57.99

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.6745

AREA BELOW THE X-AXIS IS -0.7486

CROSS-OVER POINT IS X = 0.51

NORMALIZED AREA DIFFERENCE IS -0.0521

HERINGTON J-FACTOR IS 9.56

CONSISTENCY INDEX IS -4.36

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	236.49	2394.98	0.2603E-06	53.87	0.03235
2	1005.34	2192.30	0.1558E-02	32.23	0.03597
3	464.65	2767.24	0.1673E 01	11.01	0.00897
4	484.99	2758.61	0.2785E-01	10.02	0.00876
5	541.22	2726.51	0.6191E-02	7.20	0.00934
6	492.47	2744.18	0.3116E-02	9.54	0.00872
7	539.54	2708.20	0.5345E-02	7.34	0.00942
8	574.73	2702.84	0.1821E-02	6.91	0.01020
9	574.92	2702.36	0.1815E-02	6.92	0.01021
10	463.82	2767.92	0.2541E-02	11.05	0.00898

2,4 DIMETHYLPENTANE(1) — BENZENE(2) SYSTEM 050

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	400.00	60.0	0.9530	0.9310	378.74	382.50	0.9677	0.9787	0.9954	1.4999	-0.4100	-1679.60	-1124.21	-1392.67
2	400.00	59.2	0.8700	0.8300	368.63	371.98	0.9674	0.9785	0.9985	1.3734	-0.3189	-1690.24	-1131.21	-1401.44
3	400.00	58.5	0.7990	0.7430	359.95	362.95	0.9671	0.9782	0.9964	1.3760	-0.3227	-1695.64	-1137.41	-1409.19
4	400.00	57.8	0.6910	0.6450	351.43	354.10	0.9669	0.9780	1.0242	1.2670	-0.2127	-1709.13	-1143.67	-1417.01
5	400.00	57.5	0.6270	0.5830	347.82	350.36	0.9668	0.9779	1.0396	1.2310	-0.1690	-1713.22	-1146.37	-1420.39
6	400.00	57.5	0.5480	0.5210	347.82	350.36	0.9669	0.9779	1.0535	1.1810	-0.1138	-1713.22	-1146.37	-1420.39
7	400.00	57.4	0.5190	0.5020	346.63	349.12	0.9668	0.9778	1.0759	1.1578	-0.0734	-1714.59	-1147.27	-1421.52
8	400.00	57.4	0.4610	0.4610	346.63	349.12	0.9668	0.9778	1.1123	1.1183	-0.0053	-1714.59	-1147.27	-1421.52
9	400.00	57.1	0.4590	0.4590	343.07	345.42	0.9667	0.9778	1.1238	1.1302	-0.0057	-1718.70	-1149.99	-1424.91
10	400.00	57.4	0.4070	0.4150	346.63	349.12	0.9669	0.9778	1.1342	1.1032	0.0277	-1714.59	-1147.27	-1421.52
11	400.00	57.7	0.3890	0.4040	350.22	352.85	0.9670	0.9779	1.1435	1.0794	0.0578	-1710.49	-1144.57	-1418.13
12	400.00	57.5	0.3310	0.3610	347.82	350.36	0.9669	0.9778	1.2091	1.0644	0.1275	-1713.22	-1146.37	-1420.39
13	400.00	58.1	0.2190	0.2710	355.06	357.87	0.9672	0.9779	1.3443	1.0184	0.2776	-1705.05	-1140.98	-1413.65
14	400.00	58.8	0.1340	0.1920	363.65	366.80	0.9675	0.9781	1.5203	0.9934	0.4255	-1695.60	-1134.75	-1405.86
15	400.00	59.4	0.0630	0.1080	371.13	374.59	0.9678	0.9782	1.7827	0.9926	0.5855	-1687.57	-1129.46	-1399.24
16	400.00	60.0	0.0370	0.0700	378.74	382.50	0.9680	0.9784	1.9284	0.9863	0.6705	-1679.60	-1124.21	-1392.67

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 520.30 P = 27.40 V = 420.00 OMEGA = 0.306 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69262E 01 B = 0.11920E 04 C = 0.22163E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.5

P = 760.0 AT T = 80.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.74588E 02 B = 0.32866E 00 C = -.25601E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 50

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.69958E 00 B = -.19633E 01 C = 0.87586E 00

STANDARD DEVIATION = 0.24707E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.0129 G2INF = 1.4738

T1INF = 60.61 T2INF = 60.56

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1427

AREA BELOW THE X-AXIS IS -0.1328

CROSS-OVER POINT IS X = 0.44

NORMALIZED AREA DIFFERENCE IS 0.0359

HERINGTON J-FACTOR IS 1.59

CONSISTENCY INDEX IS 2.00

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	294.99	187.52	0.4547E-11	5.52	0.00335
2	-5.18	332.74	0.3170E-03	1.24	0.00758
3	343.46	168.04	0.1872E-01	6.22	0.00385
4	317.58	176.92	0.1220E-01	5.66	0.00361
5	164.02	231.05	0.1725E-02	1.88	0.00502
6	217.75	244.54	0.2209E-03	7.46	0.00223
7	148.50	242.13	0.1762E-02	1.96	0.00486
8	40.35	301.95	0.2782E-03	1.22	0.00676
9	41.17	301.38	0.2782E-03	1.22	0.00674
10	291.10	195.39	0.2003E-01	6.32	0.00302

2,4-DIMETHYLPENTANE(1) — HEXYLENE GLYCOL(2) SYSTEM 051

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	400.00	147.7	0.0200	0.675C	3313.67	133.14	0.9852	0.9815	4.0036	0.9758	1.4117	-940.85	-1090.86	-1151.98
2	400.00	127.0	0.0480	0.8370	2235.78	54.68	0.9829	0.9764	3.0582	1.2202	0.9188	-1062.93	-1324.24	-1300.75
3	400.00	69.5	C.2100	0.9900	515.87	2.11	0.97C8	0.9559	3.5381	2.2859	0.4368	-1561.38	-272C.88	-1956.17
4	400.00	66.6	0.2760	0.9960	470.55	1.72	0.9699	0.9545	2.9664	1.2220	0.8868	-1595.97	-2846.06	-2004.82

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 520.30 P = 27.40 V = 420.00 OMEGA = 0.306 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 744.00 P = 54.80 V = 311.00 OMEGA = 0.148 OMEGAH = 0.338 DIPOLE = 2.10 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68262E 01 B = 0.11920E 04 C = 0.22163E 03

2 A = 0.78876E 01 B = 0.18904E 04 C = 0.18046E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.74588E C2 B = 0.32866E CC C = -.2560IF-03

2 A = 0.11939E 03 B = -.75907E-01 C = 0.31550E-03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.5

P = 734.7 AT T = 196.0

COMPONENT ID ECHO CHECK

IC NUMBER = 50

ID NUMBER = 55

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.16662E 01 B = -.16451E 02 C = 0.49628E 02

STANDARD DEVIATION = C.99579E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 5.2918 G2INF = 0.0000

T1INF = 177.19 T2INF = 60.56

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

SQUARE ROOT OF NEGATIVE ARGUEMENT REQUIRED TO OBTAIN X-INTERCEPT

VALUE OF REQUIRED ARGUEMENT IS -.60125E 02

THERMODYNAMIC CONSISTENCY TEST IS ABORTED

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	23951.23	-2803.31	C.1C86F-02	348.26	0.38000
2	5895.01	9362.32	0.1958E 00	706.53	0.11624
3	220.43	2980.35	0.2671E 01	51.59	0.01653
4	229.66	2506.57	0.4378E 00	52.78	0.01704
5	217.19	3253.81	C.8885E-C1	51.22	0.01634
6	2398.64	-476.18	0.1514E-03	155.1C	0.00333
7	208.08	3251.C6	C.9669E-01	51.85	0.C1666
8	218.43	325C.34	C.8393F-C1	51.14	0.01630
9	218.46	3252.08	0.8394E-01	51.14	0.C1630
10	562.31	973.67	C.93C5E 0C	67.10	0.01483

DIAGNOSTIC
RESTART CALCULATIONS IN TRANSFORMED PARAMETER SPACE

2,4-DIMETHYLPENTANE(1) — HEXYLENE GLYCOL(2) SYSTEM 051

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	400.00	147.7	0.0200	0.6750	3313.67	133.14	0.9852	C.9815	4.0036	0.9758	1.4117	-940.85	-1090.86	-1151.98
2	400.00	127.0	0.0480	0.8370	2235.78	54.68	0.9829	0.9764	3.0582	1.2202	0.9188	-1062.93	-1324.24	-1300.75
3	400.00	69.5	0.2100	0.9900	515.87	2.11	C.9708	C.9559	3.5381	2.2859	0.4368	-1561.38	-2720.88	-1956.17
4	400.00	66.6	0.2760	0.9960	470.55	1.72	0.9699	0.9545	2.9664	1.2220	0.8868	-1595.97	-2846.06	-2004.82

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 520.30 P = 27.40 V = 420.CC OMEGA = 0.306 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 744.00 P = 54.80 V = 311.0C OMEGA = 0.148 OMEGAH = 0.338 DIPOLE = 2.10 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68262E 01 B = C.11920E 04 C = 0.22163E 03

2 A = 0.78876E 01 B = 0.18904E 04 C = 0.18046E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.5

P = 734.7 AT T = 196.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.74588E C2 B = 0.32866E C0 C = -.25601E-03

2 A = 0.11939E C3 B = -.75907E-01 C = 0.31550E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 50

ID NUMBER = 55

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.16662E 01 B = -.16451E 02 C = 0.49628E 02

STANDARD DEVIATION = C.99579E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 5.2918 G2INF = 0.0000

T1INF = 177.19 T2INF = 6C.56

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

SQUARE ROOT OF NEGATIVE ARGUEMENT REQUIRED TO OBTAIN X-INTERCEPT

VALUE OF REQUIRED ARGUEMENT IS -.60125E 02

THERMODYNAMIC CONSISTENCY TEST IS ABORTED

CALCULATIONS PERFORMED IN TRANSFORMED PARAMETER SPACE

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	22955.66	-2764.54	0.1226E-02	347.75	0.38023
2	5830.41	9316.68	0.1958E 00	706.47	0.11619
3	220.35	2983.08	0.2671E 01	51.59	0.01653
4	229.91	2504.69	0.4378E 00	52.77	0.01703
5	216.75	3258.59	0.8885E-01	51.24	0.01635
6	170.52	10254.54	0.4758E-02	53.29	0.01714
7	208.05	3247.18	C.9669E-01	51.86	0.01667
8	218.60	3245.92	0.8393E-01	51.14	0.01630
9	218.55	3247.93	0.8394E-01	51.14	0.01630
10	561.68	974.15	0.93C5E 00	67.04	0.01485

1,4 DIOXANE(1) ETHANOL(2) SYSTEM 052

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	78.2	0.0079	0.0116	348.38	724.39	0.9853	0.9592	3.1464	1.0004	1.1458	-1190.04	-1175.53	-795.36
2	760.00	78.2	0.0268	0.0284	348.01	723.56	0.9844	0.9592	2.2709	1.0037	0.8165	-1190.32	-1175.92	-795.53
3	760.00	78.1	0.0509	0.0509	347.29	721.89	0.9832	0.9592	2.1448	1.0077	0.7554	-1190.88	-1176.69	-795.86
4	760.00	78.2	0.0725	0.0648	347.77	723.00	0.9825	0.9593	1.9130	1.0145	0.6342	-1190.51	-1176.18	-795.64
5	760.00	78.2	0.0955	0.0833	348.50	724.67	0.9815	0.9594	1.8612	1.0175	0.6038	-1189.95	-1175.41	-795.31
6	760.00	78.3	0.1285	0.1048	349.95	728.01	0.9805	0.9596	1.7311	1.0268	0.5223	-1188.84	-1173.87	-794.64
7	760.00	78.4	0.1975	0.1464	350.07	728.29	0.9785	0.9599	1.5696	1.0631	0.3896	-1188.74	-1173.74	-794.59
8	760.00	79.1	0.2747	0.1867	359.16	749.18	0.9767	0.9606	1.4002	1.0904	0.2501	-1181.92	-1164.31	-790.53
9	760.00	79.9	0.3804	0.2373	368.81	771.42	0.9747	0.9616	1.2490	1.1636	0.0708	-1174.88	-1154.59	-786.34
10	760.00	80.1	0.4045	0.2482	372.38	779.65	0.9743	0.9619	1.2163	1.1812	0.0293	-1172.35	-1151.08	-784.82
11	760.00	80.2	0.4243	0.2561	372.76	780.53	0.9740	0.9620	1.1948	1.2078	-0.0108	-1172.07	-1150.70	-784.66
12	760.00	80.9	0.4894	0.2854	382.45	802.92	0.9730	0.9628	1.1240	1.2727	-0.1242	-1165.32	-1141.36	-780.63
13	760.00	81.3	0.5116	0.3005	387.56	814.76	0.9725	0.9632	1.1167	1.2840	-0.1397	-1161.84	-1136.54	-778.55
14	760.00	81.4	0.5321	0.3039	388.62	817.21	0.9724	0.9633	1.0827	1.3299	-0.2056	-1161.13	-1135.56	-778.12
15	760.00	82.3	0.5857	0.3291	401.07	846.09	0.9718	0.9642	1.0314	1.3994	-0.3051	-1152.90	-1124.17	-773.20
16	760.00	84.4	0.6752	0.4045	430.22	913.96	0.9699	0.9665	1.0232	1.4703	-0.3625	-1134.78	-1099.06	-762.32
17	760.00	85.4	0.7447	0.4427	444.91	946.29	0.9691	0.9677	0.9810	1.6893	-0.5435	-1126.20	-1087.16	-757.16
18	760.00	87.2	0.7686	0.4916	471.14	1009.82	0.9684	0.9695	0.9960	1.5996	-0.4738	-1111.67	-1067.03	-748.40
19	760.00	89.1	0.8280	0.5555	501.35	1080.99	0.9675	0.9717	0.9809	1.7618	-0.5856	-1096.10	-1045.43	-738.98
20	760.00	92.0	0.8793	0.6496	550.85	1198.23	0.9668	0.9752	0.9824	1.7918	-0.6010	-1072.85	-1013.19	-724.86
21	760.00	93.0	0.8912	0.6766	568.19	1239.45	0.9667	0.9762	0.9787	1.7755	-0.5956	-1065.29	-1002.71	-720.25
22	760.00	94.9	0.9316	0.7477	602.84	1322.11	0.9665	0.9788	0.9749	2.0710	-0.7535	-1050.96	-982.86	-711.50
23	760.00	99.0	0.9773	0.9051	685.01	1519.25	0.9667	0.9848	0.9903	2.0552	-0.7301	-1020.54	-940.79	-692.84

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 585.20 P = 50.70 V = 244.70 OMEGA = 0.288 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.74315E 01 B = 0.15547E 04 C = 0.24034E 03

2 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

VAPOR PRESSURE AT NBP

P = 755.4 AT T = 101.1

P = 762.1 AT T = 78.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.71966E 02 B = -.41898E-02 C = 0.16875E-03

2 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 10

ID NUMBER = 11

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.91476E 00 B = -.26386E 01 C = 0.10012E 01

STANDARD DEVIATION = 0.72314E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.4962 G2INF = 2.0599

T1INF = 78.33 T2INF = 101.30

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1763

AREA BELOW THE X-AXIS IS -0.2471

CROSS-OVER POINT IS X = 0.41

NORMALIZED AREA DIFFERENCE IS -0.1672

HERINGTON J-FACTOR IS 8.93

CONSISTENCY INDEX IS 7.79

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	200.89	463.95	C.0	5.94	0.01411
2	507.77	190.40	0.5190E-03	10.84	0.01520
3	322.05	365.58	0.7283E 00	5.33	0.01374
4	285.46	369.05	C.1666E 00	4.08	0.01461
5	377.26	333.90	0.1332E-01	6.56	0.01333
6	574.71	290.10	C.7697E-02	19.60	0.01041
7	447.08	311.60	C.9928E-02	10.16	0.01236
8	272.77	385.09	0.1363E-02	4.16	0.01445
9	272.79	385.09	0.1365E-02	4.16	0.01445
10	274.79	414.99	0.7690E-01	7.06	0.01348

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION
SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

1,4-DIOXANE(1) HEXANE(2) SYSTEM 053

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	84.9	0.8900	0.5650	437.15	1140.97	0.9614	0.9601	1.0578	2.5166	-0.8667	-1130.68	-1168.93	-1153.71
2	760.00	79.2	0.7830	0.4290	360.40	976.59	0.9590	0.9579	1.1046	1.9518	-0.5693	-1181.00	-1216.25	-1202.17
3	760.00	76.5	0.7130	0.3700	328.06	905.05	0.9578	0.9567	1.1479	1.7548	-0.4245	-1206.21	-1239.74	-1226.33
4	760.00	75.3	0.6760	0.3480	314.46	874.51	0.9573	0.9562	1.1873	1.6640	-0.3376	-1217.72	-1250.41	-1237.33
5	760.00	74.3	0.6270	0.3250	303.48	849.65	0.9568	0.9558	1.2381	1.5394	-0.2179	-1227.47	-1259.42	-1246.63
6	760.00	71.7	0.4570	0.2600	276.37	787.45	0.9556	0.9546	1.4902	1.2493	0.1763	-1253.44	-1283.32	-1271.35
7	760.00	70.8	0.3630	0.2170	267.47	766.73	0.9551	0.9542	1.6172	1.1568	0.3350	-1262.66	-1291.77	-1280.10
8	760.00	69.6	0.2300	0.1630	255.95	739.73	0.9545	0.9536	2.0021	1.0597	0.6362	-1275.15	-1303.18	-1291.93
9	760.00	68.9	0.1380	0.1140	249.43	724.31	0.9541	0.9533	2.3939	1.0230	0.8502	-1282.53	-1309.90	-1298.92
10	760.00	68.8	0.1130	0.1000	248.51	722.12	0.9541	0.9532	2.5738	1.0129	0.9326	-1283.59	-1310.87	-1299.92

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 585.20 P = 50.70 V = 244.70 OMEGA = 0.288 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 507.90 P = 29.90 V = 372.40 OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.74315E 01 B = -0.15547E 04 C = 0.24034E 03

2 A = 0.68778E 01 B = 0.11715E 04 C = 0.22437E 03

VAPOR PRESSURE AT NBP

P = 755.4 AT T = 101.1

P = 759.0 AT T = 68.7

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.71966E 02 B = -.41898E-02 C = 0.16875E-03

2 A = 0.12596E 03 B = -.14456E 00 C = 0.54720E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 10

ID NUMBER = 18

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.11429E 01 B = -.20699E 01 C = -.18363E 00

STANDARD DEVIATION = 0.22373E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 3.1358 G2INF = 3.0363

T1INF = 68.74 T2INF = 101.30

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3059

AREA BELOW THE X-AXIS IS -0.2592

CROSS-OVER POINT IS X = 0.53

NORMALIZED AREA DIFFERENCE IS 0.0827

HERINGTON J-FACTOR IS 7.06

CONSISTENCY INDEX IS 1.21

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	731.68	181.85	0.1819E-11	12.33	0.00715
2	579.54	520.00	0.3986E-03	8.19	0.00805
3	736.97	240.22	0.2370E-01	3.42	0.00787
4	676.98	314.98	0.9745E-02	3.24	0.00704
5	659.94	327.68	0.1830E-02	4.62	0.00663
6	597.98	329.69	0.5410E-03	17.12	0.00408
7	655.32	317.38	0.1424E-02	6.42	0.00618
8	683.94	313.61	0.2710E-03	3.05	0.00733
9	684.77	312.83	0.2708E-03	3.04	0.00735
10	736.13	237.64	0.4228E-02	3.60	0.00780

1,4-DIOXANE(1) — 1-HEXENE(2) SYSTEM 054

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	87.6	0.9020	0.6100	477.81	1422.49	0.9626	0.9652	1.0322	2.0426	-0.6825	-1108.13	-1030.22	-1068.87
2	760.00	85.2	0.8750	0.5500	441.53	1337.63	0.9616	0.9644	1.0372	1.9633	-0.6381	-1128.14	-1047.07	-1087.03
3	760.00	83.1	0.8450	0.4980	411.62	1266.35	0.9608	0.9637	1.0422	1.8643	-0.5815	-1146.17	-1062.17	-1103.35
4	760.00	79.3	0.7900	0.4240	361.65	1144.32	0.9592	0.9623	1.0785	1.7447	-0.4811	-1180.08	-1090.39	-1133.92
5	760.00	76.9	0.7230	0.3630	332.69	1071.75	0.9582	0.9614	1.0955	1.5604	-0.3537	-1202.42	-1108.82	-1153.97
6	760.00	72.9	0.6240	0.2900	288.63	958.28	0.9563	0.9598	1.1666	1.4306	-0.2040	-1241.34	-1140.66	-1188.72
7	760.00	71.6	0.5300	0.2450	275.37	923.37	0.9557	0.9593	1.2154	1.2623	-0.0379	-1254.46	-1151.33	-1200.40
8	760.00	69.0	0.3930	0.1900	250.35	856.36	0.9545	0.9582	1.3963	1.1294	0.2122	-1281.47	-1173.14	-1224.35
9	760.00	67.4	0.2650	0.1350	235.90	816.94	0.9537	0.9575	1.5602	1.0433	0.4024	-1298.60	-1186.90	-1239.50
10	760.00	65.2	0.1280	0.0700	217.14	764.96	0.9526	0.9565	1.8173	1.0087	0.5887	-1322.83	-1206.26	-1260.85
11	760.00	64.8	0.0680	0.0400	213.87	755.77	0.9524	0.9563	1.9843	0.9859	0.6995	-1327.33	-1209.83	-1264.81

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 585.20 P = 50.70 V = 244.70 OMEGA = 0.288 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 504.00 P = 32.10 V = 350.70 OMEGA = 0.285 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.74315E 01 B = 0.15547E 04 C = 0.24034E 03

2 A = 0.68657E 01 B = 0.11530E 04 C = 0.22600E 03

VAPOR PRESSURE AT NBP

P = 755.4 AT T = 101.1

P = 763.6 AT T = 63.5

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.71966E 02 B = -.41858E-02 C = 0.16875E-03

2 A = 0.20978E 03 B = -.71344E 00 C = 0.14350E-02

COMPONENT ID ECHO CHECK

ID NUMBER = 10

ID NUMBER = 38

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.78996E 00 B = -.14193E 01 C = -.24035E 00

STANDARD DEVIATION = 0.11083E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.2033 G2INF = 2.3862

T1INF = 63.33 T2INF = 101.30

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2077

AREA BELOW THE X-AXIS IS -0.2075

CROSS-OVER POINT IS X = 0.51

NORMALIZED AREA DIFFERENCE IS 0.0005

HERINGTON J-FACTOR IS 10.12

CONSISTENCY INDEX IS -10.07

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	452.00	206.83	0.1819E-11	16.73	0.00286
2	245.38	623.05	0.5938E-03	14.96	0.01174
3	408.69	252.30	0.1735E-01	11.74	0.00365
4	418.53	281.67	0.8327E-02	11.36	0.00349
5	490.33	223.43	0.2533E-02	7.43	0.00470
6	528.49	141.08	0.6288E-04	13.53	0.00138
7	510.48	197.31	0.1864E-02	8.40	0.00423
8	466.38	266.01	0.1685E-02	7.52	0.00614
9	466.56	265.56	0.1680E-02	7.50	0.00612
10	397.51	304.01	0.5380E-02	12.25	0.00381

ETHANOL(1) -- BENZENE(2) SYSTEM 055A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	208.40	40.0	0.0200	0.1450	132.30	180.36	0.9901	0.9861	11.3002	0.9931	2.4317	-1810.36	-1326.58	-962.44
2	239.80	40.0	0.0950	0.2800	132.30	180.36	0.9855	0.9849	5.2607	1.0406	1.6205	-1810.36	-1326.58	-962.44
3	249.10	40.0	0.2040	0.3320	132.30	180.36	0.9838	0.9848	3.0122	1.1401	0.9716	-1810.36	-1326.58	-962.44
4	252.30	40.0	0.3780	0.3620	132.30	180.36	0.9830	0.9849	1.7938	1.4115	0.2397	-1810.36	-1326.58	-962.44
5	248.80	40.0	0.4900	0.3840	132.30	180.36	0.9828	0.9854	1.4473	1.6399	-0.1250	-1810.36	-1326.58	-962.44
6	245.70	40.0	0.5920	0.4050	132.30	180.36	0.9826	0.9858	1.2475	1.9562	-0.4499	-1810.36	-1326.58	-962.44
7	237.30	40.0	0.7020	0.4400	132.30	180.36	0.9826	0.9867	1.1039	2.4370	-0.7919	-1810.36	-1326.58	-962.44
8	219.40	40.0	0.8020	0.5070	132.30	180.36	0.9830	0.9886	1.0298	2.9913	-1.0663	-1810.36	-1326.58	-962.44
9	196.30	40.0	0.8800	0.6050	132.30	180.36	0.9837	0.9911	1.0028	3.5476	-1.2634	-1810.36	-1326.58	-962.44
10	169.50	40.0	0.9430	0.7470	132.30	180.36	0.9850	0.9944	0.9991	4.1446	-1.4227	-1810.36	-1326.58	-962.44
11	145.60	40.0	0.9870	0.9120	132.30	180.36	0.9866	0.9977	1.0028	5.4482	-1.6925	-1810.36	-1326.58	-962.44

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 760.0 AT T = 80.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.23145E 01 B = -.61346E 01 C = 0.22752E 01

STANDARD DEVIATION = 0.14379E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 10.1194 G2INF = 4.6880

T1INF = 40.00 T2INF = 40.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4895

AREA BELOW THE X-AXIS IS -0.4840

CROSS-OVER POINT IS X = 0.45

NORMALIZED AREA DIFFERENCE IS 0.0057

CONSISTENCY INDEX IS 0.57

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1387.70	177.80	0.1783E-09	4.73	0.01573
2	1649.35	128.35	0.3868E-03	1.58	0.00975
3	1613.28	223.96	C.30C8E C0	3.60	0.00476
4	1613.76	206.68	C.1588E-01	2.68	0.00428
5	1612.77	178.16	0.1459E-02	1.12	0.00527
6	1641.72	200.03	C.5734E-03	2.92	0.00397
7	1614.84	184.31	0.1082E-02	1.48	0.00493
8	1597.35	168.92	0.3218E-03	0.68	0.00662
9	1596.83	169.09	0.3219E-03	C.68	0.00662
10	1608.57	228.96	0.5888E-02	3.77	0.00503

ETHANOL(1) BENZENE(2) SYSTEM 055H

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OI	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	314.70	50.0	0.0250	0.1650	216.87	266.50	0.9863	0.9814	9.4371	0.9911	2.2536	-1612.44	-1217.82	-889.60
2	358.70	50.0	0.0890	0.3000	216.87	266.50	0.9805	0.9800	5.4606	1.0119	1.6858	-1612.44	-1217.82	-889.60
3	378.30	50.0	0.2060	0.3600	216.87	266.50	0.9778	0.9797	2.9774	1.1190	0.9786	-1612.44	-1217.82	-889.60
4	384.60	50.0	0.3850	0.3920	216.87	266.50	0.9766	0.9798	1.7615	1.3955	0.2329	-1612.44	-1217.82	-889.60
5	383.20	50.0	0.4860	0.4110	216.87	266.50	0.9763	0.9802	1.4572	1.6123	-0.1011	-1612.44	-1217.82	-889.60
6	378.10	50.0	0.5860	0.4340	216.87	266.50	0.9761	0.9809	1.2589	1.8992	-0.4112	-1612.44	-1217.82	-889.60
7	366.90	50.0	0.6940	0.4700	216.87	266.50	0.9760	0.9821	1.1171	2.3378	-0.7385	-1612.44	-1217.82	-889.60
8	344.40	50.0	0.7900	0.5260	216.87	266.50	0.9765	0.9842	1.0314	2.8662	-1.0220	-1612.44	-1217.82	-889.60
9	316.80	50.0	0.8660	0.6100	216.87	266.50	0.9772	0.9870	1.0045	3.4099	-1.2221	-1612.44	-1217.82	-889.60
10	276.80	50.0	0.9360	0.7450	216.87	266.50	0.9788	0.9913	0.9935	4.0972	-1.4168	-1612.44	-1217.82	-889.60
11	239.60	50.0	0.9840	0.9090	216.87	266.50	0.9809	0.9959	1.0004	5.0870	-1.6262	-1612.44	-1217.82	-889.60

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = -0.22079E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 760.0 AT T = 80.1

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.22407E 01 B = -.58039E 01 C = 0.20232E 01

STANDARD DEVIATION = 0.10213E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 9.3996 G2INF = 4.6647

T1INF = 50.00 T2INF = 50.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4823

AREA BELOW THE X-AXIS IS -0.4692

CROSS-OVER POINT IS X = 0.46

NORMALIZED AREA DIFFERENCE IS 0.0138

CONSISTENCY INDEX IS 1.38

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	1382.57	188.26	0.3365E-10	5.27	0.01596
2	1496.43	158.72	0.7564E-03	3.15	0.01292
3	1559.53	230.92	0.6295E-01	5.65	0.00328
4	1563.43	219.08	0.8084E-02	4.84	0.00372
5	1556.56	191.09	0.1813E-02	2.38	0.00660
6	1593.68	230.75	0.2321E-03	6.89	0.00271
7	1554.49	202.32	0.1688E-02	3.15	0.00552
8	1531.98	177.51	0.1232E-03	0.62	0.00926
9	1531.76	177.58	0.1232E-03	0.62	0.00926
10	1558.00	231.50	0.1533E-02	5.64	0.00333

ETHANOL(1) — BENZENE(2) SYSTEM 055C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	452.70	60.0	C.0260	0.161C	342.58	382.5C	0.9826	0.9760	8.0301	0.9930	2.0902	-1439.00	-1124.21	-826.C3
2	518.20	60.0	0.0800	0.3100	342.58	382.50	0.9749	0.9741	5.7059	0.9875	1.7541	-1439.00	-1124.21	-826.03
3	553.70	6C.0	0.1850	0.3750	342.58	382.50	0.9711	0.9734	3.1765	1.0779	1.0807	-1439.00	-1124.21	-826.03
4	565.00	60.0	0.3220	0.4080	342.58	382.50	0.9695	0.9735	2.0228	1.2525	0.4794	-1439.00	-1124.21	-826.03
5	568.00	60.0	C.3980	0.4200	342.58	382.50	0.9690	0.9737	1.6927	1.3895	0.1974	-1439.00	-1124.21	-826.03
6	566.60	60.C	C.4840	0.4360	342.58	382.5C	C.9687	C.9741	1.4408	1.5731	-0.0878	-1439.00	-1124.21	-826.03
7	562.60	60.0	0.5680	0.4550	342.58	382.5C	C.9684	0.9747	1.2718	1.8040	-0.3496	-1439.00	-1124.21	-826.03
8	548.70	60.0	0.6800	0.4900	342.58	382.50	0.9683	0.9761	1.1157	2.2261	-0.6907	-1439.00	-1124.21	-826.03
9	524.20	60.C	C.7710	0.537C	342.58	382.5C	0.9686	C.9783	1.0307	2.7043	-0.9646	-1439.00	-1124.21	-826.C3
10	485.00	60.0	0.8590	0.6250	342.58	382.50	0.9694	0.9821	0.9971	3.3047	-1.1982	-1439.00	-1124.21	-826.03
11	431.60	60.0	0.9290	0.7470	342.58	382.50	0.9713	0.9873	0.9827	3.962C	-1.3941	-1439.00	-1124.21	-826.03
12	377.40	60.0	C.9810	0.9040	342.58	382.50	0.9740	0.9933	0.9877	4.9433	-1.6104	-1439.00	-1124.21	-826.03

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 562.C0 P = 48.60 V = 260.1C OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = C.15543E 04 C = 0.22265E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.160C0E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 760.C AT T = 80.1

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.21498E 01 B = -.55181E 01 C = 0.18254E 01

STANDARD DEVIATION = 0.75830E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 8.5833 G2INF = 4.6780

T1INF = 60.00 T2INF = 60.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4643

AREA BELOW THE X-AXIS IS -0.4651

CROSS-OVER POINT IS X = 0.46

NORMALIZED AREA DIFFERENCE IS -0.0008

CONSISTENCY INDEX IS 0.08

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1358.69	208.07	0.1137E-09	3.16	0.01569
2	1435.87	134.04	0.1429E-02	6.09	0.01853
3	1470.42	255.38	0.1625E 00	11.39	0.00598
4	1488.70	233.14	0.1819E-01	9.80	0.00652
5	1503.66	187.66	0.4640E-02	4.99	0.00987
6	1547.89	256.96	0.8161E-03	16.46	0.00462
7	1501.07	203.21	0.4521E-02	6.81	0.00848
8	1491.53	154.70	0.5498E-04	0.85	0.01380
9	1491.74	154.77	0.5512E-04	0.85	0.01380
10	1470.77	253.14	0.2728E-02	11.14	0.00604

ETHANOL(1) — BENZENE(2) — SYSTEM 055D

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	180.00	33.6	0.1000	0.2770	94.41	138.15	0.9882	0.9877	5.2160	1.0330	1.6193	-1951.65	-1405.97	-1014.96
2	180.00	32.8	0.2000	0.3140	90.40	133.49	0.9874	0.9879	3.0851	1.1413	0.9944	-1970.18	-1416.51	-1021.89
3	180.00	32.5	0.3000	0.3310	88.93	131.77	0.9870	0.9880	2.2030	1.2887	0.5362	-1977.18	-1420.50	-1024.51
4	180.00	32.5	0.3380	0.3380	88.93	131.77	0.9869	0.9880	1.9965	1.3485	0.3924	-1977.18	-1420.50	-1024.51
5	180.00	32.6	0.4000	0.3490	89.42	132.34	0.9867	0.9882	1.7322	1.4570	0.1730	-1974.85	-1419.17	-1023.64
6	180.00	32.9	0.5000	0.3700	90.89	134.06	0.9865	0.9884	1.4449	1.6707	-0.1452	-1967.85	-1415.18	-1021.02
7	180.00	33.3	0.6000	0.3990	92.89	136.39	0.9861	0.9887	1.2701	1.9589	-0.4334	-1958.58	-1409.91	-1017.55
8	180.00	34.0	0.7000	0.4340	96.47	140.53	0.9857	0.9892	1.1397	2.3884	-0.7399	-1942.45	-1400.75	-1011.52
9	180.00	35.5	0.8000	0.5000	104.55	149.74	0.9852	0.9901	1.0596	2.9729	-1.0317	-1908.42	-1381.50	-998.83
10	180.00	39.3	0.9000	0.6520	127.62	175.29	0.9845	0.9925	1.0054	3.5437	-1.2597	-1825.24	-1334.86	-967.94

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = -0.15543E 04 C = -0.22265E 03

2 A = 0.69056E 01 B = -0.12110E 04 C = -0.22079E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.70863E 02 B = -0.14907E-01 C = -0.15880E-03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 760.0 AT T = 80.1

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.20697E 01 B = -.55364E 01 C = 0.20895E 01

STANDARD DEVIATION = 0.58757E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 7.9223 G2INF = 3.9640

T1INF = 39.63 T2INF = 45.81

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4343

AREA BELOW THE X-AXIS IS -0.4363

CROSS-OVER POINT IS X = 0.45

NORMALIZED AREA DIFFERENCE IS -0.0023

HERINGTON J-FACTOR IS 3.50

CONSISTENCY INDEX IS -3.26

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1274.55	100.01	0.9641E-10	10.54	0.01843
2	1553.97	155.82	0.4362E-03	1.12	0.00313
3	1654.96	153.50	0.3032E-01	1.22	0.00571
4	1578.46	180.06	0.4186E-02	1.15	0.00401
5	1576.46	178.79	0.1173E-02	1.16	0.00409
6	1545.39	191.87	0.3763E-03	1.16	0.00338
7	1555.62	186.25	0.7222E-03	1.17	0.00369
8	1631.57	158.48	0.6997E-03	1.20	0.00532
9	1631.59	158.48	0.6997E-03	1.20	0.00532
10	1669.11	145.80	0.1723E-02	1.24	0.00616

ETHANOL(1) — BENZENE(2) SYSTEM 055F

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	400.00	52.8	0.1000	0.3010	247.37	295.71	0.9750	C.9784	4.7593	1.0260	1.5344	-1561.56	-1190.23	-870.95
2	400.00	51.6	0.2000	0.3530	233.88	282.90	0.9772	0.9788	2.9463	1.1172	0.9697	-1583.14	-1201.91	-878.86
3	400.00	51.3	0.3000	0.3770	230.61	279.76	C.9765	C.9791	2.1260	1.2436	0.5362	-1588.59	-1204.87	-880.86
4	400.00	51.2	0.3990	0.3990	229.53	278.73	0.9759	0.9794	1.6987	1.4030	0.1913	-1590.41	-1205.85	-881.52
5	400.00	51.2	0.4000	0.3990	229.53	278.73	0.9759	0.9794	1.6945	1.4053	0.1871	-1590.41	-1205.85	-881.52
6	400.00	51.3	0.5010	0.4240	230.61	279.76	0.9754	0.9798	1.4329	1.6110	-0.1171	-1588.59	-1204.87	-880.86
7	400.00	51.6	0.6000	0.4530	233.88	282.90	0.9748	C.9804	1.2572	1.8923	-0.4089	-1583.14	-1201.91	-878.86
8	400.00	52.2	0.7000	0.4910	240.54	289.25	0.9742	0.9813	1.1350	2.2982	-0.7055	-1572.31	-1196.05	-874.89
9	400.00	54.1	0.8000	0.5540	262.69	310.10	C.9737	C.9829	1.0255	2.8221	-1.0123	-1538.57	-1177.80	-862.53
10	400.00	56.3	C.9000	C.6800	290.44	335.71	0.9727	0.9862	1.0110	3.7533	-1.3117	-1500.54	-1157.29	-848.59

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = -0.15543E 04 C = -0.22265E 03

2 A = C.69C56E C1 B = 0.12110E 04 C = 0.22079E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000F-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 760.0 AT T = 80.1

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.19342E 01 B = -.48981E 01 C = 0.15010E 01

STANDARD DEVIATION = 0.56896E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 6.9185 G2INF = 4.3184

T1INF = 60.61 T2INF = 62.92

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS C.4202

AREA BELOW THE X-AXIS IS -0.4347

CROSS-OVER POINT IS X = 0.46

NORMALIZED AREA DIFFERENCE IS -0.0170

HERINGTON J-FACTOR IS 4.35

CONSISTENCY INDEX IS -2.66

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1228.33	187.55	0.2956E-09	12.40	0.01417
2	1440.16	176.66	0.5640F-03	2.26	0.00623
3	1445.54	230.18	0.1541F-01	4.52	0.00253
4	1440.15	218.57	0.3440F-02	3.39	0.00295
5	1419.65	213.43	0.1095F-02	2.17	0.00375
6	1470.32	233.69	0.1269F-03	5.98	0.00226
7	1418.78	217.38	C.7772F-03	2.36	0.00360
8	1418.29	201.30	C.4753E-03	1.79	0.00433
9	1418.37	201.33	0.4754F-03	1.79	0.00433
10	1436.97.	234.89	C.9343F-03	4.49	0.00258

ETHANOL(1) — ETHYL ACETATE(2) SYSTEM 056A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	206.00	40.0	C.C757	0.1226	132.3C	186.02	0.9799	0.9796	2.4696	1.0287	0.8757	-1810.36	-1927.30	-1927.69
2	212.00	40.0	0.1285	0.1874	132.30	186.02	0.9795	0.9790	2.2875	1.0392	0.7890	-1810.36	-1927.30	-1927.69
3	213.50	40.0	0.2256	0.2745	132.3C	166.02	0.9795	0.9788	1.9221	1.0513	0.6033	-1810.36	-1927.30	-1927.69
4	216.00	40.0	0.2316	0.2614	132.30	186.02	0.9793	C.9786	1.8033	1.0910	0.5025	-1810.36	-1927.30	-1927.69
5	216.00	40.C	C.3441	C.3414	132.30	186.02	0.9794	C.9785	1.5854	1.1396	0.3301	-1810.36	-1927.30	-1927.69
6	215.50	40.0	0.3554	0.3307	132.30	186.02	0.9794	C.9786	1.4835	1.1758	0.2324	-1810.36	-1927.30	-1927.69
7	216.00	40.0	0.4389	0.4022	132.3C	186.02	0.9795	0.9785	1.4645	1.2091	0.1916	-1810.36	-1927.30	-1927.69
8	211.00	40.0	0.5410	0.4317	132.30	186.02	C.9800	C.9789	1.2464	1.3733	-0.0970	-1810.36	-1927.30	-1927.69
9	204.50	40.0	0.6359	0.4910	132.3C	186.02	0.9807	0.9795	1.1697	1.5038	-0.2512	-1810.36	-1927.30	-1927.69
10	200.50	40.0	0.7166	0.5315	132.30	186.02	C.9811	0.9799	1.1021	1.7441	-0.4590	-1810.36	-1927.30	-1927.69
11	191.50	40.0	0.7576	0.5760	132.30	186.02	0.9820	0.9807	1.0801	1.7642	-0.4907	-1810.36	-1927.30	-1927.69
12	191.50	40.0	0.7715	0.5830	132.30	186.02	0.9820	C.9807	1.0735	1.8406	-0.5392	-1810.36	-1927.30	-1927.69
13	184.00	40.0	0.8260	0.6442	132.30	186.02	0.9828	0.9814	1.0654	1.9831	-0.6213	-1810.36	-1927.30	-1927.69
14	176.00	40.0	0.8638	0.6921	132.30	186.02	0.9836	C.9821	1.0478	2.0987	-0.6946	-1810.36	-1927.30	-1927.69
15	165.00	40.0	0.9009	0.7544	132.30	186.02	0.9846	0.9831	1.0278	2.1594	-0.7424	-1810.36	-1927.30	-1927.69
16	158.00	40.0	0.9312	0.8164	132.30	186.02	0.9853	0.9838	1.0311	2.2280	-0.7705	-1810.36	-1927.30	-1927.69
17	151.50	40.0	0.9636	0.8868	132.3C	186.02	0.9859	C.9843	1.C385	2.4911	-0.8749	-1810.36	-1927.30	-1927.69
18	146.00	40.0	0.9776	0.9192	132.30	186.02	0.9865	C.9848	1.0231	2.7861	-1.0018	-1810.36	-1927.30	-1927.69

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.C0 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 523.30 P = 37.80 V = 286.0C OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = -0.15543E 04 C = 0.22265E 03

2 A = 0.70981E 01 B = 0.12387E 04 C = 0.2170CE 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.160C0E-03

2 A = 0.13612E 03 B = -.3706lE 00 C = 0.80775E-03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 769.5 AT T = 77.1

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 12

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10407E 01 B = -.21443E 01 C = 0.14654E 00

STANDARD DEVIATION = 0.42571E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.8311 G2INF = 2.6041

T1INF = 40.00 T2INF = 40.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2584

AREA BELOW THE X-AXIS IS -0.2410

CROSS-OVER POINT IS X = 0.50

NORMALIZED AREA DIFFERENCE IS -0.0348

CONSISTENCY INDEX IS 3.48

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	731.82	-24.77	0.3647E-09	4.78	0.00603
2	701.47	115.68	0.2484E-02	2.05	0.01332
3	765.61	-12.90	0.1096E 00	2.66	0.00773
4	768.72	-15.52	0.3106E-01	2.66	0.00774
5	768.09	6.79	0.6743E-02	1.72	0.00905
6	711.36	0.27	0.2336E-02	4.44	0.00646
7	749.24	11.05	0.6495E-02	2.21	0.00824
8	777.12	22.98	0.1792E-02	1.46	0.01110
9	777.12	22.98	0.1792E-02	1.46	0.01110
10	764.87	-9.42	0.1124E-01	2.51	0.00789

ETHANOL(2) — ETHYL ACETATE(1) SYSTEM 0568

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	136.60	40.0	0.0060	0.0220	186.02	132.30	0.9857	0.9873	2.6522	1.0026	0.9728	-1927.30	-1810.36	-1927.69
2	150.90	40.0	0.0440	0.1440	186.02	132.30	0.9844	0.9860	2.6115	1.0065	0.9535	-1927.30	-1810.36	-1927.69
3	163.10	40.0	0.0840	0.2270	186.02	132.30	0.9833	0.9848	2.3279	1.0240	0.8212	-1927.30	-1810.36	-1927.69
4	183.00	40.0	0.1870	0.3700	186.02	132.30	0.9815	0.9829	1.9087	1.0529	0.5949	-1927.30	-1810.36	-1927.69
5	191.90	40.0	0.2420	0.4280	186.02	132.30	0.9807	0.9820	1.7875	1.0742	0.5092	-1927.30	-1810.36	-1927.69
6	199.70	40.0	0.3200	0.4840	186.02	132.30	0.9800	0.9812	1.5896	1.1232	0.3473	-1927.30	-1810.36	-1927.69
7	208.30	40.0	0.4540	0.5600	186.02	132.30	0.9792	0.9803	1.3510	1.2430	0.0834	-1927.30	-1810.36	-1927.69
8	210.20	40.0	0.4950	0.5740	186.02	132.30	0.9790	0.9801	1.2814	1.3127	-0.0241	-1927.30	-1810.36	-1927.69
9	211.80	40.0	0.5520	0.6070	186.02	132.30	0.9789	0.9799	1.2243	1.3752	-0.1163	-1927.30	-1810.36	-1927.69
10	213.20	40.0	0.6630	0.6640	186.02	132.30	0.9788	0.9797	1.1223	1.5730	-0.3376	-1927.30	-1810.36	-1927.69
11	212.10	40.0	0.7490	0.7160	186.02	132.30	0.9790	0.9797	1.0659	1.7759	-0.5105	-1927.30	-1810.36	-1927.69
12	204.60	40.0	0.8850	0.8290	186.02	132.30	0.9798	0.9802	1.0084	2.2525	-0.8037	-1927.30	-1810.36	-1927.69
13	200.60	40.0	0.9200	0.8710	186.02	132.30	0.9802	0.9805	0.9997	2.3957	-0.8740	-1927.30	-1810.36	-1927.69
14	195.30	40.0	0.9600	0.9280	186.02	132.30	0.9807	0.9809	0.9943	2.6047	-0.9630	-1927.30	-1810.36	-1927.69

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

2 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70981E 01 B = 0.12387E 04 C = 0.21700E 03

2 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

2 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

VAPOR PRESSURE AT NBP

P = 769.5 AT T = 77.1

P = 762.1 AT T = 78.4

COMPONENT ID ECHO CHECK

ID NUMBER = 12

ID NUMBER = 11

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10003E 01 B = -.20315E 01 C = -.50440E-02

STANDARD DEVIATION = 0.17947E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.7192 G2INF = 2.8186

T1INF = 40.00 T2INF = 40.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2461

AREA BELOW THE X-AXIS IS -0.2632

CROSS-OVER POINT IS X = 0.49

NORMALIZED AREA DIFFERENCE IS -0.0336

CONSISTENCY INDEX IS 3.36

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	16.80	703.97	0.8328E-08	1.46	0.00373
2	156.69	606.75	0.1436E-03	0.59	0.00458
3	23.29	712.56	0.2074E-01	0.98	0.00367
4	31.74	704.93	0.5263E-02	0.90	0.00354
5	86.40	657.49	0.5983E-03	0.59	0.00291
6	73.03	655.51	0.3639E-03	1.04	0.00290
7	88.40	653.00	0.6082E-03	0.65	0.00288
8	105.94	645.00	0.1129E-03	0.42	0.00317
9	105.79	645.11	0.1129E-03	0.42	0.00316
10	24.02	712.12	0.2393E-02	0.97	0.00366

ETHANOL(2) ETHYL ACETATE(1) SYSTEM 056C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	284.30	55.0	0.0055	0.0185	339.59	273.77	0.9761	0.9788	2.7447	1.0024	1.0073	-1631.39	-1522.88	-1625.05
2	302.50	55.0	0.0370	0.1040	339.59	273.77	0.9747	0.9775	2.4369	1.0040	0.8867	-1631.39	-1522.88	-1625.05
3	325.20	55.0	0.0830	0.2010	339.59	273.77	0.9731	0.9757	2.2531	1.0089	0.8034	-1631.39	-1522.88	-1625.05
4	349.70	55.0	0.1510	0.2970	339.59	273.77	0.9713	0.9738	1.9639	1.0289	0.6464	-1631.39	-1522.88	-1625.05
5	360.30	55.0	0.1960	0.3480	339.59	273.77	0.9706	0.9730	1.8251	1.0373	0.5650	-1631.39	-1522.88	-1625.05
6	371.60	55.0	0.2430	0.3890	339.59	273.77	0.9697	0.9721	1.6955	1.0638	0.4662	-1631.39	-1522.88	-1625.05
7	386.40	55.0	0.3400	0.4530	339.59	273.77	0.9686	0.9709	1.4657	1.1344	0.2562	-1631.39	-1522.88	-1625.05
8	397.50	55.0	0.4640	0.5210	339.59	273.77	0.9679	0.9699	1.2696	1.2570	0.0100	-1631.39	-1522.88	-1625.05
9	402.00	55.0	0.5920	0.6010	339.59	273.77	0.9676	0.9694	1.1606	1.3904	-0.1807	-1631.39	-1522.88	-1625.05
10	400.90	55.0	0.6820	0.6520	339.59	273.77	0.9678	0.9694	1.0901	1.5516	-0.3530	-1631.39	-1522.88	-1625.05
11	399.50	55.0	0.7150	0.6740	339.59	273.77	0.9679	0.9694	1.0713	1.6162	-0.4112	-1631.39	-1522.88	-1625.05
12	385.20	55.0	0.8530	0.7860	339.59	273.77	0.9692	0.9702	1.0111	1.9850	-0.6746	-1631.39	-1522.88	-1625.05
13	376.50	55.0	0.8980	0.8390	339.59	273.77	0.9699	0.9707	1.0028	2.1049	-0.7414	-1631.39	-1522.88	-1625.05
14	365.00	55.0	0.9440	0.9020	339.59	273.77	0.9709	0.9714	0.9953	2.2641	-0.8219	-1631.39	-1522.88	-1625.05

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

2 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70981E 01 B = 0.12387E 04 C = 0.21700E 03

2 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

VAPOR PRESSURE AT NBP

P = 769.5 AT T = 77.1

P = 762.1 AT T = 78.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

2 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 12

ID NUMBER = 11

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.98514E 00 B = -.22035E 01 C = 0.31714E 00

STANDARD DEVIATION = 0.18902E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.6782 G2INF = 2.4625

T1INF = 55.00 T2INF = 55.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2307

AREA BELOW THE X-AXIS IS -0.2416

CROSS-OVER POINT IS X = 0.48

NORMALIZED AREA DIFFERENCE IS -0.0230

CONSISTENCY INDEX IS 2.30

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER	VALUES	OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	77.81	617.37	C.5912F-10	0.77	0.00257
2	107.15	595.65	0.1025F-03	0.61	0.00252
3	85.54	621.91	0.1097F-01	0.95	0.00236
4	86.29	619.56	0.2758F-02	0.81	0.00233
5	104.61	597.50	0.3450F-03	0.59	0.00251
6	110.16	595.73	0.2726E-03	0.69	0.00248
7	116.09	587.88	0.3472E-03	C.70	0.00259
8	98.35	601.63	0.6477F-04	0.58	0.00250
9	98.33	601.68	C.6477F-04	C.58	0.00250
10	83.22	625.48	0.1369F-02	1.09	0.00238

ETHANOL(1) — ETHYL ACETATE(2) — SYSTEM 0560

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	444.00	60.C	C.0505	0.1107	342.58	4C8.7C	C.9677	C.9669	2.7458	0.9817	1.0286	-1439.00	-1546.48	-1537.33
2	444.50	60.0	0.0595	0.1100	342.58	408.70	0.9677	0.9669	2.3183	0.9929	0.8479	-1439.00	-1546.48	-1537.33
3	464.00	60.C	C.1319	0.2023	342.58	408.70	0.9666	0.9654	2.0052	1.0048	C.6909	-1439.CO	-1546.48	-1537.33
4	478.00	60.0	0.2286	0.2801	342.58	4C8.70	0.9658	0.9642	1.6489	1.0500	0.4513	-1439.00	-1546.48	-1537.33
5	478.50	60.0	0.2286	0.2889	342.58	408.70	0.9658	0.9642	1.7025	1.0382	0.4946	-1439.00	-1546.48	-1537.33
6	484.50	60.0	0.3279	0.3257	342.58	408.70	0.9655	C.9637	1.3544	1.1434	0.1693	-1439.00	-1546.48	-1537.33
7	485.00	60.0	0.4437	0.4244	342.58	408.70	0.9657	0.9635	1.3059	1.1802	0.1011	-1439.00	-1546.48	-1537.33
8	481.00	60.0	0.5011	0.4578	342.58	4C8.70	0.9661	C.9637	1.2375	1.2298	0.0062	-1439.00	-1546.48	-1537.33
9	479.50	60.0	0.5229	0.4625	342.58	4C8.70	0.9662	0.9639	1.1945	1.2710	-0.0621	-1439.00	-1546.48	-1537.33
10	474.00	60.0	0.5860	0.4865	342.58	408.70	0.9666	0.9642	1.1088	1.3838	-0.2216	-1439.CO	-1546.48	-1537.33
11	473.00	60.0	0.6200	0.5294	342.58	4C8.7C	0.9668	C.9642	1.1382	1.3787	-0.1917	-1439.00	-1546.48	-1537.33
12	466.00	60.0	0.6870	0.5880	342.58	408.70	0.9674	C.9646	1.1247	1.4444	-0.2502	-1439.00	-1546.48	-1537.33
13	454.00	60.0	0.7541	0.6285	342.58	408.70	0.9683	0.9654	1.0681	1.6166	-0.4145	-1439.CO	-1546.48	-1537.33
14	444.50	60.0	0.8064	0.6800	342.58	4C8.7C	C.9690	C.9660	1.0588	1.7328	-0.4926	-1439.00	-1546.48	-1537.33
15	421.50	60.0	0.8559	C.7260	342.58	4C8.7C	C.9707	0.9677	1.0118	1.8937	-0.6268	-1439.00	-1546.48	-1537.33
16	411.00	60.0	0.8940	0.7730	342.58	408.70	0.9714	0.9683	1.0065	2.0812	-0.7265	-1439.00	-1546.48	-1537.33
17	389.00	60.0	0.9247	C.8491	342.58	4C8.7C	0.9730	0.9698	1.0134	1.8463	-0.5999	-1439.00	-1546.48	-1537.33
18	375.00	60.0	0.9565	0.8849	342.58	408.70	0.9740	C.9708	0.9853	2.3526	-0.8703	-1439.00	-1546.48	-1537.33
19	361.50	60.0	C.9760	0.9393	342.58	408.70	0.9750	0.9717	0.9891	2.1700	-0.7857	-1439.00	-1546.48	-1537.33

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.C0 V = 161.3C OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 523.30 P = 37.80 V = 286.0C OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E C1 B = C.15543E C4 C = 0.22265E 03

2 A = 0.70981E 01 B = 0.12387E C4 C = 0.21700E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E C2 B = -.31109E-01 C = 0.16000E-03

2 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 769.5 AT T = 77.1

COMPONENT ID ECHO CHECK

ID NUMBER =11

ID NUMBER = 12

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10110E 01 B = -.2313CE 01 C = 0.49265E 00

STANDARD DEVIATION = 0.74425E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.7483 G2INF = 2.2479

T1INF = 60.00 T2INF = 60.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2370

AREA BELOW THE X-AXIS IS -0.2185

CROSS-OVER POINT IS X = 0.49

NORMALIZED AREA DIFFERENCE IS 0.0406

CONSISTENCY INDEX IS 4.06

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	854.45	-162.81	0.3365E-1C	4.75	0.00964
2	607.44	36.18	0.1112F-02	2.48	0.00960
3	905.66	-18C.99	0.2306E 00	6.34	0.01030
4	865.34	-168.52	C.6139F-01	4.97	0.00975
5	728.98	-80.22	0.5797F-02	2.59	0.00913
6	771.42	-113.57	0.4678E-02	3.13	0.00919
7	719.22	-72.73	0.5303F-02	2.46	0.00914
8	668.86	-25.53	0.8993E-03	2.13	0.00914
9	669.61	-26.25	C.8993F-03	2.14	0.00914
10	907.23	-182.03	0.3161F-01	6.36	0.01032

ETHANOL(2) ETHYL ACETATE(1) SYSTEM 056E

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	548.60	70.0	0.0065	0.0175	579.77	523.30	0.9624	0.9670	2.4451	1.0009	0.8932	-1393.94	-1286.76	-1378.80
2	559.40	70.0	0.0186	0.0460	579.77	523.30	0.9617	0.9663	2.3649	1.0019	0.8588	-1393.94	-1286.76	-1378.80
3	633.60	70.0	0.1310	0.2370	579.77	523.30	0.9574	0.9618	1.8870	1.0206	0.6147	-1393.94	-1286.76	-1378.80
4	664.60	70.0	0.2100	0.3210	579.77	523.30	0.9556	0.9598	1.6690	1.0457	0.4676	-1393.94	-1286.76	-1378.80
5	680.40	70.0	0.2630	0.3670	579.77	523.30	0.9547	0.9587	1.5582	1.0686	0.3772	-1393.94	-1286.76	-1378.80
6	703.80	70.0	0.3870	0.4540	579.77	523.30	0.9534	0.9571	1.3536	1.1443	0.1676	-1393.94	-1286.76	-1378.80
7	710.00	70.0	0.4520	0.4930	579.77	523.30	0.9531	0.9567	1.2686	1.1984	0.0569	-1393.94	-1286.76	-1378.80
8	712.20	70.0	0.4880	0.5170	579.77	523.30	0.9530	0.9565	1.2359	1.2255	0.0085	-1393.94	-1286.76	-1378.80
9	711.20	70.0	0.6250	0.5970	579.77	523.30	0.9532	0.9563	1.1131	1.3939	-0.2250	-1393.94	-1286.76	-1378.80
10	706.40	70.0	0.6910	0.6410	579.77	523.30	0.9536	0.9565	1.0741	1.4970	-0.3319	-1393.94	-1286.76	-1378.80
11	697.80	70.0	0.7550	0.6810	579.77	523.30	0.9543	0.9569	1.0324	1.6580	-0.4737	-1393.94	-1286.76	-1378.80
12	679.20	70.0	0.8220	0.7470	579.77	523.30	0.9556	0.9578	1.0140	1.7634	-0.5534	-1393.94	-1286.76	-1378.80
13	651.60	70.0	0.9030	0.8390	579.77	523.30	0.9575	0.9591	0.9967	1.9786	-0.6857	-1393.94	-1286.76	-1378.80
14	635.40	70.0	0.9320	0.8880	579.77	523.30	0.9586	0.9600	0.9978	1.9163	-0.6526	-1393.94	-1286.76	-1378.80
15	615.60	70.0	0.9750	0.9480	579.77	523.30	0.9599	0.9610	0.9880	2.3472	-0.8653	-1393.94	-1286.76	-1378.80

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

2 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70981E 01 B = 0.12387E 04 C = 0.21700E 03

2 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

VAPOR PRESSURE AT NBP

P = 769.5 AT T = 77.1

P = 762.1 AT T = 78.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

2 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 12

ID NUMBER = 11

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.88342E 00 B = -.19230E 01 C = 0.20711E 00

STANDARD DEVIATION = 0.33710E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.4192 G2INF = 2.2991

T1INF = 70.00 T2INF = 70.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2102

AREA BELOW THE X-AXIS IS -0.2192

CROSS-OVER POINT IS X = 0.48

NORMALIZED AREA DIFFERENCE IS -0.0211

CONSISTENCY INDEX IS 2.11

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	16.27	636.79	0.1819E-11	3.11	0.00296
2	112.64	540.33	0.1941E-03	1.80	0.00370
3	29.04	631.24	0.4720E-01	3.90	0.00284
4	38.14	617.49	0.1178E-01	3.01	0.00275
5	63.69	584.98	0.6776E-03	1.55	0.00279
6	50.08	608.05	0.3948E-03	3.09	0.00268
7	64.16	586.15	0.6818E-03	1.66	0.00277
8	100.23	551.35	0.1801E-03	1.72	0.00344
9	100.23	551.35	0.1800E-03	1.72	0.00344
10	28.15	632.23	0.9070E-02	3.93	0.00285

ETHANOL(1) — ETHYL ACETATE(2) — SYSTEM 056F

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	75.5	0.0505	0.1036	653.20	696.08	0.9557	0.9539	2.2762	0.9796	0.8431	-1210.39	-1318.15	-1299.58
2	760.00	73.8	0.1260	0.2146	610.18	658.06	0.9551	0.9527	2.0216	0.9851	0.7189	-1233.61	-1341.15	-1323.65
3	760.00	73.8	0.1343	0.2146	609.21	657.20	0.9550	0.9527	1.8997	0.9959	0.6458	-1234.15	-1341.69	-1324.21
4	760.00	73.0	0.2271	0.2960	591.55	641.45	0.9549	0.9522	1.5955	1.0238	0.4437	-1244.25	-1351.70	-1334.68
5	760.00	72.5	0.3128	0.3634	578.92	630.14	0.9548	0.9517	1.4530	1.0594	0.3159	-1251.68	-1359.07	-1342.39
6	760.00	72.3	0.3358	0.3843	573.84	625.57	0.9546	0.9516	1.3686	1.1024	0.2164	-1254.73	-1362.09	-1345.54
7	760.00	72.2	0.5052	0.4803	571.54	623.51	0.9549	0.9512	1.2046	1.2133	-0.0072	-1256.11	-1363.46	-1346.98
8	760.00	72.3	0.5441	0.5074	575.45	627.02	0.9551	0.9513	1.1738	1.2412	-0.0559	-1253.76	-1361.13	-1344.54
9	760.00	72.7	0.6442	0.5618	583.57	634.31	0.9555	0.9513	1.0828	1.3987	-0.2560	-1248.92	-1356.33	-1339.53
10	760.00	72.9	0.6828	0.6092	588.25	638.50	0.9557	0.9513	1.0992	1.3500	-0.2347	-1246.17	-1353.60	-1336.67
11	760.00	74.1	0.7860	0.6819	617.96	664.97	0.9566	0.9519	1.0184	1.6112	-0.4587	-1229.27	-1336.85	-1319.15
12	760.00	75.5	0.8774	0.7908	651.52	694.56	0.9575	0.9523	1.0039	1.7706	-0.5674	-1211.05	-1318.81	-1300.27
13	760.00	76.7	0.9482	0.8924	683.13	722.28	0.9583	0.9527	1.0012	2.0746	-0.7285	-1195.23	-1303.17	-1283.89

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.60 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

VAPOR-PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

2 A = 0.70981E 01 B = 0.12387E 04 C = 0.21700E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 769.5 AT T = 77.1

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 12

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.92597E 00 B = .20433E 01 C = 0.36186E 00

STANDARD DEVIATION = 0.39281E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.5243 G2INF = 2.1286

T1INF = 76.72 T2INF = 78.33

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2227

AREA BELOW THE X-AXIS IS -0.1977

CROSS-OVER POINT IS X = 0.50

NORMALIZED AREA DIFFERENCE IS 0.0593

HERINGTON J-FACTOR IS 1.97

CONSISTENCY INDEX IS 3.96

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	854.69	-190.68	0.9095E-12	14.18	0.00696
2	597.83	-30.84	0.4793E-03	3.70	0.00954
3	849.00	-186.09	0.4354E-01	14.17	0.00692
4	817.71	-172.11	0.1979E-01	11.91	0.00682
5	698.50	-107.28	0.3059E-02	4.09	0.00817
6	740.73	-95.20	0.1715E-02	13.32	0.00643
7	666.47	-74.24	0.3206E-02	4.27	0.00799
8	657.81	-85.27	0.2662E-03	3.11	0.00900
9	658.92	-86.42	0.2663E-03	3.11	0.00901
10	827.31	-171.41	0.1480E-01	13.56	0.00678

ETHANOL(1) HEPTANE(2) SYSTEM 057A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	103.60	30.0	0.0684	0.4556	77.48	57.86	0.9917	0.9872	8.8300	1.0320	2.1466	-2036.65	-2700.54	-1483.71
2	112.50	30.0	0.1236	0.4986	77.48	57.86	0.9905	0.9865	5.8000	1.0964	1.6659	-2036.65	-2700.54	-1483.71
3	117.70	30.0	0.2803	0.5344	77.48	57.86	0.9897	0.9863	2.8655	1.2967	0.7929	-2036.65	-2700.54	-1483.71
4	118.00	30.0	0.3342	0.5381	77.48	57.86	0.9896	0.9863	2.4260	1.3941	0.5540	-2036.65	-2700.54	-1483.71
5	119.90	30.0	0.5151	0.5496	77.48	57.86	0.9894	0.9863	1.6330	1.8964	-0.1495	-2036.65	-2700.54	-1483.71
6	119.90	30.0	0.5934	0.5675	77.48	57.86	0.9892	0.9865	1.4645	2.1702	-0.3933	-2036.65	-2700.54	-1483.71
7	119.60	30.0	0.7174	0.5828	77.48	57.86	0.9891	0.9867	1.2399	3.0080	-0.8863	-2036.65	-2700.54	-1483.71
8	118.90	30.0	0.7687	0.5971	77.48	57.86	0.9890	0.9870	1.1785	3.5293	-1.0969	-2036.65	-2700.54	-1483.71
9	117.00	30.0	0.8154	0.6282	77.48	57.86	0.9889	0.9876	1.1501	4.0182	-1.2510	-2036.65	-2700.54	-1483.71
10	114.50	30.0	0.8550	0.6454	77.48	57.86	0.9890	0.9881	1.1029	4.7772	-1.4659	-2036.65	-2700.54	-1483.71
11	111.30	30.0	0.8902	0.7116	77.48	57.86	0.9889	0.9894	1.1352	4.9941	-1.4815	-2036.65	-2700.54	-1483.71
12	82.50	30.0	0.9913	0.9430	77.48	57.86	0.9911	0.9951	1.0037	9.2891	-2.2251	-2036.65	-2700.54	-1483.71

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 540.20 P = 27.00 V = 431.90 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

2 A = 0.69024E 01 B = 0.12681E 04 C = 0.21690E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.12880E 03 B = -.60277E-01 C = 0.41160E-03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 759.4 AT T = 98.4

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 16

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.23183E 01 B = -.51217E 01 C = 0.78387E 00

STANDARD DEVIATION = 0.13705E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 10.1589 G2INF = 7.5344

T1INF = 30.00 T2INF = 30.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.5519

AREA BELOW THE X-AXIS IS -0.5331

CROSS-OVER POINT IS X = 0.49

NORMALIZED AREA DIFFERENCE IS 0.0173

CONSISTENCY INDEX IS 1.73

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1528.03	178.35	0.3569E-07	10.71	0.02490
2	1840.93	628.99	0.2275E-02	2.00	0.02133
3	2001.63	273.11	0.2350E 00	3.02	0.00591
4	2017.27	282.46	0.2928E-01	2.77	0.00683
5	1938.08	387.48	0.8269E-02	1.36	0.01023
6	1969.48	225.34	0.2224E-02	4.37	0.00735
7	1929.52	373.55	0.7917E-02	1.63	0.00906
8	1887.56	477.19	0.4669E-03	0.51	0.01406
9	1887.50	477.19	0.4666E-03	0.51	0.01406
10	2000.64	273.62	0.2080E-02	3.01	0.00589

DIAGNOSTIC

3 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION
SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1897.85	263.58	0.3320E-09	27.82	0.01472
2	2049.37	368.73	0.9831E-04	5.47	0.00580
3	1929.45	445.99	0.1526E 01	7.17	0.00670
4	1941.02	432.10	0.1889E-01	6.33	0.00613
5	1994.33	397.25	0.2605E-02	4.38	0.00477
6	1980.95	398.90	0.1437E-02	4.62	0.00482
7	2005.21	382.18	0.1525E-02	4.31	0.00483
8	2004.43	392.27	0.1075E-02	4.57	0.00483
9	2004.43	392.27	0.1070E-02	4.57	0.00483
10	1930.35	442.03	0.4753E-02	6.98	0.00662

ETHANOL(1) - HEPTANE(2) SYSTEM 057B

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	92.1	0.0100	0.1669	1200.31	597.81	0.9845	0.9474	10.3816	1.0081	2.3320	-1012.65	-1596.61	-921.60
2	760.00	85.0	0.0250	0.3371	934.92	483.22	0.9756	0.9461	10.6712	1.0062	2.3614	-1091.74	-1680.03	-965.74
3	760.00	78.8	0.0500	0.4667	740.94	396.43	0.9686	0.9459	9.2536	1.0125	2.2126	-1168.00	-1760.06	-1007.81
4	760.00	76.3	0.0750	0.5110	672.60	365.08	0.9660	0.9460	7.4211	1.0354	1.9696	-1200.48	-1794.09	-1025.61
5	760.00	75.0	0.1000	0.5396	639.52	349.74	0.9645	0.9464	6.1716	1.0462	1.7748	-1217.58	-1812.00	-1034.96
6	760.00	72.6	0.2000	0.5853	581.71	322.64	0.9620	0.9469	3.6700	1.1498	1.1606	-1250.03	-1845.99	-1052.67
7	760.00	71.8	0.3000	0.6029	563.79	314.16	0.9610	0.9472	2.5978	1.2927	0.6979	-1260.83	-1857.31	-1058.56
8	760.00	71.5	0.4000	0.6140	555.90	310.42	0.9605	0.9475	2.0114	1.4842	0.3039	-1265.72	-1862.43	-1061.22
9	760.00	71.3	0.5000	0.6250	551.21	308.18	0.9601	0.9479	1.6511	1.7435	-0.0544	-1268.66	-1865.51	-1062.82
10	760.00	71.2	0.6000	0.6302	549.37	307.55	0.9599	0.9481	1.3905	2.1541	-0.4377	-1269.50	-1866.39	-1063.28
11	760.00	71.3	0.7000	0.6495	550.54	307.87	0.9595	0.9490	1.2263	2.7219	-0.7974	-1269.08	-1865.95	-1063.05
12	760.00	71.6	0.8000	0.6834	557.70	311.27	0.9588	0.9508	1.1138	3.6544	-1.1882	-1264.60	-1861.26	-1060.61
13	760.00	72.6	0.9000	0.7449	582.41	322.97	0.9582	0.9543	1.0326	5.6969	-1.7078	-1249.61	-1845.55	-1052.45
14	760.00	74.3	0.9500	0.8214	622.12	341.63	0.9580	0.9590	1.0097	7.5786	-2.0157	-1226.98	-1821.85	-1040.10
15	760.00	75.8	0.9750	0.8869	659.10	358.84	0.9582	0.9632	1.0029	9.1780	-2.2139	-1207.34	-1801.27	-1029.36

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 540.20 P = 27.00 V = 431.90 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

2 A = 0.69024E 01 B = 0.12681E 04 C = 0.21650E 03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 759.4 AT T = 98.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.12880E 03 B = -.60277E-01 C = 0.41160E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 16

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.23622E 01 B = -.52439E 01 C = 0.74190E 00

STANDARD DEVIATION = 0.12636E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 10.6142 G2INF = 8.4977

T1INF = 98.43 T2INF = 78.33

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.5571

AREA BELOW THE X-AXIS IS -0.5696

CROSS-OVER POINT IS X = 0.48

NORMALIZED AREA DIFFERENCE IS -0.0111

HERINGTON J-FACTOR IS 11.85

CONSISTENCY INDEX IS -10.75

ETHANOL(2) HEXANE(1) SYSTEM 056A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	145.20	25.0	0.1000	0.6200	148.78	58.30	0.9870	0.9877	5.9660	1.0381	1.7487	-1886.85	-2161.86	-1257.43
2	172.10	25.0	0.2000	0.6940	148.78	58.30	0.9839	0.9868	3.9443	1.1136	1.2647	-1886.85	-2161.86	-1257.43
3	182.80	25.0	0.3000	0.7210	148.78	58.30	0.9826	0.9866	2.8978	1.2322	0.8552	-1886.85	-2161.86	-1257.43
4	187.50	25.0	0.4000	0.7340	148.78	58.30	0.9821	0.9865	2.2681	1.4057	0.4784	-1886.85	-2161.86	-1257.43
5	189.10	25.0	0.5000	0.7390	148.78	58.30	0.9819	0.9865	1.8420	1.6693	0.0985	-1886.85	-2161.86	-1257.43
6	190.40	25.0	0.7000	0.7490	148.78	58.30	0.9817	0.9867	1.3424	2.6943	-0.6967	-1886.85	-2161.86	-1257.43
7	190.40	25.0	0.8000	0.7580	148.78	58.30	0.9816	0.9869	1.1886	3.8974	-1.1875	-1886.85	-2161.86	-1257.43
8	189.40	25.0	0.9000	0.7760	148.78	58.30	0.9816	0.9874	1.0760	7.1808	-1.8982	-1886.85	-2161.86	-1257.43

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 507.90 P = 29.90 V = 372.40 OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68778E 01 B = -0.11715E 04 C = 0.22437E 03

2 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

VAPOR PRESSURE AT NBP

P = 759.0 AT T = 68.7

P = 762.1 AT T = 78.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12596E 03 B = -.14456E 00 C = 0.54720E-03

2 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 18

ID NUMBER = 11

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.20075E 01 B = -.33074E 01 C = -.10032E 01

STANDARD DEVIATION = 0.98099E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 7.4444 G2INF = 10.0052

T1INF = 25.00 T2INF = 25.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.5497

AREA BELOW THE X-AXIS IS -0.5304

CROSS-OVER POINT IS X = 0.52

NORMALIZED AREA DIFFERENCE IS 0.0179

CONSISTENCY INDEX IS 1.79

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	237.93	1427.32	0.1022E-08	19.64	0.02881
2	408.23	2120.03	0.4750E-04	0.50	0.00255
3	397.11	2034.51	0.3035E-02	1.08	0.00139
4	395.89	2065.63	0.5299E-03	0.67	0.00158
5	388.25	2119.58	0.1059E-03	0.24	0.00182
6	384.36	2039.64	0.2730E-04	1.42	0.00122
7	385.17	2122.53	0.1055E-03	0.30	0.00174
8	388.05	2134.35	0.1347E-04	0.21	0.00204
9	388.06	2134.22	0.1347E-04	0.21	0.00203
10	396.68	2036.90	0.7212E-04	1.06	0.00139

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

ETHANOL(1) HEXANE(2) SYSTEM 0588

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	528.60	55.0	0.0978	0.5110	465.17	273.77	0.9686	0.9675	5.7306	1.0109	1.7350	-1456.26	-1522.88	-984.75
2	615.40	55.0	0.1983	0.6150	465.17	273.77	0.9607	0.9657	3.9254	1.0406	1.3277	-1456.26	-1522.88	-984.75
3	650.40	55.0	0.2995	0.6550	465.17	273.77	0.9575	0.9654	2.9151	1.1274	0.9500	-1456.26	-1522.88	-984.75
4	664.90	55.0	0.3984	0.6620	465.17	273.77	0.9564	0.9649	2.2614	1.3140	0.5429	-1456.26	-1522.88	-984.75
5	667.70	55.0	0.4980	0.6660	465.17	273.77	0.9561	0.9649	1.8272	1.5627	0.1564	-1456.26	-1522.88	-984.75
6	669.20	55.0	0.5995	0.6710	465.17	273.77	0.9559	0.9651	1.5323	1.9340	-0.2328	-1456.26	-1522.88	-984.75
7	669.50	55.0	0.6990	0.6750	465.17	273.77	0.9558	0.9652	1.3225	2.5436	-0.6541	-1456.26	-1522.88	-984.75
8	668.00	55.0	0.8030	0.6790	465.17	273.77	0.9558	0.9655	1.1555	3.8311	-1.1987	-1456.26	-1522.88	-984.75
9	652.50	55.0	0.9012	0.6930	465.17	273.77	0.9566	0.9669	1.0273	7.1471	-1.9398	-1456.26	-1522.88	-984.75

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 507.90 P = 29.90 V = 372.40 OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68778E 01 B = -0.11715E 04 C = 0.22437E 03

2 A = 0.80449E 01 B = -0.15543E 04 C = -0.22265E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12596E 03 B = -.14456E 00 C = 0.54720E-03

2 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

VAPOR PRESSURE AT NBP

P = 759.0 AT T = 68.7

P = 762.1 AT T = 78.4

COMPONENT ID ECHO CHECK

ID NUMBER = 18

ID NUMBER = 11

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.19533E 01 B = -.27206E 01 C = -.16366E 01

STANDARD DEVIATION = 0.83884E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 7.0520 G2INF = 11.0661

T1INF = 55.00 T2INF = 55.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.5722

AREA BELOW THE X-AXIS IS -0.5247

CROSS-OVER POINT IS X = 0.54

NORMALIZED AREA DIFFERENCE IS 0.0433

CONSISTENCY INDEX IS 4.33

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	204.94	1658.59	0.8185E-11	48.74	0.03514
2	201.33	2190.91	0.9991E-03	13.29	0.01837
3	342.70	2327.07	0.4182E-01	10.68	0.00862
4	299.85	2398.59	0.1604E-01	9.40	0.00921
5	337.78	2210.09	0.4059E-02	5.09	0.01120
6	348.52	3077.13	0.7229E-03	31.01	0.00566
7	349.86	2256.30	0.3538E-02	8.39	0.00985
8	376.49	2041.58	0.4789E-04	1.34	0.01459
9	376.35	2043.87	0.5791E-04	1.35	0.01453
10	345.48	2324.79	0.9384E-03	10.91	0.00858

ETHANOL(2) HEXANE(1) SYSTEM DEC

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	66.7	C.0060	C.065C	456.62	677.41	C.9793	0.9523	17.6195	1.0000	2.8690	-1334.E4	-1331.42	-904.72
2	760.00	60.2	0.0450	0.2550	345.60	552.08	0.9666	0.9511	12.0186	1.0162	2.4704	-1435.76	-1398.48	-947.77
3	760.00	59.1	C.1020	0.2900	329.96	533.61	0.9644	0.9512	6.3011	1.0657	1.7771	-1452.88	-1405.84	-955.05
4	760.00	58.4	0.2350	0.3250	319.87	521.56	C.9623	C.9516	3.1550	1.2173	0.9523	-1464.42	-1417.50	-959.95
5	760.00	58.3	0.2750	0.3300	317.03	518.15	0.9620	0.9516	2.7611	1.2834	0.7661	-1467.73	-1419.70	-961.36
6	760.00	58.0	0.3300	0.3400	313.51	513.62	0.9614	0.9517	2.3957	1.3794	0.5520	-1471.89	-1422.45	-963.13
7	760.00	58.1	0.4120	0.3500	314.91	515.61	0.9609	0.9520	1.9657	1.5434	0.2419	-1470.23	-1421.35	-962.42
8	760.00	58.3	0.548C	0.3600	318.44	519.85	C.9606	0.9524	1.5027	1.9615	-0.2664	-1466.C8	-1418.60	-960.66
9	760.00	58.7	0.6670	0.3700	323.44	525.84	0.96C3	0.9528	1.2489	2.5922	-0.7302	-1460.28	-1414.75	-958.20
10	760.00	59.4	0.7550	0.3950	333.63	537.96	0.9596	C.9538	1.1411	3.3107	-1.0652	-1448.78	-1407.12	-953.31
11	760.00	61.8	0.8480	0.4680	370.61	581.15	0.9581	C.9570	1.0819	4.3584	-1.3933	-1410.12	-1381.47	-936.86
12	760.00	65.5	C.9200	0.5800	441.56	660.92	0.9571	0.9623	1.0362	5.7804	-1.7189	-1346.8C	-1339.39	-909.84
13	760.00	67.4	0.9400	0.6350	470.15	692.07	0.9566	C.9648	1.0423	6.4133	-1.8169	-1324.47	-1324.51	-900.28
14	760.00	73.2	0.9800	0.8070	595.33	822.91	0.9573	0.9733	1.0042	8.6315	-2.1513	-1242.06	-1269.44	-864.81
15	760.00	76.0	0.9900	0.9050	664.79	892.23	C.95E2	C.9782	0.9992	7.8768	-2.0647	-1204.43	-1244.17	-848.50

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 507.90 P = 29.90 V = 372.4C OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

2 A = 0.68778E 01 B = 0.11715E 04 C = 0.22437E 03

VAPOR PRESSUPE AT NBP

P = 762.1 AT T = 78.4

P = 759.6 AT T = 66.7

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.12596E 03 B = -.14456E 00 C = 0.54720E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 18

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.26330E 01 B = -.66343E 01 C = 0.20160E 01

STANDARD DEVIATION = 0.18076E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 13.9161 G2INF = 7.2803

T1INF = 68.74 T2INF = 78.33

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.5747

AREA BELOW THE X-AXIS IS -0.5868

CROSS-OVER POINT IS X = 0.46

NORMALIZED AREA DIFFERENCE IS -0.0104

HERINGTON J-FACTOR IS 8.15

CONSISTENCY INDEX IS -7.11

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1384.24	218.99	0.3565E-09	36.06	0.01724
2	2035.82	427.13	0.9186E-03	7.35	0.01120
3	2079.09	340.19	0.2154E 01	7.10	0.00692
4	2094.66	330.23	0.2532E-01	7.63	0.00673
5	2156.88	334.99	0.3126E-02	5.95	0.00732
6	2157.49	306.45	0.1572E-02	8.26	0.00644
7	2169.70	325.72	0.2081E-02	6.31	0.00712
8	2139.68	355.46	0.1060E-02	5.52	0.00782
9	2139.14	355.69	0.1056E-02	5.52	0.00783
10	2080.51	336.31	0.7468E-02	7.45	0.00682

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION
SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

ETHANOL(1) — METHYLCYCLOPENTANE(2) SYSTEM 056

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	66.3	0.0150	0.1500	449.04	614.28	0.9738	0.9582	16.4447	1.0187	2.7815	-1340.81	-1182.01	-840.86
2	760.00	63.7	0.0300	0.2220	402.22	566.21	0.9692	0.9579	13.5219	1.0269	2.5778	-1380.36	-1204.76	-856.24
3	760.00	61.3	0.0850	0.2950	361.85	523.58	0.9647	0.9581	7.0161	1.0669	1.8834	-1418.87	-1226.89	-871.18
4	760.00	60.3	0.2160	0.3320	347.12	507.73	0.9625	0.9585	3.2318	1.2172	0.9765	-1434.14	-1235.66	-877.09
5	760.00	60.0	0.3480	0.3500	343.33	503.62	0.9616	0.9588	2.1360	1.4362	0.3969	-1438.19	-1237.99	-878.66
6	760.00	60.1	0.4670	0.3610	344.08	504.44	0.9611	0.9591	1.6374	1.7249	-0.0521	-1437.38	-1237.52	-878.34
7	760.00	60.3	0.5800	0.3820	347.12	507.73	0.9603	0.9597	1.3817	2.1046	-0.4208	-1434.14	-1235.66	-877.09
8	760.00	61.2	0.7130	0.4130	361.06	522.74	0.9596	0.9609	1.1674	2.8449	-0.8908	-1419.67	-1227.35	-871.49
9	760.00	62.8	0.8000	0.4600	386.98	550.25	0.9587	0.9628	1.0803	3.5749	-1.1967	-1394.36	-1212.81	-861.68
10	760.00	64.6	0.8570	0.5190	417.94	582.51	0.9579	0.9652	1.0525	4.2175	-1.3881	-1366.52	-1196.80	-850.86
11	760.00	67.0	0.8980	0.5930	462.38	627.74	0.9573	0.9684	1.0367	4.6580	-1.5025	-1330.38	-1176.00	-836.80
12	760.00	73.6	0.9650	0.8150	606.08	766.46	0.9575	0.9784	1.0118	5.1030	-1.6181	-1235.92	-1121.48	-799.80
13	760.00	76.1	0.9850	0.9080	667.38	823.67	0.9582	0.9829	1.0037	5.5386	-1.7080	-1203.11	-1102.46	-786.85

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 532.80 P = 37.40 V = 319.00 OMEGA = 0.231 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = 0.15543E 04 C = 0.22765E 03

2 A = 0.68628E 01 B = 0.11861E 04 C = 0.22604E 03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 759.7 AT T = 71.8

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31165E-01 C = 0.16000E-03

2 A = 0.10427E 03 B = -.86757E-01 C = 0.39000E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 27

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.26791E 01 B = -.73338E-01 C = 0.30156E 01

STANDARD DEVIATION = 0.14902E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 14.5715 G2INF = 5.1505

T1INF = 71.81 T2INF = 78.33

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.5546

AREA BELOW THE X-AXIS IS -0.5373

CROSS-OVER POINT IS X = 0.45

NORMALIZED AREA DIFFERENCE IS 0.0159

HERINGTON J-FACTOR IS 7.23

CONSISTENCY INDEX IS -5.63

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	1927.56	66.07	0.1546E-10	50.88	0.02349
2	2372.61	282.16	0.3956E-03	11.66	0.01526
3	2160.42	166.03	0.7957E 00	20.55	0.00723
4	2167.99	178.16	0.3675E-01	18.65	0.00687
5	2178.04	250.22	0.5892E-02	9.51	0.00846
6	2140.74	204.41	0.1871E-02	16.95	0.00640
7	2181.36	252.61	0.3828E-02	9.05	0.00866
8	2214.55	269.06	0.2110E-02	7.39	0.01030
9	2214.18	269.11	0.2107E-02	7.39	0.01029
10	2169.37	156.17	0.7618E-02	21.31	0.00758

ETHANOL(1) — 1-PROPANOL(2) SYSTEM 06C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	93.8	0.1260	0.2400	1276.11	644.62	0.9660	0.9676	1.0935	0.9893	0.1002	-993.72	-971.96	-1007.80
2	760.00	92.7	0.1880	0.3180	1225.02	615.71	0.9657	0.9671	1.0112	0.9999	0.0113	-1006.33	-983.02	-1019.99
3	760.00	91.6	0.2100	0.3390	1180.88	590.85	0.9652	0.9666	1.0007	1.0375	-0.0361	-1017.72	-993.02	-1031.02
4	760.00	88.3	0.3580	0.5500	1052.21	519.05	0.9641	0.9649	1.0675	0.9876	0.0778	-1053.96	-1024.83	-1066.09
5	760.00	86.3	0.4610	0.6500	976.91	477.54	0.9632	0.9637	1.0543	0.9933	0.0596	-1077.62	-1045.63	-1089.00
6	760.00	85.0	0.5460	0.7110	932.87	453.44	0.9626	0.9630	1.0151	1.0246	-0.0055	-1092.45	-1058.67	-1103.36
7	760.00	84.1	0.6000	0.7600	904.29	437.88	0.9623	0.9625	1.0222	0.9996	0.0224	-1102.50	-1067.52	-1113.10
8	760.00	83.1	0.6630	0.7990	869.32	418.91	0.9617	0.9618	1.0111	1.0379	-0.0262	-1115.32	-1078.80	-1125.52
9	760.00	80.6	0.8440	0.9140	792.71	377.71	0.9605	0.9602	0.9951	1.0622	-0.0652	-1145.59	-1105.46	-1154.84

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 540.70 P = 51.00 V = 220.00 OMEGA = 0.612 OMEGAH = 0.201 DIPOLE = 1.68 ETA = 0.57

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

2 A = 0.79973E 01 B = 0.15657E 04 C = 0.20950E 03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 757.4 AT T = 97.2

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.77979E 02 B = -.91570E-01 C = 0.27520E-03

COMPONENT ID ECHO CHECK

IC NUMBER = 11

ID NUMBER = 37

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.20309E-01 B = 0.17191E 00 C = -.32565E 00

STANDARD DEVIATION = 0.48936E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.0205 G2INF = 1.1427

T1INF = 97.29 T2INF = 78.33

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0198

AREA BELOW THE X-AXIS IS -0.0221

CROSS-OVER POINT IS X = 0.63

NORMALIZED AREA DIFFERENCE IS -0.0547

HERINGTON J-FACTOR IS 8.09

CONSISTENCY INDEX IS -2.63

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-246.50	492.93	0.9095E-12	6.35	0.00723
2	249.48	-193.74	0.4813E-03	4.84	0.00770
3	-179.44	383.00	0.9377E-02	5.25	0.00712
4	-188.98	399.03	0.8681E-02	5.31	0.00713
5	-169.08	363.68	0.1893E-02	5.15	0.00713
6	-257.10	540.99	0.1304E-02	6.14	0.00706
7	-153.09	337.01	0.1755E-02	5.04	0.00713
8	-5.58	103.50	0.4601E-03	4.27	0.00731
9	-6.94	105.36	0.4599E-03	4.27	0.00731
10	-179.08	381.10	0.7271E 00	5.23	0.00713

ETHANOL(1) — 2-PROPANOL(2) — SYSTEM 061

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	81.5	0.1810	0.1935	820.27	727.84	0.9597	0.9871	0.9538	1.0108	-0.0581	-1134.32	-374.59	-790.23
2	760.00	81.1	0.3020	0.3235	809.58	717.65	0.9599	0.9869	0.9631	1.0101	-0.0476	-1138.64	-375.26	-792.92
3	760.00	80.9	0.3655	0.4140	801.41	709.87	0.9599	0.9867	1.0289	0.9729	0.0560	-1141.98	-375.78	-795.00
4	760.00	80.7	0.4010	0.4275	795.40	704.15	0.9599	0.9867	0.9757	1.0149	-0.0395	-1144.47	-376.17	-796.55
5	760.00	80.3	0.5140	0.5600	783.19	692.53	0.9599	0.9863	1.0127	0.9772	0.0356	-1149.58	-376.96	-799.74
6	760.00	80.1	0.5410	0.5725	778.17	687.75	0.9599	0.9863	0.9859	1.0122	-0.0223	-1151.70	-377.29	-801.07
7	760.00	79.9	0.6290	0.6620	772.30	682.16	0.9599	0.9860	0.9920	0.9980	-0.0060	-1154.21	-377.68	-802.63
8	760.00	79.6	0.7182	0.7536	762.70	673.02	0.9598	0.9857	1.0014	0.9705	0.0313	-1158.36	-378.33	-805.22
9	760.00	79.0	0.7916	0.8250	747.19	658.26	0.9596	0.9854	1.0150	0.9526	0.0634	-1165.20	-379.39	-809.48
10	760.00	78.9	0.8606	0.8705	744.91	656.09	0.9596	0.9852	0.9881	1.0572	-0.0675	-1166.21	-379.55	-810.12

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = -0.15543E 04 C = -0.22265E 03

2 A = 0.66604E 01 B = -0.81305E 03 C = 0.13293E 03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 769.7 AT T = 82.5

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 22

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = -.15106E 00 B = 0.57115E 00 C = -.48339E 00

STANDARD DEVIATION = 0.47621E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 0.9598 G2INF = 1.0654

T1INF = 82.19 T2INF = 78.33

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

EQUATION SOLVED FOR X-INTERCEPT

ROOTS ARE: X = 0.39971E 00 AND X = 0.78183E 00

BOTH ROOTS ARE IN THE RANGE 0 TO 1

THERMODYNAMIC CONSISTENCY TEST IS ABORTED

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-494.92	1068.88	0.2061E-11	18.10	0.01062
2	-10.49	29.93	0.8490E-04	1.88	0.00780
3	-317.96	606.47	0.1129E-01	2.80	0.00778
4	-318.83	602.55	0.1112E-01	3.06	0.00769
5	-179.58	292.45	0.1459E-02	2.12	0.00773
6	-229.66	370.39	0.1320E-02	3.81	0.00734
7	-165.65	266.57	0.1529E-02	2.10	0.00772
8	-29.84	56.98	0.8248E-04	1.88	0.00781
9	-16.50	38.71	0.8246E-04	1.87	0.00781
10	-313.64	588.40	0.1597E 01	3.01	0.00769

ETHANOL(1) TOLUENE(2) SYSTEM 062A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	43.80	30.0	0.0050	0.1380	77.48	36.48	0.9982	0.9947	15.5735	1.0343	2.7118	-2036.65	-2328.46	-1324.81
2	48.85	30.0	0.0100	0.2300	77.48	36.48	0.9974	0.9942	14.4613	1.0351	2.6369	-2036.65	-2328.46	-1324.81
3	53.20	30.0	0.0150	0.2950	77.48	36.48	0.9967	0.9939	13.4570	1.0370	2.5632	-2036.65	-2328.46	-1324.81
4	56.90	30.0	0.0200	0.3430	77.48	36.48	0.9961	0.9936	12.5438	1.0386	2.4914	-2036.65	-2328.46	-1324.81
5	66.95	30.0	0.0400	0.4490	77.48	36.48	0.9946	0.9930	9.6457	1.0455	2.2220	-2036.65	-2328.46	-1324.81
6	73.30	30.0	0.0600	0.5020	77.48	36.48	0.9938	0.9926	7.8643	1.0562	2.0077	-2036.65	-2328.46	-1324.81
7	77.20	30.0	0.0800	0.5310	77.48	36.48	0.9932	0.9925	6.5674	1.0702	1.8143	-2036.65	-2328.46	-1324.81
8	79.50	30.0	0.1000	0.5470	77.48	36.48	0.9929	0.9924	5.5717	1.0880	1.6334	-2036.65	-2328.46	-1324.81
9	83.05	30.0	0.1500	0.5720	77.48	36.48	0.9924	0.9922	4.0556	1.1368	1.2719	-2036.65	-2328.46	-1324.81
10	85.40	30.0	0.2000	0.5880	77.48	36.48	0.9921	0.9922	3.2142	1.1955	0.9890	-2036.65	-2328.46	-1324.81
11	88.30	30.0	0.3000	0.6110	77.48	36.48	0.9917	0.9921	2.3013	1.3338	0.5455	-2036.65	-2328.46	-1324.81
12	90.00	30.0	0.4000	0.6280	77.48	36.48	0.9914	0.9921	1.8076	1.5167	0.1755	-2036.65	-2328.46	-1324.81
13	91.30	30.0	0.5000	0.6450	77.48	36.48	0.9912	0.9922	1.5064	1.7621	-0.1568	-2036.65	-2328.46	-1324.81
14	92.10	30.0	0.6000	0.6650	77.48	36.48	0.9910	0.9924	1.3053	2.0970	-0.4741	-2036.65	-2328.46	-1324.81
15	92.40	30.0	0.7000	0.6910	77.48	36.48	0.9908	0.9926	1.1662	2.5881	-0.7972	-2036.65	-2328.46	-1324.81
16	91.55	30.0	0.8000	0.7350	77.48	36.48	0.9907	0.9932	1.0752	3.3007	-1.1216	-2036.65	-2328.46	-1324.81
17	90.30	30.0	0.8500	0.7700	77.48	36.48	0.9907	0.9937	1.0457	3.7696	-1.2823	-2036.65	-2328.46	-1324.81
18	88.10	30.0	0.9000	0.8180	77.48	36.48	0.9908	0.9945	1.0237	4.3687	-1.4511	-2036.65	-2328.46	-1324.81
19	84.45	30.0	0.9500	0.8890	77.48	36.48	0.9910	0.9957	1.0106	5.1142	-1.6215	-2036.65	-2328.46	-1324.81

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 594.00 P = 40.00 V = 331.10 OMEGA = 0.241 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

2 A = 0.69533E 01 B = 0.13439E 04 C = 0.21938E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.98864E 02 B = -.55774E-01 C = 0.27703E-03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 759.4 AT T = 110.6

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 33

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.25206E 01 B = -.71981E 01 C = 0.31819E 01

STANDARD DEVIATION = 0.16336E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 12.4358 G2INF = 4.4619

T1INF = 30.00 T2INF = 30.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.5027

AREA BELOW THE X-AXIS IS -0.5206

CROSS-OVER POINT IS X = 0.43

NORMALIZED AREA DIFFERENCE IS -0.0174

CONSISTENCY INDEX IS 1.74

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	1600.13	14.41	0.4916E-06	5.81	0.02677
2	2329.25	129.33	0.3206E-02	4.51	0.04682
3	1704.96	195.82	0.9763E-01	0.82	0.00688
4	1703.80	199.50	0.1758E-01	0.78	0.00704
5	1725.70	192.80	0.5932E-02	0.67	0.00819
6	1702.60	148.32	0.1091E-02	1.80	0.00425
7	1714.20	180.77	0.5172E-02	1.00	0.00668
8	1753.70	158.37	0.1013E-02	0.49	0.01097
9	1758.76	198.27	0.1013E-02	0.49	0.01097
10	1700.10	207.66	0.7554E-03	0.70	0.00733

ETHANOL(1) — TOLUENE(2) SYSTEM 062H

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	85.20	45.0	0.0050	0.1190	170.21	73.53	0.9973	0.9915	11.8778	1.0167	2.4581	-1708.12	-1999.08	-1162.57
2	94.00	45.0	0.0100	0.2040	170.21	73.53	0.9961	0.9908	11.2185	1.0179	2.3998	-1708.12	-1999.08	-1162.57
3	101.80	45.0	0.0150	0.2680	170.21	73.53	0.9950	0.9903	10.6294	1.0182	2.3455	-1708.12	-1999.08	-1162.57
4	108.80	45.0	0.0200	0.3180	170.21	73.53	0.9942	0.9898	10.1007	1.0186	2.2942	-1708.12	-1999.08	-1162.57
5	130.10	45.0	0.0400	0.4380	170.21	73.53	0.9917	0.9886	8.2965	1.0233	2.0928	-1708.12	-1999.08	-1162.57
6	143.90	45.0	0.0600	0.4970	170.21	73.53	0.9901	0.9880	6.9309	1.0338	1.9028	-1708.12	-1999.08	-1162.57
7	153.15	45.0	0.0800	0.5320	170.21	73.53	0.9892	0.9876	5.9158	1.0455	1.7332	-1708.12	-1999.08	-1162.57
8	159.60	45.0	0.1000	0.5550	170.21	73.53	0.9885	0.9873	5.1415	1.0587	1.5803	-1708.12	-1999.08	-1162.57
9	169.55	45.0	0.1500	0.5880	170.21	73.53	0.9874	0.9870	3.8536	1.1021	1.2518	-1708.12	-1999.08	-1162.57
10	175.70	45.0	0.2000	0.6080	170.21	73.53	0.9868	0.9868	3.0948	1.1543	0.9862	-1708.12	-1999.08	-1162.57
11	183.10	45.0	0.3000	0.6340	170.21	73.53	0.9859	0.9867	2.2402	1.2833	0.5571	-1708.12	-1999.08	-1162.57
12	187.80	45.0	0.4000	0.6530	170.21	73.53	0.9854	0.9867	1.7739	1.4559	0.1976	-1708.12	-1999.08	-1162.57
13	191.30	45.0	0.5000	0.6720	170.21	73.53	0.9850	0.9867	1.4869	1.6823	-0.1234	-1708.12	-1999.08	-1162.57
14	193.65	45.0	0.6000	0.6930	170.21	73.53	0.9846	0.9870	1.2931	1.9928	-0.4325	-1708.12	-1999.08	-1162.57
15	194.90	45.0	0.7000	0.7190	170.21	73.53	0.9843	0.9874	1.1570	2.4487	-0.7498	-1708.12	-1999.08	-1162.57
16	194.30	45.0	0.8000	0.7610	170.21	73.53	0.9840	0.9883	1.0679	3.1173	-1.0713	-1708.12	-1999.08	-1162.57
17	192.55	45.0	0.8500	0.7940	170.21	73.53	0.9840	0.9891	1.0392	3.5531	-1.2294	-1708.12	-1999.08	-1162.57
18	189.10	45.0	0.9000	0.8380	170.21	73.53	0.9841	0.9902	1.0174	4.1211	-1.3989	-1708.12	-1999.08	-1162.57
19	183.00	45.0	0.9500	0.9020	170.21	73.53	0.9844	0.9920	1.0043	4.8338	-1.5713	-1708.12	-1999.08	-1162.57

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 594.00 P = 40.00 V = 331.10 OMEGA = 0.241 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

2 A = 0.69533E 01 B = 0.13439E 04 C = 0.21938E 03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 759.4 AT T = 110.6

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.98864E 02 B = -.55774E-01 C = 0.27703E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 33

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.23331E 01 B = -.63733E 01 C = 0.25425E 01

STANDARD DEVIATION = 0.12329E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 10.3103 G2INF = 4.4710

T1INF = 45.00 T2INF = 45.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4819

AREA BELOW THE X-AXIS IS -0.4879

CROSS-OVER POINT IS X = 0.45

NORMALIZED AREA DIFFERENCE IS -0.0062

CONSISTENCY INDEX IS 0.62

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1549.84	35.34	0.9095E-12	8.27	0.02072
2	1803.89	137.86	0.9869E-03	2.90	0.01663
3	1610.33	190.84	0.3987E-01	0.73	0.00334
4	1612.63	187.23	0.4648E-02	0.74	0.00332
5	1633.04	171.09	0.1485E-02	0.75	0.00412
6	1615.11	160.18	0.3629E-03	1.44	0.00247
7	1626.93	166.54	0.1354E-02	0.97	0.00339
8	1653.01	167.55	0.3721E-03	0.61	0.00553
9	1653.09	167.52	0.3721E-03	0.61	0.00554
10	1608.42	195.58	0.1880E-03	0.72	0.00347

ETHANOL(1) TOLUENE(2) SYSTEM 062C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	155.40	60.0	0.0050	0.1030	342.58	137.22	0.9960	0.9870	9.3030	1.0069	2.2235	-1439.00	-1745.90	-1033.14
2	169.55	60.0	0.0100	0.1810	342.58	137.22	0.9944	0.9861	8.9036	1.0070	2.1795	-1439.00	-1745.90	-1033.14
3	182.55	60.0	0.0150	0.2420	342.58	137.22	0.9930	0.9852	8.5325	1.0077	2.1362	-1439.00	-1745.90	-1033.14
4	194.40	60.0	0.0200	0.2910	342.58	137.22	0.9918	0.9846	8.1843	1.0081	2.0942	-1439.00	-1745.90	-1033.14
5	232.60	60.0	0.0400	0.4160	342.58	137.22	0.9882	0.9826	6.9730	1.0120	1.9301	-1439.00	-1745.90	-1033.14
6	260.40	60.0	0.0600	0.4850	342.58	137.22	0.9857	0.9814	6.0518	1.0189	1.7816	-1439.00	-1745.90	-1033.14
7	291.20	60.0	0.0800	0.5290	342.58	137.22	0.9839	0.9806	5.3359	1.0272	1.6476	-1439.00	-1745.90	-1033.14
8	296.45	60.0	0.1000	0.5570	342.58	137.22	0.9826	0.9800	4.7320	1.0405	1.5146	-1439.00	-1745.90	-1033.14
9	319.70	60.0	0.1500	0.5970	342.58	137.22	0.9807	0.9793	3.6389	1.0799	1.2149	-1439.00	-1745.90	-1033.14
10	333.50	60.0	0.2000	0.6200	342.58	137.22	0.9795	0.9789	2.9531	1.1280	0.9624	-1439.00	-1745.90	-1033.14
11	351.65	60.0	0.3000	0.6520	342.58	137.22	0.9779	0.9785	2.1794	1.2443	0.5605	-1439.00	-1745.90	-1033.14
12	363.70	60.0	0.4000	0.6750	342.58	137.22	0.9769	0.9784	1.7483	1.4015	0.2208	-1439.00	-1745.90	-1033.14
13	371.60	60.0	0.5000	0.6950	342.58	137.22	0.9761	0.9784	1.4702	1.6131	-0.0928	-1439.00	-1745.90	-1033.14
14	377.70	60.0	0.6000	0.7170	342.58	137.22	0.9755	0.9787	1.2838	1.9021	-0.3932	-1439.00	-1745.90	-1033.14
15	381.70	60.0	0.7000	0.7430	342.58	137.22	0.9749	0.9793	1.1517	2.3288	-0.7041	-1439.00	-1745.90	-1033.14
16	382.65	60.0	0.8000	0.7850	342.58	137.22	0.9744	0.9806	1.0668	2.9334	-1.0115	-1439.00	-1745.90	-1033.14
17	380.70	60.0	0.8500	0.8140	342.58	137.22	0.9743	0.9816	1.0358	3.3701	-1.1798	-1439.00	-1745.90	-1033.14
18	375.90	60.0	0.9000	0.8560	342.58	137.22	0.9744	0.9833	1.0156	3.8710	-1.3379	-1439.00	-1745.90	-1033.14
19	366.80	60.0	0.9500	0.9140	342.58	137.22	0.9747	0.9857	1.0030	4.5232	-1.5062	-1439.00	-1745.90	-1033.14

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 594.00 P = 40.00 V = 331.10 OMEGA = 0.241 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

2 A = 0.69533E 01 B = 0.13439E 04 C = 0.21938E 03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 759.4 AT T = 110.6

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.98864E 02 B = -.55774E-01 C = 0.27703E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 33

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.21439E 01 B = -.55964E 01 C = 0.19714E 01

STANDARD DEVIATION = 0.91102E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 8.5324 G2INF = 4.3978

T1INF = 60.00 T2INF = 60.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4581

AREA BELOW THE X-AXIS IS -0.4553

CROSS-OVER POINT IS X = 0.46

NORMALIZED AREA DIFFERENCE IS 0.0031

CONSISTENCY INDEX IS 0.31

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1490.75	49.61	0.1077E-08	11.19	0.01587
2	1575.91	149.34	0.1925E-03	1.35	0.00465
3	1521.79	180.51	0.1356E-01	1.08	0.00146
4	1524.26	176.15	0.1446E-02	0.93	0.00148
5	1538.92	161.49	0.4307E-03	0.85	0.00207
6	1525.95	167.16	0.1605E-03	1.04	0.00159
7	1536.25	161.03	0.4111E-03	0.95	0.00190
8	1549.69	155.72	0.1618E-03	0.76	0.00266
9	1549.72	155.65	0.1618E-03	0.76	0.00266
10	1521.40	181.19	0.7826E-04	1.10	0.00146

ETHANOL(1) — WATER(2) SYSTEM 063A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	66.30	40.0	0.0250	0.1800	132.30	55.11	0.9942	0.9975	3.5864	1.0092	1.2679	-1810.36	-746.44	-1207.61
2	79.60	40.0	0.0580	0.3160	132.30	55.11	0.9929	0.9970	3.2539	1.0456	1.1352	-1810.36	-746.44	-1207.61
3	91.90	40.0	0.0990	0.4240	132.30	55.11	0.9917	0.9966	2.9494	1.0624	1.0211	-1810.36	-746.44	-1207.61
4	99.60	40.0	0.1300	0.4730	132.30	55.11	0.9910	0.9964	2.7135	1.0907	0.9114	-1810.36	-746.44	-1207.61
5	115.20	40.0	0.2030	0.5360	132.30	55.11	0.9895	0.9958	1.5756	1.3661	0.1427	-1810.36	-746.44	-1207.61
6	121.00	40.0	0.3980	0.5950	132.30	55.11	0.9889	0.9957	1.3516	1.4707	-0.0844	-1810.36	-746.44	-1207.61
7	127.40	40.0	0.5600	0.6860	132.30	55.11	0.9883	0.9956	1.1653	1.6423	-0.3431	-1810.36	-746.44	-1207.61
8	130.50	40.0	0.6760	0.7440	132.30	55.11	0.9880	0.9956	1.0721	1.8626	-0.5523	-1810.36	-746.44	-1207.61
9	132.90	40.0	0.7790	0.8080	132.30	55.11	0.9877	0.9956	1.0287	2.0857	-0.7068	-1810.36	-746.44	-1207.61
10	134.00	40.0	0.8600	0.8690	132.30	55.11	0.9876	0.9956	1.0103	2.2651	-0.8074	-1810.36	-746.44	-1207.61

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = -0.15543E 04 C = -0.22265E 03

2 A = 0.79668E 01 B = -0.16682E 04 C = -0.22800E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 760.0 AT T = 100.0

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.14054E 01 B = -.46114E 01 C = 0.24305E 01

STANDARD DEVIATION = 0.68374E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 4.0770 G2INF = 2.1718

T1INF = 40.00 T2INF = 40.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2456

AREA BELOW THE X-AXIS IS -0.3357

CROSS-OVER POINT IS X = 0.36

NORMALIZED AREA DIFFERENCE IS -0.1551

CONSISTENCY INDEX IS 15.51

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	119.11	755.67	0.2046E-09	5.57	0.02340
2	706.77	813.18	0.2038E-02	5.38	0.04484
3	-75.16	1006.69	0.2482E 00	1.70	0.02062
4	20.96	925.60	0.9206E-01	1.72	0.02020
5	116.88	880.71	0.1920E-01	1.62	0.02207
6	295.35	710.78	0.9864E-02	5.17	0.02139
7	217.38	801.93	0.1356E-01	2.94	0.02100
8	51.40	958.66	0.1705E-02	1.06	0.02506
9	51.42	958.64	0.1705E-02	1.06	0.02506
10	-54.41	1001.62	0.3930E-01	1.55	0.02170

ETHANOL(1) WATER(2) SYSTEM 0638

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	75.14	40.0	0.0620	0.3740	132.30	55.11	0.9933	0.9972	3.4020	0.9074	1.3216	-1810.36	-746.44	-1207.61
2	89.00	40.0	0.0770	0.4060	132.30	55.11	0.9920	0.9967	3.5176	1.0359	1.2225	-1810.36	-746.44	-1207.61
3	94.60	40.0	0.0980	0.4500	132.30	55.11	0.9914	0.9965	3.2542	1.0430	1.1378	-1810.36	-746.44	-1207.61
4	101.50	40.0	0.1280	0.4880	132.30	55.11	0.9908	0.9963	2.8970	1.0774	0.9892	-1810.36	-746.44	-1207.61
5	109.00	40.0	0.1810	0.5430	132.30	55.11	0.9901	0.9961	2.4462	1.0993	0.7999	-1810.36	-746.44	-1207.61
6	116.90	40.0	0.3190	0.5980	132.30	55.11	0.9893	0.9958	1.6381	1.2469	0.2729	-1810.36	-746.44	-1207.61
7	121.05	40.0	0.3990	0.6280	132.30	55.11	0.9889	0.9957	1.4236	1.3537	0.0503	-1810.36	-746.44	-1207.61
8	125.50	40.0	0.5110	0.6760	132.30	55.11	0.9885	0.9956	1.2399	1.5022	-0.1919	-1810.36	-746.44	-1207.61
9	130.40	40.0	0.6830	0.7460	132.30	55.11	0.9880	0.9956	1.0632	1.8874	-0.5740	-1810.36	-746.44	-1207.61
10	132.50	40.0	0.7740	0.8090	132.30	55.11	0.9878	0.9956	1.0335	2.0228	-0.6715	-1810.36	-746.44	-1207.61
11	132.80	40.0	0.8100	0.8290	132.30	55.11	0.9877	0.9956	1.0143	2.1591	-0.7555	-1810.36	-746.44	-1207.61
12	133.50	40.0	0.8750	0.8790	132.30	55.11	0.9876	0.9957	1.0007	2.3346	-0.8471	-1810.36	-746.44	-1207.61
13	133.80	40.0	0.9570	0.9560	132.30	55.11	0.9876	0.9958	0.9973	2.4737	-0.9084	-1810.36	-746.44	-1207.61

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 760.0 AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.15607E 01 B = -.45668E 01 C = 0.20989E 01

STANDARD DEVIATION = 0.28722E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 4.7619 G2INF = 2.4774

T1INF = 40.00 T2INF = 40.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3045

AREA BELOW THE X-AXIS IS -0.3277

CROSS-OVER POINT IS X = 0.42

NORMALIZED AREA DIFFERENCE IS -0.0365

CONSISTENCY INDEX IS 3.65

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER	VALUES	OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	146.95	830.75	0.3638E-11	3.83	0.01542
2	273.22	875.79	0.1449E-01	1.66	0.00639
3	179.89	910.20	0.1913E 00	2.14	0.00686
4	178.06	892.85	C.4064E-01	2.04	0.00572
5	127.09	927.45	0.1658E-01	2.10	0.00614
6	245.55	865.63	0.1003E-02	1.86	0.00500
7	183.44	896.15	C.9964E-02	1.95	0.00524
8	68.52	961.99	0.1441E-01	2.41	0.00798
9	68.38	962.12	C.1441E-01	2.41	0.00798
10	171.70	890.96	0.1261E-01	2.12	0.00630

ETHANOL(1) WATER(2) SYSTEM 063C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OI	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	115.70	50.0	C.029C	0.2080	216.87	92.18	0.9912	C.9960	3.7915	1.0196	1.3133	-1612.44	-7CC.14	-1C95.15
2	161.00	50.0	0.1100	0.4390	216.87	92.18	0.9874	0.9946	2.9242	1.0949	0.9824	-1612.44	-700.14	-1095.15
3	187.90	5C.0	C.2460	0.5210	216.87	92.18	0.9852	C.9938	1.8069	1.2867	0.3395	-1612.44	-7CC.14	-1095.15
4	204.80	50.0	0.4510	0.6230	216.87	92.18	0.9838	0.9934	1.2826	1.5154	-0.1668	-1612.44	-700.14	-1095.15
5	213.40	5C.0	0.5810	0.6850	216.87	92.18	0.9831	0.9932	1.1398	1.7284	-0.4163	-1612.44	-700.14	-1095.15
6	218.10	50.0	C.682C	C.740C	216.87	92.18	0.9826	0.9932	1.0716	1.9210	-0.5837	-1612.44	-7CC.14	-1095.15
7	222.80	50.0	0.8620	0.8700	216.87	92.18	0.9822	0.9933	1.0178	2.2613	-0.7984	-1612.44	-700.14	-1095.15
8	222.90	50.0	0.8850	0.8910	216.87	92.18	0.9822	0.9934	1.0157	2.2764	-0.8070	-1612.44	-700.14	-1095.15
9	223.00	5C.0	C.9260	0.9290	216.87	92.18	0.9822	0.9935	1.0125	2.3056	-0.8229	-1612.44	-7CC.14	-1095.15
10	223.10	50.0	0.9470	0.9450	216.87	92.18	0.9822	0.9935	1.0076	2.4949	-0.9067	-1612.44	-700.14	-1095.15

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 647.40 P = ***** V = 55.2C OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 76C.C AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.160COE-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.14174E 01 B = -.45141E 01 C = 0.22421E 01

STANDARD DEVIATION = 0.5194CE-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 4.1265 G2INF = 2.3506

T1INF = 50.00 T2INF = 50.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2538

AREA BELOW THE X-AXIS IS -0.3461

CROSS-OVER POINT IS X = C.3S

NORMALIZED AREA DIFFERENCE IS -0.1538

CONSISTENCY INDEX IS 15.38

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	66.00	845.25	0.8267E-03	7.52	0.01819
2	999.19	819.13	0.6977E-03	5.7C	0.03037
3	45.73	945.17	0.1963E 00	3.24	0.01545
4	104.40	92C.3C	C.657CE-C1	3.14	0.01572
5	166.89	915.64	0.1304E-01	2.36	0.01736
6	317.98	753.89	0.6275E-02	7.75	0.01624
7	256.79	844.73	0.9216E-02	4.34	0.01604
8	105.69	988.01	0.9311E-03	1.27	0.02152
9	105.66	988.04	C.9312E-03	1.27	0.02153
10	50.74	943.02	0.2076E-C1	3.22	0.01547

ETHANOL(1) WATER(2) SYSTEM 063D

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	173.35	55.0	0.0510	0.3360	273.77	117.58	0.9875	0.9944	4.1176	1.0256	1.3900	-1522.88	-678.31	-1043.63
2	197.80	55.0	0.0850	0.4280	273.77	117.58	0.9857	0.9937	3.5837	1.0448	1.2326	-1522.88	-678.31	-1043.63
3	207.50	55.0	0.1060	0.4610	273.77	117.58	0.9849	0.9934	3.2446	1.0568	1.1218	-1522.88	-678.31	-1043.63
4	227.30	55.0	0.1800	0.5240	273.77	117.58	0.9834	0.9928	2.3752	1.1139	0.7572	-1522.88	-678.31	-1043.63
5	236.30	55.0	0.2300	0.5550	273.77	117.58	0.9827	0.9926	2.0453	1.1526	0.5735	-1522.88	-678.31	-1043.63
6	248.20	55.0	0.3240	0.5890	273.77	117.58	0.9818	0.9923	1.6169	1.2732	0.2389	-1522.88	-678.31	-1043.63
7	258.00	55.0	0.4290	0.6280	273.77	117.58	0.9810	0.9920	1.3523	1.4178	-0.0473	-1522.88	-678.31	-1043.63
8	267.00	55.0	0.5530	0.6800	273.77	117.58	0.9803	0.9919	1.1747	1.6121	-0.3165	-1522.88	-678.31	-1043.63
9	274.90	55.0	0.6850	0.7460	273.77	117.58	0.9796	0.9918	1.0704	1.8693	-0.5575	-1522.88	-678.31	-1043.63
10	278.40	55.0	0.7740	0.8010	273.77	117.58	0.9793	0.9918	1.0298	2.0673	-0.6969	-1522.88	-678.31	-1043.63
11	279.40	55.0	0.8100	0.8290	273.77	117.58	0.9793	0.9919	1.0220	2.1207	-0.7300	-1522.88	-678.31	-1043.63
12	280.60	55.0	0.8940	0.8980	273.77	117.58	0.9791	0.9920	1.0072	2.2776	-0.8159	-1522.88	-678.31	-1043.63
13	280.50	55.0	0.9540	0.9520	273.77	117.58	0.9791	0.9922	1.0003	2.4693	-0.9037	-1522.88	-678.31	-1043.63

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 760.0 AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53761E C2 B = -.31109E-01 C = 0.16000E-03

2 A = 0.22887E C2 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.15941E 01 B = -.48135E 01 C = 0.23615E 01

STANDARD DEVIATION = 0.37886E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 4.9239 G2INF = 2.3581

T1INF = 55.00 T2INF = 55.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3033

AREA BELOW THE X-AXIS IS -0.3288

CROSS-OVER POINT IS X = 0.42

NORMALIZED AREA DIFFERENCE IS -0.0403

CONSISTENCY INDEX IS 4.03

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	210.06	831.32	C.3638E-11	10.22	0.01707
2	622.07	843.71	0.9552E-04	2.63	0.00898
3	293.09	905.10	0.6552E-01	2.20	0.00549
4	339.00	889.91	0.1239E-01	2.08	0.00502
5	330.33	906.01	0.2431E-02	1.66	0.00613
6	338.28	876.93	0.1041E-02	2.72	0.00511
7	347.96	892.55	0.1763E-02	1.83	0.00543
8	327.30	917.84	0.6980E-03	1.51	0.00731
9	327.28	917.84	0.6979E-03	1.51	0.00731
10	320.71	890.92	0.5011E-02	2.32	0.00507

ETHANOL(1) — WATER(2) — SYSTEM 063E

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	195.70	60.0	0.0330	0.2330	342.58	148.70	0.9870	0.9939	3.9789	1.0373	1.3444	-1439.00	-657.27	-994.96
2	270.00	60.0	0.1250	0.4460	342.58	148.70	0.9817	0.9917	2.7586	1.1399	0.8838	-1439.00	-657.27	-994.96
3	306.50	60.0	0.2670	0.5110	342.58	148.70	0.9792	0.9907	1.6751	1.3620	0.2069	-1439.00	-657.27	-994.96
4	330.80	60.0	0.4590	0.5800	342.58	148.70	0.9774	0.9901	1.1914	1.7096	-0.3611	-1439.00	-657.27	-994.96
5	343.10	60.0	0.5970	0.6640	342.58	148.70	0.9764	0.9900	1.0866	1.9039	-0.5609	-1439.00	-657.27	-994.96
6	349.40	60.0	0.6820	0.7380	342.58	148.70	0.9759	0.9900	1.0760	1.9160	-0.5770	-1439.00	-657.27	-994.96
7	354.20	60.0	0.8650	0.8750	342.58	148.70	0.9755	0.9903	1.0192	2.1835	-0.7619	-1439.00	-657.27	-994.96
8	355.40	60.0	0.8910	0.8900	342.58	148.70	0.9754	0.9903	1.0097	2.3879	-0.8607	-1439.00	-657.27	-994.96
9	355.00	60.0	0.9280	0.9280	342.58	148.70	0.9754	0.9904	1.0097	2.3639	-0.8506	-1439.00	-657.27	-994.96
10	354.60	60.0	0.9490	0.9490	342.58	148.70	0.9754	0.9905	1.0086	2.3614	-0.8507	-1439.00	-657.27	-994.96

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = -0.15543E 04 C = -0.22265E 03

2 A = 0.79668E 01 B = -0.16682E 04 C = 0.22800E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 760.0 AT T = 100.0

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.14696E 01 B = -.51779E 01 C = 0.29221E 01

STANDARD DEVIATION = 0.74054E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 4.3475 G2INF = 2.1952

T1INF = 60.00 T2INF = 60.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2390

AREA BELOW THE X-AXIS IS -0.3844

CROSS-OVER POINT IS X = 0.35

NORMALIZED AREA DIFFERENCE IS -0.2332

CONSISTENCY INDEX IS 23.32

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	163.26	809.81	0.6899E-08	15.71	0.02648
2	1569.19	844.20	0.8523E-03	12.73	0.04292
3	134.94	938.30	0.3837E 00	6.35	0.02430
4	223.57	903.80	0.1311E 00	6.23	0.02437
5	314.73	891.14	0.2864E-01	5.22	0.02585
6	552.92	691.96	0.1678E-01	16.11	0.02457
7	455.01	798.65	0.2127E-01	5.70	0.02471
8	189.68	1001.65	0.6730E-03	1.90	0.03107
9	189.73	1001.63	0.6730E-03	1.90	0.03107
10	139.74	937.66	0.3981E-01	6.23	0.02440

ETHANOL(1) WATER(2) SYSTEM 063F

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	362.50	70.0	0.0620	0.3740	523.30	232.15	0.9788	0.9898	4.0860	1.0311	1.3769	-1286.76	-617.43	-905.42
2	399.00	70.0	0.0950	0.4390	523.30	232.15	0.9766	0.9888	3.4369	1.0532	1.1828	-1286.76	-617.43	-905.42
3	424.00	70.0	0.1310	0.4820	523.30	232.15	0.9750	0.9882	2.9032	1.0755	0.9930	-1286.76	-617.43	-905.42
4	450.90	70.0	0.1940	0.5240	523.30	232.15	0.9734	0.9876	2.2624	1.1324	0.6921	-1286.76	-617.43	-905.42
5	468.00	70.0	0.2520	0.5520	523.30	232.15	0.9723	0.9872	1.9021	1.1914	0.4678	-1286.76	-617.43	-905.42
6	485.50	70.0	0.3340	0.5830	523.30	232.15	0.9712	0.9868	1.5706	1.2916	0.1956	-1286.76	-617.43	-905.42
7	497.60	70.0	0.4010	0.6110	523.30	232.15	0.9704	0.9865	1.4040	1.3726	0.0226	-1286.76	-617.43	-905.42
8	525.90	70.0	0.5930	0.6910	523.30	232.15	0.9686	0.9860	1.1326	1.6951	-0.4032	-1286.76	-617.43	-905.42
9	534.30	70.0	0.6800	0.7390	523.30	232.15	0.9680	0.9860	1.0725	1.8500	-0.5452	-1286.76	-617.43	-905.42
10	542.70	70.0	0.7930	0.8160	523.30	232.15	0.9674	0.9860	1.0308	2.0480	-0.6865	-1286.76	-617.43	-905.42
11	543.10	70.0	0.8100	0.8260	523.30	232.15	0.9674	0.9861	1.0222	2.1116	-0.7255	-1286.76	-617.43	-905.42
12	544.50	70.0	0.9430	0.9410	523.30	232.15	0.9673	0.9866	1.0027	2.3941	-0.8703	-1286.76	-617.43	-905.42
13	544.50	70.0	0.9470	0.9450	523.30	232.15	0.9673	0.9866	1.0027	2.4002	-0.8728	-1286.76	-617.43	-905.42

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 760.0 AT T = 100.0

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.15994E 01 B = -.48834E 01 C = 0.24444E 01

STANDARD DEVIATION = 0.48207E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 4.9499 G2INF = 2.3154

T1INF = 70.00 T2INF = 70.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3015

AREA BELOW THE X-AXIS IS -0.3290

CROSS-OVER POINT IS X = 0.41

NORMALIZED AREA DIFFERENCE IS -0.0436

CONSISTENCY INDEX IS 4.36

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	231.45	860.09	0.8822E-10	21.94	0.01716
2	710.10	875.23	0.3242E-04	3.99	0.00690
3	423.51	909.02	0.2979E-01	4.05	0.00369
4	469.89	898.73	0.7373E-02	3.62	0.00358
5	438.44	921.88	0.1502E-02	2.44	0.00523
6	453.97	890.37	0.4901E-03	5.40	0.00323
7	453.07	911.37	0.1099E-02	2.83	0.00450
8	415.48	941.01	0.2859E-03	1.99	0.00683
9	416.23	940.76	0.2858E-03	1.99	0.00683
10	449.86	898.73	0.2733E-02	4.28	0.00341

ETHANOL(1) — WATER(2) SYSTEM 0636

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	95.5	0.0180	0.1790	1349.69	635.83	0.9693	0.9826	5.4165	0.9814	1.7083	-976.55	-527.42	-716.58
2	760.00	90.6	0.0540	0.3375	1140.40	530.78	0.9667	0.9821	4.0178	0.9842	1.4067	-1028.61	-543.57	-749.02
3	760.00	85.4	0.1240	0.4700	947.25	435.39	0.9638	0.9815	2.9247	1.0360	1.0379	-1087.52	-561.26	-785.32
4	760.00	83.7	0.1760	0.5140	890.10	407.48	0.9628	0.9814	2.3958	1.0789	0.7977	-1107.63	-567.18	-797.62
5	760.00	82.8	0.2300	0.5420	859.39	392.54	0.9623	0.9813	2.0011	1.1294	0.5720	-1119.07	-570.52	-804.60
6	760.00	82.0	0.2880	0.5700	835.75	381.06	0.9618	0.9813	1.7273	1.1812	0.3800	-1128.19	-573.17	-810.15
7	760.00	81.0	0.3850	0.6120	805.03	366.20	0.9612	0.9813	1.4393	1.2840	0.1142	-1140.49	-576.72	-817.63
8	760.00	80.5	0.4400	0.6330	790.02	358.95	0.9609	0.9813	1.3270	1.3607	-0.0251	-1146.71	-578.50	-821.40
9	760.00	79.8	0.5140	0.6570	769.38	349.01	0.9604	0.9813	1.2101	1.5071	-0.2195	-1155.47	-581.01	-826.71
10	760.00	78.9	0.6730	0.7350	743.49	336.56	0.9598	0.9815	1.0692	1.7950	-0.5181	-1166.85	-584.26	-833.59
11	760.00	78.3	0.8400	0.8500	725.50	327.93	0.9593	0.9820	1.0147	2.1322	-0.7426	-1175.02	-586.58	-838.53

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 760.0 AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.16979E 01 B = -.53071E-01 C = 0.29197E 01

STANDARD DEVIATION = 0.59692E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 5.4626 G2INF = 1.9927

T1INF = 100.00 T2INF = 78.33

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3172

AREA BELOW THE X-AXIS IS -0.2996

CROSS-OVER POINT IS X = 0.41

NORMALIZED AREA DIFFERENCE IS 0.0285

HERINGTON J-FACTOR IS 9.28

CONSISTENCY INDEX IS -6.43

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	559.90	724.65	0.1137E-09	45.39	0.03117
2	274.83	968.57	0.968CE-03	6.02	0.00812
3	411.78	943.25	0.3303E-01	6.33	0.00475
4	393.61	952.21	0.5393E-02	6.56	0.00435
5	355.54	961.80	0.17C4E-02	6.24	0.00491
6	379.91	979.99	0.2257E-03	11.48	0.00279
7	374.41	96C.09	0.1438E-02	6.66	0.00423
8	322.47	965.10	0.7975E-03	5.59	0.00608
9	322.47	965.10	0.7974E-03	5.59	0.00608
10	423.31	931.48	0.2526E-02	5.95	0.00546

ETHANOL(1) — WATER(2) SYSTEM 0631

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	98.6	0.0051	0.0486	1497.87	711.20	0.9711	0.9830	4.6856	1.0040	1.5406	-945.04	-517.41	-696.78
2	760.00	98.1	0.0069	0.0752	1470.39	697.15	0.9708	0.9830	5.4571	0.9973	1.6997	-950.60	-519.19	-700.28
3	760.00	96.0	0.0162	0.1442	1371.25	646.75	0.9697	0.9827	4.7737	1.0039	1.5592	-971.72	-525.90	-713.56
4	760.00	92.9	0.0316	0.2929	1237.32	579.22	0.9679	0.9824	5.4986	0.9406	1.7657	-1003.24	-535.76	-733.26
5	760.00	87.1	0.0823	0.3985	1006.21	464.34	0.9648	0.9816	3.5211	1.0524	1.2077	-1068.17	-555.51	-773.44
6	760.00	85.7	0.1065	0.4513	956.59	439.97	0.9640	0.9815	3.2385	1.0406	1.1354	-1084.36	-560.33	-783.38
7	760.00	84.5	0.1368	0.4812	917.65	420.91	0.9634	0.9814	2.8004	1.0644	0.9674	-1097.76	-564.28	-791.59
8	760.00	84.2	0.1450	0.4805	907.95	416.18	0.9632	0.9814	2.6660	1.0882	0.8960	-1101.20	-565.29	-793.69
9	760.00	83.5	0.1770	0.5095	883.57	404.29	0.9628	0.9813	2.3786	1.0988	0.7723	-1110.03	-567.88	-799.08
10	760.00	80.6	0.4034	0.6120	792.71	360.25	0.9610	0.9812	1.3947	1.3454	0.0360	-1145.59	-578.18	-820.72
11	760.00	79.3	0.5733	0.6849	756.34	342.73	0.9601	0.9813	1.1501	1.6059	-0.3338	-1161.14	-582.63	-830.14
12	760.00	78.6	0.7152	0.7607	735.85	332.90	0.9596	0.9816	1.0515	1.8817	-0.5816	-1170.29	-585.24	-835.67
13	760.00	78.4	0.7715	0.7961	730.24	330.20	0.9595	0.9817	1.0282	2.0150	-0.6728	-1172.85	-585.96	-837.22
14	760.00	78.3	0.8160	0.8246	727.18	328.73	0.9594	0.9818	1.0110	2.1625	-0.7603	-1174.25	-586.36	-838.07
15	760.00	78.3	0.8180	0.8322	726.90	328.60	0.9593	0.9819	1.0182	2.0924	-0.7203	-1174.38	-586.40	-838.15
16	760.00	78.3	0.8386	0.8450	726.06	328.20	0.9593	0.9820	1.0096	2.1823	-0.7708	-1174.77	-586.50	-838.38
17	760.00	78.2	0.8780	0.8789	724.95	327.67	0.9593	0.9821	1.0045	2.2597	-0.8108	-1175.28	-586.65	-838.69
18	760.00	78.2	0.9167	0.9117	724.39	327.40	0.9592	0.9823	0.9987	2.4156	-0.8832	-1175.53	-586.72	-838.84
19	760.00	78.4	0.9910	0.9892	728.57	329.40	0.9593	0.9828	0.9967	2.7194	-1.0037	-1173.61	-586.18	-837.68

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 760.0 AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.16473E 01 B = -.48282E 01 C = 0.22850E 01

STANDARD DEVIATION = 0.92443E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 5.1929 G2INF = 2.4496

T1INF = 100.00 T2INF = 78.33

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS -0.3225

AREA BELOW THE X-AXIS IS -0.3277

CROSS-OVER POINT IS X = 0.43

NORMALIZED AREA DIFFERENCE IS -0.0079

HERINGTON J-FACTOR IS 9.30

CONSISTENCY INDEX IS -8.51

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	313.33	908.17	0.7367E-10	15.41	0.01318
2	573.99	856.58	0.4545E-02	7.50	0.00810
3	252.67	1023.99	0.1520E 01	9.40	0.00664
4	270.44	1001.27	0.7038E-01	8.99	0.00622
5	410.09	958.37	0.6212E-02	7.42	0.00605
6	425.03	955.49	0.4064E-02	7.36	0.00608
7	447.68	945.97	0.5228E-02	7.20	0.00623
8	410.40	954.89	0.1704E-02	6.54	0.00602
9	396.91	961.77	0.2097E-02	7.48	0.00602
10	282.56	993.38	0.1880E-01	8.71	0.00611

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION
SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

ETHYL ACETATE(1) BENZENE(2) SYSTEM 064

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	77.2	0.9500	0.9510	733.67	670.34	0.9549	0.9730	0.9866	1.0775	-0.0881	-1296.86	-990.30	-1028.12
2	760.00	77.2	0.9120	0.9140	734.60	671.16	0.9549	0.9724	0.9865	1.0725	-0.0836	-1296.35	-990.02	-1027.83
3	760.00	77.3	0.8570	0.8600	736.00	672.39	0.9551	0.9716	0.9860	1.0716	-0.0832	-1295.58	-989.60	-1027.40
4	760.00	77.3	0.8410	0.8450	736.47	672.81	0.9551	0.9714	0.9867	1.0661	-0.0775	-1295.32	-989.46	-1027.25
5	760.00	77.3	0.8340	0.8380	736.71	673.01	0.9551	0.9713	0.9864	1.0669	-0.0784	-1295.19	-989.39	-1027.18
6	760.00	77.4	0.7740	0.7800	738.11	674.25	0.9554	0.9706	0.9877	1.0614	-0.0720	-1294.43	-988.98	-1026.74
7	760.00	77.5	0.6970	0.7070	740.71	676.52	0.9557	0.9697	0.9910	1.0499	-0.0577	-1293.02	-988.21	-1025.94
8	760.00	77.7	0.5870	0.6050	744.95	680.25	0.9564	0.9686	1.0019	1.0316	-0.0292	-1290.72	-986.96	-1024.64
9	760.00	77.8	0.5280	0.5470	748.98	683.78	0.9569	0.9681	1.0022	1.0293	-0.0267	-1288.56	-985.79	-1023.41
10	760.00	78.1	0.4410	0.4650	755.65	689.64	0.9577	0.9676	1.0119	1.0171	-0.0052	-1285.00	-983.85	-1021.40
11	760.00	78.2	0.4220	0.4480	757.33	691.11	0.9578	0.9675	1.0167	1.0127	0.0040	-1284.11	-983.37	-1020.89
12	760.00	78.4	0.3590	0.3870	763.09	696.16	0.9585	0.9671	1.0253	1.0064	0.0187	-1281.08	-981.72	-1019.17
13	760.00	78.7	0.3010	0.3290	768.65	701.03	0.9592	0.9669	1.0363	1.0015	0.0342	-1278.18	-980.14	-1017.52
14	760.00	79.0	0.2390	0.2560	775.94	707.42	0.9601	0.9666	1.0429	1.0001	0.0419	-1274.42	-978.09	-1015.38
15	760.00	79.3	0.1600	0.1840	783.78	714.29	0.9611	0.9665	1.0678	0.9957	0.0700	-1270.42	-975.92	-1013.11
16	760.00	79.4	0.1360	0.1570	786.73	716.88	0.9615	0.9665	1.0683	0.9964	0.0697	-1268.93	-975.10	-1012.26
17	760.00	79.8	0.0600	0.0710	795.89	724.90	0.9628	0.9664	1.0840	0.9981	0.0826	-1264.33	-972.60	-1009.64
18	760.00	79.9	0.0270	0.0330	800.39	728.83	0.9634	0.9665	1.1140	0.9983	0.1097	-1262.11	-971.38	-1008.37
19	760.00	80.0	0.0160	0.0200	801.88	730.14	0.9636	0.9665	1.1375	0.9986	0.1302	-1261.37	-970.98	-1007.95

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70981E 01 B = -0.12387E 04 C = 0.21700E 03

2 A = 0.69056E 01 B = -0.12110E 04 C = 0.22079E 03

VAPOR PRESSURE AT NBP

P = 769.5 AT T = 77.1

P = 760.0 AT T = 80.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 12

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.11851E 00 B = -.33148E 00 C = 0.11707E 00

STANDARD DEVIATION = 0.70693E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.1258 G2INF = 1.1007

T1INF = 80.10 T2INF = 76.72

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0234

AREA BELOW THE X-AXIS IS -0.0316

CROSS-OVER POINT IS X = 0.42

NORMALIZED AREA DIFFERENCE IS -0.1491

HERINGTON J-FACTOR IS 1.45

CONSISTENCY INDEX IS 13.46

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	124.52	-33.16	0.0	8.56	0.00146
2	474.74	-294.14	0.3258E-03	2.63	0.00440
3	270.54	-149.65	0.3802E-02	6.58	0.00153
4	268.98	-148.95	0.3616E-02	6.52	0.00155
5	337.99	-209.76	0.1066E-02	2.99	0.00320
6	299.13	-156.77	0.7585E-04	8.95	0.00115
7	318.77	-196.36	0.1417E-02	3.31	0.00301
8	504.66	-308.82	0.3723E-03	2.67	0.00444
9	500.22	-306.61	0.3720E-03	2.66	0.00443
10	236.01	-125.27	0.7972E-01	6.79	0.00148

ETHYL ACETATE(1) - TOLUENE(2) SYSTEM 065

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	77.6	0.9700	0.9870	743.30	262.54	0.9551	0.9566	0.9900	1.1953	-0.1884	-1291.61	-1514.86	-1266.12
2	760.00	77.8	0.9540	0.9800	748.27	264.45	0.9552	0.9566	0.9930	1.1905	-0.1815	-1288.94	-1512.44	-1264.18
3	760.00	78.4	0.9220	0.9670	762.13	269.79	0.9555	0.9565	0.9957	1.1355	-0.1314	-1281.59	-1505.78	-1258.85
4	760.00	78.8	0.8910	0.9530	772.04	273.61	0.9558	0.9564	1.0027	1.1410	-0.1292	-1276.43	-1501.11	-1255.11
5	760.00	79.9	0.8350	0.9280	799.39	284.18	0.9564	0.9563	1.0069	1.1117	-0.0990	-1262.60	-1488.58	-1245.06
6	760.00	81.1	0.7730	0.8990	830.53	296.27	0.9571	0.9563	1.0149	1.0872	-0.0688	-1247.53	-1474.52	-1234.09
7	760.00	82.3	0.7150	0.8670	859.43	307.52	0.9578	0.9562	1.0233	1.0985	-0.0709	-1234.14	-1462.78	-1224.33
8	760.00	83.5	0.6560	0.8370	894.22	321.13	0.9586	0.9563	1.0357	1.0682	-0.0309	-1218.73	-1448.78	-1213.06
9	760.00	85.2	0.5980	0.8000	938.79	338.63	0.9595	0.9564	1.0353	1.0637	-0.0270	-1200.01	-1431.77	-1199.35
10	760.00	89.2	0.4520	0.7030	1058.57	386.12	0.9618	0.9568	1.0701	1.0167	0.0512	-1154.60	-1390.39	-1165.91
11	760.00	92.1	0.3650	0.6290	1149.98	422.71	0.9634	0.9572	1.0933	1.0016	0.0877	-1123.99	-1362.39	-1143.20
12	760.00	95.0	0.2830	0.5450	1249.06	462.81	0.9651	0.9576	1.1268	0.9941	0.1253	-1093.94	-1334.80	-1120.76
13	760.00	95.5	0.2700	0.5230	1266.17	469.79	0.9654	0.9577	1.1290	0.9979	0.1234	-1089.03	-1330.28	-1117.08
14	760.00	99.8	0.1750	0.3910	1424.02	534.48	0.9678	0.9586	1.1499	1.0024	0.1373	-1047.39	-1291.81	-1085.69
15	760.00	103.5	0.1070	0.2650	1569.65	594.91	0.9699	0.9595	1.1589	1.0051	0.1424	-1013.72	-1260.48	-1060.04
16	760.00	106.9	0.0480	0.1370	1717.81	657.09	0.9719	0.9606	1.2229	1.0033	0.1979	-983.19	-1231.87	-1036.55
17	760.00	107.9	0.0320	0.0970	1759.05	674.52	0.9725	0.9609	1.2690	1.0061	0.2322	-975.27	-1224.42	-1030.42
18	760.00	108.8	0.0210	0.0640	1801.89	692.68	0.9730	0.9612	1.2462	1.0045	0.2156	-967.28	-1216.88	-1024.21

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

2 T = 594.00 P = 40.60 V = 331.10 OMEGA = 0.241 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70981E 01 B = -0.12387E 04 C = 0.21700E 03

2 A = 0.69533E 01 B = -0.13439E 04 C = 0.21938E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

2 A = 0.98864E 02 B = -.55774E-01 C = 0.27703E-03

VAPOR PRESSURE AT NBP

P = 769.5 AT T = 77.1

P = 759.4 AT T = 110.6

COMPONENT ID ECHO CHECK

ID NUMBER = 12

ID NUMBER = 33

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.21605E 00 B = -.34527E 00 C = -.56246E-01

STANDARD DEVIATION = 0.16993E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.2412 G2INF = 1.2038

T1INF = 110.63 T2INF = 76.72

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0636

AREA BELOW THE X-AXIS IS -0.0389

CROSS-OVER POINT IS X = 0.57

NORMALIZED AREA DIFFERENCE IS 0.2406

HERINGTON J-FACTOR IS 14.53

CONSISTENCY INDEX IS 9.53

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	309.15	-137.10	0.9095E-12	3.18	0.00398
2	54.48	32.80	0.5186E-03	5.38	0.00421
3	403.81	-209.53	0.1363E-01	3.55	0.00425
4	383.76	-196.72	0.1145E-01	3.56	0.00423
5	28.09	132.08	0.1188E-02	3.61	0.00330
6	-185.54	455.12	0.2972E-03	7.59	0.00253
7	-57.41	241.14	0.7982E-03	4.24	0.00300
8	240.89	-80.84	0.4985E-03	3.15	0.00381
9	238.14	-78.47	0.4987E-03	3.15	0.00380
10	385.20	-199.55	0.7302E-01	3.75	0.00427

ETHYL ACETATE(1) — P-XYLENE(2) SYSTEM 066

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	77.9	0.9650	0.9920	750.98	106.85	0.9553	0.9389	0.9903	1.5196	-0.4282	-1287.54	-2228.08	-1521.22
2	760.00	78.2	0.9490	0.9890	756.85	107.88	0.9554	0.9389	0.9962	1.4202	-0.3546	-1284.37	-2223.32	-1518.30
3	760.00	79.2	0.9120	0.9810	781.81	112.23	0.9560	0.9392	0.9960	1.3670	-0.3167	-1271.42	-2203.90	-1506.40
4	760.00	80.9	0.8460	0.9670	824.64	119.77	0.9570	0.9397	1.0044	1.2720	-0.2362	-1250.33	-2172.30	-1487.00
5	760.00	83.1	0.7650	0.9480	882.06	130.02	0.9581	0.9404	1.0193	1.2108	-0.1722	-1224.03	-2132.98	-1462.76
6	760.00	85.6	0.6670	0.9250	952.67	142.85	0.9595	0.9411	1.0576	1.1227	-0.0597	-1194.39	-2088.76	-1435.38
7	760.00	86.5	0.6350	0.9160	978.29	147.56	0.9600	0.9414	1.0719	1.1109	-0.0357	-1184.29	-2073.70	-1426.03
8	760.00	90.1	0.5240	0.8780	1086.60	167.79	0.9618	0.9424	1.1231	1.0891	0.0307	-1144.87	-2015.01	-1389.42
9	760.00	93.2	0.4400	0.8470	1185.71	186.74	0.9632	0.9433	1.1842	1.0442	0.1258	-1112.77	-1967.27	-1359.47
10	760.00	95.0	0.3990	0.8250	1248.31	198.91	0.9641	0.9438	1.2093	1.0453	0.1457	-1094.14	-1939.56	-1342.01
11	760.00	99.6	0.3100	0.7710	1417.12	232.49	0.9663	0.9451	1.2842	1.0209	0.2294	-1049.09	-1872.55	-1299.56
12	760.00	105.0	0.2350	0.6950	1636.15	277.58	0.9687	0.9467	1.3259	1.0289	0.2536	-999.60	-1798.75	-1252.43
13	760.00	111.1	0.1650	0.6120	1909.17	336.00	0.9712	0.9486	1.4289	0.9927	0.3642	-948.27	-1721.87	-1202.89
14	760.00	116.0	0.1240	0.5300	2148.44	389.10	0.9732	0.9500	1.4662	0.9913	0.3914	-910.26	-1664.57	-1165.68
15	760.00	119.1	0.1000	0.4750	2312.76	426.53	0.9745	0.9510	1.5157	0.9843	0.4317	-887.08	-1629.44	-1142.74
16	760.00	123.4	0.0700	0.3840	2557.45	483.65	0.9763	0.9524	1.5859	0.9870	0.4742	-856.15	-1582.24	-1111.76
17	760.00	127.9	0.0440	0.2800	2824.11	547.73	0.9782	0.9538	1.6692	0.9925	0.5199	-826.41	-1536.47	-1081.55
18	760.00	130.6	0.0330	0.2200	2959.66	581.01	0.9792	0.9545	1.6703	1.0028	0.5102	-812.61	-1515.69	-1067.39
19	760.00	133.1	0.0190	0.1380	3161.92	631.53	0.9805	0.9555	1.7057	1.0062	0.5278	-793.45	-1485.21	-1047.53
20	760.00	136.5	0.0060	0.0480	3396.04	691.27	0.9820	0.9568	1.7518	1.0032	0.5575	-773.12	-1453.25	-1026.21

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

2 T = 616.30 P = 34.60 V = 369.40 OMEGA = 0.324 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70981E 01 B = -0.12387E 04 C = -0.21700E 03

2 A = 0.69905E 01 B = -0.14534E 04 C = -0.21531E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

2 A = 0.12940E 03 B = -.14187E 00 C = 0.41800E-03

VAPOR PRESSURE AT NBP

P = 769.5 AT T = 77.1

P = 760.0 AT T = 138.3

COMPONENT ID ECHO CHECK

ID NUMBER = 12

ID NUMBER = 36

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.53603E 00 B = -.95889E 00 C = 0.19250E-01

STANDARD DEVIATION = 0.27099E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.7092 G2INF = 1.4972

T1INF = 138.35 T2INF = 76.72

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1510

AREA BELOW THE X-AXIS IS -0.0880

CROSS-OVER POINT IS X = 0.57

NORMALIZED AREA DIFFERENCE IS 0.2637

HERINGTON J-FACTOR IS 26.42

CONSISTENCY INDEX IS -0.65

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	692.69	-246.04	0.0	7.89	0.00683
2	671.90	-293.07	0.7781E-03	19.53	0.01272
3	774.00	-300.69	0.9606F-01	9.23	0.00684
4	759.42	-298.03	0.6997F-01	9.59	0.00750
5	509.43	-88.73	0.3269F-02	5.71	0.00584
6	338.73	121.01	0.1177E-02	14.59	0.00459
7	436.48	-17.13	0.2212E-02	6.93	0.00575
8	496.80	-85.67	0.1264F-02	5.43	0.00640
9	496.80	-85.67	0.1264E-02	5.43	0.00640
10	730.57	-290.08	0.1015E 00	10.45	0.00856

ETHYL ACETATE(1) - WATER(2) SYSTEM 067A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	55.84	40.0	0.0001	0.0054	186.02	55.11	0.9961	0.9979	13.4516	1.0058	2.5934	-1927.30	-746.44	-1050.78
2	55.84	40.0	0.0001	0.0055	186.02	55.11	0.9961	0.9979	13.7007	1.0056	2.6118	-1927.30	-746.44	-1050.78
3	202.10	40.0	0.9648	0.9022	186.02	55.11	0.9801	0.9972	0.9947	10.1593	-2.3237	-1927.30	-746.44	-1050.78
4	199.10	40.0	0.9746	0.9246	186.02	55.11	0.9804	0.9975	0.9945	10.6964	-2.3755	-1927.30	-746.44	-1050.78
5	197.10	40.0	0.9807	0.9431	186.02	55.11	0.9806	0.9977	0.9981	10.5190	-2.3551	-1927.30	-746.44	-1050.78
6	193.40	40.0	0.9879	0.9649	186.02	55.11	0.9809	0.9980	0.9951	10.1586	-2.3232	-1927.30	-746.44	-1050.78

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70981E 01 B = 0.12387E 04 C = 0.21700E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

VAPOR PRESSURE AT NBP

P = 769.5 AT T = 77.1

P = 760.0 AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 12

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.26154E 01 B = -.10216E 02 C = 0.52535E 01

STANDARD DEVIATION = 0.28713E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 13.6729 G2INF = 10.4502

T1INF = 40.00 T2INF = 40.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3722

AREA BELOW THE X-AXIS IS -1.1134

CROSS-OVER POINT IS X = 0.30

NORMALIZED AREA DIFFERENCE IS -0.4989

CONSISTENCY INDEX IS 49.89

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	86.64	1993.76	0.2274E-10	0.99	0.00724
2	6795.95	1834.30	0.6213E-04	48.50	0.24721
3	7821.40	-100.13	0.3965E 03	8.17	0.04226
4	7788.11	-99.75	0.3675E 01	8.17	0.04226
5	7749.03	-4.32	0.5222E-01	8.06	0.04465
6	7739.05	-16.46	0.3568E-01	8.04	0.04423
7	7755.77	-19.71	0.1807E-01	8.03	0.04413
8	532.49	2008.42	0.5567E-04	0.35	0.00590
9	532.28	2008.42	0.5567E-04	0.35	0.00589
10	59.06	2116.17	0.7224E-02	0.66	0.00293

DIAGNOSTIC

2 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

ETHYL ACETATE(1) — WATER(2) SYSTEM 067C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	233.90	70.0	0.0000	0.0015	579.77	232.15	0.9896	0.9933	14.9539	0.9991	2.7059	-1393.94	-617.43	-785.85
2	234.90	70.0	0.0001	0.0056	579.77	232.15	0.9895	0.9932	22.4247	0.9993	3.1109	-1393.94	-617.43	-785.85
3	235.70	70.0	0.0001	0.0084	579.77	232.15	0.9894	0.9932	22.4955	0.9999	3.1136	-1393.94	-617.43	-785.85
4	235.70	70.0	0.0002	0.0085	579.77	232.15	0.9894	0.9932	21.3444	0.9998	3.0610	-1393.94	-617.43	-785.85
5	646.30	70.0	0.9676	0.9059	579.77	232.15	0.9580	0.9928	0.9967	8.0229	-2.0856	-1393.94	-617.43	-785.85
6	641.10	70.0	0.9723	0.9173	579.77	232.15	0.9583	0.9931	0.9966	8.1839	-2.1055	-1393.94	-617.43	-785.85
7	630.60	70.0	0.9788	0.9305	579.77	232.15	0.9589	0.9938	0.9981	7.6999	-2.0431	-1393.94	-617.43	-785.85
8	623.10	70.0	0.9855	0.9630	579.77	232.15	0.9594	0.9945	1.0045	6.8078	-1.9136	-1393.94	-617.43	-785.85

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70981E 01 B = 0.12387E 04 C = 0.21700E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

VAPOR PRESSURE AT NBP

P = 769.5 AT T = 77.1

P = 760.0 AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

IC NUMBER = 12

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.29712E 01 B = -.20261E 02 C = 0.15530E 02

STANDARD DEVIATION = 0.15955E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 19.5160 G2INF = 5.8067

T1INF = 70.00 T2INF = 70.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2378

AREA BELOW THE X-AXIS IS -2.2201

CROSS-OVER POINT IS X = 0.17

NORMALIZED AREA DIFFERENCE IS -0.8065

CONSISTENCY INDEX IS 80.65

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	455.21	1760.00	0.1136E-08	6.80	0.01088
2	-1269.81	2795.86	0.8807E-05	3.54	0.01003
3	383.77	2045.65	0.4200E 02	1.04	0.00310
4	343.41	2037.85	0.1821E 00	1.13	0.00355
5	436.15	2067.47	0.3172E-03	0.95	0.00278
6	442.86	2082.13	0.2474E-03	1.36	0.00268
7	456.71	2074.11	0.2193E-03	1.18	0.00276
8	409.55	2047.02	0.3912E-04	1.01	0.00297
9	408.63	2047.20	0.3910E-04	1.01	0.00297
10	384.15	2045.67	0.4022E-01	1.04	0.00310

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

ETHYL ACETATE(1) WATER(2) SYSTEM 0678

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	118.85	55.0	0.0001	0.0052	339.59	117.58	0.9934	0.9961	15.0570	1.0016	2.7102	-1631.39	-678.31	-904.90
2	119.25	55.0	0.0002	0.0081	339.59	117.58	0.9934	0.9960	16.6109	1.0021	2.8080	-1631.39	-678.31	-904.90
3	119.30	55.0	0.0002	0.0081	339.59	117.58	0.9934	0.9960	15.6946	1.0025	2.7508	-1631.39	-678.31	-904.90
4	372.00	55.0	0.9695	0.9093	339.59	117.58	0.9704	0.9955	0.9952	9.3627	-2.2416	-1631.39	-678.31	-904.90
5	371.70	55.0	0.9699	0.9085	339.59	117.58	0.9704	0.9954	0.9931	9.5630	-2.2648	-1631.39	-678.31	-904.90
6	364.70	55.0	0.9780	0.9382	339.59	117.58	0.9710	0.9960	0.9985	8.6759	-2.1620	-1631.39	-678.31	-904.90
7	358.00	55.0	0.9894	0.9676	339.59	117.58	0.9715	0.9966	0.9998	9.2724	-2.2273	-1631.39	-678.31	-904.90

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70981E 01 B = 0.12387E 04 C = 0.21700E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

VAPOR PRESSURE AT NBP

P = 769.5 AT T = 77.1

P = 760.0 AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 12

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.27547E 01 B = -.11880E 02 C = 0.69470E 01

STANDARD DEVIATION = 0.50216E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 15.7171 G2INF = 8.8343

T1INF = 55.00 T2INF = 55.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3565

AREA BELOW THE X-AXIS IS -1.2263

CROSS-OVER POINT IS X = 0.28

NORMALIZED AREA DIFFERENCE IS -0.5495

CONSISTENCY INDEX IS 54.95

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	202.46	1972.34	0.5887E-08	1.83	0.00705
2	9186.32	1864.62	0.5452E-05	110.87	0.29662
3	172.94	2112.55	0.3336E 01	0.73	0.00313
4	171.79	2109.89	0.2925E-01	0.68	0.00315
5	266.84	2110.88	0.3275E-03	0.91	0.00335
6	202.39	2149.80	0.1898E-03	1.50	0.00286
7	239.52	2131.22	0.2863E-03	1.23	0.00311
8	359.67	2056.55	0.3205E-04	0.56	0.00411
9	362.66	2055.64	0.3206E-04	0.56	0.00413
10	173.32	2112.50	0.9643E-02	0.73	0.00313

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

ETHYL ACETATE(1) WATER(2) SYSTEM 067D

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	74.8	C.9710	0.9140	679.40	284.42	0.9536	0.9921	1.0004	7.8560	-2.0609	-1328.C5	-599.29	-752.34
2	760.00	75.0	0.9740	0.9270	683.82	286.80	0.9537	0.9924	1.0050	7.3791	-1.9936	-1325.40	-598.55	-750.99
3	760.00	75.6	0.9830	0.9470	697.21	294.C3	C.9540	0.9931	0.9981	7.9974	-2.0810	-1317.50	-596.32	-746.95
4	760.00	75.7	0.9860	0.9540	699.46	295.25	0.9540	0.9933	0.9993	8.3955	-2.1284	-1316.18	-595.95	-746.28
5	760.00	75.9	0.9840	0.9530	703.98	297.70	0.9541	0.9933	0.9940	7.4438	-2.0135	-1313.57	-595.22	-744.94

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 523.30 P = 37.80 V = 286.0C OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

2 T = 647.40 P = ***** V = 55.2C OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70981E 01 B = 0.12387E 04 C = 0.217CCE 03

2 A = 0.79668E C1 B = 0.16682E 04 C = 0.22800E 03

VAPOR PRESSURE AT NBP

P = 769.5 AT T = 77.1

P = 76C.C AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

2 A = 0.22887E C2 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 12

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = -.90269E 00 B = -.52305E 0C C = -.66745E 00

STANDARD DEVIATION = 0.69779E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 0.4055 G2INF = 8.1108

T1INF = 100.CC T2INF = 76.72

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

SQUARE ROOT OF NEGATIVE ARGUEMENT REQUIRED TO OBTAIN X-INTERCEPT

VALUE OF REQUIRED ARGUEMENT IS -.21364E 01

THERMODYNAMIC CONSISTENCY TEST IS ABORTED

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-2722.58	8098.94	0.1306E-07	43.54	0.06077
2	1996.46	1572.05	0.6378E-04	3.53	0.00326
3	4324.54	2008.22	0.5546E 00	2.42	0.00222
4	4549.23	2005.41	0.9337E-02	2.47	0.00225
5	6748.73	2004.21	C.17C9E-03	2.49	0.00227
6	6705.68	2011.21	0.5837E-04	2.36	0.00218
7	6722.51	2008.57	0.1086E-03	2.41	0.00221
8	6732.51	1993.43	0.1058E-03	2.70	0.00240
9	6734.35	1993.60	0.1058E-03	2.7C	0.00240
10	6682.84	1960.30	0.1017E 01	3.69	0.00350

ETHYLBENZENE(1) — FURFURAL(2) SYSTEM C68

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	723.00	132.7	C.979C	0.974C	662.95	296.32	C.9608	0.9557	1.0383	2.8795	-1.0200	-1370.56	-898.19	-1477.86
2	723.00	132.5	0.9600	0.9550	659.44	294.24	0.9607	0.9563	1.0437	2.6367	-0.9268	-1372.30	-899.41	-1479.75
3	723.CO	132.3	C.942C	0.9420	655.93	292.17	0.96C6	C.9568	1.0546	2.3614	-0.8061	-1374.C4	-90C.64	-1481.65
4	723.00	132.4	0.9300	0.931C	658.56	293.72	C.96C6	C.9572	1.0516	2.3165	-0.7898	-1372.73	-899.72	-1480.22
5	723.00	132.5	C.9230	0.9260	659.44	294.24	0.9607	0.9574	1.0525	2.2550	-0.7620	-1372.3C	-899.41	-1479.75
6	723.00	132.6	0.8470	0.867C	661.20	295.27	0.96C4	0.9595	1.0707	2.0370	-0.6431	-1371.43	-898.80	-1478.81
7	723.00	132.7	0.7750	0.8350	662.95	296.32	0.9603	0.9606	1.1238	1.7144	-0.4223	-1370.56	-898.19	-1477.86
8	723.00	133.5	0.6540	0.7620	677.17	304.75	0.9600	0.9632	1.1895	1.5677	-0.2761	-1363.67	-893.32	-1470.35
9	723.00	134.0	C.6000	0.7320	686.16	310.13	0.9599	0.9642	1.2290	1.5022	-0.2007	-1359.39	-89C.31	-1465.69
10	723.00	134.5	0.5580	0.7090	695.26	315.58	0.9598	C.9650	1.2631	1.4518	-0.1392	-1355.13	-887.33	-1461.05
11	723.00	136.4	0.467C	0.657C	730.63	337.06	0.9598	0.9670	1.3309	1.3313	-0.0003	-1339.14	-876.19	-1443.65
12	723.00	138.5	0.3810	0.6420	771.29	362.24	C.96C4	C.9680	1.5109	1.1144	0.3043	-1321.83	-864.24	-1424.83
13	723.00	144.9	C.1810	0.4680	905.75	449.05	0.9597	C.9731	1.9730	1.0151	0.6646	-1271.26	-83C.07	-1369.90
14	723.00	149.8	0.0920	0.2970	1019.93	526.84	0.9578	0.9764	2.1833	1.0348	0.7466	-1234.62	-806.00	-1330.18
15	723.00	152.5	0.0500	0.177C	1087.20	574.35	0.9558	0.9779	2.2413	1.0637	0.7453	-1215.15	-793.44	-1309.09
16	723.00	154.5	0.0350	0.1380	1139.10	611.82	0.9555	C.9784	2.3819	1.0302	0.8381	-1201.04	-784.45	-1293.82

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 617.20 P = 37.00 V = 366.00 OMEGA = 0.301 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 656.00 P = 38.40 V = 375.20 OMEGA = 0.292 OMEGAH = 0.270 DIPOLE = 2.00 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69572E 01 B = 0.14243E 04 C = 0.21321E 03

2 A = C.87299E 01 B = 0.25378E 04 C = 0.27315E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.11139E 03 B = -.50868E-01 C = 0.29917E-03

2 A = 0.6320?E 02 B = 0.58328E-01 C = 0.29602E-04

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 136.2

P = 785.6 AT T = 161.8

COMPONENT ID ECHO CHECK

ID NUMBER = 45

ID NUMBER = 15

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.8857CE 00 B = -.1590?E 01 C = -.26622E 00

STANDARD DEVIATION = 0.60686E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.4247 G2INF = 2.6416

T1INF = 159.13 T2INF = 134.34

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2330

AREA BELOW THE X-AXIS IS -0.2315

CROSS-OVER POINT IS X = 0.51

NORMALIZED AREA DIFFERENCE IS 0.0033

HERINGTON J-FACTOR IS 9.92

CONSISTENCY INDEX IS -9.60

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	33.78	828.28	0.4547E-11	32.01	0.00692
2	-209.93	1521.34	0.7339E-02	12.97	0.02056
3	34.20	886.05	0.1647E 00	25.78	0.00771
4	56.50	867.07	0.6097E-01	25.38	0.00787
5	-58.17	1138.38	0.1437E-01	14.05	0.01281
6	70.36	817.37	0.2772E-02	29.31	0.00686
7	-87.37	1145.22	0.1763E-01	15.07	0.01203
8	-148.78	1335.96	0.5594E-02	10.52	0.01646
9	-149.20	1336.92	0.5586E-02	10.52	0.01648
10	-28.18	894.18	0.1528E-01	25.58	0.00776

ETHYL ETHER(1) — ETHANOL(2) SYSTEM 069A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	238.00	40.0	0.0500	0.4618	776.16	132.30	0.9886	0.9783	2.7961	0.9963	1.0319	-978.66	-1810.36	-1325.68
2	330.30	40.0	0.1000	0.6303	776.16	132.30	0.9838	0.9703	2.6340	0.9941	0.9744	-978.66	-1810.36	-1325.68
3	408.50	40.0	0.1500	0.7150	776.16	132.30	0.9798	0.9637	2.4525	0.9564	0.9007	-978.66	-1810.36	-1325.68
4	473.20	40.0	0.2000	0.7650	776.16	132.30	0.9765	0.9582	2.2712	1.0052	0.8151	-978.66	-1810.36	-1325.68
5	529.50	40.0	0.2500	0.7992	776.16	132.30	0.9736	0.9534	2.1171	1.0199	0.7303	-978.66	-1810.36	-1325.68
6	577.00	40.0	0.3000	0.8234	776.16	132.30	0.9712	0.9494	1.9754	1.0428	0.6389	-978.66	-1810.36	-1325.68
7	617.60	40.0	0.3500	0.8420	776.16	132.30	0.9692	0.9460	1.8489	1.0714	0.5456	-978.66	-1810.36	-1325.68
8	653.70	40.0	0.4000	0.8571	776.16	132.30	0.9673	0.9430	1.7394	1.1074	0.4515	-978.66	-1810.36	-1325.68
9	687.60	40.0	0.4500	0.8706	776.16	132.30	0.9656	0.9401	1.6487	1.1471	0.3627	-978.66	-1810.36	-1325.68
10	717.60	40.0	0.5000	0.8820	776.16	132.30	0.9641	0.9376	1.5661	1.1976	0.2683	-978.66	-1810.36	-1325.68
11	742.00	40.0	0.5500	0.8912	776.16	132.30	0.9629	0.9356	1.4854	1.2658	0.1600	-978.66	-1810.36	-1325.68
12	764.30	40.0	0.6000	0.8998	776.16	132.30	0.9617	0.9338	1.4143	1.3481	0.0479	-978.66	-1810.36	-1325.68
13	785.20	40.0	0.6500	0.9083	776.16	132.30	0.9607	0.9321	1.3522	1.4458	-0.0669	-978.66	-1810.36	-1325.68
14	805.90	40.0	0.7000	0.9167	776.16	132.30	0.9596	0.9304	1.2991	1.5697	-0.1892	-978.66	-1810.36	-1325.68
15	826.50	40.0	0.7500	0.9257	776.16	132.30	0.9586	0.9287	1.2542	1.7199	-0.3158	-978.66	-1810.36	-1325.68
16	846.60	40.0	0.8000	0.9357	776.16	132.30	0.9576	0.9271	1.2162	1.9027	-0.4475	-978.66	-1810.36	-1325.68
17	866.00	40.0	0.8500	0.9466	776.16	132.30	0.9566	0.9255	1.1829	2.1510	-0.5979	-978.66	-1810.36	-1325.68
18	885.00	40.0	0.9000	0.9598	776.16	132.30	0.9556	0.9241	1.1564	2.4782	-0.7623	-978.66	-1810.36	-1325.68
19	903.30	40.0	0.9500	0.9762	776.16	132.30	0.9547	0.9227	1.1361	2.9905	-0.9679	-978.66	-1810.36	-1325.68

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 467.00 P = 36.20 V = 284.00 OMEGA = 0.283 OMEGAH = 0.252 DIPOLE = 1.16 ETA = 0.28

2 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.77567E 01 B = 0.15177E 04 C = 0.27315E 03

2 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

VAPOR PRESSURE AT NBP

P = 668.2 AT T = 34.6

P = 762.1 AT T = 78.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.19173E 03 B = -.78144E 00 C = 0.16405E-02

2 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 14

ID NUMBER = 11

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10781E 01 B = -.10859E 01 C = -.10667E 01

STANDARD DEVIATION = 0.19973E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.9390 G2INF = 2.9288

T1INF = 40.00 T2INF = 40.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3749

AREA BELOW THE X-AXIS IS -0.1954

CROSS-OVER POINT IS X = 0.62

NORMALIZED AREA DIFFERENCE IS 0.3147

CONSISTENCY INDEX IS 31.47

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	17.04	749.98	0.2274E-10	85.74	0.02367
2	446.12	4371.15	0.2785E-02	19.44	0.01386
3	-11.64	886.75	C.8913E CO	67.78	0.01961
4	-155.55	1066.32	0.3328E 00	65.18	0.01967
5	-305.30	2132.01	0.2179E-01	16.41	0.00973
6	-254.33	1765.90	0.6670E-02	16.92	0.01085
7	-330.28	2397.07	0.2861E-01	17.18	0.00954
8	-313.06	2183.42	0.1467E-01	16.41	0.00975
9	-313.09	2183.83	0.1468E-01	16.41	0.00974
10	-24.34	882.24	0.6982E-01	70.39	0.02023

ETHYL ETHER(1) — ETHANOL(2) SYSTEM 065B

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	364.00	50.0	0.0500	0.4203	1082.74	216.87	0.9847	0.9713	2.7772	0.9938	1.0277	-892.91	-1612.44	-1184.93
2	486.10	50.0	0.1000	0.5863	1082.74	216.87	0.9790	0.9623	2.5702	0.9900	0.9540	-892.91	-1612.44	-1184.93
3	584.60	50.0	0.1500	0.6723	1082.74	216.87	0.9745	0.9551	2.3508	0.9908	0.8640	-892.91	-1612.44	-1184.93
4	674.00	50.0	0.2000	0.7285	1082.74	216.87	0.9705	0.9486	2.1924	0.9985	0.7865	-892.91	-1612.44	-1184.93
5	748.80	50.0	0.2500	0.7666	1082.74	216.87	0.9671	0.9432	2.0425	1.0112	0.7030	-892.91	-1612.44	-1184.93
6	813.00	50.0	0.3000	0.7946	1082.74	216.87	0.9642	0.9386	1.9091	1.0299	0.6171	-892.91	-1612.44	-1184.93
7	868.80	50.0	0.3500	0.8161	1082.74	216.87	0.9617	0.9346	1.7908	1.0565	0.5277	-892.91	-1612.44	-1184.93
8	919.60	50.0	0.4000	0.8341	1082.74	216.87	0.9594	0.9309	1.6906	1.0885	0.4403	-892.91	-1612.44	-1184.93
9	967.50	50.0	0.4500	0.8496	1082.74	216.87	0.9573	0.9275	1.6064	1.1283	0.3533	-892.91	-1612.44	-1184.93
10	1006.80	50.0	0.5000	0.8621	1082.74	216.87	0.9555	0.9247	1.5235	1.1805	0.2551	-892.91	-1612.44	-1184.93
11	1041.00	50.0	0.5500	0.8732	1082.74	216.87	0.9540	0.9223	1.4479	1.2436	0.1520	-892.91	-1612.44	-1184.93
12	1070.70	50.0	0.6000	0.8835	1082.74	216.87	0.9526	0.9203	1.3790	1.3190	0.0445	-892.91	-1612.44	-1184.93
13	1100.80	50.0	0.6500	0.8939	1082.74	216.87	0.9513	0.9182	1.3220	1.4082	-0.0631	-892.91	-1612.44	-1184.93
14	1128.30	50.0	0.7000	0.9040	1082.74	216.87	0.9500	0.9163	1.2706	1.5203	-0.1794	-892.91	-1612.44	-1184.93
15	1157.40	50.0	0.7500	0.9148	1082.74	216.87	0.9487	0.9143	1.2292	1.6572	-0.2988	-892.91	-1612.44	-1184.93
16	1183.60	50.0	0.8000	0.9268	1082.74	216.87	0.9476	0.9125	1.1922	1.8164	-0.4210	-892.91	-1612.44	-1184.93
17	1209.00	50.0	0.8500	0.9396	1082.74	216.87	0.9464	0.9109	1.1604	2.0373	-0.5628	-892.91	-1612.44	-1184.93
18	1233.30	50.0	0.9000	0.9543	1082.74	216.87	0.9453	0.9093	1.1340	2.3545	-0.7306	-892.91	-1612.44	-1184.93
19	1255.20	50.0	0.9500	0.9727	1082.74	216.87	0.9443	0.9080	1.1132	2.8588	-0.9431	-892.91	-1612.44	-1184.93

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 467.00 P = 36.20 V = 284.00 OMEGA = 0.283 OMEGAH = 0.252 DIPOLE = 1.16 ETA = 0.28

2 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.77567E 01 B = 0.15177E 04 C = 0.27315E 03

2 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.19173E 03 B = -.78144E 00 C = 0.16405E-02

2 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

VAPOR PRESSURE AT NBP

P = 668.2 AT T = 34.6

P = 762.1 AT T = 78.4

COMPONENT ID ECHO CHECK

ID NUMBER = 14

ID NUMBER = 11

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10576E 01 B = -.11117E 01 C = -.97291E 00

STANDARD DEVIATION = 0.25093E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.8795 G2INF = 2.7925

T1INF = 50.00 T2INF = 50.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3648

AREA BELOW THE X-AXIS IS -0.1873

CROSS-OVER POINT IS X = 0.62

NORMALIZED AREA DIFFERENCE IS 0.3215

CONSISTENCY INDEX IS 32.15

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER	VALUES	OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	15.27	748.21	0.5912E-10	104.53	0.02586
2	-487.67	2628.78	0.2390E-02	26.30	0.01634
3	-15.86	871.29	0.8218E 00	82.38	0.02212
4	-188.47	1069.76	0.3192E 00	80.62	0.02219
5	-314.05	1848.00	0.2115E-01	20.80	0.01250
6	-280.86	1746.81	0.8526E-02	22.43	0.01234
7	-342.97	2029.82	0.2627E-01	22.15	0.01189
8	-328.13	1961.86	0.1220E-01	20.70	0.01252
9	-324.11	1882.29	0.1219E-01	20.74	0.01255
10	-38.57	872.93	0.7623E-01	86.77	0.02285

HEPTANE(1) — ANILINE(2) SYSTEM 07C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	742.00	117.0	0.0880	0.8700	1171.90	90.22	0.9585	0.9575	5.9694	1.1191	1.6741	-1348.04	-911.34	-1448.19
2	742.00	112.2	0.1540	0.8970	1038.94	74.86	0.9568	0.9545	3.9598	1.1483	1.2379	-1391.00	-947.99	-1495.58
3	742.00	106.5	0.2670	0.9230	895.60	59.52	0.9546	0.9509	2.7198	1.2413	0.7844	-1444.80	-995.61	-1555.40
4	742.00	105.4	0.3670	0.9250	869.68	56.89	0.9541	0.9502	2.0411	1.4639	0.3324	-1455.56	-1005.36	-1567.42
5	742.00	104.7	0.4130	0.9250	853.49	55.27	0.9538	0.9499	1.8476	1.6244	0.1287	-1462.47	-1011.67	-1575.15
6	742.00	103.8	0.6330	0.9320	832.95	53.24	0.9534	0.9492	1.2440	2.4436	-0.6752	-1471.43	-1019.85	-1585.19
7	742.00	101.1	0.8450	0.9510	773.65	47.52	0.9523	0.9470	1.0225	4.6602	-1.5168	-1498.83	-1045.37	-1615.98
8	742.00	100.2	0.8990	0.9645	754.59	45.73	0.9519	0.9459	0.9990	5.3779	-1.6833	-1508.15	-1054.14	-1626.48

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 540.20 P = 27.00 V = 431.50 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 699.20 P = 52.40 V = 296.80 OMEGA = 0.383 OMEGAH = 0.211 DIPOLE = 1.53 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69024E 01 B = -0.12681E 04 C = 0.21690E 03

2 A = 0.72418E 01 B = 0.16753E 04 C = 0.20000E 03

VAPOR PRESSURE AT NBP

P = 759.4 AT T = 98.4

P = 764.8 AT T = 184.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12880E 03 B = -.60277E-01 C = 0.41160E-03

2 A = 0.79371E 02 B = 0.54084E-02 C = 0.11775E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 16

ID NUMBER = 4

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.20470E 01 B = -.49840E 01 C = 0.93423E 00

STANDARD DEVIATION = 0.48548E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 7.7445 G2INF = 7.4095

T1INF = 183.24 T2INF = 97.61

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4449

AREA BELOW THE X-AXIS IS -0.5785

CROSS-OVER POINT IS X = 0.45

NORMALIZED AREA DIFFERENCE IS -0.1305

HERINGTON J-FACTOR IS 34.64

CONSISTENCY INDEX IS -21.59

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	835.67	1258.95	0.4093E-10	28.65	0.00594
2	2030.77	1124.73	0.2518E-02	38.63	0.00748
3	915.48	1496.25	0.4161E 00	32.46	0.00751
4	1118.16	1350.52	0.5371E-01	26.38	0.00706
5	1099.67	1229.71	0.3982E-02	14.46	0.00583
6	1052.59	1158.12	0.5648E-03	21.50	0.00517
7	1093.93	1219.40	0.4676E-02	15.20	0.00575
8	1101.07	1230.23	0.3312E-02	14.39	0.00584
9	1102.08	1229.87	0.3335E-02	14.38	0.00584
10	916.44	1497.87	0.1146E-01	32.64	0.00753

HEPTANE(1) 1-BUTANOL(2) SYSTEM 071

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	684.00	103.8	0.0570	0.3700	832.99	441.86	0.9591	0.9681	5.0880	0.9982	1.6287	-1471.43	-1119.87	-1210.73
2	684.00	98.2	0.1420	0.5440	713.47	354.64	0.9560	0.9669	3.4943	0.9882	1.2630	-1529.17	-1177.72	-1257.16
3	684.00	95.2	0.2210	0.6210	654.95	313.97	0.9544	0.9663	2.7871	1.0211	1.0041	-1561.60	-1210.51	-1283.24
4	684.00	92.2	0.3290	0.6930	600.10	277.16	0.9527	0.9658	2.2763	1.0872	0.7389	-1595.13	-1244.63	-1310.20
5	684.00	90.7	0.4340	0.7300	565.51	254.62	0.9516	0.9654	1.9267	1.2334	0.4460	-1618.14	-1268.14	-1328.70
6	684.00	89.5	0.5520	0.7580	553.76	247.10	0.9512	0.9655	1.6055	1.4393	0.1093	-1626.31	-1276.52	-1335.28
7	684.00	89.0	0.6140	0.7740	545.49	241.83	0.9509	0.9655	1.4958	1.5940	-0.0636	-1632.20	-1282.56	-1340.01
8	684.00	88.8	0.7380	0.7950	542.20	239.75	0.9507	0.9656	1.2857	2.1490	-0.5137	-1634.56	-1284.99	-1341.91
9	684.00	89.3	0.9110	0.8460	550.44	244.98	0.9508	0.9664	1.0919	4.6549	-1.4500	-1628.67	-1278.94	-1337.17
10	684.00	93.4	0.9800	0.9350	621.61	291.44	0.9527	0.9689	0.9953	7.3680	-2.0018	-1581.58	-1230.82	-1299.31

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 540.20 P = 27.00 V = 431.90 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 562.90 P = 43.60 V = 223.30 OMEGA = 0.667 OMEGAH = 0.252 DIPOLE = 1.65 ETA = 0.45

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69024E 01 B = -0.12681E 04 C = -0.21690E 03

2 A = 0.73637E 01 B = -0.13052E 04 C = -0.17343E 03

VAPOR PRESSURE AT NBP

P = 759.4 AT T = 98.4

P = 767.4 AT T = 118.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12880E 03 B = -.60277E-01 C = 0.41160E-03

2 A = 0.87376E 02 B = -.73723E-01 C = 0.30337E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 16

ID NUMBER = 43

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.15692E 01 B = -.15928E 01 C = -.19500E 01

STANDARD DEVIATION = 0.12262E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 4.8026 G2INF = 7.1967

T1INF = 114.78 T2INF = 94.88

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.5154

AREA BELOW THE X-AXIS IS -0.3926

CROSS-OVER POINT IS X = 0.58

NORMALIZED AREA DIFFERENCE IS -0.1352

HERINGTON J-FACTOR IS 10.77

CONSISTENCY INDEX IS 2.75

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	285.26	1365.86	0.1819F-11	30.50	0.03151
2	-41.96	2514.83	0.1275F-02	24.55	0.02838
3	445.36	1411.83	0.5835F 00	18.81	0.02600
4	260.63	1539.50	0.1287E 00	19.57	0.02734
5	260.36	1762.26	0.1958F-01	13.41	0.02469
6	260.88	1834.51	0.1360F-01	13.96	0.02406
7	199.01	2001.45	0.1441F-01	14.58	0.02426
8	283.35	1695.40	0.5507E-02	14.14	0.02489
9	272.17	1714.83	0.5651F-02	14.05	0.02492
10	465.20	1403.70	0.1277F-01	18.93	0.02580

HEPTANE(1) TOLUENE(2) SYSTEM 072A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	107.7	0.1000	0.1660	925.23	671.88	0.9539	0.9608	1.2938	1.0033	0.2543	-1432.92	-1225.53	-1334.66
2	760.00	105.6	0.2000	0.2940	874.82	632.95	0.9530	0.9600	1.2106	1.0134	0.1779	-1453.40	-1242.59	-1353.48
3	760.00	103.9	0.3000	0.4005	834.79	602.16	0.9523	0.9593	1.1513	1.0330	0.1084	-1470.63	-1256.97	-1369.33
4	760.00	102.6	0.4000	0.4970	806.00	580.09	0.9518	0.9588	1.1091	1.0491	0.0557	-1483.61	-1267.81	-1381.28
5	760.00	101.5	0.5000	0.5825	782.67	562.26	0.9513	0.9583	1.0704	1.0775	-0.0066	-1494.52	-1276.93	-1391.32
6	760.00	100.6	0.6000	0.6640	763.01	547.26	0.9509	0.9579	1.0426	1.1132	-0.0656	-1504.60	-1284.85	-1400.05
7	760.00	99.8	0.7000	0.7440	746.64	534.80	0.9505	0.9576	1.0229	1.1568	-0.1231	-1512.11	-1291.64	-1407.52
8	760.00	99.3	0.8000	0.8275	735.05	525.98	0.9503	0.9573	1.0109	1.1885	-0.1619	-1517.97	-1296.55	-1412.93
9	760.00	98.4	0.9000	0.9120	718.11	513.12	0.9499	0.9569	1.0133	1.2425	-0.2040	-1526.73	-1303.89	-1421.00

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 540.20 P = 27.00 V = 431.90 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 594.00 P = 40.00 V = 331.10 OMEGA = 0.241 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69024E 01 B = 0.12681E 04 C = 0.21690E 03

2 A = 0.69533E 01 B = 0.13439E 04 C = 0.21938E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12880E 03 B = -.60277E-01 C = 0.41160E-03

2 A = 0.98864E 02 B = -.55774E-01 C = 0.27703E-03

VAPOR PRESSURE AT NBP

P = 759.4 AT T = 98.4

P = 759.4 AT T = 110.6

COMPONENT ID ECHO CHECK

ID NUMBER = 16

ID NUMBER = 33

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.32875E 00 B = -.78255E 00 C = 0.20980E 00

STANDARD DEVIATION = 0.47290E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.3892 G2INF = 1.2763

T1INF = 110.63 T2INF = 98.43

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0754

AREA BELOW THE X-AXIS IS -0.0680

CROSS-OVER POINT IS X = 0.48

NORMALIZED AREA DIFFERENCE IS 0.0517

HERINGTON J-FACTOR IS 4.92

CONSISTENCY INDEX IS 0.24

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	126.11	135.35	0.9095E-12	2.68	0.00216
2	-19.48	255.25	0.8659E-04	1.63	0.00116
3	67.07	185.00	0.6853E-03	1.26	0.00167
4	50.51	197.48	0.5416E-03	1.27	0.00156
5	-21.02	257.82	0.1328E-03	1.70	0.00115
6	-37.83	271.90	0.3202E-04	1.82	0.00111
7	-36.47	270.56	0.1383E-03	1.80	0.00111
8	9.42	232.75	0.9846E-04	1.50	0.00127
9	8.14	233.79	0.9845E-04	1.51	0.00126
10	66.74	184.61	0.4356E-02	1.32	0.00168

HEPTANE(1) - TOLUENE(2) SYSTEM 072B

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	109.1	0.0480	0.0830	959.07	698.10	0.9544	0.9613	1.3009	1.0042	0.2589	-1419.87	-1214.67	-1322.66
2	760.00	108.4	0.0690	0.1180	941.67	684.61	0.9542	0.9610	1.3100	1.0069	0.2632	-1426.51	-1220.20	-1328.77
3	760.00	107.1	0.1230	0.1930	909.96	660.07	0.9536	0.9605	1.2431	1.0138	0.2039	-1438.99	-1230.59	-1340.23
4	760.00	106.2	0.1660	0.2460	888.47	643.47	0.9533	0.9602	1.2020	1.0214	0.1628	-1447.72	-1237.86	-1348.26
5	760.00	105.0	0.2240	0.3170	860.40	621.85	0.9528	0.9597	1.1847	1.0285	0.1414	-1459.50	-1247.68	-1359.09
6	760.00	104.0	0.2910	0.3870	837.51	604.25	0.9524	0.9593	1.1432	1.0393	0.0953	-1469.43	-1255.97	-1368.23
7	760.00	102.9	0.3650	0.4600	812.85	585.34	0.9519	0.9589	1.1157	1.0548	0.0562	-1480.48	-1265.19	-1378.39
8	760.00	102.1	0.4340	0.5210	795.25	571.87	0.9515	0.9586	1.0859	1.0740	0.0110	-1488.59	-1271.97	-1385.86
9	760.00	101.1	0.5390	0.6080	773.65	555.38	0.9511	0.9582	1.0483	1.1107	-0.0578	-1498.83	-1280.53	-1395.29
10	760.00	100.2	0.6410	0.6940	754.55	540.84	0.9507	0.9578	1.0312	1.1428	-0.1028	-1508.15	-1288.33	-1403.87
11	760.00	99.5	0.7390	0.7750	740.00	529.75	0.9504	0.9574	1.0182	1.1796	-0.1472	-1515.45	-1294.44	-1410.60
12	760.00	98.7	0.9010	0.9130	723.55	517.28	0.9500	0.9570	1.0057	1.2310	-0.2021	-1523.87	-1301.49	-1418.36
13	760.00	98.6	0.9120	0.9220	721.55	515.73	0.9500	0.9570	1.0062	1.2452	-0.2132	-1524.93	-1302.38	-1419.34

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 540.20 P = 27.00 V = 431.90 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 594.00 P = 40.00 V = 331.10 OMEGA = 0.241 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69024E 01 B = 0.12681E 04 C = 0.21690E 03

2 A = 0.69533E 01 B = 0.13439E 04 C = 0.21938E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12880E 03 B = -.60277E-01 C = 0.41160E-03

2 A = 0.98864E 02 B = -.55774E-01 C = 0.27703E-03

VAPOR PRESSURE AT NBP

P = 759.4 AT T = 98.4

P = 759.4 AT T = 110.6

COMPONENT ID ECHO CHECK

ID NUMBER = 16

ID NUMBER = 33

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.30160E 00 B = -.78684E-00 C = 0.24683E-00

STANDARD DEVIATION = 0.83195E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.3520 G2INF = 1.2692

T1INF = 110.63 T2INF = 98.43

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0636

AREA BELOW THE X-AXIS IS -0.0731

CROSS-OVER POINT IS X = 0.45

NORMALIZED AREA DIFFERENCE IS -0.0699

HERINGTON J-FACTOR IS 4.92

CONSISTENCY INDEX IS 2.06

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	68.99	166.93	C.3638F-10	5.49	0.00157
2	151.69	135.91	0.2824E-04	1.40	0.00313
3	59.38	182.13	0.2279E-02	3.92	0.00194
4	66.34	177.13	C.1747F-02	3.85	0.00191
5	129.90	141.01	0.3130F-03	1.67	0.00225
6	153.35	105.99	0.8455F-04	5.53	0.00145
7	177.35	107.16	C.3031E-03	1.99	0.00202
8	81.74	183.11	0.3053F-04	C.95	0.00315
9	82.54	182.53	C.2887F-04	0.95	0.00314
10	77.69	169.61	0.9425F-02	3.64	0.00188

HEPTANE(1) — P-XYLENE(2) SYSTEM 073

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	136.3	0.0220	0.0700	1828.20	686.95	0.9648	0.9567	1.2696	1.0022	0.2365	-1194.10	-1455.46	-1318.33
2	760.00	134.0	0.0500	0.1450	1739.31	646.51	0.9641	0.9558	1.2153	1.0069	0.1881	-1211.03	-1476.88	-1337.23
3	760.00	132.1	0.0750	0.2020	1668.10	614.50	0.9634	0.9550	1.1761	1.0147	0.1476	-1225.28	-1494.97	-1353.16
4	760.00	128.2	0.1300	0.3200	1528.22	552.59	0.9621	0.9535	1.1717	1.0206	0.1380	-1255.33	-1533.25	-1386.81
5	760.00	124.1	0.1980	0.4340	1390.08	492.79	0.9606	0.9517	1.1452	1.0315	0.1046	-1288.12	-1575.29	-1423.63
6	760.00	121.0	0.2590	0.5180	1291.66	451.00	0.9595	0.9504	1.1233	1.0373	0.0796	-1313.78	-1608.36	-1452.51
7	760.00	120.9	0.2600	0.5210	1288.50	449.70	0.9595	0.9503	1.1281	1.0352	0.0860	-1314.62	-1609.45	-1453.46
8	760.00	120.8	0.2620	0.5200	1285.42	448.40	0.9594	0.9503	1.1200	1.0431	0.0711	-1315.46	-1610.54	-1454.40
9	760.00	120.4	0.2700	0.5360	1273.12	443.24	0.9593	0.9501	1.1309	1.0311	0.0924	-1318.83	-1614.90	-1458.21
10	760.00	117.2	0.3410	0.6100	1177.69	403.58	0.9580	0.9487	1.1002	1.0527	0.0441	-1346.30	-1650.53	-1489.20
11	760.00	115.7	0.3810	0.6400	1134.76	385.97	0.9574	0.9479	1.0715	1.0809	-0.0087	-1359.47	-1667.68	-1504.10
12	760.00	113.5	0.4390	0.6930	1073.83	361.24	0.9566	0.9469	1.0631	1.0855	-0.0208	-1379.16	-1693.40	-1526.39
13	760.00	113.1	0.4480	0.6980	1063.00	356.88	0.9564	0.9467	1.0598	1.0982	-0.0356	-1382.78	-1698.15	-1530.50
14	760.00	113.1	0.4500	0.6940	1063.00	356.88	0.9564	0.9467	1.0490	1.1168	-0.0626	-1382.78	-1698.15	-1530.50
15	760.00	112.8	0.4550	0.7000	1054.94	353.64	0.9563	0.9465	1.0543	1.1149	-0.0559	-1385.51	-1701.73	-1533.60
16	760.00	110.7	0.5210	0.7500	999.72	331.58	0.9554	0.9455	1.0401	1.1262	-0.0796	-1404.85	-1727.12	-1555.54
17	760.00	108.2	0.5990	0.8060	936.74	306.75	0.9543	0.9442	1.0364	1.1269	-0.0838	-1428.42	-1758.20	-1582.34
18	760.00	108.1	0.6070	0.8120	934.28	305.79	0.9543	0.9442	1.0330	1.1177	-0.0788	-1429.38	-1759.47	-1583.43
19	760.00	105.6	0.6940	0.8580	874.35	282.51	0.9532	0.9429	1.0189	1.1720	-0.1399	-1453.59	-1791.56	-1611.03
20	760.00	103.4	0.7790	0.9020	823.99	263.20	0.9522	0.9417	1.0115	1.2005	-0.1713	-1475.44	-1820.64	-1635.97
21	760.00	101.6	0.8510	0.9380	784.39	248.20	0.9514	0.9407	1.0106	1.1933	-0.1662	-1493.70	-1845.04	-1656.86
22	760.00	100.7	0.8940	0.9560	765.13	240.96	0.9510	0.9402	1.0047	1.2256	-0.1987	-1502.96	-1857.46	-1667.47
23	760.00	99.7	0.9400	0.9750	744.15	233.11	0.9505	0.9396	1.0015	1.2708	-0.2382	-1513.36	-1871.42	-1679.39

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 540.20 P = 27.00 V = 431.90 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 616.30 P = 34.60 V = 369.40 OMEGA = 0.324 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69024E 01 B = 0.12681E 04 C = 0.21690E 03

2 A = 0.69905E 01 B = 0.14534E 04 C = 0.21531E 03

VAPOR PRESSURE AT NBP

P = 759.4 AT T = 98.4

P = 760.0 AT T = 138.3

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12880E 03 B = -.60277E-01 C = 0.41160E-03

2 A = 0.12940E 03 B = -.14187E 00 C = 0.41800E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 16

ID NUMBER = 36

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.22853E 00 B = -.66542E 00 C = 0.20273E 00

STANDARD DEVIATION = 0.18859E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.2568 G2INF = 1.2638

T1INF = 138.35 T2INF = 98.43

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0425

AREA BELOW THE X-AXIS IS -0.0791

CROSS-OVER POINT IS X = 0.39

NORMALIZED AREA DIFFERENCE IS -0.3008

HERINGTON J-FACTOR IS 16.12

CONSISTENCY INDEX IS 13.97

HEXANE(1) BENZENE(2) SYSTEM 074A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	115.40	25.0	C.1000	0.2420	148.78	94.39	0.9883	C.9905	1.8535	1.0193	0.5979	-1886.85	-1527.45	-1712.14
2	126.40	25.0	0.2000	0.3630	148.78	94.39	0.9871	0.9896	1.5208	1.0545	0.3661	-1886.85	-1527.45	-1712.14
3	134.50	25.0	0.3000	0.4560	148.78	94.39	C.9863	C.9889	1.3540	1.0944	0.2129	-1886.85	-1527.45	-1712.14
4	140.40	25.0	0.4000	0.5290	148.78	94.39	0.9857	0.9884	1.2290	1.1533	0.0635	-1886.85	-1527.45	-1712.14
5	144.50	25.0	C.500C	0.5920	148.78	94.39	0.9853	0.9881	1.1319	1.2335	-0.0859	-1886.85	-1527.45	-1712.14
6	147.70	25.0	0.6000	0.6610	148.78	94.39	0.9850	C.9878	1.0761	1.3091	-0.1959	-1886.85	-1527.45	-1712.14
7	150.60	25.0	C.7000	0.7440	148.78	94.39	0.9847	0.9876	1.0583	1.3436	-0.2387	-1886.85	-1527.45	-1712.14
8	153.00	25.0	0.8000	0.8200	148.78	94.39	0.9845	C.9874	1.0366	1.4393	-0.3282	-1886.85	-1527.45	-1712.14
9	154.30	25.0	0.9000	0.9040	148.78	94.39	0.9843	0.9873	1.0243	1.5481	-0.4131	-1886.85	-1527.45	-1712.14

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 507.90 P = 29.90 V = 372.40 OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = C.68778E 01 B = 0.11715E 04 C = 0.22437E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = C.22079E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12596E C3 B = -.14456E C0 C = 0.54720E-03

2 A = 0.70863E C2 B = C.14907E-01 C = 0.15880E-03

VAPOR PRESSURE AT NBP

P = 759.0 AT T = 68.7

P = 760.0 AT T = 80.1

COMPONENT ID ECHO CHECK

ID NUMBER = 18

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.79593E 00 B = -.22558E 01 C = 0.10408E 01

STANDARD DEVIATION = C.22193E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.2165 G2INF = 1.5205

T1INF = 25.00 T2INF = 25.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1614

AREA BELOW THE X-AXIS IS -C.1464

CROSS-OVER POINT IS X = 0.44

NORMALIZED AREA DIFFERENCE IS 0.0486

CONSISTENCY INDEX IS 4.86

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	399.73	89.50	C.4093E-10	4.00	0.00697
2	304.53	212.06	0.2514E-03	0.62	0.00521
3	392.77	141.85	0.5312E-02	1.38	0.00343
4	375.35	151.05	C.3507E-02	1.34	0.00349
5	320.07	193.93	0.8510E-03	0.61	0.00407
6	332.64	166.22	C.3000E-03	1.69	0.00362
7	309.94	197.09	0.1018E-02	0.72	0.00386
8	286.54	220.68	0.2613E-03	0.58	0.00529
9	286.54	220.68	C.2613E-03	0.58	0.00529
10	402.22	135.68	0.5264E-02	1.47	0.00343

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	5.73	181.29	0.0	3.89	0.00666
2	201.42	71.23	0.2786E-03	7.53	0.00893
3	99.21	108.19	0.3100E-01	2.46	0.00660
4	132.98	80.47	0.2422E-01	2.76	0.00639
5	255.72	-7.23	0.2959E-02	3.29	0.00588
6	475.57	-173.04	0.1075E-02	12.36	0.00414
7	340.38	-66.56	0.2080E-02	4.92	0.00519
8	9.49	194.01	0.7242E-04	1.09	0.00755
9	11.64	192.02	0.6875E-04	1.09	0.00754
10	93.24	111.48	0.9506E-01	2.80	0.00653

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION
SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

HEXANE(2) BENZENE(1) SYSTEM 0748

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	791.60	70.0	0.1250	0.1200	534.74	748.65	0.9613	0.9519	1.3613	1.0070	0.3015	-1042.71	-1299.36	-1174.15
2	785.20	70.0	0.2500	0.2250	534.74	748.65	0.9616	0.9523	1.2664	1.0267	0.2098	-1042.71	-1299.36	-1174.15
3	768.70	70.0	0.3750	0.3125	534.74	748.65	0.9624	0.9533	1.1490	1.0713	0.0701	-1042.71	-1299.36	-1174.15
4	744.70	70.0	0.5000	0.4050	534.74	748.65	0.9636	0.9547	1.0835	1.1246	-0.0373	-1042.71	-1299.36	-1174.15
5	711.60	70.0	0.6250	0.5050	534.74	748.65	0.9653	0.9567	1.0346	1.1948	-0.1439	-1042.71	-1299.36	-1174.15
6	676.50	70.0	0.7500	0.6250	534.74	748.65	0.9670	0.9588	1.0164	1.2939	-0.2413	-1042.71	-1299.36	-1174.15
7	620.90	70.0	0.8750	0.7730	534.74	748.65	0.9697	0.9622	0.9920	1.4433	-0.3749	-1042.71	-1299.36	-1174.15

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 507.90 P = 29.90 V = 372.40 OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

2 A = 0.68778E 01 B = 0.11715E 04 C = 0.22437E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 759.0 AT T = 68.7

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = -0.14967E-01 C = 0.15880E-03

2 A = 0.12596E 03 B = -.14456E 00 C = 0.54720E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 18

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.41896E 00 B = -.90118E 00 C = -0.24599E-02

STANDARD DEVIATION = 0.13223E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.5204 G2INF = 1.6157

T1INF = 70.00 T2INF = 70.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0975

AREA BELOW THE X-AXIS IS -0.1283

CROSS-OVER POINT IS X = 0.47

NORMALIZED AREA DIFFERENCE IS -0.1365

CONSISTENCY INDEX IS 13.65

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	338.21	-7.81	0.9095E-12	4.79	0.00732
2	522.83	-228.41	0.4428E-04	2.21	0.00646
3	388.36	-72.63	0.7411E-02	3.34	0.00676
4	453.93	-142.46	0.5009E-02	2.92	0.00605
5	539.75	-224.20	0.7008E-03	3.25	0.00539
6	652.33	-279.73	0.2869E-03	10.25	0.00346
7	588.52	-260.80	0.5391E-03	4.25	0.00487
8	407.62	-110.49	0.3320E-04	1.16	0.00690
9	407.86	-110.73	0.3340E-04	1.16	0.00690
10	406.88	-97.83	0.2761E-01	2.28	0.00660

HEXANE(1) - BENZENE(2) SYSTEM 074C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	77.6	0.0730	0.1400	933.71	678.80	C.9571	C.9657	1.4867	0.9997	0.3968	-1230.08	-987.45	-1111.79
2	760.00	75.1	0.1720	0.2680	869.50	628.49	0.9561	0.9648	1.2956	1.0280	0.2314	-1252.20	-1005.05	-1131.68
3	760.00	73.4	C.268C	C.376C	827.72	595.94	0.9553	0.9642	1.2245	1.C447	0.1588	-1267.61	-1017.34	-1145.54
4	760.00	72.0	0.3720	0.4600	794.45	570.12	0.9547	0.9637	1.1237	1.1009	0.0205	-1280.53	-1027.65	-1157.18
5	760.00	70.9	0.4620	0.54CC	769.01	550.44	0.9542	0.9632	1.0967	1.1333	-0.0328	-1290.83	-1035.89	-1166.46
6	760.00	70.0	0.5850	0.6440	748.65	534.74	C.9538	0.9629	1.0606	1.1700	-0.0982	-1299.36	-1042.71	-1174.15
7	760.00	69.4	0.6920	0.7250	735.30	524.46	0.9535	0.9626	1.0274	1.2413	-0.1891	-1305.09	-1047.30	-1179.32
8	760.00	69.1	0.7920	0.8070	728.69	519.38	0.9534	0.9625	1.0081	1.3024	-0.2562	-1307.98	-1049.61	-1181.92
9	760.00	69.0	0.8280	0.8380	726.50	517.69	0.9533	0.9624	1.0043	1.3263	-0.2781	-1308.94	-1050.38	-1182.79
10	760.00	68.9	0.8830	0.8880	724.31	516.01	0.9533	0.9624	1.0009	1.3523	-0.3009	-1309.90	-1051.16	-1183.66
11	760.00	68.8	C.9470	C.9500	722.12	514.33	0.9532	0.9623	1.0014	1.3370	-0.2890	-1310.87	-1051.93	-1184.53
12	760.00	68.8	0.9620	0.9640	722.12	514.33	C.9532	0.9623	1.0003	1.3426	-0.2943	-1310.87	-1051.93	-1184.53

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 507.90 P = 29.90 V = 372.40 OMEGA = C.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68778E 01 B = 0.11715E 04 C = 0.22437E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12596E 03 B = -.14456E CO C = 0.54720E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

VAPOR PRESSURE AT NBP

P = 759.0 AT T = 68.7

P = 760.0 AT T = 80.1

COMPONENT ID ECHO CHECK

ID NUMBER = 18

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.47894E 00 B = -.13961E 01 C = 0.60542E 00

STANDARD DEVIATION = 0.20024E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.6144 G2INF = 1.3658

T1INF = 80.10 T2INF = 68.74

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0930

AREA BELOW THE X-AXIS IS -0.1103

CROSS-OVER POINT IS X = 0.42

NORMALIZED AREA DIFFERENCE IS -0.0852

HERINGTON J-FACTOR IS 4.98

CONSISTENCY INDEX IS 3.53

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	221.94	131.41	0.9095E-12	4.04	0.00353
2	163.01	193.57	0.6583F-04	2.02	0.00371
3	244.12	131.11	0.7390F-02	2.40	0.00311
4	253.86	125.96	0.4594F-02	2.48	0.00310
5	241.86	136.15	0.5937F-03	2.16	0.00322
6	336.20	76.68	0.3433E-03	3.77	0.00313
7	297.29	104.44	0.4449E-03	2.80	0.00310
8	94.83	234.79	0.4985F-04	1.38	0.00421
9	94.64	234.75	0.4984F-04	1.37	0.00421
10	235.37	134.24	0.1292F-01	2.45	0.00315

HEXANE(1) — BENZENE(2) SYSTEM 0740

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	77.7	0.0790	0.1490	936.35	680.87	0.9572	0.9657	1.4580	0.9927	0.3844	-1229.21	-986.75	-1111.00
2	760.00	75.6	0.1510	0.2510	882.07	638.31	0.9563	0.9650	1.3628	1.0102	0.2994	-1247.73	-1001.49	-1127.65
3	760.00	74.0	0.2260	0.3380	842.30	607.27	0.9556	0.9644	1.2831	1.0289	0.2208	-1262.14	-1012.97	-1140.62
4	760.00	72.9	0.3050	0.4120	815.72	586.62	0.9551	0.9640	1.1961	1.0531	0.1273	-1272.20	-1021.00	-1149.68
5	760.00	71.7	0.4140	0.5070	787.45	564.70	0.9546	0.9635	1.1226	1.0873	0.0320	-1283.32	-1029.89	-1159.70
6	760.00	71.0	0.4840	0.5610	771.30	552.21	0.9543	0.9633	1.0844	1.1241	-0.0359	-1289.89	-1035.13	-1165.61
7	760.00	70.3	0.5890	0.6440	755.39	539.93	0.9539	0.9630	1.0442	1.1702	-0.1139	-1296.51	-1040.43	-1171.58
8	760.00	69.7	0.6660	0.6960	741.95	529.58	0.9537	0.9628	1.0158	1.2533	-0.2102	-1302.22	-1045.00	-1176.73
9	760.00	69.4	0.7720	0.7910	735.30	524.46	0.9535	0.9626	1.0048	1.2744	-0.2377	-1305.09	-1047.30	-1179.32
10	760.00	69.2	0.9230	0.9190	730.89	521.07	0.9534	0.9625	0.9854	1.4166	-0.3630	-1307.01	-1048.84	-1181.05

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 507.90 P = 29.90 V = 372.40 OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68778E 01 B = -0.11715E 04 C = -0.22437E 03

2 A = 0.69056E 01 B = -0.12110E 04 C = -0.22079E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12596E 03 B = -.14456E 00 C = 0.54720E-03

2 A = 0.70863E 02 B = -0.14907E-01 C = -0.15880E-03

VAPOR PRESSURE AT NBP

P = 759.0 AT T = 68.7

P = 760.0 AT T = 80.1

COMPONENT ID ECHO CHECK

ID NUMBER = 18

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.47763E 00 B = -.12299E 01 C = 0.35266E 00

STANDARD DEVIATION = 0.14443E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.6122 G2INF = 1.4912

T1INF = 80.10 T2INF = 68.74

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1011

AREA BELOW THE X-AXIS IS -0.1209

CROSS-OVER POINT IS X = 0.45

NORMALIZED AREA DIFFERENCE IS -0.0890

HERINGTON J-FACTOR IS 4.98

CONSISTENCY INDEX IS 3.91

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	48.13	287.18	0.1819E-11	8.62	0.00398
2	173.82	166.72	0.2617E-03	2.90	0.00379
3	81.49	251.02	0.4794E-02	6.08	0.00332
4	113.00	226.74	0.3454E-02	5.74	0.00290
5	207.29	151.33	0.6956E-03	3.08	0.00306
6	227.72	158.77	0.2231E-03	7.67	0.00223
7	235.95	135.41	0.7521E-03	3.31	0.00294
8	180.31	162.21	0.2734E-03	2.91	0.00382
9	180.55	162.04	0.2735E-03	2.91	0.00382
10	74.48	257.69	0.1140E-01	6.42	0.00342

HEXANE(1) — CHLOROBENZENE(2) — SYSTEM 075A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	166.40	65.0	0.0830	0.5440	642.75	71.90	0.9882	0.9894	1.6749	1.1377	0.3867	-1348.44	-1133.90	-1595.71
2	222.30	65.0	0.1440	0.6790	642.75	71.90	0.9850	0.9846	1.6040	1.1403	0.3412	-1348.44	-1133.90	-1595.71
3	264.10	65.0	0.2010	0.7440	642.75	71.90	0.9825	0.9809	1.4917	1.1529	0.2577	-1348.44	-1133.90	-1595.71
4	319.70	65.0	0.2840	0.8030	642.75	71.90	0.9791	0.9759	1.3741	1.1920	0.1422	-1348.44	-1133.90	-1595.71
5	382.30	65.0	0.3940	0.8520	642.75	71.90	0.9753	0.9701	1.2512	1.2574	-0.0049	-1348.44	-1133.90	-1595.71
6	403.50	65.0	0.4380	0.8660	642.75	71.90	0.9739	0.9681	1.2068	1.2941	-0.0698	-1348.44	-1133.90	-1595.71
7	428.30	65.0	0.4850	0.8820	642.75	71.90	0.9724	0.9658	1.1750	1.3153	-0.1128	-1348.44	-1133.90	-1595.71
8	453.80	65.0	0.5400	0.8960	642.75	71.90	0.9708	0.9634	1.1339	1.3716	-0.1903	-1348.44	-1133.90	-1595.71
9	477.90	65.0	0.5910	0.9100	642.75	71.90	0.9693	0.9610	1.1062	1.4022	-0.2371	-1348.44	-1133.90	-1595.71
10	516.30	65.0	0.6790	0.9290	642.75	71.90	0.9669	0.9573	1.0590	1.5165	-0.3591	-1348.44	-1133.90	-1595.71
11	578.00	65.0	0.8060	0.9570	642.75	71.90	0.9630	0.9512	1.0243	1.6899	-0.5007	-1348.44	-1133.90	-1595.71
12	638.40	65.0	0.9270	0.9840	642.75	71.90	0.9591	0.9449	1.0070	1.8331	-0.5990	-1348.44	-1133.90	-1595.71

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 507.90 P = 29.90 V = 372.40 OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 632.40 P = 44.60 V = 307.80 OMEGA = 0.252 OMEGAH = 0.241 DIPOLE = 1.70 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69778E 01 B = -0.11715E 04 C = -0.22437E 03

2 A = 0.77175E 01 B = -0.19812E 04 C = -0.27315E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12596E 03 B = -.14456E 00 C = 0.54720E-03

2 A = 0.85745E 02 B = -0.10555E-01 C = -0.14959E-03

VAPOR PRESSURE AT NBP

P = 759.0 AT T = 68.7

P = 674.0 AT T = 132.1

COMPONENT ID ECHO CHECK

ID NUMBER = 18

ID NUMBER = 56

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.52936E 00 B = -.14526E 01 C = 0.23808E 00

STANDARD DEVIATION = 0.13768E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.6978 G2INF = 1.9841

T1INF = 65.00 T2INF = 65.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1007

AREA BELOW THE X-AXIS IS -0.2183

CROSS-OVER POINT IS X = 0.39

NORMALIZED AREA DIFFERENCE IS -0.3687

CONSISTENCY INDEX IS 36.87

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER	VALUES	OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-137.13	599.03	0.9095E-11	6.27	0.01384
2	1625.57	-52.19	0.2184E-02	19.88	0.02475
3	140.08	380.72	0.2288E 00	1.67	0.01747
4	252.82	288.54	0.1257E 00	2.52	0.01718
5	120.99	371.47	0.1069E-01	2.32	0.01616
6	440.88	-13.37	0.1207E-02	28.80	0.00647
7	108.47	354.09	0.6794E-02	5.85	0.01468
8	166.83	350.19	0.1247E-03	1.09	0.01703
9	166.83	350.19	0.1247E-03	1.09	0.01703
10	102.96	401.41	0.1172E 00	1.37	0.01689

HEXANE(1) — CHLOROBENZENE(2) SYSTEM 0758

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	759.80	127.6	0.0180	0.1180	3022.31	582.24	0.9610	0.9793	1.5762	1.1438	0.3207	-889.50	-673.77	-1037.50
2	759.80	121.1	0.0490	0.2820	2656.70	483.76	0.9630	0.9770	1.5775	1.1545	0.3122	-925.20	-701.99	-1079.36
3	759.80	115.7	0.0810	0.4060	2375.07	412.69	0.9640	0.9744	1.5383	1.1554	0.2862	-956.47	-727.73	-1116.22
4	759.80	111.5	0.1090	0.4910	2173.17	364.30	0.9643	0.9720	1.5114	1.1540	0.2699	-981.44	-748.98	-1145.79
5	759.80	101.0	0.2000	0.6660	1712.04	262.01	0.9637	0.9650	1.4173	1.1642	0.1967	-1049.42	-809.99	-1226.93
6	759.80	92.7	0.3090	0.7690	1396.78	188.81	0.9620	0.9589	1.2959	1.2206	0.0599	-1108.69	-866.98	-1298.44
7	759.80	86.8	0.4190	0.8350	1201.18	162.47	0.9604	0.9540	1.2047	1.2623	-0.0468	-1153.48	-912.41	-1352.99
8	759.80	82.7	0.5160	0.8720	1074.16	140.10	0.9590	0.9505	1.1407	1.3582	-0.1746	-1187.17	-947.93	-1394.32
9	759.80	80.2	0.5910	0.8960	1003.82	128.14	0.9581	0.9482	1.0940	1.4243	-0.2638	-1207.82	-970.26	-1419.77
10	759.80	80.1	0.5930	0.8960	1002.15	127.86	0.9581	0.9482	1.0921	1.4344	-0.2726	-1208.33	-970.82	-1420.40
11	759.80	80.2	0.5940	0.8960	1003.26	128.05	0.9581	0.9482	1.0891	1.4359	-0.2764	-1207.99	-970.45	-1419.98
12	759.80	78.3	0.6440	0.9120	952.56	119.63	0.9574	0.9465	1.0761	1.4805	-0.3191	-1223.92	-987.98	-1439.68
13	759.80	75.7	0.7370	0.9340	884.61	108.60	0.9563	0.9440	1.0358	1.6513	-0.4664	-1246.84	-1013.66	-1468.13
14	759.80	74.2	0.7900	0.9500	846.46	102.54	0.9557	0.9424	1.0265	1.6563	-0.4784	-1260.59	-1029.33	-1485.27
15	759.80	74.1	0.7930	0.9600	845.72	102.43	0.9557	0.9419	1.0343	1.3451	-0.2628	-1260.87	-1029.64	-1485.61
16	759.80	72.7	0.8470	0.9650	811.44	97.07	0.9551	0.9408	1.0138	1.6782	-0.5040	-1273.86	-1044.61	-1501.83

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 507.90 P = 29.90 V = 372.40 OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 632.40 P = 44.60 V = 307.80 OMEGA = 0.252 OMEGAH = 0.241 DIPOLE = 1.70 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68778E 01 B = -0.11715E 04 C = -0.22437E 03

2 A = 0.77175E 01 B = -0.19812E 04 C = -0.27315E 03

VAPOR PRESSURE AT NBP

P = 759.0 AT T = 68.7

P = 674.0 AT T = 132.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12596E 03 B = -.14456E 00 C = 0.54720E-03

2 A = 0.85745E 02 B = -0.10559E-01 C = -0.14999E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 18

ID NUMBER = 56

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.37756E 00 B = -.11425E 01 C = 0.14586E 00

STANDARD DEVIATION = 0.59412E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.4587 G2INF = 1.8571

T1INF = 136.46 T2INF = 68.73

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0643

AREA BELOW THE X-AXIS IS -0.2093

CROSS-OVER POINT IS X = 0.35

NORMALIZED AREA DIFFERENCE IS -0.5302

HERINGTON J-FACTOR IS 29.72

CONSISTENCY INDEX IS 23.30

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER	VALUES	OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	-329.81	766.78	0.9095E-11	35.52	0.01390
2	11464.71	-125.73	0.1314E-01	107.71	0.06902
3	34.67	448.53	0.5039E 00	14.87	0.02112
4	102.83	374.79	0.2671E 00	17.05	0.02070
5	155.39	342.44	0.4139E-01	14.81	0.02161
6	421.42	-39.83	0.3282E-02	65.75	0.00873
7	88.93	355.09	0.3810E-01	23.95	0.01878
8	414.59	207.43	0.8300E-02	11.73	0.02591
9	414.59	207.43	0.8297E-02	11.73	0.02591
10	4.23	461.41	0.2059E 00	17.48	0.02009

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION
SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

HEXANE(1) — 1-HEXENE(2) — SYSTEM 076

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	67.9	0.9030	0.8870	702.70	829.11	0.9528	0.9578	1.0072	1.0180	-0.0106	-1319.61	-1182.58	-1249.22
2	760.00	67.8	0.8950	0.8770	700.56	826.66	0.9528	0.9578	1.0077	1.0266	-0.0185	-1320.59	-1183.44	-1250.14
3	760.00	67.2	0.8070	0.7800	687.86	812.11	0.9525	0.9575	1.0121	1.0166	-0.0044	-1326.48	-1188.64	-1255.68
4	760.00	66.5	0.7080	0.6740	673.26	795.37	0.9521	0.9572	1.0181	1.0162	0.0018	-1333.40	-1194.76	-1262.18
5	760.00	65.9	0.6140	0.5770	660.92	781.22	0.9518	0.9569	1.0234	1.0153	0.0080	-1339.39	-1200.04	-1267.81
6	760.00	65.7	0.5880	0.5500	656.85	776.55	0.9517	0.9568	1.0249	1.0179	0.0068	-1341.39	-1201.81	-1269.69
7	760.00	65.4	0.5230	0.4850	650.78	769.58	0.9516	0.9566	1.0254	1.0151	0.0100	-1344.40	-1204.48	-1272.52
8	760.00	64.8	0.4130	0.3780	638.76	755.77	0.9513	0.9564	1.0308	1.0142	0.0162	-1350.47	-1209.83	-1278.22
9	760.00	64.8	0.4080	0.3740	638.76	755.77	0.9513	0.9564	1.0324	1.0121	0.0198	-1350.47	-1209.83	-1278.22
10	760.00	64.7	0.3970	0.3730	636.77	753.49	0.9513	0.9563	1.0614	0.9982	0.0614	-1351.48	-1210.73	-1279.18
11	760.00	64.4	0.3240	0.2930	630.84	746.68	0.9511	0.9562	1.0310	1.0130	0.0176	-1354.53	-1213.42	-1282.04
12	760.00	64.3	0.2850	0.2560	628.97	744.41	0.9511	0.9561	1.0273	1.0109	0.0161	-1355.56	-1214.32	-1283.00
13	760.00	64.1	0.2200	0.1970	624.95	739.90	0.9510	0.9560	1.0304	1.0061	0.0238	-1357.60	-1216.13	-1284.92
14	760.00	64.0	0.2140	0.1920	623.00	737.66	0.9509	0.9560	1.0356	1.0077	0.0273	-1358.62	-1217.03	-1285.88
15	760.00	63.7	0.1160	0.1030	617.16	730.95	0.9508	0.9558	1.0344	1.0036	0.0302	-1361.70	-1219.75	-1288.78
16	760.00	63.7	0.1080	0.1000	617.16	730.95	0.9508	0.9558	1.0787	0.9980	0.0778	-1361.70	-1219.75	-1288.78

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 507.90 P = 29.90 V = 372.40 OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 504.00 P = 32.10 V = 350.70 OMEGA = 0.285 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68778E 01 B = 0.11715E 04 C = 0.22437E 03

2 A = 0.68657E 01 B = 0.11530E 04 C = 0.22600E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12596E 03 B = -.14456E 00 C = 0.54720E-03

2 A = 0.20978E 03 B = -.71344E 00 C = 0.14350E-02

VAPOR PRESSURE AT NBP

P = 759.6 AT T = 68.7

P = 763.6 AT T = 63.5

COMPONENT ID ECHO CHECK

ID NUMBER = 18

ID NUMBER = 38

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.54921E-01 B = -.88163E-01 C = 0.14860E-01

STANDARD DEVIATION = 0.16282E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.0565 G2INF = 1.0186

T1INF = 63.33 T2INF = 68.74

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0185

AREA BELOW THE X-AXIS IS -0.0028

CROSS-OVER POINT IS X = 0.71

NORMALIZED AREA DIFFERENCE IS 0.7415

HERINGTON J-FACTOR IS 1.87

CONSISTENCY INDEX IS 72.28

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	364.99	-255.17	0.0	7.10	0.00369
2	-149.35	224.23	0.2226E-04	0.87	0.00428
3	66.09	-24.57	0.6185E-02	3.90	0.00332
4	61.97	-21.31	0.5699E-02	4.00	0.00329
5	-256.71	364.32	0.7021E-03	1.66	0.00359
6	-388.05	558.65	0.3323E-03	6.60	0.00208
7	-316.98	463.20	0.6243E-03	2.10	0.00354
8	-59.59	117.24	0.2119E-04	0.77	0.00429
9	-33.72	89.79	0.2091E-04	0.75	0.00435
10	325.41	-225.75	0.5052E-02	5.68	0.00361

HEXANE(1) P-XYLENE(2) SYSTEM 077

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	136.1	C.C110	0.0690	3546.56	683.35	0.9775	0.9566	1.3078	0.9973	0.2710	-845.53	-1457.3C	-1103.58
2	760.00	130.0	0.0420	0.2240	3167.05	580.54	0.9755	0.9543	1.2426	1.0077	0.2095	-876.61	-1515.38	-1145.14
3	760.00	118.3	0.1230	0.4860	2510.24	416.89	0.9717	0.9499	1.1565	1.C105	0.1353	-940.99	-1638.13	-1231.95
4	760.00	112.1	0.1650	0.5870	2200.33	346.16	0.9698	0.9473	1.1860	1.0242	0.1466	-977.94	-1710.12	-1282.20
5	760.00	109.7	0.1920	0.6250	2087.41	321.46	0.9690	0.9463	1.1429	1.0338	0.1004	-992.82	-1739.44	-1302.54
6	760.00	96.3	0.3380	0.7650	1527.43	207.94	0.9645	0.9398	1.1092	1.1107	-0.0013	-1082.50	-1920.29	-1426.28
7	760.00	91.3	0.409C	0.8310	1348.14	174.93	0.9627	0.9371	1.0973	1.1591	-0.0548	-1119.14	-1996.31	-1477.45
8	760.00	86.6	0.4970	0.8670	1193.61	147.88	0.9609	0.9344	1.0621	1.2640	-0.1740	-1155.37	-2072.69	-1528.39
9	760.00	82.9	0.578C	0.898C	1081.18	129.06	0.9595	0.9321	1.0427	1.3207	-0.2364	-1185.20	-2136.52	-1570.60
10	760.00	78.2	0.7010	0.9410	949.63	108.01	0.9575	0.9291	1.0236	1.2842	-0.2269	-1224.87	-2222.75	-1627.12
11	760.00	74.8	0.7970	0.9660	862.01	94.60	0.9560	0.9268	1.0166	1.2414	-0.1998	-1254.90	-2289.06	-1670.20
12	760.00	70.9	0.9530	0.9930	748.65	78.02	0.9538	0.9232	1.0039	1.3332	-0.2837	-1299.36	-2388.83	-1734.43
13	760.00	72.6	0.8680	0.9780	808.59	86.67	0.9550	0.9252	1.0064	1.3459	-0.2907	-1274.97	-2333.85	-1699.12

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 507.90 P = 29.90 V = 372.4C OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 616.30 P = 34.60 V = 369.40 OMEGA = 0.324 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68778E 01 B = 0.11715E 04 C = 0.22437E 03

2 A = 0.69905E 01 B = 0.14534E 04 C = 0.21531E 03

VAPOR PRESSURE AT NBP

P = 759.0 AT T = 68.7

P = 760.0 AT T = 138.3

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12596E 03 B = -.14456E 00 C = 0.54720E-03

2 A = 0.12940E 03 B = -.14187E 00 C = 0.41800E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 18

ID NUMBER = 36

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.28116E 00 B = -.11086E 01 C = 0.54396E 00

STANDARD DEVIATION = 0.35245E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.3247 G2INF = 1.3277

T1INF = 138.35 T2INF = 68.74

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0394

AREA BELOW THE X-AXIS IS -0.1312

CROSS-OVER POINT IS X = 0.30

NORMALIZED AREA DIFFERENCE IS -0.5383

HERINGTON J-FACTOR IS 30.54

CONSISTENCY INDEX IS 23.29

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	190.22	41.43	C.9095E-12	8.12	0.00925
2	138.38	229.28	0.3322E-02	35.53	0.01972
3	150.74	89.08	0.1319E 00	8.46	0.01025
4	159.58	77.13	0.8431E-01	8.28	0.00995
5	-148.33	369.56	0.4007E-02	4.99	0.00854
6	687.88	-324.75	0.1271E-02	20.05	0.00535
7	-3.60	184.23	0.2166E-02	8.01	0.00762
8	-269.08	555.18	0.5654E-03	3.98	0.00923
9	-269.08	555.18	0.5695E-03	3.98	0.00923
10	108.35	109.79	0.2598E 00	6.71	0.00917

HEXANE(1) TOLUENE(2) SYSTEM 078A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	103.5	0.0690	0.2280	1813.62	595.60	0.9667	0.9592	1.3322	1.0111	0.2758	-1032.86	-1260.15	-1142.48
2	760.00	103.3	0.0700	0.2290	1805.20	592.16	0.9667	0.9591	1.3250	1.0167	0.2649	-1034.19	-1261.82	-1143.97
3	760.00	103.1	0.0720	0.2530	1796.83	588.74	0.9666	0.9591	1.4297	0.9928	0.3647	-1035.53	-1263.51	-1145.45
4	760.00	100.5	0.1040	0.3140	1690.29	545.66	0.9658	0.9581	1.3048	1.0178	0.2484	-1053.11	-1285.72	-1165.06
5	760.00	99.4	0.1160	0.3460	1646.53	528.17	0.9654	0.9576	1.3227	1.0156	0.2643	-1060.69	-1295.32	-1173.52
6	760.00	99.2	0.1200	0.3450	1638.67	525.04	0.9654	0.9576	1.2810	1.0278	0.2203	-1062.08	-1297.08	-1175.07
7	760.00	97.9	0.1370	0.3800	1588.14	505.03	0.9649	0.9570	1.2746	1.0307	0.2124	-1071.16	-1308.61	-1185.22
8	760.00	97.6	0.1400	0.3910	1576.63	500.50	0.9648	0.9569	1.2926	1.0250	0.2319	-1073.27	-1311.30	-1187.59
9	760.00	97.5	0.1420	0.3880	1572.81	499.00	0.9648	0.9569	1.2677	1.0356	0.2023	-1073.97	-1312.19	-1188.38
10	760.00	95.1	0.1770	0.4590	1482.98	463.94	0.9640	0.9559	1.2749	1.0254	0.2178	-1091.12	-1334.06	-1207.58
11	760.00	94.9	0.1810	0.4630	1475.65	461.11	0.9639	0.9558	1.2637	1.0290	0.2055	-1092.57	-1335.91	-1209.20
12	760.00	94.8	0.1820	0.4620	1472.00	459.70	0.9639	0.9558	1.2571	1.0353	0.1942	-1093.29	-1336.84	-1210.02
13	760.00	91.1	0.2460	0.5530	1341.30	409.80	0.9626	0.9542	1.2201	1.0451	0.1549	-1120.65	-1371.94	-1240.73
14	760.00	90.8	0.2540	0.5650	1331.07	405.94	0.9625	0.9541	1.2164	1.0375	0.1591	-1122.91	-1374.86	-1243.28
15	760.00	90.5	0.2600	0.5710	1320.90	402.12	0.9624	0.9539	1.2101	1.0412	0.1504	-1125.18	-1377.78	-1245.83
16	760.00	89.0	0.2930	0.6090	1270.86	383.42	0.9618	0.9533	1.1897	1.0409	0.1335	-1136.65	-1392.58	-1258.74
17	760.00	88.0	0.3090	0.6210	1238.26	371.33	0.9614	0.9528	1.1801	1.0654	0.1022	-1144.39	-1402.60	-1267.47
18	760.00	86.6	0.3450	0.6510	1193.61	354.92	0.9609	0.9522	1.1488	1.0822	0.0598	-1155.37	-1416.85	-1279.86
19	760.00	86.1	0.3560	0.6590	1177.95	349.20	0.9607	0.9519	1.1418	1.0928	0.0439	-1159.33	-1422.00	-1284.34
20	760.00	83.4	0.4290	0.7210	1095.91	319.54	0.9596	0.9506	1.1130	1.1005	0.0113	-1181.10	-1450.38	-1308.95
21	760.00	83.1	0.4340	0.7240	1087.06	316.37	0.9595	0.9505	1.1136	1.1091	0.0040	-1183.55	-1453.60	-1311.73
22	760.00	83.0	0.4410	0.7330	1084.12	315.32	0.9595	0.9505	1.1125	1.0899	0.0205	-1184.37	-1454.67	-1312.66
23	760.00	81.1	0.4990	0.7630	1029.33	295.87	0.9587	0.9495	1.0770	1.1493	-0.0649	-1200.15	-1475.36	-1330.55
24	760.00	80.9	0.5030	0.7680	1023.69	293.88	0.9586	0.9494	1.0813	1.1416	-0.0543	-1201.83	-1477.57	-1332.46
25	760.00	80.7	0.5100	0.7760	1018.06	291.90	0.9586	0.9493	1.0834	1.1255	-0.0381	-1203.51	-1479.78	-1334.37
26	760.00	79.0	0.5680	0.8060	971.15	275.49	0.9578	0.9485	1.0584	1.1704	-0.1006	-1217.97	-1498.84	-1350.80
27	760.00	78.7	0.5780	0.8090	963.04	272.67	0.9577	0.9483	1.0526	1.1916	-0.1240	-1220.55	-1502.25	-1353.73
28	760.00	76.7	0.6520	0.8520	910.21	254.47	0.9569	0.9473	1.0389	1.1984	-0.1429	-1237.97	-1525.33	-1373.58
29	760.00	76.6	0.6580	0.8520	907.62	253.58	0.9568	0.9472	1.0323	1.2237	-0.1701	-1238.86	-1526.50	-1374.59
30	760.00	73.1	0.7960	0.9180	820.51	224.14	0.9553	0.9453	1.0154	1.2833	-0.2342	-1270.36	-1568.50	-1410.57
31	760.00	72.5	0.8200	0.9270	806.22	219.38	0.9550	0.9450	1.0126	1.3224	-0.2669	-1275.89	-1575.91	-1416.90
32	760.00	72.1	0.8340	0.9350	796.79	216.25	0.9548	0.9447	1.0159	1.2949	-0.2427	-1279.60	-1580.88	-1421.15
33	760.00	70.9	0.8840	0.9550	769.01	207.08	0.9542	0.9441	1.0137	1.3388	-0.2781	-1290.83	-1595.97	-1434.02

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1	T = 507.90	P = 29.90	V = 372.40	OMEGA = 0.298	OMEGAH = 0.0	DIPOLE = 0.0	ETA = 0.0
2	T = 594.00	P = 40.00	V = 331.10	OMEGA = 0.241	OMEGAH = 0.0	DIPOLE = 0.0	ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1	A = 0.68778E 01	B = 0.11715E 04	C = 0.22437E 03
2	A = 0.69533E 01	B = 0.13439E 04	C = 0.21938E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1	A = 0.12596E 03	B = -.14456E 00	C = 0.54720E-03
2	A = 0.98864E 02	B = -.55774E-01	C = 0.27703E-03

VAPOR PRESSURE AT NBP

P = 759.0 AT T = 68.7

P = 759.4 AT T = 110.6

COMPONENT ID ECHO CHECK

ID NUMBER = 18

ID NUMBER = 33

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.35480E 00 B = -.89702E 00 C = 0.19230E 00

STANDARD DEVIATION = 0.21645E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.4259 G2INF = 1.4189

T1INF = 110.63 T2INF = 68.74

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0747

AREA BELOW THE X-AXIS IS -0.1044

CROSS-OVER POINT IS X = 0.44

NORMALIZED AREA DIFFERENCE IS -0.1653

HERINGTON J-FACTOR IS 18.38

CONSISTENCY INDEX IS -1.85

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	70.32	200.39	0.0	4.82	0.00533
2	255.06	99.81	0.7761E-03	8.07	0.00866
3	119.58	163.54	0.3559E-01	3.71	0.00546
4	145.41	142.77	0.2454E-01	3.85	0.00530
5	130.70	157.39	0.3686E-02	3.03	0.00566
6	265.44	29.41	0.1408E-02	12.02	0.00384
7	160.81	128.49	0.3048E-02	4.54	0.00503
8	92.31	198.30	0.2325E-03	1.49	0.00675
9	92.16	198.43	0.2299E-03	1.49	0.00675
10	156.12	140.80	0.4055E-01	2.42	0.00583

HEXANE(1) TOLUENE(2) SYSTEM 0788

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	102.1	0.0900	0.2820	1755.32	571.87	0.9663	0.9587	1.3046	1.0014	0.2644	-1042.24	-1271.97	-1152.93
2	760.00	100.9	0.1000	0.3100	1708.41	552.93	0.9659	0.9582	1.3256	1.0059	0.2760	-1050.04	-1281.83	-1161.63
3	760.00	96.0	0.1800	0.4590	1518.09	477.58	0.9643	0.9563	1.2251	1.0002	0.2028	-1084.28	-1325.33	-1199.92
4	760.00	94.4	0.1960	0.4840	1457.46	454.09	0.9637	0.9556	1.2350	1.0225	0.1887	-1096.20	-1340.56	-1213.27
5	760.00	93.0	0.2170	0.5180	1407.36	434.87	0.9632	0.9550	1.2357	1.0235	0.1884	-1106.47	-1353.72	-1224.80
6	760.00	90.8	0.2540	0.5630	1332.77	406.59	0.9625	0.9541	1.2106	1.0407	0.1513	-1122.53	-1374.37	-1242.85
7	760.00	89.8	0.2800	0.5930	1297.38	393.31	0.9621	0.9536	1.1878	1.0376	0.1352	-1130.51	-1384.66	-1251.83
8	760.00	86.8	0.3390	0.6570	1201.50	357.81	0.9610	0.9523	1.1723	1.0455	0.1145	-1153.40	-1414.29	-1277.63
9	760.00	86.3	0.3520	0.6640	1185.76	352.05	0.9608	0.9520	1.1560	1.0616	0.0852	-1157.35	-1419.42	-1282.10
10	760.00	85.3	0.3920	0.6970	1154.74	340.75	0.9604	0.9516	1.1184	1.0536	0.0597	-1165.31	-1429.79	-1291.09
11	760.00	82.5	0.4430	0.7420	1069.50	310.10	0.9593	0.9502	1.1362	1.0745	0.0558	-1188.49	-1460.07	-1317.33
12	760.00	82.4	0.4640	0.7510	1066.60	309.07	0.9592	0.9502	1.1068	1.0812	0.0180	-1189.32	-1461.15	-1318.27
13	760.00	81.9	0.4730	0.7570	1053.59	304.45	0.9591	0.9499	1.1017	1.0892	0.0115	-1193.05	-1466.04	-1322.50
14	760.00	80.8	0.4910	0.7690	1022.28	293.38	0.9586	0.9494	1.1107	1.1118	-0.0010	-1202.25	-1478.12	-1332.93
15	760.00	81.0	0.5080	0.7770	1026.51	294.87	0.9587	0.9495	1.0803	1.1048	-0.0225	-1200.98	-1476.46	-1331.50
16	760.00	78.5	0.5790	0.8220	957.66	270.81	0.9576	0.9482	1.0736	1.1207	-0.0429	-1222.27	-1504.53	-1355.70
17	760.00	77.8	0.6050	0.8320	938.99	264.36	0.9573	0.9478	1.0603	1.1544	-0.0850	-1228.34	-1512.56	-1362.60
18	760.00	76.8	0.6400	0.8480	911.50	254.91	0.9569	0.9473	1.0519	1.1878	-0.1215	-1237.53	-1524.74	-1373.08
19	760.00	74.8	0.7070	0.8800	863.26	238.50	0.9560	0.9463	1.0425	1.2301	-0.1655	-1254.45	-1547.24	-1392.38
20	760.00	74.2	0.7300	0.8900	847.19	233.08	0.9558	0.9459	1.0401	1.2516	-0.1851	-1260.32	-1555.08	-1399.09
21	760.00	73.5	0.7700	0.9070	830.14	227.36	0.9554	0.9455	1.0252	1.2729	-0.2164	-1266.70	-1563.59	-1406.38
22	760.00	72.3	0.8130	0.9270	800.32	217.42	0.9549	0.9448	1.0268	1.2842	-0.2217	-1278.21	-1579.01	-1419.55
23	760.00	72.1	0.8220	0.9300	797.97	216.64	0.9548	0.9448	1.0238	1.2982	-0.2375	-1279.14	-1580.26	-1420.62
24	760.00	71.5	0.8620	0.9460	782.81	211.63	0.9545	0.9444	1.0120	1.3219	-0.2672	-1285.19	-1588.39	-1427.56
25	760.00	71.1	0.8690	0.9480	774.74	208.96	0.9544	0.9442	1.0162	1.3577	-0.2897	-1288.48	-1592.81	-1431.33

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1	T = 507.90	P = 29.90	V = 372.40	OMEGA = 0.298	OMEGAH = 0.0	DIPOLE = 0.0	ETA = 0.0
2	T = 594.00	P = 49.00	V = 331.10	OMEGA = 0.241	OMEGAH = 0.0	DIPOLE = 0.0	ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1	A = 0.68778E 01	B = 0.11715E 04	C = 0.22437E 03
2	A = 0.69533E 01	B = 0.13439E 04	C = 0.21938E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1	A = 0.12596E 03	B = -.14456E 00	C = 0.54720E-03
2	A = 0.98864E 02	B = -.55774E-01	C = 0.27703E-03

VAPOR PRESSURE AT NBP

P = 759.0 AT T = 68.7

P = 759.4 AT T = 110.6

COMPONENT ID ECHO CHECK

ID NUMBER = 18

ID NUMBER = 33

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.32410E 00 B = -.62613E 00 C = -.79097E-01

STANDARD DEVIATION = 0.11309E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.3828 G2INF = 1.4639

T1INF = 110.63 T2INF = 68.74

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0805

AREA BELOW THE X-AXIS IS -0.0959

CROSS-OVER POINT IS X = 0.49

NORMALIZED AREA DIFFERENCE IS -0.0869

HERINGTON J-FACTOR IS 18.38

CONSISTENCY INDEX IS -9.69

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-82.36	344.84	0.9095E-12	5.87	0.00238
2	-243.05	575.12	0.1016E-02	6.62	0.00524
3	-47.41	318.69	0.1097E-01	5.62	0.00259
4	-36.13	306.56	0.7849E-02	5.72	0.00252
5	-126.88	408.27	0.2381E-02	5.33	0.00283
6	29.25	223.53	0.1941E-03	8.26	0.00168
7	-130.31	395.48	0.1783E-02	5.81	0.00260
8	-232.94	530.91	0.1614E-02	5.03	0.00389
9	-230.04	527.02	0.1611E-02	5.02	0.00385
10	-54.13	324.06	0.1694E-01	5.64	0.00254

ISONONANE(1) — PHENOL(2) SYSTEM 079

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	126.1	0.9648	0.9659	746.26	122.84	0.9354	0.9617	0.9518	5.7467	-1.7980	-1980.98	-742.33	-1641.52
2	760.00	124.4	0.9936	0.9936	714.45	115.11	0.9385	0.9601	0.9921	6.3202	-1.8517	-2003.16	-752.09	-1660.13
3	760.00	124.4	0.9971	0.9971	714.45	115.11	0.9385	0.9600	0.9921	6.3194	-1.8516	-2003.16	-752.09	-1660.13

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 555.30 P = 19.80 V = 596.40 OMEGA = 0.398 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 692.20 P = 60.50 V = 229.50 OMEGA = 0.449 OMEGAH = 0.241 DIPOLE = 1.45 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68353E 01 B = 0.13240E 04 C = 0.21074E 03

2 A = 0.75789E 01 B = 0.18170E 04 C = 0.20500E 03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 124.1

P = 763.2 AT T = 181.9

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13846E 03 B = 0.87624E-01 C = 0.20020E-03

2 A = 0.80964E 02 B = -.20853E-01 C = 0.14800E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 19

ID NUMBER = 32

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = -.19714E 01 B = -.16845E 00 C = 0.31394E 00

STANDARD DEVIATION = 0.0

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 0.1393 G2INF = 6.2084

T1INF = 181.75 T2INF = 124.08

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

EQUATION SOLVED FOR X-INTERCEPT

ROOTS ARE: X = 0.27885E 01 AND X = -.22519E 01

NEITHER ROOT IS IN THE RANGE 0 TO 1

THERMODYNAMIC CONSISTENCY TEST IS ABORTED

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-3304.53	3109.03	0.3854E 02	49.96	0.01447
2	1997.32	152.38	0.1573E-04	8.85	0.01088
3	9049.06	1282.96	0.1636E-01	18.21	0.00076
4	9303.69	1283.67	0.3317E-02	18.22	0.00075
5	9464.00	550.75	0.1936E-02	11.02	0.00848
6	9339.64	1344.34	0.5221E-06	19.10	0.00027
7	9620.88	829.17	0.3423E-02	13.01	0.00618
8	1947.16	593.99	0.2925E-04	1.62	0.01441
9	-1948.26	600.97	0.2929E-04	1.63	0.01441
10	-2589.31	2607.36	0.1461E-01	10.86	0.01446

ISO-OCTANE(1) — METHYLCYCLOHEXANE(2) SYSTEM 080

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	741.00	99.8	0.0400	0.0480	726.95	702.23	0.9495	0.9581	1.1546	0.9581	0.1457	-1587.17	-1315.06	-1450.30
2	741.00	99.6	0.0880	0.1070	724.01	699.35	0.9494	0.9580	1.1745	0.9895	0.1714	-1588.77	-1316.36	-1451.74
3	741.00	99.5	0.1400	0.1630	721.08	696.47	0.9493	0.9580	1.1291	0.9875	0.1340	-1590.37	-1317.65	-1453.19
4	741.00	99.4	0.1900	0.2040	719.13	694.56	0.9493	0.9579	1.0440	0.9998	0.0433	-1591.44	-1318.52	-1454.15
5	741.00	99.3	0.2450	0.2570	717.19	692.65	0.9492	0.9579	1.0227	1.0039	0.0185	-1592.52	-1319.38	-1455.12
6	741.00	99.1	0.3400	0.3500	713.32	688.85	0.9491	0.9578	1.0090	1.0102	-0.0012	-1594.66	-1321.12	-1457.06
7	741.00	98.9	0.4070	0.4160	710.42	686.01	0.9490	0.9578	1.0058	1.0143	-0.0084	-1596.27	-1322.42	-1458.51
8	741.00	98.8	0.4760	0.4900	708.49	684.12	0.9490	0.9577	1.0157	1.0051	0.0105	-1597.35	-1323.29	-1459.49
9	741.00	98.5	0.6950	0.7070	702.74	678.47	0.9488	0.9576	1.0117	1.0002	0.0114	-1600.59	-1325.91	-1462.41
10	741.00	98.4	0.7940	0.8090	699.87	675.66	0.9487	0.9576	1.0174	0.9694	0.0484	-1602.21	-1327.22	-1463.88
11	741.00	98.3	0.8790	0.8880	697.97	673.80	0.9487	0.9576	1.0115	0.9704	0.0415	-1603.29	-1328.09	-1464.85

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 544.10 P = 25.40 V = 468.90 OMEGA = 0.303 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 572.30 P = 34.30 V = 372.40 OMEGA = 0.235 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68119E 01 B = 0.12578E 04 C = 0.22073E 03

2 A = 0.68269E 01 B = 0.12729E 04 C = 0.22163E 03

VAPOR PRESSURE AT NBP

P = 759.2 AT T = 99.2

P = 759.3 AT T = 100.9

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.17183E 03 B = -.23795E 00 C = 0.73100E-03

2 A = 0.11310E 03 B = -.38740E-01 C = 0.30202E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 20

ID NUMBER = 26

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.19593E 00 B = -.77872E 00 C = 0.71607E 00

STANDARD DEVIATION = 0.28762E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.2164 G2INF = 0.8752

T1INF = 100.04 T2INF = 98.35

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

EQUATION SOLVED FOR X-INTERCEPT

ROOTS ARE: X = 0.69224E 00 AND X = 0.39526E 00

BOTH ROOTS ARE IN THE RANGE 0 TO 1

THERMODYNAMIC CONSISTENCY TEST IS ABORTED

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	1164.12	-519.50	0.8777E-10	15.35	0.01412
2	-2.02	55.12	0.1158E-04	1.00	0.00612
3	728.50	-321.54	0.1828E-01	5.57	0.00682
4	744.79	-330.08	0.1651E-01	5.28	0.00697
5	330.66	-161.42	0.1153E-02	1.32	0.00562
6	431.56	-207.08	0.1082E-02	2.40	0.00560
7	-54.04	97.65	0.1172E-02	1.01	0.00617
8	71.17	0.68	0.2714E-04	1.02	0.00605
9	70.84	0.97	0.2714E-04	1.02	0.00606
10	721.50	-356.73	0.1094E 01	5.51	0.00781

ISO-OCTANE(1) PHENOL(2) SYSTEM 081

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	113.3	0.4270	0.9364	1028.73	74.00	0.9541	0.9581	1.5365	1.0889	0.3444	-1452.95	-823.02	-1425.80
2	760.00	103.9	0.9015	0.9459	810.66	49.64	0.9500	0.9536	0.9289	7.9943	-2.1525	-1544.40	-894.57	-1520.66
3	760.00	101.1	0.9530	0.9693	752.77	43.87	0.9487	0.9514	0.9683	10.7338	-2.4056	-1573.41	-918.30	-1551.04
4	760.00	101.1	0.9546	0.9704	752.77	43.87	0.9487	0.9513	0.9678	10.7135	-2.4042	-1573.41	-918.30	-1551.04
5	760.00	100.6	0.9795	0.9864	742.76	42.90	0.9485	0.9505	0.9714	11.1372	-2.4393	-1578.68	-922.66	-1556.58
6	760.00	100.6	0.9892	0.9914	742.76	42.90	0.9485	0.9503	0.9668	11.3652	-2.6264	-1578.68	-922.66	-1556.58
7	760.00	100.0	0.9959	0.9966	730.87	41.76	0.9482	0.9497	0.9807	14.2900	-2.6790	-1585.04	-927.95	-1563.27

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 544.10 P = 25.40 V = 468.50 OMEGA = 0.303 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 692.20 P = 60.50 V = 229.50 OMEGA = 0.449 OMEGAH = 0.241 DIPOLE = 1.45 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68119E 01 B = 0.12578E 04 C = 0.22073E 03

2 A = 0.75789E 01 B = 0.18170E 04 C = 0.20500E 03

VAPOR PRESSURE AT NBP

P = 759.2 AT T = 99.2

P = 763.2 AT T = 181.9

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.17183E 03 B = -.23795E 00 C = 0.73100E-03

2 A = 0.80964E 02 B = -.20853E-01 C = 0.14800E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 20

ID NUMBER = 32

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.26570E 01 B = -.52417E 01 C = -.85192E-01

STANDARD DEVIATION = 0.70237E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 14.2540 G2INF = 14.4376

T1INF = 181.75 T2INF = 99.24

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.6698

AREA BELOW THE X-AXIS IS -0.6620

CROSS-OVER POINT IS X = 0.50

NORMALIZED AREA DIFFERENCE IS 0.0059

HERINGTON J-FACTOR IS 33.24

CONSISTENCY INDEX IS -32.65

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1078.08	1824.80	0.2010E-09	64.18	0.00458
2	-593.94	1958.70	0.1128E-02	24.75	0.01322
3	7309.00	1764.92	0.4001E-01	65.56	0.00463
4	328.77	2061.05	0.2972E 00	63.05	0.00433
5	459.45	976.18	0.1001E-01	17.00	0.01557
6	1224.71	2100.82	0.2869E-03	77.07	0.00358
7	1088.82	912.33	0.1622E-01	19.03	0.01585
8	1098.51	846.53	0.5018E-02	17.41	0.01652
9	1081.44	848.22	0.5022E-02	17.40	0.01650
10	-629.93	2767.00	0.2187E 00	37.15	0.00961

DIAGNOSTIC

2 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

ISO-OCTANE(1) TOLUENE(2) SYSTEM 082

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	604.30	100.0	0.1000	0.1703	730.87	537.65	0.9588	0.9665	1.3436	0.9984	0.2969	-1585.04	-1290.07	-1439.38
2	643.60	100.0	0.2000	0.2980	730.87	537.65	0.9561	0.9643	1.2481	1.0096	0.2120	-1585.04	-1290.07	-1439.38
3	676.00	100.0	0.3000	0.4022	730.87	537.65	0.9539	0.9625	1.1765	1.0300	0.1330	-1585.04	-1290.07	-1439.38
4	702.00	100.0	0.4000	0.4905	730.87	537.65	0.9521	0.9610	1.1152	1.0618	0.0491	-1585.04	-1290.07	-1439.38
5	721.30	100.0	0.5000	0.5753	730.87	537.65	0.9508	0.9600	1.0735	1.0900	-0.0152	-1585.04	-1290.07	-1439.38
6	736.20	100.0	0.6000	0.6559	730.87	537.65	0.9498	0.9591	1.0398	1.1256	-0.0793	-1585.04	-1290.07	-1439.38
7	748.40	100.0	0.7000	0.7395	730.87	537.65	0.9490	0.9584	1.0205	1.1541	-0.1231	-1585.04	-1290.07	-1439.38
8	758.50	100.0	0.8000	0.8223	730.87	537.65	0.9483	0.9579	1.0055	1.1961	-0.1736	-1585.04	-1290.07	-1439.38
9	769.50	100.0	0.9000	0.9092	730.87	537.65	0.9475	0.9573	1.0017	1.2392	-0.2128	-1585.04	-1290.07	-1439.38

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 544.10 P = 25.40 V = 468.90 OMEGA = 0.303 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 594.00 P = 40.00 V = 331.10 OMEGA = 0.241 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68119E 01 B = 0.12578E 04 C = 0.22073E 03

2 A = 0.69533E 01 B = 0.13439E 04 C = 0.21938E 03

VAPOR PRESSURE AT NBP

P = 759.2 AT T = 99.2

P = 759.4 AT T = 110.6

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.17183E 03 B = -.23795E 00 C = 0.73100E-03

2 A = 0.98864E 02 B = -.55774E-01 C = 0.27703E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 20

ID NUMBER = 33

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.39608E 00 B = -.10034E 01 C = 0.36399E 00

STANDARD DEVIATION = 0.40103E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.4860 G2INF = 1.2755

T1INF = 100.00 T2INF = 100.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0880

AREA BELOW THE X-AXIS IS -0.0722

CROSS-OVER POINT IS X = 0.48

NORMALIZED AREA DIFFERENCE IS 0.0982

CONSISTENCY INDEX IS 9.82

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	163.27	155.74	0.1819E-11	1.88	0.00380
2	77.09	211.79	0.6465E-04	1.78	0.00312
3	102.62	201.73	0.2269E-02	1.79	0.00322
4	80.58	215.88	0.1665E-02	1.81	0.00307
5	-0.74	274.18	0.2476E-03	1.99	0.00246
6	-53.01	326.88	0.1014E-03	3.86	0.00201
7	-34.42	301.48	0.1860E-03	2.21	0.00224
8	94.39	204.22	0.6744E-04	1.71	0.00320
9	94.40	204.21	0.6909E-04	1.71	0.00320
10	104.93	197.34	0.1219E-01	1.69	0.00328

METHANOL(1) - BENZENE(2) SYSTEM 083A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	203.29	35.0	0.0242	0.2733	204.94	146.62	0.9897	0.9864	11.0827	1.0175	2.3880	-1659.63	-1387.87	-870.71
2	211.10	35.0	0.0254	0.3128	204.94	146.62	0.9885	0.9862	12.5342	1.0002	2.5283	-1659.63	-1387.87	-870.71
3	274.25	35.0	0.1302	0.4858	204.94	146.62	0.9812	0.9846	4.8565	1.0873	1.5048	-1659.63	-1387.87	-870.71
4	288.47	35.0	0.3107	0.5304	204.94	146.62	0.9794	0.9847	2.3520	1.3181	0.5791	-1659.63	-1387.87	-870.71
5	292.50	35.0	0.4989	0.5546	204.94	146.62	0.9787	0.9850	1.5518	1.7442	-0.1169	-1659.63	-1387.87	-870.71
6	292.70	35.0	0.5191	0.5571	204.94	146.62	0.9786	0.9850	1.4991	1.8086	-0.1877	-1659.63	-1387.87	-870.71
7	292.49	35.0	0.6305	0.5790	204.94	146.62	0.9783	0.9855	1.2813	2.2370	-0.5572	-1659.63	-1387.87	-870.71
8	288.58	35.0	0.7965	0.6421	204.94	146.62	0.9780	0.9875	1.0903	3.3546	-1.1239	-1659.63	-1387.87	-870.71
9	255.82	35.0	0.9197	0.7698	204.94	146.62	0.9788	0.9919	1.0208	4.9767	-1.5842	-1659.63	-1387.87	-870.71

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 760.0 AT T = 80.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.25229E 01 B = -.65591E 01 C = 0.23941E 01

STANDARD DEVIATION = 0.14030E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 12.4642 G2INF = 5.1664

T1INF = 35.00 T2INF = 35.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.5443

AREA BELOW THE X-AXIS IS -0.5029

CROSS-OVER POINT IS X = 0.46

NORMALIZED AREA DIFFERENCE IS 0.0395

CONSISTENCY INDEX IS 3.95

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1705.28	-14.38	0.1064E-08	16.69	0.02428
2	1855.90	170.75	0.1389E-03	1.42	0.00653
3	1814.92	167.56	0.1331E 01	1.98	0.00431
4	1808.24	171.59	0.1041E-01	1.89	0.00453
5	1816.27	181.39	0.1638E-02	1.28	0.00520
6	1817.56	158.10	0.1059E-02	2.43	0.00427
7	1815.39	178.95	0.1057E-02	1.39	0.00503
8	1818.11	190.21	0.4319E-03	0.95	0.00578
9	1817.83	190.75	0.4318E-03	0.94	0.00582
10	1819.39	160.45	0.5370E-02	2.27	0.00423

METHANOL(1) BENZENE(2) SYSTEM 0838

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	465.84	55.0	0.0304	0.3019	495.20	320.38	0.9810	0.9754	9.1560	1.0190	2.1956	-1318.35	-1169.33	-747.59
2	527.12	55.0	0.0493	0.4051	495.20	320.38	0.9751	0.9741	8.5197	1.0004	2.1419	-1318.35	-1169.33	-747.59
3	597.48	55.0	0.1031	0.4841	495.20	320.38	0.9692	0.9726	5.4842	1.0405	1.6621	-1318.35	-1169.33	-747.59
4	664.24	55.0	0.3297	0.5540	495.20	320.38	0.9636	0.9719	2.1690	1.3368	0.4840	-1318.35	-1169.33	-747.59
5	675.62	55.0	0.4874	0.5845	495.20	320.38	0.9621	0.9726	1.5720	1.6574	-0.0529	-1318.35	-1169.33	-747.59
6	675.99	55.0	0.4984	0.5858	495.20	320.38	0.9621	0.9726	1.5415	1.6894	-0.0917	-1318.35	-1169.33	-747.59
7	678.44	55.0	0.6076	0.6078	495.20	320.38	0.9613	0.9734	1.3157	2.0539	-0.4454	-1318.35	-1169.33	-747.59
8	664.91	55.0	0.7896	0.6716	495.20	320.38	0.9606	0.9766	1.0956	3.1540	-1.0574	-1318.35	-1169.33	-747.59
9	622.29	55.0	0.9014	0.7697	495.20	320.38	0.9615	0.9825	1.0304	4.4446	-1.4617	-1318.35	-1169.33	-747.59

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 760.0 AT T = 80.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.23426E 01 B = -.59019E-01 C = 0.19472E 01

STANDARD DEVIATION = 0.87595E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 10.4082 G2INF = 5.0133

T1INF = 55.00 T2INF = 55.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.5165

AREA BELOW THE X-AXIS IS -0.4756

CROSS-OVER POINT IS X = 0.47

NORMALIZED AREA DIFFERENCE IS 0.0410

CONSISTENCY INDEX IS 4.10

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1700.14	-18.13	0.3617E-08	36.93	0.02330
2	1768.98	193.09	0.2663E-03	2.63	0.00630
3	1783.92	180.55	0.4249E 00	1.90	0.00591
4	1800.04	160.14	0.6759E-02	2.80	0.00586
5	1809.94	167.17	0.1353E-02	1.70	0.00605
6	1809.16	157.05	0.1091E-02	2.68	0.00594
7	1810.89	167.23	0.1083E-02	1.69	0.00606
8	1811.61	170.13	0.2343E-03	1.73	0.00609
9	1811.56	170.16	0.2343E-03	1.73	0.00609
10	1800.15	151.38	0.3083E-02	3.86	0.00578

METHANOL(1) - BENZENE(2) SYSTEM 083C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	70.7	0.0260	0.2670	904.64	546.40	0.9761	0.9652	8.4085	1.0070	2.1223	-1105.54	-1037.62	-670.98
2	760.00	66.4	0.0500	0.3710	774.19	475.97	0.9765	0.9658	7.0581	1.0176	1.9368	-1158.91	-1070.49	-690.28
3	760.00	62.9	0.0880	0.4570	676.20	422.20	0.9658	0.9669	5.6284	1.0327	1.6956	-1206.22	-1099.69	-707.32
4	760.00	60.2	0.1640	0.5260	609.65	385.17	0.9621	0.9683	3.8410	1.0796	1.2692	-1243.02	-1122.47	-720.55
5	760.00	58.6	0.3330	0.5590	573.27	364.74	0.9603	0.9691	2.1338	1.3305	0.4723	-1265.10	-1136.17	-728.48
6	760.00	58.0	0.5490	0.5950	559.31	356.86	0.9589	0.9704	1.4055	1.8495	-0.2714	-1274.00	-1141.70	-731.68
7	760.00	58.1	0.6990	0.6330	561.10	357.87	0.9579	0.9721	1.1731	2.5084	-0.7600	-1272.85	-1140.98	-731.26
8	760.00	58.5	0.7820	0.6650	569.42	362.57	0.9573	0.9736	1.0849	3.1255	-1.0581	-1267.53	-1137.68	-729.36
9	760.00	59.9	0.8980	0.7600	602.51	381.17	0.9563	0.9786	1.0193	4.5753	-1.5015	-1247.23	-1125.08	-722.07
10	760.00	62.7	0.9730	0.9070	672.06	419.90	0.9564	0.9871	1.0067	6.1332	-1.8071	-1208.39	-1101.03	-708.10

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = -0.14731E 04 C = -0.23000E 03

2 A = 0.69056E 01 B = -0.12110E 04 C = -0.22079E 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 760.C AT T = 80.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.21610E 01 B = -.51093E 01 C = 0.11492E 01

STANDARD DEVIATION = 0.85918E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 8.6800 G2INF = 6.0437

T1INF = 80.10 T2INF = 64.75

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4912

AREA BELOW THE X-AXIS IS -0.5017

CROSS-OVER POINT IS X = 0.47

NORMALIZED AREA DIFFERENCE IS -0.0106

HERINGTON J-FACTOR IS 10.00

CONSISTENCY INDEX IS -8.94

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1638.61	127.82	0.2201E-09	20.27	0.01438
2	1740.44	176.26	0.1761E-03	2.34	0.00516
3	1698.63	215.18	0.1637E-01	2.64	0.00402
4	1704.04	211.42	0.2443E-02	2.38	0.00413
5	1714.37	196.48	0.6018E-03	1.89	0.00436
6	1711.50	201.05	0.5135E-03	2.05	0.00427
7	1723.84	183.56	0.5558E-03	1.63	0.00467
8	1716.47	193.81	0.8536E-04	1.80	0.00443
9	1716.40	193.91	0.8539E-04	1.81	0.00443
10	1699.24	215.42	0.2324E-03	2.64	0.00404

METHANOL(1) — CARBON TETRACHLORIDE(2) — SYSTEM 084A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	259.13	35.0	0.0169	0.3297	204.94	173.52	0.9855	0.9830	24.2963	0.9991	3.1912	-1659.63	-1403.92	-881.52
2	262.31	35.0	0.0189	0.3374	204.94	173.52	0.9851	0.9829	22.4971	1.0017	3.1117	-1659.63	-1403.92	-881.52
3	315.12	35.0	0.1349	0.4630	204.94	173.52	0.9789	0.9815	5.1627	1.1041	1.5424	-1659.63	-1403.92	-881.52
4	324.64	35.0	0.3560	0.4915	204.94	173.52	0.9776	0.9816	2.1366	1.4469	0.3898	-1659.63	-1403.92	-881.52
5	325.71	35.0	0.4776	0.5030	204.94	173.52	0.9773	0.9818	1.6347	1.7494	-0.0678	-1659.63	-1403.92	-881.52
6	325.71	35.0	0.4939	0.5056	204.94	173.52	0.9773	0.9818	1.5888	1.7964	-0.1228	-1659.63	-1403.92	-881.52
7	323.81	35.0	0.6557	0.5302	204.94	173.52	0.9769	0.9825	1.2472	2.4964	-0.6939	-1659.63	-1403.92	-881.52
8	312.61	35.0	0.7912	0.5792	204.94	173.52	0.9767	0.9843	1.0900	3.5661	-1.1853	-1659.63	-1403.92	-881.52
9	277.37	35.0	0.9120	0.7024	204.94	173.52	0.9777	0.9890	1.0185	5.3365	-1.6562	-1659.63	-1403.92	-881.52

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 556.40 P = 45.00 V = 279.60 OMEGA = 0.193 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

2 A = 0.69339E 01 B = 0.12424E 04 C = 0.23000E 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 766.0 AT T = 76.8

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.61938E 02 B = -.29977E 00 C = 0.16761E-02

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 6

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.31277E 01 B = -.87713E 01 C = 0.40678E 01

STANDARD DEVIATION = 0.25487E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 22.8225 G2INF = 4.8344

T1INF = 35.00 T2INF = 35.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.6430

AREA BELOW THE X-AXIS IS -0.5449

CROSS-OVER POINT IS X = 0.45

NORMALIZED AREA DIFFERENCE IS 0.0825

CONSISTENCY INDEX IS 8.25

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	2331.35	-311.79	0.3988E-08	26.91	0.04489
2	2388.32	-4.11	0.1931E-05	3.31	0.00973
3	2595.76	-37.27	0.1623E 00	1.11	0.00358
4	2588.47	-26.53	0.1636E-02	1.23	0.00312
5	2585.70	-30.54	0.4982E-03	1.13	0.00326
6	2583.04	-11.12	0.2141E-03	1.94	0.00314
7	2583.19	-26.17	0.3756E-03	1.20	0.00308
8	2584.57	-38.02	0.1834E-03	1.05	0.00374
9	2584.83	-38.27	0.1834E-03	1.05	0.00375
10	2592.24	-26.03	0.2492E-03	1.26	0.00315

METHANOL(1) — CARBON TETRACHLORIDE(2) SYSTEM 0848

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	530.66	55.0	0.0254	0.3619	495.20	366.24	0.9740	0.9699	16.2539	1.0027	2.7856	-1318.35	-1189.62	-758.82
2	716.95	55.0	0.1493	0.4981	495.20	366.24	0.9625	0.9669	4.6425	1.1111	1.4299	-1318.35	-1189.62	-758.82
3	741.36	55.0	0.3647	0.5284	495.20	366.24	0.9602	0.9669	2.0796	1.4454	0.3638	-1318.35	-1189.62	-758.82
4	745.60	55.0	0.4893	0.5431	495.20	366.24	0.9595	0.9673	1.6011	1.7526	-0.0904	-1318.35	-1189.62	-758.82
5	745.72	55.0	0.4946	0.5438	495.20	366.24	0.9595	0.9673	1.5862	1.7686	-0.1089	-1318.35	-1189.62	-758.82
6	744.54	55.0	0.6448	0.5686	495.20	366.24	0.9587	0.9684	1.2692	2.3785	-0.6281	-1318.35	-1189.62	-758.82
7	724.28	55.0	0.7903	0.6187	495.20	366.24	0.9584	0.9713	1.0958	3.4751	-1.1541	-1318.35	-1189.62	-758.82
8	658.37	55.0	0.9089	0.7337	495.20	366.24	0.9598	0.9790	1.0288	5.1206	-1.6049	-1318.35	-1189.62	-758.82

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 556.40 P = 45.00 V = 279.60 OMEGA = 0.193 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = -0.14731E 04 C = 0.23000F 03

2 A = 0.69339E 01 B = 0.12424E 04 C = 0.23000F 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 766.0 AT T = 76.8

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735F-03

2 A = 0.61938E 02 B = -.29977E 00 C = 0.16761F-02

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 6

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.27520E 01 B = -.73479E 01 C = 0.29499E 01

STANDARD DEVIATION = 0.19040F 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 15.6732 G2INF = 5.1863

T1INF = 55.00 T2INF = 55.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.5842

AREA BELOW THE X-AXIS IS -0.5229

CROSS-OVER POINT IS X = 0.46

NORMALIZED AREA DIFFERENCE IS -0.0554

CONSISTENCY INDEX IS 5.54

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	2260.33	-319.27	0.1573F-08	56.06	0.03184
2	2408.64	-45.96	0.3908E-04	3.36	0.00483
3	2571.55	-94.05	0.3771F-02	1.86	0.00310
4	2558.27	-85.77	0.9963F-03	1.75	0.00306
5	2551.25	-81.66	0.2852F-03	1.90	0.00311
6	2552.02	-76.18	0.1948F-03	2.13	0.00316
7	2546.89	-77.96	0.2553F-03	2.06	0.00316
8	2550.03	-83.31	0.8409F-04	1.83	0.00312
9	2550.11	-83.34	0.8403F-04	1.83	0.00312
10	2570.91	-93.75	0.8892F-04	1.84	0.00309

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

METHANOL(1) - ETHANOL(2) SYSTEM 085

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	76.6	0.1340	0.1830	1116.25	680.49	0.9640	0.9583	0.8950	1.0075	-0.1184	-1035.32	-1196.54	-1113.82
2	760.00	75.0	0.2420	0.3260	1055.67	639.26	0.9632	0.9574	0.9327	1.0098	-0.0795	-1053.76	-1217.71	-1133.61
3	760.00	73.6	0.3200	0.4280	1004.81	604.87	0.9624	0.9565	0.9722	1.0088	-0.0370	-1070.20	-1236.60	-1151.25
4	760.00	72.3	0.4010	0.5290	959.33	574.30	0.9617	0.9558	1.0036	0.9924	0.0112	-1085.72	-1254.45	-1167.91
5	760.00	71.7	0.4350	0.5660	938.91	560.62	0.9614	0.9554	1.0110	0.9927	0.0183	-1092.97	-1262.78	-1175.70
6	760.00	70.0	0.5420	0.6760	882.89	523.30	0.9604	0.9543	1.0296	0.9784	0.0511	-1113.81	-1286.76	-1198.08
7	760.00	68.6	0.6520	0.7590	838.78	494.10	0.9596	0.9535	1.0107	1.0134	-0.0027	-1131.31	-1306.91	-1216.88
8	760.00	67.7	0.7280	0.8130	811.37	476.05	0.9591	0.9529	1.0018	1.0436	-0.0409	-1142.72	-1320.05	-1229.14
9	760.00	66.9	0.7900	0.8580	787.60	460.45	0.9587	0.9524	1.0032	1.0606	-0.0556	-1152.97	-1331.86	-1240.16
10	760.00	66.6	0.8140	0.8750	778.83	454.72	0.9585	0.9522	1.0039	1.0671	-0.0611	-1156.84	-1336.33	-1244.33
11	760.00	65.8	0.8730	0.9190	755.83	439.71	0.9580	0.9516	1.0125	1.0468	-0.0333	-1167.24	-1348.31	-1255.50
12	760.00	65.6	0.9100	0.9370	750.17	436.01	0.9579	0.9515	0.9977	1.1584	-0.1493	-1169.85	-1351.32	-1258.31

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

2 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 762.1 AT T = 78.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 11

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = -.25121E 00 B = 0.10231E 01 C = -.96279E 00

STANDARD DEVIATION = 0.28018E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 0.7779 G2INF = 1.2104

T1INF = 78.33 T2INF = 64.75

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

EQUATION SOLVED FOR X-INTERCEPT

ROOTS ARE: X = 0.38511E 00 AND X = 0.67750E 00

BOTH ROOTS ARE IN THE RANGE 0 TO 1

THERMODYNAMIC CONSISTENCY TEST IS ABERTED

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	-551.31	1430.04	0.1741E-12	35.39	0.01983
2	-318.18	837.43	0.8017E-04	4.49	0.00885
3	-270.40	704.92	0.3504E-01	6.91	0.00874
4	-277.59	710.87	0.3671E-01	5.40	0.00853
5	-285.60	677.28	0.2546E-02	3.59	0.00799
6	-200.35	396.14	0.1807E-02	9.24	0.00805
7	-236.56	525.45	0.1829E-02	5.38	0.00759
8	-324.32	821.63	0.3256E-03	3.29	0.00855
9	-324.32	821.63	0.3255E-03	3.29	0.00855
10	-298.67	755.43	0.1472E-01	3.78	0.00849

METHANOL(1) — ETHYL ACETATE(2) — SYSTEM 086A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	231.50	40.0	0.0500	0.2115	258.89	186.02	C.9804	0.9771	3.7067	1.CC80	1.3C21	-1565.90	-1927.30	-1814.38
2	231.50	40.0	0.0670	0.2130	258.89	186.02	0.9804	0.9771	2.7859	1.0245	1.0004	-1565.90	-1927.30	-1814.38
3	240.00	40.0	C.0970	0.2620	258.89	186.02	0.9799	C.9762	2.4523	1.C281	C.8653	-1565.90	-1927.30	-1814.38
4	259.00	40.0	0.1540	0.3718	258.89	186.02	0.9785	C.9742	2.3622	1.0058	0.8538	-1565.90	-1927.30	-1814.38
5	268.50	40.0	0.2175	0.4242	258.89	186.02	0.9779	C.9732	1.9769	1.0322	0.6498	-1565.90	-1927.30	-1814.38
6	284.00	40.0	C.2620	0.4695	258.89	186.02	0.9767	0.9715	1.9188	1.0647	0.5891	-1565.90	-1927.30	-1814.38
7	289.50	40.0	0.3000	0.4912	258.89	186.02	0.9763	0.9709	1.7864	1.0967	0.4879	-1565.90	-1927.30	-1814.38
8	296.50	40.0	0.3820	0.5356	258.89	186.02	0.9758	0.9701	1.5659	1.1602	0.2999	-1565.90	-1927.30	-1814.38
9	298.00	40.0	C.450C	0.5360	258.89	186.02	0.9757	0.9700	1.3369	1.3089	0.0211	-1565.90	-1927.30	-1814.38
10	304.00	40.0	0.5680	0.615C	258.89	186.02	0.9753	0.9692	1.2392	1.4094	-0.1286	-1565.90	-1927.30	-1814.38
11	305.00	40.0	C.6560	0.6600	258.89	186.02	0.9753	0.9690	1.1553	1.5678	-0.3053	-1565.90	-1927.30	-1814.38
12	302.00	40.0	0.7190	0.6940	258.89	186.02	0.9756	0.9692	1.0978	1.7108	-0.4437	-1565.90	-1927.30	-1814.38
13	303.50	40.0	C.7800	0.730C	258.89	186.02	0.9755	0.9689	1.0696	1.9371	-0.5939	-1565.90	-1927.30	-1814.38
14	301.50	40.0	0.8100	0.7495	258.89	186.02	0.9757	0.9691	1.0508	2.0676	-0.6769	-1565.90	-1927.30	-1814.38

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.0C OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = 0.14731E 04 C = C.230C0F 03

2 A = C.70981E 01 B = 0.12387E 04 C = 0.21700F 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 769.5 AT T = 77.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.13612E 03 B = -.37001E 00 C = 0.80775F-03

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 12

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.12692E 01 B = -.28664E 01 C = 0.62524F 00

STANDARD DEVIATION = 0.784C6E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 3.5582 G2INF = 2.6429

T1INF = 40.CC T2INF = 40.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3024

AREA BELOW THE X-AXIS IS -0.2579

CROSS-OVER POINT IS X = 0.50

NORMALIZED AREA DIFFERENCE IS 0.0794

CONSISTENCY INDEX IS 7.94

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1161.61	-337.89	0.7265E-08	4.91	0.01608
2	981.86	-156.01	0.1488E-02	3.09	0.01213
3	1247.09	-349.46	0.4463E 00	3.46	0.01671
4	1093.06	-230.98	0.6166E-01	2.72	0.01383
5	1057.79	-199.51	0.9546E-02	2.75	0.01313
6	1006.89	-123.40	0.5747E-02	4.25	0.01206
7	1008.75	-150.09	0.6093E-02	2.94	0.01212
8	1123.37	-263.52	0.3015E-02	2.70	0.01443
9	1124.06	-264.13	0.3015E-02	2.71	0.01444
10	1213.15	-333.27	0.3402E-01	3.33	0.01616

METHANOL(1) ETHYL ACETATE(2) SYSTEM 0868

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	330.50	50.0	0.0525	0.1700	402.25	280.08	0.9758	0.9717	2.5943	1.0028	0.9506	-1395.64	-1722.75	-1617.95
2	373.50	50.0	0.1260	0.3375	402.25	280.08	0.9732	0.9678	2.4185	0.9765	0.9070	-1395.64	-1722.75	-1617.95
3	405.50	50.0	0.2315	0.4360	402.25	280.08	0.9712	0.9649	1.8423	1.0231	0.5881	-1395.64	-1722.75	-1617.95
4	435.00	50.0	0.3435	0.5125	402.25	280.08	0.9693	0.9621	1.5625	1.1072	0.3444	-1395.64	-1722.75	-1617.95
5	455.50	50.0	0.4500	0.5685	402.25	280.08	0.9680	0.9602	1.3834	1.2223	0.1238	-1395.64	-1722.75	-1617.95
6	459.50	50.0	0.5425	0.6170	402.25	280.08	0.9678	0.9597	1.2561	1.3151	-0.0458	-1395.64	-1722.75	-1617.95
7	460.50	50.0	0.5680	0.6325	402.25	280.08	0.9677	0.9596	1.2325	1.3390	-0.0829	-1395.64	-1722.75	-1617.95
8	461.50	50.0	0.6350	0.6640	402.25	280.08	0.9677	0.9594	1.1599	1.4518	-0.2245	-1395.64	-1722.75	-1617.95
9	463.00	50.0	0.7060	0.6975	402.25	280.08	0.9677	0.9591	1.0994	1.6276	-0.3924	-1395.64	-1722.75	-1617.95
10	461.50	50.0	0.7580	0.7290	402.25	280.08	0.9678	0.9591	1.0669	1.7657	-0.5038	-1395.64	-1722.75	-1617.95
11	457.50	50.0	0.8215	0.7655	402.25	280.08	0.9682	0.9593	1.0251	2.0539	-0.6950	-1395.64	-1722.75	-1617.95
12	452.50	50.0	0.8755	0.8100	402.25	280.08	0.9686	0.9596	1.0071	2.3606	-0.8519	-1395.64	-1722.75	-1617.95
13	444.50	50.0	0.9250	0.8550	402.25	280.08	0.9692	0.9601	0.9890	2.9394	-1.0893	-1395.64	-1722.75	-1617.95

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

2 A = 0.70981E 01 B = 0.12387E 04 C = 0.21700E 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 769.5 AT T = 77.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 12

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10496E 01 B = -.16893E 01 C = -.57114E 00

STANDARD DEVIATION = 0.52785E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.8564 G2INF = 3.3564

T1INF = 50.00 T2INF = 50.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2907

AREA BELOW THE X-AXIS IS -0.2761

CROSS-OVER POINT IS X = 0.53

NORMALIZED AREA DIFFERENCE IS 0.0256

CONSISTENCY INDEX IS 2.56

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	887.76	-44.81	0.2274E-10	8.21	0.00602
2	836.71	-89.24	0.6157E-03	2.71	0.01029
3	856.35	15.80	0.1080E 00	10.67	0.00608
4	857.60	-15.42	0.2812E-01	7.99	0.00588
5	906.18	-118.77	0.4544E-02	3.52	0.00843
6	882.57	-4.15	0.1746E-02	11.68	0.00655
7	902.65	-108.70	0.3673E-02	3.96	0.00796
8	937.03	-174.44	0.5102E-03	2.14	0.01071
9	937.03	-174.44	0.5102E-03	2.14	0.01071
10	870.10	0.01	0.1519E-01	10.66	0.00604

METHANOL(1) ETHYL ACETATE(2) SYSTEM 086C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	456.00	60.0	0.0190	0.0950	604.88	408.70	0.9708	0.9660	3.6561	0.9921	1.3043	-1245.82	-1546.48	-1446.57
2	490.50	60.0	0.0495	0.1785	604.88	408.70	0.9690	0.9634	2.8307	0.9969	1.0436	-1245.82	-1546.48	-1446.57
3	545.00	60.0	0.1090	0.3100	604.88	408.70	0.9661	0.9592	2.4728	0.9878	0.9176	-1245.82	-1546.48	-1446.57
4	558.00	60.0	0.1360	0.3450	604.88	408.70	0.9654	0.9581	2.2566	0.9890	0.8249	-1245.82	-1546.48	-1446.57
5	591.50	60.0	0.1900	0.4160	604.88	408.70	0.9635	0.9554	2.0605	0.9941	0.7289	-1245.82	-1546.48	-1446.57
6	611.00	60.0	0.2375	0.4350	604.88	408.70	0.9624	0.9539	1.7784	1.0536	0.5235	-1245.82	-1546.48	-1446.57
7	644.00	60.0	0.3590	0.5320	604.88	408.70	0.9607	0.9512	1.5137	1.0908	0.3277	-1245.82	-1546.48	-1446.57
8	650.00	60.0	0.4020	0.5500	604.88	408.70	0.9598	0.9499	1.4309	1.1506	0.2180	-1245.82	-1546.48	-1446.57
9	673.00	60.0	0.4950	0.5940	604.88	408.70	0.9591	0.9487	1.2788	1.2518	0.0213	-1245.82	-1546.48	-1446.57
10	634.50	60.0	0.5900	0.6430	604.88	408.70	0.9585	0.9477	1.1805	1.3773	-0.1542	-1245.82	-1546.48	-1446.57
11	690.00	60.0	0.6990	0.7020	604.88	408.70	0.9583	0.9470	1.0963	1.5775	-0.3638	-1245.82	-1546.48	-1446.57
12	687.50	60.0	0.7350	0.7280	604.88	408.70	0.9585	0.9470	1.0776	1.6296	-0.4137	-1245.82	-1546.48	-1446.57
13	688.00	60.0	0.7480	0.7320	604.88	408.70	0.9585	0.9470	1.0654	1.6896	-0.4612	-1245.82	-1546.48	-1446.57
14	677.00	60.0	0.8980	0.8470	604.88	408.70	0.9593	0.9473	1.0113	2.3458	-0.8414	-1245.82	-1546.48	-1446.57
15	674.50	60.0	0.9100	0.8535	604.88	408.70	0.9595	0.9474	1.0021	2.5367	-0.9288	-1245.82	-1546.48	-1446.57

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

2 A = 0.70981E 01 B = 0.12387E 04 C = 0.21700E 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 769.5 AT T = 77.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 12

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.12089E 01 B = -.25503E 01 C = 0.32751E 00

STANDARD DEVIATION = 0.67521E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 3.3499 G2INF = 2.7562

T1INF = 60.00 T2INF = 60.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2994

AREA BELOW THE X-AXIS IS -0.2564

CROSS-OVER POINT IS X = 0.51

NORMALIZED AREA DIFFERENCE IS 0.0773

CONSISTENCY INDEX IS 7.73

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	1158.25	-302.27	0.1637E-10	13.28	0.01147
2	858.52	-135.54	0.4107E-03	7.68	0.01590
3	1240.27	-347.08	0.3024E 00	15.95	0.01256
4	1157.70	-306.11	0.7068E-01	12.70	0.01159
5	1058.78	-269.14	0.8129E-02	7.03	0.01275
6	1016.22	-143.05	0.3375E-02	17.87	0.00893
7	1015.56	-221.05	0.5881E-02	8.11	0.01171
8	1104.95	-336.65	0.1134E-02	3.97	0.01533
9	1105.02	-336.79	0.1134E-02	3.97	0.01533
10	1186.23	-301.74	0.3535E-01	16.45	0.01131

METHANOL(1) ETHYL ACETATE(2) SYSTEM 086D

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	730.00	73.5	0.0340	0.1420	1001.25	651.21	0.9618	0.9545	2.9245	0.9470	1.1276	-1071.38	-1345.46	-1248.80
2	730.00	70.6	0.0890	0.2600	902.34	591.56	0.9607	0.9526	2.2673	0.9515	0.8683	-1106.40	-1385.46	-1288.35
3	730.00	68.7	0.1270	0.3350	841.87	554.84	0.9600	0.9513	2.1925	0.9500	0.8364	-1130.05	-1412.56	-1315.09
4	730.00	66.8	0.2060	0.4070	784.67	519.90	0.9592	0.9498	1.7604	0.9525	0.5731	-1154.26	-1440.41	-1342.52
5	730.00	65.2	0.2730	0.4760	738.95	491.83	0.9585	0.9486	1.6485	1.0112	0.4888	-1175.10	-1464.44	-1366.16
6	730.00	64.2	0.3250	0.5000	711.47	474.56	0.9579	0.9478	1.5099	1.0753	0.3394	-1188.35	-1479.75	-1381.19
7	730.00	64.1	0.3480	0.5210	708.77	473.23	0.9579	0.9477	1.4750	1.0701	0.3209	-1189.68	-1481.29	-1382.71
8	730.00	63.5	0.3980	0.5470	692.73	463.32	0.9577	0.9471	1.3850	1.1189	0.2133	-1197.72	-1490.59	-1391.84
9	730.00	63.4	0.4140	0.5590	690.09	461.69	0.9576	0.9470	1.3658	1.1229	0.1959	-1199.06	-1492.15	-1393.37
10	730.00	63.1	0.5050	0.5940	682.20	456.80	0.9575	0.9467	1.2035	1.2364	-0.0270	-1203.11	-1496.84	-1397.97
11	730.00	62.5	0.5520	0.6360	666.65	447.16	0.9573	0.9461	1.2060	1.2504	-0.0361	-1211.24	-1506.27	-1407.22
12	730.00	62.3	0.5980	0.6520	661.52	443.58	0.9572	0.9459	1.1500	1.3415	-0.1540	-1213.97	-1509.44	-1410.32
13	730.00	62.6	0.6020	0.6430	669.22	448.76	0.9574	0.9461	1.1138	1.3756	-0.2111	-1209.89	-1504.70	-1405.67
14	730.00	62.3	0.6170	0.6450	661.52	443.98	0.9572	0.9459	1.1026	1.4364	-0.2645	-1213.97	-1509.44	-1410.32
15	730.00	62.2	0.6700	0.6900	658.98	442.40	0.9572	0.9456	1.0904	1.4605	-0.2922	-1215.34	-1511.02	-1411.87
16	730.00	62.2	0.8120	0.7790	658.98	442.40	0.9574	0.9452	1.0160	1.8268	-0.5867	-1215.34	-1511.02	-1411.87
17	730.00	62.4	0.8520	0.8100	664.08	445.57	0.9576	0.9452	0.9992	1.9808	-0.6843	-1212.61	-1507.85	-1408.77
18	730.00	62.8	0.8940	0.8560	674.39	451.96	0.9578	0.9452	0.9913	2.0666	-0.7346	-1207.17	-1501.55	-1402.58
19	730.00	63.5	0.9370	0.9030	692.73	463.32	0.9583	0.9455	0.9718	2.2854	-0.8552	-1197.72	-1490.59	-1391.84
20	730.00	63.6	0.9580	0.9280	695.38	464.96	0.9584	0.9454	0.9732	2.5354	-0.9576	-1196.37	-1489.04	-1390.31

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = -0.14731E 04 C = -0.23000E 03

2 A = 0.70981E 01 B = -0.12387E 04 C = -0.21700E 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 769.5 AT T = 77.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.13612E 03 B = -.37001E 00 C = -0.80775E-03

COMPONENT ID ECHO CHECK

IC NUMBER = 23

ID NUMBER = 12

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.11179E 01 B = -.23588E 01 C = 0.27807E 00

STANDARD DEVIATION = 0.44292E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 3.0585 G2INF = 2.6191

T1INF = 75.51 T2INF = 63.72

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2757

AREA BELOW THE X-AXIS IS -0.2445

CROSS-OVER POINT IS X = 0.50

NORMALIZED AREA DIFFERENCE IS 0.0600

HERINGTON J-FACTOR IS 5.95

CONSISTENCY INDEX IS 0.05

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	1162.87	-336.49	0.4547E-11	34.27	0.00960
2	765.58	-154.47	0.5333E-02	7.98	0.01959
3	1152.62	-357.60	0.2267E 00	28.19	0.00990
4	1049.53	-304.56	0.8720E-01	22.39	0.00968
5	970.91	-304.59	0.1612E-01	8.95	0.01426
6	1022.96	-202.97	0.3446E-02	37.63	0.00765
7	965.07	-285.41	0.1799E-01	11.60	0.01313
8	943.05	-318.70	0.1456E-02	5.09	0.01734
9	943.77	-319.30	0.1465E-02	5.09	0.01734
10	1145.47	-352.41	0.2850E-01	28.17	0.00976

METHANOL(1) - ETHYL ACETATE(2) SYSTEM 086E

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	76.1	0.0125	0.0475	1097.03	708.52	0.9612	0.9542	2.5267	0.9836	0.9434	-1041.04	-1310.96	-1214.61
2	760.00	74.1	0.0320	0.1330	1024.55	665.19	0.9606	0.9530	2.9571	0.9716	1.1130	-1063.70	-1336.72	-1240.14
3	760.00	71.2	0.0800	0.2475	923.48	604.35	0.9594	0.9511	2.4391	0.9747	0.9173	-1098.56	-1376.49	-1279.49
4	760.00	67.8	0.1550	0.3650	812.87	537.15	0.9579	0.9485	2.1058	1.0048	0.7399	-1142.08	-1426.39	-1328.72
5	760.00	65.6	0.2510	0.4550	750.17	498.74	0.9569	0.9468	1.7547	1.0459	0.5174	-1169.85	-1458.38	-1360.21
6	760.00	64.1	0.3465	0.5205	708.77	473.23	0.9562	0.9455	1.5379	1.1100	0.3260	-1189.68	-1481.29	-1382.71
7	760.00	64.0	0.4020	0.5560	706.08	471.57	0.9563	0.9453	1.4214	1.1269	0.2322	-1191.01	-1482.83	-1384.23
8	760.00	63.3	0.4975	0.5970	686.14	459.24	0.9559	0.9446	1.2686	1.2490	0.0156	-1201.08	-1494.49	-1395.66
9	760.00	63.0	0.5610	0.6380	678.81	454.70	0.9558	0.9442	1.2152	1.2965	-0.0648	-1204.86	-1498.87	-1399.96
10	760.00	62.5	0.5890	0.6560	666.65	447.16	0.9556	0.9438	1.2115	1.3375	-0.0990	-1211.24	-1506.27	-1407.22
11	760.00	62.6	0.6220	0.6670	670.51	449.56	0.9557	0.9438	1.1599	1.4004	-0.1885	-1209.21	-1503.91	-1404.90
12	760.00	62.5	0.6960	0.7000	666.65	447.16	0.9557	0.9436	1.0941	1.5767	-0.3654	-1211.24	-1506.27	-1407.22
13	760.00	62.3	0.7650	0.7420	662.80	444.78	0.9557	0.9432	1.0612	1.7629	-0.5075	-1213.29	-1508.65	-1409.54
14	760.00	62.6	0.8250	0.7890	669.22	448.76	0.9559	0.9432	1.0366	1.9188	-0.6157	-1209.89	-1504.70	-1405.67
15	760.00	62.8	0.8550	0.8070	674.39	451.96	0.9561	0.9432	1.0154	2.1033	-0.7282	-1207.17	-1501.55	-1402.58
16	760.00	63.2	0.9160	0.8600	685.08	458.59	0.9564	0.9433	0.9946	2.5957	-0.9593	-1201.62	-1495.12	-1396.28
17	760.00	63.9	0.9550	0.9290	703.39	469.91	0.9568	0.9434	1.0042	2.3984	-0.8706	-1192.35	-1484.38	-1385.75

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

2 A = 0.70981E 01 B = 0.12387E 04 C = 0.21700E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E-02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 769.5 AT T = 77.1

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 12

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10583E 01 B = -.19773E 01 C = -.11159E 00

STANDARD DEVIATION = 0.58186E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.9815 G2INF = 2.8027

T1INF = 76.72 T2INF = 64.75

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2778

AREA BELOW THE X-AXIS IS -0.2453

CROSS-OVER POINT IS X = 0.52

NORMALIZED AREA DIFFERENCE IS 0.0621

HERINGTON J-FACTOR IS 6.43

CONSISTENCY INDEX IS -0.22

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	1069.26	-246.94	0.9055E-12	13.16	0.00946
2	849.39	-124.57	0.1218E-02	6.15	0.01075
3	1054.78	-244.52	C.28C8E CO	11.38	0.00946
4	1018.32	-226.85	0.5745E-01	8.73	0.CC923
5	960.25	-196.83	0.5855E-02	5.23	0.C0902
6	944.55	-104.63	C.2821F-02	16.89	0.00759
7	941.22	-170.78	0.5145F-02	6.17	0.00853
8	979.06	-235.92	0.9614E-03	4.86	0.01009
9	976.68	-234.23	0.9548E-03	4.86	0.01009
10	1050.92	-242.37	0.3053E-01	11.16	0.00943

METHANOL(1) ETHYL ACETATE(2) SYSTEM 086F

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	74.8	0.0190	0.0790	1048.27	679.40	0.9607	0.9534	2.8916	0.9976	1.0642	-1056.09	-1328.05	-1231.56
2	760.00	74.0	0.0240	0.0930	1019.14	661.94	0.9603	0.9529	2.7708	1.0130	1.0062	-1065.47	-1338.73	-1242.13
3	760.00	72.3	0.0560	0.1810	959.32	625.99	0.9597	0.9518	2.4538	0.9989	0.8988	-1085.72	-1361.61	-1264.98
4	760.00	67.1	0.1810	0.3840	793.49	525.30	0.9576	0.9480	1.9428	1.0278	0.6367	-1150.40	-1435.96	-1338.15
5	760.00	64.7	0.3110	0.4920	725.11	483.31	0.9565	0.9460	1.5836	1.0928	0.3710	-1181.70	-1472.07	-1373.65
6	760.00	64.2	0.3530	0.5200	711.47	474.90	0.9563	0.9456	1.5153	1.1133	0.3083	-1188.35	-1479.75	-1381.19
7	760.00	63.6	0.4030	0.5570	695.38	464.96	0.9560	0.9450	1.4419	1.1419	0.2333	-1196.37	-1489.04	-1390.31
8	760.00	62.6	0.5660	0.6400	669.22	448.76	0.9556	0.9439	1.2253	1.3211	-0.0753	-1209.89	-1504.70	-1405.67
9	760.00	62.4	0.6160	0.6750	664.08	445.57	0.9556	0.9436	1.1965	1.3571	-0.1260	-1212.61	-1507.85	-1408.77
10	760.00	62.4	0.6460	0.6780	664.08	445.57	0.9556	0.9436	1.1460	1.4585	-0.2411	-1212.61	-1507.85	-1408.77
11	760.00	62.3	0.7080	0.7110	661.52	443.98	0.9556	0.9434	1.1008	1.5923	-0.3691	-1213.97	-1509.44	-1410.32
12	760.00	62.1	0.7200	0.7160	656.44	440.82	0.9555	0.9432	1.0984	1.6431	-0.4028	-1216.71	-1512.61	-1413.43
13	760.00	62.3	0.7340	0.7170	661.52	443.98	0.9556	0.9433	1.0708	1.7115	-0.4690	-1213.97	-1509.44	-1410.32
14	760.00	62.5	0.7430	0.7320	666.65	447.16	0.9557	0.9434	1.0718	1.6658	-0.4410	-1211.24	-1506.27	-1407.22
15	760.00	62.6	0.7440	0.7330	669.22	448.76	0.9558	0.9435	1.0678	1.6603	-0.4414	-1209.89	-1504.70	-1405.67
16	760.00	62.5	0.8100	0.7790	666.65	447.16	0.9558	0.9432	1.0464	1.8576	-0.5740	-1211.24	-1506.27	-1407.22
17	760.00	62.4	0.8150	0.7840	664.08	445.57	0.9558	0.9431	1.0506	1.8711	-0.5772	-1212.61	-1507.85	-1408.77
18	760.00	62.8	0.8890	0.8460	674.35	451.96	0.9561	0.9430	1.0238	2.1919	-0.7612	-1207.17	-1501.55	-1402.58
19	760.00	63.3	0.9390	0.9030	687.45	460.05	0.9565	0.9431	1.0153	2.4682	-0.8883	-1200.41	-1493.71	-1394.90

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

2 A = 0.70981E 01 B = 0.12387E 04 C = 0.21700E 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 769.5 AT T = 77.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 12

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10388E 01 B = -.19848E 01 C = -.26798E-01

STANDARD DEVIATION = 0.34718E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.8258 G2INF = 2.6454

T1INF = 76.72 T2INF = 64.75

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2706

AREA BELOW THE X-AXIS IS -0.2331

CROSS-OVER POINT IS X = 0.52

NORMALIZED AREA DIFFERENCE IS 0.0743

HERINGTON J-FACTOR IS 6.54

CONSISTENCY INDEX IS 0.89

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	1083.02	-292.52	0.9095E-12	5.61	0.00832
2	905.72	-155.69	0.7135E-03	4.90	0.00592
3	1104.50	-307.06	0.1052E 00	5.93	0.00883
4	1061.25	-281.29	0.3487E-01	5.07	0.00780
5	931.62	-170.17	0.3468E-02	4.78	0.00622
6	882.26	-107.04	0.1987E-02	6.22	0.00603
7	885.22	-119.68	0.2194E-02	5.43	0.00585
8	1305.91	-235.42	0.1098E-02	4.26	0.00717
9	1005.53	-239.14	0.1095E-02	4.26	0.00716
10	1097.75	-302.55	0.1236E-01	5.83	0.00866

METHANOL(1) — ETHYL ACETATE(2) — SYSTEM 0866

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	74.4	0.0280	0.1200	1033.63	670.63	0.9606	0.9532	3.0226	0.9744	1.1321	-1060.77	-1333.37	-1236.83
2	760.00	74.0	0.0370	0.1330	1019.14	661.94	0.9605	0.9529	2.5708	0.9814	0.9630	-1065.47	-1338.73	-1242.13
3	760.00	71.5	0.0730	0.2200	932.17	609.60	0.9595	0.9513	2.3539	0.9942	0.8619	-1095.40	-1372.87	-1275.91
4	760.00	69.3	0.1230	0.3100	860.61	566.23	0.9586	0.9497	2.1303	0.9992	0.7571	-1122.52	-1403.93	-1306.58
5	760.00	66.4	0.2110	0.4200	773.03	512.77	0.9573	0.9475	1.8705	1.0285	0.5982	-1159.43	-1446.36	-1348.39
6	760.00	66.0	0.2360	0.4420	761.54	505.72	0.9571	0.9471	1.7862	1.0357	0.5450	-1164.63	-1452.35	-1354.28
7	760.00	65.8	0.2390	0.4400	755.83	502.22	0.9570	0.9470	1.7688	1.0506	0.5209	-1167.24	-1455.37	-1357.24
8	760.00	65.3	0.2650	0.4680	741.74	493.55	0.9568	0.9466	1.7287	1.0511	0.4976	-1173.79	-1462.93	-1364.67
9	760.00	64.0	0.3520	0.5260	706.08	471.57	0.9562	0.9454	1.5356	1.1104	0.3242	-1191.01	-1482.83	-1384.23
10	760.00	63.7	0.4080	0.5580	698.04	466.61	0.9561	0.9451	1.4215	1.1450	0.2163	-1195.03	-1487.48	-1388.79
11	760.00	63.6	0.4400	0.5730	695.38	464.96	0.9561	0.9449	1.3587	1.1733	0.1467	-1196.37	-1489.04	-1390.31
12	760.00	63.1	0.5330	0.6200	682.20	456.80	0.9559	0.9444	1.2368	1.2737	-0.0294	-1203.11	-1496.84	-1397.97
13	760.00	62.9	0.5850	0.6470	676.98	453.57	0.9558	0.9441	1.1849	1.3406	-0.1234	-1205.81	-1499.98	-1401.04
14	760.00	62.4	0.6640	0.6870	664.08	445.57	0.9556	0.9435	1.1298	1.4936	-0.2792	-1212.61	-1507.85	-1408.77
15	760.00	62.4	0.7080	0.7110	664.08	445.57	0.9556	0.9434	1.0966	1.5867	-0.3694	-1212.61	-1507.85	-1408.77
16	760.00	62.4	0.7480	0.7370	664.08	445.57	0.9557	0.9433	1.0760	1.6729	-0.4413	-1212.61	-1507.85	-1408.77
17	760.00	62.4	0.7930	0.7680	664.08	445.57	0.9557	0.9431	1.0577	1.7963	-0.5296	-1212.61	-1507.85	-1408.77
18	760.00	62.5	0.8220	0.7900	666.65	447.16	0.9558	0.9431	1.0457	1.8840	-0.5887	-1211.24	-1506.27	-1407.22
19	760.00	62.8	0.8830	0.8420	674.39	451.96	0.9561	0.9431	1.0259	2.1335	-0.7322	-1207.17	-1501.55	-1402.58
20	760.00	64.0	0.9610	0.9340	706.08	471.57	0.9569	0.9434	0.9995	2.5636	-0.9419	-1191.01	-1482.83	-1384.23

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

2 A = 0.70981E 01 B = 0.12387E 04 C = 0.21700E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 769.5 AT T = 77.1

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 12

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10560E 01 B = -.20938E 01 C = 0.82016E-01

STANDARD DEVIATION = 0.42508E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.8747 G2INF = 2.6009

T1INF = 76.72 T2INF = 64.75

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2699

AREA BELOW THE X-AXIS IS -0.2335

CROSS-OVER POINT IS X = 0.51

NORMALIZED AREA DIFFERENCE IS 0.0723

HERINGTON J-FACTOR IS 6.40

CONSISTENCY INDEX IS 0.82

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	1110.42	-317.03	0.1819E-11	8.75	0.00974
2	862.09	-126.66	0.1019E-02	5.86	0.00796
3	1113.67	-311.95	0.1934E 00	9.92	0.00985
4	1052.71	-272.29	0.4444E-01	7.11	0.00853
5	947.94	-188.43	0.4223E-02	3.88	0.00790
6	935.55	-134.20	0.2555E-02	9.52	0.00667
7	920.98	-152.78	0.3721E-02	4.54	0.00737
8	963.72	-217.53	0.7522E-03	3.58	0.00856
9	963.27	-217.16	0.7441E-03	3.59	0.00856
10	1092.80	-297.37	0.2024E-01	9.17	0.00927

METHANOL(1) HEPTANE(2) SYSTEM 687

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	60.6	C.1380	C.7200	619.27	210.23	C.9583	C.9489	6.1268	1.1081	1.7101	-1237.43	-2034.40	-1021.63
2	760.00	59.5	0.1780	0.7330	592.40	201.52	0.9573	C.9493	5.0497	1.1563	1.4741	-1253.30	-2053.78	-1030.25
3	760.CO	58.9	C.3900	0.7390	579.9C	197.46	0.9568	0.9494	2.3725	1.5547	0.4227	-126C.96	-2063.16	-1034.41
4	760.00	58.8	0.6680	0.7460	577.38	196.64	0.9566	0.9498	1.4040	2.7928	-0.6877	-1262.53	-2065.08	-1035.26
5	760.00	58.8	C.8100	0.7480	577.15	196.56	0.9565	0.9500	1.1614	4.8441	-1.4281	-1262.67	-2065.25	-1035.34
6	760.00	59.0	C.885C	0.7650	581.73	198.05	C.9563	0.9512	1.0783	7.4171	-1.9284	-1259.83	-2061.77	-1033.79
7	760.00	59.9	0.9460	0.8090	602.51	204.80	0.9560	C.9548	1.0297	12.4617	-2.4934	-1247.23	-2046.37	-1026.95

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 540.20 P = 27.00 V = 431.90 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

2 A = C.69024E 01 B = 0.12681E 04 C = 0.21690E 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 759.4 AT T = 98.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = C.1288CE C3 B = -.60277E-01 C = 0.41160E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 16

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.21239E 01 B = .33493E 01 C = -.14586E 01

STANDARD DEVIATION = 0.14067E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 8.3641 G2INF = 14.6430

T1INF = 98.43 T2INF = 64.75

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.5833

AREA BELOW THE X-AXIS IS -C.6202

CROSS-OVER POINT IS X = 0.52

NORMALIZED AREA DIFFERENCE IS -0.0307

HERINGTON J-FACTOR IS 17.90

CONSISTENCY INDEX IS -14.84

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1903.58	399.47	0.3365E-1C	80.42	0.03154
2	2642.76	869.42	0.3554E-C4	4.56	0.00407
3	2673.83	739.33	0.6942E-01	7.97	0.00281
4	2672.92	754.25	0.2233E-02	7.19	0.00282
5	2538.81	833.94	0.6875E-03	5.13	0.00378
6	2653.48	736.80	0.1436E-03	8.30	0.00274
7	2510.20	839.35	C.5191E-03	5.21	0.00402
8	2487.10	891.45	0.3371E-03	4.30	0.00472
9	2487.85	892.48	0.3370E-03	4.27	0.00473
10	2558.19	765.30	C.7277E-03	7.83	0.00292

METHANOL(1) HEXANE(2) SYSTEM 088

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	615.00	45.0	0.1000	0.4810	324.09	327.88	C.9640	C.9595	8.7878	1.0335	2.1404	-1478.04	-1579.31	-939.14
2	626.00	45.0	0.2000	0.4920	324.09	327.88	0.9630	0.9592	4.5696	1.1579	1.3728	-1478.04	-1579.31	-939.14
3	627.00	45.0	0.3000	0.4940	324.09	327.88	C.9628	C.9592	3.0633	1.3202	0.8417	-1478.04	-1579.31	-939.14
4	627.00	45.0	0.4000	0.4960	324.09	327.88	0.9627	0.9592	2.3066	1.5343	0.4077	-1478.04	-1579.31	-939.14
5	627.00	45.0	C.5000	0.4960	324.09	327.88	0.9627	0.9592	1.8452	1.8411	0.0022	-1478.04	-1579.31	-939.14
6	627.00	45.0	0.6000	0.4980	324.09	327.88	C.9627	C.9593	1.5438	2.2925	-0.3954	-1478.04	-1579.31	-939.14
7	627.00	45.0	C.7000	0.4980	324.09	327.88	0.9627	0.9593	1.3232	3.0566	-0.8372	-1478.04	-1579.31	-939.14
8	627.00	45.0	C.8000	0.4980	324.09	327.88	C.9627	0.9593	1.1578	4.5849	-1.3762	-1478.04	-1579.31	-939.14
9	616.00	45.0	0.9000	0.5110	324.09	327.88	0.9628	C.9605	1.0378	8.7873	-2.1362	-1478.04	-1579.31	-939.14

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 507.90 P = 29.90 V = 372.40 OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

2 A = 0.68778E C1 B = 0.11715E 04 C = 0.22437E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = C.12596E C3 B = -.14456E C0 C = 0.54720E-03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 759.0 AT T = 66.7

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 18

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.24578E 01 B = -.46977E 01 C = -.21402E-01

STANDARD DEVIATION = 0.15101E 00

INFINITE-DILUTION ACTIVITY COEFFICIENTS

G1INF = 11.6795 G2INF = 11.7195

T1INF = 45.00 T2INF = 45.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.6158

AREA BELOW THE X-AXIS IS -0.6140

CROSS-OVER POINT IS X = 0.50

NORMALIZED AREA DIFFERENCE IS 0.0015

CONSISTENCY INDEX IS 0.15

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1797.93	290.12	0.1028E-08	75.09	0.04228
2	2271.49	755.75	C.1596E-03	8.71	0.01132
3	2557.71	1050.68	0.3950E-01	14.37	0.00380
4	2451.17	967.66	C.7650E-02	7.45	0.00575
5	2416.02	939.19	C.2651E-02	6.47	0.00656
6	2735.91	1278.42	0.1651E-04	26.61	0.00071
7	2435.51	960.89	0.2086E-02	7.11	0.00601
8	2374.95	905.21	0.8074E-03	5.25	0.00769
9	2374.95	905.21	0.8082E-03	5.25	0.00769
10	2557.79	1050.63	C.4906E-03	14.37	0.00380

METHANOL(1) — ISOPRENE(2) — SYSTEM C8S

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	745.00	32.6	0.0140	0.0840	182.58	651.92	0.9725	0.9606	23.7708	0.9572	3.2122	-1706.84	-1015.60	-764.54
2	745.00	30.1	0.1540	0.1540	161.50	635.35	0.9656	0.9603	4.4471	1.1217	1.3774	-1757.61	-1035.43	-779.13
3	745.00	32.8	0.6380	0.1900	184.37	696.60	0.9640	0.9621	1.1582	2.2934	-0.6831	-1702.85	-1014.04	-763.39
4	745.00	51.5	0.9670	0.5500	428.50	1249.66	0.9564	0.9778	0.9443	7.9192	-2.1266	-1371.94	-884.43	-667.98

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 484.30 P = 38.00 V = 272.40 OMEGA = 0.175 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E C1 B = 0.14731E 04 C = 0.23000E-03

2 A = 0.69033E 01 B = 0.10810E 04 C = 0.23467E 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 760.8 AT T = 34.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E C2 B = -.19716E 00 C = 0.38735E-03

2 A = 0.26319E 03 B = -.11928E 01 C = 0.21397E-02

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 21

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.30193E 01 B = -.81197E C1 C = 0.30005E 01

STANDARD DEVIATION = 0.61926E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 20.4770 G2INF = 8.1651

T1INF = 33.49 T2INF = 64.24

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.6278

AREA BELOW THE X-AXIS IS -0.6681

CROSS-OVER POINT IS X = C.45

NORMALIZED AREA DIFFERENCE IS -0.0312

HERINGTON J-FACTOR IS 10.59

CONSISTENCY INDEX IS -7.47

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1947.54	219.78	0.2337E-09	15.79	0.02399
2	2326.78	-169.03	0.3499E-02	46.68	0.04985
3	2251.97	281.67	0.2714E 00	34.05	0.01092
4	2263.70	236.06	0.3607E-01	27.34	0.01367
5	1839.80	310.70	0.6573E-02	14.69	0.02131
6	2297.73	329.17	0.6385E-03	44.32	0.00717
7	1852.68	328.06	0.5789E-02	17.39	0.01981
8	1702.67	302.14	0.1068E-02	9.02	0.02600
9	1702.07	302.30	0.1007E-02	9.01	0.02601
10	2247.99	290.74	0.1026E-02	35.29	0.01042

DIAGNOSTIC

2 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

METHANOL(1) — ISOPROPYL ETHER(2) — SYSTEM 69C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	730.00	62.4	0.0700	0.1980	664.08	656.38	0.9826	0.9514	3.0506	0.9080	1.2118	-1212.61	-1434.61	-777.39
2	730.00	60.7	0.1240	0.2900	621.69	619.94	0.9766	0.9523	2.6779	0.9044	1.0855	-1236.03	-1453.84	-786.11
3	730.00	58.0	0.2850	0.4180	558.87	565.37	0.9689	0.9546	1.8534	0.9984	0.6187	-1274.28	-1485.27	-800.30
4	730.00	57.4	0.4200	0.4800	545.63	553.78	0.9658	0.9567	1.4745	1.1250	0.2705	-1282.97	-1492.40	-803.52
5	730.00	57.0	0.5510	0.5340	536.95	546.16	0.9633	0.9588	1.2674	1.3234	-0.0432	-1288.79	-1497.19	-805.67
6	730.00	57.2	0.6590	0.5770	541.28	549.96	0.9618	0.9608	1.1498	1.5337	-0.2881	-1285.87	-1494.79	-804.59
7	730.00	57.8	0.7270	0.6130	554.43	561.48	0.9610	0.9628	1.0653	1.7657	-0.5053	-1277.17	-1487.64	-801.37
8	730.00	58.1	0.7620	0.6330	561.10	567.32	0.9605	0.9639	1.0366	1.9031	-0.6076	-1272.85	-1484.09	-799.77
9	730.00	58.5	0.8200	0.6790	570.10	575.18	0.9594	0.9665	1.0158	2.1767	-0.7622	-1267.10	-1479.37	-797.64
10	730.00	58.9	0.8390	0.6950	579.21	583.11	0.9593	0.9675	1.0000	2.2832	-0.8256	-1261.39	-1474.67	-795.53
11	730.00	60.0	0.8880	0.7500	604.88	605.41	0.9587	0.9710	0.9757	2.6005	-0.9803	-1245.82	-1461.89	-789.75
12	730.00	60.1	0.9010	0.7620	607.26	607.46	0.9585	0.9717	0.9731	2.7934	-1.0546	-1244.42	-1460.73	-789.23
13	730.00	60.9	0.9270	0.7960	626.56	624.14	0.9584	0.9740	0.9574	3.1677	-1.1965	-1233.25	-1451.56	-785.08
14	730.00	62.8	0.9680	0.8810	674.39	665.20	0.9585	0.9797	0.9429	3.9788	-1.4358	-1207.17	-1430.14	-775.36

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 500.10 P = 28.40 V = 382.00 OMEGA = 0.350 OMEGAH = 0.306 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = -0.14731E 04 C = -0.23000E 03

2 A = 0.79047E 01 B = -0.16993E 04 C = -0.27315E 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 846.9 AT T = 68.3

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.14077E 03 B = 0.0 C = 0.0

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 46

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.13240E 01 B = -.20620E 01 C = -.67306E 00

STANDARD DEVIATION = 0.62588E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 3.7585 G2INF = 4.1003

T1INF = 63.93 T2INF = 63.72

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3790

AREA BELOW THE X-AXIS IS -0.3104

CROSS-OVER POINT IS X = 0.55

NORMALIZED AREA DIFFERENCE IS 0.0996

HERINGTON J-FACTOR IS 3.15

CONSISTENCY INDEX IS 6.81

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	1301.22	-212.84	0.4547E-11	55.12	0.01463
2	916.79	-170.33	0.1212E-01	12.84	0.04049
3	1178.77	-141.51	0.4651E 00	45.64	0.01185
4	1140.45	-147.43	0.1241E 00	37.52	0.01162
5	1083.56	-206.88	0.3034E-01	17.40	0.02257
6	1203.08	-121.19	0.5641E-02	51.09	0.01239
7	1108.38	-207.64	0.3729E-01	21.87	0.01986
8	955.76	-147.32	0.1850E-02	6.10	0.03327
9	956.32	-148.24	0.1843E-02	6.10	0.03327
10	1258.38	-207.94	0.2430E-01	48.65	0.01359

METHANOL(1) METHYL ETHYL KETONE(2) SYSTEM 091

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1GL	F2GL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	75.3	0.0760	0.1930	1066.82	641.20	0.9575	0.9646	1.7296	0.9952	0.5528	-1050.28	-1002.98	-1152.94
2	760.00	72.2	0.1470	0.3080	955.91	579.92	0.9572	0.9628	1.5921	1.0202	0.4451	-1086.92	-1028.04	-1189.65
3	760.00	70.7	0.1970	0.3770	905.62	551.95	0.9571	0.9617	1.5348	1.0239	0.4047	-1105.17	-1040.49	-1207.92
4	760.00	68.8	0.2650	0.4530	844.97	518.02	0.9568	0.9603	1.4689	1.0449	0.3405	-1128.79	-1056.55	-1231.54
5	760.00	67.5	0.3560	0.5280	805.37	495.76	0.9567	0.9590	1.3370	1.0738	0.2193	-1145.27	-1067.74	-1248.01
6	760.00	65.9	0.4980	0.6220	758.68	469.38	0.9566	0.9571	1.1950	1.1629	0.0273	-1165.93	-1081.75	-1268.66
7	760.00	65.1	0.6220	0.6950	736.16	456.62	0.9566	0.9556	1.1018	1.2790	-0.1491	-1176.42	-1088.86	-1279.13
8	760.00	64.4	0.7470	0.7770	716.90	445.67	0.9566	0.9540	1.0533	1.4290	-0.3051	-1185.69	-1095.13	-1288.39
9	760.00	64.3	0.8290	0.8320	714.18	444.12	0.9568	0.9530	1.0203	1.5967	-0.4478	-1187.02	-1096.02	-1289.72
10	760.00	64.3	0.8410	0.8420	714.18	444.12	0.9568	0.9528	1.0179	1.6147	-0.4614	-1187.02	-1096.02	-1289.72
11	760.00	64.3	0.8730	0.8690	714.18	444.12	0.9569	0.9523	1.0121	1.6752	-0.5039	-1187.02	-1096.02	-1289.72
12	760.00	64.4	0.9360	0.9260	716.90	445.67	0.9571	0.9513	1.0023	1.8693	-0.6233	-1185.69	-1095.13	-1288.39

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 533.20 P = 39.50 V = 288.40 OMEGA = 0.337 OMEGAH = 0.215 DIPOLE = 2.70 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

2 A = 0.69742E 01 B = 0.12096E 04 C = 0.21600E 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 762.4 AT T = 79.6

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.71193E 02 B = 0.96599E-02 C = 0.18100E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 28

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.62165E 00 B = -.10270E 01 C = -.31219E 00

STANDARD DEVIATION = 0.11672E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.8620 G2INF = 2.0494

T1INF = 79.50 T2INF = 64.75

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1698

AREA BELOW THE X-AXIS IS -0.1657

CROSS-OVER POINT IS X = 0.52

NORMALIZED AREA DIFFERENCE IS 0.0122

HERINGTON J-FACTOR IS 6.76

CONSISTENCY INDEX IS -5.54

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	735.27	-229.40	0.3638E-11	2.73	0.00214
2	780.19	-266.68	0.1489E-03	2.33	0.00296
3	728.97	-225.16	0.3675E-02	2.74	0.00208
4	726.59	-223.31	0.1761E-02	2.78	0.00206
5	740.61	-236.84	0.4363E-03	2.49	0.00220
6	695.93	-180.68	0.1377E-03	3.96	0.00201
7	733.47	-226.13	0.3209E-03	2.87	0.00212
8	778.79	-279.11	0.2099E-03	1.85	0.00266
9	778.79	-279.11	0.2100E-03	1.85	0.00266
10	732.00	-227.38	0.1972E-02	2.70	0.00211

METHANOL(1) — 2-METHYLPENTANE(2) SYSTEM 092

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	745.00	54.0	0.0400	0.2340	475.34	592.14	0.9728	0.9530	8.9060	0.9519	2.2360	-1333.42	-1341.45	-838.49
2	745.00	47.8	0.1270	0.3360	366.15	482.79	0.9646	0.9521	5.1843	1.1118	1.5397	-1431.25	-1408.15	-877.34
3	745.00	44.7	0.3950	0.3950	319.83	434.27	0.9598	0.9523	2.2323	1.6254	0.3173	-1483.15	-1443.61	-897.94
4	745.00	44.5	0.5660	0.4170	322.67	437.28	0.9588	0.9532	1.6285	2.1704	-0.2872	-1479.74	-1441.28	-896.58
5	745.00	44.9	0.5680	0.4150	322.67	437.28	0.9589	0.9531	1.6151	2.1877	-0.3034	-1479.74	-1441.28	-896.58
6	745.00	48.4	0.8810	0.4920	375.72	492.65	0.9575	0.9576	1.0586	6.1504	-1.7595	-1421.44	-1401.45	-873.45

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 497.90 P = 29.50 V = 367.30 OMEGA = 0.278 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

2 A = 0.68391E 01 B = 0.11354E 04 C = 0.22657E 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 760.7 AT T = 60.3

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.10013E 03 B = 0.38799E-01 C = 0.23671E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 30

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.23116E 01 B = -.5017CE 01 C = 0.50326E 00

STANDARD DEVIATION = 0.13841E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 10.0909 G2INF = 9.0439

T1INF = 59.65 T2INF = 64.24

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.5502

AREA BELOW THE X-AXIS IS -0.5793

CROSS-OVER POINT IS X = 0.48

NORMALIZED AREA DIFFERENCE IS -0.0258

HERINGTON J-FACTOR IS 7.05

CONSISTENCY INDEX IS -4.48

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1822.36	146.67	0.3729E-10	71.48	0.02086
2	2185.77	886.40	0.7217E-02	45.55	0.03336
3	1830.54	666.17	0.2191E 00	35.39	0.01981
4	1870.36	619.27	0.4402E-01	35.45	0.01774
5	1910.98	698.00	0.1768E-01	27.28	0.01914
6	1979.01	348.74	0.2752E-02	47.12	0.01315
7	1997.18	560.34	0.1534E-01	34.54	0.01707
8	1821.64	1027.50	0.1478E-01	34.17	0.02546
9	1821.64	1027.50	0.1479E-01	34.17	0.02546
10	1832.46	685.23	0.5918E-02	34.94	0.01982

METHANOL(1) — 3-METHYLPENTANE(2) — SYSTEM 093

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	745.00	52.7	0.0790	0.3210	450.49	516.52	0.9678	0.9535	6.4934	1.0088	1.8620	-1353.30	-1374.44	-850.62
2	745.00	47.8	0.1900	0.3800	366.15	438.23	0.9624	0.9527	3.9104	1.2335	1.1538	-1431.25	-1428.79	-881.83
3	745.00	46.2	0.4250	0.4250	341.60	414.75	0.9593	0.9534	2.0889	1.7039	0.2037	-1457.78	-1447.33	-892.45
4	745.00	47.4	0.7820	0.4720	359.88	432.27	0.9578	0.9557	1.1950	3.9694	-1.2005	-1437.83	-1433.39	-884.46

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 504.40 P = 30.80 V = 367.00 OMEGA = 0.276 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = -0.14731E 04 C = -0.23000E 03

2 A = 0.68489E 01 B = -0.11524E 04 C = -0.22713E 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 760.4 AT T = 63.3

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.10922E 03 B = -.35414E-01 C = 0.35999E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 31

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.22370E 01 B = -.55048E 01 C = 0.14334E 01

STANDARD DEVIATION = 0.11333E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 9.3653 G2INF = 6.2617

T1INF = 62.65 T2INF = 64.24

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4931

AREA BELOW THE X-AXIS IS -0.5307

CROSS-OVER POINT IS X = 0.46

NORMALIZED AREA DIFFERENCE IS -0.0367

HERINGTON J-FACTOR IS 7.73

CONSISTENCY INDEX IS -4.05

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1855.00	-99.55	0.9095E-12	92.66	0.02717
2	2208.64	946.71	0.3780E-02	41.68	0.04092
3	1728.86	780.34	0.2245E 00	36.88	0.02487
4	1816.16	600.63	0.3724E-01	39.80	0.02277
5	1826.77	844.86	0.1584E-01	31.88	0.02898
6	2014.11	107.10	0.1600E-02	66.66	0.01088
7	1928.94	559.11	0.1194E-01	38.59	0.02466
8	1708.01	8169.90	0.3697E-02	19.34	0.04151
9	1707.98	8204.07	0.3714E-02	19.34	0.04151
10	1653.85	8458.87	0.2593E-01	21.61	0.03952

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

METHANOL(1) 1-PROPANOL(2) SYSTEM 094

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	88.3	0.1550	0.4370	1646.50	518.63	0.9686	0.9650	1.2587	0.9396	0.2923	-911.08	-1025.03	-999.07
2	760.00	83.5	0.2650	0.5950	1409.50	426.63	0.9668	0.9625	1.1687	0.9422	0.2155	-959.88	-1074.14	-1050.14
3	760.00	81.6	0.3100	0.6600	1323.36	394.14	0.9661	0.9614	1.1794	0.9109	0.2583	-980.01	-1094.45	-1071.24
4	760.00	78.8	0.3860	0.7250	1203.98	350.00	0.9648	0.9597	1.1422	0.9308	0.2046	-1010.56	-1125.33	-1103.27
5	760.00	72.6	0.6100	0.8720	969.68	266.66	0.9618	0.9557	1.0760	0.8915	0.1881	-1082.11	-1197.94	-1178.41
6	760.00	67.2	0.8600	0.9650	756.45	208.24	0.9588	0.9519	1.0251	0.8661	0.1686	-1149.11	-1266.28	-1248.90
7	760.00	66.5	0.8950	0.9750	775.93	201.52	0.9584	0.9514	1.0211	0.8519	0.1812	-1158.14	-1275.51	-1258.41

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 540.70 P = 51.00 V = 220.00 OMEGA = 0.612 OMEGAH = 0.201 DIPOLE = 1.68 ETA = 0.57

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

2 A = 0.79973E 01 B = 0.15697E 04 C = 0.20950E 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 757.4 AT T = 97.2

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.77979E 02 B = -.91570E-01 C = 0.27520E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 37

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.34613E 00 B = -.45750E 00 C = 0.30114E 00

STANDARD DEVIATION = 0.21747E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.4136 G2INF = 0.8271

T1INF = 97.29 T2INF = 64.75

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

SQUARE ROOT OF NEGATIVE ARGUEMENT REQUIRED

TO OBTAIN X-INTERCEPT

VALUE OF REQUIRED ARGUEMENT IS -.20764E 00

THERMODYNAMIC CONSISTENCY TEST IS ABORTED

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1845.13	-1136.54	0.3053E-10	55.29	0.04750
2	-24.11	244.26	0.4011E-03	38.66	0.03710
3	1143.08	-858.06	0.2022E 00	27.00	0.03551
4	1114.90	-892.13	0.1839E 00	40.13	0.03840
5	107.07	284.36	0.9449E-02	8.53	0.02318
6	-115.27	10434.52	0.1825E-02	70.55	0.00950
7	63.22	450.97	0.6611E-02	16.93	0.02078
8	215.46	23.85	0.7182E-04	2.22	0.02599
9	215.46	23.84	0.7188E-04	2.22	0.02599
10	1101.02	-895.92	0.1816E-01	42.84	0.03897

METHANOL(1) — 2-PROPANOL(2) SYSTEM 095A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	494.80	55.0	0.9529	0.9816	495.20	214.61	0.9681	0.9846	0.9955	0.8851	0.1175	-1318.35	-438.13	-984.63
2	488.41	55.0	0.9232	0.9636	495.20	214.61	0.9685	0.9850	0.9961	1.0604	-0.0626	-1318.35	-438.13	-984.63
3	478.39	55.0	0.8854	0.9479	495.20	214.61	0.9692	0.9854	1.0014	0.9968	0.0046	-1318.35	-438.13	-984.63
4	466.47	55.0	0.8432	0.9191	495.20	214.61	0.9699	0.9860	0.9949	1.1038	-0.1038	-1318.35	-438.13	-984.63
5	460.54	55.0	0.7946	0.8915	495.20	214.61	0.9703	0.9864	1.0115	1.1162	-0.0986	-1318.35	-438.13	-984.63
6	445.49	55.0	0.7372	0.8596	495.20	214.61	0.9712	0.9871	1.0179	1.0928	-0.0711	-1318.35	-438.13	-984.63
7	432.97	55.0	0.6983	0.8330	495.20	214.61	0.9720	0.9877	1.0129	1.1011	-0.0836	-1318.35	-438.13	-984.63
8	402.85	55.0	0.5990	0.7693	495.20	214.61	0.9738	0.9890	1.0166	1.0664	-0.0478	-1318.35	-438.13	-984.63
9	383.30	55.0	0.5310	0.7189	495.20	214.61	0.9750	0.9898	1.0209	1.0580	-0.0356	-1318.35	-438.13	-984.63
10	364.13	55.0	0.4682	0.6664	495.20	214.61	0.9761	0.9906	1.0209	1.0528	-0.0308	-1318.35	-438.13	-984.63
11	346.22	55.0	0.3986	0.6027	495.20	214.61	0.9771	0.9913	1.0323	1.0551	-0.0219	-1318.35	-438.13	-984.63
12	320.89	55.0	0.3498	0.5460	495.20	214.61	0.9787	0.9922	0.9892	1.0346	-0.0448	-1318.35	-438.13	-984.63
13	312.66	55.0	0.2739	0.4626	495.20	214.61	0.9789	0.9926	1.0433	1.0690	-0.0244	-1318.35	-438.13	-984.63
14	297.66	55.0	0.2314	0.4070	495.20	214.61	0.9798	0.9931	1.0352	1.0615	-0.0251	-1318.35	-438.13	-984.63
15	287.66	55.0	0.2107	0.3711	495.20	214.61	0.9803	0.9934	1.0024	1.0598	-0.0557	-1318.35	-438.13	-984.63
16	289.25	55.0	0.1902	0.3428	495.20	214.61	0.9801	0.9935	1.0312	1.0854	-0.0513	-1318.35	-438.13	-984.63
17	273.03	55.0	0.1638	0.3062	495.20	214.61	0.9811	0.9939	1.0106	1.0480	-0.0363	-1318.35	-438.13	-984.63
18	258.93	55.0	0.1065	0.2056	495.20	214.61	0.9817	0.9943	0.9867	1.0660	-0.0773	-1318.35	-438.13	-984.63
19	250.90	55.0	0.0822	0.1702	495.20	214.61	0.9821	0.9946	1.0298	1.0502	-0.0197	-1318.35	-438.13	-984.63
20	247.02	55.0	0.0451	0.1120	495.20	214.61	0.9821	0.9947	1.2160	1.0637	0.1339	-1318.35	-438.13	-984.63

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = -0.14731E 04 C = 0.23000E 03

2 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 769.7 AT T = 82.5

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 22

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.47678E-01 B = -.44585E 00 C = 0.41824E 00

STANDARD DEVIATION = 0.55716E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.0488 G2INF = 0.9801

T1INF = 55.00 T2INF = 55.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

EQUATION SOLVED FOR X-INTERCEPT

ROOTS ARE: X = 0.94544E 00 AND X = 0.12058E 00

BOTH ROOTS ARE IN THE RANGE 0 TO 1

THERMODYNAMIC CONSISTENCY TEST IS ABORTED

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	986.32	-808.05	0.9415E-12	10.36	0.00657
2	1836.15	-964.96	0.4785E-02	4.92	0.01420
3	1236.38	-876.63	0.9682E-01	7.12	0.00745
4	1253.74	-887.30	0.9158E-01	7.61	0.00697
5	1402.65	-906.16	0.1436E-01	5.14	0.00963
6	1241.46	-920.14	0.1777E-02	11.92	0.00550
7	1489.93	-935.33	0.1334E-01	5.73	0.00906
8	1360.76	-870.28	0.4394E-02	4.01	0.01244
9	1360.77	-870.28	0.4395E-02	4.01	0.01244
10	1217.00	-874.11	0.1150E-01	7.53	0.00706

METHANOL(1)+2-PROPANOL(2) SYSTEM 0958

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	79.9	0.1350	0.2050	1249.84	682.16	0.9625	0.9868	0.8874	1.0075	-0.1269	-958.43	-377.68	-761.77
2	760.00	79.7	0.1400	0.2100	1241.40	676.61	0.9624	0.9867	0.8825	1.0153	-0.1401	-1000.63	-378.07	-763.28
3	760.00	79.4	0.1650	0.2550	1228.83	668.35	0.9626	0.9866	0.9187	0.9982	-0.0829	-1003.93	-378.66	-765.56
4	760.00	78.3	0.2150	0.3150	1183.59	638.70	0.9624	0.9863	0.9041	1.0212	-0.1218	-1016.13	-380.85	-773.98
5	760.00	78.0	0.2200	0.3270	1171.49	630.79	0.9624	0.9862	0.9266	1.0224	-0.0984	-1019.49	-381.45	-776.30
6	760.00	77.6	0.2550	0.3800	1155.49	620.36	0.9625	0.9860	0.9420	1.0024	-0.0622	-1023.98	-382.26	-779.41
7	760.00	73.7	0.4670	0.6370	1008.38	525.43	0.9617	0.9841	0.9872	0.9667	0.0210	-1069.01	-390.43	-810.57
8	760.00	73.1	0.4900	0.6650	987.12	511.88	0.9615	0.9838	1.0031	0.9567	0.0474	-1076.14	-391.74	-815.51
9	760.00	71.2	0.5970	0.7550	922.15	470.73	0.9607	0.9828	0.9999	0.9619	0.0388	-1099.05	-395.96	-831.41
10	760.00	70.2	0.6650	0.8080	889.34	450.13	0.9603	0.9821	0.9956	0.9476	0.0494	-1111.33	-398.24	-839.93
11	760.00	69.5	0.7000	0.8350	866.93	436.13	0.9600	0.9817	1.0024	0.9382	0.0661	-1120.02	-399.85	-845.97
12	760.00	66.4	0.9100	0.9580	773.03	378.13	0.9584	0.9797	0.9904	0.9163	0.0778	-1159.43	-407.25	-873.40

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 508.50 P = 47.60 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

2 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 769.7 AT T = 82.5

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 22

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = -.21855E 00 B = 0.69110E 00 C = -.40598E 00

STANDARD DEVIATION = 0.19454E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 0.8037 G2INF = 0.9356

T1INF = 82.19 T2INF = 64.75

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS -0.0409

AREA BELOW THE X-AXIS IS 0.0325

CROSS-OVER POINT IS X = 0.42

NORMALIZED AREA DIFFERENCE IS 0.1134

HERINGTON J-FACTOR IS 7.74

CONSISTENCY INDEX IS 3.60

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER	VALUES	OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	-292.88	818.01	C.5983E-11	24.18	0.00824
2	193.93	-205.83	0.4160E-03	3.75	0.00849
3	-173.99	541.89	0.5717E-02	7.68	0.00390
4	-175.48	543.99	C.6067E-02	7.96	0.00390
5	-157.40	529.38	0.1719E-02	4.60	0.00492
6	-229.55	722.37	0.4750E-03	10.88	0.00400
7	-162.84	545.70	0.1753E-02	4.75	0.00482
8	-29.55	197.93	0.3590E-03	3.29	0.00776
9	-29.55	197.93	0.3588E-03	3.29	0.00776
10	-144.74	445.70	0.1920E 00	7.48	0.00402

METHANOL(1) — TOLUENE(2) SYSTEM 096

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	89.9	0.0460	0.5190	1731.97	394.56	0.9762	0.9608	4.8257	0.9295	1.6471	-895.44	-1383.67	-740.95
2	760.00	66.8	0.2340	0.8130	783.21	177.73	0.9599	0.9664	3.2314	1.0047	1.1682	-1154.90	-1650.22	-864.06
3	760.00	65.8	0.3300	0.8220	754.42	171.19	0.9592	0.9667	2.4034	1.1356	0.7497	-1167.85	-1663.79	-870.17
4	760.00	65.1	0.4390	0.8280	736.16	167.04	0.9588	0.9669	1.8641	1.3434	0.3275	-1176.42	-1672.72	-874.18
5	760.00	64.1	0.6750	0.8420	710.12	161.12	0.9580	0.9677	1.2770	2.2101	-0.5485	-1189.01	-1685.92	-880.10
6	760.00	63.7	0.8300	0.8660	698.04	158.38	0.9575	0.9683	1.0866	3.6514	-1.2126	-1195.03	-1692.24	-882.92
7	760.00	63.6	0.8700	0.8780	695.38	157.77	0.9573	0.9701	1.0543	4.3678	-1.4214	-1196.37	-1693.66	-883.56
8	760.00	63.7	0.9300	0.9120	698.04	156.38	0.9571	0.9726	1.0203	5.8439	-1.7453	-1195.03	-1692.24	-882.92
9	760.00	64.1	0.9740	0.9570	708.77	160.81	0.9571	0.9762	1.0068	7.5990	-2.0212	-1189.68	-1686.62	-880.41

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 594.00 P = 40.00 V = 331.10 OMEGA = 0.241 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78796E 01 B = 0.14731E 04 C = 0.23000E 03

2 A = 0.69533E 01 B = 0.13439E 04 C = 0.21938E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.98864E 02 B = -.55774E-01 C = 0.27703E-03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 759.4 AT T = 110.6

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 33

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.17776E 01 B = -.25914E 01 C = -.12885E 01

STANDARD DEVIATION = 0.51529E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 5.9159 G2INF = 8.1843

T1INF = 110.63 T2INF = 64.75

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.5145

AREA BELOW THE X-AXIS IS -0.4620

CROSS-OVER POINT IS X = 0.54

NORMALIZED AREA DIFFERENCE IS 0.0537

HERINGTON J-FACTOR IS 20.95

CONSISTENCY INDEX IS -15.57

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1522.72	269.79	0.5275E-10	26.57	0.01188
2	1148.38	705.91	0.4791E-02	26.31	0.01946
3	1423.33	392.92	0.2474E 00	18.14	0.01022
4	1403.39	425.95	0.4584E-01	16.02	0.01025
5	1365.74	600.85	0.1070E-01	16.92	0.01058
6	1430.14	588.75	0.2863E-02	19.18	0.00933
7	1390.97	637.24	0.9493E-02	19.41	0.01016
8	1340.91	621.04	0.6960E-02	16.70	0.01120
9	1341.16	621.50	0.6964E-02	16.72	0.01119
10	1414.76	404.55	0.8845E-02	17.43	0.01020

DIAGNOSTIC

5 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

METHANOL(1) - WATER(2) SYSTEM 097

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	95.2	0.0293	0.1831	2039.57	628.94	0.9716	0.9825	2.2591	0.9985	0.8165	-845.79	-528.40	-697.87
2	760.00	94.5	0.0346	0.2107	1996.73	613.11	0.9713	0.9824	2.2481	0.9950	0.8151	-852.17	-530.68	-702.28
3	760.00	93.7	0.0406	0.2363	1948.60	595.42	0.9711	0.9822	2.2011	0.9974	0.7916	-859.52	-533.29	-707.36
4	760.00	92.8	0.0422	0.2652	1895.51	576.02	0.9707	0.9821	2.4423	0.9935	0.8995	-867.88	-536.26	-713.12
5	760.00	91.8	0.0557	0.2978	1837.84	555.08	0.9704	0.9819	2.1422	0.9991	0.7627	-877.27	-539.57	-719.58
6	760.00	90.9	0.0644	0.3265	1787.09	536.77	0.9700	0.9818	2.0884	1.0000	0.7364	-885.83	-542.56	-725.45
7	760.00	90.0	0.0737	0.3608	1737.43	518.97	0.9697	0.9816	2.0735	0.9913	0.7379	-894.48	-545.58	-731.37
8	760.00	89.1	0.0838	0.3861	1688.82	501.65	0.9693	0.9814	2.0069	0.9957	0.7009	-903.22	-548.61	-737.35
9	760.00	89.2	0.0948	0.4142	1694.17	503.55	0.9694	0.9814	1.8972	0.9580	0.6833	-902.25	-548.27	-736.69
10	760.00	78.8	0.2801	0.6621	1203.98	335.20	0.9649	0.9794	1.4376	1.0417	0.3222	-1010.56	-584.62	-809.82
11	760.00	77.6	0.3004	0.6882	1155.49	319.23	0.9643	0.9792	1.4509	1.0383	0.3346	-1023.98	-588.98	-818.78
12	760.00	77.6	0.3212	0.6882	1155.49	319.23	0.9643	0.9792	1.3570	1.0701	0.2375	-1023.98	-588.98	-818.78
13	760.00	76.9	0.3435	0.7092	1127.91	310.21	0.9640	0.9790	1.3221	1.0546	0.1888	-1031.91	-591.54	-824.05
14	760.00	76.2	0.3664	0.7178	1100.86	301.41	0.9636	0.9789	1.3014	1.0586	0.1693	-1039.90	-594.11	-829.36
15	760.00	75.7	0.3909	0.7274	1081.85	295.25	0.9634	0.9788	1.2575	1.1269	0.1097	-1045.65	-595.95	-833.18
16	760.00	75.1	0.4141	0.7428	1059.37	287.99	0.9631	0.9787	1.2375	1.1330	0.0882	-1052.60	-598.18	-837.79
17	760.00	74.6	0.4391	0.7597	1040.93	282.07	0.9628	0.9785	1.2144	1.1288	0.0731	-1058.43	-600.03	-841.65
18	760.00	74.0	0.4637	0.7668	1019.14	275.09	0.9625	0.9784	1.1852	1.1747	0.0089	-1065.47	-602.27	-846.31
19	760.00	67.2	0.8457	0.9360	796.45	205.56	0.9588	0.9769	1.0111	1.4970	-0.3924	-1149.11	-628.30	-901.23
20	760.00	66.6	0.8869	0.9632	778.83	200.21	0.9585	0.9767	1.0142	1.2056	-0.1728	-1156.84	-630.66	-906.27
21	760.00	65.7	0.9293	0.9771	753.00	192.41	0.9579	0.9765	1.0150	1.2485	-0.2070	-1168.55	-634.22	-913.88

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 79.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E-03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 760.0 AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.91863E 00 B = -.25837E 01 C = 0.14245E 01

STANDARD DEVIATION = 0.49856E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.5059 G2INF = 1.2719

T1INF = 100.00 T2INF = 64.75

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1958

AREA BELOW THE X-AXIS IS -0.0942

CROSS-OVER POINT IS X = 0.49

NORMALIZED AREA DIFFERENCE IS 0.3504

HERINGTON J-FACTOR IS 15.65

CONSISTENCY INDEX IS 19.39

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	756.65	140.83	0.3865F-09	50.19	0.03616
2	-13.41	555.51	0.2447E-02	18.92	0.01990
3	456.71	344.15	0.3879E 00	17.27	0.01685
4	483.13	322.45	0.2185E 00	19.66	0.01828
5	102.66	560.29	0.7852E-02	5.99	0.00916
6	-21.64	692.09	0.2343E-02	18.63	0.00499
7	68.31	591.59	0.5296E-02	8.33	0.00782
8	116.77	540.63	0.2416E-02	4.35	0.01073
9	116.74	540.66	0.2416E-02	4.35	0.01072
10	720.49	189.35	0.2378E 00	36.68	0.02857

METHYL ACETATE(1) BENZENE(2) SYSTEM 098A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	131.30	25.0	0.1000	0.3232	209.75	94.39	0.9858	0.9858	2.0013	1.0347	0.6597	-1795.50	-1527.45	-1285.50
2	152.50	25.0	0.2000	0.4661	209.75	94.39	0.9870	0.9888	1.6713	1.0654	0.4503	-1795.50	-1527.45	-1285.50
3	167.30	25.0	0.3000	0.5531	209.75	94.39	0.9852	0.9883	1.4477	1.1174	0.2590	-1795.50	-1527.45	-1285.50
4	178.70	25.0	0.4000	0.6210	209.75	94.39	0.9838	0.9881	1.3002	1.1806	0.0965	-1795.50	-1527.45	-1285.50
5	188.30	25.0	0.5000	0.6810	209.75	94.39	0.9826	0.9881	1.2005	1.2564	-0.0455	-1795.50	-1527.45	-1285.50
6	190.30	25.0	0.5223	0.6922	209.75	94.39	0.9824	0.9881	1.1862	1.2823	-0.0830	-1795.50	-1527.45	-1285.50
7	197.10	25.0	0.6000	0.7380	209.75	94.39	0.9815	0.9882	1.1335	1.3502	-0.1750	-1795.50	-1527.45	-1285.50
8	205.30	25.0	0.7000	0.8007	209.75	94.39	0.9805	0.9885	1.0968	1.4268	-0.2631	-1795.50	-1527.45	-1285.50
9	206.80	25.0	0.7399	0.8300	209.75	94.39	0.9803	0.9888	1.0832	1.4145	-0.2668	-1795.50	-1527.45	-1285.50
10	213.10	25.0	0.8000	0.8640	209.75	94.39	0.9796	0.9890	1.0739	1.5167	-0.3453	-1795.50	-1527.45	-1285.50
11	220.30	25.0	0.9000	0.9307	209.75	94.39	0.9788	0.9897	1.0621	1.5990	-0.4092	-1795.50	-1527.45	-1285.50

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 506.90 P = 46.30 V = 228.00 OMEGA = 0.326 OMEGAH = 0.215 DIPOLE = 1.72 ETA = 0.62

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69894E 01 B = 0.11110E 04 C = 0.21351E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13606E 03 B = -.46705E-00 C = 0.92210E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

VAPOR PRESSURE AT NBP

P = 784.C AT T = 57.8

P = 760.0 AT T = 80.1

COMPONENT ID ECHO CHECK

ID NUMBER = 24

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.8872CE 00 B = -.24124E 01 C = 0.10951E 01

STANDARD DEVIATION = 0.12900E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.4283 G2INF = 1.5374

T1INF = 25.00 T2INF = 25.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1884

AREA BELOW THE X-AXIS IS -0.1424

CROSS-OVER POINT IS X = C.47

NORMALIZED AREA DIFFERENCE IS 0.1391

CONSISTENCY INDEX IS 13.91

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	782.11	-233.43	0.9095E-12	12.05	0.01146
2	529.17	69.45	0.1477E-02	2.13	0.01188
3	692.08	-108.07	0.4303E-01	6.21	0.00821
4	645.69	-81.03	0.2641E-01	5.92	0.00713
5	463.57	92.86	0.5137E-02	1.98	0.00963
6	528.85	-20.83	0.9325E-03	6.24	0.00527
7	414.90	123.30	0.6496E-02	2.27	0.00905
8	439.26	130.45	0.1944E-02	1.94	0.01169
9	439.26	130.53	0.1944E-02	1.94	0.01170
10	719.07	-126.07	0.2563E-01	6.58	0.00872

METHYL ACETATE(1) - BENZENE(2) SYSTEM 096B

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	195.80	35.0	0.1000	0.3037	320.60	146.62	0.9869	0.9865	1.8289	1.0183	0.5856	-1596.05	-1387.87	-1175.30
2	226.20	35.0	0.2000	0.4483	320.60	146.62	0.9835	0.9852	1.5539	1.0470	0.3948	-1596.05	-1387.87	-1175.30
3	248.20	35.0	0.3000	0.5414	320.60	146.62	0.9811	0.9845	1.3693	1.0906	0.2276	-1596.05	-1387.87	-1175.30
4	265.60	35.0	0.4000	0.6158	320.60	146.62	0.9792	0.9841	1.2475	1.1401	0.0900	-1596.05	-1387.87	-1175.30
5	280.80	35.0	0.5000	0.6785	320.60	146.62	0.9776	0.9840	1.1606	1.2101	-0.0418	-1596.05	-1387.87	-1175.30
6	293.70	35.0	0.5273	0.6940	320.60	146.62	0.9773	0.9840	1.1369	1.2309	-0.0795	-1596.05	-1387.87	-1175.30
7	294.60	35.0	0.6000	0.7408	320.60	146.62	0.9762	0.9841	1.1062	1.2795	-0.1456	-1596.05	-1387.87	-1175.30
8	307.60	35.0	0.7000	0.8040	320.60	146.62	0.9748	0.9844	1.0729	1.3473	-0.2277	-1596.05	-1387.87	-1175.30
9	312.60	35.0	0.7399	0.8294	320.60	146.62	0.9743	0.9845	1.0623	1.3828	-0.2637	-1596.05	-1387.87	-1175.30
10	320.10	35.0	0.8000	0.8660	320.60	146.62	0.9736	0.9848	1.0509	1.4384	-0.3139	-1596.05	-1387.87	-1175.30
11	334.70	35.0	0.9000	0.9349	320.60	146.62	0.9722	0.9856	1.0529	1.4623	-0.3285	-1596.05	-1387.87	-1175.30

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 506.90 P = 46.30 V = 228.00 OMEGA = 0.326 OMEGAH = 0.215 DIPOLE = 1.72 ETA = 0.62

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69894E 01 B = 0.11110E 04 C = 0.21351E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

VAPOR PRESSURE AT NBP

P = 784.C AT T = 57.8

P = 760.0 AT T = 80.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13606E 03 B = -.46705E 00 C = 0.92210E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.1588CE-03

COMPONENT ID ECHO CHECK

ID NUMBER = 24

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.79546E 00 B = -.22008E 01 C = 0.10447E 01

STANDARD DEVIATION = 0.83412E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.2154 G2INF = 1.4343

T1INF = 35.00 T2INF = 35.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1670

AREA BELOW THE X-AXIS IS -0.1237

CROSS-OVER POINT IS X = C.46

NORMALIZED AREA DIFFERENCE IS 0.1490

CONSISTENCY INDEX IS 14.90

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	811.07	-284.93	0.4547E-11	13.87	0.01113
2	444.42	42.48	0.9230E-03	2.54	0.00680
3	690.55	-161.08	0.2571E-01	6.58	0.00722
4	641.25	-134.29	0.1610E-01	6.32	0.00652
5	465.86	16.40	0.2714E-02	2.46	0.00569
6	506.77	-46.79	0.6356E-03	5.26	0.00450
7	427.27	41.46	0.3602E-02	2.58	0.00604
8	444.71	41.47	0.1484E-02	2.53	0.00671
9	445.42	40.98	0.1484E-02	2.53	0.00672
10	713.37	-176.59	0.2273E-01	7.07	0.00763

METHYL ACETATE(1) — BENZENE(2) — SYSTEM 0980

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	291.00	50.0	0.0410	0.1050	568.21	266.50	0.9862	0.9825	1.2919	0.9999	0.2563	-1346.77	-1217.82	-1038.87
2	309.80	50.0	0.0800	0.1940	568.21	266.50	0.9842	0.9816	1.2996	0.9982	0.2638	-1346.77	-1217.82	-1038.87
3	334.30	50.0	0.1330	0.2880	568.21	266.50	0.9818	0.9805	1.2491	1.0085	0.2140	-1346.77	-1217.82	-1038.87
4	349.30	50.0	0.1710	0.3410	568.21	266.50	0.9803	0.9799	1.2001	1.0193	0.1633	-1346.77	-1217.82	-1038.87
5	387.00	50.0	0.2540	0.4610	568.21	266.50	0.9768	0.9786	1.2056	1.0249	0.1624	-1346.77	-1217.82	-1038.87
6	405.20	50.0	0.3030	0.5090	568.21	266.50	0.9753	0.9780	1.1664	1.0456	0.1093	-1346.77	-1217.82	-1038.87
7	432.70	50.0	0.3710	0.5770	568.21	266.50	0.9729	0.9773	1.1503	1.0650	0.0770	-1346.77	-1217.82	-1038.87
8	445.70	50.0	0.4140	0.6140	568.21	266.50	0.9718	0.9771	1.1285	1.0742	0.0493	-1346.77	-1217.82	-1038.87
9	464.40	50.0	0.4660	0.6570	568.21	266.50	0.9703	0.9768	1.1159	1.0910	0.0226	-1346.77	-1217.82	-1038.87
10	483.70	50.0	0.5480	0.7160	568.21	266.50	0.9686	0.9768	1.0752	1.1114	-0.0331	-1346.77	-1217.82	-1038.87
11	506.30	50.0	0.6160	0.7660	568.21	266.50	0.9668	0.9766	1.0691	1.1280	-0.0536	-1346.77	-1217.82	-1038.87
12	525.10	50.0	0.7020	0.8160	568.21	266.50	0.9653	0.9768	1.0348	1.1854	-0.1360	-1346.77	-1217.82	-1038.87
13	540.00	50.0	0.7590	0.8510	568.21	266.50	0.9642	0.9769	1.0251	1.2207	-0.1746	-1346.77	-1217.82	-1038.87
14	555.30	50.0	0.8110	0.8840	568.21	266.50	0.9631	0.9770	1.0236	1.2463	-0.1968	-1346.77	-1217.82	-1038.87
15	570.70	50.0	0.8820	0.9280	568.21	266.50	0.9619	0.9775	1.0142	1.2739	-0.2280	-1346.77	-1217.82	-1038.87
16	581.20	50.0	0.9270	0.9550	568.21	266.50	0.9612	0.9778	1.0105	1.3110	-0.2604	-1346.77	-1217.82	-1038.87
17	583.00	50.0	0.9430	0.9650	568.21	266.50	0.9610	0.9780	1.0067	1.3102	-0.2636	-1346.77	-1217.82	-1038.87

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 506.90 P = 46.30 V = 228.00 OMEGA = 0.326 OMEGAH = 0.215 DIPOLE = 1.72 ETA = 0.62

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69894E 01 B = 0.11111E 04 C = 0.21351E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

VAPOR PRESSURE AT NBP

P = 784.0 AT T = 57.8

P = 760.0 AT T = 80.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13600E 03 B = -.46705E 00 C = 0.92210E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 24

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.28980E 00 B = -.57196E 00 C = -.24384E-01

STANDARD DEVIATION = 0.13630E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.3362 G2INF = 1.3587

T1INF = 50.00 T2INF = 50.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0724

AREA BELOW THE X-AXIS IS -0.0767

CROSS-OVER POINT IS X = 0.50

NORMALIZED AREA DIFFERENCE IS -0.0289

CONSISTENCY INDEX IS 2.89

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	143.20	56.59	0.1819E-11	5.29	0.00181
2	123.05	132.21	0.2453E-03	2.35	0.00549
3	132.00	78.73	0.8359E-02	4.31	0.00216
4	134.19	77.56	0.6310E-02	4.22	0.00218
5	33.00	218.94	0.1257E-02	2.00	0.00381
6	163.69	32.52	0.2047E-03	5.67	0.00171
7	48.59	193.19	0.1009E-02	2.37	0.00342
8	28.31	316.50	0.2692E-03	1.51	0.00496
9	-28.31	316.50	0.2692E-03	1.51	0.00496
10	126.48	84.58	0.1911E-01	4.29	0.00218

METHYL ACETATE(1) - BENZENE(2) SYSTEM 0960

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	77.8	0.0520	0.1300	1387.09	683.16	0.9728	0.9659	1.3286	0.9829	0.3014	-1003.68	-985.99	-848.60
2	760.00	76.8	0.0840	0.1930	1345.75	661.56	0.9714	0.9658	1.2568	0.9742	0.2547	-1014.38	-993.30	-854.68
3	760.00	73.1	0.1920	0.3690	1209.42	590.71	0.9674	0.9656	1.1649	0.9670	0.1862	-1052.71	-1019.39	-876.32
4	760.00	72.4	0.2140	0.4030	1183.71	577.41	0.9667	0.9657	1.1653	0.9622	0.1915	-1060.52	-1024.69	-880.72
5	760.00	71.2	0.2550	0.4560	1140.72	555.22	0.9654	0.9658	1.1468	0.9621	0.1756	-1074.04	-1033.85	-888.30
6	760.00	69.3	0.3286	0.5320	1076.93	522.42	0.9637	0.9661	1.0998	0.9755	0.1198	-1095.26	-1048.22	-900.18
7	760.00	66.9	0.4270	0.6200	999.48	482.79	0.9616	0.9667	1.0585	1.0058	0.0511	-1123.14	-1067.07	-915.73
8	760.00	64.8	0.5220	0.6970	936.65	450.79	0.9598	0.9675	1.0368	1.0304	0.0062	-1147.71	-1083.65	-929.38
9	760.00	63.0	0.6160	0.7670	884.78	424.50	0.9583	0.9684	1.0219	1.0484	-0.0257	-1169.52	-1098.35	-941.46
10	760.00	61.3	0.7110	0.8270	836.74	400.24	0.9570	0.9694	1.0080	1.0982	-0.0857	-1191.11	-1112.90	-953.39
11	760.00	59.8	0.8060	0.8850	794.90	379.19	0.9558	0.9706	1.0004	1.1492	-0.1387	-1211.14	-1126.39	-964.44
12	760.00	58.6	0.8870	0.9290	764.57	363.58	0.9550	0.9716	0.9912	1.2703	-0.2481	-1226.45	-1136.70	-972.88
13	760.00	57.8	0.9390	0.9620	744.34	353.85	0.9544	0.9725	0.9954	1.2967	-0.2645	-1237.07	-1143.85	-978.72

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 506.90 P = 46.30 V = 228.00 OMEGA = 0.326 OMEGAH = 0.215 DIPOLE = 1.72 ETA = 0.62

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69894E 01 B = 0.11110E 04 C = 0.21351E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13600E 03 B = -.46705E 00 C = 0.92210E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

VAPOR PRESSURE AT NBP

P = 784.0 AT T = 57.8

P = 760.0 AT T = 80.1

COMPONENT ID ECHO CHECK

ID NUMBER =-24

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.30470E 00 B = -.50635E 00 C = -.97492E-01

STANDARD DEVIATION = 0.19328E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.3562 G2INF = 1.3487

T1INF = 80.10 T2INF = 56.91

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0856

AREA BELOW THE X-AXIS IS -0.0666

CROSS-OVER POINT IS X = 0.54

NORMALIZED AREA DIFFERENCE IS 0.1250

HERINGTON J-FACTOR IS 10.54

CONSISTENCY INDEX IS 1.96

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	245.89	-30.55	0.0	24.78	0.00408
2	359.93	841.97	0.4179E-03	7.85	0.01696
3	137.07	45.95	0.3287E-01	18.38	0.00565
4	55.75	130.41	0.2794E-01	17.12	0.00569
5	81.52	47.11	0.5317E-02	6.53	0.01002
6	30.02	220.60	0.3502E-03	28.21	0.00306
7	85.56	53.82	0.5236E-02	8.72	0.00901
8	118.28	-23.93	0.3116E-04	0.85	0.01314
9	118.29	-23.93	0.3119E-04	0.85	0.01314
10	58.12	132.53	0.1488E-00	18.08	0.00538

METHYL ACETATE(1) BENZENE(2) SYSTEM 098F

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	57.9	0.8950	0.9330	747.36	355.30	0.9546	0.9716	1.0089	1.3214	-0.2699	-1235.46	-1142.77	-977.84
2	760.00	58.4	0.8630	0.9140	759.99	361.68	0.9549	0.9711	1.0083	1.2766	-0.2359	-1228.83	-1138.30	-974.19
3	760.00	60.1	0.7350	0.8320	804.15	383.83	0.9563	0.9693	1.0200	1.2125	-0.1729	-1206.61	-1123.34	-961.95
4	760.00	61.8	0.6200	0.7490	850.22	407.04	0.9578	0.9677	1.0311	1.1894	-0.1428	-1184.90	-1108.72	-949.97
5	760.00	63.8	0.5050	0.6650	906.94	435.72	0.9596	0.9666	1.0557	1.1371	-0.0743	-1160.02	-1091.95	-936.20
6	760.00	66.8	0.3620	0.5450	997.29	481.67	0.9624	0.9655	1.1008	1.0828	0.0165	-1123.56	-1067.62	-916.19
7	760.00	67.5	0.3380	0.5280	1019.31	492.92	0.9629	0.9655	1.1181	1.0578	0.0554	-1115.76	-1062.08	-911.62
8	760.00	71.0	0.2120	0.3870	1134.87	552.21	0.9663	0.9651	1.1778	1.0298	0.1343	-1075.92	-1035.13	-889.36
9	760.00	71.8	0.1890	0.3560	1162.59	566.50	0.9671	0.9651	1.1873	1.0247	0.1473	-1067.09	-1029.14	-884.40
10	760.00	73.5	0.1390	0.2820	1223.15	597.81	0.9689	0.9651	1.2177	1.0198	0.1774	-1048.62	-1016.61	-874.02
11	760.00	75.9	0.0760	0.1750	1312.58	644.26	0.9715	0.9654	1.2914	1.0134	0.2424	-1023.27	-999.36	-859.71
12	760.00	76.9	0.0550	0.1330	1351.21	664.41	0.9725	0.9656	1.3188	1.0100	0.2668	-1012.95	-992.32	-853.86

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 506.90 P = 46.30 V = 228.00 OMEGA = 0.326 OMEGAH = 0.215 DIPOLE = 1.72 ETA = 0.62

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69894E 01 B = 0.11110E 04 C = 0.21351E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13600E 03 B = -.46705E 00 C = 0.92210E-03

2 A = 0.76863E 02 B = 0.14907E-01 C = 0.15880E-03

VAPOR PRESSURE AT NBP

P = 784.0 AT T = 57.8

P = 760.0 AT T = 80.1

COMPONENT ID ECHO CHECK

ID NUMBER = 24

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.30779E 00 B = -.89129E 00 C = 0.29136E 00

STANDARD DEVIATION = 0.11441E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.3604 G2INF = 1.3393

T1INF = 80.10 T2INF = 56.91

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0580

AREA BELOW THE X-AXIS IS -0.0988

CROSS-OVER POINT IS X = 0.40

NORMALIZED AREA DIFFERENCE IS -0.2598

HERINGTON J-FACTOR IS 10.54

CONSISTENCY INDEX IS 15.44

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	269.87	-53.45	C.9095E-12	3.43	0.00708
2	276.01	-21.67	0.1613E-03	6.07	0.01007
3	243.70	-24.98	0.1743E-01	2.98	0.00748
4	282.53	-61.56	C.1284E-01	3.28	0.00726
5	447.10	-194.18	0.1816E-02	4.79	0.00647
6	643.80	-337.11	0.6316E-03	9.96	0.00445
7	549.03	-265.32	C.1203E-02	6.03	0.00575
8	214.91	7.25	0.2318E-03	2.59	0.00790
9	214.71	7.42	C.2318E-03	2.59	0.00790
10	240.80	-20.81	0.5734E-01	2.86	0.00759

METHYL ACETATE(1) — CHLOROFORM(2) SYSTEM 095A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	500.30	50.0	0.064C	0.C4CC	568.21	499.37	0.9690	0.9749	0.5321	0.9997	-0.6306	-1346.77	-1009.80	-1126.02
2	482.00	50.0	0.1340	0.0890	568.21	499.37	0.9699	0.9759	0.5454	0.9889	-0.5951	-1346.77	-1009.80	-1126.02
3	472.10	50.C	C.1780	0.1310	568.21	499.37	0.9703	C.9764	0.5522	0.9739	-0.4975	-1346.77	-1009.80	-1126.02
4	455.60	50.0	0.2580	0.2200	568.21	499.37	0.9710	C.9773	0.6627	0.9355	-0.3448	-1346.77	-1009.80	-1126.02
5	450.10	50.0	0.3140	0.3080	568.21	499.37	0.9710	0.9777	0.7531	0.8873	-0.1639	-1346.77	-1009.80	-1126.02
6	449.10	50.0	C.3560	0.3540	568.21	499.37	0.9710	C.9778	0.7617	0.8805	-0.1449	-1346.77	-1009.80	-1126.02
7	450.60	50.0	0.3940	0.4050	568.21	499.37	0.9707	0.9778	0.7898	C.8647	-0.0905	-1346.77	-1009.80	-1126.02
8	453.80	50.0	0.4380	0.4700	568.21	499.37	0.9703	0.9778	0.8300	0.8364	-0.0076	-1346.77	-1009.80	-1126.02
9	458.10	50.0	0.4770	0.5260	568.21	499.37	C.9699	C.9777	C.8607	0.8113	0.0590	-1346.77	-1009.80	-1126.02
10	465.30	50.0	0.5250	0.5840	568.21	499.37	0.9693	0.9775	0.8813	0.7962	0.1016	-1346.77	-1009.80	-1126.02
11	483.60	50.0	0.6120	0.6980	568.21	499.37	0.9679	0.9770	0.9377	0.7350	0.2436	-1346.77	-1009.80	-1126.02
12	508.00	50.0	0.7070	0.7960	568.21	499.37	0.9661	0.9762	0.9705	0.6900	0.3411	-1346.77	-1009.80	-1126.02
13	512.80	50.0	C.7260	0.8140	568.21	499.37	0.9658	0.9761	0.9753	0.6790	0.3621	-1346.77	-1009.80	-1126.02
14	518.00	50.0	0.7470	0.8350	568.21	499.37	0.9654	0.9760	0.9818	0.6588	0.3989	-1346.77	-1009.80	-1126.02
15	535.20	50.0	0.8150	0.8860	568.21	499.37	0.9643	C.9754	0.9852	0.6428	0.4271	-1346.77	-1009.80	-1126.02
16	571.90	50.0	0.9350	0.9660	568.21	499.37	0.9618	0.9742	0.9978	0.5822	0.5387	-1346.77	-1009.80	-1126.02

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 506.90 P = 46.30 V = 228.00 OMEGA = 0.326 OMEGAH = 0.215 DIPOLE = 1.72 ETA = 0.62

2 T = 536.60 P = 54.00 V = 276.00 OMEGA = 0.214 OMEGAH = 0.187 DIPOLE = 1.02 ETA = 0.28

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69894E 01 B = 0.1111CE 04 C = 0.21351E 03

2 A = 0.69033E 01 B = 0.11630E 04 C = 0.22740E 03

VAPOR PRESSURE AT NBP

P = 784.0 AT T = 57.8

P = 749.5 AT T = 61.3

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13600E 03 B = -.46705E 00 C = 0.92210E-03

2 A = C.61065E 02 B = 0.30264E-01 C = 0.11910E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 24

ID NUMBER = 8

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = -.83211E 00 B = 0.22259E 01 C = -.80629E 00

STANDARD DEVIATION = 0.30789E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 0.4351 G2INF = 0.5557

T1INF = 50.00 T2INF = 50.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS -0.1736

AREA BELOW THE X-AXIS IS C.1857

CROSS-OVER POINT IS X = 0.45

NORMALIZED AREA DIFFERENCE IS -0.0337

CONSISTENCY INDEX IS 3.37

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	41.12	-417.50	0.1297E-10	3.00	0.00466
2	109.52	-479.17	0.3796E-03	2.16	0.00337
3	70.46	-452.60	0.5658E-02	2.38	0.00340
4	30.64	-422.11	0.1362E-01	2.67	0.00414
5	127.46	-492.88	0.9531E-03	2.03	0.00330
6	118.78	-500.47	0.4228E-03	3.48	0.00262
7	135.50	-498.37	0.9609E-03	1.99	0.00333
8	135.56	-496.04	0.4379E-03	2.10	0.00346
9	136.06	-496.35	0.4381E-03	2.10	0.00346
10	72.34	-454.32	0.6192E-02	2.36	0.00338

METHYL ACETATE(1) CHLOROFORM(2) SYSTEM 0958

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	58.1	0.920C	0.953C	752.39	653.01	0.9546	0.9689	0.9958	C.6604	0.4107	-1232.80	-935.85	-1035.93
2	760.00	59.2	0.8510	0.9070	780.53	676.39	0.9553	0.9690	0.9884	0.6775	0.3777	-1218.30	-926.47	-1024.50
3	760.00	60.3	0.7820	0.8540	809.46	700.42	0.9560	0.9691	0.9773	0.7020	0.3308	-1204.03	-917.23	-1013.24
4	760.00	61.4	0.7060	0.7910	839.2C	725.C8	C.9568	0.9691	0.9679	0.7199	0.2960	-1189.96	-908.13	-1002.16
5	760.00	62.4	0.6400	0.7190	866.95	748.C7	0.9575	C.9691	0.9401	0.7661	0.2047	-1177.37	-899.98	-992.23
6	760.00	63.2	0.5630	0.6310	889.64	766.86	0.9581	0.9690	0.9146	0.8084	0.1235	-1167.41	-893.55	-984.39
7	760.00	63.7	0.532C	0.592C	9C4.04	778.79	0.9585	0.9690	0.8940	0.8219	0.0841	-1161.25	-889.57	-979.54
8	760.00	64.2	0.4630	0.5020	918.62	79C.85	C.9591	0.9688	0.8577	C.8608	-0.0036	-1155.13	-885.61	-974.72
9	760.00	64.7	0.4060	0.4250	933.38	803.06	0.9596	0.9688	0.8155	0.8848	-0.0816	-1149.C4	-881.68	-969.94
10	760.00	64.7	0.3350	0.3270	933.3E	803.06	C.9600	0.9685	0.7607	0.9248	-0.1953	-1149.04	-881.68	-969.94
11	760.00	64.6	0.2630	0.2360	930.41	800.61	0.9604	C.9683	0.7018	C.950C	-0.3027	-1150.26	-882.47	-970.89
12	760.00	64.2	0.2240	0.1910	918.62	790.85	C.9604	C.9681	0.6755	C.9669	-0.3587	-1155.13	-885.61	-974.72
13	760.00	63.7	0.1710	0.1300	904.04	778.79	0.9605	0.9679	0.6120	0.9882	-0.4791	-1161.25	-889.57	-979.54
14	760.00	63.5	C.1590	0.1170	898.26	774.C0	0.9605	0.9678	0.5962	0.9947	-0.5119	-1163.71	-891.16	-981.48
15	760.00	62.2	0.0640	0.0400	861.35	743.43	C.96C2	0.9672	0.5279	1.C11C	-0.6497	-1179.87	-901.60	-994.20

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 506.90 P = 46.3C V = 228.00 OMEGA = 0.326 OMEGAH = 0.215 DIPOLE = 1.72 ETA = 0.62

2 T = 536.60 P = 54.00 V = 276.0C OMEGA = 0.214 OMEGAH = 0.187 DIPOLE = 1.02 ETA = 0.28

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69894E C1 B = 0.11110E 04 C = 0.21351E 03

2 A = 0.69033E 01 B = 0.11630E 04 C = 0.22740E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13600E 03 B = -.46705E 00 C = 0.92210E-03

2 A = C.61065E C2 B = 0.30264E-01 C = C.11910E-03

VAPOR PRESSURE AT NBP

P = 784.C AT T = 57.8

P = 749.5 AT T = 61.3

COMPONENT ID ECHO CHECK

ID NUMBER = 24

ID NUMBER = 8

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = -.80782E CC B = 0.21513E 01 C = -.89701E 00

STANDARD DEVIATION = 0.14079E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 0.4458 G2INF = 0.6335

T1INF = 61.73 T2INF = 56.91

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS -0.1728

AREA BELOW THE X-AXIS IS 0.1449

CROSS-OVER POINT IS X = 0.46

NORMALIZED AREA DIFFERENCE IS 0.0876

HERINGTON J-FACTOR IS 3.54

CONSISTENCY INDEX IS 5.22

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	320.65	-558.23	C.3197F-12	7.07	0.00716
2	26.77	-381.88	0.2462F-03	2.55	0.00368
3	87.43	-435.09	0.6257F-02	3.36	0.00400
4	122.15	-460.68	C.1221F-01	3.72	0.00445
5	1.40	-366.69	0.8796E-03	3.00	0.00340
6	-13.69	-379.13	0.2781F-03	8.20	0.00219
7	-16.27	-351.27	C.9854F-C3	3.00	0.00362
8	14.15	-371.74	0.3229F-03	2.56	0.00370
9	7.74	-366.54	C.3222F-C3	2.57	0.00371
10	93.40	-435.06	0.9492E-02	2.86	0.00416

METHYL ACETATE(1) - CYCLOHEXANE(2) SYSTEM 10C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	74.3	0.033C	0.182C	1252.45	600.77	0.9713	0.9596	3.2410	1.0228	1.1534	-1040.08	-1161.43	-935.42
2	760.00	68.4	0.0850	0.3500	1048.15	499.72	0.9661	0.9584	2.8758	1.0312	1.0257	-1105.33	-1211.51	-974.59
3	760.00	64.9	C.142C	0.4430	939.33	446.27	0.9630	0.9579	2.4235	1.0547	0.8320	-1146.62	-1243.04	-999.15
4	760.00	59.7	0.2830	0.5750	793.59	375.14	C.9584	0.9578	1.8593	1.1454	0.4844	-1211.79	-1292.61	-1037.65
5	760.00	59.0	0.3130	0.5940	775.35	366.28	0.9578	C.9579	1.7763	1.1697	0.4178	-1220.92	-1299.55	-1043.03
6	760.00	57.9	0.3730	0.6250	747.36	352.70	0.9568	0.9581	1.6254	1.2296	0.2790	-1235.46	-1310.59	-1051.57
7	760.00	56.8	C.475C	0.6640	720.13	339.5C	C.9557	C.9585	1.4056	1.3675	0.0275	-1250.23	-1321.80	-1060.25
8	760.00	56.7	0.5070	0.6730	717.69	338.32	C.9555	C.9587	1.3391	1.4225	-0.0604	-1251.58	-1322.83	-1061.04
9	760.00	56.0	0.6160	0.7140	700.80	330.15	0.9547	0.9594	1.1964	1.6380	-0.3142	-1261.11	-1330.06	-1066.63
10	760.00	55.8	0.6880	0.7440	696.04	327.84	0.9543	0.9601	1.1233	1.8185	-0.4817	-1263.86	-1332.14	-1068.23
11	760.00	55.7	0.7220	0.7590	693.66	326.7C	C.9541	C.9604	1.0955	1.9288	-0.5656	-1265.23	-1333.18	-1069.04
12	760.00	55.5	0.7810	0.7850	688.93	324.41	0.9537	0.9611	1.0596	2.1604	-0.7124	-1267.98	-1335.27	-1070.65
13	760.00	55.5	0.8350	0.8200	690.11	324.98	C.9535	C.9620	1.0281	2.4441	-0.8660	-1267.29	-1334.75	-1070.25
14	760.00	55.8	C.9400	0.9140	696.04	327.84	0.9533	0.9649	1.0090	3.1928	-1.1519	-1263.86	-1332.14	-1068.23

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 506.90 P = 46.30 V = 228.00 OMEGA = 0.326 OMEGAH = 0.215 DIPOLE = 1.72 ETA = 0.62

2 T = 553.20 P = 40.CC V = 311.20 OMEGA = 0.210 OMEGAH = 0.0 DIPOLE = 0.0 ETA = C.C

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69894E 01 B = 0.11110E 04 C = 0.21351E 03

2 A = C.6845CE C1 B = C.12035E 04 C = 0.22286E 03

VAPOR PRESSURE AT NBP

P = 784.C AT T = 57.8

P = 759.1 AT T = 8C.7

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13600E 03 B = -.46705E 00 C = 0.92210E-03

2 A = C.92914E C2 B = -.24859E-01 C = 0.26157E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 24

ID NUMBER = 9

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.12175E 01 B = -.25221E 01 C = 0.35190E-01

STANDARD DEVIATION = 0.20138E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 3.3788 G2INF = 3.5585

T1INF = 8C.74 T2INF = 56.91

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2952

AREA BELOW THE X-AXIS IS -0.3270

CROSS-OVER POINT IS X = 0.49

NORMALIZED AREA DIFFERENCE IS -0.0511

HERINGTON J-FACTOR IS 11.52

CONSISTENCY INDEX IS -6.41

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	721.49	267.82	0.3529E-09	8.02	0.00546
2	955.20	140.39	0.3670E-03	7.26	0.00966
3	724.97	304.59	0.2014E-01	5.28	0.00597
4	748.68	277.97	0.7537E-02	4.71	0.00556
5	783.84	240.82	0.1738E-02	4.42	0.00498
6	778.64	205.32	0.6440E-03	10.34	0.00395
7	781.90	233.62	0.1511E-02	5.07	0.00473
8	800.49	237.81	0.4972E-03	3.71	0.00513
9	800.49	237.81	0.4970E-03	3.71	0.00513
10	724.80	305.62	0.1725E-02	5.28	0.00600

METIYL ACETATE(1) METHANOL(2) SYSTEM 101

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	418.50	50.0	0.0050	0.0180	568.21	402.25	0.9704	0.9710	2.5687	0.9962	0.9472	-1346.77	-1395.64	-1411.17
2	429.00	50.0	0.0125	0.0470	568.21	402.25	0.9698	0.9703	2.7482	0.9978	1.0132	-1346.77	-1395.64	-1411.17
3	431.00	50.0	0.0315	0.1050	568.21	402.25	0.9684	0.9687	2.6550	0.9983	0.9781	-1346.77	-1395.64	-1411.17
4	480.50	50.0	0.0600	0.1890	568.21	402.25	0.9666	0.9666	2.5698	0.9952	0.9486	-1346.77	-1395.64	-1411.17
5	567.00	50.0	0.1880	0.3810	568.21	402.25	0.9612	0.9604	1.9394	1.0308	0.6321	-1346.77	-1395.64	-1411.17
6	596.00	50.0	0.2590	0.4430	568.21	402.25	0.9594	0.9582	1.7171	1.0659	0.4768	-1346.77	-1395.64	-1411.17
7	641.00	50.0	0.4280	0.5560	568.21	402.25	0.9566	0.9548	1.3983	1.1795	0.1702	-1346.77	-1395.64	-1411.17
8	651.00	50.0	0.5000	0.5800	568.21	402.25	0.9560	0.9540	1.2672	1.2952	-0.0218	-1346.77	-1395.64	-1411.17
9	660.50	50.0	0.6080	0.6380	568.21	402.25	0.9555	0.9532	1.1624	1.4433	-0.2165	-1346.77	-1395.64	-1411.17
10	660.50	50.0	0.7290	0.7070	568.21	402.25	0.9556	0.9529	1.0744	1.6894	-0.4526	-1346.77	-1395.64	-1411.17
11	657.00	50.0	0.7830	0.7430	568.21	402.25	0.9559	0.9530	1.0460	1.8410	-0.5653	-1346.77	-1395.64	-1411.17
12	654.00	50.0	0.8160	0.7660	568.21	402.25	0.9561	0.9532	1.0303	1.9681	-0.6472	-1346.77	-1395.64	-1411.17
13	645.50	50.0	0.8640	0.8070	568.21	402.25	0.9567	0.9536	1.0125	2.1687	-0.7617	-1346.77	-1395.64	-1411.17
14	632.50	50.0	0.9110	0.8550	568.21	402.25	0.9577	0.9543	0.9979	2.4416	-0.8947	-1346.77	-1395.64	-1411.17
15	607.50	50.0	0.9720	0.9440	568.21	402.25	0.9594	0.9558	0.9937	2.8832	-1.0652	-1346.77	-1395.64	-1411.17

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 506.90 P = 46.30 V = 228.00 OMEGA = 0.326 OMEGAH = 0.215 DIPOLE = 1.72 ETA = 0.62

2 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69894E 01 B = 0.11110E 04 C = 0.21351E 03

2 A = 0.78786E 01 B = 0.14731E 04 C = 0.23000E 03

VAPOR PRESSURE AT NBP

P = 784.0 AT T = 57.8

P = 758.5 AT T = 64.7

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.13600E 03 B = -.46705E 00 C = 0.92210E-03

2 A = 0.64511E 02 B = -.15716E 00 C = 0.38735E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 24

ID NUMBER = 23

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10137E 01 B = -.18949E 01 C = -.20661E 00

STANDARD DEVIATION = 0.33902E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.7557 G2INF = 2.9679

T1INF = 50.00 T2INF = 50.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2614

AREA BELOW THE X-AXIS IS -0.2641

CROSS-OVER POINT IS X = 0.51

NORMALIZED AREA DIFFERENCE IS -0.0051

CONSISTENCY INDEX IS 0.51

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	-103.17	874.94	0.3729E-10	4.65	0.00284
2	-84.38	813.98	0.8011E-04	1.16	0.00537
3	-116.24	902.28	0.6222E-01	6.27	0.00290
4	-110.41	888.00	0.1216E-01	5.33	0.00276
5	-53.11	803.77	0.7498E-03	1.67	0.00339
6	-54.66	836.34	0.2993E-03	5.58	0.00261
7	-45.41	798.04	0.7293E-03	1.78	0.00322
8	-57.31	795.81	0.4989E-04	0.66	0.00443
9	-57.23	795.77	0.4988E-04	0.66	0.00442
10	-117.51	903.48	0.5224E-02	6.27	0.00290

METHYLETHYLKETONE(1)-HEPTANE(2) SYSTEM 102

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	96.1	C.0033	C.0600	1189.75	672.11	0.9727	0.9487	11.2601	1.0064	2.4149	-854.36	-1551.76	-1192.81
2	760.00	93.7	0.0270	0.1410	1113.01	627.07	0.9719	0.9475	3.4544	1.0084	1.2313	-869.97	-1578.22	-1212.14
3	760.00	89.4	C.0740	0.2850	984.81	552.10	0.9705	0.9453	2.8749	0.9994	1.0566	-898.86	-1627.49	-1248.08
4	760.00	86.4	0.1220	0.3755	902.17	503.96	0.9694	0.9438	2.5052	1.0069	0.9115	-919.76	-1663.35	-1274.19
5	760.00	82.3	0.2300	0.4950	796.62	442.72	0.9679	0.9416	1.9807	1.0543	0.6306	-949.75	-1715.11	-1311.80
6	760.00	79.9	0.3540	0.5720	742.32	411.33	0.9670	0.9403	1.5943	1.1448	0.3312	-966.93	-1744.95	-1333.44
7	760.00	80.0	0.3690	0.5780	744.62	412.66	0.9670	0.9404	1.5408	1.1520	0.2908	-966.17	-1743.64	-1332.49
8	760.00	78.3	0.4750	0.6320	706.24	390.53	0.9663	0.9395	1.3789	1.2746	0.0787	-979.13	-1766.21	-1348.85
9	760.00	78.2	0.5070	0.6450	702.93	388.63	0.9662	0.9394	1.3246	1.3157	0.0067	-980.29	-1768.23	-1350.31
10	760.00	77.4	0.6115	0.6910	686.55	379.20	0.9659	0.9391	1.2042	1.4888	-0.2122	-986.09	-1778.36	-1357.64
11	760.00	77.1	0.7060	0.7360	680.08	375.48	0.9657	0.9391	1.1213	1.6974	-0.4146	-988.42	-1782.44	-1360.60
12	760.00	77.0	0.7650	0.7685	676.86	373.63	0.9657	0.9391	1.0856	1.8714	-0.5446	-989.59	-1784.48	-1362.08
13	760.00	77.3	0.8640	0.8320	682.23	376.71	0.9657	0.9394	1.0324	2.3284	-0.8132	-987.64	-1781.08	-1359.61
14	760.00	78.1	0.9320	0.9080	700.73	387.36	0.9660	0.9402	1.0173	2.4821	-0.8920	-981.06	-1769.57	-1351.28
15	760.00	78.7	0.9730	0.9540	714.02	395.01	0.9662	0.9407	1.0049	3.0667	-1.1157	-976.44	-1761.52	-1345.45
16	760.00	79.0	0.9940	0.9870	721.86	399.53	0.9663	0.9411	1.0068	3.8573	-1.3432	-973.77	-1756.86	-1342.07

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 533.20 P = 39.50 V = 288.40 OMEGA = 0.337 OMEGAH = 0.215 DIPOLE = 2.70 ETA = 0.0

2 T = 540.20 P = 27.00 V = 431.90 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69742E 01 B = -0.12096E 04 C = 0.21600E 03

2 A = 0.69024E 01 B = -0.12681E 04 C = 0.21690E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.71193E 02 B = 0.96599E-02 C = 0.18100E-03

2 A = -0.12880E 03 B = -.60277E-01 C = -0.41160E-03

VAPOR PRESSURE AT NBP

P = 762.4 AT T = 79.6

P = 759.4 AT T = 98.4

COMPONENT ID ECHO CHECK

ID NUMBER = 28

ID NUMBER = 16

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.16234E 01 B = -.38836E 01 C = 0.11566E 01

STANDARD DEVIATION = 0.28228E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 5.0703 G2INF = 3.0151

T1INF = 98.43 T2INF = 79.50

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3746

AREA BELOW THE X-AXIS IS -0.3075

CROSS-OVER POINT IS X = 0.49

NORMALIZED AREA DIFFERENCE IS -0.0984

HERINGTON J-FACTOR IS 9.18

CONSISTENCY INDEX IS 0.66

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1342.81	-103.15	0.4457E-10	23.65	0.02226
2	740.97	195.54	0.5275E-03	5.70	0.01012
3	2621.82	-696.41	0.1560E 02	58.04	0.04484
4	1080.01	-3.08	0.5342E 00	13.38	0.01293
5	922.92	59.84	0.9935E-02	7.59	0.01030
6	891.57	116.53	0.5671E-02	10.05	0.00931
7	864.72	116.29	0.4643E-02	8.21	0.00968
8	960.81	20.41	0.3860E-02	7.84	0.01083
9	961.84	19.62	0.3861E-02	7.85	0.01084
10	1850.53	-193.62	0.2483E 00	45.08	0.03826

METHYL ETHYL KETONE(1) TOLUENE(2) SYSTEM 103

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	110.2	0.0045	0.0140	1721.98	719.72	0.9751	0.9616	1.3345	1.0020	0.2866	-769.42	-1206.06	-996.96
2	760.00	109.9	0.0085	0.0290	1708.26	713.38	0.9750	0.9615	1.4752	0.9994	0.3894	-771.23	-1208.55	-998.94
3	760.00	109.3	0.0175	0.0555	1681.51	701.02	0.9749	0.9613	1.3929	0.9981	0.3333	-774.81	-1213.49	-1002.84
4	760.00	107.2	0.0405	0.1281	1596.54	661.93	0.9745	0.9606	1.4625	0.9984	0.3818	-786.59	-1229.78	-1015.72
5	760.00	104.2	0.0850	0.2350	1477.87	607.74	0.9739	0.9595	1.3801	0.9993	0.3228	-804.23	-1254.30	-1035.06
6	760.00	102.3	0.1190	0.3043	1405.38	574.88	0.9734	0.9587	1.3417	0.9971	0.2969	-815.77	-1270.44	-1047.76
7	760.00	99.5	0.1800	0.3950	1306.86	530.53	0.9727	0.9577	1.2373	1.0083	0.2047	-832.54	-1294.00	-1066.26
8	760.00	98.7	0.1981	0.4200	1277.25	517.28	0.9725	0.9573	1.2229	1.0134	0.1879	-837.85	-1301.49	-1072.13
9	760.00	97.1	0.2359	0.4709	1222.86	493.02	0.9721	0.9567	1.2020	1.0173	0.1669	-847.96	-1315.80	-1083.33
10	760.00	94.3	0.3127	0.5521	1131.83	452.69	0.9713	0.9555	1.1478	1.0414	0.0972	-866.03	-1341.49	-1103.40
11	760.00	91.8	0.3982	0.6280	1056.41	419.55	0.9706	0.9545	1.0976	1.0647	0.0304	-882.25	-1364.70	-1121.48
12	760.00	89.9	0.4682	0.6854	999.12	394.56	0.9700	0.9537	1.0765	1.0825	-0.0056	-895.44	-1383.67	-1136.23
13	760.00	87.8	0.5479	0.7428	941.43	369.55	0.9693	0.9528	1.0574	1.1105	-0.0490	-909.58	-1404.12	-1152.10
14	760.00	86.8	0.5858	0.7708	911.54	356.65	0.9690	0.9524	1.0595	1.1186	-0.0543	-917.29	-1415.31	-1160.76
15	760.00	85.8	0.6420	0.8027	886.29	345.80	0.9686	0.9519	1.0351	1.1486	-0.1040	-924.02	-1425.11	-1168.34
16	760.00	84.8	0.6924	0.8342	861.58	335.21	0.9683	0.9515	1.0257	1.1583	-0.1217	-930.81	-1435.02	-1176.00
17	760.00	84.4	0.7012	0.8396	850.06	330.28	0.9682	0.9513	1.0330	1.1706	-0.1250	-934.05	-1439.76	-1179.66
18	760.00	83.1	0.7846	0.8858	818.67	316.89	0.9677	0.9508	1.0109	1.2043	-0.1751	-943.13	-1453.06	-1189.92
19	760.00	82.6	0.8015	0.8955	806.36	311.66	0.9676	0.9506	1.0155	1.2156	-0.1799	-946.80	-1458.45	-1194.07
20	760.00	81.8	0.8611	0.9281	785.76	302.92	0.9673	0.9502	1.0050	1.2293	-0.2015	-953.08	-1467.68	-1201.18
21	760.00	80.5	0.9350	0.9629	755.04	289.93	0.9668	0.9497	0.9988	1.4153	-0.3485	-962.78	-1482.00	-1212.20
22	760.00	79.8	0.9774	0.9878	740.02	283.60	0.9666	0.9494	0.9999	1.3681	-0.3135	-967.69	-1489.26	-1217.77

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 533.20 P = 39.50 V = 288.40 OMEGA = 0.337 OMEGAH = 0.215 DIPOLE = 2.70 ETA = 0.0

2 T = 594.00 P = 40.00 V = 331.10 OMEGA = 0.241 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69742E 01 B = 0.12096E 04 C = 0.21600E 03

2 A = 0.69533E 01 B = 0.13439E 04 C = 0.21938E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.71193E 02 B = 0.96599E-02 C = 0.18100E-03

2 A = 0.98864E 02 B = -.55774E-01 C = 0.27703E-03

VAPOR PRESSURE AT NBP

P = 762.4 AT T = 79.6

P = 759.4 AT T = 110.6

COMPONENT ID ECHO CHECK

ID NUMBER = 28

ID NUMBER = 33

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.36076E 00 B = -.80422E 00 C = 0.12360E 00

STANDARD DEVIATION = 0.33257E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.4344 G2INF = 1.3769

T1INF = 110.63 T2INF = 79.50

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0851

AREA BELOW THE X-AXIS IS -0.0852

CROSS-OVER POINT IS X = 0.48

NORMALIZED AREA DIFFERENCE IS -0.0009

HERINGTON J-FACTOR IS 13.24

CONSISTENCY INDEX IS -13.15

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	395.65	-120.51	0.4547E-11	3.89	0.00282
2	321.77	-79.24	0.1213E-03	2.63	0.00297
3	390.82	-117.94	0.3558E-01	3.81	0.00280
4	397.20	-126.99	0.1963E-01	3.50	0.00264
5	495.16	-205.38	0.8189E-03	2.63	0.00215
6	573.35	-255.81	0.2968E-03	3.19	0.00219
7	467.69	-189.93	0.6647E-03	2.63	0.00221
8	440.21	-173.13	0.3874E-03	2.50	0.00226
9	440.21	-173.13	0.3875E-03	2.50	0.00226
10	370.62	-101.50	0.4247E-01	3.88	0.00288

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION
SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

METHYL ETHYL KETONE(1) — WATER(2) SYSTEM 104

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	93.2	0.0040	0.1840	1097.49	584.58	0.9730	0.9823	30.8931	1.0456	3.3859	-873.27	-534.94	-657.96
2	760.00	92.0	0.0050	0.2070	1060.92	559.22	0.9726	0.9821	28.7486	1.0631	3.2974	-881.24	-538.90	-663.55
3	760.00	84.6	0.0110	0.3940	855.17	422.06	0.9695	0.9813	30.7578	1.0820	3.3473	-932.61	-564.04	-699.39
4	760.00	81.2	0.0170	0.5150	771.47	369.13	0.9679	0.9811	28.7889	0.9960	3.3640	-957.54	-576.01	-716.70
5	760.00	75.5	0.0360	0.6180	645.33	292.81	0.9655	0.9806	19.4545	1.0079	2.9602	-1001.39	-596.69	-747.00
6	760.00	74.4	0.1970	0.6450	622.92	279.72	0.9650	0.9805	3.8419	1.1770	1.1830	-1010.17	-600.78	-753.05
7	760.00	74.4	0.5500	0.6450	622.92	279.72	0.9650	0.9805	1.3761	2.1003	-0.4228	-1010.17	-600.78	-753.05
8	760.00	73.8	0.6350	0.6540	610.96	272.79	0.9648	0.9805	1.2319	2.5877	-0.7422	-1015.00	-603.02	-756.38
9	760.00	73.3	0.6550	0.6550	601.13	267.12	0.9646	0.9804	1.2154	2.7875	-0.8300	-1019.05	-604.90	-759.16
10	760.00	73.6	0.6650	0.6570	607.01	270.51	0.9647	0.9804	1.1893	2.8185	-0.8628	-1016.62	-603.77	-757.49
11	760.00	73.5	0.6670	0.6610	605.05	269.38	0.9647	0.9804	1.1967	2.8141	-0.8550	-1017.43	-604.14	-758.04
12	760.00	73.9	0.7090	0.6710	612.94	273.94	0.9648	0.9806	1.1283	3.0737	-1.0021	-1014.19	-602.65	-755.82
13	760.00	73.8	0.7210	0.6760	610.96	272.79	0.9647	0.9806	1.1214	3.1705	-1.0393	-1015.00	-603.02	-756.38
14	760.00	73.7	0.7290	0.6760	608.98	271.65	0.9647	0.9806	1.1126	3.2777	-1.0804	-1015.81	-603.39	-756.93
15	760.00	73.8	0.7440	0.6830	610.96	272.79	0.9647	0.9806	1.0979	3.3808	-1.1247	-1015.00	-603.02	-756.38
16	760.00	74.0	0.7750	0.6960	614.93	275.09	0.9648	0.9807	1.0672	3.6584	-1.2320	-1013.39	-602.27	-755.26
17	760.00	73.5	0.7840	0.6980	605.05	269.38	0.9646	0.9806	1.0750	3.8657	-1.2798	-1017.43	-604.14	-758.04
18	760.00	73.9	0.8090	0.7070	612.94	273.94	0.9647	0.9808	1.0535	3.9836	-1.3300	-1014.19	-602.65	-755.82
19	760.00	73.9	0.8030	0.7070	612.94	273.94	0.9647	0.9808	1.0496	4.0443	-1.3489	-1014.19	-602.65	-755.82
20	760.00	74.1	0.8360	0.7280	616.92	276.24	0.9647	0.9809	1.0315	4.4730	-1.4671	-1012.58	-601.90	-754.71
21	760.00	73.8	0.8480	0.7360	610.96	272.79	0.9646	0.9809	1.0379	4.7434	-1.5195	-1015.00	-603.02	-756.38
22	760.00	74.5	0.8800	0.7670	624.94	280.89	0.9648	0.9812	1.0192	5.1514	-1.6202	-1009.36	-600.41	-752.50
23	760.00	75.3	0.9120	0.8160	641.20	290.39	0.9650	0.9816	1.0200	5.3682	-1.6607	-1002.98	-597.43	-748.10
24	760.00	76.4	0.9580	0.8980	664.11	303.90	0.9654	0.9823	1.0321	5.9623	-1.7539	-994.29	-593.37	-742.11
25	760.00	77.0	0.9770	0.9290	676.86	311.49	0.9656	0.9827	1.0274	7.3965	-1.9739	-989.59	-591.17	-738.86
26	760.00	78.3	0.9930	0.9630	705.14	328.46	0.9660	0.9831	1.0063	12.0156	-2.4799	-979.52	-586.43	-731.91

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1	T = 533.20	P = 39.50	V = 288.40	OMEGA = 0.337	OMEGAH = 0.215	DIPOLE = 2.70	ETA = 0.0
2	T = 647.40	P = *****	V = 55.20	OMEGA = 0.344	OMEGAH = 0.010	DIPOLE = 1.85	ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1	A = 0.69742E 01	B = 0.12096E 04	C = 0.21600E 03
2	A = 0.79668E 01	B = 0.16682E 04	C = 0.22800E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1	A = 0.71193E 02	B = 0.96599E-02	C = 0.18100E-03
2	A = 0.22887E 02	B = -.36416E-01	C = 0.68556E-04

VAPOR PRESSURE AT NBP

P = 762.4 AT T = 75.6

P = 760.0 AT T = 100.0

COMPONENT ID ECHO CHECK

ID NUMBER = 28

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY-RATIO EQUATION COEFFICIENTS

A = 0.33120E 01 B = -.82386E 01 C = 0.29384E 01

STANDARD DEVIATION = 0.18480E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 27.4405 G2INF = 7.3022

T1INF = 100.00 T2INF = 79.50

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.7491

AREA BELOW THE X-AXIS IS -0.5769

CROSS-OVER POINT IS X = 0.49

NORMALIZED AREA DIFFERENCE IS 0.1298

HERINGTON J-FACTOR IS 11.56

CONSISTENCY INDEX IS 1.42

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	782.10	1895.69	C.4800E-07	28.26	0.02951
2	10029.63	1840.47	0.1193E-01	68.93	0.05205
3	898.56	2156.45	C.6879E 02	30.55	0.02009
4	964.87	2016.90	0.3171E-00	18.21	0.02027
5	1119.19	1983.00	C.4432E-01	12.58	0.02129
6	980.90	2077.56	0.2603E-01	22.16	0.01958
7	1129.61	1955.08	C.4109E-01	11.88	0.02185
8	1200.35	1944.17	0.1148E-01	11.18	0.02266
9	1200.23	1944.26	0.1147E-01	11.18	0.02265
10	915.47	2105.47	0.5437E-01	26.29	0.01991

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

METHYLCYCLOHEXANE(1) — 1-BUTANOL(2) SYSTEM 105

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	112.5	C.050C	0.207C	98C.1C	610.54	0.9644	0.9674	3.0820	1.0019	1.1237	-1212.77	-1C37.9€	-1C57.0C
2	760.00	109.6	0.1000	0.3240	887.45	529.57	0.9625	0.9662	2.6585	1.0381	0.9404	-1242.75	-1073.54	-1083.20
3	760.00	104.0	C.2000	0.4730	786.62	445.26	0.96C1	0.9651	2.1838	1.C815	0.7027	-1279.7C	-1117.88	-1115.49
4	760.00	101.3	0.3000	0.5580	731.56	401.02	C.9587	C.9645	1.8441	1.1504	0.4719	-1302.25	-1145.17	-1135.20
5	760.00	99.4	0.4000	0.6190	694.56	372.05	0.9577	0.9642	1.6143	1.2465	0.2585	-1318.52	-1164.96	-1149.41
6	760.00	97.9	0.5000	0.665C	666.36	350.35	C.9569	0.9640	1.4449	1.3962	0.0343	-1331.60	-1180.94	-1160.84
7	760.00	96.9	0.600C	0.706C	648.04	336.52	0.9564	0.9640	1.3137	1.5947	-0.1939	-1340.45	-1191.77	-1168.57
8	760.00	96.6	0.7000	0.7330	642.62	332.45	0.9562	0.9641	1.1787	1.9550	-0.5060	-1343.12	-1195.04	-1170.91
9	760.00	96.6	C.8000	0.7560	642.62	332.45	C.9561	0.9643	1.0636	2.6805	-C.9243	-1343.12	-1195.C4	-117C.91
10	760.00	97.6	0.9000	0.8240	66C.83	346.18	C.9563	C.9654	1.0023	3.7176	-1.3108	-1334.24	-1184.17	-1163.15
11	760.00	98.6	0.9500	0.8950	679.41	360.37	0.9566	0.9665	1.0035	4.2662	-1.4473	-1325.47	-1173.44	-1155.48

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 572.30 P = 34.30 V = 372.40 OMEGA = 0.235 OMEGAH = 0.0 DIPOLE = C.C ETA = 0.0

2 T = 562.90 P = 43.60 V = 223.30 OMEGA = 0.667 OMEGAH = 0.252 DIPOLE = 1.65 ETA = 0.45

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68269E 01 B = 0.12729E 04 C = 0.22163E 03

2 A = 0.73637E C1 B = 0.13052E 04 C = 0.17343E 03

VAPOR PRESSURE AT NBP

P = 759.3 AT T = 10C.9

P = 767.4 AT T = 116.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.11310E 03 B = -.38740E-01 C = 0.30202E-03

2 A = 0.87376E C2 B = -.73723E-01 C = 0.30337E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 26

ID NUMBER = 43

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.11327E C1 B = -.1662CE 01 C = -.11104E 01

STANDARD DEVIATION = 0.57277E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 3.1042 G2INF = 5.1538

T1INF = 117.73 T2INF = 100.93

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3125

AREA BELOW THE X-AXIS IS -0.3809

CROSS-OVER POINT IS X = C.51

NORMALIZED AREA DIFFERENCE IS -0.0987

HERINGTON J-FACTOR IS 8.57

CONSISTENCY INDEX IS 1.30

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	85.75	1194.56	0.4547E-10	11.16	0.01424
2	254.94	1106.72	0.4050E-03	10.59	0.01395
3	142.39	1243.03	0.2079E 00	6.10	0.01395
4	152.11	1216.71	0.3666E-01	5.83	0.01341
5	157.62	1160.63	0.5830E-02	5.84	0.01305
6	196.13	1060.77	0.4587E-02	8.76	0.01209
7	176.79	1095.78	0.4692E-02	7.75	0.01251
8	117.57	1237.66	0.7159E-03	5.49	0.01395
9	117.90	1236.95	0.7157E-03	5.49	0.01395
10	124.70	1251.41	0.1240E-01	5.78	0.01416

METHYLCYCLOHEXANE(1) - PHENOL(2) SYSTEM 106

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	150.0	0.1140	0.6775	2253.67	286.52	C.97C6	C.9761	1.9368	C.9398	0.7232	-975.18	-629.36	-1021.13
2	760.00	130.0	C.2620	0.871C	1483.77	142.24	0.9667	0.9671	1.6389	0.9005	0.5988	-1091.68	-72C.92	-1149.15
3	760.00	102.2	0.9611	0.9741	749.58	46.C6	C.9579	C.9534	0.9799	10.4411	-2.3661	-1294.66	-908.83	-1379.16
4	760.00	101.7	0.9874	0.9914	739.53	45.05	0.9577	0.9525	0.9837	10.9336	-2.4082	-1298.86	-913.11	-1384.02
5	760.00	101.1	0.9952	C.9963	727.59	43.87	0.9575	0.9521	0.9967	12.6759	-2.5430	-1303.94	-918.30	-1389.90

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 572.30 P = 34.30 V = 372.40 OMEGA = 0.235 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 692.20 P = 60.50 V = 229.50 OMEGA = 0.449 OMEGAH = 0.241 DIPOLE = 1.45 ETA = C.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68269E 01 B = 0.12729E 04 C = 0.22163E 03

2 A = 0.75789E 01 B = 0.18170E 04 C = 0.20500E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.11310E 03 B = -.3874CE-01 C = 0.30202E-03

2 A = 0.80964E 02 B = -.20853E-01 C = 0.14800E-03

VAPOR PRESSURE AT NBP

P = 759.3 AT T = 100.9

P = 763.2 AT T = 181.9

COMPONENT ID ECHO CHECK

ID NUMBER = 26

ID NUMBER = 32

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.73355E 00 B = 0.40601E 00 C = -.37065E 01

STANDARD DEVIATION = 0.69823E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.0825 G2INF = 13.0254

T1INF = 181.75 T2INF = 100.93

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS C.2631

AREA BELOW THE X-AXIS IS -0.5620

CROSS-OVER POINT IS X = 0.50

NORMALIZED AREA DIFFERENCE IS -0.3623

HERINGTON J-FACTOR IS 32.41

CONSISTENCY INDEX IS 3.82

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-547.51	2501.18	0.1319E-08	13.12	0.00998
2	-97C.43	3399.25	0.3591E-03	72.51	0.03745
3	196.12	1898.05	0.7325E 01	163.99	0.02383
4	-410.24	2474.37	C.2C69E 00	43.20	0.00369
5	-167.48	1036.14	0.2794E-02	5.21	0.01374
6	-465.13	292C.C2	C.2109E-03	41.08	0.00361
7	-136.42	1C19.17	C.2322E-02	8.94	0.01265
8	-125.48	941.55	0.1258E-03	2.34	0.01476
9	-125.35	941.31	C.1256E-C3	2.34	0.01476
10	-518.47	2626.80	0.7644E-01	22.40	0.00701

DIAGNOSTIC

4 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

METHYLCYCLOHEXANE(1) — TOLUENE(2) SYSTEM 107

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	593.84	100.0	C.1002	0.1523	706.48	537.97	0.9665	0.9671	1.2304	1.0027	0.2046	-1313.17	-1289.89	-1301.59
2	624.22	100.0	0.2000	0.2775	706.48	537.97	0.9648	0.9654	1.1783	1.0085	0.1556	-1313.17	-1289.89	-1301.59
3	624.59	100.0	0.2000	0.2772	706.48	537.97	C.9647	C.9654	1.1777	1.0095	0.1541	-1313.17	-1289.89	-1301.59
4	648.85	100.0	0.2990	0.3800	706.48	537.97	0.9634	0.9640	1.1201	1.0250	0.0887	-1313.17	-1289.89	-1301.59
5	649.59	100.0	0.3005	0.3815	706.48	537.97	0.9633	0.9640	1.1201	1.0258	C.0879	-1313.17	-1289.89	-1301.59
6	671.34	100.0	0.4003	0.4775	706.48	537.97	C.9621	C.9628	1.0861	1.0433	0.0403	-1313.17	-1289.89	-1301.59
7	670.58	100.0	0.4003	0.4785	706.48	537.97	0.9621	0.9628	1.0872	1.0401	0.0443	-1313.17	-1289.89	-1301.59
8	689.36	100.0	0.4995	0.5655	706.48	537.97	C.9611	C.9618	1.0573	1.0662	-0.0084	-1313.17	-1289.89	-1301.59
9	705.29	100.C	C.5995	0.6505	706.48	537.97	C.9602	C.9609	1.0357	1.0954	-0.0561	-1313.17	-1289.89	-1301.59
10	705.59	100.0	0.6000	0.6500	706.48	537.97	0.9602	0.9609	1.0344	1.0988	-0.0604	-1313.17	-1289.89	-1301.59
11	717.89	100.C	C.6995	0.7360	706.48	537.97	0.9595	0.9602	1.0214	1.1216	-0.0936	-1313.17	-1289.89	-1301.59
12	719.13	100.0	0.7002	0.7365	706.48	537.97	0.9594	0.9601	1.0228	1.1246	-0.0944	-1313.17	-1289.89	-1301.59
13	727.49	100.0	C.7995	0.8205	706.48	537.97	0.9589	0.9597	1.0089	1.1576	-0.1374	-1313.17	-1289.89	-1301.59
14	727.55	100.0	0.7995	0.8195	706.48	537.97	C.9589	C.9596	1.0078	1.1641	-0.1442	-1313.17	-1289.89	-1301.59
15	735.61	100.0	0.9005	0.9080	706.48	537.97	0.9585	0.9592	1.0018	1.2083	-0.1873	-1313.17	-1289.89	-1301.59

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 572.30 P = 34.30 V = 372.40 OMEGA = 0.235 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 594.00 P = 40.00 V = 331.10 OMEGA = 0.241 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68269E 01 B = 0.12729E 04 C = 0.22163E 03

2 A = 0.69533E 01 B = 0.13439E 04 C = 0.21938E 03

VAPOR PRESSURE AT NBP

P = 759.3 AT T = 100.9

P = 759.4 AT T = 110.6

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.11310E 03 B = -.38740E-01 C = 0.30202E-03

2 A = C.98864E C2 B = -.55774E-C1 C = 0.27703E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 26

ID NUMBER = 33

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.26657E 00 B = -.61235E 00 C = 0.12680E 00

STANDARD DEVIATION = 0.50406E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS.

G1INF = 1.3055 G2INF = 1.2448

T1INF = 100.02 T2INF = 100.02

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0621

AREA BELOW THE X-AXIS IS -0.0594

CROSS-OVER POINT IS X = 0.48

NORMALIZED AREA DIFFERENCE IS 0.0220

CONSISTENCY INDEX IS 2.20

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	107.59	91.65	0.9095E-12	0.53	0.00090
2	27.74	151.24	0.6668E-05	0.42	0.00091
3	83.40	113.22	0.3150E-03	0.47	0.00081
4	80.15	115.79	0.2481E-03	0.46	0.00080
5	62.54	130.16	0.3996E-04	0.41	0.00080
6	70.68	124.61	0.2999E-04	0.49	0.00078
7	51.84	139.44	0.3505E-04	0.42	0.00085
8	51.08	139.67	0.8514E-05	0.41	0.00086
9	51.08	139.67	0.8514E-05	0.41	0.00086
10	82.08	114.22	0.1966E-02	0.46	0.00080

METHYLCYCLOPENTANE(1) — BENZENE(2) SYSTEM 108

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	79.6	0.0297	0.0526	911.05	722.08	0.9628	0.9664	1.4164	0.9898	0.3584	-1075.90	-973.47	-1025.21
2	760.00	77.6	0.1080	0.1668	860.39	679.21	0.9621	0.9657	1.3069	1.0060	0.2617	-1090.92	-987.31	-1039.64
3	760.00	76.6	0.1751	0.2533	836.10	658.72	0.9617	0.9653	1.2592	1.0048	0.2257	-1098.49	-994.28	-1046.91
4	760.00	74.8	0.3017	0.3870	794.36	623.62	0.9610	0.9647	1.1744	1.0286	0.1325	-1112.10	-1006.84	-1059.99
5	760.00	74.0	0.3806	0.4598	774.88	607.27	0.9607	0.9644	1.1335	1.0491	0.0773	-1118.73	-1012.97	-1066.37
6	760.00	73.4	0.4450	0.5179	762.02	596.50	0.9605	0.9642	1.1101	1.0636	0.0428	-1123.22	-1017.12	-1070.69
7	760.00	72.8	0.5737	0.6255	748.87	585.51	0.9602	0.9640	1.0580	1.0956	-0.0349	-1127.89	-1021.44	-1075.19
8	760.00	72.1	0.6434	0.6795	731.75	571.21	0.9599	0.9637	1.0485	1.1486	-0.0912	-1134.12	-1027.21	-1081.19
9	760.00	72.0	0.7206	0.7442	729.80	569.57	0.9599	0.9637	1.0280	1.1733	-0.1322	-1134.85	-1027.87	-1081.88
10	760.00	71.5	0.8224	0.8299	720.50	561.82	0.9597	0.9635	1.0172	1.2442	-0.2014	-1138.31	-1031.08	-1085.22
11	760.00	71.5	0.9030	0.9034	719.00	560.57	0.9597	0.9635	1.0106	1.2965	-0.2492	-1138.88	-1031.60	-1085.76
12	760.00	71.5	0.9180	0.9174	720.29	561.65	0.9597	0.9635	1.0077	1.3089	-0.2616	-1138.39	-1031.16	-1085.30
13	760.00	71.6	0.9373	0.9360	722.87	563.80	0.9598	0.9635	1.0034	1.3213	-0.2753	-1137.42	-1030.26	-1084.36
14	760.00	71.7	0.9450	0.9442	723.52	564.34	0.9598	0.9636	1.0030	1.3121	-0.2686	-1137.18	-1030.03	-1084.13
15	760.00	71.8	0.9518	0.9503	726.11	566.50	0.9598	0.9636	0.9988	1.3285	-0.2853	-1136.21	-1029.14	-1083.20

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 532.80 P = 37.40 V = 319.00 OMEGA = 0.231 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68628E 01 B = 0.11861E 04 C = 0.22604E 03

2 A = 0.69056E 01 B = 0.12116E 04 C = 0.22079E 03

VAPOR PRESSURE AT NBP

P = 759.7 AT T = 71.8

P = 760.0 AT T = 80.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.10427E 03 B = -.86757E-01 C = 0.39000E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 27

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.36087E 00 B = -.7655CE 00 C = 0.98438E-01

STANDARD DEVIATION = 0.96503E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.4346 G2INF = 1.3582

T1INF = 80.10 T2INF = 71.81

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0889

AREA BELOW THE X-AXIS IS -0.0779

CROSS-OVER POINT IS X = 0.50

NORMALIZED AREA DIFFERENCE IS 0.0656

HERINGTON J-FACTOR IS 3.76

CONSISTENCY INDEX IS 2.80

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER	VALUES	OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	94.55	158.87	0.9095E-12	3.23	0.00211
2	-136.63	377.27	0.2537E-03	2.46	0.00173
3	83.24	167.78	0.2636E-02	3.12	0.00203
4	67.27	180.08	0.1998E-02	2.99	0.00192
5	-86.31	322.52	0.3431E-03	2.40	0.00148
6	-70.81	305.72	0.8388E-04	2.47	0.00145
7	-101.59	338.19	0.3341E-03	2.41	0.00152
8	-116.46	355.17	0.2538E-03	2.37	0.00159
9	-116.42	355.17	0.2538E-03	2.37	0.00159
10	89.35	163.61	0.5089E-02	3.21	0.00208

METHYLCYCLOPENTANE(2) — HEXANE(1) SYSTEM 109

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	71.8	0.0250	0.0350	788.62	725.03	0.9546	0.9598	1.2815	0.9915	0.2565	-1282.86	-1136.62	-1210.65
2	760.00	71.5	0.0815	0.0980	783.97	720.72	0.9545	0.9597	1.1071	0.9896	0.1122	-1284.73	-1138.23	-1212.39
3	760.00	71.4	0.1230	0.1420	780.50	717.50	0.9544	0.9597	1.0676	0.9903	0.0752	-1286.13	-1139.44	-1213.70
4	760.00	71.2	0.1680	0.1880	775.89	713.22	0.9544	0.9596	1.0409	0.9937	0.0464	-1288.01	-1141.06	-1215.45
5	760.00	71.0	0.2220	0.2480	771.30	708.97	0.9543	0.9595	1.0452	0.9900	0.0543	-1289.89	-1142.69	-1217.20
6	760.00	70.8	0.2730	0.3000	767.87	705.78	0.9542	0.9594	1.0327	0.9905	0.0416	-1291.30	-1143.91	-1218.52
7	760.00	70.6	0.3260	0.3530	763.31	701.56	0.9541	0.9594	1.0235	0.9934	0.0299	-1293.19	-1145.54	-1220.28
8	760.00	70.6	0.3340	0.3590	762.18	700.50	0.9541	0.9593	1.0175	0.9975	0.0198	-1293.66	-1145.95	-1220.72
9	760.00	70.5	0.3590	0.3900	759.91	698.40	0.9540	0.9593	1.0314	0.9892	0.0418	-1294.61	-1146.76	-1221.60
10	760.00	70.4	0.3930	0.4240	757.65	696.30	0.9540	0.9593	1.0273	0.9893	0.0377	-1295.56	-1147.58	-1222.49
11	760.00	70.3	0.3960	0.4220	756.52	695.25	0.9540	0.9592	1.0162	0.9992	0.0169	-1296.03	-1147.99	-1222.93
12	760.00	70.3	0.4150	0.4380	755.39	694.21	0.9539	0.9592	1.0079	1.0045	0.0034	-1296.51	-1148.40	-1223.37
13	760.00	70.3	0.4300	0.4620	754.27	693.17	0.9539	0.9592	1.0276	0.9884	0.0388	-1296.98	-1148.81	-1223.81
14	760.00	70.2	0.4500	0.4720	753.14	692.12	0.9539	0.9592	1.0046	1.0068	-0.0022	-1297.45	-1149.22	-1224.25
15	760.00	70.1	0.4760	0.5020	750.89	690.03	0.9539	0.9591	1.0131	0.9997	0.0133	-1298.41	-1150.04	-1225.14
16	760.00	70.0	0.4930	0.5165	749.77	688.99	0.9538	0.9591	1.0079	1.0046	0.0033	-1298.88	-1150.45	-1225.59
17	760.00	69.9	0.5320	0.5625	747.53	686.92	0.9538	0.9591	1.0202	0.9877	0.0323	-1299.83	-1151.28	-1226.47
18	760.00	69.9	0.5470	0.5710	746.41	685.88	0.9538	0.9590	1.0087	1.0021	0.0066	-1300.31	-1151.69	-1226.92
19	760.00	69.8	0.6050	0.6230	743.06	682.78	0.9537	0.9590	0.9994	1.0144	-0.0149	-1301.74	-1152.92	-1228.25
20	760.00	69.7	0.6260	0.6480	741.95	681.75	0.9537	0.9590	1.0062	1.0019	0.0043	-1302.22	-1153.34	-1228.70
21	760.00	69.6	0.6660	0.6850	739.73	679.68	0.9536	0.9589	1.0027	1.0069	-0.0042	-1303.18	-1154.16	-1229.59
22	760.00	69.5	0.6790	0.6920	738.61	678.65	0.9536	0.9589	0.9950	1.0259	-0.0306	-1303.66	-1154.58	-1230.04
23	760.00	69.4	0.7400	0.7560	735.30	675.58	0.9535	0.9588	1.0018	1.0079	-0.0061	-1305.09	-1155.82	-1231.38
24	760.00	69.3	0.7580	0.7740	734.19	674.55	0.9535	0.9588	1.0028	1.0045	-0.0017	-1305.57	-1156.23	-1231.83
25	760.00	69.2	0.8110	0.8200	730.89	671.49	0.9534	0.9587	0.9974	1.0290	-0.0312	-1307.01	-1157.48	-1233.17
26	760.00	69.1	0.8330	0.8450	729.79	670.47	0.9534	0.9587	1.0022	1.0043	-0.0022	-1307.49	-1157.89	-1233.62
27	760.00	69.1	0.8450	0.8540	728.69	669.45	0.9534	0.9587	0.9999	1.0208	-0.0206	-1307.98	-1158.31	-1234.07
28	760.00	69.0	0.8820	0.8910	727.59	668.43	0.9534	0.9587	1.0010	1.0026	-0.0016	-1308.46	-1158.73	-1234.52
29	760.00	68.9	0.9250	0.9340	724.31	665.39	0.9533	0.9586	1.0050	0.9594	0.0464	-1309.90	-1159.98	-1235.86

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1	T = 507.90	P = 29.90	V = 372.40	OMEGA = 0.298	OMEGAH = 0.0	DIPOLE = 0.0	ETA = 0.0
2	T = 532.80	P = 37.40	V = 319.00	OMEGA = 0.231	OMEGAH = 0.0	DIPOLE = 0.0	ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1	A = 0.68778E 01	B = 0.11715E 04	C = 0.22437E 03
2	A = 0.68628E 01	B = 0.11861E 04	C = 0.22604E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1	A = 0.12596E 03	B = -.14456E 00	C = 0.54720E-03
2	A = 0.10427E 03	B = -.86757E-01	C = 0.39000E-03

VAPOR PRESSURE AT NBP

P = 759.0 AT T = 68.7

P = 759.7 AT T = 71.8

COMPONENT ID ECHO CHECK

ID NUMBER = 18

ID NUMBER = 27

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.18238E 00 B = -.59296E 00 C = 0.45061E 00

STANDARD DEVIATION = 0.27504E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.2001 G2INF = 0.9608

T1INF = 71.81 T2INF = 68.74

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

EQUATION SOLVED FOR X-INTERCEPT

ROOTS ARE: X = 0.82577E 00 AND X = 0.49014E 00

BOTH ROOTS ARE IN THE RANGE 0 TO 1

THERMODYNAMIC CONSISTENCY TEST IS ABORTED

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	833.69	-430.17	0.9237E-12	4.96	0.00868
2	-292.75	338.18	0.3631E-04	0.60	0.00392
3	775.48	-388.14	0.3644E-01	5.52	0.00776
4	704.45	-365.52	0.3288E-01	4.85	0.00714
5	-366.99	453.84	0.1272E-02	1.19	0.00367
6	-360.84	472.71	0.8866E-03	6.06	0.00338
7	-396.92	503.52	0.1308E-02	1.38	0.00364
8	-226.83	254.38	0.2168E-04	0.56	0.00396
9	-214.79	239.86	0.2157E-04	0.56	0.00397
10	307.05	-202.41	0.1825E 01	1.70	0.00481

OCTANE(1) — ETHYLCYCLOHEXANE(2) SYSTEM 110A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	50.00	52.2	0.1100	0.1270	55.26	49.03	0.9923	0.9933	1.0362	0.9932	0.0423	-3108.71	-2736.15	-2935.87
2	50.00	52.0	0.1940	0.2150	54.71	48.55	0.9923	0.9932	1.0046	0.9959	0.0087	-3115.32	-2741.62	-2941.96
3	50.00	51.7	0.2890	0.3140	54.02	47.95	0.9923	0.9932	0.9974	0.9989	-0.0014	-3123.78	-2748.61	-2949.76
4	50.00	51.4	0.3840	0.4140	53.34	47.36	0.9922	0.9932	1.0024	0.9972	0.0052	-3132.27	-2755.63	-2957.59
5	50.00	51.2	0.4810	0.5080	52.66	46.77	0.9922	0.9932	0.9946	1.0062	-0.0116	-3140.80	-2762.69	-2965.46
6	50.00	50.9	0.5930	0.6160	52.02	46.21	0.9922	0.9931	0.9903	1.0136	-0.0232	-3149.07	-2769.52	-2973.08
7	50.00	50.7	0.6890	0.7090	51.49	45.75	0.9922	0.9931	0.9895	1.0186	-0.0290	-3155.83	-2775.11	-2979.32
8	50.00	50.4	0.7910	0.8040	50.84	45.18	0.9922	0.9931	0.9914	1.0303	-0.0384	-3164.47	-2782.26	-2987.29
9	50.00	50.2	0.8980	0.9050	50.33	44.73	0.9921	0.9930	0.9930	1.0334	-0.0399	-3171.30	-2787.89	-2993.58

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 568.80 P = 24.50 V = 493.10 OMEGA = 0.394 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 594.50 P = 27.50 V = 390.90 OMEGA = 0.243 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69238E 01 B = -0.13551E 04 C = 0.20952E 03

2 A = 0.68704E 01 B = -0.13840E 04 C = -0.21513E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 125.7

P = 760.0 AT T = 131.8

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.14244E 03 B = -.49197E-01 C = 0.40167E-03

2 A = 0.12682E 03 B = -.35352E-01 C = 0.30278E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 41

ID NUMBER = 42

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.50428E-01 B = -.17169E 00 C = 0.79118E-01

STANDARD DEVIATION = 0.81616E-02

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.0517 G2INF = 1.0430

T1INF = 52.50 T2INF = 49.85

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0083

AREA BELOW THE X-AXIS IS -0.0173

CROSS-OVER POINT IS X = 0.35

NORMALIZED AREA DIFFERENCE IS -0.3537

HERINGTON J-FACTOR IS 1.23

CONSISTENCY INDEX IS 34.14

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	43.60	-4.03	0.0	0.51	0.00214
2	-1.12	3.49	0.1668E-04	0.05	0.00376
3	224.25	-147.15	0.1753E-02	0.35	0.00218
4	232.93	-153.06	0.1731E-02	0.34	0.00218
5	274.41	-191.22	0.2893E-03	0.12	0.00303
6	363.25	-220.75	0.5671E-04	0.51	0.00155
7	303.64	-207.25	0.3298E-03	0.14	0.00287
8	82.06	-65.78	0.1567E-04	0.05	0.00383
9	76.99	-61.76	0.1567E-04	0.05	0.00382
10	324.33	-209.30	0.8499E 00	0.32	0.00208

OCTANE(1) — ETHYLCYCLOHEXANE(2) SYSTEM 11CB

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	100.00	68.7	0.0990	0.1170	111.10	97.34	0.9874	0.9888	1.0494	0.9948	0.0534	-2675.36	-2377.14	-2536.14
2	100.00	68.3	0.1930	0.2170	109.65	96.09	0.9873	0.9888	1.0116	0.9977	0.0138	-2683.02	-2383.50	-2543.21
3	100.00	68.1	0.2960	0.3230	108.47	95.07	0.9873	0.9888	0.9924	0.9994	-0.0070	-2689.32	-2388.73	-2549.02
4	100.00	67.7	0.3850	0.4130	106.79	93.62	0.9873	0.9887	0.9910	1.0073	-0.0163	-2698.45	-2396.31	-2557.45
5	100.00	67.3	0.4920	0.5220	105.25	92.30	0.9872	0.9887	0.9944	1.0072	-0.0128	-2706.94	-2403.35	-2565.28
6	100.00	67.0	0.5990	0.6270	103.82	91.06	0.9872	0.9886	0.9965	1.0051	-0.0146	-2714.98	-2410.03	-2572.70
7	100.00	66.6	0.6890	0.7120	102.44	89.87	0.9871	0.9885	0.9950	1.0179	-0.0227	-2722.84	-2416.55	-2579.95
8	100.00	66.3	0.7830	0.7970	101.08	88.70	0.9871	0.9885	0.9932	1.0418	-0.0478	-2730.74	-2423.10	-2587.23
9	100.00	65.9	0.8890	0.8970	99.57	87.40	0.9870	0.9884	0.9994	1.0487	-0.0482	-2739.63	-2430.48	-2595.44

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 568.80 P = 24.50 V = 493.10 OMEGA = 0.394 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 594.50 P = 27.50 V = 390.90 OMEGA = 0.243 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69238E 01 B = 0.13551E 04 C = 0.20952E 03

2 A = 0.68704E 01 B = 0.13840E 04 C = 0.21513E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.14244E 03 B = -.49197E-01 C = 0.40167E-03

2 A = 0.12682E 03 B = -.35352E-01 C = 0.30278E-03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 125.7

P = 760.0 AT T = 131.8

COMPONENT ID ECHO CHECK

ID NUMBER = 41

ID NUMBER = 42

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.58311E-01 B = -.20665E 00 C = 0.10409E 00

STANDARD DEVIATION = 0.13005E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.0600 G2INF = 1.0452

T1INF = 69.04 T2INF = 65.70

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0092

AREA BELOW THE X-AXIS IS -0.0196

CROSS-OVER POINT IS X = 0.34

NORMALIZED AREA DIFFERENCE IS -0.3582

HERINGTON J-FACTOR IS 1.48

CONSISTENCY INDEX IS 34.34

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	68.90	-44.07	0.0	0.87	0.00255
2	-479.32	644.22	0.1425E-04	0.15	0.00529
3	297.59	-187.45	0.2793E-02	0.67	0.00213
4	316.24	-199.14	0.2698E-02	0.65	0.00207
5	339.37	-226.58	0.2973E-03	0.28	0.00288
6	486.45	-284.91	0.7587E-04	0.81	0.00170
7	386.52	-252.19	0.2201E-03	0.30	0.00267
8	-82.35	84.19	0.3593E-04	0.14	0.00396
9	-82.35	84.19	0.3595E-04	0.14	0.00396
10	423.23	-259.34	0.7497E 00	0.61	0.00178

OCTANE(1) — ETHYLCYCLOHEXANE(2) — SYSTEM 110C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	400.00	108.7	0.0950	0.1130	443.73	382.41	0.9669	0.9701	1.0336	0.9919	0.0412	-1959.64	-1780.03	-1875.26
2	400.00	108.2	0.1910	0.2150	436.49	376.21	0.9668	0.9699	0.9942	0.9980	-0.0038	-1967.26	-1786.42	-1882.30
3	400.00	107.7	0.2890	0.3170	429.98	370.64	0.9667	0.9698	0.9833	1.0027	-0.0195	-1974.22	-1792.27	-1888.74
4	400.00	107.1	0.3940	0.4240	422.79	364.48	0.9665	0.9696	0.9810	1.0087	-0.0279	-1982.07	-1798.85	-1896.00
5	400.00	106.6	0.4810	0.5130	416.44	359.05	0.9663	0.9695	0.9869	1.0108	-0.0239	-1989.11	-1804.76	-1902.51
6	400.00	106.1	0.5930	0.6230	409.54	353.15	0.9662	0.9693	0.9884	1.0143	-0.0259	-1996.91	-1811.30	-1909.73
7	400.00	105.5	0.6880	0.7100	402.61	347.21	0.9660	0.9691	0.9874	1.0350	-0.0470	-2004.91	-1818.00	-1917.11
8	400.00	105.0	0.7950	0.8110	396.50	341.98	0.9659	0.9689	0.9909	1.0421	-0.0503	-2012.09	-1824.02	-1923.75
9	400.00	104.6	0.8980	0.9080	391.66	337.84	0.9657	0.9688	0.9942	1.0318	-0.0371	-2017.86	-1828.87	-1929.09

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 568.80 P = 24.50 V = 493.10 OMEGA = 0.394 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 594.50 P = 27.50 V = 390.90 OMEGA = 0.243 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69238E 01 B = 0.13551E 04 C = 0.20952E 03

2 A = 0.68704E 01 B = 0.13840E 04 C = 0.21513E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.14244E 03 B = -.49197E-01 C = 0.40167E-03

2 A = 0.12682E 03 B = -.35352E-01 C = 0.30278E-03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 125.7

P = 760.0 AT T = 131.8

COMPONENT ID ECHO CHECK

ID NUMBER = 41

ID NUMBER = 42

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.51747E-01 B = -.26269E 00 C = 0.18072E 00

STANDARD DEVIATION = 0.11520E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.0531 G2INF = 1.0307

T1INF = 109.13 T2INF = 104.05

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0057

AREA BELOW THE X-AXIS IS -0.0250

CROSS-OVER POINT IS X = 0.23

NORMALIZED AREA DIFFERENCE IS -0.6298

HERINGTON J-FACTOR IS 2.02

CONSISTENCY INDEX IS 60.96

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	204.66	-124.71	0.0	3.84	0.00439
2	-17.27	18.25	0.3817E-04	0.65	0.00541
3	441.15	-275.56	0.4243E-02	2.83	0.00377
4	462.94	-287.66	0.4164E-02	2.73	0.00370
5	532.25	-336.06	0.5575E-03	1.35	0.00394
6	740.66	-398.72	0.1601E-03	4.35	0.00259
7	600.65	-366.19	0.4764E-03	1.54	0.00352
8	10.35	-8.44	0.2533E-04	0.59	0.00555
9	7.27	-5.87	0.2532E-04	0.59	0.00555
10	576.18	-346.57	0.1267E 01	2.24	0.00327

OCTANE(1) — ETHYLCYCLOHEXANE(2) — SYSTEM 11GD

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	500.00	116.1	0.1120	0.1320	550.25	473.61	0.9615	0.9650	1.0258	0.9926	0.0329	-1861.72	-1697.78	-1784.71
2	500.00	115.6	0.1900	0.2150	541.71	466.30	0.9613	0.9648	1.0002	0.9994	0.0009	-1868.74	-1703.68	-1791.20
3	500.00	115.0	0.2900	0.3180	533.12	458.94	0.9611	0.9646	0.9847	1.0062	-0.0216	-1875.92	-1709.72	-1797.85
4	500.00	114.5	0.3830	0.4160	525.54	452.45	0.9610	0.9645	0.9893	1.0055	-0.0163	-1882.38	-1715.14	-1803.82
5	500.00	114.0	0.4800	0.5120	518.04	446.03	0.9608	0.9643	0.9854	1.0111	-0.0258	-1888.87	-1720.60	-1809.82
6	500.00	113.5	0.5910	0.6210	510.63	439.68	0.9606	0.9641	0.9847	1.0126	-0.0280	-1895.40	-1726.08	-1815.86
7	500.00	112.9	0.6920	0.7160	501.69	432.02	0.9604	0.9639	0.9866	1.0252	-0.0384	-1903.41	-1732.82	-1823.27
8	500.00	112.3	0.7910	0.8150	493.59	425.09	0.9602	0.9637	0.9984	1.0000	-0.0016	-1910.81	-1739.03	-1830.11
9	500.00	111.8	0.9060	0.9100	486.16	418.73	0.9600	0.9635	0.9880	1.0179	-0.1055	-1917.72	-1744.84	-1836.51

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 568.80 P = 24.50 V = 493.10 OMEGA = 0.394 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 594.50 P = 27.50 V = 390.90 OMEGA = 0.243 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69238E 01 B = 0.13551E 04 C = 0.20952E 03

2 A = 0.68704E 01 B = 0.13840E 04 C = 0.21513E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.14244E 03 B = -.49197E-01 C = 0.40167E-03

2 A = 0.12682E 03 B = -.35352E-01 C = 0.30278E-03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 125.7

P = 760.0 AT T = 131.8

COMPONENT ID ECHO CHECK

ID NUMBER = 41

ID NUMBER = 42

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.19239E-01 B = -.57490E-01 C = -.43662E-01

STANDARD DEVIATION = 0.29009E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.0194 G2INF = 1.0854

T1INF = 116.66 T2INF = 111.24

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0028

AREA BELOW THE X-AXIS IS -0.0269

CROSS-OVER POINT IS X = 0.28

NORMALIZED AREA DIFFERENCE IS -0.8104

HERINGTON J-FACTOR IS -2.12

CONSISTENCY INDEX IS 78.93

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-504.30	687.44	0.9095E-12	5.10	0.00621
2	-244.34	249.83	0.1994E-04	0.66	0.00490
3	-515.00	701.29	0.8552E-02	4.53	0.00614
4	-465.69	605.52	0.8074E-02	4.13	0.00573
5	-178.99	178.30	0.5866E-03	0.78	0.00479
6	716.49	-395.79	0.1929E-03	4.80	0.00249
7	613.24	-373.41	0.4692E-03	1.47	0.00309
8	313.12	-226.24	0.2051E-04	0.63	0.00466
9	313.25	-226.32	0.2049E-04	0.63	0.00466
10	650.57	-384.47	0.1446E 01	2.21	0.00258

OCTANE(1) — ETHYLCYCLOHEXANE(2) SYSTEM 11CE

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	131.2	0.1190	0.1430	826.76	710.86	0.9490	0.9533	1.0424	0.9866	0.0550	-1683.96	-1547.99	-1620.17
2	760.00	130.9	0.1920	0.2200	819.81	704.88	0.9489	0.9532	1.0023	0.9873	0.0151	-1687.56	-1551.02	-1623.51
3	760.00	130.1	0.2860	0.3150	802.50	690.01	0.9486	0.9528	0.9838	1.0019	-0.0183	-1696.66	-1558.71	-1631.93
4	760.00	129.4	0.3880	0.4240	788.12	677.65	0.9483	0.9525	0.9936	1.0005	-0.0069	-1704.39	-1565.23	-1639.09
5	760.00	128.8	0.4890	0.5250	775.73	667.02	0.9480	0.9523	0.9915	1.0036	-0.0122	-1711.17	-1570.96	-1645.37
6	760.00	128.0	0.5890	0.6230	761.31	654.63	0.9477	0.9519	0.9950	1.0088	-0.0138	-1719.23	-1577.76	-1652.84
7	760.00	127.4	0.6890	0.7150	749.63	644.60	0.9474	0.9517	0.9911	1.0232	-0.0319	-1725.88	-1583.37	-1658.99
8	760.00	126.9	0.7850	0.8060	738.87	635.36	0.9472	0.9514	0.9946	1.0219	-0.0270	-1732.11	-1588.62	-1664.76
9	760.00	126.3	0.8940	0.9020	728.03	626.05	0.9469	0.9511	0.9917	1.0622	-0.0688	-1738.49	-1594.01	-1670.67

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 568.80 P = 24.50 V = 493.10 OMEGA = 0.394 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 594.50 P = 27.50 V = 390.90 OMEGA = 0.243 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69238E 01 B = 0.13551E 04 C = 0.20952E 03

2 A = 0.68704E 01 B = 0.13840E 04 C = 0.21513E 03

VAPOR PRESSURE AT NBP

P = 760.C AT T = 125.7

P = 760.0 AT T = 131.8

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.14244E C3 B = -.49197E-01 C = 0.40167E-03

2 A = 0.12682E C3 B = -.35352E-C1 C = 0.30278E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 41

ID NUMBER = 42

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.51832E-01 B = -.16224E 00 C = 0.52082E-01

STANDARD DEVIATION = 0.18486E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.0532 G2INF = 1.0601

T1INF = 131.78 T2INF = 125.66

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0090

AREA BELOW THE X-AXIS IS -0.0209

CROSS-OVER POINT IS X = 0.36

NORMALIZED AREA DIFFERENCE IS -0.3996

HERINGTON J-FACTOR IS 2.30

CONSISTENCY INDEX IS 37.66

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-181.09	229.90	0.9095E-12	10.70	0.00327
2	-631.77	874.74	C.8473E-04	1.70	0.00624
3	-6.38	38.28	0.4509E-02	7.23	0.00313
4	115.58	-63.47	0.4373E-02	6.98	0.00298
5	106.77	-80.67	0.5313E-03	2.23	0.00422
6	569.50	-330.69	0.1089E-03	8.88	0.00207
7	302.70	-215.32	0.5772E-03	2.54	0.00390
8	15.98	-15.41	C.1044E-03	2.02	0.00468
9	15.93	-15.55	0.1037E-03	2.03	0.00469
10	528.56	-321.91	0.1243E 01	6.16	0.00223

1-PROPANOL(1) - ETHYL ACETATE(2) SYSTEM 111A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	185.00	40.0	0.0857	0.0477	50.58	186.02	0.9839	0.9817	2.0017	1.0160	0.6782	-1699.87	-1927.30	-1813.65
2	178.00	40.0	0.1476	0.0825	50.58	186.02	0.9845	0.9824	1.9354	1.0109	0.6494	-1699.87	-1927.30	-1813.65
3	176.50	40.0	0.1799	0.1000	50.58	186.02	0.9846	0.9826	1.9088	1.0222	0.6245	-1699.87	-1927.30	-1813.65
4	171.00	40.0	0.2550	0.1300	50.58	186.02	0.9851	0.9831	1.6969	1.0544	0.4758	-1699.87	-1927.30	-1813.65
5	170.00	40.0	0.2777	0.1416	50.58	186.02	0.9852	0.9832	1.6875	1.0669	0.4585	-1699.87	-1927.30	-1813.65
6	165.00	40.0	0.3519	0.1695	50.58	186.02	0.9856	0.9837	1.5479	1.1172	0.3261	-1699.87	-1927.30	-1813.65
7	161.50	40.0	0.3851	0.1802	50.58	186.02	0.9859	0.9841	1.4723	1.1381	0.2575	-1699.87	-1927.30	-1813.65
8	154.00	40.0	0.4874	0.2295	50.58	186.02	0.9866	0.9848	1.4075	1.2261	0.1380	-1699.87	-1927.30	-1813.65
9	127.50	40.0	0.6913	0.3344	50.58	186.02	0.9889	0.9874	1.2053	1.4583	-0.1905	-1699.87	-1927.30	-1813.65
10	109.00	40.0	0.7988	0.4130	50.58	186.02	0.9905	0.9892	1.1033	1.6902	-0.4266	-1699.87	-1927.30	-1813.65
11	95.00	40.0	0.8930	0.4869	50.58	186.02	0.9917	0.9906	1.0667	1.7297	-0.4834	-1699.87	-1927.30	-1813.65
12	84.00	40.0	0.8990	0.5715	50.58	186.02	0.9927	0.9917	1.0478	1.8991	-0.5947	-1699.87	-1927.30	-1813.65

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 540.70 P = 51.00 V = 220.00 OMEGA = 0.612 OMEGAH = 0.201 DIPOLE = 1.68 ETA = 0.57

2 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.79973E 01 B = -0.15697E 04 C = 0.20950E 03

2 A = 0.70981E 01 B = -0.12387E 04 C = 0.21700E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.77979E 02 B = -.9157CE-01 C = 0.27520E-03

2 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

VAPOR PRESSURE AT NBP

P = 757.4 AT T = 97.2

P = 769.5 AT T = 77.1

COMPONENT ID ECHO CHECK

ID NUMBER = 37

ID NUMBER = 12

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.81993E 00 B = -.12331E 01 C = -.37382E 00

STANDARD DEVIATION = 0.24898E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.2703 G2INF = 2.1967

T1INF = 40.0C T2INF = 40.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2440

AREA BELOW THE X-AXIS IS -0.1652

CROSS-OVER POINT IS X = 0.57

NORMALIZED AREA DIFFERENCE IS -0.1925

CONSISTENCY INDEX IS 19.25

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	470.51	83.30	0.3365E-10	2.78	0.01229
2	310.39	511.61	0.7823E-03	3.62	0.02041
3	484.39	127.40	0.1489E 00	1.32	0.01429
4	444.30	173.67	0.6289E-01	1.51	0.01424
5	533.17	72.05	0.8113E-02	1.29	0.01422
6	163.48	396.83	0.2610E-02	6.24	0.00973
7	468.01	103.62	0.5289E-02	2.23	0.01284
8	585.39	49.46	0.7799E-03	0.96	0.01532
9	585.41	49.52	0.7799E-03	0.96	0.01532
10	521.40	77.26	0.3902E-01	1.43	0.01396

1-PROPANOL(1) — ETHYL ACETATE(2) — SYSTEM 1118

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	402.00	60.0	0.0843	0.0560	147.34	408.70	0.9736	0.9701	1.7619	0.9817	0.5849	-1365.57	-1546.48	-1455.52
2	393.00	60.0	0.1860	0.1120	147.34	408.70	0.9742	0.9707	1.5623	1.0163	0.4300	-1365.57	-1546.48	-1455.52
3	379.00	60.0	0.2977	0.1660	147.34	408.70	0.9751	0.9718	1.3966	1.0682	0.2681	-1365.57	-1546.48	-1455.52
4	362.50	60.0	0.3738	0.2122	147.34	408.70	0.9762	0.9730	1.3615	1.0838	0.2281	-1365.57	-1546.48	-1455.52
5	343.00	60.0	0.4716	0.2500	147.34	408.70	0.9775	0.9745	1.2047	1.1588	0.0388	-1365.57	-1546.48	-1455.52
6	324.50	60.0	0.5842	0.3109	147.34	408.70	0.9787	0.9758	1.1457	1.2820	-0.1125	-1365.57	-1546.48	-1455.52
7	305.50	60.0	0.6375	0.3528	147.34	408.70	0.9799	0.9773	1.1231	1.3023	-0.1480	-1365.57	-1546.48	-1455.52
8	285.50	60.0	0.7230	0.4097	147.34	408.70	0.9812	0.9787	1.0763	1.4550	-0.3015	-1365.57	-1546.48	-1455.52
9	262.00	60.0	0.7811	0.4768	147.34	408.70	0.9828	0.9805	1.0657	1.5004	-0.3421	-1365.57	-1546.48	-1455.52
10	239.50	60.0	0.8404	0.5405	147.34	408.70	0.9843	0.9822	1.0280	1.6551	-0.4762	-1365.57	-1546.48	-1455.52
11	222.00	60.0	0.8825	0.6235	147.34	408.70	0.9854	0.9835	1.0481	1.7099	-0.4894	-1365.57	-1546.48	-1455.52
12	205.00	60.0	0.9095	0.6900	147.34	408.70	0.9865	0.9847	1.0405	1.6902	-0.4852	-1365.57	-1546.48	-1455.52
13	189.00	60.0	0.9362	0.7575	147.34	408.70	0.9876	0.9859	1.0243	1.7314	-0.5250	-1365.57	-1546.48	-1455.52
14	179.00	60.0	0.9520	0.8050	147.34	408.70	0.9882	0.9867	1.0145	1.7540	-0.5475	-1365.57	-1546.48	-1455.52

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 540.70 P = 51.00 V = 220.00 OMEGA = 0.612 OMEGAH = 0.201 DIPOLE = 1.68 ETA = 0.57

2 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.79973E 01 B = 0.15697E 04 C = 0.20950E 03

2 A = 0.70981E 01 B = 0.12387E 04 C = 0.21700E 03

VAPOR PRESSURE AT NBP

P = 757.4 AT T = 97.2

P = 769.5 AT T = 77.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.77979E 02 B = -.91570E-01 C = 0.27520E-03

2 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 37

ID NUMBER = 12

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.71104E 00 B = -.14838E 01 C = 0.15729E 00

STANDARD DEVIATION = 0.26661E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.0361 G2INF = 1.8505

T1INF = 60.00 T2INF = 60.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1766

AREA BELOW THE X-AXIS IS -0.1551

CROSS-OVER POINT IS X = C.51

NORMALIZED AREA DIFFERENCE IS 0.0650

CONSISTENCY INDEX IS 6.50

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	527.05	-42.93	0.0	4.94	0.00488
2	143.11	492.01	0.9604E-03	5.05	0.01719
3	485.03	4.68	0.2714E-01	4.05	0.00521
4	466.25	22.79	0.1528E-01	3.85	0.00529
5	424.95	77.98	0.4216E-02	2.88	0.00632
6	428.21	32.24	0.9101E-03	5.37	0.00460
7	419.22	76.67	0.3702E-02	3.11	0.00594
8	376.31	145.26	0.1379E-02	2.48	0.00861
9	376.64	144.97	0.1379E-02	2.48	0.00861
10	458.52	29.51	0.1438E-01	3.81	0.00528

1-PROPANOL(1) — ETHYL ACETATE(2) — SYSTEM 111C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	78.0	0.0926	0.0699	338.17	752.79	0.9607	0.9553	1.6253	0.9850	0.5008	-1134.36	-1286.52	-1209.55
2	760.00	78.5	0.1667	0.1209	345.52	764.78	0.9609	0.9556	1.5287	0.9982	0.4263	-1128.70	-1280.20	-1203.55
3	760.00	79.5	0.2680	0.1764	360.63	789.21	0.9614	0.9562	1.3299	1.0322	0.2534	-1117.50	-1267.68	-1191.67
4	760.00	80.4	0.3623	0.2381	374.37	811.18	0.9618	0.9567	1.2797	1.0669	0.1818	-1107.76	-1256.81	-1181.35
5	760.00	82.8	0.5316	0.3373	414.41	874.02	0.9630	0.9580	1.1175	1.1742	-0.0495	-1081.56	-1227.59	-1153.60
6	760.00	84.1	0.6178	0.4130	438.24	910.64	0.9636	0.9587	1.1141	1.2243	-0.0944	-1067.31	-1211.70	-1138.50
7	760.00	85.5	0.6779	0.4566	462.62	947.56	0.9642	0.9593	1.0640	1.2934	-0.1952	-1053.61	-1196.45	-1124.01
8	760.00	87.5	0.7560	0.5392	502.27	1006.51	0.9651	0.9603	1.0387	1.3645	-0.2728	-1033.00	-1173.53	-1102.21
9	760.00	89.2	0.8198	0.6116	537.57	1057.95	0.9658	0.9612	1.0159	1.4828	-0.3782	-1016.16	-1154.82	-1084.41
10	760.00	91.9	0.8863	0.7269	598.96	1145.29	0.9670	0.9625	1.0035	1.5285	-0.4207	-989.70	-1125.45	-1056.45
11	760.00	93.3	0.9062	0.7678	629.91	1188.40	0.9675	0.9630	0.9863	1.5191	-0.4319	-977.51	-1111.95	-1043.59
12	760.00	94.9	0.9477	0.8669	671.04	1244.82	0.9681	0.9638	1.0003	1.4921	-0.3999	-962.34	-1095.14	-1027.58
13	760.00	96.0	0.9762	0.9237	699.66	1283.52	0.9685	0.9643	0.9928	1.8238	-0.6081	-952.41	-1084.15	-1017.10

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 540.70 P = 51.00 V = 220.00 OMEGA = 0.612 OMEGAH = 0.201 DIPOLE = 1.68 ETA = 0.57

2 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.79973E 01 B = 0.15697E 04 C = 0.20950E 03

2 A = 0.70981E 01 B = 0.12387E 04 C = 0.21700E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.77979E 02 B = -.91570E-01 C = 0.27520E-03

2 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

VAPOR PRESSURE AT NBP

P = 757.4 AT T = 97.2

P = 769.5 AT T = 77.1

COMPONENT ID ECHO CHECK

ID NUMBER = 37

ID NUMBER = 12

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.61321E 00 B = -.12466E 01 C = 0.86354E-01

STANDARD DEVIATION = 0.44365E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.8463 G2INF = 1.7281

T1INF = 76.72 T2INF = 97.29

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1544

AREA BELOW THE X-AXIS IS -0.1357

CROSS-OVER POINT IS X = 0.51

NORMALIZED AREA DIFFERENCE IS 0.0645

HERINGTON J-FACTOR IS 7.69

CONSISTENCY INDEX IS -1.24

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	477.79	-33.98	0.0	7.52	0.00450
2	305.67	119.12	0.1031E-02	6.87	0.00472
3	447.21	-13.77	0.4960E-01	6.68	0.00427
4	460.29	-30.22	0.2041E-01	6.56	0.00415
5	401.36	16.81	0.2101E-02	6.25	0.00416
6	404.12	20.73	0.6894E-03	6.25	0.00413
7	365.88	57.53	0.1665E-02	6.23	0.00430
8	404.96	10.76	0.1392E-02	6.30	0.00418
9	405.05	10.96	0.1392E-02	6.30	0.00417
10	460.19	-22.92	0.2719E-01	6.90	0.00435

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

1-PROPANOL(1) - HEPTANE(2) SYSTEM 112A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	63.49	30.0	0.0050	0.0790	27.67	57.86	0.9963	0.9910	36.1128	1.0059	3.5807	-1906.89	-2700.54	-1826.42
2	66.59	30.0	0.0100	0.1250	27.67	57.86	0.9959	0.9905	29.9511	1.0070	3.3926	-1906.89	-2700.54	-1826.42
3	69.56	30.0	0.0200	0.1660	27.67	57.86	0.9954	0.9902	20.7653	1.0124	3.0210	-1906.89	-2700.54	-1826.42
4	72.02	30.0	0.0400	0.1990	27.67	57.86	0.9951	0.9899	12.8821	1.0274	2.5288	-1906.89	-2700.54	-1826.42
5	74.63	30.0	0.1000	0.2380	27.67	57.86	0.9947	0.9896	6.3833	1.0799	1.7768	-1906.89	-2700.54	-1826.42
6	76.04	30.0	0.2000	0.2700	27.67	57.86	0.9944	0.9894	3.6881	1.1857	1.1348	-1906.89	-2700.54	-1826.42
7	76.13	30.0	0.3000	0.2810	27.67	57.86	0.9943	0.9894	2.5618	1.3363	0.6508	-1906.89	-2700.54	-1826.42
8	75.81	30.0	0.4000	0.2960	27.67	57.86	0.9943	0.9895	2.0153	1.5202	0.2819	-1906.89	-2700.54	-1826.42
9	75.15	30.0	0.5000	0.3080	27.67	57.86	0.9942	0.9896	1.6629	1.7777	-0.0667	-1906.89	-2700.54	-1826.42
10	73.96	30.0	0.6000	0.3220	27.67	57.86	0.9943	0.9898	1.4259	2.1432	-0.4075	-1906.89	-2700.54	-1826.42
11	71.81	30.0	0.7000	0.3430	27.67	57.86	0.9943	0.9902	1.2641	2.6895	-0.7550	-1906.89	-2700.54	-1826.42
12	67.10	30.0	0.8000	0.3820	27.67	57.86	0.9945	0.9909	1.1513	3.5487	-1.1257	-1906.89	-2700.54	-1826.42
13	62.83	30.0	0.8500	0.4190	27.67	57.86	0.9947	0.9916	1.1132	4.1682	-1.3203	-1906.89	-2700.54	-1826.42
14	56.34	30.0	0.9000	0.4820	27.67	57.86	0.9951	0.9926	1.0849	5.0040	-1.5288	-1906.89	-2700.54	-1826.42
15	52.76	30.0	0.9200	0.5220	27.67	57.86	0.9953	0.9932	1.0766	5.4085	-1.6142	-1906.89	-2700.54	-1826.42
16	48.44	30.0	0.9400	0.5770	27.67	57.86	0.9956	0.9939	1.0696	5.8635	-1.7014	-1906.89	-2700.54	-1826.42
17	43.27	30.0	0.9600	0.6570	27.67	57.86	0.9959	0.9948	1.0657	6.3764	-1.7890	-1906.89	-2700.54	-1826.42
18	37.03	30.0	0.9800	0.7810	27.67	57.86	0.9964	0.9959	1.0625	6.9762	-1.8819	-1906.89	-2700.54	-1826.42
19	33.42	30.0	0.9900	0.8730	27.67	57.86	0.9967	0.9965	1.0614	7.3074	-1.9293	-1906.89	-2700.54	-1826.42

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 540.70 P = 51.60 V = 220.00 OMEGA = 0.612 OMEGAH = 0.201 DIPOLE = 1.68 ETA = 0.57

2 T = 540.20 P = 27.00 V = 431.90 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.79973E 01 B = 0.15697E 04 C = 0.20950E 03

2 A = 0.69024E 01 B = 0.12681E 04 C = 0.21690E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.77979E 02 B = -.51570E-01 C = 0.27520E-03

2 A = 0.12880E 03 B = -.60277E-01 C = 0.41160E-03

VAPOR PRESSURE AT NBP

P = 757.4 AT T = 97.2

P = 759.4 AT T = 98.4

COMPONENT ID ECHO CHECK

ID NUMBER = 37

ID NUMBER = 16

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.30968E 01 B = -.82923E 01 C = 0.34427E 01

STANDARD DEVIATION = 0.28606E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 22.1261 G2INF = 5.7713

T1INF = 30.00 T2INF = 30.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.6589

AREA BELOW THE X-AXIS IS -0.5607

CROSS-OVER POINT IS X = 0.46

NORMALIZED AREA DIFFERENCE IS 0.0805

CONSISTENCY INDEX IS 8.05

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1932.01	94.63	0.4599E-08	4.22	0.02584
2	1659.51	654.01	0.1011E-01	3.60	0.04985
3	2301.09	204.01	0.4949E 01	1.22	0.01029
4	2249.35	245.38	0.7476E-01	0.88	0.01346
5	2169.22	276.86	0.1649E-01	0.69	0.01528
6	2186.64	202.96	0.5526E-02	1.49	0.00969
7	2115.08	257.77	0.1411E-01	0.98	0.01363
8	2140.28	320.21	0.3501E-02	0.64	0.01871
9	2139.92	320.31	0.3501E-02	0.64	0.01871
10	2282.20	241.05	0.2233E-02	0.92	0.01341

1-PROPANOL(1) HEPTANE(2) SYSTEM 1128

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	123.08	45.0	0.0050	0.0670	67.15	113.27	0.9942	0.9855	24.4054	1.0032	3.1916	-1607.19	-2333.07	-1591.23
2	129.10	45.0	0.0100	0.1140	67.15	113.27	0.9934	0.9849	21.7622	1.0036	3.0766	-1607.19	-2333.07	-1591.23
3	137.20	45.0	0.0200	0.1710	67.15	113.27	0.9925	0.9840	17.3289	1.0072	2.8452	-1607.19	-2333.07	-1591.23
4	143.96	45.0	0.0400	0.2160	67.15	113.27	0.9917	0.9833	11.4746	1.0195	2.4208	-1607.19	-2333.07	-1591.23
5	151.38	45.0	0.1000	0.2660	67.15	113.27	0.9909	0.9826	5.9383	1.0697	1.7140	-1607.19	-2333.07	-1591.23
6	155.57	45.0	0.2030	0.3050	67.15	113.27	0.9903	0.9823	3.4566	1.1706	1.0943	-1607.19	-2333.07	-1591.23
7	156.26	45.0	0.3000	0.3200	67.15	113.27	0.9901	0.9822	2.4561	1.3147	0.6250	-1607.19	-2333.07	-1591.23
8	156.02	45.0	0.4000	0.3380	67.15	113.27	0.9900	0.9823	1.9425	1.4911	0.2644	-1607.19	-2333.07	-1591.23
9	154.92	45.0	0.5000	0.3530	67.15	113.27	0.9899	0.9825	1.6114	1.7368	-0.0749	-1607.19	-2333.07	-1591.23
10	152.73	45.0	0.6000	0.3700	67.15	113.27	0.9900	0.9828	1.3876	2.0848	-0.4070	-1607.19	-2333.07	-1591.23
11	148.70	45.0	0.7000	0.3930	67.15	113.27	0.9901	0.9834	1.2302	2.6091	-0.7519	-1607.19	-2333.07	-1591.23
12	139.85	45.0	0.8000	0.4360	67.15	113.27	0.9904	0.9846	1.1235	3.4243	-1.1145	-1607.19	-2333.07	-1591.23
13	131.89	45.0	0.8500	0.4750	67.15	113.27	0.9907	0.9856	1.0868	4.0127	-1.3062	-1607.19	-2333.07	-1591.23
14	119.78	45.0	0.9000	0.5400	67.15	113.27	0.9913	0.9873	1.0604	4.7979	-1.5095	-1607.19	-2333.07	-1591.23
15	113.14	45.0	0.9200	0.5800	67.15	113.27	0.9916	0.9882	1.0528	5.1772	-1.5928	-1607.19	-2333.07	-1591.23
16	105.13	45.0	0.9400	0.6330	67.15	113.27	0.9920	0.9892	1.0454	5.6114	-1.6804	-1607.19	-2333.07	-1591.23
17	95.55	45.0	0.9600	0.7080	67.15	113.27	0.9926	0.9906	1.0412	6.0955	-1.7672	-1607.19	-2333.07	-1591.23
18	84.03	45.0	0.9800	0.8190	67.15	113.27	0.9933	0.9923	1.0384	6.6575	-1.8580	-1607.19	-2333.07	-1591.23
19	77.38	45.0	0.9900	0.8970	67.15	113.27	0.9938	0.9933	1.0373	6.9848	-1.9072	-1607.19	-2333.07	-1591.23

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 540.70 P = 51.00 V = 220.00 OMEGA = 0.612 OMEGAH = 0.201 DIPOLE = 1.68 ETA = 0.57

2 T = 540.20 P = 27.00 V = 431.90 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.79973E 01 B = 0.15697E 04 C = 0.20950E 03

2 A = 0.69024E 01 B = 0.12681E 04 C = 0.21690E 03

VAPOR PRESSURE AT NBP

P = 757.4 AT T = 97.2

P = 759.4 AT T = 98.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.77979E 02 B = -.91570E-01 C = 0.27520E-03

2 A = 0.12880E 03 B = -.60277E-01 C = 0.41160E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 37

ID NUMBER = 16

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.28630E 01 B = -.75278E 01 C = 0.29095E 01

STANDARD DEVIATION = 0.23075E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 17.5146 G2INF = 5.7849

T1INF = 45.00 T2INF = 45.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.6150

AREA BELOW THE X-AXIS IS -0.5460

CROSS-OVER POINT IS X = 0.46

NORMALIZED AREA DIFFERENCE IS 0.0594

CONSISTENCY INDEX IS 5.94

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	1875.70	112.23	0.4957E-09	6.55	0.02079
2	1705.45	499.38	0.4348E-02	3.93	0.02970
3	2124.17	223.47	0.1283E 01	1.65	0.00850
4	2101.37	235.10	0.3715E-01	1.55	0.00915
5	2028.38	261.11	0.8769E-02	1.31	0.01082
6	2046.94	210.68	0.3436E-02	1.96	0.00756
7	1990.08	249.71	0.7401E-02	1.47	0.00955
8	1995.61	296.41	0.2446E-02	1.19	0.01355
9	1995.61	296.41	0.2446E-02	1.19	0.01355
10	2118.21	235.74	0.1121E-02	1.56	0.00941

1-PROPANOL(1) - HEPTANE(2) SYSTEM 1120

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	222.79	60.0	0.0050	0.0560	147.34	205.57	0.9912	0.9781	16.7716	1.0040	2.8157	-1365.57	-2044.65	-1404.79
2	232.66	60.0	0.0100	0.0990	147.34	205.57	0.9902	0.9772	15.4665	1.0048	2.7339	-1365.57	-2044.65	-1404.79
3	248.25	60.0	0.0200	0.1620	147.34	205.57	0.9888	0.9758	13.4817	1.0058	2.5956	-1365.57	-2044.65	-1404.79
4	266.09	60.0	0.0400	0.2260	147.34	205.57	0.9872	0.9742	10.0626	1.0147	2.2942	-1365.57	-2044.65	-1404.79
5	284.32	60.0	0.1000	0.2890	147.34	205.57	0.9855	0.9727	5.4901	1.0606	1.6441	-1365.57	-2044.65	-1404.79
6	295.79	60.0	0.2000	0.3370	147.34	205.57	0.9844	0.9719	3.3260	1.1564	1.0565	-1365.57	-2044.65	-1404.79
7	298.30	60.0	0.3000	0.3570	147.34	205.57	0.9840	0.9717	2.3680	1.2924	0.6055	-1365.57	-2044.65	-1404.79
8	298.86	60.0	0.4000	0.3790	147.34	205.57	0.9837	0.9718	1.8884	1.4591	0.2579	-1365.57	-2044.65	-1404.79
9	297.42	60.0	0.5000	0.3970	147.34	205.57	0.9836	0.9721	1.5747	1.6924	-0.0721	-1365.57	-2044.65	-1404.79
10	293.83	60.0	0.6000	0.4170	147.34	205.57	0.9836	0.9726	1.3617	2.0217	-0.3952	-1365.57	-2044.65	-1404.79
11	286.66	60.0	0.7000	0.4430	147.34	205.57	0.9837	0.9734	1.2108	2.5166	-0.7317	-1365.57	-2044.65	-1404.79
12	271.61	60.0	0.8000	0.4890	147.34	205.57	0.9842	0.9752	1.1079	3.2853	-1.0870	-1365.57	-2044.65	-1404.79
13	257.93	60.0	0.8500	0.5290	147.34	205.57	0.9847	0.9767	1.0718	3.8407	-1.2764	-1365.57	-2044.65	-1404.79
14	237.10	60.0	0.9000	0.5940	147.34	205.57	0.9855	0.9791	1.0458	4.5768	-1.4762	-1365.57	-2044.65	-1404.79
15	225.72	60.0	0.9200	0.6330	147.34	205.57	0.9860	0.9804	1.0385	4.9303	-1.5577	-1365.57	-2044.65	-1404.79
16	212.04	60.0	0.9400	0.6840	147.34	205.57	0.9867	0.9820	1.0324	5.3264	-1.6408	-1365.57	-2044.65	-1404.79
17	195.70	60.0	0.9600	0.7530	147.34	205.57	0.9875	0.9840	1.0280	5.7759	-1.7261	-1365.57	-2044.65	-1404.79
18	176.12	60.0	0.9800	0.8510	147.34	205.57	0.9885	0.9864	1.0254	6.2875	-1.8135	-1365.57	-2044.65	-1404.79
19	164.82	60.0	0.9900	0.9170	147.34	205.57	0.9892	0.9878	1.0243	6.5655	-1.8578	-1365.57	-2044.65	-1404.79

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 540.70 P = 51.00 V = 220.00 OMEGA = 0.612 OMEGAH = 0.201 DIPOLE = 1.68 ETA = 0.57

2 T = 540.20 P = 27.00 V = 431.90 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.79973E 01 B = 0.15697E 04 C = 0.20950E 03

2 A = 0.69024E 01 B = 0.12681E 04 C = 0.21690E 03

VAPOR PRESSURE AT NBP

P = 757.4 AT T = 97.2

P = 759.4 AT T = 98.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.77979E 02 B = -.91570E-01 C = 0.27520E-03

2 A = 0.12880E 03 B = -.60277E-01 C = 0.41166E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 37

ID NUMBER = 16

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.26047E 01 B = -.66574E 01 C = 0.23124E 01

STANDARD DEVIATION = 0.17714E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 13.5276 G2INF = 5.6991

T1INF = 60.00 T2INF = 60.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.5690

AREA BELOW THE X-AXIS IS -0.5221

CROSS-OVER POINT IS X = 0.47

NORMALIZED AREA DIFFERENCE IS 0.0429

CONSISTENCY INDEX IS 4.29

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	1790.96	125.77	0.7276E-10	9.67	0.01587
2	1696.19	397.87	0.2171E-02	4.43	0.01861
3	1953.90	224.59	0.3251E 00	2.45	0.00663
4	1943.59	226.16	0.1975E-01	2.40	0.00658
5	1891.82	247.46	0.5151E-02	2.22	0.00786
6	1900.57	211.13	0.2164E-02	2.86	0.00573
7	1863.53	240.83	0.4269E-02	2.38	0.00733
8	1869.85	275.63	0.1711E-02	2.09	0.00991
9	1869.87	275.65	0.1711E-02	2.09	0.00991
10	1951.90	228.31	0.5757E-03	2.41	0.00691

1-PROPANOL(2) - HEPTANE(1) SYSTEM 1120

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	338.90	75.0	0.0370	0.1450	349.62	296.71	0.9738	0.9792	4.2328	1.1379	1.3137	-1812.14	-1169.11	-1253.14
2	398.40	75.0	0.0450	0.1800	349.62	296.71	0.9726	0.9788	4.4204	1.1269	1.3668	-1812.14	-1169.11	-1253.14
3	424.40	75.0	0.0600	0.2180	349.62	296.71	0.9703	0.9776	4.2661	1.1615	1.3010	-1812.14	-1169.11	-1253.14
4	442.60	75.0	0.0780	0.2750	349.62	296.71	0.9682	0.9769	4.3072	1.1440	1.3257	-1812.14	-1169.11	-1253.14
5	467.90	75.0	0.0940	0.3050	349.62	296.71	0.9659	0.9758	4.1800	1.1784	1.2662	-1812.14	-1169.11	-1253.14
6	486.50	75.0	0.1080	0.3380	349.62	296.71	0.9641	0.9750	4.1836	1.1844	1.2620	-1812.14	-1169.11	-1253.14
7	502.40	75.0	0.1380	0.3700	349.62	296.71	0.9624	0.9745	3.6945	1.2037	1.1215	-1812.14	-1169.11	-1253.14
8	517.20	75.0	0.1630	0.4020	349.62	296.71	0.9609	0.9740	3.4925	1.2107	1.0594	-1812.14	-1169.11	-1253.14
9	541.60	75.0	0.2070	0.4200	349.62	296.71	0.9588	0.9729	3.0017	1.2964	0.8396	-1812.14	-1169.11	-1253.14
10	549.20	75.0	0.2200	0.4700	349.62	296.71	0.9575	0.9731	2.2004	1.4010	0.4514	-1812.14	-1169.11	-1253.14
11	552.30	75.0	0.3560	0.4630	349.62	296.71	0.9574	0.9729	1.9591	1.5070	0.2624	-1812.14	-1169.11	-1253.14
12	550.60	75.0	0.3750	0.4800	349.62	296.71	0.9574	0.9732	1.9200	1.4979	0.2483	-1812.14	-1169.11	-1253.14
13	548.80	75.0	0.5100	0.5400	349.62	296.71	0.9567	0.9740	1.5838	1.6878	-0.0636	-1812.14	-1169.11	-1253.14
14	547.40	75.0	0.5650	0.5500	349.62	296.71	0.9567	0.9742	1.4524	1.8555	-0.2450	-1812.14	-1169.11	-1253.14
15	538.90	75.0	0.6600	0.5700	349.62	296.71	0.9572	0.9749	1.2692	2.2349	-0.5658	-1812.14	-1169.11	-1253.14
16	516.60	75.0	0.8200	0.6400	349.62	296.71	0.9583	0.9769	1.1011	3.3953	-1.1261	-1812.14	-1169.11	-1253.14
17	506.60	75.0	0.8600	0.6550	349.62	296.71	0.9590	0.9776	1.0545	4.1054	-1.3593	-1812.14	-1169.11	-1253.14
18	497.40	75.0	0.8800	0.6850	349.62	296.71	0.9596	0.9784	1.0588	4.2977	-1.4009	-1812.14	-1169.11	-1253.14
19	483.10	75.0	0.9050	0.7100	349.62	296.71	0.9606	0.9794	1.0376	4.8593	-1.5440	-1812.14	-1169.11	-1253.14
20	446.10	75.0	0.9700	0.7850	349.62	296.71	0.9632	0.9821	0.9914	10.5650	-2.3662	-1812.14	-1169.11	-1253.14

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 540.20 P = 27.00 V = 431.90 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 540.70 P = 51.00 V = 220.00 OMEGA = 0.612 OMEGAH = 0.201 DIPOLE = 1.68 ETA = 0.57

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69024E 01 B = 0.12681E 04 C = 0.21690E 03

2 A = 0.79973E 01 B = 0.15697E 04 C = 0.20950E 03

VAPOR PRESSURE AT NBP

P = 759.4 AT T = 98.4

P = 757.4 AT T = 97.2

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12880E 03 B = -.60277E-01 C = 0.41160E-03

2 A = 0.77979E 02 B = -.91570E-01 C = 0.27520E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 16

ID NUMBER = 37

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.14568E 01 B = -.24697E 01 C = -.10742E 01

STANDARD DEVIATION = 0.14069E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 4.2921 G2INF = 8.0617

T1INF = 75.00 T2INF = 75.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3752

AREA BELOW THE X-AXIS IS -0.5114

CROSS-OVER POINT IS X = 0.49

NORMALIZED AREA DIFFERENCE IS -0.1536

CONSISTENCY INDEX IS 15.36

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-19.31	1584.82	0.3729E-10	54.94	0.02850
2	8160.98	1055.48	0.6604E-02	45.09	0.08199
3	8939.41	273.71	0.1200E 03	84.79	0.08489
4	8939.85	273.71	0.3947E 01	84.79	0.08489
5	8943.53	614.40	0.5948E 00	52.23	0.07327
6	106.22	1521.17	0.3963E-01	44.90	0.02539
7	343.95	1469.52	0.1135E 00	23.81	0.03564
8	560.38	1502.21	0.8241E-02	8.41	0.05250
9	560.63	1502.22	0.8243E-02	8.41	0.05252
10	44.57	2041.91	0.1705E-01	32.66	0.03164

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION
SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

1-PROPANOL(1) — HEPTANE(2) SYSTEM 112F

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	88.8	0.1000	0.3150	529.09	542.20	0.9719	0.9462	4.3855	1.0040	1.4743	-1020.09	-1634.56	-1136.43
2	760.00	86.1	0.2000	0.4000	474.63	499.32	0.9695	0.9456	3.0962	1.0736	1.0591	-1047.16	-1667.00	-1157.82
3	760.00	85.2	0.3000	0.4250	457.54	485.62	0.9687	0.9454	2.2733	1.2088	0.6316	-1056.39	-1678.05	-1165.09
4	760.00	84.7	0.4000	0.4500	448.26	478.14	0.9681	0.9455	1.8415	1.3701	0.2957	-1061.57	-1684.24	-1169.16
5	760.00	84.6	0.5000	0.4750	446.43	476.65	0.9677	0.9457	1.5608	1.5747	-0.0089	-1062.61	-1685.48	-1169.98
6	760.00	84.8	0.6000	0.5100	450.16	479.63	0.9673	0.9463	1.3844	1.8269	-0.2773	-1060.53	-1683.00	-1168.35
7	760.00	85.7	0.7000	0.5550	466.97	493.20	0.9670	0.9474	1.2444	2.1538	-0.5486	-1051.25	-1671.90	-1161.04
8	760.00	87.1	0.8000	0.6100	494.24	514.89	0.9670	0.9490	1.1307	2.7166	-0.8766	-1037.02	-1654.87	-1149.82
9	760.00	89.5	0.9000	0.7200	544.01	553.76	0.9669	0.9520	1.0777	3.6384	-1.2167	-1013.23	-1626.31	-1130.99

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 540.70 P = 51.00 V = 220.00 OMEGA = 0.612 OMEGAH = 0.201 DIPOLE = 1.68 ETA = 0.57

2 T = 540.20 P = 27.00 V = 431.90 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.79973E 01 B = 0.15697E 04 C = 0.20950E 03

2 A = 0.69024E 01 B = 0.12681E 04 C = 0.21690E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.77979E 02 B = -.91570E-01 C = 0.27520E-03

2 A = 0.12880E 03 B = -.60277E-01 C = 0.41160E-03

VAPOR PRESSURE AT NBP

P = 757.4 AT T = 97.2

P = 759.4 AT T = 98.4

COMPONENT ID ECHO CHECK

ID NUMBER = 37

ID NUMBER = 16

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.18371E 01 B = -.40831E 01 C = 0.83235E 00

STANDARD DEVIATION = 0.50071E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 6.2786 G2INF = 4.1107

T1INF = 98.43 T2INF = 97.29

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4429

AREA BELOW THE X-AXIS IS -0.3658

CROSS-OVER POINT IS X = 0.50

NORMALIZED AREA DIFFERENCE IS 0.0899

HERINGTON J-FACTOR IS 5.80

CONSISTENCY INDEX IS 3.19

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1504.07	-12.66	0.7276E-11	46.22	0.02275
2	1260.62	585.42	0.5922E-03	10.68	0.02102
3	1582.00	129.82	0.1302E 00	15.81	0.01944
4	1459.46	222.33	0.3286E-01	12.73	0.01672
5	1414.97	300.38	0.8034E-02	7.66	0.01524
6	1350.85	244.17	0.5318E-02	22.79	0.01488
7	1376.39	321.22	0.7433E-02	8.94	0.01500
8	1431.89	322.01	0.7840E-03	5.95	0.01581
9	1431.57	322.18	0.7833E-03	5.95	0.01581
10	1586.42	118.00	0.7847E-02	17.17	0.01962

1-PROPANOL(1) — METHYLCYCLOHEXANE(2) SYSTEM 113

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	93.C	0.0500	0.2420	623.86	580.2C	C.9737	C.9548	5.7253	0.9933	1.7516	-979.84	-1375.91	-1016.74
2	760.00	88.9	0.1000	0.3250	531.20	514.82	0.9711	0.9536	4.5030	1.0509	1.4551	-1019.11	-1414.95	-1044.57
3	760.00	88.1	C.2000	0.404C	514.5C	502.75	0.9696	0.9539	2.8852	1.0693	0.9926	-1027.02	-1422.79	-1050.15
4	760.00	87.4	0.3000	0.4310	500.25	492.36	0.9690	0.9539	2.1091	1.1913	0.5713	-1034.00	-1429.70	-1055.08
5	760.00	87.1	C.4000	0.4550	494.24	487.97	0.9685	C.9540	1.6855	1.3434	0.2292	-1037.C2	-1432.69	-1057.20
6	760.00	87.0	0.5000	0.4800	492.25	486.50	0.9681	0.9543	1.4310	1.5431	-0.0754	-1038.03	-1433.68	-1057.91
7	760.00	87.2	0.6000	0.4920	496.24	489.43	C.9681	C.9545	1.2124	1.8735	-0.4352	-1036.01	-1431.69	-1056.49
8	760.00	87.7	0.7000	0.5250	506.32	496.79	0.9679	0.9551	1.0866	2.3026	-0.7510	-1031.00	-1426.73	-1052.96
9	760.00	88.3	C.800C	0.5750	518.63	505.75	0.9676	0.9560	1.0163	3.0385	-1.0952	-1025.C3	-142C.82	-1048.76
10	760.00	91.4	0.9000	0.7200	586.25	553.98	C.9676	C.9592	1.0008	3.6676	-1.2988	-994.92	-1390.92	-1027.45
11	760.00	93.7	0.9500	0.8320	640.92	591.96	0.9680	C.9618	1.C025	4.1299	-1.4158	-973.35	-1369.43	-1012.11

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 540.70 P = 51.00 V = 220.0C OMEGA = 0.612 OMEGAH = 0.201 DIPOLE = 1.68 ETA = 0.57

2 T = 572.30 P = 34.30 V = 372.40 OMEGA = 0.235 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.79973E 01 B = 0.15697E 04 C = 0.20950E 03

2 A = 0.68269E 01 B = 0.12729E 04 C = 0.22163E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.77979E 02 B = -.91570E-01 C = 0.27520E-03

2 A = 0.11310E C3 B = -.3874CE-01 C = 0.30202E-03

VAPOR PRESSURE AT NBP

P = 757.4 AT T = 97.2

P = 759.3 AT T = 10C.9

COMPONENT ID ECHO CHECK

ID NUMBER = 37

ID NUMBER = 26

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.19377E 01 B = -.47959E 01 C = 0.13291E 01

STANDARD DEVIATION = 0.39579E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 6.9430 G2INF = 4.6136

T1INF = 100.93 T2INF = 97.29

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4271

AREA BELOW THE X-AXIS IS -0.4443

CROSS-OVER POINT IS X = 0.46

NORMALIZED AREA DIFFERENCE IS -0.0197

HERINGTON J-FACTOR IS 5.80

CONSISTENCY INDEX IS -3.83

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	1442.08	170.86	0.3638E-11	8.11	0.01442
2	1504.09	87.11	0.1186E-02	11.53	0.01967
3	1527.25	200.16	0.8931E-01	13.86	0.00778
4	1533.43	192.07	0.1979E-01	13.37	0.00808
5	1519.50	178.22	0.6714E-02	11.05	0.00982
6	1555.98	238.02	0.2170E-02	20.99	0.00766
7	1518.55	188.47	0.5456E-02	12.09	0.00894
8	1521.20	142.52	0.2225E-02	9.11	0.01325
9	1520.94	142.73	0.2220E-02	9.11	0.01324
10	1528.68	200.17	0.3319E-02	13.95	0.00772

1-PROPANOL(1) WATER(2) SYSTEM 114A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	85.75	40.0	0.0805	0.3410	50.58	55.11	0.9934	0.9970	7.1324	1.1117	1.8587	-1699.87	-746.44	-998.53
2	86.50	40.0	0.1295	0.3555	50.58	55.11	0.9933	0.9969	4.6621	1.1585	1.3923	-1699.87	-746.44	-998.53
3	86.50	40.0	0.1525	0.3615	50.58	55.11	0.9933	0.9970	4.0257	1.1789	1.2281	-1699.87	-746.44	-998.53
4	86.50	40.0	0.3050	0.3870	50.58	55.11	0.9932	0.9970	2.1547	1.3802	0.4454	-1699.87	-746.44	-998.53
5	86.75	40.0	0.3980	0.3995	50.58	55.11	0.9932	0.9970	1.7094	1.5655	0.0880	-1699.87	-746.44	-998.53
6	86.50	40.0	0.4700	0.4225	50.58	55.11	0.9931	0.9971	1.5264	1.7052	-0.1107	-1699.87	-746.44	-998.53
7	86.00	40.0	0.5755	0.4540	50.58	55.11	0.9931	0.9971	1.3318	2.0013	-0.4073	-1699.87	-746.44	-998.53
8	83.50	40.0	0.6660	0.4995	50.58	55.11	0.9932	0.9973	1.2295	2.2643	-0.6107	-1699.87	-746.44	-998.53
9	81.50	40.0	0.7385	0.5405	50.58	55.11	0.9933	0.9974	1.1711	2.5919	-0.7944	-1699.87	-746.44	-998.53
10	72.50	40.0	0.8440	0.6625	50.58	55.11	0.9939	0.9980	1.1180	2.8403	-0.9323	-1699.87	-746.44	-998.53
11	69.00	40.0	0.8975	0.7535	50.58	55.11	0.9941	0.9983	1.1383	3.0058	-0.9710	-1699.87	-746.44	-998.53

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 540.70 P = 51.00 V = 220.00 OMEGA = 0.612 OMEGAH = 0.201 DIPOLE = 1.68 ETA = 0.57

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.79973E 01 B = 0.15697E 04 C = 0.20950E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

VAPOR PRESSURE AT NBP

P = 757.4 AT T = 97.2

P = 760.0 AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.77979E 02 B = -.91570E-01 C = 0.27520E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 37

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.22516E 01 B = -.67744E 01 C = 0.35840E 01

STANDARD DEVIATION = 0.69841E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 9.5033 G2INF = 2.5567

T1INF = 40.00 T2INF = 40.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4369

AREA BELOW THE X-AXIS IS -0.3778

CROSS-OVER POINT IS X = 0.43

NORMALIZED AREA DIFFERENCE IS 0.0726

CONSISTENCY INDEX IS 7.26

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	479.74	922.17	0.4729E-10	13.69	0.04326
2	1766.81	1376.33	0.6994E-02	1.91	0.03225
3	1741.31	1204.35	0.6493E 00	2.33	0.02017
4	1520.41	1188.77	0.9502E-01	3.03	0.01925
5	1955.78	1234.10	0.2191E-01	1.38	0.02157
6	821.11	1162.08	0.7500E-02	5.73	0.01537
7	1629.91	1210.81	0.2066E-01	2.15	0.01986
8	7545.23	1268.60	0.7000E-03	0.52	0.02469
9	7618.68	1268.52	0.6999E-03	0.52	0.02469
10	7723.94	1134.35	0.2403E-01	3.48	0.02394

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION
SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

1-PROPANOL(1) -- WATER(2) SYSTEM 1148

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	202.50	60.0	0.0390	0.2800	147.34	148.70	0.9886	0.9939	9.7471	1.0139	2.2632	-1365.57	-657.27	-825.09
2	223.00	60.0	0.0650	0.3575	147.34	148.70	0.9870	0.9935	8.2091	1.0236	2.0819	-1365.57	-657.27	-825.09
3	228.50	60.0	0.1545	0.3670	147.34	148.70	0.9866	0.9933	3.6315	1.1426	1.1564	-1365.57	-657.27	-825.09
4	230.50	60.0	0.1790	0.3735	147.34	148.70	0.9865	0.9933	3.2173	1.1747	1.0075	-1365.57	-657.27	-825.09
5	228.50	60.0	0.1960	0.3750	147.34	148.70	0.9866	0.9934	2.9248	1.1864	0.9023	-1365.57	-657.27	-825.09
6	229.00	60.0	0.2620	0.3920	147.34	148.70	0.9865	0.9934	2.2920	1.2601	0.5982	-1365.57	-657.27	-825.09
7	229.50	60.0	0.3000	0.3940	147.34	148.70	0.9864	0.9934	2.0162	1.3271	0.4182	-1365.57	-657.27	-825.09
8	231.00	60.0	0.4090	0.4120	147.34	148.70	0.9863	0.9934	1.5562	1.5351	0.0137	-1365.57	-657.27	-825.09
9	231.00	60.0	0.4260	0.4175	147.34	148.70	0.9862	0.9934	1.5140	1.5658	-0.0336	-1365.57	-657.27	-825.09
10	230.00	60.0	0.4895	0.4455	147.34	148.70	0.9862	0.9935	1.3998	1.6689	-0.1758	-1365.57	-657.27	-825.09
11	229.00	60.0	0.5660	0.5030	147.34	148.70	0.9860	0.9938	1.3607	1.7523	-0.2530	-1365.57	-657.27	-825.09
12	216.00	60.0	0.7050	0.5530	147.34	148.70	0.9866	0.9944	1.1336	2.1883	-0.6578	-1365.57	-657.27	-825.09
13	215.00	60.0	0.7350	0.5575	147.34	148.70	0.9866	0.9944	1.0911	2.4004	-0.7884	-1365.57	-657.27	-825.09
14	204.50	60.0	0.7960	0.6210	147.34	148.70	0.9871	0.9950	1.0680	2.5417	-0.8671	-1365.57	-657.27	-825.09
15	184.50	60.0	0.8800	0.7460	147.34	148.70	0.9881	0.9960	1.0481	2.6155	-0.9144	-1365.57	-657.27	-825.09
16	178.50	60.0	0.8940	0.7600	147.34	148.70	0.9885	0.9962	1.0173	2.7073	-0.9788	-1365.57	-657.27	-825.09
17	182.50	60.0	0.9250	0.7850	147.34	148.70	0.9882	0.9963	1.0380	3.5047	-1.2168	-1365.57	-657.27	-825.09
18	169.50	60.0	0.9500	0.8500	147.34	148.70	0.9889	0.9969	1.0172	3.4085	-1.2092	-1365.57	-657.27	-825.09

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 540.70 P = 51.00 V = 220.00 OMEGA = 0.612 OMEGAH = 0.201 DIPOLE = 1.68 ETA = 0.57

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.79973E 01 B = -0.15697E 04 C = 0.20950E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

VAPOR PRESSURE AT NBP

P = 757.4 AT T = 97.2

P = 760.0 AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.77979E 02 B = -.91570E-01 C = 0.27520E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 37

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.22948E 01 B = -.69286E 01 C = 0.35974E 01

STANDARD DEVIATION = 0.15605E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 9.9223 G2INF = 2.8189

T1INF = 60.00 T2INF = 60.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4416

AREA BELOW THE X-AXIS IS -0.4119

CROSS-OVER POINT IS X = 0.42

NORMALIZED AREA DIFFERENCE IS 0.0347

CONSISTENCY INDEX IS 3.47

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	467.97	1058.57	0.5275E-09	19.58	0.03236
2	1035.30	1272.79	0.1800E-02	3.06	0.01576
3	938.61	1242.66	0.2001E 01	3.42	0.01371
4	1016.71	1202.18	0.1078E 00	4.37	0.01422
5	1020.98	1230.00	0.2017E-01	3.40	0.01427
6	928.47	1211.02	0.1239E-01	4.51	0.01342
7	985.79	1228.09	0.1391E-01	3.60	0.01399
8	1055.07	1239.06	0.6446E-02	3.02	0.01470
9	1067.31	1238.02	0.6442E-02	3.00	0.01478
10	1044.40	1189.14	0.2671E-01	4.80	0.01465

1-PROPANOL(1) WATER(2) SYSTEM-114C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	92.3	0.0390	0.2810	608.35	608.35	0.9671	0.9671	8.6817	0.5015	2.7649	-985.93	-985.93	-985.87
2	760.00	88.8	0.0720	0.3600	530.14	530.14	0.9657	0.9657	6.9030	0.9521	1.9810	-1019.60	-1019.60	-1019.54
3	760.00	89.0	0.0750	0.3750	534.38	534.38	0.9657	0.9657	6.8489	0.9255	2.0015	-1017.63	-1017.63	-1017.57
4	760.00	87.9	0.1790	0.3880	511.42	511.42	0.9653	0.9653	3.1008	1.0664	1.0674	-1028.51	-1028.51	-1028.45
5	760.00	88.0	0.2000	0.3790	512.45	512.45	0.9653	0.9653	2.7055	1.1083	0.8925	-1028.01	-1028.01	-1027.95
6	760.00	87.5	0.4250	0.4260	502.27	502.27	0.9651	0.9651	1.4597	1.4538	0.0041	-1033.00	-1033.00	-1032.94
7	760.00	87.8	0.4820	0.4380	508.35	508.35	0.9652	0.9652	1.3077	1.5613	-0.1773	-1030.01	-1030.01	-1029.94
8	760.00	89.2	0.7120	0.5600	537.57	537.57	0.9658	0.9658	1.0710	2.0804	-0.6640	-1016.16	-1016.16	-1016.10
9	760.00	91.7	0.8500	0.6850	593.16	593.16	0.9669	0.9669	0.9956	2.5944	-0.9578	-992.07	-992.07	-992.01
10	760.00	95.0	0.9400	0.8550	673.61	673.61	0.9682	0.9682	0.9909	2.6327	-0.9772	-961.44	-961.44	-961.38

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 540.70 P = 51.00 V = 220.00 OMEGA = 0.612 OMEGAH = 0.201 DIPOLE = 1.68 ETA = 0.57

2 T = 540.70 P = 51.00 V = 220.00 OMEGA = 0.612 OMEGAH = 0.201 DIPOLE = 1.68 ETA = 0.57

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.79973E 01 B = 0.15697E 04 C = 0.20950E 03

2 A = 0.79973E 01 B = 0.15697E 04 C = 0.20950E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.77979E 02 B = -.9157CE-01 C = 0.27520E-03

2 A = 0.77979E 02 B = -.91570E-01 C = 0.27520E-03

VAPOR PRESSURE AT NBP

P = 757.4 AT T = 97.2

P = 757.4 AT T = 97.2

COMPONENT ID ECHO CHECK

ID NUMBER = 37

ID NUMBER = 37

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.24676E 01 B = -.77287E 01 C = 0.43954E 01

STANDARD DEVIATION = 0.12832E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 11.7938 G2INF = 2.3769

T1INF = 97.29 T2INF = 97.29

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4633

AREA BELOW THE X-AXIS IS -0.3949

CROSS-OVER POINT IS X = 0.42

NORMALIZED AREA DIFFERENCE IS 0.0796

HERINGTON J-FACTOR IS 4.07

CONSISTENCY INDEX IS 3.89

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1857.31	-39.74	0.4547E-10	41.80	0.05941
2	998.74	379.43	0.1212E-01	35.04	0.05299
3	1903.69	297.45	0.2028E 01	38.51	0.02108
4	2084.40	191.19	0.1373E 00	23.92	0.02440
5	1864.95	220.34	0.3412E-01	19.53	0.02553
6	2149.93	316.79	0.1052E-01	56.10	0.02000
7	1829.08	260.64	0.3189E-01	25.75	0.02408
8	1726.17	177.49	0.4639E-02	12.80	0.03205
9	1725.81	177.55	0.4639E-02	12.80	0.03206
10	2252.83	122.32	0.3907E-01	14.64	0.02910

2-PROPANOL(1) — CARBON TETRACHLORIDE(2) — SYSTEM 115

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	75.7	C.8960	0.7170	572.85	711.26	0.9857	0.9589	1.0435	2.7726	-0.9772	-386.16	-1022.65	-857.84
2	760.00	74.9	0.8620	0.6900	553.16	694.32	0.9854	0.9590	1.0803	2.3448	-0.7750	-387.86	-1028.39	-862.51
3	760.00	71.6	0.7640	0.5620	479.60	628.82	0.9840	0.9594	1.1437	2.1400	-0.6265	-395.02	-1052.24	-881.83
4	760.00	69.3	0.1530	0.2580	431.80	585.04	0.9795	0.9612	2.8990	1.0878	0.9802	-400.36	-1069.86	-896.06
5	760.00	69.0	0.2110	0.2920	426.33	579.96	0.9801	0.9608	2.4109	1.1236	0.7635	-401.02	-1072.00	-897.79
6	760.00	68.8	0.3070	0.3710	421.50	575.46	0.9812	0.9601	2.1320	1.1446	0.6220	-401.61	-1073.91	-899.34
7	760.00	69.1	0.5780	0.4160	429.25	582.68	0.9819	0.9599	1.2477	1.7231	-0.3228	-400.67	-1070.85	-896.87
8	760.00	71.8	0.7750	0.5670	483.01	631.90	0.9840	0.9594	1.1296	2.2082	-0.6703	-394.66	-1051.06	-880.87
9	760.00	70.1	0.6830	0.5030	448.51	600.48	0.9831	0.9594	1.2234	1.8933	-0.4367	-398.42	-1063.47	-890.91
10	760.00	70.6	0.7110	0.5270	458.90	610.00	0.9835	0.9594	1.2038	1.9454	-0.4800	-397.25	-1059.63	-887.80
11	760.00	70.5	0.7060	0.5170	456.44	607.75	0.9833	0.9594	1.1956	1.9601	-0.4944	-397.53	-1060.53	-888.53
12	760.00	72.5	0.8100	0.6010	499.47	646.65	0.9844	0.9592	1.1083	2.3542	-0.7534	-392.97	-1045.46	-876.34
13	760.00	74.3	0.8600	0.6040	538.56	681.35	0.9847	0.9599	0.9732	3.0116	-1.1297	-389.21	-1032.90	-866.16
14	760.00	69.5	0.6570	0.5000	436.92	589.78	0.9830	0.9592	1.2976	1.7919	-0.3228	-399.76	-1067.87	-894.46
15	760.00	71.4	0.0540	0.1580	474.94	624.60	0.9782	0.9624	4.5668	1.0365	1.4829	-395.51	-1053.88	-883.15
16	760.00	74.5	0.8680	0.6040	543.46	685.65	0.9847	0.9600	0.9555	3.1743	-1.2006	-388.76	-1031.39	-864.94
17	760.00	73.7	0.8420	0.6550	525.66	669.98	0.9850	0.9590	1.1047	2.3621	-0.7600	-390.41	-1036.94	-869.43
18	760.00	70.9	0.7200	0.5370	463.85	614.52	0.9836	0.9593	1.1985	1.9510	-0.4872	-396.71	-1057.83	-886.35
19	760.00	69.7	0.6230	0.4690	440.09	592.72	0.9827	0.9596	1.2739	1.7235	-0.3023	-399.39	-1066.66	-893.48
20	760.00	68.9	0.4880	0.4110	423.62	577.44	0.9818	0.9598	1.4792	1.4453	0.0232	-401.35	-1073.07	-898.66
21	760.00	68.5	0.5060	0.4120	415.95	570.27	0.9817	0.9597	1.4564	1.5139	-0.0387	-402.29	-1076.15	-901.14
22	760.00	68.3	0.4130	0.3810	413.10	567.59	0.9813	0.9599	1.6607	1.3479	0.2087	-402.65	-1077.31	-902.08
23	760.00	68.6	0.3390	0.3590	417.86	572.05	0.9810	0.9602	1.8842	1.2302	0.4263	-402.05	-1075.38	-900.52
24	760.00	68.8	0.3199	0.3510	421.69	575.64	0.9809	0.9603	1.9397	1.2016	0.4788	-401.58	-1073.84	-899.28
25	760.00	68.9	0.2590	0.3300	424.59	578.34	0.9806	0.9605	2.2301	1.1350	0.6754	-401.23	-1072.69	-898.35
26	760.00	68.9	0.2420	0.3250	424.01	577.80	0.9806	0.9606	2.3536	1.1189	0.7436	-401.30	-1072.92	-898.54
27	760.00	69.1	0.2110	0.3050	427.89	581.41	0.9803	0.9608	2.5096	1.1002	0.8247	-400.83	-1071.38	-897.30
28	760.00	69.3	0.1760	0.2890	431.80	585.04	0.9801	0.9610	2.8245	1.0712	0.9695	-400.36	-1069.86	-896.06
29	760.00	69.6	0.1460	0.2650	437.91	590.70	0.9797	0.9612	3.0774	1.0585	1.0672	-399.64	-1067.49	-894.16
30	760.00	69.4	0.5380	0.4420	434.74	587.78	0.9823	0.9598	1.4068	1.4906	-0.0579	-400.02	-1068.71	-895.14
31	760.00	68.9	0.2580	0.3320	424.40	578.16	0.9807	0.9605	2.2534	1.1304	0.6899	-401.25	-1072.76	-898.41

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1	T = 508.50	P = 47.00	V = 218.50	OMEGA = 0.663	OMEGAH = 0.187	DIPOLE = 1.60 ETA = 0.0
2	T = 556.40	P = 45.00	V = 279.60	OMEGA = 0.193	OMEGAH = 0.0	DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1	A = 0.66604E 01	B = 0.81305E 03	C = 0.13293E 03
2	A = 0.69339E 01	B = 0.12424E 04	C = 0.23000E 03

VAPOR PRESSURE AT NBP

P = 769.7 AT T = 82.5

P = 766.0 AT T = 76.8

MOLAR VOLUME EQUATION COEFFICIENTS

1	A = 0.14178E 03	B = -.49807E 00	C = 0.92870E-03
2	A = 0.61938E 02	B = -.29977E 00	C = 0.16761E-02

COMPONENT ID ECHO CHECK

ID NUMBER = 22

ID NUMBER = 6

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.15259E 01 B = -.33322E 01 C = 0.58394E 00

STANDARD DEVIATION = 0.92348E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 4.5995 G2INF = 3.3949

T1INF = 76.54 T2INF = 82.19

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3708

AREA BELOW THE X-AXIS IS -0.3163

CROSS-OVER POINT IS X = 0.50

NORMALIZED AREA DIFFERENCE IS 0.0793

HERINGTON J-FACTOR IS 3.61

CONSISTENCY INDEX IS 4.32

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1247.53	-99.37	0.9095E-11	35.63	0.02122
2	1283.59	120.46	0.1063E-01	14.01	0.02239
3	1399.27	-60.46	0.9044E 00	9.08	0.02292
4	1271.77	7.62	0.2104E 00	12.87	0.02048
5	1263.08	37.19	0.4607E-01	10.54	0.02025
6	1015.68	152.70	0.2700E-01	27.17	0.01665
7	1177.87	81.17	0.3889E-01	15.03	0.01851
8	1512.25	-84.41	0.2327E-02	4.98	0.02580
9	1512.55	-84.65	0.2327E-02	4.98	0.02581
10	1403.04	-70.07	0.3107E-01	10.41	0.02295

DIAGNOSTIC

4 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

2-PROPANOL(1) - ETHYL ACETATE(2) SYSTEM 116A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	118.00	40.0	0.9620	0.8653	90.70	186.02	0.9971	0.9894	1.1662	2.2233	-0.6452	-489.85	-1927.30	-1099.18
2	120.50	40.0	0.9500	0.8340	90.70	186.02	0.9970	0.9891	1.1623	2.1258	-0.6037	-489.85	-1927.30	-1099.18
3	126.00	40.0	0.9300	0.7825	90.70	186.02	0.9969	0.9885	1.1647	2.0789	-0.5794	-489.85	-1927.30	-1099.18
4	137.00	40.0	0.8945	0.6935	90.70	186.02	0.9967	0.9872	1.1798	1.9281	-0.4912	-489.85	-1927.30	-1099.18
5	148.50	40.0	0.8500	0.6270	90.70	186.02	0.9965	0.9860	1.2028	1.9559	-0.4862	-489.85	-1927.30	-1099.18
6	152.50	40.0	0.8010	0.5770	90.70	186.02	0.9965	0.9855	1.2062	1.7160	-0.3526	-489.85	-1927.30	-1099.18
7	161.50	40.0	0.7300	0.5050	90.70	186.02	0.9964	0.9845	1.2266	1.5658	-0.2441	-489.85	-1927.30	-1099.18
8	164.00	40.0	0.7100	0.4960	90.70	186.02	0.9964	0.9843	1.2578	1.5068	-0.1807	-489.85	-1927.30	-1099.18
9	174.00	40.0	0.6150	0.4220	90.70	186.02	0.9963	0.9832	1.3106	1.3794	-0.0512	-489.85	-1927.30	-1099.18
10	178.00	40.0	0.5385	0.3775	90.70	186.02	0.9963	0.9827	1.3698	1.2672	0.0778	-489.85	-1927.30	-1099.18
11	183.50	40.0	0.4600	0.3335	90.70	186.02	0.9964	0.9821	1.4604	1.1946	0.2008	-489.85	-1927.30	-1099.18
12	191.00	40.0	0.3595	0.2880	90.70	186.02	0.9964	0.9813	1.6796	1.1190	0.4061	-489.85	-1927.30	-1099.18
13	194.00	40.0	0.1860	0.1850	90.70	186.02	0.9967	0.9809	2.1187	1.0232	0.7278	-489.85	-1927.30	-1099.18
14	192.00	40.0	0.0915	0.1014	90.70	186.02	0.9970	0.9811	2.3372	1.0006	0.8484	-489.85	-1927.30	-1099.18

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

2 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293E 03

2 A = 0.70981E 01 B = 0.12387E 04 C = 0.21700E 03

VAPOR PRESSURE AT NBP

P = 769.7 AT T = 82.5

P = 769.5 AT T = 77.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

2 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 22

ID NUMBER = 12

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.10290E 01 B = -.17760E 01 C = 0.47001E-01

STANDARD DEVIATION = 0.20488E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.7982 G2INF = 2.0137

T1INF = 40.00 T2INF = 40.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3012

AREA BELOW THE X-AXIS IS -0.1445

CROSS-OVER POINT IS X = 0.59

NORMALIZED AREA DIFFERENCE IS 0.3515

CONSISTENCY INDEX IS 35.15

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	747.51	-104.78	0.1182F-10	11.66	0.02744
2	6.66	8864.51	0.1094F-01	9.80	0.07153
3	-369.48	8906.75	0.5288E 01	22.44	0.05104
4	-350.18	9213.89	0.1448F 01	21.09	0.05079
5	-196.24	9252.29	0.2126F 00	12.56	0.05241
6	-315.45	9113.02	0.8512E-01	18.62	0.05040
7	-214.10	9077.46	0.1446F 00	13.25	0.05171
8	251.28	696.40	0.3221F-02	1.90	0.04906
9	251.20	696.50	0.3220F-02	1.91	0.04906
10	659.22	45.61	0.1123F 00	7.18	0.03670

2-PROPANOL(1) - ETHYL ACETATE(2) SYSTEM 116B

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	425.00	60.0	0.0775	0.1068	277.47	408.70	0.9944	0.9684	2.0957	0.9730	0.7672	-423.82	-1546.48	-899.25
2	432.00	60.0	0.0805	0.1000	277.47	408.70	0.9944	0.9679	1.9201	0.9992	0.6531	-423.82	-1546.48	-899.25
3	430.50	60.0	0.1650	0.1795	277.47	408.70	0.9939	0.9681	1.6748	0.9999	0.5158	-423.82	-1546.48	-899.25
4	434.00	60.0	0.2475	0.2555	277.47	408.70	0.9933	0.9679	1.6013	1.0148	0.4562	-423.82	-1546.48	-899.25
5	432.00	60.0	0.3200	0.3023	277.47	408.70	0.9931	0.9682	1.4583	1.0478	0.3306	-423.82	-1546.48	-899.25
6	430.50	60.0	0.4095	0.3578	277.47	408.70	0.9928	0.9684	1.3437	1.1071	0.1937	-423.82	-1546.48	-899.25
7	420.00	60.0	0.5085	0.4168	277.47	408.70	0.9927	0.9694	1.2297	1.1796	0.0416	-423.82	-1546.48	-899.25
8	413.00	60.0	0.5680	0.4587	277.47	408.70	0.9927	0.9700	1.1913	1.2257	-0.0285	-423.82	-1546.48	-899.25
9	411.50	60.0	0.5725	0.4631	277.47	408.70	0.9927	0.9701	1.1890	1.2243	-0.0292	-423.82	-1546.48	-899.25
10	404.50	60.0	0.6400	0.5119	277.47	408.70	0.9926	0.9708	1.1556	1.3002	-0.1178	-423.82	-1546.48	-899.25
11	394.00	60.0	0.6865	0.5337	277.47	408.70	0.9927	0.9717	1.1045	1.3757	-0.2196	-423.82	-1546.48	-899.25
12	385.00	60.0	0.7335	0.5787	277.47	408.70	0.9927	0.9725	1.0852	1.4455	-0.2867	-423.82	-1546.48	-899.25
13	358.50	60.0	0.8245	0.6795	277.47	408.70	0.9930	0.9748	1.0555	1.5587	-0.3894	-423.82	-1546.48	-899.25
14	355.00	60.0	0.8410	0.7020	277.47	408.70	0.9930	0.9751	1.0591	1.5847	-0.4029	-423.82	-1546.48	-899.25
15	343.00	60.0	0.8705	0.7372	277.47	408.70	0.9932	0.9761	1.0384	1.6596	-0.4689	-423.82	-1546.48	-899.25
16	330.50	60.0	0.9065	0.7824	277.47	408.70	0.9934	0.9772	1.0200	1.8360	-0.5878	-423.82	-1546.48	-899.25
17	329.50	60.0	0.9145	0.8100	277.47	408.70	0.9934	0.9773	1.0436	1.7482	-0.5159	-423.82	-1546.48	-899.25
18	321.50	60.0	0.9260	0.8415	277.47	408.70	0.9935	0.9780	1.0449	1.6453	-0.4540	-423.82	-1546.48	-899.25
19	312.50	60.0	0.9545	0.8746	277.47	408.70	0.9937	0.9788	1.0242	2.0595	-0.6985	-423.82	-1546.48	-899.25

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

2 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293E 03

2 A = 0.70981E 01 B = 0.12387E 04 C = 0.21700E 03

VAPOR PRESSURE AT NBP

P = 769.7 AT T = 82.5

P = 769.5 AT T = 77.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

2 A = 0.13612E 03 B = -.37001E 00 C = 0.80775E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 22

ID NUMBER = 12

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.80911E 00 B = -.14840E 01 C = 0.91386E-02

STANDARD DEVIATION = 0.47619E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.2459 G2INF = 1.9459

T1INF = 60.00 T2INF = 60.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2211

AREA BELOW THE X-AXIS IS -0.1509

CROSS-OVER POINT IS X = 0.55

NORMALIZED AREA DIFFERENCE IS 0.1886

CONSISTENCY INDEX IS 18.86

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	589.25	-41.30	C.1819E-11	5.29	0.01494
2	142.92	526.24	C.1000E-02	3.51	0.01482
3	568.82	-13.73	0.1699E 00	4.91	0.01501
4	497.35	35.00	C.7281E-01	4.13	0.01395
5	279.80	262.21	C.8250E-02	2.79	0.01149
6	255.99	236.04	0.5250E-02	7.65	0.00981
7	230.61	315.58	C.8212E-02	3.57	0.01055
8	267.65	303.15	0.7431E-03	1.79	0.01250
9	267.65	303.15	C.7430E-03	1.79	0.01250
10	575.97	-15.66	C.4259E-01	4.98	0.01523

2-PROPANOL(1) ETHYL ACETATE(2) SYSTEM 116C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	76.8	0.0960	0.1114	601.16	725.75	0.9911	0.9547	1.4498	0.9792	0.3925	-383.79	-1301.24	-772.16
2	760.00	75.9	0.3850	0.3538	577.98	704.43	0.9889	0.9548	1.1915	1.0784	0.0997	-385.72	-1313.30	-778.38
3	760.00	76.4	0.5390	0.4662	589.36	715.37	0.9882	0.9556	1.0981	1.1712	-0.0644	-384.72	-1307.06	-775.16
4	760.00	76.8	0.5985	0.5240	601.16	725.75	0.9879	0.9562	1.0903	1.1827	-0.0813	-383.79	-1301.24	-772.16
5	760.00	77.3	0.6555	0.5750	611.34	735.07	0.9877	0.9567	1.0740	1.2158	-0.1240	-382.97	-1296.09	-769.50
6	760.00	78.7	0.7710	0.6750	649.36	769.62	0.9874	0.9581	1.0089	1.3378	-0.2822	-380.05	-1277.68	-760.02
7	760.00	79.4	0.8295	0.7410	667.80	786.24	0.9873	0.9589	1.0009	1.4029	-0.3377	-378.70	-1269.18	-755.64
8	760.00	80.3	0.8815	0.8068	693.37	809.16	0.9872	0.9599	0.9876	1.4645	-0.3941	-376.90	-1257.80	-749.78

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

2 T = 523.30 P = 37.80 V = 286.00 OMEGA = 0.373 OMEGAH = 0.278 DIPOLE = 1.78 ETA = 0.50

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293E 03

2 A = 0.70981E 01 B = 0.12387E 04 C = 0.21700E 03

VAPOR PRESSURE AT NBP

P = 769.7 AT T = 82.5

P = 769.5 AT T = 77.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

2 A = -0.13612E 03 B = -.37001E 00 C = 0.80775E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 22

ID NUMBER = 12

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.47535E 00 B = -.91174E 00 C = -.78313E-01

STANDARD DEVIATION = 0.21273E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.6086 G2INF = 1.6731

T1INF = 76.72 T2INF = 82.19

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1204

AREA BELOW THE X-AXIS IS -0.1271

CROSS-OVER POINT IS X = 0.50

NORMALIZED AREA DIFFERENCE IS -0.0267

HERINGTON J-FACTOR IS 1.88

CONSISTENCY INDEX IS 0.79

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	299.02	73.15	0.0	7.50	0.00362
2	354.24	-8.15	0.1097E-02	7.05	0.00462
3	294.45	65.46	0.3476E-02	7.20	0.00416
4	312.57	45.69	0.2920E-02	7.04	0.00416
5	366.64	-14.58	0.1417E-02	6.76	0.00436
6	357.12	15.17	0.2880E-03	7.64	0.00368
7	388.05	-29.14	0.1385E-02	6.54	0.00409
8	363.29	-16.80	0.1029E-02	6.97	0.00460
9	362.99	-16.55	0.1028E-02	6.98	0.00460
10	293.16	62.81	0.9236E-02	7.33	0.00433

2-PROPANOL(1) HEPTANE(2) SYSTEM 117A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	82.75	30.0	C.C30C	0.3020	46.72	57.86	0.9974	0.9881	17.7772	1.0162	2.8619	-533.65	-270C.54	-1673.95
2	85.61	30.0	0.0500	0.3280	46.72	57.86	0.9974	C.9877	11.9840	1.0330	2.4511	-533.65	-2700.54	-1673.95
3	90.61	30.0	C.1000	0.3740	46.72	57.86	0.9973	C.9870	7.2304	1.0742	1.9067	-533.65	-270C.54	-1673.95
4	93.23	30.0	0.1500	0.3990	46.72	57.86	0.9972	0.9866	5.2908	1.1231	1.5499	-533.65	-2700.54	-1673.95
5	94.64	30.0	C.2000	0.4140	46.72	57.86	0.9972	0.9864	4.1793	1.1809	1.2639	-533.65	-270C.54	-1673.95
6	96.38	30.0	0.3000	0.4400	46.72	57.86	C.9971	0.9861	3.0155	1.3130	0.8315	-533.65	-2700.54	-1673.95
7	97.18	30.0	0.4000	0.4590	46.72	57.86	C.9971	0.9860	2.3789	1.4920	0.4665	-533.65	-2700.54	-1673.95
8	97.28	30.0	C.5000	0.4760	46.72	57.86	0.9971	C.9860	1.9756	1.7358	0.1294	-533.65	-270C.54	-1673.95
9	96.81	30.0	C.600C	0.4960	46.72	57.86	0.9971	0.9860	1.7073	2.0770	-0.1960	-533.65	-270C.54	-1673.95
10	95.30	30.0	0.7000	0.5230	46.72	57.86	0.9972	C.9862	1.5191	2.5807	-0.5300	-533.65	-2700.54	-1673.95
11	91.80	30.0	C.8000	0.5670	46.72	57.86	0.9973	0.9867	1.3883	3.3866	-0.8518	-533.65	-270C.54	-1673.95
12	88.80	30.0	0.8500	0.6000	46.72	57.86	0.9974	0.9871	1.3376	4.0369	-1.1046	-533.65	-2700.54	-1673.95
13	83.94	30.0	0.9000	0.6520	46.72	57.86	C.9976	C.9878	1.2979	4.9834	-1.3454	-533.65	-2700.54	-1673.95

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.50 P = 47.CC V = 218.5C OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

2 T = 540.20 P = 27.00 V = 431.90 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293F 03

2 A = 0.69024E 01 B = 0.12681E 04 C = 0.21690F 03

VAPOR PRESSURE AT NBP

P = 769.7 AT T = 82.5

P = 759.4 AT T = 98.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.141 78E 03 B = -.49807E 00 C = 0.92870F-03

2 A = C.1288CE C3 B = -.60277E-C1 C = 0.41160F-03

COMPONENT ID ECHO CHECK

ID NUMBER = 22

ID NUMBER = 16

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.2702IE 01 B = .66535E 01 C = 0.261C0E 01

STANDARD DEVIATICN = 0.18715E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 14.9114 G2INF = 3.8243

T1INF = 30.00 T2INF = 30.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.6282

AREA BELOW THE X-AXIS IS -C.3828

CROSS-CVER POINT IS X = 0.51

NORMALIZED AREA DIFFERENCE IS 0.2427

CONSISTENCY INDEX IS 24.27

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	1816.45	-139.67	0.2474E-09	17.27	0.07206
2	1683.31	10843.15	0.1212E-01	4.66	0.05007
3	2233.03	297.36	0.2161E 01	5.12	0.04958
4	2057.09	401.34	0.3751E 00	4.30	0.04821
5	1934.26	601.24	0.1084E 00	2.25	0.04738
6	1909.16	269.22	0.7720E-01	7.84	0.05194
7	1866.80	525.82	0.9752E-01	3.93	0.04769
8	1990.33	719.08	0.2557E-02	1.15	0.04970
9	1990.33	719.08	0.2557E-02	1.15	0.04970
10	2302.79	220.85	0.8208E-02	6.20	0.05015

DIAGNOSTIC

5 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION
SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

2-PROPANOL(1) HEPTANE(2) SYSTEM 1178

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	127.75	45.0	0.0050	0.1010	122.86	113.27	0.9963	0.9850	20.9175	1.0027	3.0379	-470.97	-2333.07	-1466.76
2	138.51	45.0	0.0100	0.1730	122.86	113.27	0.9961	0.9837	19.4187	1.0037	2.9625	-470.97	-2333.07	-1466.76
3	163.45	45.0	0.0300	0.3070	122.86	113.27	0.9957	0.9807	13.5469	1.0097	2.5965	-470.97	-2333.07	-1466.76
4	172.33	45.0	0.0500	0.3470	122.86	113.27	0.9955	0.9796	9.6843	1.0231	2.2477	-470.97	-2333.07	-1466.76
5	184.57	45.0	0.1000	0.3990	122.86	113.27	0.9952	0.9781	5.9615	1.0628	1.7244	-470.97	-2333.07	-1466.76
6	191.31	45.0	0.1500	0.4290	122.86	113.27	0.9951	0.9773	4.4285	1.1072	1.3862	-470.97	-2333.07	-1466.76
7	195.59	45.0	0.2000	0.4490	122.86	113.27	0.9950	0.9768	3.5536	1.1599	1.1196	-470.97	-2333.07	-1466.76
8	200.09	45.0	0.3000	0.4760	122.86	113.27	0.9949	0.9762	2.5691	1.2889	0.6898	-470.97	-2333.07	-1466.76
9	202.93	45.0	0.4000	0.5000	122.86	113.27	0.9949	0.9758	2.0526	1.4546	0.3443	-470.97	-2333.07	-1466.76
10	203.84	45.0	0.5000	0.5200	122.86	113.27	0.9949	0.9757	1.7154	1.6830	0.0191	-470.97	-2333.07	-1466.76
11	203.50	45.0	0.6000	0.5420	122.86	113.27	0.9949	0.9757	1.4875	2.0040	-0.2980	-470.97	-2333.07	-1466.76
12	201.87	45.0	0.7000	0.5710	122.86	113.27	0.9950	0.9760	1.3280	2.4748	-0.6225	-470.97	-2333.07	-1466.76
13	195.17	45.0	0.8000	0.6170	122.86	113.27	0.9952	0.9766	1.2184	3.2177	-0.9711	-470.97	-2333.07	-1466.76
14	189.85	45.0	0.8500	0.6500	122.86	113.27	0.9954	0.9772	1.1754	3.8162	-1.1777	-470.97	-2333.07	-1466.76
15	181.21	45.0	0.9000	0.7000	122.86	113.27	0.9956	0.9782	1.1414	4.6881	-1.4128	-470.97	-2333.07	-1466.76
16	165.59	45.0	0.9500	0.7930	122.86	113.27	0.9960	0.9799	1.1199	5.9232	-1.6656	-470.97	-2333.07	-1466.76
17	150.53	45.0	0.9800	0.8940	122.86	113.27	0.9964	0.9816	1.1131	6.9057	-1.8252	-470.97	-2333.07	-1466.76
18	144.16	45.0	0.9900	0.9410	122.86	113.27	0.9966	0.9823	1.1109	7.3678	-1.8920	-470.97	-2333.07	-1466.76

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

2 T = 540.20 P = 27.00 V = 431.96 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293E 03

2 A = 0.69024E 01 B = 0.12681E 04 C = 0.21690E 03

VAPOR PRESSURE AT NBP

P = 769.7 AT T = 82.5

P = 759.4 AT T = 98.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

2 A = 0.12880E 03 B = -.60277E-01 C = 0.41160E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 22

ID NUMBER = 16

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.26828E 01 B = -.66705E 01 C = 0.22931E 01

STANDARD DEVIATION = 0.24766E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 14.6267 G2INF = 5.4443

T1INF = 45.00 T2INF = 45.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.6039

AREA BELOW THE X-AXIS IS -0.4915

CROSS-OVER POINT IS X = 0.48

NORMALIZED AREA DIFFERENCE IS 0.1022

CONSISTENCY INDEX IS 10.22

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	1768.49	90.18	0.2956E-09	14.82	0.02985
2	1291.71	1467.58	0.2302E-01	12.24	0.06938
3	2002.35	264.91	0.1291E 01	5.67	0.02102
4	1978.84	268.80	0.1475E 00	5.70	0.02108
5	1870.13	371.72	0.5481E-01	4.35	0.02544
6	1947.10	169.63	0.2186E-01	8.08	0.01927
7	1851.19	332.03	0.5491E-01	5.23	0.02339
8	1767.40	535.23	0.1458E-01	3.75	0.03281
9	1766.65	535.59	0.1457E-01	3.74	0.03283
10	1997.84	272.16	0.3462E-02	5.55	0.02128

2-PROPANOL(1) — HEPTANE(2) SYSTEM 117C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	229.10	60.0	0.0050	0.0820	277.47	205.57	0.9942	0.9774	13.4513	1.0033	2.5958	-423.82	-2044.65	-1300.55
2	245.78	60.0	0.0100	0.1470	277.47	205.57	0.9940	0.9758	12.9308	1.0034	2.5562	-423.82	-2044.65	-1300.55
3	294.64	60.0	0.0300	0.2970	277.47	205.57	0.9932	0.9709	10.4295	1.0063	2.3384	-423.82	-2044.65	-1300.55
4	318.61	60.0	0.0500	0.3560	277.47	205.57	0.9928	0.9684	8.1070	1.0151	2.0778	-423.82	-2044.65	-1300.55
5	347.43	60.0	0.1000	0.4190	277.47	205.57	0.9923	0.9655	5.1992	1.0507	1.5991	-423.82	-2044.65	-1300.55
6	362.44	60.0	0.1500	0.4520	277.47	205.57	0.9920	0.9639	3.8995	1.0928	1.2721	-423.82	-2044.65	-1300.55
7	373.32	60.0	0.2000	0.4740	277.47	205.57	0.9918	0.9628	3.1583	1.1465	1.0133	-423.82	-2044.65	-1300.55
8	384.23	60.0	0.3000	0.5070	277.47	205.57	0.9917	0.9617	2.3174	1.2623	0.6075	-423.82	-2044.65	-1300.55
9	391.83	60.0	0.4000	0.5340	277.47	205.57	0.9916	0.9608	1.8666	1.4183	0.2746	-423.82	-2044.65	-1300.55
10	395.30	60.0	0.5000	0.5540	277.47	205.57	0.9915	0.9605	1.5741	1.6279	-0.0336	-423.82	-2044.65	-1300.55
11	396.17	60.0	0.6000	0.5830	277.47	205.57	0.9916	0.9603	1.3736	1.9237	-0.3368	-423.82	-2044.65	-1300.55
12	393.29	60.0	0.7000	0.6140	277.47	205.57	0.9917	0.9605	1.2311	2.3576	-0.6497	-423.82	-2044.65	-1300.55
13	384.11	60.0	0.8000	0.6610	277.47	205.57	0.9919	0.9613	1.1329	3.0360	-0.9857	-423.82	-2044.65	-1300.55
14	375.54	60.0	0.8500	0.6930	277.47	205.57	0.9922	0.9621	1.0933	3.5872	-1.1882	-423.82	-2044.65	-1300.55
15	361.39	60.0	0.9000	0.7410	277.47	205.57	0.9925	0.9634	1.0629	4.3749	-1.4149	-423.82	-2044.65	-1300.55
16	335.93	60.0	0.9500	0.8260	277.47	205.57	0.9931	0.9657	1.0441	5.4783	-1.6577	-423.82	-2044.65	-1300.55
17	311.31	60.0	0.9800	0.9130	277.47	205.57	0.9936	0.9680	1.0374	6.3620	-1.8136	-423.82	-2044.65	-1300.55
18	330.92	60.0	0.9990	0.9520	277.47	205.57	0.9939	0.9689	1.0353	6.7930	-1.8812	-423.82	-2044.65	-1300.55

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

2 T = 540.20 P = 27.00 V = 431.50 OMEGA = 0.349 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293E 03

2 A = 0.69024E 01 B = 0.12681E 04 C = 0.21690E 03

VAPOR PRESSURE AT NBP

P = 769.7 AT T = 82.5

P = 759.4 AT T = 98.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

2 A = 0.12880E 03 B = -.60277E-01 C = 0.41160E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 22

ID NUMBER = 16

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.23807E 01 B = -.58334E 01 C = 0.17374E 01

STANDARD DEVIATION = 0.19105E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 10.8129 G2INF = 5.5582

T1INF = 60.00 T2INF = 60.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.5348

AREA BELOW THE X-AXIS IS -0.4917

CROSS-OVER POINT IS X = 0.48

NORMALIZED AREA DIFFERENCE IS 0.0421

CONSISTENCY INDEX IS 4.21

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1632.63	139.21	0.7731E-10	13.62	0.01591
2	1491.11	460.49	0.4452E-02	7.56	0.02240
3	1786.70	255.15	0.8398E 00	5.82	0.01287
4	1775.65	237.69	0.5798E-01	5.49	0.01187
5	1749.47	233.47	0.1510E-01	5.60	0.01186
6	1779.98	171.86	0.6686E-02	6.89	0.01140
7	1733.24	224.07	0.1255E-01	5.93	0.01189
8	1714.08	279.66	0.6918E-02	5.58	0.01366
9	1713.89	279.64	0.6918E-02	5.58	0.01366
10	1782.50	260.69	0.3786E-02	5.84	0.01309

2-PROPANOL(1) ISOPROPYLETHER(2) SYSTEM 118

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	80.6	0.9750	0.9230	701.87	1161.60	0.9870	0.9495	1.0069	1.9042	-0.6352	-376.32	-1251.76	-949.52
2	760.00	78.9	0.9400	0.8300	654.74	1104.65	0.9866	0.9501	1.0083	1.8430	-0.6031	-379.65	-1267.24	-960.64
3	760.00	77.2	0.9100	0.7400	610.06	1049.85	0.9861	0.9504	0.9961	1.9779	-0.6859	-383.07	-1283.02	-971.98
4	760.00	74.3	0.8400	0.6100	539.26	961.20	0.9849	0.9505	1.0052	1.8229	-0.5953	-389.14	-1310.67	-991.81
5	760.00	72.3	0.7780	0.5300	494.23	903.50	0.9840	0.9503	1.0279	1.6841	-0.4937	-393.50	-1330.28	-1005.86
6	760.00	70.5	0.7050	0.4500	456.23	853.91	0.9830	0.9502	1.0422	1.5688	-0.4090	-397.55	-1348.33	-1018.79
7	760.00	68.9	0.6000	0.3850	424.40	811.62	0.9819	0.9499	1.1251	1.3607	-0.1901	-401.25	-1364.70	-1030.50
8	760.00	68.2	0.5450	0.3550	411.02	793.64	0.9814	0.9497	1.1787	1.2828	-0.0846	-402.91	-1371.97	-1035.70
9	760.00	67.0	0.3830	0.2790	388.85	763.55	0.9802	0.9496	1.3915	1.0989	0.2361	-405.79	-1384.56	-1044.70
10	760.00	66.6	0.3100	0.2450	381.68	753.72	0.9796	0.9495	1.5371	1.0424	0.3884	-406.76	-1388.80	-1047.74
11	760.00	66.5	0.2950	0.2400	379.90	751.28	0.9795	0.9495	1.5896	1.0302	0.4337	-407.00	-1389.87	-1048.49
12	760.00	66.2	0.2700	0.2000	374.60	743.99	0.9787	0.9495	1.4667	1.0576	0.3270	-407.74	-1393.06	-1050.78
13	760.00	66.2	0.1600	0.1700	374.60	743.99	0.9782	0.9496	2.1027	0.9537	0.7906	-407.74	-1393.06	-1050.78
14	760.00	66.4	0.1350	0.1600	378.13	748.84	0.9781	0.9498	2.3233	0.9313	0.9141	-407.25	-1390.93	-1049.26
15	760.00	66.6	0.0600	0.0850	381.68	753.72	0.9767	0.9501	2.7474	0.9278	1.0856	-406.76	-1388.80	-1047.74
16	760.00	66.8	0.0300	0.0550	385.25	758.62	0.9762	0.9502	3.5205	0.9227	1.3390	-406.27	-1386.68	-1046.22
17	760.00	67.3	0.0100	0.0200	394.31	770.98	0.9756	0.9505	3.7500	0.9228	1.4021	-405.06	-1381.40	-1042.44

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

2 T = 500.10 P = 28.40 V = 382.00 OMEGA = 0.350 OMEGAH = 0.306 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293E 03

2 A = 0.79047E 01 B = 0.16993E 04 C = 0.27315E 03

VAPOR PRESSURE AT NBP

P = 769.7 AT T = 82.5

P = 846.9 AT T = 68.3

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

2 A = 0.14077E 03 B = 0.0 C = 0.0

COMPONENT ID ECHO CHECK

ID NUMBER = 22

ID NUMBER = 46

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.13787E 01 B = -.37375E 01 C = 0.16996E 01

STANDARD DEVIATION = 0.65896E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 3.9696 G2INF = 1.9334

T1INF = 65.10 T2INF = 82.19

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2940

AREA BELOW THE X-AXIS IS -0.2176

CROSS-OVER POINT IS X = 0.47

NORMALIZED AREA DIFFERENCE IS 0.1494

HERINGTON J-FACTOR IS 6.37

CONSISTENCY INDEX IS 8.57

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	1380.28	-450.16	0.1546E-10	37.20	0.01486
2	433.12	195.94	0.1300E-01	18.36	0.02081
3	1345.55	-406.48	0.2418E 00	38.89	0.01299
4	1294.12	-389.09	0.1325E 00	37.23	0.01284
5	638.37	-10.69	0.2891E-01	17.50	0.01569
6	989.69	-207.27	0.5989E-02	35.98	0.01176
7	613.14	33.70	0.3984E-01	18.01	0.01556
8	495.63	134.85	0.1562E-01	16.50	0.01877
9	495.52	134.86	0.1563E-01	16.50	0.01878
10	1343.97	-414.55	0.3736E-01	37.82	0.01318

2-PROPANOL(2) METHYLCYCLOHEXANE(2) SYSTEM 115

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	500.00	75.4	0.0300	0.3440	565.33	338.58	0.9894	0.9637	10.0155	0.9594	2.3456	-386.81	-1558.02	-1065.77
2	500.00	71.0	0.0770	0.4340	466.55	292.71	0.9895	0.9617	5.9656	1.0042	1.7818	-396.41	-1610.20	-1098.93
3	500.00	64.8	0.1800	0.4910	350.64	236.50	0.9892	0.9589	3.8402	1.2544	1.1189	-411.22	-1689.18	-1148.75
4	500.00	68.0	0.2500	0.5110	407.26	264.34	0.9895	0.9602	2.4785	1.1804	0.7418	-403.38	-1647.58	-1122.57
5	500.00	67.0	0.3310	0.5400	388.85	255.37	0.9896	0.9596	2.0719	1.2878	0.4755	-405.79	-1660.38	-1130.64
6	500.00	66.8	0.4270	0.5580	385.25	253.61	0.9896	0.9595	1.6752	1.4545	0.1413	-406.27	-1662.96	-1132.27
7	500.00	66.7	0.5090	0.5810	383.46	252.73	0.9897	0.9593	1.4702	1.6145	-0.0936	-406.51	-1664.26	-1133.08
8	500.00	66.6	0.5810	0.6000	381.68	251.86	0.9897	0.9592	1.3365	1.8121	-0.3045	-406.76	-1665.55	-1133.90
9	500.00	66.5	0.6680	0.6230	379.90	250.98	0.9898	0.9590	1.2127	2.1626	-0.5785	-407.00	-1666.85	-1134.71
10	500.00	66.5	0.7350	0.6500	379.90	250.98	0.9899	0.9589	1.1500	2.5150	-0.7825	-407.00	-1666.85	-1134.71
11	500.00	67.0	0.7880	0.6820	388.85	255.37	0.9900	0.9589	1.0997	2.8073	-0.9372	-405.79	-1660.38	-1130.64
12	500.00	67.5	0.8430	0.7190	397.97	259.82	0.9902	0.9590	1.0590	3.2924	-1.1343	-404.58	-1653.96	-1126.59
13	500.00	68.1	0.8870	0.7680	409.14	265.25	0.9903	0.9589	1.0459	3.6994	-1.2633	-403.14	-1646.31	-1121.77
14	500.00	69.2	0.9350	0.8350	430.23	275.41	0.9905	0.9590	1.0261	4.4054	-1.4571	-400.55	-1632.45	-1113.01
15	500.00	70.3	0.9650	0.8990	452.16	285.89	0.9907	0.9590	1.0187	4.8248	-1.5553	-398.01	-1618.79	-1104.37

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

2 T = 572.30 P = 34.30 V = 372.40 OMEGA = 0.235 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293E 03

2 A = 0.68269E 01 B = 0.12729E 04 C = 0.22163E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

2 A = 0.11310E 03 B = -.38740E-01 C = 0.30202E-03

VAPOR PRESSURE AT NBP

P = 769.7 AT T = 82.5

P = 759.3 AT T = 100.9

COMPONENT ID ECHO CHECK

ID NUMBER = 22

ID NUMBER = 26

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.22388E 01 B = -.56531E 01 C = 0.19161E 01

STANDARD DEVIATION = 0.13527E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 9.3820 G2INF = 4.4735

T1INF = 86.72 T2INF = 72.31

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4942

AREA BELOW THE X-AXIS IS -0.4432

CROSS-OVER POINT IS X = 0.47

NORMALIZED AREA DIFFERENCE IS 0.0544

HERINGTON J-FACTOR IS 9.73

CONSISTENCY INDEX IS -4.30

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	1629.50	91.35	0.1404E-08	21.24	0.01785
2	1759.53	205.66	0.1824E-01	9.67	0.01151
3	1864.43	172.29	0.4861E 00	11.44	0.01176
4	1800.91	181.73	0.5921E-01	10.17	0.01125
5	1764.62	202.14	0.2162E-01	9.69	0.01143
6	1812.02	176.58	0.5781E-02	10.34	0.01134
7	1755.42	208.74	0.1442E-01	9.65	0.01160
8	1727.30	221.05	0.1551E-01	9.57	0.01187
9	1727.26	221.23	0.1551E-01	9.57	0.01188
10	1860.18	173.56	0.5857E-02	11.37	0.01173

2-PROPANOL(1) — WATER(2) — SYSTEM 120A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	95.0	0.0080	0.1600	1210.53	624.39	0.9935	0.9827	12.4398	1.0122	2.5088	-351.48	-529.05	-331.79
2	760.00	91.3	0.0160	0.2850	1059.81	544.84	0.9918	0.9825	12.6336	0.9952	2.5412	-357.33	-541.23	-339.79
3	760.00	89.8	0.0250	0.3250	1002.84	515.07	0.9913	0.9824	9.7390	1.0029	2.2732	-359.80	-546.25	-343.13
4	760.00	88.2	0.0320	0.3650	944.62	484.81	0.9908	0.9824	9.0670	1.0096	2.1951	-362.50	-551.66	-346.75
5	760.00	84.9	0.0650	0.4350	832.55	427.02	0.9899	0.9823	6.0304	1.0557	1.7426	-368.29	-563.00	-354.41
6	760.00	83.0	0.1100	0.4900	772.73	396.42	0.9893	0.9823	4.3220	1.0785	1.3881	-371.77	-569.64	-358.95
7	760.00	81.6	0.2350	0.5460	730.77	375.06	0.9887	0.9826	2.3824	1.1808	0.7019	-374.40	-574.59	-362.35
8	760.00	81.1	0.3400	0.5700	716.21	367.66	0.9885	0.9827	1.7536	1.3226	0.2821	-375.36	-576.36	-363.58
9	760.00	80.7	0.4200	0.5900	704.72	361.84	0.9883	0.9828	1.4931	1.4583	0.0236	-376.13	-577.79	-364.57
10	760.00	80.3	0.5500	0.6250	693.37	356.09	0.9881	0.9831	1.2273	1.7474	-0.3533	-376.90	-579.22	-365.56
11	760.00	80.2	0.5600	0.6350	690.56	354.66	0.9880	0.9831	1.2295	1.7465	-0.3510	-377.10	-579.58	-365.81
12	760.00	80.1	0.5900	0.6500	687.75	353.24	0.9879	0.9833	1.1994	1.8048	-0.4087	-377.29	-579.94	-366.06
13	760.00	80.0	0.7200	0.7000	684.95	351.83	0.9877	0.9838	1.0624	2.2755	-0.7616	-377.48	-580.30	-366.31
14	760.00	80.0	0.7500	0.7300	684.95	351.83	0.9875	0.9841	1.0635	2.2944	-0.7689	-377.48	-580.30	-366.31
15	760.00	80.1	0.7800	0.7500	687.75	353.24	0.9875	0.9844	1.0463	2.4051	-0.8324	-377.29	-579.94	-366.06
16	760.00	80.2	0.8300	0.7900	690.56	354.66	0.9873	0.9849	1.0313	2.6053	-0.9267	-377.10	-579.58	-365.81
17	760.00	80.9	0.8700	0.8200	710.45	364.74	0.9873	0.9853	0.9927	2.8410	-1.0515	-375.74	-577.08	-364.08
18	760.00	80.6	0.9000	0.8500	701.97	360.39	0.9872	0.9857	1.0067	3.1159	-1.1298	-376.32	-578.15	-364.82
19	760.00	81.0	0.9450	0.9000	713.32	366.20	0.9872	0.9864	0.9988	3.7197	-1.3148	-375.55	-576.72	-363.83
20	760.00	81.2	0.9600	0.9200	719.10	369.13	0.9871	0.9867	0.9970	4.0605	-1.4043	-375.17	-576.01	-363.34

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.66604E 01 B = -0.81305E 03 C = 0.13293E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

VAPOR PRESSURE AT NBP

P = 769.7 AT T = 82.5

P = 760.0 AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 22

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.23711E 01 B = -.68001E 01 C = 0.32348E 01

STANDARD DEVIATION = 0.16760E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 10.7093 G2INF = 3.3008

T1INF = 100.00 T2INF = 82.19

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4769

AREA BELOW THE X-AXIS IS -0.4276

CROSS-OVER POINT IS X = 0.44

NORMALIZED AREA DIFFERENCE IS 0.0545

HERINGTON J-FACTOR IS 8.50

CONSISTENCY INDEX IS -3.04

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	508.42	1262.86	0.5463E-06	21.41	0.01756
2	940.99	1227.60	0.1135E-02	8.71	0.01154
3	670.94	1362.84	0.2238E 01	13.31	0.00711
4	680.99	1338.22	0.5876E-01	10.10	0.00638
5	758.94	1284.82	0.4797E-02	6.06	0.00739
6	708.17	1318.40	0.2653E-02	7.69	0.00645
7	742.67	1292.97	0.3233E-02	6.47	0.00705
8	789.75	1270.32	0.1604E-02	5.59	0.00804
9	789.74	1270.32	0.1604E-02	5.59	0.00804
10	649.17	1381.54	0.1554E-01	15.44	0.00785

DIAGNOSTIC

2 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION
SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

2-PROPANOL(1) - WATER(2) SYSTEM 12CB

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	97.6	0.0045	0.0815	1324.09	685.06	0.9946	0.9829	10.3106	1.0055	2.3277	-347.60	-520.76	-326.40
2	760.00	96.2	0.0069	0.1405	1262.63	652.14	0.9938	0.9828	12.1463	0.9907	2.5064	-349.65	-525.16	-329.25
3	760.00	93.7	0.0127	0.2185	1154.23	594.55	0.9927	0.9826	11.2143	0.9936	2.4236	-353.56	-533.43	-334.65
4	760.00	87.8	0.0357	0.3692	931.88	478.21	0.9907	0.9824	8.3326	1.0206	2.0998	-363.12	-552.88	-347.57
5	760.00	84.3	0.0678	0.4647	812.66	416.82	0.9896	0.9824	6.3253	1.0279	1.8170	-369.42	-565.16	-355.88
6	760.00	82.8	0.1330	0.5036	767.84	393.93	0.9892	0.9824	3.6967	1.0845	1.2263	-372.07	-570.20	-359.33
7	760.00	82.5	0.1651	0.5153	758.14	388.98	0.9890	0.9825	3.0858	1.1137	1.0191	-372.67	-571.33	-360.11
8	760.00	81.5	0.3204	0.5456	728.42	373.86	0.9887	0.9825	1.7517	1.3346	0.2719	-374.56	-574.87	-362.55
9	760.00	81.4	0.3336	0.5489	726.38	372.83	0.9887	0.9826	1.6973	1.3550	0.2253	-374.69	-575.12	-362.72
10	760.00	81.2	0.3752	0.5615	718.81	368.99	0.9886	0.9826	1.5598	1.4195	0.0943	-375.19	-576.04	-363.36
11	760.00	80.8	0.4720	0.5860	706.72	362.85	0.9884	0.9828	1.3159	1.6130	-0.2036	-375.99	-577.54	-364.40
12	760.00	80.7	0.4756	0.5896	705.58	362.27	0.9884	0.9828	1.3138	1.6165	-0.2073	-376.07	-577.68	-364.50
13	760.00	80.6	0.5197	0.6033	701.30	360.10	0.9883	0.9829	1.2398	1.7123	-0.3229	-376.36	-578.22	-364.87
14	760.00	80.5	0.5945	0.6330	699.60	359.24	0.9881	0.9832	1.1397	1.8813	-0.5012	-376.48	-578.43	-365.02
15	760.00	80.5	0.7880	0.7546	697.89	358.38	0.9875	0.9845	1.0269	2.4151	-0.8552	-376.59	-578.65	-365.17
16	760.00	80.5	0.8020	0.7680	700.45	359.67	0.9874	0.9846	1.0231	2.4363	-0.8677	-376.42	-578.33	-364.94
17	760.00	81.3	0.9303	0.9010	722.59	370.90	0.9872	0.9865	1.0028	2.8692	-1.0513	-374.94	-575.58	-363.04
18	760.00	81.8	0.9660	0.9525	738.13	378.80	0.9872	0.9873	0.9994	2.7656	-1.0178	-373.93	-573.70	-361.74

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.66604E 01 B = -0.81305E 03 C = 0.13293E 03

2 A = 0.79668E 01 B = -0.16682E 04 C = 0.22800E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

VAPOR PRESSURE AT NBP

P = 769.7 AT T = 82.5

P = 760.C AT T = 100.0

COMPONENT ID ECHO CHECK

ID NUMBER = 22

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.23612E 01 B = -.75931E 01 C = 0.43288E 01

STANDARD DEVIATION = 0.12264E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 10.6038 G2INF = 2.4673

T1INF = 100.00 T2INF = 82.19

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4294

AREA BELOW THE X-AXIS IS -0.4218

CROSS-OVER POINT IS X = 0.40

NORMALIZED AREA DIFFERENCE IS 0.0089

HERINGTON J-FACTOR IS 8.29

CONSISTENCY INDEX IS -7.40

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	718.14	1037.42	0.9860E-08	47.13	0.02865
2	918.85	1268.88	0.5258E-03	10.50	0.01114
3	587.32	1316.04	0.4297E 01	12.85	0.01146
4	666.72	1237.51	0.8152E-01	9.32	0.01081
5	736.76	1257.58	0.7332E-02	8.62	0.00862
6	721.13	1267.23	0.3841E-02	9.88	0.00856
7	765.56	1250.49	0.5051E-02	9.11	0.00886
8	745.27	1252.40	0.3664E-02	8.99	0.00854
9	745.25	1252.39	0.3664E-02	8.99	0.00854
10	696.01	1205.26	0.1833E-01	12.30	0.01140

TETRAHYDROFURAN(1) — DIMETHYLFORMAMIDE(2) — SYSTEM 121

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	114.3	0.0870	0.6900	2655.58	259.20	0.9794	0.9678	2.2166	0.9610	0.8358	-652.81	-1020.79	-841.96
2	760.00	109.0	0.1340	0.7540	2354.50	216.67	0.9785	0.9664	1.7720	0.9604	0.6125	-673.75	-1045.81	-866.86
3	760.00	96.0	0.2120	0.8100	1718.17	135.72	0.9759	0.9628	1.6444	1.2965	0.2377	-729.93	-1111.39	-933.53
4	760.00	77.6	0.6790	0.9390	1042.85	64.82	0.9714	0.9563	0.9760	2.1250	-0.7780	-823.61	-1215.92	-1044.42
5	760.00	74.0	0.8850	0.9580	938.21	55.43	0.9703	0.9548	0.8483	4.7681	-1.7265	-844.30	-1238.19	-1068.88
6	760.00	70.2	0.9600	0.9740	836.54	46.78	0.9692	0.9532	0.8907	10.0381	-2.4222	-867.12	-1262.41	-1095.83

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 541.20 P = 51.20 V = 223.90 OMECA = 0.211 OMEGAH = 0.192 DIPOLE = 0.0 ETA = 0.0

2 T = 647.20 P = 44.20 V = 264.80 OMEGA = 0.0 OMEGAH = 0.227 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69951E 01 B = 0.12023E 04 C = -0.22625E 03

2 A = 0.69961E 01 B = 0.14378E 04 C = 0.19983E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 66.0

P = 760.0 AT T = 149.6

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12384E 03 B = -.36498E 00 C = 0.73600E-03

2 A = 0.62966E 02 B = -.86833E-02 C = 0.15300E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 53

ID NUMBER = 54

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.72524E 00 B = -.50428E 00 C = -.27281E 01

STANDARD DEVIATION = 0.22069E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.0652 G2INF = 12.2696

T1INF = 149.56 T2INF = 65.97

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1929

AREA BELOW THE X-AXIS IS -0.6292

CROSS-OVER POINT IS X = 0.43

NORMALIZED AREA DIFFERENCE IS -0.5306

HERINGTON J-FACTOR IS 36.98

CONSISTENCY INDEX IS 16.09

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-269.14	1995.14	0.9095E-10	96.17	0.02613
2	861.87	140.93	0.3308E-01	96.92	0.02500
3	30.70	2676.12	0.2626E 01	214.06	0.03413
4	-112.25	2300.45	0.6263E 00	143.56	0.02413
5	1002.45	-95.53	0.4999E-01	55.31	0.01965
6	1779.29	-263.08	0.3875E-02	71.61	0.01498
7	1142.95	-148.69	0.6212E-01	55.76	0.01884
8	928.29	-67.11	0.4455E-01	56.15	0.02035
9	928.28	-67.10	0.4455E-01	56.15	0.02035
10	-269.48	3103.47	0.2563E 00	129.54	0.02477

TETRAHYDROFURAN(1) WATER(2) SYSTEM 122

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	303.20	50.0	0.0280	0.7000	429.12	92.18	0.9865	0.9929	17.3853	1.0078	2.8479	-1008.67	-700.14	-622.05
2	359.80	50.0	0.0380	0.7450	429.12	92.18	0.9825	0.9921	16.1271	1.0262	2.7546	-1008.67	-700.14	-622.05
3	383.40	50.0	0.0460	0.7670	429.12	92.18	0.9813	0.9919	14.5956	1.0073	2.6734	-1008.67	-700.14	-622.05
4	420.50	50.0	0.0750	0.7810	429.12	92.18	0.9794	0.9914	9.9768	1.0703	2.2323	-1008.67	-700.14	-622.05
5	440.40	50.0	0.1165	0.7970	429.12	92.18	0.9784	0.9912	6.8567	1.0877	1.8412	-1008.67	-700.14	-622.05
6	445.40	50.0	0.1830	0.8000	429.12	92.18	0.9781	0.9912	4.4300	1.1719	1.3297	-1008.67	-700.14	-622.05
7	447.00	50.0	0.2280	0.8020	429.12	92.18	0.9780	0.9912	3.5770	1.2323	1.0657	-1008.67	-700.14	-622.05
8	447.80	50.0	0.2640	0.8000	429.12	92.18	0.9780	0.9911	3.0869	1.3079	0.8588	-1008.67	-700.14	-622.05
9	449.40	50.0	0.3540	0.8020	429.12	92.18	0.9779	0.9911	2.3159	1.4804	0.4475	-1008.67	-700.14	-622.05
10	451.10	50.0	0.4410	0.8030	429.12	92.18	0.9778	0.9911	1.8682	1.7086	0.0893	-1008.67	-700.14	-622.05
11	453.50	50.0	0.5310	0.8050	429.12	92.18	0.9777	0.9911	1.5635	2.0265	-0.2594	-1008.67	-700.14	-622.05
12	456.20	50.0	0.6110	0.8100	429.12	92.18	0.9775	0.9911	1.3751	2.3949	-0.5548	-1008.67	-700.14	-622.05
13	459.80	50.0	0.6980	0.8200	429.12	92.18	0.9773	0.9912	1.2279	2.9458	-0.8751	-1008.67	-700.14	-622.05
14	463.40	50.0	0.7650	0.8320	429.12	92.18	0.9771	0.9914	1.1454	3.5615	-1.1344	-1008.67	-700.14	-622.05
15	464.80	50.0	0.7980	0.8400	429.12	92.18	0.9770	0.9915	1.1118	3.9584	-1.2699	-1008.67	-700.14	-622.05
16	465.40	50.0	0.8680	0.8650	429.12	92.18	0.9769	0.9919	1.0538	5.1200	-1.5808	-1008.67	-700.14	-622.05
17	464.30	50.0	0.8880	0.8700	429.12	92.18	0.9769	0.9921	1.0336	5.7978	-1.7244	-1008.67	-700.14	-622.05
18	462.10	50.0	0.9220	0.9010	429.12	92.18	0.9770	0.9927	1.0261	6.3138	-1.8169	-1008.67	-700.14	-622.05
19	456.40	50.0	0.9560	0.9360	429.12	92.18	0.9772	0.9935	1.0157	7.1521	-1.9519	-1008.67	-700.14	-622.05
20	450.00	50.0	0.9790	0.9650	429.12	92.18	0.9775	0.9942	1.0085	8.0858	-2.0816	-1008.67	-700.14	-622.05

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 541.20 P = 51.20 V = 223.90 OMEGA = 0.211 OMEGAH = 0.192 DIPOLE = 0.0 ETA = 0.0

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69951E 01 B = 0.12023E 04 C = 0.22625E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 66.0

P = 760.0 AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12384E 03 B = -.36498E 00 C = 0.73600E-03

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 53

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.28317E 01 B = -.73686E 01 C = 0.25805E 01

STANDARD DEVIATION = 0.16511E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 16.9741 G2INF = 7.0740

T1INF = 50.00 T2INF = 50.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.6067

AREA BELOW THE X-AXIS IS -0.5992

CROSS-OVER POINT IS X = 0.46

NORMALIZED AREA DIFFERENCE IS -0.0063

CONSISTENCY INDEX IS 0.63

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	426.71	1656.95	0.4375E-09	45.71	0.02955
2	1081.84	1915.39	0.9467E-03	5.80	0.00569
3	919.08	1827.78	0.4650E 01	11.87	0.00606
4	956.33	1835.35	0.5006E-01	10.63	0.00567
5	857.03	1978.56	0.1024E-01	5.90	0.00567
6	885.42	1906.80	0.1687E-02	6.48	0.00510
7	853.56	1985.80	0.8752E-02	6.01	0.00578
8	851.10	1991.18	0.8047E-02	6.09	0.00586
9	851.10	1991.18	0.8047E-02	6.09	0.00586
10	937.04	1807.41	0.7819E-02	13.20	0.00649

TOLUENE(1) ETHANOL(2) SYSTEM 123

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	756.00	91.1	0.0666	0.4478	409.28	1158.89	0.9617	0.9708	11.8985	0.3739	3.4603	-1372.33	-1023.59	-833.07
2	756.00	88.2	0.0908	0.5083	373.73	1047.72	0.9592	0.9712	10.8198	0.3782	3.3538	-1400.59	-1055.32	-848.63
3	756.00	87.4	0.0985	0.5224	364.82	1020.02	0.9585	0.9713	10.4941	0.3806	3.3169	-1408.17	-1063.83	-852.79
4	756.00	85.6	0.1191	0.5570	343.55	954.16	0.9570	0.9716	9.8108	0.3863	3.2346	-1427.18	-1085.18	-863.20
5	756.00	83.4	0.1576	0.5991	319.54	880.31	0.9551	0.9722	8.5568	0.3965	3.0719	-1450.38	-1111.23	-875.86
6	756.00	80.6	0.2523	0.6536	290.91	793.00	0.9527	0.9732	6.3888	0.4289	2.7011	-1480.89	-1145.46	-892.44
7	756.00	79.1	0.3469	0.6830	276.44	749.18	0.9514	0.9738	5.1029	0.4760	2.3722	-1497.71	-1164.31	-901.54
8	756.00	78.4	0.4283	0.7018	269.88	729.41	0.9507	0.9744	4.3468	0.5257	2.1126	-1505.67	-1173.23	-905.84
9	756.00	77.9	0.4890	0.7141	265.73	716.92	0.9503	0.9748	3.9326	0.5739	1.9246	-1510.83	-1179.01	-908.63
10	756.00	77.3	0.6330	0.7444	259.82	699.19	0.9494	0.9760	3.2360	0.7334	1.4844	-1518.34	-1187.41	-912.68
11	756.00	77.0	0.7310	0.7751	257.49	692.20	0.9489	0.9774	2.9423	0.8906	1.1951	-1521.36	-1190.79	-914.30
12	756.00	77.0	0.7982	0.8094	257.14	691.12	0.9484	0.9792	2.7816	1.0621	0.9628	-1521.82	-1191.31	-914.55
13	756.00	77.1	0.8794	0.8554	258.48	695.14	0.9480	0.9816	2.6865	1.2773	0.7435	-1520.08	-1189.36	-913.61
14	756.00	77.4	0.9262	0.8875	260.73	701.89	0.9478	0.9841	2.6527	1.4689	0.5910	-1517.18	-1186.11	-912.05
15	756.00	77.4	0.9382	0.9095	261.18	703.25	0.9478	0.9848	2.6502	1.5401	0.5428	-1516.60	-1185.46	-911.74
16	756.00	77.6	0.9545	0.9304	262.54	707.32	0.9477	0.9860	2.6498	1.6086	0.4991	-1514.86	-1183.52	-910.80

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 594.00 P = 40.00 V = 331.10 OMEGA = 0.241 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69533E 01 B = -0.13439E 04 C = 0.21938E 03

2 A = 0.80449E 01 B = -0.15543E 04 C = 0.22265E 03

VAPOR PRESSURE AT NBP

P = 759.4 AT T = 110.6

P = 762.1 AT T = 78.4

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.98864E 02 B = -.55774E-01 C = 0.27703E-03

2 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 33

ID NUMBER = 11

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.36910E 01 B = -.39292E 01 C = 0.63897E 00

STANDARD DEVIATION = 0.25119E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 40.0847 G2INF = 0.6698

T1INF = 78.20 T2INF = 110.44

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

EQUATION SOLVED FOR X-INTERCEPT

ROOTS ARE: X = 0.49922E 01 AND X = 0.11571E 01

NEITHER ROOT IS IN THE RANGE 0 TO 1

THERMODYNAMIC CONSISTENCY TEST IS ABORTED

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	4516.66	-614.20	0.2474E-09	336.31	0.32970
2	-434.57	10123.03	0.5493E 01	188.58	0.40757
3	2943.15	993.03	0.1954E 03	301.76	0.41449
4	1947.97	-2061.90	0.1940E 02	466.05	0.27913
5	-538.53	10100.31	0.6689E 01	203.24	0.40035
6	4609.54	-9348.09	0.2191E 01	647.42	0.23334
7	2174.79	-2321.25	0.5629E 01	505.50	0.27062
8	-210.28	5051.61	0.1240E 01	162.66	0.41977
9	-203.84	5166.63	0.1203E 01	162.07	0.42001
10	-1051.78	2236.23	0.1724E 01	289.55	0.35167

TOLUENE(1) — ISOAMYL ALCOHOL(2) SYSTEM 124A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	135.00	80.0	0.0550	0.3120	290.77	90.18	1.0000	1.0000	2.6319	1.0892	0.8823	0.0	0.0	0.0
2	143.00	80.0	0.0740	0.3450	290.77	90.18	1.0000	1.0000	2.2911	1.1209	0.7149	0.0	0.0	0.0
3	162.00	80.0	0.1120	0.4550	290.77	90.18	1.0000	1.0000	2.2615	1.1017	0.7192	0.0	0.0	0.0
4	201.00	80.0	0.2360	0.6050	290.77	90.18	1.0000	1.0000	1.7703	1.1513	0.4303	0.0	0.0	0.0
5	210.00	80.0	0.2410	0.6100	290.77	90.18	1.0000	1.0000	1.8260	1.1954	0.4237	0.0	0.0	0.0
6	212.00	80.0	0.2560	0.6300	290.77	90.18	1.0000	1.0000	1.7923	1.1679	0.4283	0.0	0.0	0.0
7	246.00	80.0	0.4320	0.7210	290.77	90.18	1.0000	1.0000	1.4102	1.3384	0.0523	0.0	0.0	0.0
8	258.00	80.0	0.5200	0.7550	290.77	90.18	1.0000	1.0000	1.2866	1.4585	-0.1254	0.0	0.0	0.0
9	264.00	80.0	0.5660	0.7860	290.77	90.18	1.0000	1.0000	1.2591	1.4417	-0.1354	0.0	0.0	0.0
10	268.00	80.0	0.5780	0.7780	290.77	90.18	1.0000	1.0000	1.2389	1.5614	-0.2314	0.0	0.0	0.0
11	280.00	80.0	0.7300	0.8320	290.77	90.18	1.0000	1.0000	1.0959	1.9294	-0.5656	0.0	0.0	0.0
12	282.00	80.0	0.8130	0.8640	290.77	90.18	1.0000	1.0000	1.0292	2.2712	-0.7916	0.0	0.0	0.0
13	285.00	80.0	0.8200	0.8720	290.77	90.18	1.0000	1.0000	1.0408	2.2443	-0.7684	0.0	0.0	0.0
14	295.00	80.0	0.9140	0.9280	290.77	90.18	1.0000	1.0000	1.0285	2.7348	-0.9780	0.0	0.0	0.0

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 594.00 P = 40.00 V = 331.10 OMEGA = 0.241 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 0.0 P = 0.0 V = 0.0 OMEGA = 0.0 OMEGAH = 0.279 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69533E 01 B = 0.13439E 04 C = 0.21938E 03

2 A = 0.96879E 01 B = 0.27308E 04 C = 0.27315E 03

VAPOR PRESSURE AT NBP

P = 759.4 AT T = 110.6

P = 886.6 AT T = 132.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.98864E 02 B = -.55774E-01 C = 0.27703E-03

2 A = 0.10896E 03 B = 0.0 C = 0.0

COMPONENT ID ECHO CHECK

ID NUMBER = 33

ID NUMBER = 47

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.91190E 00 B = -.18418E 01 C = -.25468E 00

STANDARD DEVIATION = 0.41346E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.4891 G2INF = 3.2691

T1INF = 80.00 T2INF = 80.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2164

AREA BELOW THE X-AXIS IS -0.3102

CROSS-OVER POINT IS X = 0.47

NORMALIZED AREA DIFFERENCE IS -0.1782

CONSISTENCY INDEX IS 17.82

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER	VALUES	OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	188.79	673.31	C.1819E-11	7.98	0.01704
2	1236.09	179.05	0.6818E-02	11.60	0.04248
3	277.31	686.50	0.2580E 00	3.05	0.02092
4	335.04	606.77	0.1098E 00	3.35	0.02051
5	375.30	553.35	C.2287E-01	3.75	0.02022
6	449.64	281.66	0.5293E-02	14.85	0.01126
7	354.09	524.22	0.1788E-01	5.56	0.01783
8	439.35	540.24	C.2815E-02	2.18	0.02288
9	439.35	540.23	C.2815E-02	2.18	0.02288
10	278.28	685.95	C.3203E-01	3.04	0.02095

TOLUENE(1) — ISOAMYL ALCOHOL(2) — SYSTEM 1248

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	415.00	107.0	0.1100	0.3000	682.50	319.05	1.0000	1.0000	1.6549	1.0211	0.4829	0.0	0.0	0.0
2	470.00	107.0	0.1910	0.4360	682.50	319.05	1.0000	1.0000	1.5683	1.0248	0.4255	0.0	0.0	0.0
3	525.00	107.0	0.2510	0.5120	682.50	319.05	1.0000	1.0000	1.5650	1.0695	0.3807	0.0	0.0	0.0
4	536.00	107.0	0.2890	0.5510	682.50	319.05	1.0000	1.0000	1.4934	1.0583	0.3443	0.0	0.0	0.0
5	547.00	107.0	0.2960	0.5610	682.50	319.05	1.0000	1.0000	1.5149	1.0664	0.3510	0.0	0.0	0.0
6	594.00	107.0	0.3980	0.6440	682.50	319.05	1.0000	1.0000	1.4041	1.0980	0.2459	0.0	0.0	0.0
7	643.00	107.0	0.5110	0.7090	682.50	319.05	1.0000	1.0000	1.3030	1.1958	0.0859	0.0	0.0	0.0
8	669.00	107.0	0.6290	0.7630	682.50	319.05	1.0000	1.0000	1.1851	1.3354	-0.1194	0.0	0.0	0.0
9	630.00	107.0	0.6940	0.7930	682.50	319.05	1.0000	1.0000	1.1346	1.4373	-0.2365	0.0	0.0	0.0
10	690.00	107.0	0.9640	0.9640	682.50	319.05	1.0000	1.0000	1.0075	2.1558	-0.7607	0.0	0.0	0.0
11	683.00	107.0	0.9800	0.9760	682.50	319.05	1.0000	1.0000	0.9933	2.5609	-0.9471	0.0	0.0	0.0

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 594.00 P = 40.00 V = 331.10 OMEGA = 0.241 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 0.0 P = 0.0 V = 0.0 OMEGA = 0.0 OMEGAH = 0.279 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69533E 01 B = 0.13439E 04 C = 0.21938E 03

2 A = 0.96879E 01 B = 0.27308E 04 C = 0.27315E 03

VAPOR PRESSURE AT NBP

P = 759.4 AT T = 110.6

P = 886.6 AT T = 132.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.98864E 02 B = -.55774E-01 C = 0.27703E-03

2 A = 0.10896E 03 B = 0.0 C = 0.0

COMPONENT ID ECHO CHECK

ID NUMBER = 33

ID NUMBER = 47

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.52067E 00 B = -.23713E 00 C = -.12149E 01

STANDARD DEVIATION = 0.37047E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.6832 G2INF = 2.5381

T1INF = 107.00 T2INF = 107.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1833

AREA BELOW THE X-AXIS IS -0.1862

CROSS-OVER POINT IS X = 0.56

NORMALIZED AREA DIFFERENCE IS -0.0078

CONSISTENCY INDEX IS 0.78

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER	VALUES	OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	-164.40	875.83	0.9095E-11	21.66	0.00720
2	-3.12	855.33	0.6543E-03	6.00	0.00967
3	-24.84	742.85	0.7021E-01	11.50	0.00406
4	-7.00	723.24	0.2171E-01	11.11	0.00461
5	-125.34	1026.81	0.2604E-02	5.41	0.00658
6	-122.20	904.82	0.2630E-03	12.35	0.00289
7	-138.74	1042.78	0.1621E-02	5.96	0.00621
8	-139.96	1097.65	0.1018E-02	4.59	0.00863
9	-139.96	1097.65	0.1018E-02	4.59	0.00863
10	-35.87	759.97	0.2244E-01	11.47	0.00375

TOLUENE(1) — OCTANE(2) — SYSTEM 125

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	124.4	0.0350	0.0590	1046.41	691.57	0.9676	0.9460	1.1803	1.0079	0.1579	-1103.51	-1760.77	-1409.33
2	760.00	124.4	0.0350	0.0580	1046.41	691.57	0.9676	0.9460	1.1603	1.0090	0.1397	-1103.51	-1760.77	-1409.33
3	760.00	122.3	0.1180	0.1840	992.24	653.46	0.9667	0.9450	1.1503	1.0110	0.1291	-1117.74	-1785.52	-1428.40
4	760.00	121.3	0.1590	0.2500	967.19	635.88	0.9662	0.9445	1.1893	1.0010	0.1724	-1124.63	-1797.49	-1437.62
5	760.00	121.2	0.1640	0.2510	964.71	634.14	0.9662	0.9445	1.1606	1.0083	0.1407	-1125.32	-1798.70	-1438.55
6	760.00	121.1	0.1690	0.2620	962.24	632.41	0.9661	0.9444	1.1786	1.0022	0.1621	-1126.01	-1799.90	-1439.48
7	760.00	119.4	0.2520	0.3660	920.89	603.45	0.9654	0.9436	1.1528	1.0016	0.1407	-1137.91	-1820.60	-1455.42
8	760.00	119.4	0.2520	0.3600	920.89	603.45	0.9654	0.9436	1.1339	1.0110	0.1147	-1137.91	-1820.60	-1455.42
9	760.00	119.3	0.2560	0.3660	918.50	601.77	0.9653	0.9436	1.1377	1.0097	0.1194	-1138.61	-1821.83	-1456.37
10	760.00	119.2	0.2600	0.3690	916.12	600.10	0.9653	0.9435	1.1323	1.0131	0.1112	-1139.32	-1823.05	-1457.31
11	760.00	117.5	0.3560	0.4670	876.27	572.27	0.9646	0.9428	1.0934	1.0303	0.0594	-1151.45	-1844.17	-1473.57
12	760.00	117.4	0.3570	0.4710	873.96	570.67	0.9645	0.9427	1.1025	1.0270	0.0709	-1152.17	-1845.42	-1474.54
13	760.00	117.4	0.3600	0.4830	873.96	570.67	0.9645	0.9428	1.1211	1.0084	0.1059	-1152.17	-1845.42	-1474.54
14	760.00	116.3	0.4270	0.5420	848.92	553.22	0.9641	0.9423	1.0914	1.0287	0.0592	-1160.14	-1859.31	-1485.23
15	760.00	116.2	0.4290	0.5460	846.68	551.65	0.9640	0.9422	1.0972	1.0262	0.0669	-1160.87	-1860.58	-1486.21
16	760.00	114.6	0.5390	0.6400	811.29	527.05	0.9634	0.9416	1.0676	1.0541	0.0127	-1172.64	-1881.09	-1502.00
17	760.00	114.5	0.5390	0.6410	809.12	525.54	0.9633	0.9415	1.0721	1.0542	0.0168	-1173.38	-1882.38	-1503.00
18	760.00	113.0	0.6700	0.7450	777.04	503.29	0.9627	0.9409	1.0431	1.0916	-0.0455	-1184.61	-1901.96	-1518.07
19	760.00	113.0	0.6700	0.7480	777.04	503.29	0.9627	0.9409	1.0473	1.0788	-0.0296	-1184.61	-1901.96	-1518.07
20	760.00	112.8	0.6930	0.7600	772.83	500.38	0.9626	0.9409	1.0343	1.1107	-0.0713	-1186.12	-1904.60	-1520.10
21	760.00	112.3	0.7400	0.7970	762.39	493.16	0.9624	0.9407	1.0295	1.1253	-0.0891	-1189.91	-1911.21	-1525.19
22	760.00	111.7	0.8070	0.8480	750.01	484.59	0.9622	0.9405	1.0207	1.1550	-0.1236	-1194.49	-1919.19	-1531.34
23	760.00	111.6	0.8210	0.8570	747.96	483.18	0.9622	0.9405	1.0167	1.1750	-0.1447	-1195.25	-1920.53	-1532.37
24	760.00	111.1	0.8790	0.9020	737.78	476.15	0.9620	0.9403	1.0131	1.2086	-0.1765	-1199.09	-1927.23	-1537.52
25	760.00	110.9	0.9160	0.9300	733.74	473.36	0.9619	0.9403	1.0078	1.2508	-0.2161	-1200.64	-1929.92	-1539.59
26	760.00	110.9	0.9150	0.9290	733.74	473.36	0.9619	0.9403	1.0078	1.2538	-0.2184	-1200.64	-1929.92	-1539.59

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1	T = 594.00	P = 40.00	V = 331.10	OMEGA = 0.241	OMEGAH = 0.0	DIPOLE = 0.0	ETA = 0.0
2	T = 568.80	P = 24.50	V = 493.10	OMEGA = 0.394	OMEGAH = 0.0	DIPOLE = 0.0	ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1	A = 0.69533E 01	B = 0.13439E 04	C = 0.21938E 03
2	A = 0.69238E 01	B = 0.13551E 04	C = 0.20952E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1	A = 0.98864E 02	B = -.55774E-01	C = 0.27703E-03
2	A = 0.14244E 03	B = -.45197E-01	C = 0.40167E-03

VAPOR PRESSURE AT NBP

P = 759.4 AT T = 110.6

P = 760.C AT T = 125.7

COMPONENT ID ECHO CHECK

ID NUMBER = 33

ID NUMBER = 41

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.15884E 00 B = -.55912E-01 C = -.37950E 00

STANDARD DEVIATION = 0.14924E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.1721 G2INF = 1.3186

T1INF = 125.66 T2INF = 110.63

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0580

AREA BELOW THE X-AXIS IS -0.0537

CROSS-OVER POINT IS X = 0.58

NORMALIZED AREA DIFFERENCE IS 0.0392

HERINGTON J-FACTOR IS 5.88

CONSISTENCY INDEX IS -1.96

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	111.42	134.64	0.1819E-11	5.85	0.00257
2	124.60	145.01	0.2285E-03	1.66	0.00252
3	117.75	146.33	0.5676E-02	2.85	0.00225
4	111.92	155.96	0.4437E-02	2.82	0.00223
5	107.13	176.99	0.6987E-03	1.61	0.00243
6	85.64	205.25	0.4517E-03	2.17	0.00224
7	79.52	223.23	0.7156E-03	1.77	0.00237
8	131.07	140.83	0.2109E-03	1.68	0.00262
9	131.08	140.79	0.2100F-03	1.68	0.00262
10	119.02	143.70	0.1840E-01	2.93	0.00225

TOLUENE(1) PHENOL(2) SYSTEM 126

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	172.7	0.0435	0.3410	2565.48	578.38	0.9725	0.9837	1.9469	0.8881	0.7849	-841.95	-553.15	-887.72
2	760.00	159.4	0.0872	0.5120	2297.63	387.49	0.9718	0.9802	1.8807	1.0250	0.6070	-903.42	-594.85	-954.32
3	760.00	153.8	0.1186	0.6210	2049.75	324.34	0.9717	0.9778	1.8797	0.9824	0.6488	-931.39	-614.85	-984.83
4	760.00	149.4	0.1248	0.6250	1868.39	280.89	0.9707	0.9769	1.9703	1.1293	0.5566	-954.32	-631.73	-1009.95
5	760.00	142.2	0.2190	0.7850	1596.29	220.19	0.9702	0.9724	1.6498	0.9213	0.5826	-993.81	-661.81	-1053.42
6	760.00	133.8	0.2750	0.8070	1315.86	163.54	0.9682	0.9698	1.6350	1.1962	0.3125	-1043.27	-701.30	-1108.26
7	760.00	128.3	0.4080	0.8725	1152.74	133.49	0.9670	0.9666	1.3584	1.1817	0.1393	-1077.84	-730.09	-1146.86
8	760.00	126.7	0.4800	0.8901	1108.20	125.68	0.9666	0.9656	1.2248	1.2305	-0.0047	-1088.25	-738.95	-1158.52
9	760.00	122.2	0.5898	0.9159	989.72	105.72	0.9654	0.9634	1.1470	1.4158	-0.2106	-1118.43	-765.13	-1192.46
10	760.00	120.2	0.6348	0.9280	940.18	97.74	0.9648	0.9624	1.1359	1.4709	-0.2585	-1132.28	-777.40	-1208.10
11	760.00	120.0	0.6512	0.9260	935.33	96.97	0.9648	0.9624	1.1106	1.5554	-0.3622	-1133.68	-778.65	-1209.68
12	760.00	119.7	0.7430	0.9463	928.09	95.83	0.9647	0.9617	1.0065	1.5705	-0.4450	-1135.79	-780.53	-1212.07
13	760.00	119.4	0.7730	0.9536	920.89	94.70	0.9646	0.9613	0.9784	1.5724	-0.4744	-1137.91	-782.42	-1214.46
14	760.00	115.6	0.8012	0.9545	833.27	81.30	0.9634	0.9599	1.0429	2.0475	-0.6746	-1165.26	-807.22	-1245.47
15	760.00	112.7	0.8840	0.9750	770.74	72.19	0.9625	0.9581	1.0429	2.1672	-0.7315	-1186.88	-827.25	-1270.08
16	760.00	112.2	0.9108	0.9796	760.32	70.71	0.9623	0.9577	1.0307	2.3470	-0.8229	-1190.67	-830.80	-1274.41
17	760.00	113.3	0.9394	0.9861	783.37	74.00	0.9627	0.9579	0.9767	2.2498	-0.8344	-1182.35	-823.02	-1264.92
18	760.00	111.1	0.9770	0.9948	737.78	67.55	0.9619	0.9567	1.0052	2.4265	-0.8813	-1199.09	-838.73	-1284.03
19	760.00	111.1	0.9910	0.9980	737.78	67.55	0.9620	0.9566	0.9942	2.3848	-0.8749	-1199.09	-838.73	-1284.03
20	760.00	110.5	0.9939	0.9986	725.71	65.87	0.9617	0.9564	1.0082	2.5249	-0.9181	-1203.73	-843.12	-1289.33
21	760.00	110.5	0.9973	0.9993	725.71	65.87	0.9617	0.9563	1.0054	2.8523	-1.0427	-1203.73	-843.12	-1289.33

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 594.00 P = 40.00 V = 331.10 OMEGA = 0.241 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 692.20 P = 60.50 V = 229.50 OMEGA = 0.449 OMEGAH = 0.241 DIPOLE = 1.45 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69533E 01 B = 0.13439E 04 C = 0.21938E 03

2 A = 0.75786E 01 B = 0.18176E 04 C = 0.20500E 03

VAPOR PRESSURE AT NBP

P = 759.4 AT T = 110.6

P = 763.2 AT T = 181.9

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.98864E 02 B = -.55774E-01 C = 0.27703E-03

2 A = 0.80964E 02 B = -.20853E-01 C = 0.14800E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 33

ID NUMBER = 32

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.82498E 00 B = -.16710E 01 C = -.11157E 00

STANDARD DEVIATION = 0.57729E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.2818 G2INF = 2.6053

T1INF = 181.75 T2INF = 110.63

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1994

AREA BELOW THE X-AXIS IS -0.2471

CROSS-OVER POINT IS X = 0.48

NORMALIZED AREA DIFFERENCE IS -0.1068

HERINGTON J-FACTOR IS 27.86

CONSISTENCY INDEX IS -17.18

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	216.27	596.79	0.1182E-10	23.53	0.00495
2	317.88	455.70	0.5595E-01	24.17	0.00471
3	156.82	644.35	0.3754E 00	22.73	0.00529
4	170.37	627.77	0.1417E 00	22.58	0.00523
5	199.04	563.23	0.3695E-01	21.89	0.00525
6	234.70	532.98	0.2533E-02	22.34	0.00506
7	261.60	509.46	0.2678E-01	22.71	0.00493
8	192.21	567.37	0.3436E-01	21.76	0.00530
9	190.79	569.46	0.3435E-01	21.76	0.00530
10	120.45	669.78	0.2979E-01	21.97	0.00552

1,2,3-TRICHLOROPROPANE(1) HEXANE(2) SYSTEM 127

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	112.6	0.9080	0.2470	203.31	2224.35	0.9466	0.9700	0.9591	2.6996	-1.0349	-1920.88	-974.88	-1246.97
2	760.00	99.3	0.8370	0.1460	128.47	1642.59	0.9416	0.9656	0.9660	2.3294	-0.8782	-2138.36	-1061.38	-1361.71
3	760.00	88.7	0.7130	0.0890	86.43	1261.02	0.9367	0.9618	1.0242	1.8309	-0.5810	-2343.67	-1138.96	-1466.24
4	760.00	82.6	0.5530	0.0620	67.98	1072.41	0.9334	0.9594	1.1672	1.4197	-0.1959	-2477.72	-1187.67	-1532.69
5	760.00	79.7	0.4270	0.0520	60.30	990.27	0.9317	0.9582	1.4246	1.2106	0.1628	-2546.15	-1211.98	-1566.11
6	760.00	76.4	0.3300	0.0420	52.53	902.47	0.9297	0.9568	1.7051	1.1464	0.3971	-2628.08	-1240.62	-1605.68
7	760.00	76.3	0.3080	0.0400	52.31	899.90	0.9297	0.9567	1.7473	1.1154	0.4489	-2630.63	-1241.51	-1606.90
8	760.00	73.8	0.2030	0.0330	47.02	837.41	0.9280	0.9556	2.4291	1.0470	0.8416	-2695.88	-1263.96	-1638.08
9	760.00	73.4	0.2020	0.0320	46.21	827.72	0.9278	0.9554	2.4076	1.0588	0.8215	-2706.58	-1267.61	-1643.17
10	760.00	70.7	0.1050	0.0200	41.08	764.45	0.9261	0.9542	3.2509	1.0335	1.1459	-2780.75	-1292.72	-1678.23

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 632.10 P = 38.10 V = 347.60 OMEGA = 0.446 OMEGAH = 0.275 DIPOLE = 0.0 ETA = 0.0

2 T = 507.90 P = 29.90 V = 372.40 OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69872E 01 B = 0.15023E 04 C = 0.20900E 03

2 A = 0.68778E 01 B = 0.11715E 04 C = 0.22437E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 156.8

P = 759.0 AT T = 68.7

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.10272E 03 B = -.66397E-01 C = 0.26726E-03

2 A = 0.12596E 03 B = -.14456E 00 C = 0.54720E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 39

ID NUMBER = 18

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.15036E 01 B = -.35541E 01 C = 0.84834E 00

STANDARD DEVIATION = 0.23730E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 4.4979 G2INF = 3.3272

T1INF = 68.74 T2INF = 156.85

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3436

AREA BELOW THE X-AXIS IS -0.3342

CROSS-OVER POINT IS X = 0.48

NORMALIZED AREA DIFFERENCE IS 0.0138

HERINGTON J-FACTOR IS 18.28

CONSISTENCY INDEX IS -16.90

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	814.89	365.41	0.6776E-09	32.02	0.00163
2	1607.10	-255.95	0.4948E-03	65.38	0.01649
3	1003.97	201.71	0.9218E-01	33.99	0.00283
4	937.82	214.46	0.4638E-01	27.38	0.00366
5	585.43	467.72	0.2224E-02	6.79	0.00529
6	963.84	296.31	0.8668E-05	45.95	0.00054
7	588.23	478.99	0.1645E-02	7.87	0.00495
8	583.97	463.19	0.1328E-02	6.82	0.00544
9	583.97	463.19	0.1324E-02	6.82	0.00544
10	958.11	226.99	0.1265E-01	31.52	0.00273

1,2,3-TRICHLOROPROPANE(1) — 1-HEXENE(2) SYSTEM 128

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	117.1	0.9030	0.2690	235.38	2784.40	0.9491	0.9743	0.9096	1.9548	-0.7853	-1855.62	-852.87	-1146.99
2	760.00	101.1	0.8320	0.1600	137.03	1970.71	0.9432	0.9697	1.0022	1.8611	-0.6189	-2106.54	-942.76	-1272.45
3	760.00	90.3	0.7260	0.0970	91.93	1522.41	0.9387	0.9662	1.0329	1.5822	-0.4264	-2310.56	-1011.76	-1370.44
4	760.00	83.6	0.6220	0.0670	70.67	1283.07	0.9354	0.9639	1.0794	1.4027	-0.2620	-2454.85	-1058.55	-1437.77
5	760.00	81.3	0.5710	0.0580	64.39	1207.44	0.9342	0.9631	1.1157	1.3248	-0.1718	-2508.00	-1075.39	-1462.19
6	760.00	77.4	0.4820	0.0470	54.79	1086.59	0.9319	0.9616	1.2555	1.2316	0.0192	-2602.78	-1104.94	-1505.26
7	760.00	77.2	0.4730	0.0450	54.33	1080.64	0.9318	0.9615	1.2352	1.2197	0.0127	-2607.80	-1106.49	-1507.53
8	760.00	75.6	0.4220	0.0390	50.78	1033.86	0.9309	0.9609	1.2826	1.1689	0.0928	-2648.63	-1119.01	-1525.88
9	760.00	72.8	0.3210	0.0310	45.03	955.56	0.9292	0.9598	1.5086	1.0842	0.3303	-2722.77	-1141.48	-1558.94
10	760.00	68.4	0.1700	0.0170	37.09	841.41	0.9264	0.9579	1.8907	1.0199	0.6172	-2846.73	-1178.27	-1613.46
11	760.00	67.7	0.1570	0.0160	35.94	824.23	0.9258	0.9576	1.9872	1.0258	0.6612	-2867.35	-1184.30	-1622.44
12	760.00	66.1	0.0840	0.0090	33.43	785.91	0.9249	0.9569	2.2438	0.9964	0.8118	-2915.46	-1198.28	-1643.30

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 632.10 P = 38.10 V = 347.60 OMEGA = 0.446 OMEGAH = 0.275 DIPOLE = 0.0 ETA = 0.0

2 T = 504.00 P = 32.10 V = 350.70 OMEGA = 0.285 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69872E 01 B = 0.15023E 04 C = 0.20900E 03

2 A = 0.68657E 01 B = 0.11530E 04 C = 0.22600E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.10272E 03 B = -.66397E-01 C = 0.26726E-03

2 A = 0.20978E 03 B = -.71344E 00 C = -0.14350E-02

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 156.8

P = 763.6 AT T = 63.5

COMPONENT ID ECHO CHECK

ID NUMBER = 39

ID NUMBER = 38

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.98649E 00 B = -.21557E 01 C = 0.24439E 00

STANDARD DEVIATION = 0.17946E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.6818 G2INF = 2.5215

T1INF = 63.33 T2INF = 156.85

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2342

AREA BELOW THE X-AXIS IS -0.2441

CROSS-OVER POINT IS X = 0.48

NORMALIZED AREA DIFFERENCE IS -0.0207

HERINGTON J-FACTOR IS 22.55

CONSISTENCY INDEX IS -20.48

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	428.69	376.49	0.9095E-12	17.48	0.00220
2	806.15	102.24	0.6844E-02	22.02	0.00708
3	565.49	162.26	0.3005E-01	11.47	0.00338
4	603.52	118.05	0.2347E-01	11.67	0.00371
5	448.63	269.14	0.2778E-02	6.10	0.00391
6	580.75	266.92	0.8154E-04	34.52	0.00162
7	437.52	295.07	0.1755E-02	6.70	0.00361
8	458.25	252.21	0.1556E-02	6.28	0.00406
9	458.25	252.21	0.1556E-02	6.28	0.00406
10	546.36	182.93	0.8694E-02	10.99	0.00329

VINYL ACETATE(1) — 2,4-DIMETHYLPENTANE(2) — SYSTEM 129

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	75.0	0.0730	0.1870	320.51	610.81	0.9706	0.9470	2.2951	1.0277	0.8034	-604.26	-1499.08	-1234.50
2	760.00	70.8	0.1880	0.3810	708.70	537.23	0.9730	0.9433	2.1074	1.0116	0.7339	-621.48	-1546.28	-1273.07
3	760.00	67.7	0.4210	0.5130	634.47	487.37	0.9742	0.9399	1.4170	1.2258	0.1449	-635.00	-1582.70	-1302.84
4	760.00	67.4	0.4700	0.5410	627.64	482.74	0.9744	0.9393	1.3535	1.2735	0.0609	-636.35	-1586.30	-1305.78
5	760.00	67.2	0.6060	0.6060	623.12	479.67	0.9751	0.9382	1.1853	1.4782	-0.2208	-637.25	-1588.71	-1307.75
6	760.00	67.4	0.7090	0.6620	626.96	482.28	0.9757	0.9374	1.1006	1.7062	-0.4384	-636.48	-1586.66	-1306.08
7	760.00	68.9	0.8790	0.7920	662.41	506.24	0.9770	0.9360	1.0065	2.4021	-0.8698	-629.68	-1568.43	-1291.18
8	760.00	71.8	0.9650	0.9220	713.73	540.58	0.9779	0.9348	0.9915	2.9125	-1.0775	-620.63	-1543.97	-1271.19

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 525.20 P = 41.40 V = 265.70 OMEGA = 0.0 OMEGAH = 0.278 DIPOLE = 1.35 ETA = 0.0

2 T = 520.30 P = 27.40 V = 420.00 OMEGA = 0.306 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.82421E 01 B = -0.18508E 04 C = 0.27315E 03

2 A = 0.68262E 01 B = -0.11920E 04 C = 0.22163E 03

VAPOR PRESSURE AT NBP

P = 777.5 AT T = 72.7

P = 760.0 AT T = 80.5

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12340E 03 B = -.32214E 00 C = 0.71150E-03

2 A = 0.74588E 02 B = 0.32866E 00 C = -.25601E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 49

ID NUMBER = 50

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.98242E 00 B = -.17214E 01 C = -.43215E 00

STANDARD DEVIATION = 0.50407E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.6709 G2INF = 3.2255

T1INF = 80.50 T2INF = 72.06

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2581

AREA BELOW THE X-AXIS IS -0.2804

CROSS-OVER POINT IS X = 0.51

NORMALIZED AREA DIFFERENCE IS -0.0414

HERINGTON J-FACTOR IS 5.86

CONSISTENCY INDEX IS -1.72

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER	VALUES	OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	641.18	222.18	0.5822E-08	4.92	0.00894
2	760.86	98.71	0.4884E-03	1.33	0.00668
3	646.34	223.74	0.3229E-01	4.71	0.00866
4	664.81	206.19	0.9391E-02	4.01	0.00819
5	737.40	130.40	0.1380E-02	1.68	0.00678
6	726.77	157.26	0.1269E-02	3.91	0.00667
7	749.36	120.37	0.1458E-02	1.66	0.00664
8	762.56	100.33	0.3878E-04	1.08	0.00668
9	762.85	100.08	0.3884E-04	1.09	0.00668
10	638.38	230.52	0.8864E-02	5.01	0.00888

WATER(1) - ACETIC ACID(2) SYSTEM-L3CA

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	125.00	64.3	0.0390	0.0710	180.37	109.55	0.9973	0.9964	1.2581	1.0987	0.1355	-639.99	-605.88	-513.56
2	125.00	61.5	0.1070	0.1700	159.51	97.35	0.9970	0.9963	1.2412	1.1886	0.0433	-650.99	-621.41	-524.72
3	125.00	59.8	0.2140	0.2980	147.53	90.32	0.9967	0.9963	1.1758	1.2310	-0.0459	-657.98	-631.53	-531.91
4	125.00	58.6	0.3560	0.4470	139.42	85.54	0.9964	0.9964	1.1216	1.2458	-0.1082	-663.04	-639.00	-537.18
5	125.00	58.1	0.4570	0.5380	136.14	83.61	0.9963	0.9965	1.0768	1.2672	-0.1628	-665.18	-642.17	-539.41
6	125.00	57.6	0.6010	0.6620	132.86	81.67	0.9961	0.9967	1.0322	1.2918	-0.2243	-667.36	-645.44	-541.70
7	125.00	57.3	0.7130	0.7560	131.00	80.57	0.9960	0.9969	1.0076	1.3144	-0.2658	-668.62	-647.35	-543.03
8	125.00	56.9	0.8220	0.8540	128.80	79.27	0.9960	0.9971	1.0041	1.2892	-0.2499	-670.14	-649.64	-544.63
9	125.00	56.7	0.9020	0.9250	127.35	78.41	0.9959	0.9972	1.0024	1.2162	-0.1934	-671.15	-651.18	-545.70
10	125.00	56.6	0.9480	0.9630	126.69	78.02	0.9959	0.9973	0.9981	1.1366	-0.1299	-671.62	-651.89	-546.19

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

2 T = 594.80 P = 57.10 V = 171.30 OMEGA = 0.444 OMEGAH = 0.187 DIPOLE = 1.75 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

2 A = 0.71881E 01 B = 0.14167E 04 C = 0.21100E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 100.0

P = 764.4 AT T = 118.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

2 A = 0.58702E 02 B = -.61178E-01 C = 0.19158E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 34

ID NUMBER = 1

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.17905E 00 B = -.12056E 01 C = 0.88387E 00

STANDARD DEVIATION = 0.28924E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.1961 G2INF = 1.1534

T1INF = 67.27 T2INF = 56.20

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0145

AREA BELOW THE X-AXIS IS -0.1436

CROSS-OVER POINT IS X = 0.17

NORMALIZED AREA DIFFERENCE IS -0.8170

HERINGTON J-FACTOR IS 5.04

CONSISTENCY INDEX IS 76.66

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	977.59	-854.18	0.1819E-11	9.19	0.02194
2	10706.72	-1211.00	0.9871E-03	2.75	0.03462
3	1157.45	-908.95	0.2544E 00	7.01	0.02379
4	1178.81	-926.56	0.1655E 00	7.13	0.02352
5	2044.30	-1155.10	0.3625E-01	3.12	0.02499
6	2081.13	-1325.00	0.9251E-02	9.33	0.01917
7	10031.06	-1342.42	0.3127E-01	5.11	0.02080
8	2112.87	-1092.06	0.1241E-02	1.33	0.03322
9	2113.20	-1092.16	0.1241E-02	1.33	0.03321
10	1015.92	-818.23	0.4739E 00	7.35	0.02385

WATER(1) ACETIC ACID(2) SYSTEM 13CB

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	250.00	80.4	0.0460	0.0830	357.80	210.98	0.9953	0.9940	1.2545	1.1314	0.1033	-578.79	-528.05	-454.89
2	250.00	75.9	0.1650	0.2550	297.21	176.71	0.9945	0.9939	1.2925	1.2536	0.0305	-595.36	-547.77	-470.23
3	250.00	75.1	0.2080	0.3070	288.23	171.61	0.9942	0.9939	1.2725	1.2660	0.0051	-598.10	-551.12	-472.80
4	250.00	73.8	0.3420	0.4460	272.33	162.54	0.9938	0.9940	1.1894	1.2863	-0.0783	-603.17	-557.39	-477.60
5	250.00	73.1	0.4500	0.5500	264.77	158.23	0.9935	0.9942	1.1462	1.2844	-0.1138	-605.69	-560.54	-479.99
6	250.00	72.5	0.6100	0.6820	258.37	154.56	0.9932	0.9946	1.0742	1.3108	-0.1990	-607.87	-563.29	-482.07
7	250.00	72.3	0.7080	0.7610	256.41	153.44	0.9931	0.9948	1.0405	1.3257	-0.2423	-608.55	-564.16	-482.72
8	250.00	71.9	0.8390	0.8750	251.46	150.61	0.9929	0.9953	1.0293	1.2818	-0.2194	-610.29	-566.37	-484.39
9	250.00	71.6	0.9570	0.9380	248.91	149.14	0.9929	0.9955	0.9772	2.4044	-0.9003	-611.21	-567.53	-485.27

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

2 T = 594.80 P = 57.10 V = 171.30 OMEGA = 0.444 OMEGAH = 0.187 DIPOLE = 1.75 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

2 A = 0.71881E 01 B = 0.14167E 04 C = 0.21100E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

2 A = 0.58702E 02 B = -.61178E-01 C = 0.19158E-03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 100.0

P = 764.4 AT T = 118.1

COMPONENT ID ECHO CHECK

ID NUMBER = 34

ID NUMBER = 1

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.70554E-02 B = 0.39862E 00 C = -.11790E 01

STANDARD DEVIATION = 0.1518CE 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.0071 G2INF = 2.1670

T1INF = 84.75 T2INF = 71.56

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0100

AREA BELOW THE X-AXIS IS -0.1967

CROSS-OVER POINT IS X = 0.35

NORMALIZED AREA DIFFERENCE IS -0.9029

HERINGTON J-FACTOR IS 5.74

CONSISTENCY INDEX IS 84.55

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	229.83	633.89	0.9095E-12	26.56	0.02846
2	9568.44	-1184.88	0.1462E-02	5.88	0.04913
3	9406.73	-1534.62	0.3283E 01	26.73	0.02862
4	449.94	375.13	0.2582E 00	17.29	0.03866
5	2076.55	-1132.63	0.5138E-01	8.31	0.03362
6	2004.16	-1347.45	0.8006E-02	27.10	0.01893
7	2773.88	-1281.43	0.4907E-01	11.93	0.02682
8	2035.86	-1017.12	0.1094E-02	2.48	0.04800
9	2037.37	-1017.41	0.1094E-02	2.48	0.04801
10	405.53	505.84	0.2337E 00	18.30	0.03768

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

WATER(1) — ACETIC ACID(2) SYSTEM 1366

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	500.00	99.5	0.0500	0.0910	735.02	418.81	0.9921	0.9901	1.2278	1.1295	0.0834	-514.46	-460.10	-398.75
2	500.00	92.5	0.2280	0.3480	570.51	329.12	0.9899	0.9899	1.3237	1.2684	0.0427	-537.11	-482.56	-417.93
3	500.00	91.4	0.3160	0.4540	547.49	316.47	0.9893	0.9901	1.2975	1.2471	0.0397	-540.80	-486.35	-421.11
4	500.00	90.7	0.4070	0.5500	533.57	308.80	0.9889	0.9905	1.2517	1.2153	0.0295	-543.10	-488.74	-423.10
5	500.00	89.9	0.5180	0.6540	517.80	300.10	0.9884	0.9909	1.2046	1.1835	0.0176	-545.78	-491.55	-425.43
6	500.00	89.5	0.6340	0.7400	509.86	295.72	0.9882	0.9914	1.1306	1.1891	-0.0504	-547.16	-493.01	-426.63
7	500.00	89.2	0.7490	0.8220	503.55	292.23	0.9880	0.9919	1.0762	1.2019	-0.1104	-548.27	-494.19	-427.61
8	500.00	89.0	0.8660	0.9080	499.38	289.93	0.9879	0.9925	1.0367	1.1735	-0.1240	-549.01	-494.98	-428.26
9	500.00	88.8	0.9550	0.9700	496.55	288.36	0.9878	0.9929	1.0099	1.1462	-0.1266	-549.52	-495.52	-428.70

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

2 T = 594.80 P = 57.10 V = 171.30 OMEGA = 0.444 OMEGAH = 0.187 DIPOLE = 1.75 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

2 A = 0.71891E 01 B = 0.14167E 04 C = 0.21100E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 100.0

P = 764.4 AT T = 118.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.22887E 02 B = -.36416E-01 C = 0.66556E-04

2 A = 0.58702E 02 B = -.61178E-01 C = 0.19158E-03

COMPONENT ID ECHO CHECK

IC NUMBER = 34

ID NUMBER = 1

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.91829E-01 B = -.13384E 00 C = -.12231E 00

STANDARD DEVIATION = 0.21529E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.0962 G2INF = 1.1786

T1INF = 104.59 T2INF = 88.68

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0242

AREA BELOW THE X-AXIS IS -0.0400

CROSS-OVER POINT IS X = 0.48

NORMALIZED AREA DIFFERENCE IS -0.2472

HERINGTON J-FACTOR IS 6.60

CONSISTENCY INDEX IS 18.12

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	691.99	-553.04	0.0	56.40	0.00313
2	7539.20	-1256.09	0.1026E-02	14.89	0.05564
3	1169.58	-912.23	0.2892E 00	43.04	0.01175
4	1186.45	-930.40	0.1926E 00	43.69	0.01125
5	1504.59	-891.04	0.4186E-01	14.21	0.03546
6	767.29	-662.52	0.2481E-03	57.42	0.00291
7	1243.69	-744.14	0.4183E-01	17.90	0.03244
8	1904.43	-971.54	0.1189E-02	5.10	0.04735
9	1904.49	-971.57	0.1189E-02	5.10	0.04735
10	1183.61	-923.40	0.7943E 00	43.11	0.01170

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

WATER(1) — ACETIC ACID(2) — SYSTEM 1300

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	117.5	0.0045	0.0115	1338.13	739.64	0.9906	0.9871	1.4369	1.0052	0.3574	-460.73	-412.64	-355.57
2	760.00	103.0	0.3285	0.4760	829.18	469.64	0.9852	0.9867	1.3077	1.2435	0.0504	-503.67	-449.94	-389.83
3	760.00	101.6	0.4740	0.6240	789.85	448.45	0.9843	0.9875	1.2460	1.1938	0.0428	-508.02	-454.00	-393.41
4	760.00	101.2	0.5575	0.6850	778.90	442.54	0.9840	0.9879	1.1790	1.2052	-0.0220	-509.27	-455.17	-394.44
5	760.00	100.9	0.6360	0.7450	770.77	438.14	0.9837	0.9883	1.1356	1.1985	-0.0540	-510.21	-456.06	-395.22
6	760.00	100.6	0.7430	0.8170	762.44	433.64	0.9835	0.9889	1.0774	1.2316	-0.1338	-511.18	-456.98	-396.03
7	760.00	100.4	0.8400	0.8860	756.57	430.47	0.9834	0.9896	1.0413	1.2423	-0.1765	-511.87	-457.64	-396.60
8	760.00	100.1	0.9540	0.9680	749.95	426.89	0.9833	0.9905	1.0105	1.2242	-0.1919	-512.66	-458.38	-397.25

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

2 T = 594.80 P = 57.10 V = 171.30 OMEGA = 0.444 OMEGAH = 0.187 DIPOLE = 1.75 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.79668E 01 B = -0.16682E 04 C = 0.22800E 03

2 A = 0.71831E 01 B = 0.14167E 04 C = 0.21100E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 100.0

P = 764.4 AT T = 118.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

2 A = -0.58702E 02 B = -.61178E-01 C = 0.19158E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 34

ID NUMBER = 1

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.35055E 00 B = -.85455E 00 C = 0.29399E 00

STANDARD DEVIATION = 0.30702E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.4199 G2INF = 1.2337

T1INF = 117.91 T2INF = 100.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0807

AREA BELOW THE X-AXIS IS -0.0594

CROSS-OVER POINT IS X = 0.49

NORMALIZED AREA DIFFERENCE IS 0.1518

HERINGTON J-FACTOR IS 7.20

CONSISTENCY INDEX IS 7.98

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1383.41	-1094.44	0.9095E-12	57.68	0.00447
2	4312.33	-1265.02	0.2309E-03	29.47	0.05665
3	1227.50	-918.71	0.1429E 00	45.82	0.00800
4	1246.89	-931.88	0.9507E-01	45.73	0.00818
5	1231.83	-669.54	0.1454E-01	12.43	0.02168
6	875.30	-702.29	0.2274E-03	60.11	0.00292
7	914.49	-338.42	0.1059E-01	15.76	0.01859
8	2126.87	-1042.27	0.6763E-03	6.24	0.03479
9	2123.86	-1041.34	0.6757E-03	6.24	0.03477
10	1255.72	-942.92	0.3655E 00	46.48	0.00795

DIAGNOSTIC

2 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

WATER(1) — ACETIC ACID(2) SYSTEM 130F

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	115.4	C.050C	0.0920	1251.88	694.35	0.9896	0.9869	1.1048	1.0304	0.C697	-466.72	-417.55	-360.24
2	760.00	113.8	0.1000	0.1670	1189.20	661.34	0.9888	0.9869	1.0546	1.0476	0.0067	-471.33	-421.40	-363.85
3	760.00	110.1	0.2000	0.3020	1053.92	589.74	0.9873	0.9868	1.0744	1.1073	-0.0302	-482.17	-430.65	-372.44
4	760.00	107.5	C.3000	0.4250	966.53	543.22	0.9861	0.9870	1.0978	1.1320	-C.0306	-489.54	-437.47	-378.66
5	760.00	105.8	C.4C00	0.5300	912.62	514.41	0.9853	0.9873	1.0865	1.1403	-0.0483	-495.C8	-442.C8	-382.82
6	760.00	104.4	0.5000	0.6260	870.C9	491.62	0.9847	0.9878	1.0762	1.1399	-0.0576	-499.36	-445.57	-386.30
7	760.00	103.2	0.6000	0.7160	834.93	472.73	0.9842	0.9883	1.0684	1.1259	-0.0524	-503.05	-449.36	-389.32
8	760.00	102.1	0.7006	0.795C	803.72	455.92	0.9838	0.9889	1.0559	1.1241	-0.0626	-506.46	-452.54	-392.13
9	760.00	101.3	0.8010	0.8640	781.62	444.C1	0.9835	0.9895	1.0322	1.1493	-0.1075	-508.96	-454.88	-394.19
10	760.00	100.6	0.9000	0.9300	762.70	433.79	0.9834	0.9901	1.0119	1.2118	-0.1802	-511.15	-456.95	-396.00
11	760.00	100.3	C.950C	0.9630	754.71	429.46	0.9833	0.9904	1.0031	1.2944	-0.2549	-512.C9	-457.85	-396.78

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

2 T = 594.80 P = 57.1C V = 171.3C OMEGA = 0.444 OMEGAH = 0.187 DIPOLE = 1.75 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

2 A = C.71881E C1 B = 0.14167E 04 C = 0.21100E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 100.0

P = 764.4 AT T = 118.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

2 A = 0.58702E 02 B = -.61178E-01 C = 0.19158E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 34

ID NUMBER = 1

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.20221E-01 B = -.19018E-01 C = -.23058E 00

STANDARD DEVIATION = 0.37693E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.0204 G2INF = 1.2578

T1INF = 117.91 T2INF = 100.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.C033

AREA BELOW THE X-AXIS IS -0.C654

CROSS-OVER POINT IS X = 0.26

NORMALIZED AREA DIFFERENCE IS -0.9102

HERINGTON J-FACTOR IS 7.20

CONSISTENCY INDEX IS 83.82

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	446.11	-112.43	0.8185E-11	36.12	0.01099
2	1843.77	-1217.62	0.2379E-03	12.01	0.02709
3	624.02	-351.75	0.6997E-01	23.30	0.01277
4	612.80	-334.65	0.56C3E-01	23.63	0.01269
5	1022.49	-791.66	0.1515E-01	11.49	0.01777
6	825.09	-810.54	0.1960E-02	46.74	0.00874
7	1180.97	-956.47	0.1459E-01	15.73	0.01576
8	1044.76	-741.22	0.2399E-03	2.51	0.02398
9	1044.76	-741.21	0.2399E-03	2.51	0.02398
10	500.26	-122.74	0.3402E 00	25.22	0.01270

WATER(1) ACETIC ACID(2) SYSTEM 130F

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	117.9	0.0002	0.0003	1355.93	748.97	0.9907	0.9872	0.8325	0.9996	-0.1830	-459.54	-411.67	-354.65
2	760.00	117.9	0.0002	0.0004	1355.51	748.75	0.9907	0.9872	1.1103	0.9998	0.1048	-459.57	-411.69	-354.67
3	760.00	117.6	0.0034	0.0069	1344.04	742.74	0.9906	0.9871	1.1361	1.0045	0.1231	-460.33	-412.31	-355.27
4	760.00	117.5	0.0055	0.0112	1338.54	739.66	0.9906	0.9871	1.1446	1.0062	0.1289	-460.70	-412.61	-355.55
5	760.00	115.0	0.0474	0.0979	1237.15	686.60	0.9895	0.9869	1.2547	1.0324	0.1950	-467.78	-418.43	-361.07
6	760.00	113.8	0.0812	0.1446	1189.59	661.54	0.9890	0.9868	1.1245	1.0534	0.0653	-471.31	-421.37	-363.83
7	760.00	111.5	0.1497	0.2382	1103.92	616.26	0.9879	0.9868	1.0816	1.0881	-0.0060	-478.02	-427.06	-369.13
8	760.00	109.8	0.2198	0.3273	1044.90	584.95	0.9871	0.9868	1.0684	1.1033	-0.0321	-482.95	-431.32	-373.05
9	760.00	108.2	0.2917	0.4071	988.13	554.74	0.9863	0.9870	1.0581	1.1296	-0.0654	-487.96	-435.71	-377.06
10	760.00	107.4	0.3378	0.4573	961.99	540.80	0.9859	0.9871	1.0538	1.1346	-0.0739	-490.36	-437.85	-379.00
11	760.00	105.8	0.4198	0.5496	914.17	515.24	0.9852	0.9875	1.0716	1.1284	-0.0516	-494.93	-441.94	-382.70
12	760.00	104.2	0.5359	0.6591	863.26	487.95	0.9845	0.9880	1.0653	1.1281	-0.0572	-500.06	-446.61	-386.87
13	760.00	103.9	0.6463	0.7524	825.18	467.48	0.9840	0.9896	1.0544	1.1228	-0.0628	-504.10	-450.34	-390.18
14	760.00	101.9	0.7388	0.8217	798.71	453.22	0.9837	0.9891	1.0404	1.1299	-0.0825	-507.02	-453.06	-392.59
15	760.00	101.2	0.8251	0.8783	779.99	443.13	0.9835	0.9896	1.0195	1.1786	-0.1450	-509.14	-455.05	-394.34
16	760.00	100.5	0.9210	0.9429	761.10	432.92	0.9833	0.9902	1.0047	1.2539	-0.2216	-511.34	-457.13	-396.16
17	760.00	100.2	0.9676	0.9761	753.12	428.61	0.9833	0.9906	1.0004	1.2930	-0.2566	-512.28	-458.02	-396.94
18	760.00	100.1	0.9891	0.9921	748.63	426.17	0.9833	0.9907	1.0006	1.2779	-0.2446	-512.82	-458.53	-397.39

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

2 T = 594.80 P = 57.10 V = 171.30 OMEGA = 0.444 OMEGAH = 0.187 DIPOLE = 1.75 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

2 A = 0.71881E 01 B = 0.14167E 04 C = 0.21100E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 100.0

P = 764.4 AT T = 118.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

2 A = 0.58702E 02 B = -.61178E-01 C = 0.19158E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 34

ID NUMBER = 1

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.59356E-01 B = -.20686E 00 C = -.87052E-01

STANDARD DEVIATION = 0.85270E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.0612 G2INF = 1.2644

T1INF = 117.91 T2INF = 100.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0079

AREA BELOW THE X-AXIS IS -0.0810

CROSS-OVER POINT IS X = 0.26

NORMALIZED AREA DIFFERENCE IS -0.8217

HERINGTON J-FACTOR IS 7.20

CONSISTENCY INDEX IS 74.97

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	528.86	-251.01	C.9C95E-12	23.12	0.00981
2	2039.41	-1304.56	0.2448E-03	9.54	0.01964
3	597.50	-324.79	0.1847E 00	18.44	0.01050
4	528.46	-210.37	0.1883E 00	20.16	0.01042
5	1733.29	-1279.51	0.1781E-01	9.83	0.01256
6	2122.43	-154C.37	C.1861E-02	31.38	0.00541
7	2164.84	-1437.43	0.1639E-01	12.63	0.01163
8	1342.48	-1008.59	C.3503E-03	2.48	0.01731
9	1342.53	-1008.63	C.3499E-C3	2.48	0.01731
10	573.92	-287.89	0.7507E 00	19.06	0.01046

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION
SEE 'INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

WATER(1) — DIOXANE(2) SYSTEM 131

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	42.70	25.0	C.C500	0.1545	23.58	37.20	0.9994	C.9955	5.5911	1.0169	1.7044	-823.37	-1966.55	-989.33
2	45.20	25.0	0.1000	0.2410	23.58	37.20	0.9991	0.9953	4.6146	1.0198	1.5096	-823.37	-1966.55	-989.33
3	47.50	25.C	C.240C	C.3100	23.58	37.20	0.9989	0.9952	2.5984	1.1536	0.8120	-823.37	-1966.55	-989.33
4	47.70	25.0	0.4500	0.3500	23.58	37.20	C.9988	0.9952	1.5710	1.5080	0.0410	-823.37	-1966.55	-989.33
5	45.50	25.0	0.7200	0.4050	23.58	37.20	0.9987	0.9955	1.0837	2.5872	-0.8702	-823.37	-1966.55	-989.33
6	43.90	25.0	0.7700	0.4400	23.58	37.20	0.9987	C.9957	1.0622	2.8608	-C.9908	-823.37	-1966.55	-989.33
7	37.50	25.0	C.8900	0.5600	23.58	37.20	0.9987	0.9965	0.9991	4.0181	-1.3917	-823.37	-1966.55	-989.33
8	30.00	25.0	C.960C	C.7700	23.58	37.20	C.9987	C.9976	1.0189	4.6259	-1.5129	-823.37	-1966.55	-989.33

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

2 T = 585.20 P = 50.7C V = 244.7C OMEGA = 0.288 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

2 A = 0.74315E 01 B = 0.15547E 04 C = 0.24034E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 100.0

P = 755.4 AT T = 101.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.22887E C2 B = -.36416E-01 C = 0.68556E-04

2 A = 0.71966E 02 B = -.41898E-02 C = 0.16875E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 34

ID NUMBER = 10

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.19471E 01 B = -.48312E 01 C = 0.12652E 01

STANDARD DEVIATION = 0.36010E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 7.0082 G2INF = 5.0475

T1INF = 25.00 T2INF = 25.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4256

AREA BELOW THE X-AXIS IS -0.4724

CROSS-OVER POINT IS X = 0.46

NORMALIZED AREA DIFFERENCE IS -0.0521

CONSISTENCY INDEX IS 5.21

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1728.87	-402.51	0.5275E-10	1.39	0.02078
2	1873.37	-424.94	0.4954E-03	0.69	0.01429
3	1785.79	-356.12	C.2348E-CC	0.42	0.01446
4	1810.43	-355.38	0.2260E-01	C.32	0.01396
5	1846.62	-343.62	0.4123E-02	0.30	0.01329
6	1896.46	-363.28	C.3516E-02	0.41	0.01300
7	1889.48	-350.06	0.3504E-02	0.41	0.C1330
8	1801.65	-320.27	C.3123E-03	0.21	0.01420
9	1801.58	-320.25	0.3123E-03	C.21	0.01420
10	1788.59	-351.51	C.7e53E-02	0.41	0.01440

P-XYLENE(1) FURFURAL(2) SYSTEM 132

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	723.00	135.2	0.9620	0.9540	667.37	323.36	0.9583	0.9572	1.0254	2.5841	-0.9242	-1465.64	-883.19	-1516.78
2	723.00	134.8	0.9460	0.9420	660.36	318.89	0.9582	0.9575	1.0404	2.3256	-0.8044	-1469.37	-885.55	-1520.65
3	723.00	134.6	0.9330	0.9250	656.88	316.68	0.9580	0.9580	1.0412	2.4420	-0.8524	-1471.24	-886.73	-1522.59
4	723.00	134.4	0.9170	0.9110	653.41	314.48	0.9579	0.9585	1.0488	2.3567	-0.8096	-1473.12	-887.92	-1524.54
5	723.00	134.2	0.9000	0.8970	649.95	312.30	0.9578	0.9589	1.0588	2.2580	-0.7573	-1475.00	-889.12	-1526.48
6	723.00	134.4	0.8530	0.8590	653.41	314.48	0.9577	0.9603	1.0666	2.0698	-0.6630	-1473.12	-887.92	-1524.54
7	723.00	134.6	0.7650	0.8000	656.88	316.68	0.9574	0.9623	1.0975	1.8648	-0.5301	-1471.24	-886.73	-1522.59
8	723.00	135.3	0.6860	0.7520	669.14	324.48	0.9572	0.9640	1.1292	1.6920	-0.4044	-1464.71	-882.60	-1515.82
9	723.00	136.2	0.6040	0.7140	685.15	334.75	0.9572	0.9653	1.1892	1.5019	-0.2334	-1456.38	-877.34	-1507.18
10	723.00	136.8	0.5420	0.6840	695.98	341.74	0.9570	0.9663	1.2496	1.4069	-0.1185	-1450.87	-873.88	-1501.47
11	723.00	137.6	0.4730	0.6340	710.63	351.26	0.9567	0.9678	1.2994	1.3799	-0.0601	-1443.58	-869.31	-1493.90
12	723.00	138.8	0.4160	0.6320	733.04	365.56	0.9571	0.9682	1.4284	1.2022	0.1724	-1432.75	-862.56	-1482.68
13	723.00	140.0	0.3450	0.5620	755.97	381.19	0.9565	0.9701	1.4842	1.2272	0.1902	-1422.05	-855.93	-1471.60
14	723.00	141.3	0.2950	0.5260	781.43	398.28	0.9564	0.9712	1.5715	1.1823	0.2846	-1410.61	-848.89	-1459.75
15	723.00	144.8	0.1950	0.4600	853.15	447.56	0.9565	0.9732	1.9046	1.0519	0.5937	-1380.52	-830.58	-1428.61
16	723.00	148.0	0.1250	0.3520	922.93	497.04	0.9555	0.9754	2.0994	1.0481	0.6947	-1353.91	-814.64	-1401.09
17	723.00	149.5	0.0930	0.2890	957.07	521.77	0.9546	0.9764	2.2321	1.0579	0.7466	-1341.72	-807.42	-1388.49
18	723.00	151.5	0.0640	0.2320	1004.02	556.35	0.9540	0.9773	2.4804	1.0394	0.8697	-1325.74	-798.03	-1371.98
19	723.00	153.2	0.0440	0.1640	1045.24	587.24	0.9529	0.9781	2.4470	1.0504	0.8457	-1312.39	-790.27	-1358.20
20	723.00	155.8	0.0220	0.0960	1110.69	637.25	0.9520	0.9788	2.6936	1.0239	0.9673	-1292.38	-778.75	-1337.55

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 616.30 P = 34.60 V = 369.40 OMEGA = 0.324 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 656.00 P = 38.40 V = 375.20 OMEGA = 0.292 OMEGAH = 0.270 DIPOLE = 2.00 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69905E 01 B = 0.14534E 04 C = 0.21531E 03

2 A = 0.87299E 01 B = 0.25378E 04 C = 0.27315E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 138.3

P = 785.6 AT T = 161.8

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.12940E 03 B = -.14187E 00 C = 0.41800E-03

2 A = 0.63207E 02 B = 0.58328E-01 C = 0.29602E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 36

ID NUMBER = 15

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.97823E 00 B = -.22450E 01 C = 0.33404E 00

STANDARD DEVIATION = 0.40222E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.6598 G2INF = 2.5415

T1INF = 159.13 T2INF = 136.50

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2234

AREA BELOW THE X-AXIS IS -0.2563

CROSS-OVER POINT IS X = 0.47

NORMALIZED AREA DIFFERENCE IS -0.0686

HERINGTON J-FACTOR IS 9.18

CONSISTENCY INDEX IS -2.31

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	179.97	719.50	0.4547E-11	27.12	0.00655
2	159.06	1004.03	0.6658E-02	14.25	0.02151
3	183.48	775.93	0.1144E 00	19.40	0.00767
4	199.94	765.10	0.5190E-01	18.90	0.00788
5	154.95	865.52	0.1748E-01	12.54	0.01178
6	296.91	599.21	0.2526E-02	30.64	0.00655
7	157.02	826.56	0.1841E-01	16.09	0.00942
8	60.15	1027.71	0.5634E-02	11.10	0.01662
9	60.15	1027.70	0.5640E-02	11.10	0.01662
10	182.43	776.44	0.9192E-02	19.46	0.00764

ISOPROPYLETHER(1) — WATER(2) — SYSTEM 133

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	67.0	0.9940	0.9290	763.55	203.77	0.9504	0.9855	0.8787	44.0804	-3.9153	-1384.56	-629.09	-885.46
2	760.00	66.0	0.9880	0.9000	739.16	194.98	0.9499	0.9849	0.8852	31.9689	-3.5867	-1395.20	-633.03	-892.74
3	760.00	65.0	0.9760	0.8700	715.39	186.52	0.9494	0.9842	0.8946	21.7074	-3.1891	-1405.97	-637.00	-900.13
4	760.00	64.0	0.9600	0.8460	692.22	178.37	0.9490	0.9836	0.9135	16.1244	-2.8708	-1416.88	-640.99	-907.62
5	760.00	63.0	0.9360	0.8200	669.65	170.52	0.9485	0.9830	0.9383	12.3138	-2.5745	-1427.92	-645.02	-915.23
6	760.00	62.2	0.9000	0.7800	652.01	164.45	0.9482	0.9822	0.9530	9.9796	-2.3487	-1436.85	-648.26	-921.39
7	760.00	62.2	0.8500	0.7800	652.01	164.45	0.9482	0.9822	1.0090	6.6531	-1.8861	-1436.85	-648.26	-921.39
8	760.00	62.2	0.7900	0.7800	652.01	164.45	0.9482	0.9822	1.0996	4.5362	-1.4171	-1436.85	-648.26	-921.39
9	760.00	62.2	0.7000	0.7800	652.01	164.45	0.9482	0.9822	1.2253	3.3265	-0.9588	-1436.85	-648.26	-921.39
10	760.00	62.2	0.6000	0.7800	652.01	164.45	0.9482	0.9822	1.4295	2.4949	-0.5569	-1436.85	-648.26	-921.39
11	760.00	62.2	0.5000	0.7800	652.01	164.45	0.9482	0.9822	1.7154	1.9959	-0.1515	-1436.85	-648.26	-921.39
12	760.00	62.2	0.4000	0.7800	652.01	164.45	0.9482	0.9822	2.1442	1.6633	0.2540	-1436.85	-648.26	-921.39
13	760.00	62.2	0.3000	0.7800	652.01	164.45	0.9482	0.9822	2.8585	1.4257	0.6958	-1436.85	-648.26	-921.39
14	760.00	62.2	0.2000	0.7800	652.01	164.45	0.9482	0.9822	4.2884	1.2474	1.2348	-1436.85	-648.26	-921.39
15	760.00	62.2	0.1000	0.7800	652.01	164.45	0.9482	0.9822	8.5768	1.1088	2.0457	-1436.85	-648.26	-921.39
16	760.00	62.2	0.0500	0.7800	652.01	164.45	0.9482	0.9822	17.1536	1.0505	2.7930	-1436.85	-648.26	-921.39
17	760.00	62.2	0.0100	0.7800	652.01	164.45	0.9482	0.9822	85.7682	1.0080	4.4436	-1436.85	-648.26	-921.39
18	760.00	64.0	0.0050	0.7620	692.22	178.37	0.9493	0.9823	*******	1.0005	5.0623	-1416.88	-640.99	-907.62
19	760.00	68.0	0.0040	0.7350	788.57	212.88	0.9515	0.9826	*******	0.9328	5.1916	-1374.05	-625.18	-878.29

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 500.10 P = 28.40 V = 382.00 OMEGA = 0.350 OMEGAH = 0.306 DIPOLE = 0.0 ETA = 0.0

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSUPE EQUATION COEFFICIENTS

1 A = 0.79047E C1 B = C.16993E 04 C = 0.27315E 03

2 A = 0.79668E 01 B = 0.16682E-04 C = 0.22800E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.14077E 03 B = 0.0 C = 0.0

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

VAPOR PRESSURE AT NBP

P = 846.9 AT T = 68.3

P = 760.0 AT T = 100.0

COMPONENT ID ECHO CHECK

ID NUMBER = 46

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.41484E 01 B = -.10475E 02 C = 0.32464E 01

STANDARD DEVIATION = 0.70346E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 63.3345 G2INF = 21.7690

T1INF = 100.00 T2INF = 65.10

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.9053

AREA BELOW THE X-AXIS IS -0.9124

CROSS-OVER POINT IS X = C.46

NORMALIZED AREA DIFFERENCE IS -0.0039

HERINGTON J-FACTOR IS 16.91

CONSISTENCY INDEX IS -16.52

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	972.76	2786.40	0.5960E-07	81.13	0.05326
2	3031.39	2352.93	0.4984E-01	27.97	0.03068
3	2090.26	3334.55	0.1325E 03	69.18	0.01478
4	2111.14	3216.60	0.2840E 00	62.96	0.01490
5	2341.65	2621.27	0.6561E-01	24.24	0.02271
6	2195.64	3299.09	0.1024E-01	68.51	0.01410
7	2380.54	2600.27	0.9558E-01	22.80	0.02279
8	2416.61	2506.57	0.2407E-01	20.79	0.02546
9	2418.83	2505.65	0.2403E-01	20.80	0.02548
10	2089.25	3333.52	0.1435E-01	69.11	0.01479

DIAGNOSTIC

4 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

ACRYLONITRILE(1) — WATER(2) SYSTEM 134A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	29.60	25.0	0.0012	0.1990	107.39	23.61	1.0000	1.0000	45.7046	1.0054	3.8168	0.0	0.0	0.0
2	34.20	25.0	0.0026	0.3100	107.39	23.61	1.0000	1.0000	37.9668	1.0021	3.6346	0.0	0.0	0.0
3	39.40	25.0	0.0035	0.4010	107.39	23.61	1.0000	1.0000	42.0295	1.0031	3.7353	0.0	0.0	0.0
4	48.20	25.0	0.0064	0.5100	107.39	23.61	1.0000	1.0000	35.7606	1.0068	3.5701	0.0	0.0	0.0
5	55.30	25.0	0.0089	0.5750	107.39	23.61	1.0000	1.0000	33.2629	1.0044	3.5001	0.0	0.0	0.0
6	67.40	25.0	0.0108	0.6530	107.39	23.61	1.0000	1.0000	37.9392	1.0014	3.6346	0.0	0.0	0.0
7	74.30	25.0	0.0132	0.6850	107.39	23.61	1.0000	1.0000	35.8949	1.0045	3.5761	0.0	0.0	0.0
8	81.40	25.0	0.0154	0.7130	107.39	23.61	1.0000	1.0000	35.0841	1.0049	3.5528	0.0	0.0	0.0
9	86.60	25.0	0.0172	0.7320	107.39	23.61	1.0000	1.0000	34.3091	1.0002	3.5353	0.0	0.0	0.0
10	94.20	25.0	0.0198	0.7540	107.39	23.61	1.0000	1.0000	33.3929	1.0013	3.5071	0.0	0.0	0.0
11	97.60	25.0	0.0201	0.7620	107.39	23.61	1.0000	1.0000	34.4420	1.0040	3.5353	0.0	0.0	0.0
12	96.90	25.0	0.0207	0.7600	107.39	23.61	1.0000	1.0000	33.1177	1.0058	3.4943	0.0	0.0	0.0
13	103.60	25.0	0.0233	0.7770	107.39	23.61	1.0000	1.0000	32.1593	1.0018	3.4689	0.0	0.0	0.0
14	103.80	25.0	0.0244	0.7770	107.39	23.61	1.0000	1.0000	30.7688	1.0049	3.4217	0.0	0.0	0.0

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 0.0 P = 0.0 V = 0.0 OMEGA = 0.0 OMEGAH = 0.0 DIPOLE = 3.83 ETA = 0.0

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78510E 01 B = 0.17352E-04 C = 0.27315E 03

2 A = 0.79668E 01 B = 0.16682E 04 C = 0.22800E 03

VAPOR PRESSURE AT NBP

P = 793.7 AT T = 77.3

P = 760.0 AT T = 100.0

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.38860E 02 B = 0.92001E-01 C = 0.0

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

COMPONENT ID ECHO CHECK

ID NUMBER = 40

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.37531E 01 B = -.19273E 02 C = 0.31642E 03

STANDARD DEVIATION = 0.60072E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 42.6518 G2INF = 1.0000

T1INF = 25.00 T2INF = 25.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

SQUARE ROOT OF NEGATIVE ARGUEMENT REQUIRED TO OBTAIN X-INTERCEPT

VALUE OF REQUIRED ARGUEMENT IS -.43788E 04

THERMODYNAMIC CONSISTENCY TEST IS ABORTED

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	3535.92	-124.50	0.3654E 00	47.25	0.55408
2	1796.41	-950.29	C.6687E-04	15.79	0.08226
3	948.15	10563.45	0.3049E 03	6.94	0.02736
4	957.19	9338.96	0.2585E 00	6.72	0.02726
5	1005.42	9345.20	C.1203E 00	5.56	0.02692
6	963.14	9264.09	0.2366E-01	6.58	0.02720
7	1016.96	9749.23	C.9489E-01	5.32	0.02705
8	1018.00	9766.80	0.9238E-01	5.30	0.02709
9	1018.00	9866.80	C.9238E-01	5.30	0.02709
10	806.68	8060.20	C.6601E 00	11.67	0.04706

DIAGNOSTIC

4 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION
SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

ACRYLONITRILE(1) — WATER(2) SYSTEM 134P

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	67.00	40.0	0.0013	0.1760	203.98	55.22	1.0000	1.0000	44.4582	1.0010	3.7936	0.0	0.0	0.0
2	77.20	40.0	0.0025	0.2850	203.98	55.22	1.0000	1.0000	43.1334	1.0020	3.7623	0.0	0.0	0.0
3	95.30	40.0	0.0049	0.4220	203.98	55.22	1.0000	1.0000	40.2230	1.0023	3.6922	0.0	0.0	0.0
4	133.90	40.0	0.0113	0.5920	203.98	55.22	1.0000	1.0000	34.3741	1.0005	3.5368	0.0	0.0	0.0
5	171.50	40.0	0.0172	0.6830	203.98	55.22	1.0000	1.0000	33.3662	1.0015	3.5060	0.0	0.0	0.0
6	136.40	40.0	0.0224	0.7090	203.98	55.22	1.0000	1.0000	28.9050	1.0046	3.3595	0.0	0.0	0.0
7	194.20	40.0	0.0241	0.7220	203.98	55.22	1.0000	1.0000	28.5027	1.0016	3.3484	0.0	0.0	0.0
8	199.90	40.0	0.0258	0.7310	203.98	55.22	1.0000	1.0000	27.7471	0.9993	3.3238	0.0	0.0	0.0
9	191.90	40.0	0.0273	0.7200	203.98	55.22	1.0000	1.0000	24.7950	1.0001	3.2105	0.0	0.0	0.0

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1	T = 0.0	P = 0.0	V = 0.0	OMEGA = 0.0	OMEGAH = 0.0	DIPOLE = 3.83 ETA = 0.0
2	T = 647.40	P = *****	V = 55.20	OMEGA = 0.344	OMEGAH = 0.010	DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1	A = 0.78510E 01	B = 0.17352E 04	C = 0.27315E 03
2	A = 0.79668E 01	B = 0.16682E 04	C = 0.22800E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1	A = 0.38860E 02	B = 0.92001E-01	C = 0.0
2	A = 0.22887E 02	B = -.36416E-01	C = 0.68556E-04

VAPOR PRESSURE AT NBP

P = 793.7 AT T = 77.3

P = 760.0 AT T = 100.0

COMPONENT ID ECHO CHECK

ID NUMBER = 40

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.38015E 01 B = -.1877CE 02 C = -.3810IE 02

STANDARD DEVIATION = 0.37360E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 44.7669 G2INF = *******

T1INF = 40.00 T2INF = 40.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3165

AREA BELOW THE X-AXIS IS -18.6002

CROSS-OVER POINT IS X = 0.15

NORMALIZED AREA DIFFERENCE IS -0.9665

CONSISTENCY INDEX IS 96.65

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	2089.01	-488.91	0.1246E 47	91.76	0.55740
2	1883.82	864.43	0.2296E-04	36.24	0.09882
3	976.06	10535.05	0.4845E 02	7.03	0.01437
4	991.84	10137.15	0.4837E-01	6.53	0.01485
5	1028.27	10356.29	0.1917E-01	5.41	0.01619
6	1001.83	10731.55	0.4734E-02	6.22	0.01520
7	1039.31	10629.47	0.1425E-01	5.27	0.01663
8	1038.18	10931.79	0.1352E-01	5.28	0.01659
9	1038.18	10316.54	0.1352E-01	5.28	0.01659
10	2031.87	-488.91	0.1596E 01	91.78	0.55743

BENZENE(1) CHLOROBENZENE(2) SYSTEM 135

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	126.10	70.0	0.0680	0.2410	534.74	87.46	0.9917	0.9935	0.8284	1.1657	-0.3416	-1042.71	-1074.51	-1373.72
2	128.80	70.0	0.0787	0.2720	534.74	87.46	0.9917	0.9933	0.8251	1.1551	-0.3364	-1042.71	-1074.51	-1373.72
3	166.90	70.0	0.1628	0.4860	534.74	87.46	0.9906	0.9905	0.9223	1.1594	-0.2288	-1042.71	-1074.51	-1373.72
4	169.70	70.0	0.1839	0.5030	534.74	87.46	0.9905	0.9902	0.8591	1.1690	-0.3080	-1042.71	-1074.51	-1373.72
5	206.70	70.0	0.2728	0.6320	534.74	87.46	0.9891	0.9872	0.8850	1.1794	-0.2872	-1042.71	-1074.51	-1373.72
6	251.30	70.0	0.3758	0.7400	534.74	87.46	0.9873	0.9833	0.9126	1.1754	-0.2530	-1042.71	-1074.51	-1373.72
7	315.50	70.0	0.4948	0.8321	534.74	87.46	0.9844	0.9777	0.9753	1.1703	-0.1822	-1042.71	-1074.51	-1373.72
8	347.20	70.0	0.5862	0.8675	534.74	87.46	0.9829	0.9749	0.9430	1.2370	-0.2714	-1042.71	-1074.51	-1373.72
9	357.10	70.0	0.6062	0.8849	534.74	87.46	0.9820	0.9731	0.9825	1.1916	-0.1930	-1042.71	-1074.51	-1373.72
10	435.00	70.0	0.7744	0.9395	534.74	87.46	0.9788	0.9669	0.9641	1.2868	-0.2887	-1042.71	-1074.51	-1373.72
11	493.50	70.0	0.8885	0.9734	534.74	87.46	0.9759	0.9615	0.9846	1.2911	-0.2710	-1042.71	-1074.51	-1373.72
12	525.20	70.0	0.9503	0.9893	534.74	87.46	0.9744	0.9586	0.9940	1.2360	-0.2179	-1042.71	-1074.51	-1373.72
13	535.20	70.0	0.9715	0.9933	534.74	87.46	0.9739	0.9577	0.9943	1.3740	-0.3235	-1042.71	-1074.51	-1373.72

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 632.40 P = 44.60 V = 307.80 OMEGA = 0.252 OMEGAH = 0.241 DIPOLE = 1.70 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

2 A = 0.77175E 01 B = 0.19812E 04 C = 0.27315E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = 0.85745E 02 B = 0.10559E-01 C = 0.14959E-03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 674.0 AT T = 132.1

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 56

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = -.35629E 00 B = 0.44705E 00 C = -.38817E 00

STANDARD DEVIATION = 0.43124E-01

INFINITE-DILUTION ACTIVITY COEFFICIENTS

G1INF = 0.7003 G2INF = 1.3464

T1INF = 70.00 T2INF = 70.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

SQUARE ROOT OF NEGATIVE ARGUEMENT REQUIRED TO OBTAIN X-INTERCEPT

VALUE OF REQUIRED ARGUEMENT IS -.35335E 00

THERMODYNAMIC CONSISTENCY TEST IS ABORTED

SUMMARY OF WILSON PARAMETERS				QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	PRESSURE	COMPOSITION
1	-807.00	1954.69	0.1587E-07	18.86	0.01535
2	9557.63	-712.59	0.2945E-02	11.26	0.04336
3	9478.18	-940.63	0.9569E 00	5.31	0.02579
4	9444.72	-884.14	0.7147E 00	7.27	0.02045
5	9385.80	-875.91	0.4184E-01	6.81	0.02109
6	9424.90	-958.80	0.9572E-02	13.14	0.01659
7	9644.27	-988.19	0.3098E-01	7.60	0.02014
8	9648.94	-836.48	0.9849E-02	5.27	0.02595
9	9708.63	-839.51	0.9855E-02	5.27	0.02594
10	-637.12	1548.72	0.1305E 01	8.99	0.03028

BENZENE(1) - ACETIC ACID(2) SYSTEM 136

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	758.00	79.8	0.9499	0.9613	725.56	206.02	0.9665	0.9677	1.0184	2.7446	-0.9914	-972.39	-530.64	-971.01
2	758.00	80.0	0.8823	0.9309	729.92	207.61	0.9665	0.9687	1.0555	2.0720	-0.6745	-971.04	-529.80	-969.65
3	758.00	82.8	0.5325	0.7932	793.21	230.91	0.9668	0.9730	1.3717	1.4100	-0.0275	-952.49	-518.37	-950.94
4	758.00	85.8	0.3407	0.7032	865.51	258.19	0.9671	0.9758	1.7425	1.2869	0.3031	-933.28	-506.71	-931.58
5	759.00	91.5	0.1731	0.5924	1016.37	317.25	0.9678	0.9790	2.4621	1.1507	0.7607	-898.54	-486.11	-896.62
6	758.00	100.0	0.0738	0.3648	1276.44	425.18	0.9677	0.9831	3.0644	1.1429	0.9863	-850.62	-458.74	-848.51
7	758.00	109.0	0.0279	0.2407	1601.47	569.69	0.9678	0.9855	3.9393	1.0222	1.3491	-804.33	-433.50	-802.15

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 594.80 P = 57.10 V = 171.30 OMEGA = 0.444 OMEGAH = 0.187 DIPOLE = 1.75 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69056E 01 B = 0.12110E 04 C = 0.22079E 03

2 A = 0.71881E 01 B = 0.14167E 04 C = 0.21100E 03

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 80.1

P = 764.4 AT T = 118.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

2 A = 0.58702E 02 B = -.61178E-01 C = 0.19158E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 1

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.13029E 01 B = -.30189E-01 C = 0.74749E-00

STANDARD DEVIATION = 0.11928E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 3.6801 G2INF = 2.6340

T1INF = 117.82 T2INF = 80.01

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3053

AREA BELOW THE X-AXIS IS -0.2627

CROSS-OVER POINT IS X = 0.49

NORMALIZED AREA DIFFERENCE IS 0.0750

HERINGTON J-FACTOR IS 16.16

CONSISTENCY INDEX IS -8.65

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	517.80	509.11	0.0	55.40	0.01335
2	2322.48	351.49	0.2690E-02	97.46	0.07271
3	629.31	529.26	0.2302E-00	37.05	0.01308
4	626.45	526.62	0.7255E-01	37.96	0.01295
5	406.94	825.40	0.1177E-01	12.35	0.02095
6	444.22	599.31	0.2926E-02	47.75	0.01135
7	318.66	884.16	0.1049E-01	17.02	0.02056
8	475.83	828.82	0.1257E-03	2.74	0.02750
9	475.86	828.76	0.1253E-03	2.74	0.02750
10	640.14	515.24	0.3527E-01	38.62	0.01294

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

METHYLCYCLOPENTANE(1) CYCLOHEXANE(2) SYSTEM 137

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	79.7	0.1020	0.1310	912.07	705.79	0.9628	0.9613	1.0261	0.9977	0.0280	-1075.61	-1118.79	-1097.20
2	760.00	76.2	0.4770	0.5410	825.34	635.83	0.9615	0.9600	1.0000	1.0030	-0.0030	-1101.92	-1146.29	-1124.10
3	760.00	73.6	0.7710	0.8140	766.96	588.93	0.9606	0.9590	1.0007	1.0011	-0.0004	-1121.48	-1166.77	-1144.11

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 532.80 P = 37.40 V = 319.00 OMEGA = 0.231 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 553.20 P = 40.00 V = 311.20 OMEGA = 0.210 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68628E 01 B = 0.11861E 04 C = 0.22604E 03

2 A = 0.68450E 01 B = 0.12035E 04 C = 0.22286E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.10427E 03 B = -.86757E-01 C = 0.39000E-03

2 A = 0.92914E 02 B = -.24859E-01 C = 0.26157E-03

VAPOR PRESSURE AT NBP

P = 759.7 AT T = 71.8

P = 759.1 AT T = 80.7

COMPONENT ID ECHO CHECK

ID NUMBER = 27

ID NUMBER = 9

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.43104E-01 B = -.16196E 00 C = 0.13686E 00

STANDARD DEVIATION = 0.0

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.0440 G2INF = 0.9822

T1INF = 80.74 T2INF = 71.81

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

EQUATION SOLVED FOR X-INTERCEPT

ROOTS ARE: X = 0.77917E 00 AND X = 0.40421E 00

BOTH ROOTS ARE IN THE RANGE 0 TO 1

THERMODYNAMIC CONSISTENCY TEST IS ABORTED

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	536.80	-367.61	0.6004E-12	1.75	0.00141
2	147.95	-123.75	0.2591E-07	0.16	0.00118
3	487.58	-336.78	0.6790E-04	1.21	0.00113
4	485.73	-335.84	0.6732E-04	1.20	0.00113
5	342.53	-256.95	0.8551E-05	0.47	0.00094
6	350.59	-258.13	0.5688E-05	1.20	0.00094
7	288.08	-222.27	0.1025E-04	0.34	0.00088
8	239.96	-191.35	0.8456E-07	0.13	0.00100
9	239.84	-191.26	0.8603E-07	0.13	0.00100
10	349.29	-263.73	0.9361E 00	0.47	0.00095

METHYLCYCLOPENTANE(1) — TOLUENE(2) SYSTEM 138

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	108.8	0.0230	0.0680	1906.68	692.29	0.9724	0.9612	1.1413	1.0028	0.1294	-891.74	-1217.03	-1039.36
2	760.00	107.2	0.0400	0.1270	1838.13	661.93	0.9719	0.9606	1.2707	0.9992	0.2404	-900.50	-1229.78	-1049.84
3	760.00	105.3	0.0635	0.1930	1761.00	628.09	0.9714	0.9599	1.2685	0.9971	0.2410	-910.80	-1244.81	-1062.18
4	760.00	103.4	0.0920	0.2375	1682.16	593.88	0.9708	0.9592	1.1276	1.0269	0.0935	-921.85	-1260.98	-1075.44
5	760.00	102.3	0.1060	0.2900	1638.78	575.22	0.9704	0.9588	1.2262	1.0023	0.2016	-928.19	-1270.27	-1083.04
6	760.00	102.0	0.1100	0.2960	1627.10	570.21	0.9703	0.9587	1.2146	1.0070	0.1875	-929.92	-1272.82	-1085.13
7	760.00	99.3	0.1510	0.3725	1524.48	526.60	0.9695	0.9577	1.1874	1.0177	0.1542	-945.80	-1296.20	-1104.24
8	760.00	96.8	0.1910	0.4460	1433.60	488.57	0.9687	0.9568	1.1942	1.0153	0.1623	-960.90	-1318.51	-1122.43
9	760.00	95.3	0.2200	0.4880	1380.96	466.79	0.9682	0.9562	1.1771	1.0180	0.1452	-970.14	-1332.22	-1133.58
10	760.00	92.9	0.2670	0.5490	1299.62	433.52	0.9674	0.9553	1.1585	1.0264	0.1210	-985.22	-1354.67	-1151.82
11	760.00	90.8	0.3125	0.6020	1229.71	405.31	0.9667	0.9544	1.1462	1.0320	0.1049	-999.06	-1375.34	-1168.58
12	760.00	89.9	0.3335	0.6250	1201.26	393.93	0.9664	0.9540	1.1411	1.0316	0.1009	-1004.95	-1384.16	-1175.72
13	760.00	88.5	0.3710	0.6570	1159.50	377.34	0.9660	0.9535	1.1166	1.0432	0.0680	-1013.88	-1397.58	-1186.56
14	760.00	87.0	0.4125	0.6950	1114.33	359.55	0.9655	0.9528	1.1048	1.0415	0.0590	-1023.96	-1412.75	-1198.81
15	760.00	85.3	0.4550	0.7250	1066.13	340.75	0.9649	0.9521	1.0914	1.0674	0.0223	-1035.25	-1429.79	-1212.54
16	760.00	84.1	0.4980	0.7480	1030.64	327.03	0.9645	0.9516	1.0638	1.1058	-0.0388	-1043.93	-1442.93	-1223.12
17	760.00	83.0	0.5310	0.7770	1001.51	315.84	0.9641	0.9511	1.0661	1.0840	-0.0167	-1051.31	-1454.14	-1232.13
18	760.00	82.3	0.5525	0.7920	981.07	308.04	0.9638	0.9508	1.0658	1.0861	-0.0188	-1056.64	-1462.24	-1238.63
19	760.00	81.8	0.5680	0.8020	967.62	302.92	0.9636	0.9506	1.0642	1.0888	-0.0228	-1060.22	-1467.68	-1243.00
20	760.00	80.3	0.6220	0.8310	928.07	287.97	0.9631	0.9499	1.0493	1.1164	-0.0620	-1071.07	-1484.23	-1256.27
21	760.00	78.9	0.6750	0.8570	893.51	275.02	0.9626	0.9492	1.0352	1.1497	-0.1049	-1080.99	-1499.41	-1268.41
22	760.00	77.7	0.7270	0.8825	862.36	263.45	0.9621	0.9487	1.0249	1.1733	-0.1351	-1090.32	-1513.71	-1279.84
23	760.00	76.0	0.7960	0.9150	822.49	248.76	0.9615	0.9479	1.0170	1.2018	-0.1670	-1102.84	-1532.97	-1295.21
24	760.00	74.9	0.8460	0.9360	793.21	238.08	0.9610	0.9472	1.0144	1.2517	-0.2102	-1112.48	-1547.85	-1307.06
25	760.00	73.7	0.8920	0.9540	768.09	228.99	0.9606	0.9467	1.0122	1.3330	-0.2753	-1121.09	-1561.15	-1317.65
26	760.00	72.9	0.9290	0.9690	750.20	222.55	0.9603	0.9463	1.0104	1.4054	-0.3300	-1127.41	-1570.96	-1325.44
27	760.00	72.2	0.9660	0.9825	734.80	217.03	0.9600	0.9459	1.0056	1.6982	-0.5240	-1133.00	-1579.63	-1332.32

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1	T = 532.80	P = 37.40	V = 319.00	OMEGA = 0.231	OMEGAH = 0.0	DIPOLE = 0.0	ETA = 0.0
2	T = 594.00	P = 40.60	V = 331.10	OMEGA = 0.241	OMEGAH = 0.0	DIPOLE = 0.0	ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1	A = 0.68628E 01	B = 0.11861E 04	C = 0.22604E 03
2	A = 0.69533E 01	B = 0.13439E 04	C = 0.21938E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1	A = 0.10427E 03	B = -.86757E-01	C = 0.39000E-03
2	A = 0.98864E 02	B = -.55774E-01	C = 0.27703E-03

VAPOR PRESSURE AT NBP

P = 759.7 AT T = 71.8

P = 759.4 AT T = 110.6

COMPONENT ID ECHO CHECK

ID NUMBER = 27

ID NUMBER = 33

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.18485E 00 B = -.62528E-01 C = -.55737E 00

STANDARD DEVIATION = 0.44210E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.2030 G2INF = 1.5450

T1INF = 110.63 T2INF = 71.81

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0615

AREA BELOW THE X-AXIS IS -0.0938

CROSS-OVER POINT IS X = 0.52

NORMALIZED AREA DIFFERENCE IS -0.2074

HERINGTON J-FACTOR IS 16.88

CONSISTENCY INDEX IS 3.86

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-391.27	791.81	0.1819E-11	6.54	0.00580
2	-97.31	343.20	0.7375E-03	3.99	0.00406
3	-420.05	928.38	0.6897E-01	7.90	0.00704
4	-372.50	803.55	0.4646E-01	6.36	0.00615
5	-106.65	333.36	0.2006E-02	2.56	0.00310
6	-47.41	238.62	0.1178E-02	6.53	0.00312
7	-82.56	299.73	0.1652E-02	3.00	0.00290
8	-108.89	342.33	0.4628E-03	2.25	0.00335
9	-108.91	342.35	0.4630E-03	2.25	0.00335
10	-415.54	907.21	0.1019E-00	7.52	0.00676

CYCLOHEXANE(1) — TOLUENE(2) — SYSTEM 136

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	108.3	0.0410	0.1020	1506.81	681.74	0.9709	0.9610	1.2136	0.9994	0.1942	-930.67	-1221.39	-1064.20
2	760.00	105.4	0.0910	0.2120	1408.16	629.89	0.9700	0.9600	1.2149	1.0003	0.1944	-946.73	-1243.99	-1083.16
3	760.00	103.8	0.1180	0.2640	1353.89	601.64	0.9695	0.9594	1.2129	1.0075	0.1856	-956.11	-1257.22	-1094.25
4	760.00	102.8	0.1430	0.3090	1320.74	584.49	0.9692	0.9590	1.1966	1.0031	0.1764	-962.04	-1265.61	-1101.28
5	760.00	101.8	0.1640	0.3480	1284.95	566.06	0.9689	0.9586	1.2112	1.0000	0.1917	-968.64	-1274.96	-1109.09
6	760.00	100.5	0.1920	0.3860	1246.71	546.46	0.9685	0.9582	1.1823	1.0088	0.1587	-975.93	-1285.29	-1117.73
7	760.00	99.5	0.2170	0.4220	1213.93	529.75	0.9682	0.9578	1.1741	1.0105	0.1501	-982.38	-1294.44	-1125.38
8	760.00	98.3	0.2450	0.4570	1178.75	511.89	0.9678	0.9574	1.1594	1.0184	0.1297	-989.52	-1304.60	-1133.85
9	760.00	98.3	0.2430	0.4600	1178.75	511.89	0.9678	0.9574	1.1766	1.0101	0.1526	-989.52	-1304.60	-1133.85
10	760.00	97.4	0.2730	0.4920	1150.25	497.50	0.9675	0.9570	1.1475	1.0177	0.1201	-995.49	-1313.09	-1140.94
11	760.00	96.9	0.2830	0.5040	1136.93	490.79	0.9673	0.9568	1.1471	1.0211	0.1164	-998.33	-1317.15	-1144.32
12	760.00	96.3	0.3040	0.5230	1119.33	481.95	0.9672	0.9566	1.1253	1.0299	0.0886	-1002.15	-1322.60	-1148.86
13	760.00	95.5	0.3230	0.5470	1094.74	469.65	0.9669	0.9563	1.1323	1.0315	0.0932	-1007.60	-1330.37	-1155.33
14	760.00	95.3	0.3360	0.5600	1087.59	466.08	0.9668	0.9562	1.1215	1.0292	0.0859	-1009.21	-1332.68	-1157.25
15	760.00	94.2	0.3680	0.5960	1057.92	451.30	0.9664	0.9558	1.1200	1.0249	0.0887	-1016.03	-1342.42	-1165.36
16	760.00	93.8	0.3790	0.5990	1046.76	445.77	0.9663	0.9556	1.1045	1.0480	0.0525	-1018.64	-1346.17	-1168.48
17	760.00	92.8	0.4160	0.6330	1017.91	431.50	0.9660	0.9552	1.0931	1.0532	0.0372	-1025.56	-1356.09	-1176.72
18	760.00	91.8	0.4520	0.6620	993.64	419.55	0.9657	0.9548	1.0775	1.0627	0.0138	-1031.56	-1364.70	-1183.87
19	760.00	90.5	0.5040	0.7020	959.34	402.76	0.9652	0.9543	1.0608	1.0778	-0.0158	-1040.33	-1377.30	-1194.32
20	760.00	89.8	0.5330	0.7240	938.67	392.68	0.9649	0.9540	1.0570	1.0870	-0.0280	-1045.78	-1385.15	-1200.83
21	760.00	88.8	0.5590	0.7490	915.82	381.59	0.9646	0.9536	1.0683	1.0768	-0.0079	-1051.97	-1394.08	-1208.23
22	760.00	87.9	0.5990	0.7740	893.38	370.74	0.9643	0.9533	1.0558	1.0971	-0.0383	-1058.23	-1403.11	-1215.70
23	760.00	88.0	0.6020	0.7770	894.61	371.33	0.9643	0.9533	1.0532	1.0890	-0.0334	-1057.88	-1402.60	-1215.29
24	760.00	87.3	0.6340	0.7940	878.64	363.64	0.9641	0.9530	1.0402	1.1167	-0.0709	-1062.44	-1409.19	-1220.74
25	760.00	86.5	0.6720	0.8110	859.27	354.34	0.9638	0.9527	1.0247	1.1728	-0.1350	-1068.09	-1417.36	-1227.50
26	760.00	85.3	0.7270	0.8520	828.48	339.64	0.9634	0.9521	1.0316	1.1505	-0.1092	-1077.38	-1430.83	-1238.62
27	760.00	84.8	0.7630	0.8640	818.02	334.66	0.9632	0.9519	1.0093	1.2357	-0.2024	-1080.63	-1435.54	-1242.51
28	760.00	84.4	0.7800	0.8770	809.95	330.82	0.9631	0.9518	1.0120	1.2177	-0.1850	-1083.17	-1439.23	-1245.55
29	760.00	83.8	0.8140	0.8950	793.99	323.27	0.9628	0.9515	1.0093	1.2579	-0.2202	-1088.27	-1446.65	-1251.68
30	760.00	82.7	0.8740	0.9260	770.45	312.18	0.9625	0.9510	1.0018	1.3545	-0.3016	-1096.01	-1457.91	-1260.96
31	760.00	81.1	0.9640	0.9730	735.68	295.87	0.9619	0.9503	0.9989	1.8237	-0.6019	-1107.98	-1475.36	-1275.33

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1	T = 553.20	P = 40.00	V = 311.20	OMEGA = 0.210	OMEGAH = 0.0	DIPOLE = 0.0	ETA = 0.0
2	T = 594.00	P = 40.00	V = 331.10	OMEGA = 0.241	OMEGAH = 0.0	DIPOLE = 0.0	ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1	A = 0.68450E 01	B = 0.12035E 04	C = 0.22286E 03
2	A = 0.69533E 01	B = 0.13439E 04	C = 0.21938E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1	A = 0.92914E 02	B = -.24859E-01	C = 0.26157E-03
2	A = 0.98864E 02	B = -.55774E-01	C = 0.27703E-03

VAPOR PRESSURE AT NBP

P = 759.1 AT T = 80.7

P = 759.4 AT T = 110.6

COMPONENT ID ECHO CHECK

ID NUMBER = 9

ID NUMBER = 33

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.17345E 00 B = 0.56979E-01 C = -.74386E 00

STANDARD DEVIATION = 0.39156E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.1894 G2INF = 1.6710

T1INF = 110.63 T2INF = 80.74

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0630

AREA BELOW THE X-AXIS IS -0.1090

CROSS-OVER POINT IS X = 0.52

NORMALIZED AREA DIFFERENCE IS -0.2674

HERINGTON J-FACTOR IS 12.67

CONSISTENCY INDEX IS 14.07

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-416.64	914.96	0.0	7.40	0.00798
2	-148.37	407.18	0.2510E-03	2.80	0.00382
3	-429.14	1055.73	0.8530E-01	13.30	0.00970
4	-347.04	810.01	0.5625E-01	9.62	0.00751
5	-4.13	211.93	0.1142E-02	1.94	0.00307
6	61.80	141.02	0.7858E-03	2.30	0.00296
7	32.34	170.61	0.9197E-03	2.14	0.00297
8	-65.17	284.10	0.2770E-03	1.90	0.00317
9	-65.17	284.10	0.2770E-03	1.90	0.00317
10	-416.58	987.34	0.1250E 00	10.41	0.00864

BENZENE(1) — METHYLCYCLOHEXANE(2) — SYSTEM 14C

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	99.5	0.0350	0.0720	1259.91	696.47	0.9733	0.9569	1.2039	0.9995	0.1861	-853.32	-1317.65	-1065.76
2	760.00	98.6	0.0520	0.1095	1232.19	680.35	0.9730	0.9566	1.2597	0.9991	0.2318	-857.94	-1325.03	-1071.63
3	760.00	97.6	0.0830	0.1635	1198.56	660.83	0.9726	0.9562	1.2110	0.9985	0.1929	-863.71	-1334.24	-1078.95
4	760.00	96.5	0.1095	0.2075	1164.06	640.82	0.9722	0.9557	1.1990	1.0041	0.1774	-869.82	-1344.01	-1086.72
5	760.00	94.5	0.1670	0.2970	1103.20	605.62	0.9715	0.9550	1.1864	1.0067	0.1643	-881.12	-1362.08	-1101.08
6	760.00	93.2	0.2035	0.3520	1064.93	583.54	0.9711	0.9544	1.1948	1.0066	0.1714	-888.60	-1374.05	-1110.59
7	760.00	92.4	0.2310	0.3855	1041.87	570.26	0.9708	0.9541	1.1780	1.0114	0.1524	-893.25	-1381.51	-1116.51
8	760.00	91.3	0.2690	0.4360	1010.77	552.37	0.9704	0.9537	1.1788	1.0077	0.1568	-899.72	-1391.87	-1124.73
9	760.00	90.3	0.3070	0.4830	981.73	535.70	0.9700	0.9533	1.1776	1.0043	0.1592	-905.97	-1401.89	-1132.68
10	760.00	89.5	0.3370	0.5115	961.37	524.02	0.9698	0.9530	1.1598	1.0137	0.1347	-910.47	-1409.12	-1138.42
11	760.00	88.9	0.3610	0.5320	945.31	514.82	0.9696	0.9528	1.1450	1.0253	0.1104	-914.11	-1414.95	-1143.04
12	760.00	88.3	0.3885	0.5550	930.77	506.50	0.9694	0.9526	1.1271	1.0353	0.0849	-917.46	-1420.33	-1147.31
13	760.00	87.7	0.4200	0.5820	913.80	496.79	0.9692	0.9523	1.1133	1.0451	0.0632	-921.45	-1426.73	-1152.39
14	760.00	87.1	0.4480	0.6085	899.62	488.69	0.9690	0.9521	1.1082	1.0453	0.0585	-924.85	-1432.19	-1156.72
15	760.00	86.5	0.4830	0.6370	883.07	479.25	0.9687	0.9519	1.0959	1.0549	0.0382	-928.89	-1438.69	-1161.87
16	760.00	85.9	0.5100	0.6550	869.26	471.37	0.9685	0.9517	1.0840	1.0753	0.0081	-932.33	-1444.22	-1166.26
17	760.00	85.5	0.5315	0.6750	858.06	465.00	0.9684	0.9515	1.0857	1.0737	0.0111	-935.17	-1448.78	-1169.87
18	760.00	84.9	0.5730	0.7025	843.32	456.61	0.9682	0.9513	1.0662	1.0980	-0.0294	-938.97	-1454.90	-1174.72
19	760.00	82.3	0.6170	0.7330	780.46	420.91	0.9673	0.9500	1.1154	1.1902	-0.0650	-956.09	-1482.44	-1196.54
20	760.00	83.5	0.6650	0.7670	809.65	437.47	0.9677	0.9507	1.0442	1.1434	-0.0907	-947.95	-1469.34	-1186.16
21	760.00	83.0	0.7050	0.7895	799.05	431.45	0.9675	0.9506	1.0272	1.1892	-0.1465	-950.86	-1474.03	-1189.88
22	760.00	82.5	0.7390	0.8150	787.39	424.84	0.9674	0.9504	1.0263	1.1994	-0.1559	-954.12	-1479.28	-1194.03
23	760.00	82.1	0.7770	0.8380	777.01	418.96	0.9672	0.9503	1.0169	1.2464	-0.2034	-957.07	-1484.03	-1197.80
24	760.00	81.6	0.8210	0.8670	766.73	413.14	0.9670	0.9501	1.0089	1.2925	-0.2477	-960.04	-1488.81	-1201.58
25	760.00	81.2	0.8605	0.8960	756.56	407.38	0.9669	0.9500	1.0080	1.3150	-0.2659	-963.02	-1493.61	-1205.38
26	760.00	80.9	0.9000	0.9230	749.83	403.58	0.9668	0.9499	1.0016	1.3709	-0.3139	-965.01	-1496.83	-1207.93
27	760.00	80.6	0.9335	0.9480	743.15	399.80	0.9667	0.9498	1.0006	1.4052	-0.3396	-967.02	-1500.06	-1210.48
28	760.00	80.3	0.9650	0.9730	737.62	396.68	0.9666	0.9498	1.0009	1.3972	-0.3336	-968.69	-1502.76	-1212.62

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1	T = 562.00	P = 48.60	V = 260.10	OMEGA = 0.211	OMEGAH = 0.0	DIPOLE = 0.0	ETA = 0.0
2	T = 572.30	P = 34.30	V = 372.40	OMEGA = 0.235	OMEGAH = 0.0	DIPOLE = 0.0	ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1	A = 0.69056E 01	B = 0.12110E 04	C = 0.22079E 03
2	A = 0.68269E 01	B = 0.12729E 04	C = 0.22163E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1	A = 0.70863E 02	B = 0.14907E-01	C = 0.15880E-03
2	A = 0.11310E 03	B = -.38740E-01	C = 0.30202E-03

VAPOR PRESSURE AT NBP

P = 760.C AT T = 80.1

P = 759.3 AT T = 1CC.9

COMPONENT ID ECHO CHECK

ID NUMBER = 5

ID NUMBER = 26

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.21575E 00 B = -.14164E 00 C = -.48591E 00

STANDARD DEVIATION = 0.16353E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.2408 G2INF = 1.5095

T1INF = 100.93 T2INF = 80.10

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0704

AREA BELOW THE X-AXIS IS -0.0874

CROSS-OVER POINT IS X = 0.54

NORMALIZED AREA DIFFERENCE IS -0.1080

HERINGTON J-FACTOR IS 8.85

CONSISTENCY INDEX IS 1.95

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	31.74	295.29	C.1819E-11	2.94	0.00365
2	13.40	355.46	0.3188E-02	4.80	0.00386
3	86.06	222.43	0.2584E-01	3.84	0.00308
4	84.21	224.90	0.1785E-01	3.77	0.00310
5	81.63	226.20	0.3952E-02	3.38	0.00312
6	138.42	144.57	0.6473E-03	4.14	0.00280
7	112.02	177.62	0.2591E-02	3.26	0.00291
8	14.75	340.12	0.3100E-02	3.58	0.00375
9	14.75	340.12	0.3100E-02	3.58	0.00375
10	67.00	248.52	0.3765E-01	3.19	0.00323

DIAGNOSTIC

1 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION

SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

METHANOL(1) — 1,4-DIOXANE(2) SYSTEM 141

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	64.9	C.9689	C.9781	730.62	214.68	0.9575	0.9863	1.0039	2.4507	-0.8925	-1179.06	-1326.20	-764.82
2	760.00	65.0	0.9472	0.9689	732.28	215.17	0.9575	0.9856	1.0150	2.0439	-0.6999	-1178.27	-1325.53	-764.48
3	760.00	65.1	0.9302	0.9587	736.16	216.32	0.9576	0.9849	1.0174	2.0408	-0.6961	-1176.42	-1323.96	-763.71
4	760.00	65.3	C.9070	0.9454	740.90	217.72	0.9578	0.9840	1.0225	2.0100	-0.6759	-1174.19	-1322.05	-762.77
5	760.00	65.3	0.8955	0.9406	742.86	218.30	0.9579	C.9836	1.0278	1.9403	-0.6355	-1173.26	-1321.27	-762.39
6	760.00	65.5	0.8635	0.9247	748.76	220.04	0.9581	0.9826	1.0358	1.8661	-0.5848	-1170.51	-1318.93	-761.23
7	760.00	65.8	0.8158	0.9065	755.26	221.97	0.9583	0.9814	1.0699	1.7001	-0.4632	-1167.50	-1316.37	-759.97
8	760.00	66.5	0.7678	0.8955	775.93	228.07	0.9588	C.9807	1.0936	1.4660	-0.2930	-1158.14	-1308.42	-756.04
9	760.00	66.9	0.7206	0.8793	788.78	231.87	C.9592	C.9798	1.1260	1.3828	-0.2054	-1152.46	-1303.60	-753.66
10	760.00	67.1	0.6355	0.8772	793.49	233.26	C.9593	0.9796	1.2663	1.0718	0.1667	-1150.40	-1301.86	-752.79
11	760.00	67.9	0.5290	0.8533	817.09	240.25	C.96CC	0.9783	1.4381	0.9608	0.4033	-1140.30	-1293.31	-748.56
12	760.00	82.8	0.0956	0.5503	1377.27	407.48	0.9722	C.9686	3.0834	C.8954	1.2365	-967.25	-1148.78	-675.68
13	760.00	89.2	0.0633	0.3936	1694.17	503.30	0.9784	0.9668	2.7250	0.9422	1.0620	-902.25	-1095.13	-648.01
14	760.00	93.5	0.0428	0.2556	1936.71	577.20	0.9837	C.9662	2.3018	0.9863	0.8475	-861.37	-1061.46	-630.46
15	760.00	96.0	0.0190	0.2076	2091.90	624.74	C.9857	C.9665	3.9071	0.9468	1.4175	-838.22	-1042.40	-620.46
16	760.00	100.4	0.0082	0.0506	2378.68	713.06	0.9919	0.9670	1.9528	0.9836	0.6858	-800.29	-1011.13	-603.96
17	760.00	100.5	C.0082	0.048C	2389.78	716.5C	C.9920	0.9671	1.8441	0.9816	0.6305	-798.93	-1010.01	-603.36

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 513.20 P = 78.50 V = 118.00 OMEGA = 0.557 OMEGAH = 0.105 DIPOLE = 1.66 ETA = 1.21

2 T = 585.20 P = 50.7C V = 244.7C OMEGA = 0.288 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.78786E C1 B = 0.14731E 04 C = 0.23000E 03

2 A = 0.74315E 01 B = 0.15547E 04 C = 0.24034E 03

VAPOR PRESSURE AT NBP

P = 758.5 AT T = 64.7

P = 755.4 AT T = 101.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.64511E 02 B = -.19716E 00 C = 0.38735E-03

2 A = 0.71966E 02 B = -.41898E-02 C = 0.16875E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 23

ID NUMBER = 10

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.98067E 00 B = -.17828E 00 C = -.18190E 01

STANDARD DEVIATION = 0.19575E CC

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.6663 G2INF = 2.7639

T1INF = 101.30 T2INF = 64.75

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4350

AREA BELOW THE X-AXIS IS -0.1499

CROSS-OVER POINT IS X = 0.69

NORMALIZED AREA DIFFERENCE IS 0.4876

HERINGTON J-FACTOR IS 16.22

CONSISTENCY INDEX IS 32.53

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	977.73	-163.51	0.1819E-11	17.19	0.02989
2	252.05	667.92	0.3669E-02	32.75	0.03922
3	1107.85	-337.35	0.4348E 01	25.12	0.02829
4	846.57	-201.29	0.7677E 00	29.78	0.03048
5	968.05	-23.79	0.6315E-01	15.15	0.03244
6	1015.41	-39.15	0.5037E-01	15.97	0.03287
7	872.56	231.29	0.4473E-01	26.02	0.03554
8	927.26	-2.98	0.1156E-01	14.67	0.03219
9	928.59	-4.10	0.1159E-01	14.67	0.03219
10	1102.12	-349.04	0.2650E 00	26.43	0.02805

DIAGNOSTIC

8 DATA POINTS FROM ORIGINAL REFERENCE DELETED PRIOR TO CALCULATION
SEE INTRODUCTION FOR DETAILS CONCERNING DATA BASE UPDATE

3-METHYL PYRIDINE(1) — WATER(2) TASSIOS DATA — SYSTEM 142

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	547.80	89.8	0.0031	0.0426	138.47	522.24	1.0000	1.0000	54.9745	1.0069	4.0000	0.0	0.0	0.0
2	580.60	89.8	0.0167	0.1048	138.47	522.24	1.0000	1.0000	23.4356	1.0137	3.1406	0.0	0.0	0.0
3	584.10	89.8	0.0605	0.1119	138.47	522.24	1.0000	1.0000	7.7810	1.0568	1.9965	0.0	0.0	0.0
4	584.10	89.8	0.0941	0.1120	138.47	522.24	1.0000	1.0000	5.0071	1.0958	1.5194	0.0	0.0	0.0
5	584.00	89.8	0.1371	0.1123	138.47	522.24	1.0000	1.0000	3.4453	1.1498	1.0974	0.0	0.0	0.0
6	584.00	89.8	0.1900	0.1135	138.47	522.24	1.0000	1.0000	2.5126	1.2233	0.7198	0.0	0.0	0.0
7	582.30	89.8	0.2410	0.1157	138.47	522.24	1.0000	1.0000	2.0134	1.2985	0.4387	0.0	0.0	0.0
8	577.60	89.8	0.3019	0.1210	138.47	522.24	1.0000	1.0000	1.6679	1.3917	0.1810	0.0	0.0	0.0
9	566.80	89.8	0.3748	0.1309	138.47	522.24	1.0000	1.0000	1.4259	1.5080	-0.0560	0.0	0.0	0.0
10	553.30	89.8	0.4267	0.1403	138.47	522.24	1.0000	1.0000	1.3105	1.5880	-0.1921	0.0	0.0	0.0
11	542.00	89.8	0.4641	0.1488	138.47	522.24	1.0000	1.0000	1.2518	1.6477	-0.2748	0.0	0.0	0.0
12	512.80	89.8	0.5338	0.1685	138.47	522.24	1.0000	1.0000	1.1554	1.7696	-0.4263	0.0	0.0	0.0
13	482.40	89.8	0.5976	0.1900	138.47	522.24	1.0000	1.0000	1.1052	1.8586	-0.5198	0.0	0.0	0.0
14	417.40	89.8	0.7118	0.2508	138.47	522.24	1.0000	1.0000	1.0601	2.0770	-0.6726	0.0	0.0	0.0
15	368.90	89.8	0.7818	0.2948	138.47	522.24	1.0000	1.0000	1.0029	2.2823	-0.8223	0.0	0.0	0.0
16	171.40	89.8	0.9747	0.7947	138.47	522.24	1.0000	1.0000	1.0084	2.6629	-0.9710	0.0	0.0	0.0

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 0.0 P = 0.0 V = 0.0 OMEGA = 0.0 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 647.40 P = ***** V = 55.20 OMEGA = 0.344 OMEGAH = 0.010 DIPOLE = 1.85 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69940E 01 B = -0.14626E 04 C = -0.21160E 03

2 A = 0.79668E 01 B = -0.16682E 04 C = -0.22800E 03

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.68055E 02 B = 0.10000E 00 C = 0.0

2 A = 0.22887E 02 B = -.36416E-01 C = 0.68556E-04

VAPOR PRESSURE AT NBP

P = 760.0 AT T = 144.0

P = 760.0 AT T = 100.0

COMPONENT ID ECHO CHECK

ID NUMBER = 57

ID NUMBER = 34

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.29506E 01 B = -.10745E 02 C = 0.73550E 01

STANDARD DEVIATION = 0.46611E 00

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 19.1175 G2INF = 1.5521

T1INF = 89.83 T2INF = 89.83

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.4804

AREA BELOW THE X-AXIS IS -0.4508

CROSS-OVER POINT IS X = 0.37

NORMALIZED AREA DIFFERENCE IS -0.0319

CONSISTENCY INDEX IS 3.19

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	1398.00	854.49	0.3865F-09	68.88	0.04021
2	8570.12	1287.72	0.1402F-02	7.05	0.00917
3	8734.95	838.18	0.2233F 03	61.33	0.03778
4	8743.65	1089.68	0.1098F 01	29.12	0.01927
5	8637.59	1286.27	0.1172F-01	7.09	0.00918
6	8646.07	1261.82	0.6676F-02	8.75	0.00925
7	8905.36	1293.48	0.6288F-02	6.91	0.00916
8	9013.81	1291.83	0.4802F-02	6.95	0.00916
9	9110.75	1291.83	0.4802F-02	6.95	0.00916
10	9332.11	930.07	0.3343F 00	49.22	0.03083

METHYL ETHYL KETONE(1) BENZENE(2) SYSTEM 143A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	273.70	50.0	0.8450	0.8250	262.50	266.50	0.9832	0.9834	0.9996	1.1388	-0.1304	-1236.72	-1217.82	-1231.06
2	279.50	50.0	0.7000	0.6850	262.50	266.50	0.9829	0.9831	1.0192	1.0774	-0.0555	-1236.72	-1217.82	-1231.06
3	282.30	50.0	0.5000	0.4970	262.50	266.50	0.9826	0.9829	1.0491	1.0461	0.0029	-1236.72	-1217.82	-1231.06
4	282.10	50.0	0.3000	0.3090	262.50	266.50	0.9826	0.9829	1.0863	1.0258	0.0573	-1236.72	-1217.82	-1231.06
5	278.60	50.0	0.1550	0.1700	262.50	266.50	0.9828	0.9832	1.1426	1.0082	0.1251	-1236.72	-1217.82	-1231.06

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 533.20 P = 39.50 V = 288.40 OMEGA = 0.337 OMEGAH = 0.215 DIPOLE = 2.70 ETA = 0.0

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69742E 01 B = 0.12096E 04 C = 0.21600E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = -0.22079E 03

VAPOR PRESSURE AT NBP

P = 762.4 AT T = 79.6

P = 760.0 AT T = 80.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.71193E 02 B = 0.96599E-02 C = 0.18100E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 28

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.16536E 00 B = -.30224E 00 C = -.45805E-01

STANDARD DEVIATION = 0.15236E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.1798 G2INF = 1.2004

T1INF = 50.00 T2INF = 50.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0430

AREA BELOW THE X-AXIS IS -0.0440

CROSS-OVER POINT IS X = 0.51

NORMALIZED AREA DIFFERENCE IS -0.0118

CONSISTENCY INDEX IS 1.18

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-12.76	130.10	0.1819E-11	1.18	0.00163
2	343.75	-166.89	0.2078E-05	0.15	0.00305
3	72.60	44.95	0.4215E-03	0.89	0.00176
4	74.62	42.74	0.3719E-03	0.89	0.00177
5	166.83	-38.87	0.9266E-04	0.62	0.00217
6	-3.99	115.18	0.3238E-04	1.26	0.00162
7	137.21	-13.86	0.8900E-04	0.71	0.00202
8	345.13	-168.19	0.1760E-05	0.15	0.00303
9	345.13	-168.19	0.1760E-05	0.15	0.00303
10	72.53	44.93	0.1469E-01	0.89	0.00176

METHYL ETHYL KETONE(1) — BENZENE(2) SYSTEM 1438

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	79.0	0.8450	0.8300	720.06	707.63	0.9662	0.9653	0.9984	1.1333	-0.1268	-974.38	-978.02	-993.40
2	760.00	78.6	0.7000	0.6900	711.57	699.54	0.9660	0.9654	1.0136	1.0803	-0.0637	-977.29	-980.62	-995.99
3	760.00	78.3	0.5000	0.4950	706.02	694.26	0.9657	0.9656	1.0257	1.0641	-0.0367	-979.21	-982.34	-997.70
4	760.00	78.5	0.3000	0.3150	710.45	698.49	0.9656	0.9659	1.0809	1.0250	0.0531	-977.67	-980.97	-996.33
5	760.00	79.0	0.1550	0.1770	720.96	708.49	0.9655	0.9661	1.1583	1.0060	0.1410	-974.07	-977.75	-993.13

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 533.20 P = 39.50 V = 288.40 OMEGA = 0.337 OMEGAH = 0.215 DIPOLE = 2.70 ETA = 0.0

2 T = 562.00 P = 48.60 V = 260.10 OMEGA = 0.211 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69742E 01 B = 0.12096E 04 C = 0.21600E 03

2 A = 0.69056E 01 B = 0.12110E 04 C = -0.22079E 03

VAPOR PRESSURE AT NBP

P = 762.4 AT T = 79.6

P = 760.0 AT T = 80.1

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.71193E 02 B = 0.96599E-02 C = 0.18100E-03

2 A = 0.70863E 02 B = 0.14907E-01 C = 0.15880E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 28

ID NUMBER = 5

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.23086E 00 B = -.66203E 00 C = 0.29820E 00

STANDARD DEVIATION = 0.20416E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.2597 G2INF = 1.1422

T1INF = 80.10 T2INF = 79.50

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.0460

AREA BELOW THE X-AXIS IS -0.0467

CROSS-OVER POINT IS X = 0.43

NORMALIZED AREA DIFFERENCE IS -0.0081

HERINGTON J-FACTOR IS 0.75

CONSISTENCY INDEX IS 0.06

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	427.88	-222.90	0.0	0.58	0.00229
2	446.00	-231.94	0.1156E-05	0.26	0.00218
3	460.60	-235.23	0.5087E-03	1.40	0.00193
4	463.27	-237.13	0.4355E-03	1.31	0.00192
5	477.99	-245.61	0.5748E-04	0.38	0.00214
6	504.27	-261.13	0.5317E-04	1.13	0.00195
7	468.98	-244.32	0.6030E-04	0.39	0.00213
8	452.10	-235.45	0.8496E-06	0.24	0.00218
9	452.19	-235.50	0.8478E-06	0.24	0.00218
10	454.55	-231.72	0.1714E-01	1.38	0.00196

METHYL ETHYL KETONE(1) — 2-PROPANOL(2) SYSTEM 144A

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	226.10	50.0	0.2000	0.3800	262.50	163.64	0.9875	0.9954	1.6144	1.0650	0.4160	-1236.72	-453.80	-686.77
2	253.20	50.0	0.4000	0.5500	262.50	163.64	0.9853	0.9955	1.3052	1.1541	0.1230	-1236.72	-453.80	-686.77
3	267.40	50.0	0.6000	0.6900	262.50	163.64	0.9840	0.9960	1.1513	1.2601	-0.0903	-1236.72	-453.80	-686.77
4	272.50	50.0	0.8000	0.8200	262.50	163.64	0.9834	0.9968	1.0451	1.4924	-0.3562	-1236.72	-453.80	-686.77
5	272.40	50.0	0.9200	0.9250	262.50	163.64	0.9833	0.9976	1.0247	1.5552	-0.4173	-1236.72	-453.80	-686.77

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 533.20 P = 39.50 V = 288.40 OMEGA = 0.337 OMEGAH = 0.215 DIPOLE = 2.70 ETA = 0.0

2 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69742E 01 B = 0.12096E 04 C = 0.21600E 03

2 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293E 03

VAPOR PRESSURE AT NBP

P = 762.4 AT T = 79.6

P = 769.7 AT T = 82.5

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.71193E 02 B = 0.96599E-02 C = 0.18100E-03

2 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 28

ID NUMBER = 22

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.73648E 00 B = -.16990E 01 C = 0.46571E 00

STANDARD DEVIATION = 0.31006E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.0890 G2INF = 1.6432

T1INF = 50.00 T2INF = 50.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1754

AREA BELOW THE X-AXIS IS -0.1330

CROSS-OVER POINT IS X = 0.50

NORMALIZED AREA DIFFERENCE IS 0.1375

CONSISTENCY INDEX IS 13.75

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	388.11	85.68	0.3638E-11	10.27	0.00992
2	485.08	153.56	0.1009E-03	1.30	0.01538
3	505.82	65.23	0.2561E-01	6.92	0.01093
4	430.46	104.49	0.1455E-01	6.99	0.00987
5	220.09	320.83	0.1839E-02	1.72	0.01088
6	84.77	360.28	0.4382E-03	7.09	0.00591
7	117.50	412.22	0.1714E-02	2.09	0.01068
8	342.97	250.26	0.1888E-04	0.35	0.01386
9	343.27	250.04	0.1887E-04	0.35	0.01386
10	493.47	75.90	0.4777E-01	6.58	0.01077

METHYL ETHYL KETONE(1) — 2-PROPANOL(2) SYSTEM 1448

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	79.6	0.2000	0.2800	734.77	674.40	0.9710	0.9876	1.4014	0.9989	0.3386	-969.43	-378.23	-549.64
2	760.00	78.1	0.4000	0.4780	700.73	633.42	0.9684	0.9888	1.2509	1.0293	0.1950	-981.06	-381.25	-555.38
3	760.00	77.4	0.6000	0.6500	685.68	615.45	0.9668	0.9905	1.1570	1.0673	0.0807	-986.40	-382.65	-558.02
4	760.00	77.8	0.8000	0.7850	694.31	626.34	0.9683	0.9924	1.0336	1.2908	-0.2222	-983.14	-381.79	-556.41
5	760.00	78.7	0.9200	0.9070	714.69	650.16	0.9663	0.9943	1.0096	1.3474	-0.2886	-976.21	-379.99	-552.98

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 533.20 P = 39.50 V = 288.40 OMEGA = 0.337 OMEGAH = 0.215 DIPOLE = 2.70 ETA = 0.0

2 T = 508.50 P = 47.00 V = 218.50 OMEGA = 0.663 OMEGAH = 0.187 DIPOLE = 1.60 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69742E 01 B = 0.12096E 04 C = 0.21600E 03

2 A = 0.66604E 01 B = 0.81305E 03 C = 0.13293E 03

VAPOR PRESSURE AT NBP

P = 762.4 AT T = 79.6

P = 769.7 AT T = 82.5

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.71193E 02 B = 0.96599E-02 C = 0.18100E-03

2 A = 0.14178E 03 B = -.49807E 00 C = 0.92870E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 28

ID NUMBER = 22

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.42740E 00 B = -.34715E 00 C = -.49831E 00

STANDARD DEVIATION = 0.51518E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.5333 G2INF = 1.5190

T1INF = 82.19 T2INF = 79.50

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1589

AREA BELOW THE X-AXIS IS -0.0712

CROSS-OVER POINT IS X = 0.64

NORMALIZED AREA DIFFERENCE IS 0.3813

HERINGTON J-FACTOR IS 2.04

CONSISTENCY INDEX IS 36.08

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	57.09	256.87	0.4547E-11	6.78	0.01915
2	-89.95	443.89	0.2328E-04	3.59	0.01799
3	8.27	294.30	0.4216E-01	8.71	0.01862
4	-125.35	433.40	0.2754E-01	10.62	0.01734
5	-324.13	821.00	0.3245E-02	8.11	0.01506
6	-452.52	1139.45	0.2122E-02	12.84	0.01260
7	-408.04	1033.48	0.1972E-02	11.36	0.01351
8	7.09	345.93	0.6138E-04	2.23	0.01906
9	6.92	346.07	0.6148E-04	2.23	0.01906
10	-6.95	303.69	0.1792E 00	9.84	0.01844

ETHANOL(1) CHLOROFORM(2) SYSTEM 145

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	626.79	55.0	0.0348	0.0592	273.77	590.44	0.9549	0.9705	3.7121	1.0016	1.3100	-1522.88	-963.12	-1216.56
2	644.24	55.0	0.0570	0.0850	273.77	590.44	0.9535	0.9697	3.3398	1.0239	1.1823	-1522.88	-963.12	-1216.56
3	650.38	55.0	0.0963	0.1202	273.77	590.44	0.9530	0.9694	2.8204	1.0368	1.0007	-1522.88	-963.12	-1216.56
4	653.11	55.0	0.1610	0.1583	273.77	590.44	0.9527	0.9693	2.2303	1.0728	0.7319	-1522.88	-963.12	-1216.56
5	650.96	55.0	0.2236	0.1819	273.77	590.44	0.9528	0.9694	1.8394	1.1232	0.4933	-1522.88	-963.12	-1216.56
6	646.79	55.0	0.2731	0.1990	273.77	590.44	0.9530	0.9696	1.6375	1.1673	0.3384	-1522.88	-963.12	-1216.56
7	641.49	55.0	0.3149	0.2143	273.77	590.44	0.9533	0.9699	1.5173	1.2053	0.2302	-1522.88	-963.12	-1216.56
8	632.14	55.0	0.3789	0.2361	273.77	590.44	0.9540	0.9703	1.3700	1.2744	0.0723	-1522.88	-963.12	-1216.56
9	623.67	55.0	0.4270	0.2473	273.77	590.44	0.9546	0.9707	1.2571	1.3435	-0.0665	-1522.88	-963.12	-1216.56
10	599.03	55.0	0.5206	0.2839	273.77	590.44	0.9563	0.9719	1.1390	1.4693	-0.2546	-1522.88	-963.12	-1216.56
11	569.02	55.0	0.6035	0.3240	273.77	590.44	0.9584	0.9734	1.0676	1.5956	-0.4018	-1522.88	-963.12	-1216.56
12	546.74	55.0	0.6096	0.3280	273.77	590.44	0.9585	0.9735	1.0659	1.6047	-0.4092	-1522.88	-963.12	-1216.56
13	560.25	55.0	0.6233	0.3359	273.77	590.44	0.9590	0.9738	1.0558	1.6252	-0.4313	-1522.88	-963.12	-1216.56
14	545.72	55.0	0.6555	0.3581	273.77	590.44	0.9600	0.9745	1.0437	1.6745	-0.4727	-1522.88	-963.12	-1216.56
15	543.53	55.0	0.6598	0.3593	273.77	590.44	0.9602	0.9746	1.0380	1.6810	-0.4821	-1522.88	-963.12	-1216.56
16	508.78	55.0	0.7194	0.4058	273.77	590.44	0.9626	0.9763	1.0076	1.7778	-0.5678	-1522.88	-963.12	-1216.56
17	469.41	55.0	0.7799	0.4729	273.77	590.44	0.9654	0.9782	1.0023	1.8588	-0.6176	-1522.88	-963.12	-1216.56
18	441.04	55.0	0.8131	0.5205	273.77	590.44	0.9674	0.9796	0.9964	1.8738	-0.6316	-1522.88	-963.12	-1216.56
19	407.90	55.0	0.8521	0.5965	273.77	590.44	0.9698	0.9812	1.0103	1.8462	-0.6029	-1522.88	-963.12	-1216.56
20	367.01	55.0	0.8971	0.6877	273.77	590.44	0.9728	0.9832	0.9986	1.8520	-0.6177	-1522.88	-963.12	-1216.56
21	346.89	55.0	0.9198	0.7467	273.77	590.44	0.9742	0.9842	1.0011	1.8237	-0.5997	-1522.88	-963.12	-1216.56
22	339.89	55.0	0.9288	0.7698	273.77	590.44	0.9748	0.9846	1.0020	1.8299	-0.6023	-1522.88	-963.12	-1216.56
23	336.38	55.0	0.9669	0.8838	273.77	590.44	0.9772	0.9862	0.9987	1.7943	-0.5859	-1522.88	-963.12	-1216.56

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 516.00 P = 63.00 V = 161.30 OMEGA = 0.637 OMEGAH = 0.152 DIPOLE = 1.69 ETA = 1.10

2 T = 536.60 P = 54.00 V = 276.00 OMEGA = 0.214 OMEGAH = 0.187 DIPOLE = 1.02 ETA = 0.28

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.80449E 01 B = 0.15543E 04 C = 0.22265E 03

2 A = 0.69033E 01 B = 0.11630E 04 C = 0.22740E 03

VAPOR PRESSURE AT NBP

P = 762.1 AT T = 78.4

P = 749.5 AT T = 61.3

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.53701E 02 B = -.31109E-01 C = 0.16000E-03

2 A = 0.61065E 02 B = 0.30264E-01 C = 0.11910E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 11

ID NUMBER = 8

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.14361E 01 B = -.46693E 01 C = 0.26586E 01

STANDARD DEVIATION = 0.18724E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 4.2042 G2INF = 1.7764

T1INF = 55.00 T2INF = 55.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2576

AREA BELOW THE X-AXIS IS -0.2700

CROSS-OVER POINT IS X = 0.40

NORMALIZED AREA DIFFERENCE IS -0.0234

CONSISTENCY INDEX IS 2.34

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION)	
				PRESSURE	COMPOSITION
1	1327.96	-370.17	0.3365E-10	28.02	0.02132
2	1546.30	-297.28	0.7680E-03	5.90	0.01024
3	1314.79	-264.54	0.2439E 00	10.95	0.01085
4	1369.29	-279.20	0.7397E-01	10.17	0.01070
5	1550.89	-289.14	0.9813E-02	5.54	0.01018
6	1567.88	-294.26	0.5746E-02	5.73	0.01024
7	1534.36	-274.71	0.6736E-02	5.38	0.01011
8	1536.47	-285.18	0.4050E-02	5.42	0.01015
9	1536.70	-285.22	0.4050E-02	5.43	0.01015
10	1349.49	-280.21	0.2531E-01	11.36	0.01101

CHLOROFORM(1) - HEXANE(2) SYSTEM 146

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1CL	F2CL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	519.40	55.0	0.1035	0.1610	590.44	465.17	0.9787	0.9631	1.3364	1.0029	0.2870	-963.12	-1456.26	-1125.08
2	552.10	55.0	0.2035	0.2960	590.44	465.17	0.9763	0.9611	1.3249	1.0045	0.2769	-963.12	-1456.26	-1125.08
3	575.10	55.0	0.2905	0.3850	590.44	465.17	0.9748	0.9598	1.2553	1.0246	0.2031	-963.12	-1456.26	-1125.08
4	595.60	55.0	0.3964	0.4840	590.44	465.17	0.9733	0.9588	1.1959	1.0452	0.1346	-963.12	-1456.26	-1125.08
5	617.30	55.0	0.4992	0.5690	590.44	465.17	0.9719	0.9577	1.1553	1.0893	0.0588	-963.12	-1456.26	-1125.08
6	627.60	55.0	0.5965	0.6400	590.44	465.17	0.9711	0.9575	1.1047	1.1477	-0.0382	-963.12	-1456.26	-1125.08
7	635.10	55.0	0.6991	0.7200	590.44	465.17	0.9705	0.9575	1.0723	1.2114	-0.1219	-963.12	-1456.26	-1125.08
8	636.90	55.0	0.8000	0.7940	590.44	465.17	0.9702	0.9580	1.0360	1.3453	-0.2612	-963.12	-1456.26	-1125.08
9	631.20	55.0	0.9003	0.8830	590.44	465.17	0.9704	0.9592	1.0148	1.5209	-0.4046	-963.12	-1456.26	-1125.08

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 536.60 P = 54.00 V = 276.00 OMEGA = 0.214 OMEGAH = 0.187 DIPOLE = 1.02 ETA = 0.28

2 T = 507.90 P = 29.90 V = 372.40 OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.69033E 01 B = 0.11630E 04 C = 0.22740E 03

2 A = 0.68778E 01 B = 0.11715E 04 C = 0.22437E 03

VAPOR PRESSURE AT NBP

P = 749.5 AT T = 61.3

P = 759.0 AT T = 68.7

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.61065E 02 B = 0.30264E-01 C = 0.11910E-03

2 A = 0.12596E 03 B = -.14456E 00 C = 0.54720E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 8

ID NUMBER = 18

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.31940E 00 B = -.16946E 00 C = -.69743E 00

STANDARD DEVIATION = 0.13286E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 1.3763 G2INF = 1.7289

T1INF = 55.00 T2INF = 55.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.1115

AREA BELOW THE X-AXIS IS -0.1093

CROSS-OVER POINT IS X = 0.57

NORMALIZED AREA DIFFERENCE IS 0.0099

CONSISTENCY INDEX IS 0.99

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	166.57	210.68	0.4547E-11	6.24	0.00316
2	135.44	324.03	0.2475E-04	0.91	0.00255
3	171.53	242.54	0.1453E-02	1.86	0.00157
4	170.71	244.89	0.9106E-03	1.78	0.00161
5	163.57	265.67	0.1427E-03	1.12	0.00201
6	181.97	226.17	0.8212E-04	1.78	0.00157
7	164.26	263.78	0.1240E-03	1.18	0.00198
8	135.63	321.52	0.2988E-04	0.87	0.00247
9	135.85	321.07	0.2988E-04	0.87	0.00247
10	168.92	247.33	0.3783E-02	1.83	0.00162

ACETONE(1) HEXANE(2) SYSTEM 147

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	669.80	55.0	0.0926	0.3300	687.37	465.17	0.9652	0.9541	3.3432	1.0099	1.1971	-1294.80	-1456.26	-1119.20
2	780.90	55.0	0.1846	0.4760	687.37	465.17	0.9559	0.9488	2.7921	1.0182	1.0087	-1294.80	-1456.26	-1119.20
3	851.80	55.0	0.2989	0.5400	687.37	465.17	0.9506	0.9456	2.1213	1.1295	0.6302	-1294.80	-1456.26	-1119.20
4	873.80	55.0	0.3933	0.5780	687.37	465.17	0.9486	0.9451	1.7663	1.2276	0.3638	-1294.80	-1456.26	-1119.20
5	883.40	55.0	0.4975	0.6020	687.37	465.17	0.9470	0.9445	1.4843	1.4281	0.0386	-1294.80	-1456.26	-1119.20
6	885.20	55.0	0.5998	0.6280	687.37	465.17	0.9458	0.9445	1.2956	1.6980	-0.2674	-1294.80	-1456.26	-1119.20
7	879.80	55.0	0.6993	0.6610	687.37	465.17	0.9456	0.9458	1.1661	2.0500	-0.5642	-1294.80	-1456.26	-1119.20
8	863.40	55.0	0.8021	0.7000	687.37	465.17	0.9460	0.9479	1.0575	2.7128	-0.9420	-1294.80	-1456.26	-1119.20
9	841.30	55.0	0.9090	0.7950	687.37	465.17	0.9476	0.9534	1.0111	3.8626	-1.3403	-1294.80	-1456.26	-1119.20

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 508.70 P = 46.60 V = 213.50 OMEGA = 0.309 OMEGAH = 0.187 DIPOLE = 2.88 ETA = 0.0

2 T = 507.90 P = 29.90 V = 372.40 OMEGA = 0.298 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.70200E 01 B = 0.11610E 04 C = 0.22400E 03

2 A = 0.68778E 01 B = 0.11715E 04 C = 0.22437E 03

VAPOR PRESSURE AT NBP

P = 760.3 AT T = 56.5

P = 759.0 AT T = 68.7

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.56865E 02 B = 0.84265E-02 C = 0.16507E-03

2 A = 0.12596E 03 B = -.14456E 00 C = 0.54720E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 2

ID NUMBER = 18

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.14479E 01 B = -.24859E 01 C = -.62273E 00

STANDARD DEVIATION = 0.25416E-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 4.2540 G2INF = 5.2636

T1INF = 55.00 T2INF = 55.00

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.3876

AREA BELOW THE X-AXIS IS -0.3903

CROSS-OVER POINT IS X = 0.52

NORMALIZED AREA DIFFERENCE IS -0.0034

CONSISTENCY INDEX IS 0.34

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	878.77	357.39	0.8185E-11	11.14	0.01181
2	876.82	400.39	0.4267E-03	4.73	0.00941
3	893.29	441.70	0.2224E-01	6.45	0.00624
4	906.71	425.07	0.5450E-02	6.42	0.00620
5	915.72	396.87	0.1534E-02	3.96	0.00681
6	933.74	439.08	0.7467E-03	14.48	0.00512
7	932.16	384.72	0.1454E-02	4.77	0.00652
8	909.15	385.60	0.1751E-03	3.04	0.00754
9	908.57	386.36	0.1755E-03	3.04	0.00753
10	892.15	442.92	0.1965E-02	6.43	0.00625

CYCLOHEXANE(1) METHYL ETHYL KETONE(2) SYSTEM 148

SUMMARY VLE DATA AND CALCULATED PROPERTIES

NO.	P	T	X1	Y1	F1OL	F2OL	PHI1	PHI2	G1	G2	LN(G1/G2)	B11	B22	B12
1	760.00	75.3	0.1240	0.2230	619.33	641.20	0.9590	0.9649	2.1079	1.0110	0.7348	-1153.29	-1002.98	-1092.38
2	760.00	74.0	0.1960	0.3020	619.33	641.20	0.9592	0.9648	1.8062	0.9895	0.6019	-1153.29	-1002.98	-1092.38
3	760.00	73.0	0.2640	0.3660	619.33	641.20	0.9592	0.9648	1.6253	0.9817	0.5042	-1153.29	-1002.98	-1092.38
4	760.00	72.1	0.3550	0.4260	619.33	641.20	0.9593	0.9647	1.4069	1.0142	0.3274	-1153.29	-1002.98	-1092.38
5	760.00	71.5	0.5200	0.5350	619.33	641.20	0.9594	0.9646	1.2064	1.1039	0.0888	-1153.29	-1002.98	-1092.38
6	760.00	71.8	0.6310	0.5800	619.33	641.20	0.9595	0.9646	1.0779	1.2969	-0.1850	-1153.29	-1002.98	-1092.38
7	760.00	72.6	0.7580	0.6440	619.33	641.20	0.9595	0.9645	0.9963	1.6760	-0.5201	-1153.29	-1002.98	-1092.38
8	760.00	73.7	0.8250	0.7010	619.33	641.20	0.9596	0.9644	0.9965	1.9465	-0.6696	-1153.29	-1002.98	-1092.38
9	760.00	74.7	0.8690	0.7470	619.33	641.20	0.9596	0.9644	1.0081	2.2001	-0.7804	-1153.29	-1002.98	-1092.38
10	760.00	77.0	0.9400	0.8360	619.33	641.20	0.9596	0.9642	1.0431	3.1133	-1.0935	-1153.29	-1002.98	-1092.38

PURE COMPONENT PROPERTIES

CRITICAL PROPERTIES

1 T = 553.20 P = 40.00 V = 311.20 OMEGA = 0.210 OMEGAH = 0.0 DIPOLE = 0.0 ETA = 0.0

2 T = 533.20 P = 39.50 V = 288.40 OMEGA = 0.337 OMEGAH = 0.215 DIPOLE = 2.70 ETA = 0.0

VAPOR PRESSURE EQUATION COEFFICIENTS

1 A = 0.68450E 01 B = -0.12035E 04 C = -0.22286E 03

2 A = 0.69742E 01 B = 0.12096E 04 C = 0.21600E 03

VAPOR PRESSURE AT NBP

P = 759.1 AT T = 80.7

P = 762.4 AT T = 79.6

MOLAR VOLUME EQUATION COEFFICIENTS

1 A = 0.92914E 02 B = -.24859E-01 C = 0.26157E-03

2 A = 0.71193E 02 B = 0.96599E-02 C = 0.18100E-03

COMPONENT ID ECHO CHECK

ID NUMBER = 9

ID NUMBER = 28

MIXTURE PROPERTIES

ACTIVITY RATIO EQUATION COEFFICIENTS

A = 0.82030E 00 B = -.81677E 00 C = -.12374E 01

STANDARD DEVIATION = 0.3778CE-01

INFINITE DILUTION ACTIVITY COEFFICIENTS

G1INF = 2.2712 G2INF = 3.4346

T1INF = 75.30 T2INF = 75.30

RESULTS OF THERMODYNAMIC CONSISTENCY TEST

AREA ABOVE THE X-AXIS IS 0.2590

AREA BELOW THE X-AXIS IS -0.2596

CROSS-OVER POINT IS X = 0.55

NORMALIZED AREA DIFFERENCE IS -0.0011

CONSISTENCY INDEX IS 0.11

SUMMARY OF WILSON PARAMETERS

MODEL NO.	PARAMETER VALUES		OBJECTIVE FUNCTION	QUALITY OF FIT (MEAN ABSOLUTE DEVIATION) PRESSURE	COMPOSITION
1	-18.56	881.07	0.1637E-10	43.91	0.00813
2	-241.16	894.47	0.7046E-02	24.14	0.03723
3	-132.23	1130.52	0.1634E 00	45.48	0.00947
4	-116.63	1039.03	0.8633E-01	40.91	0.01071
5	-134.67	910.80	0.2906E-01	28.15	0.02113
6	24.62	900.22	0.4990E-03	53.50	0.00412
7	-54.37	763.04	0.1922E-01	27.93	0.02183
8	-380.39	1398.72	0.1307E-01	22.95	0.03489
9	-381.08	1402.12	0.1306E-01	22.96	0.03489
10	-49.53	976.90	0.4984E-01	47.79	0.00651

VAPOR-LIQUID EQUILIBRIUM AT LOW PRESSURES: CORRELATION OF BINARY AND PREDICTION OF MULTICOMPONENT DATA

Volume III

Multicomponent Data and Computer Results

by Norman I. Silverman

BENZENE(1)-CHLOROFORM(2)-METHANOL(3)-METHYL ACETATE(4)-ACETONE(5) SYSTEM 001

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
536.60	54.00	276.00	0.214	0.187	1.020	0.28	CHLOROFORM	8
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
506.90	46.30	223.00	0.326	0.215	1.720	0.62	ME ACET	24
508.70	46.60	213.50	0.309	0.187	2.880	0.0	ACETONE	2

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS

MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.69033E 01	0.11630E 04	0.22740E 03	CHLOROFORM	0.6107E 02	0.3026E-01	0.1191E-03
0.78786E 01	0.14731E 04	0.23000E 03	METHANOL	0.6451E 02	-0.1972E 00	0.3874E-03
0.69894E 01	0.11110E 04	0.21351E 03	ME ACET	0.1360E 03	-0.4671E 00	0.9221E-03
0.70200E 01	0.11610E 04	0.22400E 03	ACETONE	0.5686E 02	0.9426E-02	0.1651E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

		BINARY	ID NUMBERS	ORDER
148.44	-208.50	BENZENE - CHLOROFORM	53	1
216.13	1679.46	BENZENE - METHANOL	134	1
200.54	-10.17	BENZENE - ME ACET	160	1
-167.90	494.92	BENZENE - ACETONE	5	1
-372.25	1702.56	CHLOROFORM - METHANOL	56	0
-431.41	79.10	CHLOROFORM - ME ACET	163	1
-331.10	-73.15	CHLOROFORM - ACETONE	7	1
845.93	-98.42	METHANOL - ME ACET	166	1
664.29	-215.01	METHANOL - ACETONE	13	1
161.26	-65.21	ME ACET - ACETONE	14	1

HALA CONSISTENCY TEST

CI(1)	0.3518
CI(2)	0.4516
CI(3)	0.7511
CI(4)	-0.2724
CI(5)	0.2853
CI(6)	1.2114

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.1465E 02

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 2	0.1189E-01
COMPONENT 3	0.9086E-02
COMPONENT 4	0.6978E-02
COMPONENT 5	0.5566E-02
COMPONENT 6	0.2623E-02

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.6511E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	57.26	0.1610	760.00	780.29	0.1260	0.1218	347.39	1.6466	0.9723	BENZENE	0.4181E-02	0.5003E-02
		0.1750			0.1370	0.1404	635.48	0.9490	0.9664	CHLORFRM	-0.3409E-02	
		0.3220			0.3910	0.4001	544.41	1.6960	0.9538	METHANOL	-0.9099E-02	
		0.1620			0.1750	0.1690	731.70	1.0550	0.9512	ME ACET	0.5975E-02	
		0.1800			0.1710	0.1687	764.51	0.9215	0.9665	ACETONE	0.2349E-02	
2	66.79	0.8420	760.00	767.22	0.5850	0.5599	481.51	1.0193	0.9654	BENZENE	0.2513E-01	0.1189E-01
		0.0440			0.0420	0.0424	855.48	0.8326	0.9668	CHLORFRM	-0.3807E-03	
		0.0420			0.2510	0.2799	787.82	6.2923	0.9711	METHANOL	-0.2887E-01	
		0.0350			0.0510	0.0515	997.30	1.0836	0.9605	ME ACET	-0.4820E-03	
		0.0370			0.0710	0.0664	1038.38	1.2768	0.9656	ACETONE	0.4598E-02	
3	58.00	0.0360	760.00	760.18	0.0180	0.0174	356.61	0.9949	0.9680	BENZENE	0.5836E-03	0.9086E-02
		0.8220			0.7560	0.7369	650.82	1.0076	0.9653	CHLORFRM	0.1914E-01	
		0.0630			0.1800	0.2007	560.80	4.1174	0.9551	METHANOL	-0.2066E-01	
		0.0370			0.0190	0.0211	750.16	0.5496	0.9561	ME ACET	-0.2052E-02	
		0.0420			0.0270	0.0240	783.53	0.5416	0.9794	ACETONE	0.2992E-02	
4	61.66	0.0150	760.00	765.40	0.0430	0.0456	405.09	5.6302	0.9844	BENZENE	-0.2562E-02	0.6978E-02
		0.0180			0.0390	0.0413	730.89	2.3097	0.9648	CHLORFRM	-0.2274E-02	
		0.9310			0.8260	0.8274	647.82	1.0057	0.9593	METHANOL	-0.1357E-02	
		0.0210			0.0450	0.0563	846.66	2.2971	0.9514	ME ACET	-0.1125E-01	
		0.0150			0.0470	0.0296	882.98	1.6283	0.9560	ACETONE	0.1744E-01	
5	59.35	0.2050	760.00	777.10	0.1390	0.1328	373.93	1.2995	0.9686	BENZENE	0.6189E-02	0.5566E-02
		0.2350			0.1680	0.1693	679.52	0.7954	0.9685	CHLORFRM	-0.1291E-02	
		0.1180			0.2370	0.2496	591.71	2.6451	0.9536	METHANOL	-0.1262E-01	
		0.2190			0.2270	0.2252	784.73	0.9676	0.9533	ME ACET	0.1848E-02	
		0.2230			0.2290	0.2231	819.15	0.9196	0.9717	ACETONE	0.5877E-02	
6	56.63	0.1980	760.00	775.64	0.1520	0.1523	339.69	1.7015	0.9724	BENZENE	-0.2695E-03	0.2623E-02
		0.0730			0.0500	0.0532	622.64	0.9132	0.9669	CHLORFRM	-0.3240E-02	
		0.3590			0.4040	0.4070	530.77	1.5783	0.9540	METHANOL	-0.3050E-02	
		0.1740			0.1970	0.1910	716.27	1.1270	0.9509	ME ACET	0.5979E-02	
		0.1990			0.1970	0.1964	748.61	0.9843	0.9653	ACETONE	0.5752E-03	
7	57.48	0.0610	760.00	780.33	0.0450	0.0441	350.11	1.5585	0.9715	BENZENE	0.9379E-03	0.6300E-02
		0.2300			0.1630	0.1679	640.01	0.8598	0.9689	CHLORFRM	-0.4945E-02	
		0.2190			0.3000	0.3108	549.24	1.9127	0.9501	METHANOL	-0.1081E-01	
		0.2240			0.2360	0.2277	737.16	1.0204	0.9514	ME ACET	0.8324E-02	
		0.2660			0.2560	0.2495	770.13	0.9209	0.9717	ACETONE	0.6486E-02	
8	56.79	0.0510	760.00	782.38	0.0440	0.0438	341.63	1.9135	0.9755	BENZENE	0.1630E-03	0.2488E-02
		0.2640			0.2410	0.2421	625.89	1.1023	0.9647	CHLORFRM	-0.1073E-02	
		0.3970			0.4360	0.4299	534.20	1.5099	0.9535	METHANOL	0.6054E-02	
		0.2290			0.2280	0.2313	720.17	1.0404	0.9512	ME ACET	-0.3292E-02	
		0.0590			0.0510	0.0529	752.62	0.8958	0.9648	ACETONE	-0.1857E-02	
9	57.94	0.1410	760.00	785.42	0.1020	0.1003	355.86	1.5205	0.9715	BENZENE	0.1660E-02	0.2028E-02
		0.2930			0.2460	0.2485	649.56	0.9707	0.9656	CHLORFRM	-0.2550E-02	
		0.2650			0.3790	0.3815	559.45	1.9249	0.9539	METHANOL	-0.2520E-02	
		0.1410			0.1360	0.1350	748.65	0.9527	0.9516	ME ACET	0.1021E-02	
		0.1550			0.1370	0.1346	781.97	0.8419	0.9680	ACETONE	0.2388E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
10	56.45	0.0550	760.00	765.27	0.0370	0.0339	337.51	1.3462	0.9669	BENZENE	0.3110E-02	0.5854E-02
		0.0740			0.0400	0.0393	619.01	0.6355	0.9720	CHLOREFM	0.7410E-03	
		0.0770			0.1090	0.1236	526.92	2.2000	0.9449	METHANOL	-0.1464E-01	
		0.3950			0.3970	0.3920	711.91	1.0372	0.9506	ME ACET	0.5035E-02	
		0.4090			0.4170	0.4113	744.12	1.0066	0.9762	ACETONE	0.5749E-02	
11	57.42	0.0940	760.00	768.65	0.0600	0.0581	349.37	1.3167	0.9714	BENZENE	0.1885E-02	0.6420E-02
		0.1090			0.0620	0.0632	638.77	0.6746	0.9695	CHLOREFM	-0.1234E-02	
		0.0760			0.1310	0.1458	547.92	2.5550	0.9507	METHANOL	-0.1482E-01	
		0.5670			0.5800	0.5722	735.67	1.0022	0.9534	ME ACET	0.7810E-02	
		0.1540			0.1670	0.1606	768.60	1.0086	0.9696	ACETONE	0.6350E-02	
12	57.72	0.0830	760.00	767.56	0.0600	0.0592	353.10	1.3776	0.9608	BENZENE	0.1755E-02	0.8075E-02
		0.1030			0.0580	0.0580	644.98	0.6490	0.9719	CHLOREFM	0.2457E-04	
		0.0720			0.1000	0.1202	554.55	2.1718	0.9414	METHANOL	-0.2019E-01	
		0.1500			0.1680	0.1632	743.14	1.0622	0.9480	ME ACET	0.4782E-02	
		0.5870			0.6140	0.6004	776.29	0.9883	0.9801	ACETONE	0.1363E-01	
13	60.51	0.2990	760.00	786.20	0.1920	0.1854	389.33	1.2083	0.9682	BENZENE	0.6563E-02	0.7776E-02
		0.3190			0.2610	0.2578	704.96	0.8679	0.9660	CHLOREFM	0.3186E-02	
		0.1170			0.2800	0.2994	619.37	3.1041	0.9570	METHANOL	-0.1944E-01	
		0.1300			0.1320	0.1278	815.38	0.9012	0.9540	ME ACET	0.4234E-02	
		0.1350			0.1350	0.1295	850.74	0.8573	0.9695	ACETONE	0.5456E-02	
14	59.09	0.3040	760.00	775.79	0.1920	0.1861	370.55	1.2385	0.9697	BENZENE	0.5898E-02	0.1025E-01
		0.1460			0.0970	0.1007	673.93	0.7657	0.9670	CHLOREFM	-0.3737E-02	
		0.1190			0.2430	0.2649	585.66	2.8149	0.9561	METHANOL	-0.2189E-01	
		0.3040			0.3310	0.3159	777.98	0.9852	0.9538	ME ACET	0.1511E-01	
		0.1270			0.1370	0.1324	812.19	0.9600	0.9670	ACETONE	0.4616E-02	
15	59.10	0.1250	760.00	782.26	0.0840	0.0821	370.68	1.3404	0.9707	BENZENE	0.1923E-02	0.7329E-02
		0.3090			0.2300	0.2309	674.14	0.8360	0.9672	CHLOREFM	-0.9181E-03	
		0.1290			0.2460	0.2634	585.89	2.6155	0.9534	METHANOL	-0.1741E-01	
		0.3040			0.3080	0.2964	778.24	0.9313	0.9533	ME ACET	0.1161E-01	
		0.1340			0.1320	0.1272	812.46	0.8840	0.9699	ACETONE	0.4786E-02	

HEXANE(1)-METHYLCYCLOPENTANE(2)-CYCLOHEXANE(3)-BENZENE(4)-TOLUENE(5) SYSTEM 002

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	CARSAH	DIPOLE	ETA	COMPONENT	ID
507.90	29.90	372.40	0.298	0.0	0.0	0.0	HEXANE	18
532.80	37.40	319.00	0.231	0.0	0.0	0.0	MCP	27
553.20	40.00	311.20	0.210	0.0	0.0	0.0	CYCLOHEX	9
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
594.00	40.00	331.10	0.241	0.0	0.0	0.0	TOLUENE	33

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.68778E 01	0.11715E 04	0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03
0.68628E 01	0.11861E 04	0.22604E 03	MCP	0.1043E 03	-0.8676E-01	0.3900E-03
0.68450E 01	0.12035E 04	0.22236E 03	CYCLOHEX	0.9291E 02	-0.2486E-01	0.2616E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.69533E 01	0.13439E 04	0.21939E 03	TOLUENE	0.9886E 02	-0.5577E-01	0.2770E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
348.43	-219.53	HEXANE - MCP	174	0
496.96	-230.57	HEXANE - CYCLOHEX	62	0
279.52	134.35	HEXANE - BENZENE	121	0
-121.00	383.89	HEXANE - TOLUENE	128	0
327.06	-247.40	MCP - CYCLOHEX	226	0
94.01	162.93	MCP - BENZENE	173	0
-465.89	1004.73	MCP - TOLUENE	227	0
151.22	107.28	CYCLOHEX - BENZENE	27	1
-446.10	591.96	CYCLOHEX - TOLUENE	228	0
75.54	-88.83	BENZENE - TOLUENE	40	0

HALA CONSISTENCY TEST

CI(1)	0.6368
CI(2)	-0.1114
CI(3)	-6.8555
CI(4)	0.1224
CI(5)	-1.8787
CI(6)	-0.3738

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.1365E 02

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 2	0.1061E-01
COMPONENT 3	0.5039E-02
COMPONENT 4	0.4698E-02
COMPONENT 5	0.6128E-02
COMPONENT 6	0.3009E-02

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.5299E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	78.27	0.1960	760.00	751.90	0.2740	0.2803	951.50	1.1353	0.9578	HEXANE	-0.6347E-02	0.4411E-02
		0.2570			0.3280	0.3314	876.46	1.0607	0.9628	MCP	-0.3430E-02	
		0.1180			0.1180	0.1181	677.02	1.0640	0.9612	CYCLOHEX	-0.8726E-04	
		0.1530			0.1670	0.1560	692.78	1.0657	0.9663	BENZENE	0.1102E-01	
		0.2860			0.1130	0.1142	268.68	1.0563	0.9493	TOLUENE	-0.1167E-02	
2	84.41	0.1290	760.00	750.24	0.2430	0.2432	1126.10	1.2005	0.9604	HEXANE	-0.2271E-03	0.1061E-01
		0.1590			0.2240	0.2503	1039.36	1.0921	0.9651	MCP	-0.2630E-01	
		0.1320			0.1680	0.1618	809.03	1.0910	0.9635	CYCLOHEX	0.6190E-02	
		0.1000			0.1280	0.1159	831.42	1.0100	0.9685	BENZENE	0.1206E-01	
		0.4800			0.2370	0.2287	330.39	1.0264	0.9522	TOLUENE	0.8274E-02	
3	80.45	0.1320	760.00	743.03	0.2190	0.2277	1011.06	1.2102	0.9592	HEXANE	-0.8719E-02	0.5039E-02
		0.0950			0.1340	0.1335	931.97	1.0757	0.9640	MCP	0.4818E-03	
		0.2190			0.2410	0.2396	721.88	1.0847	0.9625	CYCLOHEX	0.1363E-02	
		0.2530			0.2840	0.2733	739.83	1.0460	0.9675	BENZENE	0.1075E-01	
		0.3020			0.1220	0.1259	289.44	1.0137	0.9510	TOLUENE	-0.3883E-02	
4	80.50	0.0690	760.00	738.91	0.1120	0.1221	1012.46	1.2336	0.9594	HEXANE	-0.1015E-01	0.4698E-02
		0.1650			0.2380	0.2371	933.27	1.0859	0.9642	MCP	0.8972E-03	
		0.2150			0.2410	0.2380	722.93	1.0848	0.9627	CYCLOHEX	0.3039E-02	
		0.2610			0.2900	0.2822	740.93	1.0400	0.9677	BENZENE	0.7805E-02	
		0.2890			0.1190	0.1206	289.93	1.0080	0.9514	TOLUENE	-0.1602E-02	
5	76.58	0.1320	760.00	743.47	0.1920	0.1994	907.10	1.1796	0.9576	HEXANE	-0.7363E-02	0.6128E-02
		0.1550			0.2020	0.1927	835.14	1.0611	0.9625	MCP	0.9254E-02	
		0.2280			0.2130	0.2210	643.71	1.0714	0.9610	CYCLOHEX	-0.7962E-02	
		0.3330			0.3360	0.3322	657.91	1.0855	0.9661	BENZENE	0.3835E-02	
		0.1520			0.0570	0.0548	253.41	0.9997	0.9492	TOLUENE	0.2228E-02	
6	77.98	0.0670	760.00	743.47	0.1050	0.1090	943.77	1.2223	0.9581	HEXANE	-0.4033E-02	0.3009E-02
		0.0810			0.1060	0.1049	869.27	1.0623	0.9630	MCP	0.1101E-02	
		0.3600			0.3620	0.3655	671.21	1.0770	0.9615	CYCLOHEX	-0.3494E-02	
		0.3590			0.3740	0.3715	686.70	1.0753	0.9666	BENZENE	0.2549E-02	
		0.1330			0.0530	0.0491	266.00	0.9771	0.9500	TOLUENE	0.3868E-02	
7	75.71	0.0660	760.00	754.61	0.0870	0.0884	884.86	1.0871	0.9566	HEXANE	-0.1387E-02	0.4576E-02
		0.6830			0.6760	0.6861	814.45	1.0441	0.9616	MCP	-0.1006E-01	
		0.0770			0.0700	0.0691	627.06	1.0327	0.9601	CYCLOHEX	0.8944E-03	
		0.0390			0.0950	0.0849	640.49	1.0816	0.9653	BENZENE	0.1007E-01	
		0.1950			0.0720	0.0715	245.92	1.1208	0.9480	TOLUENE	0.4675E-03	
8	78.83	0.0980	760.00	744.50	0.1530	0.1507	966.54	1.1075	0.9584	HEXANE	-0.6735E-02	0.5424E-02
		0.1490			0.2060	0.1991	890.48	1.0666	0.9633	MCP	0.7863E-02	
		0.2690			0.2720	0.2788	688.34	1.0740	0.9618	CYCLOHEX	-0.6830E-02	
		0.2650			0.2820	0.2770	704.65	1.0641	0.9669	BENZENE	0.5048E-02	
		0.2190			0.0870	0.0864	273.89	1.0146	0.9502	TOLUENE	0.6461E-03	
9	78.54	0.1960	760.00	748.02	0.2730	0.2831	958.73	1.1324	0.9582	HEXANE	-0.1012E-01	0.5174E-02
		0.2550			0.3390	0.3330	883.20	1.0608	0.9631	MCP	0.5962E-02	
		0.1270			0.1260	0.1288	682.46	1.0647	0.9615	CYCLOHEX	-0.2822E-02	
		0.1290			0.1370	0.1315	698.49	1.0600	0.9666	BENZENE	0.5504E-02	
		0.3040			0.1250	0.1235	271.18	1.0603	0.9496	TOLUENE	0.1465E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
10	76.02	0.1300	760.00	745.38	0.1780	0.1799	892.74	1.1007	0.9573	HEXANE	-0.1898E-02	0.3922E-02
		0.4710			0.5630	0.5703	821.77	1.0523	0.9622	MCP	-0.7262E-02	
		0.0600			0.0550	0.0556	632.96	1.0451	0.9607	CYCLOHEX	-0.6488E-03	
		0.1090			0.1150	0.1057	646.66	1.0765	0.9658	BENZENE	0.9255E-02	
		0.2300			0.0890	0.0885	248.50	1.0901	0.9487	TOLUENE	0.5448E-03	

BENZENE(1) - CHLOROFORM(2) - METHANOL(3) - METHYL ACETATE(4) SYSTEM 003

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
536.60	54.00	276.00	0.214	0.187	1.020	0.28	CHLOREFM	8
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
506.90	46.30	228.00	0.326	0.215	1.720	0.62	ME ACET	24

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.69033E 01	0.11630E 04	0.22740E 03	CHLOREFM	0.6107E 02	0.3026E-01	0.1191E-03
0.79786E 01	0.14731E 04	0.23000E 03	METHANOL	0.6451E 02	-0.1972E 00	0.3874E-03
0.69894E 01	0.11110E 04	0.21351E 03	ME ACET	0.1360E 03	-0.4671E 00	0.9221E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
148.44	-208.50	BENZENE - CHLOREFM	53	1
216.13	1679.46	BENZENE - METHANOL	134	1
200.54	-10.17	BENZENE - ME ACET	160	1
-372.25	1702.56	CHLOREFM - METHANOL	56	0
-431.41	79.10	CHLOREFM - ME ACET	163	1
845.93	-98.42	METHANOL - ME ACET	166	1

MALA CONSISTENCY TEST

CI(1)	0.8518
CI(2)	0.4516
CI(3)	-0.2724

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.		0.1159E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.		
	COMPONENT 1	0.2740E-02
	COMPONENT 2	0.5298E-02
	COMPONENT 3	0.6844E-02
	COMPONENT 4	0.4652E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.		0.4884E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	56.90	0.1960	760.00	778.15	0.1530	0.1504	342.97	1.6884	0.9734	BENZENE	0.2629E-02	0.3909E-02
		0.2110			0.1840	0.1896	628.12	1.0677	0.9620	CHLORFRM	-0.5623E-02	
		0.3900			0.4630	0.4578	536.58	1.6255	0.9564	METHANOL	0.5188E-02	
		0.2030			0.2000	0.2022	722.86	1.0162	0.9507	ME ACET	-0.2198E-02	
2	56.89	0.1940	760.00	778.12	0.1520	0.1492	342.85	1.6931	0.9734	BENZENE	0.2805E-02	0.3533E-02
		0.2110			0.1850	0.1897	627.92	1.0686	0.9620	CHLORFRM	-0.4730E-02	
		0.3910			0.4620	0.4577	536.36	1.6217	0.9564	METHANOL	0.4259E-02	
		0.2040			0.2010	0.2033	722.61	1.0173	0.9507	ME ACET	-0.2338E-02	
3	56.95	0.1950	760.00	776.54	0.1520	0.1491	342.36	1.6822	0.9734	BENZENE	0.2909E-02	0.3535E-02
		0.2150			0.1960	0.1931	627.10	1.0665	0.9621	CHLORFRM	-0.7072E-02	
		0.3970			0.4600	0.4564	535.50	1.6332	0.9564	METHANOL	0.3564E-02	
		0.2030			0.2020	0.2014	721.63	1.0120	0.9508	ME ACET	0.5949E-03	
4	56.66	0.0390	760.00	764.34	0.0480	0.0474	340.05	1.1584	0.9708	BENZENE	0.5877E-03	0.9881E-02
		0.6600			0.5970	0.5778	623.25	1.0318	0.9640	CHLORFRM	0.1917E-01	
		0.1510			0.2960	0.3122	531.41	2.8365	0.9555	METHANOL	-0.1615E-01	
		0.1000			0.0590	0.0626	717.00	0.6349	0.9542	ME ACET	-0.3613E-02	
5	59.09	0.0450	760.00	765.17	0.0940	0.0985	370.55	4.4168	0.9801	BENZENE	-0.4545E-02	0.4772E-02
		0.0520			0.0900	0.0950	673.93	1.9906	0.9626	CHLORFRM	-0.5001E-02	
		0.8520			0.7090	0.7013	585.66	1.0289	0.9581	METHANOL	0.7671E-02	
		0.0510			0.1070	0.1051	777.98	1.9211	0.9504	ME ACET	0.1870E-02	
6	56.05	0.0930	760.00	767.72	0.0590	0.0598	332.72	1.4433	0.9754	BENZENE	-0.8487E-03	0.2752E-02
		0.1000			0.0560	0.0607	611.01	0.7338	0.9659	CHLORFRM	-0.4654E-02	
		0.1600			0.2570	0.2555	518.46	2.2493	0.9527	METHANOL	0.1510E-02	
		0.6470			0.6280	0.6240	702.28	1.0011	0.9525	ME ACET	0.3995E-02	
7	60.79	0.6780	760.00	770.25	0.3970	0.3974	393.12	1.0799	0.9678	BENZENE	0.9553E-02	0.4777E-02
		0.1040			0.0830	0.0871	711.21	0.8698	0.9617	CHLORFRM	-0.4122E-02	
		0.1220			0.4130	0.4180	626.20	4.0556	0.9639	METHANOL	-0.4980E-02	
		0.0960			0.1070	0.1075	822.92	0.9962	0.9538	ME ACET	-0.4525E-03	
8	58.02	0.4460	760.00	773.46	0.2860	0.2774	356.86	1.3031	0.9700	BENZENE	0.8593E-02	0.4297E-02
		0.1840			0.1560	0.1598	651.24	0.9875	0.9606	CHLORFRM	-0.3756E-02	
		0.2820			0.4760	0.4772	561.24	2.2355	0.9600	METHANOL	-0.1243E-02	
		0.0890			0.1920	0.0856	750.66	0.9504	0.9512	ME ACET	-0.3596E-02	
9	59.66	0.4800	760.00	777.64	0.2870	0.2773	378.00	1.1481	0.9694	BENZENE	0.9691E-02	0.5623E-02
		0.1910			0.1490	0.1528	686.25	0.8695	0.9624	CHLORFRM	-0.3767E-02	
		0.1440			0.3750	0.3825	509.01	3.3068	0.9605	METHANOL	-0.7479E-02	
		0.1350			0.1890	0.1874	792.94	0.9444	0.9532	ME ACET	0.1553E-02	
10	57.70	0.4420	760.00	773.66	0.2910	0.2820	352.85	1.3530	0.9706	BENZENE	0.9001E-02	0.4896E-02
		0.0910			0.0700	0.0744	644.57	0.9393	0.9607	CHLORFRM	-0.4367E-02	
		0.3010			0.4670	0.4724	554.11	2.0993	0.9595	METHANOL	-0.5425E-02	
		0.1660			0.1720	0.1712	742.64	1.0184	0.9507	ME ACET	0.7882E-03	
11	56.62	0.0850	760.00	776.24	0.0570	0.0590	339.57	1.5380	0.9733	BENZENE	-0.1965E-02	0.5561E-02
		0.4420			0.4140	0.4051	622.44	1.0974	0.9632	CHLORFRM	0.8939E-02	
		0.3020			0.4010	0.3988	530.55	1.8421	0.9549	METHANOL	0.2180E-02	
		0.1710			0.1280	0.1372	716.03	0.8254	0.9521	ME ACET	-0.9160E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
12	59.03	0.1780	760.00	779.27	0.1030	0.1030	369.77	1.1792	0.9703	BENZENE	-0.3934E-05	0.5290E-02
		0.5190			0.4550	0.4444	672.64	0.9534	0.9641	CHLOREFM	0.1058E-01	
		0.1200			0.2480	0.3069	584.26	3.2584	0.9568	METHANOL	-0.8870E-02	
		0.1830			0.1440	0.1457	776.43	0.7603	0.9544	ME ACET	-0.1706E-02	
13	56.54	0.1590	760.00	771.73	0.1020	0.1032	338.60	1.4333	0.9721	BENZENE	-0.1222E-02	0.4634E-02
		0.4410			0.4100	0.4090	620.83	1.1061	0.9626	CHLOREFM	0.1049E-02	
		0.3010			0.4190	0.4198	528.84	1.9014	0.9562	METHANOL	-0.8217E-02	
		0.0990			0.0690	0.0770	714.08	0.7984	0.9522	ME ACET	-0.8048E-02	
14	57.30	0.0560	760.00	772.61	0.0930	0.0829	347.88	3.2037	0.9781	BENZENE	0.1192E-03	0.5669E-02
		0.1210			0.1570	0.1663	636.30	1.6014	0.9628	CHLOREFM	-0.9283E-02	
		0.7080			0.5900	0.5788	545.28	1.1058	0.9562	METHANOL	0.1122E-01	
		0.1150			0.1700	0.1721	732.69	1.4948	0.9504	ME ACET	-0.2059E-02	
15	57.18	0.1100	760.00	770.10	0.1520	0.1533	346.41	3.0151	0.9764	BENZENE	-0.1326E-02	0.4382E-02
		0.0640			0.0800	0.0833	603.84	1.5160	0.9616	CHLOREFM	-0.3309E-02	
		0.7080			0.5930	0.5842	542.66	1.1191	0.9571	METHANOL	0.8762E-02	
		0.1180			0.1750	0.1791	729.73	1.5168	0.9497	ME ACET	-0.4133E-02	
16	57.40	0.1190	760.00	771.98	0.1570	0.1597	349.12	2.8836	0.9751	BENZENE	-0.2708E-02	0.5753E-02
		0.1230			0.1610	0.1671	638.36	1.5741	0.9611	CHLOREFM	-0.6103E-02	
		0.6950			0.5940	0.5825	547.48	1.1299	0.9576	METHANOL	0.1151E-01	
		0.0630			0.0880	0.0907	735.17	1.4316	0.9499	ME ACET	-0.2698E-02	
17	56.06	0.0820	760.00	774.46	0.0620	0.0621	332.84	1.7156	0.9763	BENZENE	-0.1434E-03	0.4341E-02
		0.1750			0.1240	0.1325	611.20	0.9226	0.9644	CHLOREFM	-0.8543E-02	
		0.3150			0.3840	0.3839	518.67	1.7327	0.9537	METHANOL	0.1033E-03	
		0.4280			0.4300	0.4214	702.52	1.0294	0.9513	ME ACET	0.8574E-02	
18	55.74	0.1630	760.00	769.89	0.1150	0.1169	329.04	1.6307	0.9754	BENZENE	-0.1880E-02	0.3777E-02
		0.0910			0.0600	0.0657	604.85	0.8825	0.9637	CHLOREFM	-0.5680E-02	
		0.3230			0.3920	0.3919	511.98	1.7389	0.9547	METHANOL	0.1320E-03	
		0.4230			0.4330	0.4256	694.88	1.0567	0.9509	ME ACET	0.7418E-02	
19	57.52	0.1690	760.00	776.29	0.1090	0.1083	350.61	1.3760	0.9735	BENZENE	0.7296E-03	0.5849E-02
		0.1980			0.1320	0.1384	640.84	0.8140	0.9646	CHLOREFM	-0.6374E-02	
		0.1720			0.3040	0.3093	550.12	2.4196	0.9549	METHANOL	-0.5328E-02	
		0.4610			0.4550	0.4440	739.15	0.9619	0.9526	ME ACET	0.1097E-01	
20	75.39	0.9240	760.00	763.54	0.8030	0.7989	634.17	1.0015	0.9654	BENZENE	0.4184E-02	0.3664E-02
		0.0360			0.0460	0.0464	1099.59	0.8666	0.9718	CHLOREFM	-0.3654E-03	
		0.0070			0.0900	0.0870	1076.01	8.6467	0.9823	METHANOL	-0.6963E-02	
		0.0330			0.0710	0.0679	1293.41	1.1738	0.9699	ME ACET	-0.3143E-02	
21	66.25	0.4020	760.00	769.28	0.3110	0.3111	472.98	0.9900	0.9660	BENZENE	-0.8553E-04	0.3086E-02
		0.4560			0.4920	0.4858	841.44	0.9389	0.9671	CHLOREFM	0.6171E-02	
		0.0230			0.1650	0.1702	772.03	7.1184	0.9667	METHANOL	-0.5230E-02	
		0.0290			0.0320	0.0329	980.56	0.8522	0.9617	ME ACET	-0.8562E-03	
22	57.74	0.2880	760.00	764.20	0.3270	0.3251	353.35	2.3628	0.9711	BENZENE	0.1872E-02	0.2244E-02
		0.0250			0.0280	0.0311	645.40	1.4073	0.9586	CHLOREFM	-0.3092E-02	
		0.6640			0.6130	0.6104	555.00	1.2140	0.9606	METHANOL	0.2616E-02	
		0.0230			0.0320	0.0334	743.63	1.4119	0.9490	ME ACET	-0.1399E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
23	61.06	0.4560	760.00	764.05	0.2710	0.2703	396.81	1.1024	0.9691	BENZENE	0.6770E-03	0.4425E-02
		0.0530			0.0350	0.0373	717.27	0.7223	0.9659	CHLORFRM	-0.2322E-02	
		0.0540			0.1740	0.1805	632.85	3.8706	0.9604	METHANOL	-0.6531E-02	
		0.4370			0.5200	0.5118	830.23	1.0277	0.9564	ME ACET	0.8171E-02	
24	55.89	0.0350	760.00	764.50	0.0220	0.0219	330.81	1.4077	0.9753	BENZENE	0.6510E-04	0.2379E-02
		0.0490			0.0250	0.0264	607.92	0.6544	0.9672	CHLORFRM	-0.1443E-02	
		0.0910			0.1530	0.1563	515.10	2.4205	0.9509	METHANOL	-0.3313E-02	
		0.8250			0.8000	0.7953	698.46	1.0026	0.9531	ME ACET	0.4694E-02	
25	56.40	0.0320	760.00	777.80	0.0290	0.0304	336.91	2.1380	0.9771	BENZENE	-0.1436E-02	0.4142E-02
		0.2530			0.2430	0.2487	618.01	1.1888	0.9639	CHLORFRM	-0.5719E-02	
		0.4600			0.4630	0.4547	525.86	1.3926	0.9540	METHANOL	0.8281E-02	
		0.2550			0.2650	0.2661	710.70	1.0830	0.9512	ME ACET	-0.1134E-02	
26	61.09	0.0290	760.00	778.33	0.0200	0.0200	397.22	1.3048	0.9712	BENZENE	0.4701E-04	0.1137E-01
		0.4700			0.3920	0.3855	717.95	0.8569	0.9668	CHLORFRM	0.6506E-02	
		0.0570			0.1440	0.1667	633.59	3.4252	0.9546	METHANOL	-0.2275E-01	
		0.4440			0.4440	0.4278	831.05	0.8600	0.9560	ME ACET	0.1619E-01	
27	57.14	0.3250	760.00	771.85	0.2630	0.2570	345.91	1.7084	0.9717	BENZENE	0.6033E-02	0.3017E-02
		0.0890			0.0910	0.0936	633.02	1.0962	0.9603	CHLORFRM	-0.2581E-02	
		0.4560			0.5130	0.5143	541.79	1.5383	0.9548	METHANOL	-0.1343E-02	
		0.1300			0.1430	0.1451	728.75	1.1196	0.9499	ME ACET	-0.2112E-02	
28	55.80	0.0200	760.00	762.50	0.0280	0.0287	329.75	3.2456	0.9820	BENZENE	-0.6865E-03	0.6300E-02
		0.0270			0.0280	0.0308	606.04	1.3831	0.9651	CHLORFRM	-0.2849E-02	
		0.6810			0.5480	0.5354	513.22	1.1133	0.9546	METHANOL	0.1260E-01	
		0.2720			0.3960	0.4051	696.31	1.5459	0.9509	ME ACET	-0.9064E-02	
29	63.07	0.3110	760.00	772.46	0.2030	0.1909	425.08	1.1273	0.9685	BENZENE	0.3112E-02	0.7760E-02
		0.3300			0.2900	0.2805	763.66	0.8282	0.9664	CHLORFRM	-0.4652E-03	
		0.0420			0.1540	0.1691	684.12	4.3580	0.9604	METHANOL	-0.1506E-01	
		0.3170			0.3630	0.3506	886.23	0.9205	0.9578	ME ACET	0.1241E-01	

DIMETHYLBUTANE(1) - METHANOL(2) - ACETONE(3) - CHLOROFORM(4) SYSTEM 004

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
500.30	31.00	358.00	0.247	0.0	0.0	0.0	DMB	35
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
509.70	46.60	213.50	0.309	0.187	2.880	0.0	ACETONE	2
536.60	54.00	276.00	0.214	0.187	1.020	0.28	CHLOREFM	8

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS

A	B	C	COMPONENT
0.68098E 01	0.11272E 04	0.22890E 03	DMB
0.77736E 01	0.14731E 04	0.23000E 03	METHANOL
0.70200E 01	0.11610E 04	0.22400E 03	ACETONE
0.69033E 01	0.11630E 04	0.22740E 03	CHLOREFM

MOLAR VOLUME EQUATION COEFFICIENTS

COMPONENT	A	B	C
DMB	0.1116E 03	-0.5198E-01	0.3944E-03
METHANOL	0.6451E 02	-0.1972E 00	0.3874E-03
ACETONE	0.5686E 02	0.8426E-02	0.1651E-03
CHLOREFM	0.6107E 02	0.3026E-01	0.1191E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
449.08	2771.85	DMB - METHANOL	70	0
234.96	948.29	DMB - ACETONE	68	1
-28.72	342.16	DMB - CHLOREFM	69	0
664.08	-214.95	METHANOL - ACETONE	13	1
1703.68	-373.30	METHANOL - CHLOREFM	57	1
-72.20	-332.23	ACETONE - CHLOREFM	7	0

HALA CONSISTENCY TEST

CI(1)	0.4941
CI(2)	1.8234
CI(3)	0.3133

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.6037E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.5234E-02
COMPONENT 2	0.6221E-02
COMPONENT 3	0.7138E-02
COMPONENT 4	0.4138E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.5683E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	PHI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	49.40	0.1750	760.00	762.99	0.3330	0.3392	550.99	2.5550	0.9569	DMB	-0.6225E-02	0.6165E-02
		0.2510			0.2620	0.2681	393.17	1.9746	0.9542	METHANOL	-0.6108E-02	
		0.2910			0.2250	0.2141	583.89	0.9270	0.9674	ACETONE	0.1094E-01	
		0.2830			0.1900	0.1786	489.16	0.9448	0.9629	CHLOFERM	0.1382E-02	
2	50.40	0.2220	760.00	768.86	0.3570	0.3608	569.12	2.0852	0.9547	DMB	-0.3780E-02	0.1137E-01
		0.1280			0.1800	0.1990	410.24	2.7761	0.9544	METHANOL	-0.1897E-01	
		0.3240			0.2600	0.2483	604.80	0.9427	0.9704	ACETONE	0.1168E-01	
		0.3260			0.2030	0.1919	506.16	0.8594	0.9641	CHLOFERM	0.1107E-01	
3	53.10	0.0700	760.00	772.29	0.1950	0.1992	620.30	3.3852	0.9604	DMB	-0.4204E-02	0.2518E-02
		0.2810			0.3060	0.3068	459.38	1.7433	0.9512	METHANOL	-0.8277E-03	
		0.3340			0.2660	0.2610	664.20	0.8793	0.9707	ACETONE	0.5034E-02	
		0.3150			0.2330	0.2330	554.36	0.9913	0.9650	CHLOFERM	-0.5901E-05	
4	48.50	0.2240	760.00	764.46	0.3630	0.3694	535.06	2.2437	0.9572	DMB	-0.6417E-02	0.4752E-02
		0.2970			0.3010	0.2981	378.32	1.9365	0.9564	METHANOL	0.2937E-02	
		0.1560			0.1050	0.1081	565.55	0.8997	0.9634	ACETONE	-0.3092E-02	
		0.3230			0.2310	0.2244	474.24	1.0717	0.9599	CHLOFERM	0.6564E-02	
5	47.10	0.2100	760.00	758.30	0.3910	0.3965	510.96	2.6621	0.9552	DMB	-0.5542E-02	0.3606E-02
		0.3020			0.2630	0.2607	356.12	1.7515	0.9542	METHANOL	0.2265E-02	
		0.3340			0.2620	0.2571	537.93	1.0452	0.9662	ACETONE	0.4942E-02	
		0.1540			0.0840	0.0857	451.73	0.8965	0.9630	CHLOFERM	-0.1675E-02	

ETHANOL(1) - BENZENE(2) - METHYLCYCLOPENTANE(3) - HEXANE(4) SYSTEM 005

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
516.00	63.00	161.30	0.637	0.152	1.690	1.10	ETHANOL	11
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
532.80	37.40	319.00	0.231	0.0	0.0	0.0	MCP	27
507.90	29.90	372.40	0.299	0.0	0.0	0.0	HEXANE	18

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.80449E 01	0.15543E 04	0.22265E 03	ETHANOL	0.5370E 02	-0.3111E-01	0.1600E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.69628E 01	0.11861E 04	0.22604E 03	MCP	0.1043E 03	-0.8676E-01	0.3900E-03
0.68778E 01	0.11715E 04	0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
1521.11	119.95	ETHANOL - BENZENE	78	0
2220.58	249.64	ETHANOL - MCP	91	1
2145.53	327.33	ETHANOL - HEXANE	90	1
248.35	13.76	BENZENE - MCP	173	1
212.59	154.65	BENZENE - HEXANE	36	1
118.23	-103.48	MCP - HEXANE	174	1

HALA CONSISTENCY TEST

CI(1)	1.2049
CI(2)	0.1270
CI(3)	0.9789

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.6230E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.7160E-02
COMPONENT 2	0.3374E-02
COMPONENT 3	0.4203E-02
COMPONENT 4	0.8166E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.5726E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	61.30	0.2860	760.00	757.00	0.3290	0.3311	363.15	2.3235	0.9648	ETHANOL	-0.2114E-02	0.7640E-02
		0.2980			0.2230	0.2197	400.10	1.3386	0.9627	BENZENE	0.3275E-02	
		0.2840			0.2790	0.2922	524.42	1.4177	0.9587	MCP	-0.1317E-01	
		0.1320			0.1690	0.1570	571.94	1.4931	0.9531	HEXANE	0.1200E-01	
2	61.90	0.3580	760.00	760.78	0.3430	0.3442	372.75	1.8884	0.9644	ETHANOL	-0.1234E-02	0.1885E-02
		0.3460			0.2750	0.2712	408.44	1.4013	0.9630	BENZENE	0.3767E-02	
		0.1550			0.1830	0.1852	534.64	1.6231	0.9590	MCP	-0.2153E-02	
		0.1410			0.1990	0.1994	583.00	1.7505	0.9534	HEXANE	-0.3862E-03	
3	62.30	0.1280	760.00	762.39	0.2910	0.2954	379.27	4.4728	0.9665	ETHANOL	-0.4367E-02	0.4321E-02
		0.3690			0.2520	0.2459	414.07	1.1765	0.9622	BENZENE	0.6106E-02	
		0.3520			0.3040	0.3083	541.54	1.1763	0.9582	MCP	-0.4278E-02	
		0.1510			0.1530	0.1505	590.46	1.2194	0.9526	HEXANE	0.2533E-02	
4	60.30	0.3590	760.00	756.94	0.3460	0.3401	347.60	1.9844	0.9640	ETHANOL	0.5867E-02	0.4022E-02
		0.1520			0.1250	0.1228	386.51	1.5180	0.9625	BENZENE	0.2173E-02	
		0.3410			0.3540	0.3585	507.73	1.4956	0.9585	MCP	-0.4463E-02	
		0.1480			0.1750	0.1786	553.86	1.5634	0.9528	HEXANE	-0.3585E-02	
5	65.40	0.0850	760.00	759.56	0.2610	0.2646	433.04	5.2802	0.9691	ETHANOL	-0.3628E-02	0.3330E-02
		0.6590			0.4450	0.4411	459.79	1.0611	0.9630	BENZENE	0.3944E-02	
		0.1100			0.1170	0.1143	597.30	1.2618	0.9591	MCP	0.2713E-02	
		0.1460			0.1770	0.1800	650.78	1.3657	0.9537	HEXANE	-0.3034E-02	
6	61.20	0.6770	760.00	755.11	0.4020	0.3909	361.57	1.1845	0.9623	ETHANOL	0.2090E-02	0.4786E-02
		0.1120			0.1320	0.1354	398.73	2.1994	0.9642	BENZENE	-0.3369E-02	
		0.0850			0.1720	0.1645	522.74	2.6732	0.9602	MCP	0.7477E-02	
		0.1260			0.2940	0.3002	570.11	2.9976	0.9547	HEXANE	-0.6207E-02	
7	61.70	0.0680	760.00	760.66	0.2740	0.2772	369.53	8.0961	0.9671	ETHANOL	-0.3173E-02	0.1585E-02
		0.1140			0.0830	0.0826	405.64	1.3023	0.9617	BENZENE	0.3940E-03	
		0.6560			0.5030	0.5024	531.22	1.0457	0.9577	MCP	0.5942E-03	
		0.1620			0.1400	0.1378	579.30	1.0582	0.9521	HEXANE	0.2178E-02	
8	63.20	0.1530	760.00	759.28	0.2980	0.3043	394.28	3.6935	0.9666	ETHANOL	-0.6263E-02	0.3697E-02
		0.5160			0.3500	0.3434	426.96	1.1357	0.9628	BENZENE	0.6581E-02	
		0.1940			0.1830	0.1822	557.30	1.2980	0.9589	MCP	0.8106E-03	
		0.1470			0.1690	0.1701	607.52	1.3721	0.9534	HEXANE	-0.1134E-02	
9	60.90	0.5140	760.00	759.75	0.3700	0.3627	356.86	1.4439	0.9633	ETHANOL	0.7295E-02	0.4120E-02
		0.1900			0.1710	0.1701	394.62	1.7457	0.9630	BENZENE	0.9422E-03	
		0.1660			0.2310	0.2331	517.70	1.9681	0.9590	MCP	-0.2141E-02	
		0.1400			0.2280	0.2341	564.66	2.1343	0.9534	HEXANE	-0.6103E-02	
10	60.80	0.1540	760.00	758.16	0.3100	0.3113	355.31	4.1551	0.9653	ETHANOL	-0.1345E-02	0.1621E-02
		0.1800			0.1280	0.1262	393.26	1.2958	0.9621	BENZENE	0.1821E-02	
		0.5100			0.4170	0.4189	516.02	1.1512	0.9581	MCP	-0.1900E-02	
		0.1560			0.1450	0.1436	562.84	1.1748	0.9524	HEXANE	0.1417E-02	
11	59.40	0.5150	760.00	764.43	0.3610	0.3537	334.08	1.5095	0.9628	ETHANOL	0.7345E-02	0.4742E-02
		0.0790			0.0730	0.0746	374.59	1.8482	0.9619	BENZENE	-0.1638E-02	
		0.0760			0.0970	0.0949	493.05	1.8456	0.9579	MCP	0.2134E-02	
		0.3300			0.4690	0.4769	537.96	1.9451	0.9522	HEXANE	-0.7851E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
12	59.60	0.3650	760.00	762.86	0.3390	0.3384	337.04	2.0172	0.9636	ETHANOL	0.6463E-03	0.4817E-02
		0.1050			0.0840	0.0855	377.21	1.5776	0.9618	BENZENE	-0.1451E-02	
		0.2080			0.2010	0.2092	496.29	1.4741	0.9577	MCP	-0.8187E-02	
		0.3220			0.3760	0.3670	541.46	1.5211	0.9520	HEXANE	0.8982E-02	
13	60.20	0.2380	760.00	765.89	0.3300	0.3324	346.08	2.1055	0.9640	ETHANOL	-0.2364E-02	0.2123E-02
		0.2160			0.1680	0.1659	385.17	1.4640	0.9618	BENZENE	0.2076E-02	
		0.1010			0.1300	0.1019	506.08	1.4557	0.9577	MCP	-0.1896E-02	
		0.3470			0.4020	0.3998	552.08	1.5140	0.9520	HEXANE	0.2167E-02	
14	60.10	0.1650	760.00	765.19	0.3110	0.3149	344.56	4.0787	0.9647	ETHANOL	-0.3856E-02	0.4045E-02
		0.1160			0.0840	0.0827	383.83	1.3616	0.9614	BENZENE	0.1307E-02	
		0.3600			0.2820	0.2862	504.44	1.1496	0.9574	MCP	-0.4238E-02	
		0.3590			0.3230	0.3162	550.30	1.1597	0.9517	HEXANE	0.6779E-02	
15	60.50	0.1890	760.00	764.76	0.3060	0.3128	350.67	3.4749	0.9650	ETHANOL	-0.6788E-02	0.3392E-02
		0.2320			0.1610	0.1610	389.20	1.3064	0.9616	BENZENE	0.4190E-04	
		0.2180			0.1910	0.1843	511.04	1.2062	0.9575	MCP	0.6694E-02	
		0.3610			0.3420	0.3420	557.44	1.2307	0.9518	HEXANE	0.4381E-04	
16	61.30	0.1850	760.00	764.11	0.3040	0.3082	363.15	3.3767	0.9655	ETHANOL	-0.4185E-02	0.2091E-02
		0.3670			0.2490	0.2472	400.10	1.2332	0.9619	BENZENE	0.1762E-02	
		0.1000			0.0900	0.0896	524.42	1.2444	0.9578	MCP	0.4451E-03	
		0.3480			0.3570	0.3550	571.94	1.2912	0.9522	HEXANE	0.1971E-02	
17	62.60	0.0340	760.00	751.37	0.2160	0.2196	384.22	12.2332	0.9705	ETHANOL	-0.3629E-02	0.2632E-02
		0.0940			0.0710	0.0726	418.33	1.3302	0.9616	BENZENE	-0.1639E-02	
		0.5020			0.3950	0.3907	546.75	1.0199	0.9577	MCP	0.4323E-02	
		0.3700			0.3180	0.3171	596.11	1.0234	0.9522	HEXANE	0.9356E-03	
18	62.60	0.0520	760.00	764.68	0.2300	0.2409	384.22	8.9127	0.9690	ETHANOL	-0.1086E-01	0.5426E-02
		0.2260			0.1630	0.1604	418.33	1.2428	0.9613	BENZENE	0.2603E-02	
		0.3600			0.2970	0.2932	546.75	1.0485	0.9573	MCP	0.3832E-02	
		0.3620			0.3200	0.3156	596.11	1.0589	0.9517	HEXANE	0.4414E-02	
19	62.90	0.0630	760.00	762.61	0.2370	0.2441	389.23	7.3397	0.9691	ETHANOL	-0.7094E-02	0.4928E-02
		0.3660			0.2500	0.2481	422.63	1.1721	0.9615	BENZENE	0.1914E-02	
		0.2120			0.1830	0.1751	552.01	1.0877	0.9576	MCP	0.7939E-02	
		0.3590			0.3300	0.3328	601.80	1.1126	0.9520	HEXANE	-0.2776E-02	
20	64.50	0.0570	760.00	761.25	0.2160	0.2265	416.83	7.0264	0.9705	ETHANOL	-0.1048E-01	0.1211E-01
		0.5290			0.3520	0.3624	446.13	1.0999	0.9620	BENZENE	-0.1037E-01	
		0.0850			0.0740	0.0774	580.69	1.1383	0.9581	MCP	-0.3368E-02	
		0.3290			0.3580	0.3338	632.82	1.1940	0.9528	HEXANE	0.2421E-01	
21	59.10	0.3790	760.00	767.51	0.3430	0.3384	329.67	1.9979	0.9632	ETHANOL	0.4573E-02	0.4444E-02
		0.0790			0.0680	0.0652	370.68	1.6363	0.9613	BENZENE	0.2832E-02	
		0.0690			0.0610	0.0595	488.23	1.4860	0.9572	MCP	0.1497E-02	
		0.4820			0.5280	0.5369	532.74	1.5191	0.9515	HEXANE	-0.8883E-02	
22	59.30	0.2490	760.00	765.80	0.3280	0.3270	332.61	3.9073	0.9638	ETHANOL	0.1045E-02	0.1409E-02
		0.0930			0.0640	0.0622	373.28	1.4735	0.9613	BENZENE	0.1768E-02	
		0.1700			0.1420	0.1440	491.44	1.2582	0.9572	MCP	-0.2028E-02	
		0.4980			0.4660	0.4668	536.21	1.2672	0.9514	HEXANE	-0.7961E-03	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	TICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
23	59.70	0.2400	760.00	766.23	0.3190	0.3209	338.54	2.9111	0.9643	ETHANOL	-0.1853E-02	0.1815E-02
		0.1770			0.1260	0.1278	378.53	1.3999	0.9613	BENZENE	-0.1782E-02	
		0.0820			0.0710	0.0706	497.91	1.2632	0.9572	MCP	0.3739E-03	
		0.5010			0.4940	0.4907	543.22	1.2813	0.9515	HEXANE	0.3252E-02	
24	60.10	0.1170	760.00	768.87	0.3050	0.3021	344.56	5.5479	0.9651	ETHANOL	0.2916E-02	0.1460E-02
		0.0900			0.0630	0.0639	383.83	1.3618	0.9610	BENZENE	-0.8927E-03	
		0.2760			0.2070	0.2077	504.44	1.0929	0.9569	MCP	-0.7177E-03	
		0.5170			0.4250	0.4263	550.30	1.0902	0.9512	HEXANE	-0.1315E-02	
25	60.40	0.1180	760.00	765.75	0.2850	0.2942	349.13	5.2692	0.9657	ETHANOL	-0.9203E-02	0.4599E-02
		0.1880			0.1310	0.1292	387.85	1.2997	0.9611	BENZENE	0.1791E-02	
		0.1810			0.1410	0.1398	509.38	1.1063	0.9571	MCP	0.1214E-02	
		0.5130			0.4430	0.4368	555.65	1.1107	0.9514	HEXANE	0.6190E-02	
26	61.10	0.1120	760.00	762.62	0.2810	0.2831	359.99	5.1647	0.9667	ETHANOL	-0.2113E-02	0.7313E-02
		0.3210			0.2010	0.2135	397.35	1.2231	0.9614	BENZENE	-0.1252E-01	
		0.0780			0.0670	0.0629	521.05	1.1252	0.9574	MCP	0.4088E-02	
		0.4890			0.4510	0.4405	568.29	1.1445	0.9517	HEXANE	0.1053E-01	
27	64.20	0.0190	760.00	756.12	0.1810	0.1641	411.53	15.4203	0.9737	ETHANOL	0.1686E-01	0.3252E-01
		0.0690			0.0640	0.0566	441.65	1.3659	0.9614	BENZENE	0.7380E-02	
		0.3700			0.3400	0.3992	575.22	1.0135	0.9575	MCP	0.4079E-01	
		0.5430			0.4150	0.4800	626.91	1.0100	0.9520	HEXANE	-0.6503E-01	
28	63.20	0.0310	760.00	756.73	0.1960	0.1973	394.28	11.8401	0.9717	ETHANOL	-0.1257E-02	0.6038E-02
		0.1760			0.1290	0.1334	426.96	1.2873	0.9613	BENZENE	-0.4428E-02	
		0.2840			0.2190	0.2254	557.30	1.0273	0.9574	MCP	-0.6396E-02	
		0.5090			0.4560	0.4439	607.52	1.0289	0.9519	HEXANE	0.1207E-01	
29	63.20	0.0400	760.00	760.55	0.2080	0.2086	394.28	9.7449	0.9710	ETHANOL	-0.5821E-03	0.8859E-03
		0.2090			0.2070	0.2076	426.96	1.2213	0.9613	BENZENE	-0.5530E-03	
		0.1670			0.1340	0.1346	557.30	1.0488	0.9573	MCP	-0.6412E-03	
		0.5030			0.4510	0.4492	607.52	1.0588	0.9518	HEXANE	0.1767E-02	
30	64.50	0.0330	760.00	760.33	0.1800	0.1808	416.83	9.6993	0.9727	ETHANOL	-0.7913E-03	0.2653E-02
		0.4070			0.2950	0.2905	446.13	1.1657	0.9615	BENZENE	0.4488E-02	
		0.0670			0.0580	0.0572	580.69	1.0656	0.9576	MCP	0.8136E-03	
		0.4930			0.4670	0.4715	632.82	1.0886	0.9521	HEXANE	-0.4518E-02	
31	59.20	0.1570	760.00	770.19	0.3030	0.3139	331.14	4.4733	0.9642	ETHANOL	-0.1086E-01	0.5431E-02
		0.0590			0.0500	0.0426	371.98	1.4322	0.9607	BENZENE	0.7371E-02	
		0.0520			0.0410	0.0395	489.84	1.1383	0.9566	MCP	0.1475E-02	
		0.7320			0.6060	0.6040	534.48	1.1247	0.9508	HEXANE	0.2022E-02	
32	59.80	0.1070	760.00	775.32	0.2940	0.3001	340.04	6.1556	0.9649	ETHANOL	-0.6064E-02	0.3224E-02
		0.0450			0.0350	0.0325	379.95	1.4093	0.9604	BENZENE	0.2535E-02	
		0.1050			0.0810	0.0771	499.53	1.0849	0.9563	MCP	0.3907E-02	
		0.7430			0.5900	0.5904	544.98	1.0689	0.9505	HEXANE	-0.3882E-03	
33	62.10	0.0390	760.00	771.47	0.2230	0.2290	376.00	11.6499	0.9693	ETHANOL	-0.5968E-02	0.4745E-02
		0.0600			0.0450	0.0461	411.24	1.3795	0.9604	BENZENE	-0.1099E-02	
		0.1770			0.1310	0.1334	538.08	1.0292	0.9564	MCP	-0.2427E-02	
		0.7240			0.6010	0.5915	586.72	1.0161	0.9507	HEXANE	0.9484E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
34	65.20	0.0150	760.00	772.11	0.1290	0.1416	429.40	16.5056	0.9747	ETHANOL	-0.1259E-01	0.7614E-02
		0.0460			0.0370	0.0396	456.72	1.3950	0.9608	BENZENE	-0.2646E-02	
		0.2340			0.2000	0.1917	593.58	1.0154	0.9568	MCP	0.8259E-02	
		0.7050			0.6340	0.6270	646.75	1.0049	0.9513	HEXANE	0.6965E-02	
35	65.80	0.0100	760.00	755.13	0.1080	0.0994	440.42	16.6217	0.9776	ETHANOL	0.8613E-02	0.6020E-02
		0.1180			0.1020	0.1026	465.96	1.3511	0.9616	BENZENE	-0.6480E-03	
		0.1530			0.1340	0.1306	604.80	1.0162	0.9578	MCP	0.3431E-02	
		0.7190			0.6560	0.6674	658.88	1.0081	0.9524	HEXANE	-0.1139E-01	
36	62.20	0.0350	760.00	758.70	0.2210	0.2102	377.64	11.6900	0.9708	ETHANOL	0.1075E-01	0.6878E-02
		0.1230			0.0960	0.0936	412.66	1.3403	0.9609	BENZENE	0.2370E-02	
		0.1110			0.0860	0.0854	539.81	1.0299	0.9570	MCP	0.6391E-03	
		0.7310			0.5970	0.6108	588.59	1.0194	0.9514	HEXANE	-0.1375E-01	
37	60.10	0.0900	760.00	768.89	0.2770	0.2840	344.56	6.7863	0.9660	ETHANOL	-0.6958E-02	0.3547E-02
		0.1110			0.0850	0.0786	383.83	1.3579	0.9606	BENZENE	0.6399E-02	
		0.0570			0.0420	0.0421	504.44	1.0730	0.9565	MCP	-0.1322E-03	
		0.7420			0.5960	0.5953	550.30	1.0604	0.9508	HEXANE	0.7002E-03	
38	61.60	0.0840	760.00	799.93	0.2250	0.2779	367.93	6.9286	0.9656	ETHANOL	-0.5288E-01	0.2644E-01
		0.1560			0.1160	0.1090	404.25	1.3220	0.9595	BENZENE	0.6995E-02	
		0.0560			0.0430	0.0417	529.51	1.0701	0.9553	MCP	0.1290E-02	
		0.7040			0.6160	0.5714	577.45	1.0619	0.9495	HEXANE	0.4459E-01	
39	66.30	0.0150	760.00	791.59	0.0950	0.1232	449.78	14.6338	0.9750	ETHANOL	-0.3321E-01	0.1660E-01
		0.1630			0.1410	0.1344	473.77	1.3182	0.9601	BENZENE	0.6595E-02	
		0.1060			0.0920	0.0882	614.28	1.0207	0.9561	MCP	0.3796E-02	
		0.7160			0.6720	0.6492	669.12	1.0142	0.9505	HEXANE	0.2292E-01	
40	65.30	0.0160	760.00	766.35	0.1260	0.1287	431.22	13.9158	0.9755	ETHANOL	-0.2712E-02	0.2084E-02
		0.2100			0.1720	0.1693	458.25	1.2913	0.9610	BENZENE	0.2697E-02	
		0.0580			0.0470	0.0485	595.44	1.0246	0.9571	MCP	-0.1453E-02	
		0.7160			0.6550	0.6535	648.76	1.0208	0.9516	HEXANE	0.1476E-02	

ISO-OCTANE(1) - METHYCYCLOHEXANE(2) - TOLUENE(3) - PHENOL(4) SYSTEM 006

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
544.10	25.40	468.00	0.303	0.0	0.0	0.0	ISO-OCT	20
572.30	34.30	372.40	0.235	0.0	0.0	0.0	MECYCHEX	26
594.00	40.00	331.10	0.241	0.0	0.0	0.0	TOLUENE	33
692.20	60.50	229.50	0.449	0.241	1.450	0.0	PHENOL	32

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.68119E 01	0.12578E 04	0.22073E 03	ISO-OCT	0.1718E 03	-0.2380E 00	0.7310E-03
0.68269E 01	0.12729E 04	0.22163E 03	MECYCHEX	0.1131E 03	-0.3874E-01	0.3020E-03
0.69533E 01	0.13439E 04	0.21938E 03	TOLUENE	0.9886E 02	-0.5577E-01	0.2770E-03
0.75789E 01	0.18170E 04	0.20500E 03	PHENOL	0.8096E 02	-0.2085E-01	0.1480E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
746.05	-330.47	ISO-OCT - MECYCHEX	130	0
80.59	215.77	ISO-OCT - TOLUENE	132	0
327.16	2062.36	ISO-OCT - PHENOL	131	0
79.60	116.20	MECYCHEX - TOLUENE	172	0
-410.11	2474.05	MECYCHEX - PHENOL	171	0
170.49	627.79	TOLUENE - PHENOL	209	0

HALA CONSISTENCY TEST

CI(1)	-0.1300
CI(2)	5.8396
CI(3)	-2.9783

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.3078E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.2383E-01
COMPONENT 2	0.3713E-01
COMPONENT 3	0.2577E-01
COMPONENT 4	0.7558E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.2357E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	117.80	0.0300	760.00	771.49	0.1058	0.1173	1146.70	2.4970	0.9551	ISO-OCT	-0.1148E-01	0.3883E-01
		0.1288			0.3549	0.2813	1117.07	1.4455	0.9628	MECYCHEX	0.7362E-01	
		0.3510			0.4618	0.5280	883.20	1.2613	0.9635	TOLUENE	-0.6617E-01	
		0.4702			0.3775	0.0735	99.81	1.2464	0.9603	PHENOL	0.4036E-02	
2	118.30	0.0306	760.00	752.88	0.1283	0.1470	1160.37	2.9630	0.9564	ISO-OCT	-0.1868E-01	0.4508E-01
		0.1525			0.4600	0.3698	1130.67	1.5495	0.9638	MECYCHEX	0.9016E-01	
		0.2319			0.3340	0.3988	894.95	1.3904	0.9646	TOLUENE	-0.6478E-01	
		0.5850			0.1777	0.0844	90.60	1.1495	0.9616	PHENOL	-0.6701E-02	
3	123.80	0.0479	760.00	749.47	0.3216	0.2924	1318.35	3.3074	0.9585	ISO-OCT	0.2915E-01	0.2935E-01
		0.0183			0.0931	0.0536	1288.19	1.6370	0.9656	MECYCHEX	0.2954E-01	
		0.2535			0.4932	0.5370	1020.71	1.4830	0.9663	TOLUENE	-0.4379E-01	
		0.6803			0.1021	0.1170	112.43	1.1024	0.9643	PHENOL	-0.1490E-01	
4	106.10	0.0496	760.00	760.65	0.0785	0.0871	858.37	1.4709	0.9510	ISO-OCT	-0.8597E-02	0.5894E-02
		0.4312			0.5835	0.5746	831.54	1.1642	0.9594	MECYCHEX	0.8857E-02	
		0.3341			0.3070	0.3102	641.65	1.0527	0.9601	TOLUENE	-0.3195E-02	
		0.1851			0.0310	0.0281	54.61	2.0111	0.9549	PHENOL	0.2926E-02	
5	102.20	0.0772	760.00	752.90	0.0969	0.1102	775.14	1.3090	0.9497	ISO-OCT	-0.1330E-01	0.1477E-01
		0.6709			0.7494	0.7658	749.58	1.0935	0.9583	MECYCHEX	-0.1624E-01	
		0.1251			0.1148	0.1014	573.54	1.0164	0.9591	TOLUENE	0.1342E-01	
		0.1268			0.0389	0.0228	46.05	2.7910	0.9533	PHENOL	0.1613E-01	
6	115.60	0.0797	760.00	875.93	0.1982	0.2400	1087.89	2.2833	0.9481	ISO-OCT	-0.5185E-01	0.3659E-01
		0.2627			0.5263	0.4681	1058.64	1.4033	0.9570	MECYCHEX	0.5824E-01	
		0.1838			0.2115	0.2328	833.27	1.2362	0.9578	TOLUENE	-0.2132E-01	
		0.4688			0.0740	0.0591	81.27	1.2899	0.9533	PHENOL	0.1494E-01	
7	116.10	0.0354	760.00	773.09	0.2945	0.2852	1101.06	2.2245	0.9543	ISO-OCT	0.9270E-02	0.2032E-01
		0.0416			0.1125	0.0835	1071.72	1.3865	0.9622	MECYCHEX	0.2902E-01	
		0.4120			0.5220	0.5626	844.43	1.1994	0.9629	TOLUENE	-0.4064E-01	
		0.4610			0.0710	0.0687	82.94	1.3275	0.9592	PHENOL	0.2345E-02	
8	117.20	0.0892	760.00	764.27	0.4060	0.4229	1130.44	3.0430	0.9553	ISO-OCT	-0.1680E-01	0.3053E-01
		0.0784			0.2485	0.1874	1100.91	1.5911	0.9630	MECYCHEX	0.6106E-01	
		0.1756			0.2640	0.3022	869.37	1.4526	0.9637	TOLUENE	-0.3821E-01	
		0.6568			0.0815	0.0876	86.70	1.1252	0.9603	PHENOL	-0.6060E-02	
9	104.90	0.0953	760.00	759.99	0.1316	0.1400	832.10	1.2676	0.9505	ISO-OCT	-0.8397E-02	0.5316E-02
		0.3368			0.4816	0.4773	805.65	1.1113	0.9590	MECYCHEX	0.4268E-02	
		0.4108			0.3606	0.3628	620.07	1.0350	0.9597	TOLUENE	-0.2232E-02	
		0.1571			0.0262	0.0198	51.84	2.5820	0.9541	PHENOL	0.6368E-02	
10	116.70	0.1048	760.00	805.02	0.3710	0.3610	1117.02	2.2853	0.9527	ISO-OCT	0.1998E-01	0.3006E-01
		0.0513			0.1420	0.1019	1087.57	1.4054	0.9608	MECYCHEX	0.4015E-01	
		0.3481			0.4242	0.4763	857.97	1.2297	0.9616	TOLUENE	-0.5211E-01	
		0.4958			0.0628	0.0708	84.97	1.2920	0.9577	PHENOL	-0.8020E-02	
11	111.60	0.1209	760.00	814.30	0.3035	0.3586	986.50	2.3111	0.9500	ISO-OCT	-0.5510E-01	0.3567E-01
		0.2395			0.4895	0.4182	958.12	1.4215	0.9586	MECYCHEX	0.7135E-01	
		0.1370			0.1502	0.1663	747.96	1.2624	0.9594	TOLUENE	-0.1606E-01	
		0.5036			0.0568	0.0570	68.95	1.2717	0.9546	PHENOL	-0.1849E-03	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FUGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
12	112.00	0.1350	760.00	777.32	0.3898	0.4180	996.32	2.2870	0.9524	ISO-OCT	-0.2824E-01	0.2618E-01
		0.1270			0.2845	0.2337	967.85	1.4130	0.9606	MECYCHEX	0.5082E-01	
		0.2240			0.2620	0.2861	756.19	1.2575	0.9613	TOLUENE	-0.2412E-01	
		0.5140			0.0637	0.0622	70.10	1.2793	0.9569	PHENOL	0.1535E-02	
13	110.00	0.2036	760.00	818.31	0.4368	0.4768	947.89	1.9076	0.9490	ISO-OCT	-0.4003E-01	0.2554E-01
		0.1766			0.3133	0.2755	919.93	1.3236	0.9578	MECYCHEX	0.3777E-01	
		0.1823			0.1844	0.1955	715.76	1.1710	0.9595	TOLUENE	-0.1106E-01	
		0.4375			0.0655	0.0522	64.48	1.4390	0.9533	PHENOL	0.1332E-01	
14	110.00	0.2556	760.00	805.44	0.6775	0.6810	947.89	2.1369	0.9498	ISO-OCT	-0.3535E-02	0.1122E-01
		0.0559			0.1161	0.0937	919.93	1.3995	0.9585	MECYCHEX	0.2243E-01	
		0.1400			0.1515	0.1647	715.76	1.2646	0.9592	TOLUENE	-0.1317E-01	
		0.5485			0.0549	0.0606	64.48	1.3131	0.9540	PHENOL	-0.5732E-02	
15	100.60	0.3076	760.00	694.57	0.5017	0.5269	742.76	1.1685	0.9529	ISO-OCT	-0.2521E-01	0.1260E-01
		0.0713			0.0977	0.0920	717.76	1.0656	0.9611	MECYCHEX	0.1566E-01	
		0.4312			0.3760	0.3701	547.26	1.0440	0.9617	TOLUENE	0.5870E-02	
		0.0979			0.0246	0.0209	42.89	3.2978	0.9556	PHENOL	0.3679E-02	
16	107.20	0.4102	760.00	814.27	0.5836	0.6088	882.97	1.2891	0.9480	ISO-OCT	-0.2515E-01	0.1258E-01
		0.0395			0.0607	0.0486	855.81	1.1139	0.9570	MECYCHEX	0.1214E-01	
		0.3440			0.3157	0.3053	661.03	1.0414	0.9577	TOLUENE	0.1038E-01	
		0.2063			0.0400	0.0374	57.25	2.4440	0.9516	PHENOL	0.2625E-02	
17	101.70	0.7215	760.00	772.52	0.7830	0.8233	764.91	1.0861	0.9481	ISO-OCT	-0.4035E-01	0.2018E-01
		0.0555			0.0682	0.0584	739.53	1.0464	0.9572	MECYCHEX	0.9845E-02	
		0.1049			0.0973	0.0858	565.23	1.0664	0.9578	TOLUENE	0.1152E-01	
		0.1181			0.0515	0.0325	45.04	4.4759	0.9510	PHENOL	0.1899E-01	

ACETONE(1) - ACETONITRILE(2) - WATER(3) SYSTEM 007

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
508.70	46.60	213.50	0.309	0.187	2.880	0.0	ACETONE	2
547.90	47.70	173.10	0.321	0.152	3.940	0.0	ACN	3
647.40	218.30	55.20	0.344	0.010	1.850	0.0	WATER	34

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.70200E 01	0.11610E 04	0.22400E 03	ACETONE	0.5686E 02	0.8426E-02	0.1651E-03
0.70735E 01	0.12792E 04	0.22400E 03	ACN	0.4024E 02	0.1182E-01	0.1022E-03
0.79668E 01	0.16682E 04	0.22800E 03	WATER	0.2289E 02	-0.3642E-01	0.6856E-04

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-42.43	94.54	ACETONE - ACN	4	0
527.84	1439.95	ACETONE - WATER	17	0
470.51	1457.63	ACN - WATER	22	0

HALA CONSISTENCY TEST

CI(1) 0.8114

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.2092E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.1179E-01
COMPONENT 2	0.6636E-02
COMPONENT 3	0.1266E-01
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.1036E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	92.20	0.0025	759.00	783.32	0.0636	0.0741	2132.27	10.6208	0.9624	ACETONE	-0.1054E-01	0.1332E-01
		0.0168			0.1960	0.2055	1040.44	8.7420	0.9518	ACN	-0.9451E-02	
		0.9807			0.7404	0.7204	567.95	1.0019	0.9900	WATER	0.1998E-01	
2	84.80	0.0043	762.00	771.67	0.0905	0.0794	1752.48	7.7004	0.9562	ACETONE	0.1089E-02	0.1108E-01
		0.0507			0.3955	0.3800	835.43	6.6468	0.9621	ACN	0.1553E-01	
		0.9450			0.5240	0.5406	428.13	1.0136	0.9836	WATER	-0.1662E-01	
3	78.70	0.0084	757.00	736.27	0.0751	0.0907	1478.98	5.1049	0.9522	ACETONE	-0.1560E-01	0.1040E-01
		0.1050			0.4920	0.4758	691.26	4.6610	0.9676	ACN	0.6234E-02	
		0.8866			0.4429	0.4335	335.64	1.0490	0.9785	WATER	0.9367E-02	
4	84.00	0.0136	748.00	777.77	0.2330	0.2743	1714.64	8.8428	0.9692	ACETONE	-0.4133E-01	0.3035E-01
		0.0241			0.1970	0.2012	815.30	7.5279	0.9471	ACN	-0.4199E-02	
		0.9623			0.5700	0.5245	414.91	1.0075	0.9868	WATER	0.4553E-01	
5	76.80	0.0137	762.00	752.45	0.0755	0.0850	1400.68	3.1495	0.9470	ACETONE	-0.9548E-02	0.7071E-02
		0.1960			0.5440	0.5334	650.57	3.0459	0.9696	ACN	0.1061E-01	
		0.7903			0.3805	0.3816	310.51	1.1391	0.9742	WATER	-0.1058E-02	
6	76.60	0.0192	749.00	773.81	0.0756	0.0830	1392.62	2.2608	0.9440	ACETONE	-0.7393E-02	0.4929E-02
		0.2860			0.5620	0.5572	646.41	2.2576	0.9700	ACN	0.4818E-02	
		0.6948			0.3624	0.3598	307.95	1.2639	0.9719	WATER	0.2575E-02	
7	76.80	0.0198	770.00	799.81	0.0354	0.0428	1400.68	1.1476	0.9331	ACETONE	-0.7370E-02	0.4914E-02
		0.6810			0.6680	0.6644	650.57	1.1660	0.9742	ACN	0.3639E-02	
		0.2992			0.2966	0.2929	310.51	2.4268	0.9632	WATER	0.3733E-02	
8	80.00	0.0200	760.00	751.17	0.3140	0.3387	1534.40	8.0344	0.9717	ACETONE	-0.2472E-01	0.1648E-01
		0.0284			0.2010	0.2006	720.22	6.9564	0.9460	ACN	0.3719E-03	
		0.9516			0.4850	0.4606	353.80	1.0121	0.9853	WATER	0.2435E-01	
9	76.20	0.0258	759.00	782.27	0.0704	0.0784	1376.62	1.6217	0.9413	ACETONE	-0.8041E-02	0.1451E-01
		0.4190			0.5700	0.5837	638.13	1.6548	0.9709	ACN	-0.1372E-01	
		0.5552			0.3596	0.3378	302.91	1.5227	0.9696	WATER	0.2176E-01	
10	75.40	0.0364	755.00	777.60	0.0721	0.0775	1345.01	1.1506	0.9377	ACETONE	-0.5377E-02	0.4593E-02
		0.6610			0.6360	0.6375	621.92	1.1716	0.9734	ACN	-0.1511E-02	
		0.3026			0.2919	0.2850	293.01	2.4116	0.9654	WATER	0.6889E-02	
11	77.60	0.0429	762.00	791.77	0.0801	0.0867	1433.26	1.0341	0.9288	ACETONE	-0.6613E-02	0.1278E-01
		0.8834			0.7910	0.7718	667.47	1.0118	0.9783	ACN	0.1918E-01	
		0.0737			0.1289	0.1415	320.89	4.5142	0.9538	WATER	-0.1256E-01	
12	73.20	0.0638	760.00	786.79	0.4450	0.4723	1260.90	4.7051	0.9736	ACETONE	-0.2725E-01	0.1817E-01
		0.0532			0.2190	0.2039	578.66	4.4532	0.9369	ACN	0.1512E-01	
		0.8810			0.3360	0.3239	267.20	1.0593	0.9793	WATER	0.1214E-01	
13	74.20	0.0810	767.00	784.10	0.1430	0.1599	1298.63	1.1223	0.9445	ACETONE	-0.1687E-01	0.1476E-01
		0.6420			0.5750	0.5803	597.97	1.1470	0.9698	ACN	-0.5268E-02	
		0.2770			0.2820	0.2599	278.69	2.5532	0.9680	WATER	0.2214E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	75.00	0.0890	762.00	798.90	0.1560	0.1658	1329.42	1.0511	0.9415	ACETONE	-0.9833E-02	0.1299E-01
		0.7430			0.6130	0.6226	613.79	1.0575	0.9715	ACN	-0.9648E-02	
		0.1680			0.2310	0.2115	288.17	3.3630	0.9642	WATER	0.1948E-01	
15	75.50	0.0961	765.00	789.96	0.1720	0.1804	1348.93	1.0300	0.9394	ACETONE	-0.8446E-02	0.5631E-02
		0.8190			0.6850	0.6768	623.84	1.0172	0.9741	ACN	0.8205E-02	
		0.0849			0.1430	0.1428	294.24	4.3306	0.9599	WATER	0.2429E-03	
16	73.00	0.1110	764.00	777.17	0.1870	0.2120	1253.46	1.1213	0.9494	ACETONE	-0.2504E-01	0.1670E-01
		0.6110			0.5420	0.5338	574.85	1.1506	0.9670	ACN	0.3153E-02	
		0.2780			0.2710	0.2491	264.95	2.5476	0.9699	WATER	0.2189E-01	
17	73.00	0.1390	749.00	777.21	0.2380	0.2456	1253.46	1.0362	0.9486	ACETONE	-0.7579E-02	0.6037E-02
		0.7270			0.5980	0.5789	574.85	1.0409	0.9688	ACN	0.9055E-02	
		0.1340			0.1740	0.1755	264.95	3.7089	0.9662	WATER	-0.1477E-02	
18	67.90	0.1440	764.00	788.19	0.6280	0.6456	1074.60	3.2112	0.9793	ACETONE	-0.1764E-01	0.1176E-01
		0.0455			0.1060	0.0993	484.32	3.2498	0.9169	ACN	0.6703E-02	
		0.8105			0.2660	0.2551	212.75	1.1338	0.9731	WATER	0.1094E-01	
19	66.00	0.1620	771.00	749.33	0.6240	0.6493	1013.19	2.8968	0.9800	ACETONE	-0.2528E-01	0.1740E-01
		0.0540			0.1048	0.1056	453.64	2.9657	0.9198	ACN	-0.8134E-03	
		0.7840			0.2712	0.2451	195.67	1.1650	0.9736	WATER	0.2609E-01	
20	68.40	0.1830	763.00	783.23	0.5170	0.5414	1091.22	2.0639	0.9748	ACETONE	-0.2439E-01	0.1626E-01
		0.1410			0.2090	0.2061	492.66	2.1614	0.9320	ACN	0.2903E-02	
		0.6760			0.2740	0.2525	217.45	1.3116	0.9755	WATER	0.2149E-01	
21	71.20	0.1960	762.00	793.47	0.3160	0.3393	1187.94	1.1023	0.9588	ACETONE	-0.2233E-01	0.2072E-01
		0.5420			0.4330	0.4418	541.50	1.1413	0.9576	ACN	-0.8753E-02	
		0.2620			0.2510	0.2199	245.42	2.6361	0.9720	WATER	0.3108E-01	
22	71.20	0.2000	760.00	780.95	0.3340	0.3322	1187.94	1.0416	0.9567	ACETONE	0.1809E-02	0.2477E-02
		0.6400			0.4920	0.4901	541.50	1.0597	0.9615	ACN	0.1906E-02	
		0.1600			0.1740	0.1777	245.42	3.4245	0.9695	WATER	-0.3716E-02	
23	68.60	0.2680	763.00	770.21	0.4170	0.4275	1097.92	1.0774	0.9655	ACETONE	-0.1053E-01	0.1530E-01
		0.5010			0.3680	0.3804	496.03	1.1193	0.9513	ACN	-0.1242E-01	
		0.2310			0.2150	0.1921	219.36	2.8380	0.9728	WATER	0.2295E-01	
24	69.60	0.2840	760.00	794.05	0.4360	0.4358	1131.91	1.0346	0.9639	ACETONE	0.1879E-03	0.1727E-03
		0.5640			0.4070	0.4069	513.14	1.0607	0.9521	ACN	0.7135E-04	
		0.1520			0.1570	0.1573	229.09	3.4774	0.9704	WATER	-0.2587E-03	
25	65.40	0.3210	762.00	766.05	0.6070	0.6067	994.36	1.4188	0.9772	ACETONE	0.3210E-03	0.3279E-02
		0.1870			0.1740	0.1789	444.27	1.5254	0.9265	ACN	-0.4919E-02	
		0.4920			0.2190	0.2144	190.52	1.7040	0.9731	WATER	0.4598E-02	
26	67.60	0.3390	771.00	785.31	0.5000	0.5032	1064.72	1.0617	0.9696	ACETONE	-0.3248E-02	0.4622E-02
		0.4520			0.3210	0.3247	479.37	1.1075	0.9431	ACN	-0.3686E-02	
		0.2100			0.1790	0.1721	209.97	2.9764	0.9719	WATER	0.6933E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	67.50	0.3420	762.00	781.64	0.5080	0.5044	1061.44	1.0499	0.9695	ACETONE	0.3597E-02	0.2398E-02
		0.4690			0.3290	0.3321	477.73	1.0913	0.9439	ACN	-0.3087E-02	
		0.1890			0.1630	0.1635	209.05	3.1407	0.9716	WATER	-0.5110E-03	
28	63.20	0.3580	770.00	753.43	0.7110	0.7034	927.62	1.5609	0.9808	ACETONE	0.7556E-02	0.5037E-02
		0.0918			0.0990	0.0930	411.25	1.6915	0.9134	ACN	-0.3980E-02	
		0.5502			0.2000	0.2036	172.61	1.5657	0.9701	WATER	-0.3577E-02	
29	65.00	0.4480	769.00	780.44	0.6150	0.6145	981.07	1.0606	0.9756	ACETONE	0.4724E-03	0.3694E-02
		0.3420			0.2260	0.2315	438.12	1.1187	0.9296	ACN	-0.5540E-02	
		0.2100			0.1590	0.1539	187.15	2.9638	0.9703	WATER	0.5068E-02	
30	64.30	0.4900	769.00	790.97	0.6660	0.6623	960.54	1.0850	0.9777	ACETONE	0.3712E-02	0.3054E-02
		0.2640			0.1750	0.1796	427.51	1.1567	0.9210	ACN	-0.4580E-02	
		0.2460			0.1590	0.1581	181.38	2.7143	0.9690	WATER	0.8692E-03	

ACETONE(1) - CARBON TETRACHLORIDE(2) - BENZENE(3) SYSTEM 008

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
508.70	46.60	213.50	0.309	0.187	2.880	0.0	ACETONE	2
556.40	45.00	279.60	0.193	0.0	0.0	0.0	CCL4	6
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.70200E 01	0.11610E 04	0.22400E 03	ACETONE	0.5686E 02	0.8426E-02	0.1651E-03
0.69339E 01	0.12424E 04	0.23000E 03	CCL4	0.6194E 02	-0.2998E 00	0.1676E-02
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
946.78	-239.66	ACETONE - CCL4	6	0
551.31	-224.06	ACETONE - BENZENE	5	0
-64.59	170.42	CCL4 - BENZENE	47	0

HALA CONSISTENCY TEST

CI(1) 0.7743

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.1027E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.6412E-02
COMPONENT 2	0.6069E-02
COMPONENT 3	0.3704E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.5395E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	57.40	0.7840	760.00	762.07	0.8260	0.8239	768.08	1.0220	0.9830	ACETONE	0.2065E-02	0.1617E-02
		0.1360			0.1260	0.1284	397.63	1.7077	0.9487	CCL4	-0.2425E-02	
		0.0800			0.0480	0.0476	349.12	1.2300	0.9495	BENZENE	0.3591E-03	
2	57.40	0.8150	760.00	762.20	0.8540	0.8501	768.08	1.0146	0.9831	ACETONE	0.3900E-02	0.3307E-02
		0.1010			0.0940	0.0990	397.63	1.7713	0.9482	CCL4	-0.4965E-02	
		0.0840			0.0520	0.0509	349.12	1.2522	0.9490	BENZENE	0.1055E-02	
3	57.40	0.8570	760.00	763.94	0.8860	0.8858	768.08	1.0077	0.9831	ACETONE	0.1861E-03	0.1711E-02
		0.0630			0.0620	0.0646	397.63	1.8551	0.9473	CCL4	-0.2570E-02	
		0.0800			0.0520	0.0496	349.12	1.2823	0.9482	BENZENE	0.2376E-02	
4	57.50	0.7420	760.00	761.40	0.7950	0.7923	770.64	1.0340	0.9829	ACETONE	0.2673E-02	0.1782E-02
		0.1770			0.1600	0.1603	398.99	1.6322	0.9494	CCL4	-0.3235E-03	
		0.0810			0.0450	0.0473	350.36	1.2030	0.9502	BENZENE	-0.2350E-02	
5	57.70	0.7130	760.00	763.79	0.7720	0.7716	775.78	1.0441	0.9827	ACETONE	0.3774E-03	0.5479E-03
		0.2060			0.1820	0.1816	401.70	1.5829	0.9497	CCL4	0.4444E-03	
		0.0810			0.0460	0.0468	352.85	1.1852	0.9505	BENZENE	-0.8218E-03	
6	58.00	0.6740	760.00	768.61	0.7480	0.7444	783.53	1.0614	0.9825	ACETONE	0.3629E-02	0.2419E-02
		0.2520			0.2100	0.2135	405.80	1.5164	0.9500	CCL4	-0.3521E-02	
		0.0740			0.0420	0.0421	356.61	1.1621	0.9508	BENZENE	-0.1083E-03	
7	58.30	0.6100	760.00	766.58	0.7250	0.7049	791.33	1.0951	0.9823	ACETONE	0.2100E-01	0.1400E-01
		0.3170			0.2350	0.2551	409.93	1.4236	0.9510	CCL4	-0.2013E-01	
		0.0730			0.0400	0.0400	360.41	1.1296	0.9518	BENZENE	-0.8740E-03	
8	58.30	0.6310	760.00	770.21	0.7320	0.7169	791.33	1.0831	0.9823	ACETONE	0.1512E-01	0.1008E-01
		0.2960			0.2280	0.2421	409.93	1.4525	0.9506	CCL4	-0.1406E-01	
		0.0730			0.0400	0.0411	360.41	1.1396	0.9514	BENZENE	-0.1061E-02	
9	58.50	0.5400	760.00	766.95	0.6820	0.6613	796.58	1.1546	0.9820	ACETONE	0.2066E-01	0.1377E-01
		0.4310			0.3030	0.3228	412.70	1.3175	0.9518	CCL4	-0.1978E-01	
		0.0290			0.0150	0.0159	362.95	1.0976	0.9526	BENZENE	-0.8686E-03	
10	59.00	0.4950	760.00	769.86	0.6600	0.6361	809.80	1.1961	0.9818	ACETONE	0.2386E-01	0.1591E-01
		0.4810			0.3270	0.3507	419.70	1.2667	0.9522	CCL4	-0.2375E-01	
		0.0240			0.0130	0.0131	369.38	1.0815	0.9530	BENZENE	-0.1130E-03	
11	59.40	0.6240	760.00	765.12	0.7230	0.7261	820.49	1.0632	0.9827	ACETONE	-0.3084E-02	0.2848E-02
		0.1700			0.1560	0.1517	425.36	1.5189	0.9513	CCL4	0.4272E-02	
		0.2060			0.1210	0.1222	374.59	1.1495	0.9521	BENZENE	-0.1188E-02	
12	59.50	0.4460	760.00	768.74	0.6100	0.6086	823.18	1.2474	0.9817	ACETONE	0.1414E-02	0.1128E-02
		0.5290			0.3760	0.3777	426.79	1.2188	0.9529	CCL4	-0.1693E-02	
		0.0250			0.0140	0.0137	375.39	1.0669	0.9537	BENZENE	0.2780E-03	
13	59.50	0.4500	760.00	769.56	0.6240	0.6198	823.18	1.2422	0.9817	ACETONE	0.1318E-01	0.9573E-02
		0.5230			0.3600	0.3744	426.79	1.2231	0.9529	CCL4	-0.1436E-01	
		0.0270			0.0160	0.0148	375.89	1.0680	0.9537	BENZENE	0.1180E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	59.60	0.4850	760.00	753.49	0.6400	0.6318	825.88	1.1642	0.9823	ACETONE	0.8170E-02	0.5447E-02
		0.3500			0.2660	0.2742	428.21	1.3073	0.9536	CCL4	-0.8153E-02	
		0.1650			0.0940	0.0940	377.21	1.0826	0.9544	BENZENE	-0.1830E-04	
15	60.10	0.5600	760.00	763.84	0.6740	0.6852	839.47	1.0908	0.9826	ACETONE	-0.1119E-01	0.7459E-02
		0.1960			0.1760	0.1702	435.41	1.4433	0.9524	CCL4	0.5758E-02	
		0.2440			0.1500	0.1446	383.83	1.1200	0.9532	BENZENE	0.5430E-02	
16	60.60	0.4530	760.00	759.97	0.6200	0.6125	853.23	1.1794	0.9821	ACETONE	0.7507E-02	0.5005E-02
		0.3320			0.2600	0.2629	442.71	1.2899	0.9539	CCL4	-0.2936E-02	
		0.2150			0.1200	0.1246	390.55	1.0728	0.9547	BENZENE	-0.4571E-02	
17	61.30	0.3070	760.00	757.10	0.5120	0.5208	872.79	1.4400	0.9814	ACETONE	-0.8780E-02	0.5853E-02
		0.6420			0.4580	0.4498	453.07	1.1128	0.9556	CCL4	0.8181E-02	
		0.0510			0.0300	0.0294	400.10	1.0399	0.9564	BENZENE	0.5978E-03	
18	61.60	0.4510	760.00	764.67	0.6040	0.6137	881.28	1.1563	0.9822	ACETONE	-0.9658E-02	0.6439E-02
		0.2440			0.2100	0.2040	457.57	1.3256	0.9541	CCL4	0.6029E-02	
		0.3050			0.1860	0.1824	404.25	1.0764	0.9549	BENZENE	0.3628E-02	
19	61.60	0.4160	760.00	761.22	0.5980	0.5898	881.28	1.1971	0.9821	ACETONE	0.9238E-02	0.6159E-02
		0.3060			0.2420	0.2465	457.57	1.2725	0.9547	CCL4	-0.4515E-02	
		0.2780			0.1600	0.1647	404.25	1.0624	0.9555	BENZENE	-0.4723E-02	
20	61.80	0.2920	760.00	762.02	0.5080	0.5097	886.97	1.4674	0.9812	ACETONE	-0.1734E-02	0.1155E-02
		0.6550			0.4600	0.4594	460.59	1.1031	0.9557	CCL4	0.5600E-03	
		0.0530			0.0320	0.0308	407.04	1.0380	0.9565	BENZENE	0.1173E-02	
21	62.40	0.3890	760.00	761.25	0.5720	0.5703	904.22	1.2087	0.9820	ACETONE	0.1657E-02	0.1105E-02
		0.2790			0.2280	0.2289	469.75	1.2632	0.9553	CCL4	-0.9083E-03	
		0.3320			0.2000	0.2007	415.48	1.0556	0.9561	BENZENE	-0.7494E-03	
22	62.80	0.2450	760.00	760.20	0.4640	0.4720	915.86	1.5643	0.9810	ACETONE	-0.8011E-02	0.5340E-02
		0.6980			0.5000	0.4937	475.93	1.0751	0.9567	CCL4	0.6263E-02	
		0.0570			0.0360	0.0343	421.19	1.0350	0.9575	BENZENE	0.1747E-02	
23	63.00	0.4700	760.00	770.54	0.6320	0.6368	921.73	1.1097	0.9825	ACETONE	-0.4815E-02	0.4458E-02
		0.0910			0.0930	0.0949	479.04	1.4234	0.9541	CCL4	-0.1872E-02	
		0.4390			0.2850	0.2783	424.06	1.0962	0.9549	BENZENE	0.6687E-02	
24	63.10	0.3670	760.00	762.30	0.5500	0.5544	924.67	1.2195	0.9819	ACETONE	-0.4421E-02	0.2947E-02
		0.2590			0.2200	0.2156	480.60	1.2550	0.9557	CCL4	0.4406E-02	
		0.3740			0.2300	0.2300	425.51	1.0502	0.9565	BENZENE	0.1383E-04	
25	63.10	0.3340	760.00	766.66	0.5650	0.5673	924.67	1.1994	0.9820	ACETONE	-0.2304E-02	0.2263E-02
		0.2370			0.2030	0.1996	480.60	1.2765	0.9553	CCL4	0.3395E-02	
		0.3790			0.2320	0.2331	425.51	1.0559	0.9561	BENZENE	-0.1091E-02	
26	64.00	0.2850	760.00	745.92	0.4480	0.4892	951.48	1.3149	0.9818	ACETONE	-0.2652E-03	0.5966E-02
		0.3100			0.2640	0.2551	494.94	1.1816	0.9579	CCL4	0.8948E-02	
		0.4050			0.2480	0.2567	438.67	1.0297	0.9586	BENZENE	-0.8684E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	64.10	0.1840	760.00	748.72	0.4170	0.4124	954.49	1.7194	0.9808	ACETONE	-0.5384E-02	0.3588E-02
		0.7570			0.5550	0.5509	496.44	1.0447	0.9585	CCL4	0.4971E-02	
		0.0590			0.0380	0.0376	440.16	1.0362	0.9593	BENZENE	0.4098E-03	
28	64.20	0.3130	760.00	754.55	0.5240	0.5115	957.52	1.2610	0.9819	ACETONE	0.1245E-01	0.1041E-01
		0.2440			0.2100	0.2068	498.05	1.2227	0.9572	CCL4	0.3159E-02	
		0.4430			0.2660	0.2816	441.65	1.0370	0.9580	BENZENE	-0.1561E-01	
29	64.40	0.2740	760.00	772.79	0.4910	0.4823	963.58	1.3809	0.9811	ACETONE	-0.1256E-02	0.1790E-02
		0.4300			0.3370	0.3343	501.27	1.1402	0.9566	CCL4	0.2685E-02	
		0.2960			0.1820	0.1834	444.63	1.0276	0.9574	BENZENE	-0.1429E-02	
30	64.90	0.2340	760.00	768.21	0.4410	0.4480	978.88	1.4696	0.9809	ACETONE	-0.7008E-02	0.4751E-02
		0.4990			0.3900	0.3829	509.40	1.1039	0.9574	CCL4	0.7126E-02	
		0.2680			0.1690	0.1691	452.16	1.0238	0.9582	BENZENE	-0.1187E-03	
31	65.10	0.2880	760.00	759.07	0.4900	0.4996	985.05	1.2823	0.9817	ACETONE	-0.9567E-02	0.6378E-02
		0.2360			0.2100	0.2022	512.68	1.2082	0.9576	CCL4	0.7778E-02	
		0.4760			0.3100	0.3082	455.20	1.0313	0.9584	BENZENE	0.1789E-02	
32	65.80	0.1410	760.00	750.18	0.3460	0.3583	1006.88	1.8508	0.9803	ACETONE	-0.1230E-01	0.8520E-02
		0.7990			0.6140	0.6012	524.29	1.0276	0.9596	CCL4	0.1278E-01	
		0.0600			0.0400	0.0405	465.96	1.0398	0.9604	BENZENE	-0.4847E-03	
33	68.40	0.0810	760.00	736.36	0.2480	0.2539	1091.22	2.0661	0.9795	ACETONE	-0.5883E-02	0.3920E-02
		0.8530			0.7000	0.6964	569.20	1.0106	0.9621	CCL4	0.3644E-02	
		0.0660			0.0520	0.0498	507.67	1.0496	0.9628	BENZENE	0.2234E-02	
34	71.00	0.0390	760.00	723.70	0.1480	0.1464	1180.83	2.2449	0.9786	ACETONE	0.1630E-02	0.1085E-02
		0.8940			0.7960	0.7973	616.98	1.0033	0.9642	CCL4	-0.1310E-02	
		0.0670			0.0560	0.0563	552.21	1.0595	0.9649	BENZENE	-0.3138E-03	
35	71.00	0.0810	760.00	742.86	0.2220	0.2252	1180.83	1.7086	0.9794	ACETONE	-0.3240E-02	0.1249E-01
		0.4250			0.4060	0.3873	616.98	1.0506	0.9629	CCL4	0.1874E-01	
		0.4940			0.3720	0.3875	552.21	1.0135	0.9636	BENZENE	-0.1550E-01	
36	71.70	0.0840	760.00	728.03	0.2100	0.2210	1205.98	1.5523	0.9799	ACETONE	-0.1100E-01	0.9983E-02
		0.2060			0.2000	0.2040	630.36	1.0965	0.9639	CCL4	-0.3982E-02	
		0.7100			0.5900	0.5750	564.70	1.0040	0.9647	BENZENE	0.1497E-01	
37	72.30	0.0600	760.00	737.82	0.1680	0.1771	1227.66	1.7318	0.9790	ACETONE	-0.9094E-02	0.6690E-02
		0.3910			0.3320	0.3720	641.99	1.0480	0.9638	CCL4	0.1003E-01	
		0.5490			0.4500	0.4509	575.58	1.0123	0.9645	BENZENE	-0.9432E-03	
38	73.50	0.0520	760.00	766.62	0.1680	0.1621	1272.14	1.8326	0.9781	ACETONE	0.5871E-02	0.5432E-02
		0.4960			0.4660	0.4637	665.76	1.0307	0.9629	CCL4	0.2277E-02	
		0.4520			0.3660	0.3741	597.81	1.0195	0.9637	BENZENE	-0.8149E-02	
39	73.50	0.0570	760.00	821.89	0.2100	0.1975	1272.14	2.1807	0.9772	ACETONE	0.1252E-01	0.1102E-01
		0.9130			0.7620	0.7785	665.76	1.0045	0.9600	CCL4	-0.1652E-01	
		0.0300			0.0280	0.0240	597.81	1.0526	0.9609	BENZENE	0.4010E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	74.10	0.0570	760.00	742.81	0.1580	0.1614	1294.81	1.5860	0.9789	ACETONE	-0.3423E-02	0.5887E-02
		0.1790			0.1900	0.1954	677.80	1.0984	0.9642	CCL4	-0.5410E-02	
		0.7640			0.6620	0.6532	609.18	1.0027	0.9650	BENZENE	0.8829E-02	
41	74.60	0.0330	760.00	752.50	0.1050	0.1096	1313.95	1.8377	0.9778	ACETONE	-0.3598E-02	0.3633E-02
		0.4410			0.4320	0.4339	688.12	1.0315	0.9641	CCL4	-0.1853E-02	
		0.5260			0.4630	0.4576	618.78	1.0173	0.9649	BENZENE	0.5448E-02	
42	74.70	0.0380	760.00	748.83	0.1100	0.1186	1317.81	1.7292	0.9781	ACETONE	-0.8558E-02	0.5704E-02
		0.3210			0.3280	0.3240	690.18	1.0502	0.9643	CCL4	0.3998E-02	
		0.6410			0.5620	0.5574	620.71	1.0092	0.9650	BENZENE	0.4557E-02	
43	75.00	0.0520	760.00	777.80	0.1480	0.1540	1329.42	1.6899	0.9779	ACETONE	-0.6026E-02	0.4017E-02
		0.3140			0.3140	0.3101	696.39	1.0559	0.9629	CCL4	0.3946E-02	
		0.6340			0.5380	0.5359	626.53	1.0079	0.9637	BENZENE	0.2079E-02	
44	75.20	0.0360	760.00	752.08	0.1040	0.1119	1337.19	1.7054	0.9780	ACETONE	-0.7928E-02	0.6080E-02
		0.2840			0.2900	0.2912	700.56	1.0556	0.9643	CCL4	-0.1194E-02	
		0.6800			0.6060	0.5969	630.44	1.0072	0.9651	BENZENE	0.9119E-02	
45	75.30	0.0440	760.00	747.18	0.1220	0.1290	1341.09	1.5942	0.9784	ACETONE	-0.7030E-02	0.4686E-02
		0.1530			0.1640	0.1632	702.64	1.0879	0.9645	CCL4	0.8109E-03	
		0.8030			0.7140	0.7078	632.40	1.0020	0.9653	BENZENE	0.6217E-02	
46	75.30	0.0520	760.00	777.25	0.1450	0.1521	1341.09	1.6528	0.9780	ACETONE	-0.7067E-02	0.8394E-02
		0.2630			0.2590	0.2645	702.64	1.0653	0.9630	CCL4	-0.5525E-02	
		0.6850			0.5960	0.5834	632.40	1.0055	0.9638	BENZENE	0.1259E-01	
47	75.50	0.0310	760.00	762.47	0.0900	0.1007	1348.93	1.7902	0.9775	ACETONE	-0.1073E-01	0.9576E-02
		0.3780			0.3940	0.3796	706.84	1.0384	0.9640	CCL4	0.1436E-01	
		0.5910			0.5160	0.5196	636.34	1.0130	0.9647	BENZENE	-0.3639E-02	
48	75.60	0.0310	760.00	748.68	0.0910	0.0973	1352.86	1.6936	0.9779	ACETONE	-0.6287E-02	0.5884E-02
		0.2530			0.2620	0.2645	708.94	1.0593	0.9647	CCL4	-0.2540E-02	
		0.7160			0.6470	0.6382	638.31	1.0059	0.9654	BENZENE	0.8824E-02	
49	76.10	0.0430	760.00	773.72	0.1280	0.1279	1372.63	1.6344	0.9778	ACETONE	0.1307E-03	0.1716E-02
		0.2100			0.2160	0.2186	719.53	1.0723	0.9636	CCL4	-0.2573E-02	
		0.7470			0.6560	0.6536	648.26	1.0036	0.9644	BENZENE	0.2442E-02	
50	76.60	0.0390	760.00	772.57	0.1200	0.1164	1392.62	1.6139	0.9777	ACETONE	0.3626E-02	0.3769E-02
		0.1690			0.1820	0.1800	730.23	1.0797	0.9638	CCL4	0.2027E-02	
		0.7920			0.6980	0.7037	659.32	1.0024	0.9646	BENZENE	-0.5654E-02	
51	76.80	0.0210	760.00	759.06	0.0650	0.0682	1400.68	1.7160	0.9772	ACETONE	-0.3233E-02	0.7254E-02
		0.2530			0.2900	0.2691	734.55	1.0544	0.9646	CCL4	0.1088E-01	
		0.7260			0.6550	0.6626	662.37	1.0064	0.9654	BENZENE	-0.7649E-02	
52	78.30	0.0240	760.00	762.35	0.0720	0.0729	1462.22	1.5457	0.9775	ACETONE	-0.9433E-03	0.7667E-03
		0.0230			0.0280	0.0269	767.53	1.1133	0.9650	CCL4	0.1149E-02	
		0.9530			0.9000	0.9002	693.42	1.0002	0.9657	BENZENE	-0.2074E-03	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
53	78.40	0.0130	760.00	769.18	0.0520	0.0567	1466.40	1.6105	0.9771	ACETONE	-0.4723E-02	0.6315E-02
		0.1020			0.1250	0.1155	769.77	1.0856	0.9647	CCL4	0.9472E-02	
		0.8800			0.8230	0.8277	695.53	1.0010	0.9655	BENZENE	-0.4750E-02	
54	79.40	0.0090	760.00	772.00	0.0280	0.0290	1508.63	1.6077	0.9766	ACETONE	-0.1034E-02	0.3439E-02
		0.0720			0.0830	0.0839	792.41	1.0884	0.9650	CCL4	0.5158E-02	
		0.9190			0.8930	0.8971	716.88	1.0006	0.9657	BENZENE	-0.4125E-02	
55	79.40	0.0160	760.00	774.55	0.0520	0.0498	1508.63	1.5561	0.9770	ACETONE	0.2222E-02	0.1481E-02
		0.0170			0.0190	0.0201	792.41	1.1091	0.9648	CCL4	-0.1110E-02	
		0.9670			0.9290	0.9301	716.88	1.0001	0.9656	BENZENE	-0.1112E-02	
56	79.50	0.0060	760.00	769.09	0.0190	0.0196	1512.91	1.6148	0.9766	ACETONE	-0.5722E-03	0.3054E-02
		0.0730			0.0900	0.0854	794.71	1.0866	0.9651	CCL4	0.4581E-02	
		0.9210			0.8910	0.8950	719.04	1.0006	0.9659	BENZENE	-0.4010E-02	
57	79.70	0.0160	760.00	781.72	0.0520	0.0497	1521.48	1.5556	0.9768	ACETONE	0.2266E-02	0.1511E-02
		0.0170			0.0200	0.0201	799.31	1.1085	0.9646	CCL4	-0.9259E-04	
		0.9670			0.9280	0.9302	723.38	1.0001	0.9654	BENZENE	-0.2173E-02	

ACETONE(1) - CHLOROFORM(2) - DIMETHYLBUTANE(3) SYSTEM 009

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
508.70	46.60	213.50	0.309	0.187	2.880	0.0	ACETONE	2
536.60	54.00	276.00	0.214	0.187	1.020	0.28	CHLOROFRM	8
500.30	31.00	358.00	0.247	0.0	0.0	0.0	DMB	35

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.70200E 01	0.11610E 04	0.22400E 03	ACETONE	0.5086E 02	0.8426E-02	0.1651E-03
0.69033E 01	0.11630E 04	0.22740E 03	CHLOROFRM	0.6107E 02	0.3026E-01	0.1191E-03
0.68098E 01	0.11272E 04	0.22890E 03	DMB	0.1116E 03	-0.5198E-01	0.3944E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

		BINARY ID NUMBERS	ORDER
-34.50	-372.95	ACETONE = CHLOROFRM	7	0
958.07	246.21	ACETONE - DMB	68	0
295.64	34.78	CHLOROFRM - DMB	69	1

HALA CONSISTENCY TEST

CI(1) 1.1878

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.5538E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.6996E-02
COMPONENT 2	0.4691E-02
COMPONENT 3	0.5410E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.5699E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	55.50	0.7780	760.07	751.84	0.7600	0.7542	720.74	0.9910	0.9828	ACETONE	0.5833E-02	0.3888E-02
		0.1750			0.0900	0.0902	600.12	0.6244	0.9695	CHLOREFM	-0.2354E-03	
		0.0470			0.1500	0.1556	668.64	3.5037	0.9460	DMB	-0.5597E-02	
2	52.90	0.2630	760.05	773.16	0.2910	0.2996	659.65	1.3011	0.9775	ACETONE	-0.8560E-02	0.5705E-02
		0.2960			0.1880	0.1857	550.67	0.8497	0.9679	CHLOREFM	0.2335E-02	
		0.4410			0.5210	0.5148	616.40	1.3828	0.9494	DMB	0.6222E-02	
3	52.30	0.1810	759.99	768.01	0.2540	0.2596	646.15	1.6599	0.9764	ACETONE	-0.5620E-02	0.4509E-02
		0.2260			0.1530	0.1541	539.73	0.9368	0.9682	CHLOREFM	-0.1147E-02	
		0.5930			0.5930	0.5862	604.79	1.1862	0.9498	DMB	0.6761E-02	
4	55.70	0.1530	760.06	768.97	0.1530	0.1638	725.61	1.1061	0.9780	ACETONE	-0.1076E-01	0.7169E-02
		0.4650			0.3720	0.3626	604.06	0.9569	0.9670	CHLOREFM	0.9374E-02	
		0.3820			0.4750	0.4736	672.78	1.3427	0.9524	DMB	0.1378E-02	
5	61.10	0.2200	760.02	755.26	0.1790	0.1865	867.16	0.7246	0.9841	ACETONE	-0.7518E-02	0.8271E-02
		0.7100			0.6700	0.6576	718.17	0.9397	0.9677	CHLOREFM	0.1241E-01	
		0.0700			0.1510	0.1559	792.29	2.0200	0.9563	DMB	-0.4889E-02	
6	54.00	0.3310	760.04	769.36	0.3280	0.3296	684.99	1.0915	0.9787	ACETONE	-0.1598E-02	0.2313E-02
		0.3640			0.2310	0.2275	571.20	0.8124	0.9680	CHLOREFM	0.3468E-02	
		0.3050			0.4410	0.4429	638.11	1.6543	0.9498	DMB	-0.1872E-02	
7	58.60	0.5780	759.92	753.36	0.5930	0.5845	799.20	0.9344	0.9831	ACETONE	0.8522E-02	0.5682E-02
		0.3680			0.2480	0.2508	663.46	0.7479	0.9693	CHLOREFM	-0.2816E-02	
		0.0540			0.1590	0.1647	735.15	2.9534	0.9496	DMB	-0.5707E-02	
8	57.90	0.3790	760.00	763.98	0.3540	0.3569	780.94	0.9015	0.9815	ACETONE	-0.2865E-02	0.6565E-02
		0.4880			0.3670	0.3572	648.73	0.8319	0.9682	CHLOREFM	0.9848E-02	
		0.1330			0.2790	0.2860	719.72	2.1612	0.9517	DMB	-0.6983E-02	
9	53.80	0.0520	760.05	757.78	0.1420	0.1400	680.32	2.9122	0.9741	ACETONE	0.2029E-02	0.1350E-02
		0.0980			0.0920	0.0924	567.42	1.2174	0.9694	CHLOREFM	-0.4447E-03	
		0.8500			0.7660	0.7676	634.12	1.0222	0.9521	DMB	-0.1577E-02	
10	56.00	0.0370	760.00	759.30	0.0390	0.0446	732.97	1.2143	0.9773	ACETONE	-0.5566E-02	0.6605E-02
		0.4850			0.4490	0.4391	610.01	1.0843	0.9665	CHLOREFM	0.9905E-02	
		0.4780			0.5120	0.5163	679.05	1.1453	0.9543	DMB	-0.4345E-02	
11	56.10	0.0380	760.06	758.87	0.0410	0.0443	735.44	1.1728	0.9775	ACETONE	-0.3312E-02	0.2206E-02
		0.5010			0.4550	0.4518	612.00	1.0773	0.9664	CHLOREFM	0.3197E-02	
		0.4610			0.5040	0.5039	681.14	1.1563	0.9543	DMB	0.1084E-03	
12	58.20	0.1870	760.05	762.05	0.1510	0.1637	788.73	0.8272	0.9810	ACETONE	-0.1267E-01	0.8445E-02
		0.6250			0.5270	0.5213	655.01	0.9354	0.9670	CHLOREFM	0.5740E-02	
		0.1880			0.3220	0.3151	726.31	1.6697	0.9544	DMB	0.6926E-02	
13	47.90	0.5630	760.09	754.90	0.5160	0.5128	553.58	1.2016	0.9788	ACETONE	0.3157E-02	0.2106E-02
		0.0950			0.0340	0.0362	464.49	0.5975	0.9689	CHLOREFM	-0.2163E-02	
		0.3370			0.4500	0.4510	524.63	1.8119	0.9457	DMB	-0.9992E-03	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	52.30	0.1370	760.01	765.11	0.2290	0.2333	646.15	1.9619	0.9758	ACETONE	-0.4298E-02	0.3295E-02
		0.1830			0.1340	0.1346	539.73	1.2070	0.9685	CHLORFRM	-0.6483E-03	
		0.6800			0.6370	0.6321	604.79	1.1116	0.9502	DMB	0.4938E-02	
15	62.30	0.5370	760.07	751.00	0.5910	0.5825	901.32	0.3874	0.9846	ACETONE	0.8490E-02	0.5660E-02
		0.4500			0.3650	0.3710	745.63	0.8024	0.9693	CHLORFRM	-0.5985E-02	
		0.0130			0.0440	0.0465	820.83	3.0979	0.9512	DMB	-0.2505E-02	
16	61.70	0.3370	760.06	758.66	0.3080	0.3188	884.12	0.7966	0.9840	ACETONE	-0.1082E-01	0.1094E-01
		0.6110			0.5380	0.5436	731.80	0.8903	0.9683	CHLORFRM	-0.5597E-02	
		0.0520			0.1540	0.1376	806.46	2.3635	0.9544	DMB	0.1642E-01	
17	54.10	0.6000	759.94	756.80	0.5740	0.5559	687.32	0.9981	0.9812	ACETONE	0.1813E-01	0.1209E-01
		0.2720			0.1370	0.1459	573.09	0.6846	0.9692	CHLORFRM	-0.8940E-02	
		0.1290			0.2890	0.2982	640.11	2.5977	0.9479	DMB	-0.9190E-02	
18	52.00	0.5020	760.06	765.97	0.4750	0.4654	639.48	1.0843	0.9794	ACETONE	0.9643E-02	0.6429E-02
		0.2510			0.1250	0.1259	534.22	0.6941	0.9686	CHLORFRM	-0.8522E-03	
		0.2470			0.4000	0.4088	599.05	1.9949	0.9476	DMB	-0.8793E-02	
19	55.00	0.0850	760.07	765.43	0.1230	0.1195	708.66	1.4777	0.9763	ACETONE	0.3546E-02	0.5057E-02
		0.3600			0.3080	0.3040	590.36	1.0555	0.9672	CHLORFRM	0.4037E-02	
		0.5550			0.5690	0.5766	658.34	1.1446	0.9525	DMB	-0.7588E-02	

ACETONE(1) - METHANOL(2) - CHLOROFORM(3) SYSTEM 010

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
508.70	46.60	213.50	0.309	0.187	2.880	0.0	ACETONE	2
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
536.60	54.00	276.00	0.214	0.187	1.020	0.28	CHLORFRM	8

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.70200E 01	0.11610E 04	0.22400E 03	ACETONE	0.5686E 02	0.8426E-02	0.1651E-03
0.78786E 01	0.14731E 04	0.23000E 03	METHANOL	0.6451E 02	-0.1972E 00	0.3874E-03
0.69033E 01	0.11630E 04	0.22740E 03	CHLORFRM	0.6107E 02	0.3026E-01	0.1191E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

		BINARY ID NUMBERS	ORDER
-190.46	648.25	ACETONE - METHANOL	13	0
-34.50	-372.95	ACETONE - CHLORFRM	7	0
1701.09	-371.14	METHANOL - CHLORFRM	57	1

HALA CONSISTENCY TEST

CI(1) 0.2744

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.1428E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.1147E-01
COMPONENT 2	0.1014E-01
COMPONENT 3	0.1023E-01
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.1061E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	50.00	0.0512	577.00	573.41	0.0229	0.0255	596.37	0.4710	0.9851	ACETONE	-0.2616E-02	0.1109E-01
		0.0450			0.1400	0.1540	403.35	4.6720	0.9613	METHANOL	-0.1401E-01	
		0.9038			0.9371	0.8205	499.31	1.0101	0.9712	CHLORFRM	0.1663E-01	
2	50.00	0.0510	579.00	564.75	0.0228	0.0260	596.37	0.4744	0.9858	ACETONE	-0.3170E-02	0.5077E-02
		0.0370			0.1320	0.1364	403.35	4.9605	0.9618	METHANOL	-0.4444E-02	
		0.9120			0.8452	0.8376	499.31	1.0069	0.9716	CHLORFRM	0.7616E-02	
3	50.00	0.0478	591.00	575.93	0.0195	0.0235	596.37	0.4671	0.9849	ACETONE	-0.4023E-02	0.2683E-02
		0.0463			0.1580	0.1570	403.35	4.6488	0.9612	METHANOL	0.9966E-03	
		0.9059			0.8225	0.8195	499.31	1.0108	0.9710	CHLORFRM	0.3028E-02	
4	50.00	0.1900	592.00	593.00	0.1200	0.1234	596.37	0.6315	0.9803	ACETONE	-0.3376E-02	0.1102E-01
		0.1960			0.2920	0.3052	403.35	2.1921	0.9588	METHANOL	-0.1315E-01	
		0.6140			0.5880	0.5715	499.31	1.0707	0.9710	CHLORFRM	0.1653E-01	
5	50.00	0.1970	586.00	593.19	0.1180	0.1308	596.37	0.6457	0.9801	ACETONE	-0.1277E-01	0.1380E-01
		0.2100			0.3060	0.3139	403.35	2.1053	0.9588	METHANOL	-0.7932E-02	
		0.5930			0.5760	0.5553	499.31	1.0777	0.9711	CHLORFRM	0.2071E-01	
6	50.00	0.2000	586.00	592.60	0.1190	0.1336	596.37	0.6492	0.9801	ACETONE	-0.1463E-01	0.1218E-01
		0.2110			0.3110	0.3146	403.35	2.0980	0.9588	METHANOL	-0.3641E-02	
		0.5890			0.5700	0.5517	499.31	1.0771	0.9712	CHLORFRM	0.1827E-01	
7	50.00	0.2150	598.00	587.95	0.1330	0.1471	596.37	0.6596	0.9804	ACETONE	-0.1405E-01	0.9369E-02
		0.2020			0.3130	0.3096	403.35	2.1392	0.9588	METHANOL	0.3442E-02	
		0.5830			0.5540	0.5434	499.31	1.0637	0.9715	CHLORFRM	0.1061E-01	
8	50.00	0.4500	617.00	597.07	0.5290	0.5316	596.37	1.1566	0.9802	ACETONE	-0.2579E-02	0.2107E-02
		0.5050			0.4310	0.4278	403.35	1.1919	0.9534	METHANOL	0.3161E-02	
		0.0440			0.0400	0.0406	499.31	1.0749	0.9771	CHLORFRM	-0.5805E-03	
9	50.00	0.4530	588.00	597.31	0.5500	0.5320	596.37	1.1505	0.9802	ACETONE	0.1796E-01	0.1197E-01
		0.5000			0.4150	0.4249	403.35	1.1983	0.9533	METHANOL	-0.9898E-02	
		0.0470			0.0350	0.0431	499.31	1.0681	0.9770	CHLORFRM	-0.8058E-02	
10	50.00	0.4930	609.00	603.23	0.5650	0.5637	596.37	1.1317	0.9807	ACETONE	0.1268E-02	0.4699E-02
		0.4660			0.4070	0.4012	403.35	1.2243	0.9520	METHANOL	0.5780E-02	
		0.0410			0.0280	0.0350	499.31	1.0064	0.9770	CHLORFRM	-0.7048E-02	
11	50.00	0.0243	645.00	639.35	0.0119	0.0164	596.37	0.7024	0.9748	ACETONE	-0.4472E-02	0.2118E-01
		0.5000			0.3350	0.4123	403.35	1.2510	0.9584	METHANOL	-0.2729E-01	
		0.4757			0.6031	0.5713	499.31	1.4840	0.9675	CHLORFRM	0.3177E-01	
12	50.00	0.0263	644.00	637.57	0.0129	0.0179	596.37	0.7146	0.9747	ACETONE	-0.4974E-02	0.1846E-01
		0.5030			0.3940	0.4167	403.35	1.2412	0.9585	METHANOL	-0.2272E-01	
		0.4660			0.5931	0.5654	499.31	1.4952	0.9676	CHLORFRM	0.2769E-01	
13	50.00	0.0368	465.00	477.83	0.0735	0.0775	596.37	1.6363	0.9717	ACETONE	-0.3981E-02	0.1355E-01
		0.9150			0.8230	0.8027	403.35	1.0065	0.9695	METHANOL	0.2033E-01	
		0.0482			0.1035	0.1198	499.31	2.3177	0.9759	CHLORFRM	-0.1635E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	50.00	0.0338	463.00	471.30	0.0807	0.0735	596.37	1.6674	0.9716	ACETONE	0.7169E-02	0.6051E-02
		0.9250			0.8230	0.8211	403.35	1.0051	0.9700	METHANOL	0.1908E-02	
		0.0412			0.0963	0.1054	499.31	2.3521	0.9762	CHLOREFM	-0.9076E-02	
15	50.00	0.0450	473.00	485.06	0.0807	0.0915	596.37	1.6047	0.9721	ACETONE	-0.1080E-01	0.1223E-01
		0.9020			0.8000	0.7817	403.35	1.0087	0.9689	METHANOL	0.1834E-01	
		0.0530			0.1193	0.1268	499.31	2.2643	0.9759	CHLOREFM	-0.7536E-02	
16	50.00	0.2320	473.00	583.08	0.2420	0.2361	596.37	0.9703	0.9772	ACETONE	0.5868E-02	0.3911E-02
		0.5100			0.4600	0.4638	403.35	1.2592	0.9590	METHANOL	-0.3777E-02	
		0.2580			0.2980	0.3001	499.31	1.3190	0.9734	CHLOREFM	-0.2089E-02	
17	50.00	0.1950	552.00	570.99	0.2180	0.2317	596.37	1.1080	0.9762	ACETONE	-0.1368E-01	0.9120E-02
		0.6220			0.5290	0.5229	403.35	1.1418	0.9605	METHANOL	0.6083E-02	
		0.1830			0.2530	0.2454	499.31	1.4903	0.9741	CHLOREFM	0.7598E-02	
18	50.00	0.1870	550.00	573.13	0.2200	0.2170	596.37	1.0859	0.9760	ACETONE	0.3050E-02	0.5231E-02
		0.6150			0.5230	0.5182	403.35	1.1486	0.9605	METHANOL	0.4798E-02	
		0.1980			0.2570	0.2648	499.31	1.4915	0.9738	CHLOREFM	-0.7846E-02	
19	50.00	0.6350	598.00	604.30	0.6690	0.6485	596.37	1.0149	0.9830	ACETONE	0.2046E-01	0.1365E-01
		0.2670			0.2710	0.2847	403.35	1.5130	0.9481	METHANOL	-0.1373E-01	
		0.0980			0.0600	0.0667	499.31	0.8026	0.9762	CHLOREFM	-0.6740E-02	
20	50.00	0.6300	595.00	603.61	0.6560	0.6437	596.37	1.0141	0.9829	ACETONE	0.1231E-01	0.8206E-02
		0.2690			0.2800	0.2871	403.35	1.5126	0.9483	METHANOL	-0.7060E-02	
		0.1010			0.0640	0.0693	499.31	0.8072	0.9762	CHLOREFM	-0.5254E-02	
21	50.00	0.5740	566.00	578.76	0.6050	0.5707	596.37	0.9469	0.9835	ACETONE	0.3428E-01	0.2286E-01
		0.2070			0.2380	0.2676	403.35	1.7624	0.9513	METHANOL	-0.2959E-01	
		0.2190			0.1570	0.1617	499.31	0.8333	0.9760	CHLOREFM	-0.4693E-02	
22	50.00	0.4980	483.00	494.45	0.5280	0.5168	596.37	0.8485	0.9881	ACETONE	0.1124E-01	0.7493E-02
		0.0289			0.0660	0.0750	403.35	3.0384	0.9561	METHANOL	-0.8997E-02	
		0.4731			0.4060	0.4082	499.31	0.8329	0.9767	CHLOREFM	-0.2245E-02	
23	50.00	0.4920	477.00	492.64	0.5210	0.5102	596.37	0.8449	0.9831	ACETONE	0.1082E-01	0.7211E-02
		0.0273			0.0630	0.0720	403.35	3.0758	0.9563	METHANOL	-0.8961E-02	
		0.4807			0.4160	0.4179	499.31	0.8360	0.9768	CHLOREFM	-0.1858E-02	
24	50.00	0.8960	604.00	600.35	0.9140	0.9027	596.37	0.9974	0.9857	ACETONE	0.1126E-01	0.7510E-02
		0.0520			0.0607	0.0711	403.35	1.9067	0.9382	METHANOL	-0.1039E-01	
		0.0520			0.0253	0.0262	499.31	0.5882	0.9742	CHLOREFM	-0.8774E-03	
25	50.00	0.8930	603.00	598.75	0.9120	0.9016	596.37	0.9969	0.9857	ACETONE	0.1041E-01	0.6942E-02
		0.0507			0.0612	0.0699	403.35	1.9184	0.9384	METHANOL	-0.8710E-02	
		0.0563			0.0268	0.0285	499.31	0.5900	0.9743	CHLOREFM	-0.1704E-02	
26	50.00	0.8840	602.00	594.70	0.8880	0.8972	596.37	0.9954	0.9858	ACETONE	-0.9159E-02	0.1098E-01
		0.0493			0.0607	0.0680	403.35	1.9469	0.9388	METHANOL	-0.7317E-02	
		0.0677			0.0513	0.0348	499.31	0.5955	0.9743	CHLOREFM	0.1647E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	50.00	0.4330	581.00	589.74	0.4860	0.4707	596.37	1.0514	0.9802	ACETONE	0.1528E-01	0.1018E-01
		0.4520			0.3990	0.4059	403.35	1.3098	0.9545	METHANOL	-0.6935E-02	
		0.1150			0.1150	0.1233	499.31	1.0508	0.9761	CHLORFRM	-0.8341E-02	
28	50.00	0.4010	575.00	586.94	0.4720	0.4418	596.37	1.0600	0.9798	ACETONE	0.3022E-01	0.2014E-01
		0.4590			0.4080	0.4237	403.35	1.2817	0.9554	METHANOL	-0.1567E-01	
		0.1400			0.1200	0.1345	499.31	1.0999	0.9760	CHLORFRM	-0.1454E-01	
29	50.00	0.4270	526.00	550.95	0.4100	0.3866	596.37	0.8210	0.9838	ACETONE	0.2345E-01	0.1564E-01
		0.1460			0.2430	0.2501	403.35	2.2354	0.9565	METHANOL	-0.7092E-02	
		0.4270			0.3470	0.3634	499.31	0.9136	0.9752	CHLORFRM	-0.1637E-01	
30	50.00	0.4320	525.00	549.39	0.4120	0.3930	596.37	0.8228	0.9839	ACETONE	0.1901E-01	0.1268E-01
		0.1410			0.2270	0.2447	403.35	2.2583	0.9564	METHANOL	-0.1770E-01	
		0.4270			0.3610	0.3623	499.31	0.9084	0.9752	CHLORFRM	-0.1314E-02	
31	50.00	0.1540	592.00	604.48	0.1050	0.1223	596.37	0.7843	0.9767	ACETONE	-0.1729E-01	0.1184E-01
		0.4330			0.4170	0.4175	403.35	1.3838	0.9589	METHANOL	-0.4757E-03	
		0.4130			0.4780	0.4602	499.31	1.3062	0.9706	CHLORFRM	0.1776E-01	

ACETONE(1) - METHANOL(2) - ETHANOL(3) SYSTEM 011

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
508.70	46.60	213.50	0.309	0.187	2.880	0.0	ACETONE	2
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
516.00	63.00	161.30	0.637	0.152	1.690	1.10	ETHANOL	11

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.70200E 01	0.11610E 04	0.22400E 03	ACETONE	0.5680E 02	0.8426E-02	0.1651E-03
0.78786E 01	0.14731E 04	0.23000E 03	METHANOL	0.6451E 02	-0.1972E 00	0.3874E-03
0.80449E 01	0.15543E 04	0.22655E 03	ETHANOL	0.5270E 02	-0.3111E-01	0.1600E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-190.46	648.25	ACETONE - METHANOL	13	0
204.12	258.95	ACETONE - ETHANOL	2	0
-277.98	712.13	METHANOL - ETHANOL	138	0

HALA CONSISTENCY TEST

CI(1) 0.0300

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.5799E-01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.9098E-02
COMPONENT 2	0.1148E-01
COMPONENT 3	0.5566E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.8715E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIDI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	76.50	0.0190	760.00	766.37	0.0600	0.0659	1388.61	1.8469	0.9673	ACETONE	-0.5916E-02	0.3942E-02
		0.0460			0.0700	0.0635	1118.61	0.9801	0.9621	METHANOL	0.1497E-02	
		0.9350			0.8700	0.8656	679.33	1.0004	0.9600	ETHANOL	0.4414E-02	
2	74.80	0.0220	760.00	771.41	0.0740	0.0696	1321.66	1.7787	0.9664	ACETONE	0.4429E-02	0.2954E-02
		0.1600			0.2220	0.2260	1053.90	0.9936	0.9625	METHANOL	-0.3999E-02	
		0.8180			0.7040	0.7044	635.58	0.9996	0.9585	ETHANOL	-0.4328E-03	
3	70.70	0.0200	760.00	763.07	0.0480	0.0529	1170.21	1.6554	0.9632	ACETONE	-0.4865E-02	0.6390E-02
		0.4290			0.5520	0.5424	910.02	1.0195	0.9630	METHANOL	0.9582E-02	
		0.5510			0.4000	0.4047	539.42	0.9903	0.9552	ETHANOL	-0.4723E-02	
4	67.20	0.0200	760.00	764.21	0.0570	0.0454	1051.65	1.5781	0.9595	ACETONE	0.1160E-01	0.8019E-02
		0.6900			0.7580	0.7700	799.98	1.0241	0.9621	METHANOL	-0.1203E-01	
		0.2900			0.1850	0.1846	467.04	0.9882	0.9510	ETHANOL	0.4240E-03	
5	64.40	0.0230	760.00	761.16	0.0400	0.0457	963.58	1.7222	0.9566	ACETONE	-0.5711E-02	0.3805E-02
		0.9370			0.9310	0.9264	719.85	1.0031	0.9610	METHANOL	0.4599E-02	
		0.0430			0.0290	0.0279	415.05	1.1247	0.9475	ETHANOL	0.1106E-02	
6	74.80	0.0490	760.00	770.17	0.1550	0.1539	1321.66	1.7700	0.9700	ACETONE	0.1128E-02	0.5159E-02
		0.0450			0.0690	0.0624	1053.90	0.9718	0.9606	METHANOL	0.6609E-02	
		0.9060			0.7760	0.7837	635.58	1.0025	0.9584	ETHANOL	-0.7741E-02	
7	71.40	0.0600	760.00	763.67	0.1520	0.1611	1195.09	1.6579	0.9689	ACETONE	-0.9115E-02	0.6075E-02
		0.2400			0.3130	0.3045	933.40	0.9962	0.9613	METHANOL	0.8534E-02	
		0.7000			0.5350	0.5344	554.93	1.0024	0.9562	ETHANOL	0.5760E-03	
8	67.70	0.0600	760.00	768.29	0.1430	0.1349	1068.01	1.5547	0.9648	ACETONE	0.8209E-02	0.1021E-01
		0.5310			0.5850	0.6003	815.01	1.0227	0.9611	METHANOL	-0.1531E-01	
		0.4090			0.2720	0.2649	476.86	0.9913	0.9521	ETHANOL	0.7098E-02	
9	63.80	0.0600	760.00	762.90	0.1310	0.1233	945.47	1.5894	0.9609	ACETONE	0.7661E-02	0.5109E-02
		0.8400			0.8150	0.8188	703.56	1.0132	0.9601	METHANOL	-0.3799E-02	
		0.1000			0.0540	0.0579	404.56	1.0320	0.9478	ETHANOL	-0.3869E-02	
10	71.40	0.1130	760.00	772.24	0.2800	0.3034	1195.09	1.6136	0.9741	ACETONE	-0.2338E-01	0.1559E-01
		0.0510			0.0830	0.0620	933.40	0.9611	0.9570	METHANOL	0.2100E-01	
		0.8310			0.6370	0.6346	554.93	1.0124	0.9548	ETHANOL	0.2381E-02	
11	69.10	0.1140	760.00	769.32	0.2510	0.2647	1114.82	1.5525	0.9718	ACETONE	-0.1366E-01	0.9107E-02
		0.2530			0.3020	0.2932	858.31	0.9944	0.9586	METHANOL	0.8756E-02	
		0.6330			0.4470	0.4421	505.27	1.0116	0.9534	ETHANOL	0.4903E-02	
12	63.70	0.1160	760.00	761.61	0.2340	0.2202	942.48	1.4784	0.9665	ACETONE	0.1378E-01	0.9192E-02
		0.6670			0.6520	0.6593	700.37	1.0282	0.9587	METHANOL	-0.7271E-02	
		0.2170			0.1140	0.1205	402.83	0.9937	0.9485	ETHANOL	-0.6521E-02	
13	61.80	0.1150	760.00	764.71	0.2200	0.2175	896.97	1.5686	0.9645	ACETONE	0.2456E-02	0.3876E-02
		0.8340			0.7610	0.7576	651.35	1.0151	0.9578	METHANOL	0.3355E-02	
		0.0470			0.0190	0.0248	371.14	1.0268	0.9460	ETHANOL	-0.5817E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICT	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	67.70	0.1920	760.00	767.35	0.3860	0.4012	1068.01	1.4615	0.9762	ACETONE	-0.1524E-01	0.1592E-01
		0.1230			0.1630	0.1391	815.01	0.9750	0.9543	METHANOL	0.2388E-01	
		0.6800			0.4510	0.4597	476.86	1.0320	0.9509	ETHANOL	-0.8650E-02	
15	64.30	0.1920	760.00	757.37	0.3570	0.3535	960.54	1.4089	0.9733	ACETONE	0.3491E-02	0.5912E-02
		0.4010			0.3980	0.4069	717.11	1.0229	0.9560	METHANOL	-0.8872E-02	
		0.4070			0.2450	0.2396	413.29	1.0217	0.9491	ETHANOL	0.5375E-02	
16	60.70	0.1620	760.00	761.13	0.2950	0.2830	856.00	1.4984	0.9674	ACETONE	0.1200E-01	0.1198E-01
		0.7850			0.6730	0.6910	624.00	1.0251	0.9563	METHANOL	-0.1798E-01	
		0.0530			0.0320	0.0260	353.75	0.9965	0.9451	ETHANOL	0.5971E-02	
17	66.30	0.2690	760.00	768.65	0.4860	0.5018	1022.70	1.3680	0.9786	ACETONE	-0.1578E-01	0.1301E-01
		0.0540			0.0750	0.0555	773.48	0.9687	0.9502	METHANOL	0.1952E-01	
		0.6770			0.4390	0.4427	449.78	1.0569	0.9478	ETHANOL	-0.3741E-02	
18	61.00	0.2630	760.00	751.33	0.4180	0.4157	864.37	1.3346	0.9742	ACETONE	0.2302E-02	0.1537E-02
		0.4940			0.4570	0.4591	631.37	1.0528	0.9534	METHANOL	-0.2071E-02	
		0.2430			0.1250	0.1252	358.43	1.0192	0.9455	ETHANOL	-0.2388E-03	
19	59.30	0.2530	760.00	763.29	0.3920	0.3871	817.80	1.3831	0.9714	ACETONE	0.4940E-02	0.3295E-02
		0.6840			0.5900	0.5947	590.55	1.0511	0.9529	METHANOL	-0.4652E-02	
		0.0630			0.0280	0.0283	332.61	0.9697	0.9430	ETHANOL	-0.2936E-03	
20	62.60	0.3690	760.00	756.29	0.5520	0.5669	910.03	1.2505	0.9795	ACETONE	-0.1493E-01	0.2119E-01
		0.1570			0.1830	0.1512	671.84	1.0261	0.9478	METHANOL	0.3178E-01	
		0.4750			0.2650	0.2818	384.22	1.1001	0.9440	ETHANOL	-0.1685E-01	
21	60.20	0.3570	760.00	751.93	0.5130	0.5151	842.21	1.2553	0.9773	ACETONE	-0.2138E-02	0.2850E-02
		0.3750			0.3500	0.3457	611.88	1.0741	0.9496	METHANOL	0.4273E-02	
		0.2680			0.1370	0.1391	346.08	1.0614	0.9431	ETHANOL	-0.2140E-02	
22	58.70	0.3520	760.00	757.01	0.4860	0.4870	801.94	1.2704	0.9754	ACETONE	-0.1012E-02	0.2413E-02
		0.5180			0.4570	0.4534	576.66	1.0896	0.9498	METHANOL	0.3617E-02	
		0.1300			0.0570	0.0596	323.27	1.0070	0.9416	ETHANOL	-0.2616E-02	
23	61.20	0.4910	760.00	755.11	0.6520	0.6687	869.98	1.1567	0.9813	ACETONE	-0.1666E-01	0.1628E-01
		0.0740			0.0950	0.0706	636.32	1.0655	0.9429	METHANOL	0.2443E-01	
		0.4350			0.2530	0.2608	361.57	1.1743	0.9401	ETHANOL	-0.7766E-02	
24	59.30	0.4750	760.00	751.30	0.6050	0.6196	817.80	1.1708	0.9798	ACETONE	-0.1458E-01	0.1659E-01
		0.2530			0.2600	0.2351	590.55	1.1156	0.9450	METHANOL	0.2489E-01	
		0.2720			0.1350	0.1453	332.61	1.1317	0.9399	ETHANOL	-0.1031E-01	
25	57.10	0.4710	760.00	768.70	0.5690	0.5688	760.45	1.1891	0.9770	ACETONE	0.2434E-03	0.7083E-02
		0.4750			0.3980	0.4086	540.92	1.1537	0.9452	METHANOL	-0.1063E-01	
		0.0540			0.0330	0.0226	301.49	0.9988	0.9373	ETHANOL	0.1038E-01	
26	58.90	0.6380	760.00	751.22	0.7390	0.7545	807.14	1.0781	0.9823	ACETONE	-0.1553E-01	0.1542E-01
		0.0750			0.0970	0.0739	581.26	1.1927	0.9384	METHANOL	0.2313E-01	
		0.2870			0.1640	0.1716	326.76	1.2830	0.9354	ETHANOL	-0.7605E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	56.60	0.6350	760.00	756.94	0.6930	0.6994	747.86	1.0899	0.9805	ACETONE	-0.6376E-02	0.7081E-02
		0.2660			0.2630	0.2524	530.13	1.2714	0.9399	METHANOL	0.1062E-01	
		0.0990			0.0440	0.0482	294.77	1.1666	0.9343	ETHANOL	-0.4246E-02	
28	57.20	0.7690	760.00	752.73	0.8150	0.8223	762.99	1.0350	0.9826	ACETONE	-0.7268E-02	0.1045E-01
		0.0720			0.1030	0.0973	543.10	1.3769	0.9343	METHANOL	0.1568E-01	
		0.1590			0.0820	0.0904	302.85	1.3916	0.9310	ETHANOL	-0.8409E-02	
29	56.10	0.7670	760.00	757.21	0.7650	0.7902	735.44	1.0386	0.9819	ACETONE	-0.2521E-01	0.1681E-01
		0.1660			0.1830	0.1739	519.51	1.4259	0.9352	METHANOL	0.9087E-02	
		0.0670			0.0520	0.0359	288.17	1.3065	0.9306	ETHANOL	0.1612E-01	
30	56.00	0.8990	760.00	755.94	0.8930	0.8963	732.97	1.0078	0.9829	ACETONE	-0.3308E-02	0.4183E-02
		0.0680			0.0900	0.0830	517.41	1.6547	0.9297	METHANOL	-0.2966E-02	
		0.0330			0.0270	0.0207	286.87	1.5297	0.9263	ETHANOL	0.6274E-02	

ACETONE(1) - METHANOL(2) - ISOPROPANOL(3) SYSTEM 012

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
508.70	46.60	213.50	0.309	0.187	2.880	0.0	ACETONE	2
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
508.50	47.00	218.50	0.663	0.187	1.600	0.0	ISOCH3OH	22

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS

A	B	C	COMPONENT
0.70200E 01	0.11610E 04	0.22400E 03	ACETONE
0.78786E 01	0.14731E 04	0.23000E 03	METHANOL
0.66604E 01	0.81305E 03	0.13223E 03	ISOCH3OH

MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C
0.5686E 02	0.8426E-02	0.1651E-03
0.6451E 02	-0.1972E 00	0.3874E-03
0.1418E 03	-0.4981E 00	0.9287E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-190.46	648.25	ACETONE - METHANOL	13	0
359.77	124.79	ACETONE - ISOCH3OH	10	0
1253.33	-886.97	METHANOL - ISOCH3OH	154	0

HALA CONSISTENCY TEST

CI(1) 0.1805

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.6137E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.6053E-02
COMPONENT 2	0.6547E-02
COMPONENT 3	0.5252E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.5951E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	55.00	0.8054	746.16	745.72	0.8064	0.8016	708.66	1.0256	0.9820	ACETONE	0.4834E-02	0.3223E-02
		0.1760			0.1957	0.1904	496.76	1.5157	0.9348	METHANOL	-0.4689E-02	
		0.0186			0.0079	0.0080	214.57	1.4617	0.9750	ISOCH3OH	-0.1460E-03	
2	55.00	0.7148	730.60	731.27	0.7592	0.7461	708.66	1.0544	0.9817	ACETONE	0.1312E-01	0.8750E-02
		0.2306			0.2224	0.2317	496.76	1.3861	0.9385	METHANOL	-0.9321E-02	
		0.0546			0.0184	0.0222	214.57	1.3499	0.9767	ISOCH3OH	-0.3804E-02	
3	55.00	0.5372	695.90	694.54	0.6480	0.6413	708.66	1.1445	0.9808	ACETONE	0.6707E-02	0.6279E-02
		0.3447			0.3048	0.3142	496.76	1.2035	0.9456	METHANOL	-0.9422E-02	
		0.1181			0.0472	0.0445	214.57	1.1913	0.9796	ISOCH3OH	0.2709E-02	
4	55.00	0.0206	521.15	524.29	0.0518	0.0533	708.66	1.8475	0.9668	ACETONE	-0.1517E-02	0.1368E-02
		0.9580			0.9372	0.9377	496.76	1.0003	0.9693	METHANOL	-0.5348E-03	
		0.0214			0.0110	0.0089	214.57	1.0008	0.9815	ISOCH3OH	0.2052E-02	
5	55.00	0.0300	519.22	519.43	0.0821	0.0772	708.66	1.8236	0.9685	ACETONE	0.4879E-02	0.6598E-02
		0.9070			0.8962	0.8961	496.76	1.0004	0.9694	METHANOL	-0.9896E-02	
		0.0630			0.0317	0.0267	214.57	1.0052	0.9824	ISOCH3OH	0.5018E-02	
6	55.00	0.0369	530.65	523.14	0.0940	0.0934	708.66	1.8075	0.9690	ACETONE	0.5785E-03	0.2202E-02
		0.8940			0.8742	0.8775	496.76	1.0007	0.9691	METHANOL	-0.3302E-02	
		0.0691			0.0318	0.0291	214.57	1.0060	0.9826	ISOCH3OH	0.2725E-02	
7	55.00	0.0138	266.05	254.52	0.0694	0.0747	708.66	1.9209	0.9897	ACETONE	-0.5251E-02	0.1293E-01
		0.0616			0.1237	0.1378	496.76	1.1253	0.9820	METHANOL	-0.1413E-01	
		0.9246			0.8069	0.7875	214.57	1.0035	0.9943	ISOCH3OH	0.1939E-01	
8	55.00	0.0200	278.43	275.37	0.0949	0.0971	708.66	1.8638	0.9887	ACETONE	-0.2226E-02	0.1376E-01
		0.1071			0.1936	0.2120	496.76	1.0759	0.9810	METHANOL	-0.1841E-01	
		0.8729			0.7115	0.6909	214.57	1.0082	0.9937	ISOCH3OH	0.2063E-01	
9	55.00	0.0301	300.28	288.84	0.1292	0.1370	708.66	1.8312	0.9886	ACETONE	-0.7752E-02	0.5166E-02
		0.1163			0.2192	0.2175	496.76	1.0651	0.9800	METHANOL	0.1671E-02	
		0.9536			0.6516	0.6455	214.57	1.0101	0.9933	ISOCH3OH	0.6075E-02	
10	55.00	0.4817	579.27	567.85	0.7235	0.7179	708.66	1.1751	0.9862	ACETONE	0.5645E-02	0.4726E-02
		0.0761			0.0817	0.0803	496.76	1.1439	0.9500	METHANOL	0.1442E-02	
		0.4422			0.1948	0.2019	214.57	1.1839	0.9820	ISOCH3OH	-0.7090E-02	
11	55.00	0.4535	585.87	579.06	0.6980	0.6751	708.66	1.1960	0.9854	ACETONE	0.1289E-01	0.9312E-02
		0.1450			0.1342	0.1482	496.76	1.1316	0.9512	METHANOL	-0.1397E-01	
		0.4015			0.1778	0.1767	214.57	1.1644	0.9825	ISOCH3OH	0.1080E-02	
12	55.00	0.4435	595.12	586.27	0.6591	0.6621	708.66	1.2002	0.9849	ACETONE	-0.2960E-02	0.6620E-02
		0.1723			0.1836	0.1737	496.76	1.1303	0.9513	METHANOL	0.9929E-02	
		0.3792			0.1573	0.1643	214.57	1.1603	0.9825	ISOCH3OH	-0.6972E-02	
13	55.00	0.3453	685.18	689.37	0.4856	0.4792	708.66	1.3143	0.9762	ACETONE	0.6421E-02	0.5114E-02
		0.6239			0.5027	0.5104	496.76	1.0795	0.9523	METHANOL	-0.7670E-02	
		0.0308			0.0117	0.0104	214.57	1.0662	0.9809	ISOCH3OH	0.1252E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICT	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	55.00	0.3019	672.16	677.15	0.4448	0.4431	708.66	1.3643	0.9754	ACETONE	0.1732E-02	0.2362E-02
		0.6709			0.5495	0.5477	496.76	1.0603	0.9542	METHANOL	0.1813E-02	
		0.0272			0.0057	0.0092	214.57	1.0495	0.9812	ISOCH3OH	-0.3542E-02	
15	55.00	0.2887	657.80	660.17	0.4461	0.4387	708.66	1.3782	0.9760	ACETONE	0.7390E-02	0.6438E-02
		0.6475			0.5294	0.5391	496.76	1.0555	0.9553	METHANOL	-0.9655E-02	
		0.0638			0.0245	0.0222	214.57	1.0500	0.9818	ISOCH3OH	0.2268E-02	
16	55.00	0.0633	464.85	451.73	0.1817	0.1756	708.66	1.7268	0.9784	ACETONE	0.6134E-02	0.4647E-02
		0.5681			0.6424	0.6416	496.76	0.9974	0.9721	METHANOL	0.8370E-03	
		0.3686			0.1759	0.1829	214.57	1.0296	0.9874	ISOCH3OH	-0.6971E-02	
17	55.00	0.0872	467.75	461.78	0.2324	0.2292	708.66	1.6752	0.9796	ACETONE	0.3156E-02	0.4089E-02
		0.5249			0.5850	0.5820	496.76	0.9997	0.9708	METHANOL	0.2973E-02	
		0.3879			0.1826	0.1887	214.57	1.0323	0.9876	ISOCH3OH	-0.6139E-02	
18	55.00	0.0862	472.57	466.01	0.2300	0.2251	708.66	1.6785	0.9792	ACETONE	0.4889E-02	0.6610E-02
		0.5420			0.5858	0.5957	496.76	0.9999	0.9706	METHANOL	-0.9920E-02	
		0.3718			0.1842	0.1792	214.57	1.0316	0.9874	ISOCH3OH	0.5020E-02	
19	55.00	0.0309	376.39	366.80	0.1114	0.1086	708.66	1.7844	0.9825	ACETONE	0.2826E-02	0.3430E-02
		0.3907			0.5339	0.5390	496.76	0.9946	0.9771	METHANOL	-0.5147E-02	
		0.5784			0.3547	0.3524	214.57	1.0300	0.9904	ISOCH3OH	0.2317E-02	
20	55.00	0.0330	371.29	361.58	0.1156	0.1172	708.66	1.7787	0.9832	ACETONE	-0.1576E-02	0.1539E-02
		0.3646			0.5132	0.5109	496.76	0.9959	0.9772	METHANOL	0.2306E-02	
		0.6024			0.3712	0.3719	214.57	1.0293	0.9907	ISOCH3OH	-0.7342E-03	
21	55.00	0.0363	366.12	357.89	0.1229	0.1296	708.66	1.7709	0.9838	ACETONE	-0.6665E-02	0.7221E-02
		0.2395			0.4923	0.4815	496.76	0.9977	0.9772	METHANOL	0.1083E-01	
		0.6242			0.3948	0.3890	214.57	1.0285	0.9909	ISOCH3OH	-0.4168E-02	
22	55.00	0.2032	502.76	494.67	0.4434	0.4351	708.66	1.4680	0.9839	ACETONE	0.8258E-02	0.6479E-02
		0.3236			0.3466	0.3451	496.76	1.0233	0.9645	METHANOL	0.1458E-02	
		0.4732			0.2100	0.2197	214.57	1.0547	0.9871	ISOCH3OH	-0.9722E-02	
23	55.00	0.2461	529.01	519.00	0.4939	0.4821	708.66	1.4089	0.9839	ACETONE	0.1177E-01	0.7849E-02
		0.3081			0.3141	0.3181	496.76	1.0364	0.9618	METHANOL	-0.4035E-02	
		0.4458			0.1920	0.1997	214.57	1.0667	0.9862	ISOCH3OH	-0.7742E-02	
24	55.00	0.3127	559.41	551.38	0.5532	0.5439	708.66	1.3288	0.9840	ACETONE	0.9316E-02	0.6213E-02
		0.2807			0.2780	0.2806	496.76	1.0617	0.9579	METHANOL	-0.2621E-02	
		0.4066			0.1688	0.1755	214.57	1.0901	0.9849	ISOCH3OH	-0.6701E-02	
25	55.00	0.8387	720.80	719.35	0.8636	0.8571	708.66	1.0173	0.9834	ACETONE	0.6512E-02	0.5468E-02
		0.0970			0.1044	0.1126	496.76	1.5674	0.9338	METHANOL	-0.8205E-02	
		0.0643			0.0320	0.0303	214.57	1.5358	0.9744	ISOCH3OH	0.1687E-02	
26	55.00	0.8296	705.47	700.83	0.8752	0.8708	708.66	1.0187	0.9839	ACETONE	0.4388E-02	0.2925E-02
		0.0677			0.0783	0.0795	496.76	1.5460	0.9343	METHANOL	-0.1219E-02	
		0.1027			0.0465	0.0497	214.57	1.5354	0.9746	ISOCH3OH	-0.3168E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	55.00	0.7085	693.91	690.60	0.8704	0.8564	708.66	1.0258	0.9841	ACETONE	0.1404E-01	0.9361E-02
		0.0717			0.0699	0.0813	496.76	1.4930	0.9357	METHANOL	-0.1136E-01	
		0.1303			0.0597	0.0624	214.57	1.4931	0.9753	ISOCH3OH	-0.2677E-02	

ACETONE(1) - METHANOL(2) - ISOPROPANOL(3) SYSTEM 013

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
508.70	46.60	213.50	0.309	0.187	2.880	0.0	ACETONE	2
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
508.50	47.00	218.50	0.663	0.187	1.600	0.0	ISOCH3OH	22

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.70200E 01	0.11610E 04	0.22400E 03	ACETONE	0.5686E 02	0.8426E-02	0.1651E-03
0.78786E 01	0.14731E 04	0.23000E 03	METHANOL	0.6451E 02	-0.1972E 00	0.3874E-03
0.66604E 01	0.81305E 03	0.13293E 03	ISOCH3OH	0.1418E 03	-0.4981E 00	0.9287E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-190.46	648.25	ACETONE - METHANOL	13	0
156.42	293.64	ACETONE - ISOCH3CH	11	0
-172.92	535.68	METHANOL - ISOCH3OH	155	0

HALA CONSISTENCY TEST

CI(1) 0.0387

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.1775E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.6931E-02
COMPONENT 2	0.8802E-02
COMPONENT 3	0.7267E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.7667E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	69.30	0.0360	760.00	728.04	0.1050	0.0959	1121.63	1.6690	0.9682	ACETONE	0.9134E-02	0.1439E-01
		0.5460			0.6750	0.6626	864.64	0.9836	0.9640	METHANOL	0.1244E-01	
		0.4130			0.2200	0.2416	432.01	0.9541	0.9823	ISOCH3OH	-0.2158E-01	
2	66.84	0.0930	760.00	727.50	0.2390	0.2174	1040.00	1.5847	0.9717	ACETONE	0.2160E-01	0.1440E-01
		0.5230			0.5810	0.5836	789.29	0.9874	0.9613	METHANOL	-0.2650E-02	
		0.3840			0.1800	0.1990	385.83	0.9575	0.9828	ISOCH3OH	-0.1896E-01	
3	68.83	0.1360	760.00	731.47	0.3350	0.3238	1105.67	1.5359	0.9776	ACETONE	0.1116E-01	0.2393E-01
		0.2980			0.3690	0.3443	848.81	0.9516	0.9584	METHANOL	0.2474E-01	
		0.5660			0.2960	0.3319	422.87	0.9956	0.9842	ISOCH3OH	-0.3590E-01	
4	76.97	0.0370	760.00	731.59	0.1210	0.1232	1407.56	1.6877	0.9776	ACETONE	-0.2223E-02	0.4433E-02
		0.1120			0.1699	0.1633	1137.04	0.9015	0.9626	METHANOL	0.6645E-02	
		0.8510			0.7091	0.7135	603.83	0.9992	0.9862	ISOCH3OH	-0.4431E-02	
5	56.32	0.9708	760.00	754.45	0.9866	0.9846	740.98	1.0140	0.9830	ACETONE	0.1977E-02	0.2532E-02
		0.0761			0.0912	0.0894	524.16	1.5705	0.9304	METHANOL	0.1816E-02	
		0.0531			0.0222	0.0260	229.93	1.5586	0.9728	ISOCH3OH	-0.3803E-02	
6	58.45	0.5459	760.00	752.79	0.6680	0.6765	795.26	1.1475	0.9810	ACETONE	-0.8527E-02	0.5684E-02
		0.2693			0.2569	0.2507	570.95	1.1542	0.9418	METHANOL	0.6212E-02	
		0.1848			0.0751	0.0728	256.54	1.1273	0.9782	ISOCH3OH	0.2314E-02	
7	63.65	0.3555	760.00	745.37	0.5780	0.5919	940.98	1.2910	0.9816	ACETONE	-0.1390E-01	0.1379E-01
		0.1917			0.2096	0.1889	699.52	0.9930	0.9471	METHANOL	0.2069E-01	
		0.4528			0.2124	0.2192	331.77	1.0636	0.9807	ISOCH3OH	-0.6794E-02	
8	77.41	0.0520	760.00	732.53	0.1606	0.1724	1425.47	1.6645	0.9795	ACETONE	-0.1182E-01	0.7879E-02
		0.0237			0.0485	0.0417	1154.51	0.8844	0.9606	METHANOL	0.6798E-02	
		0.9193			0.7909	0.7859	615.07	1.0013	0.9362	ISOCH3OH	0.5018E-02	
9	69.23	0.1324	760.00	722.82	0.3218	0.3241	1119.25	1.5427	0.9783	ACETONE	-0.2350E-02	0.1953E-01
		0.2635			0.3391	0.3098	962.42	0.9434	0.9587	METHANOL	0.2929E-01	
		0.6041			0.3391	0.3660	430.64	0.9986	0.9345	ISOCH3OH	-0.2694E-01	
10	68.18	0.0950	760.00	730.29	0.2306	0.2303	1083.98	1.5858	0.9734	ACETONE	0.2570E-03	0.1723E-03
		0.4453			0.5135	0.5137	829.65	0.9744	0.9611	METHANOL	-0.1654E-03	
		0.4597			0.2559	0.2560	410.48	0.9717	0.9835	ISOCH3OH	-0.9447E-04	
11	63.10	0.0601	760.00	756.19	0.1300	0.1301	924.67	1.6966	0.9611	ACETONE	-0.9483E-04	0.1328E-02
		0.8993			0.8556	0.8536	684.91	1.0046	0.9600	METHANOL	0.1988E-02	
		0.0406			0.0144	0.0163	323.09	0.9161	0.9777	ISOCH3OH	-0.1900E-02	
12	63.27	0.1231	760.00	746.05	0.2469	0.2454	929.68	1.5449	0.9686	ACETONE	0.1540E-02	0.2162E-02
		0.6965			0.6776	0.6809	699.40	1.0128	0.9588	METHANOL	-0.3246E-02	
		0.1804			0.0755	0.0738	325.75	0.9162	0.9806	ISOCH3OH	0.1700E-02	
13	58.43	0.3948	760.00	755.00	0.5346	0.5357	794.74	1.2561	0.9771	ACETONE	-0.1137E-02	0.7566E-03
		0.4841			0.4237	0.4233	570.50	1.0951	0.9479	METHANOL	0.4375E-03	
		0.1211			0.0417	0.0410	256.28	0.9745	0.9798	ISOCH3OH	0.6955E-03	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	62.95	0.2635	760.00	738.46	0.4576	0.4640	920.26	1.3782	0.9780	ACETONE	-0.6419E-02	0.4278E-02
		0.3920			0.3861	0.3881	680.97	1.0083	0.9528	METHANOL	0.2984E-02	
		0.3445			0.1563	0.1529	320.74	1.0004	0.9820	ISOCH3OH	0.3432E-02	
15	64.65	0.3089	760.00	737.41	0.5465	0.5552	971.21	1.3359	0.9815	ACETONE	-0.8740E-02	0.8247E-02
		0.1895			0.2040	0.1916	726.73	0.9725	0.9492	METHANOL	0.1237E-01	
		0.5016			0.2495	0.2531	348.03	1.0466	0.9816	ISOCH3OH	-0.3630E-02	
16	66.79	0.0820	760.00	729.78	0.1955	0.1928	1038.38	1.5986	0.9703	ACETONE	0.2749E-02	0.2953E-02
		0.5602			0.6259	0.6242	787.82	0.9912	0.9617	METHANOL	0.1676E-02	
		0.3578			0.1786	0.1830	384.93	0.9501	0.9824	ISOCH3OH	-0.4435E-02	
17	61.29	0.3167	760.00	748.27	0.4923	0.5015	872.50	1.3242	0.9778	ACETONE	-0.9179E-02	0.6816E-02
		0.4201			0.4023	0.3921	638.55	1.0380	0.9505	METHANOL	0.1022E-01	
		0.2632			0.1054	0.1064	295.74	1.0010	0.9810	ISOCH3OH	-0.1046E-02	
18	57.54	0.3732	760.00	762.89	0.4982	0.4970	771.66	1.2799	0.9750	ACETONE	0.1236E-02	0.8254E-03
		0.5910			0.4923	0.4924	550.56	1.0934	0.9485	METHANOL	-0.1265E-03	
		0.0358			0.0095	0.0106	244.89	0.9019	0.9794	ISOCH3OH	-0.1114E-02	
19	57.56	0.4062	760.00	761.92	0.5315	0.5280	772.18	1.2484	0.9762	ACETONE	0.3481E-02	0.3357E-02
		0.5355			0.4490	0.4540	551.00	1.1090	0.9474	METHANOL	-0.5037E-02	
		0.0583			0.0195	0.0179	245.14	0.9343	0.9793	ISOCH3OH	0.1553E-02	
20	64.73	0.4039	760.00	750.30	0.6596	0.6735	973.66	1.2445	0.9933	ACETONE	-0.1386E-01	0.1344E-01
		0.0351			0.0552	0.0350	728.95	0.9671	0.9426	METHANOL	0.2016E-01	
		0.5560			0.2852	0.2915	349.36	1.0993	0.9791	ISOCH3OH	-0.6303E-02	
21	61.77	0.4854	760.00	753.70	0.6768	0.6910	886.11	1.1862	0.9825	ACETONE	-0.1418E-01	0.1010E-01
		0.1379			0.1480	0.1329	650.59	1.0494	0.9417	METHANOL	0.1514E-01	
		0.3767			0.1752	0.1762	302.81	1.1357	0.9785	ISOCH3OH	-0.9629E-03	

ACETONE(1) - METHANOL(2) - WATER(3) SYSTEM 014

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
508.70	46.60	213.50	0.309	0.187	2.880	0.0	ACETONE	2
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
647.40	218.30	55.20	0.344	0.010	1.850	0.0	WATER	34

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.70200E 01	0.11610E 04	0.22410E 03	ACETONE	0.5086E 02	0.8426E-02	0.1651E-03
0.78736E 01	0.14731E 04	0.23000E 03	METHANOL	0.6451E 02	-0.1972E 00	0.3874E-03
0.79669E 01	0.16682E 04	0.22800E 03	WATER	0.2289E 02	-0.3642E-01	0.6856E-04

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-43.16	476.29	ACETONE - METHANOL	12	0
527.84	1439.95	ACETONE - WATER	17	0
483.16	322.47	METHANOL - WATER	157	0

HALA CONSISTENCY TEST

CI(1) 2.4081

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.1727E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.3941E-01
COMPONENT 2	0.2741E-01
COMPONENT 3	0.1281E-01
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.2654E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	70.00	0.1000	760.00	790.62	0.6100	0.5649	1145.73	3.8048	0.9789	ACETONE	0.4511E-01	0.3008E-01
		0.1000			0.1300	0.1684	987.10	1.4249	0.9506	METHANOL	-0.3844E-01	
		0.8000			0.2600	0.2667	233.08	1.1024	0.9756	WATER	-0.6668E-02	
2	70.00	0.1000	760.00	788.97	0.5200	0.4640	1145.73	3.1104	0.9764	ACETONE	0.5605E-01	0.3737E-01
		0.2000			0.2400	0.2892	887.10	1.2253	0.9542	METHANOL	-0.4920E-01	
		0.7000			0.2400	0.2468	233.08	1.1661	0.9776	WATER	-0.6850E-02	
3	69.40	0.1000	760.00	788.22	0.4300	0.3938	1125.05	2.6799	0.9742	ACETONE	0.3620E-01	0.2413E-01
		0.3000			0.3550	0.3877	867.82	1.1206	0.9562	METHANOL	-0.3272E-01	
		0.6000			0.2150	0.2185	227.11	1.2352	0.9781	WATER	-0.3475E-02	
4	68.80	0.1000	760.00	797.21	0.3700	0.3409	1104.65	2.3840	0.9718	ACETONE	0.2907E-01	0.1938E-01
		0.4000			0.4500	0.4735	848.87	1.0621	0.9569	METHANOL	-0.2348E-01	
		0.5000			0.1800	0.1856	221.27	1.3064	0.9776	WATER	-0.5585E-02	
5	68.00	0.1000	760.00	806.36	0.3200	0.2998	1077.91	2.1681	0.9695	ACETONE	0.2017E-01	0.1345E-01
		0.5000			0.5400	0.5504	824.14	1.0293	0.9572	METHANOL	-0.1044E-01	
		0.4000			0.1400	0.1497	213.69	1.3786	0.9766	WATER	-0.9729E-02	
6	66.50	0.1000	760.00	798.26	0.2600	0.2679	1029.08	2.0049	0.9678	ACETONE	-0.7854E-02	0.6562E-02
		0.6000			0.6300	0.6202	779.31	1.0122	0.9576	METHANOL	0.9844E-02	
		0.3000			0.1100	0.1120	200.05	1.4524	0.9757	WATER	-0.1988E-02	
7	65.00	0.1000	760.00	791.54	0.2200	0.2414	981.97	1.8747	0.9661	ACETONE	-0.2144E-01	0.1705E-01
		0.7000			0.7100	0.6844	736.46	1.0049	0.9577	METHANOL	0.2557E-01	
		0.2000			0.0700	0.0741	187.15	1.5265	0.9745	WATER	-0.4127E-02	
8	63.50	0.1000	760.00	785.31	0.1950	0.2192	936.51	1.7679	0.9644	ACETONE	-0.3424E-01	0.2395E-01
		0.8000			0.7800	0.7441	695.52	1.0042	0.9577	METHANOL	0.3592E-01	
		0.1000			0.0350	0.0367	174.96	1.6010	0.9732	WATER	-0.1678E-02	
9	65.00	0.2000	760.00	766.01	0.7200	0.6575	981.97	2.5081	0.9808	ACETONE	0.6249E-01	0.4166E-01
		0.1000			0.0700	0.1267	736.46	1.2451	0.9459	METHANOL	-0.5675E-01	
		0.7000			0.2100	0.2157	187.15	1.2245	0.9714	WATER	-0.5737E-02	
10	65.50	0.2000	760.00	780.33	0.6350	0.5739	997.48	2.1909	0.9788	ACETONE	0.6111E-01	0.4074E-01
		0.2000			0.1800	0.2287	750.53	1.1265	0.9488	METHANOL	-0.4874E-01	
		0.6000			0.1850	0.1974	191.37	1.3043	0.9730	WATER	-0.1237E-01	
11	65.50	0.2000	760.00	794.69	0.5600	0.5102	997.48	1.9791	0.9767	ACETONE	0.4982E-01	0.3322E-01
		0.3000			0.2800	0.3181	750.53	1.0653	0.9504	METHANOL	-0.3810E-01	
		0.5000			0.1600	0.1717	191.37	1.3875	0.9735	WATER	-0.1172E-01	
12	64.50	0.2000	760.00	789.08	0.5000	0.4608	966.43	1.8286	0.9751	ACETONE	0.3921E-01	0.2614E-01
		0.4000			0.3700	0.3997	722.60	1.0346	0.9519	METHANOL	-0.2874E-01	
		0.4000			0.1300	0.1405	183.01	1.4733	0.9737	WATER	-0.1047E-01	
13	63.50	0.2000	760.00	787.97	0.4400	0.4195	936.51	1.7130	0.9734	ACETONE	0.2045E-01	0.1364E-01
		0.5000			0.4700	0.4736	695.52	1.0210	0.9528	METHANOL	-0.3634E-02	
		0.3000			0.0900	0.1068	174.96	1.5596	0.9733	WATER	-0.1682E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	62.50	0.2000	760.00	759.66	0.3850	0.3844	907.12	1.6206	0.9716	ACETONE	0.6430E-03	0.4491E-02
		0.6000			0.5500	0.5439	669.26	1.0180	0.9533	METHANOL	0.6094E-02	
		0.2000			0.0650	0.0717	167.22	1.6460	0.9724	WATER	-0.6737E-02	
15	61.00	0.2000	760.00	778.41	0.3400	0.3548	864.37	1.5454	0.9701	ACETONE	-0.1483E-01	0.1043E-01
		0.7000			0.6250	0.6093	631.37	1.0221	0.9539	METHANOL	0.1565E-01	
		0.1000			0.0350	0.0358	156.15	1.7342	0.9717	WATER	-0.8268E-03	
16	62.80	0.3000	760.00	760.89	0.7600	0.6999	915.86	1.8967	0.9813	ACETONE	0.6011E-01	0.4007E-01
		0.1000			0.0650	0.1092	677.04	1.1561	0.9431	METHANOL	-0.4424E-01	
		0.6000			0.1750	0.1909	169.51	1.3826	0.9689	WATER	-0.1586E-01	
17	62.70	0.3000	760.00	767.03	0.7000	0.6294	912.94	1.7224	0.9799	ACETONE	0.7056E-01	0.4704E-01
		0.2000			0.1500	0.2026	674.44	1.0878	0.9458	METHANOL	-0.5257E-01	
		0.5000			0.1500	0.1680	168.74	1.4810	0.9704	WATER	-0.1799E-01	
18	62.30	0.3000	760.00	774.23	0.6250	0.5732	901.32	1.6011	0.9783	ACETONE	0.5176E-01	0.3451E-01
		0.3000			0.2550	0.2872	664.10	1.0559	0.9475	METHANOL	-0.3219E-01	
		0.4000			0.1200	0.1396	165.70	1.5818	0.9709	WATER	-0.1957E-01	
19	61.50	0.3000	760.00	776.03	0.5700	0.5270	878.44	1.5113	0.9768	ACETONE	0.4304E-01	0.2869E-01
		0.4000			0.3450	0.3658	643.80	1.0444	0.9488	METHANOL	-0.2085E-01	
		0.3000			0.0850	0.1072	159.77	1.6639	0.9709	WATER	-0.2219E-01	
20	60.50	0.3000	760.00	775.58	0.5200	0.4875	850.47	1.4412	0.9752	ACETONE	0.3245E-01	0.2163E-01
		0.5000			0.4150	0.4400	619.14	1.0452	0.9498	METHANOL	-0.2496E-01	
		0.2000			0.0650	0.0725	152.60	1.7868	0.9705	WATER	-0.7494E-02	
21	59.50	0.3000	760.00	777.16	0.4650	0.4530	823.18	1.3839	0.9736	ACETONE	0.1199E-01	0.7996E-02
		0.6000			0.5000	0.5104	595.24	1.0539	0.9503	METHANOL	-0.1044E-01	
		0.1000			0.0350	0.0366	145.70	1.8893	0.9698	WATER	-0.1551E-02	
22	61.50	0.4000	760.00	764.54	0.7900	0.7283	878.44	1.5510	0.9815	ACETONE	0.6168E-01	0.4112E-01
		0.1000			0.0600	0.1004	643.80	1.1196	0.9408	METHANOL	-0.4037E-01	
		0.5000			0.1500	0.1713	159.77	1.5841	0.9669	WATER	-0.2131E-01	
23	60.80	0.4000	760.00	761.51	0.7250	0.6668	858.78	1.4452	0.9805	ACETONE	0.5819E-01	0.3879E-01
		0.2000			0.1550	0.1899	626.45	1.0875	0.9435	METHANOL	-0.3493E-01	
		0.4000			0.1200	0.1433	154.72	1.7057	0.9682	WATER	-0.2327E-01	
24	60.00	0.4000	760.00	762.07	0.6700	0.6159	836.74	1.3694	0.9792	ACETONE	0.5406E-01	0.3604E-01
		0.3000			0.2420	0.2732	607.09	1.0788	0.9453	METHANOL	-0.3117E-01	
		0.3000			0.0880	0.1109	149.12	1.8288	0.9687	WATER	-0.2289E-01	
25	59.40	0.4000	760.00	772.12	0.6150	0.5718	820.49	1.3114	0.9776	ACETONE	0.4317E-01	0.2878E-01
		0.4000			0.3220	0.3524	592.89	1.0840	0.9462	METHANOL	-0.3044E-01	
		0.2000			0.0630	0.0757	145.03	1.9508	0.9684	WATER	-0.1273E-01	
26	58.40	0.4000	760.00	773.57	0.5650	0.5339	793.95	1.2657	0.9761	ACETONE	0.3111E-01	0.2074E-01
		0.5000			0.4020	0.4277	569.82	1.0982	0.9470	METHANOL	-0.2574E-01	
		0.1000			0.0330	0.0394	138.43	2.0739	0.9678	WATER	-0.5371E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	60.00	0.5000	760.00	757.63	0.9100	0.7534	836.74	1.3359	0.9819	ACETONE	0.5657E-01	0.3771E-01
		0.1000			0.0650	0.0960	607.09	1.1229	0.9392	METHANOL	-0.3096E-01	
		0.4000			0.1250	0.1506	149.12	1.8453	0.9652	WATER	-0.2561E-01	
28	59.40	0.5000	760.00	762.80	0.7500	0.6969	820.49	1.2672	0.9808	ACETONE	0.5311E-01	0.3541E-01
		0.2000			0.1600	0.1852	592.99	1.1198	0.9413	METHANOL	-0.2522E-01	
		0.3000			0.0900	0.1179	145.03	1.9953	0.9660	WATER	-0.2789E-01	
29	58.60	0.5000	760.00	767.38	0.7000	0.6490	799.20	1.2173	0.9795	ACETONE	0.5101E-01	0.3401E-01
		0.3000			0.2320	0.2701	574.37	1.1322	0.9428	METHANOL	-0.3808E-01	
		0.2000			0.0680	0.0809	139.72	2.1456	0.9661	WATER	-0.1293E-01	
30	57.60	0.5000	760.00	769.34	0.6500	0.6074	773.20	1.1789	0.9782	ACETONE	0.4261E-01	0.2841E-01
		0.4000			0.3170	0.3514	551.89	1.1541	0.9439	METHANOL	-0.3438E-01	
		0.1000			0.0330	0.0412	133.33	2.2960	0.9658	WATER	-0.8226E-02	
31	59.10	0.6000	760.00	764.45	0.8200	0.7772	812.46	1.1933	0.9819	ACETONE	0.4284E-01	0.2856E-01
		0.1000			0.0300	0.0952	585.89	1.1622	0.9370	METHANOL	-0.1521E-01	
		0.3000			0.1000	0.1276	143.02	2.1885	0.9630	WATER	-0.2763E-01	
32	58.30	0.6000	760.00	769.21	0.7700	0.7248	791.33	1.1485	0.9809	ACETONE	0.4522E-01	0.3015E-01
		0.2000			0.1630	0.1868	567.55	1.1867	0.9389	METHANOL	-0.2380E-01	
		0.2000			0.0670	0.0884	137.78	2.3767	0.9635	WATER	-0.2143E-01	
33	57.30	0.6000	760.00	772.08	0.7200	0.6792	765.53	1.1153	0.9798	ACETONE	0.4081E-01	0.2721E-01
		0.3000			0.2450	0.2755	545.28	1.2206	0.9403	METHANOL	-0.3046E-01	
		0.1000			0.0350	0.0453	131.46	2.5642	0.9634	WATER	-0.1035E-01	
34	58.20	0.7000	760.00	770.36	0.8270	0.8038	788.73	1.0982	0.9820	ACETONE	0.2321E-01	0.1547E-01
		0.1000			0.0950	0.0977	565.29	1.2431	0.9347	METHANOL	-0.2742E-02	
		0.2000			0.0780	0.0985	137.14	2.6547	0.9605	WATER	-0.2047E-01	
35	57.20	0.7000	760.00	774.02	0.7780	0.7544	762.99	1.0696	0.9811	ACETONE	0.2358E-01	0.1572E-01
		0.2000			0.1840	0.1946	543.10	1.2966	0.9365	METHANOL	-0.1059E-01	
		0.1000			0.0380	0.0510	130.84	2.8955	0.9606	WATER	-0.1299E-01	
36	57.20	0.8000	760.00	772.38	0.8600	0.8371	762.99	1.0375	0.9822	ACETONE	0.2286E-01	0.1524E-01
		0.1000			0.1000	0.1042	543.10	1.3793	0.9323	METHANOL	-0.4195E-02	
		0.1000			0.0400	0.0587	130.84	3.3133	0.9575	WATER	-0.1866E-01	

ACETONE(1) - METHANOL(2) - WATER(3) SYSTEM 015

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
508.70	46.60	213.50	0.309	0.187	2.880	0.0	ACETONE	2
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
647.40	218.30	55.20	0.344	0.010	1.850	0.0	WATER	34

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.70200E 01	0.11610E 04	0.22400E 03	ACETONE	0.5686E 02	0.8426E-02	0.1651E-03
0.78736E 01	0.14731E 04	0.23000E 03	METHANOL	0.6451E 02	-0.1972E 00	0.3874E-03
0.79668E 01	0.16682E 04	0.22800E 03	WATER	0.2289E 02	-0.3642E-01	0.6856E-04

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-190.46	648.25	ACETONE - METHANOL	13	0
527.84	1439.95	ACETONE - WATER	17	0
483.16	322.47	METHANOL - WATER	157	0

HALA CONSISTENCY TEST

CI(1) 1.3453

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.9579E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.1470E-01
COMPONENT 2	0.1271E-01
COMPONENT 3	0.7188E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.1154E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	90.71	0.0020	760.00	769.98	0.0410	0.0503	2051.39	9.0978	0.9660	ACETONE	-0.9323E-02	0.2273E-01
		0.0560			0.2560	0.2808	1790.06	2.0803	0.9660	METHANOL	-0.2477E-01	
		0.9420			0.7030	0.6689	537.11	1.0082	0.9910	WATER	0.3409E-01	
2	79.95	0.0020	760.00	728.98	0.0030	0.0209	1532.24	4.7736	0.9649	ACETONE	-0.1785E-01	0.2302E-01
		0.2340			0.6070	0.5725	1259.54	1.3679	0.9675	METHANOL	0.3452E-01	
		0.7640			0.3900	0.4067	353.09	1.0840	0.9870	WATER	-0.1667E-01	
3	70.33	0.0020	760.00	737.92	0.0080	0.0082	1157.22	2.4920	0.9597	ACETONE	-0.1669E-03	0.1995E-02
		0.6390			0.8330	0.8358	897.84	1.0358	0.9649	METHANOL	-0.2828E-02	
		0.3590			0.1590	0.1560	236.42	1.3276	0.9794	WATER	0.2991E-02	
4	69.14	0.0030	760.00	744.52	0.0140	0.0109	1116.18	2.3245	0.9587	ACETONE	0.3065E-02	0.5769E-02
		0.7090			0.9580	0.9667	859.57	1.0207	0.9642	METHANOL	-0.8655E-02	
		0.2890			0.1280	0.1224	224.57	1.3725	0.9780	WATER	0.5586E-02	
5	78.43	0.0040	760.00	727.47	0.0280	0.0366	1467.66	4.3648	0.9651	ACETONE	-0.8593E-02	0.1898E-01
		0.2660			0.6190	0.5905	1195.82	1.3044	0.9672	METHANOL	0.2847E-01	
		0.7300			0.3530	0.3729	331.97	1.1033	0.9862	WATER	-0.1988E-01	
6	70.95	0.0040	760.00	743.12	0.0080	0.0170	1179.05	2.5582	0.9602	ACETONE	-0.8955E-02	0.5969E-02
		0.6080			0.8170	0.8134	918.32	1.0430	0.9649	METHANOL	0.3614E-02	
		0.3880			0.1750	0.1697	242.81	1.3105	0.9798	WATER	0.5337E-02	
7	66.03	0.0040	760.00	749.84	0.0060	0.0114	1014.13	2.0069	0.9562	ACETONE	-0.5386E-02	0.3589E-02
		0.8890			0.9460	0.9455	765.67	1.0021	0.9625	METHANOL	0.5268E-03	
		0.1080			0.0480	0.0431	195.93	1.4890	0.9745	WATER	0.4854E-02	
8	66.14	0.0060	760.00	750.32	0.0150	0.0172	1017.62	2.0170	0.9567	ACETONE	-0.2205E-02	0.6287E-02
		0.8750			0.9280	0.9352	768.84	1.0025	0.9625	METHANOL	-0.7228E-02	
		0.1190			0.0570	0.0476	196.88	1.4840	0.9747	WATER	0.9428E-02	
9	76.13	0.0100	760.00	731.27	0.0520	0.0742	1373.82	3.8053	0.9658	ACETONE	-0.2222E-01	0.2003E-01
		0.3160			0.6340	0.6040	1104.26	1.2213	0.9663	METHANOL	0.3005E-01	
		0.6740			0.3140	0.3218	302.03	1.1380	0.9849	WATER	-0.7832E-02	
10	79.82	0.0170	760.00	743.87	0.2220	0.2153	1526.63	5.9787	0.9716	ACETONE	0.6730E-02	0.4487E-02
		0.1260			0.3560	0.3571	1253.98	1.6194	0.9647	METHANOL	-0.1082E-02	
		0.8570			0.4220	0.4276	351.24	1.0423	0.9868	WATER	-0.5649E-02	
11	80.89	0.0180	760.00	762.06	0.2410	0.2486	1573.22	6.4866	0.9723	ACETONE	-0.7606E-02	0.5071E-02
		0.1910			0.3090	0.3077	1300.25	1.7181	0.9636	METHANOL	0.1288E-02	
		0.8810			0.4500	0.4437	366.70	1.0323	0.9867	WATER	0.6318E-02	
12	65.02	0.0200	760.00	747.76	0.0500	0.0535	982.58	1.9448	0.9582	ACETONE	-0.3488E-02	0.2323E-02
		0.8860			0.9120	0.9099	737.01	1.0008	0.9620	METHANOL	0.2136E-02	
		0.0940			0.0380	0.0367	187.32	1.5159	0.9745	WATER	0.1346E-02	
13	71.62	0.0390	760.00	754.70	0.1730	0.1862	1202.99	2.8922	0.9681	ACETONE	-0.1324E-01	0.2601E-01
		0.4100			0.6240	0.5850	940.85	1.1004	0.9629	METHANOL	0.3901E-01	
		0.5510			0.2030	0.2288	249.87	1.2301	0.9815	WATER	-0.2577E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	66.21	0.0400	760.00	759.03	0.0810	0.1141	1019.84	2.0368	0.9618	ACETONE	-0.3314E-01	0.2209E-01
		0.7600			0.8150	0.8077	770.87	1.0047	0.9616	METHANOL	0.7303E-02	
		0.2000			0.1040	0.0782	197.50	1.4652	0.9761	WATER	0.2583E-01	
15	69.28	0.0440	760.00	762.40	0.1340	0.1620	1120.94	2.4112	0.9657	ACETONE	-0.2799E-01	0.1866E-01
		0.5520			0.6970	0.6752	864.00	1.0369	0.9622	METHANOL	0.2181E-01	
		0.4040			0.1690	0.1628	225.93	1.3308	0.9792	WATER	0.6190E-02	
16	73.90	0.0480	760.00	761.81	0.3350	0.3602	1287.22	4.3176	0.9748	ACETONE	-0.2524E-01	0.1683E-01
		0.1680			0.3490	0.3253	1020.87	1.3848	0.9598	METHANOL	0.2370E-01	
		0.7840			0.3160	0.3145	275.20	1.0899	0.9822	WATER	0.1537E-02	
17	73.91	0.0550	760.00	781.85	0.4900	0.5079	1287.60	5.4695	0.9783	ACETONE	-0.1788E-01	0.1192E-01
		0.0710			0.1660	0.1634	1021.24	1.6793	0.9546	METHANOL	0.2613E-02	
		0.8740			0.3440	0.3287	275.31	1.0454	0.9794	WATER	0.1527E-01	
18	65.03	0.0630	760.00	760.15	0.1460	0.1648	982.38	1.9441	0.9637	ACETONE	-0.1879E-01	0.1253E-01
		0.7560			0.7790	0.7665	737.29	1.0024	0.9605	METHANOL	0.1255E-01	
		0.1810			0.0750	0.0688	187.40	1.5022	0.9755	WATER	0.6242E-02	
19	68.23	0.0680	760.00	768.19	0.2040	0.2304	1085.55	2.3150	0.9681	ACETONE	-0.2643E-01	0.1762E-01
		0.5250			0.6290	0.6119	831.19	1.0330	0.9604	METHANOL	0.1707E-01	
		0.4070			0.1670	0.1576	215.84	1.3479	0.9785	WATER	0.9364E-02	
20	64.44	0.0720	760.00	769.44	0.1460	0.1754	964.80	1.8668	0.9635	ACETONE	-0.2943E-01	0.1962E-01
		0.7890			0.7960	0.7724	720.95	1.0011	0.9596	METHANOL	0.2358E-01	
		0.1390			0.0580	0.0522	182.52	1.5407	0.9745	WATER	0.5839E-02	
21	64.39	0.0760	760.00	767.64	0.1610	0.1855	963.28	1.8702	0.9641	ACETONE	-0.2454E-01	0.1636E-01
		0.7740			0.7760	0.7583	719.58	1.0013	0.9595	METHANOL	0.1770E-01	
		0.1500			0.0630	0.0562	182.11	1.5376	0.9747	WATER	0.6829E-02	
22	62.57	0.0810	760.00	756.49	0.1650	0.1779	909.15	1.7553	0.9632	ACETONE	-0.1291E-01	0.8602E-02
		0.9640			0.9130	0.8919	671.06	1.0021	0.9593	METHANOL	0.1112E-01	
		0.0550			0.0220	0.0202	167.75	1.6132	0.9734	WATER	0.1775E-02	
23	62.91	0.0840	760.00	758.27	0.1700	0.1883	919.08	1.7772	0.9638	ACETONE	-0.1827E-01	0.1218E-01
		0.8330			0.7970	0.7812	679.92	1.0016	0.9592	METHANOL	0.1585E-01	
		0.0830			0.0330	0.0306	170.36	1.5963	0.9738	WATER	0.2412E-02	
24	62.55	0.0990	760.00	759.73	0.2030	0.2150	908.57	1.7477	0.9650	ACETONE	-0.1204E-01	0.8023E-02
		0.8150			0.7620	0.7535	670.55	1.0026	0.9586	METHANOL	0.8468E-02	
		0.0860			0.0350	0.0314	167.60	1.6122	0.9736	WATER	0.3564E-02	
25	63.27	0.1070	760.00	764.66	0.2260	0.2421	929.68	1.7939	0.9665	ACETONE	-0.1615E-01	0.1076E-01
		0.7450			0.7160	0.7036	689.40	1.0023	0.9582	METHANOL	0.1235E-01	
		0.1480			0.0580	0.0542	173.15	1.5749	0.9743	WATER	0.3792E-02	
26	61.11	0.1200	760.00	760.50	0.2230	0.2334	967.45	1.6408	0.9650	ACETONE	-0.1039E-01	0.6946E-02
		0.8660			0.7720	0.7616	634.09	1.0084	0.9575	METHANOL	0.1041E-01	
		0.0140			0.0050	0.0050	156.94	1.6936	0.9723	WATER	-0.3566E-04	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	63.34	0.1210	760.00	770.27	0.2540	0.2709	931.76	1.7860	0.9677	ACETONE	-0.1693E-01	0.1128E-01
		0.7080			0.6790	0.6668	691.26	1.0032	0.9574	METHANOL	0.1223E-01	
		0.1710			0.0670	0.0623	173.70	1.5731	0.9742	WATER	0.4693E-02	
28	66.74	0.1250	760.00	771.90	0.3720	0.3914	1036.78	2.2639	0.9739	ACETONE	-0.1939E-01	0.1293E-01
		0.3860			0.4460	0.4337	786.35	1.0527	0.9560	METHANOL	0.1234E-01	
		0.4890			0.1820	0.1749	202.18	1.3335	0.9769	WATER	0.7057E-02	
29	67.21	0.1260	760.00	775.41	0.6840	0.6931	1051.98	3.9676	0.9814	ACETONE	-0.9111E-02	0.6950E-02
		0.0320			0.0540	0.0553	800.29	1.5801	0.9449	METHANOL	-0.1313E-02	
		0.8420			0.2620	0.2516	206.41	1.0894	0.9713	WATER	0.1042E-01	
30	67.39	0.1280	760.00	769.73	0.4500	0.4648	1057.84	2.5729	0.9765	ACETONE	-0.1483E-01	0.9885E-02
		0.2640			0.3400	0.3253	805.66	1.1215	0.9541	METHANOL	0.1469E-01	
		0.6080			0.2100	0.2099	208.05	1.2465	0.9767	WATER	0.1346E-03	
31	60.83	0.1300	760.00	758.06	0.2380	0.2489	859.62	1.6261	0.9658	ACETONE	-0.1091E-01	0.8240E-02
		0.8520			0.7570	0.7446	627.18	1.0096	0.9572	METHANOL	0.1236E-01	
		0.0190			0.0050	0.0065	154.93	1.7045	0.9723	WATER	-0.1454E-02	
32	61.42	0.1380	760.00	760.62	0.2570	0.2735	876.18	1.6596	0.9673	ACETONE	-0.1652E-01	0.1101E-01
		0.7860			0.7110	0.6992	641.80	1.0073	0.9569	METHANOL	0.1182E-01	
		0.0760			0.0320	0.0273	159.18	1.6693	0.9729	WATER	0.4692E-02	
33	63.66	0.1380	760.00	769.32	0.3000	0.3186	941.28	1.8251	0.9701	ACETONE	-0.1859E-01	0.1239E-01
		0.6200			0.6090	0.5939	699.79	1.0059	0.9566	METHANOL	0.1507E-01	
		0.2420			0.0910	0.0875	176.23	1.5372	0.9747	WATER	0.3515E-02	
34	62.80	0.1460	760.00	772.40	0.2830	0.3108	915.86	1.7351	0.9692	ACETONE	-0.2782E-01	0.1855E-01
		0.6780			0.6450	0.6257	677.04	1.0053	0.9562	METHANOL	0.1926E-01	
		0.1760			0.0720	0.0634	169.51	1.5984	0.9737	WATER	0.8555E-02	
35	63.81	0.1520	760.00	775.05	0.3270	0.3496	945.77	1.8251	0.9712	ACETONE	-0.2256E-01	0.1504E-01
		0.5760			0.5670	0.5527	703.82	1.0083	0.9556	METHANOL	0.1425E-01	
		0.2720			0.1060	0.0977	177.42	1.5281	0.9745	WATER	0.8302E-02	
36	62.46	0.1920	760.00	773.60	0.3750	0.3939	905.96	1.6990	0.9725	ACETONE	-0.1893E-01	0.1262E-01
		0.5680			0.5330	0.5209	668.22	1.0111	0.9539	METHANOL	0.1213E-01	
		0.2400			0.0920	0.0852	166.92	1.6002	0.9733	WATER	0.6805E-02	
37	59.32	0.2100	760.00	760.00	0.3390	0.3506	818.34	1.4993	0.9699	ACETONE	-0.1156E-01	0.7703E-02
		0.7650			0.6510	0.6406	591.01	1.0258	0.9541	METHANOL	0.1044E-01	
		0.0250			0.0100	0.0099	144.49	1.8144	0.9710	WATER	0.1113E-02	
38	61.55	0.2150	760.00	772.09	0.3900	0.4039	879.86	1.6188	0.9728	ACETONE	-0.1388E-01	0.1258E-01
		0.5830			0.5330	0.5195	645.05	1.0149	0.9531	METHANOL	0.1353E-01	
		0.2020			0.0770	0.0717	160.13	1.6620	0.9724	WATER	0.5347E-02	
39	61.36	0.2170	760.00	772.18	0.3920	0.4061	874.48	1.6028	0.9727	ACETONE	-0.1412E-01	0.9415E-02
		0.5960			0.5380	0.5275	640.30	1.0156	0.9530	METHANOL	0.1052E-01	
		0.1870			0.0700	0.0664	158.74	1.6780	0.9723	WATER	0.3604E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	64.16	0.2180	760.00	761.73	0.6830	0.6907	956.31	2.4695	0.9813	ACETONE	-0.7695E-02	0.6383E-02
		0.0780			0.0960	0.0979	713.30	1.2634	0.9442	METHANOL	-0.1879E-02	
		0.7040			0.2210	0.2114	180.24	1.2304	0.9701	WATER	0.9574E-02	
41	63.86	0.2220	760.00	755.32	0.7000	0.6755	947.27	2.3737	0.9812	ACETONE	0.2453E-01	0.1783E-01
		0.0970			0.0910	0.1177	705.17	1.2270	0.9452	METHANOL	-0.2674E-01	
		0.6810			0.2090	0.2068	177.83	1.2511	0.9707	WATER	0.2206E-02	
42	62.04	0.2230	760.00	769.86	0.4340	0.4442	893.84	1.6669	0.9744	ACETONE	-0.1018E-01	0.6784E-02
		0.5030			0.4640	0.4594	657.44	1.0171	0.9523	METHANOL	0.4552E-02	
		0.2740			0.1020	0.0964	163.75	1.6075	0.9728	WATER	0.5623E-02	
43	58.72	0.2390	760.00	763.97	0.3600	0.3745	802.37	1.4436	0.9705	ACETONE	-0.1448E-01	0.9651E-02
		0.7590			0.6360	0.6248	577.12	1.0369	0.9529	METHANOL	0.1119E-01	
		0.0020			0.0040	0.0007	140.51	1.8807	0.9701	WATER	0.3286E-02	
44	61.38	0.2430	760.00	773.51	0.4410	0.4498	875.05	1.5896	0.9743	ACETONE	-0.8819E-02	0.5879E-02
		0.5270			0.4720	0.4638	640.80	1.0203	0.9516	METHANOL	0.3175E-02	
		0.2300			0.0870	0.0814	158.89	1.6725	0.9719	WATER	0.5643E-02	
45	62.38	0.2440	760.00	771.14	0.4860	0.4979	903.64	1.6952	0.9763	ACETONE	-0.1190E-01	0.7931E-02
		0.4080			0.3870	0.3813	666.16	1.0269	0.9506	METHANOL	0.5669E-02	
		0.3480			0.1270	0.1208	166.31	1.5637	0.9724	WATER	0.6228E-02	
46	63.09	0.2510	760.00	751.95	0.7320	0.7158	924.37	2.2713	0.9818	ACETONE	0.1618E-01	0.1079E-01
		0.0660			0.0660	0.0798	684.65	1.2500	0.9431	METHANOL	-0.1376E-01	
		0.6830			0.2020	0.2044	171.75	1.2691	0.9691	WATER	-0.2421E-02	
47	63.08	0.2520	760.00	767.22	0.5700	0.5704	924.08	1.8338	0.9786	ACETONE	-0.3943E-03	0.1476E-02
		0.2700			0.2680	0.2698	684.38	1.0609	0.9485	METHANOL	-0.1820E-02	
		0.4780			0.1620	0.1598	171.67	1.4511	0.9720	WATER	0.2214E-02	
48	63.45	0.2540	760.00	761.99	0.6900	0.6858	935.03	2.1524	0.9812	ACETONE	0.4232E-02	0.8252E-02
		0.1000			0.1030	0.1154	694.18	1.1936	0.9441	METHANOL	-0.1238E-01	
		0.6460			0.2070	0.1989	174.57	1.3020	0.9697	WATER	0.8146E-02	
49	58.97	0.2550	760.00	767.38	0.3800	0.3999	809.00	1.4412	0.9716	ACETONE	-0.1993E-01	0.1329E-01
		0.7080			0.6000	0.5868	582.88	1.0374	0.9522	METHANOL	0.1317E-01	
		0.0370			0.0200	0.0132	142.16	1.8733	0.9701	WATER	0.6755E-02	

ACETONE(1) - METHYL ACETATE(2) - METHANOL(3) SYSTEM 016

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
508.70	46.60	213.50	0.309	0.187	2.880	0.0	ACETONE	2
506.90	46.30	228.00	0.326	0.215	1.720	0.62	ME AC	24
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS

A	B	C	COMPONENT
0.70200E 01	0.11610E 04	0.22400E 03	ACETONE
0.69894E 01	0.11110E 04	0.21351E 03	ME AC
0.78786E 01	0.14731E 04	0.23000E 03	METHANOL

MOLAR VOLUME EQUATION COEFFICIENTS

COMPONENT	A	B	C
ACETONE	0.5686E 02	0.8426E-02	0.1651E-03
ME AC	0.1360E 03	-0.4671E 00	0.9221E-03
METHANOL	0.6451E 02	-0.1972E 00	0.3874E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
366.19	-222.22	ACETONE - ME AC	14	0
-190.46	648.25	ACETONE - METHANOL	13	0
-110.40	888.03	ME AC - METHANOL	166	0

HALA CONSISTENCY TEST

CI(1) 2.0455

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.1117E 02

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.7566E-02
COMPONENT 2	0.9559E-02
COMPONENT 3	0.1338E-01

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.1017E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	50.00	0.0180	650.00	659.77	0.0196	0.0192	596.37	1.1330	0.9633	ACETONE	0.4159E-03	0.7020E-02
		0.4380			0.5650	0.5755	568.44	1.3040	0.9552	ME AC	-0.1053E-01	
		0.4940			0.4154	0.4053	403.35	1.2809	0.9558	METHANOL	0.1012E-01	
2	50.00	0.0205	650.30	659.71	0.0215	0.0218	596.37	1.1328	0.9635	ACETONE	-0.3431E-03	0.7765E-02
		0.4860			0.5620	0.5733	568.44	1.3042	0.9552	ME AC	-0.1130E-01	
		0.4935			0.4165	0.4049	403.35	1.2808	0.9558	METHANOL	0.1165E-01	
3	50.00	0.1020	647.70	662.85	0.1110	0.1050	596.37	1.1028	0.9668	ACETONE	0.6049E-02	0.9355E-02
		0.4650			0.5340	0.5260	568.44	1.2567	0.9552	ME AC	0.7985E-02	
		0.4330			0.3550	0.3690	403.35	1.3353	0.9547	METHANOL	-0.1403E-01	
4	50.00	0.1110	647.50	662.83	0.1210	0.1140	596.37	1.1010	0.9671	ACETONE	0.7021E-02	0.1094E-01
		0.4600			0.5290	0.5196	568.44	1.2548	0.9552	ME AC	0.9393E-02	
		0.4290			0.3500	0.3664	403.35	1.3380	0.9545	METHANOL	-0.1641E-01	
5	50.00	0.4720	638.20	642.46	0.4660	0.4564	596.37	1.0179	0.9795	ACETONE	0.9603E-02	0.6402E-02
		0.4650			0.4560	0.4585	568.44	1.0606	0.9542	ME AC	-0.2500E-02	
		0.0630			0.0780	0.0851	403.35	2.0350	0.9471	METHANOL	-0.7101E-02	
6	50.00	0.4540	638.20	649.15	0.4420	0.4342	596.37	1.0164	0.9787	ACETONE	0.7764E-02	0.5175E-02
		0.4490			0.4400	0.4431	568.44	1.0725	0.9541	ME AC	-0.3113E-02	
		0.0970			0.1180	0.1226	403.35	1.9257	0.9476	METHANOL	-0.4648E-02	
7	50.00	0.4520	600.00	606.19	0.5690	0.5460	596.37	1.2004	0.9799	ACETONE	0.2297E-01	0.1664E-01
		0.0175			0.0280	0.0260	568.44	1.5109	0.9556	ME AC	0.1990E-02	
		0.5305			0.4030	0.4280	403.35	1.1536	0.9527	METHANOL	-0.2496E-01	
8	50.00	0.4310	497.00	602.34	0.5610	0.5320	596.37	1.2184	0.9796	ACETONE	0.2904E-01	0.2007E-01
		0.0170			0.0270	0.0259	568.44	1.5411	0.9561	ME AC	0.1076E-02	
		0.5520			0.4120	0.4421	403.35	1.1390	0.9535	METHANOL	-0.3011E-01	
9	50.00	0.4340	628.50	632.79	0.4800	0.4718	596.37	1.1254	0.9781	ACETONE	0.8231E-02	0.5486E-02
		0.1240			0.1600	0.1603	568.44	1.3703	0.9548	ME AC	-0.2772E-03	
		0.4420			0.3600	0.3680	403.35	1.2411	0.9515	METHANOL	-0.7951E-02	
10	50.00	0.4210	627.70	631.00	0.4570	0.4629	596.37	1.1349	0.9779	ACETONE	-0.5906E-02	0.5957E-02
		0.1220			0.1570	0.1600	568.44	1.3870	0.9550	ME AC	-0.3028E-02	
		0.4570			0.3860	0.3771	403.35	1.2271	0.9519	METHANOL	0.8937E-02	
11	50.00	0.1850	618.00	622.24	0.2240	0.2257	596.37	1.2336	0.9714	ACETONE	-0.1701E-02	0.3279E-02
		0.2100			0.3070	0.3102	568.44	1.5440	0.9573	ME AC	-0.3216E-02	
		0.6050			0.4690	0.4641	403.35	1.1512	0.9571	METHANOL	0.4920E-02	
12	50.00	0.1840	616.70	620.87	0.2240	0.2259	596.37	1.2385	0.9714	ACETONE	-0.1869E-02	0.1748E-02
		0.2060			0.3060	0.3068	568.44	1.5532	0.9573	ME AC	-0.7517E-03	
		0.6100			0.4700	0.4674	403.35	1.1279	0.9573	METHANOL	0.2624E-02	
13	50.00	0.0663	521.00	515.38	0.1210	0.1271	596.37	1.6049	0.9707	ACETONE	-0.6093E-02	0.1137E-01
		0.0620			0.1740	0.1569	568.44	2.2063	0.9633	ME AC	0.1705E-01	
		0.8717			0.7050	0.7160	403.35	1.0134	0.9667	METHANOL	-0.1096E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	PTOL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	50.00	0.0648	518.50	513.14	0.1190	0.1253	596.37	1.6119	0.9707	ACETONE	-0.6301E-02	0.1108E-01
		0.0600			0.1700	0.1534	568.44	2.2188	0.9634	ME AC	0.1661E-01	
		0.8752			0.7110	0.7213	403.35	1.0127	0.9668	METHANOL	-0.1031E-01	
15	50.00	0.0463	619.00	643.75	0.0519	0.0491	596.37	1.1061	0.9683	ACETONE	0.2783E-02	0.1854E-02
		0.8590			0.8040	0.8063	568.44	1.0150	0.9572	ME AC	-0.2350E-02	
		0.0947			0.1441	0.1445	403.35	2.3206	0.9539	METHANOL	-0.4286E-03	
16	50.00	0.0464	617.50	644.96	0.0508	0.0491	596.37	1.1043	0.9682	ACETONE	0.1744E-02	0.1649E-01
		0.8550			0.8250	0.8020	568.44	1.0160	0.9571	ME AC	0.2300E-01	
		0.0986			0.1242	0.1489	403.35	2.3010	0.9539	METHANOL	-0.2474E-01	
17	50.00	0.1590	656.00	662.18	0.1530	0.1619	596.37	1.0926	0.9689	ACETONE	-0.8892E-02	0.3783E-01
		0.4300			0.4360	0.4839	568.44	1.2488	0.9552	ME AC	-0.4786E-01	
		0.4110			0.4110	0.3542	403.35	1.3481	0.9540	METHANOL	0.5675E-01	
18	50.00	0.1600	655.70	662.23	0.1530	0.1628	596.37	1.0922	0.9689	ACETONE	-0.9825E-02	0.3822E-01
		0.4300			0.4360	0.4835	568.44	1.2480	0.9552	ME AC	-0.4750E-01	
		0.4100			0.4110	0.3537	403.35	1.3492	0.9540	METHANOL	0.5733E-01	
19	50.00	0.9100	620.50	619.62	0.8920	0.8924	596.37	1.0014	0.9851	ACETONE	-0.4138E-03	0.7777E-03
		0.0400			0.0450	0.0438	568.44	1.1283	0.9469	ME AC	0.1165E-02	
		0.0500			0.0630	0.0638	403.35	1.8326	0.9368	METHANOL	-0.7540E-03	
20	50.00	0.9080	620.00	619.96	0.8950	0.8901	596.37	1.0015	0.9851	ACETONE	0.4915E-02	0.3388E-02
		0.0400			0.0440	0.0438	568.44	1.1290	0.9470	ME AC	0.1650E-03	
		0.0520			0.0610	0.0661	403.35	1.8277	0.9369	METHANOL	-0.5083E-02	
21	50.00	0.5390	640.50	648.24	0.5310	0.5290	596.37	1.0425	0.9796	ACETONE	0.1964E-02	0.3413E-02
		0.1880			0.2130	0.2098	568.44	1.2098	0.9529	ME AC	0.3156E-02	
		0.2730			0.2560	0.2611	403.35	1.4548	0.9476	METHANOL	-0.5118E-02	
22	50.00	0.5390	640.00	648.24	0.5330	0.5290	596.37	1.0425	0.9796	ACETONE	0.3964E-02	0.3413E-02
		0.1880			0.2110	0.2098	568.44	1.2098	0.9529	ME AC	0.1156E-02	
		0.2730			0.2560	0.2611	403.35	1.4548	0.9476	METHANOL	-0.5118E-02	
23	50.00	0.2340	649.70	651.17	0.2420	0.2471	596.37	1.1177	0.9718	ACETONE	-0.5110E-02	0.2627E-01
		0.3120			0.3440	0.3783	568.44	1.3237	0.9555	ME AC	-0.3430E-01	
		0.4540			0.4140	0.3746	403.35	1.2690	0.9540	METHANOL	0.3941E-01	
24	50.00	0.2560	648.50	653.38	0.2510	0.2659	596.37	1.1036	0.9724	ACETONE	-0.1486E-01	0.3154E-01
		0.3150			0.3420	0.3745	568.44	1.2978	0.9553	ME AC	-0.3245E-01	
		0.4290			0.4070	0.3597	403.35	1.2962	0.9534	METHANOL	0.4732E-01	
25	50.00	0.0573	621.00	623.51	0.0638	0.0640	596.37	1.1308	0.9704	ACETONE	-0.2167E-03	0.6657E-03
		0.9320			0.9650	0.8640	568.44	1.0047	0.9586	ME AC	0.1000E-02	
		0.0107			0.0712	0.0720	403.35	2.6058	0.9544	METHANOL	-0.7802E-03	
26	50.00	0.2330	656.00	666.04	0.2250	0.2235	596.37	1.0385	0.9719	ACETONE	0.1516E-02	0.2217E-02
		0.5530			0.5400	0.5433	568.44	1.0965	0.9550	ME AC	-0.3323E-02	
		0.2140			0.2350	0.2332	403.35	1.7098	0.9515	METHANOL	0.1811E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	50.00	0.2320	655.70	666.12	0.2220	0.2225	596.37	1.0387	0.9719	ACETONE	-0.5464E-03	0.2688E-02
		0.5530			0.5400	0.5435	568.44	1.0969	0.9550	ME AC	-0.3484E-02	
		0.2150			0.2380	0.2340	403.35	1.7078	0.9516	METHANOL	0.4035E-02	
28	50.00	0.5470	641.70	649.02	0.5260	0.5196	596.37	1.0107	0.9801	ACETONE	0.6408E-02	0.4271E-02
		0.3230			0.3290	0.3336	568.44	1.1037	0.9529	ME AC	-0.4598E-02	
		0.1250			0.1450	0.1469	403.35	1.7856	0.9461	METHANOL	-0.1808E-02	
29	50.00	0.5380	630.50	634.70	0.5310	0.5244	596.37	1.0153	0.9811	ACETONE	0.6606E-02	0.4403E-02
		0.4270			0.4200	0.4263	568.44	1.0602	0.9536	ME AC	-0.6253E-02	
		0.0350			0.0490	0.0494	403.35	2.0954	0.9456	METHANOL	-0.3516E-03	
30	50.00	0.8340	621.50	623.06	0.8730	0.8633	596.37	1.0025	0.9849	ACETONE	0.9705E-02	0.6471E-02
		0.0475			0.0500	0.0541	568.44	1.1325	0.9475	ME AC	-0.4117E-02	
		0.0665			0.0770	0.0826	403.35	1.7967	0.9377	METHANOL	-0.5590E-02	
31	50.00	0.4890	641.50	653.14	0.5130	0.4746	596.37	1.0375	0.9784	ACETONE	0.3837E-01	0.2558E-01
		0.2490			0.2580	0.2708	568.44	1.1884	0.9534	ME AC	-0.1283E-01	
		0.2620			0.2290	0.2545	403.35	1.4900	0.9484	METHANOL	-0.2554E-01	
32	50.00	0.5770	623.30	635.59	0.6080	0.5951	596.37	1.0755	0.9807	ACETONE	0.1287E-01	0.8577E-02
		0.0810			0.0930	0.0982	568.44	1.2882	0.9528	ME AC	-0.5193E-02	
		0.3420			0.2990	0.3067	403.35	1.3374	0.9477	METHANOL	-0.7672E-02	
33	50.00	0.5880	623.00	636.17	0.6090	0.6030	596.37	1.0705	0.9809	ACETONE	0.5987E-02	0.3991E-02
		0.0810			0.0930	0.0974	568.44	1.2791	0.9526	ME AC	-0.4429E-02	
		0.2310			0.2980	0.2996	403.35	1.3506	0.9474	METHANOL	-0.1557E-02	
34	50.00	0.5320	632.00	645.42	0.5450	0.5310	596.37	1.0555	0.9795	ACETONE	0.1402E-01	0.9346E-02
		0.1620			0.1810	0.1360	568.44	1.2392	0.9531	ME AC	-0.4993E-02	
		0.3060			0.2740	0.2830	403.35	1.4014	0.9481	METHANOL	-0.9026E-02	
35	50.00	0.1010	656.00	668.73	0.0980	0.0988	596.37	1.0587	0.9676	ACETONE	-0.8034E-03	0.2143E-02
		0.6640			0.6400	0.6424	568.44	1.0843	0.9553	ME AC	-0.2409E-02	
		0.2350			0.2620	0.2588	403.35	1.7378	0.9531	METHANOL	0.3217E-02	

METHYL ETHYL KETONE(1) - BENZENE(2) - 2-PROPANOL(3) SYSTEM 017

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
533.20	39.50	288.40	0.337	0.215	2.700	0.0	MEK	28
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
508.50	47.00	218.50	0.663	0.187	1.600	0.0	2-CH3OH	22

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.69742E 01	0.12096E 04	0.21600E 03	MEK	0.7119E 02	0.9660E-02	0.1810E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.66604E 01	0.81305E 03	0.13293E 03	2-CH3OH	0.1418E 03	-0.4981E 00	0.9287E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

		BINARY ID NUMBERS	ORDER
74.41	42.98 MEK - BENZENE	237	0
429.93	104.90 MEK - 2-CH3OH	239	0
504.38	750.46 BENZENE - 2-CH3OH	233	0

HALA CONSISTENCY TEST

CI(1) -1.5142

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.7227E 01

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.1219E-01
COMPONENT 2	0.6905E-02
COMPONENT 3	0.9643E-02

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.9580E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	50.00	0.1345	319.50	306.86	0.1110	0.1186	264.52	1.0056	0.9846	MEK	-0.7582E-02	0.8788E-02
		0.7310			0.6810	0.6966	266.50	1.0593	0.9809	BENZENE	-0.5603E-02	
		0.1345			0.2080	0.1948	163.62	2.6870	0.9903	2-CH3OH	0.1318E-01	
2	50.00	0.2660	309.80	300.10	0.2370	0.2408	264.52	1.0113	0.9862	MEK	-0.3753E-02	0.3247E-02
		0.6200			0.6020	0.6031	266.50	1.0729	0.9809	BENZENE	-0.1120E-02	
		0.1140			0.1610	0.1561	163.62	2.4862	0.9909	2-CH3OH	0.4869E-02	
3	50.00	0.4580	296.50	291.58	0.4230	0.4253	264.52	1.0101	0.9882	MEK	-0.2280E-02	0.1786E-02
		0.4580			0.4710	0.4633	266.50	1.0953	0.9804	BENZENE	0.2677E-02	
		0.0840			0.1060	0.1064	163.62	2.2356	0.9915	2-CH3OH	-0.4022E-03	
4	50.00	0.6200	289.20	285.68	0.6030	0.5792	264.52	0.9971	0.9895	MEK	0.2376E-01	0.1584E-01
		0.2660			0.2940	0.2972	266.50	1.1715	0.9792	BENZENE	-0.3247E-02	
		0.1140			0.1030	0.1235	163.62	1.8741	0.9918	2-CH3OH	-0.2052E-01	
5	50.00	0.7310	282.10	278.39	0.6980	0.7017	264.52	0.9992	0.9904	MEK	-0.3672E-02	0.4607E-02
		0.1345			0.1600	0.1632	266.50	1.2388	0.9783	BENZENE	-0.3242E-02	
		0.1345			0.1420	0.1351	163.62	1.6931	0.9917	2-CH3OH	0.6907E-02	
6	50.00	0.6200	283.20	277.17	0.6350	0.6076	264.52	1.0156	0.9902	MEK	0.2736E-01	0.1824E-01
		0.1140			0.1480	0.1542	266.50	1.3755	0.9787	BENZENE	-0.6242E-02	
		0.2660			0.2170	0.2381	163.62	1.5031	0.9922	2-CH3OH	-0.2112E-01	
7	50.00	0.4580	275.50	268.35	0.5270	0.4965	264.52	1.0897	0.9902	MEK	0.3050E-01	0.2033E-01
		0.0840			0.1340	0.1423	266.50	1.6723	0.9796	BENZENE	-0.8315E-02	
		0.4580			0.3390	0.3612	163.62	1.2852	0.9928	2-CH3OH	-0.2219E-01	
8	50.00	0.2660	271.20	267.04	0.3500	0.3204	264.52	1.2016	0.9895	MEK	0.2962E-01	0.1975E-01
		0.1140			0.2180	0.2337	266.50	2.0127	0.9809	BENZENE	-0.1574E-01	
		0.6200			0.4320	0.4459	163.62	1.1645	0.9932	2-CH3OH	-0.1389E-01	
9	50.00	0.1345	268.70	266.65	0.1850	0.1901	264.52	1.3329	0.9886	MEK	0.4894E-02	0.1468E-01
		0.1345			0.3020	0.3240	266.50	2.3634	0.9817	BENZENE	-0.2202E-01	
		0.7310			0.5130	0.4959	163.62	1.0969	0.9932	2-CH3OH	0.1712E-01	
10	50.00	0.1140	298.00	293.40	0.1250	0.1195	264.52	1.1455	0.9866	MEK	0.5509E-02	0.3932E-02
		0.2660			0.4520	0.4579	266.50	1.8562	0.9807	BENZENE	-0.5899E-02	
		0.6200			0.4230	0.4226	163.62	1.2112	0.9920	2-CH3OH	0.3879E-03	
11	50.00	0.0840	322.60	312.17	0.0710	0.0721	264.52	0.9969	0.9848	MEK	-0.1150E-02	0.7911E-02
		0.4580			0.5790	0.5671	266.50	1.4196	0.9801	BENZENE	0.1186E-01	
		0.4580			0.3500	0.3607	163.62	1.4873	0.9910	2-CH3OH	-0.1072E-01	
12	50.00	0.1140	327.20	314.66	0.0890	0.0936	264.52	0.9603	0.9845	MEK	-0.4613E-02	0.4210E-02
		0.6200			0.6290	0.6227	266.50	1.1606	0.9802	BENZENE	0.6313E-02	
		0.2660			0.2820	0.2837	163.62	2.0292	0.9905	2-CH3OH	-0.1704E-02	
13	50.00	0.2310	318.20	307.19	0.1890	0.1971	264.52	0.9758	0.9859	MEK	-0.8147E-02	0.5430E-02
		0.5380			0.5600	0.5541	266.50	1.1621	0.9803	BENZENE	0.5872E-02	
		0.2310			0.2510	0.2487	163.62	2.0011	0.9911	2-CH3OH	0.2271E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	50.00	0.4120	304.40	296.65	0.3570	0.3636	264.52	0.9859	0.9878	MEK	-0.1164E-01	0.7762E-02
		0.4120			0.4420	0.4405	266.50	1.1647	0.9800	BENZENE	0.1540E-02	
		0.1760			0.2010	0.1959	163.62	1.9478	0.9916	2-CH3OH	0.1010E-01	
15	50.00	0.5380	293.10	287.09	0.5190	0.5007	264.52	0.9980	0.9893	MEK	0.1827E-01	0.1219E-01
		0.2310			0.2760	0.2806	266.50	1.2798	0.9793	BENZENE	-0.4599E-02	
		0.2310			0.2050	0.2187	163.62	1.6461	0.9920	2-CH3OH	-0.1368E-01	
16	50.00	0.4120	288.80	282.06	0.4310	0.4090	264.52	1.0458	0.9892	MEK	0.2198E-01	0.1466E-01
		0.1760			0.2520	0.2592	266.50	1.5251	0.9798	BENZENE	-0.7181E-02	
		0.4120			0.3170	0.3313	163.62	1.3765	0.9925	2-CH3OH	-0.1481E-01	
17	50.00	0.2310	294.20	287.94	0.2490	0.2355	264.52	1.0947	0.9879	MEK	0.1352E-01	0.9017E-02
		0.2310			0.3600	0.3717	266.50	1.7021	0.9805	BENZENE	-0.1165E-01	
		0.5380			0.3910	0.3929	163.62	1.2740	0.9924	2-CH3OH	-0.1878E-02	
18	50.00	0.1760	315.80	306.24	0.1420	0.1538	264.52	0.9964	0.9860	MEK	-0.1184E-01	0.7892E-02
		0.4120			0.5140	0.5070	266.50	1.3841	0.9801	BENZENE	0.6984E-02	
		0.4120			0.3440	0.3391	163.62	1.5257	0.9914	2-CH3OH	0.4853E-02	
19	50.00	0.3330	305.40	297.27	0.3010	0.2995	264.52	0.9968	0.9876	MEK	0.1528E-02	0.1737E-02
		0.3330			0.4080	0.4069	266.50	1.3339	0.9799	BENZENE	0.1076E-02	
		0.3340			0.2910	0.2936	163.62	1.5824	0.9919	2-CH3OH	-0.2607E-02	

METHYL ETHYL KETONE(1) - BENZENE(2) - 2-PROPANOL(3) SYSTEM 018

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
533.20	39.50	289.40	0.337	0.215	2.700	0.0	MEK	28
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
508.50	47.00	218.50	0.663	0.187	1.600	0.0	2-CH3OH	22

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.69742E 01	0.12096E 04	0.21600E 03	MEK	0.7119E 02	0.9660E-02	0.1810E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.66604E 01	0.81305E 03	0.13293E 03	2-CH3OH	0.1418E 03	-0.4981E 00	0.9287E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
462.30	-236.55	MEK - BENZENE	238	0
-123.96	431.86	MEK - 2-CH3OH	240	0
173.17	1002.53	BENZENE - 2-CH3OH	234	0

HALA CONSISTENCY TEST

CI(1) 4.0420

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.5604E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.1302E-01
COMPONENT 2	0.8635E-02
COMPONENT 3	0.1072E-01
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.1079E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	74.00	0.1345	760.00	756.46	0.1140	0.1148	623.39	1.0023	0.9709	MEK	-0.8131E-03	0.2456E-02
		0.7310			0.6540	0.6569	607.27	1.0747	0.9633	BENZENE	-0.2872E-02	
		0.1345			0.2320	0.2283	532.03	2.3619	0.9814	2-CH3OH	0.3684E-02	
2	75.02	0.2660	760.00	759.24	0.2400	0.2325	644.40	0.9988	0.9733	MEK	0.7527E-02	0.5018E-02
		0.6200			0.5320	0.5329	626.92	1.0924	0.9627	BENZENE	-0.8570E-03	
		0.1140			0.1780	0.1847	555.91	2.1669	0.9822	2-CH3OH	-0.6671E-02	
3	76.34	0.4530	760.00	761.77	0.4180	0.4145	672.41	0.9976	0.9765	MEK	0.3458E-02	0.2396E-02
		0.4530			0.4530	0.4566	653.07	1.1139	0.9611	BENZENE	-0.3595E-02	
		0.0840			0.1290	0.1289	588.02	1.9481	0.9830	2-CH3OH	0.1363E-03	
4	76.75	0.6200	760.00	759.69	0.5910	0.5657	681.30	0.9926	0.9789	MEK	0.2527E-01	0.1685E-01
		0.2660			0.2840	0.2859	661.36	1.1791	0.9583	BENZENE	-0.1875E-02	
		0.1140			0.1250	0.1484	598.27	1.6210	0.9834	2-CH3OH	-0.2340E-01	
5	77.32	0.7310	760.00	758.46	0.6780	0.6842	693.81	0.9995	0.9802	MEK	-0.6173E-02	0.9875E-02
		0.1345			0.1450	0.1536	673.01	1.2262	0.9557	BENZENE	-0.8639E-02	
		0.1345			0.1770	0.1622	612.76	1.4633	0.9832	2-CH3OH	0.1481E-01	
6	76.59	0.6200	760.00	753.24	0.6080	0.5911	677.92	1.0171	0.9797	MEK	0.2686E-01	0.1790E-01
		0.1140			0.1340	0.1417	658.11	1.3564	0.9563	BENZENE	-0.7741E-02	
		0.2660			0.2580	0.2771	594.26	1.2957	0.9839	2-CH3OH	-0.1912E-01	
7	76.50	0.4580	760.00	748.30	0.4750	0.4546	675.87	1.0726	0.9792	MEK	0.2037E-01	0.1359E-01
		0.0840			0.1150	0.1243	656.29	1.6091	0.9571	BENZENE	-0.9266E-02	
		0.4580			0.4100	0.4211	592.01	1.1414	0.9848	2-CH3OH	-0.1112E-01	
8	76.33	0.2660	760.00	751.04	0.3060	0.2733	672.20	1.1194	0.9775	MEK	0.3268E-01	0.2179E-01
		0.1140			0.1330	0.1938	652.87	1.8687	0.9589	BENZENE	-0.1076E-01	
		0.6200			0.5610	0.5329	587.77	1.0791	0.9853	2-CH3OH	-0.2193E-01	
9	76.27	0.1345	760.00	755.41	0.1580	0.1411	670.90	1.1484	0.9758	MEK	0.1694E-01	0.1130E-01
		0.1345			0.2390	0.2533	651.66	2.0882	0.9599	BENZENE	-0.1425E-01	
		0.7310			0.6030	0.6057	586.28	1.0489	0.9852	2-CH3OH	-0.2703E-02	
10	74.07	0.1140	760.00	754.46	0.1080	0.1011	624.81	1.0389	0.9738	MEK	0.6940E-02	0.8634E-02
		0.2660			0.3840	0.3970	608.41	1.7719	0.9610	BENZENE	-0.1295E-01	
		0.6200			0.5080	0.5020	533.64	1.1234	0.9841	2-CH3OH	0.6010E-02	
11	72.46	0.0840	760.00	751.52	0.0660	0.0647	592.67	0.9465	0.9717	MEK	0.1260E-02	0.5134E-02
		0.4530			0.5180	0.5257	573.50	1.4297	0.9620	BENZENE	-0.7702E-02	
		0.4530			0.4160	0.4096	497.48	1.3240	0.9828	2-CH3OH	0.6441E-02	
12	72.26	0.1140	760.00	741.14	0.0840	0.0884	588.76	0.9448	0.9715	MEK	-0.4364E-02	0.7695E-02
		0.6200			0.5870	0.5942	574.85	1.1860	0.9630	BENZENE	-0.7180E-02	
		0.2660			0.3290	0.3175	493.12	1.7570	0.9823	2-CH3OH	0.1154E-01	
13	73.63	0.2310	760.00	753.79	0.1970	0.1871	615.89	0.9616	0.9733	MEK	-0.1103E-03	0.5864E-02
		0.5390			0.5230	0.5317	600.27	1.1901	0.9621	BENZENE	-0.8687E-02	
		0.2310			0.2900	0.2812	523.56	1.7176	0.9828	2-CH3OH	0.8796E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FUGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	75.14	0.4120	760.00	757.59	0.3420	0.3544	646.91	0.9800	0.9761	MEK	-0.1240E-01	0.1466E-01
		0.4120			0.4150	0.4246	629.27	1.1881	0.9608	BENZENE	-0.9584E-02	
		0.1760			0.2430	0.2210	558.77	1.6696	0.9834	2-CH3OH	0.2198E-01	
15	75.93	0.5380	760.00	757.57	0.5060	0.4814	663.61	0.9960	0.9784	MEK	0.2462E-01	0.1641E-01
		0.2310			0.2590	0.2649	644.86	1.2870	0.9583	BENZENE	-0.5950E-02	
		0.2310			0.2350	0.2537	577.90	1.4124	0.9839	2-CH3OH	-0.1867E-01	
16	75.62	0.4120	760.00	753.70	0.3960	0.3808	657.02	1.0333	0.9779	MEK	0.1522E-01	0.1015E-01
		0.1760			0.2240	0.2354	638.71	1.5078	0.9586	BENZENE	-0.1138E-01	
		0.4120			0.3800	0.3838	570.33	1.2089	0.9846	2-CH3OH	-0.3850E-02	
17	74.73	0.2310	760.00	754.16	0.2300	0.2094	638.37	1.0414	0.9756	MEK	0.2059E-01	0.1372E-01
		0.2310			0.3120	0.3303	621.29	1.6610	0.9602	BENZENE	-0.1829E-01	
		0.5380			0.4580	0.4603	549.04	1.1538	0.9845	2-CH3OH	-0.2298E-02	
18	73.26	0.1760	760.00	754.55	0.1430	0.1412	608.47	0.9648	0.9733	MEK	0.1841E-02	0.8329E-02
		0.4120			0.4620	0.4745	593.32	1.4036	0.9615	BENZENE	-0.1249E-01	
		0.4120			0.3950	0.3843	515.20	1.3397	0.9833	2-CH3OH	0.1065E-01	
19	74.41	0.3330	760.00	754.96	0.3020	0.2821	631.77	0.9845	0.9758	MEK	0.1991E-01	0.1327E-01
		0.3330			0.3740	0.3840	615.12	1.3548	0.9605	BENZENE	-0.9999E-02	
		0.3340			0.3240	0.3339	541.53	1.3675	0.9839	2-CH3OH	-0.9913E-02	

BENZENE(1) - CYCLOHEXANE(2) - FURFURAL(3) SYSTEM 012

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
553.20	40.00	311.20	0.210	0.0	0.0	0.0	CYCLOHEX	9
656.00	38.40	375.20	0.293	0.270	2.000	0.0	FURFURAL	15

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.68450E 01	0.12035E 04	0.22286E 03	CYCLOHEX	0.9291E 02	-0.2486E-01	0.2616E-03
0.87299E 01	0.25378E 04	0.27315E 03	FURFURAL	0.6321E 02	0.5833E-01	0.2960E-04

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
182.37	80.84	BENZENE - CYCLOHEX	28	0
329.37	135.42	BENZENE - FURFURAL	31	0
889.91	1558.80	CYCLOHEX - FURFURAL	61	0

HALA CONSISTENCY TEST

CI(1) -0.3430

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.4218E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.2065E-01
COMPONENT 2	0.2281E-01
COMPONENT 3	0.7680E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.1705E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	108.70	0.0215	760.00	996.19	0.0731	0.0480	1589.77	1.3471	0.9664	BENZENE	0.2507E-01	0.3420E-01
		0.1032			0.7824	0.8337	1523.11	5.0515	0.9609	CYCLOHEX	-0.5131E-01	
		0.8753			0.1445	0.1183	120.44	1.0393	0.9334	FURFURAL	0.2623E-01	
2	88.60	0.0606	760.00	779.49	0.1113	0.0797	937.36	1.0550	0.9685	BENZENE	0.3165E-01	0.2110E-01
		0.2593			0.8340	0.8611	909.54	2.7311	0.9635	CYCLOHEX	-0.2714E-01	
		0.6801			0.0547	0.0592	51.64	1.2249	0.9348	FURFURAL	-0.4515E-02	
3	84.00	0.1129	760.00	750.29	0.1394	0.1159	821.56	0.9129	0.9683	BENZENE	0.2246E-01	0.1498E-01
		0.4735			0.8233	0.8392	799.66	1.5938	0.9633	CYCLOHEX	-0.1493E-01	
		0.4136			0.0373	0.0448	41.96	1.8046	0.9338	FURFURAL	-0.7532E-02	
4	92.10	0.1322	760.00	796.95	0.2476	0.1952	1033.32	1.0995	0.9688	BENZENE	0.5237E-01	0.3492E-01
		0.1911			0.6913	0.7399	1000.34	2.9607	0.9639	CYCLOHEX	-0.4865E-01	
		0.6767			0.0611	0.0648	60.25	1.1823	0.9360	FURFURAL	-0.3727E-02	
5	82.60	0.1540	760.00	761.16	0.1871	0.1556	788.55	0.9404	0.9674	BENZENE	0.3148E-01	0.3741E-01
		0.6253			0.7537	0.8093	768.29	1.2298	0.9623	CYCLOHEX	-0.5612E-01	
		0.2207			0.0592	0.0346	39.35	2.9142	0.9316	FURFURAL	0.2463E-01	
6	85.20	0.2333	760.00	751.94	0.2791	0.2684	850.67	0.9572	0.9685	BENZENE	0.1068E-01	0.7123E-02
		0.3430			0.6984	0.6891	827.32	1.7526	0.9637	CYCLOHEX	-0.6750E-03	
		0.4177			0.0325	0.0425	44.32	1.6094	0.9347	FURFURAL	-0.1001E-01	
7	82.70	0.3193	760.00	770.41	0.3417	0.3302	790.88	0.9707	0.9670	BENZENE	0.1155E-01	0.7701E-02
		0.4749			0.6321	0.6428	770.49	1.2966	0.9619	CYCLOHEX	-0.1071E-01	
		0.2058			0.0262	0.0270	39.53	2.3767	0.9310	FURFURAL	-0.8392E-03	
8	86.70	0.3936	760.00	771.86	0.4668	0.4621	888.14	0.9846	0.9681	BENZENE	0.4677E-02	0.3119E-02
		0.2394			0.4969	0.5005	862.88	1.7942	0.9633	CYCLOHEX	-0.3622E-02	
		0.3670			0.0363	0.0374	47.42	1.5431	0.9342	FURFURAL	-0.1057E-02	
9	82.80	0.5142	760.00	788.86	0.5462	0.5314	793.21	0.9896	0.9662	BENZENE	0.1481E-01	0.1113E-01
		0.3275			0.4338	0.4505	772.70	1.3440	0.9611	CYCLOHEX	-0.1670E-01	
		0.1583			0.0200	0.0191	39.71	2.1059	0.9296	FURFURAL	0.1891E-02	
10	89.60	0.5339	760.00	808.85	0.6651	0.6671	964.07	1.0107	0.9675	BENZENE	-0.1977E-02	0.2247E-02
		0.1295			0.3016	0.2982	934.94	1.9098	0.9625	CYCLOHEX	0.3372E-02	
		0.3366			0.0333	0.0347	53.98	1.4370	0.9335	FURFURAL	-0.1391E-02	
11	83.80	0.6752	760.00	812.48	0.6809	0.7013	816.78	0.9940	0.9655	BENZENE	-0.2037E-01	0.1358E-01
		0.1961			0.3032	0.2855	795.12	1.4224	0.9603	CYCLOHEX	0.1773E-01	
		0.1287			0.0159	0.0133	41.58	1.8621	0.9285	FURFURAL	0.2649E-02	

BENZENE(1) - CYCLOHEXANE(2) - HEXANE(3) SYSTEM 020

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
553.20	40.00	311.20	0.210	0.0	0.0	0.0	CYCLOHEX	9
507.90	29.90	372.40	0.299	0.0	0.0	0.0	HEXANE	18

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.70961E 02	0.1491E-01	0.1588E-03
0.68450E 01	0.12035E 04	0.22286E 03	CYCLOHEX	0.9291E 02	-0.2486E-01	0.2616E-03
0.68778E 01	0.11715E 04	0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
110.55	142.54	BENZENE - CYCLOHEX	27	0
219.99	122.43	BENZENE - HEXANE	36	1
-18.63	88.66	CYCLOHEX - HEXANE	62	1

HALA CONSISTENCY TEST

CI(1) -0.7005

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.4695E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.3361E-02
COMPONENT 2	0.5120E-02
COMPONENT 3	0.4324E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.4269E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	77.45	0.8610	760.00	769.27	0.8060	0.7938	675.70	1.0097	0.9652	BENZENE	0.1220E-01	0.8137E-02
		0.0660			0.0670	0.0758	660.70	1.2787	0.9601	CYCLOHEX	-0.8809E-02	
		0.0730			0.1270	0.1304	929.76	1.4066	0.9565	HEXANE	-0.3397E-02	
2	74.55	0.7320	760.00	764.95	0.6370	0.6378	617.81	1.0370	0.9644	BENZENE	-0.8393E-03	0.2341E-02
		0.0680			0.0700	0.0665	605.37	1.1802	0.9591	CYCLOHEX	0.3508E-02	
		0.2000			0.2930	0.2957	855.91	1.2563	0.9555	HEXANE	-0.2674E-02	
3	71.95	0.5440	760.00	761.30	0.4610	0.4669	569.22	1.1023	0.9636	BENZENE	-0.5882E-02	0.4827E-02
		0.0710			0.0670	0.0598	558.81	1.0942	0.9581	CYCLOHEX	0.7237E-02	
		0.3850			0.4720	0.4734	793.28	1.1207	0.9546	HEXANE	-0.1363E-02	
4	72.15	0.5120	760.00	762.11	0.4430	0.4459	572.84	1.1127	0.9636	BENZENE	-0.2889E-02	0.2590E-02
		0.1100			0.0960	0.0921	562.29	1.0831	0.9592	CYCLOHEX	0.3882E-02	
		0.3780			0.4610	0.4620	797.97	1.1086	0.9546	HEXANE	-0.1000E-02	
5	70.70	0.3950	760.00	759.15	0.3420	0.3475	546.02	1.1722	0.9632	BENZENE	-0.5473E-02	0.3651E-02
		0.0790			0.0640	0.0621	537.43	1.0583	0.9577	CYCLOHEX	0.1943E-02	
		0.5260			0.5940	0.5905	764.45	1.0584	0.9542	HEXANE	0.3537E-02	
6	69.85	0.3040	760.00	758.20	0.2790	0.2725	532.15	1.2257	0.9629	BENZENE	0.6495E-02	0.4328E-02
		0.0530			0.0370	0.0402	523.25	1.0485	0.9573	CYCLOHEX	-0.3222E-02	
		0.6430			0.6840	0.6873	745.29	1.0320	0.9538	HEXANE	-0.3266E-02	
7	74.35	0.1570	760.00	762.91	0.1760	0.1667	613.96	1.2680	0.9644	BENZENE	0.9319E-02	0.6216E-02
		0.5030			0.4140	0.4214	601.68	1.0146	0.9590	CYCLOHEX	-0.7400E-02	
		0.3400			0.4100	0.4119	850.88	1.0328	0.9555	HEXANE	-0.1928E-02	
8	72.55	0.1800	760.00	761.44	0.1830	0.1812	580.16	1.2689	0.9638	BENZENE	0.1831E-02	0.7452E-02
		0.3470			0.2670	0.2782	569.30	1.0234	0.9583	CYCLOHEX	-0.1118E-01	
		0.4730			0.5500	0.5407	807.40	1.0242	0.9548	HEXANE	0.9341E-02	
9	71.10	0.1830	760.00	760.96	0.1760	0.1779	553.98	1.2918	0.9633	BENZENE	-0.1872E-02	0.8976E-02
		0.2140			0.1790	0.1655	544.20	1.0317	0.9577	CYCLOHEX	0.1347E-01	
		0.6030			0.6450	0.6566	773.59	1.0170	0.9542	HEXANE	-0.1159E-01	
10	71.75	0.0780	760.00	764.71	0.0810	0.0808	565.60	1.3440	0.9633	BENZENE	0.2420E-03	0.3397E-02
		0.2390			0.2310	0.2261	555.35	1.0278	0.9578	CYCLOHEX	0.4858E-02	
		0.6830			0.6880	0.6931	738.62	1.0082	0.9543	HEXANE	-0.5091E-02	
11	70.50	0.0790	760.00	762.76	0.0770	0.0796	543.42	1.3580	0.9629	BENZENE	-0.2639E-02	0.8188E-02
		0.1730			0.1220	0.1316	534.06	1.0261	0.9573	CYCLOHEX	-0.9638E-02	
		0.7480			0.8010	0.7887	759.91	1.0045	0.9539	HEXANE	0.1229E-01	
12	69.80	0.0750	760.00	763.60	0.0730	0.0746	531.29	1.3708	0.9626	BENZENE	-0.1566E-02	0.1045E-02
		0.0970			0.0740	0.0726	522.42	1.0421	0.9569	CYCLOHEX	0.1434E-02	
		0.8280			0.8530	0.8529	744.18	1.0027	0.9535	HEXANE	0.1339E-03	
13	76.55	0.0240	760.00	764.69	0.0300	0.0237	657.30	1.3379	0.9652	BENZENE	0.1308E-02	0.6445E-02
		0.7080			0.6350	0.6266	643.13	1.0060	0.9598	CYCLOHEX	0.8356E-02	
		0.2680			0.3350	0.3447	906.33	1.0326	0.9564	HEXANE	-0.9671E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	74.40	0.0360	760.00	763.39	0.0410	0.0406	614.92	1.3454	0.9644	BENZENE	0.4093E-03	0.3991E-02
		0.5400			0.4580	0.4524	602.60	1.0137	0.9590	CYCLOHEX	0.5573E-02	
		0.4240			0.5010	0.5070	852.11	1.0185	0.9556	HEXANE	-0.5992E-02	
15	72.35	0.0480	760.00	761.61	0.0550	0.0513	576.49	1.3567	0.9637	BENZENE	0.3680E-02	0.2861E-02
		0.3630			0.2900	0.2894	565.79	1.0241	0.9582	CYCLOHEX	0.6152E-03	
		0.5890			0.6550	0.6593	802.67	1.0090	0.9548	HEXANE	-0.4287E-02	
16	78.70	0.0810	760.00	763.16	0.1090	0.0999	701.88	1.2911	0.9660	BENZENE	0.9103E-02	0.6070E-02
		0.8430			0.7860	0.7932	685.70	1.0021	0.9608	CYCLOHEX	-0.7173E-02	
		0.0760			0.1050	0.1069	963.04	1.0621	0.9573	HEXANE	-0.1935E-02	
17	77.25	0.1280	760.00	762.88	0.1520	0.1485	671.57	1.2683	0.9655	BENZENE	0.3480E-02	0.3888E-02
		0.7300			0.6550	0.6609	656.77	1.0056	0.9602	CYCLOHEX	-0.5835E-02	
		0.1420			0.1930	0.1907	924.52	1.0547	0.9567	HEXANE	0.2348E-02	
18	75.30	0.1690	760.00	760.81	0.1820	0.1832	632.40	1.2541	0.9649	BENZENE	-0.1195E-02	0.4635E-02
		0.5790			0.5060	0.4991	619.33	1.0119	0.9596	CYCLOHEX	0.6949E-02	
		0.2520			0.3120	0.3178	874.51	1.0436	0.9560	HEXANE	-0.5762E-02	
19	77.80	0.3150	760.00	765.92	0.3450	0.3411	682.95	1.1687	0.9655	BENZENE	0.3882E-02	0.2589E-02
		0.6480			0.6050	0.6064	667.63	1.0267	0.9603	CYCLOHEX	-0.1352E-02	
		0.0370			0.0500	0.0525	938.99	1.1025	0.9567	HEXANE	-0.2533E-02	
20	77.00	0.3750	760.00	765.71	0.3970	0.3882	666.45	1.1441	0.9652	BENZENE	0.8845E-02	0.5898E-02
		0.5540			0.5110	0.5125	651.87	1.0389	0.9600	CYCLOHEX	-0.1493E-02	
		0.0710			0.0920	0.0994	918.00	1.1108	0.9564	HEXANE	-0.7357E-02	
21	75.80	0.4110	760.00	756.09	0.4130	0.4107	642.27	1.1317	0.9653	BENZENE	0.2315E-02	0.1191E-01
		0.4750			0.4150	0.4329	628.77	1.0478	0.9600	CYCLOHEX	-0.1787E-01	
		0.1140			0.1720	0.1565	887.14	1.1133	0.9565	HEXANE	0.1555E-01	
22	76.00	0.4250	760.00	765.36	0.4230	0.4204	646.25	1.1265	0.9649	BENZENE	0.2617E-02	0.1746E-02
		0.4510			0.4080	0.4101	632.57	1.0515	0.9596	CYCLOHEX	-0.2093E-02	
		0.1240			0.1690	0.1695	892.23	1.1156	0.9560	HEXANE	-0.5285E-03	
23	74.65	0.4130	760.00	766.48	0.3980	0.3953	619.74	1.1376	0.9644	BENZENE	0.2746E-02	0.2690E-02
		0.3640			0.3130	0.3170	607.21	1.0501	0.9590	CYCLOHEX	-0.4038E-02	
		0.2230			0.2890	0.2877	858.29	1.0953	0.9554	HEXANE	0.1286E-02	
24	72.95	0.3810	760.00	762.35	0.3560	0.3548	587.55	1.1610	0.9639	BENZENE	0.1153E-02	0.5232E-02
		0.2700			0.2160	0.2239	576.38	1.0468	0.9585	CYCLOHEX	-0.7852E-02	
		0.3490			0.4280	0.4213	816.92	1.0704	0.9550	HEXANE	0.6692E-02	
25	72.25	0.2540	760.00	764.73	0.2480	0.2446	574.66	1.2306	0.9635	BENZENE	0.3400E-02	0.2286E-02
		0.2760			0.2200	0.2200	564.04	1.0310	0.9580	CYCLOHEX	0.2474E-04	
		0.4700			0.5320	0.5354	800.32	1.0336	0.9545	HEXANE	-0.3435E-02	
26	71.05	0.2330	760.00	767.20	0.2270	0.2239	553.09	1.2525	0.9629	BENZENE	0.3065E-02	0.5018E-02
		0.1630			0.1300	0.1255	543.35	1.0368	0.9573	CYCLOHEX	0.4466E-02	
		0.5990			0.6430	0.6505	772.44	1.0237	0.9538	HEXANE	-0.7522E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FUGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	70.10	0.2160	760.00	761.97	0.2000	0.2019	536.46	1.2740	0.9628	BENZENE	-0.1903E-02	0.1652E-02
		0.1000			0.0780	0.0755	527.39	1.0401	0.9572	CYCLOHEX	0.2482E-02	
		0.6840			0.7220	0.7226	750.89	1.0173	0.9537	HEXANE	-0.5697E-03	
28	70.15	0.1200	760.00	764.33	0.1180	0.1174	537.33	1.3353	0.9627	BENZENE	0.5984E-03	0.1070E-02
		0.1230			0.0910	0.0926	528.22	1.0383	0.9570	CYCLOHEX	-0.1600E-02	
		0.7570			0.7910	0.7900	752.01	1.0064	0.9536	HEXANE	0.1011E-02	
29	69.60	0.1160	760.00	764.84	0.1140	0.1123	527.87	1.3457	0.9624	BENZENE	0.1679E-02	0.1697E-02
		0.0640			0.0450	0.0475	519.13	1.0429	0.9568	CYCLOHEX	-0.2545E-02	
		0.8200			0.8410	0.8401	739.73	1.0048	0.9533	HEXANE	0.8680E-03	
30	69.30	0.1110	760.00	764.12	0.1030	0.1071	522.76	1.3530	0.9624	BENZENE	-0.4129E-02	0.3139E-02
		0.0360			0.0260	0.0266	514.22	1.0452	0.9566	CYCLOHEX	-0.5781E-03	
		0.8530			0.8710	0.8663	733.39	1.0040	0.9532	HEXANE	0.4710E-02	
31	76.50	0.3100	760.00	762.97	0.3360	0.3256	656.29	1.1748	0.9652	BENZENE	0.1036E-01	0.1087E-01
		0.5770			0.5050	0.5213	642.17	1.0263	0.9600	CYCLOHEX	-0.1631E-01	
		0.1130			0.1590	0.1531	905.05	1.0867	0.9564	HEXANE	0.5939E-02	
32	75.10	0.3450	760.00	768.37	0.3440	0.3422	628.49	1.1656	0.9644	BENZENE	0.1808E-02	0.3947E-02
		0.4400			0.3860	0.3819	615.58	1.0348	0.9591	CYCLOHEX	0.4109E-02	
		0.2150			0.2700	0.2759	869.50	1.0782	0.9555	HEXANE	-0.5923E-02	
33	73.50	0.3330	760.00	765.75	0.3180	0.3194	597.81	1.1804	0.9640	BENZENE	-0.1399E-02	0.9305E-03
		0.3340			0.2780	0.2776	586.22	1.0365	0.9585	CYCLOHEX	0.3664E-03	
		0.3330			0.4040	0.4030	830.14	1.0697	0.9550	HEXANE	0.1026E-02	
34	76.50	0.6850	760.00	763.62	0.6420	0.6376	656.29	1.0417	0.9651	BENZENE	0.4432E-02	0.7179E-02
		0.2370			0.2300	0.2408	642.17	1.1550	0.9600	CYCLOHEX	-0.1077E-01	
		0.0780			0.1280	0.1217	905.05	1.2524	0.9564	HEXANE	0.6334E-02	
35	74.75	0.5910	760.00	766.39	0.5390	0.5351	621.67	1.0728	0.9644	BENZENE	0.3901E-02	0.2602E-02
		0.2190			0.2090	0.2019	609.06	1.1082	0.9591	CYCLOHEX	-0.1936E-02	
		0.1900			0.2610	0.2630	860.77	1.1716	0.9555	HEXANE	-0.1970E-02	
36	72.75	0.4800	760.00	762.97	0.4310	0.4286	583.84	1.1210	0.9638	BENZENE	0.2354E-02	0.5734E-02
		0.1900			0.1580	0.1518	572.83	1.0718	0.9584	CYCLOHEX	0.6243E-02	
		0.3400			0.4110	0.4196	812.15	1.1015	0.9548	HEXANE	-0.8605E-02	
37	78.75	0.8380	760.00	767.24	0.8490	0.8588	702.94	1.0047	0.9657	BENZENE	-0.9846E-02	0.8980E-02
		0.0800			0.1120	0.0985	686.71	1.3166	0.9607	CYCLOHEX	0.1347E-01	
		0.0820			0.0390	0.0426	964.39	1.4680	0.9571	HEXANE	-0.3625E-02	
38	77.40	0.8100	760.00	768.86	0.7490	0.7510	674.66	1.0164	0.9652	BENZENE	-0.1984E-02	0.4095E-02
		0.1280			0.1380	0.1422	658.72	1.2376	0.9601	CYCLOHEX	-0.4160E-02	
		0.0620			0.1130	0.1069	928.45	1.3583	0.9565	HEXANE	0.6141E-02	
39	74.95	0.6810	760.00	769.34	0.6100	0.6037	625.56	1.0478	0.9643	BENZENE	0.6288E-02	0.4193E-02
		0.1350			0.1290	0.1296	612.78	1.1511	0.9590	CYCLOHEX	-0.5964E-03	
		0.1840			0.2610	0.2667	865.75	1.2244	0.9554	HEXANE	-0.5695E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	77.50	0.6520	760.00	761.50	0.6290	0.6308	676.72	1.0478	0.9656	BENZENE	-0.1835E-02	0.8244E-02
		0.3320			0.3330	0.3435	661.69	1.1391	0.9605	CYCLOHEX	-0.1053E-01	
		0.0160			0.0380	0.0256	931.08	1.2477	0.9569	HEXANE	0.1236E-01	
41	76.75	0.6000	760.00	768.49	0.5730	0.5712	661.36	1.0639	0.9650	BENZENE	0.1785E-02	0.1607E-02
		0.3290			0.3200	0.3224	647.01	1.1126	0.9593	CYCLOHEX	-0.2412E-02	
		0.0710			0.1070	0.1064	911.50	1.2018	0.9562	HEXANE	0.6232E-03	
42	75.40	0.5430	760.00	765.13	0.5110	0.5082	634.37	1.0853	0.9647	BENZENE	0.2786E-02	0.3297E-02
		0.3100			0.2890	0.2868	621.21	1.0890	0.9594	CYCLOHEX	0.2156E-02	
		0.1470			0.2000	0.2049	877.03	1.1568	0.9558	HEXANE	-0.4947E-02	
43	77.55	0.5160	760.00	761.63	0.5180	0.5192	677.76	1.0882	0.9656	BENZENE	-0.1188E-02	0.1924E-02
		0.4740			0.4640	0.4657	662.68	1.0802	0.9605	CYCLOHEX	-0.1700E-02	
		0.0100			0.0180	0.0151	932.39	1.1756	0.9569	HEXANE	0.2884E-02	
44	77.30	0.5190	760.00	763.71	0.5160	0.5167	672.60	1.0878	0.9654	BENZENE	-0.7431E-03	0.1142E-02
		0.4520			0.4390	0.4400	657.75	1.0809	0.9603	CYCLOHEX	-0.9715E-03	
		0.0290			0.0450	0.0433	925.82	1.1721	0.9567	HEXANE	0.1711E-02	
45	76.55	0.5120	760.00	761.93	0.5050	0.5013	657.30	1.0918	0.9653	BENZENE	0.3722E-02	0.2482E-02
		0.4190			0.3950	0.3987	643.13	1.0779	0.9601	CYCLOHEX	-0.3718E-02	
		0.0690			0.1000	0.1030	906.33	1.1596	0.9565	HEXANE	-0.7987E-05	
46	77.35	0.2500	760.00	762.13	0.2770	0.2758	673.63	1.2011	0.9655	BENZENE	0.1200E-02	0.4108E-02
		0.6740			0.6130	0.6192	658.73	1.0165	0.9603	CYCLOHEX	-0.6164E-02	
		0.0760			0.1100	0.1050	927.14	1.0816	0.9568	HEXANE	0.4960E-02	
47	76.05	0.2990	760.00	764.04	0.3150	0.3113	647.25	1.1820	0.9650	BENZENE	0.3701E-02	0.5295E-02
		0.5510			0.4820	0.4899	633.53	1.0250	0.9597	CYCLOHEX	-0.7946E-02	
		0.1500			0.2030	0.1988	893.50	1.0780	0.9561	HEXANE	0.4238E-02	
48	74.30	0.3200	760.00	761.10	0.3160	0.3165	613.00	1.1803	0.9645	BENZENE	-0.4513E-03	0.2984E-03
		0.4200			0.3580	0.3580	600.77	1.0315	0.9591	CYCLOHEX	0.1091E-04	
		0.2600			0.3260	0.3256	849.65	1.0665	0.9556	HEXANE	0.4331E-03	
49	76.90	0.2250	760.00	763.09	0.2530	0.2475	664.41	1.2157	0.9653	BENZENE	0.5455E-02	0.4881E-02
		0.6570			0.5860	0.5933	649.93	1.0139	0.9601	CYCLOHEX	-0.7324E-02	
		0.1180			0.1610	0.1591	915.39	1.0700	0.9565	HEXANE	0.1863E-02	
50	73.35	0.2720	760.00	759.45	0.2840	0.2804	595.00	1.2003	0.9661	BENZENE	0.3639E-02	0.2926E-02
		0.5140			0.4460	0.4452	583.53	1.0225	0.9610	CYCLOHEX	0.7524E-03	
		0.2140			0.2700	0.2744	826.52	1.0638	0.9576	HEXANE	-0.4388E-02	
51	73.55	0.2390	760.00	761.18	0.2840	0.2840	598.76	1.2005	0.9642	BENZENE	0.3338E-05	0.1915E-02
		0.3300			0.3130	0.3159	587.12	1.0291	0.9598	CYCLOHEX	-0.2876E-02	
		0.3310			0.4030	0.4001	831.35	1.0521	0.9553	HEXANE	0.2864E-02	
52	76.85	0.1330	760.00	764.29	0.1120	0.1094	663.39	1.2916	0.9653	BENZENE	0.3618E-02	0.3772E-02
		0.7120			0.6300	0.6357	648.95	1.0052	0.9600	CYCLOHEX	-0.5662E-02	
		0.1550			0.2580	0.2560	914.09	1.0444	0.9565	HEXANE	0.2037E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	EICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
53	74.85	0.1290	760.00	765.42	0.1390	0.1402	623.62	1.2820	0.9645	BENZENE	-0.1166E-02	0.5409E-02
		0.5450			0.4690	0.4699	610.92	1.0121	0.9591	CYCLOHEX	0.8108E-02	
		0.3260			0.3920	0.3900	863.26	1.0317	0.9556	HEXANE	-0.6951E-02	
54	72.90	0.1500	760.00	763.80	0.1530	0.1541	586.62	1.2847	0.9638	BENZENE	-0.1071E-02	0.7107E-03
		0.3800			0.3070	0.3063	575.49	1.0209	0.9584	CYCLOHEX	0.7428E-03	
		0.4700			0.5400	0.5397	815.72	1.0215	0.9549	HEXANE	0.3180E-03	

BENZENE(1) - CYCLOHEXANE(2) - METHYLCELLOSOLVE(2) SYSTEM 021

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
553.20	40.00	311.20	0.210	0.0	0.0	0.0	CYCLOHEX	9
0.0	0.0	0.0	0.0	0.0	0.0	0.0	MESOLVE	25

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.68450E 01	0.12035E 04	0.22286E 03	CYCLOHEX	0.9291E 02	-0.2486E-01	0.2616E-03
0.83298E 01	0.21618E 04	0.27315E 03	MESOLVE	0.6747E 02	0.1686E-02	0.1286E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
93.10	219.58	BENZENE - CYCLOHEX	232	0
-114.40	1492.78	BENZENE - MESOLVE	38	0
399.15	2397.64	CYCLOHEX - MESOLVE	63	0

HALA CONSISTENCY TEST

CI(1) 0.7563

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.4068E 02

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.2719E-01
COMPONENT 2	0.2297E-01
COMPONENT 3	0.1893E-01

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.2303E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	95.50	0.0299	760.00	756.88	0.1144	0.0949	1187.17	2.0172	1.0000	BENZENE	0.1948E-01	0.1524E-01
		0.0782			0.5582	0.5548	1153.29	4.6376	1.0000	CYCLOHEX	0.3371E-02	
		0.8919			0.3274	0.3503	291.90	1.0153	1.0000	MESOLVE	-0.2286E-01	
2	76.30	0.0792	760.00	667.28	0.1652	0.1279	673.04	1.5963	1.0000	BENZENE	0.3731E-01	0.2487E-01
		0.2855			0.7115	0.7134	661.39	2.5121	1.0000	CYCLOHEX	-0.1920E-02	
		0.6353			0.1233	0.1587	139.09	1.1953	1.0000	MESOLVE	-0.3538E-01	
3	95.00	0.1238	760.00	667.45	0.4927	0.4340	1170.74	1.9929	1.0000	BENZENE	0.5867E-01	0.4369E-01
		0.0229			0.2906	0.1937	1137.64	4.9457	1.0000	CYCLOHEX	0.6867E-02	
		0.8533			0.3067	0.3722	286.60	1.0133	1.0000	MESOLVE	-0.6553E-01	
4	77.20	0.1361	760.00	714.19	0.2683	0.1998	692.33	1.5094	1.0000	BENZENE	0.6853E-01	0.5707E-01
		0.3021			0.5700	0.6556	679.95	2.2707	1.0000	CYCLOHEX	-0.8561E-01	
		0.5618			0.1617	0.1446	144.27	1.2708	1.0000	MESOLVE	0.1708E-01	
5	74.50	0.2476	760.00	715.74	0.3624	0.2668	635.71	1.2093	1.0000	BENZENE	-0.4387E-02	0.1312E-01
		0.5812			0.6162	0.6315	625.44	1.2386	1.0000	CYCLOHEX	-0.1529E-01	
		0.1712			0.1214	0.1017	129.20	3.2825	1.0000	MESOLVE	0.1967E-01	
6	77.50	0.2608	760.00	774.08	0.3165	0.3049	698.84	1.2906	1.0000	BENZENE	0.1159E-01	0.1494E-01
		0.4019			0.5583	0.5807	686.22	1.6232	1.0000	CYCLOHEX	-0.2242E-01	
		0.3373			0.1252	0.1144	146.03	1.7920	1.0000	MESOLVE	0.1083E-01	
7	75.80	0.3290	760.00	748.05	0.3387	0.3409	662.51	1.1661	1.0000	BENZENE	-0.2199E-02	0.2698E-02
		0.5222			0.5686	0.5646	651.25	1.2369	1.0000	CYCLOHEX	0.4047E-02	
		0.1488			0.0927	0.0945	136.28	3.4778	1.0000	MESOLVE	-0.1848E-02	
8	79.80	0.3728	760.00	747.25	0.5107	0.5326	750.50	1.4179	1.0000	BENZENE	-0.2194E-01	0.1941E-01
		0.1346			0.3634	0.3343	735.87	2.5118	1.0000	CYCLOHEX	0.2912E-01	
		0.4926			0.1259	0.1331	160.18	1.2567	1.0000	MESOLVE	-0.7182E-02	
9	75.50	0.4406	760.00	679.23	0.5097	0.5616	656.24	1.3153	1.0000	BENZENE	-0.5189E-01	0.3918E-01
		0.1563			0.3842	0.3254	645.21	2.1839	1.0000	CYCLOHEX	0.5877E-01	
		0.4031			0.1061	0.1130	134.62	1.4105	1.0000	MESOLVE	-0.6882E-02	
10	75.20	0.5850	760.00	715.17	0.5913	0.5910	650.03	1.1080	1.0000	BENZENE	0.2816E-03	0.7897E-02
		0.2375			0.3142	0.3260	639.23	1.5172	1.0000	CYCLOHEX	-0.1184E-01	
		0.1755			0.0945	0.0829	132.97	2.5346	1.0000	MESOLVE	0.1156E-01	
11	77.60	0.6426	760.00	755.37	0.6441	0.6669	701.04	1.1146	1.0000	BENZENE	-0.2284E-01	0.1523E-01
		0.1618			0.2610	0.2475	688.32	1.6721	1.0000	CYCLOHEX	0.1346E-01	
		0.1956			0.0949	0.0855	146.62	2.2458	1.0000	MESOLVE	0.9381E-02	

BENZENE(1) - ETHANOL(2) - HEXANE(3) SYSTEM 022

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
516.00	63.00	161.30	0.637	0.152	1.690	1.10	ETHANOL	11
507.90	29.90	372.40	0.298	0.0	0.0	0.0	HEXANE	18

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.80449E 01	0.15543E 04	0.22265E 03	ETHANOL	0.5370E 02	-0.3111E-01	0.1600E-03
0.68778E 01	0.11715E 04	0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

		BINARY ID NUMBERS	ORDER
183.44	1596.31	BENZENE - ETHANOL	29	1
219.99	122.43	BENZENE - HEXANE	36	1
2398.29	299.98	ETHANOL - HEXANE	282	1

HALA CONSISTENCY TEST

CI(1) 0.1423

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.2270E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.8999E-02
COMPONENT 2	0.1779E-01
COMPONENT 3	0.1050E-01
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.1243E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	60.90	0.1080	760.00	787.13	0.0770	0.0758	394.62	1.3389	0.9596	BENZENE	0.1186E-02	0.1704E-01
		0.0520			0.2400	0.2656	356.86	10.8620	0.9665	ETHANOL	-0.2557E-01	
		0.8400			0.6830	0.6596	564.66	1.0326	0.9497	HEXANE	0.2438E-01	
2	61.80	0.2210	760.00	781.20	0.1590	0.1522	407.04	1.2644	0.9600	BENZENE	0.6811E-02	0.1014E-01
		0.0460			0.2300	0.2452	371.14	10.8366	0.9680	ETHANOL	-0.1521E-01	
		0.7330			0.6110	0.6026	581.15	1.0446	0.9502	HEXANE	0.8395E-02	
3	59.90	0.2180	760.00	780.38	0.1540	0.1439	381.17	1.3381	0.9605	BENZENE	0.5132E-02	0.8781E-02
		0.1850			0.3000	0.3132	341.54	3.7204	0.9641	ETHANOL	-0.1317E-01	
		0.5970			0.5460	0.5380	546.75	1.2162	0.9505	HEXANE	0.8036E-02	
4	61.70	0.3270	760.00	782.45	0.2240	0.2137	405.64	1.2061	0.9604	BENZENE	0.1035E-01	0.1370E-01
		0.0730			0.2490	0.2696	369.53	7.5410	0.9667	ETHANOL	-0.2055E-01	
		0.6000			0.5270	0.5168	579.30	1.1001	0.9505	HEXANE	0.1020E-01	
5	60.70	0.3030	760.00	779.95	0.2290	0.2230	391.90	1.4030	0.9612	BENZENE	0.5988E-02	0.6490E-02
		0.3070			0.3330	0.3293	353.75	2.2736	0.9637	ETHANOL	0.3744E-02	
		0.3900			0.4380	0.4477	561.04	1.5104	0.9513	HEXANE	-0.9738E-02	
6	64.70	0.6250	760.00	782.06	0.4210	0.4032	449.14	1.0765	0.9617	BENZENE	0.1781E-01	0.1653E-01
		0.0790			0.2450	0.2698	420.39	6.1348	0.9678	ETHANOL	-0.2480E-01	
		0.2960			0.3340	0.3270	636.77	1.2851	0.9521	HEXANE	0.6984E-02	
7	66.20	0.7190	760.00	785.74	0.5200	0.5043	472.20	1.1205	0.9635	BENZENE	0.1572E-01	0.1432E-01
		0.1830			0.3250	0.3465	447.90	3.1980	0.9650	ETHANOL	-0.2148E-01	
		0.0980			0.1550	0.1492	667.07	1.7024	0.9540	HEXANE	0.5761E-02	

BENZENE(1) - METHYLCYCLOPENTANE(2) - HEXANE(3) SYSTEM 023

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
532.80	37.40	319.00	0.231	0.0	0.0	0.0	MCP	27
507.90	29.90	372.40	0.298	0.0	0.0	0.0	HEXANE	18

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.68628E 01	0.11861E 04	0.22604E 03	MCP	0.1043E 03	-0.8676E-01	0.3900E-03
0.68778E 01	0.11715E 04	0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
179.94	67.43	BENZENE - MCP	173	1
219.99	122.43	BENZENE - HEXANE	36	1
-365.79	705.20	MCP - HEXANE	174	1

HALA CONSISTENCY TEST

CI(1) -0.1018

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.4601E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.4258E-02
COMPONENT 2	0.3342E-02
COMPONENT 3	0.3169E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.3590E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	70.80	0.4140	760.00	754.89	0.3660	0.3588	548.68	1.1451	0.9634	BENZENE	0.7169E-02	0.4783E-02
		0.2410			0.2440	0.2457	704.72	1.0437	0.9597	MCP	-0.1719E-02	
		0.3450			0.3900	0.3955	766.73	1.0718	0.9545	HEXANE	-0.5460E-02	
2	70.70	0.3460	760.00	752.81	0.3120	0.3047	546.92	1.1639	0.9635	BENZENE	0.7328E-02	0.4888E-02
		0.3760			0.3750	0.3818	702.61	1.0399	0.9598	MCP	-0.6830E-02	
		0.2780			0.3130	0.3135	764.45	1.0548	0.9545	HEXANE	-0.5071E-03	
3	70.80	0.2570	760.00	756.52	0.2400	0.2317	548.68	1.1933	0.9634	BENZENE	0.8336E-02	0.7478E-02
		0.5360			0.5270	0.5382	704.72	1.0300	0.9596	MCP	-0.1122E-01	
		0.2070			0.2330	0.2301	766.73	1.0416	0.9544	HEXANE	0.2876E-02	
4	71.00	0.1900	760.00	761.48	0.1810	0.1751	552.21	1.2202	0.9632	BENZENE	0.5864E-02	0.4656E-02
		0.6500			0.6480	0.6469	708.97	1.0212	0.9594	MCP	0.1116E-02	
		0.1600			0.1710	0.1780	771.30	1.0427	0.9541	HEXANE	-0.6988E-02	
5	71.80	0.4330	760.00	753.72	0.3820	0.3788	566.50	1.1181	0.9639	BENZENE	0.3232E-02	0.2157E-02
		0.4570			0.4980	0.4984	726.11	1.0607	0.9602	MCP	-0.4207E-03	
		0.1100			0.1300	0.1328	789.78	1.0950	0.9550	HEXANE	-0.2819E-02	
6	73.00	0.5930	760.00	752.81	0.5140	0.5136	588.47	1.0650	0.9644	BENZENE	0.3752E-03	0.1216E-02
		0.3300			0.3920	0.3838	752.42	1.1132	0.9607	MCP	-0.1826E-02	
		0.0770			0.1040	0.1026	818.12	1.1653	0.9555	HEXANE	0.1445E-02	
7	74.50	0.7290	760.00	753.25	0.6430	0.6398	616.85	1.0307	0.9649	BENZENE	0.3157E-02	0.2342E-02
		0.2200			0.2800	0.2835	786.30	1.1817	0.9612	MCP	-0.3516E-02	
		0.0510			0.0770	0.0766	854.58	1.2604	0.9562	HEXANE	0.3542E-03	
8	75.20	0.7760	760.00	754.25	0.6960	0.6888	630.44	1.0214	0.9651	BENZENE	0.7245E-02	0.5935E-02
		0.1840			0.2390	0.2479	802.49	1.2124	0.9614	MCP	-0.8904E-02	
		0.0400			0.0650	0.0633	872.00	1.3036	0.9564	HEXANE	0.1655E-02	
9	76.00	0.8260	760.00	754.76	0.7450	0.7448	646.25	1.0133	0.9654	BENZENE	0.1802E-03	0.1965E-02
		0.1430			0.2000	0.2029	821.30	1.2490	0.9617	MCP	-0.2949E-02	
		0.0310			0.0550	0.0522	892.23	1.3570	0.9567	HEXANE	0.2765E-02	
10	72.70	0.5760	760.00	752.39	0.4990	0.4975	582.92	1.0714	0.9643	BENZENE	0.1545E-02	0.1618E-02
		0.3190			0.3660	0.3651	745.78	1.1045	0.9606	MCP	0.8789E-03	
		0.1050			0.1350	0.1374	810.96	1.1545	0.9554	HEXANE	-0.2430E-02	
11	72.30	0.4980	760.00	754.20	0.4450	0.4330	575.58	1.0947	0.9641	BENZENE	0.1200E-01	0.8207E-02
		0.4120			0.4420	0.4543	736.99	1.0791	0.9603	MCP	-0.1231E-01	
		0.0900			0.1130	0.1127	801.49	1.1198	0.9551	HEXANE	0.3093E-03	
12	71.90	0.4160	760.00	754.32	0.3660	0.3665	568.31	1.1234	0.9639	BENZENE	-0.4942E-03	0.3272E-03
		0.5100			0.5440	0.5439	728.28	1.0561	0.9602	MCP	0.9423E-04	
		0.0740			0.0900	0.0896	792.11	1.0958	0.9550	HEXANE	0.3932E-03	
13	71.70	0.3370	760.00	756.61	0.3090	0.3026	564.70	1.1555	0.9637	BENZENE	0.6407E-02	0.5525E-02
		0.6040			0.6190	0.6273	723.95	1.0375	0.9600	MCP	-0.8290E-02	
		0.0590			0.0720	0.0701	787.45	1.0849	0.9547	HEXANE	0.1876E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	71.30	0.2420	760.00	759.34	0.2280	0.2214	557.54	1.1963	0.9634	BENZENE	0.6615E-02	0.4415E-02
		0.6600			0.6610	0.6661	715.36	1.0237	0.9597	MCP	-0.5076E-02	
		0.0980			0.1110	0.1126	778.19	1.0642	0.9544	HEXANE	-0.1551E-02	
15	72.00	0.4820	760.00	758.15	0.4190	0.4184	570.12	1.1017	0.9640	BENZENE	0.6320E-03	0.1069E-02
		0.3990			0.4310	0.4300	730.45	1.0734	0.9603	MCP	0.9678E-03	
		0.1230			0.1500	0.1516	794.45	1.1105	0.9551	HEXANE	-0.1607E-02	
16	71.20	0.4540	760.00	752.36	0.3960	0.3919	555.76	1.1224	0.9637	BENZENE	0.4117E-02	0.2748E-02
		0.2820			0.2950	0.2958	713.22	1.0576	0.9600	MCP	-0.7567E-03	
		0.2640			0.3090	0.3124	775.89	1.0900	0.9548	HEXANE	-0.3369E-02	
17	70.40	0.3620	760.00	754.41	0.3330	0.3226	541.68	1.1689	0.9633	BENZENE	0.1044E-01	0.8549E-02
		0.2290			0.2310	0.2286	696.30	1.0335	0.9596	MCP	0.2387E-02	
		0.4020			0.4360	0.4488	757.65	1.0557	0.9543	HEXANE	-0.1282E-01	
18	69.90	0.3050	760.00	755.48	0.2720	0.2710	533.01	1.2086	0.9631	BENZENE	0.1046E-02	0.1156E-02
		0.1880			0.1830	0.1823	685.88	1.0203	0.9593	MCP	0.6912E-03	
		0.5070			0.5450	0.5467	746.41	1.0361	0.9540	HEXANE	-0.1730E-02	
19	69.50	0.2460	760.00	755.92	0.2220	0.2223	526.16	1.2484	0.9629	BENZENE	-0.7511E-03	0.3056E-02
		0.1500			0.1470	0.1424	677.63	1.0115	0.9591	MCP	0.4588E-02	
		0.6040			0.6310	0.6348	737.51	1.0224	0.9538	HEXANE	-0.3829E-02	
20	69.30	0.1940	760.00	759.18	0.1710	0.1706	522.76	1.2922	0.9626	BENZENE	0.3504E-03	0.6533E-03
		0.1170			0.1100	0.1094	673.53	1.0060	0.9588	MCP	0.6339E-03	
		0.6890			0.7190	0.7200	733.09	1.0120	0.9535	HEXANE	-0.9757E-03	
21	69.00	0.1320	760.00	757.64	0.1300	0.1252	517.69	1.3319	0.9626	BENZENE	0.4776E-02	0.3407E-02
		0.0850			0.0790	0.0787	667.42	1.0030	0.9588	MCP	0.3383E-03	
		0.7830			0.7910	0.7961	726.50	1.0060	0.9535	HEXANE	-0.5105E-02	
22	68.90	0.0870	760.00	759.00	0.0880	0.0843	516.01	1.3676	0.9624	BENZENE	0.3669E-02	0.5581E-02
		0.0580			0.0540	0.0534	665.39	1.0019	0.9587	MCP	-0.8367E-02	
		0.8550			0.8670	0.8623	724.31	1.0025	0.9534	HEXANE	0.4706E-02	
23	70.00	0.2520	760.00	755.04	0.2310	0.2274	534.74	1.2230	0.9631	BENZENE	0.3615E-02	0.2408E-02
		0.3100			0.3020	0.3029	687.96	1.0245	0.9594	MCP	-0.9275E-03	
		0.4380			0.4670	0.4697	748.65	1.0267	0.9541	HEXANE	-0.2680E-02	
24	72.50	0.6270	760.00	752.79	0.5350	0.5343	579.24	1.0647	0.9642	BENZENE	0.5132E-03	0.1105E-02
		0.1560			0.1770	0.1779	741.39	1.1073	0.9605	MCP	0.1140E-02	
		0.2170			0.2880	0.2877	806.22	1.1767	0.9553	HEXANE	-0.1661E-02	
25	74.30	0.7540	760.00	757.25	0.6660	0.6541	613.00	1.0303	0.9646	BENZENE	0.1191E-01	0.7944E-02
		0.1030			0.1270	0.1306	731.71	1.1751	0.9610	MCP	-0.3572E-02	
		0.1430			0.2070	0.2153	849.65	1.2766	0.9559	HEXANE	-0.8346E-02	
26	75.80	0.8420	760.00	756.88	0.7540	0.7526	642.27	1.0133	0.9652	BENZENE	0.1422E-02	0.9490E-03
		0.0670			0.0930	0.0938	816.57	1.2420	0.9615	MCP	-0.7600E-03	
		0.0910			0.1530	0.1537	887.14	1.3712	0.9565	HEXANE	-0.6655E-03	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	77.20	0.9020	760.00	759.10	0.9290	0.9323	670.55	1.0053	0.9656	BENZENE	-0.3341E-02	0.2227E-02
		0.0420			0.0650	0.0638	850.13	1.2997	0.9620	MCP	0.1178E-02	
		0.0560			0.1060	0.1038	923.21	1.4519	0.9570	HEXANE	0.2161E-02	
28	71.60	0.3880	760.00	754.13	0.3500	0.3421	562.90	1.1348	0.9638	BENZENE	0.7879E-02	0.5265E-02
		0.5050			0.5230	0.5309	721.80	1.0501	0.9601	MCP	-0.7901E-02	
		0.1070			0.1270	0.1270	785.13	1.0231	0.9548	HEXANE	0.1496E-04	
29	70.50	0.3050	760.00	752.43	0.2760	0.2711	543.42	1.1817	0.9635	BENZENE	0.4924E-02	0.4011E-02
		0.4050			0.4010	0.4070	698.40	1.0347	0.9597	MCP	-0.6022E-02	
		0.2900			0.3230	0.3219	759.91	1.0439	0.9545	HEXANE	0.1088E-02	
30	69.70	0.2170	760.00	753.12	0.2070	0.1982	529.58	1.2465	0.9631	BENZENE	0.8845E-02	0.6229E-02
		0.2920			0.2830	0.2825	681.75	1.0210	0.9593	MCP	0.5018E-03	
		0.4910			0.5100	0.5193	741.95	1.0193	0.9541	HEXANE	-0.9340E-02	
31	69.40	0.1290	760.00	756.03	0.1280	0.1221	524.46	1.3094	0.9628	BENZENE	0.5895E-02	0.3928E-02
		0.2510			0.2370	0.2387	675.58	1.0163	0.9591	MCP	-0.1679E-02	
		0.6200			0.6350	0.6392	735.30	1.0060	0.9538	HEXANE	-0.4209E-02	
32	69.20	0.0880	760.00	758.28	0.0890	0.0851	521.07	1.3498	0.9626	BENZENE	0.3921E-02	0.2611E-02
		0.1740			0.1630	0.1633	671.49	1.0118	0.9588	MCP	-0.2822E-03	
		0.7380			0.7480	0.7516	730.89	1.0025	0.9535	HEXANE	-0.3629E-02	
33	69.10	0.0620	760.00	759.95	0.0620	0.0608	519.38	1.3762	0.9625	BENZENE	0.1209E-02	0.8028E-03
		0.1240			0.1150	0.1155	669.45	1.0090	0.9587	MCP	-0.4551E-03	
		0.8140			0.8230	0.8237	728.69	1.0012	0.9534	HEXANE	-0.7444E-03	
34	68.80	0.0280	760.00	757.82	0.0280	0.0280	514.33	1.4121	0.9624	BENZENE	0.2457E-04	0.2177E-03
		0.0550			0.0510	0.0507	663.37	1.0052	0.9587	MCP	0.3034E-03	
		0.9170			0.9210	0.9213	722.12	1.0002	0.9534	HEXANE	-0.3252E-03	
35	69.70	0.1020	760.00	756.44	0.1000	0.0971	529.58	1.3048	0.9629	BENZENE	0.2914E-02	0.4277E-02
		0.3920			0.3720	0.3784	681.75	1.0230	0.9592	MCP	-0.6412E-02	
		0.5060			0.5280	0.5245	741.95	1.0031	0.9539	HEXANE	0.3505E-02	
36	70.20	0.1380	760.00	761.04	0.1350	0.1290	538.20	1.2686	0.9629	BENZENE	0.5993E-02	0.3993E-02
		0.4710			0.4550	0.4594	692.12	1.0243	0.9591	MCP	-0.4392E-02	
		0.3910			0.4100	0.4116	753.14	1.0095	0.9538	HEXANE	-0.1594E-02	
37	70.40	0.1090	760.00	761.54	0.1060	0.1026	541.68	1.2707	0.9630	BENZENE	0.3351E-02	0.5205E-02
		0.5830			0.5630	0.5708	696.30	1.0227	0.9592	MCP	-0.7803E-02	
		0.3080			0.3310	0.3265	757.65	1.0114	0.9539	HEXANE	0.4459E-02	
38	70.60	0.2270	760.00	758.10	0.2110	0.2060	545.17	1.2115	0.9632	BENZENE	0.4988E-02	0.6671E-02
		0.5100			0.4970	0.5070	700.50	1.0278	0.9594	MCP	-0.1001E-01	
		0.2630			0.2920	0.2870	762.18	1.0305	0.9542	HEXANE	0.5014E-02	
39	70.90	0.1690	760.00	761.31	0.1640	0.1554	546.68	1.2324	0.9631	BENZENE	0.8555E-02	0.5706E-02
		0.6310			0.6210	0.6245	704.72	1.0214	0.9594	MCP	-0.3539E-02	
		0.2010			0.2150	0.2200	766.73	1.0318	0.9541	HEXANE	-0.5025E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	71.10	0.1120	760.00	764.32	0.1130	0.1064	553.98	1.2579	0.9631	BENZENE	0.6616E-02	0.5159E-02
		0.7570			0.7390	0.7467	711.09	1.0128	0.9593	MCP	-0.7742E-02	
		0.1310			0.1480	0.1469	773.59	1.0516	0.9540	HEXANE	0.1118E-02	
41	71.30	0.0680	760.00	764.32	0.0700	0.0665	557.54	1.2863	0.9632	BENZENE	0.3534E-02	0.4988E-02
		0.8490			0.8410	0.8471	715.36	1.0063	0.9594	MCP	0.3945E-02	
		0.0830			0.0890	0.0865	778.19	1.0839	0.9541	HEXANE	-0.7485E-02	
42	71.40	0.0420	760.00	762.11	0.0430	0.0420	559.32	1.3091	0.9633	BENZENE	0.9689E-03	0.3120E-02
		0.9060			0.8990	0.8953	717.50	1.0029	0.9596	MCP	0.3706E-02	
		0.0520			0.0580	0.0627	780.50	1.1176	0.9543	HEXANE	-0.4683E-02	
43	71.20	0.5190	760.00	751.98	0.4430	0.4420	555.76	1.1066	0.9637	BENZENE	0.1047E-02	0.2078E-02
		0.1490			0.1590	0.1569	713.22	1.0615	0.9600	MCP	0.2065E-02	
		0.3320			0.3980	0.4011	775.89	1.1124	0.9548	HEXANE	-0.3121E-02	
44	72.50	0.6730	760.00	745.51	0.5660	0.5728	579.24	1.0531	0.9645	BENZENE	-0.6808E-02	0.4536E-02
		0.1030			0.1230	0.1201	741.38	1.1215	0.9609	MCP	0.2946E-02	
		0.2240			0.3110	0.3071	806.22	1.2059	0.9558	HEXANE	0.3854E-02	
45	76.20	0.8550	760.00	763.45	0.7650	0.7660	650.26	1.0117	0.9650	BENZENE	-0.1005E-02	0.8748E-03
		0.0470			0.0660	0.0663	826.06	1.2482	0.9614	MCP	-0.3092E-03	
		0.0980			0.1690	0.1677	897.34	1.3853	0.9563	HEXANE	0.1311E-02	
46	71.20	0.5290	760.00	752.31	0.4460	0.4494	555.76	1.1045	0.9637	BENZENE	-0.3377E-02	0.2248E-02
		0.1250			0.1320	0.1315	713.22	1.0611	0.9600	MCP	-0.4553E-03	
		0.3460			0.4220	0.4191	775.89	1.1158	0.9548	HEXANE	0.2912E-02	
47	70.20	0.4170	760.00	753.65	0.3640	0.3594	538.20	1.1587	0.9633	BENZENE	0.4599E-02	0.3883E-02
		0.1010			0.1010	0.0998	692.12	1.0278	0.9595	MCP	0.1229E-02	
		0.4820			0.5350	0.5408	753.14	1.0662	0.9543	HEXANE	-0.5821E-02	
48	69.70	0.3400	760.00	755.51	0.3050	0.2985	529.58	1.2020	0.9630	BENZENE	0.6524E-02	0.4660E-02
		0.0800			0.0770	0.0765	681.75	1.0126	0.9592	MCP	0.4705E-03	
		0.5800			0.6180	0.6250	741.95	1.0415	0.9539	HEXANE	-0.6987E-02	
49	69.20	0.2400	760.00	756.98	0.2200	0.2177	521.07	1.2643	0.9627	BENZENE	0.2308E-02	0.3473E-02
		0.0560			0.0550	0.0521	671.49	1.0014	0.9589	MCP	0.2905E-02	
		0.7040			0.7250	0.7302	730.89	1.0193	0.9536	HEXANE	-0.5205E-02	
50	72.10	0.6430	760.00	752.10	0.5420	0.5424	571.94	1.0659	0.9641	BENZENE	-0.4285E-03	0.2833E-03
		0.0580			0.0650	0.0647	732.62	1.0957	0.9604	MCP	0.2792E-03	
		0.2990			0.3930	0.3928	796.79	1.1788	0.9552	HEXANE	0.1509E-03	
51	71.30	0.4020	760.00	753.12	0.3570	0.3513	557.54	1.1340	0.9637	BENZENE	0.5660E-02	0.5239E-02
		0.4130			0.4240	0.4319	715.36	1.0524	0.9600	MCP	-0.7862E-02	
		0.1850			0.2190	0.2168	778.19	1.0775	0.9548	HEXANE	0.2194E-02	
52	72.80	0.6090	760.00	753.03	0.5280	0.5237	584.76	1.0643	0.9643	BENZENE	0.4315E-02	0.2879E-02
		0.2510			0.2880	0.2901	747.99	1.1129	0.9606	MCP	-0.2086E-02	
		0.1400			0.1840	0.1862	813.34	1.1710	0.9554	HEXANE	-0.2242E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
53	71.50	0.2130	760.00	760.90	0.2020	0.1935	561.11	1.2135	0.9634	BENZENE	0.3491E-02	0.2330E-02
		0.7310			0.7340	0.7358	719.65	1.0170	0.9597	MCP	-0.1803E-02	
		0.0560			0.0640	0.0657	782.81	1.0829	0.9544	HEXANE	-0.1695E-02	
54	70.90	0.0730	760.00	766.46	0.0740	0.0698	550.44	1.2776	0.9629	BENZENE	0.4207E-02	0.2808E-02
		0.7310			0.7150	0.7169	706.84	1.0156	0.9591	MCP	-0.1906E-02	
		0.1960			0.2110	0.2133	769.01	1.0294	0.9538	HEXANE	-0.2310E-02	

CARBON TETRACHLORIDE(1) - BENZENE(2) - ISOPROPANOL SYSTEM 024

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
556.40	45.00	279.60	0.193	0.0	0.0	0.0	CCL4	6
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
508.50	47.00	218.50	0.663	0.187	1.660	0.0	ISO-C3OH	22

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.69339E 01	0.12424E 04	0.23000E 03	CCL4	0.6194E 02	-0.2998E 00	0.1676E-02
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.66604E 01	0.81305E 03	0.13293E 03	ISO-C3OH	0.1418E 03	-0.4981E 00	0.9287E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-64.59	170.42	CCL4 - BENZENE	47	0
-203.40	1539.26	CCL4 - ISO-C3OH	50	0
226.64	1137.35	BENZENE - ISO-C3OH	39	0

HALA CONSISTENCY TEST

CI(1) 1.5210

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.1769E 02

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.7578E-02
COMPONENT 2	0.9438E-02
COMPONENT 3	0.7524E-02

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.8180E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	73.50	0.0320	760.00	818.92	0.0540	0.0469	665.76	1.7161	0.9583	CCL4	0.7130E-02	0.9561E-02
		0.3620			0.4700	0.4843	597.81	1.7515	0.9591	BENZENE	-0.1434E-01	
		0.6060			0.4760	0.4688	520.61	1.1905	0.9814	ISO-C3OH	0.7214E-02	
2	71.90	0.0340	760.00	785.04	0.0480	0.0442	634.22	1.5343	0.9598	CCL4	0.3835E-02	0.1196E-01
		0.4560			0.5120	0.5299	568.31	1.5367	0.9606	BENZENE	-0.1794E-01	
		0.5100			0.4400	0.4259	485.35	1.3217	0.9814	ISO-C3OH	0.1411E-01	
3	72.00	0.0710	760.00	793.41	0.1000	0.0903	636.16	1.5122	0.9594	CCL4	0.9748E-02	0.1280E-01
		0.4300			0.4720	0.4912	570.12	1.5212	0.9602	BENZENE	-0.1920E-01	
		0.4990			0.4280	0.4185	487.50	1.3354	0.9811	ISO-C3OH	0.9452E-02	
4	70.20	0.3710	760.00	757.60	0.5080	0.5104	601.97	1.6539	0.9605	CCL4	-0.2407E-02	0.2954E-02
		0.0520			0.0660	0.0680	538.20	1.7643	0.9613	BENZENE	-0.2025E-02	
		0.5770			0.4260	0.4216	449.93	1.2043	0.9817	ISO-C3OH	0.4431E-02	
5	71.20	0.3010	760.00	767.24	0.4710	0.4619	620.78	1.8107	0.9601	CCL4	0.9086E-02	0.6057E-02
		0.0540			0.0710	0.0799	555.76	1.9312	0.9609	BENZENE	-0.7882E-02	
		0.6450			0.4580	0.4592	470.52	1.1369	0.9821	ISO-C3OH	-0.1204E-02	
6	71.30	0.3130	760.00	780.72	0.4520	0.4480	622.69	1.7121	0.9596	CCL4	0.4031E-02	0.2688E-02
		0.0830			0.1110	0.1125	557.54	1.8169	0.9604	BENZENE	-0.1520E-02	
		0.6040			0.4370	0.4395	472.61	1.1764	0.9816	ISO-C3OH	-0.2511E-02	
7	73.80	0.4290	760.00	760.81	0.4160	0.4071	671.80	1.0294	0.9633	CCL4	0.8942E-02	0.7842E-02
		0.5280			0.4370	0.4488	603.48	1.0296	0.9641	BENZENE	-0.1176E-01	
		0.0430			0.1470	0.1442	527.44	4.7176	0.9782	ISO-C3OH	0.2819E-02	
8	75.10	0.4680	760.00	766.25	0.4580	0.4549	698.47	1.0217	0.9636	CCL4	0.3115E-02	0.5585E-02
		0.5060			0.4490	0.4437	628.49	1.0277	0.9644	BENZENE	0.5262E-02	
		0.0260			0.0930	0.1014	557.82	5.2206	0.9775	ISO-C3OH	-0.8378E-02	
9	75.50	0.4240	760.00	762.08	0.4200	0.4206	706.84	1.0252	0.9640	CCL4	-0.5969E-03	0.4371E-02
		0.5550			0.4870	0.4930	636.34	1.0228	0.9648	BENZENE	-0.5962E-02	
		0.0210			0.0930	0.0864	567.43	5.3883	0.9774	ISO-C3OH	0.6556E-02	
10	75.90	0.0920	760.00	776.10	0.1000	0.0961	715.28	1.0950	0.9633	CCL4	0.3949E-02	0.4960E-02
		0.8680			0.7480	0.7553	644.26	1.0072	0.9641	BENZENE	-0.7290E-02	
		0.0400			0.1520	0.1487	577.16	4.8745	0.9782	ISO-C3OH	0.3340E-02	
11	72.80	0.1020	760.00	797.57	0.0960	0.0901	651.81	1.1443	0.9604	CCL4	0.5892E-02	0.1633E-01
		0.7340			0.6270	0.6084	584.76	1.0829	0.9612	BENZENE	0.1860E-01	
		0.1740			0.2770	0.3015	504.95	2.6729	0.9795	ISO-C3OH	-0.2449E-01	
12	71.60	0.0780	760.00	783.22	0.0880	0.0821	628.43	1.2531	0.9603	CCL4	0.5861E-02	0.3907E-02
		0.6210			0.5630	0.5643	562.90	1.2110	0.9611	BENZENE	-0.1284E-02	
		0.3010			0.3490	0.3536	478.95	1.8779	0.9805	ISO-C3OH	-0.4576E-02	
13	73.50	0.0580	760.00	789.05	0.1120	0.1025	665.76	1.9965	0.9592	CCL4	0.9546E-02	0.1518E-01
		0.2240			0.3480	0.3708	597.81	2.0901	0.9600	BENZENE	-0.2278E-01	
		0.7180			0.5400	0.5268	520.61	1.0895	0.9827	ISO-C3OH	0.1323E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIEL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	75.90	0.0360	760.00	770.31	0.0930	0.0877	715.28	2.5039	0.9595	CCL4	0.5261E-02	0.2075E-01
		0.1040			0.2110	0.2421	644.26	2.6640	0.9602	BENZENE	-0.3113E-01	
		0.8600			0.6960	0.6701	577.16	1.0210	0.9845	ISO-C3OH	0.2587E-01	
15	71.40	0.1900	760.00	763.67	0.1900	0.1815	624.60	1.1169	0.9617	CCL4	0.8505E-02	0.1168E-01
		0.6510			0.5450	0.5360	559.32	1.0783	0.9625	BENZENE	0.9007E-02	
		0.1590			0.2650	0.2825	474.72	2.7929	0.9799	ISO-C3OH	-0.1751E-01	
16	70.90	0.1690	760.00	773.77	0.1860	0.1772	615.09	1.2600	0.9605	CCL4	0.8772E-02	0.5848E-02
		0.5100			0.4680	0.4722	550.44	1.2468	0.9613	BENZENE	-0.4168E-02	
		0.3210			0.3460	0.3506	464.27	1.7797	0.9805	ISO-C3OH	-0.4605E-02	
17	71.60	0.1510	760.00	791.97	0.1940	0.1844	629.43	1.4682	0.9595	CCL4	0.9584E-02	0.6389E-02
		0.3730			0.4040	0.4131	562.90	1.4911	0.9603	BENZENE	-0.9099E-02	
		0.4760			0.4020	0.4025	478.95	1.3674	0.9809	ISO-C3OH	-0.4832E-03	
18	71.70	0.1320	760.00	771.44	0.2080	0.1999	630.36	1.7690	0.9600	CCL4	0.8120E-02	0.9031E-02
		0.2390			0.3220	0.3355	564.70	1.8442	0.9608	BENZENE	-0.1355E-01	
		0.6300			0.4700	0.4646	481.08	1.1580	0.9821	ISO-C3OH	0.5427E-02	
19	74.60	0.1060	760.00	812.94	0.2030	0.1981	688.12	2.1029	0.9582	CCL4	0.4895E-02	0.2175E-01
		0.1430			0.2700	0.2526	618.78	2.2179	0.9590	BENZENE	-0.3263E-01	
		0.7510			0.5770	0.5493	545.98	1.0667	0.9825	ISO-C3OH	0.2774E-01	
20	75.20	0.0950	760.00	775.71	0.2310	0.2170	700.56	2.4125	0.9594	CCL4	0.1401E-01	0.1244E-01
		0.0690			0.1320	0.1507	630.44	2.5707	0.9602	BENZENE	-0.1865E-01	
		0.8360			0.6370	0.6324	560.21	1.0277	0.9841	ISO-C3OH	0.4646E-02	
21	73.80	0.2700	760.00	777.09	0.2690	0.2576	671.80	1.0562	0.9624	CCL4	0.1136E-01	0.7576E-02
		0.6640			0.5500	0.5511	603.48	1.0259	0.9632	BENZENE	-0.1107E-02	
		0.0660			0.1810	0.1913	527.44	4.1656	0.9785	ISO-C3OH	-0.1026E-01	
22	71.20	0.2750	760.00	773.75	0.2700	0.2596	620.78	1.1243	0.9610	CCL4	0.1041E-01	0.1073E-01
		0.5360			0.4520	0.4463	555.76	1.1113	0.9618	BENZENE	0.5679E-02	
		0.1890			0.2780	0.2941	470.52	2.4998	0.9798	ISO-C3OH	-0.1609E-01	
23	71.50	0.2560	760.00	798.39	0.2760	0.2625	626.51	1.2467	0.9596	CCL4	0.1346E-01	0.8971E-02
		0.4250			0.3940	0.3914	561.11	1.2541	0.9604	BENZENE	-0.7410E-02	
		0.3190			0.3400	0.3460	476.83	1.7746	0.9799	ISO-C3OH	-0.6045E-02	
24	71.30	0.2370	760.00	790.71	0.3000	0.2835	622.69	1.4747	0.9595	CCL4	0.1146E-01	0.7642E-02
		0.2800			0.3340	0.3137	557.54	1.5206	0.9603	BENZENE	-0.9718E-02	
		0.4830			0.3960	0.3977	472.61	1.3473	0.9808	ISO-C3OH	-0.1744E-02	
25	71.30	0.2030	760.00	767.61	0.3150	0.3033	622.69	1.7584	0.9601	CCL4	0.1171E-01	0.1215E-01
		0.1720			0.2230	0.2412	557.54	1.8492	0.9609	BENZENE	-0.1823E-01	
		0.6250			0.4620	0.4555	472.61	1.1591	0.9821	ISO-C3OH	0.6519E-02	
26	74.10	0.1640	760.00	800.77	0.3200	0.3095	677.89	2.1245	0.9586	CCL4	0.1049E-01	0.8394E-02
		0.0800			0.1310	0.1436	609.18	2.2557	0.9594	BENZENE	-0.1259E-01	
		0.7560			0.5490	0.5469	534.33	1.0622	0.9827	ISO-C3OH	0.2104E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	73.10	0.3860	760.00	764.30	0.3690	0.3608	657.76	1.0397	0.9628	CCL4	0.8244E-02	0.5497E-02
		0.5520			0.4560	0.4588	590.33	1.0334	0.9636	BENZENE	-0.2790E-02	
		0.0620			0.1750	0.1805	511.62	4.2426	0.9785	ISO-C3OH	-0.5455E-02	
28	70.10	0.3580	760.00	767.05	0.3800	0.3692	600.11	1.2594	0.9606	CCL4	0.1076E-01	0.7171E-02
		0.4060			0.2810	0.2839	536.46	1.2935	0.9614	BENZENE	-0.7911E-02	
		0.2360			0.3390	0.3418	447.91	1.7033	0.9804	ISO-C3OH	-0.2846E-02	
29	70.30	0.3020	760.00	764.17	0.3910	0.3827	603.93	1.5314	0.9604	CCL4	0.8344E-02	0.8280E-02
		0.1820			0.2030	0.2154	539.93	1.6047	0.9612	BENZENE	-0.1242E-01	
		0.5160			0.4060	0.4019	451.96	1.2887	0.9813	ISO-C3OH	0.4076E-02	
30	72.10	0.2620	760.00	790.18	0.4110	0.4030	638.10	1.8165	0.9592	CCL4	0.7999E-02	0.5332E-02
		0.0900			0.1260	0.1311	571.94	1.9259	0.9600	BENZENE	-0.5140E-02	
		0.6480			0.4630	0.4659	489.66	1.1356	0.9818	ISO-C3OH	-0.2857E-02	
31	73.50	0.4900	760.00	781.93	0.4590	0.4489	665.76	1.0292	0.9621	CCL4	0.1012E-01	0.7373E-02
		0.4480			0.3730	0.3721	597.81	1.0423	0.9629	BENZENE	0.9411E-03	
		0.0620			0.1680	0.1791	520.61	4.2303	0.9781	ISO-C3OH	-0.1106E-01	
32	70.30	0.4700	760.00	757.85	0.4400	0.4274	603.83	1.0914	0.9616	CCL4	0.1261E-01	0.9506E-02
		0.3600			0.2940	0.2933	539.93	1.1154	0.9624	BENZENE	-0.1426E-01	
		0.1700			0.2760	0.2744	451.96	2.6437	0.9797	ISO-C3OH	0.1644E-02	
33	70.60	0.3920	760.00	784.73	0.4330	0.4255	609.44	1.3337	0.9598	CCL4	0.7533E-02	0.5022E-02
		0.2130			0.2090	0.2146	545.17	1.3883	0.9606	BENZENE	-0.5607E-02	
		0.3950			0.3580	0.3599	458.08	1.5258	0.9803	ISO-C3OH	-0.1925E-02	
34	73.00	0.6010	760.00	759.13	0.5520	0.5516	655.78	1.0175	0.9631	CCL4	0.4458E-03	0.4632E-03
		0.3510			0.2970	0.2968	588.47	1.0477	0.9639	BENZENE	0.2477E-03	
		0.0480			0.1510	0.1517	509.39	4.5939	0.9782	ISO-C3OH	-0.6962E-03	
35	70.80	0.5940	760.00	780.51	0.5420	0.5329	613.20	1.0908	0.9606	CCL4	0.9080E-02	0.6054E-02
		0.2270			0.1880	0.1894	548.68	1.1371	0.9614	BENZENE	-0.1376E-02	
		0.1790			0.2700	0.2777	462.20	2.5581	0.9793	ISO-C3OH	-0.7705E-02	
36	69.60	0.5510	760.00	764.39	0.5670	0.5650	590.89	1.2670	0.9606	CCL4	0.2049E-02	0.4958E-02
		0.1010			0.1030	0.0976	527.87	1.3409	0.9614	BENZENE	0.5387E-02	
		0.3480			0.3300	0.3374	437.92	1.6545	0.9803	ISO-C3OH	-0.7438E-02	
37	72.80	0.7130	760.00	763.88	0.6410	0.6439	651.81	1.0132	0.9628	CCL4	-0.2896E-02	0.1930E-02
		0.2360			0.2010	0.1995	584.76	1.0604	0.9636	BENZENE	0.1514E-02	
		0.0510			0.1580	0.1566	504.95	4.5309	0.9781	ISO-C3OH	0.1380E-02	
38	70.00	0.7030	760.00	763.59	0.6330	0.6267	598.26	1.0877	0.9612	CCL4	0.6271E-02	0.4676E-02
		0.1180			0.1000	0.0993	534.74	1.1516	0.9620	BENZENE	0.7420E-03	
		0.1790			0.2670	0.2740	445.90	2.5604	0.9795	ISO-C3OH	-0.7015E-02	
39	73.20	0.8300	760.00	771.21	0.7410	0.7480	659.76	1.0083	0.9626	CCL4	-0.7023E-02	0.5314E-02
		0.1250			0.1060	0.1069	592.20	1.0698	0.9634	BENZENE	-0.9492E-03	
		0.0450			0.1530	0.1450	513.86	4.7157	0.9777	ISO-C3OH	0.7971E-02	

CARBON TETRACHLORIDE(1) - CYCLOHEXANE(2) - 2-PROPANOL(3) SYSTEM 225

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
556.40	45.00	279.60	0.193	0.0	0.0	0.0	CCL4	6
553.20	40.00	311.20	0.210	0.0	0.0	0.0	CYCLOHEX	9
508.50	47.00	218.50	0.663	0.187	1.600	0.0	2-PROPNL	22

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.69339E 01	0.12424E 04	0.23000E 03	CCL4	0.6104E 02	-0.2998E 00	0.1676E-02
0.68450E 01	0.12035E 04	0.22286E 03	CYCLOHEX	0.9291E 02	-0.2486E-01	0.2616E-03
0.66604E 01	0.81305E 03	0.13293E 03	2-PROPNL	0.1418E 03	-0.4981E 00	0.9287E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
849.16	-299.75	CCL4 - CYCLOHEX	48	0
-203.40	1539.26	CCL4 - 2-PROPNL	50	0
266.01	1525.84	CYCLOHEX - 2-PROPNL	64	0

HALA CONSISTENCY TEST

CI(1) 15.7109

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.3138E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.2626E-01
COMPONENT 2	0.3706E-01
COMPONENT 3	0.2056E-01
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.2796E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	70.17	0.1190	760.00	742.45	0.1550	0.1644	601.41	1.6439	0.9608	CCL4	-0.9438E-02	0.7924E-02
		0.2240			0.3760	0.3641	528.55	2.1753	0.9565	CYCLOHEX	0.1188E-01	
		0.6590			0.4690	0.4714	449.32	1.1603	0.9828	2-PROPNL	-0.2449E-02	
2	69.28	0.2020	760.00	732.12	0.2730	0.2616	585.04	1.5497	0.9613	CCL4	0.1139E-01	0.9309E-02
		0.2190			0.2940	0.3080	513.90	1.9099	0.9571	CYCLOHEX	-0.1397E-01	
		0.5790			0.4330	0.4304	431.61	1.2354	0.9824	2-PROPNL	0.2571E-02	
3	68.82	0.3260	760.00	727.89	0.3890	0.4049	576.71	1.4995	0.9617	CCL4	-0.1587E-01	0.1058E-01
		0.1540			0.1980	0.1951	506.45	1.7362	0.9575	CYCLOHEX	0.2942E-02	
		0.5200			0.4130	0.4001	422.68	1.2977	0.9821	2-PROPNL	0.1292E-01	
4	68.55	0.4730	760.00	733.35	0.5020	0.5070	571.97	1.3148	0.9617	CCL4	-0.5014E-02	0.5023E-02
		0.1350			0.1390	0.1415	502.11	1.4600	0.9574	CYCLOHEX	-0.2523E-02	
		0.3920			0.3590	0.3515	417.50	1.5411	0.9812	2-PROPNL	0.7533E-02	
5	68.45	0.5670	760.00	732.75	0.5630	0.5624	570.09	1.2197	0.9619	CCL4	0.6412E-03	0.1132E-02
		0.1190			0.1110	0.1127	500.52	1.3337	0.9576	CYCLOHEX	-0.1704E-02	
		0.3150			0.3260	0.3249	415.59	1.7791	0.9809	2-PROPNL	0.1052E-02	
6	68.80	0.7300	760.00	738.84	0.6720	0.6649	576.36	1.1171	0.9619	CCL4	0.7086E-02	0.2289E-01
		0.0550			0.0130	0.0473	506.13	1.1982	0.9576	CYCLOHEX	-0.3433E-01	
		0.2150			0.3150	0.2878	422.29	2.2889	0.9802	2-PROPNL	0.2724E-01	
7	70.10	0.3750	760.00	739.30	0.7630	0.7613	600.11	1.0271	0.9628	CCL4	0.1162E-02	0.8121E-02
		0.0320			0.0370	0.0260	527.39	1.0866	0.9584	CYCLOHEX	0.1102E-01	
		0.0930			0.2000	0.2122	447.91	3.6773	0.9792	2-PROPNL	-0.1218E-01	
8	69.10	0.1190	760.00	743.28	0.1470	0.1329	581.77	1.3546	0.9608	CCL4	0.1497E-01	0.1982E-01
		0.3670			0.4280	0.4577	510.97	1.7283	0.9565	CYCLOHEX	-0.2973E-01	
		0.5140			0.4250	0.4102	428.10	1.3570	0.9820	2-PROPNL	0.1476E-01	
9	68.40	0.3870	760.00	728.04	0.4130	0.4101	569.20	1.2969	0.9619	CCL4	0.2875E-02	0.1918E-02
		0.2230			0.2330	0.2358	499.72	1.4697	0.9576	CYCLOHEX	-0.2849E-02	
		0.3900			0.3540	0.3540	414.64	1.5600	0.9815	2-PROPNL	-0.3028E-04	
10	68.44	0.4060	760.00	727.34	0.3380	0.4534	569.91	1.3636	0.9619	CCL4	-0.1154E 00	0.1041E 00
		0.1630			0.3370	0.1809	500.36	1.5389	0.9576	CYCLOHEX	0.1561E 00	
		0.4310			0.3250	0.3657	415.40	1.4543	0.9816	2-PROPNL	-0.4070E-01	
11	68.45	0.4930	760.00	731.35	0.4800	0.4920	570.09	1.2502	0.9619	CCL4	-0.1198E-01	0.7981E-02
		0.1720			0.1720	0.1712	500.52	1.3869	0.9576	CYCLOHEX	0.8316E-03	
		0.3450			0.3480	0.3369	415.59	1.6812	0.9811	2-PROPNL	0.1113E-01	
12	68.60	0.6220	760.00	732.47	0.5770	0.5748	572.77	1.1310	0.9621	CCL4	0.2215E-02	0.3909E-02
		0.1460			0.1320	0.1284	502.91	1.2300	0.9578	CYCLOHEX	0.3644E-02	
		0.2330			0.2910	0.2969	418.45	2.1939	0.9805	2-PROPNL	-0.5868E-02	
13	69.00	0.7570	760.00	728.29	0.6610	0.6641	579.96	1.0551	0.9628	CCL4	-0.3121E-02	0.2080E-02
		0.1030			0.0860	0.0854	509.35	1.1318	0.9585	CYCLOHEX	0.6040E-03	
		0.1400			0.2530	0.2505	426.16	2.9883	0.9800	2-PROPNL	0.2515E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	72.90	0.9520	760.00	737.46	0.8930	0.8822	653.79	1.0024	0.9642	CCL4	0.1083E-01	0.8724E-02
		0.0220			0.0210	0.0188	575.49	1.0443	0.9600	CYCLOHEX	0.2249E-02	
		0.0260			0.0860	0.0991	507.17	5.4040	0.9779	2-PROPNL	-0.1309E-01	
15	68.80	0.1170	760.00	742.00	0.1330	0.1190	576.36	1.2517	0.9610	CCL4	0.1398E-01	0.9322E-02
		0.4470			0.4850	0.4949	506.13	1.5464	0.9566	CYCLOHEX	-0.9882E-02	
		0.4360			0.3820	0.3861	422.29	1.5232	0.9817	2-PROPNL	-0.4103E-02	
16	68.60	0.2220	760.00	734.52	0.2290	0.2282	572.77	1.2605	0.9615	CCL4	0.8186E-03	0.1679E-02
		0.3790			0.4030	0.4055	502.91	1.4898	0.9571	CYCLOHEX	-0.2520E-02	
		0.3990			0.3680	0.3663	418.45	1.5774	0.9815	2-PROPNL	0.1697E-02	
17	68.50	0.3510	760.00	731.47	0.3440	0.3464	570.08	1.2098	0.9619	CCL4	-0.2448E-02	0.6240E-02
		0.3200			0.3090	0.3159	501.31	1.3738	0.9575	CYCLOHEX	-0.6916E-02	
		0.3290			0.3470	0.3376	416.54	1.7634	0.9812	2-PROPNL	0.9356E-02	
18	68.62	0.4890	760.00	733.61	0.4510	0.4638	573.13	1.1616	0.9619	CCL4	-0.1281E-01	0.1321E-01
		0.2400			0.2150	0.2220	503.24	1.2861	0.9576	CYCLOHEX	-0.7003E-02	
		0.2710			0.3340	0.3142	418.83	1.9861	0.9808	2-PROPNL	0.1981E-01	
19	68.84	0.6170	760.00	732.67	0.5510	0.5540	577.08	1.0912	0.9623	CCL4	-0.2990E-02	0.2209E-02
		0.1920			0.1650	0.1653	506.77	1.1879	0.9580	CYCLOHEX	-0.3277E-03	
		0.1910			0.2840	0.2807	423.06	2.4882	0.9803	2-PROPNL	0.3309E-02	
20	71.50	0.8840	760.00	746.16	0.8010	0.7834	626.51	1.0110	0.9631	CCL4	0.1760E-01	0.2188E-01
		0.0580			0.0630	0.0478	551.04	1.0653	0.9588	CYCLOHEX	0.1522E-01	
		0.0580			0.1360	0.1688	476.83	4.4449	0.9786	2-PROPNL	-0.3283E-01	
21	68.60	0.2530	760.00	733.08	0.2310	0.2349	572.77	1.1371	0.9619	CCL4	-0.3939E-02	0.2623E-02
		0.4730			0.4410	0.4386	502.91	1.2892	0.9575	CYCLOHEX	0.2358E-02	
		0.2740			0.3280	0.3264	418.45	2.0420	0.9811	2-PROPNL	0.1572E-02	
22	68.60	0.3800	760.00	728.39	0.3430	0.3457	572.77	1.1074	0.9623	CCL4	-0.2683E-02	0.5821E-02
		0.3940			0.3460	0.3520	502.91	1.2348	0.9579	CYCLOHEX	-0.6049E-02	
		0.2260			0.3110	0.3023	418.45	2.2773	0.9808	2-PROPNL	0.8730E-02	
23	68.40	0.4810	760.00	729.94	0.4770	0.4874	569.20	1.2434	0.9619	CCL4	-0.1043E-01	0.1180E-01
		0.1790			0.1950	0.1773	499.72	1.3801	0.9576	CYCLOHEX	0.1769E-01	
		0.3400			0.3280	0.3353	414.64	1.6985	0.9811	2-PROPNL	-0.7275E-02	
24	68.30	0.6300	760.00	703.77	0.5600	0.5530	567.41	1.0438	0.9638	CCL4	0.7037E-02	0.4694E-02
		0.2410			0.2010	0.2026	498.13	1.1351	0.9595	CYCLOHEX	-0.1563E-02	
		0.1290			0.2390	0.2445	412.74	3.1601	0.9805	2-PROPNL	-0.5482E-02	
25	69.00	0.7250	760.00	738.80	0.5860	0.6482	579.96	1.0898	0.9621	CCL4	-0.6217E-01	0.1172E 00
		0.0900			0.2520	0.0762	509.35	1.1712	0.9577	CYCLOHEX	0.1758E 00	
		0.1850			0.1620	0.2757	426.16	2.5246	0.9800	2-PROPNL	-0.1137E 00	
26	72.30	0.8930	760.00	742.10	0.8270	0.8099	641.99	1.0049	0.9637	CCL4	0.1708E-01	0.1727E-01
		0.0680			0.0660	0.0572	564.91	1.0555	0.9594	CYCLOHEX	0.8824E-02	
		0.0390			0.1070	0.1329	493.99	4.9942	0.9782	2-PROPNL	-0.2591E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	69.10	0.1330	760.00	740.40	0.1260	0.1197	581.77	1.0957	0.9617	CCL4	0.6284E-02	0.5673E-02
		0.6670			0.5570	0.5655	510.97	1.1713	0.9573	CYCLOHEX	-0.8512E-02	
		0.2000			0.3170	0.3148	428.10	2.6626	0.9809	2-PROPNL	0.2223E-02	
28	69.10	0.3560	760.00	743.62	0.2240	0.3267	581.77	1.1217	0.9616	CCL4	-0.1027E 00	0.8312E-01
		0.3990			0.4860	0.3613	510.97	1.2564	0.9572	CYCLOHEX	0.1247E 00	
		0.2450			0.2900	0.3120	428.10	2.1633	0.9806	2-PROPNL	-0.2202E-01	
29	69.40	0.3970	760.00	729.21	0.3450	0.3463	587.23	1.0375	0.9628	CCL4	-0.1329E-02	0.7054E-02
		0.4720			0.3980	0.3973	515.86	1.1358	0.9585	CYCLOHEX	-0.9253E-02	
		0.1310			0.2670	0.2564	433.97	3.2155	0.9803	2-PROPNL	0.1058E-01	
30	69.60	0.5240	760.00	720.23	0.4570	0.4577	590.89	1.0205	0.9635	CCL4	-0.7274E-03	0.1771E-01
		0.3790			0.2920	0.3178	519.13	1.1117	0.9592	CYCLOHEX	-0.2585E-01	
		0.0970			0.2510	0.2264	437.92	3.7192	0.9800	2-PROPNL	0.2657E-01	
31	71.60	0.7700	760.00	736.63	0.6990	0.6897	628.43	1.0063	0.9637	CCL4	0.9283E-02	0.1439E-01
		0.1790			0.1630	0.1507	552.76	1.0720	0.9593	CYCLOHEX	0.1230E-01	
		0.0510			0.1380	0.1596	478.95	4.6976	0.9788	2-PROPNL	-0.2159E-01	
32	72.16	0.8890	760.00	730.86	0.8480	0.8136	639.26	1.0035	0.9643	CCL4	0.3441E-01	0.3137E-01
		0.0770			0.0780	0.0654	562.47	1.0547	0.9600	CYCLOHEX	0.1264E-01	
		0.0340			0.0740	0.1211	490.95	5.1715	0.9784	2-PROPNL	-0.4706E-01	
33	72.69	0.1000	760.00	707.11	0.1930	0.2247	649.65	2.3405	0.9620	CCL4	-0.4169E-01	0.6282E-01
		0.0550			0.2400	0.1458	571.78	3.1288	0.9582	CYCLOHEX	0.9423E-01	
		0.8450			0.5770	0.6295	502.52	1.0301	0.9852	2-PROPNL	-0.5254E-01	
34	70.19	0.0980	760.00	764.72	0.2400	0.1050	601.78	1.4472	0.9598	CCL4	0.1350E 00	0.9000E-01
		0.3220			0.3360	0.4530	528.89	1.9357	0.9554	CYCLOHEX	-0.1170E 00	
		0.5900			0.4240	0.4420	449.73	1.2473	0.9820	2-PROPNL	-0.1796E-01	
35	69.31	0.3300	760.00	733.14	0.5200	0.4434	585.59	1.6086	0.9614	CCL4	0.7662E-01	0.9101E-01
		0.1000			0.0	0.1365	514.39	1.8551	0.9572	CYCLOHEX	-0.1365E 00	
		0.5700			0.4800	0.4201	432.20	1.2246	0.9822	2-PROPNL	0.5989E-01	
36	68.73	0.4630	760.00	734.51	0.5400	0.5409	575.10	1.4271	0.9615	CCL4	-0.9379E-03	0.2943E-02
		0.0750			0.0900	0.0856	505.00	1.5825	0.9572	CYCLOHEX	0.4412E-02	
		0.4620			0.3700	0.3735	420.94	1.3806	0.9815	2-PROPNL	-0.3477E-02	
37	68.43	0.5850	760.00	733.46	0.6010	0.5952	569.73	1.2531	0.9618	CCL4	0.5785E-02	0.6763E-02
		0.0750			0.0630	0.0721	500.20	1.3638	0.9574	CYCLOHEX	-0.1015E-01	
		0.3400			0.3360	0.3316	415.21	1.6855	0.9809	2-PROPNL	0.4358E-02	
38	70.69	0.2420	760.00	685.62	0.2910	0.2322	611.13	1.0345	0.9659	CCL4	-0.3120E-01	0.2080E-01
		0.7210			0.6300	0.6195	537.26	1.0506	0.9617	CYCLOHEX	0.1050E-01	
		0.0370			0.1690	0.1483	459.03	5.3414	0.9802	2-PROPNL	0.2070E-01	
39	70.87	0.3930	760.00	710.40	0.3400	0.3557	614.52	1.0040	0.9646	CCL4	-0.1569E-01	0.2253E-01
		0.6570			0.5100	0.4762	540.30	1.0754	0.9604	CYCLOHEX	0.3380E-01	
		0.0530			0.1500	0.1681	463.64	5.0338	0.9797	2-PROPNL	-0.1811E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	LIQ	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	71.64	0.5140	760.00	707.71	0.4800	0.4744	629.20	0.9968	0.9652	CCL4	0.5566E-02	0.2973E-01
		0.4520			0.3530	0.3961	553.45	1.0727	0.9609	CYCLOHEX	-0.4310E-01	
		0.0340			0.1670	0.1295	479.80	5.4858	0.9793	2-PROPNL	0.3753E-01	
41	72.40	0.6450	760.00	719.65	0.6000	0.5997	643.95	0.9973	0.9649	CCL4	0.2711E-03	0.1312E-01
		0.3260			0.2670	0.2867	566.67	1.0687	0.9606	CYCLOHEX	-0.1969E-01	
		0.0290			0.1330	0.1136	496.17	5.5452	0.9787	2-PROPNL	0.1941E-01	
42	69.49	0.2500	760.00	702.78	0.3130	0.4159	588.87	1.9014	0.9625	CCL4	-0.1029E 00	0.8950E-01
		0.0570			0.2340	0.0998	517.33	2.2702	0.9586	CYCLOHEX	0.1342E 00	
		0.6930			0.4530	0.4842	435.74	1.1058	0.9836	2-PROPNL	-0.3132E-01	
43	69.11	0.3350	760.00	731.46	0.4310	0.4357	591.95	1.5636	0.9615	CCL4	-0.4737E-02	0.2456E-01
		0.1160			0.1900	0.1532	511.14	1.8018	0.9573	CYCLOHEX	0.3683E-01	
		0.5490			0.3790	0.4111	428.29	1.2526	0.9821	2-PROPNL	-0.3210E-01	
44	68.59	0.4650	760.00	733.36	0.5250	0.5132	572.59	1.3520	0.9616	CCL4	0.1181E-01	0.7876E-02
		0.1180			0.1240	0.1275	502.75	1.5027	0.9573	CYCLOHEX	-0.3481E-02	
		0.4170			0.3510	0.3593	418.26	1.4786	0.9813	2-PROPNL	-0.8334E-02	
45	69.21	0.1960	760.00	742.50	0.2740	0.2274	583.77	1.4102	0.9610	CCL4	0.4663E-01	0.3184E-01
		0.2940			0.3200	0.3678	512.76	1.7259	0.9566	CYCLOHEX	-0.4776E-01	
		0.5100			0.4060	0.4049	430.24	1.3415	0.9819	2-PROPNL	0.1122E-02	
46	68.67	0.3510	760.00	732.92	0.3960	0.3893	574.02	1.3545	0.9616	CCL4	0.6706E-02	0.7100E-02
		0.2150			0.2300	0.2407	504.04	1.5519	0.9573	CYCLOHEX	-0.1065E-01	
		0.4340			0.3740	0.3701	419.79	1.4572	0.9815	2-PROPNL	0.3943E-02	
47	68.25	0.4480	760.00	714.71	0.4880	0.5735	566.53	1.5461	0.9623	CCL4	-0.8555E-01	0.9149E-01
		0.0270			0.1710	0.0338	497.33	1.7154	0.9581	CYCLOHEX	0.1372E 00	
		0.5250			0.3410	0.3927	411.80	1.2716	0.9822	2-PROPNL	-0.5168E-01	
48	68.65	0.2240	760.00	735.57	0.2570	0.2318	573.66	1.2689	0.9614	CCL4	0.2520E-01	0.1680E-01
		0.3710			0.3910	0.4001	503.72	1.5011	0.9570	CYCLOHEX	-0.1908E-01	
		0.4050			0.3620	0.3681	419.41	1.5604	0.9815	2-PROPNL	-0.6122E-02	
49	68.54	0.3610	760.00	732.51	0.3670	0.3663	571.69	1.2437	0.9618	CCL4	0.7013E-03	0.4710E-03
		0.2840			0.2880	0.2885	501.95	1.4138	0.9574	CYCLOHEX	-0.5170E-03	
		0.3550			0.3450	0.3452	417.31	1.6703	0.9813	2-PROPNL	-0.1946E-03	
50	68.45	0.4930	760.00	729.43	0.4700	0.4705	570.09	1.1687	0.9621	CCL4	-0.5185E-03	0.3990E-02
		0.2300			0.2200	0.2140	500.52	1.2938	0.9579	CYCLOHEX	0.5983E-02	
		0.2770			0.3100	0.3155	415.59	1.0555	0.9809	2-PROPNL	-0.5470E-02	
51	69.02	0.2510	760.00	746.31	0.2480	0.2408	580.32	1.1792	0.9612	CCL4	0.7231E-02	0.1327E-01
		0.4290			0.3970	0.4169	509.68	1.3560	0.9568	CYCLOHEX	-0.1991E-01	
		0.3200			0.3550	0.3423	426.54	1.8310	0.9810	2-PROPNL	0.1267E-01	
52	68.66	0.3810	760.00	732.62	0.3520	0.3534	573.94	1.1332	0.9620	CCL4	-0.1420E-02	0.5587E-02
		0.3650			0.3270	0.3340	503.88	1.2690	0.9577	CYCLOHEX	-0.6965E-02	
		0.2540			0.3210	0.3126	419.60	2.1021	0.9809	2-PROPNL	0.8376E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
53	68.78	0.5030	760.00	731.45	0.4820	0.4545	576.00	1.0982	0.9623	CCL4	0.2753E-01	0.3951E-01
		0.2910			0.1960	0.2553	505.80	1.2104	0.9579	CYCLOHEX	-0.5927E-01	
		0.2060			0.3220	0.2903	421.91	2.3988	0.9806	2-PROPNL	0.3173E-01	
54	69.03	0.2350	760.00	735.23	0.2450	0.2087	580.50	1.0763	0.9621	CCL4	0.3630E-01	0.3753E-01
		0.5750			0.4370	0.4933	509.84	1.1801	0.9576	CYCLOHEX	-0.5630E-01	
		0.1900			0.3180	0.2980	426.74	2.6429	0.9807	2-PROPNL	0.1999E-01	
55	69.16	0.3830	760.00	736.36	0.3500	0.3391	582.86	1.0705	0.9622	CCL4	0.1089E-01	0.8756E-02
		0.4360			0.3630	0.3761	511.95	1.1837	0.9577	CYCLOHEX	-0.1314E-01	
		0.1810			0.2870	0.2848	429.27	2.6387	0.9804	2-PROPNL	0.2236E-02	
56	69.29	0.5140	760.00	729.08	0.4580	0.4496	595.22	1.0436	0.9628	CCL4	0.8433E-02	0.9546E-02
		0.3500			0.2310	0.2953	514.06	1.1425	0.9585	CYCLOHEX	-0.1432E-01	
		0.1360			0.2610	0.2551	431.81	3.0961	0.9802	2-PROPNL	0.5885E-02	
57	69.97	0.2010	760.00	699.23	0.2100	0.1881	597.70	1.0510	0.9648	CCL4	0.2186E-01	0.4165E-01
		0.7390			0.5500	0.6125	525.23	1.0573	0.9605	CYCLOHEX	-0.6249E-01	
		0.0610			0.2400	0.1994	445.30	5.0192	0.9805	2-PROPNL	0.4061E-01	
58	70.28	0.4100	760.00	696.88	0.3580	0.3711	603.45	1.0035	0.9651	CCL4	-0.1305E-01	0.3304E-01
		0.5400			0.4260	0.4625	530.38	1.0773	0.9609	CYCLOHEX	-0.3652E-01	
		0.0500			0.2160	0.1664	451.55	5.0212	0.9800	2-PROPNL	0.4956E-01	
59	70.79	0.5300	760.00	646.94	0.4650	0.5189	613.01	0.9954	0.9690	CCL4	-0.5387E-01	0.9173E-01
		0.4580			0.3400	0.4237	538.94	1.0669	0.9641	CYCLOHEX	-0.8372E-01	
		0.0120			0.1950	0.0574	461.99	6.5473	0.9797	2-PROPNL	0.1376E 00	
60	71.18	0.0800	760.00	761.96	0.1640	0.1156	620.40	1.6945	0.9599	CCL4	0.4837E-01	0.4783E-01
		0.2200			0.2160	0.3873	545.56	2.3426	0.9556	CYCLOHEX	-0.7175E-01	
		0.7000			0.5200	0.4966	470.10	1.1269	0.9828	2-PROPNL	0.2339E-01	
61	74.45	0.1300	760.00	727.16	0.2510	0.3236	685.04	2.5649	0.9612	CCL4	-0.7758E-01	0.5172E-01
		0.0			0.0550	0.0	603.53	3.2530	0.9574	CYCLOHEX	0.5500E-01	
		0.8700			0.6940	0.6714	542.46	1.0165	0.9852	2-PROPNL	0.2257E-01	
62	71.85	0.1000	760.00	799.20	0.3340	0.1309	633.25	1.5738	0.9585	CCL4	0.2031E 00	0.1541E 00
		0.2590			0.1690	0.4001	557.08	2.1052	0.9540	CYCLOHEX	-0.2311E 00	
		0.6410			0.4970	0.4690	484.28	1.1819	0.9817	2-PROPNL	0.2798E-01	

CHLOROFORM(1) - METHANOL(2) - ETHYL ACETATE(3) SYSTEM 026

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
536.60	54.00	276.00	0.214	0.187	1.020	0.28	CHLROFRM	8
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
523.30	37.80	286.00	0.373	0.278	1.780	0.50	ET AC	12

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.69033E 01	0.11630E 04	0.22740E 03	CHLROFRM	0.6107E 02	0.3026E-01	0.1191E-03
0.78786E 01	0.14731E 04	0.23000E 03	METHANOL	0.6451E 02	-0.1972E 00	0.3874E-03
0.70981E 01	0.12387E 04	0.21700E 03	ET AC	0.1361E 03	-0.3700E 00	0.8077E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-371.14	1701.00	CHLROFRM - METHANOL	57	0
-391.70	-51.00	CHLROFRM - ET AC	55	0
1061.40	-281.37	METHANOL - ET AC	144	0

HALA CONSISTENCY TEST

CI(1) 0.4671

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.1424E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.1078E-01
COMPONENT 2	0.1455E-01
COMPONENT 3	0.9717E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.1168E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	65.40	0.0820	760.00	769.86	0.0600	0.0642	820.24	0.7112	0.9715	CHLROFRM	-0.4155E-02	0.1129E-01
		0.2460			0.4700	0.4531	747.69	1.8169	0.9596	METHANOL	0.1694E-01	
		0.6720			0.4700	0.4828	494.42	1.0514	0.9434	ET AC	-0.1278E-01	
2	63.80	0.0790	760.00	766.74	0.0590	0.0670	781.06	0.8059	0.9704	CHLROFRM	-0.8043E-02	0.8201E-02
		0.3470			0.5130	0.5173	703.55	1.5559	0.9592	METHANOL	-0.4256E-02	
		0.5740			0.4280	0.4157	467.49	1.1149	0.9422	ET AC	0.1230E-01	
3	62.40	0.0400	760.00	767.87	0.0760	0.0798	747.95	1.9732	0.9662	CHLROFRM	-0.3818E-02	0.1121E-01
		0.8610			0.8140	0.7972	666.67	1.0215	0.9594	METHANOL	0.1681E-01	
		0.0990			0.1100	0.1230	444.87	2.0068	0.9394	ET AC	-0.1300E-01	
4	61.40	0.1010	760.00	765.69	0.1180	0.1357	724.96	1.3684	0.9671	CHLROFRM	-0.1772E-01	0.1335E-01
		0.6570			0.6730	0.6530	641.30	1.1356	0.9584	METHANOL	0.2002E-01	
		0.2420			0.2090	0.2113	429.25	1.4585	0.9400	ET AC	-0.2290E-02	
5	64.50	0.2500	760.00	781.50	0.2180	0.2177	798.02	0.8238	0.9689	CHLROFRM	0.2624E-03	0.1064E-01
		0.2410			0.4420	0.4580	722.60	1.9665	0.9583	METHANOL	-0.1596E-01	
		0.5090			0.3400	0.3243	479.13	0.9759	0.9426	ET AC	0.1569E-01	
6	62.50	0.1960	760.00	786.98	0.1800	0.1984	750.28	1.0238	0.9672	CHLROFRM	-0.1842E-01	0.1928E-01
		0.4320			0.5300	0.5511	669.26	1.4339	0.9574	METHANOL	0.2892E-01	
		0.3720			0.2400	0.2505	446.46	1.1116	0.9402	ET AC	-0.1050E-01	
7	69.00	0.3140	760.00	821.24	0.2310	0.2749	913.85	0.7601	0.9694	CHLROFRM	0.6140E-02	0.2084E-01
		0.1220			0.3160	0.3473	855.16	2.6150	0.9582	METHANOL	-0.3126E-01	
		0.5640			0.4030	0.3779	559.43	0.9245	0.9438	ET AC	0.2512E-01	
8	60.50	0.2020	760.00	777.47	0.2420	0.2599	704.74	1.3665	0.9657	CHLROFRM	-0.1793E-01	0.1556E-01
		0.5970			0.6190	0.5957	619.14	1.1972	0.9570	METHANOL	0.2333E-01	
		0.2010			0.1390	0.1444	415.56	1.2580	0.9395	ET AC	-0.5409E-02	
9	61.10	0.0970	760.00	770.20	0.1780	0.1824	718.17	1.9403	0.9654	CHLROFRM	-0.4363E-02	0.1082E-01
		0.8220			0.7480	0.7318	633.84	1.0351	0.9583	METHANOL	0.1623E-01	
		0.0810			0.0740	0.0859	424.65	1.7991	0.9392	ET AC	-0.1187E-01	
10	69.80	0.4160	760.00	797.26	0.4090	0.3955	935.70	0.7834	0.9701	CHLROFRM	0.1347E-01	0.1779E-01
		0.0710			0.2350	0.2617	880.63	3.1901	0.9593	METHANOL	-0.2669E-01	
		0.5130			0.3560	0.3428	574.73	0.8742	0.9469	ET AC	0.1322E-01	
11	63.60	0.3640	760.00	776.21	0.3290	0.3284	776.26	0.9706	0.9630	CHLROFRM	0.5862E-03	0.9246E-02
		0.2070			0.4140	0.4279	698.18	2.1981	0.9580	METHANOL	-0.1387E-01	
		0.4290			0.2570	0.2437	464.20	0.9926	0.9432	ET AC	0.1328E-01	
12	62.00	0.3470	760.00	781.95	0.3290	0.3296	738.69	0.9688	0.9667	CHLROFRM	-0.5566E-03	0.8472E-02
		0.3300			0.4890	0.4763	656.43	1.8072	0.9571	METHANOL	0.1271E-01	
		0.3530			0.1920	0.1942	438.57	0.9196	0.9414	ET AC	-0.1215E-01	
13	59.00	0.3450	760.00	770.48	0.3880	0.3892	671.99	1.2443	0.9652	CHLROFRM	-0.1158E-02	0.1074E-01
		0.4650			0.5260	0.5099	583.57	1.3822	0.9563	METHANOL	0.1611E-01	
		0.1900			0.0860	0.1010	393.51	0.9746	0.9403	ET AC	-0.1496E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	58.30	0.3380	760.00	763.01	0.3980	0.3999	657.12	1.3218	0.9651	CHLROFRM	-0.1934E-02	0.1052E-01
		0.5040			0.5310	0.5152	567.55	1.3123	0.9563	METHANOL	0.1578E-01	
		0.1581			0.0710	0.0848	383.53	1.0009	0.9404	ET AC	-0.1385E-01	
15	57.30	0.3270	760.00	760.52	0.4330	0.4267	636.30	1.4995	0.9645	CHLROFRM	0.6323E-02	0.8583E-02
		0.5790			0.5090	0.5219	545.28	1.1998	0.9560	METHANOL	-0.1288E-01	
		0.0940			0.0580	0.0515	369.63	1.0547	0.9401	ET AC	0.6548E-02	
16	57.50	0.2650	760.00	754.44	0.4010	0.3968	640.43	1.6536	0.9647	CHLROFRM	0.1423E-01	0.9488E-02
		0.6600			0.5580	0.5649	549.68	1.1220	0.9566	METHANOL	-0.6870E-02	
		0.0750			0.0410	0.0484	372.38	1.2238	0.9401	ET AC	-0.7367E-02	
17	61.60	0.5070	760.00	780.36	0.4850	0.4694	729.51	0.9540	0.9662	CHLROFRM	0.1557E-01	0.1038E-01
		0.1910			0.3800	0.3942	646.31	2.3801	0.9567	METHANOL	-0.1417E-01	
		0.3020			0.1350	0.1364	432.34	0.7655	0.9427	ET AC	-0.1397E-02	
18	57.90	0.4190	760.00	757.63	0.4700	0.4498	648.73	1.2064	0.9652	CHLROFRM	0.2018E-01	0.1838E-01
		0.4070			0.4780	0.4706	558.56	1.4974	0.9562	METHANOL	0.7391E-02	
		0.1740			0.0520	0.0796	377.92	0.8596	0.9411	ET AC	-0.2758E-01	
19	65.70	0.5970	760.00	799.52	0.6030	0.5751	827.76	0.8971	0.9672	CHLROFRM	0.2790E-01	0.1860E-01
		0.0770			0.2420	0.2680	756.21	3.5175	0.9574	METHANOL	-0.2598E-01	
		0.3260			0.1550	0.1569	499.60	0.7255	0.9455	ET AC	-0.1919E-02	
20	56.00	0.4340	760.00	754.84	0.5290	0.5076	610.01	1.3913	0.9642	CHLROFRM	0.2135E-01	0.1424E-01
		0.4860			0.4480	0.4587	517.41	1.3134	0.9553	METHANOL	-0.1071E-01	
		0.0800			0.0230	0.0336	352.16	0.8447	0.9405	ET AC	-0.1065E-01	
21	63.80	0.6530	760.00	796.41	0.6520	0.6205	781.06	0.9332	0.9663	CHLROFRM	0.3154E-01	0.2103E-01
		0.0820			0.2470	0.2698	703.55	3.5572	0.9567	METHANOL	-0.2277E-01	
		0.2650			0.1010	0.1098	467.49	0.6641	0.9449	ET AC	-0.8763E-02	
22	57.40	0.6080	760.00	759.11	0.5940	0.5718	638.36	1.0759	0.9649	CHLROFRM	0.1216E-01	0.8111E-02
		0.2340			0.3710	0.3761	547.48	2.1261	0.9556	METHANOL	-0.5077E-02	
		0.1580			0.0350	0.0521	371.00	0.6332	0.9421	ET AC	-0.7094E-02	
23	57.20	0.8240	760.00	769.39	0.7360	0.7256	634.25	1.0270	0.9644	CHLROFRM	0.1041E-01	0.6939E-02
		0.1020			0.2480	0.2579	543.10	3.4135	0.9545	METHANOL	-0.9880E-02	
		0.0740			0.0160	0.0165	368.27	0.4385	0.9432	ET AC	-0.5301E-03	
24	58.10	0.2080	760.00	757.14	0.3530	0.3475	652.91	1.8630	0.9646	CHLROFRM	0.5503E-02	0.7443E-02
		0.7450			0.6220	0.6163	563.04	1.0631	0.9570	METHANOL	0.5657E-02	
		0.0470			0.0250	0.0362	380.72	1.4329	0.9398	ET AC	-0.1117E-01	
25	58.50	0.2060	760.00	765.26	0.3450	0.3404	661.34	1.8382	0.9644	CHLROFRM	0.4635E-02	0.3092E-02
		0.7400			0.6170	0.6180	572.09	1.0672	0.9568	METHANOL	-0.9905E-03	
		0.0540			0.0380	0.0417	386.36	1.4298	0.9394	ET AC	-0.3652E-02	
26	68.50	0.4700	760.00	787.82	0.4680	0.4534	930.39	0.8158	0.9695	CHLROFRM	0.1456E-01	0.1812E-01
		0.0710			0.2350	0.2622	839.54	3.3187	0.9592	METHANOL	-0.2718E-01	
		0.4590			0.2970	0.2844	550.03	0.8372	0.9471	ET AC	0.1262E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	60.60	0.7310	760.00	758.14	0.7040	0.6856	706.96	0.9691	0.9665	CHLROFRM	0.1840E-01	0.1306E-01
		0.0770			0.2300	0.2496	621.56	3.7780	0.9570	METHANOL	-0.1960E-01	
		0.1920			0.0660	0.0648	417.06	0.5782	0.9460	ET AC	0.1197E-02	
28	55.90	0.5660	760.00	759.94	0.5840	0.5723	608.02	1.2147	0.9641	CHLROFRM	0.1166E-01	0.7772E-02
		0.3420			0.3910	0.3930	515.31	1.6362	0.9547	METHANOL	-0.7042E-02	
		0.0920			0.0250	0.0296	350.84	0.6537	0.9409	ET AC	-0.4621E-02	
29	62.60	0.0300	760.00	760.78	0.0570	0.0657	752.61	2.1327	0.9662	CHLROFRM	-0.8712E-02	0.5805E-02
		0.8330			0.8380	0.8370	671.84	1.0116	0.9599	METHANOL	0.9949E-03	
		0.0720			0.1050	0.0973	448.05	2.1480	0.9397	ET AC	0.7709E-02	
30	56.60	0.3290	760.00	772.01	0.4680	0.4661	622.04	1.6888	0.9634	CHLROFRM	0.1863E-02	0.1501E-02
		0.6390			0.5170	0.5166	530.13	1.1226	0.9550	METHANOL	0.3856E-03	
		0.0320			0.0150	0.0173	360.14	1.0812	0.9390	ET AC	-0.2255E-02	

CHLOROFORM(1) - METHANOL(2) - METHYLACETATE(3) SYSTEM 027

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
536.60	54.00	276.00	0.214	0.187	1.020	0.28	CHLOREFM	8
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
506.90	46.30	228.00	0.326	0.215	1.720	0.62	ME ACET	24

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS

A	B	C	COMPONENT
0.69033E 01	0.11630E 04	0.22740E 03	CHLOREFM
0.78736E 01	0.14731E 04	0.23000E 03	METHANOL
0.69894E 01	0.11110E 04	0.21351E 03	ME ACET

MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C
0.6107E 02	0.3026E-01	0.1191E-03
0.6451E 02	-0.1972E 00	0.3874E-03
0.1360E 03	-0.4671E 00	0.9221E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-372.25	1702.56	CHLOREFM - METHANOL	56	0
-431.41	79.10	CHLOREFM - ME ACET	163	1
945.93	-98.42	METHANOL - ME ACET	166	1

HALA CONSISTENCY TEST

CI(1) 0.4516

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.1099E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.6702E-02
COMPONENT 2	0.5260E-02
COMPONENT 3	0.5924E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.5962E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	57.20	0.9130	760.00	754.75	0.8130	0.8062	634.25	1.0111	0.9652	CHLORERM	0.6754E-02	0.4504E-02
		0.0510			0.1720	0.1764	543.10	4.5828	0.9550	METHANOL	-0.4370E-02	
		0.0360			0.0150	0.0174	730.23	0.4761	0.9566	ME ACET	-0.2389E-02	
2	63.15	0.0160	760.00	756.34	0.0400	0.0429	765.55	2.5477	0.9655	CHLORERM	-0.2864E-02	0.1907E-02
		0.9720			0.9210	0.9202	686.23	1.0008	0.9606	METHANOL	0.7908E-03	
		0.0120			0.0390	0.0369	888.52	2.4979	0.9525	ME ACET	0.2067E-02	
3	55.89	0.2990	760.00	758.41	0.4360	0.4252	607.82	1.7050	0.9639	CHLORERM	0.1081E-01	0.7211E-02
		0.6540			0.5170	0.5187	515.10	1.1138	0.9552	METHANOL	-0.1710E-02	
		0.0470			0.0470	0.0561	698.46	1.2305	0.9521	ME ACET	-0.9111E-02	
4	59.03	0.4510	760.00	777.86	0.3600	0.3589	672.64	0.8862	0.9661	CHLORERM	0.1137E-02	0.4860E-02
		0.1110			0.2390	0.2462	584.26	2.8124	0.9536	METHANOL	-0.7292E-02	
		0.4380			0.4010	0.3948	776.43	0.8593	0.9544	ME ACET	0.6151E-02	
5	55.53	0.0480	760.00	761.73	0.0470	0.0521	600.71	1.3260	0.9658	CHLORERM	-0.5133E-02	0.4478E-02
		0.6440			0.5200	0.5133	507.62	1.1392	0.9540	METHANOL	0.6718E-02	
		0.3080			0.4330	0.4346	689.91	1.4774	0.9512	ME ACET	-0.1583E-02	
6	56.83	0.1940	760.00	775.33	0.2210	0.2314	626.70	1.4955	0.9644	CHLORERM	-0.1036E-01	0.1200E-01
		0.6370			0.5490	0.5310	535.07	1.1510	0.9544	METHANOL	0.1800E-01	
		0.1790			0.2300	0.2376	721.14	1.3535	0.9512	ME ACET	-0.7644E-02	
7	55.68	0.4220	760.00	769.51	0.4650	0.4551	603.66	1.3207	0.9637	CHLORERM	0.9889E-02	0.8405E-02
		0.4490			0.4350	0.4323	510.73	1.3815	0.9539	METHANOL	0.2716E-02	
		0.1290			0.1000	0.1126	693.46	0.9193	0.9520	ME ACET	-0.1261E-01	
8	55.34	0.1330	760.00	769.29	0.1040	0.1138	596.98	1.0011	0.9655	CHLORERM	-0.9790E-02	0.6528E-02
		0.4520			0.4350	0.4282	503.70	1.3765	0.9528	METHANOL	0.6761E-02	
		0.4150			0.4610	0.4580	685.44	1.1745	0.9513	ME ACET	0.3032E-02	
9	56.39	0.2970	760.00	778.29	0.2880	0.2927	617.81	1.1934	0.9644	CHLORERM	-0.4693E-02	0.4960E-02
		0.4400			0.4500	0.4426	525.65	1.4176	0.9534	METHANOL	0.7436E-02	
		0.2630			0.2620	0.2648	710.46	1.0460	0.9515	ME ACET	-0.2751E-02	
10	55.92	0.2080	760.00	771.96	0.1420	0.1503	608.42	0.8828	0.9659	CHLORERM	-0.8317E-02	0.8786E-02
		0.2640			0.3350	0.3399	515.73	1.8321	0.9522	METHANOL	-0.4861E-02	
		0.5280			0.5230	0.5098	699.17	1.0118	0.9520	ME ACET	0.1318E-01	
11	57.03	0.5450	760.00	776.89	0.4840	0.4770	630.77	1.0363	0.9644	CHLORERM	0.7008E-02	0.5460E-02
		0.2100			0.3400	0.3388	539.40	2.2125	0.9536	METHANOL	0.1179E-02	
		0.2450			0.1760	0.1842	726.04	0.7643	0.9531	ME ACET	-0.8192E-02	
12	56.98	0.3710	760.00	780.56	0.3050	0.3087	629.75	0.9918	0.9649	CHLORERM	-0.3665E-02	0.2441E-02
		0.2620			0.3650	0.3637	538.31	1.9153	0.9530	METHANOL	0.1287E-02	
		0.3670			0.3300	0.3276	724.82	0.9126	0.9523	ME ACET	0.2372E-02	

CYCLOHEXANE(1) - CYCLOHEXENE(2) - 1,2-DICHLOROETHANE(3) SYSTEM 028

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
553.20	40.00	311.20	0.210	0.0	0.0	0.0	CYHEXANE	9
559.20	41.80	285.20	0.205	0.0	0.0	0.0	CYHEXENE	51
579.20	64.50	191.40	0.235	0.193	1.350	0.0	DICL-ETH	52

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.68450E 01	0.12035E 04	0.22286E 03	CYHEXANE	0.9291E 02	-0.2486E-01	0.2616E-03
0.68862E 01	0.12300E 04	0.22410E 03	CYHEXENE	0.9291E 02	-0.2486E-01	0.2616E-03
0.69522E 01	0.12478E 04	0.22300E 03	DICL-ETH	0.5200E 02	0.9200E-01	0.0

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
154.32	-74.74	CYHEXANE - CYHEXENE	59	0
327.60	478.74	CYHEXANE - DICL-ETH	60	0
-50.99	532.97	CYHEXENE - DICL-ETH	66	0

HALA CONSISTENCY TEST

CI(1) 0.4520

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.3502E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.1386E-01
COMPONENT 2	0.1190E-01
COMPONENT 3	0.1174E-01
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.1250E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	80.24	0.0761	760.00	792.96	0.0845	0.0819	717.46	1.1359	0.9592	CYHEXANE	0.2602E-02	0.3363E-02
		0.7450			0.6690	0.6740	672.54	1.0193	0.9597	CYHEXENE	-0.5044E-02	
		0.1789			0.2465	0.2441	676.07	1.5584	0.9770	DICL-ETH	0.2444E-02	
2	80.05	0.1614	760.00	791.91	0.1705	0.1678	713.46	1.1020	0.9593	CYHEXANE	0.2742E-02	0.6992E-02
		0.6852			0.6025	0.6130	668.75	1.0125	0.9598	CYHEXENE	-0.1049E-01	
		0.1534			0.2270	0.2193	672.12	1.6396	0.9766	DICL-ETH	0.7746E-02	
3	80.37	0.2025	760.00	817.10	0.2144	0.2076	720.20	1.1092	0.9579	CYHEXANE	0.6839E-02	0.4558E-02
		0.6105			0.5333	0.5382	675.14	1.0182	0.9585	CYHEXENE	-0.4878E-02	
		0.1870			0.2523	0.2543	678.79	1.5932	0.9765	DICL-ETH	-0.1957E-02	
4	78.73	0.2326	760.00	793.28	0.2438	0.2372	686.30	1.1247	0.9582	CYHEXANE	0.6618E-02	0.7272E-02
		0.5394			0.4592	0.4701	642.88	1.0268	0.9588	CYHEXENE	-0.1091E-01	
		0.2280			0.2970	0.2927	645.14	1.5384	0.9775	DICL-ETH	0.4291E-02	
5	78.39	0.2611	760.00	794.69	0.2681	0.2646	679.43	1.1308	0.9579	CYHEXANE	0.3465E-02	0.1030E-01
		0.4887			0.4076	0.4231	636.34	1.0318	0.9584	CYHEXENE	-0.1545E-01	
		0.2502			0.3243	0.3123	638.32	1.5148	0.9777	DICL-ETH	0.1199E-01	
6	77.90	0.2931	760.00	797.10	0.3090	0.2969	669.62	1.1495	0.9573	CYHEXANE	0.1207E-01	0.8798E-02
		0.4136			0.3426	0.3558	627.00	1.0431	0.9578	CYHEXENE	-0.1320E-01	
		0.2933			0.3484	0.3473	628.61	1.4641	0.9781	DICL-ETH	0.1124E-02	
7	78.00	0.2963	760.00	797.65	0.3124	0.2938	671.61	1.1419	0.9573	CYHEXANE	0.1355E-01	0.9036E-02
		0.4211			0.3573	0.3620	628.90	1.0399	0.9579	CYHEXENE	-0.4659E-02	
		0.2926			0.3303	0.3392	630.58	1.4803	0.9780	DICL-ETH	-0.8894E-02	
8	77.19	0.2774	760.00	796.06	0.2884	0.2974	655.59	1.2397	0.9563	CYHEXANE	-0.9011E-02	0.3360E-01
		0.3166			0.2365	0.2779	613.66	1.0849	0.9569	CYHEXENE	-0.4139E-01	
		0.4060			0.4751	0.4247	614.73	1.3223	0.9792	DICL-ETH	0.5040E-01	
9	77.34	0.2610	760.00	806.79	0.2471	0.3019	658.54	1.3477	0.9551	CYHEXANE	-0.5480E-01	0.4806E-01
		0.2313			0.1939	0.2112	616.46	1.1372	0.9557	CYHEXENE	-0.1730E-01	
		0.5077			0.5590	0.4869	617.64	1.2235	0.9797	DICL-ETH	0.7210E-01	
10	77.48	0.2039	760.00	802.13	0.2763	0.2676	661.29	1.5141	0.9547	CYHEXANE	0.8681E-02	0.6884E-02
		0.1863			0.1731	0.1834	619.08	1.2134	0.9553	CYHEXENE	-0.1032E-01	
		0.6099			0.5506	0.5490	620.37	1.1377	0.9806	DICL-ETH	0.1647E-02	
11	77.78	0.1796	760.00	803.34	0.2543	0.2491	667.23	1.5871	0.9544	CYHEXANE	0.5181E-02	0.1344E-01
		0.1756			0.1588	0.1790	624.73	1.2462	0.9550	CYHEXENE	-0.2016E-01	
		0.6448			0.5869	0.5719	626.24	1.1126	0.9809	DICL-ETH	0.1498E-01	
12	77.98	0.1529	760.00	795.79	0.2297	0.2434	671.21	1.7933	0.9540	CYHEXANE	-0.1375E-01	0.1176E-01
		0.1370			0.1154	0.1193	628.52	1.3418	0.9546	CYHEXENE	-0.3893E-02	
		0.7101			0.6549	0.6373	630.19	1.0642	0.9817	DICL-ETH	0.1764E-01	
13	76.36	0.3902	760.00	801.89	0.4083	0.4100	639.47	1.2859	0.9550	CYHEXANE	-0.1676E-02	0.5494E-02
		0.1240			0.1171	0.1089	598.34	1.1195	0.9556	CYHEXENE	0.8242E-02	
		0.4958			0.4746	0.4812	598.91	1.2691	0.9796	DICL-ETH	-0.6563E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	76.46	0.4639	760.00	801.69	0.4465	0.4561	641.40	1.1698	0.9558	CYHEXANE	-0.9584E-02	0.6390E-02
		0.1504			0.1320	0.1265	600.17	1.0697	0.9563	CYHEXENE	0.5522E-02	
		0.3858			0.4215	0.4174	600.71	1.4089	0.9787	DICL-ETH	0.4064E-02	
15	77.19	0.4684	760.00	803.23	0.4549	0.4477	655.59	1.1154	0.9565	CYHEXANE	0.7196E-02	0.8702E-02
		0.2314			0.1995	0.1936	613.66	1.0439	0.9571	CYHEXENE	0.5859E-02	
		0.3002			0.3456	0.3587	614.73	1.5220	0.9780	DICL-ETH	-0.1305E-01	
16	76.56	0.3253	760.00	799.07	0.3461	0.3639	643.33	1.4215	0.9552	CYHEXANE	-0.1779E-01	0.1186E-01
		0.1652			0.1494	0.1480	602.00	1.1314	0.9558	CYHEXENE	0.1449E-02	
		0.5095			0.5045	0.4882	602.61	1.2409	0.9798	DICL-ETH	0.1634E-01	
17	76.95	0.2266	760.00	794.58	0.2916	0.3039	650.90	1.5564	0.9546	CYHEXANE	-0.1234E-01	0.1140E-01
		0.1264			0.1213	0.1261	609.20	1.2372	0.9552	CYHEXENE	-0.4754E-02	
		0.6470			0.5871	0.5700	610.09	1.1220	0.9809	DICL-ETH	0.1710E-01	
18	77.24	0.1975	760.00	793.51	0.2771	0.2856	656.57	1.6606	0.9543	CYHEXANE	-0.8459E-02	0.5640E-02
		0.1080			0.1153	0.1130	614.59	1.2843	0.9549	CYHEXENE	0.2323E-02	
		0.6945			0.6076	0.6015	615.70	1.0919	0.9813	DICL-ETH	0.6138E-02	
19	77.74	0.1768	760.00	798.49	0.2781	0.2699	666.44	1.7375	0.9540	CYHEXANE	0.8192E-02	0.8223E-02
		0.0982			0.1106	0.1065	623.97	1.3186	0.9546	CYHEXENE	0.4143E-02	
		0.7250			0.6113	0.6236	625.46	1.0745	0.9815	DICL-ETH	-0.1233E-01	
20	78.37	0.1432	760.00	796.14	0.2295	0.2490	679.03	1.9357	0.9535	CYHEXANE	-0.1949E-01	0.1300E-01
		0.0597			0.0720	0.0706	635.96	1.4072	0.9541	CYHEXENE	0.1369E-02	
		0.7971			0.6985	0.6804	637.92	1.0430	0.9821	DICL-ETH	0.1812E-01	
21	77.40	0.4373	760.00	796.69	0.4253	0.4193	659.72	1.1037	0.9572	CYHEXANE	0.6000E-02	0.9014E-02
		0.2953			0.2561	0.2486	617.58	1.0356	0.9578	CYHEXENE	0.7521E-02	
		0.2674			0.3186	0.3321	618.81	1.5587	0.9778	DICL-ETH	-0.1352E-01	
22	77.69	0.3726	760.00	797.50	0.3678	0.3649	665.45	1.1189	0.9573	CYHEXANE	0.2858E-02	0.4667E-02
		0.3549			0.2942	0.3013	623.03	1.0365	0.9578	CYHEXENE	-0.6999E-02	
		0.2725			0.3379	0.3338	624.48	1.5248	0.9778	DICL-ETH	0.4144E-02	
23	77.04	0.2557	760.00	797.08	0.2794	0.2930	652.65	1.3316	0.9556	CYHEXANE	-0.1359E-01	0.1489E-01
		0.2536			0.2216	0.2303	610.87	1.1285	0.9562	CYHEXENE	-0.8739E-02	
		0.4907			0.4990	0.4767	611.83	1.2362	0.9798	DICL-ETH	0.2233E-01	
24	79.10	0.7928	760.00	778.85	0.7509	0.7449	693.85	1.0082	0.9599	CYHEXANE	0.6040E-02	0.4203E-02
		0.1348			0.1223	0.1220	650.05	1.0375	0.9605	CYHEXENE	0.2638E-03	
		0.0724			0.1268	0.1331	652.61	2.1329	0.9750	DICL-ETH	-0.6305E-02	
25	80.04	0.7032	760.00	784.42	0.6773	0.6753	713.28	1.0097	0.9601	CYHEXANE	0.2013E-02	0.5232E-02
		0.2425			0.2285	0.2227	668.55	1.0306	0.9606	CYHEXENE	0.5834E-02	
		0.0543			0.0942	0.1020	671.91	2.1315	0.9744	DICL-ETH	-0.7849E-02	
26	80.63	0.6378	760.00	784.93	0.5999	0.6236	725.68	1.0114	0.9604	CYHEXANE	-0.2369E-01	0.2066E-01
		0.3219			0.3302	0.2992	680.37	1.0261	0.9609	CYHEXENE	0.3099E-01	
		0.0403			0.0699	0.0772	684.25	2.1341	0.9740	DICL-ETH	-0.7304E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	79.84	0.5452	760.00	777.99	0.5085	0.5305	709.11	1.0209	0.9603	CYHEXANE	-0.2197E-01	0.1465E-01
		0.3917			0.3582	0.3555	664.58	1.0186	0.9608	CYHEXENE	0.2661E-02	
		0.0638			0.1333	0.1140	667.76	2.0232	0.9748	DICL-ETH	0.1931E-01	
28	79.60	0.4660	760.00	785.59	0.4254	0.4521	704.13	1.0345	0.9597	CYHEXANE	-0.2669E-01	0.1779E-01
		0.4332			0.4140	0.3912	659.84	1.0141	0.9602	CYHEXENE	0.2278E-01	
		0.0948			0.1606	0.1567	662.82	1.9051	0.9754	DICL-ETH	0.3912E-02	
29	80.04	0.3706	760.00	793.12	0.3580	0.3656	713.28	1.0479	0.9595	CYHEXANE	-0.7552E-02	0.5035E-02
		0.5253			0.4740	0.4680	668.55	1.0103	0.9600	CYHEXENE	0.6045E-02	
		0.1041			0.1680	0.1665	671.91	1.8360	0.9755	DICL-ETH	0.1508E-02	
30	80.04	0.3638	760.00	790.91	0.3582	0.3645	713.28	1.0479	0.9596	CYHEXANE	-0.6253E-02	0.6147E-02
		0.5312			0.4836	0.4744	668.55	1.0100	0.9601	CYHEXENE	0.9221E-02	
		0.1050			0.1582	0.1612	671.91	1.8447	0.9755	DICL-ETH	-0.2968E-02	
31	79.84	0.4221	760.00	800.39	0.4621	0.4096	709.11	1.0457	0.9589	CYHEXANE	0.5255E-01	0.3503E-01
		0.4591			0.3681	0.4043	664.58	1.0132	0.9594	CYHEXENE	-0.3616E-01	
		0.1188			0.1698	0.1862	667.76	1.8270	0.9756	DICL-ETH	-0.1638E-01	
32	79.94	0.3551	760.00	798.33	0.4108	0.3497	711.19	1.0556	0.9591	CYHEXANE	0.6114E-01	0.4076E-01
		0.5225			0.4124	0.4616	666.57	1.0110	0.9596	CYHEXENE	-0.4920E-01	
		0.1224			0.1768	0.1887	669.34	1.7879	0.9757	DICL-ETH	-0.1194E-01	
33	80.14	0.3159	760.00	798.03	0.3432	0.3144	715.37	1.0604	0.9592	CYHEXANE	0.2880E-01	0.1920E-01
		0.5643			0.4804	0.5010	670.55	1.0097	0.9597	CYHEXENE	-0.2056E-01	
		0.1198			0.1764	0.1846	673.99	1.7751	0.9757	DICL-ETH	-0.8240E-02	
34	80.38	0.2999	760.00	796.14	0.3218	0.3007	720.41	1.0587	0.9594	CYHEXANE	0.2109E-01	0.1406E-01
		0.5928			0.5159	0.5304	675.34	1.0082	0.9599	CYHEXENE	-0.1449E-01	
		0.1073			0.1623	0.1689	679.00	1.7950	0.9755	DICL-ETH	-0.6603E-02	
35	80.65	0.2931	760.00	794.31	0.2980	0.2958	726.11	1.0550	0.9597	CYHEXANE	0.2210E-02	0.4152E-02
		0.6145			0.5587	0.5547	680.77	1.0070	0.9602	CYHEXENE	0.4018E-02	
		0.0924			0.1433	0.1495	684.67	1.9254	0.9753	DICL-ETH	-0.6229E-02	
36	80.97	0.2524	760.00	791.14	0.2331	0.2586	732.90	1.0573	0.9600	CYHEXANE	0.2451E-01	0.1634E-01
		0.6677			0.5930	0.5996	687.25	1.0053	0.9605	CYHEXENE	-0.1658E-01	
		0.0799			0.1239	0.1318	691.44	1.8353	0.9751	DICL-ETH	-0.7931E-02	
37	82.01	0.1848	760.00	796.50	0.1979	0.1945	755.32	1.0615	0.9603	CYHEXANE	0.3364E-02	0.7812E-02
		0.7570			0.7143	0.7059	708.62	1.0029	0.9608	CYHEXENE	0.8354E-02	
		0.0582			0.0878	0.0995	713.79	1.8538	0.9745	DICL-ETH	-0.1172E-01	
38	79.42	0.6413	760.00	779.05	0.6060	0.6125	700.42	1.0157	0.9601	CYHEXANE	-0.1248E-01	0.9042E-02
		0.2866			0.2723	0.2587	656.31	1.0251	0.9606	CYHEXENE	0.1356E-01	
		0.0721			0.1277	0.1288	659.13	2.0522	0.9750	DICL-ETH	-0.1082E-02	
39	77.62	0.5404	760.00	787.91	0.5147	0.5110	664.06	1.0531	0.9582	CYHEXANE	0.3673E-02	0.2449E-02
		0.2626			0.2192	0.2225	621.71	1.0253	0.9588	CYHEXENE	-0.3305E-02	
		0.1990			0.2661	0.2665	623.10	1.7457	0.9769	DICL-ETH	-0.3685E-03	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	77.08	0.4470	760.00	794.81	0.4326	0.4289	653.44	1.1121	0.9571	CYHEXANE	0.3745E-02	0.1398E-01
		0.2663			0.2408	0.2236	611.61	1.0404	0.9576	CYHEXENE	0.1723E-01	
		0.2867			0.3266	0.3476	612.60	1.9336	0.9780	DICL-ETH	-0.2097E-01	

DIMETHYLBUTANE(1) - METHANOL(2) - ACETONE(3) SYSTEM 029

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
500.30	31.00	358.00	0.247	0.0	0.0	0.0	DMB	35
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
508.70	46.60	213.50	0.309	0.187	2.880	0.0	ACETONE	2

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS			
A	B	C	COMPONENT	A	B	C	
0.68098E 01	0.11272E 04	0.22800E 03	DMB	0.1116E 03	-0.5198E-01	0.3944E-03	
0.73786E 01	0.14731E 04	0.23000E 03	METHANOL	0.6451E 02	-0.1972E 00	0.3874E-03	
0.70200E 01	0.11610E 04	0.22400E 03	ACETONE	0.5686E 02	0.8426E-02	0.1651E-03	

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
449.08	2771.85	DMB - METHANOL	70	0
234.96	948.29	DMB - ACETONE	68	0
664.08	-214.95	METHANOL - ACETONE	12	1

HALA CONSISTENCY TEST

CI(1) 0.4941

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.1709E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.6570E-02
COMPONENT 2	0.5371E-02
COMPONENT 3	0.5315E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.5752E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	44.70	0.1590	760.00	732.23	0.4590	0.4581	471.59	4.5155	0.9570	DMB	0.8959E-03	0.2825E-02
		0.6310			0.3400	0.3367	320.56	1.1647	0.9572	METHANOL	0.3345E-02	
		0.2190			0.2010	0.2052	493.06	1.3331	0.9606	ACETONE	-0.4235E-02	
2	43.60	0.3030	760.00	742.35	0.4470	0.4627	454.34	2.3659	0.9531	DMB	-0.1568E-01	0.1045E-01
		0.3110			0.2380	0.2278	305.27	1.6974	0.9546	METHANOL	0.1024E-01	
		0.3960			0.3150	0.3096	473.51	1.2117	0.9665	ACETONE	0.5444E-02	
3	47.60	0.0720	760.00	723.53	0.3850	0.3928	519.47	7.2715	0.9617	DMB	-0.7781E-02	0.8595E-02
		0.7730			0.4420	0.4291	363.92	1.0554	0.9576	METHANOL	0.1289E-01	
		0.1550			0.1730	0.1781	547.67	1.4523	0.9593	ACETONE	-0.5109E-02	
4	46.60	0.0910	760.00	730.68	0.3710	0.3663	502.56	5.5874	0.9594	DMB	0.4666E-02	0.5226E-02
		0.6090			0.3500	0.3468	348.46	1.1380	0.9544	METHANOL	0.3175E-02	
		0.3000			0.2790	0.2868	528.33	1.2721	0.9647	ACETONE	-0.7836E-02	
5	44.60	0.1960	760.00	738.93	0.3090	0.4030	470.00	3.0671	0.9536	DMB	-0.3989E-02	0.2675E-02
		0.3100			0.2170	0.2170	319.15	1.5404	0.9518	METHANOL	-0.2295E-04	
		0.4940			0.3940	0.3800	491.26	1.1187	0.9696	ACETONE	0.4013E-02	
6	49.50	0.0490	760.00	726.52	0.3160	0.3103	552.79	7.9866	0.9642	DMB	0.5663E-02	0.6588E-02
		0.7480			0.4530	0.4498	324.86	1.0536	0.9558	METHANOL	0.4220E-02	
		0.2030			0.2310	0.2409	585.95	1.4125	0.9627	ACETONE	-0.9879E-02	
7	43.80	0.3970	760.00	746.70	0.4560	0.4685	457.44	1.8221	0.9507	DMB	-0.1248E-01	0.1120E-01
		0.1650			0.1630	0.1673	308.01	2.3402	0.9534	METHANOL	-0.4319E-02	
		0.4380			0.3810	0.3642	477.02	1.2585	0.9697	ACETONE	0.1681E-01	
8	43.80	0.7660	760.00	753.64	0.5840	0.5809	457.44	1.1842	0.9527	DMB	0.3072E-02	0.7922E-02
		0.1450			0.2820	0.2939	308.01	4.7584	0.9610	METHANOL	-0.1188E-01	
		0.0990			0.1340	0.1252	477.02	2.1197	0.9566	ACETONE	0.8815E-02	
9	44.30	0.7710	760.00	750.25	0.5730	0.5683	465.26	1.1259	0.9513	DMB	0.4178E-02	0.7415E-02
		0.0960			0.1810	0.1921	314.93	6.6470	0.9600	METHANOL	-0.1112E-01	
		0.1630			0.2460	0.2391	485.98	2.1790	0.9650	ACETONE	0.6949E-02	
10	44.30	0.6420	760.00	765.18	0.5890	0.5986	465.26	1.4532	0.9525	DMB	-0.9644E-02	0.6432E-02
		0.3170			0.3530	0.3492	314.93	2.5697	0.9615	METHANOL	0.3769E-02	
		0.0410			0.0580	0.0521	485.88	1.8979	0.9509	ACETONE	0.5884E-02	
11	46.90	0.1310	760.00	741.23	0.3130	0.3147	507.59	3.3192	0.9508	DMB	-0.1741E-02	0.2706E-02
		0.1520			0.1330	0.1353	353.04	1.7640	0.9452	METHANOL	-0.2321E-02	
		0.7170			0.5540	0.5499	534.08	1.0362	0.9762	ACETONE	0.4057E-02	
12	47.00	0.1070	760.00	740.20	0.2970	0.3027	509.28	3.9031	0.9541	DMB	-0.5690E-02	0.4473E-02
		0.2630			0.2030	0.2040	354.58	1.5027	0.9470	METHANOL	-0.1024E-02	
		0.6250			0.5000	0.4933	536.00	1.0584	0.9738	ACETONE	0.6706E-02	
13	50.30	0.0560	760.00	745.13	0.1390	0.1879	567.29	4.1706	0.9509	DMB	0.1065E-02	0.2423E-02
		0.1320			0.1270	0.1306	408.51	1.6929	0.9392	METHANOL	-0.3636E-02	
		0.8120			0.6840	0.6814	602.68	1.0133	0.9794	ACETONE	0.2569E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	51.10	0.0360	760.00	745.17	0.1480	0.1466	582.07	4.0591	0.9557	DMB	0.1352E-02	0.2759E-02
		0.2460			0.2130	0.2171	422.55	1.4628	0.9412	METHANOL	-0.4140E-02	
		0.7180			0.6390	0.6362	619.79	1.0390	0.9781	ACETONE	0.2785E-02	
15	43.20	0.4600	760.00	743.90	0.4960	0.5029	448.19	1.7197	0.9526	DMB	-0.6894E-02	0.4597E-02
		0.2430			0.2310	0.2299	299.87	2.2322	0.9566	METHANOL	0.2066E-02	
		0.2970			0.2730	0.2682	466.55	1.3850	0.9648	ACETONE	0.4830E-02	
16	44.10	0.5090	760.00	746.48	0.4870	0.4917	462.12	1.4738	0.9492	DMB	-0.4715E-02	0.5098E-02
		0.0810			0.1160	0.1189	312.15	3.3444	0.9539	METHANOL	-0.2929E-02	
		0.4100			0.3970	0.3894	482.32	1.4243	0.9719	ACETONE	0.7650E-02	
17	44.00	0.3790	760.00	751.89	0.5670	0.5878	460.56	2.4021	0.9536	DMB	-0.2079E-01	0.1386E-01
		0.5740			0.3780	0.3609	310.77	1.4607	0.9615	METHANOL	0.1706E-01	
		0.0470			0.0550	0.0513	480.55	1.6183	0.9511	ACETONE	0.3743E-02	
18	44.50	0.1820	760.00	738.04	0.4180	0.4188	468.42	3.4449	0.9550	DMB	-0.7631E-03	0.1524E-02
		0.4190			0.2620	0.2597	317.74	1.3709	0.9536	METHANOL	0.2291E-02	
		0.3990			0.3200	0.3215	489.46	1.1713	0.9667	ACETONE	-0.1520E-02	
19	46.10	0.1090	760.00	733.28	0.3440	0.3509	494.26	4.5487	0.9572	DMB	-0.6875E-02	0.4585E-02
		0.4630			0.2920	0.2854	340.93	1.2601	0.9519	METHANOL	0.6601E-02	
		0.4280			0.3640	0.3637	518.86	1.1598	0.9684	ACETONE	0.2790E-03	
20	44.30	0.3000	760.00	743.46	0.4230	0.4327	465.26	2.1795	0.9504	DMB	-0.9707E-02	0.6760E-02
		0.1580			0.1470	0.1474	314.93	2.0920	0.9512	METHANOL	-0.4308E-03	
		0.5420			0.4300	0.4199	485.88	1.1489	0.9721	ACETONE	0.1014E-01	
21	44.10	0.6590	760.00	748.66	0.5310	0.5319	462.12	1.2360	0.9501	DMB	-0.8796E-03	0.3025E-02
		0.0710			0.1440	0.1477	312.15	4.7663	0.9571	METHANOL	-0.3654E-02	
		0.2700			0.3250	0.3205	482.32	1.7801	0.9690	ACETONE	0.4541E-02	
22	43.40	0.5610	760.00	751.95	0.5240	0.5289	451.25	1.4887	0.9524	DMB	-0.4943E-02	0.4873E-02
		0.2230			0.2480	0.2504	302.56	2.6685	0.9579	METHANOL	-0.2361E-02	
		0.2160			0.2280	0.2207	470.02	1.5678	0.9619	ACETONE	0.7313E-02	
23	43.40	0.4110	760.00	749.42	0.5140	0.5271	451.25	2.0204	0.9535	DMB	-0.1311E-01	0.8738E-02
		0.3990			0.2980	0.2861	302.56	1.7430	0.9584	METHANOL	0.1192E-01	
		0.2000			0.1980	0.1868	470.02	1.4252	0.9597	ACETONE	0.1179E-02	
24	43.70	0.2760	760.00	745.89	0.4950	0.5056	455.89	2.8462	0.9544	DMB	-0.1063E-01	0.7085E-02
		0.5070			0.3100	0.3007	306.64	1.3798	0.9578	METHANOL	0.9275E-02	
		0.2170			0.1950	0.1936	475.26	1.3405	0.9599	ACETONE	0.1352E-02	
25	44.40	0.1740	760.00	733.53	0.5040	0.5122	466.94	4.4018	0.9564	DMB	-0.8222E-02	0.5484E-02
		0.7020			0.3710	0.3628	316.33	1.1482	0.9595	METHANOL	0.8188E-02	
		0.1240			0.1250	0.1250	487.67	1.4451	0.9560	ACETONE	0.4047E-04	
26	43.50	0.5040	760.00	754.33	0.5100	0.5155	452.80	1.6143	0.9522	DMB	-0.5550E-02	0.3703E-02
		0.2410			0.2420	0.2416	303.02	2.3774	0.9569	METHANOL	0.4002E-03	
		0.2550			0.2480	0.2428	471.76	1.4621	0.9630	ACETONE	0.5158E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	43.20	0.5170	760.00	746.38	0.5170	0.5234	448.19	1.5983	0.9528	DMB	-0.6402E-02	0.4268E-02
		0.2530			0.2540	0.2523	299.87	2.3735	0.9579	METHANOL	0.1745E-02	
		0.2300			0.2290	0.2243	466.55	1.4973	0.9623	ACETONE	0.4656E-02	

DIMETHYLBUTANE(1) - METHANOL(2) - CHLOROFORM(3) SYSTEM 030

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
500.30	31.00	358.00	0.247	0.)	0.0	0.0	DMB	35
513.20	78.50	119.00	0.557	0.105	1.660	1.21	METHANOL	23
536.60	54.00	276.00	0.214	0.187	1.020	0.28	CHLOREFM	8

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.69098E 01	0.11272E 04	0.22830E 03	DMB	0.1116E 03	-0.5198E-01	0.3944E-03
0.78786E 01	0.14731E 04	0.23000E 03	METHANOL	0.4451E 02	-0.1972E 00	0.3874E-03
0.69033E 01	0.11630E 04	0.22740E 03	CHLOREFM	0.6107E 02	0.3026E-01	0.1191E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

		BINARY	ID NUMBERS	ORDER
449.09	2771.85	DMB - METHANOL	70	0
223.69	213.88	DMB - CHLOREFM	69	0
1703.68	-373.30	METHANOL - CHLOREFM	57	1

HALA CONSISTENCY TEST

CI(1) -0.0399

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.1137E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.5001E-02
COMPONENT 2	0.7061E-02
COMPONENT 3	0.7221E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.6428E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	49.40	0.0930	760.00	776.60	0.3030	0.3114	550.99	4.5072	0.9602	DMB	-0.8363E-02	0.6432E-02
		0.6370			0.3910	0.3923	393.17	1.1612	0.9561	METHANOL	-0.1287E-02	
		0.2700			0.3060	0.2964	489.16	1.6615	0.9565	CHLORFRM	0.9644E-02	
2	46.00	0.3950	760.00	772.49	0.4820	0.4868	492.62	1.8375	0.9546	DMB	-0.4805E-02	0.4754E-02
		0.3970			0.3480	0.3409	339.44	1.8740	0.9593	METHANOL	0.7127E-02	
		0.2080			0.1700	0.1723	434.65	1.4025	0.9543	CHLORFRM	-0.2331E-02	
3	51.20	0.0520	760.00	762.53	0.3330	0.3196	583.94	7.6923	0.9633	DMB	0.1337E-01	0.8918E-02
		0.8240			0.4920	0.4988	424.33	1.0399	0.9576	METHANOL	-0.6755E-02	
		0.1240			0.1750	0.1816	520.09	2.0483	0.9568	CHLORFRM	-0.6627E-02	
4	47.40	0.2560	760.10	772.79	0.3700	0.3780	516.05	2.1046	0.9569	DMB	-0.7960E-02	0.5304E-02
		0.3760			0.3230	0.3210	360.78	1.7480	0.9573	METHANOL	0.1951E-02	
		0.3680			0.3070	0.3010	456.48	1.3197	0.9561	CHLORFRM	0.6001E-02	
5	46.90	0.3800	760.10	774.92	0.4250	0.4233	507.59	1.6168	0.9556	DMB	0.1664E-02	0.2607E-02
		0.2820			0.3180	0.3158	353.04	2.3512	0.9582	METHANOL	0.2242E-02	
		0.3380			0.2570	0.2609	448.59	1.2701	0.9555	CHLORFRM	-0.3914E-02	
6	52.00	0.0330	759.90	764.79	0.1810	0.1870	599.05	6.0367	0.9656	DMB	-0.6048E-02	0.1018E-01
		0.6830			0.4410	0.4502	438.81	1.0961	0.9556	METHANOL	-0.9222E-02	
		0.2790			0.3780	0.3627	534.32	1.7755	0.9593	CHLORFRM	0.1526E-01	
7	49.60	0.1350	760.00	777.17	0.2430	0.2551	554.58	2.5280	0.9598	DMB	-0.1207E-01	0.8047E-02
		0.3590			0.3250	0.3167	396.54	1.6486	0.9551	METHANOL	0.8337E-02	
		0.5060			0.4320	0.4283	492.52	1.2753	0.9580	CHLORFRM	0.3731E-02	
8	48.40	0.1670	760.00	772.15	0.3030	0.3147	533.31	2.6018	0.9587	DMB	-0.1167E-01	0.7780E-02
		0.4190			0.3290	0.3271	376.69	1.5276	0.9562	METHANOL	0.1915E-02	
		0.4140			0.3680	0.3582	472.60	1.3488	0.9571	CHLORFRM	0.9752E-02	
9	50.00	0.0670	760.00	762.76	0.3080	0.3112	561.82	6.0361	0.9621	DMB	-0.3224E-02	0.2146E-02
		0.7400			0.4430	0.4425	403.35	1.0804	0.9570	METHANOL	0.5413E-03	
		0.1930			0.2490	0.2463	499.31	1.8600	0.9570	CHLORFRM	0.2674E-02	
10	46.30	0.7470	760.00	777.74	0.5520	0.5513	497.57	1.0037	0.9530	DMB	0.6573E-03	0.4409E-03
		0.0900			0.3210	0.3216	343.92	7.7565	0.9615	METHANOL	-0.5846E-03	
		0.1630			0.1270	0.1271	439.26	1.3131	0.9543	CHLORFRM	-0.8088E-04	
11	49.30	0.3490	760.00	775.03	0.3430	0.3450	549.21	1.3279	0.9568	DMB	-0.2040E-02	0.2538E-02
		0.0940			0.2530	0.2402	391.50	5.0188	0.9578	METHANOL	0.3803E-02	
		0.5570			0.4140	0.4058	487.49	1.1063	0.9583	CHLORFRM	-0.1769E-02	
12	51.40	0.1930	760.10	769.30	0.2370	0.2387	587.69	1.5445	0.9590	DMB	-0.1687E-02	0.3272E-02
		0.0820			0.2260	0.2211	427.91	4.6296	0.9566	METHANOL	0.4905E-02	
		0.7250			0.5370	0.5402	523.62	1.0481	0.9604	CHLORFRM	-0.3224E-02	
13	51.20	0.0880	760.00	766.62	0.1570	0.1609	583.94	2.2973	0.9621	DMB	-0.3892E-02	0.1779E-01
		0.2350			0.3170	0.2903	424.33	2.1181	0.9545	METHANOL	0.2668E-01	
		0.6760			0.5260	0.5488	520.09	1.1455	0.9603	CHLORFRM	-0.2280E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	53.30	0.1020	760.00	762.96	0.1460	0.1517	624.23	1.7376	0.9609	DMB	-0.5685E-02	0.1443E-01
		0.0690			0.2220	0.2004	463.20	4.6318	0.9559	METHANOL	0.2164E-01	
		0.8300			0.6320	0.6480	558.07	1.0237	0.9622	CHLOREFM	-0.1596E-01	
15	49.60	0.5230	760.10	769.36	0.4490	0.4491	554.58	1.1211	0.9550	DMB	-0.1222E-03	0.3818E-02
		0.0390			0.2170	0.2113	396.54	10.0925	0.9617	METHANOL	0.5723E-02	
		0.4330			0.3340	0.3396	492.52	1.1712	0.9590	CHLOREFM	-0.5608E-02	
16	45.30	0.3350	759.90	768.79	0.5550	0.5536	481.21	2.5046	0.9537	DMB	0.1435E-02	0.6125E-02
		0.5860			0.3800	0.3723	329.16	1.4231	0.9607	METHANOL	0.7747E-02	
		0.0790			0.0650	0.0742	424.03	1.6176	0.9531	CHLOREFM	-0.9192E-02	
17	46.60	0.5780	760.00	779.03	0.4870	0.4828	502.56	1.2289	0.9542	DMB	0.4231E-02	0.2824E-02
		0.1530			0.3130	0.3148	348.46	4.4072	0.9596	METHANOL	-0.1828E-02	
		0.2690			0.2000	0.2024	443.90	1.2568	0.9548	CHLOREFM	-0.2411E-02	
18	46.70	0.2060	760.00	772.00	0.4480	0.4461	504.23	3.1535	0.9561	DMB	0.1878E-02	0.1201E-01
		0.5970			0.3800	0.3639	349.58	1.2864	0.9584	METHANOL	0.1614E-01	
		0.1970			0.1720	0.1900	445.46	1.5906	0.9546	CHLOREFM	-0.1802E-01	
19	48.40	0.2980	760.00	778.66	0.3350	0.3415	533.31	1.6482	0.9571	DMB	-0.6464E-02	0.4308E-02
		0.2230			0.2980	0.2925	376.69	2.5895	0.9567	METHANOL	0.5545E-02	
		0.4890			0.3670	0.3661	472.60	1.1766	0.9570	CHLOREFM	0.9130E-03	
20	45.30	0.5370	760.00	770.90	0.5490	0.5517	481.21	1.5611	0.9534	DMB	-0.2744E-02	0.4831E-02
		0.3500			0.3620	0.3547	329.16	2.2772	0.9608	METHANOL	0.7251E-02	
		0.1130			0.0890	0.0935	424.03	1.4295	0.9534	CHLOREFM	-0.4497E-02	

2,4-DIMETHYLPENTANE(1) - BENZENE(2) - HEXYLENE GLYCOL(3) SYSTEM 031

PURE COMPONENT PROPERTIES

TC	PC	VC	ONEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
520.30	27.40	420.00	0.306	0.0	0.0	0.0	2,4-DMP	50
562.00	49.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
744.00	54.80	311.00	0.148	0.338	2.100	0.0	HEXGLYCO	55

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.68262E 01	0.11920E 04	0.22163E 03	2,4-DMP	0.7459E 02	0.3287E 00	-0.2560E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.73876E 01	0.18904E 04	0.18946E 03	HEXGLYCO	0.1194E 03	-0.7591E-01	0.3155E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

		BINARY ID NUMBERS	ORDER
317.00	177.25	2,4-DMP - BENZENE	71	1
229.79	2504.36	2,4-DMP - HEXGLYCO	72	0
736.76	272.87	BENZENE - HEXGLYCO	37	0

HALA CONSISTENCY TEST

CI(1) -3.7681

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.2951E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.2751E-01
COMPONENT 2	0.2533E-01
COMPONENT 3	0.1089E-01
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.2124E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	60.60	0.0690	400.00	385.52	0.1300	0.1262	386.46	1.7640	0.9693	2,4-DMP	0.3762E-02	0.3259E-02
		0.8240			0.8680	0.8729	390.55	1.0223	0.9793	BENZENE	-0.4893E-02	
		0.1070			0.0020	0.0009	1.11	2.6915	0.9463	HEXGLYCO	0.1121E-02	
2	60.50	0.0700	400.00	387.15	0.1340	0.1266	385.17	1.7571	0.9692	2,4-DMP	0.7369E-02	0.5706E-02
		0.8320			0.8640	0.8726	389.20	1.0197	0.9792	BENZENE	-0.8564E-02	
		0.0980			0.0020	0.0008	1.10	2.7542	0.9460	HEXGLYCO	0.1186E-02	
3	58.50	0.2640	400.00	383.59	0.3590	0.3509	359.55	1.3682	0.9686	2,4-DMP	0.8077E-02	0.6828E-02
		0.6250			0.6380	0.6482	362.55	1.0712	0.9790	BENZENE	-0.1024E-01	
		0.1110			0.0030	0.0008	0.95	2.8682	0.9437	HEXGLYCO	0.2165E-02	
4	58.40	0.2650	400.00	382.05	0.3620	0.3523	358.72	1.3678	0.9687	2,4-DMP	0.9666E-02	0.6552E-02
		0.6230			0.6370	0.6468	361.68	1.0719	0.9790	BENZENE	-0.9828E-02	
		0.1120			0.0010	0.0009	0.94	2.8620	0.9438	HEXGLYCO	0.1620E-03	
5	58.20	0.4420	400.00	383.25	0.5090	0.5164	356.28	1.2136	0.9685	2,4-DMP	-0.7366E-02	0.5378E-02
		0.4470			0.4820	0.4827	359.14	1.1262	0.9790	BENZENE	-0.7017E-03	
		0.1110			0.0090	0.0009	0.93	3.2685	0.9425	HEXGLYCO	0.8068E-02	
6	58.10	0.4100	400.00	397.13	0.4460	0.4516	355.06	1.1883	0.9673	2,4-DMP	-0.5628E-02	0.4969E-02
		0.5330			0.5460	0.5478	357.87	1.1136	0.9781	BENZENE	-0.1825E-02	
		0.0570			0.0080	0.0005	0.92	3.8862	0.9408	HEXGLYCO	0.7454E-02	
7	59.00	0.6410	400.00	387.45	0.6930	0.7079	366.13	1.1284	0.9684	2,4-DMP	-0.1488E-01	0.1069E-01
		0.2550			0.3070	0.2910	369.39	1.1697	0.9790	BENZENE	0.1603E-01	
		0.1040			0.0000	0.0012	0.98	4.1013	0.9414	HEXGLYCO	-0.1154E-02	
8	59.40	0.7190	400.00	384.30	0.7850	0.8101	371.13	1.1269	0.9687	2,4-DMP	-0.2509E-01	0.1765E-01
		0.1620			0.2150	0.1885	374.59	1.1672	0.9793	BENZENE	0.2647E-01	
		0.1190			0.0000	0.0014	1.01	4.1377	0.9417	HEXGLYCO	-0.1384E-02	
9	60.10	0.7770	400.00	389.94	0.8520	0.8750	380.02	1.1159	0.9685	2,4-DMP	-0.2304E-01	0.1637E-01
		0.1060			0.1480	0.1234	383.83	1.1565	0.9792	BENZENE	0.2455E-01	
		0.1170			0.0000	0.0015	1.07	4.4373	0.9410	HEXGLYCO	-0.1517E-02	
10	61.70	0.0960	400.00	347.75	0.2420	0.2137	400.94	1.8733	0.9726	2,4-DMP	0.2826E-01	0.2144E-01
		0.5530			0.7520	0.7842	405.84	1.1913	0.9815	BENZENE	-0.3216E-01	
		0.3510			0.0060	0.0021	1.21	1.6477	0.9518	HEXGLYCO	0.3889E-02	
11	60.00	0.2290	400.00	350.12	0.4490	0.4275	378.74	1.6725	0.9718	2,4-DMP	0.2155E-01	0.2577E-01
		0.4110			0.5320	0.5707	382.50	1.2450	0.9811	BENZENE	-0.3866E-01	
		0.3600			0.0190	0.0019	1.06	1.6373	0.9492	HEXGLYCO	0.1711E-01	
12	59.30	0.4060	400.00	362.35	0.6190	0.6214	369.88	1.4512	0.9705	2,4-DMP	-0.2371E-02	0.1581E-02
		0.2900			0.3790	0.3769	373.28	1.2350	0.9804	BENZENE	0.2065E-02	
		0.3040			0.0020	0.0017	1.01	1.8914	0.9459	HEXGLYCO	0.3068E-03	
13	59.60	0.4660	400.00	368.07	0.6670	0.6914	373.66	1.4139	0.9701	2,4-DMP	-0.2436E-01	0.1624E-01
		0.2360			0.3130	0.3069	377.21	1.2417	0.9802	BENZENE	0.6090E-02	
		0.2980			0.0200	0.0017	1.03	1.9533	0.9449	HEXGLYCO	0.1827E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	60.50	0.5460	400.00	375.50	0.7960	0.8363	385.17	1.4440	0.9698	2,4-DMP	-0.4026E-01	0.2684E-01
		0.1180			0.1680	0.1618	389.20	1.2945	0.9801	BENZENE	0.6185E-02	
		0.3360			0.0360	0.0019	1.10	1.8417	0.9437	HEXGLYCO	0.3407E-01	
15	60.10	0.5910	400.00	370.53	0.8360	0.9016	380.02	1.4389	0.9701	2,4-DMP	-0.6560E-01	0.4938E-01
		0.0730			0.0880	0.0965	383.83	1.3021	0.9803	BENZENE	-0.8479E-02	
		0.3390			0.0760	0.0019	1.07	1.8506	0.9438	HEXGLYCO	0.7408E-01	
16	73.40	0.0190	400.00	361.20	0.1170	0.0805	581.95	2.5558	0.9749	2,4-DMP	0.3654E-01	0.2436E-01
		0.3230			0.8830	0.9135	595.94	1.6823	0.9830	BENZENE	-0.3046E-01	
		0.6580			0.0000	0.0061	2.76	1.1547	0.9576	HEXGLYCO	-0.6075E-02	
17	68.90	0.0740	400.00	342.89	0.3520	0.2750	506.24	2.4474	0.9749	2,4-DMP	0.7704E-01	0.5293E-01
		0.2750			0.6410	0.7204	516.01	1.7088	0.9831	BENZENE	-0.7940E-01	
		0.6510			0.0070	0.0047	2.03	1.1550	0.9565	HEXGLYCO	0.2346E-02	
18	64.60	0.1960	400.00	340.08	0.6440	0.5887	441.11	2.2494	0.9739	2,4-DMP	0.5533E-01	0.4262E-01
		0.1750			0.3440	0.4079	447.63	1.7375	0.9826	BENZENE	-0.6392E-01	
		0.6290			0.0120	0.0034	1.49	1.1732	0.9529	HEXGLYCO	0.8597E-02	
19	63.60	0.2660	400.00	342.77	0.7710	0.7464	426.93	2.1873	0.9734	2,4-DMP	0.2458E-01	0.2562E-01
		0.1100			0.2120	0.2504	432.79	1.7686	0.9823	BENZENE	-0.3844E-01	
		0.6240			0.0170	0.0031	1.39	1.1814	0.9511	HEXGLYCO	0.1386E-01	
20	63.70	0.3020	400.00	348.59	0.8400	0.8307	428.33	2.1724	0.9729	2,4-DMP	0.9291E-02	0.2011E-01
		0.0730			0.1360	0.1662	434.25	1.7917	0.9821	BENZENE	-0.3017E-01	
		0.6250			0.0240	0.0031	1.40	1.1828	0.9499	HEXGLYCO	0.2088E-01	
21	93.70	0.0140	400.00	390.07	0.2120	0.1243	1032.42	3.2704	0.9777	2,4-DMP	0.8771E-01	0.6181E-01
		0.1290			0.7600	0.8527	1079.54	2.3485	0.9849	BENZENE	-0.9272E-01	
		0.8570			0.0280	0.0230	9.82	1.0255	0.9639	HEXGLYCO	0.5000E-02	

ETHANOL(1) - BENZENE(2) - HEPTANE(3) SYSTEM 032

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
516.00	63.00	161.30	0.637	0.152	1.690	1.10	ETHANOL	11
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
540.20	27.00	431.90	0.349	0.0	0.0	0.0	HEPTANE	16

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.80449E 01	0.15543E 04	0.22265E 03	ETHANOL	0.5370E 02	-0.3111E-01	0.1600E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.69024E 01	0.12681E 04	0.21690E 03	HEPTANE	0.1288E 03	-0.6023E-01	0.4116E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
1578.79	180.03	ETHANOL - BENZENE	79	0
2017.69	282.24	ETHANOL - HEPTANE	87	0
324.66	105.47	BENZENE - HEPTANE	33	0

HALA CONSISTENCY TEST

CI(1) 1.0726

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.4061E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.1059E-01
COMPONENT 2	0.1172E-01
COMPONENT 3	0.7290E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.9867E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	PHIL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	33.30	0.1180	180.00	179.73	0.2900	0.2858	92.93	4.6280	0.9886	ETHANOL	0.4209E-02	0.2806E-02
		0.7710			0.6360	0.6384	136.39	1.0768	0.9876	BENZENE	-0.2444E-02	
		0.1110			0.0740	0.0758	67.56	1.7733	0.9780	HEPTANE	-0.1767E-02	
2	32.80	0.1940	180.00	179.09	0.3420	0.3112	90.44	3.1372	0.9881	ETHANOL	0.3077E-01	0.2051E-01
		0.7100			0.5880	0.6184	133.49	1.1533	0.9878	BENZENE	-0.3043E-01	
		0.0960			0.0700	0.0703	66.01	1.9416	0.9781	HEPTANE	-0.3399E-03	
3	32.70	0.3360	180.00	179.48	0.3410	0.3383	89.05	1.9830	0.9877	ETHANOL	0.2701E-02	0.2554E-02
		0.5780			0.5840	0.5878	132.92	1.3556	0.9879	BENZENE	-0.3832E-02	
		0.0860			0.0750	0.0739	65.70	2.2922	0.9783	HEPTANE	0.1130E-02	
4	32.90	0.4590	180.00	179.83	0.3630	0.3618	90.94	1.5382	0.9873	ETHANOL	0.1199E-02	0.2216E-02
		0.4570			0.5500	0.5533	134.06	1.6035	0.9881	BENZENE	-0.3325E-02	
		0.0840			0.0870	0.0849	66.32	2.6773	0.9785	HEPTANE	0.2125E-02	
5	36.30	0.8260	180.00	173.36	0.5590	0.5560	109.15	1.0538	0.9862	ETHANOL	0.3034E-02	0.1541E-01
		0.0880			0.2290	0.2521	154.85	3.1751	0.9908	BENZENE	-0.2312E-01	
		0.0860			0.2120	0.1919	77.50	4.8958	0.9821	HEPTANE	0.2008E-01	
6	36.20	0.7240	180.00	176.63	0.5230	0.5198	108.57	1.1516	0.9865	ETHANOL	0.3163E-02	0.1059E-01
		0.0830			0.1810	0.1969	154.21	2.6880	0.9901	BENZENE	-0.1589E-01	
		0.1930			0.2960	0.2833	77.15	3.2919	0.9810	HEPTANE	0.1273E-01	
7	36.30	0.5070	180.00	174.46	0.5110	0.5021	109.15	1.5614	0.9870	ETHANOL	0.8922E-02	0.8176E-02
		0.0740			0.1270	0.1393	154.85	2.0974	0.9900	BENZENE	-0.1227E-01	
		0.4190			0.3620	0.3587	77.50	1.3875	0.9809	HEPTANE	0.3341E-02	
8	36.90	0.3160	180.00	175.03	0.5080	0.4984	112.66	2.4178	0.9871	ETHANOL	0.9554E-02	0.6370E-02
		0.0670			0.1020	0.1103	158.78	1.7957	0.9900	BENZENE	-0.8331E-02	
		0.6170			0.3900	0.3912	79.62	1.3653	0.9808	HEPTANE	-0.1227E-02	
9	37.00	0.2270	180.00	175.15	0.4070	0.4843	113.26	3.2556	0.9873	ETHANOL	0.1273E-01	0.8490E-02
		0.0790			0.1130	0.1218	159.44	1.6757	0.9899	BENZENE	-0.8833E-02	
		0.6940			0.3900	0.3939	79.98	1.2173	0.9807	HEPTANE	-0.3903E-02	
10	38.00	0.1060	180.00	174.41	0.4740	0.4539	119.36	6.1661	0.9880	ETHANOL	0.2102E-01	0.1402E-01
		0.0890			0.1170	0.1213	166.18	1.5737	0.9898	BENZENE	-0.4301E-02	
		0.8140			0.4090	0.4257	83.64	1.0680	0.9806	HEPTANE	-0.1673E-01	
11	39.20	0.0280	180.00	164.44	0.3590	0.2731	127.04	12.5062	0.9912	ETHANOL	0.8493E-01	0.5662E-01
		0.1850			0.2410	0.2853	174.58	1.4360	0.9894	BENZENE	-0.4429E-01	
		0.7870			0.4010	0.4416	88.21	1.0244	0.9805	HEPTANE	-0.4065E-01	
12	37.40	0.0300	180.00	164.03	0.3160	0.2506	115.66	11.7367	0.9912	ETHANOL	0.6539E-01	0.4359E-01
		0.2830			0.3460	0.3855	162.11	1.3384	0.9891	BENZENE	-0.3947E-01	
		0.6820			0.3380	0.3639	81.43	1.0521	0.9801	HEPTANE	-0.2592E-01	
13	34.70	0.1150	180.00	175.55	0.3510	0.3467	100.22	5.2169	0.9885	ETHANOL	0.4302E-02	0.4450E-02
		0.3680			0.3900	0.3967	144.77	1.2910	0.9885	BENZENE	-0.6676E-02	
		0.5170			0.2590	0.2566	72.06	1.1822	0.9789	HEPTANE	0.2372E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	33.80	0.1550	180.00	175.85	0.3480	0.3415	95.48	4.0080	0.9883	ETHANOL	0.6497E-02	0.6953E-02
		0.4430			0.4360	0.4464	139.33	1.2560	0.9893	BENZENE	-0.1043E-01	
		0.4020			0.2160	0.2121	69.14	1.3114	0.9787	HEPTANE	0.3932E-02	
15	33.40	0.1440	180.00	177.10	0.3200	0.3169	93.44	4.1206	0.9884	ETHANOL	0.3091E-02	0.2184E-02
		0.5660			0.5200	0.5198	136.97	1.1722	0.9880	BENZENE	0.1832E-03	
		0.2900			0.1600	0.1633	67.97	1.4352	0.9783	HEPTANE	-0.3276E-02	
16	33.60	0.1030	180.00	176.18	0.3020	0.2955	94.46	5.2881	0.9889	ETHANOL	0.6533E-02	0.4356E-02
		0.6050			0.5390	0.5429	138.15	1.1298	0.9880	BENZENE	-0.3946E-02	
		0.2920			0.1590	0.1616	68.50	1.3905	0.9783	HEPTANE	-0.2588E-02	
17	34.30	0.0700	180.00	175.63	0.2870	0.2727	98.09	6.8966	0.9894	ETHANOL	0.1434E-01	0.9558E-02
		0.5900			0.5370	0.5449	142.33	1.1250	0.9880	BENZENE	-0.7892E-02	
		0.3400			0.1760	0.1824	70.75	1.3015	0.9784	HEPTANE	-0.6446E-02	
18	33.80	0.0760	180.00	176.21	0.2710	0.2659	95.48	6.3812	0.9893	ETHANOL	0.5229E-02	0.3486E-02
		0.6910			0.5970	0.5978	139.33	1.0799	0.9878	BENZENE	-0.8410E-03	
		0.2330			0.1320	0.1364	69.14	1.4573	0.9782	HEPTANE	-0.4389E-02	
19	34.30	0.0460	180.00	174.44	0.2340	0.2161	98.09	8.2681	0.9903	ETHANOL	0.1792E-01	0.1195E-01
		0.7910			0.6660	0.6779	142.33	1.0367	0.9878	BENZENE	-0.1193E-01	
		0.1630			0.1000	0.1060	70.75	1.5664	0.9783	HEPTANE	-0.5993E-02	
20	32.90	0.2740	180.00	177.38	0.3420	0.3407	90.94	2.3950	0.9879	ETHANOL	0.1271E-02	0.8477E-03
		0.5190			0.5180	0.5139	134.06	1.3056	0.9881	BENZENE	-0.7566E-03	
		0.2070			0.1400	0.1405	66.32	1.7740	0.9785	HEPTANE	-0.5161E-03	
21	33.00	0.3540	180.00	177.33	0.3700	0.3578	91.43	1.9351	0.9877	ETHANOL	0.1221E-01	0.1213E-01
		0.4400			0.4710	0.4892	134.74	1.4459	0.9882	BENZENE	-0.1820E-01	
		0.2060			0.1590	0.1530	66.63	1.9320	0.9796	HEPTANE	0.5987E-02	
22	33.80	0.6020	180.00	177.51	0.4220	0.4177	95.48	1.2724	0.9870	ETHANOL	0.4340E-02	0.7327E-02
		0.2500			0.4000	0.4110	139.33	2.0693	0.9888	BENZENE	-0.1099E-01	
		0.1480			0.1780	0.1714	69.14	2.9073	0.9794	HEPTANE	0.6649E-02	
23	34.40	0.7010	180.00	177.86	0.4530	0.4513	98.62	1.1449	0.9866	ETHANOL	0.1713E-02	0.8935E-02
		0.2010			0.3850	0.3984	142.94	2.4378	0.9892	BENZENE	-0.1340E-01	
		0.0980			0.1620	0.1503	71.07	3.7562	0.9800	HEPTANE	0.1169E-01	
24	34.30	0.5340	180.00	177.20	0.4330	0.4253	98.09	1.4193	0.9871	ETHANOL	0.7737E-02	0.9992E-02
		0.2170			0.3280	0.3430	142.33	1.9444	0.9890	BENZENE	-0.1499E-01	
		0.2490			0.2390	0.2318	70.75	2.2801	0.9795	HEPTANE	0.7250E-02	
25	33.10	0.5200	180.00	179.82	0.4300	0.3767	91.93	1.3979	0.9872	ETHANOL	0.2332E-01	0.3092E-01
		0.3940			0.4820	0.5294	135.22	1.7610	0.9883	BENZENE	-0.4638E-01	
		0.0860			0.1180	0.0939	66.94	2.8583	0.9787	HEPTANE	0.2306E-01	
26	35.60	0.3230	180.00	175.44	0.4670	0.4501	105.16	2.2940	0.9873	ETHANOL	0.1691E-01	0.1313E-01
		0.1520			0.2030	0.2227	150.37	1.6899	0.9804	BENZENE	-0.1970E-01	
		0.5250			0.3300	0.3272	75.08	1.4254	0.9801	HEPTANE	0.2785E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	33.60	0.0620	180.00	175.17	0.2400	0.2357	94.46	6.9750	0.9897	ETHANOL	0.4251E-02	0.3542E-02
		0.8320			0.7170	0.7223	138.15	1.0248	0.9877	BENZENE	-0.5319E-02	
		0.0560			0.0430	0.0419	68.50	1.8710	0.9783	HEPTANE	0.1058E-02	
28	35.80	0.2310	180.00	175.90	0.4460	0.4399	106.29	3.1012	0.9875	ETHANOL	0.7144E-02	0.1051E-01
		0.1660			0.2120	0.2278	151.64	1.5723	0.9893	BENZENE	-0.1576E-01	
		0.6030			0.3420	0.3334	75.76	1.2554	0.9799	HEPTANE	0.8613E-02	
29	35.40	0.2270	180.00	176.33	0.4300	0.4214	104.05	3.1051	0.9876	ETHANOL	0.8635E-02	0.9658E-02
		0.2060			0.2540	0.2685	149.11	1.5232	0.9891	BENZENE	-0.1449E-01	
		0.5670			0.3160	0.3102	74.40	1.2683	0.9796	HEPTANE	0.5850E-02	
30	35.10	0.7180	180.00	176.05	0.4870	0.4833	102.39	1.1411	0.9866	ETHANOL	0.3719E-02	0.1397E-01
		0.1370			0.2780	0.2990	147.24	2.5800	0.9897	BENZENE	-0.2095E-01	
		0.1450			0.2350	0.2178	73.39	3.5277	0.9805	HEPTANE	0.1723E-01	
31	34.60	0.1990	180.00	175.93	0.3970	0.3867	99.69	3.3863	0.9879	ETHANOL	0.1026E-01	0.8492E-02
		0.2950			0.3320	0.3447	144.16	1.4089	0.9887	BENZENE	-0.1274E-01	
		0.5060			0.2710	0.2685	71.73	1.2728	0.9792	HEPTANE	0.2477E-02	
32	34.10	0.2930	180.00	176.03	0.3950	0.3900	97.04	2.3834	0.9877	ETHANOL	0.5011E-02	0.3865E-02
		0.3030			0.3600	0.3658	141.13	1.4876	0.9887	BENZENE	-0.5798E-02	
		0.4040			0.2450	0.2442	70.10	1.4843	0.9792	HEPTANE	0.7855E-03	
33	33.60	0.3570	180.00	173.18	0.4010	0.3935	94.46	1.9949	0.9877	ETHANOL	0.7538E-02	0.9222E-02
		0.2930			0.3580	0.3718	138.15	1.5719	0.9888	BENZENE	-0.1383E-01	
		0.3500			0.2410	0.2347	68.50	1.6582	0.9794	HEPTANE	0.6295E-02	
34	38.90	0.0620	180.00	168.08	0.4540	0.4182	125.08	8.9610	0.9891	ETHANOL	0.3576E-01	0.2384E-01
		0.7660			0.0960	0.1075	172.45	1.5704	0.9900	BENZENE	-0.1150E-01	
		0.8720			0.4500	0.4743	87.05	1.0289	0.9811	HEPTANE	-0.2426E-01	
35	39.50	0.9180	180.00	176.16	0.6900	0.6909	129.03	1.0121	0.9855	ETHANOL	-0.8732E-03	0.1796E-01
		0.0450			0.1520	0.1781	176.73	3.9119	0.9927	BENZENE	-0.2606E-01	
		0.0370			0.1580	0.1311	89.39	6.8642	0.9846	HEPTANE	0.2693E-01	
36	32.90	0.2140	180.00	177.36	0.3290	0.3235	90.44	2.9279	0.9881	ETHANOL	0.5481E-02	0.3654E-02
		0.6070			0.5530	0.5579	133.49	1.2054	0.9880	BENZENE	-0.4863E-02	
		0.1790			0.1180	0.1146	66.01	1.7395	0.9783	HEPTANE	-0.6195E-03	
37	34.40	0.0850	180.00	175.39	0.3170	0.3025	98.62	6.2553	0.9890	ETHANOL	0.1454E-01	0.9694E-02
		0.4910			0.4760	0.4817	142.94	1.1884	0.9882	BENZENE	-0.5659E-02	
		0.4240			0.2070	0.2159	71.07	1.2278	0.9736	HEPTANE	-0.8883E-02	
38	32.40	0.3310	180.00	177.93	0.3320	0.3336	88.49	2.0005	0.9877	ETHANOL	-0.1596E-02	0.1061E-02
		0.6460			0.6450	0.6442	121.21	1.3349	0.9880	BENZENE	0.8258E-03	
		0.0230			0.0230	0.0222	64.79	2.5946	0.9785	HEPTANE	0.7614E-03	
39	32.50	0.4430	180.00	177.91	0.3530	0.3539	88.97	1.5764	0.9874	ETHANOL	-0.8864E-03	0.1889E-02
		0.5210			0.6050	0.6070	131.77	1.5529	0.9882	BENZENE	-0.1952E-02	
		0.0360			0.0420	0.0392	65.10	2.9064	0.9787	HEPTANE	0.2828E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	32.80	0.3910	180.00	179.87	0.3500	0.3497	90.44	1.7503	0.9875	ETHANOL	0.1339E-02	0.4689E-02
		0.5200			0.5630	0.5700	133.49	1.4581	0.9880	BENZENE	-0.7034E-02	
		0.0890			0.0870	0.0813	66.01	2.4320	0.9784	HEPTANE	0.5693E-02	
41	36.20	0.6650	180.00	175.08	0.5210	0.5165	108.57	1.2350	0.9867	ETHANOL	0.4540E-02	0.8297E-02
		0.0730			0.1500	0.1624	154.21	2.4996	0.9902	BENZENE	-0.1245E-01	
		0.2620			0.3290	0.3211	77.15	2.7248	0.9810	HEPTANE	0.7904E-02	
42	33.60	0.1650	180.00	177.30	0.3380	0.3336	94.46	3.7483	0.9882	ETHANOL	0.4397E-02	0.2932E-02
		0.4950			0.4780	0.4794	138.15	1.2272	0.9881	BENZENE	-0.1404E-02	
		0.3400			0.1840	0.1870	68.50	1.3908	0.9785	HEPTANE	-0.2996E-02	
43	33.80	0.0720	180.00	174.60	0.2740	0.2647	95.48	6.6491	0.9895	ETHANOL	0.9266E-02	0.6178E-02
		0.6640			0.5790	0.5850	139.33	1.0898	0.9879	BENZENE	-0.6002E-02	
		0.2640			0.1470	0.1503	69.14	1.4044	0.9784	HEPTANE	-0.3267E-02	
44	33.60	0.6380	180.00	177.05	0.4180	0.4186	94.46	1.2131	0.9869	ETHANOL	-0.6230E-03	0.7256E-02
		0.2630			0.4390	0.4493	138.15	2.1630	0.9889	BENZENE	-0.1026E-01	
		0.0990			0.1430	0.1321	68.50	3.3737	0.9795	HEPTANE	0.1088E-01	
45	33.30	0.3060	180.00	177.17	0.3650	0.3605	92.93	2.2174	0.9878	ETHANOL	0.4485E-02	0.5508E-02
		0.4190			0.4500	0.4583	136.39	1.4030	0.9883	BENZENE	-0.8264E-02	
		0.2750			0.1850	0.1812	67.56	1.6890	0.9787	HEPTANE	0.3777E-02	
46	33.60	0.4820	180.00	176.96	0.4000	0.3963	94.46	1.5202	0.9873	ETHANOL	0.3653E-02	0.6547E-02
		0.2940			0.3990	0.4088	138.15	1.7595	0.9886	BENZENE	-0.9821E-02	
		0.2240			0.2010	0.1948	68.50	2.1969	0.9791	HEPTANE	0.6165E-02	
47	34.70	0.4690	180.00	176.33	0.4430	0.4336	100.22	1.6049	0.9872	ETHANOL	0.9417E-02	0.1113E-01
		0.1930			0.2900	0.2967	144.77	1.8505	0.9891	BENZENE	-0.1669E-01	
		0.3380			0.2770	0.2697	72.06	1.9105	0.9797	HEPTANE	0.7271E-02	
48	35.40	0.4350	180.00	176.34	0.4640	0.4538	104.05	1.7444	0.9872	ETHANOL	0.1019E-01	0.1031E-01
		0.1500			0.2220	0.2375	149.11	1.8507	0.9894	BENZENE	-0.1547E-01	
		0.4150			0.3140	0.3087	74.40	1.7256	0.9800	HEPTANE	0.5275E-02	
49	36.00	0.2560	180.00	176.15	0.4650	0.4503	107.42	2.8462	0.9874	ETHANOL	0.1472E-01	0.9815E-02
		0.1460			0.1940	0.2078	152.92	1.6210	0.9894	BENZENE	-0.1383E-01	
		0.5580			0.3410	0.3419	76.45	1.2892	0.9800	HEPTANE	-0.8947E-03	
50	36.70	0.1190	180.00	174.73	0.4340	0.4213	111.48	5.4708	0.9880	ETHANOL	0.1270E-01	0.8468E-02
		0.1550			0.2030	0.2114	157.46	1.4063	0.9893	BENZENE	-0.8432E-02	
		0.7260			0.3630	0.3673	78.91	1.0963	0.9800	HEPTANE	-0.4271E-02	
51	32.80	0.2140	180.00	177.36	0.3290	0.3235	90.44	2.0279	0.9881	ETHANOL	0.5481E-02	0.3654E-02
		0.6070			0.5530	0.5579	133.49	1.2054	0.9880	BENZENE	-0.4863E-02	
		0.1790			0.1180	0.1186	66.01	1.7395	0.9783	HEPTANE	-0.6195E-03	
52	32.40	0.3960	180.00	177.63	0.3440	0.3449	88.49	1.7254	0.9876	ETHANOL	-0.8634E-03	0.1383E-02
		0.5720			0.6210	0.6222	131.21	1.4539	0.9881	BENZENE	-0.1215E-02	
		0.0320			0.0350	0.0329	64.79	2.7571	0.9786	HEPTANE	0.2069E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP − CALC) BY COMPONENT	MEAN ABS DEV
53	32.40	0.3240	180.00	177.74	0.3340	0.3330	88.49	2.0382	0.9878	ETHANOL	0.9550E-03	0.1846E-02
		0.6310			0.6230	0.6258	131.21	1.3201	0.9880	BENZENE	-0.2773E-02	
		0.0450			0.0430	0.0412	64.79	2.4535	0.9785	HEPTANE	0.1809E-02	

ETHANOL(1) - BENZENE(2) - HEPTANE(3) SYSTEM 033

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
516.00	63.00	161.30	0.637	0.152	1.690	1.10	ETHANOL	11
562.10	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
540.20	27.00	431.90	0.349	0.0	0.0	0.0	HEPTANE	16

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.80449E 01	0.15543E 04	0.22265E 03	ETHANOL	0.5370E 02	-0.3111E-01	0.1600E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.69024E 01	0.12681E 04	0.21690E 03	HEPTANE	0.1288E 03	-0.6028E-01	0.4116E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
1440.08	218.56	ETHANOL - BENZENE	80	0
1940.85	432.14	ETHANOL - HEPTANE	88	0
236.77	170.85	BENZENE - HEPTANE	34	0

HALA CONSISTENCY TEST

CI(1) 1.1719

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.4964E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.1152E-01
COMPONENT 2	0.1017E-01
COMPONENT 3	0.6608E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.9435E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	57.94	0.0540	400.00	373.19	0.4610	0.4027	313.07	8.7154	0.9816	ETHANOL	0.5834E-01	0.3890E-01
		0.1070			0.1200	0.1437	355.86	1.3801	0.9816	BENZENE	-0.2369E-01	
		0.8390			0.4190	0.4537	190.18	1.0222	0.9661	HEPTANE	-0.3465E-01	
2	54.70	0.2040	400.00	393.01	0.5130	0.5201	270.35	3.6171	0.9771	ETHANOL	-0.7102E-02	0.4735E-02
		0.0980			0.1200	0.1182	316.93	1.4656	0.9817	BENZENE	0.1813E-02	
		0.6980			0.3670	0.3617	167.86	1.1680	0.9655	HEPTANE	0.5289E-02	
3	54.60	0.3230	400.00	401.54	0.5290	0.5362	269.11	2.4153	0.9762	ETHANOL	-0.7244E-02	0.6278E-02
		0.0950			0.1190	0.1212	315.78	1.5892	0.9816	BENZENE	-0.2174E-02	
		0.5820			0.3520	0.3426	167.20	1.3602	0.9651	HEPTANE	0.9417E-02	
4	54.32	0.4500	400.00	403.15	0.5380	0.5415	265.67	1.7797	0.9759	ETHANOL	-0.3479E-02	0.8699E-02
		0.0960			0.1250	0.1346	312.59	1.7714	0.9816	BENZENE	-0.9569E-02	
		0.4540			0.3370	0.3240	165.38	1.6736	0.9651	HEPTANE	0.1305E-01	
5	54.13	0.5330	400.00	403.62	0.5340	0.5431	263.36	1.5219	0.9757	ETHANOL	-0.9131E-02	0.1091E-01
		0.0980			0.1410	0.1482	310.44	1.9269	0.9816	BENZENE	-0.7234E-02	
		0.3690			0.3250	0.3086	164.16	1.9787	0.9651	HEPTANE	0.1636E-01	
6	54.13	0.6300	400.00	405.10	0.5480	0.5518	263.36	1.3126	0.9754	ETHANOL	-0.3826E-02	0.7418E-02
		0.0920			0.1490	0.1563	310.44	2.1724	0.9817	BENZENE	-0.7300E-02	
		0.2780			0.3030	0.2919	164.16	2.4932	0.9652	HEPTANE	0.1113E-01	
7	54.17	0.7290	400.00	405.57	0.5690	0.5658	263.84	1.1618	0.9751	ETHANOL	0.3244E-02	0.6073E-02
		0.0890			0.1660	0.1751	310.89	2.5158	0.9820	BENZENE	-0.9109E-02	
		0.1820			0.2650	0.2591	164.41	3.3812	0.9656	HEPTANE	0.5866E-02	
8	54.92	0.8240	400.00	409.09	0.6190	0.6012	273.08	1.0637	0.9744	ETHANOL	0.1777E-01	0.1185E-01
		0.0850			0.1910	0.2035	319.46	3.0072	0.9827	BENZENE	-0.1249E-01	
		0.0910			0.1900	0.1953	169.30	4.9976	0.9668	HEPTANE	-0.5279E-02	
9	56.18	0.0800	400.00	390.77	0.4320	0.4147	289.22	6.8546	0.9797	ETHANOL	0.1725E-01	0.1176E-01
		0.1920			0.2050	0.2226	334.27	1.3269	0.9806	BENZENE	-0.1764E-01	
		0.7280			0.3630	0.3626	177.78	1.0527	0.9643	HEPTANE	0.3905E-03	
10	54.24	0.2090	400.00	401.70	0.4770	0.4843	264.70	3.4315	0.9769	ETHANOL	-0.7312E-02	0.4875E-02
		0.1840			0.2100	0.2048	311.68	1.4040	0.9807	BENZENE	0.5226E-02	
		0.6070			0.3130	0.3109	164.86	1.1995	0.9640	HEPTANE	0.2086E-02	
11	53.78	0.2850	400.00	401.09	0.4880	0.4951	259.14	2.6227	0.9766	ETHANOL	-0.7108E-02	0.6364E-02
		0.1790			0.2160	0.2065	306.51	1.4776	0.9808	BENZENE	0.9545E-02	
		0.5360			0.2990	0.2934	161.02	1.3258	0.9642	HEPTANE	-0.2437E-02	
12	53.24	0.4330	400.00	402.37	0.4910	0.4979	252.75	1.7847	0.9762	ETHANOL	-0.6869E-02	0.7650E-02
		0.1850			0.2300	0.2346	300.52	1.6621	0.9807	BENZENE	-0.4606E-02	
		0.3820			0.2790	0.2675	158.51	1.7087	0.9641	HEPTANE	0.1148E-01	
13	53.02	0.5430	400.00	404.86	0.5010	0.4985	250.18	1.4481	0.9759	ETHANOL	0.2490E-02	0.1148E-01
		0.1880			0.2460	0.2632	298.11	1.8612	0.9806	BENZENE	-0.1722E-01	
		0.2690			0.2530	0.2383	157.14	2.1931	0.9639	HEPTANE	0.1473E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	52.88	0.6500	400.00	403.06	0.5130	0.5112	248.56	1.2428	0.9756	ETHANOL	0.1758E-02	0.2673E-02
		0.1710			0.2730	0.2770	296.58	2.1555	0.9809	BENZENE	-0.4009E-02	
		0.1790			0.2140	0.2117	156.27	2.9337	0.9644	HEPTANE	0.2252E-02	
15	53.23	0.7570	400.00	403.88	0.5430	0.5376	252.63	1.1058	0.9750	ETHANOL	0.5368E-02	0.3578E-02
		0.1590			0.3080	0.3126	300.41	2.5899	0.9815	BENZENE	-0.4643E-02	
		0.0840			0.1490	0.1497	158.45	4.3728	0.9654	HEPTANE	-0.7246E-03	
16	59.46	0.0280	400.00	383.47	0.3030	0.2525	334.97	10.1517	0.9846	ETHANOL	0.5054E-01	0.3369E-01
		0.2820			0.3170	0.3571	375.37	1.2655	0.9801	BENZENE	-0.4006E-01	
		0.6900			0.3800	0.3905	201.44	1.0357	0.9642	HEPTANE	-0.1048E-01	
17	54.79	0.0760	400.00	380.07	0.4130	0.3787	271.47	6.8331	0.9805	ETHANOL	0.3428E-01	0.2285E-01
		0.2790			0.2860	0.3031	317.96	1.2709	0.9804	BENZENE	-0.1708E-01	
		0.6450			0.3010	0.3192	168.45	1.0704	0.9644	HEPTANE	-0.1719E-01	
18	54.62	0.1070	400.00	398.38	0.4140	0.4055	269.36	5.4801	0.9788	ETHANOL	0.8476E-02	0.5650E-02
		0.2980			0.2980	0.3062	316.01	1.2670	0.9798	BENZENE	-0.8239E-02	
		0.5950			0.2880	0.2882	167.33	1.1075	0.9632	HEPTANE	-0.2364E-03	
19	52.57	0.3530	400.00	399.99	0.4390	0.4631	245.00	2.0895	0.9767	ETHANOL	-0.2410E-01	0.1607E-01
		0.2720			0.3130	0.3023	293.22	1.4833	0.9801	BENZENE	0.1069E-01	
		0.3750			0.2480	0.2346	154.36	1.5571	0.9635	HEPTANE	0.1341E-01	
20	52.37	0.4530	400.00	402.31	0.4710	0.4661	242.72	1.6631	0.9764	ETHANOL	0.4910E-02	0.5690E-02
		0.2680			0.3140	0.3225	291.07	1.6273	0.9801	BENZENE	-0.8535E-02	
		0.2790			0.2150	0.2114	153.14	1.9115	0.9633	HEPTANE	0.3625E-02	
21	52.19	0.5560	400.00	403.53	0.4790	0.4710	240.69	1.3846	0.9760	ETHANOL	0.8004E-02	0.6155E-02
		0.2600			0.3400	0.3492	289.14	1.8339	0.9801	BENZENE	-0.9232E-02	
		0.1840			0.1810	0.1798	152.05	2.4905	0.9634	HEPTANE	0.1227E-02	
22	52.10	0.6510	400.00	403.85	0.4830	0.4800	239.68	1.2106	0.9757	ETHANOL	0.3033E-02	0.5196E-02
		0.2600			0.3910	0.3988	288.18	2.1032	0.9803	BENZENE	-0.7794E-02	
		0.0890			0.1260	0.1212	151.50	3.4893	0.9638	HEPTANE	0.4760E-02	
23	58.62	0.0310	400.00	392.67	0.2930	0.2460	322.71	9.4922	0.9840	ETHANOL	0.4695E-01	0.3130E-01
		0.3670			0.3980	0.4233	364.49	1.2146	0.9793	BENZENE	-0.3525E-01	
		0.6020			0.3190	0.3307	195.15	1.0614	0.9631	HEPTANE	-0.1170E-01	
24	53.94	0.1350	400.00	405.63	0.3970	0.4036	261.06	4.5386	0.9781	ETHANOL	-0.6638E-02	0.4425E-02
		0.3640			0.3520	0.3505	308.30	1.2385	0.9792	BENZENE	0.1455E-02	
		0.5010			0.2510	0.2458	162.94	1.1719	0.9624	HEPTANE	0.5184E-02	
25	52.58	0.2510	400.00	402.39	0.4350	0.4314	245.11	2.7540	0.9772	ETHANOL	0.3581E-02	0.3512E-02
		0.3590			0.3480	0.3533	293.33	1.3199	0.9795	BENZENE	-0.5268E-02	
		0.3900			0.2170	0.2153	154.42	1.3808	0.9627	HEPTANE	0.1686E-02	
26	51.96	0.3560	400.00	401.23	0.4380	0.4352	238.11	2.0099	0.9769	ETHANOL	0.2803E-02	0.6687E-02
		0.3650			0.3700	0.3800	286.69	1.4247	0.9796	BENZENE	-0.1003E-01	
		0.2790			0.1920	0.1848	150.66	1.6930	0.9628	HEPTANE	0.7227E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	51.08	0.4650	400.00	391.38	0.4410	0.4407	228.47	1.5844	0.9770	ETHANOL	0.2843E-03	0.1079E-02
		0.3470			0.4000	0.4016	277.49	1.5969	0.9800	BENZENE	-0.1617E-02	
		0.1880			0.1590	0.1577	145.45	2.1681	0.9636	HEPTANE	0.1334E-02	
28	51.43	0.5610	400.00	400.73	0.4250	0.4476	232.26	1.3424	0.9763	ETHANOL	-0.2264E-01	0.1925E-01
		0.3460			0.4760	0.4471	281.12	1.8015	0.9798	BENZENE	0.2887E-01	
		0.0930			0.0990	0.1052	147.50	2.9521	0.9633	HEPTANE	-0.6227E-02	
29	56.15	0.0430	400.00	388.44	0.3060	0.2682	288.82	8.2363	0.9829	ETHANOL	0.3776E-01	0.2517E-01
		0.4560			0.4420	0.4673	333.91	1.1653	0.9792	BENZENE	-0.2532E-01	
		0.5010			0.2520	0.2644	177.57	1.1086	0.9629	HEPTANE	-0.1244E-01	
30	53.27	0.1250	400.00	401.48	0.3790	0.3724	253.10	4.6196	0.9787	ETHANOL	0.6620E-02	0.6251E-02
		0.4680			0.4130	0.4224	300.95	1.1769	0.9789	BENZENE	-0.9376E-02	
		0.4070			0.2080	0.2052	158.70	1.2238	0.9621	HEPTANE	0.2757E-02	
31	52.01	0.2640	400.00	402.51	0.4110	0.4103	238.67	2.5587	0.9773	ETHANOL	0.6757E-03	0.3268E-02
		0.4480			0.4140	0.4189	287.22	1.2807	0.9791	BENZENE	-0.4902E-02	
		0.2880			0.1750	0.1708	150.96	1.5168	0.9623	HEPTANE	0.4227E-02	
32	51.45	0.3630	400.00	400.37	0.4120	0.4166	232.48	1.9287	0.9770	ETHANOL	-0.4589E-02	0.3060E-02
		0.4430			0.4450	0.4432	281.33	1.3916	0.9793	BENZENE	0.1841E-02	
		0.1940			0.1430	0.1403	147.62	1.8816	0.9625	HEPTANE	0.2748E-02	
33	51.06	0.4660	400.00	398.86	0.4290	0.4218	228.25	1.5432	0.9768	ETHANOL	0.7179E-02	0.6240E-02
		0.4410			0.4790	0.4884	277.28	1.5573	0.9794	BENZENE	-0.9359E-02	
		0.0930			0.0920	0.0898	145.33	2.5445	0.9629	HEPTANE	0.2181E-02	
34	55.97	0.0430	400.00	395.17	0.2740	0.2510	286.48	7.9055	0.9828	ETHANOL	0.2296E-01	0.1531E-01
		0.5490			0.5250	0.5279	331.76	1.1189	0.9786	BENZENE	-0.2949E-02	
		0.4080			0.2010	0.2210	176.34	1.1645	0.9622	HEPTANE	-0.2001E-01	
35	52.63	0.1410	400.00	402.13	0.3620	0.3620	245.68	4.1072	0.9786	ETHANOL	0.3302E-04	0.3186E-02
		0.5570			0.4710	0.4758	293.97	1.1418	0.9786	BENZENE	-0.4779E-02	
		0.3020			0.1670	0.1623	154.73	1.3390	0.9618	HEPTANE	0.4747E-02	
36	51.59	0.2590	400.00	401.78	0.3840	0.3906	234.02	2.5281	0.9776	ETHANOL	-0.6599E-02	0.4399E-02
		0.5440			0.4360	0.4830	282.79	1.2324	0.9788	BENZENE	0.3036E-02	
		0.1970			0.1300	0.1264	148.45	1.6661	0.9621	HEPTANE	0.3563E-02	
37	51.04	0.3670	400.00	399.70	0.3980	0.3997	228.04	1.8632	0.9772	ETHANOL	-0.1724E-02	0.4870E-02
		0.5420			0.5130	0.5236	277.07	1.3618	0.9790	BENZENE	-0.5586E-02	
		0.0910			0.0840	0.0767	145.22	2.2261	0.9624	HEPTANE	0.7300E-02	
38	55.20	0.0500	400.00	399.15	0.2690	0.2536	276.60	7.1807	0.9822	ETHANOL	0.1539E-01	0.1026E-01
		0.6420			0.5610	0.5735	322.71	1.0790	0.9783	BENZENE	-0.1253E-01	
		0.3080			0.1700	0.1729	171.16	1.2550	0.9617	HEPTANE	-0.2866E-02	
39	52.19	0.1480	400.00	401.37	0.3520	0.3500	240.69	3.8548	0.9787	ETHANOL	0.2031E-02	0.1863E-02
		0.6450			0.5260	0.5288	289.14	1.1115	0.9785	BENZENE	-0.2794E-02	
		0.2070			0.1220	0.1212	152.05	1.4824	0.9617	HEPTANE	0.7628E-03	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	51.40	0.2660	400.00	403.20	0.3800	0.3786	231.94	2.4157	0.9776	ETHANOL	0.1425E-02	0.2019E-02
		0.6330			0.5440	0.5470	280.81	1.2121	0.9786	BENZENE	-0.3034E-02	
		0.1010			0.0760	0.0744	147.33	1.9333	0.9619	HEPTANE	0.1599E-02	
41	54.26	0.0600	400.00	399.39	0.2730	0.2605	264.94	6.4166	0.9817	ETHANOL	0.1253E-01	0.8355E-02
		0.7360			0.6070	0.6160	311.91	1.0477	0.9781	BENZENE	-0.9791E-02	
		0.2040			0.1200	0.1227	164.99	1.3963	0.9615	HEPTANE	-0.2746E-02	
42	52.01	0.1630	400.00	404.43	0.3500	0.3445	238.67	3.4997	0.9785	ETHANOL	0.5538E-02	0.3745E-02
		0.7350			0.5910	0.5866	287.22	1.0973	0.9782	BENZENE	-0.5622E-02	
		0.1020			0.0590	0.0689	150.96	1.7353	0.9615	HEPTANE	0.7451E-04	
43	54.02	0.0650	400.00	402.72	0.2640	0.2582	262.03	5.9849	0.9813	ETHANOL	0.5761E-02	0.3844E-02
		0.3350			0.6710	0.6737	309.20	1.0258	0.9779	BENZENE	-0.2726E-02	
		0.1000			0.0650	0.0680	163.45	1.6068	0.9613	HEPTANE	-0.3045E-02	
44	55.67	0.0270	400.00	388.52	0.1570	0.1577	282.59	7.9001	0.9850	ETHANOL	-0.6931E-03	0.1106E-02
		0.9200			0.8020	0.8003	328.21	1.0057	0.9784	BENZENE	0.1654E-02	
		0.0530			0.0410	0.0420	174.31	1.6939	0.9625	HEPTANE	-0.9697E-03	
45	57.64	0.9150	400.00	413.22	0.7330	0.7139	308.89	1.0150	0.9736	ETHANOL	0.1907E-01	0.1271E-01
		0.0470			0.1350	0.1529	352.10	3.7569	0.9856	BENZENE	-0.1794E-01	
		0.0380			0.1320	0.1331	188.02	7.4497	0.9706	HEPTANE	-0.1124E-02	
46	52.46	0.3180	400.00	405.25	0.4480	0.4486	243.74	2.2374	0.9768	ETHANOL	0.9359E-02	0.1705E-01
		0.3500			0.3330	0.3596	292.03	1.3900	0.9795	BENZENE	-0.2558E-01	
		0.3320			0.2190	0.2028	153.69	1.5457	0.9626	HEPTANE	0.1622E-01	
47	53.10	0.1640	400.00	402.34	0.4130	0.4058	251.11	3.8728	0.9779	ETHANOL	0.7161E-02	0.5944E-02
		0.3960			0.3630	0.3719	298.98	1.2354	0.9793	BENZENE	-0.8916E-02	
		0.4400			0.2240	0.2222	157.63	1.2371	0.9625	HEPTANE	0.1754E-02	

ETHANOL(1) - BENZENE(2) - METHYLCYCLOPENTANE(3) SYSTEM 034

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
516.00	63.00	161.30	0.637	0.152	1.690	1.10	ETHANOL	11
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
532.80	37.40	319.00	0.231	0.0	0.0	0.0	MCP	27

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.80449E 01	0.15543E 04	0.22265E 03	ETHANOL	0.5370E 02	-0.3111E-01	0.1600E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.69623E 01	0.11961E 04	0.22604E 03	MCP	0.1043E 03	-0.8676E-01	0.3900E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
1488.69	233.18	ETHANOL - BENZENE	78	0
2168.45	177.80	ETHANOL - MCP	91	1
179.94	67.43	BENZENE - MCP	173	1

HALA CONSISTENCY TEST

CI(1) 1.4551

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.1139E 02

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.8231E-02
COMPONENT 2	0.7719E-02
COMPONENT 3	0.1095E-01

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.8965E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	67.00	0.0520	760.00	767.21	0.2250	0.2309	463.16	7.1228	0.9707	ETHANOL	-0.5867E-02	0.3910E-02
		0.5950			0.4190	0.4144	494.96	1.0574	0.9628	BENZENE	0.4612E-02	
		0.3530			0.3560	0.3547	627.74	1.1727	0.9589	MCP	0.1252E-02	
2	60.20	0.3950	760.00	741.81	0.3960	0.3498	346.09	1.8262	0.9642	ETHANOL	0.4621E-01	0.3081E-01
		0.0370			0.0330	0.0341	385.17	1.7030	0.9635	BENZENE	-0.1072E-02	
		0.5680			0.5710	0.6161	506.08	1.5192	0.9595	MCP	-0.4515E-01	
3	62.70	0.6900	760.00	737.20	0.4320	0.4340	385.89	1.1543	0.9626	ETHANOL	-0.2032E-02	0.1225E-01
		0.1230			0.1650	0.1814	419.76	2.3969	0.9665	BENZENE	-0.1635E-01	
		0.1820			0.4030	0.3946	548.50	2.7228	0.9626	MCP	0.1838E-01	
4	61.60	0.5040	760.00	745.76	0.3800	0.3746	367.93	1.4486	0.9637	ETHANOL	0.5411E-02	0.8304E-02
		0.1850			0.1740	0.1865	404.25	1.7870	0.9643	BENZENE	-0.1246E-01	
		0.3110			0.4460	0.4390	529.51	1.9010	0.9604	MCP	0.7042E-02	
5	61.30	0.0960	760.00	749.14	0.3080	0.2986	363.15	6.1880	0.9664	ETHANOL	0.9363E-02	0.9043E-02
		0.0570			0.0460	0.0418	400.10	1.3173	0.9625	BENZENE	0.4196E-02	
		0.8470			0.6460	0.6596	524.42	1.0617	0.9586	MCP	-0.1357E-01	
6	67.70	0.8780	760.00	741.14	0.5940	0.6033	476.86	1.0236	0.9606	ETHANOL	-0.9261E-02	0.1928E-01
		0.0530			0.1100	0.1297	496.17	3.5421	0.9724	BENZENE	-0.1967E-01	
		0.0690			0.2960	0.2671	641.42	4.3146	0.9688	MCP	0.2892E-01	
7	61.00	0.1740	760.00	752.16	0.3280	0.3203	358.43	3.7204	0.9653	ETHANOL	0.7700E-02	0.5291E-02
		0.1040			0.0770	0.0768	395.98	1.3452	0.9627	BENZENE	0.2335E-03	
		0.7220			0.5950	0.6029	519.37	1.1545	0.9587	MCP	-0.7940E-02	
8	63.40	0.6900	760.00	745.11	0.4420	0.4418	397.68	1.1520	0.9623	ETHANOL	0.1932E-03	0.1137E-01
		0.1530			0.2000	0.2171	429.87	2.3689	0.9665	BENZENE	-0.1706E-01	
		0.1570			0.3580	0.3411	560.85	2.7672	0.9627	MCP	0.1687E-01	
9	64.50	0.1990	760.00	762.66	0.3270	0.3404	416.33	3.0151	0.9655	ETHANOL	-0.1341E-01	0.1009E-01
		0.5650			0.3950	0.3967	446.13	1.1531	0.9639	BENZENE	-0.1732E-02	
		0.2360			0.2780	0.2629	580.69	1.3982	0.9599	MCP	0.1513E-01	
10	63.10	0.4770	760.00	753.53	0.3870	0.3865	392.59	1.4054	0.9636	ETHANOL	0.4752E-03	0.8219E-02
		0.3160			0.2920	0.3043	425.51	1.6398	0.9648	BENZENE	-0.1233E-01	
		0.2070			0.3210	0.3091	555.53	1.9381	0.9608	MCP	0.1185E-01	
11	63.40	0.4020	760.00	758.00	0.3730	0.3754	397.68	1.7117	0.9639	ETHANOL	-0.2364E-02	0.5866E-02
		0.3810			0.3240	0.3304	429.87	1.4699	0.9644	BENZENE	-0.6437E-02	
		0.2170			0.3030	0.2942	560.85	1.7524	0.9605	MCP	0.8797E-02	
12	62.10	0.3890	760.00	751.21	0.3600	0.3593	376.00	1.7755	0.9642	ETHANOL	0.6786E-03	0.5401E-02
		0.2360			0.2360	0.2441	411.24	1.4978	0.9639	BENZENE	-0.8105E-02	
		0.3250			0.4040	0.3966	538.08	1.6284	0.9600	MCP	0.7420E-02	
13	61.30	0.3990	760.00	745.81	0.3610	0.3546	363.15	1.7561	0.9643	ETHANOL	0.6411E-02	0.4276E-02
		0.2060			0.1740	0.1802	400.10	1.5664	0.9638	BENZENE	-0.6212E-02	
		0.3950			0.4650	0.4652	524.42	1.6009	0.9598	MCP	-0.2061E-03	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	64.40	0.3240	760.00	764.59	0.3960	0.3716	415.05	2.0329	0.9642	ETHANOL	0.2435E-01	0.1624E-01
		0.4940			0.3840	0.3922	444.63	1.3122	0.9644	BENZENE	-0.8227E-02	
		0.1820			0.2200	0.2361	578.86	1.6388	0.9604	MCP	-0.1613E-01	
15	61.90	0.3230	760.00	751.24	0.3470	0.3467	372.75	2.0824	0.9646	ETHANOL	0.2608E-03	0.1245E-02
		0.2890			0.2270	0.2289	408.44	1.3989	0.9636	BENZENE	-0.1870E-02	
		0.3880			0.4260	0.4244	534.64	1.4686	0.9596	MCP	0.1604E-02	
16	61.80	0.2190	760.00	749.93	0.3280	0.3275	371.14	2.9240	0.9654	ETHANOL	0.5043E-03	0.3383E-03
		0.2960			0.2130	0.2130	407.04	1.2730	0.9632	BENZENE	-0.4411E-04	
		0.4860			0.4590	0.4595	532.93	1.2708	0.9593	MCP	-0.4665E-03	
17	61.30	0.2240	760.00	752.70	0.3300	0.3276	363.15	2.9192	0.9651	ETHANOL	0.2364E-02	0.2844E-02
		0.1920			0.1380	0.1423	400.10	1.3377	0.9629	BENZENE	-0.4269E-02	
		0.5840			0.5320	0.5301	524.42	1.2440	0.9599	MCP	0.1899E-02	
18	61.80	0.1060	760.00	748.12	0.2920	0.2949	371.14	5.4106	0.9668	ETHANOL	-0.2942E-02	0.1959E-02
		0.2050			0.1450	0.1433	407.04	1.2328	0.9627	BENZENE	0.1691E-02	
		0.6890			0.5630	0.5618	532.93	1.0927	0.9588	MCP	0.1244E-02	
19	63.60	0.1750	760.00	756.03	0.3170	0.3252	401.11	3.3761	0.9660	ETHANOL	-0.8215E-02	0.7403E-02
		0.4980			0.3390	0.3419	432.79	1.1517	0.9636	BENZENE	-0.2891E-02	
		0.3270			0.3440	0.3329	564.42	1.3030	0.9596	MCP	0.1110E-01	
20	62.80	0.0940	760.00	753.08	0.2840	0.2843	387.55	5.6741	0.9674	ETHANOL	-0.3490E-03	0.2371E-02
		0.3140			0.2180	0.2144	421.19	1.1716	0.9627	BENZENE	0.3554E-02	
		0.5920			0.4980	0.5012	550.25	1.1062	0.9587	MCP	-0.3210E-02	
21	63.60	0.1910	760.00	754.56	0.2780	0.2802	401.11	5.5946	0.9679	ETHANOL	-0.2238E-02	0.1563E-02
		0.4140			0.2790	0.2791	432.79	1.1280	0.9629	BENZENE	-0.1104E-03	
		0.4950			0.4430	0.4407	564.42	1.1363	0.9589	MCP	0.2342E-02	
22	64.60	0.5700	760.00	753.57	0.4260	0.4299	418.60	1.3043	0.9629	ETHANOL	-0.3858E-02	0.1292E-01
		0.3280			0.3590	0.3745	447.63	1.8512	0.9663	BENZENE	-0.1553E-01	
		0.1020			0.2150	0.1956	582.51	2.3775	0.9624	MCP	0.1938E-01	
23	64.00	0.1240	760.00	758.39	0.2900	0.3031	408.03	4.3947	0.9669	ETHANOL	-0.1314E-01	0.8757E-02
		0.5050			0.3450	0.3388	438.67	1.1133	0.9632	BENZENE	0.6239E-02	
		0.3710			0.3650	0.3581	571.60	1.2232	0.9593	MCP	0.6895E-02	
24	65.10	0.4990	760.00	760.21	0.4160	0.4184	427.58	1.4590	0.9631	ETHANOL	-0.2422E-02	0.1063E-01
		0.4180			0.4080	0.4215	455.20	1.6212	0.9659	BENZENE	-0.1353E-01	
		0.0830			0.1760	0.1601	591.72	2.1409	0.9620	MCP	0.1595E-01	
25	65.50	0.1010	760.00	751.18	0.2790	0.2940	434.88	4.8581	0.9682	ETHANOL	-0.1504E-01	0.1003E-01
		0.6550			0.4500	0.4447	461.32	1.0620	0.9640	BENZENE	0.5342E-02	
		0.2440			0.2710	0.2613	599.17	1.2836	0.9601	MCP	0.9696E-02	
26	65.40	0.3660	760.00	763.22	0.3950	0.3966	433.04	1.8366	0.9639	ETHANOL	-0.1590E-02	0.9147E-02
		0.5360			0.4450	0.4571	459.79	1.3620	0.9653	BENZENE	-0.1213E-01	
		0.0980			0.1600	0.1463	597.30	1.8258	0.9614	MCP	0.1372E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PLXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	66.10	0.1270	760.00	764.74	0.3020	0.3177	446.01	4.1386	0.9669	ETHANOL	-0.1573E-01	0.1049E-01
		0.6470			0.4790	0.4716	470.63	1.0715	0.9639	BENZENE	0.7413E-02	
		0.1860			0.2190	0.2107	610.48	1.3563	0.9600	MCP	0.8317E-02	
28	65.50	0.2620	760.00	763.26	0.3630	0.3728	434.88	2.4041	0.9647	ETHANOL	-0.9840E-02	0.6559E-02
		0.6170			0.4680	0.4680	461.32	1.2067	0.9649	BENZENE	0.2420E-04	
		0.1210			0.1690	0.1592	509.17	1.6035	0.9610	MCP	0.9813E-02	
29	67.40	0.1200	760.00	774.11	0.3040	0.3211	470.95	4.2439	0.9669	ETHANOL	-0.1714E-01	0.1143E-01
		0.7540			0.5380	0.5268	491.30	1.0577	0.9640	BENZENE	0.1116E-01	
		0.1260			0.1580	0.1520	635.53	1.4048	0.9601	MCP	0.5986E-02	
30	61.30	0.2810	760.00	746.69	0.3440	0.3368	363.15	2.3727	0.9650	ETHANOL	0.7219E-02	0.4815E-02
		0.2340			0.1730	0.1799	400.10	1.3772	0.9634	BENZENE	-0.6851E-02	
		0.4850			0.4830	0.4834	524.42	1.3557	0.9594	MCP	-0.3757E-03	
31	71.00	0.0510	760.00	771.60	0.2170	0.2399	546.02	6.4430	0.9715	ETHANOL	-0.2289E-01	0.1526E-01
		0.8720			0.6740	0.6577	552.21	1.0127	0.9642	BENZENE	0.1634E-01	
		0.0770			0.1090	0.1025	708.97	1.3848	0.9604	MCP	0.6547E-02	
32	62.50	0.4970	760.00	770.54	0.3710	0.3759	382.57	1.4636	0.9629	ETHANOL	-0.4931E-02	0.1116E-01
		0.1920			0.1790	0.1908	416.90	1.7637	0.9635	BENZENE	-0.1182E-01	
		0.3110			0.4500	0.4333	545.01	1.8815	0.9595	MCP	0.1675E-01	
33	64.20	0.2270	760.00	747.88	0.3350	0.3513	411.53	2.7095	0.9656	ETHANOL	-0.1626E-01	0.1084E-01
		0.5780			0.4200	0.4179	441.65	1.1771	0.9647	BENZENE	0.2119E-02	
		0.1950			0.2450	0.2309	575.22	1.4727	0.9608	MCP	0.1414E-01	
34	63.10	0.6130	760.00	744.75	0.4130	0.4180	392.59	1.2429	0.9630	ETHANOL	-0.5002E-02	0.1578E-01
		0.2190			0.2470	0.2657	425.51	2.0440	0.9659	BENZENE	-0.1867E-01	
		0.1680			0.3400	0.3163	555.53	2.4181	0.9620	MCP	0.2367E-01	
35	62.70	0.2920	760.00	739.93	0.3380	0.3525	385.89	2.2291	0.9653	ETHANOL	-0.1447E-01	0.9684E-02
		0.4400			0.3350	0.3351	419.76	1.2903	0.9646	BENZENE	-0.6008E-04	
		0.2680			0.3270	0.3125	548.50	1.5045	0.9607	MCP	0.1452E-01	
36	64.70	0.6690	760.00	751.03	0.4540	0.4566	420.39	1.1708	0.9622	ETHANOL	-0.2641E-02	0.1344E-01
		0.2320			0.3020	0.3195	449.14	2.2197	0.9671	BENZENE	-0.1752E-01	
		0.0990			0.2440	0.2238	594.35	2.7872	0.9632	MCP	0.2016E-01	
37	62.00	0.3240	760.00	739.01	0.3470	0.3510	374.38	2.0594	0.9651	ETHANOL	-0.4009E-02	0.3319E-02
		0.3550			0.2790	0.2800	409.94	1.3668	0.9643	BENZENE	-0.9733E-03	
		0.3210			0.3740	0.3690	536.36	1.5149	0.9604	MCP	0.4975E-02	
38	65.70	0.7460	760.00	751.24	0.4970	0.4935	438.57	1.0983	0.9615	ETHANOL	-0.1543E-02	0.1670E-01
		0.1780			0.2710	0.2945	464.41	2.5834	0.9685	BENZENE	-0.2351E-01	
		0.0760			0.2320	0.2069	602.92	3.2590	0.9647	MCP	0.2505E-01	
39	62.10	0.1790	760.00	741.13	0.3370	0.3197	376.00	3.3941	0.9662	ETHANOL	0.1731E-01	0.1154E-01
		0.3900			0.2500	0.2632	411.24	1.1989	0.9636	BENZENE	-0.1321E-01	
		0.4410			0.4130	0.4171	538.08	1.2450	0.9597	MCP	-0.4103E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	60.50	0.3520	760.00	742.17	0.3560	0.3442	350.67	1.9917	0.9645	ETHANOL	0.1182E-01	0.7883E-02
		0.1090			0.0900	0.0932	389.20	1.5650	0.9634	BENZENE	-0.3158E-02	
		0.5390			0.5540	0.5627	511.04	1.4485	0.9595	MCP	-0.8671E-02	
41	63.00	0.7630	760.00	729.59	0.4570	0.4648	390.91	1.0918	0.9623	ETHANOL	-0.7823E-02	0.1464E-01
		0.0670			0.0990	0.1131	424.06	2.8025	0.9677	BENZENE	-0.1414E-01	
		0.1700			0.4440	0.4220	553.77	3.1299	0.9640	MCP	0.2197E-01	
42	61.50	0.6500	760.00	737.50	0.4070	0.4062	366.33	1.2099	0.9630	ETHANOL	0.7917E-03	0.7642E-02
		0.0790			0.0920	0.1035	402.86	2.3071	0.9655	BENZENE	-0.1147E-01	
		0.2710			0.5010	0.4903	527.82	2.4208	0.9616	MCP	0.1067E-01	
43	60.90	0.5690	760.00	741.73	0.3860	0.3808	356.86	1.3370	0.9634	ETHANOL	0.5224E-02	0.3485E-02
		0.0710			0.0760	0.0810	394.62	2.0619	0.9644	BENZENE	-0.5032E-02	
		0.3600			0.5380	0.5382	517.70	2.0486	0.9605	MCP	-0.1990E-03	
44	60.70	0.4050	760.00	743.58	0.3710	0.3656	353.75	1.4928	0.9637	ETHANOL	0.5430E-02	0.4499E-02
		0.0930			0.0780	0.0848	391.00	1.8612	0.9639	BENZENE	-0.6752E-02	
		0.4220			0.5510	0.5497	514.36	1.8000	0.9600	MCP	0.1315E-02	
45	60.50	0.4220	760.00	743.87	0.3630	0.3536	350.67	1.7098	0.9641	ETHANOL	0.9418E-02	0.6282E-02
		0.0790			0.0720	0.0737	389.20	1.7127	0.9636	BENZENE	-0.1715E-02	
		0.4990			0.5650	0.5727	511.04	1.5963	0.9596	MCP	-0.7712E-02	
46	60.70	0.2320	760.00	748.16	0.3400	0.3295	353.75	2.8922	0.9649	ETHANOL	0.1048E-01	0.6986E-02
		0.1000			0.0750	0.0762	391.00	1.4094	0.9629	BENZENE	-0.1158E-02	
		0.6690			0.5850	0.5943	514.36	1.2339	0.9590	MCP	-0.9325E-02	
47	63.00	0.0470	760.00	748.78	0.2580	0.2478	390.91	9.7659	0.9693	ETHANOL	0.1024E-01	0.9350E-02
		0.1070			0.0940	0.0802	424.06	1.2698	0.9624	BENZENE	0.3778E-02	
		0.8460			0.6480	0.6720	553.77	1.0251	0.9585	MCP	-0.1403E-01	

ETHANOL(1) - ETHYL ACETATE(2) - WATER(3) SYSTEM 035

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
516.00	63.00	161.30	0.637	0.152	1.690	1.10	ETHANOL	11
523.30	37.80	286.00	0.373	0.278	1.780	0.50	ET AC	12
647.40	218.30	55.20	0.344	0.010	1.850	0.0	WATER	34

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.80449E 01	0.15543E 04	0.22265E 03	ETHANOL	0.5370E 02	-0.3111E-01	0.1600E-03
0.70981E 01	0.12387E 04	0.21700E 03	ET AC	0.1361E 03	-0.3700E 00	0.8077E-03
0.79668E 01	0.16682E 04	0.22800E 03	WATER	0.2289E 02	-0.3642E-01	0.6856E-04

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

				BINARY ID NUMBERS	ORDER
817.67	-172.00	ETHANOL -	ET AC	86	1
270.40	1001.26	ETHANOL -	WATER	104	0
6093.37	2005.18	ET AC -	WATER	111	0

HALA CONSISTENCY TEST

CI(1) -0.1439

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.9809E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.1645E-01
COMPONENT 2	0.1832E-01
COMPONENT 3	0.2079E-01
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.1852E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	71.80	0.0620	760.00	760.08	0.0760	0.0924	563.97	1.9123	0.9537	ETHANOL	-0.1644E-01	0.2007E-01
		0.8500			0.7360	0.7497	614.41	1.0322	0.9496	ET AC	-0.1365E-01	
		0.0880			0.1880	0.1579	251.79	5.3822	0.9943	WATER	0.3010E-01	
2	72.80	0.0650	760.00	771.49	0.1040	0.1022	587.07	1.9667	0.9542	ETHANOL	0.1821E-02	0.7444E-02
		0.8770			0.7670	0.7782	635.02	1.0195	0.9493	ET AC	-0.1116E-01	
		0.0580			0.1290	0.1197	262.72	6.0207	0.9945	WATER	0.9349E-02	
3	72.70	0.0780	760.00	745.45	0.1070	0.1292	584.72	2.0157	0.9565	ETHANOL	-0.2221E-01	0.3412E-01
		0.8990			0.8660	0.8148	632.94	1.0113	0.9508	ET AC	0.5118E-01	
		0.0230			0.0270	0.0560	261.61	6.8936	0.9949	WATER	-0.2897E-01	
4	70.60	0.1000	760.00	759.19	0.1020	0.1221	537.23	1.6398	0.9525	ETHANOL	-0.2009E-01	0.1927E-01
		0.7030			0.6450	0.6538	590.36	1.1310	0.9491	ET AC	-0.8821E-02	
		0.1970			0.2530	0.2241	230.18	3.5843	0.9934	WATER	0.2891E-01	
5	70.80	0.1170	760.00	746.76	0.1400	0.1397	541.61	1.5649	0.9529	ETHANOL	0.3346E-03	0.1005E-01
		0.3430			0.5510	0.5661	594.32	1.9629	0.9505	ET AC	-0.1509E-01	
		0.5400			0.3090	0.2943	241.25	1.6735	0.9928	WATER	0.1474E-01	
6	71.00	0.1490	760.00	751.83	0.1520	0.1694	546.02	1.4886	0.9530	ETHANOL	-0.1740E-01	0.3940E-01
		0.3190			0.5000	0.5417	598.30	2.0206	0.9504	ET AC	-0.4171E-01	
		0.5320			0.3480	0.2889	243.33	1.6641	0.9924	WATER	0.5910E-01	
7	72.20	0.1600	760.00	737.71	0.2080	0.2248	573.11	1.7234	0.9549	ETHANOL	-0.1682E-01	0.4023E-01
		0.1250			0.4170	0.4605	622.60	4.1426	0.9524	ET AC	-0.4353E-01	
		0.7150			0.3750	0.3147	256.12	1.2565	0.9919	WATER	0.6034E-01	
8	71.60	0.1900	760.00	780.27	0.2270	0.2224	559.43	1.5533	0.9535	ETHANOL	0.4592E-02	0.3064E-02
		0.7270			0.6490	0.6520	610.35	1.0828	0.9481	ET AC	-0.2966E-02	
		0.0830			0.1240	0.1256	249.65	4.6928	0.9926	WATER	-0.1635E-02	
9	71.90	0.2080	760.00	756.21	0.2030	0.2352	566.24	1.4372	0.9538	ETHANOL	-0.3219E-01	0.2472E-01
		0.2090			0.4680	0.4729	616.45	2.6295	0.9509	ET AC	-0.4887E-02	
		0.5830			0.3290	0.2919	252.87	1.4840	0.9917	WATER	0.3708E-01	
10	70.80	0.2440	760.00	772.97	0.2240	0.2360	541.61	1.3123	0.9527	ETHANOL	-0.1203E-01	0.8257E-02
		0.5210			0.5520	0.5594	594.32	1.3030	0.9485	ET AC	-0.3635E-03	
		0.2350			0.2240	0.2116	241.25	2.8599	0.9919	WATER	0.1238E-01	
11	70.80	0.2820	760.00	772.25	0.2630	0.2640	541.61	1.2692	0.9531	ETHANOL	-0.9508E-03	0.9684E-02
		0.5040			0.5250	0.5386	594.32	1.3121	0.9485	ET AC	-0.1358E-01	
		0.2140			0.2120	0.1975	241.25	2.9271	0.9916	WATER	0.1452E-01	
12	71.70	0.3100	760.00	769.46	0.2800	0.2824	561.70	1.2169	0.9536	ETHANOL	-0.9422E-02	0.4500E-01
		0.2900			0.4000	0.4581	612.38	1.8779	0.9497	ET AC	-0.5808E-01	
		0.4000			0.3200	0.2525	250.72	1.9186	0.9910	WATER	0.6750E-01	
13	71.50	0.3450	760.00	773.17	0.3020	0.3072	557.18	1.1756	0.9536	ETHANOL	-0.5199E-02	0.1848E-01
		0.3360			0.4420	0.4645	608.33	1.6616	0.9492	ET AC	-0.2253E-01	
		0.3190			0.2560	0.2283	248.59	2.2039	0.9909	WATER	0.2772E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	72.40	0.3930	760.00	770.44	0.3380	0.3507	577.73	1.1628	0.9545	ETHANOL	-0.1267E-01	0.2477E-01
		0.2270			0.3770	0.4015	626.72	2.0583	0.9502	ET AC	-0.2449E-01	
		0.3900			0.2850	0.2479	258.30	1.3759	0.9903	WATER	0.3715E-01	
15	71.60	0.4020	760.00	777.81	0.3990	0.3789	559.43	1.2456	0.9550	ETHANOL	0.2104E-01	0.1403E-01
		0.5420			0.5450	0.5479	610.35	1.2165	0.9480	ET AC	-0.2871E-02	
		0.0560			0.0560	0.0742	249.65	4.0847	0.9906	WATER	-0.1817E-01	
16	72.80	0.4330	760.00	763.52	0.4070	0.3973	587.07	1.1375	0.9555	ETHANOL	0.9749E-02	0.3840E-01
		0.1350			0.2990	0.3566	635.02	2.1958	0.9510	ET AC	-0.5761E-01	
		0.3320			0.2940	0.2461	262.72	1.8523	0.9898	WATER	0.4785E-01	
17	71.50	0.4620	760.00	770.96	0.4010	0.3886	557.18	1.1087	0.9547	ETHANOL	0.1238E-01	0.9070E-02
		0.3550			0.4310	0.4446	608.23	1.5221	0.9490	ET AC	-0.1361E-01	
		0.1830			0.1680	0.1668	248.59	2.7219	0.9900	WATER	0.1224E-02	
18	71.60	0.4980	760.00	772.66	0.4440	0.4253	559.43	1.1243	0.9553	ETHANOL	0.1867E-01	0.1689E-01
		0.4050			0.4440	0.4693	610.35	1.3862	0.9485	ET AC	-0.2535E-01	
		0.0970			0.1120	0.1053	249.65	3.3240	0.9897	WATER	0.6665E-02	
19	72.40	0.5360	760.00	779.34	0.4670	0.4458	577.73	1.0692	0.9551	ETHANOL	0.2118E-01	0.1780E-01
		0.2820			0.3680	0.3947	626.72	1.6455	0.9490	ET AC	-0.2670E-01	
		0.1820			0.1650	0.1595	258.30	2.6133	0.9891	WATER	0.5521E-02	
20	72.20	0.5800	760.00	773.07	0.5350	0.4959	573.11	1.1003	0.9563	ETHANOL	0.3913E-01	0.2608E-01
		0.3720			0.4300	0.4474	622.60	1.4109	0.9434	ET AC	-0.1737E-01	
		0.0480			0.0350	0.0568	256.12	3.5268	0.9888	WATER	-0.2176E-01	
21	72.70	0.6030	760.00	766.61	0.5330	0.5034	584.72	1.0445	0.9564	ETHANOL	0.2957E-01	0.1972E-01
		0.2230			0.3190	0.3439	632.94	1.7676	0.9499	ET AC	-0.2489E-01	
		0.1740			0.1480	0.1527	261.61	2.5401	0.9895	WATER	-0.4691E-02	
22	72.50	0.6600	760.00	759.70	0.5670	0.5500	580.06	1.0425	0.9572	ETHANOL	0.1696E-01	0.1130E-01
		0.2530			0.3460	0.3602	628.79	1.6273	0.9497	ET AC	-0.1416E-01	
		0.0870			0.0870	0.0898	259.40	2.9844	0.9880	WATER	-0.2795E-02	
23	74.40	0.7000	760.00	764.95	0.6520	0.6133	625.62	1.0239	0.9579	ETHANOL	0.3870E-01	0.2580E-01
		0.1230			0.2000	0.2312	669.10	2.0364	0.9511	ET AC	-0.3121E-01	
		0.1770			0.1480	0.1555	281.03	2.3585	0.9869	WATER	-0.7498E-02	
24	73.70	0.7270	760.00	770.94	0.6240	0.6153	608.51	1.0245	0.9575	ETHANOL	0.8705E-02	0.5806E-02
		0.1970			0.3010	0.3056	654.03	1.7299	0.9495	ET AC	-0.4628E-02	
		0.0760			0.0750	0.0791	272.89	2.8090	0.9868	WATER	-0.4086E-02	
25	77.50	0.7500	760.00	771.90	0.7430	0.7438	706.18	1.0391	0.9597	ETHANOL	-0.7941E-03	0.4036E-02
		0.0240			0.0550	0.0603	739.10	2.4896	0.9530	ET AC	-0.5261E-02	
		0.2260			0.2020	0.1959	319.58	2.0619	0.9852	WATER	0.6053E-02	
26	74.30	0.7900	760.00	767.13	0.7390	0.6822	623.16	1.0166	0.9584	ETHANOL	0.5680E-01	0.3787E-01
		0.1650			0.2460	0.2684	666.93	1.7791	0.9497	ET AC	-0.2237E-01	
		0.0450			0.0150	0.0494	279.86	2.9672	0.9858	WATER	-0.3445E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	77.00	0.8420	760.00	779.22	0.8040	0.7977	692.65	1.0074	0.9594	ETHANOL	0.1631E-01	0.1088E-01
		0.0480			0.0960	0.1021	727.45	2.1580	0.9511	ET AC	-0.6061E-02	
		0.1100			0.1000	0.1103	313.08	2.4534	0.9841	WATER	-0.1026E-01	
28	75.40	0.8540	760.00	764.86	0.7900	0.7638	650.75	1.0063	0.9593	ETHANOL	0.1615E-01	0.1077E-01
		0.1050			0.1900	0.1908	691.10	1.9038	0.9503	ET AC	-0.7839E-03	
		0.0410			0.0300	0.0454	293.01	2.8424	0.9845	WATER	-0.1538E-01	
29	77.60	0.8990	760.00	764.68	0.8740	0.8735	708.91	1.0047	0.9607	ETHANOL	0.4725E-03	0.3165E-03
		0.0160			0.0360	0.0363	741.44	2.2181	0.9519	ET AC	-0.2837E-03	
		0.0850			0.0900	0.0902	320.89	2.4839	0.9830	WATER	-0.1934E-03	
30	77.60	0.9500	760.00	759.93	0.9400	0.9247	708.91	1.0006	0.9610	ETHANOL	0.1526E-01	0.1017E-01
		0.0170			0.0360	0.0373	741.44	2.1290	0.9514	ET AC	-0.1254E-02	
		0.0330			0.0240	0.0380	320.89	2.6768	0.9820	WATER	-0.1401E-01	
31	78.10	0.9690	760.00	763.09	0.9730	0.9572	722.69	1.0004	0.9611	ETHANOL	0.1576E-01	0.1051E-01
		0.0060			0.0120	0.0134	753.26	2.1487	0.9513	ET AC	-0.1428E-02	
		0.0250			0.0150	0.0293	327.53	2.6814	0.9814	WATER	-0.1434E-01	

ETHANOL(1) - METHYLCYCLOPENTANE(2) - HEXANE(3) SYSTEM 036

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
516.30	63.00	161.30	0.637	0.152	1.690	1.10	ETHANOL	11
532.80	37.40	319.00	0.231	0.0	0.0	0.0	MCP	27
507.90	29.90	372.40	0.299	0.0	0.0	0.0	HEXANE	18

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.80449E 01	0.15543E 04	0.22265E 03	ETHANOL	0.5370E 02	-0.3111E-01	0.1600E-03
0.68628E 01	0.11861E 04	0.22604E 03	MCP	0.1043E 03	-0.8676E-01	0.3900E-03
0.68778E 01	0.11715E 04	0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
2168.45	177.80	ETHANOL - MCP	91	1
2094.86	330.23	ETHANOL - HEXANE	90	1
-365.79	705.20	MCP - HEXANE	174	1

HALA CONSISTENCY TEST

CI(1) 1.9188

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.439BE 01

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.1065E-01
COMPONENT 2	0.7516E-02
COMPONENT 3	0.9070E-02

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.9078E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FTOL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	62.50	0.0500	760.00	765.64	0.2690	0.2577	382.57	9.9627	0.9681	ETHANOL	0.1128E-01	0.7522E-02
		0.8390			0.6330	0.6436	545.01	1.0273	0.9575	MCP	-0.1059E-01	
		0.1110			0.0980	0.0937	594.23	1.0849	0.9518	HEXANE	-0.6927E-03	
2	60.50	0.1560	760.00	761.08	0.3340	0.3154	350.67	4.2243	0.9649	ETHANOL	0.1862E-01	0.1242E-01
		0.7270			0.5710	0.5778	511.04	1.1289	0.9578	MCP	-0.6816E-02	
		0.1170			0.0950	0.1068	557.44	1.1808	0.9522	HEXANE	-0.1181E-01	
3	60.20	0.2920	760.00	760.97	0.3540	0.3342	346.08	2.4206	0.9640	ETHANOL	0.1979E-01	0.1319E-01
		0.6060			0.5470	0.5567	506.08	1.3177	0.9581	MCP	-0.9701E-02	
		0.1020			0.0990	0.1091	552.08	1.3970	0.9524	HEXANE	-0.1009E-01	
4	60.10	0.4160	760.00	759.80	0.3640	0.3478	344.56	1.7722	0.9634	ETHANOL	0.1621E-01	0.1081E-01
		0.4950			0.5190	0.5256	504.44	1.5577	0.9584	MCP	-0.6611E-02	
		0.0890			0.1170	0.1266	550.30	1.6737	0.9527	HEXANE	-0.9604E-02	
5	60.20	0.5220	760.00	759.48	0.3830	0.3627	346.08	1.4648	0.9629	ETHANOL	0.2034E-01	0.1356E-01
		0.3820			0.4830	0.4894	506.08	1.8355	0.9588	MCP	-0.6422E-02	
		0.0960			0.1340	0.1479	552.08	2.0103	0.9531	HEXANE	-0.1393E-01	
6	60.30	0.6260	760.00	752.53	0.3820	0.3829	347.60	1.2719	0.9626	ETHANOL	-0.9314E-03	0.2580E-02
		0.2800			0.4400	0.4361	507.73	2.2059	0.9596	MCP	0.3865E-02	
		0.0940			0.1780	0.1809	553.86	2.4828	0.9541	HEXANE	-0.2943E-02	
7	62.20	0.7980	760.00	760.51	0.4520	0.4487	377.64	1.0856	0.9609	ETHANOL	0.3295E-02	0.9158E-02
		0.1050			0.2580	0.2476	539.81	3.1800	0.9615	MCP	0.1044E-01	
		0.0970			0.2900	0.3037	588.59	3.8487	0.9561	HEXANE	-0.1374E-01	
8	60.50	0.7520	760.00	750.86	0.4070	0.4147	350.67	1.1331	0.9617	ETHANOL	-0.7695E-02	0.5132E-02
		0.0970			0.1840	0.1769	511.04	2.7929	0.9605	MCP	0.7108E-02	
		0.1590			0.4090	0.4084	557.44	3.2876	0.9550	HEXANE	0.5932E-03	
9	60.00	0.6160	760.00	763.75	0.3970	0.3765	343.04	1.3065	0.9622	ETHANOL	0.2046E-01	0.1839E-01
		0.1910			0.2870	0.2799	502.80	2.1246	0.9587	MCP	0.7119E-02	
		0.1930			0.3160	0.3436	548.52	2.3504	0.9530	HEXANE	-0.2759E-01	
10	59.80	0.5370	760.00	761.11	0.3830	0.3626	340.04	1.4519	0.9627	ETHANOL	0.2039E-01	0.1538E-01
		0.2750			0.3550	0.3523	499.53	1.8628	0.9585	MCP	0.2681E-02	
		0.1380			0.2620	0.2851	544.98	2.0076	0.9528	HEXANE	-0.2308E-01	
11	59.70	0.4090	760.00	759.44	0.3560	0.3456	338.54	1.8223	0.9634	ETHANOL	0.1037E-01	0.8285E-02
		0.4000			0.4250	0.4230	497.91	1.5386	0.9582	MCP	0.2048E-02	
		0.1910			0.2190	0.2314	542.22	1.6053	0.9525	HEXANE	-0.1243E-01	
12	60.30	0.1510	760.00	763.32	0.3200	0.3135	347.60	4.3887	0.9648	ETHANOL	0.6515E-02	0.4346E-02
		0.6340			0.4960	0.5000	507.73	1.1304	0.9576	MCP	-0.3985E-02	
		0.2150			0.1840	0.1865	553.86	1.1324	0.9519	HEXANE	-0.2538E-02	
13	62.30	0.0400	760.00	757.78	0.2430	0.2355	379.27	11.3802	0.9694	ETHANOL	0.7455E-02	0.4973E-02
		0.6310			0.4900	0.4908	541.54	1.0376	0.9574	MCP	-0.8211E-03	
		0.3290			0.2670	0.2736	590.46	1.0109	0.9519	HEXANE	-0.6643E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	59.80	0.2150	760.00	763.93	0.3330	0.3253	340.04	3.2701	0.9641	ETHANOL	0.7698E-02	0.8229E-02
		0.4750			0.3820	0.3943	499.53	1.2105	0.9575	MCP	-0.1235E-01	
		0.3100			0.2850	0.2804	544.98	1.2006	0.9518	HEXANE	0.4642E-02	
15	59.40	0.2880	760.00	757.97	0.3420	0.3335	334.08	2.5266	0.9639	ETHANOL	0.8521E-02	0.8096E-02
		0.3980			0.3600	0.3564	493.05	1.3128	0.9578	MCP	0.3619E-02	
		0.3140			0.2980	0.3101	537.96	1.3184	0.9522	HEXANE	-0.1215E-01	
16	59.40	0.4190	760.00	760.99	0.3620	0.3470	334.08	1.8131	0.9632	ETHANOL	0.1497E-01	0.1049E-01
		0.2930			0.3090	0.3082	493.05	1.5486	0.9579	MCP	0.7597E-03	
		0.2880			0.3290	0.3447	537.96	1.6043	0.9523	HEXANE	-0.1574E-01	
17	59.30	0.5440	760.00	757.35	0.3690	0.3619	332.61	1.4553	0.9628	ETHANOL	0.7069E-02	0.1005E-01
		0.1890			0.2470	0.2390	491.44	1.8596	0.9584	MCP	0.8016E-02	
		0.2670			0.3840	0.3991	536.21	2.0012	0.9528	HEXANE	-0.1508E-01	
18	59.60	0.6230	760.00	766.40	0.3680	0.3746	337.04	1.3123	0.9620	ETHANOL	-0.6604E-02	0.4400E-02
		0.1030			0.1440	0.1430	496.29	2.1063	0.9583	MCP	0.1042E-02	
		0.2770			0.4880	0.4824	541.46	2.3364	0.9526	HEXANE	0.5552E-02	
19	59.20	0.4050	760.00	765.24	0.3490	0.3463	331.14	1.8986	0.9630	ETHANOL	0.2692E-02	0.2425E-02
		0.2000			0.1980	0.2016	489.84	1.5016	0.9576	MCP	-0.3642E-02	
		0.3950			0.4530	0.4521	534.48	1.5517	0.9518	HEXANE	0.9406E-03	
20	59.30	0.2760	760.00	762.42	0.3430	0.3337	332.61	2.6649	0.9637	ETHANOL	0.9291E-02	0.6192E-02
		0.3070			0.2680	0.2691	491.44	1.2879	0.9575	MCP	-0.1071E-02	
		0.4150			0.3890	0.3972	536.21	1.2888	0.9518	HEXANE	-0.8213E-02	
21	59.90	0.1650	760.00	764.55	0.3190	0.3176	341.54	4.1465	0.9645	ETHANOL	0.1395E-02	0.7396E-02
		0.4780			0.3670	0.3781	501.16	1.1502	0.9574	MCP	-0.1110E-01	
		0.3570			0.3140	0.3043	546.75	1.1286	0.9517	HEXANE	0.9694E-02	
22	60.30	0.1980	760.00	762.87	0.3000	0.2967	347.40	6.4024	0.9657	ETHANOL	0.3281E-02	0.1139E-01
		0.4800			0.3460	0.3631	507.73	1.0832	0.9572	MCP	-0.1709E-01	
		0.4220			0.3540	0.3402	553.86	1.0512	0.9515	HEXANE	0.1380E-01	
23	59.60	0.1370	760.00	759.39	0.3110	0.3117	337.04	4.9360	0.9649	ETHANOL	-0.7463E-03	0.6851E-02
		0.3790			0.2910	0.2905	496.29	1.1181	0.9574	MCP	0.9526E-02	
		0.4840			0.4080	0.3977	541.46	1.0913	0.9517	HEXANE	0.1028E-01	
24	59.30	0.1590	760.00	757.43	0.3060	0.3174	332.61	4.3748	0.9646	ETHANOL	-0.1135E-01	0.7571E-02
		0.3251			0.2592	0.2518	491.44	1.1395	0.9575	MCP	0.7170E-02	
		0.5160			0.4350	0.4308	536.21	1.1163	0.9519	HEXANE	0.4189E-02	
25	58.90	0.4270	760.00	765.52	0.3470	0.3481	326.76	1.8349	0.9628	ETHANOL	-0.1133E-02	0.1700E-02
		0.1030			0.1070	0.1044	485.94	1.5256	0.9574	MCP	0.2554E-02	
		0.4700			0.5460	0.5474	529.28	1.5951	0.9517	HEXANE	-0.1413E-02	
26	58.70	0.2760	760.00	761.64	0.3260	0.3347	323.97	2.7413	0.9635	ETHANOL	-0.8659E-02	0.5776E-02
		0.1100			0.0970	0.0922	481.87	1.2622	0.9573	MCP	0.4842E-02	
		0.6140			0.5770	0.5732	525.84	1.2801	0.9515	HEXANE	0.3826E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICT	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	59.30	0.1650	760.00	765.18	0.3150	0.3198	332.61	4.2897	0.9642	ETHANOL	-0.4805E-02	0.3206E-02
		0.2220			0.1720	0.1701	491.44	1.1371	0.9571	MCP	0.1863E-02	
		0.6130			0.5130	0.5100	536.21	1.1238	0.9513	HEXANE	0.2950E-02	
28	60.90	0.0490	760.00	749.24	0.2660	0.2503	356.86	10.3666	0.9687	ETHANOL	0.1569E-01	0.1046E-01
		0.3270			0.2450	0.2470	517.70	1.0424	0.9575	MCP	-0.2042E-02	
		0.6240			0.4890	0.5026	564.66	1.0124	0.9519	HEXANE	-0.1364E-01	
29	59.80	0.0970	760.00	766.83	0.3000	0.2970	340.04	6.6506	0.9654	ETHANOL	0.3028E-02	0.2190E-02
		0.1750			0.1280	0.1277	499.53	1.0674	0.9557	MCP	0.2608E-03	
		0.7280			0.5720	0.5753	544.98	1.0520	0.9510	HEXANE	-0.3288E-02	
30	59.10	0.1700	760.00	767.64	0.3220	0.3211	329.67	4.2302	0.9640	ETHANOL	0.9078E-03	0.2756E-02
		0.1180			0.0850	0.0891	488.23	1.1314	0.9568	MCP	-0.4130E-02	
		0.7120			0.5930	0.5898	532.74	1.1294	0.9511	HEXANE	0.3231E-02	
31	61.00	0.0440	760.00	754.54	0.2440	0.2390	358.43	11.3589	0.9692	ETHANOL	0.4973E-02	0.4383E-02
		0.1140			0.0860	0.0844	519.37	1.0249	0.9570	MCP	0.1605E-02	
		0.8420			0.6700	0.6766	566.47	1.0132	0.9514	HEXANE	-0.6570E-02	
32	64.00	0.0120	760.00	731.72	0.1550	0.1164	408.03	16.9589	0.9771	ETHANOL	0.3861E-01	0.2574E-01
		0.0570			0.0460	0.0470	571.60	1.0075	0.9584	MCP	-0.1005E-02	
		0.9310			0.7990	0.8366	623.00	1.0010	0.9531	HEXANE	-0.3760E-01	
33	64.00	0.0160	760.00	746.78	0.1560	0.1437	408.03	15.9933	0.9752	ETHANOL	0.1232E-01	0.8213E-02
		0.1630			0.1310	0.1331	571.60	1.0175	0.9578	MCP	-0.2101E-02	
		0.8210			0.7130	0.7232	623.00	1.0007	0.9524	HEXANE	-0.1022E-01	
34	64.50	0.0150	760.00	749.68	0.1560	0.1395	416.83	16.2764	0.9753	ETHANOL	0.1650E-01	0.1100E-01
		0.2710			0.2210	0.2255	580.69	1.0244	0.9578	MCP	-0.4471E-02	
		0.7140			0.6230	0.6350	632.82	0.9985	0.9524	HEXANE	-0.1202E-01	
35	64.60	0.0190	760.00	761.01	0.1760	0.1652	418.60	15.3552	0.9735	ETHANOL	0.1079E-01	0.1411E-01
		0.5290			0.4170	0.4382	582.51	1.0316	0.9574	MCP	-0.2117E-01	
		0.4520			0.4070	0.3966	634.79	0.9964	0.9519	HEXANE	0.1037E-01	
36	65.90	0.0150	760.00	761.72	0.1650	0.1479	442.28	16.5085	0.9746	ETHANOL	0.1714E-01	0.1143E-01
		0.8150			0.6920	0.6903	606.69	1.0142	0.9578	MCP	-0.8318E-02	
		0.1700			0.1530	0.1618	660.92	1.0396	0.9524	HEXANE	-0.8829E-02	
37	61.80	0.0580	760.00	761.32	0.2770	0.2663	371.14	9.0915	0.9676	ETHANOL	0.1074E-01	0.1030E-01
		0.7690			0.5710	0.5865	532.93	1.0387	0.9575	MCP	-0.1546E-01	
		0.1730			0.1520	0.1473	581.15	1.0563	0.9519	HEXANE	0.4713E-02	
38	60.30	0.3050	760.00	757.23	0.3580	0.3375	347.60	2.3185	0.9640	ETHANOL	0.2053E-01	0.1369E-01
		0.6450			0.5910	0.6058	507.73	1.3367	0.9584	MCP	-0.1480E-01	
		0.0500			0.0510	0.0567	553.86	1.4705	0.9528	HEXANE	-0.5731E-02	
39	60.70	0.6350	760.00	751.09	0.4100	0.3895	353.75	1.2509	0.9625	ETHANOL	0.2047E-01	0.1365E-01
		0.3190			0.5070	0.5167	514.36	2.2609	0.9601	MCP	-0.9678E-02	
		0.0460			0.0830	0.0938	561.04	2.5928	0.9545	HEXANE	-0.1080E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	63.30	0.8260	760.00	746.75	0.4960	0.4840	395.98	1.0596	0.9610	ETHANOL	0.1201E-01	0.1379E-01
		0.1320			0.3690	0.3603	559.07	3.4985	0.9636	MCP	0.8677E-02	
		0.0420			0.1350	0.1557	609.44	4.3314	0.9583	HEXANE	-0.2069E-01	
41	67.10	0.9190	760.00	750.73	0.5780	0.6036	465.10	1.0153	0.9598	ETHANOL	-0.2558E-01	0.2121E-01
		0.0390			0.1970	0.1552	629.68	4.5734	0.9681	MCP	0.3181E-01	
		0.0420			0.2350	0.2412	685.76	6.0260	0.9631	HEXANE	-0.6235E-02	
42	62.10	0.8250	760.30	760.25	0.4510	0.4559	376.00	1.0709	0.9606	ETHANOL	-0.4883E-02	0.9212E-02
		0.0450			0.1250	0.1112	538.08	3.3425	0.9616	MCP	0.1381E-01	
		0.1300			0.4240	0.4329	586.72	4.1055	0.9562	HEXANE	-0.8939E-02	
43	59.00	0.5520	760.00	770.04	0.3660	0.3608	329.21	1.4720	0.9621	ETHANOL	0.5228E-02	0.2511E-01
		0.0270			0.0650	0.0326	486.64	1.8186	0.9575	MCP	0.3245E-01	
		0.4210			0.5690	0.6067	531.01	1.9786	0.9517	HEXANE	-0.3767E-01	
44	60.30	0.3230	760.00	761.51	0.3520	0.3394	347.60	2.2071	0.9638	ETHANOL	0.1361E-01	0.9075E-02
		0.6000			0.5650	0.5743	507.73	1.3697	0.9582	MCP	-0.9318E-02	
		0.0770			0.0830	0.0873	553.86	1.4773	0.9525	HEXANE	-0.4298E-02	
45	60.10	0.3220	760.00	761.32	0.3580	0.3370	344.56	2.2237	0.9638	ETHANOL	0.2102E-01	0.1401E-01
		0.5570			0.5100	0.5300	504.44	1.3698	0.9581	MCP	-0.1997E-01	
		0.1210			0.1320	0.1331	550.30	1.4416	0.9524	HEXANE	-0.1055E-02	
46	59.90	0.2360	760.00	760.74	0.3450	0.3379	341.54	2.1540	0.9637	ETHANOL	0.7085E-02	0.4726E-02
		0.5000			0.4800	0.4820	501.16	1.3958	0.9590	MCP	-0.2013E-02	
		0.1640			0.1750	0.1801	546.75	1.4476	0.9524	HEXANE	-0.5080E-02	
47	59.80	0.2660	760.00	759.95	0.3370	0.3304	340.04	2.6701	0.9641	ETHANOL	0.6613E-02	0.4412E-02
		0.5180			0.4510	0.4574	499.53	1.2811	0.9579	MCP	-0.6367E-02	
		0.2160			0.2120	0.2123	544.98	1.2981	0.9522	HEXANE	-0.2552E-03	
48	59.40	0.3570	760.00	758.51	0.3510	0.3403	334.98	2.0808	0.9636	ETHANOL	0.1069E-01	0.7128E-02
		0.3600			0.3460	0.3507	493.05	1.4292	0.9580	MCP	-0.4653E-02	
		0.2830			0.3030	0.3099	537.96	1.4588	0.9523	HEXANE	-0.6044E-02	
49	60.20	0.3280	760.00	759.74	0.3490	0.3385	346.08	2.1787	0.9639	ETHANOL	0.1052E-01	0.7014E-02
		0.5880			0.5550	0.5661	506.09	1.3791	0.9583	MCP	-0.1134E-02	
		0.0840			0.0960	0.0954	552.08	1.4811	0.9526	HEXANE	-0.9390E-02	
50	59.30	0.2150	760.00	761.84	0.3340	0.3270	332.61	3.3507	0.9640	ETHANOL	0.7008E-02	0.7137E-02
		0.3110			0.2570	0.2533	491.44	1.2036	0.9574	MCP	0.3692E-02	
		0.4740			0.4090	0.4197	536.21	1.1912	0.9517	HEXANE	-0.1071E-01	
51	61.10	0.7310	760.00	750.47	0.4150	0.4171	359.99	1.1416	0.9618	ETHANOL	-0.2125E-02	0.3626E-02
		0.1940			0.3710	0.3656	521.05	2.7377	0.9609	MCP	0.5435E-02	
		0.0950			0.2140	0.2173	568.29	3.2096	0.9554	HEXANE	-0.3319E-02	
52	62.30	0.0450	760.00	760.69	0.2590	0.2466	379.27	10.6233	0.9687	ETHANOL	0.1241E-01	0.8274E-02
		0.7360			0.5570	0.5681	541.54	1.0335	0.9575	MCP	-0.1105E-01	
		0.2190			0.1840	0.1854	590.46	1.0327	0.9519	HEXANE	-0.1360E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
53	59.00	0.5200	760.00	763.35	0.3560	0.3577	328.21	1.5363	0.9626	ETHANOL	-0.1656E-02	0.2862E-02
		0.0970			0.1180	0.1137	486.64	1.7535	0.9578	MCP	0.4297E-02	
		0.3830			0.5260	0.5286	531.01	1.8796	0.9521	HEXANE	-0.2633E-02	
54	58.90	0.3000	760.00	759.00	0.3390	0.3364	326.76	2.5044	0.9636	ETHANOL	0.2574E-02	0.4705E-02
		0.2080			0.1760	0.1831	485.04	1.3130	0.9576	MCP	-0.7053E-02	
		0.4920			0.4850	0.4805	529.28	1.3264	0.9519	HEXANE	0.4487E-02	
55	59.90	0.4310	760.00	754.34	0.3640	0.3491	341.54	1.7197	0.9636	ETHANOL	0.1495E-01	0.9968E-02
		0.4680			0.5050	0.5187	501.16	1.5924	0.9586	MCP	-0.1371E-01	
		0.1010			0.1310	0.1322	546.75	1.7130	0.9530	HEXANE	-0.1247E-02	
56	58.90	0.1640	760.00	765.46	0.3030	0.3195	326.76	4.3898	0.9641	ETHANOL	-0.1649E-01	0.1157E-01
		0.0630			0.0460	0.0469	485.04	1.1182	0.9568	MCP	-0.8594E-03	
		0.7730			0.6510	0.6336	529.28	1.1218	0.9511	HEXANE	0.1735E-01	
57	59.40	0.3730	760.00	763.56	0.3520	0.3428	334.08	2.0186	0.9633	ETHANOL	0.9240E-02	0.6164E-02
		0.2950			0.2860	0.2902	493.05	1.4528	0.9577	MCP	-0.4231E-02	
		0.3320			0.3620	0.3670	537.96	1.4861	0.9520	HEXANE	-0.5019E-02	

BENZENE(1) + HEXANE(2) + CYCLOHEXANE(3) SYSTEM 037

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
507.90	29.90	372.40	0.298	0.0	0.0	0.0	HEXANE	18
553.20	40.00	311.20	0.210	0.0	0.0	0.0	CYCLOHEX	9

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.68778E 01	0.11715E 04	0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03
0.68450E 01	0.12035E 04	0.22286E 03	CYCLOHEX	0.9291E 02	-0.2486E-01	0.2616E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
454.27	-142.85	BENZENE - HEXANE	236	1
93.10	219.58	BENZENE - CYCLOHEX	232	0
-401.41	521.61	HEXANE - CYCLOHEX	235	0

HALA CONSISTENCY TEST

CI(1) 0.3881

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.4547E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.6001E-02
COMPONENT 2	0.5897E-02
COMPONENT 3	0.5465E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.5788E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FUGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	70.00	0.1250	627.20	631.33	0.1525	0.1460	534.74	1.3328	0.9693	BENZENE	0.6516E-02	0.6448E-02
		0.2188			0.2860	0.2828	748.65	1.0438	0.9615	HEXANE	0.3157E-02	
		0.6562			0.5615	0.5712	525.73	1.0049	0.9646	CYCLOHEX	-0.9670E-02	
2	70.00	0.2500	635.30	642.35	0.2830	0.2687	534.74	1.2470	0.9687	BENZENE	0.1434E-01	0.1241E-01
		0.1875			0.2470	0.2427	748.65	1.0627	0.9608	HEXANE	0.4280E-02	
		0.5625			0.4700	0.4886	525.73	1.0196	0.9640	CYCLOHEX	-0.1862E-01	
3	70.00	0.3750	640.70	646.29	0.3775	0.3773	534.74	1.1743	0.9685	BENZENE	0.2193E-03	0.3999E-02
		0.1563			0.2125	0.2067	748.65	1.0921	0.9606	HEXANE	0.5780E-02	
		0.4687			0.4100	0.4160	525.73	1.0480	0.9638	CYCLOHEX	-0.5997E-02	
4	70.00	0.5000	637.00	643.68	0.4825	0.4791	534.74	1.1142	0.9686	BENZENE	0.3366E-02	0.5982E-02
		0.1250			0.1780	0.1724	748.65	1.1344	0.9607	HEXANE	0.5608E-02	
		0.3750			0.3395	0.3435	525.73	1.0930	0.9640	CYCLOHEX	-0.8972E-02	
5	70.00	0.6250	629.10	634.51	0.5740	0.5811	534.74	1.0662	0.9691	BENZENE	-0.7127E-02	0.7487E-02
		0.0937			0.1490	0.1378	748.65	1.1929	0.9613	HEXANE	0.1123E-01	
		0.2813			0.2770	0.2811	525.73	1.1593	0.9645	CYCLOHEX	-0.4103E-02	
6	70.00	0.7500	613.00	617.90	0.6820	0.6916	534.74	1.0306	0.9699	BENZENE	-0.9553E-02	0.7971E-02
		0.0625			0.1125	0.1005	748.65	1.2725	0.9623	HEXANE	0.1196E-01	
		0.1875			0.2055	0.2079	525.73	1.2540	0.9654	CYCLOHEX	-0.2402E-02	
7	70.00	0.8750	586.00	591.51	0.8225	0.8232	534.74	1.0080	0.9712	BENZENE	-0.6788E-03	0.3822E-02
		0.0312			0.0625	0.0568	748.65	1.3803	0.9639	HEXANE	0.5733E-02	
		0.0938			0.1150	0.1201	525.73	1.3880	0.9669	CYCLOHEX	-0.5054E-02	
8	70.00	0.1250	683.00	689.99	0.1460	0.1352	534.74	1.3442	0.9664	BENZENE	0.1084E-01	0.7226E-02
		0.4375			0.5040	0.5129	748.65	1.0305	0.9580	HEXANE	-0.8941E-02	
		0.4375			0.3500	0.3519	525.73	1.0110	0.9613	CYCLOHEX	-0.1896E-02	
9	70.00	0.2500	689.60	694.02	0.2640	0.2500	534.74	1.2502	0.9662	BENZENE	0.1399E-01	0.9324E-02
		0.3750			0.4360	0.4457	748.65	1.0505	0.9577	HEXANE	-0.9717E-02	
		0.3750			0.3000	0.3043	525.73	1.0256	0.9611	CYCLOHEX	-0.4267E-02	
10	70.00	0.3750	685.00	690.65	0.3670	0.3535	534.74	1.1731	0.9663	BENZENE	0.1346E-01	0.8974E-02
		0.3125			0.3760	0.3844	748.65	1.0921	0.9579	HEXANE	-0.8406E-02	
		0.3125			0.2570	0.2621	525.73	1.0551	0.9613	CYCLOHEX	-0.5053E-02	
11	70.00	0.5000	675.00	680.46	0.4540	0.4529	534.74	1.1111	0.9668	BENZENE	0.1081E-02	0.3397E-02
		0.2500			0.3290	0.3250	748.65	1.1275	0.9586	HEXANE	0.4016E-02	
		0.2500			0.2170	0.2221	525.73	1.1020	0.9619	CYCLOHEX	-0.5095E-02	
12	70.00	0.6250	656.20	663.27	0.5600	0.5552	534.74	1.0632	0.9677	BENZENE	0.4767E-02	0.3519E-02
		0.1875			0.2640	0.2635	748.65	1.1895	0.9596	HEXANE	0.5128E-03	
		0.1875			0.1760	0.1813	525.73	1.1703	0.9629	CYCLOHEX	-0.5277E-02	
13	70.00	0.7500	636.00	637.92	0.6575	0.6693	534.74	1.0286	0.9689	BENZENE	-0.1180E-01	0.7867E-02
		0.1250			0.2030	0.1950	748.65	1.2723	0.9611	HEXANE	0.7993E-02	
		0.1250			0.1395	0.1357	525.73	1.2658	0.9643	CYCLOHEX	0.3808E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	70.00	0.8750	600.50	601.94	0.9080	0.8988	534.74	1.0073	0.9707	BENZENE	-0.8430E-03	0.3695E-02
		0.0625			0.1175	0.1120	748.65	1.3819	0.9633	HEXANE	0.5543E-02	
		0.0625			0.0745	0.0792	525.73	1.3975	0.9663	CYCLOHEX	-0.4700E-02	
15	70.00	0.1250	739.10	742.98	0.1290	0.1275	534.74	1.3610	0.9638	BENZENE	0.1531E-02	0.2154E-02
		0.6492			0.7020	0.7003	748.65	1.0172	0.9549	HEXANE	0.1704E-02	
		0.2258			0.1690	0.1722	525.73	1.0288	0.9583	CYCLOHEX	-0.3227E-02	
16	70.00	0.2500	738.40	741.03	0.2350	0.2360	534.74	1.2568	0.9639	BENZENE	-0.9863E-03	0.1787E-02
		0.5565			0.6170	0.6143	748.65	1.0385	0.9550	HEXANE	0.2684E-02	
		0.1935			0.1480	0.1497	525.73	1.0410	0.9585	CYCLOHEX	-0.1690E-02	
17	70.00	0.3750	726.80	731.47	0.3420	0.3349	534.74	1.1741	0.9643	BENZENE	0.7149E-02	0.6163E-02
		0.4638			0.5375	0.5354	748.65	1.0725	0.9555	HEXANE	0.2098E-02	
		0.1612			0.1205	0.1297	525.73	1.0696	0.9590	CYCLOHEX	-0.9241E-02	
18	70.00	0.5000	710.00	714.63	0.4270	0.4315	534.74	1.1096	0.9651	BENZENE	-0.4496E-02	0.3119E-02
		0.3710			0.4575	0.4577	748.65	1.1211	0.9565	HEXANE	-0.1794E-03	
		0.1290			0.1155	0.1108	525.73	1.1167	0.9599	CYCLOHEX	0.4680E-02	
19	70.00	0.6250	688.30	691.23	0.5325	0.5333	534.74	1.0611	0.9663	BENZENE	-0.8257E-03	0.3705E-02
		0.2782			0.3810	0.3754	748.65	1.1866	0.9580	HEXANE	0.5559E-02	
		0.0968			0.0865	0.0912	525.73	1.1051	0.9613	CYCLOHEX	-0.4731E-02	
20	70.00	0.7500	660.50	656.90	0.6440	0.6497	534.74	1.0272	0.9680	BENZENE	-0.5744E-02	0.6381E-02
		0.1955			0.2910	0.2814	748.65	1.2724	0.9600	HEXANE	0.9573E-02	
		0.0645			0.0650	0.0688	525.73	1.2798	0.9632	CYCLOHEX	-0.3827E-02	
21	70.00	0.8750	609.90	611.91	0.7890	0.7957	534.74	1.0068	0.9702	BENZENE	-0.6705E-02	0.6106E-02
		0.0928			0.1730	0.1638	748.65	1.3837	0.9627	HEXANE	0.9159E-02	
		0.0322			0.0380	0.0405	525.73	1.4076	0.9658	CYCLOHEX	-0.2454E-02	

ETHANOL(1) - N-PROPANOL(2) - WATER(3) SYSTEM 033

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAB	DIPOLE	ETA	COMPONENT	ID
516.00	63.00	161.30	0.637	0.152	1.690	1.10	ETHANOL	11
540.70	51.00	220.00	0.612	0.201	1.680	0.57	PROPANOL	37
647.40	218.30	55.20	0.344	0.010	1.850	0.0	WATER	34

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.80449E 01	0.15543E 04	0.22265E 03	ETHANOL	0.5370E 02	-0.4111E-01	0.1600E-03
0.79973E 01	0.15697E 04	0.20950E 03	PROPANOL	0.7708E 02	-0.9157E-01	0.2752E-03
0.79668E 01	0.16682E 04	0.22800E 03	WATER	0.2289E 02	-0.3642E-01	0.6856E-04

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-188.81	393.60	ETHANOL - PROPANOL	92	0
393.37	952.09	ETHANOL - WATER	103	0
1017.19	1202.05	PROPANOL - WATER	190	0

HALA CONSISTENCY TEST

CI(1) 0.7228

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.1076E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.8584E-02
COMPONENT 2	0.1269E-01
COMPONENT 3	0.1230E-01
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.1119E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	86.59	0.0710	760.00	747.66	0.1330	0.1360	991.70	1.3843	0.9606	ETHANOL	-0.2994E-02	0.5354E-02
		0.2940			0.3280	0.3200	484.02	1.6182	0.9651	PROPANOL	0.8027E-02	
		0.6350			0.5390	0.5440	458.89	1.3835	0.9919	WATER	-0.5042E-02	
2	87.34	0.0760	760.00	745.03	0.1260	0.1170	1018.86	1.0803	0.9616	ETHANOL	0.8990E-02	0.2842E-01
		0.5760			0.4060	0.4486	498.89	1.1200	0.9655	PROPANOL	-0.4263E-01	
		0.3480			0.4680	0.4344	472.46	1.9512	0.9920	WATER	0.3364E-01	
3	86.69	0.0840	760.00	752.91	0.1290	0.1384	995.29	1.1947	0.9607	ETHANOL	-0.9386E-02	0.6728E-02
		0.4110			0.3600	0.3607	485.98	1.3084	0.9649	PROPANOL	-0.7102E-03	
		0.5050			0.5110	0.5009	460.77	1.6065	0.9918	WATER	0.1009E-01	
4	86.47	0.0830	760.00	754.43	0.1520	0.1598	987.41	1.3295	0.9605	ETHANOL	-0.7758E-02	0.5170E-02
		0.3090			0.3190	0.3130	481.68	1.5317	0.9648	PROPANOL	0.5958E-02	
		0.6040			0.5290	0.5272	456.87	1.4285	0.9917	WATER	0.1793E-02	
5	86.44	0.0920	760.00	764.78	0.2510	0.2661	996.24	2.1501	0.9607	ETHANOL	-0.1512E-01	0.2248E-01
		0.0940			0.2130	0.1793	481.09	3.2637	0.9646	PROPANOL	0.3371E-01	
		0.8240			0.5360	0.5546	456.34	1.1173	0.9912	WATER	-0.1860E-01	
6	87.43	0.0940	760.00	747.32	0.1620	0.1425	1022.15	1.0638	0.9619	ETHANOL	0.1952E-01	0.2842E-01
		0.6000			0.4130	0.4556	500.70	1.0913	0.9654	PROPANOL	-0.4263E-01	
		0.3060			0.4250	0.4019	474.10	2.0520	0.9918	WATER	0.2311E-01	
7	86.44	0.0950	760.00	761.36	0.2000	0.2029	986.34	1.5810	0.9604	ETHANOL	-0.2902E-02	0.8957E-02
		0.1950			0.2680	0.2546	481.09	1.9886	0.9646	PROPANOL	0.1343E-01	
		0.7100			0.5320	0.5425	456.34	1.2641	0.9915	WATER	-0.1054E-01	
8	86.86	0.0970	760.00	752.54	0.1460	0.1492	1001.41	1.1083	0.9611	ETHANOL	-0.3154E-02	0.1461E-01
		0.5050			0.3800	0.3988	489.33	1.1687	0.9650	PROPANOL	-0.1876E-01	
		0.3980			0.4740	0.4521	463.80	1.8266	0.9917	WATER	0.2191E-01	
9	89.09	0.1000	760.00	750.71	0.1530	0.1557	1084.53	1.0358	0.9632	ETHANOL	-0.2678E-02	0.3078E-01
		0.7180			0.5040	0.5475	535.05	1.0306	0.9659	PROPANOL	-0.4349E-01	
		0.1820			0.3430	0.2968	505.17	2.4019	0.9916	WATER	0.4617E-01	
10	86.61	0.1020	760.00	761.42	0.1550	0.1664	992.41	1.1994	0.9605	ETHANOL	-0.1138E-01	0.7584E-02
		0.3900			0.3410	0.3403	484.41	1.3193	0.9645	PROPANOL	0.7076E-03	
		0.5080			0.5040	0.4933	459.35	1.5952	0.9916	WATER	0.1067E-01	
11	85.97	0.1700	760.00	762.64	0.2440	0.2475	969.69	1.0980	0.9611	ETHANOL	-0.3466E-02	0.1184E-01
		0.4550			0.3250	0.3393	472.01	1.1586	0.9642	PROPANOL	-0.1430E-01	
		0.3750			0.4310	0.4132	448.10	1.8574	0.9910	WATER	0.1776E-01	
12	85.27	0.1790	760.00	765.82	0.2430	0.2767	945.31	1.2002	0.9606	ETHANOL	-0.3365E-01	0.2244E-01
		0.3190			0.2360	0.2661	458.73	1.3385	0.9639	PROPANOL	0.1991E-01	
		0.5020			0.4710	0.4573	436.06	1.5840	0.9908	WATER	0.1374E-01	
13	86.17	0.1840	760.00	758.44	0.2650	0.2627	976.75	1.0639	0.9618	ETHANOL	0.2320E-02	0.1560E-01
		0.5160			0.3460	0.3694	475.85	1.0975	0.9645	PROPANOL	-0.2341E-01	
		0.3000			0.3890	0.3679	451.59	2.0396	0.9909	WATER	0.2109E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	85.46	0.1990	760.00	767.47	0.2650	0.2865	951.88	1.1130	0.9609	ETHANOL	-0.2149E-01	0.1433E-01
		0.4030			0.3010	0.3004	462.30	1.1894	0.9638	PROPANOL	0.5867E-03	
		0.3980			0.4340	0.4131	439.30	1.7953	0.9907	WATER	0.2090E-01	
15	87.44	0.2000	760.00	759.17	0.2910	0.2903	1022.52	1.0358	0.9631	ETHANOL	0.6520E-03	0.3184E-01
		0.6210			0.3930	0.4408	500.91	1.0351	0.9649	PROPANOL	-0.4777E-01	
		0.1790			0.3160	0.2689	474.28	2.3803	0.9906	WATER	0.4711E-01	
16	84.85	0.2050	760.00	766.52	0.2820	0.3092	930.92	1.1906	0.9607	ETHANOL	-0.2722E-01	0.1815E-01
		0.3040			0.2620	0.2474	450.91	1.3294	0.9637	PROPANOL	0.1462E-01	
		0.4910			0.4560	0.4434	428.97	1.5974	0.9906	WATER	0.1260E-01	
17	84.65	0.2090	760.00	775.17	0.3280	0.3478	924.12	1.3377	0.9603	ETHANOL	-0.1983E-01	0.1322E-01
		0.1940			0.2010	0.1875	447.23	1.6095	0.9632	PROPANOL	0.1346E-01	
		0.5970			0.4710	0.4646	425.63	1.4027	0.9903	WATER	0.6377E-02	
18	83.68	0.2280	760.00	770.73	0.4140	0.4319	891.75	1.5693	0.9607	ETHANOL	-0.1788E-01	0.1525E-01
		0.0840			0.1280	0.1051	429.71	2.1556	0.9630	PROPANOL	0.2287E-01	
		0.6880			0.4580	0.4630	409.72	1.2521	0.9897	WATER	-0.4993E-02	
19	84.28	0.2530	760.00	761.08	0.3430	0.3525	911.67	1.1157	0.9612	ETHANOL	-0.9527E-02	0.6351E-02
		0.3430			0.2530	0.2526	440.48	1.2054	0.9636	PROPANOL	0.3676E-03	
		0.3990			0.4040	0.3948	419.50	1.7767	0.9902	WATER	0.9159E-02	
20	83.84	0.2570	760.00	769.64	0.3650	0.3869	897.03	1.2382	0.9606	ETHANOL	-0.2193E-01	0.1462E-01
		0.2150			0.1950	0.1914	432.56	1.4420	0.9631	PROPANOL	0.1357E-01	
		0.5280			0.4400	0.4316	412.31	1.5097	0.9900	WATER	0.8362E-02	
21	85.40	0.2600	760.00	761.54	0.3500	0.3545	949.80	1.0497	0.9621	ETHANOL	-0.4540E-02	0.1713E-01
		0.4870			0.3090	0.3302	461.17	1.0762	0.9639	PROPANOL	-0.2116E-01	
		0.2530			0.3410	0.3153	438.29	2.1426	0.9901	WATER	0.2570E-01	
22	83.10	0.2750	760.00	769.72	0.4560	0.4504	872.82	1.3845	0.9607	ETHANOL	0.5598E-02	0.3732E-02
		0.1120			0.1120	0.1130	419.51	1.7768	0.9627	PROPANOL	-0.9726E-03	
		0.6130			0.4320	0.4366	400.44	1.3538	0.9895	WATER	-0.4625E-02	
23	85.68	0.2780	760.00	761.07	0.3730	0.3790	959.53	1.0388	0.9626	ETHANOL	-0.6045E-02	0.2025E-01
		0.5180			0.3230	0.3473	466.47	1.0517	0.9640	PROPANOL	-0.2433E-01	
		0.2040			0.3040	0.2736	443.08	2.2789	0.9898	WATER	0.3038E-01	
24	87.51	0.2790	760.00	768.99	0.3060	0.3237	1025.09	1.0307	0.9636	ETHANOL	-0.2678E-02	0.1269E-01
		0.6090			0.4050	0.4214	502.31	1.0184	0.9642	PROPANOL	-0.1635E-01	
		0.1120			0.1990	0.1800	475.56	2.5692	0.9894	WATER	0.1903E-01	
25	83.92	0.2900	760.00	769.47	0.3670	0.3953	899.67	1.1179	0.9639	ETHANOL	-0.2832E-01	0.1888E-01
		0.3090			0.2360	0.2213	434.00	1.2196	0.9630	PROPANOL	0.1467E-01	
		0.4010			0.3970	0.3834	413.61	1.7592	0.9898	WATER	0.1365E-01	
26	84.48	0.2950	760.00	765.95	0.3810	0.3924	918.39	1.0645	0.9616	ETHANOL	-0.1142E-01	0.7615E-02
		0.4060			0.2740	0.2729	444.12	1.1136	0.9633	PROPANOL	0.1096E-02	
		0.2990			0.3450	0.3347	422.80	2.0056	0.9897	WATER	0.1033E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIDL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	83.33	0.2980	760.00	771.15	0.4030	0.4261	880.29	1.2007	0.9607	ETHANOL	-0.2311E-01	0.1541E-01
		0.2080			0.1300	0.1653	423.53	1.3890	0.9627	PROPANOL	0.1471E-01	
		0.4940			0.4670	0.4086	404.10	1.5609	0.9896	WATER	0.8403E-02	
28	86.87	0.3210	760.00	769.96	0.4370	0.4472	1001.77	1.0296	0.9636	ETHANOL	-0.1024E-01	0.1435E-01
		0.5730			0.3750	0.3862	489.53	1.0190	0.9637	PROPANOL	-0.1129E-01	
		0.1060			0.1880	0.1665	463.98	2.5755	0.9899	WATER	0.2153E-01	
29	82.66	0.3300	760.00	778.16	0.4950	0.4935	858.69	1.2987	0.9604	ETHANOL	0.1500E-02	0.9598E-03
		0.1080			0.0970	0.0976	411.91	1.6372	0.9620	PROPANOL	-0.5687E-03	
		0.5620			0.4080	0.4089	393.53	1.4219	0.9889	WATER	-0.9308E-03	
30	83.72	0.2380	760.00	762.18	0.4440	0.4379	893.07	1.0611	0.9617	ETHANOL	0.6107E-02	0.9898E-02
		0.3720			0.2290	0.2438	430.43	1.1148	0.9631	PROPANOL	-0.1485E-01	
		0.2900			0.3270	0.3183	410.37	2.0152	0.9893	WATER	0.8741E-02	
31	82.96	0.3500	760.00	774.06	0.4610	0.4649	868.31	1.1351	0.9607	ETHANOL	-0.3886E-02	0.2591E-02
		0.2280			0.1640	0.1635	417.08	1.2774	0.9622	PROPANOL	0.4568E-03	
		0.4220			0.3750	0.3716	398.23	1.6917	0.9891	WATER	0.3430E-02	
32	82.46	0.3810	760.00	770.69	0.4950	0.4936	852.32	1.1231	0.9609	ETHANOL	0.1430E-02	0.1191E-02
		0.2140			0.1500	0.1496	408.49	1.2657	0.9621	PROPANOL	0.3566E-03	
		0.4050			0.3550	0.3568	390.42	1.7184	0.9888	WATER	-0.1787E-02	
33	82.06	0.3840	760.00	777.75	0.5280	0.5294	839.71	1.2236	0.9604	ETHANOL	-0.1382E-02	0.1827E-02
		0.1100			0.0880	0.0894	401.72	1.5081	0.9616	PROPANOL	-0.1358E-02	
		0.5060			0.3840	0.3813	384.25	1.5065	0.9885	WATER	0.2741E-02	
34	83.19	0.3850	760.00	772.93	0.4660	0.4852	875.74	1.0668	0.9612	ETHANOL	-0.1920E-01	0.1280E-01
		0.3090			0.2080	0.2000	421.08	1.1402	0.9622	PROPANOL	0.7972E-02	
		0.3060			0.3260	0.3148	401.87	1.9549	0.9887	WATER	0.1122E-01	
35	84.09	0.3900	760.00	770.15	0.4970	0.4949	905.33	1.0364	0.9621	ETHANOL	0.2057E-02	0.1273E-01
		0.4070			0.2370	0.2561	437.05	1.0643	0.9626	PROPANOL	-0.1909E-01	
		0.2030			0.2660	0.2490	416.38	2.2410	0.9885	WATER	0.1703E-01	
36	81.53	0.4410	760.00	776.03	0.5690	0.5625	823.22	1.1524	0.9605	ETHANOL	0.6490E-02	0.4457E-02
		0.1220			0.0820	0.0887	392.89	1.3763	0.9612	PROPANOL	-0.6686E-02	
		0.4370			0.3490	0.3488	376.22	1.6256	0.9880	WATER	0.1957E-03	
37	82.20	0.4480	760.00	770.30	0.5480	0.5442	844.10	1.0633	0.9612	ETHANOL	0.3779E-02	0.7722E-02
		0.2530			0.1480	0.1596	404.08	1.1532	0.9617	PROPANOL	-0.1158E-01	
		0.2990			0.3040	0.2962	386.40	1.9500	0.9881	WATER	0.7805E-02	
38	82.96	0.4650	760.00	769.27	0.5630	0.5643	868.31	1.0328	0.9620	ETHANOL	-0.1758E-02	0.7571E-02
		0.3390			0.1960	0.2056	417.09	1.0730	0.9619	PROPANOL	-0.9600E-02	
		0.1960			0.2410	0.2296	398.23	2.2340	0.9877	WATER	0.1136E-01	
39	81.13	0.4370	760.00	777.96	0.5930	0.5967	810.84	1.1264	0.9605	ETHANOL	-0.3747E-02	0.2711E-02
		0.1090			0.0800	0.0759	386.34	1.3433	0.9608	PROPANOL	0.4066E-02	
		0.4040			0.3270	0.3273	370.25	1.6799	0.9875	WATER	-0.3190E-03	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	EIGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	81.81	0.4970	760.00	779.95	0.5800	0.5875	831.90	1.0625	0.9608	ETHANOL	-0.7538E-02	0.5884E-02
		0.2040			0.1260	0.1273	397.54	1.1730	0.9609	PROPANOL	-0.1287E-02	
		0.2990			0.2940	0.2852	380.45	1.9295	0.9875	WATER	0.8826E-02	
41	80.82	0.5400	760.00	778.01	0.6290	0.6297	801.54	1.0849	0.9606	ETHANOL	-0.7159E-03	0.2697E-02
		0.1180			0.0730	0.0763	381.32	1.2640	0.9604	PROPANOL	-0.3330E-02	
		0.3420			0.2980	0.2940	365.67	1.8038	0.9870	WATER	0.4046E-02	
42	82.09	0.5550	760.00	780.63	0.6490	0.6505	840.65	1.0257	0.9614	ETHANOL	-0.1535E-02	0.9320E-02
		0.2580			0.1380	0.1504	402.23	1.0839	0.9605	PROPANOL	-0.1244E-01	
		0.1770			0.2130	0.1990	384.71	2.2491	0.9864	WATER	0.1398E-01	
43	80.41	0.5660	760.00	772.01	0.6530	0.6487	789.23	1.0747	0.9608	ETHANOL	0.4340E-02	0.2893E-02
		0.1110			0.0670	0.0704	374.77	1.2513	0.9604	PROPANOL	-0.3403E-02	
		0.3230			0.2800	0.2809	359.69	1.8410	0.9868	WATER	-0.9369E-03	
44	82.78	0.5940	760.00	780.43	0.6900	0.6958	862.53	1.0174	0.9621	ETHANOL	-0.5769E-02	0.4794E-02
		0.3080			0.1770	0.1784	413.97	1.0458	0.9603	PROPANOL	-0.1422E-02	
		0.0980			0.1330	0.1258	395.40	2.4958	0.9856	WATER	0.7191E-02	
45	81.47	0.5950	760.00	779.21	0.6720	0.6714	821.37	1.0268	0.9612	ETHANOL	0.5805E-03	0.7066E-02
		0.2150			0.1140	0.1246	391.91	1.1033	0.9602	PROPANOL	-0.1060E-01	
		0.1900			0.2140	0.2040	375.32	2.1967	0.9862	WATER	0.1002E-01	
46	82.11	0.6620	760.00	780.30	0.7600	0.7535	841.27	1.0134	0.9620	ETHANOL	0.6502E-02	0.6885E-02
		0.2600			0.1370	0.1473	402.56	1.0510	0.9596	PROPANOL	-0.1033E-01	
		0.0780			0.1030	0.0992	385.02	2.5358	0.9847	WATER	0.3825E-02	
47	80.02	0.6800	760.00	769.79	0.7340	0.7337	777.66	1.0244	0.9612	ETHANOL	0.2775E-03	0.5177E-02
		0.1290			0.0660	0.0738	368.62	1.1427	0.9596	PROPANOL	-0.7766E-02	
		0.1910			0.2000	0.1925	354.08	2.1579	0.9854	WATER	0.7488E-02	
48	80.07	0.6940	760.00	777.89	0.7490	0.7432	779.14	1.0251	0.9609	ETHANOL	0.5793E-02	0.3862E-02
		0.1110			0.0580	0.0637	369.41	1.1556	0.9592	PROPANOL	-0.5685E-02	
		0.1950			0.1930	0.1931	354.80	2.1377	0.9852	WATER	-0.1084E-03	
49	81.34	0.7070	760.00	780.92	0.7870	0.7796	817.37	1.0108	0.9616	ETHANOL	0.7396E-02	0.8227E-02
		0.2050			0.1020	0.1143	389.77	1.0687	0.9591	PROPANOL	-0.1234E-01	
		0.0880			0.1110	0.1061	373.37	2.4796	0.9843	WATER	0.4944E-02	
50	80.48	0.7830	760.00	785.00	0.8230	0.8259	791.32	1.0073	0.9611	ETHANOL	-0.2924E-02	0.2285E-02
		0.1300			0.0750	0.0716	375.89	1.0995	0.9581	PROPANOL	0.3427E-02	
		0.0900			0.1020	0.1025	360.71	2.4362	0.9835	WATER	-0.5029E-03	
51	84.07	0.4200	760.00	768.29	0.5210	0.5303	904.66	1.0298	0.9625	ETHANOL	-0.9267E-02	0.1505E-01
		0.4160			0.2450	0.2523	436.69	1.0485	0.9625	PROPANOL	-0.1331E-01	
		0.1640			0.2340	0.2114	416.05	2.3507	0.9881	WATER	0.2258E-01	

ETHANOL(1) - ISO-PROPANOL(2) - WATER(3) SYSTEM 039

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
516.00	63.00	161.30	0.637	0.152	1.690	1.10	ETHANOL	11
508.50	47.00	218.50	0.663	0.187	1.660	0.0	ISO-C3OH	22
647.40	218.30	55.20	0.344	0.010	1.850	0.0	WATER	33

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.80449E 01	0.15543E 04	0.22265E 03	ETHANOL	0.5370E 02	-0.3111E-01	0.1600E-03
0.66604E 01	0.81305E 03	0.13293E 03	ISO-C3OH	0.1418E 03	-0.4981E 00	0.9287E-03
0.79668E 01	0.16632E 04	0.22800E 03	WATER	0.2289E 02	-0.3642E-01	0.6856E-04

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-319.10	603.06	ETHANOL - ISO-C3OH	93	0
393.87	952.09	ETHANOL - WATER	103	0
682.17	1337.98	ISO-C3OH - WATER	203	0

HALA CONSISTENCY TEST

CI(1) 0.3538

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.1220E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.9700E-02
COMPONENT 2	0.1062E-01
COMPONENT 3	0.8625E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.9647E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	81.00	0.0170	760.00	778.29	0.1320	0.0172	806.99	0.9334	0.9579	ETHANOL	0.1479E-01	0.1050E-01
		0.8770			0.8280	0.8270	712.81	1.0122	0.9859	ISO-C3OH	0.9652E-03	
		0.1060			0.1460	0.1558	368.32	3.0697	0.9893	WATER	-0.1576E-01	
2	81.51	0.0200	760.00	774.41	0.0260	0.0209	822.60	0.9425	0.9587	ETHANOL	0.5068E-02	0.1057E-01
		0.9230			0.8960	0.8852	727.60	1.0037	0.9861	ISO-C3OH	0.1079E-01	
		0.0570			0.0780	0.0939	375.92	3.3528	0.9890	WATER	-0.1586E-01	
3	80.80	0.0260	760.00	780.14	0.0360	0.0322	800.93	1.1525	0.9564	ETHANOL	0.3762E-02	0.9641E-02
		0.4170			0.5500	0.5645	707.07	1.4675	0.9854	ISO-C3OH	-0.1447E-01	
		0.5570			0.4140	0.4033	365.38	1.5302	0.9904	WATER	0.1069E-01	
4	80.27	0.0410	760.00	783.44	0.0400	0.0409	785.06	0.9478	0.9567	ETHANOL	-0.7961E-03	0.4252E-02
		0.6920			0.6800	0.6736	692.04	1.0830	0.9856	ISO-C3OH	0.6378E-02	
		0.2670			0.2800	0.2856	357.67	2.3173	0.9898	WATER	-0.5583E-02	
5	86.96	0.0420	760.00	759.66	0.2420	0.2154	1005.03	3.7167	0.9610	ETHANOL	0.2663E-01	0.1775E-01
		0.0230			0.1700	0.1945	900.43	7.0185	0.9863	ISO-C3OH	-0.2455E-01	
		0.9350			0.5880	0.5901	465.60	1.0202	0.9914	WATER	-0.2085E-02	
6	80.22	0.0560	760.00	782.14	0.0720	0.0577	783.59	0.9812	0.9566	ETHANOL	0.1432E-01	0.1301E-01
		0.5960			0.5960	0.6155	690.64	1.1493	0.9855	ISO-C3OH	-0.1952E-01	
		0.3480			0.3320	0.3268	356.95	2.0356	0.9899	WATER	0.5193E-02	
7	80.53	0.0630	760.00	781.39	0.0740	0.0628	792.82	0.9390	0.9575	ETHANOL	0.1117E-01	0.1219E-01
		0.7680			0.7300	0.7229	699.39	1.0337	0.9858	ISO-C3OH	0.7115E-02	
		0.1690			0.1960	0.2143	361.43	2.7103	0.9894	WATER	-0.1829E-01	
8	81.10	0.0880	760.00	775.22	0.1500	0.1259	810.03	1.3082	0.9575	ETHANOL	0.2409E-01	0.1713E-01
		0.2960			0.4300	0.4557	715.69	1.6962	0.9856	ISO-C3OH	-0.2570E-01	
		0.6260			0.4200	0.4184	369.80	1.3366	0.9903	WATER	0.1608E-02	
9	80.28	0.1020	760.00	779.87	0.1060	0.1021	785.36	0.9496	0.9576	ETHANOL	0.3912E-02	0.5815E-02
		0.6960			0.6650	0.6602	692.32	1.0502	0.9858	ISO-C3OH	0.4809E-02	
		0.2020			0.2290	0.2377	357.81	2.5360	0.9893	WATER	-0.8724E-02	
10	80.79	0.1240	760.00	774.07	0.1750	0.1655	800.63	1.2328	0.9578	ETHANOL	0.9547E-02	0.1086E-01
		0.3000			0.4160	0.4323	706.79	1.5511	0.9857	ISO-C3OH	-0.1630E-01	
		0.5760			0.4090	0.4023	365.23	1.4645	0.9901	WATER	0.6747E-02	
11	80.32	0.1260	760.00	778.36	0.1300	0.1268	786.55	0.9517	0.9580	ETHANOL	-0.6780E-02	0.1365E-01
		0.6980			0.6730	0.6575	693.45	1.0394	0.9858	ISO-C3OH	0.2047E-01	
		0.1760			0.1970	0.2157	358.39	2.6310	0.9891	WATER	-0.1369E-01	
12	80.30	0.1330	760.00	777.06	0.1590	0.1341	785.96	0.9526	0.9581	ETHANOL	0.2495E-01	0.1663E-01
		0.6970			0.6510	0.6557	692.89	1.0371	0.9858	ISO-C3OH	-0.4700E-02	
		0.1700			0.1900	0.2103	358.10	2.6527	0.9891	WATER	-0.2025E-01	
13	80.07	0.1390	760.00	776.54	0.1680	0.1485	779.14	1.0243	0.9575	ETHANOL	0.1954E-01	0.2514E-01
		0.4810			0.4790	0.5167	686.44	1.1944	0.9857	ISO-C3OH	-0.3771E-01	
		0.3810			0.3530	0.3348	354.80	1.9024	0.9897	WATER	0.1817E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP − CALC) BY COMPONENT	MEAN ABS DEV
14	80.19	0.1510	760.00	776.29	0.1980	0.1695	782.69	1.0640	0.9576	ETHANOL	0.2847E-01	0.2513E-01
		0.4200			0.4400	0.4777	689.90	1.2580	0.9857	ISO-C3OH	-0.3770E-01	
		0.4290			0.3620	0.3528	356.52	1.7710	0.9897	WATER	0.9223E-02	
15	81.76	0.1700	760.00	763.49	0.3350	0.3277	830.34	1.6973	0.9597	ETHANOL	0.7300E-02	0.5277E-02
		0.1000			0.2220	0.2299	734.93	2.3482	0.9859	ISO-C3OH	-0.7919E-02	
		0.7300			0.4430	0.4424	379.69	1.2055	0.9899	WATER	0.6120E-03	
16	81.01	0.1330	760.00	769.70	0.2770	0.2745	807.29	1.3684	0.9588	ETHANOL	0.2462E-02	0.9148E-02
		0.1900			0.3000	0.3137	713.10	1.7518	0.9858	ISO-C3OH	-0.1372E-01	
		0.6270			0.4230	0.4117	368.47	1.3569	0.9898	WATER	0.1126E-01	
17	79.93	0.1860	760.00	776.37	0.2050	0.1948	775.01	1.0026	0.9579	ETHANOL	0.1023E-01	0.6990E-02
		0.4760			0.4930	0.5035	682.53	1.1349	0.9857	ISO-C3OH	-0.1049E-01	
		0.3180			0.3020	0.3018	352.80	2.0645	0.9893	WATER	0.2484E-03	
18	81.63	0.1940	760.00	766.31	0.3380	0.3534	826.30	1.6177	0.9597	ETHANOL	-0.1538E-01	0.1025E-01
		0.1000			0.2140	0.2132	731.11	2.1967	0.9858	ISO-C3OH	0.8070E-03	
		0.7060			0.4480	0.4334	377.72	1.2318	0.9897	WATER	0.1456E-01	
19	79.92	0.1980	760.00	776.83	0.2150	0.2052	774.72	0.9934	0.9580	ETHANOL	0.9794E-02	0.1250E-01
		0.5120			0.4900	0.5087	682.25	1.1120	0.9857	ISO-C3OH	-0.1875E-01	
		0.2900			0.2950	0.2861	352.66	2.1479	0.9892	WATER	0.8947E-02	
20	80.76	0.2020	760.00	772.79	0.2230	0.2108	799.73	0.9654	0.9595	ETHANOL	0.1221E-01	0.8142E-02
		0.7180			0.6730	0.6733	705.93	1.0092	0.9860	ISO-C3OH	-0.2517E-03	
		0.0800			0.1040	0.1160	364.79	3.0327	0.9883	WATER	-0.1196E-01	
21	80.69	0.2110	760.00	772.99	0.2230	0.2197	797.62	0.9662	0.9595	ETHANOL	0.3271E-02	0.9611E-02
		0.7040			0.6700	0.6589	703.93	1.0103	0.9859	ISO-C3OH	0.1114E-01	
		0.0850			0.1070	0.1214	363.77	2.9977	0.9882	WATER	-0.1442E-01	
22	80.32	0.2320	760.00	771.46	0.3050	0.2911	786.55	1.1770	0.9586	ETHANOL	0.1395E-01	0.1623E-01
		0.2600			0.3120	0.3363	693.45	1.4145	0.9857	ISO-C3OH	-0.2435E-01	
		0.5080			0.3930	0.3726	358.39	1.5611	0.9894	WATER	0.1039E-01	
23	79.86	0.2380	760.00	775.10	0.2680	0.2552	772.95	1.0280	0.9583	ETHANOL	0.1284E-01	0.1340E-01
		0.4220			0.4160	0.4361	680.58	1.1622	0.9857	ISO-C3OH	-0.2010E-01	
		0.3420			0.3160	0.3087	351.81	1.9661	0.9891	WATER	0.7257E-02	
24	80.65	0.2550	760.00	769.12	0.3790	0.3589	796.41	1.3009	0.9593	ETHANOL	0.2011E-01	0.1498E-01
		0.1660			0.2270	0.2495	702.80	1.6165	0.9857	ISO-C3OH	-0.2247E-01	
		0.5790			0.3940	0.3917	363.18	1.4162	0.9893	WATER	0.2350E-02	
25	80.73	0.2660	760.00	766.62	0.3980	0.3919	798.82	1.3538	0.9596	ETHANOL	0.6120E-02	0.8666E-02
		0.1320			0.1980	0.2110	705.08	1.7083	0.9857	ISO-C3OH	-0.1300E-01	
		0.6020			0.4040	0.3971	364.35	1.3721	0.9892	WATER	0.6878E-02	
26	80.74	0.2760	760.00	765.05	0.4000	0.4144	799.12	1.3767	0.9598	ETHANOL	-0.1441E-01	0.1305E-01
		0.1140			0.1920	0.1972	705.36	1.7503	0.9857	ISO-C3OH	-0.5159E-02	
		0.6100			0.4180	0.3984	364.50	1.3551	0.9891	WATER	0.1957E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	80.67	0.2940	760.00	768.61	0.4210	0.4239	797.01	1.3314	0.9597	ETHANOL	-0.2859E-02	0.2798E-02
		0.1200			0.1850	0.1863	703.36	1.6677	0.9856	ISO-C3OH	-0.1338E-02	
		0.5860			0.3940	0.3898	363.48	1.3902	0.9889	WATER	0.4197E-02	
28	78.72	0.2980	760.00	744.22	0.3070	0.3084	740.09	0.9967	0.9599	ETHANOL	-0.1362E-02	0.9048E-03
		0.4620			0.4440	0.4431	649.47	1.0809	0.9861	ISO-C3OH	0.8534E-03	
		0.2400			0.2490	0.2485	335.91	2.2669	0.9888	WATER	0.4990E-03	
29	80.25	0.3040	760.00	775.01	0.3180	0.3143	784.47	0.9779	0.9595	ETHANOL	0.3700E-02	0.1102E-01
		0.5310			0.5500	0.5372	691.48	1.0185	0.9857	ISO-C3OH	0.1282E-01	
		0.1150			0.1320	0.1485	357.39	2.7649	0.9878	WATER	-0.1653E-01	
30	81.20	0.3120	760.00	761.84	0.5300	0.5340	813.08	1.5376	0.9608	ETHANOL	-0.4040E-02	0.4265E-02
		0.0270			0.0610	0.0546	718.58	2.1073	0.9856	ISO-C3OH	0.6397E-02	
		0.6610			0.4090	0.4114	371.29	1.2616	0.9886	WATER	-0.2357E-02	
31	79.80	0.3280	760.00	772.79	0.3660	0.3730	771.20	1.0903	0.9590	ETHANOL	-0.6953E-02	0.8690E-02
		0.2720			0.2960	0.3021	678.92	1.2424	0.9856	ISO-C3OH	-0.6082E-02	
		0.4000			0.3380	0.3250	350.95	1.7675	0.9887	WATER	0.1304E-01	
32	80.12	0.3300	760.00	770.30	0.4060	0.4163	780.61	1.1917	0.9594	ETHANOL	-0.1030E-01	0.7647E-02
		0.1750			0.2240	0.2252	687.83	1.4161	0.9856	ISO-C3OH	-0.1168E-02	
		0.4950			0.3700	0.3585	355.52	1.5506	0.9887	WATER	0.1147E-01	
33	79.64	0.3360	760.00	774.03	0.3500	0.3604	766.52	1.0364	0.9589	ETHANOL	-0.1040E-01	0.8646E-02
		0.3460			0.3490	0.3516	674.49	1.1459	0.9856	ISO-C3OH	-0.2572E-02	
		0.3180			0.3010	0.2880	348.69	1.9862	0.9885	WATER	0.1297E-01	
34	80.74	0.3480	760.00	764.24	0.5260	0.5338	799.12	1.4060	0.9605	ETHANOL	-0.7832E-02	0.6164E-02
		0.0430			0.0730	0.0744	705.36	1.8426	0.9855	ISO-C3OH	-0.1414E-02	
		0.6090			0.4010	0.3918	364.50	1.3322	0.9884	WATER	0.9246E-02	
35	80.52	0.3490	760.00	768.91	0.3720	0.3700	792.52	0.9858	0.9605	ETHANOL	0.2015E-02	0.4352E-02
		0.5980			0.5580	0.5535	699.10	1.0006	0.9857	ISO-C3OH	0.4512E-02	
		0.0530			0.0700	0.0765	361.29	3.0314	0.9871	WATER	-0.6527E-02	
36	79.70	0.3780	760.00	772.82	0.3860	0.3892	768.27	0.9918	0.9596	ETHANOL	-0.3241E-02	0.3060E-02
		0.4580			0.4220	0.4233	676.15	1.0383	0.9856	ISO-C3OH	-0.1349E-02	
		0.1640			0.1920	0.1874	349.54	2.4938	0.9877	WATER	0.4589E-02	
37	80.62	0.3860	760.00	761.74	0.4260	0.4176	795.51	0.9937	0.9613	ETHANOL	0.8396E-02	0.5598E-02
		0.5960			0.5520	0.5547	701.94	0.9928	0.9857	ISO-C3OH	-0.2711E-02	
		0.0180			0.0220	0.0277	362.75	3.1843	0.9865	WATER	-0.5685E-02	
38	79.46	0.3920	760.00	771.85	0.4420	0.4228	761.29	1.0467	0.9593	ETHANOL	0.1921E-01	0.1281E-01
		0.2900			0.2760	0.2946	669.54	1.1508	0.9855	ISO-C3OH	-0.1861E-01	
		0.3180			0.2820	0.2826	346.16	1.9567	0.9881	WATER	-0.6013E-03	
39	79.51	0.4180	760.00	773.91	0.4220	0.4321	762.79	1.0043	0.9596	ETHANOL	-0.1013E-01	0.9421E-02
		0.3310			0.3700	0.3559	670.91	1.0587	0.9854	ISO-C3OH	0.1413E-01	
		0.2010			0.2080	0.2120	346.86	2.3224	0.9875	WATER	-0.3999E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOL	GAMMA	PHI	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
										COMPONENT	
40	79.37	0.4240	760.00	772.37	0.4500	0.4469	758.69	1.0273	0.9595	ETHANOL 0.3076E-02	0.3775E-02
		0.3090			0.2940	0.2997	667.07	1.1069	0.9854	ISO-C3OH -0.5663E-02	
		0.2680			0.2560	0.2534	344.90	2.0902	0.9877	WATER 0.2587E-02	
41	79.50	0.4700	760.00	770.92	0.5260	0.5430	762.45	1.1188	0.9599	ETHANOL -0.1698E-01	0.1826E-01
		0.1290			0.1360	0.1464	670.64	1.2818	0.9852	ISO-C3OH -0.1042E-01	
		0.4010			0.3380	0.3106	346.72	1.6997	0.9876	WATER 0.2740E-01	
42	80.21	0.4800	760.00	769.67	0.5260	0.5044	783.28	0.9980	0.9609	ETHANOL 0.1759E-01	0.1172E-01
		0.4790			0.4240	0.4344	690.36	0.9934	0.9852	ISO-C3OH -0.1044E-01	
		0.0410			0.0500	0.0572	356.81	2.9626	0.9859	WATER -0.7150E-02	
43	79.31	0.5060	760.00	773.24	0.5220	0.5216	756.96	1.0036	0.9600	ETHANOL 0.4265E-03	0.4289E-02
		0.3160			0.2960	0.2900	665.44	1.0475	0.9852	ISO-C3OH 0.6007E-02	
		0.1780			0.1820	0.1884	344.06	2.3460	0.9867	WATER -0.6433E-02	
44	80.03	0.5560	760.00	769.99	0.5820	0.5875	777.96	1.0030	0.9611	ETHANOL -0.5482E-02	0.8019E-02
		0.4130			0.3820	0.3700	685.32	0.9884	0.9849	ISO-C3OH 0.1203E-01	
		0.0310			0.0360	0.0425	354.23	2.9372	0.9852	WATER -0.6546E-02	
45	78.08	0.6170	760.00	747.89	0.6380	0.6438	722.14	1.0362	0.9610	ETHANOL -0.5779E-02	0.1079E-01
		0.1400			0.1240	0.1344	632.49	1.1152	0.9851	ISO-C3OH -0.1041E-01	
		0.2430			0.2380	0.2218	327.26	2.0564	0.9864	WATER 0.1619E-01	
46	78.88	0.6680	760.00	770.13	0.7060	0.7236	744.63	1.0737	0.9604	ETHANOL -0.1764E-01	0.1176E-01
		0.0210			0.0320	0.0229	653.77	1.2584	0.9844	ISO-C3OH 0.9146E-02	
		0.3110			0.2620	0.2535	338.11	1.8290	0.9857	WATER 0.8489E-02	
47	78.86	0.7060	760.00	772.44	0.7240	0.7160	744.06	1.0092	0.9606	ETHANOL 0.7957E-02	0.5304E-02
		0.1690			0.1440	0.1508	653.23	1.0355	0.9843	ISO-C3OH -0.6792E-02	
		0.1250			0.1320	0.1332	337.93	2.3969	0.9847	WATER -0.1165E-02	
48	79.23	0.7440	760.00	771.24	0.7560	0.7632	754.65	1.0054	0.9611	ETHANOL -0.7239E-02	0.8051E-02
		0.2190			0.2020	0.1999	663.25	0.9939	0.9839	ISO-C3OH 0.1208E-01	
		0.0390			0.0420	0.0468	342.95	2.7244	0.9835	WATER -0.4838E-02	
49	78.53	0.7530	760.00	770.02	0.7700	0.7687	734.73	1.0188	0.9606	ETHANOL 0.1264E-02	0.2482E-02
		0.0690			0.0610	0.0647	644.39	1.0999	0.9840	ISO-C3OH -0.3723E-02	
		0.1730			0.1690	0.1665	333.32	2.1880	0.9845	WATER 0.2458E-02	
50	79.08	0.7960	760.00	770.89	0.8150	0.8117	750.35	1.0047	0.9611	ETHANOL 0.3311E-02	0.3684E-02
		0.1730			0.1450	0.1505	659.18	0.9980	0.9836	ISO-C3OH -0.5526E-02	
		0.0310			0.0400	0.0378	340.86	2.7077	0.9829	WATER 0.2215E-02	
51	79.66	0.4310	760.00	769.38	0.5040	0.5141	767.11	1.1459	0.9598	ETHANOL -0.1014E-01	0.6761E-02
		0.1330			0.1630	0.1591	675.04	1.3313	0.9853	ISO-C3OH 0.4889E-02	
		0.4360			0.3330	0.3277	348.97	1.6362	0.9879	WATER 0.5251E-02	
52	79.17	0.5630	760.00	769.11	0.6420	0.6411	752.93	1.1048	0.9603	ETHANOL 0.8854E-03	0.7843E-02
		0.0630			0.0590	0.0708	661.62	1.2823	0.9849	ISO-C3OH -0.1176E-01	
		0.3690			0.2990	0.2881	342.11	1.7309	0.9867	WATER 0.1088E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
53	78.58	0.8070	760.00	760.32	0.8140	0.8100	736.14	1.0064	0.9608	ETHANOL	0.399PE-02	0.2666E-02
		0.0920			0.0820	0.0825	645.73	1.0491	0.9837	ISO-C3OH	-0.5275E-03	
		0.1010			0.1040	0.1075	334.00	2.4109	0.9836	WATER	-0.3471E-02	

ETHANOL(1) - WATER(2) - DIOXANE(3) SYSTEM 040

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
516.00	63.00	161.30	0.637	0.152	1.690	1.10	ETHANOL	11
647.40	213.30	55.20	0.344	0.010	1.850	0.0	WATER	34
585.20	50.70	244.70	0.288	0.0	0.0	0.0	DIOXANE	10

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.80449E 01	0.15543E 04	0.22265E 03	ETHANOL	0.5370E 02	-0.3111E-01	0.1600E-03
0.79668E 01	0.16682E 04	0.22800E 03	WATER	0.2289E 02	-0.3642E-01	0.6856E-04
0.74315E 01	0.15547E 04	0.24034E 03	DIOXANE	0.7197E 02	-0.4190E-02	0.1688E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

		BINARY	ID NUMBERS	ORDER
393.97	952.09	ETHANOL - WATER	103	0
369.15	285.35	ETHANOL - DIOXANE	73	0
1810.29	-355.35	WATER - DIOXANE	219	0

HALA CONSISTENCY TEST

CI(1) 0.0521

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.1260E 02

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.1524E-01
COMPONENT 2	0.1246E-01
COMPONENT 3	0.1280E-01

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.1350E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	86.16	0.0550	760.00	745.18	0.1180	0.1337	976.39	1.7933	0.9688	ETHANOL	-0.1567E-01	0.1044E-01
		0.4840			0.4450	0.4434	451.41	1.4991	0.9918	WATER	0.1575E-02	
		0.4610			0.4370	0.4229	455.77	1.4451	0.9664	DIOXANE	0.1409E-01	
2	86.36	0.0610	760.00	754.65	0.1130	0.1424	983.49	1.7317	0.9687	ETHANOL	-0.2942E-01	0.2416E-01
		0.4470			0.4230	0.4298	454.93	1.5807	0.9916	WATER	-0.6820E-02	
		0.4920			0.4640	0.4278	458.78	1.3774	0.9661	DIOXANE	0.3624E-01	
3	84.37	0.1360	760.00	763.29	0.2530	0.2632	914.68	1.5578	0.9667	ETHANOL	-0.1020E-01	0.6797E-02
		0.3920			0.3730	0.3697	420.98	1.6910	0.9896	WATER	0.3317E-02	
		0.4720			0.3740	0.3671	429.50	1.3327	0.9672	DIOXANE	0.6878E-02	
4	83.91	0.1550	760.00	769.09	0.2700	0.2945	899.34	1.5654	0.9656	ETHANOL	-0.2447E-01	0.1632E-01
		0.4410			0.3920	0.3748	413.45	1.5627	0.9891	WATER	0.7196E-02	
		0.4040			0.3480	0.3307	422.96	1.4360	0.9678	DIOXANE	0.1728E-01	
5	83.09	0.2170	760.00	779.70	0.3370	0.3615	872.51	1.4327	0.9646	ETHANOL	-0.2446E-01	0.1631E-01
		0.3710			0.3440	0.3306	400.29	1.7137	0.9879	WATER	0.1339E-01	
		0.4120			0.3190	0.3079	411.48	1.3669	0.9682	DIOXANE	0.1106E-01	
6	82.22	0.2570	760.00	780.65	0.3930	0.4087	844.73	1.4127	0.9633	ETHANOL	-0.1573E-01	0.1049E-01
		0.4300			0.3460	0.3370	396.71	1.5609	0.9874	WATER	0.9044E-02	
		0.3130			0.2610	0.2543	399.58	1.5341	0.9696	DIOXANE	0.6686E-02	
7	81.75	0.2900	760.00	776.16	0.4110	0.4311	830.03	1.3367	0.9637	ETHANOL	-0.2010E-01	0.1718E-01
		0.3420			0.3250	0.2992	379.54	1.7647	0.9869	WATER	0.2577E-01	
		0.3680			0.2640	0.2697	393.27	1.3978	0.9696	DIOXANE	-0.5670E-02	
8	80.80	0.3650	760.00	779.54	0.4820	0.4950	800.93	1.2675	0.9623	ETHANOL	-0.1303E-01	0.2322E-01
		0.3670			0.3280	0.2932	365.38	1.6797	0.9862	WATER	0.3483E-01	
		0.2680			0.1900	0.2118	380.75	1.5664	0.9713	DIOXANE	-0.2180E-01	
9	80.13	0.4460	760.00	780.55	0.5460	0.5510	780.91	1.1853	0.9620	ETHANOL	-0.4978E-02	0.1839E-01
		0.2930			0.2780	0.2504	355.66	1.8469	0.9853	WATER	0.2758E-01	
		0.2610			0.1760	0.1986	372.12	1.5465	0.9721	DIOXANE	-0.2260E-01	
10	79.57	0.5100	760.00	779.44	0.5990	0.5971	764.49	1.1448	0.9612	ETHANOL	0.1911E-02	0.1218E-01
		0.3160			0.2710	0.2546	347.70	1.7784	0.9851	WATER	0.1636E-01	
		0.1740			0.1300	0.1483	365.03	1.7664	0.9739	DIOXANE	-0.1827E-01	
11	79.40	0.5470	760.00	780.65	0.6310	0.6197	759.56	1.1168	0.9612	ETHANOL	0.1128E-01	0.7520E-02
		0.2660			0.2260	0.2268	345.32	1.8968	0.9846	WATER	-0.8315E-03	
		0.1970			0.1430	0.1534	362.90	1.7137	0.9740	DIOXANE	-0.1045E-01	
12	78.43	0.7800	760.00	774.72	0.8170	0.7870	731.91	1.0238	0.9608	ETHANOL	0.2999E-01	0.1999E-01
		0.1410			0.1140	0.1365	331.97	2.2190	0.9828	WATER	-0.2250E-01	
		0.0790			0.0690	0.0765	350.93	2.0844	0.9783	DIOXANE	-0.7488E-02	
13	78.08	0.8420	760.00	764.59	0.9420	0.8392	722.14	1.0120	0.9611	ETHANOL	0.2784E-02	0.1857E-02
		0.1080			0.1080	0.1091	327.20	2.3176	0.9825	WATER	-0.1109E-02	
		0.0500			0.0500	0.0517	346.68	2.2268	0.9800	DIOXANE	-0.1678E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	78.08	0.8640	760.00	764.06	0.8640	0.8590	722.14	1.0088	0.9611	ETHANOL	0.4985E-02	0.3324E-02
		0.0950			0.0950	0.0977	327.26	2.3568	0.9823	WATER	-0.2688E-02	
		0.0410			0.0410	0.0433	346.68	2.2750	0.9806	DIOXANE	-0.2299E-02	
15	78.08	0.8830	760.00	762.08	0.8620	0.8794	722.14	1.0079	0.9611	ETHANOL	-0.1736E-01	0.1157E-01
		0.1050			0.1090	0.1070	327.26	2.3304	0.9827	WATER	0.2006E-02	
		0.0120			0.0290	0.0136	346.68	2.4475	0.9820	DIOXANE	0.1535E-01	
16	78.30	0.9210	760.00	766.92	0.9080	0.9154	728.27	1.0038	0.9611	ETHANOL	-0.1741E-01	0.1621E-01
		0.0290			0.0570	0.0327	330.21	2.5662	0.9808	WATER	0.2431E-01	
		0.0500			0.0450	0.0519	349.35	2.2275	0.9807	DIOXANE	-0.6898E-02	

ETHYL ACETATE(1) - ETHANOL(2) - WATER(3) SYSTEM 042

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
523.30	37.80	286.00	0.373	0.278	1.780	0.50	ETHYL AC	12
516.00	63.00	161.30	0.637	0.152	1.690	1.10	ETHANOL	11
647.40	218.30	55.20	0.344	0.010	1.850	0.0	WATER	34

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.70981E 01	0.12387E 04	0.21700E 03	ETHYL AC	0.1361E 03	-0.3700E 00	0.8077E-03
0.80449E 01	0.15543E 04	0.22265E 03	ETHANOL	0.5370E 02	-0.3111E-01	0.1600E-03
0.79668E 01	0.16682E 04	0.22800E 03	WATER	0.2289E 02	-0.3642E-01	0.6856E-04

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-168.36	865.00	ETHYL AC - ETHANOL	84	0
171.76	2110.04	ETHYL AC - WATER	109	0
223.26	903.99	ETHANOL - WATER	101	0

HALA CONSISTENCY TEST

CI(1) 1.1308

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.1733E 02

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.2128E-01
COMPONENT 2	0.1495E-01
COMPONENT 3	0.1164E-01

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.1596E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	55.00	0.2740	385.20	383.63	0.4410	0.4405	339.17	1.7577	0.9683	ETHYL AC	0.4612E-03	0.1311E-01
		0.5120			0.3870	0.4067	274.09	1.0789	0.9716	ETHANOL	-0.1966E-01	
		0.2140			0.1720	0.1528	117.85	2.3099	0.9942	WATER	0.1920E-01	
2	55.00	0.0200	295.30	291.29	0.0730	0.0539	339.17	2.2520	0.9748	ETHYL AC	0.1912E-01	0.1695E-01
		0.9390			0.9100	0.9037	274.09	1.0009	0.9795	ETHANOL	0.6296E-02	
		0.0410			0.0170	0.0424	117.85	2.5357	0.9918	WATER	-0.2542E-01	
3	55.00	0.0100	277.20	276.65	0.0370	0.0389	339.17	3.0985	0.9776	ETHYL AC	-0.1913E-02	0.1787E-02
		0.6050			0.6930	0.6903	274.09	1.1278	0.9801	ETHANOL	0.2678E-02	
		0.3850			0.2700	0.2708	117.85	1.6404	0.9939	WATER	-0.7686E-03	
4	55.00	0.1550	267.70	354.35	0.3940	0.3670	339.17	2.3824	0.9711	ETHYL AC	0.2702E-01	0.1801E-01
		0.4460			0.3900	0.4076	274.09	1.1490	0.9736	ETHANOL	-0.1756E-01	
		0.3980			0.2160	0.2255	117.85	1.6933	0.9945	WATER	-0.9461E-02	
5	55.00	0.6730	416.40	414.86	0.6550	0.6550	339.17	1.1472	0.9657	ETHYL AC	0.3231E-04	0.1842E-03
		0.2100			0.2140	0.2143	274.09	1.4941	0.9636	ETHANOL	-0.2759E-03	
		0.1170			0.1310	0.1308	117.85	3.9152	0.9956	WATER	0.2445E-03	
6	55.00	0.1370	384.70	351.54	0.5050	0.4493	339.17	3.2961	0.9714	ETHYL AC	0.5572E-01	0.3715E-01
		0.2130			0.2260	0.2731	274.09	1.5985	0.9730	ETHANOL	-0.4711E-01	
		0.6500			0.2690	0.2776	117.85	1.2676	0.9953	WATER	-0.8619E-02	
7	55.00	0.0240	295.30	265.27	0.2540	0.1713	339.17	5.4562	0.9790	ETHYL AC	0.8274E-01	0.5516E-01
		0.2230			0.4070	0.4466	274.09	1.8983	0.9801	ETHANOL	-0.3964E-01	
		0.7530			0.3390	0.3821	117.85	1.1367	0.9955	WATER	-0.4310E-01	
8	55.00	0.0013	177.40	177.82	0.0143	0.0245	339.17	11.3119	0.9865	ETHYL AC	-0.1416E-01	0.9440E-02
		0.0570			0.3510	0.3388	274.09	3.8012	0.9861	ETHANOL	0.1217E-01	
		0.9417			0.6347	0.6327	117.85	1.0108	0.9972	WATER	0.1999E-02	
9	55.00	0.9490	404.80	402.16	0.7670	0.7686	339.17	1.0356	0.9667	ETHYL AC	-0.1622E-02	0.1081E-02
		0.0910			0.1280	0.1264	274.09	1.9736	0.9693	ETHANOL	0.1575E-02	
		0.0600			0.1050	0.1050	117.85	5.9466	0.9966	WATER	0.4703E-04	
10	55.00	0.3440	374.90	387.67	0.4610	0.4710	339.17	1.5113	0.9675	ETHYL AC	-0.1004E-01	0.6692E-02
		0.6030			0.4900	0.4775	274.09	1.0874	0.9719	ETHANOL	0.2494E-02	
		0.0530			0.0590	0.0515	117.85	3.1725	0.9937	WATER	0.7545E-02	

ETHYL ACETATE(1) - ETHANOL(2) - WATER(3) SYSTEM 043

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
523.30	37.80	286.00	0.373	0.273	1.780	0.50	ETHYL AC	12
516.00	63.00	161.30	0.637	0.152	1.690	1.10	ETHANOL	11
647.40	218.30	55.20	0.344	0.010	1.850	0.0	WATER	34

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS

A	B	C	COMPONENT
0.70981E 01	0.12387E 04	0.21700E 03	ETHYL AC
0.80449E 01	0.15543E 04	0.22265E 03	ETHANOL
0.79068E 01	0.16692E 04	0.22800E 03	WATER

MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C
0.1361E 03	-0.3700E 00	0.8077E-03
0.5370E 02	-0.3111E-01	0.1600E-03
0.2289E 02	-0.3642E-01	0.6856E-04

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

				BINARY ID NUMBERS	ORDER
38.07	617.61	ETHYL AC -	ETHANOL	85	0
6093.37	2005.18	ETHYL AC -	WATER	111	0
470.08	828.62	ETHANOL -	WATER	102	0

HALA CONSISTENCY TEST

CI(1) -4.0551

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.8923E 01

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.1305E-01
COMPONENT 2	0.1496E-01
COMPONENT 3	0.1164E-01

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.1322E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	70.00	0.3020	710.80	719.63	0.4330	0.4204	578.61	1.6417	0.9516	ETHYL AC	0.1262E-01	0.8409E-02
		0.4640			0.3380	0.3939	524.25	1.1125	0.9567	ETHANOL	-0.5897E-02	
		0.2340			0.1790	0.1857	233.08	2.4254	0.9904	WATER	-0.6715E-02	
2	70.00	0.0350	577.80	576.91	0.0870	0.0863	578.61	2.3519	0.9594	ETHYL AC	0.7062E-03	0.4581E-02
		0.9230			0.8630	0.8699	524.25	1.0013	0.9671	ETHANOL	-0.6870E-02	
		0.0420			0.0500	0.0438	233.08	2.5464	0.9962	WATER	0.6165E-02	
3	70.00	0.0120	538.40	540.00	0.0550	0.0510	578.61	3.8188	0.9646	ETHYL AC	0.3962E-02	0.1144E-01
		0.5620			0.6620	0.6488	524.25	1.1496	0.9683	ETHANOL	0.1319E-01	
		0.4260			0.2830	0.3002	233.08	1.6154	0.9901	WATER	-0.1716E-01	
4	70.00	0.1620	664.80	676.00	0.3260	0.3335	578.61	2.2890	0.9549	ETHYL AC	-0.7466E-02	0.8380E-02
		0.4820			0.4260	0.4311	524.25	1.1042	0.9593	ETHANOL	-0.5102E-02	
		0.3560			0.2480	0.2354	233.08	1.8984	0.9903	WATER	0.1257E-01	
5	70.00	0.7380	742.80	709.56	0.6940	0.6715	578.61	1.0580	0.9514	ETHYL AC	0.2246E-01	0.2898E-01
		0.2460			0.2560	0.2995	524.25	1.5754	0.9581	ETHANOL	-0.4347E-01	
		0.0160			0.0500	0.0290	233.08	5.4700	0.9927	WATER	0.2102E-01	
6	70.00	0.1630	702.20	687.30	0.5030	0.4593	578.61	3.1835	0.9543	ETHYL AC	0.4369E-01	0.3226E-01
		0.1900			0.1860	0.2344	524.25	1.5444	0.9568	ETHANOL	-0.4840E-01	
		0.6470			0.3110	0.3063	233.08	1.3843	0.9922	WATER	0.4692E-02	
7	70.00	0.0340	572.00	571.49	0.2600	0.2495	578.61	6.9586	0.9627	ETHYL AC	0.1049E-01	0.1247E-01
		0.2310			0.3980	0.3878	524.25	1.7627	0.9648	ETHANOL	0.8207E-02	
		0.7350			0.3440	0.3627	233.08	1.1997	0.9920	WATER	-0.1870E-01	
8	70.00	0.7980	722.50	717.85	0.7130	0.7084	578.61	1.0439	0.9512	ETHYL AC	0.4633E-02	0.3087E-02
		0.1260			0.1620	0.1629	524.25	1.6888	0.9559	ETHANOL	-0.9094E-03	
		0.0760			0.1250	0.1287	233.08	5.1811	0.9939	WATER	-0.3717E-02	
9	70.00	0.3040	695.90	700.39	0.4120	0.4006	578.61	1.5126	0.9517	ETHYL AC	0.1145E-01	0.9339E-02
		0.6570			0.5600	0.5574	524.25	1.0853	0.9594	ETHANOL	0.2566E-02	
		0.0390			0.0280	0.0420	233.08	3.1979	0.9887	WATER	-0.1401E-01	

HEXANE(1) - BENZENE(2) - CHLOROBENZENE SYSTEM 044

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
507.90	29.90	372.40	0.299	0.0	0.0	0.0	HEXANE	18
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
632.40	44.60	307.80	0.252	0.241	1.700	0.0	CL-BEN	56

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.68778E 01	0.11715E 04	-0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03
0.69056E 01	0.12110E 04	-0.22070E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.77175E 01	0.19812E 04	-0.27315E 03	CL-BEN	0.8574E 02	0.1056E-01	0.1500E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
122.43	219.99	HEXANE - BENZENE	36	0
252.89	288.44	HEXANE - CL-BEN	123	0
-564.82	1304.69	BENZENE - CL-BEN	224	0

HALA CONSISTENCY TEST

CI(1) 0.0181

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.2152E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.1229E-01
COMPONENT 2	0.9305E-02
COMPONENT 3	0.8838E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.1014E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	92.00	0.1070	760.00	717.14	0.3140	0.3260	1372.31	1.5285	0.9643	HEXANE	-0.1203E-01	0.1326E-01
		0.3490			0.5380	0.5181	1030.48	1.0007	0.9715	BENZENE	0.1989E-01	
		0.5440			0.1480	0.1559	193.87	1.0117	0.9579	CL-BEN	-0.7858E-02	
2	81.20	0.3410	760.00	724.67	0.6380	0.6333	1032.17	1.2464	0.9605	HEXANE	0.4749E-02	0.6005E-02
		0.2600			0.2850	0.2807	756.56	0.9984	0.9683	BENZENE	0.4260E-02	
		0.3990			0.0770	0.0860	132.79	1.1137	0.9501	CL-BEN	-0.9005E-02	
3	72.10	0.7650	760.00	744.88	0.9880	0.9848	796.79	1.0285	0.9558	HEXANE	0.3159E-02	0.2104E-02
		0.0910			0.0860	0.0862	571.04	1.1864	0.9645	BENZENE	-0.2322E-03	
		0.1440			0.0260	0.0289	94.73	1.4810	0.9412	CL-BEN	-0.2920E-02	
4	77.50	0.1800	760.00	746.44	0.3330	0.3035	931.08	1.2893	0.9578	HEXANE	0.2953E-01	0.1969E-01
		0.6950			0.6480	0.6752	676.72	1.0320	0.9662	BENZENE	-0.2717E-01	
		0.1250			0.0190	0.0214	116.00	1.0357	0.9454	CL-BEN	-0.2359E-02	
5	105.90	0.1330	760.00	731.16	0.6270	0.5900	1916.55	1.6284	0.9667	HEXANE	0.3701E-01	0.2819E-01
		0.0180			0.0410	0.0357	1483.48	0.9493	0.9733	BENZENE	0.5271E-02	
		0.8490			0.3320	0.3743	305.35	1.0163	0.9661	CL-BEN	-0.4229E-01	
6	79.10	0.3580	760.00	740.58	0.5970	0.5983	973.86	1.2128	0.9589	HEXANE	-0.1316E-02	0.2602E-02
		0.3350			0.3450	0.3411	710.42	1.0232	0.9671	BENZENE	0.3899E-02	
		0.3070			0.0580	0.0606	123.03	1.1214	0.9473	CL-BEN	-0.2591E-02	
7	80.40	0.0220	760.00	761.16	0.0500	0.0442	1009.67	1.4429	0.9592	HEXANE	0.5834E-02	0.3890E-02
		0.9330			0.9420	0.9460	738.72	1.0065	0.9666	BENZENE	-0.4018E-02	
		0.0450			0.0080	0.0098	128.99	1.2136	0.9462	CL-BEN	-0.1818E-02	
8	80.40	0.1120	760.00	743.27	0.2360	0.2140	1009.67	1.3427	0.9591	HEXANE	0.2199E-01	0.1466E-01
		0.7100			0.7340	0.7529	738.72	1.0287	0.9673	BENZENE	-0.1887E-01	
		0.1780			0.0300	0.0331	128.99	1.0125	0.9478	CL-BEN	-0.3122E-02	
9	91.40	0.0670	760.00	740.13	0.2020	0.1950	1351.58	1.9280	0.9631	HEXANE	0.6960E-02	0.4641E-02
		0.4710			0.6910	0.6812	1013.57	1.0217	0.9706	BENZENE	-0.1606E-03	
		0.4620			0.1170	0.1238	189.95	0.9944	0.9558	CL-BEN	-0.6803E-02	
10	83.70	0.3330	760.00	737.69	0.6690	0.6687	1104.82	1.2631	0.9607	HEXANE	0.2963E-03	0.6409E-02
		0.2050			0.2340	0.2247	814.40	0.9825	0.9686	BENZENE	0.9315E-02	
		0.4620			0.0970	0.1066	145.25	1.1107	0.9511	CL-BEN	-0.9615E-02	

HEXANE(1) - BENZENE(2) - TOLUENE(3) SYSTEM 045

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
507.90	29.90	372.40	0.298	0.0	0.0	0.0	HEXANE	18
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
594.00	40.00	331.10	0.241	0.0	0.0	0.0	TOLUENE	33

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.68778E 01	0.11715E 04	0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.69533E 01	0.13439E 04	0.21938E 03	TOLUENE	0.9886E 02	-0.5577E-01	0.2770E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
122.43	219.99	HEXANE - BENZENE	36	0
-35.97	306.77	HEXANE - TOLUENE	128	0
-377.58	665.94	BENZENE - TOLUENE	40	0

HALA CONSISTENCY TEST

CI(1) 0.3004

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.1323E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.1413E-01
COMPONENT 2	0.9415E-02
COMPONENT 3	0.5723E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.9755E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	81.30	0.2760	760.00	723.90	0.5400	0.5002	1035.00	1.2121	0.9606	HEXANE	0.3976E-01	0.2650E-01
		0.2640			0.2770	0.2960	758.81	1.0330	0.9686	BENZENE	-0.1904E-01	
		0.4600			0.1830	0.2037	297.97	1.0212	0.9524	TOLUENE	-0.2072E-01	
2	82.00	0.1630	760.00	755.96	0.3330	0.3092	1055.03	1.2974	0.9591	HEXANE	0.2376E-01	0.1592E-01
		0.5060			0.5270	0.5509	774.72	1.0243	0.9674	BENZENE	-0.2388E-01	
		0.3310			0.1400	0.1399	304.96	0.9924	0.9510	TOLUENE	0.1187E-03	
3	83.40	0.1460	760.00	757.55	0.3050	0.2899	1095.91	1.3104	0.9596	HEXANE	0.1514E-01	0.1081E-01
		0.4850			0.5310	0.5472	807.29	1.0213	0.9678	BENZENE	-0.1622E-01	
		0.3690			0.1640	0.1629	319.54	0.9922	0.9516	TOLUENE	0.1081E-02	
4	78.60	0.3160	760.00	756.42	0.5180	0.4997	960.34	1.1870	0.9578	HEXANE	0.1833E-01	0.1222E-01
		0.3770			0.3690	0.3810	699.76	1.0521	0.9662	BENZENE	-0.1202E-01	
		0.3070			0.1130	0.1193	271.74	1.0228	0.9491	TOLUENE	-0.6317E-02	
5	74.80	0.4190	760.00	745.33	0.5990	0.5756	862.01	1.1310	0.9568	HEXANE	0.2338E-01	0.1559E-01
		0.3710			0.3330	0.3499	622.64	1.0863	0.9654	BENZENE	-0.1687E-01	
		0.2100			0.0680	0.0745	238.08	1.0487	0.9478	TOLUENE	-0.6505E-02	
6	75.90	0.3800	760.00	747.97	0.5650	0.5568	889.68	1.1462	0.9571	HEXANE	0.8173E-02	0.5447E-02
		0.3690			0.3500	0.3550	644.26	1.0749	0.9657	BENZENE	-0.4958E-02	
		0.2420			0.0850	0.0882	247.46	1.0407	0.9482	TOLUENE	-0.3210E-02	
7	76.10	0.4010	760.00	761.47	0.5740	0.5643	894.78	1.1397	0.9564	HEXANE	0.9717E-02	0.6481E-02
		0.3690			0.3480	0.3525	648.26	1.0792	0.9651	BENZENE	-0.4452E-02	
		0.2300			0.0780	0.0833	249.20	1.0440	0.9474	TOLUENE	-0.5274E-02	
8	95.90	0.1140	760.00	768.43	0.3140	0.3094	1512.52	1.3222	0.9637	HEXANE	0.4619E-02	0.4096E-02
		0.1280			0.1980	0.1965	1145.55	0.9969	0.9714	BENZENE	0.1523E-02	
		0.7580			0.4880	0.4941	475.41	1.0033	0.9559	TOLUENE	-0.6147E-02	
9	90.40	0.1710	760.00	771.19	0.4000	0.3911	1317.52	1.2810	0.9616	HEXANE	0.8879E-02	0.5921E-02
		0.1940			0.2570	0.2588	985.94	1.0083	0.9696	BENZENE	-0.1773E-02	
		0.6350			0.3430	0.3501	400.85	1.0074	0.9535	TOLUENE	-0.7110E-02	
10	101.00	0.0640	760.00	778.11	0.2020	0.1995	1710.44	1.3613	0.9649	HEXANE	0.2540E-02	0.2209E-02
		0.1040			0.1800	0.1792	1309.95	0.9923	0.9725	BENZENE	0.7716E-03	
		0.8320			0.6180	0.6213	553.75	1.0007	0.9574	TOLUENE	-0.3314E-02	
11	103.30	0.0530	760.00	793.43	0.1730	0.1719	1805.20	1.3688	0.9650	HEXANE	0.1101E-02	0.2106E-02
		0.0860			0.1560	0.1539	1389.46	0.9909	0.9727	BENZENE	0.2058E-02	
		0.8610			0.6710	0.6742	592.16	1.0005	0.9574	TOLUENE	-0.3158E-02	

HEXANE(1) - BENZENE(2) - TOLUENE(3) SYSTEM 046

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
507.90	29.90	372.40	0.298	0.0	0.0	0.0	HEXANE	18
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
594.30	40.00	331.10	0.241	0.0	0.0	0.0	TOLUENE	33

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.68778E 01	0.11715E 04	0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.69533E 01	0.13439E 04	0.21938E 03	TOLUENE	0.9886E 02	-0.5577E-01	0.2770E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
365.20	61.90	HEXANE - BENZENE	36	0
180.80	130.40	HEXANE - TOLUENE	128	0
135.40	-141.80	BENZENE - TOLUENE	40	0

HALA CONSISTENCY TEST

CI(1) 0.0868

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.5349E 01

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.3824E-02
COMPONENT 2	0.1982E-02
COMPONENT 3	0.3368E-02

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.3058E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	80.90	0.2430	760.00	753.90	0.4260	0.4284	1023.69	1.2387	0.9588	HEXANE	-0.2382E-02	0.2981E-02
		0.3890			0.4140	0.4161	749.83	1.0367	0.9671	BENZENE	-0.2094E-02	
		0.3680			0.1600	0.1555	293.88	1.0264	0.9504	TOLUENE	0.4468E-02	
2	84.60	0.1960	760.00	755.64	0.3890	0.3941	1131.35	1.2827	0.9602	HEXANE	-0.5137E-02	0.3422E-02
		0.3230			0.3790	0.3789	836.02	1.0232	0.9683	BENZENE	0.1482E-03	
		0.4810			0.2320	0.2270	332.46	1.0173	0.9520	TOLUENE	0.4982E-02	
3	81.20	0.1180	760.00	756.26	0.2360	0.2357	1032.17	1.3962	0.9588	HEXANE	0.3125E-03	0.1949E-02
		0.6270			0.6560	0.6599	756.56	1.0126	0.9671	BENZENE	-0.2926E-02	
		0.2550			0.1080	0.1054	296.87	0.9971	0.9508	TOLUENE	0.2609E-02	
4	81.00	0.0890	760.00	756.85	0.1950	0.1838	1026.51	1.4525	0.9586	HEXANE	0.1120E-01	0.7468E-02
		0.7040			0.7210	0.7317	752.07	1.0081	0.9670	BENZENE	-0.1069E-01	
		0.2070			0.0840	0.0845	294.87	0.9925	0.9508	TOLUENE	-0.5144E-03	
5	72.50	0.6960	760.00	753.21	0.7990	0.8039	806.22	1.0259	0.9554	HEXANE	-0.4909E-02	0.3276E-02
		0.1400			0.1360	0.1341	579.24	1.1973	0.9642	BENZENE	0.1864E-02	
		0.1640			0.0650	0.0619	219.38	1.2216	0.9457	TOLUENE	0.3054E-02	
6	73.00	0.6280	760.00	752.06	0.7450	0.7470	818.12	1.0398	0.9557	HEXANE	-0.1968E-02	0.2195E-02
		0.1970			0.1910	0.1877	538.47	1.1705	0.9644	BENZENE	0.3297E-02	
		0.1750			0.0640	0.0653	223.34	1.1845	0.9461	TOLUENE	-0.1321E-02	
7	74.90	0.5290	760.00	752.13	0.6300	0.6934	864.50	1.0697	0.9565	HEXANE	-0.3385E-02	0.2259E-02
		0.2310			0.2270	0.2250	624.59	1.1283	0.9651	BENZENE	0.1992E-02	
		0.2400			0.0930	0.0916	238.92	1.1336	0.9472	TOLUENE	0.1400E-02	
8	88.30	0.1550	760.00	756.19	0.3480	0.3540	1247.97	1.3241	0.9615	HEXANE	-0.5984E-02	0.4618E-02
		0.2630			0.3380	0.3389	929.45	1.0132	0.9695	BENZENE	-0.9462E-03	
		0.5820			0.3140	0.3071	374.93	1.0108	0.9536	TOLUENE	0.6924E-02	
9	91.90	0.1210	760.00	757.51	0.3020	0.3097	1365.37	1.3665	0.9627	HEXANE	-0.7710E-02	0.5138E-02
		0.2140			0.3020	0.3012	1024.82	1.0063	0.9705	BENZENE	0.8305E-03	
		0.6650			0.3960	0.3891	418.90	1.0066	0.9549	TOLUENE	0.6874E-02	
10	94.90	0.0950	760.00	758.49	0.2570	0.2677	1475.65	1.3893	0.9638	HEXANE	-0.1074E-01	0.7155E-02
		0.1730			0.2650	0.2632	1115.19	1.0018	0.9714	BENZENE	0.1844E-02	
		0.7320			0.4790	0.4691	461.11	1.0041	0.9561	TOLUENE	0.8886E-02	
11	76.70	0.4660	760.00	749.39	0.6510	0.6510	910.21	1.0959	0.9574	HEXANE	-0.2456E-04	0.8305E-04
		0.2240			0.2260	0.2259	660.35	1.1017	0.9659	BENZENE	0.1277E-03	
		0.3100			0.1230	0.1231	254.47	1.1047	0.9483	TOLUENE	-0.9692E-04	
12	81.00	0.3690	760.00	755.25	0.6900	0.6931	1026.51	1.1474	0.9589	HEXANE	-0.3104E-02	0.2066E-02
		0.1810			0.1090	0.1089	752.07	1.0639	0.9672	BENZENE	0.8547E-04	
		0.4500			0.2010	0.1980	294.87	1.0665	0.9501	TOLUENE	0.3009E-02	
13	85.20	0.2870	760.00	759.37	0.5410	0.5469	1150.14	1.2023	0.9603	HEXANE	-0.5922E-02	0.3945E-02
		0.1450			0.1750	0.1747	850.67	1.0379	0.9684	BENZENE	0.3332E-03	
		0.5680			0.2840	0.2784	339.08	1.0407	0.9518	TOLUENE	0.5580E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	80.60	0.2900	760.00	753.14	0.4380	0.4914	1015.25	1.1992	0.9588	HEXANE	-0.3385E-02	0.2282E-02
		0.3200			0.3430	0.3430	743.15	1.0472	0.9671	BENZENE	-0.4202E-04	
		0.3900			0.1690	0.1656	290.91	1.0404	0.9502	TOLUENE	0.3420E-02	
15	80.70	0.2390	760.00	754.43	0.4180	0.4201	1018.06	1.2425	0.9587	HEXANE	-0.2055E-02	0.2843E-02
		0.4060			0.4290	0.4312	745.38	1.0362	0.9670	BENZENE	-0.2213E-02	
		0.3550			0.1530	0.1487	291.90	1.0251	0.9503	TOLUENE	0.4261E-02	
16	80.90	0.1930	760.00	754.36	0.3600	0.3609	1020.87	1.2850	0.9587	HEXANE	-0.8942E-03	0.1902E-02
		0.4770			0.5020	0.5040	747.60	1.0276	0.9671	BENZENE	-0.1962E-02	
		0.3250			0.1380	0.1351	292.89	1.0141	0.9505	TOLUENE	0.2850E-02	
17	76.60	0.2700	760.00	753.33	0.4180	0.4149	907.62	1.2148	0.9571	HEXANE	0.3064E-02	0.2098E-02
		0.5420			0.5130	0.5167	658.32	1.0489	0.9657	BENZENE	-0.3151E-02	
		0.1890			0.0690	0.0689	253.58	1.0289	0.9485	TOLUENE	0.8017E-04	
18	76.90	0.2160	760.00	753.56	0.3520	0.3497	915.39	1.2694	0.9572	HEXANE	0.2310E-02	0.2266E-02
		0.6250			0.5890	0.5924	664.41	1.0348	0.9657	BENZENE	-0.3402E-02	
		0.1590			0.0590	0.0579	256.24	1.0123	0.9488	TOLUENE	0.1086E-02	
19	94.70	0.0980	760.00	761.67	0.2590	0.2730	1468.36	1.3857	0.9635	HEXANE	-0.1403E-01	0.9923E-02
		0.1770			0.2660	0.2669	1109.19	1.0023	0.9713	BENZENE	-0.8539E-03	
		0.7250			0.4750	0.4601	458.29	1.0043	0.9559	TOLUENE	0.1488E-01	
20	80.90	0.1800	760.00	752.65	0.3360	0.3351	1023.69	1.3061	0.9589	HEXANE	0.8720E-03	0.8691E-03
		0.5040			0.5320	0.5333	749.83	1.0239	0.9672	BENZENE	-0.1307E-02	
		0.3160			0.1320	0.1316	293.88	1.0098	0.9507	TOLUENE	0.4236E-03	
21	79.90	0.1440	760.00	758.40	0.2670	0.2695	995.78	1.3590	0.9581	HEXANE	-0.2511E-02	0.1673E-02
		0.6340			0.6430	0.6426	727.74	1.0176	0.9665	BENZENE	0.3583E-03	
		0.2220			0.0900	0.0879	284.08	0.9997	0.9500	TOLUENE	0.2149E-02	
22	79.90	0.1060	760.00	757.03	0.2090	0.2084	995.78	1.4250	0.9582	HEXANE	0.6146E-03	0.2102E-02
		0.7150			0.7180	0.7212	727.74	1.0108	0.9666	BENZENE	-0.3155E-02	
		0.1790			0.0730	0.0705	284.08	0.9929	0.9502	TOLUENE	0.2537E-02	
23	80.00	0.0780	760.00	760.38	0.1570	0.1596	998.55	1.4852	0.9590	HEXANE	-0.2581E-02	0.2619E-02
		0.7840			0.7950	0.7963	729.92	1.0065	0.9665	BENZENE	-0.1349E-02	
		0.1380			0.0580	0.0541	285.05	0.9893	0.9502	TOLUENE	0.3927E-02	
24	71.50	0.5560	760.00	748.39	0.6430	0.6451	782.91	1.0550	0.9552	HEXANE	-0.2083E-02	0.1767E-02
		0.3640			0.3300	0.3273	561.11	1.1532	0.9640	BENZENE	0.2654E-02	
		0.0800			0.0270	0.0276	211.63	1.1487	0.9458	TOLUENE	-0.5648E-03	
25	72.70	0.4220	760.00	749.93	0.5320	0.5318	810.96	1.1082	0.9556	HEXANE	0.1706E-03	0.9238E-03
		0.4930			0.4380	0.4394	582.92	1.1021	0.9644	BENZENE	-0.1383E-02	
		0.0950			0.0300	0.0288	220.96	1.0836	0.9466	TOLUENE	0.1218E-02	
26	75.70	0.3030	760.00	751.01	0.4470	0.4449	884.61	1.1870	0.9568	HEXANE	0.2080E-02	0.1682E-02
		0.5260			0.4910	0.4935	640.29	1.0590	0.9654	BENZENE	-0.2527E-02	
		0.1710			0.0620	0.0616	245.73	1.0391	0.9482	TOLUENE	0.4385E-03	

HEXANE(1) - BENZENE(2) - PARA-XYLENE(3) SYSTEM 047

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
507.90	29.90	372.40	0.299	0.0	0.0	0.0	HEXANE	18
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
616.30	34.60	369.40	0.324	0.0	0.0	0.0	P-XYLENE	36

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.68778E 01	0.11715E 04	0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1589E-03
0.69905E 01	0.14534E 04	0.21531E 03	P-XYLENE	0.1294E 03	-0.1419E 00	0.4180E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
365.20	61.90	HEXANE - BENZENE	36	0
-254.80	545.30	HEXANE - P-XYLENE	126	0
-334.00	705.20	BENZENE - P-XYLENE	41	0

HALA CONSISTENCY TEST

CI(1) 1.0372

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.7323E 01

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.6569E-02
COMPONENT 2	0.6839E-02
COMPONENT 3	0.6328E-02

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.6579E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	77.90	0.4830	760.00	755.22	0.6850	0.6921	941.64	1.0950	0.9576	HEXANE	-0.7056E-02	0.4700E-02
		0.2560			0.2700	0.2666	685.03	1.1053	0.9660	BENZENE	0.3423E-02	
		0.2610			0.0450	0.0414	106.76	1.0385	0.9302	P-XYLENE	0.3622E-02	
2	81.20	0.4340	760.00	756.78	0.6810	0.6916	1032.17	1.1148	0.9589	HEXANE	-0.1060E-01	0.7067E-02
		0.2200			0.2500	0.2472	756.56	1.0834	0.9671	BENZENE	0.2787E-02	
		0.3460			0.0690	0.0612	121.09	1.0258	0.9322	P-XYLENE	0.7808E-02	
3	88.70	0.3260	760.00	755.92	0.6490	0.6562	1261.02	1.1550	0.9618	HEXANE	-0.7233E-02	0.4820E-02
		0.1700			0.2300	0.2286	940.01	1.0452	0.9695	BENZENE	0.1358E-02	
		0.5040			0.1210	0.1151	159.51	1.0096	0.9368	P-XYLENE	0.5868E-02	
4	80.80	0.2440	760.00	757.41	0.4150	0.4190	1020.87	1.2154	0.9586	HEXANE	-0.4044E-02	0.6721E-02
		0.5010			0.5330	0.5390	747.60	1.0505	0.9669	BENZENE	-0.6040E-02	
		0.2550			0.0520	0.0419	119.27	0.9694	0.9328	P-XYLENE	0.1008E-01	
5	80.60	0.1840	760.00	755.03	0.3310	0.3286	1015.25	1.2669	0.9586	HEXANE	0.2409E-02	0.4303E-02
		0.6000			0.6300	0.6365	743.15	1.0386	0.9669	BENZENE	-0.6456E-02	
		0.2160			0.0390	0.0350	118.37	0.9590	0.9332	P-XYLENE	0.4043E-02	
6	80.30	0.1370	760.00	757.22	0.2550	0.2528	1006.87	1.3232	0.9584	HEXANE	0.2248E-02	0.3553E-02
		0.6940			0.7150	0.7203	736.51	1.0282	0.9667	BENZENE	-0.5332E-02	
		0.1690			0.0300	0.0269	117.04	0.9573	0.9331	P-XYLENE	0.3080E-02	
7	79.90	0.1640	760.00	755.52	0.2960	0.2928	995.78	1.2918	0.9583	HEXANE	0.3190E-02	0.4701E-02
		0.6570			0.6720	0.6791	727.74	1.0338	0.9667	BENZENE	-0.7054E-02	
		0.1790			0.0320	0.0281	115.27	0.9569	0.9328	P-XYLENE	0.3859E-02	
8	79.90	0.1510	760.00	756.43	0.2750	0.2726	995.78	1.3077	0.9583	HEXANE	0.2392E-02	0.3342E-02
		0.6810			0.6960	0.7010	727.74	1.0308	0.9666	BENZENE	-0.5014E-02	
		0.1680			0.0290	0.0264	115.27	0.9570	0.9328	P-XYLENE	0.2618E-02	
9	87.50	0.1120	760.00	754.23	0.2510	0.2481	1222.18	1.3078	0.9613	HEXANE	0.2894E-02	0.7687E-02
		0.5200			0.6650	0.6765	908.62	1.0255	0.9691	BENZENE	-0.1153E-01	
		0.3590			0.0840	0.0754	152.78	0.9673	0.9375	P-XYLENE	0.8634E-02	
10	94.40	0.0950	760.00	753.05	0.2250	0.2233	1457.46	1.3020	0.9638	HEXANE	0.1691E-02	0.7673E-02
		0.4190			0.5310	0.5425	1100.23	1.0161	0.9712	BENZENE	-0.1151E-01	
		0.4960			0.1440	0.1342	194.85	0.9797	0.9412	P-XYLENE	0.9817E-02	
11	99.70	0.0740	760.00	744.87	0.2210	0.2209	1658.39	1.2892	0.9659	HEXANE	0.5680E-04	0.7426E-02
		0.3300			0.5720	0.5831	1266.91	1.0081	0.9730	BENZENE	-0.1114E-01	
		0.5960			0.2070	0.1959	233.11	0.9875	0.9441	P-XYLENE	0.1108E-01	
12	82.80	0.2630	760.00	750.00	0.4830	0.4745	1078.25	1.1985	0.9598	HEXANE	0.8547E-02	0.1092E-01
		0.4040			0.4490	0.4654	793.21	1.0508	0.9679	BENZENE	-0.1639E-01	
		0.3330			0.0680	0.0602	128.58	0.9805	0.9345	P-XYLENE	0.7834E-02	
13	98.70	0.2100	760.00	750.01	0.4480	0.4501	1261.02	1.2204	0.9620	HEXANE	-0.2071E-02	0.1045E-01
		0.3340			0.4340	0.4476	940.01	1.0335	0.9697	BENZENE	-0.1360E-01	
		0.4560			0.1180	0.1023	159.51	0.9852	0.9379	P-XYLENE	0.1567E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	92.90	0.1730	760.00	746.34	0.4260	0.4295	1403.82	1.2303	0.9637	HEXANE	-0.3488E-02	0.8798E-02
		0.2980			0.4210	0.4307	1056.24	1.0229	0.9711	BENZENE	-0.9711E-02	
		0.5340			0.1530	0.1398	184.99	0.9889	0.9403	P-XYLENE	0.1319E-01	
15	89.70	0.2030	760.00	749.20	0.4470	0.4475	1294.04	1.2224	0.9624	HEXANE	-0.4873E-03	0.1009E-01
		0.3210			0.4270	0.4416	956.77	1.0310	0.9701	BENZENE	-0.1465E-01	
		0.4760			0.1260	0.1109	165.30	0.9863	0.9385	P-XYLENE	0.1513E-01	
16	95.70	0.1600	760.00	750.99	0.4100	0.4128	1505.09	1.2354	0.9645	HEXANE	-0.2761E-02	0.8073E-02
		0.2650			0.4130	0.4224	1139.43	1.0174	0.9718	BENZENE	-0.9351E-02	
		0.5750			0.1770	0.1649	203.73	0.9907	0.9414	P-XYLENE	0.1211E-01	
17	99.10	0.1370	760.00	746.09	0.3960	0.3876	1634.74	1.2412	0.9658	HEXANE	-0.1603E-02	0.5815E-02
		0.2350			0.4020	0.4091	1240.81	1.0104	0.9729	BENZENE	-0.7122E-02	
		0.6280			0.2120	0.2033	228.50	0.9928	0.9434	P-XYLENE	0.8719E-02	
18	92.70	0.2340	760.00	738.43	0.5510	0.5509	1396.78	1.1944	0.9642	HEXANE	0.6765E-04	0.1602E-02
		0.1980			0.2960	0.2984	1050.48	1.0260	0.9715	BENZENE	-0.2409E-02	
		0.5680			0.1530	0.1507	183.71	0.9986	0.9406	P-XYLENE	0.2331E-02	
19	108.50	0.1230	760.00	747.83	0.4130	0.4252	2032.41	1.2265	0.9689	HEXANE	-0.1218E-01	0.1030E-01
		0.1100			0.2350	0.2383	1582.00	0.9958	0.9756	BENZENE	-0.3267E-02	
		0.7670			0.3520	0.3366	309.65	0.9993	0.9470	P-XYLENE	0.1544E-01	
20	103.40	0.1980	760.00	747.81	0.5750	0.5932	1809.41	1.1921	0.9673	HEXANE	-0.1820E-01	0.1279E-01
		0.0680			0.1300	0.1310	1393.00	1.0043	0.9742	BENZENE	-0.9847E-03	
		0.7340			0.2950	0.2758	263.20	1.0042	0.9446	P-XYLENE	0.1918E-01	
21	96.50	0.2850	760.00	750.40	0.6910	0.7045	1534.04	1.1606	0.9649	HEXANE	-0.1354E-01	0.9026E-02
		0.0600			0.1000	0.0981	1164.06	1.0215	0.9722	BENZENE	0.1887E-02	
		0.6550			0.2090	0.1974	209.36	1.0118	0.9410	P-XYLENE	0.1165E-01	
22	88.60	0.4130	760.00	750.15	0.7920	0.8083	1257.75	1.1177	0.9621	HEXANE	-0.1634E-01	0.1089E-01
		0.0480			0.0680	0.0653	937.36	1.0532	0.9698	BENZENE	0.2650E-02	
		0.5390			0.1400	0.1263	158.94	1.0316	0.9367	P-XYLENE	0.1368E-01	
23	76.70	0.3440	760.00	772.45	0.5060	0.4911	910.21	1.1525	0.9561	HEXANE	0.1491E-01	0.1222E-01
		0.5100			0.4700	0.4883	660.35	1.0770	0.9648	BENZENE	-0.1834E-01	
		0.1460			0.0240	0.0206	101.91	0.9873	0.9286	P-XYLENE	0.3425E-02	
24	76.20	0.2490	760.00	751.90	0.3960	0.3809	897.34	1.2206	0.9570	HEXANE	0.1512E-01	0.1106E-01
		0.6390			0.5870	0.6036	650.26	1.0511	0.9656	BENZENE	-0.1659E-01	
		0.1120			0.0170	0.0155	99.94	0.9663	0.9304	P-XYLENE	0.1468E-02	
25	70.10	0.8620	760.00	755.12	0.9040	0.9030	750.99	1.0058	0.9542	HEXANE	-0.4043E-02	0.3398E-02
		0.0900			0.0900	0.0849	536.46	1.2746	0.9631	BENZENE	0.5101E-02	
		0.0480			0.0060	0.0071	78.34	1.3022	0.9240	P-XYLENE	-0.1050E-02	
26	70.70	0.8210	760.00	754.77	0.8800	0.8844	764.45	1.0101	0.9545	HEXANE	-0.4400E-02	0.3440E-02
		0.1120			0.1110	0.1058	546.92	1.2521	0.9634	BENZENE	0.5165E-02	
		0.0670			0.0090	0.0098	80.28	1.2601	0.9246	P-XYLENE	-0.7565E-03	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	71.40	0.7770	760.00	754.29	0.8550	0.8600	780.50	1.0162	0.9548	HEXANE	-0.4959E-02	0.3309E-02
		0.1340			0.1320	0.1271	559.32	1.2289	0.9637	BENZENE	0.4860E-02	
		0.0890			0.0130	0.0129	82.59	1.2186	0.9252	P-XYLENE	0.1066E-03	
28	71.80	0.7530	760.00	754.23	0.8420	0.8465	789.78	1.0202	0.9550	HEXANE	-0.4459E-02	0.3384E-02
		0.1460			0.1440	0.1389	566.50	1.2160	0.9638	BENZENE	0.5080E-02	
		0.1010			0.0140	0.0146	83.93	1.1979	0.9256	P-XYLENE	-0.6127E-03	
29	71.70	0.7620	760.00	755.75	0.8450	0.8512	787.45	1.0186	0.9549	HEXANE	-0.6161E-02	0.4110E-02
		0.1420			0.1400	0.1349	564.70	1.2215	0.9637	BENZENE	0.5068E-02	
		0.0960			0.0150	0.0139	83.59	1.2057	0.9253	P-XYLENE	0.1101E-02	
30	74.00	0.7040	760.00	758.79	0.8400	0.8485	842.30	1.0326	0.9557	HEXANE	-0.8499E-02	0.5669E-02
		0.1290			0.1330	0.1262	607.27	1.1839	0.9644	BENZENE	0.6827E-02	
		0.1680			0.0270	0.0253	91.65	1.1511	0.9267	P-XYLENE	0.1680E-02	
31	74.00	0.6540	760.00	756.70	0.7910	0.7973	842.30	1.0418	0.9558	HEXANE	-0.6345E-02	0.4233E-02
		0.1830			0.1840	0.1786	607.27	1.1692	0.9645	BENZENE	0.5378E-02	
		0.1630			0.0250	0.0240	91.65	1.1231	0.9271	P-XYLENE	0.9749E-03	
32	74.00	0.6470	760.00	755.89	0.7930	0.7997	842.30	1.0432	0.9559	HEXANE	-0.7731E-02	0.5157E-02
		0.1900			0.1920	0.1853	607.27	1.1670	0.9646	BENZENE	0.6703E-02	
		0.1630			0.0250	0.0240	91.65	1.1192	0.9272	P-XYLENE	0.1036E-02	
33	74.40	0.6240	760.00	753.40	0.7700	0.7783	852.11	1.0494	0.9562	HEXANE	-0.8349E-02	0.5568E-02
		0.1990			0.2020	0.1955	614.92	1.1573	0.9648	BENZENE	0.6531E-02	
		0.1770			0.0280	0.0262	93.12	1.1050	0.9277	P-XYLENE	0.1825E-02	
34	76.10	0.5840	760.00	752.96	0.7620	0.7744	894.78	1.0626	0.9570	HEXANE	-0.1242E-01	0.8285E-02
		0.1970			0.1970	0.1902	648.26	1.1366	0.9655	BENZENE	0.6846E-02	
		0.2190			0.0410	0.0354	99.55	1.0817	0.9290	P-XYLENE	0.5584E-02	
35	75.80	0.4710	760.00	752.97	0.6350	0.6386	887.14	1.0957	0.9568	HEXANE	-0.3631E-02	0.2417E-02
		0.3390			0.3360	0.3337	642.27	1.1103	0.9654	BENZENE	0.2325E-02	
		0.1900			0.0290	0.0277	98.39	1.0322	0.9292	P-XYLENE	0.1296E-02	
36	75.20	0.5270	760.00	755.81	0.6810	0.6873	872.00	1.0758	0.9564	HEXANE	-0.6304E-02	0.4205E-02
		0.2930			0.2910	0.2865	630.44	1.1276	0.9650	BENZENE	0.4481E-02	
		0.1800			0.0280	0.0262	96.10	1.0567	0.9284	P-XYLENE	0.1830E-02	
37	77.70	0.4820	760.00	755.36	0.6720	0.6867	936.35	1.0951	0.9575	HEXANE	-0.8716E-02	0.5808E-02
		0.2640			0.2770	0.2734	680.87	1.1059	0.9659	BENZENE	0.3638E-02	
		0.2540			0.0460	0.0399	105.94	1.0379	0.9301	P-XYLENE	0.5068E-02	
38	79.80	0.4490	760.00	757.38	0.6740	0.6845	993.02	1.1087	0.9583	HEXANE	-0.1049E-01	0.6991E-02
		0.2430			0.2670	0.2637	725.56	1.0914	0.9666	BENZENE	0.3280E-02	
		0.3080			0.0590	0.0518	114.83	1.0283	0.9313	P-XYLENE	0.7202E-02	

HEXANE(1) - ETHANOL(2) - BENZENE(3) SYSTEM 048

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
507.90	29.90	372.40	0.299	0.0	0.0	0.0	HEXANE	18
516.00	63.00	161.30	0.637	0.152	1.690	1.10	ETHANOL	11
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.68778E 01	0.11715E 04	0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03
0.80449E 01	0.15543E 04	0.22265E 03	ETHANOL	0.5370E 02	-0.3111E-01	0.1600E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	-0.1491E-01	0.1588E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
330.23	2094.86	HEXANE - ETHANOL	90	0
253.61	126.11	HEXANE - BENZENE	121	0
1440.08	218.56	ETHANOL - BENZENE	80	0

HALA CONSISTENCY TEST

CI(1) -0.2348

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.8427E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.1601E-01
COMPONENT 2	0.1774E-01
COMPONENT 3	0.1390E-01
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.1588E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	55.05	0.8950	601.10	605.02	0.7370	0.7339	465.96	1.0161	0.9583	HEXANE	0.3129E-02	0.2085E-02
		0.0420			0.2190	0.2196	274.72	11.1963	0.9742	ETHANOL	-0.5708E-03	
		0.0630			0.0440	0.0466	320.96	1.3425	0.9664	BENZENE	-0.2555E-02	
2	55.10	0.7380	562.70	556.35	0.6570	0.6632	466.73	1.0256	0.9611	HEXANE	-0.6161E-02	0.6582E-02
		0.0260			0.1560	0.1597	275.34	12.1271	0.9787	ETHANOL	-0.3712E-02	
		0.2360			0.1870	0.1771	321.54	1.2548	0.9687	BENZENE	0.9874E-02	
3	55.25	0.4730	503.20	494.62	0.5230	0.5134	469.09	1.1009	0.9651	HEXANE	0.9571E-02	0.6380E-02
		0.0150			0.0920	0.0978	277.24	11.4251	0.9833	ETHANOL	-0.5828E-02	
		0.5120			0.3850	0.3887	323.28	1.1265	0.9719	BENZENE	-0.3742E-02	
4	54.73	0.7580	657.50	653.48	0.6310	0.6491	460.96	1.1556	0.9562	HEXANE	-0.1814E-01	0.1210E-01
		0.1360			0.3240	0.3108	270.72	3.8973	0.9680	ETHANOL	0.1316E-01	
		0.0560			0.0450	0.0400	317.27	1.4158	0.9650	BENZENE	0.4991E-02	
5	54.92	0.7180	648.00	642.94	0.6090	0.6081	463.92	1.1182	0.9568	HEXANE	0.8880E-03	0.2343E-02
		0.1450			0.3000	0.2974	273.08	4.6702	0.9691	ETHANOL	0.2628E-02	
		0.1370			0.0910	0.0945	319.46	1.3365	0.9654	BENZENE	-0.3513E-02	
6	55.00	0.6250	632.90	629.84	0.5320	0.5505	465.17	1.1373	0.9576	HEXANE	-0.1851E-01	0.1234E-01
		0.1430			0.2950	0.2923	274.09	4.5473	0.9699	ETHANOL	0.2700E-02	
		0.2320			0.1730	0.1572	320.38	1.2931	0.9661	BENZENE	0.1582E-01	
7	55.16	0.5870	621.90	618.23	0.4800	0.5231	467.68	1.1241	0.9583	HEXANE	-0.4305E-01	0.2870E-01
		0.1170			0.2800	0.2791	276.10	5.1777	0.9710	ETHANOL	0.8740E-03	
		0.2960			0.2400	0.1978	322.24	1.2359	0.9666	BENZENE	0.4218E-01	
8	54.95	0.4370	580.70	565.57	0.4160	0.4341	464.39	1.1585	0.9613	HEXANE	-0.1806E-01	0.1848E-01
		0.0700			0.2720	0.2443	272.46	6.2227	0.9747	ETHANOL	0.2772E-01	
		0.4840			0.3120	0.3217	319.81	1.1359	0.9690	BENZENE	-0.9659E-02	
9	55.00	0.6370	656.50	651.45	0.5940	0.5907	465.17	1.2369	0.9566	HEXANE	0.3255E-02	0.7289E-02
		0.2330			0.3230	0.3153	274.09	3.1075	0.9680	ETHANOL	0.7680E-02	
		0.1300			0.0830	0.0939	320.38	1.4141	0.9653	BENZENE	-0.1093E-01	
10	54.95	0.5610	640.00	634.13	0.5140	0.5325	464.29	1.2359	0.9576	HEXANE	-0.1848E-01	0.1232E-01
		0.2130			0.3250	0.3091	273.46	3.2551	0.9690	ETHANOL	0.1586E-01	
		0.2260			0.1610	0.1584	319.81	1.3387	0.9661	BENZENE	0.2619E-02	
11	55.05	0.4000	599.30	587.04	0.4180	0.4098	465.95	1.2348	0.9604	HEXANE	0.8186E-02	0.7733E-02
		0.1380			0.2730	0.2846	274.72	4.2768	0.9722	ETHANOL	-0.1160E-01	
		0.4620			0.3090	0.3056	320.96	1.1684	0.9684	BENZENE	0.3415E-02	
12	55.00	0.3140	554.10	550.81	0.3230	0.3500	465.17	1.2659	0.9625	HEXANE	-0.2704E-01	0.2356E-01
		0.1990			0.2530	0.2613	274.09	5.1613	0.9747	ETHANOL	-0.8298E-02	
		0.5870			0.4240	0.3887	320.38	1.1015	0.9700	BENZENE	0.3534E-01	
13	55.00	0.1180	438.90	407.63	0.2050	0.2035	465.17	1.4638	0.9711	HEXANE	0.1462E-02	0.3723E-01
		0.0140			0.1430	0.0896	274.09	9.2745	0.9863	ETHANOL	0.5438E-01	
		0.8680			0.6520	0.7078	320.38	1.0116	0.9768	BENZENE	-0.5584E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIFI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	55.13	0.5460	663.60	656.31	0.5580	0.5314	467.21	1.4245	0.9565	HEXANE	-0.2337E-01	0.1558E-01
		0.3380			0.3460	0.3272	275.72	2.2248	0.9673	ETHANOL	0.1878E-01	
		0.1160			0.0960	0.0914	321.89	1.5462	0.9653	BENZENE	0.4597E-02	
15	55.00	0.4600	637.60	626.71	0.4760	0.4872	465.17	1.3618	0.9583	HEXANE	-0.1124E-01	0.8393E-02
		0.2710			0.3300	0.3174	274.09	2.5904	0.9690	ETHANOL	0.1259E-01	
		0.2690			0.1940	0.1953	320.38	1.3694	0.9667	BENZENE	-0.1349E-02	
16	54.98	0.3910	609.70	598.25	0.4160	0.4112	464.86	1.3280	0.9600	HEXANE	0.4819E-02	0.3212E-02
		0.2070			0.3030	0.3064	273.84	3.1336	0.9708	ETHANOL	-0.3382E-02	
		0.4120			0.2910	0.2924	320.15	1.2368	0.9681	BENZENE	-0.1436E-02	
17	55.05	0.2230	538.20	530.18	0.2700	0.2800	465.95	1.3725	0.9641	HEXANE	-0.1001E-01	0.7873E-02
		0.1040			0.2660	0.2678	274.72	4.8394	0.9754	ETHANOL	-0.1797E-02	
		0.6730			0.4640	0.4522	320.96	1.0754	0.9713	BENZENE	0.1181E-01	
18	55.16	0.4430	669.90	665.65	0.5940	0.6307	467.68	1.9292	0.9563	HEXANE	-0.3668E-01	0.2445E-01
		0.5350			0.3810	0.3474	276.10	1.5094	0.9681	ETHANOL	0.3362E-01	
		0.0220			0.0250	0.0219	322.24	1.9821	0.9652	BENZENE	0.3062E-02	
19	54.98	0.3960	661.40	650.12	0.5530	0.5796	464.86	1.9508	0.9572	HEXANE	-0.2656E-01	0.1771E-01
		0.5230			0.3670	0.3460	273.84	1.5012	0.9668	ETHANOL	0.2102E-01	
		0.0760			0.0800	0.0745	320.15	1.9159	0.9659	BENZENE	0.5546E-02	
20	55.22	0.3350	646.40	635.44	0.5000	0.4928	468.62	1.9033	0.9583	HEXANE	0.7230E-02	0.4819E-02
		0.4870			0.3410	0.3436	276.96	1.5641	0.9677	ETHANOL	-0.2603E-02	
		0.1780			0.1590	0.1636	322.94	1.7437	0.9668	BENZENE	-0.4624E-02	
21	55.10	0.2990	629.90	619.05	0.4370	0.4444	466.73	1.8831	0.9593	HEXANE	-0.7362E-02	0.5087E-02
		0.4610			0.3500	0.3424	275.34	1.6142	0.9685	ETHANOL	0.7631E-02	
		0.2400			0.2130	0.2133	321.54	1.6507	0.9676	BENZENE	-0.2664E-03	
22	55.08	0.2720	608.00	598.72	0.3690	0.3800	466.42	1.7155	0.9605	HEXANE	-0.1097E-01	0.9341E-02
		0.3720			0.3490	0.3350	275.09	1.3972	0.9698	ETHANOL	0.1401E-01	
		0.3560			0.2820	0.2850	321.31	1.4411	0.9686	BENZENE	-0.3040E-02	
23	55.20	0.2270	579.90	575.37	0.2300	0.3104	468.31	1.6100	0.9620	HEXANE	-0.8041E-01	0.5361E-01
		0.2310			0.3750	0.3275	276.60	2.3507	0.9712	ETHANOL	0.4748E-01	
		0.4920			0.3950	0.3621	322.71	1.2691	0.9698	BENZENE	0.3293E-01	
24	54.85	0.1680	548.50	536.16	0.2370	0.2388	462.83	1.5824	0.9643	HEXANE	-0.1844E-02	0.2343E-02
		0.2910			0.3150	0.3167	272.21	3.0156	0.9733	ETHANOL	-0.1670E-02	
		0.6310			0.4480	0.4445	318.65	1.1498	0.9716	BENZENE	0.3514E-02	
25	55.10	0.1050	506.40	497.56	0.1700	0.1632	466.73	1.5959	0.9666	HEXANE	0.6832E-02	0.1531E-01
		0.1190			0.2060	0.2899	275.34	4.2982	0.9761	ETHANOL	0.1614E-01	
		0.7760			0.5240	0.5470	321.54	1.0593	0.9734	BENZENE	-0.2297E-01	
26	54.95	0.0460	411.80	415.67	0.0810	0.0875	464.39	1.6489	0.9710	HEXANE	-0.6510E-02	0.4337E-02
		0.0330			0.1890	0.1839	273.46	7.2213	0.9829	ETHANOL	0.5109E-02	
		0.9160			0.7300	0.7286	319.81	1.0080	0.9768	BENZENE	0.1393E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	54.94	0.2530	635.70	621.99	0.4650	0.5031	464.23	2.5452	0.9595	HEXANE	-0.3806E-01	0.2537E-01
		0.6330			0.4030	0.3658	273.34	1.2698	0.9675	ETHANOL	0.3717E-01	
		0.1140			0.1320	0.1311	319.69	2.1592	0.9678	BENZENE	0.8918E-03	
28	55.14	0.2240	612.00	603.71	0.3780	0.3980	467.36	2.1955	0.9606	HEXANE	-0.1996E-01	0.1331E-01
		0.5230			0.3730	0.3556	275.85	1.4390	0.9688	ETHANOL	0.1742E-01	
		0.2530			0.2490	0.2465	322.01	1.7643	0.9687	BENZENE	0.2544E-02	
29	55.16	0.1830	585.00	578.34	0.3100	0.3128	467.68	2.0263	0.9622	HEXANE	-0.2846E-02	0.1300E-01
		0.4340			0.3710	0.3515	276.10	1.6432	0.9702	ETHANOL	0.1945E-01	
		0.3830			0.3190	0.3356	322.24	1.5217	0.9700	BENZENE	-0.1665E-01	
30	55.18	0.1070	524.50	524.87	0.1640	0.1755	467.99	1.7699	0.9655	HEXANE	-0.1151E-01	0.7676E-02
		0.2340			0.3380	0.3356	276.35	2.6471	0.9734	ETHANOL	0.2430E-02	
		0.6590			0.4980	0.4989	322.47	1.1716	0.9726	BENZENE	0.9085E-02	
31	55.15	0.1960	618.70	609.12	0.4350	0.4727	467.52	3.0064	0.9608	HEXANE	-0.3766E-01	0.2963E-01
		0.6940			0.4290	0.3846	275.97	1.1813	0.9676	ETHANOL	0.4444E-01	
		0.1100			0.1360	0.1428	322.12	2.3717	0.9689	BENZENE	-0.6784E-02	
32	55.05	0.1740	601.00	591.70	0.3720	0.3937	465.95	2.7524	0.9618	HEXANE	-0.2169E-01	0.1900E-01
		0.6300			0.4060	0.3775	274.72	1.2480	0.9687	ETHANOL	0.2850E-01	
		0.1960			0.2220	0.2288	320.96	2.0813	0.9697	BENZENE	-0.6806E-02	
33	55.05	0.1160	558.50	548.70	0.2380	0.2347	465.95	2.2895	0.9644	HEXANE	0.3278E-02	0.1348E-01
		0.4590			0.3850	0.3681	274.72	1.5528	0.9711	ETHANOL	0.1695E-01	
		0.4250			0.3770	0.3972	320.96	1.5489	0.9718	BENZENE	-0.2022E-01	
34	55.08	0.0890	530.00	526.31	0.1580	0.1698	466.42	2.0593	0.9657	HEXANE	-0.1078E-01	0.7190E-02
		0.3450			0.3670	0.3601	275.09	1.9399	0.9725	ETHANOL	0.6907E-02	
		0.5660			0.4750	0.4711	321.31	1.3233	0.9729	BENZENE	0.3878E-02	
35	55.10	0.0400	471.00	475.07	0.0680	0.0733	466.73	1.8017	0.9685	HEXANE	-0.5343E-02	0.1115E-01
		0.1410			0.3060	0.3174	275.34	3.7864	0.9763	ETHANOL	-0.1137E-01	
		0.8190			0.6260	0.6093	321.54	1.0693	0.9749	BENZENE	0.1672E-01	
36	55.05	0.0950	560.10	535.12	0.3710	0.4091	465.95	4.7662	0.9673	HEXANE	-0.3806E-01	0.4660E-01
		0.8430			0.4370	0.4688	274.72	1.0483	0.9692	ETHANOL	-0.3184E-01	
		0.0620			0.1920	0.1221	320.96	3.1915	0.9744	BENZENE	0.6990E-01	
37	55.16	0.0870	548.40	537.65	0.3380	0.3397	467.68	4.3112	0.9668	HEXANE	-0.6800E-03	0.1666E-01
		0.7930			0.4770	0.4520	276.10	1.0743	0.9695	ETHANOL	0.2499E-01	
		0.1200			0.1950	0.2093	322.24	2.8276	0.9740	BENZENE	-0.2431E-01	
38	54.73	0.0830	541.40	530.36	0.2700	0.2927	466.96	3.7748	0.9667	HEXANE	-0.1271E-01	0.9407E-02
		0.7260			0.4440	0.4299	270.72	1.1238	0.9703	ETHANOL	0.1411E-01	
		0.1910			0.2860	0.2874	317.27	2.4435	0.9748	BENZENE	-0.1404E-02	
39	55.00	0.0740	540.90	530.57	0.2010	0.2193	465.17	3.2621	0.9664	HEXANE	-0.1878E-01	0.1832E-01
		0.6400			0.4410	0.4135	274.09	1.2123	0.9708	ETHANOL	0.2747E-01	
		0.2860			0.3580	0.3667	320.38	2.0622	0.9736	BENZENE	-0.8696E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	54.08	0.0590	517.80	517.13	0.1450	0.1529	464.86	2.7796	0.9670	HEXANE	-0.7928E-02	0.5286E-02
		0.5260			0.3990	0.3988	273.84	1.3892	0.9719	ETHANOL	0.2404E-03	
		0.4150			0.4560	0.4483	320.15	1.6955	0.9740	BENZENE	0.7688E-02	
41	55.10	0.0300	406.40	418.12	0.1980	0.2354	466.73	6.8539	0.9779	HEXANE	-0.3736E-01	0.2820E-01
		0.9280			0.6770	0.6347	275.34	1.0094	0.9731	ETHANOL	0.4231E-01	
		0.0420			0.1250	0.1299	321.54	3.9489	0.9834	BENZENE	-0.4943E-02	
42	54.96	0.0280	470.50	475.59	0.1240	0.1281	464.55	4.5370	0.9714	HEXANE	-0.4149E-02	0.2306E-01
		0.7500			0.5250	0.4904	273.59	1.0902	0.9720	ETHANOL	0.3458E-01	
		0.2130			0.3510	0.3814	319.92	2.5973	0.9778	BENZENE	-0.3044E-01	
43	54.80	0.0230	483.50	492.66	0.0610	0.0531	462.05	2.3281	0.9689	HEXANE	0.7924E-02	0.4660E-01
		0.3430			0.4470	0.3850	271.59	1.9123	0.9740	ETHANOL	0.6198E-01	
		0.6290			0.4920	0.5619	318.07	1.3194	0.9755	BENZENE	-0.6990E-01	

HEXANE(1) - 1-HEXENE(2) - CELLOSOLVE(3) SYSTEM 248

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
507.90	29.90	372.40	0.298	0.0	0.0	0.0	HEXANE	18
504.00	32.10	350.70	0.285	0.0	0.0	0.0	1-HEXENE	38
0.0	0.0	0.0	0.0	0.0	1.630	0.0	CELLOSLV	7

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS			MOLAR VOLUME EQUATION COEFFICIENTS			
A	B	C	COMPONENT	A	B	C
0.69778E 01	0.11715E 04	0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03
0.68657E 01	0.11530E 04	0.22630E 03	1-HEXENE	0.2098E 03	-0.7134E 00	0.1435E-02
0.79944E 01	0.17430E 04	0.21333E 03	CELLOSLV	0.9852E 02	-0.1117E 00	0.3611E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

		BINARY	ID NUMBERS	ORDER
59.54	-19.20	HEXANE - 1-HEXENE	125	1
559.74	1237.97	HEXANE - CELLOSLV	51	0
489.44	699.28	1-HEXENE - CELLOSLV	52	0

HALA CONSISTENCY TEST

CI(1) 5.1734

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.3631E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.1683E-01
COMPONENT 2	0.8780E-02
COMPONENT 3	0.9263E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.1163E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	67.70	0.4430	760.00	743.75	0.4700	0.4869	731.87	1.1115	1.0000	HEXANE	-0.1695E-01	0.1130E-01
		0.4050			0.4870	0.4809	866.24	1.0146	1.0000	1-HEXENE	0.6136E-02	
		0.1520			0.0430	0.0322	48.11	3.2615	1.0000	CELLOSLV	0.1081E-01	
2	69.40	0.3060	760.00	710.86	0.4660	0.4884	771.84	1.4629	1.0000	HEXANE	-0.2236E-01	0.1491E-01
		0.2940			0.4750	0.4593	912.22	1.2119	1.0000	1-HEXENE	0.1573E-01	
		0.4000			0.0590	0.0524	52.42	1.7688	1.0000	CELLOSLV	0.6639E-02	
3	74.50	0.1670	760.00	726.27	0.4680	0.4927	901.98	2.3642	1.0000	HEXANE	-0.2474E-01	0.1649E-01
		0.1630			0.4470	0.4319	1061.51	1.8045	1.0000	1-HEXENE	0.1509E-01	
		0.6700			0.0950	0.0754	67.41	1.2074	1.0000	CELLOSLV	0.9642E-02	
4	68.50	0.6590	760.00	744.03	0.7060	0.7187	750.47	1.0758	1.0000	HEXANE	-0.1265E-01	0.8436E-02
		0.2050			0.2490	0.2465	887.65	1.0032	1.0000	1-HEXENE	0.2482E-02	
		0.1360			0.0450	0.0348	50.10	3.7890	1.0000	CELLOSLV	0.1017E-01	
5	70.30	0.4680	760.00	725.99	0.7000	0.7178	793.67	1.3962	1.0000	HEXANE	-0.1785E-01	0.1190E-01
		0.1490			0.2390	0.2275	937.31	1.1770	1.0000	1-HEXENE	0.1154E-01	
		0.3830			0.0610	0.0547	54.84	1.8836	1.0000	CELLOSLV	0.6310E-02	
6	74.90	0.2370	760.00	733.76	0.6830	0.7070	912.85	2.3862	1.0000	HEXANE	-0.2405E-01	0.1603E-01
		0.0800			0.2240	0.2159	1073.96	1.8349	1.0000	1-HEXENE	0.8148E-02	
		0.6830			0.0930	0.0771	68.73	1.2008	1.0000	CELLOSLV	0.1590E-01	
7	67.00	0.2270	760.00	754.34	0.2380	0.2448	715.88	1.1308	1.0000	HEXANE	-0.6837E-02	0.8194E-02
		0.6330			0.7230	0.7285	847.83	1.0190	1.0000	1-HEXENE	-0.5454E-02	
		0.1400			0.0390	0.0267	46.43	3.0882	1.0000	CELLOSLV	0.1229E-01	
8	66.60	0.2290	760.00	739.41	0.2410	0.2511	706.87	1.1414	1.0000	HEXANE	-0.1013E-01	0.7954E-02
		0.6190			0.7190	0.7208	837.45	1.0233	1.0000	1-HEXENE	-0.1802E-02	
		0.1520			0.0400	0.0281	45.49	2.9908	1.0000	CELLOSLV	0.1193E-01	
9	68.50	0.1600	760.00	697.40	0.2440	0.2605	750.47	1.5058	1.0000	HEXANE	-0.1648E-01	0.1099E-01
		0.4390			0.7010	0.6899	887.65	1.2292	1.0000	1-HEXENE	0.1112E-01	
		0.4010			0.0550	0.0496	50.10	1.7173	1.0000	CELLOSLV	0.5358E-02	
10	68.80	0.1510	760.00	702.14	0.2350	0.2493	757.54	1.5229	1.0000	HEXANE	-0.1428E-01	0.9519E-02
		0.4410			0.7090	0.7005	895.78	1.2394	1.0000	1-HEXENE	0.7543E-02	
		0.4080			0.0560	0.0503	50.87	1.6947	1.0000	CELLOSLV	0.6736E-02	
11	74.50	0.0820	760.00	706.19	0.2470	0.2655	901.98	2.5230	1.0000	HEXANE	-0.1850E-01	0.1234E-01
		0.2300			0.6670	0.6569	1061.51	1.8916	1.0000	1-HEXENE	0.1009E-01	
		0.6880			0.0860	0.0776	67.41	1.1773	1.0000	CELLOSLV	0.8415E-02	
12	74.40	0.0780	760.00	700.14	0.2400	0.2572	899.27	2.5549	1.0000	HEXANE	-0.1717E-01	0.1145E-01
		0.2290			0.6750	0.6649	1058.41	1.9118	1.0000	1-HEXENE	0.1023E-01	
		0.6930			0.0850	0.0781	67.09	1.1715	1.0000	CELLOSLV	0.6944E-02	

HEXANE(1) - 1-HEXENE(2) - 1,4-DIOXANE(3) SYSTEM 050

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
507.90	29.90	372.40	0.299	0.0	0.0	0.0	HEXANE	18
504.00	32.10	350.70	0.285	0.0	0.0	0.0	1-HEXENE	38
585.20	50.70	244.70	0.288	0.0	0.0	0.0	DIOXANE	10

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	P	C	COMPONENT	A	B	C
0.69778E 01	0.11715E 04	0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03
0.68657E 01	0.11530E 04	0.22600E 03	1-HEXENE	0.2098E 03	-0.7134E 00	0.1435E-02
0.74315E 01	0.15547E 04	0.24034E 03	DIOXANE	0.7197E 02	-0.4190E-02	0.1688E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

		BINARY ID NUMBERS	ORDER
59.54	-19.20	HEXANE - 1-HEXENE	125	1
315.52	676.48	HEXANE - DIOXANE	74	0
281.80	418.47	1-HEXENE - DIOXANE	75	0

HALA CONSISTENCY TEST

CI(1) 6.2310

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.1646E 02

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.3991E-02
COMPONENT 2	0.4303E-02
COMPONENT 3	0.7350E-02

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.5217E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	65.30	0.2290	760.00	748.24	0.2210	0.2251	648.76	1.0745	0.9524	HEXANE	-0.4118E-02	0.4086E-02
		0.6450			0.6960	0.6980	767.26	1.0056	0.9574	1-HEXENE	-0.2012E-02	
		0.1260			0.0830	0.0769	217.97	1.9903	0.9533	DIOXANE	0.6127E-02	
2	66.00	0.2310	760.00	761.06	0.2240	0.2293	662.97	1.0794	0.9519	HEXANE	-0.5332E-02	0.4667E-02
		0.6310			0.6940	0.6870	783.57	1.0070	0.9568	1-HEXENE	0.7005E-02	
		0.1390			0.0820	0.0837	223.82	1.9579	0.9528	DIOXANE	-0.1665E-02	
3	68.20	0.1650	760.00	738.66	0.2030	0.2077	709.13	1.2450	0.9543	HEXANE	-0.4662E-02	0.5057E-02
		0.4710			0.6030	0.6059	836.47	1.0845	0.9591	1-HEXENE	-0.2921E-02	
		0.3640			0.1940	0.1864	243.04	1.4822	0.9553	DIOXANE	0.7589E-02	
4	67.90	0.1630	760.00	730.67	0.2050	0.2060	702.70	1.2486	0.9546	HEXANE	-0.1018E-02	0.3841E-02
		0.4700			0.6020	0.6067	829.11	1.0865	0.9594	1-HEXENE	-0.4740E-02	
		0.3670			0.1930	0.1872	240.34	1.4776	0.9556	DIOXANE	0.5764E-02	
5	72.60	0.1030	760.00	738.39	0.1870	0.1892	908.59	1.5964	0.9564	HEXANE	-0.2190E-02	0.2082E-02
		0.2980			0.5210	0.5219	950.14	1.3020	0.9610	1-HEXENE	-0.9306E-03	
		0.5990			0.2920	0.2889	285.52	1.1904	0.9575	DIOXANE	0.3126E-02	
6	72.70	0.1030	760.00	740.14	0.1880	0.1895	810.96	1.5983	0.9563	HEXANE	-0.1532E-02	0.4326E-02
		0.2970			0.5160	0.5210	952.85	1.3032	0.9609	1-HEXENE	-0.4956E-02	
		0.6000			0.2960	0.2895	286.55	1.1895	0.9574	DIOXANE	0.6489E-02	
7	85.70	0.0270	760.00	743.50	0.1180	0.1182	1165.53	2.6706	0.9612	HEXANE	-0.1591E-03	0.4330E-02
		0.0920			0.3190	0.3125	1355.01	2.0094	0.9654	1-HEXENE	0.6497E-02	
		0.8910			0.5630	0.5693	448.90	1.0157	0.9626	DIOXANE	-0.6340E-02	
8	86.60	0.0260	760.00	755.78	0.1110	0.1156	1193.61	2.6916	0.9609	HEXANE	-0.4580E-02	0.1327E-01
		0.0790			0.2900	0.3053	1386.69	2.0234	0.9651	1-HEXENE	-0.1532E-01	
		0.8950			0.5990	0.5791	462.41	1.0146	0.9624	DIOXANE	0.1990E-01	
9	67.40	0.4480	760.00	773.52	0.4410	0.4459	692.07	1.0534	0.9517	HEXANE	-0.4915E-02	0.4646E-02
		0.4140			0.4600	0.4621	816.94	1.0062	0.9568	1-HEXENE	-0.2053E-02	
		0.1380			0.0990	0.0920	235.90	2.0764	0.9527	DIOXANE	0.6970E-02	
10	68.60	0.3240	760.00	737.55	0.4000	0.4009	717.77	1.2079	0.9545	HEXANE	-0.9462E-03	0.3004E-02
		0.3140			0.4090	0.4045	846.37	1.0720	0.9593	1-HEXENE	0.4509E-02	
		0.3620			0.1910	0.1946	246.67	1.5306	0.9555	DIOXANE	-0.3556E-02	
11	72.30	0.2130	760.00	740.79	0.3630	0.3661	801.49	1.5115	0.9561	HEXANE	-0.3095E-02	0.3415E-02
		0.2100			0.3490	0.3510	942.05	1.2570	0.9608	1-HEXENE	-0.2024E-02	
		0.5770			0.2880	0.2829	282.45	1.2269	0.9571	DIOXANE	0.5125E-02	
12	85.50	0.0490	760.00	735.66	0.2260	0.2167	1159.36	2.6963	0.9617	HEXANE	0.9260E-02	0.1183E-01
		0.0540			0.2170	0.2095	1348.04	2.0259	0.9657	1-HEXENE	0.8483E-02	
		0.8970			0.5570	0.5748	445.94	1.0148	0.9630	DIOXANE	-0.1775E-01	
13	67.70	0.6720	760.00	750.25	0.6710	0.6709	698.43	1.0288	0.9528	HEXANE	0.1397E-03	0.1300E-02
		0.2070			0.2360	0.2379	824.23	1.0094	0.9578	1-HEXENE	-0.1949E-02	
		0.1210			0.0930	0.0912	238.55	2.2800	0.9536	DIOXANE	0.1812E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	69.70	0.4900	760.00	751.87	0.5890	0.5961	741.95	1.1705	0.9542	HEXANE	-0.7114E-02	0.6169E-02
		0.1560			0.1990	0.2011	874.03	1.0587	0.9591	1-HEXENE	-0.2135E-02	
		0.3540			0.2120	0.2027	256.90	1.5959	0.9551	DIOXANE	0.9258E-02	
15	73.20	0.2940	760.00	742.27	0.5220	0.5296	822.91	1.5435	0.9564	HEXANE	-0.6577E-02	0.4386E-02
		0.0960			0.1690	0.1681	966.48	1.2864	0.9611	1-HEXENE	0.9139E-03	
		0.6100			0.3090	0.3033	291.76	1.2075	0.9574	DIOXANE	0.5666E-02	
16	84.80	0.0740	760.00	728.40	0.3300	0.3218	1137.02	2.6646	0.9618	HEXANE	0.8212E-02	0.7071E-02
		0.0290			0.1130	0.1106	1323.83	2.0178	0.9659	1-HEXENE	0.2399E-02	
		0.8970			0.5570	0.5676	435.70	1.0158	0.9631	DIOXANE	-0.1060E-01	

HEXANE(1) - 1-HEXENE(2) - 1,2,3-TRICHLOROPROPANE(3) SYSTEM 051

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
507.90	29.90	372.40	0.299	0.0	0.0	0.0	HEXANE	18
504.00	32.10	350.70	0.285	0.0	0.0	0.0	1-HEXENE	38
632.10	39.10	347.60	0.446	0.275	0.0	0.0	TCP	39

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.68778E 01	0.11715E 04	0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03
0.68657E 01	0.11530E 04	0.22600E 03	1-HEXENE	0.2098E 03	-0.7134E 00	0.1435E-02
0.69872E 01	0.15023E 04	0.20900E 03	TCP	0.1027E 03	-0.6640E-01	0.2673E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
59.54	-19.20	HEXANE - 1-HEXENE	125	1
214.57	937.39	HEXANE - TCP	210	0
118.00	603.52	1-HEXENE - TCP	211	0

HALA CONSISTENCY TEST

CI(1) 1.7769

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.4130E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.1295E-01
COMPONENT 2	0.1274E-01
COMPONENT 3	0.2060E-01
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.1543E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	PICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	70.50	0.4960	760.00	779.74	0.5470	0.5496	750.91	1.0778	0.9529	HEXANE	-0.2551E-02	0.3041E-02
		0.3540			0.4350	0.4304	894.57	1.0102	0.9578	1-HEXENE	0.4562E-02	
		0.1500			0.0180	0.0200	40.72	2.3261	0.9143	TCP	-0.2009E-02	
2	77.30	0.2920	760.00	790.53	0.4820	0.4901	918.00	1.3737	0.9552	HEXANE	-0.8139E-02	0.5424E-02
		0.2830			0.4700	0.4657	1074.71	1.1563	0.9600	1-HEXENE	0.4288E-02	
		0.4250			0.0480	0.0442	53.98	1.3951	0.9189	TCP	0.3845E-02	
3	129.20	0.0160	760.00	630.33	0.2900	0.2354	3119.14	2.8996	0.9792	HEXANE	0.4462E-01	0.6336E-01
		0.0130			0.2660	0.2156	3521.43	2.0969	0.9819	1-HEXENE	0.5042E-01	
		0.9660			0.4540	0.5490	341.94	1.0011	0.9584	TCP	-0.9504E-01	
4	71.00	0.6180	760.00	752.05	0.7190	0.7256	771.30	1.0877	0.9549	HEXANE	-0.6573E-02	0.4379E-02
		0.1940			0.2550	0.2490	907.58	1.0160	0.9597	1-HEXENE	0.5988E-02	
		0.1880			0.0260	0.0254	41.62	2.2328	0.9174	TCP	0.5753E-03	
5	72.10	0.6330	760.00	789.95	0.7240	0.7263	796.79	1.0701	0.9530	HEXANE	-0.2336E-02	0.2553E-02
		0.1990			0.2540	0.2502	936.68	1.0107	0.9580	1-HEXENE	0.3825E-02	
		0.1630			0.0220	0.0235	43.68	2.3740	0.9143	TCP	-0.1499E-02	
6	77.20	0.4360	760.00	782.62	0.7210	0.7230	923.21	1.3366	0.9558	HEXANE	-0.1960E-02	0.2538E-02
		0.1400			0.2290	0.2309	1080.64	1.1415	0.9605	1-HEXENE	-0.1853E-02	
		0.4240			0.0500	0.0462	54.33	1.4369	0.9193	TCP	0.3803E-02	
7	78.50	0.4250	760.00	807.34	0.7160	0.7169	957.66	1.3508	0.9550	HEXANE	-0.8504E-03	0.1746E-02
		0.1410			0.2380	0.2354	1119.76	1.1495	0.9598	1-HEXENE	0.2617E-02	
		0.4340			0.0460	0.0478	57.37	1.4160	0.9179	TCP	-0.1769E-02	
8	88.30	0.2130	760.00	780.67	0.6850	0.6885	1247.97	1.9323	0.9605	HEXANE	-0.3470E-02	0.2312E-02
		0.0760			0.2220	0.2201	1447.94	1.4995	0.9648	1-HEXENE	0.1853E-02	
		0.7110			0.0930	0.0914	85.10	1.0898	0.9279	TCP	0.1614E-02	
9	88.60	0.2240	760.00	804.01	0.6890	0.6957	1257.75	1.8949	0.9594	HEXANE	-0.6700E-02	0.4466E-02
		0.0770			0.2190	0.2152	1458.95	1.4770	0.9638	1-HEXENE	0.3813E-02	
		0.6990			0.0920	0.0891	86.09	1.0981	0.9260	TCP	0.2886E-02	
10	127.20	0.0280	760.00	652.21	0.4680	0.3796	3001.31	2.8694	0.9779	HEXANE	0.8837E-01	0.7841E-01
		0.0110			0.1510	0.1217	3392.41	2.0786	0.9808	1-HEXENE	0.2925E-01	
		0.9610			0.3810	0.4986	322.11	1.0016	0.9563	TCP	-0.1176E 00	
11	69.00	0.2200	760.00	759.57	0.2470	0.2521	726.50	1.1364	0.9534	HEXANE	-0.5061E-02	0.3377E-02
		0.6010			0.7330	0.7283	856.36	1.0251	0.9582	1-HEXENE	0.4708E-02	
		0.1790			0.0200	0.0196	38.10	1.9955	0.9159	TCP	0.3607E-03	
12	69.70	0.2200	760.00	785.12	0.2420	0.2469	741.95	1.1248	0.9522	HEXANE	-0.4861E-02	0.9580E-02
		0.6160			0.7490	0.7346	874.03	1.0203	0.9571	1-HEXENE	0.1437E-01	
		0.1640			0.0090	0.0185	39.30	2.0522	0.9138	TCP	-0.9513E-02	
13	76.60	0.1490	760.00	788.90	0.2500	0.2561	907.62	1.4195	0.9552	HEXANE	-0.6072E-02	0.4046E-02
		0.4230			0.7070	0.7014	1062.92	1.1755	0.9598	1-HEXENE	0.5565E-02	
		0.4280			0.0430	0.0425	52.98	1.3538	0.9193	TCP	0.5024E-03	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	89.10	0.0680	760.00	765.91	0.2390	0.2404	1274.15	2.0328	0.9615	HEXANE	-0.1355E-02	0.2325E-02
		0.2140			0.6680	0.6645	1477.42	1.5470	0.9656	1-HEXENE	0.3485E-02	
		0.7190			0.0930	0.0951	87.78	1.0718	0.9306	TCP	-0.2135E-02	
15	127.80	0.0110	760.00	661.14	0.1600	0.1486	3036.36	2.8639	0.9776	HEXANE	0.1139E-01	0.4393E-01
		0.0320			0.4070	0.3525	3430.81	2.0728	0.9805	1-HEXENE	0.5451E-01	
		0.9570			0.4330	0.4989	327.96	1.0016	0.9561	TCP	-0.6590E-01	

METHANOL(1) - CCL4(2) - BENZENE(3) SYSTEM-052

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
556.40	45.00	279.60	0.193	0.0	0.0	0.0	CCL4	6
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.73786E 01	0.14731E 04	0.23000E 03	METHANOL	0.6451E 02	-0.1972E 00	0.3874E-03
0.69339E 01	0.12424E 04	0.23000E 03	CCL4	0.6194E 02	-0.2998E 00	0.1676E-02
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
2588.50	-26.78	METHANOL - CCL4	136	0
1808.24	171.50	METHANOL - BENZENE	133	0
-90.25	169.58	CCL4 - BENZENE	45	0

HALA CONSISTENCY TEST

CI(1) 0.6949

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.1127E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.2296E-02
COMPONENT 2	0.2700E-02
COMPONENT 3	0.3958E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.2985E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FUGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	34.68	0.2075	291.11	289.97	0.4920	0.4946	202.16	3.3540	0.9816	METHANOL	-0.2632E-02	0.2697E-02
		0.1900			0.1472	0.1436	171.29	1.2991	0.9830	CCL4	-0.1416E-02	
		0.6025			0.3608	0.3568	144.65	1.1656	0.9833	BENZENE	0.4042E-02	
2	34.68	0.2110	302.13	301.07	0.4804	0.4836	202.16	3.3467	0.9810	METHANOL	-0.3228E-02	0.5711E-02
		0.3877			0.2774	0.2827	171.29	1.2558	0.9822	CCL4	-0.5342E-02	
		0.4011			0.2422	0.2336	144.65	1.1895	0.9824	BENZENE	0.8564E-02	
3	34.68	0.1997	308.63	309.42	0.4733	0.4754	202.16	3.5890	0.9807	METHANOL	-0.2124E-02	0.2795E-02
		0.5876			0.3999	0.4020	171.29	1.2104	0.9815	CCL4	-0.2073E-02	
		0.2127			0.1268	0.1226	144.65	1.2032	0.9818	BENZENE	0.4190E-02	
4	34.68	0.3781	307.23	306.48	0.5043	0.5027	202.16	1.9748	0.9804	METHANOL	0.1578E-02	0.2521E-02
		0.3122			0.2747	0.2785	171.29	1.5643	0.9822	CCL4	-0.3784E-02	
		0.3097			0.2210	0.2188	144.65	1.4686	0.9825	BENZENE	0.2200E-02	
5	34.68	0.5543	308.13	306.53	0.5308	0.5281	202.16	1.4146	0.9799	METHANOL	0.2693E-02	0.2452E-02
		0.2078			0.2501	0.2491	171.29	2.1038	0.9827	CCL4	0.9813E-03	
		0.2379			0.2191	0.2228	144.65	1.9478	0.9830	BENZENE	-0.3680E-02	
6	34.68	0.7599	298.80	297.37	0.5903	0.5838	202.16	1.1157	0.9795	METHANOL	0.1521E-02	0.1733E-02
		0.1076			0.2080	0.2106	171.29	3.3382	0.9844	CCL4	-0.2602E-02	
		0.1325			0.2017	0.2006	144.65	3.0609	0.9847	BENZENE	0.1075E-02	

METHANOL(1) - CCL4(2) - BENZENE(3) SYSTEM 253

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
556.40	45.00	279.60	0.193	0.0	0.0	0.0	CCL4	6
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.78786E 01	0.14731E 04	0.23000E 03	METHANOL	0.6451E 02	-0.1972E 00	0.3874E-03
0.69339E 01	0.12424E 04	0.23000E 03	CCL4	0.6194E 02	-0.2998E 00	0.1676E-02
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7096E 02	0.1491E-01	0.1588E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
2558.34	-85.92	METHANOL - CCL4	137	0
1800.09	160.23	METHANOL - BENZENE	134	0
-234.97	309.12	CCL4 - BENZENE	46	0

HALA CONSISTENCY TEST

CI(1) 0.7808

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.1852E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.2233E-02
COMPONENT 2	0.2579E-02
COMPONENT 3	0.1041E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.1951E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	55.00	0.1880	665.26	666.17	0.5152	0.5145	496.76	3.5467	0.9677	METHANOL	0.6889E-03	0.8578E-03
		0.1960			0.1387	0.1400	366.24	1.2526	0.9697	CCL4	-0.1291E-02	
		0.6160			0.3461	0.3455	320.38	1.1272	0.9694	BENZENE	0.5932E-03	
2	55.00	0.1983	690.29	692.46	0.5130	0.5096	496.76	3.4574	0.9666	METHANOL	0.3423E-02	0.2331E-02
		0.3961			0.2624	0.2659	366.24	1.2218	0.9674	CCL4	-0.3501E-02	
		0.4056			0.2246	0.2245	320.38	1.1546	0.9681	BENZENE	0.6944E-04	
3	55.00	0.1982	689.67	692.46	0.5109	0.5095	496.76	3.4590	0.9666	METHANOL	0.1350E-02	0.2131E-02
		0.3963			0.2628	0.2660	366.24	1.2217	0.9674	CCL4	-0.3201E-02	
		0.4055			0.2263	0.2245	320.38	1.1546	0.9681	BENZENE	0.1843E-02	
4	55.00	0.1945	706.51	711.30	0.5068	0.5056	496.76	3.5898	0.9658	METHANOL	0.1164E-02	0.2453E-02
		0.5922			0.3733	0.3770	366.24	1.1988	0.9663	CCL4	-0.3683E-02	
		0.2133			0.1199	0.1174	320.38	1.1778	0.9671	BENZENE	0.2511E-02	
5	55.00	0.3590	711.17	711.41	0.5397	0.5338	496.76	2.0520	0.9650	METHANOL	0.5856E-02	0.3907E-02
		0.3230			0.2539	0.2598	366.24	1.4981	0.9672	CCL4	-0.4947E-02	
		0.3180			0.2064	0.2073	320.38	1.3968	0.9680	BENZENE	-0.9168E-03	
6	55.00	0.5557	717.20	716.95	0.5672	0.5627	496.76	1.4067	0.9639	METHANOL	0.4463E-02	0.2977E-02
		0.2134			0.2316	0.2345	366.24	2.0721	0.9679	CCL4	-0.2950E-02	
		0.2309			0.2012	0.2027	320.38	1.8970	0.9687	BENZENE	-0.1520E-02	
7	55.00	0.7515	703.34	701.95	0.6209	0.6204	496.76	1.1220	0.9632	METHANOL	0.5426E-03	0.5822E-03
		0.1115			0.1925	0.1934	366.24	3.2108	0.9707	CCL4	-0.8772E-03	
		0.1370			0.1866	0.1863	320.38	2.8846	0.9714	BENZENE	0.3266E-03	
8	55.00	0.8433	680.96	678.59	0.6736	0.6740	496.76	1.0503	0.9634	METHANOL	-0.3765E-03	0.3704E-03
		0.0814			0.1890	0.1892	366.24	4.1728	0.9736	CCL4	-0.1841E-03	
		0.0753			0.1374	0.1368	320.38	3.7392	0.9744	BENZENE	0.5507E-03	

METHANOL(1) - ETHANOL(2) - DIOXANE(3) SYSTEM 254

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
516.00	63.00	161.30	0.637	0.152	1.690	1.10	ETHANOL	11
585.20	50.70	244.70	0.283	0.0	0.0	0.0	DIOXANE	10

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.78786E 01	0.14731E 04	0.23000E 03	METHANOL	0.6451E 02	-0.1972E 00	0.3874E-03
0.80449E 01	0.15543E 04	0.22265E 03	ETHANOL	0.5370E 02	-0.3111E-01	0.1600E-03
0.74315E 01	0.15547E 04	0.24034E 03	DIOXANE	0.7197E 02	-0.4190E-02	0.1688E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-277.98	712.13	METHANOL - ETHANOL	138	0
1049.77	-304.69	METHANOL - DIOXANE	142	0
369.15	235.35	ETHANOL - DIOXANE	73	0

HALA CONSISTENCY TEST

CI(1) -1.4945

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.2334E 02

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.1769E-01
COMPONENT 2	0.1624E-01
COMPONENT 3	0.1811E-01

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.1735E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	96.17	0.0220	760.00	813.69	0.1000	0.1315	2117.88	2.2574	0.9843	METHANOL	-0.3153E-01	0.2798E-01
		0.0360			0.1000	0.1104	1385.14	1.7587	0.9782	ETHANOL	-0.1043E-01	
		0.9420			0.8000	0.7580	627.25	1.0034	0.9644	DIOXANE	0.4197E-01	
2	93.53	0.0300	760.00	818.43	0.1000	0.1511	1954.09	2.0658	0.9808	METHANOL	-0.5111E-01	0.3407E-01
		0.0670			0.2000	0.1800	1266.24	1.6885	0.9747	ETHANOL	0.2002E-01	
		0.9030			0.7000	0.6689	577.74	1.0086	0.9644	DIOXANE	0.3109E-01	
3	90.33	0.0300	760.00	796.87	0.1000	0.1256	1768.78	1.8412	0.9779	METHANOL	-0.2557E-01	0.1705E-01
		0.1200			0.3000	0.2958	1133.05	1.6254	0.9725	ETHANOL	0.1418E-01	
		0.8500			0.6000	0.5886	521.94	1.0175	0.9656	DIOXANE	0.1139E-01	
4	87.23	0.0300	760.00	794.02	0.1000	0.0976	1602.48	1.5680	0.9741	METHANOL	0.2394E-02	0.8132E-02
		0.2050			0.4000	0.4122	1014.84	1.5215	0.9693	ETHANOL	-0.1220E-01	
		0.7650			0.5000	0.4902	472.07	1.0385	0.9667	DIOXANE	0.9805E-02	
5	83.65	0.0350	760.00	778.97	0.1000	0.0870	1425.79	1.3158	0.9708	METHANOL	0.1304E-01	0.1387E-01
		0.3170			0.5000	0.5208	890.76	1.3856	0.9666	ETHANOL	-0.2081E-01	
		0.6480			0.4000	0.3922	419.29	1.0860	0.9688	DIOXANE	0.7764E-02	
6	80.76	0.0430	760.00	766.18	0.1000	0.0846	1294.55	1.1252	0.9683	METHANOL	0.1544E-01	0.1030E-01
		0.4500			0.6000	0.6098	799.73	1.2473	0.9645	ETHANOL	-0.8783E-02	
		0.5070			0.3000	0.3067	380.23	1.1800	0.9712	DIOXANE	-0.6660E-02	
7	78.42	0.0530	760.00	757.33	0.1000	0.0857	1195.41	0.9879	0.9660	METHANOL	0.1431E-01	0.9544E-02
		0.6300			0.7000	0.7018	731.63	1.1075	0.9626	ETHANOL	-0.1752E-02	
		0.3170			0.2000	0.2126	350.80	1.4063	0.9745	DIOXANE	-0.1257E-01	
8	77.41	0.0650	760.00	762.15	0.1000	0.0975	1154.51	0.9530	0.9640	METHANOL	0.2514E-02	0.3989E-02
		0.9100			0.9000	0.7965	703.72	1.0213	0.9610	ETHANOL	0.3468E-02	
		0.1250			0.1000	0.1060	338.68	1.8618	0.9789	DIOXANE	-0.5986E-02	
9	92.75	0.0500	760.00	825.32	0.2000	0.2536	1907.62	2.1477	0.9804	METHANOL	-0.5357E-01	0.3571E-01
		0.0360			0.1000	0.0911	1232.49	1.6460	0.9734	ETHANOL	0.8862E-02	
		0.9140			0.7000	0.6553	563.73	1.0085	0.9640	DIOXANE	0.4471E-01	
10	87.05	0.0600	760.00	791.50	0.2000	0.2105	1593.20	1.6974	0.9753	METHANOL	-0.1052E-01	0.1307E-01
		0.1400			0.3000	0.2804	1008.29	1.5205	0.9693	ETHANOL	0.1961E-01	
		0.8000			0.5000	0.5091	469.30	1.0339	0.9664	DIOXANE	-0.9082E-02	
11	82.83	0.0730	760.00	765.72	0.2000	0.1902	1387.54	1.3953	0.9719	METHANOL	0.9811E-02	0.6541E-02
		0.2500			0.4000	0.4068	864.13	1.3906	0.9666	ETHANOL	-0.6760E-02	
		0.6770			0.4000	0.4031	407.89	1.0795	0.9690	DIOXANE	-0.3052E-02	
12	79.93	0.0880	760.00	751.10	0.2000	0.1819	1258.48	1.1941	0.9695	METHANOL	0.1810E-01	0.1414E-01
		0.3650			0.5000	0.4969	775.01	1.2701	0.9647	ETHANOL	0.3099E-02	
		0.5470			0.3000	0.3212	369.57	1.1556	0.9713	DIOXANE	-0.2121E-01	
13	77.42	0.1050	760.00	743.79	0.2000	0.1727	1154.91	1.0230	0.9669	METHANOL	0.2726E-01	0.1817E-01
		0.5450			0.6000	0.6050	704.00	1.1266	0.9626	ETHANOL	-0.5009E-02	
		0.3500			0.2000	0.2223	338.80	1.3546	0.9747	DIOXANE	-0.2225E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	76.31	0.1220	760.00	748.63	0.2000	0.1817	1111.22	0.9671	0.9651	METHANOL	0.1826E-01	0.2118E-01
		0.7030			0.7000	0.6865	674.42	1.0397	0.9611	ETHANOL	0.1351E-01	
		0.1750			0.1000	0.1318	325.97	1.6869	0.9783	DIOXANE	-0.3177E-01	
15	89.58	0.0800	760.00	828.53	0.3000	0.3476	1727.38	2.0334	0.9774	METHANOL	-0.4757E-01	0.3172E-01
		0.0370			0.1000	0.0783	1103.50	1.5372	0.9695	ETHANOL	0.2169E-01	
		0.8830			0.6000	0.5741	509.51	1.0160	0.9642	DIOXANE	0.2589E-01	
16	86.14	0.0950	760.00	798.09	0.3000	0.3396	1546.97	1.7958	0.9752	METHANOL	-0.3962E-01	0.2792E-01
		0.0850			0.2000	0.1581	975.68	1.4694	0.9678	ETHANOL	0.4187E-01	
		0.8200			0.5000	0.5022	455.47	1.0334	0.9660	DIOXANE	-0.2249E-02	
17	82.49	0.1100	760.00	763.23	0.3000	0.3109	1371.92	1.5274	0.9730	METHANOL	-0.1086E-01	0.2279E-01
		0.1650			0.3000	0.2658	853.27	1.3895	0.9664	ETHANOL	0.3418E-01	
		0.7250			0.4000	0.4233	403.24	1.0669	0.9685	DIOXANE	-0.2332E-01	
18	76.33	0.1700	760.00	735.38	0.3000	0.2837	1111.99	1.0670	0.9677	METHANOL	0.1633E-01	0.1945E-01
		0.4480			0.5000	0.4872	674.85	1.1385	0.9622	ETHANOL	0.1284E-01	
		0.3820			0.2000	0.2292	326.10	1.3155	0.9747	DIOXANE	-0.2918E-01	
19	75.19	0.1950	760.00	746.56	0.3000	0.2854	1068.48	0.9856	0.9654	METHANOL	0.1463E-01	0.1920E-01
		0.6230			0.6000	0.5858	645.41	1.0422	0.9602	ETHANOL	0.1417E-01	
		0.1820			0.1000	0.1288	313.23	1.6456	0.9786	DIOXANE	-0.2881E-01	
20	85.19	0.1280	760.00	818.19	0.4000	0.4456	1499.83	1.8467	0.9740	METHANOL	-0.4557E-01	0.3038E-01
		0.0450			0.1000	0.0748	942.55	1.3898	0.9654	ETHANOL	0.2520E-01	
		0.8270			0.5000	0.4796	441.38	1.0343	0.9653	DIOXANE	0.2038E-01	
21	81.62	0.1530	760.00	779.31	0.4000	0.4237	1332.57	1.5722	0.9723	METHANOL	-0.2371E-01	0.2140E-01
		0.1150			0.2000	0.1679	825.99	1.3254	0.9643	ETHANOL	0.3210E-01	
		0.7320			0.4000	0.4084	391.53	1.0714	0.9680	DIOXANE	-0.8389E-02	
22	78.28	0.1840	760.00	748.43	0.4000	0.3976	1189.67	1.3171	0.9703	METHANOL	0.2433E-02	0.1943E-01
		0.2170			0.3000	0.2733	727.71	1.2443	0.9631	ETHANOL	0.2671E-01	
		0.5990			0.3000	0.3291	349.19	1.1402	0.9709	DIOXANE	-0.2914E-01	
23	75.24	0.2300	760.00	733.81	0.4000	0.3784	1070.26	1.0899	0.9678	METHANOL	0.2163E-01	0.1534E-01
		0.3350			0.4000	0.3986	646.68	1.1269	0.9612	ETHANOL	0.1378E-02	
		0.3350			0.2000	0.2230	313.79	1.3166	0.9749	DIOXANE	-0.2302E-01	
24	73.94	0.2700	760.00	743.64	0.4000	0.3858	1022.32	1.0021	0.9655	METHANOL	0.1419E-01	0.1407E-01
		0.6500			0.5000	0.4931	614.23	1.0388	0.9592	ETHANOL	0.6912E-02	
		0.1300			0.1000	0.1211	299.60	1.6299	0.9790	DIOXANE	-0.2111E-01	
25	80.93	0.1880	760.00	796.11	0.5000	0.5226	1302.01	1.6488	0.9716	METHANOL	-0.2261E-01	0.1570E-01
		0.0580			0.1000	0.0765	804.86	1.2519	0.9624	ETHANOL	0.2355E-01	
		0.7540			0.4000	0.4009	382.45	1.0670	0.9671	DIOXANE	-0.9316E-03	
26	77.36	0.2350	760.00	758.04	0.5000	0.5037	1152.51	1.3654	0.9699	METHANOL	-0.3711E-02	0.1825E-01
		0.1500			0.2000	0.1726	702.36	1.1915	0.9614	ETHANOL	0.2737E-01	
		0.6150			0.3000	0.3237	338.09	1.1415	0.9704	DIOXANE	-0.2366E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	74.04	0.3020	760.00	734.92	0.5000	0.4909	1025.95	1.1250	0.9677	METHANOL	0.9144E-02	0.1406E-01
		0.2970			0.3000	0.2881	616.78	1.1069	0.9598	ETHANOL	0.1194E-01	
		0.4010			0.2000	0.2211	300.67	1.3095	0.9747	DIOXANE	-0.2109E-01	
28	72.68	0.3550	760.00	743.99	0.5000	0.4950	977.41	1.0232	0.9655	METHANOL	0.5013E-02	0.1458E-01
		0.4500			0.4000	0.3831	584.25	1.0363	0.9579	ETHANOL	0.1686E-01	
		0.1950			0.1000	0.1219	286.35	1.5846	0.9799	DIOXANE	-0.2188E-01	
29	76.15	0.2900	760.00	769.51	0.6000	0.6094	1105.04	1.4159	0.9691	METHANOL	-0.9377E-02	0.1668E-01
		0.0750			0.1000	0.0750	670.12	1.0989	0.9592	ETHANOL	0.2501E-01	
		0.6350			0.3000	0.3156	324.04	1.1410	0.9697	DIOXANE	-0.1564E-01	
30	72.72	0.3800	760.00	739.68	0.6000	0.5997	978.32	1.1517	0.9672	METHANOL	0.3416E-03	0.1034E-01
		0.2100			0.2000	0.1348	585.19	1.0635	0.9580	ETHANOL	0.1516E-01	
		0.4100			0.2000	0.2155	286.76	1.3170	0.9744	DIOXANE	-0.1551E-01	
31	71.20	0.4500	760.00	743.96	0.6000	0.6062	926.68	1.0424	0.9652	METHANOL	-0.6239E-02	0.1737E-01
		0.3450			0.3000	0.2739	550.47	1.0240	0.9562	ETHANOL	0.2606E-01	
		0.2050			0.1000	0.1198	271.40	1.5632	0.9787	DIOXANE	-0.1982E-01	
32	71.27	0.4600	760.00	744.34	0.7000	0.7033	929.02	1.1824	0.9666	METHANOL	-0.3304E-02	0.1314E-01
		0.1050			0.1000	0.0903	552.03	0.9835	0.9560	ETHANOL	0.1971E-01	
		0.4350			0.2000	0.2164	272.09	1.3209	0.9736	DIOXANE	-0.1641E-01	
33	69.68	0.5570	760.00	748.88	0.7000	0.7113	876.77	1.0505	0.9645	METHANOL	-0.1134E-01	0.1384E-01
		0.2470			0.2000	0.1792	517.44	0.9999	0.9541	ETHANOL	0.2075E-01	
		0.1960			0.1000	0.1094	256.71	1.5888	0.9787	DIOXANE	-0.9416E-02	
34	68.07	0.6670	760.00	749.29	0.8000	0.8006	826.28	1.0475	0.9638	METHANOL	-0.5599E-03	0.4824E-03
		0.1510			0.1000	0.1002	484.24	0.9752	0.9521	ETHANOL	-0.1658E-03	
		0.1920			0.1000	0.0993	241.96	1.6488	0.9788	DIOXANE	0.7215E-03	

METHANOL(1) - ETHANOL(2) - WATER(3) SYSTEM 055

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
516.00	63.00	161.30	0.637	0.152	1.690	1.10	ETHANOL	11
647.40	218.30	55.20	0.344	0.010	1.850	0.0	WATER	34

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS			MOLAR VOLUME EQUATION COEFFICIENTS			
A	B	C	COMPONENT	A	B	C
0.78786E 01	0.14731E 04	0.23000E 03	METHANOL	0.4451E 02	-0.1972E 00	0.3874E-03
0.80449E 01	0.15543E 04	0.22265E 03	ETHANOL	0.5370E 02	-0.3111E-01	0.1600E-03
0.79669E 01	0.16832E 04	0.22800E 03	WATER	0.2289E 02	-0.3642E-01	0.6856E-04

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-277.98	712.13	METHANOL - ETHANOL	138	0
483.16	322.47	METHANOL - WATER	157	0
393.37	952.09	ETHANOL - WATER	103	0

HALA CONSISTENCY TEST

CI(1) -0.1038

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.2066E 02

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.3626E-01
COMPONENT 2	0.1871E-01
COMPONENT 3	0.4690E-01

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.3296E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	68.10	0.7500	760.00	765.45	0.8500	0.8498	827.20	1.0079	0.9627	METHANOL	0.1501E-03	0.3659E-02
		0.1410			0.0960	0.1015	484.84	1.0780	0.9508	ETHANOL	-0.5490E-02	
		0.1090			0.0540	0.0487	214.62	1.5526	0.9757	WATER	0.5337E-02	
2	68.10	0.7560	760.00	768.93	0.8520	0.8531	827.20	1.0081	0.9626	METHANOL	-0.1073E-02	0.4342E-02
		0.1420			0.0960	0.1014	484.84	1.0745	0.9505	ETHANOL	-0.5441E-02	
		0.1020			0.0520	0.0455	214.62	1.5575	0.9755	WATER	0.6511E-02	
3	74.20	0.3020	760.00	767.28	0.4180	0.4116	1031.79	0.9754	0.9638	METHANOL	0.6404E-02	0.1360E-01
		0.5900			0.4900	0.5104	620.69	1.0219	0.9578	ETHANOL	-0.2040E-01	
		0.1090			0.0920	0.0780	278.69	1.9490	0.9807	WATER	0.1399E-01	
4	71.70	0.5300	760.00	764.63	0.6950	0.6805	943.58	1.0014	0.9640	METHANOL	0.1455E-01	0.1152E-01
		0.2300			0.1800	0.1973	561.70	1.1121	0.9546	ETHANOL	-0.1728E-01	
		0.2400			0.1250	0.1223	250.72	1.5210	0.9796	WATER	0.2730E-02	
5	75.00	0.2600	760.00	757.00	0.3600	0.3578	1061.36	0.9448	0.9642	METHANOL	0.2231E-02	0.1427E-01
		0.5200			0.4700	0.4914	640.60	1.0684	0.9588	ETHANOL	-0.2140E-01	
		0.2200			0.1700	0.1508	288.17	1.7688	0.9828	WATER	0.1917E-01	
6	81.20	0.0490	760.00	749.03	0.1300	0.0924	1313.90	1.0342	0.9639	METHANOL	0.3764E-01	0.4127E-01
		0.2480			0.5120	0.4877	813.08	1.7384	0.9616	ETHANOL	0.2427E-01	
		0.7030			0.3580	0.4199	371.20	1.1904	0.9885	WATER	-0.6191E-01	
7	74.50	0.3600	760.00	756.72	0.5250	0.5054	1042.80	0.9813	0.9647	METHANOL	0.1962E-01	0.1308E-01
		0.2930			0.2900	0.2992	628.10	1.1754	0.9576	ETHANOL	-0.9157E-02	
		0.3470			0.1850	0.1955	282.21	1.4836	0.9829	WATER	-0.1046E-01	
8	76.30	0.2030	760.00	755.41	0.3230	0.2961	1110.83	0.9227	0.9641	METHANOL	0.4189E-01	0.2793E-01
		0.4750			0.4700	0.4986	674.06	1.1265	0.9596	ETHANOL	-0.2864E-01	
		0.3220			0.2070	0.2153	304.16	1.6333	0.9844	WATER	-0.1325E-01	
9	77.20	0.2160	760.00	751.50	0.3900	0.3298	1146.14	0.9645	0.9647	METHANOL	0.6015E-01	0.4010E-01
		0.3100			0.3650	0.3334	698.03	1.2917	0.9598	ETHANOL	-0.2336E-01	
		0.4740			0.2450	0.2816	315.66	1.3941	0.9856	WATER	-0.3679E-01	
10	71.90	0.4900	760.00	771.48	0.6350	0.6252	950.40	0.9965	0.9636	METHANOL	0.9822E-02	0.6601E-02
		0.3500			0.2700	0.2899	566.24	1.0453	0.9548	ETHANOL	0.7743E-04	
		0.1500			0.0950	0.0849	252.87	1.6896	0.9791	WATER	-0.9902E-02	
11	79.00	0.1020	760.00	754.09	0.1970	0.1582	1219.41	0.9232	0.9638	METHANOL	0.3877E-01	0.2706E-01
		0.3680			0.5100	0.5032	748.06	1.3345	0.9607	ETHANOL	0.1823E-02	
		0.5300			0.2930	0.3386	339.76	1.3779	0.9870	WATER	-0.4060E-01	
12	75.80	0.2840	760.00	748.75	0.4400	0.4188	1091.59	0.9747	0.9650	METHANOL	0.2117E-01	0.2515E-01
		0.2960			0.3550	0.3394	661.03	1.2394	0.9590	ETHANOL	0.1656E-01	
		0.4200			0.2050	0.2427	297.92	1.4290	0.9845	WATER	-0.3773E-01	
13	80.50	0.0350	760.00	757.93	0.0810	0.0571	1283.24	0.9259	0.9630	METHANOL	0.2394E-01	0.1596E-01
		0.3500			0.5540	0.5592	791.92	1.4638	0.9611	ETHANOL	-0.4200E-02	
		0.6150			0.3650	0.3847	361.00	1.2967	0.9879	WATER	-0.1975E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	83.00	0.0430	760.00	658.26	0.1850	0.1557	1395.41	1.6521	0.9682	METHANOL	0.2927E-01	0.3994E-01
		0.0620			0.3100	0.2794	869.60	3.2874	0.9656	ETHANOL	0.3064E-01	
		0.8950			0.5050	0.5649	398.87	1.0321	0.9913	WATER	-0.5991E-01	
15	87.50	0.0610	760.00	747.56	0.2900	0.2411	1616.47	1.7634	0.9662	METHANOL	0.3893E-01	0.6369E-01
		0.0330			0.2200	0.1634	1024.73	3.4701	0.9627	ETHANOL	0.5661E-01	
		0.9060			0.5000	0.5955	475.38	1.0234	0.9906	WATER	-0.9554E-01	
16	83.00	0.1380	760.00	735.84	0.4250	0.3934	1395.41	1.4515	0.9670	METHANOL	0.3160E-01	0.3563E-01
		0.0410			0.1500	0.1282	869.60	2.5339	0.9619	ETHANOL	0.2184E-01	
		0.8210			0.4250	0.4784	398.87	1.0625	0.9889	WATER	-0.5344E-01	
17	79.00	0.2430	760.00	732.15	0.5500	0.5055	1219.41	1.2209	0.9669	METHANOL	0.4451E-01	0.5553E-01
		0.0600			0.1600	0.1212	748.06	1.8951	0.9604	ETHANOL	0.3878E-01	
		0.7000			0.2900	0.3733	339.76	1.1332	0.9868	WATER	-0.8329E-01	
18	81.00	0.0550	760.00	749.41	0.1600	0.1018	1305.08	1.0226	0.9639	METHANOL	0.5824E-01	0.3883E-01
		0.2550			0.4850	0.4854	806.99	1.6962	0.9615	ETHANOL	-0.4479E-03	
		0.6900			0.3550	0.4128	368.32	1.2023	0.9884	WATER	-0.5779E-01	
19	82.70	0.0530	760.00	739.77	0.1450	0.1281	1381.56	1.2473	0.9649	METHANOL	0.1695E-01	0.3241E-01
		0.1450			0.4300	0.3982	859.97	2.2687	0.9623	ETHANOL	0.3176E-01	
		0.8020			0.4250	0.4736	394.15	1.0959	0.9894	WATER	-0.4861E-01	
20	82.70	0.0330	760.00	735.56	0.3100	0.2418	1381.56	1.3352	0.9659	METHANOL	0.6820E-01	0.5608E-01
		0.1980			0.3000	0.2841	859.97	2.3808	0.9622	ETHANOL	0.1592E-01	
		0.8090			0.3900	0.4741	394.15	1.0813	0.9893	WATER	-0.8412E-01	
21	82.70	0.1090	760.00	735.62	0.3550	0.2895	1381.56	1.3644	0.9663	METHANOL	0.6553E-01	0.5187E-01
		0.0310			0.2500	0.2377	859.97	2.4104	0.9621	ETHANOL	0.1228E-01	
		0.8100			0.3950	0.4728	394.15	1.0769	0.9891	WATER	-0.7781E-01	
22	83.50	0.0900	760.00	738.99	0.3080	0.2522	1418.73	1.4078	0.9660	METHANOL	0.5584E-01	0.5707E-01
		0.0990			0.2950	0.2552	885.94	2.5556	0.9623	ETHANOL	0.2977E-01	
		0.8300			0.4070	0.4926	406.82	1.0661	0.9895	WATER	-0.8561E-01	
23	82.50	0.0610	760.00	737.77	0.1950	0.1467	1372.38	1.2457	0.9650	METHANOL	0.4832E-01	0.3949E-01
		0.1420			0.3950	0.3841	853.59	2.2449	0.9623	ETHANOL	0.1091E-01	
		0.7970			0.4100	0.4692	391.04	1.0983	0.9893	WATER	-0.5924E-01	
24	82.20	0.1600	760.00	733.29	0.5150	0.4341	1358.71	1.4142	0.9671	METHANOL	0.8086E-01	0.5391E-01
		0.0370			0.1050	0.1072	844.10	2.4164	0.9616	ETHANOL	-0.2246E-02	
		0.8030			0.3900	0.4586	386.40	1.0707	0.9885	WATER	-0.7862E-01	
25	81.00	0.1170	760.00	709.77	0.3590	0.2890	1305.08	1.2970	0.9669	METHANOL	0.7002E-01	0.5549E-01
		0.0990			0.2730	0.2598	806.99	2.2404	0.9628	ETHANOL	0.1321E-01	
		0.7850			0.3680	0.4512	368.32	1.0950	0.9891	WATER	-0.8323E-01	
26	82.80	0.0515	760.00	669.15	0.2280	0.1752	1386.15	1.5878	0.9679	METHANOL	0.5276E-01	0.6049E-01
		0.0670			0.3160	0.2780	863.17	3.0989	0.9651	ETHANOL	0.3797E-01	
		0.8815			0.4560	0.5467	395.72	1.0388	0.9910	WATER	-0.9073E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	82.50	0.1000	760.00	734.45	0.3100	0.2575	1372.38	1.3296	0.9660	METHANOL	0.5246E-01	0.4948E-01
		0.0960			0.2950	0.2732	953.55	2.3515	0.9622	ETHANOL	0.2176E-01	
		0.8040			0.3950	0.4692	391.04	1.0836	0.9892	WATER	-0.7422E-01	
28	76.50	0.1100	760.00	751.39	0.1800	0.1555	1118.61	0.9135	0.9636	METHANOL	0.2451E-01	0.1634E-01
		0.7200			0.6300	0.7015	679.33	1.0330	0.9606	ETHANOL	-0.2154E-01	
		0.1700			0.1400	0.1430	306.69	2.0252	0.9835	WATER	-0.2980E-02	

METHANOL(1) - ETHYL ACETATE(2) - WATER(3) SYSTEM 056

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
523.30	37.80	286.00	0.373	0.278	1.780	0.50	ETHYL AC	12
647.40	218.30	55.20	0.344	0.010	1.850	0.0	WATER	34

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.73786E 01	0.14731E 04	0.23000E 03	METHANOL	0.6451E 02	-0.1972E 00	0.3874E-03
0.70981E 01	0.12387E 04	0.21700E 03	ETHYL AC	0.1361E 03	-0.3700E 00	0.8077E-03
0.79668E 01	0.16682E 04	0.22800E 03	WATER	0.2289E 02	-0.3642E-01	0.6856E-04

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
1018.20	-226.72	METHANOL - ETHYL AC	143	0
483.16	322.47	METHANOL - WATER	157	0
6093.37	2005.18	ETHYL AC - WATER	111	0

HALA CONSISTENCY TEST

CI(1) 0.0301

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.2292E 02

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.1263E-01
COMPONENT 2	0.1360E-01
COMPONENT 3	0.1377E-01

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.1333E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	63.20	0.6390	760.00	760.36	0.6560	0.6479	687.55	1.0751	0.9596	METHANOL	0.8066E-02	0.9159E-02
		0.2880			0.3040	0.3177	457.69	1.7205	0.9416	ETHYL AC	-0.1374E-01	
		0.0730			0.0400	0.0343	172.61	2.0339	0.9819	WATER	0.5673E-02	
2	63.30	0.7070	760.00	756.30	0.7060	0.6973	690.19	1.0361	0.9601	METHANOL	0.1069E-01	0.7127E-02
		0.2110			0.2580	0.2671	459.31	1.9554	0.9418	ETHYL AC	-0.9055E-02	
		0.0820			0.0340	0.0356	173.39	1.8575	0.9807	WATER	-0.1631E-02	
3	63.70	0.7830	760.00	755.51	0.7690	0.7667	700.87	1.0124	0.9606	METHANOL	0.2343E-02	0.2743E-02
		0.1360			0.1960	0.2001	465.84	2.2389	0.9417	ETHYL AC	-0.4110E-02	
		0.0810			0.0350	0.0332	176.55	1.7172	0.9789	WATER	0.1774E-02	
4	63.70	0.5470	760.00	766.92	0.5950	0.5978	700.87	1.1262	0.9592	METHANOL	0.7180E-02	0.6967E-02
		0.3670			0.3570	0.3675	465.84	1.5469	0.9420	ETHYL AC	-0.1045E-01	
		0.0860			0.0480	0.0447	176.55	2.2202	0.9834	WATER	0.3272E-02	
5	63.80	0.6080	760.00	764.04	0.6210	0.6237	703.55	1.0673	0.9596	METHANOL	-0.2699E-02	0.8182E-02
		0.2840			0.3160	0.3256	467.49	1.7587	0.9422	ETHYL AC	-0.9573E-02	
		0.1080			0.0630	0.0507	177.35	1.9868	0.9825	WATER	0.1227E-01	
6	63.90	0.6970	760.00	752.60	0.6810	0.6956	706.25	1.0200	0.9605	METHANOL	-0.1462E-01	0.9747E-02
		0.1780			0.2610	0.2514	469.14	2.1279	0.9428	ETHYL AC	0.9639E-02	
		0.1250			0.0580	0.0530	178.15	1.7565	0.9809	WATER	0.4985E-02	
7	65.20	0.5140	760.00	755.66	0.5440	0.5430	742.06	1.0407	0.9600	METHANOL	-0.4001E-02	0.7745E-02
		0.2560			0.3390	0.3466	490.99	1.9616	0.9448	ETHYL AC	-0.7613E-02	
		0.2300			0.1170	0.1054	188.83	1.8043	0.9847	WATER	0.1162E-01	
8	65.30	0.3060	760.00	772.60	0.4290	0.4479	744.87	1.4538	0.9590	METHANOL	-0.1892E-01	0.1261E-01
		0.6320			0.5140	0.5008	492.70	1.1677	0.9434	ETHYL AC	0.1324E-01	
		0.0620			0.0570	0.0513	189.67	3.3254	0.9869	WATER	0.5680E-02	
9	65.30	0.3780	760.00	761.60	0.4570	0.4535	744.87	1.1749	0.9591	METHANOL	0.3452E-02	0.4917E-02
		0.4440			0.4350	0.4424	492.70	1.4495	0.9447	ETHYL AC	-0.7371E-02	
		0.1780			0.1080	0.1041	189.67	2.3152	0.9868	WATER	0.3929E-02	
10	65.50	0.8300	760.00	755.31	0.8580	0.8590	750.53	1.0002	0.9618	METHANOL	-0.1007E-02	0.3177E-02
		0.0470			0.0380	0.0318	496.15	2.7917	0.9427	ETHYL AC	0.3762E-02	
		0.1230			0.0540	0.0492	191.37	1.5423	0.9768	WATER	0.4762E-02	
11	65.90	0.6260	760.00	750.93	0.6590	0.6648	761.93	1.0047	0.9613	METHANOL	-0.5837E-02	0.3888E-02
		0.1260			0.2330	0.2323	503.08	2.5917	0.9452	ETHYL AC	0.5700E-02	
		0.2440			0.1080	0.1029	194.90	1.5655	0.9822	WATER	0.1279E-03	
12	66.10	0.4050	760.00	746.09	0.4450	0.4557	767.69	1.0482	0.9600	METHANOL	-0.1068E-01	0.7687E-02
		0.2750			0.3940	0.3949	506.58	1.9951	0.9469	ETHYL AC	-0.8520E-03	
		0.3200			0.1610	0.1495	196.54	1.7490	0.9870	WATER	0.1153E-01	
13	66.20	0.4330	760.00	741.45	0.4800	0.4876	770.58	1.0274	0.9606	METHANOL	-0.7619E-02	0.5425E-02
		0.2210			0.3610	0.3615	508.33	2.2519	0.9472	ETHYL AC	-0.5165E-03	
		0.3410			0.1590	0.1509	197.41	1.6380	0.9864	WATER	0.8141E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	PHI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	66.40	0.2970	760.00	750.13	0.3500	0.3679	776.39	1.1463	0.9591	METHANOL	-0.1791E-01	0.1540E-01
		0.4220			0.4680	0.4732	511.86	1.5504	0.9470	ETHYL AC	-0.5187E-02	
		0.2810			0.1820	0.1589	199.16	2.1044	0.9887	WATER	0.2311E-01	
15	66.40	0.6660	760.00	746.70	0.7200	0.7231	776.39	1.0031	0.9621	METHANOL	-0.3055E-02	0.6559E-02
		0.0830			0.1840	0.1742	511.86	2.9842	0.9457	ETHYL AC	0.9835E-02	
		0.2510			0.0960	0.1028	199.16	1.5051	0.9809	WATER	-0.6788E-02	
16	66.80	0.2190	760.00	752.15	0.2890	0.3111	788.11	1.2978	0.9588	METHANOL	-0.2208E-01	0.2252E-01
		0.5620			0.5200	0.5317	518.96	1.2939	0.9471	ETHYL AC	-0.1169E-01	
		0.2190			0.1910	0.1572	202.71	2.6351	0.9899	WATER	0.3378E-01	
17	66.80	0.2870	760.00	741.83	0.3330	0.3501	788.11	1.1000	0.9595	METHANOL	-0.1707E-01	0.1515E-01
		0.3570			0.4610	0.4667	518.96	1.7652	0.9481	ETHYL AC	-0.5670E-02	
		0.3560			0.2060	0.1833	202.71	1.8624	0.9892	WATER	0.2273E-01	
18	66.80	0.2600	760.00	746.35	0.3120	0.3309	788.11	1.1542	0.9591	METHANOL	-0.1890E-01	0.1380E-01
		0.4300			0.4900	0.4918	518.96	1.5531	0.9477	ETHYL AC	-0.1799E-02	
		0.3100			0.1980	0.1773	202.71	2.0822	0.9895	WATER	0.2071E-01	
19	66.80	0.3130	760.00	744.57	0.3610	0.3731	788.11	1.0791	0.9595	METHANOL	-0.1213E-01	0.1268E-01
		0.3250			0.4410	0.4479	518.96	1.8672	0.9478	ETHYL AC	-0.6893E-02	
		0.3620			0.1980	0.1790	202.71	1.7942	0.9887	WATER	0.1903E-01	
20	66.90	0.3290	760.00	743.60	0.3710	0.3873	791.07	1.0603	0.9597	METHANOL	-0.1626E-01	0.1258E-01
		0.2880			0.4290	0.4216	520.75	2.0212	0.9479	ETHYL AC	-0.2609E-02	
		0.3830			0.2000	0.1811	203.61	1.7061	0.9884	WATER	0.1886E-01	
21	66.90	0.1960	760.00	767.33	0.3020	0.3431	791.07	1.6260	0.9592	METHANOL	-0.4106E-01	0.2738E-01
		0.7260			0.5960	0.5753	520.75	1.0998	0.9455	ETHYL AC	0.2071E-01	
		0.0780			0.1020	0.0816	203.61	3.9002	0.9894	WATER	0.2036E-01	
22	67.00	0.3810	760.00	738.40	0.4270	0.4405	794.03	1.0313	0.9606	METHANOL	-0.1348E-01	0.8986E-02
		0.2080			0.3820	0.3802	522.55	2.4408	0.9484	ETHYL AC	0.1818E-02	
		0.4110			0.1910	0.1793	204.51	1.5549	0.9875	WATER	0.1166E-01	
23	67.10	0.2040	760.00	746.53	0.2900	0.2850	797.00	1.2528	0.9588	METHANOL	0.4995E-02	0.8385E-02
		0.5280			0.5220	0.5346	524.34	1.3613	0.9478	ETHYL AC	-0.1257E-01	
		0.2680			0.1880	0.1804	205.41	2.4214	0.9904	WATER	0.7586E-02	
24	67.10	0.5520	760.00	742.18	0.6050	0.6229	797.00	1.0094	0.9620	METHANOL	-0.1789E-01	0.1192E-01
		0.1060			0.2450	0.2356	524.34	2.9695	0.9474	ETHYL AC	0.9422E-02	
		0.3420			0.1500	0.1415	205.41	1.4698	0.9836	WATER	0.8458E-02	
25	67.30	0.3240	760.00	731.20	0.3740	0.3875	802.96	1.0446	0.9605	METHANOL	-0.1350E-01	0.9002E-02
		0.2180			0.4210	0.4119	527.95	2.4752	0.9494	ETHYL AC	0.9135E-02	
		0.4580			0.2050	0.2006	207.22	1.5272	0.9886	WATER	0.4370E-02	
26	67.40	0.5280	760.00	734.24	0.5940	0.6115	805.96	1.0141	0.9625	METHANOL	-0.1755E-01	0.1170E-01
		0.0970			0.2500	0.2334	529.77	3.1523	0.9485	ETHYL AC	0.1655E-01	
		0.3750			0.1560	0.1550	208.14	1.4341	0.9841	WATER	0.9927E-03	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	67.40	0.4250	760.00	729.41	0.4860	0.5007	805.96	1.0241	0.9618	METHANOL	-0.1475E-01	0.9833E-02
		0.1380			0.3290	0.3172	529.77	2.9937	0.9493	ETHYL AC	0.1180E-01	
		0.4370			0.1850	0.1820	208.14	1.4393	0.9865	WATER	0.2953E-02	
28	67.50	0.3280	760.00	723.59	0.3830	0.3939	808.97	1.0437	0.9610	METHANOL	-0.1585E-01	0.1214E-01
		0.1300			0.4110	0.3928	531.59	2.8119	0.9500	ETHYL AC	0.1820E-01	
		0.4920			0.2060	0.2084	209.05	1.4480	0.9885	WATER	-0.2362E-02	
29	67.70	0.5330	760.00	728.62	0.6220	0.6312	815.01	1.0181	0.9630	METHANOL	-0.9200E-02	0.8792E-02
		0.0800			0.2220	0.2088	535.24	3.3603	0.9491	ETHYL AC	0.1319E-01	
		0.3870			0.1560	0.1600	210.90	1.4043	0.9839	WATER	-0.3987E-02	
30	67.70	0.3680	760.00	719.38	0.4340	0.4512	815.01	1.0394	0.9618	METHANOL	-0.1718E-01	0.1145E-01
		0.1370			0.3570	0.3440	535.24	3.1959	0.9504	ETHYL AC	0.1303E-01	
		0.4950			0.2090	0.2049	210.90	1.3933	0.9876	WATER	0.4137E-02	
31	67.80	0.5890	760.00	735.10	0.6800	0.6914	818.04	1.0145	0.9631	METHANOL	-0.1144E-01	0.7623E-02
		0.0630			0.1730	0.1645	537.06	3.3770	0.9482	ETHYL AC	0.8483E-02	
		0.3480			0.1470	0.1441	211.82	1.4102	0.9823	WATER	0.2948E-02	
32	68.10	0.2890	760.00	708.89	0.3560	0.3764	827.20	1.0720	0.9617	METHANOL	-0.2042E-01	0.1984E-01
		0.1380			0.4190	0.3893	542.59	3.4948	0.9516	ETHYL AC	0.2975E-01	
		0.5730			0.2250	0.2343	214.62	1.3353	0.9891	WATER	-0.9336E-02	
33	68.10	0.6700	760.00	734.19	0.7970	0.7963	827.20	1.0152	0.9638	METHANOL	0.6997E-03	0.3313E-02
		0.0230			0.0820	0.0777	542.59	3.5477	0.9478	ETHYL AC	0.4267E-02	
		0.3020			0.1210	0.1260	214.62	1.3974	0.9799	WATER	-0.4973E-02	
34	68.20	0.1190	760.00	751.34	0.2040	0.2091	830.27	1.5221	0.9595	METHANOL	-0.5148E-02	0.2173E-01
		0.7060			0.5900	0.6174	544.44	1.1401	0.9481	ETHYL AC	-0.2744E-01	
		0.1750			0.2060	0.1734	215.56	3.4231	0.9918	WATER	0.3260E-01	
35	68.60	0.3980	760.00	711.12	0.4880	0.5045	842.64	1.0554	0.9631	METHANOL	-0.1652E-01	0.1961E-01
		0.0870			0.3090	0.2796	551.90	3.9269	0.9516	ETHYL AC	0.2941E-01	
		0.5250			0.2030	0.2159	219.36	1.3149	0.9869	WATER	-0.1290E-01	
36	68.70	0.4710	760.00	720.50	0.5800	0.5966	845.75	1.0381	0.9635	METHANOL	-0.1656E-01	0.1681E-01
		0.0680			0.2370	0.2119	553.77	3.8390	0.9507	ETHYL AC	0.2521E-01	
		0.4610			0.1830	0.1917	220.31	1.3382	0.9849	WATER	-0.8657E-02	
37	69.50	0.3850	760.00	701.35	0.5220	0.5362	871.01	1.0707	0.9642	METHANOL	-0.1415E-01	0.2136E-01
		0.0590			0.2640	0.2320	568.96	4.6031	0.9530	ETHYL AC	0.3203E-01	
		0.5560			0.2140	0.2319	228.10	1.2644	0.9866	WATER	-0.1789E-01	
38	70.10	0.5700	760.00	730.98	0.7350	0.7499	890.34	1.0403	0.9647	METHANOL	-0.1492E-01	0.9947E-02
		0.0210			0.0340	0.0240	580.56	4.1996	0.9504	ETHYL AC	0.1003E-01	
		0.4090			0.1310	0.1761	234.09	1.3188	0.9816	WATER	0.4893E-02	
39	70.20	0.0670	760.00	765.69	0.1460	0.1525	893.60	1.8671	0.9587	METHANOL	-0.6509E-02	0.1456E-01
		0.8390			0.6900	0.7053	582.51	1.0452	0.9482	ETHYL AC	-0.1533E-01	
		0.0950			0.1640	0.1422	235.10	4.8361	0.9930	WATER	0.2184E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	70.60	0.0820	760.00	781.22	0.1880	0.2011	906.71	2.0244	0.9594	METHANOL	-0.1313E-01	0.8753E-02
		0.8670			0.7160	0.7129	590.36	1.0268	0.9472	ETHYL AC	0.3051E-02	
		0.0510			0.0960	0.0859	239.18	5.4569	0.9924	WATER	0.1008E-01	
41	71.10	0.4190	760.00	709.24	0.6130	0.6190	923.32	1.0923	0.9652	METHANOL	-0.6017E-02	0.2195E-01
		0.0310			0.1750	0.1421	600.29	5.1388	0.9536	ETHYL AC	0.3292E-01	
		0.5500			0.2120	0.2389	244.37	1.2395	0.9851	WATER	-0.2691E-01	
42	71.80	0.4870	760.00	723.53	0.7140	0.7116	946.98	1.0764	0.9655	METHANOL	0.2382E-02	0.1229E-01
		0.0150			0.0930	0.0669	614.41	4.9898	0.9528	ETHYL AC	0.1606E-01	
		0.4980			0.2030	0.2214	251.79	1.2554	0.9831	WATER	-0.1844E-01	
43	71.90	0.0580	760.00	784.41	0.1460	0.1582	950.40	2.1565	0.9597	METHANOL	-0.1216E-01	0.1023E-01
		0.9010			0.7770	0.7617	616.45	1.0157	0.9478	ETHYL AC	0.1534E-01	
		0.0410			0.0770	0.0802	252.87	6.0227	0.9933	WATER	-0.3196E-02	
44	72.40	0.0610	760.00	794.82	0.1710	0.1723	967.65	2.2239	0.9599	METHANOL	-0.1325E-02	0.5258E-02
		0.9110			0.7780	0.7701	626.72	1.0117	0.9474	ETHYL AC	0.7883E-02	
		0.0280			0.0510	0.0576	258.30	6.2786	0.9931	WATER	-0.6567E-02	
45	73.10	0.3300	760.00	692.48	0.5720	0.5775	992.20	1.1788	0.9664	METHANOL	-0.5521E-02	0.3075E-01
		0.0190			0.1730	0.1269	641.31	6.8743	0.9565	ETHYL AC	0.4612E-01	
		0.6510			0.2550	0.2956	266.07	1.1652	0.9866	WATER	-0.4406E-01	
46	73.70	0.0210	760.00	775.87	0.0570	0.0662	1013.65	2.3150	0.9602	METHANOL	-0.9246E-02	0.6165E-02
		0.9420			0.8500	0.8450	654.03	1.0067	0.9495	ETHYL AC	0.4985E-02	
		0.0370			0.0930	0.0887	272.89	6.7803	0.9950	WATER	0.4264E-02	
47	74.60	0.3570	760.00	710.97	0.6540	0.6337	1046.49	1.1733	0.9667	METHANOL	0.1534E-01	0.2207E-01
		0.0090			0.0900	0.0622	673.46	6.9574	0.9564	ETHYL AC	0.1777E-01	
		0.6340			0.2660	0.2991	283.40	1.1656	0.9854	WATER	-0.3311E-01	
48	76.00	0.2480	760.00	696.27	0.5360	0.5295	1099.26	1.3058	0.9669	METHANOL	0.6480E-02	0.3273E-01
		0.0110			0.1550	0.1124	704.57	9.6458	0.9586	ETHYL AC	0.4262E-01	
		0.7410			0.3090	0.3581	300.41	1.1057	0.9877	WATER	-0.4910E-01	
49	77.40	0.2620	760.00	701.04	0.6140	0.5836	1154.11	1.3076	0.9677	METHANOL	0.3039E-01	0.3247E-01
		0.0040			0.0620	0.0437	736.76	9.9365	0.9594	ETHYL AC	0.1831E-01	
		0.7340			0.3240	0.3727	318.27	1.1024	0.9871	WATER	-0.4870E-01	
50	64.90	0.3291	760.00	764.62	0.4450	0.4559	733.67	1.3830	0.9592	METHANOL	-0.1086E-01	0.9764E-02
		0.5930			0.4810	0.4848	485.88	1.2096	0.9438	ETHYL AC	-0.3785E-02	
		0.0780			0.0740	0.0594	186.32	3.0795	0.9868	WATER	0.1465E-01	
51	66.20	0.3040	760.00	757.30	0.3790	0.3831	770.58	1.1860	0.9590	METHANOL	-0.4133E-02	0.3787E-02
		0.4630			0.4320	0.4763	508.33	1.4447	0.9461	ETHYL AC	0.5684E-02	
		0.2330			0.1390	0.1405	197.41	2.2856	0.9884	WATER	-0.1544E-02	
52	67.40	0.2200	760.00	736.63	0.2350	0.2841	805.96	1.1306	0.9592	METHANOL	-0.4913E-01	0.3275E-01
		0.3870			0.5470	0.5055	529.77	1.7176	0.9490	ETHYL AC	0.4148E-01	
		0.3930			0.2180	0.2104	208.14	1.8750	0.9904	WATER	0.7640E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
53	67.40	0.2540	760.00	731.57	0.3010	0.3156	805.96	1.0808	0.9598	METHANOL	-0.1458E-01	0.9723E-02
		0.2970			0.4310	0.4711	529.77	2.0722	0.9495	ETHYL AC	0.9924E-02	
		0.4490			0.2180	0.2133	208.14	1.6521	0.9899	WATER	0.4663E-02	
54	67.50	0.2160	760.00	735.60	0.2690	0.2792	808.97	1.1256	0.9592	METHANOL	-0.1017E-01	0.8727E-02
		0.3760			0.5190	0.5059	531.59	1.7610	0.9492	ETHYL AC	0.1309E-01	
		0.4080			0.2120	0.2149	209.05	1.8348	0.9905	WATER	-0.2926E-02	
55	67.70	0.1200	760.00	740.11	0.2280	0.2195	815.01	1.5909	0.9592	METHANOL	0.8506E-02	0.5669E-02
		0.7340			0.6180	0.6247	535.24	1.1124	0.9486	ETHYL AC	-0.6737E-02	
		0.1460			0.1540	0.1558	210.90	3.7112	0.9919	WATER	-0.1763E-02	
56	67.70	0.1210	760.00	741.19	0.2190	0.2244	815.01	1.6156	0.9593	METHANOL	-0.5409E-02	0.1008E-01
		0.7430			0.6170	0.6267	535.24	1.1039	0.9485	ETHYL AC	-0.9714E-02	
		0.1360			0.1640	0.1489	210.90	3.8132	0.9918	WATER	0.1513E-01	
57	67.80	0.1150	760.00	736.56	0.1940	0.1981	818.04	1.4849	0.9589	METHANOL	-0.4077E-02	0.1103E-01
		0.6890			0.6040	0.6165	537.06	1.1604	0.9490	ETHYL AC	-0.1246E-01	
		0.1960			0.2020	0.1855	211.82	3.2622	0.9921	WATER	0.1654E-01	
58	67.90	0.1310	760.00	733.90	0.1830	0.1968	821.09	1.2856	0.9586	METHANOL	-0.1384E-01	0.1536E-01
		0.5540			0.5720	0.5812	538.90	1.3517	0.9485	ETHYL AC	-0.9203E-02	
		0.3150			0.2450	0.2220	212.75	2.4095	0.9919	WATER	0.2304E-01	
59	69.10	0.5240	760.00	728.70	0.6540	0.6629	858.31	1.0338	0.9638	METHANOL	-0.8942E-02	0.1385E-01
		0.0500			0.1790	0.1582	561.33	3.9894	0.9502	ETHYL AC	0.2078E-01	
		0.4260			0.1670	0.1788	224.18	1.3412	0.9834	WATER	-0.1184E-01	
60	69.40	0.1220	760.00	786.04	0.2600	0.2716	867.82	1.9317	0.9593	METHANOL	-0.1165E-01	0.1272E-01
		0.9330			0.6810	0.6619	567.04	1.0379	0.9459	ETHYL AC	0.1908E-01	
		0.0450			0.0590	0.0664	227.11	5.0600	0.9909	WATER	-0.7436E-02	
61	69.50	0.0640	760.00	736.17	0.1520	0.1602	871.01	2.0296	0.9605	METHANOL	-0.8248E-02	0.2138E-01
		0.3740			0.7090	0.7323	568.96	1.0266	0.9496	ETHYL AC	-0.2382E-01	
		0.0620			0.1390	0.1069	228.10	5.5254	0.9933	WATER	0.3207E-01	
62	69.60	0.0670	760.00	748.67	0.0990	0.1543	874.20	1.8898	0.9594	METHANOL	-0.5533E-01	0.4667E-01
		0.8430			0.8940	0.7087	570.88	1.0424	0.9490	ETHYL AC	-0.1467E-01	
		0.0900			0.2070	0.1370	229.09	4.9369	0.9931	WATER	0.7001E-01	

METHANOL(1) - HEPTANE(2) - TOLUENE(3) SYSTEM 057

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
540.20	27.00	431.90	0.349	0.0	0.0	0.0	HEPTANE	16
594.00	40.00	331.10	0.241	0.0	0.0	0.0	TOLUENE	33

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.78786E 01	0.14731E 04	0.23000E 03	METHANOL	0.6651E 02	-0.1972E 00	0.3874E-03
0.69024E 01	0.12681E 04	0.21690E 03	HEPTANE	0.1298E 03	-0.6028E-01	0.4116E-03
0.69533E 01	0.13439E 04	0.21938E 03	TOLUENE	0.9886E 02	-0.5577E-01	0.2770E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

		BINARY ID NUMBERS	ORDER
2673.19	754.06 METHANOL - HEPTANE	146	0
1403.42	426.04 METHANOL - TOLUENE	156	0
51.00	197.15 HEPTANE - TOLUENE	117	0

HALA CONSISTENCY TEST

CI(1) 0.5513

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.8810E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.5905E-02
COMPONENT 2	0.3342E-02
COMPONENT 3	0.4871E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.4706E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	62.96	0.3172	760.00	750.99	0.7458	0.7547	681.23	2.5223	0.9631	METHANOL	-0.8895E-02	0.6246E-02
		0.2533			0.1326	0.1331	229.39	1.6261	0.9507	HEPTANE	-0.4771E-03	
		0.4295			0.1216	0.1122	153.95	1.2183	0.9595	TOLUENE	0.9365E-02	
2	63.34	0.3711	760.00	724.86	0.7797	0.7820	691.26	2.1272	0.9641	METHANOL	-0.2287E-02	0.2886E-02
		0.0962			0.0635	0.0655	232.60	2.0152	0.9542	HEPTANE	-0.2046E-02	
		0.5327			0.1568	0.1525	156.21	1.2737	0.9627	TOLUENE	0.4324E-02	
3	59.97	0.5409	760.00	755.43	0.7520	0.7497	606.37	1.6576	0.9614	METHANOL	0.2254E-02	0.3831E-02
		0.3412			0.2048	0.2106	205.33	2.1416	0.9486	HEPTANE	-0.5752E-02	
		0.1179			0.0432	0.0397	137.06	1.7709	0.9577	TOLUENE	0.3488E-02	
4	61.35	0.6038	760.00	756.31	0.7697	0.7712	640.05	1.4493	0.9617	METHANOL	-0.1542E-02	0.3052E-02
		0.1717			0.1412	0.1442	216.17	2.7782	0.9506	HEPTANE	-0.3039E-02	
		0.2245			0.0891	0.0845	144.65	1.8813	0.9596	TOLUENE	0.4574E-02	
5	62.51	0.6114	760.00	756.96	0.7864	0.7927	669.51	1.4078	0.9619	METHANOL	-0.6285E-02	0.4188E-02
		0.0911			0.0911	0.0904	225.63	3.1514	0.9524	HEPTANE	0.7424E-03	
		0.2975			0.1225	0.1170	151.30	1.8832	0.9613	TOLUENE	0.5536E-02	
6	61.59	0.7494	760.00	755.28	0.7927	0.7947	646.06	1.1902	0.9615	METHANOL	-0.2027E-02	0.1485E-02
		0.0787			0.1123	0.1125	218.10	4.6875	0.9522	HEPTANE	-0.2040E-03	
		0.1719			0.0950	0.0928	146.01	2.6726	0.9612	TOLUENE	0.2224E-02	
7	59.96	0.7733	760.00	755.22	0.7563	0.7654	606.14	1.1835	0.9611	METHANOL	-0.9127E-02	0.6081E-02
		0.1510			0.1969	0.1923	205.26	4.4241	0.9496	HEPTANE	0.4623E-02	
		0.0757			0.0468	0.0423	137.00	2.9415	0.9587	TOLUENE	0.4494E-02	
8	60.77	0.8486	760.00	754.49	0.7815	0.7963	625.71	1.0858	0.9610	METHANOL	-0.1483E-01	0.9882E-02
		0.0684			0.1517	0.1418	211.56	7.0010	0.9520	HEPTANE	0.9855E-02	
		0.0830			0.0668	0.0618	141.42	3.8041	0.9610	TOLUENE	0.4964E-02	

METHANOL(1) - N-PROPANOL(2) - WATER(3) SYSTEM 058

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
513.20	78.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
540.70	51.00	220.00	0.612	0.201	1.680	0.57	PROPANOL	37
647.40	218.30	55.20	0.344	0.010	1.850	0.0	WATER	34

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS

A	B	C	COMPONENT
0.73736E 01	0.14731E 04	0.23000E 03	METHANOL
0.79973E 01	0.15697E 04	0.20950E 03	PROPANOL
0.79668E 01	0.16682E 04	0.22800E 03	WATER

MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C
0.6451E 02	-0.1972E 00	0.3874E-03
0.7798E 02	-0.9157E-01	0.2752E-03
0.2289E 02	-0.3642E-01	0.6856E-04

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
1113.20	-891.41	METHANOL - PROPANOL	153	0
483.16	322.47	METHANOL - WATER	157	0
1017.19	1202.05	PROPANOL - WATER	190	0

HALA CONSISTENCY TEST

CI(1) 0.0883

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.4980E 02

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.1897E-01
COMPONENT 2	0.2386E-01
COMPONENT 3	0.2035E-01

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.2106E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	86.20	0.0500	760.00	704.06	0.1300	0.0937	1540.99	0.7853	0.9651	METHANOL	0.4031E-01	0.2979E-01
		0.2330			0.3380	0.3336	476.43	2.0410	0.9670	PROPANOL	0.4379E-02	
		0.7170			0.5320	0.5767	452.12	1.2423	0.9924	WATER	-0.4469E-01	
2	86.40	0.0500	760.00	718.72	0.1260	0.0806	1560.07	0.7156	0.9648	METHANOL	0.4539E-01	0.3026E-01
		0.4080			0.3620	0.3987	480.31	1.4095	0.9664	PROPANOL	-0.3671E-01	
		0.5420			0.5120	0.5207	455.63	1.5028	0.9923	WATER	-0.8682E-02	
3	86.30	0.0340	760.00	716.11	0.1170	0.0893	1555.02	0.7336	0.9648	METHANOL	0.2772E-01	0.1848E-01
		0.3300			0.3630	0.3675	478.37	1.6070	0.9665	PROPANOL	-0.4461E-02	
		0.6160			0.5200	0.5433	453.87	1.3799	0.9923	WATER	-0.2326E-01	
4	89.70	0.0550	760.00	715.29	0.2980	0.2740	1733.96	1.9855	0.9675	METHANOL	0.1400E-01	0.4561E-01
		0.0060			0.0880	0.0336	548.15	7.0593	0.9688	PROPANOL	0.5441E-01	
		0.9390			0.6240	0.6924	517.01	1.0113	0.9919	WATER	-0.6841E-01	
5	85.90	0.0700	760.00	714.99	0.1560	0.1171	1534.95	0.7510	0.9652	METHANOL	0.3892E-01	0.2595E-01
		0.3450			0.3450	0.3620	470.66	1.5364	0.9665	PROPANOL	-0.1695E-01	
		0.5850			0.4990	0.5210	446.88	1.4127	0.9921	WATER	-0.2197E-01	
6	86.10	0.0700	760.00	721.32	0.1340	0.1153	1544.96	0.7409	0.9652	METHANOL	0.1874E-01	0.1776E-01
		0.4030			0.3580	0.3846	474.50	1.3983	0.9663	PROPANOL	-0.2664E-01	
		0.5270			0.5080	0.5001	450.36	1.5069	0.9920	WATER	0.7888E-02	
7	92.20	0.0750	760.00	755.21	0.1330	0.1927	1875.36	1.0027	0.9706	METHANOL	-0.9695E-02	0.2194E-01
		0.8960			0.7240	0.7472	604.59	1.0044	0.9668	PROPANOL	-0.2322E-01	
		0.0290			0.0930	0.0601	567.95	2.7273	0.9905	WATER	0.3291E-01	
8	86.10	0.0790	760.00	708.25	0.1540	0.1877	1544.96	1.0510	0.9661	METHANOL	-0.3374E-01	0.4726E-01
		0.1180			0.3050	0.2341	474.50	2.8570	0.9672	PROPANOL	0.7088E-01	
		0.8030			0.5410	0.5782	450.36	1.1224	0.9919	WATER	-0.3715E-01	
9	86.10	0.0940	760.00	715.39	0.1980	0.1699	1544.96	0.8083	0.9672	METHANOL	0.2812E-01	0.3647E-01
		0.6210			0.4190	0.4737	474.50	1.1087	0.9665	PROPANOL	-0.5471E-01	
		0.2850			0.3830	0.3564	450.36	1.9684	0.9915	WATER	0.2658E-01	
10	85.10	0.1000	760.00	703.24	0.2260	0.2195	1495.42	0.9963	0.9665	METHANOL	0.6496E-02	0.2515E-01
		0.1450			0.2660	0.2348	455.55	2.4111	0.9671	PROPANOL	0.3122E-01	
		0.7550			0.5080	0.5457	433.18	1.1629	0.9916	WATER	-0.3772E-01	
11	84.40	0.1000	760.00	687.50	0.2470	0.2017	1461.48	0.9160	0.9668	METHANOL	0.4532E-01	0.4583E-01
		0.1870			0.2870	0.2636	442.66	2.1126	0.9675	PROPANOL	0.2343E-01	
		0.7130			0.4660	0.5347	421.48	1.2127	0.9919	WATER	-0.6874E-01	
12	85.10	0.1000	760.00	709.19	0.2550	0.2504	1495.42	1.6804	0.9667	METHANOL	-0.4385E-02	0.3911E-01
		0.1120			0.2960	0.1973	455.55	2.6454	0.9669	PROPANOL	0.5866E-01	
		0.7790			0.4890	0.5433	433.18	1.1312	0.9913	WATER	-0.5428E-01	
13	86.40	0.1100	760.00	717.72	0.2340	0.2138	1560.07	0.8523	0.9632	METHANOL	0.2324E-01	0.3112E-01
		0.6820			0.4580	0.5047	480.31	1.0660	0.9665	PROPANOL	-0.4668E-01	
		0.2030			0.3080	0.2846	455.63	2.1344	0.9910	WATER	0.2344E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	PICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	85.40	0.1150	760.00	717.41	0.2250	0.2013	1510.15	0.8032	0.9671	METHANOL	0.2367E-01	0.2373E-01
		0.5610			0.3940	0.4296	461.17	1.1480	0.9662	PROPANOL	-0.3559E-01	
		0.3240			0.3810	0.3691	438.28	1.8471	0.9912	WATER	0.1192E-01	
15	83.70	0.1260	760.00	690.62	0.2770	0.2391	1428.15	0.8863	0.9671	METHANOL	0.3787E-01	0.3405E-01
		0.2260			0.2780	0.2648	430.07	1.9150	0.9671	PROPANOL	0.1320E-01	
		0.6480			0.4450	0.4961	410.04	1.2776	0.9914	WATER	-0.5107E-01	
16	83.80	0.1260	760.00	688.12	0.2560	0.2159	1432.86	0.7949	0.9677	METHANOL	0.4018E-01	0.2678E-01
		0.4880			0.3520	0.3865	431.85	1.2174	0.9670	PROPANOL	-0.3451E-01	
		0.3860			0.3920	0.3977	411.66	1.7063	0.9914	WATER	-0.5663E-02	
17	87.30	0.1280	760.00	716.65	0.2980	0.2757	1606.09	0.9311	0.9701	METHANOL	0.2228E-01	0.1486E-01
		0.7790			0.5670	0.5744	498.09	1.0229	0.9667	PROPANOL	-0.7408E-02	
		0.1930			0.1350	0.1409	471.73	2.4226	0.9901	WATER	-0.1488E-01	
18	84.50	0.1350	760.00	706.09	0.2390	0.2363	1466.30	0.8146	0.9677	METHANOL	0.2687E-02	0.1629E-01
		0.5480			0.3870	0.4114	444.49	1.1497	0.9664	PROPANOL	-0.2444E-01	
		0.3170			0.3740	0.3522	423.14	1.8364	0.9910	WATER	0.2175E-01	
19	68.60	0.9060	760.00	758.72	0.9220	0.9258	842.64	0.9949	0.9634	METHANOL	-0.3765E-02	0.3276E-02
		0.1060			0.0380	0.0331	222.22	1.0099	0.9503	PROPANOL	0.4913E-02	
		0.0880			0.0400	0.0412	219.36	1.5767	0.9754	WATER	-0.1152E-02	
20	85.40	0.1390	760.00	709.05	0.2690	0.2654	1510.15	0.8675	0.9689	METHANOL	0.3557E-02	0.2432E-01
		0.6710			0.4450	0.4815	461.17	1.0635	0.9665	PROPANOL	-0.3648E-01	
		0.1900			0.2860	0.2531	438.28	2.1331	0.9905	WATER	0.3293E-01	
21	83.30	0.1400	760.00	690.99	0.3080	0.2956	1406.36	1.0002	0.9675	METHANOL	0.1238E-01	0.3475E-01
		0.1530			0.2460	0.2063	423.01	2.1242	0.9670	PROPANOL	0.3974E-01	
		0.7070			0.4460	0.4981	403.62	1.1947	0.9910	WATER	-0.5212E-01	
22	84.10	0.1470	760.00	702.09	0.2610	0.2532	1447.12	0.8238	0.9680	METHANOL	0.2787E-02	0.2179E-01
		0.5500			0.3730	0.4057	437.23	1.1418	0.9664	PROPANOL	-0.3268E-01	
		0.3030			0.3660	0.3361	416.54	1.8513	0.9908	WATER	0.2990E-01	
23	83.30	0.1540	760.00	695.06	0.2960	0.2629	1409.36	0.8135	0.9677	METHANOL	0.3313E-01	0.2209E-01
		0.4470			0.3200	0.3515	423.01	1.2459	0.9665	PROPANOL	-0.3154E-01	
		0.3990			0.3840	0.3856	403.62	1.6481	0.9909	WATER	-0.1584E-02	
24	83.20	0.1710	760.00	697.93	0.3170	0.2957	1404.70	0.8309	0.9682	METHANOL	0.2128E-01	0.2604E-01
		0.5060			0.3310	0.3700	421.26	1.1670	0.9663	PROPANOL	-0.3905E-01	
		0.3230			0.3520	0.3342	402.03	1.7781	0.9904	WATER	0.1778E-01	
25	84.50	0.1760	760.00	705.21	0.3760	0.3320	1466.30	0.8944	0.9696	METHANOL	0.3797E-01	0.3591E-01
		0.6730			0.4090	0.4629	444.49	1.0515	0.9661	PROPANOL	-0.5387E-01	
		0.1510			0.2150	0.1991	423.14	2.1733	0.9896	WATER	0.1590E-01	
26	82.00	0.1830	760.00	681.71	0.3590	0.3122	1349.66	0.8334	0.9683	METHANOL	0.4676E-01	0.3117E-01
		0.4130			0.3220	0.3185	400.72	1.2649	0.9666	PROPANOL	-0.2647E-01	
		0.4040			0.3490	0.3693	383.34	1.6092	0.9905	WATER	-0.2029E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICT	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	82.60	0.1850	760.00	701.21	0.3200	0.3157	1376.96	0.8398	0.9676	METHANOL	0.4263E-02	0.1398E-01
		0.3770			0.3180	0.3013	410.88	1.3142	0.9660	PROPANOL	0.1671E-01	
		0.4380			0.3620	0.3830	392.59	1.5457	0.9903	WATER	-0.2097E-01	
28	81.00	0.2080	760.00	704.18	0.4820	0.4936	1305.08	1.2378	0.9681	METHANOL	-0.1156E-01	0.3411E-01
		0.0490			0.1180	0.0668	384.23	2.4069	0.9653	PROPANOL	0.5117E-01	
		0.7430			0.4000	0.4396	368.32	1.1177	0.9887	WATER	-0.3961E-01	
29	81.70	0.2080	760.00	708.73	0.4010	0.4174	1336.16	1.0285	0.9676	METHANOL	-0.1642E-01	0.3226E-01
		0.1390			0.2010	0.1526	395.71	1.8935	0.9654	PROPANOL	0.4839E-01	
		0.6530			0.3980	0.4300	378.78	1.2182	0.9894	WATER	-0.3198E-01	
30	83.10	0.2300	760.00	706.23	0.4620	0.4318	1400.04	0.9173	0.9700	METHANOL	0.3019E-01	0.2936E-01
		0.6500			0.3750	0.4190	419.51	1.0447	0.9651	PROPANOL	-0.4403E-01	
		0.1200			0.1630	0.1491	400.44	2.1648	0.9891	WATER	0.1385E-01	
31	81.80	0.2390	760.00	691.30	0.4500	0.4280	1340.64	0.8943	0.9698	METHANOL	0.2201E-01	0.1759E-01
		0.5860			0.3490	0.3754	397.37	1.0732	0.9654	PROPANOL	-0.2639E-01	
		0.1750			0.2010	0.1966	380.29	2.0178	0.9885	WATER	0.4370E-02	
32	80.30	0.2740	760.00	691.68	0.4460	0.4615	1274.57	0.8847	0.9691	METHANOL	-0.1553E-01	0.1954E-01
		0.4730			0.2860	0.2998	373.03	1.1310	0.9648	PROPANOL	-0.1379E-01	
		0.2530			0.2680	0.2387	358.10	1.7997	0.9882	WATER	0.2931E-01	
33	81.40	0.2890	760.00	705.87	0.5420	0.5235	1222.77	0.9364	0.9700	METHANOL	0.1847E-01	0.1232E-01
		0.6130			0.3530	0.3694	390.76	1.0380	0.9638	PROPANOL	-0.1639E-01	
		0.0930			0.1050	0.1071	374.27	2.1412	0.9866	WATER	-0.2088E-02	
34	79.10	0.2970	760.00	687.09	0.5070	0.4831	1223.58	0.8929	0.9689	METHANOL	0.1890E-01	0.1270E-01
		0.3680			0.2200	0.2391	354.45	1.2116	0.9646	PROPANOL	-0.1906E-01	
		0.3350			0.2730	0.2728	341.14	1.6197	0.9880	WATER	0.1568E-03	
35	80.80	0.2980	760.00	705.42	0.5340	0.5216	1296.30	0.9223	0.9696	METHANOL	0.1238E-01	0.1283E-01
		0.5720			0.3200	0.3392	381.00	1.0556	0.9637	PROPANOL	-0.1925E-01	
		0.1300			0.1460	0.1391	365.38	2.0377	0.9867	WATER	0.6865E-02	
36	78.70	0.3040	760.00	686.75	0.5030	0.4999	1206.95	0.9052	0.9687	METHANOL	0.3081E-02	0.2759E-02
		0.3140			0.2060	0.2101	348.44	1.2690	0.9645	PROPANOL	-0.4141E-02	
		0.3820			0.2910	0.2899	335.64	1.5334	0.9879	WATER	0.1056E-02	
37	77.60	0.3450	760.00	693.44	0.5490	0.5589	1162.11	0.9348	0.9684	METHANOL	-0.1086E-01	0.7241E-02
		0.2530			0.1650	0.1643	332.32	1.3022	0.9634	PROPANOL	0.7007E-03	
		0.4020			0.2870	0.2768	320.89	1.4678	0.9869	WATER	0.1016E-01	
38	78.00	0.3630	760.00	702.12	0.5590	0.5767	1178.27	0.9157	0.9686	METHANOL	-0.1771E-01	0.1286E-01
		0.3810			0.2170	0.2186	338.11	1.1440	0.9627	PROPANOL	-0.1583E-02	
		0.2560			0.2240	0.2047	326.19	1.6963	0.9861	WATER	0.1929E-01	
39	76.50	0.3750	760.00	694.23	0.6060	0.6055	1119.61	0.9689	0.9632	METHANOL	0.4961E-03	0.1079E-01
		0.1880			0.1370	0.1213	316.83	1.3578	0.9627	PROPANOL	0.1568E-01	
		0.4370			0.2570	0.2732	306.69	1.3946	0.9861	WATER	-0.1618E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	77.00	0.3780	760.00	697.00	0.5850	0.5942	1138.22	0.9309	0.9684	METHANOL	-0.9224E-02	0.6652E-02
		0.2850			0.1680	0.1698	323.79	1.2239	0.9626	PROPANOL	-0.7560E-03	
		0.3370			0.2470	0.2370	313.08	1.5431	0.9860	WATER	0.9975E-02	
41	76.10	0.4090	760.00	701.09	0.6210	0.6325	1103.11	0.9524	0.9631	METHANOL	-0.1146E-01	0.7637E-02
		0.2280			0.1390	0.1327	311.34	1.2573	0.9618	PROPANOL	0.6297E-02	
		0.3640			0.2400	0.2348	301.65	1.4766	0.9853	WATER	0.5156E-02	
42	76.00	0.4180	760.00	714.52	0.6710	0.6527	1099.26	0.9806	0.9675	METHANOL	0.1831E-01	0.1221E-01
		0.1660			0.0870	0.0997	309.98	1.3276	0.9610	PROPANOL	-0.1274E-01	
		0.4160			0.2420	0.2476	300.41	1.3932	0.9848	WATER	-0.5571E-02	
43	75.00	0.4520	760.00	718.67	0.7140	0.6936	1061.36	1.0036	0.9672	METHANOL	0.2036E-01	0.1357E-01
		0.1220			0.0610	0.0706	296.67	1.3424	0.9600	PROPANOL	-0.9607E-02	
		0.4260			0.2250	0.2358	288.17	1.3571	0.9839	WATER	-0.1075E-01	
44	74.90	0.4750	760.00	723.99	0.6840	0.7040	1057.63	0.9796	0.9670	METHANOL	-0.1997E-01	0.1331E-01
		0.1050			0.0970	0.0882	295.36	1.2534	0.9594	PROPANOL	0.8825E-02	
		0.3600			0.2190	0.2079	286.97	1.4316	0.9834	WATER	0.1113E-01	
45	75.40	0.4590	760.00	708.11	0.6760	0.6826	1076.39	0.9456	0.9679	METHANOL	-0.6580E-02	0.1002E-01
		0.2970			0.1420	0.1504	301.93	1.1380	0.9604	PROPANOL	-0.8448E-02	
		0.2440			0.1820	0.1670	293.01	1.6261	0.9838	WATER	0.1502E-01	
46	74.40	0.5240	760.00	738.12	0.7290	0.7420	1039.12	0.9707	0.9664	METHANOL	-0.1300E-01	0.8666E-02
		0.1970			0.0970	0.0942	288.91	1.1675	0.9578	PROPANOL	0.2750E-02	
		0.2790			0.1740	0.1638	281.03	1.5128	0.9820	WATER	0.1025E-01	
47	72.50	0.5830	760.00	750.40	0.7840	0.8026	971.13	1.0252	0.9652	METHANOL	-0.1861E-01	0.1241E-01
		0.0450			0.0290	0.0211	265.44	1.2608	0.9556	PROPANOL	0.7942E-02	
		0.3720			0.1870	0.1763	259.40	1.3435	0.9804	WATER	0.1066E-01	
48	70.80	0.6520	760.00	706.14	0.8410	0.8599	913.33	0.9645	0.9669	METHANOL	-0.1887E-01	0.1572E-01
		0.3010			0.1060	0.1107	245.81	1.0072	0.9556	PROPANOL	-0.4722E-02	
		0.0470			0.0530	0.0294	241.25	1.7921	0.9788	WATER	0.2358E-01	
49	71.00	0.6870	760.00	765.40	0.8500	0.8591	919.99	1.0014	0.9641	METHANOL	-0.9071E-02	0.6117E-02
		0.0700			0.0360	0.0268	248.05	1.1235	0.9528	PROPANOL	0.9174E-02	
		0.2430			0.1140	0.1141	243.23	1.4435	0.9780	WATER	-0.1045E-03	
50	69.60	0.7520	760.00	752.71	0.8960	0.8992	874.20	0.9911	0.9641	METHANOL	-0.3187E-02	0.2728E-02
		0.1370			0.0500	0.0459	232.70	1.0288	0.9518	PROPANOL	0.4090E-02	
		0.1110			0.0540	0.0549	229.09	1.5862	0.9766	WATER	-0.9066E-03	
51	85.20	0.1020	760.00	709.51	0.2070	0.2103	1590.32	0.9409	0.9662	METHANOL	-0.3329E-02	0.1923E-01
		0.1770			0.2920	0.2532	457.42	2.1688	0.9668	PROPANOL	0.2884E-01	
		0.7250			0.5110	0.5365	434.37	1.1965	0.9916	WATER	-0.2552E-01	
52	84.40	0.1360	760.00	699.90	0.2650	0.2420	1461.48	0.8237	0.9681	METHANOL	0.2300E-01	0.2859E-01
		0.5770			0.3830	0.4259	442.66	1.1251	0.9666	PROPANOL	-0.4288E-01	
		0.2870			0.3520	0.3321	421.48	1.9028	0.9909	WATER	0.1989E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
53	82.80	0.2530	760.00	706.50	0.5010	0.4830	1386.15	0.9430	0.9704	METHANOL	0.1798E-01	0.1558E-01
		0.6720			0.3990	0.4214	414.31	1.0207	0.9645	PROPANOL	-0.2338E-01	
		0.0750			0.1010	0.0956	395.72	2.2454	0.9872	WATER	0.5392E-02	
54	71.30	0.6610	760.00	775.30	0.8200	0.8459	946.98	1.0073	0.9639	METHANOL	-0.2498E-01	0.1665E-01
		0.0580			0.0320	0.0235	257.20	1.1588	0.9530	PROPANOL	0.8536E-02	
		0.2910			0.1480	0.1316	251.79	1.4094	0.9783	WATER	0.1644E-01	

METHANOL(1) - ISO-PROPANOL(2) - WATER(3) SYSTEM 259

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
513.20	79.50	118.00	0.557	0.105	1.660	1.21	METHANOL	23
509.50	47.00	218.50	0.663	0.187	1.660	0.0	ISO-C3OH	22
647.40	218.30	55.20	0.344	0.010	1.850	0.0	WATER	34

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.78786E 01	0.14731E 04	0.23000E 03	METHANOL	0.6451E 02	-0.1972E 00	0.3874E-03
0.66604E 01	0.81305E 03	0.13293E 03	ISO-C3OH	0.1418E 03	-0.4981E 00	0.9287E-03
0.79668E 01	0.16682E 04	0.22800E 03	WATER	0.2289E 02	-0.3642E-01	0.6856E-04

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-172.92	535.68	METHANOL - ISO-C3OH	155	0
483.16	322.47	METHANOL - WATER	157	0
682.17	1337.98	ISO-C3OH - WATER	201	0

HALA CONSISTENCY TEST

CI(1) -0.1178

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.1577E 02

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.2099E-01
COMPONENT 2	0.1680E-01
COMPONENT 3	0.9732E-02

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.1584E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FTCL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	80.80	0.0500	760.00	767.20	0.0700	0.0739	1296.30	0.8410	0.9623	METHANOL	-0.3945E-02	0.2629E-02
		0.9200			0.8500	0.8479	707.07	1.0052	0.9861	ISO-C3OH	0.2089E-02	
		0.0500			0.0800	0.0781	365.38	3.2423	0.9886	WATER	0.1854E-02	
2	80.10	0.0570	760.00	761.33	0.1340	0.0747	1265.96	0.7556	0.9603	METHANOL	0.5931E-01	0.3955E-01
		0.3790			0.5020	0.5305	687.27	1.5241	0.9858	ISO-C3OH	-0.2846E-01	
		0.5640			0.3640	0.3949	355.23	1.4851	0.9904	WATER	-0.3086E-01	
3	79.30	0.0760	760.00	765.53	0.1210	0.0925	1231.97	0.7253	0.9605	METHANOL	0.2851E-01	0.1901E-01
		0.5940			0.5840	0.6056	665.16	1.1533	0.9858	ISO-C3OH	-0.2155E-01	
		0.3300			0.2950	0.3020	343.92	2.0145	0.9897	WATER	-0.6962E-02	
4	80.00	0.0780	760.00	766.31	0.1370	0.1097	1261.68	0.8206	0.9621	METHANOL	0.2731E-01	0.1821E-01
		0.9340			0.7490	0.7690	684.48	1.0150	0.9860	ISO-C3OH	-0.1999E-01	
		0.0880			0.1140	0.1213	353.80	2.9502	0.9886	WATER	-0.7325E-02	
5	79.90	0.0840	760.00	769.84	0.1400	0.1070	1257.40	0.7476	0.9604	METHANOL	0.3304E-01	0.2203E-01
		0.4280			0.5070	0.5299	681.70	1.3717	0.9857	ISO-C3OH	-0.2191E-01	
		0.4880			0.3530	0.3641	352.37	1.6128	0.9900	WATER	-0.1114E-01	
6	81.00	0.0850	760.00	745.79	0.1300	0.1562	1305.08	1.0090	0.9624	METHANOL	0.2382E-01	0.1588E-01
		0.1700			0.4000	0.4014	712.81	2.4254	0.9861	ISO-C3OH	-0.1409E-02	
		0.7450			0.4200	0.4424	368.32	1.1903	0.9905	WATER	-0.2242E-01	
7	79.80	0.0870	760.00	777.95	0.1560	0.1070	1253.13	0.7322	0.9602	METHANOL	0.4898E-01	0.3265E-01
		0.5150			0.5210	0.5635	678.92	1.2321	0.9856	ISO-C3OH	-0.4249E-01	
		0.3980			0.3230	0.3295	350.95	1.8149	0.9897	WATER	-0.6492E-02	
8	79.70	0.0910	760.00	773.44	0.1500	0.1130	1248.88	0.7374	0.9604	METHANOL	0.3701E-01	0.2467E-01
		0.4900			0.5280	0.5501	676.15	1.2621	0.9857	ISO-C3OH	-0.2210E-01	
		0.4190			0.3220	0.3369	349.54	1.7598	0.9897	WATER	-0.1491E-01	
9	79.30	0.0950	760.00	770.04	0.1260	0.1172	1231.97	0.7398	0.9607	METHANOL	0.8794E-02	0.5863E-02
		0.5940			0.5880	0.5958	665.16	1.1413	0.9858	ISO-C3OH	-0.7762E-02	
		0.3110			0.2860	0.2870	343.92	2.0433	0.9894	WATER	-0.1034E-02	
10	79.10	0.0950	760.00	760.75	0.1750	0.1235	1223.58	0.7759	0.9617	METHANOL	0.5154E-01	0.3436E-01
		0.7250			0.6500	0.6726	659.72	1.0519	0.9860	ISO-C3OH	-0.2258E-01	
		0.1800			0.1750	0.2040	341.14	2.4976	0.9890	WATER	-0.2896E-01	
11	80.60	0.1000	760.00	745.86	0.2050	0.1733	1287.58	0.9649	0.9625	METHANOL	0.3168E-01	0.2113E-01
		0.1930			0.3850	0.3985	701.37	2.1932	0.9861	ISO-C3OH	-0.1349E-01	
		0.7100			0.4100	0.4292	362.45	1.2283	0.9903	WATER	-0.1821E-01	
12	79.60	0.1000	760.00	765.18	0.1570	0.1338	1244.63	0.8199	0.9623	METHANOL	0.1821E-01	0.1214E-01
		0.7990			0.7190	0.7298	673.39	1.0204	0.9860	ISO-C3OH	-0.1075E-01	
		0.1010			0.1240	0.1315	348.13	2.8260	0.9885	WATER	-0.7460E-02	
13	79.00	0.1200	760.00	764.98	0.1650	0.1569	1219.41	0.7878	0.9619	METHANOL	0.8110E-02	0.5408E-02
		0.7000			0.6400	0.6454	657.01	1.0553	0.9859	ISO-C3OH	-0.5371E-02	
		0.1800			0.1950	0.1977	339.76	2.4439	0.9887	WATER	-0.2743E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	79.20	0.1400	760.00	713.04	0.2980	0.2529	1227.77	1.0103	0.9646	METHANOL	0.4514E-01	0.3010E-01
		0.1600			0.3250	0.3326	662.44	2.2016	0.9865	ISO-C3OH	-0.7619E-02	
		0.7000			0.3770	0.4145	342.53	1.2198	0.9901	WATER	-0.3753E-01	
15	78.10	0.1500	760.00	747.14	0.2370	0.1912	1182.33	0.7741	0.9624	METHANOL	0.4579E-01	0.3053E-01
		0.5440			0.4990	0.5396	633.01	1.1512	0.9860	ISO-C3OH	-0.4061E-01	
		0.3060			0.2640	0.2692	327.53	1.9836	0.9891	WATER	-0.5187E-02	
16	78.50	0.1710	760.00	740.85	0.2720	0.2404	1198.70	0.8357	0.9631	METHANOL	0.3158E-01	0.2105E-01
		0.3180			0.3910	0.4123	643.60	1.4673	0.9860	ISO-C3OH	-0.2125E-01	
		0.5110			0.3370	0.3473	332.92	1.4955	0.9894	WATER	-0.1033E-01	
17	79.50	0.1740	760.00	711.19	0.3770	0.3660	1240.40	1.1635	0.9660	METHANOL	0.1098E-01	0.2408E-01
		0.0850			0.2400	0.2149	670.64	2.6369	0.9863	ISO-C3OH	0.2514E-01	
		0.7410			0.3830	0.4191	346.72	1.1472	0.9894	WATER	-0.3612E-01	
18	78.20	0.1760	760.00	747.00	0.2640	0.2329	1186.40	0.8011	0.9627	METHANOL	0.3107E-01	0.2072E-01
		0.4080			0.4290	0.4557	635.65	1.2905	0.9859	ISO-C3OH	-0.2671E-01	
		0.4160			0.3070	0.3114	328.87	1.6805	0.9891	WATER	-0.4365E-02	
19	77.80	0.1820	760.00	747.75	0.2760	0.2352	1170.16	0.7940	0.9628	METHANOL	0.4079E-01	0.2719E-01
		0.5240			0.4750	0.5109	625.16	1.1465	0.9859	ISO-C3OH	-0.3587E-01	
		0.2940			0.2490	0.2539	323.53	1.9722	0.9887	WATER	-0.4919E-02	
20	78.60	0.1860	760.00	726.21	0.3240	0.3028	1202.91	0.9465	0.9644	METHANOL	0.2122E-01	0.1415E-01
		0.1950			0.3140	0.3210	646.26	1.8190	0.9861	ISO-C3OH	-0.6975E-02	
		0.6190			0.3620	0.3763	334.28	1.3056	0.9893	WATER	-0.1425E-01	
21	79.10	0.1900	760.00	718.23	0.3840	0.3666	1223.58	1.0920	0.9656	METHANOL	0.1744E-01	0.1888E-01
		0.1080			0.2440	0.2331	659.72	2.3111	0.9861	ISO-C3OH	0.1088E-01	
		0.7020			0.3720	0.4003	341.14	1.1868	0.9891	WATER	-0.2833E-01	
22	77.70	0.1970	760.00	751.55	0.3060	0.2599	1166.14	0.8179	0.9632	METHANOL	0.4606E-01	0.3071E-01
		0.6060			0.5040	0.5485	622.56	1.0740	0.9857	ISO-C3OH	-0.4446E-01	
		0.1970			0.1900	0.1916	322.21	2.2399	0.9880	WATER	-0.1599E-02	
23	77.20	0.2400	760.00	744.96	0.3600	0.3187	1146.14	0.8303	0.9636	METHANOL	0.4132E-01	0.2755E-01
		0.4200			0.3900	0.4214	609.69	1.2047	0.9856	ISO-C3OH	-0.3139E-01	
		0.3400			0.2500	0.2599	315.66	1.7813	0.9880	WATER	-0.9943E-02	
24	77.00	0.2450	760.00	742.46	0.3950	0.3244	1138.22	0.8313	0.9638	METHANOL	0.7056E-01	0.4704E-01
		0.4350			0.3750	0.4264	604.69	1.1831	0.9856	ISO-C3OH	-0.5140E-01	
		0.3200			0.2300	0.2492	313.08	1.8231	0.9879	WATER	-0.1916E-01	
25	76.90	0.2700	760.00	751.76	0.3700	0.3739	1134.28	0.8839	0.9645	METHANOL	-0.3924E-02	0.7653E-02
		0.6400			0.5250	0.5326	602.96	1.0207	0.9851	ISO-C3OH	-0.7555E-02	
		0.0900			0.1050	0.0935	311.79	2.4691	0.9861	WATER	0.1148E-01	
26	76.70	0.2900	760.00	752.10	0.4100	0.3958	1126.42	0.8551	0.9639	METHANOL	0.2415E-01	0.1646E-01
		0.4150			0.3650	0.3897	597.02	1.1620	0.9851	ISO-C3OH	-0.2468E-01	
		0.2950			0.2250	0.2245	309.23	1.8254	0.9870	WATER	0.5328E-03	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
										COMPONENT	
27	76.10	0.3150	760.00	749.37	0.4150	0.4335	1103.11	0.8943	0.9647	METHANOL -0.1547E-01	0.1284E-01
		0.5850			0.4700	0.4738	582.08	1.0239	0.9847	ISO-C3OH -0.3782E-02	
		0.1000			0.1150	0.0957	301.65	2.3424	0.9855	WATER 0.1926E-01	
28	75.90	0.3230	760.00	746.35	0.4720	0.4445	1095.42	0.9034	0.9649	METHANOL 0.2753E-01	0.2252E-01
		0.5950			0.4420	0.4758	577.16	1.0153	0.9847	ISO-C3OH -0.3378E-01	
		0.0820			0.0860	0.0797	299.16	2.3838	0.9852	WATER 0.6252E-02	
29	75.20	0.3560	760.00	740.87	0.4780	0.4727	1068.86	0.8866	0.9648	METHANOL 0.5320E-02	0.8876E-02
		0.4340			0.3510	0.3643	560.21	1.0900	0.9846	ISO-C3OH -0.1331E-01	
		0.2100			0.1710	0.1630	290.58	1.9493	0.9856	WATER 0.7993E-02	
30	75.10	0.3580	760.00	728.58	0.4980	0.4907	1065.10	0.9038	0.9653	METHANOL 0.7250E-02	0.4834E-02
		0.2870			0.2750	0.2786	557.82	1.2367	0.9848	ISO-C3OH -0.3624E-02	
		0.3530			0.2270	0.2306	289.38	1.6212	0.9862	WATER -0.3627E-02	
31	75.30	0.3650	760.00	749.26	0.5110	0.4956	1072.62	0.9138	0.9649	METHANOL 0.1542E-01	0.1373E-01
		0.5480			0.4050	0.4256	562.69	1.0151	0.9841	ISO-C3OH -0.2059E-01	
		0.0870			0.0840	0.0788	291.90	2.2988	0.9844	WATER 0.5174E-02	
32	74.60	0.3850	760.00	728.37	0.5370	0.5234	1046.49	0.9122	0.9654	METHANOL 0.1359E-01	0.9060E-02
		0.2850			0.2560	0.2630	545.99	1.2088	0.9845	ISO-C3OH -0.7041E-02	
		0.3300			0.2070	0.2135	283.40	1.6382	0.9856	WATER -0.6549E-02	
33	74.70	0.3850	760.00	739.91	0.5160	0.5099	1050.20	0.8991	0.9650	METHANOL 0.6081E-02	0.8671E-02
		0.4150			0.3260	0.3390	548.33	1.0819	0.9843	ISO-C3OH -0.1301E-01	
		0.2000			0.1580	0.1511	284.58	1.9333	0.9850	WATER 0.6926E-02	
34	74.60	0.3830	760.00	737.76	0.5370	0.5166	1046.49	0.9166	0.9653	METHANOL 0.2041E-01	0.2571E-01
		0.5220			0.3620	0.4006	545.98	1.0177	0.9841	ISO-C3OH -0.3857E-01	
		0.0950			0.1010	0.0828	283.40	2.2331	0.9844	WATER 0.1816E-01	
35	74.50	0.3950	760.00	723.72	0.5600	0.5574	1042.80	0.9444	0.9657	METHANOL 0.2631E-02	0.1755E-02
		0.2050			0.2050	0.2061	543.63	1.3136	0.9843	ISO-C3OH -0.1054E-02	
		0.4000			0.2350	0.2366	282.21	1.4937	0.9855	WATER -0.1578E-02	
36	74.00	0.4080	760.00	732.69	0.5620	0.5445	1024.51	0.9200	0.9654	METHANOL 0.1754E-01	0.1871E-01
		0.4820			0.3370	0.3651	532.03	1.0235	0.9839	ISO-C3OH -0.2806E-01	
		0.1100			0.1010	0.0905	276.36	2.1448	0.9841	WATER 0.1052E-01	
37	74.20	0.4100	760.00	725.78	0.5820	0.5659	1031.79	0.9361	0.9656	METHANOL 0.1613E-01	0.1076E-01
		0.2280			0.2080	0.2155	536.65	1.2544	0.9841	ISO-C3OH -0.7475E-02	
		0.3620			0.2100	0.2187	278.69	1.5487	0.9851	WATER -0.8661E-02	
38	73.80	0.4450	760.00	742.11	0.5920	0.5838	1017.25	0.9222	0.9650	METHANOL 0.8223E-02	0.6197E-02
		0.3510			0.2660	0.2753	527.44	1.0823	0.9834	ISO-C3OH -0.9297E-02	
		0.2040			0.1420	0.1409	274.04	1.8393	0.9838	WATER 0.1072E-02	
39	73.50	0.4640	760.00	735.91	0.6390	0.6272	1006.46	0.9465	0.9653	METHANOL 0.1579E-01	0.1066E-01
		0.2220			0.1750	0.1910	520.61	1.1923	0.9833	ISO-C3OH -0.1599E-01	
		0.3140			0.1860	0.1858	270.60	1.5819	0.9838	WATER 0.1926E-03	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	73.30	0.4820	760.00	746.22	0.6410	0.6266	999.31	0.9354	0.9649	METHANOL	0.1435E-01	0.9567E-02
		0.3190			0.2320	0.2422	516.10	1.0759	0.9829	ISO-C3OH	-0.1018E-01	
		0.1990			0.1270	0.1312	268.33	1.8007	0.9829	WATER	-0.4174E-02	
41	73.20	0.5000	760.00	754.73	0.6450	0.6451	995.75	0.9420	0.9647	METHANOL	-0.1001E-03	0.1538E-02
		0.3510			0.2510	0.2532	513.86	1.0380	0.9824	ISO-C3OH	-0.2207E-02	
		0.1490			0.1040	0.1017	267.20	1.8922	0.9822	WATER	0.2306E-02	
42	72.80	0.5010	760.00	738.42	0.6600	0.6547	981.62	0.9475	0.9652	METHANOL	0.5253E-02	0.3503E-02
		0.2470			0.1920	0.1934	504.95	1.1224	0.9827	ISO-C3OH	-0.1443E-02	
		0.2520			0.1480	0.1518	262.72	1.6631	0.9828	WATER	-0.3812E-02	
43	72.50	0.5400	760.00	750.16	0.7050	0.6967	971.13	0.9601	0.9648	METHANOL	0.8282E-02	0.5522E-02
		0.2150			0.1600	0.1625	498.35	1.1143	0.9819	ISO-C3OH	-0.2546E-02	
		0.2450			0.1350	0.1407	259.40	1.6299	0.9818	WATER	-0.5737E-02	
44	72.10	0.5620	760.00	755.65	0.7010	0.7095	957.27	0.9597	0.9645	METHANOL	-0.8471E-02	0.5832E-02
		0.3090			0.2080	0.2083	489.66	1.0180	0.9814	ISO-C3OH	-0.2776E-03	
		0.1290			0.0910	0.0823	255.03	1.8517	0.9807	WATER	0.8747E-02	
45	72.00	0.5700	760.00	752.94	0.7270	0.7234	953.84	0.9649	0.9646	METHANOL	0.3578E-02	0.3573E-02
		0.2150			0.1560	0.1542	487.50	1.0842	0.9814	ISO-C3OH	0.1781E-02	
		0.2150			0.1170	0.1224	253.95	1.6543	0.9810	WATER	-0.5360E-02	
46	71.60	0.6150	760.00	765.22	0.7500	0.7665	940.17	0.9765	0.9640	METHANOL	-0.1650E-01	0.1273E-01
		0.1750			0.1400	0.1209	478.95	1.0791	0.9804	ISO-C3OH	0.1910E-01	
		0.2100			0.1100	0.1126	249.65	1.6091	0.9798	WATER	-0.2598E-02	
47	71.20	0.6400	760.00	767.46	0.7700	0.7872	926.68	0.9804	0.9638	METHANOL	-0.1723E-01	0.1316E-01
		0.1550			0.1300	0.1103	470.52	1.0650	0.9800	ISO-C3OH	0.1975E-01	
		0.1950			0.1000	0.1025	245.42	1.6087	0.9791	WATER	-0.2519E-02	
48	69.10	0.7620	760.00	772.20	0.8520	0.8755	858.31	0.9938	0.9629	METHANOL	-0.2353E-01	0.1568E-01
		0.1150			0.0900	0.0658	428.10	1.0071	0.9779	ISO-C3OH	0.1415E-01	
		0.1230			0.0580	0.0536	224.18	1.6019	0.9763	WATER	0.9373E-02	
49	68.10	0.8110	760.00	768.21	0.8880	0.9057	827.20	0.9969	0.9626	METHANOL	-0.1775E-01	0.1183E-01
		0.0930			0.0600	0.0504	408.97	0.9911	0.9772	ISO-C3OH	0.9639E-02	
		0.0960			0.0520	0.0439	214.62	1.5953	0.9754	WATER	0.8108E-02	
50	67.10	0.8870	760.00	777.29	0.9360	0.9468	797.00	0.9996	0.9617	METHANOL	-0.1079E-01	0.7193E-02
		0.0650			0.0300	0.0324	390.52	0.9864	0.9759	ISO-C3OH	0.5564E-02	
		0.0480			0.0340	0.0208	205.41	1.5937	0.9737	WATER	0.5224E-02	
51	80.70	0.0700	760.00	782.66	0.0950	0.0991	1291.94	0.8237	0.9616	METHANOL	-0.4130E-02	0.2157E-01
		0.8500			0.8200	0.7876	704.22	1.0123	0.9858	ISO-C3OH	0.3236E-01	
		0.0800			0.0850	0.1132	363.91	3.0069	0.9885	WATER	-0.2823E-01	
52	79.70	0.0820	760.00	770.25	0.1210	0.1016	1248.38	0.7328	0.9603	METHANOL	0.1939E-01	0.1293E-01
		0.4830			0.5350	0.5528	676.15	1.2816	0.9857	ISO-C3OH	-0.1784E-01	
		0.4350			0.3440	0.3456	349.54	1.7316	0.9899	WATER	-0.1560E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOI	GAMMA	PHI	COMPOSITION RESIDUALS (EXP - CALC) COMPONENT	BY COMPONENT	MEAN ABS DEV
53	79.20	0.0920	760.00	762.75	0.1500	0.1196	1227.77	0.7753	0.9616	METHANOL	0.3042E-01	0.2028E-01
		0.7300			0.6500	0.6773	662.44	1.0504	0.9860	ISO-C3OH	-0.2731E-01	
		0.1780			0.2000	0.2031	342.53	2.5114	0.9890	WATER	-0.3108E-02	
54	74.20	0.4160	760.00	738.75	0.5560	0.5494	1031.79	0.9113	0.9651	METHANOL	0.6558E-02	0.4372E-02
		0.3610			0.2880	0.2938	536.65	1.0991	0.9839	ISO-C3OH	-0.5750E-02	
		0.2230			0.1560	0.1568	278.69	1.8340	0.9845	WATER	-0.8090E-03	
55	71.30	0.6300	760.00	765.36	0.7800	0.7775	930.03	0.9775	0.9639	METHANOL	0.2474E-02	0.7022E-02
		0.1800			0.1100	0.1205	472.61	1.0599	0.9802	ISO-C3OH	-0.1053E-01	
		0.1900			0.1100	0.1019	246.47	1.6307	0.9794	WATER	0.8058E-02	
56	68.60	0.7910	760.00	772.33	0.8990	0.8942	842.64	0.9960	0.9627	METHANOL	-0.5219E-02	0.6954E-02
		0.0960			0.0640	0.0536	418.45	1.0038	0.9775	ISO-C3OH	0.1043E-01	
		0.1130			0.0370	0.0522	219.36	1.5863	0.9758	WATER	-0.5212E-02	

METHYL ACETATE(1) - BENZENE(2) - CYCLOHEXANE(3) SYSTEM 060

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
506.90	46.30	228.00	0.326	0.215	1.720	0.62	ME ACET	24
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
553.20	40.00	311.20	0.210	0.0	0.0	0.0	CYCLOHEX	9

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.69894E 01	0.11110E 04	0.21351E 03	ME ACET	0.1360E 03	-0.4671E 00	0.9221E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
0.68450E 01	0.12035E 04	0.22286E 03	CYCLOHEX	0.9291E 02	-0.2486E-01	0.2616E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

		BINARY	ID NUMBERS	ORDER
281.66	-60.75	ME ACET - BENZENE	162	0
748.81	277.81	ME ACET - CYCLOHEX	165	0
110.55	142.54	BENZENE - CYCLOHEX	27	0

WALA CONSISTENCY TEST

CI(1) 1.5173

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.6078E 01

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.1225E-01
COMPONENT 2	0.7677E-02
COMPONENT 3	0.6086E-02

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.8671E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	75.00	0.0670	760.00	743.62	0.1540	0.1619	1278.73	1.3622	0.9721	ME ACET	-0.7920E-02	0.5279E-02
		0.8740			0.7730	0.7654	626.53	1.0006	0.9658	BENZENE	0.7570E-02	
		0.0590			0.0730	0.0727	613.71	1.4279	0.9608	CYCLOHEX	0.3474E-03	
2	68.90	0.2370	760.00	763.19	0.4130	0.4267	1064.74	1.2414	0.9649	ME ACET	-0.1371E-01	0.1063E-01
		0.6850			0.5030	0.4870	516.01	1.0109	0.9646	BENZENE	0.1595E-01	
		0.0780			0.0840	0.0862	507.74	1.5878	0.9593	CYCLOHEX	-0.2244E-02	
3	69.50	0.2130	760.00	749.87	0.3940	0.3974	1084.52	1.2426	0.9661	ME ACET	-0.3393E-02	0.2261E-02
		0.7320			0.5420	0.5393	526.16	1.0100	0.9651	BENZENE	0.2710E-02	
		0.0550			0.0640	0.0633	517.49	1.5950	0.9600	CYCLOHEX	0.6794E-03	
4	71.30	0.1670	760.00	750.21	0.3180	0.3348	1145.50	1.2669	0.9677	ME ACET	-0.1680E-01	0.1124E-01
		0.7900			0.6140	0.6141	557.54	1.0062	0.9652	BENZENE	-0.6670E-04	
		0.0430			0.0680	0.0511	547.61	1.5579	0.9601	CYCLOHEX	0.1686E-01	
5	65.80	0.3290	760.00	750.09	0.5180	0.5218	966.78	1.1850	0.9628	ME ACET	-0.3838E-02	0.3130E-02
		0.5940			0.3920	0.3929	465.96	1.0243	0.9653	BENZENE	-0.8589E-03	
		0.0780			0.0900	0.0853	459.57	1.7067	0.9600	CYCLOHEX	0.4692E-02	
6	63.20	0.4270	760.00	746.15	0.6010	0.6049	889.95	1.1377	0.9608	ME ACET	-0.3866E-02	0.3061E-02
		0.4880			0.3020	0.3027	426.96	1.0436	0.9658	BENZENE	-0.7297E-03	
		0.0950			0.0970	0.0924	421.96	1.8390	0.9605	CYCLOHEX	0.4589E-02	
7	62.20	0.5190	760.00	758.10	0.6670	0.6724	861.66	1.0919	0.9590	ME ACET	-0.5374E-02	0.3929E-02
		0.4160			0.2580	0.2521	412.66	1.0720	0.9662	BENZENE	0.5890E-02	
		0.0660			0.0750	0.0755	408.15	2.0335	0.9607	CYCLOHEX	-0.5214E-03	
8	60.80	0.5960	760.00	765.97	0.7080	0.7191	823.19	1.0716	0.9574	ME ACET	-0.1115E-01	0.1385E-01
		0.3220			0.1780	0.1976	393.26	1.0929	0.9663	BENZENE	-0.9623E-02	
		0.0820			0.1140	0.0932	389.40	2.1399	0.9608	CYCLOHEX	0.2076E-01	
9	59.10	0.7080	760.00	762.79	0.7760	0.7874	778.24	1.0390	0.9561	ME ACET	-0.1137E-01	0.7577E-02
		0.2220			0.1280	0.1275	370.68	1.1399	0.9675	BENZENE	0.4679E-03	
		0.0700			0.0960	0.0851	367.54	2.4171	0.9620	CYCLOHEX	0.1089E-01	
10	58.30	0.8070	760.00	763.44	0.8480	0.8546	757.74	1.0160	0.9552	ME ACET	-0.6557E-02	0.4374E-02
		0.1510			0.0920	0.0885	360.41	1.1983	0.9690	BENZENE	0.3543E-02	
		0.0420			0.0600	0.0570	357.59	2.7788	0.9634	CYCLOHEX	0.3021E-02	
11	57.70	0.7930	760.00	759.58	0.8290	0.8332	742.64	1.0234	0.9552	ME ACET	-0.4184E-02	0.2792E-02
		0.1360			0.0790	0.0771	352.85	1.1780	0.9635	BENZENE	0.1889E-02	
		0.0710			0.0920	0.0897	350.27	2.6269	0.9628	CYCLOHEX	0.2303E-02	
12	74.30	0.0810	760.00	763.68	0.1790	0.1941	1252.69	1.4137	0.9706	ME ACET	-0.1510E-01	0.1007E-01
		0.7900			0.6760	0.6614	613.90	1.0029	0.9648	BENZENE	0.1458E-01	
		0.1290			0.1450	0.1445	600.77	1.3607	0.9596	CYCLOHEX	0.5177E-03	
13	71.60	0.1250	760.00	756.49	0.2670	0.2770	1155.90	1.4036	0.9686	ME ACET	-0.1002E-01	0.7570E-02
		0.7150			0.5670	0.5556	562.90	1.0040	0.9646	BENZENE	0.1135E-01	
		0.1600			0.1660	0.1673	552.76	1.3676	0.9594	CYCLOHEX	-0.1338E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	69.00	0.2120	760.00	769.22	0.3910	0.3929	1068.02	1.3070	0.9650	ME ACET	-0.1886E-01	0.1316E-01
		0.6460			0.4750	0.4553	517.69	1.0061	0.9640	BENZENE	0.1973E-01	
		0.1421			0.1440	0.1449	509.35	1.4710	0.9587	CYCLOHEX	-0.8731E-03	
15	65.50	0.3140	760.00	758.13	0.4970	0.5091	957.67	1.2317	0.9625	ME ACET	-0.1210E-01	0.8068E-02
		0.5460			0.3600	0.3512	461.32	1.0162	0.9646	BENZENE	0.8820E-02	
		0.1400			0.1430	0.1397	455.11	1.5883	0.9592	CYCLOHEX	0.3281E-02	
16	64.00	0.4070	760.00	767.24	0.5730	0.5876	913.08	1.1614	0.9603	ME ACET	-0.1457E-01	0.9715E-02
		0.4800			0.3090	0.2953	438.67	1.0346	0.9648	BENZENE	0.1369E-01	
		0.1130			0.1180	0.1171	433.27	1.7535	0.9594	CYCLOHEX	0.8801E-03	
17	61.50	0.4790	760.00	754.59	0.6320	0.6332	842.25	1.1415	0.9592	ME ACET	-0.6181E-02	0.4118E-02
		0.3790			0.2260	0.2201	402.86	1.0465	0.9655	BENZENE	0.5937E-02	
		0.1420			0.1420	0.1418	398.69	1.8065	0.9600	CYCLOHEX	0.2363E-03	
18	58.30	0.6680	760.00	752.83	0.7490	0.7512	757.74	1.0654	0.9565	ME ACET	-0.2211E-02	0.1470E-02
		0.2060			0.1140	0.1132	360.41	1.1063	0.9669	BENZENE	0.7726E-03	
		0.1260			0.1370	0.1356	357.59	2.1686	0.9613	CYCLOHEX	0.1428E-02	
19	57.50	0.7340	760.00	764.06	0.7720	0.7827	737.65	1.0517	0.9551	ME ACET	-0.1068E-01	0.7122E-02
		0.1290			0.0720	0.0693	350.36	1.1281	0.9669	BENZENE	0.2749E-02	
		0.1370			0.1560	0.1481	347.85	2.2723	0.9612	CYCLOHEX	0.7938E-02	
20	73.40	0.0770	760.00	757.57	0.1930	0.1931	1219.80	1.5073	0.9706	ME ACET	-0.1011E-01	0.6741E-02
		0.7100			0.5870	0.5879	595.94	1.0106	0.9647	BENZENE	0.9956E-02	
		0.2130			0.2200	0.2198	584.43	1.2786	0.9596	CYCLOHEX	0.1542E-03	
21	70.70	0.1370	760.00	763.09	0.2880	0.3027	1124.90	1.4457	0.9675	ME ACET	-0.1468E-01	0.9787E-02
		0.6450			0.4940	0.4850	546.92	1.0080	0.9641	BENZENE	0.9039E-02	
		0.2180			0.2180	0.2124	537.43	1.3208	0.9589	CYCLOHEX	0.5639E-02	
22	67.90	0.2140	760.00	771.41	0.3840	0.4110	1032.37	1.3796	0.9643	ME ACET	-0.2698E-01	0.1799E-01
		0.5570			0.3940	0.3786	499.43	1.0083	0.9636	BENZENE	0.1538E-01	
		0.2290			0.2220	0.2104	491.80	1.3752	0.9583	CYCLOHEX	0.1160E-01	
23	65.10	0.2960	760.00	766.90	0.4790	0.4936	945.63	1.3101	0.9620	ME ACET	-0.1962E-01	0.1308E-01
		0.4740			0.3100	0.2965	455.20	1.0122	0.9639	BENZENE	0.1351E-01	
		0.2300			0.2110	0.2099	449.20	1.4515	0.9584	CYCLOHEX	0.6104E-02	
24	62.20	0.4130	760.00	757.39	0.5060	0.5024	861.66	1.2066	0.9599	ME ACET	-0.6420E-02	0.4278E-02
		0.3900			0.2310	0.2270	412.60	1.0273	0.9648	BENZENE	0.3978E-02	
		0.1970			0.1930	0.1806	408.15	1.6248	0.9593	CYCLOHEX	0.2436E-02	
25	60.50	0.5000	760.00	769.72	0.6280	0.6503	815.11	1.1726	0.9577	ME ACET	-0.2231E-01	0.1610E-01
		0.2790			0.1770	0.1529	389.20	1.0416	0.9647	BENZENE	0.2415E-01	
		0.2210			0.1950	0.1968	385.47	1.6985	0.9590	CYCLOHEX	-0.1847E-02	
26	58.30	0.5980	760.00	750.43	0.7020	0.7062	757.74	1.1158	0.9570	ME ACET	-0.4159E-02	0.5068E-02
		0.2070			0.1180	0.1194	360.41	1.0691	0.9660	BENZENE	0.7605E-02	
		0.1950			0.1800	0.1834	357.59	1.8882	0.9604	CYCLOHEX	-0.3440E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	56.80	0.7150	760.00	761.15	0.7610	0.7643	720.41	1.0754	0.9550	ME ACET	-0.3335E-02	0.2226E-02
		0.0920			0.0500	0.0475	341.75	1.1065	0.9664	BENZENE	0.2543E-02	
		0.1930			0.1890	0.1832	339.50	2.0915	0.9607	CYCLOHEX	0.8001E-03	
28	72.30	0.0860	760.00	759.13	0.2100	0.2204	1180.45	1.5934	0.9697	ME ACET	-0.1039E-01	0.6925E-02
		0.6200			0.5050	0.4996	575.58	1.0215	0.9644	BENZENE	0.5388E-02	
		0.2940			0.2850	0.2800	564.91	1.2226	0.9592	CYCLOHEX	0.4998E-02	
29	69.30	0.1510	760.00	762.92	0.3160	0.3348	1077.00	1.5122	0.9665	ME ACET	-0.1882E-01	0.1254E-01
		0.5550			0.4160	0.4021	522.76	1.0158	0.9638	BENZENE	0.1387E-01	
		0.2940			0.2680	0.2631	514.22	1.2672	0.9585	CYCLOHEX	0.4943E-02	
30	67.40	0.1920	760.00	759.47	0.3800	0.3939	1016.46	1.4747	0.9649	ME ACET	-0.1389E-01	0.9261E-02
		0.5060			0.3550	0.3458	491.30	1.0147	0.9639	BENZENE	0.9229E-02	
		0.3020			0.2650	0.2603	483.97	1.2913	0.9585	CYCLOHEX	0.4660E-02	
31	63.50	0.3380	760.00	767.21	0.5250	0.5396	898.57	1.3055	0.9607	ME ACET	-0.1462E-01	0.9748E-02
		0.3960			0.2440	0.2355	431.32	1.0161	0.9639	BENZENE	0.8505E-02	
		0.2660			0.2310	0.2249	426.17	1.4525	0.9584	CYCLOHEX	0.6114E-02	
32	61.40	0.3970	760.00	756.05	0.5790	0.5868	839.51	1.2735	0.9596	ME ACET	-0.7779E-02	0.5183E-02
		0.3220			0.1860	0.1819	401.48	1.0223	0.9645	BENZENE	0.4140E-02	
		0.2810			0.2350	0.2314	397.35	1.4961	0.9589	CYCLOHEX	0.3632E-02	
33	59.00	0.5110	760.00	760.74	0.6510	0.6597	775.65	1.2084	0.9572	ME ACET	-0.8707E-02	0.5801E-02
		0.1970			0.1090	0.1034	369.38	1.0292	0.9648	BENZENE	0.5616E-02	
		0.2920			0.2400	0.2369	366.28	1.6095	0.9591	CYCLOHEX	0.3082E-02	
34	56.80	0.6350	760.00	755.06	0.7200	0.7227	720.41	1.1365	0.9557	ME ACET	-0.2661E-02	0.2612E-02
		0.0940			0.0460	0.0473	341.75	1.0689	0.9657	BENZENE	-0.1252E-02	
		0.2710			0.2340	0.2301	339.50	1.8051	0.9600	CYCLOHEX	0.3921E-02	
35	73.70	0.0610	760.00	768.54	0.1500	0.1733	1230.69	1.7166	0.9707	ME ACET	-0.2326E-01	0.1551E-01
		0.5300			0.5000	0.4903	601.59	1.0378	0.9642	BENZENE	0.9678E-02	
		0.3590			0.3500	0.3364	589.84	1.1661	0.9590	CYCLOHEX	0.1358E-01	
36	74.70	0.0400	760.00	761.09	0.1110	0.1218	1267.53	1.7730	0.9723	ME ACET	-0.1084E-01	0.1361E-01
		0.5860			0.5100	0.5196	620.71	1.0454	0.9648	BENZENE	-0.9580E-02	
		0.3740			0.3790	0.3586	608.14	1.1467	0.9596	CYCLOHEX	0.2042E-01	
37	69.40	0.1300	760.00	760.02	0.3000	0.3143	1081.21	1.6385	0.9670	ME ACET	-0.1430E-01	0.9531E-02
		0.4950			0.3750	0.3665	524.46	1.0308	0.9639	BENZENE	0.8451E-02	
		0.3750			0.3250	0.3192	515.86	1.1970	0.9585	CYCLOHEX	0.5845E-02	
38	65.20	0.2320	760.00	767.72	0.4410	0.4593	948.63	1.5275	0.9626	ME ACET	-0.1828E-01	0.1218E-01
		0.3670			0.2440	0.2333	456.72	1.0259	0.9634	BENZENE	0.1069E-01	
		0.4010			0.3150	0.3074	450.69	1.2457	0.9579	CYCLOHEX	0.7582E-02	
39	62.90	0.2980	760.00	757.15	0.5110	0.5211	881.39	1.4396	0.9612	ME ACET	-0.1013E-01	0.6750E-02
		0.3250			0.1980	0.1929	422.63	1.0213	0.9639	BENZENE	0.5139E-02	
		0.3770			0.2910	0.2860	417.78	1.3123	0.9584	CYCLOHEX	0.4983E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	60.60	0.3980	760.00	767.54	0.5850	0.5998	817.80	1.3515	0.9584	ME ACET	-0.1480E-01	0.9865E-02
		0.2200			0.1270	0.1195	390.55	1.0255	0.9639	BENZENE	0.7481E-02	
		0.3820			0.2880	0.2807	386.78	1.3913	0.9582	CYCLOHEX	0.7312E-02	
41	57.80	0.5100	760.00	753.78	0.6610	0.6659	745.14	1.2600	0.9569	ME ACET	-0.4855E-02	0.3239E-02
		0.1200			0.0640	0.0608	354.10	1.0378	0.9648	BENZENE	0.3158E-02	
		0.3700			0.2750	0.2733	351.48	1.5131	0.9591	CYCLOHEX	0.1705E-02	
42	72.50	0.0530	760.00	741.14	0.1620	0.1683	1187.53	1.9195	0.9715	ME ACET	-0.6277E-02	0.4183E-02
		0.4720			0.4120	0.4103	579.24	1.0700	0.9651	BENZENE	0.1664E-02	
		0.4750			0.4260	0.4214	568.42	1.1060	0.9599	CYCLOHEX	0.4608E-02	
43	68.70	0.1250	760.00	756.28	0.3100	0.3242	1058.21	1.7864	0.9668	ME ACET	-0.1416E-01	0.9437E-02
		0.4020			0.3070	0.2988	512.66	1.0532	0.9639	BENZENE	0.8228E-02	
		0.4730			0.3830	0.3771	504.52	1.1408	0.9585	CYCLOHEX	0.5925E-02	
44	72.50	0.0570	760.00	745.59	0.1580	0.1758	1187.53	1.8753	0.9712	ME ACET	-0.1781E-01	0.1187E-01
		0.4890			0.4300	0.4199	579.24	1.0629	0.9649	BENZENE	0.1015E-01	
		0.4540			0.4120	0.4043	568.42	1.1167	0.9597	CYCLOHEX	0.7657E-02	
45	68.70	0.1270	760.00	758.84	0.3130	0.3276	1058.21	1.7829	0.9666	ME ACET	-0.1463E-01	0.9754E-02
		0.4000			0.3060	0.2962	512.66	1.0528	0.9638	BENZENE	0.9799E-02	
		0.4730			0.3810	0.3762	504.52	1.1417	0.9594	CYCLOHEX	0.4830E-02	
46	71.20	0.0730	760.00	744.58	0.2100	0.2204	1142.05	1.9042	0.9700	ME ACET	-0.1045E-01	0.6962E-02
		0.4390			0.3700	0.3642	555.76	1.0687	0.9647	BENZENE	0.5791E-02	
		0.4880			0.4200	0.4154	545.91	1.1094	0.9595	CYCLOHEX	0.4650E-02	
47	65.80	0.1960	760.00	774.30	0.4200	0.4380	966.78	1.7193	0.9629	ME ACET	-0.1804E-01	0.1203E-01
		0.2990			0.2100	0.1966	465.96	1.0488	0.9630	BENZENE	0.1337E-01	
		0.5050			0.3700	0.3653	459.57	1.1621	0.9575	CYCLOHEX	0.4666E-02	
48	62.00	0.2800	760.00	759.00	0.5180	0.5323	856.08	1.6139	0.9605	ME ACET	-0.1426E-01	0.9506E-02
		0.2040			0.1270	0.1195	409.84	1.0419	0.9636	BENZENE	0.7496E-02	
		0.5160			0.3550	0.3482	405.43	1.2055	0.9581	CYCLOHEX	0.6760E-02	
49	58.30	0.4510	760.00	764.53	0.6360	0.6462	757.74	1.3790	0.9568	ME ACET	-0.1021E-01	0.6807E-02
		0.0820			0.0440	0.0417	360.41	1.0356	0.9641	BENZENE	0.2334E-02	
		0.4670			0.3200	0.3121	357.59	1.3637	0.9583	CYCLOHEX	0.7872E-02	
50	68.00	0.1250	760.00	762.43	0.3340	0.3519	1035.57	1.9960	0.9658	ME ACET	-0.1794E-01	0.1196E-01
		0.2770			0.2150	0.2063	501.07	1.0881	0.9635	BENZENE	0.8724E-02	
		0.5980			0.4510	0.4418	493.37	1.0894	0.9581	CYCLOHEX	0.9210E-02	
51	73.30	0.0520	760.00	766.90	0.1610	0.1794	1216.18	2.1054	0.9706	ME ACET	-0.1841E-01	0.1227E-01
		0.3740			0.3410	0.3323	594.04	1.1020	0.9642	BENZENE	0.8747E-02	
		0.5740			0.4980	0.4893	582.63	1.0694	0.9589	CYCLOHEX	0.9663E-02	
52	68.20	0.1320	760.00	766.99	0.3360	0.3518	1042.01	1.8887	0.9657	ME ACET	-0.1581E-01	0.1054E-01
		0.3230			0.2430	0.2369	504.36	1.0707	0.9634	BENZENE	0.6141E-02	
		0.5450			0.4210	0.4113	496.54	1.1122	0.9580	CYCLOHEX	0.9666E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	Y-EXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
53	62.70	0.2500	760.00	759.95	0.4990	0.5107	875.72	1.6986	0.9611	ME ACET	-0.1169E-01	0.7789E-02
		0.2010			0.1290	0.1215	419.76	1.0513	0.9635	BENZENE	0.6451E-02	
		0.5490			0.3730	0.3678	415.91	1.1702	0.9580	CYCLOHEX	0.5229E-02	
54	60.90	0.3010	760.00	766.76	0.5690	0.5662	825.89	1.6754	0.9591	ME ACET	0.2789E-02	0.9979E-02
		0.1130			0.0760	0.0638	394.62	1.0536	0.9634	BENZENE	0.1218E-01	
		0.5870			0.3550	0.3700	390.72	1.1796	0.9577	CYCLOHEX	-0.1497E-01	
55	74.00	0.0430	760.00	770.26	0.1470	0.1657	1241.66	2.3140	0.9710	ME ACET	-0.1868E-01	0.1245E-01
		0.2970			0.2860	0.2772	607.27	1.1376	0.9642	BENZENE	0.8793E-02	
		0.6600			0.5670	0.5571	595.28	1.0431	0.9589	CYCLOHEX	0.9887E-02	
56	67.90	0.1150	760.00	761.64	0.3350	0.3570	1032.37	2.2049	0.9657	ME ACET	-0.2196E-01	0.1464E-01
		0.1930			0.1600	0.1430	499.43	1.1227	0.9636	BENZENE	0.1204E-01	
		0.6920			0.5050	0.4951	491.80	1.0573	0.9581	CYCLOHEX	0.9916E-02	
57	62.90	0.2150	760.00	758.70	0.4840	0.5024	878.55	1.9340	0.9613	ME ACET	-0.1837E-01	0.1224E-01
		0.1200			0.0800	0.0753	421.19	1.0857	0.9635	BENZENE	0.4678E-02	
		0.6650			0.4360	0.4223	416.39	1.1039	0.9579	CYCLOHEX	0.1368E-01	
58	71.10	0.0650	760.00	751.33	0.2180	0.2434	1138.60	2.3879	0.9694	ME ACET	-0.2537E-01	0.1691E-01
		0.2210			0.2100	0.1951	553.98	1.1509	0.9644	BENZENE	0.1490E-01	
		0.7140			0.5720	0.5615	544.20	1.0373	0.9592	CYCLOHEX	0.1046E-01	
59	68.60	0.1090	760.00	784.09	0.3540	0.3698	1054.95	2.4251	0.9648	ME ACET	-0.1575E-01	0.1050E-01
		0.1080			0.0880	0.0851	510.99	1.1595	0.9629	BENZENE	0.2947E-02	
		0.7830			0.5580	0.5452	502.91	1.0348	0.9573	CYCLOHEX	0.1280E-01	
60	56.60	0.9200	760.00	759.59	0.9120	0.9155	715.54	1.0050	0.9542	ME ACET	-0.3533E-02	0.2994E-02
		0.0360			0.0200	0.0210	339.33	1.2601	0.9705	BENZENE	-0.9527E-03	
		0.0440			0.0680	0.0635	337.14	1.1245	0.9649	CYCLOHEX	0.4495E-02	

METHYL ACETATE(1) - CHLOROFORM(2) - BENZENE(3) SYSTEM 061

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
506.90	46.30	228.00	0.326	0.215	1.720	0.62	ME ACET	24
536.60	54.00	276.00	0.214	0.187	1.020	0.28	CHLORFRM	8
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.69894E 01	0.11110E 04	0.21351E 03	ME ACET	0.1360E 03	-0.4671E 00	0.9221E-03
0.69033E 01	0.11630E 04	0.22740E 03	CHLORFRM	0.6107E 02	0.3026E-01	0.1191E-03
0.59056E 01	0.12110E 04	0.22072E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-505.00	130.00	ME ACET - CHLORFRM	163	0
100.00	126.00	ME ACET - BENZENE	160	0
-116.00	-24.00	CHLORFRM - BENZENE	53	0

HALA CONSISTENCY TEST

CI(1) 0.0358

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.7648E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.8562E-02
COMPONENT 2	0.8527E-02
COMPONENT 3	0.4180E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.7090E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	50.00	0.1030	326.00	325.32	0.2190	0.2177	568.44	1.1872	0.9826	ME ACET	0.1255E-02	0.2559E-02
		0.0760			0.0710	0.0684	499.31	0.7451	0.9843	CHLOREFM	0.2580E-02	
		0.8210			0.6900	0.6938	266.50	1.0104	0.9809	BENZENE	-0.3841E-02	
2	50.00	0.1200	332.70	331.84	0.2520	0.2479	568.44	1.1827	0.9819	ME ACET	0.4079E-02	0.2849E-02
		0.0730			0.0820	0.0819	499.31	0.7318	0.9839	CHLOREFM	0.1926E-03	
		0.8070			0.6660	0.6703	266.50	1.0126	0.9806	BENZENE	-0.4277E-02	
3	50.00	0.1630	348.40	348.21	0.3130	0.3176	568.44	1.1684	0.9803	ME ACET	-0.4579E-02	0.3050E-02
		0.0630			0.0740	0.0696	499.31	0.7003	0.9829	CHLOREFM	0.4428E-02	
		0.7690			0.6130	0.6129	266.50	1.0188	0.9800	BENZENE	0.1445E-03	
4	50.00	0.2570	385.90	382.05	0.4380	0.4402	568.44	1.1232	0.9772	ME ACET	-0.2224E-02	0.2646E-02
		0.0730			0.0670	0.0630	499.31	0.6471	0.9809	CHLOREFM	0.3965E-02	
		0.6700			0.4950	0.4967	266.50	1.0386	0.9789	BENZENE	-0.1750E-02	
5	50.00	0.5880	486.30	484.71	0.7400	0.7398	568.44	1.0371	0.9686	ME ACET	0.2286E-03	0.3530E-02
		0.0500			0.0310	0.0259	499.31	0.4905	0.9761	CHLOREFM	0.5067E-02	
		0.3620			0.2290	0.2343	266.50	1.1478	0.9772	BENZENE	-0.5295E-02	
6	50.00	0.8200	553.80	548.90	0.8920	0.8907	568.44	1.0087	0.9638	ME ACET	0.1260E-02	0.2975E-02
		0.0180			0.0100	0.0068	499.31	0.4034	0.9740	CHLOREFM	0.3203E-02	
		0.1620			0.0980	0.1025	266.50	1.2698	0.9772	BENZENE	-0.4461E-02	
7	50.00	0.0540	315.20	315.94	0.1050	0.1094	568.44	1.1063	0.9835	ME ACET	-0.4432E-02	0.3599E-02
		0.1540			0.2200	0.2146	499.31	0.8145	0.9849	CHLOREFM	0.5396E-02	
		0.7820			0.6750	0.6760	266.50	1.0041	0.9813	BENZENE	-0.9699E-03	
8	50.00	0.0770	324.30	324.49	0.1490	0.1502	568.44	1.0926	0.9826	ME ACET	-0.1186E-02	0.1881E-02
		0.1690			0.2150	0.2122	499.31	0.8021	0.9844	CHLOREFM	0.2820E-02	
		0.7540			0.6360	0.6376	266.50	1.0085	0.9809	BENZENE	-0.1639E-02	
9	50.00	0.1250	341.40	339.84	0.2310	0.2312	568.44	1.0832	0.9810	ME ACET	-0.1776E-03	0.3435E-02
		0.1620			0.1920	0.1868	499.31	0.7709	0.9833	CHLOREFM	0.5150E-02	
		0.7130			0.5770	0.5820	266.50	1.0188	0.9804	BENZENE	-0.4979E-02	
10	50.00	0.2000	368.40	363.53	0.3390	0.3416	568.44	1.0674	0.9787	ME ACET	-0.2590E-02	0.2956E-02
		0.1530			0.1600	0.1556	499.31	0.7258	0.9819	CHLOREFM	0.4430E-02	
		0.6470			0.5010	0.5028	266.50	1.0368	0.9796	BENZENE	-0.1847E-02	
11	50.00	0.2990	401.20	393.94	0.4710	0.4652	568.44	1.0503	0.9760	ME ACET	0.5829E-02	0.6782E-02
		0.1390			0.1250	0.1207	499.31	0.6701	0.9802	CHLOREFM	0.4340E-02	
		0.5620			0.4040	0.4142	266.50	1.0641	0.9788	BENZENE	-0.1018E-01	
12	50.00	0.4220	447.00	430.48	0.6050	0.5930	568.44	1.0334	0.9728	ME ACET	0.1201E-01	0.9594E-02
		0.1190			0.0880	0.0856	499.31	0.6059	0.9785	CHLOREFM	0.2381E-02	
		0.4590			0.3070	0.3214	266.50	1.1041	0.9781	BENZENE	-0.1439E-01	
13	50.00	0.6670	510.30	501.30	0.7930	0.7921	568.44	1.0109	0.9672	ME ACET	0.9102E-03	0.2117E-02
		0.0730			0.0390	0.0367	499.31	0.4919	0.9756	CHLOREFM	0.2266E-02	
		0.2600			0.1680	0.1712	266.50	1.2078	0.9775	BENZENE	-0.3176E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	50.00	0.0620	330.80	330.10	0.1080	0.1113	568.44	1.0220	0.9821	ME ACET	-0.3280E-02	0.2185E-02
		0.2440			0.3180	0.3151	499.31	0.8387	0.9840	CHLOREFM	0.2896E-02	
		0.6940			0.5740	0.5736	266.50	1.0022	0.9807	BENZENE	0.3792E-03	
15	50.00	0.0930	341.30	339.56	0.1620	0.1621	568.44	1.0173	0.9812	ME ACET	-0.1166E-03	0.3311E-02
		0.2400			0.3010	0.2960	499.31	0.8214	0.9834	CHLOREFM	0.4963E-02	
		0.6670			0.5370	0.5419	266.50	1.0102	0.9804	BENZENE	-0.4852E-02	
16	50.00	0.2110	378.80	379.23	0.3380	0.3337	568.44	1.0060	0.9780	ME ACET	0.4262E-02	0.3469E-02
		0.2190			0.2290	0.2281	499.31	0.7567	0.9815	CHLOREFM	0.9371E-03	
		0.5700			0.4330	0.4382	266.50	1.0443	0.9795	BENZENE	-0.5207E-02	
17	50.00	0.3380	412.90	404.19	0.4950	0.4857	568.44	0.9945	0.9749	ME ACET	0.9282E-02	0.6448E-02
		0.1980			0.1740	0.1736	499.31	0.6942	0.9797	CHLOREFM	0.3846E-03	
		0.4640			0.3310	0.3407	266.50	1.0879	0.9788	BENZENE	-0.9677E-02	
18	50.00	0.6870	513.80	501.21	0.8000	0.8035	568.44	0.9954	0.9671	ME ACET	-0.3511E-02	0.5388E-02
		0.1020			0.0620	0.0539	499.31	0.5167	0.9758	CHLOREFM	0.8083E-02	
		0.2110			0.1380	0.1426	266.50	1.2399	0.9779	BENZENE	-0.4570E-02	
19	50.00	0.8830	562.60	559.23	0.9310	0.9335	568.44	0.9993	0.9630	ME ACET	-0.2495E-02	0.3640E-02
		0.0380			0.0200	0.0145	499.31	0.4164	0.9739	CHLOREFM	0.5462E-02	
		0.0790			0.0490	0.0520	266.50	1.3464	0.9780	BENZENE	-0.2965E-02	
20	50.00	0.8670	563.90	554.35	0.9190	0.9240	568.44	0.9990	0.9634	ME ACET	-0.4981E-02	0.4440E-02
		0.0440			0.0240	0.0173	499.31	0.4252	0.9741	CHLOREFM	0.6661E-02	
		0.0890			0.0570	0.0587	266.50	1.3378	0.9780	BENZENE	-0.1678E-02	
21	50.00	0.0660	348.40	346.85	0.1020	0.1036	568.44	0.9378	0.9806	ME ACET	-0.1591E-02	0.1367E-02
		0.3380			0.4330	0.4310	499.31	0.8694	0.9829	CHLOREFM	0.2048E-02	
		0.5960			0.4650	0.4655	266.50	0.9945	0.9800	BENZENE	-0.4616E-03	
22	50.00	0.1060	354.60	352.82	0.1730	0.1658	568.44	0.9497	0.9798	ME ACET	0.7244E-02	0.1052E-01
		0.3140			0.3910	0.3825	499.31	0.8444	0.9825	CHLOREFM	0.8536E-02	
		0.5800			0.4360	0.4518	266.50	1.0088	0.9799	BENZENE	-0.1579E-01	
23	50.00	0.2340	388.60	383.04	0.3450	0.3362	568.44	0.9417	0.9769	ME ACET	0.8828E-02	0.5888E-02
		0.2940			0.3020	0.3092	499.31	0.7879	0.9808	CHLOREFM	-0.7172E-02	
		0.4720			0.3530	0.3547	266.50	1.0529	0.9792	BENZENE	-0.1664E-02	
24	50.00	0.3460	415.90	406.94	0.4950	0.4715	568.44	0.9491	0.9746	ME ACET	0.1353E-01	0.9024E-02
		0.2590			0.2300	0.2379	499.31	0.7322	0.9796	CHLOREFM	-0.7945E-02	
		0.3950			0.2750	0.2906	266.50	1.0976	0.9789	BENZENE	-0.5590E-02	
25	50.00	0.4980	459.50	443.60	0.6410	0.6311	568.44	0.9590	0.9715	ME ACET	0.9916E-02	0.6611E-02
		0.2120			0.1600	0.1609	499.31	0.6581	0.9780	CHLOREFM	-0.8534E-03	
		0.2900			0.1990	0.2081	266.50	1.1663	0.9786	BENZENE	-0.9063E-02	
26	50.00	0.7010	513.60	500.31	0.8080	0.8111	568.44	0.9829	0.9671	ME ACET	-0.3070E-02	0.6531E-02
		0.1270			0.0800	0.0702	499.31	0.5394	0.9759	CHLOREFM	0.9797E-02	
		0.1720			0.1120	0.1187	266.50	1.2648	0.9783	BENZENE	-0.6727E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	50.00	0.8560	556.60	548.01	0.9150	0.9190	568.44	0.9953	0.9638	ME ACET	-0.4035E-02	0.5351E-02
		0.0620			0.0340	0.0260	499.31	0.4470	0.9744	CHLOREFM	0.8028E-02	
		0.0820			0.0510	0.0550	266.50	1.3455	0.9782	BENZENE	-0.3991E-02	
28	50.00	0.0710	364.80	363.84	0.0960	0.0990	568.44	0.8729	0.9791	ME ACET	-0.3044E-02	0.2027E-02
		0.4200			0.5270	0.5256	499.31	0.8942	0.9819	CHLOREFM	0.1351E-02	
		0.5090			0.3770	0.3753	266.50	0.9842	0.9794	BENZENE	0.1687E-02	
29	50.00	0.1070	368.90	368.22	0.1510	0.1488	568.44	0.9802	0.9785	ME ACET	0.2192E-02	0.1463E-02
		0.4130			0.4870	0.4890	499.31	0.8771	0.9816	CHLOREFM	-0.2001E-02	
		0.4900			0.3620	0.3622	266.50	0.9985	0.9793	BENZENE	-0.1973E-03	
30	50.00	0.2910	407.90	399.61	0.3940	0.3817	568.44	1.8977	0.9752	ME ACET	0.1235E-01	0.8543E-02
		0.3440			0.3480	0.3503	499.31	0.7985	0.9799	CHLOREFM	-0.1282E-01	
		0.3650			0.2630	0.2675	266.50	1.0740	0.9790	BENZENE	0.4624E-03	
31	50.00	0.3680	422.60	414.11	0.4750	0.4719	568.44	0.9083	0.9739	ME ACET	0.3096E-02	0.4256E-02
		0.3150			0.2900	0.2964	499.31	0.7629	0.9793	CHLOREFM	-0.6384E-02	
		0.3170			0.2350	0.2317	266.50	1.1098	0.9789	BENZENE	0.3288E-02	
32	50.00	0.4860	456.90	439.04	0.6210	0.6047	568.44	0.9322	0.9717	ME ACET	0.1630E-01	0.1086E-01
		0.2580			0.2020	0.2095	499.31	0.6973	0.9782	CHLOREFM	-0.7543E-02	
		0.2560			0.1770	0.1858	266.50	1.1677	0.9789	BENZENE	-0.8752E-02	
33	50.00	0.6790	514.60	489.91	0.7910	0.7885	568.44	0.9647	0.9679	ME ACET	0.2488E-02	0.5373E-02
		0.1700			0.1100	0.1044	499.31	0.9860	0.9764	CHLOREFM	0.5572E-02	
		0.1510			0.0990	0.1071	266.50	1.2699	0.9787	BENZENE	-0.8060E-02	
34	50.00	0.8860	565.80	554.63	0.9340	0.9393	568.44	0.9942	0.9643	ME ACET	-0.5334E-02	0.5018E-02
		0.0620			0.0330	0.0255	499.31	0.4436	0.9743	CHLOREFM	0.7527E-02	
		0.0520			0.0330	0.0352	266.50	1.3746	0.9784	BENZENE	-0.2192E-02	
35	50.00	0.0760	384.70	383.45	0.0960	0.0937	568.44	0.8116	0.9775	ME ACET	0.2284E-02	0.2116E-02
		0.5060			0.6190	0.6181	499.31	0.9187	0.9808	CHLOREFM	0.8872E-03	
		0.4180			0.2850	0.2882	266.50	0.9690	0.9786	BENZENE	-0.3178E-02	
36	50.00	0.1200	386.40	385.76	0.1280	0.1496	568.44	0.8252	0.9771	ME ACET	-0.2158E-01	0.1438E-01
		0.4790			0.5710	0.5698	499.31	0.8999	0.9807	CHLOREFM	0.1171E-02	
		0.4010			0.3010	0.2906	266.50	0.9895	0.9787	BENZENE	0.2040E-01	
37	50.00	0.1730	392.00	392.97	0.2150	0.2128	568.44	0.8290	0.9762	ME ACET	0.2151E-02	0.4002E-02
		0.4650			0.5270	0.5330	499.31	0.8829	0.9803	CHLOREFM	-0.6007E-02	
		0.3620			0.2580	0.2542	266.50	1.0114	0.9787	BENZENE	0.3848E-02	
38	50.00	0.2640	410.10	403.96	0.3380	0.3226	568.44	0.8452	0.9750	ME ACET	0.1541E-01	0.1431E-01
		0.4270			0.4360	0.4575	499.31	0.8478	0.9797	CHLOREFM	-0.2148E-01	
		0.3090			0.2260	0.2199	266.50	1.0541	0.9788	BENZENE	0.6053E-02	
39	50.00	0.3670	430.30	418.04	0.4670	0.4462	568.44	0.8690	0.9735	ME ACET	0.2077E-01	0.1385E-01
		0.3760			0.3490	0.3631	499.31	0.8012	0.9791	CHLOREFM	-0.2014E-01	
		0.2570			0.1850	0.1856	266.50	1.1071	0.9789	BENZENE	-0.6484E-03	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	50.00	0.5060	463.10	462.65	0.6290	0.6067	568.44	0.9053	0.9714	ME ACET	0.2132E-01	0.1421E-01
		0.3000			0.2340	0.2519	499.31	0.7266	0.9781	CHLOREFM	-0.1782E-01	
		0.1940			0.1380	0.1415	266.50	1.1837	0.9791	BENZENE	-0.3502E-02	
41	50.00	0.8860	563.70	551.95	0.9350	0.9411	568.44	0.9915	0.9635	ME ACET	-0.6067E-02	0.4332E-02
		0.0740			0.0280	0.0315	499.31	0.4575	0.9744	CHLOREFM	0.6498E-02	
		0.0400			0.0270	0.0274	266.50	1.3864	0.9787	BENZENE	-0.4299E-03	
42	50.00	0.0780	408.00	406.72	0.0830	0.0840	568.44	0.7510	0.9757	ME ACET	-0.1048E-02	0.2582E-02
		0.6010			0.7160	0.7121	499.31	0.9439	0.9796	CHLOREFM	0.3868E-02	
		0.3210			0.2010	0.2038	266.50	0.9457	0.9777	BENZENE	-0.2828E-02	
43	50.00	0.1840	435.70	430.87	0.2040	0.2033	568.44	0.7771	0.9748	ME ACET	0.7212E-03	0.6030E-02
		0.5450			0.6080	0.6170	499.31	0.9109	0.9793	CHLOREFM	-0.9049E-02	
		0.2710			0.1880	0.1797	266.50	0.9979	0.9781	BENZENE	0.8320E-02	
44	50.00	0.2700	420.10	415.91	0.3180	0.3040	568.44	0.8012	0.9740	ME ACET	0.1396E-01	0.1176E-01
		0.4960			0.5180	0.5356	499.31	0.8792	0.9791	CHLOREFM	-0.1765E-01	
		0.2340			0.1640	0.1603	266.50	1.0442	0.9785	BENZENE	0.3678E-02	
45	50.00	0.3760	434.70	425.61	0.4530	0.4301	568.44	0.8318	0.9729	ME ACET	0.2291E-01	0.1737E-01
		0.4350			0.4100	0.4361	499.31	0.8348	0.9787	CHLOREFM	-0.2605E-01	
		0.1890			0.1370	0.1339	266.50	1.1050	0.9788	BENZENE	0.3146E-02	
46	50.00	0.5180	459.60	445.30	0.6250	0.5999	568.44	0.8794	0.9711	ME ACET	0.2513E-01	0.1676E-01
		0.3430			0.2770	0.2996	499.31	0.7580	0.9781	CHLOREFM	-0.2162E-01	
		0.1390			0.0980	0.1015	266.50	1.1925	0.9793	BENZENE	-0.3514E-02	
47	50.00	0.6700	509.70	479.74	0.7750	0.7661	568.44	0.9309	0.9685	ME ACET	0.8931E-02	0.5954E-02
		0.2390			0.1630	0.1672	499.31	0.6541	0.9770	CHLOREFM	-0.4224E-02	
		0.0910			0.0620	0.0667	266.50	1.2869	0.9794	BENZENE	-0.4706E-02	
48	50.00	0.8900	561.70	551.00	0.9380	0.9450	568.44	0.9894	0.9635	ME ACET	-0.6958E-02	0.6501E-02
		0.0820			0.0460	0.0356	499.31	0.4665	0.9745	CHLOREFM	0.1035E-01	
		0.0280			0.0160	0.0194	266.50	1.3982	0.9789	BENZENE	-0.3392E-02	
49	50.00	0.0920	428.90	426.06	0.0970	0.0897	568.44	0.7110	0.9742	ME ACET	-0.2735E-02	0.1820E-02
		0.6670			0.7680	0.7665	499.31	0.9579	0.9786	CHLOREFM	0.1507E-02	
		0.2410			0.1450	0.1438	266.50	0.9300	0.9770	BENZENE	0.1219E-02	
50	50.00	0.1400	427.10	427.14	0.1360	0.1392	568.44	0.7211	0.9738	ME ACET	-0.2208E-02	0.2175E-02
		0.6440			0.7290	0.7301	499.31	0.9472	0.9785	CHLOREFM	-0.1059E-02	
		0.2160			0.1350	0.1317	266.50	0.9534	0.9772	BENZENE	0.3259E-02	
51	50.00	0.1400	369.50	359.81	0.2270	0.2153	568.44	0.9519	0.9791	ME ACET	0.1165E-01	0.7769E-02
		0.3030			0.3500	0.3543	499.31	0.9264	0.9821	CHLOREFM	-0.4334E-02	
		0.5570			0.4230	0.4303	266.50	1.0292	0.9797	BENZENE	-0.7323E-02	
52	50.00	0.1580	382.70	374.38	0.2210	0.2197	568.44	0.8942	0.9778	ME ACET	0.1284E-02	0.1190E-02
		0.3740			0.4310	0.4328	499.31	0.8501	0.9813	CHLOREFM	-0.1788E-02	
		0.4680			0.3480	0.3475	266.50	1.0197	0.9793	BENZENE	0.4978E-03	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
53	50.00	0.1910	424.20	430.76	0.1890	0.1987	568.44	0.7274	0.9733	ME ACET	0.3188E-03	0.3470E-02
		0.6290			0.6940	0.6892	499.31	0.9380	0.9783	CHLOREFM	-0.5210E-02	
		0.1910			0.1170	0.1121	266.50	0.9767	0.9774	BENZENE	0.4882E-02	
54	50.00	0.2790	424.80	424.99	0.3120	0.2977	568.44	0.7752	0.9733	ME ACET	0.1428E-01	0.1351E-01
		0.5380			0.5500	0.5803	499.31	0.8969	0.9787	CHLOREFM	-0.2026E-01	
		0.1830			0.1280	0.1220	266.50	1.0381	0.9782	BENZENE	0.5977E-02	
55	50.00	0.3830	436.90	433.90	0.4420	0.4128	568.44	0.7985	0.9723	ME ACET	0.2918E-01	0.2098E-01
		0.4990			0.4680	0.4995	499.31	0.9651	0.9784	CHLOREFM	-0.3147E-01	
		0.1270			0.0900	0.0877	266.50	1.0983	0.9787	BENZENE	0.2289E-02	
56	50.00	0.5170	462.00	447.45	0.5050	0.5724	568.44	0.8447	0.9709	ME ACET	0.3256E-01	0.2171E-01
		0.4030			0.3380	0.3696	499.31	0.8024	0.9780	CHLOREFM	-0.3162E-01	
		0.0800			0.0570	0.0579	266.50	1.1885	0.9794	BENZENE	-0.9429E-03	
57	50.00	0.7010	506.60	484.84	0.8000	0.7912	568.44	0.9302	0.9681	ME ACET	0.8766E-02	0.5845E-02
		0.2390			0.1600	0.1645	499.31	0.6516	0.9769	CHLOREFM	-0.4507E-02	
		0.0600			0.0400	0.0443	266.50	1.3118	0.9796	BENZENE	-0.4260E-02	
58	50.00	0.8650	553.20	538.98	0.9220	0.9301	568.44	0.9809	0.9643	ME ACET	-0.8129E-02	0.6476E-02
		0.1130			0.0640	0.0543	499.31	0.5044	0.9751	CHLOREFM	0.9715E-02	
		0.0220			0.0140	0.0156	266.50	1.3491	0.9792	BENZENE	-0.1584E-02	
59	50.00	0.0900	463.40	462.65	0.0690	0.0729	568.44	0.6394	0.9716	ME ACET	-0.3906E-02	0.3522E-02
		0.7980			0.8740	0.8687	499.31	0.9833	0.9767	CHLOREFM	0.5278E-02	
		0.1120			0.0570	0.0594	266.50	0.8809	0.9755	BENZENE	-0.1382E-02	
60	50.00	0.1450	453.00	455.54	0.1200	0.1237	568.44	0.6630	0.9718	ME ACET	-0.3674E-02	0.2446E-02
		0.7430			0.8190	0.8174	499.31	0.9723	0.9771	CHLOREFM	0.1621E-02	
		0.1070			0.0610	0.0590	266.50	0.9174	0.9761	BENZENE	0.2044E-02	
61	50.00	0.2080	444.20	448.58	0.1900	0.1879	568.44	0.6915	0.9720	ME ACET	0.2129E-02	0.4260E-02
		0.6900			0.7460	0.7524	499.31	0.9558	0.9774	CHLOREFM	-0.6395E-02	
		0.1020			0.0640	0.0597	266.50	0.9611	0.9768	BENZENE	0.4256E-02	
62	50.00	0.2890	442.20	445.64	0.2040	0.2730	568.44	0.7209	0.9718	ME ACET	0.2098E-01	0.1399E-01
		0.6310			0.6570	0.6767	499.31	0.9340	0.9777	CHLOREFM	-0.1968E-01	
		0.0810			0.0490	0.0503	266.50	1.0134	0.9776	BENZENE	-0.1318E-02	
63	50.00	0.3960	448.40	444.35	0.4310	0.4005	568.44	0.7666	0.9715	ME ACET	0.3051E-01	0.2221E-01
		0.5440			0.5260	0.5593	499.31	0.8931	0.9779	CHLOREFM	-0.3331E-01	
		0.0600			0.0430	0.0402	266.50	1.0909	0.9785	BENZENE	0.2799E-02	
64	50.00	0.5220	466.50	450.25	0.6020	0.5631	568.44	0.8279	0.9707	ME ACET	0.3887E-01	0.2592E-01
		0.4320			0.3670	0.4038	499.31	0.8227	0.9779	CHLOREFM	-0.3679E-01	
		0.0460			0.0310	0.0331	266.50	1.1878	0.9794	BENZENE	-0.2089E-02	
65	50.00	0.6750	508.40	475.14	0.7730	0.7524	568.44	0.9009	0.9687	ME ACET	0.2059E-01	0.1372E-01
		0.2970			0.2100	0.2267	499.31	0.7084	0.9773	CHLOREFM	-0.1668E-01	
		0.0280			0.0170	0.0209	266.50	1.3017	0.9800	BENZENE	-0.3907E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
66	50.00	0.1530	356.60	355.34	0.2540	0.2516	568.44	1.0055	0.9795	ME ACET	0.2378E-02	0.2660E-02
		0.2350			0.2690	0.2674	499.31	0.7909	0.9824	CHLOFORM	0.1609E-02	
		0.6110			0.4770	0.4810	266.50	1.0268	0.9799	BENZENE	-0.3993E-02	

METHYL ACETATE(1) - CHLOROFORM(2) - BENZENE(3) SYSTEM 062

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
506.90	46.30	220.00	0.326	0.215	1.720	0.62	METHYLAC	24
536.60	54.00	276.00	0.214	0.187	1.020	0.28	CHLOFORM	8
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.69894E 01	0.11110E 04	0.21351E 03	METHYLAC	0.1360E 03	-0.4671E 00	0.9221E-03
0.69033E 01	0.11630E 04	0.22740E 03	CHLOFORM	0.6107E 02	0.3026E-01	0.1191E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
121.98	-460.69	METHYLAC - CHLOFORM	164	0
281.66	-60.75	METHYLAC - BENZENE	162	0
-231.52	177.17	CHLOFORM - BENZENE	54	0

HALA CONSISTENCY TEST

CI(1) 1.9691

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.4373E 01

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.6391E-02
COMPONENT 2	0.3855E-02
COMPONENT 3	0.4513E-02

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.4920E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FUGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	63.90	0.0780	760.00	751.47	0.0560	0.0592	910.17	0.6014	0.9619	METHYLAC	-0.3245E-02	0.2162E-02
		0.8440			0.8990	0.8958	783.46	0.9827	0.9691	CHLOREFM	0.3063E-02	
		0.0780			0.0450	0.0448	437.20	0.9499	0.9650	BENZENE	0.1786E-03	
2	65.10	0.0900	760.00	746.36	0.0780	0.0802	945.63	0.6756	0.9629	METHYLAC	-0.2245E-02	0.3211E-02
		0.7560			0.8290	0.8242	812.78	0.9669	0.9688	CHLOREFM	0.4815E-02	
		0.1540			0.0930	0.0956	455.20	0.9790	0.9653	BENZENE	-0.2573E-02	
3	67.30	0.0730	760.00	752.91	0.0710	0.0782	1013.30	0.7650	0.9643	METHYLAC	-0.7177E-02	0.5684E-02
		0.6470			0.7440	0.7355	868.70	0.9521	0.9693	CHLOREFM	0.8525E-02	
		0.2800			0.1850	0.1864	489.68	0.9843	0.9651	BENZENE	-0.1350E-02	
4	68.50	0.0600	760.00	757.68	0.0680	0.0701	1051.70	0.8095	0.9650	METHYLAC	-0.2073E-02	0.1381E-02
		0.5950			0.6930	0.6928	900.39	0.9471	0.9696	CHLOREFM	0.2437E-03	
		0.3450			0.2390	0.2372	509.33	0.9835	0.9649	BENZENE	0.1828E-02	
5	70.90	0.0570	760.00	758.50	0.0790	0.0825	1131.73	0.9348	0.9668	METHYLAC	-0.3473E-02	0.5487E-02
		0.4500			0.5420	0.5468	966.38	0.9229	0.9707	CHLOREFM	-0.4758E-02	
		0.4930			0.3790	0.3708	550.44	0.9967	0.9650	BENZENE	0.8230E-02	
6	71.80	0.0750	760.00	764.90	0.1080	0.1169	1162.87	0.9868	0.9670	METHYLAC	-0.8936E-02	0.5957E-02
		0.3810			0.4610	0.4610	992.04	0.9029	0.9708	CHLOREFM	0.8047E-05	
		0.5440			0.4310	0.4221	566.50	1.0074	0.9649	BENZENE	0.8928E-02	
7	73.80	0.0560	760.00	761.64	0.1020	0.1029	1234.34	1.0953	0.9691	METHYLAC	-0.8768E-03	0.2204E-02
		0.2640			0.3320	0.3344	1050.89	0.8896	0.9719	CHLOREFM	-0.2430E-02	
		0.6800			0.5660	0.5627	603.48	1.0046	0.9651	BENZENE	0.3306E-02	
8	74.90	0.0520	760.00	765.59	0.0950	0.1027	1274.99	1.1472	0.9699	METHYLAC	-0.7730E-02	0.6618E-02
		0.2050			0.2630	0.2652	1084.34	0.8811	0.9723	CHLOREFM	-0.2197E-02	
		0.7420			0.6420	0.6321	624.59	1.0044	0.9651	BENZENE	0.9926E-02	
9	76.60	0.0450	760.00	754.14	0.1030	0.1052	1339.73	1.2755	0.9724	METHYLAC	-0.2172E-02	0.3492E-02
		0.0630			0.0810	0.0841	1137.59	0.8590	0.9739	CHLOREFM	-0.3067E-02	
		0.8920			0.8160	0.8108	658.32	1.0023	0.9658	BENZENE	0.5237E-02	
10	64.80	0.1540	760.00	751.01	0.1330	0.1363	936.66	0.6829	0.9620	METHYLAC	-0.3755E-02	0.4726E-02
		0.7600			0.8150	0.8079	805.38	0.9571	0.9685	CHLOREFM	-0.7088E-02	
		0.0860			0.0520	0.0553	450.64	1.0320	0.9657	BENZENE	-0.3335E-02	
11	66.70	0.1480	760.00	756.71	0.1490	0.1558	994.50	0.7690	0.9630	METHYLAC	-0.6783E-02	0.5608E-02
		0.6460			0.7120	0.7036	853.17	0.9332	0.9689	CHLOREFM	0.8412E-02	
		0.2060			0.1390	0.1406	480.09	1.0354	0.9655	BENZENE	-0.1630E-02	
12	67.40	0.1530	760.00	752.90	0.1700	0.1767	1016.46	0.8221	0.9637	METHYLAC	-0.6733E-02	0.4488E-02
		0.5760			0.6380	0.6320	871.30	0.9163	0.9694	CHLOREFM	0.6019E-02	
		0.2710			0.1920	0.1913	491.30	1.0410	0.9656	BENZENE	0.7121E-03	
13	69.90	0.1210	760.00	768.37	0.1560	0.1635	1097.86	0.9096	0.9649	METHYLAC	-0.7459E-02	0.4973E-02
		0.4660			0.5350	0.5317	938.45	0.9023	0.9697	CHLOREFM	0.3767E-02	
		0.4130			0.3090	0.3053	533.01	1.0248	0.9649	BENZENE	0.3691E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	70.60	0.1360	760.00	767.53	0.1860	0.2010	1121.49	0.9738	0.9655	METHYLAC	-0.1505E-01	0.1003E-01
		0.3790			0.4430	0.4277	957.94	0.8785	0.9701	CHLOREPM	0.1331E-01	
		0.4850			0.3710	0.3693	545.17	1.0309	0.9650	BENZENE	0.1733E-02	
15	73.30	0.1050	760.00	770.95	0.1800	0.1911	1216.18	1.1131	0.9678	METHYLAC	-0.1107E-01	0.8435E-02
		0.2140			0.2530	0.2546	1035.94	0.8572	0.9712	CHLOREPM	-0.1578E-02	
		0.6810			0.5670	0.5543	594.06	1.0158	0.9648	BENZENE	0.1265E-01	
16	73.60	0.1060	760.00	763.43	0.1970	0.2051	1227.05	1.1623	0.9686	METHYLAC	-0.8066E-02	0.6751E-02
		0.1510			0.1780	0.1801	1044.88	0.8441	0.9718	CHLOREPM	-0.2060E-02	
		0.7430			0.6250	0.6149	599.70	1.0133	0.9651	BENZENE	0.1013E-01	
17	65.30	0.2260	760.00	757.65	0.2130	0.2180	951.63	0.7363	0.9614	METHYLAC	-0.5048E-02	0.4643E-02
		0.7030			0.7400	0.7330	817.75	0.9328	0.9685	CHLOREPM	0.6964E-02	
		0.0710			0.0470	0.0489	458.25	1.0968	0.9662	BENZENE	-0.1917E-02	
18	65.70	0.2080	760.00	753.97	0.1970	0.2097	963.74	0.7567	0.9620	METHYLAC	-0.1274E-01	0.1139E-01
		0.6700			0.7230	0.7059	827.76	0.9269	0.9687	CHLOREPM	0.1709E-01	
		0.1220			0.0800	0.0844	464.41	1.0808	0.9661	BENZENE	-0.4353E-02	
19	67.60	0.1960	760.00	761.65	0.2250	0.2320	1022.80	0.8464	0.9630	METHYLAC	-0.7026E-02	0.4683E-02
		0.5420			0.5850	0.5792	876.54	0.8972	0.9691	CHLOREPM	0.5767E-02	
		0.2620			0.1900	0.1887	494.54	1.0677	0.9656	BENZENE	0.1257E-02	
20	68.40	0.1960	760.00	760.93	0.2320	0.2384	1048.46	0.8938	0.9638	METHYLAC	-0.6389E-02	0.4259E-02
		0.4760			0.5180	0.5135	897.71	0.8838	0.9694	CHLOREPM	0.4455E-02	
		0.3280			0.2500	0.2491	507.67	1.0585	0.9655	BENZENE	0.1933E-02	
21	68.40	0.1900	760.00	760.53	0.2370	0.2451	1048.46	0.8990	0.9638	METHYLAC	-0.8076E-02	0.5384E-02
		0.4680			0.5110	0.5034	897.71	0.8807	0.9694	CHLOREPM	0.7612E-02	
		0.3420			0.2520	0.2515	507.67	1.0603	0.9655	BENZENE	0.4635E-03	
22	70.50	0.1820	760.00	768.39	0.2720	0.2834	1118.09	1.0296	0.9651	METHYLAC	-0.1139E-01	0.7593E-02
		0.2350			0.3110	0.3079	955.14	0.8405	0.9700	CHLOREPM	0.3096E-02	
		0.5330			0.4170	0.4087	543.42	1.0429	0.9651	BENZENE	0.8294E-02	
23	71.80	0.1720	760.00	767.43	0.2990	0.3079	1162.87	1.1382	0.9664	METHYLAC	-0.1889E-01	0.1259E-01
		0.1360			0.1480	0.1474	992.04	0.8112	0.9707	CHLOREPM	0.6279E-03	
		0.6920			0.5530	0.5447	566.50	1.0256	0.9650	BENZENE	0.1826E-01	
24	73.10	0.1360	760.00	761.30	0.2550	0.2683	1208.97	1.1990	0.9692	METHYLAC	-0.1325E-01	0.9577E-02
		0.0900			0.0900	0.0911	1030.00	0.8155	0.9716	CHLOREPM	-0.1114E-02	
		0.7840			0.6550	0.6406	590.33	1.0137	0.9651	BENZENE	0.1436E-01	
25	66.30	0.2730	760.00	757.19	0.2900	0.2934	972.89	0.9156	0.9616	METHYLAC	-0.8401E-02	0.5931E-02
		0.5910			0.6120	0.6031	835.32	0.8934	0.9688	CHLOREPM	0.8896E-02	
		0.1360			0.0980	0.0985	469.07	1.1261	0.9665	BENZENE	-0.4967E-03	
26	66.80	0.2730	760.00	765.05	0.3090	0.3159	997.61	0.8510	0.9617	METHYLAC	-0.6939E-02	0.4889E-02
		0.5350			0.5510	0.5437	855.74	0.8774	0.9687	CHLOREPM	0.7334E-02	
		0.1920			0.1400	0.1404	481.67	1.1183	0.9662	BENZENE	-0.3962E-03	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	68.20	0.2460	760.00	765.30	0.3160	0.3261	1042.01	0.9349	0.9630	METHYLAC	-0.1014E-01	0.6760E-02
		0.4050			0.4190	0.4148	892.38	0.8487	0.9692	CHLORFRM	0.4200E-02	
		0.3490			0.2650	0.2591	504.36	1.0840	0.9657	BENZENE	0.5939E-02	
28	69.70	0.2010	760.00	767.62	0.2960	0.2951	1091.18	0.9931	0.9643	METHYLAC	-0.9129E-02	0.6086E-02
		0.3300			0.3520	0.3502	932.94	0.8442	0.9697	CHLORFRM	0.1768E-02	
		0.4690			0.3620	0.3546	529.58	1.0544	0.9652	BENZENE	0.7360E-02	
29	69.80	0.2240	760.00	765.49	0.3390	0.3518	1094.51	1.0561	0.9645	METHYLAC	-0.1276E-01	0.8504E-02
		0.2250			0.2320	0.2307	935.70	0.8109	0.9699	CHLORFRM	0.1337E-02	
		0.5510			0.4290	0.4176	531.29	1.0505	0.9653	BENZENE	0.1142E-01	
30	69.80	0.2440	760.00	768.16	0.3810	0.3970	1094.51	1.0979	0.9644	METHYLAC	-0.1601E-01	0.1093E-01
		0.1470			0.1450	0.1454	935.70	0.7851	0.9698	CHLORFRM	-0.3955E-03	
		0.6090			0.4740	0.4576	531.29	1.0450	0.9652	BENZENE	0.1640E-01	
31	65.50	0.3350	760.00	762.34	0.3560	0.3596	957.67	0.8184	0.9606	METHYLAC	-0.3615E-02	0.3741E-02
		0.5950			0.5950	0.5894	822.74	0.8848	0.9685	CHLORFRM	0.5611E-02	
		0.0690			0.0490	0.0510	461.32	1.1771	0.9670	BENZENE	-0.1998E-02	
32	66.10	0.3260	760.00	760.30	0.3750	0.3783	975.95	0.8664	0.9612	METHYLAC	-0.3308E-02	0.4610E-02
		0.5110			0.5080	0.5011	837.85	0.8594	0.9688	CHLORFRM	0.6914E-02	
		0.1630			0.1170	0.1206	470.63	1.1517	0.9668	BENZENE	-0.3608E-02	
33	67.10	0.3030	760.00	764.06	0.3730	0.3920	1007.09	0.9173	0.9619	METHYLAC	-0.3958E-02	0.3277E-02
		0.4240			0.4210	0.4161	863.49	0.8388	0.9689	CHLORFRM	0.4915E-02	
		0.2730			0.2010	0.2020	486.47	1.1189	0.9662	BENZENE	-0.9589E-03	
34	67.40	0.3060	760.00	764.38	0.3970	0.4047	1016.46	0.9540	0.9622	METHYLAC	-0.7697E-02	0.5131E-02
		0.3600			0.3510	0.3483	871.20	0.8199	0.9690	CHLORFRM	0.2711E-02	
		0.3340			0.2520	0.2470	491.30	1.1079	0.9661	BENZENE	0.4984E-02	
35	68.30	0.2930	760.00	765.64	0.4220	0.4333	1045.23	1.0400	0.9630	METHYLAC	-0.1129E-01	0.8289E-02
		0.2150			0.2030	0.2041	895.05	0.7849	0.9693	CHLORFRM	-0.1146E-02	
		0.4920			0.3750	0.3626	506.01	1.0731	0.9656	BENZENE	0.1243E-01	
36	68.40	0.2390	760.00	761.44	0.4380	0.4447	1048.46	1.0734	0.9635	METHYLAC	-0.6693E-02	0.4922E-02
		0.1590			0.1490	0.1497	897.71	0.7719	0.9695	CHLORFRM	-0.6906E-03	
		0.5520			0.4130	0.4056	507.67	1.0607	0.9656	BENZENE	0.7382E-02	
37	65.40	0.3850	760.00	762.96	0.4300	0.4336	954.65	0.8616	0.9603	METHYLAC	-0.3552E-02	0.3375E-02
		0.5250			0.5040	0.4989	820.24	0.8536	0.9686	CHLORFRM	0.5062E-02	
		0.0900			0.0660	0.0675	459.79	1.2001	0.9674	BENZENE	-0.1511E-02	
38	65.70	0.3870	760.00	766.03	0.4450	0.4495	963.74	0.8839	0.9603	METHYLAC	-0.4473E-02	0.3621E-02
		0.4820			0.4580	0.4526	827.76	0.8390	0.9686	CHLORFRM	0.5431E-02	
		0.1310			0.0970	0.0980	464.41	1.1889	0.9672	BENZENE	-0.9601E-03	
39	66.70	0.3600	760.00	771.58	0.4470	0.4527	994.50	0.9346	0.9609	METHYLAC	-0.5674E-02	0.3782E-02
		0.3850			0.3620	0.3589	853.17	0.8140	0.9636	CHLORFRM	0.3111E-02	
		0.2550			0.1910	0.1884	480.09	1.1438	0.9664	BENZENE	0.2561E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	67.30	0.3250	760.00	769.69	0.4190	0.4252	1012.30	0.9527	0.9617	METHYLAC	-0.6157E-02	0.4104E-02
		0.3590			0.3440	0.3408	868.70	0.8145	0.9688	CHLOREFM	0.3239E-02	
		0.3170			0.2370	0.2341	489.66	1.1176	0.9661	BENZENE	0.2916E-02	
41	66.60	0.3720	760.00	760.48	0.5280	0.5338	991.39	1.0555	0.9618	METHYLAC	-0.5768E-02	0.3844E-02
		0.1410			0.1210	0.1210	850.60	0.7410	0.9690	CHLOREFM	0.3088E-04	
		0.4870			0.3510	0.3453	478.50	1.0849	0.9662	BENZENE	0.5734E-02	
42	66.80	0.3670	760.00	761.46	0.5350	0.5467	997.61	1.0906	0.9621	METHYLAC	-0.1172E-01	0.7810E-02
		0.0720			0.0610	0.0607	855.74	0.7243	0.9690	CHLOREFM	0.3344E-03	
		0.5610			0.4040	0.3926	481.67	1.0650	0.9659	BENZENE	0.1138E-01	
43	65.20	0.4390	760.00	766.04	0.5140	0.5179	948.63	0.9115	0.9598	METHYLAC	-0.3855E-02	0.3351E-02
		0.4270			0.3870	0.3920	815.27	0.8116	0.9686	CHLOREFM	0.5026E-02	
		0.1340			0.0990	0.1002	456.72	1.2091	0.9676	BENZENE	-0.1173E-02	
44	65.20	0.4420	760.00	763.46	0.5500	0.5408	948.63	0.9424	0.9600	METHYLAC	0.9224E-02	0.1132E-01
		0.3530			0.2950	0.3120	815.27	0.7881	0.9686	CHLOREFM	-0.1699E-01	
		0.2000			0.1550	0.1472	456.72	1.1866	0.9675	BENZENE	0.7761E-02	
45	65.60	0.4310	760.00	765.05	0.5640	0.5668	960.70	1.0029	0.9605	METHYLAC	-0.2833E-02	0.2143E-02
		0.2240			0.1970	0.1974	825.24	0.7489	0.9686	CHLOREFM	-0.3831E-03	
		0.3450			0.2490	0.2458	462.86	1.1346	0.9668	BENZENE	0.3214E-02	
46	65.30	0.4390	760.00	760.55	0.5860	0.5947	951.63	1.0370	0.9606	METHYLAC	-0.8738E-02	0.5824E-02
		0.1410			0.1150	0.1134	817.75	0.7220	0.9687	CHLOREFM	0.1557E-02	
		0.4200			0.2990	0.2918	458.25	1.1110	0.9667	BENZENE	0.7177E-02	
47	64.30	0.5030	760.00	764.47	0.5760	0.5830	921.87	0.9142	0.9590	METHYLAC	-0.3983E-02	0.3549E-02
		0.4250			0.3710	0.3657	793.15	0.8008	0.9686	CHLOREFM	0.5322E-02	
		0.0720			0.0530	0.0543	443.13	1.2568	0.9686	BENZENE	-0.1342E-02	
48	64.40	0.4030	760.00	761.84	0.5900	0.5893	924.82	0.9419	0.9594	METHYLAC	0.6557E-03	0.7362E-03
		0.3550			0.2990	0.2996	795.58	0.7777	0.9686	CHLOREFM	0.4469E-03	
		0.1520			0.1110	0.1121	444.62	1.2193	0.9681	BENZENE	-0.1106E-02	
49	64.70	0.4730	760.00	760.79	0.5890	0.5892	933.70	0.9713	0.9598	METHYLAC	-0.2028E-03	0.1584E-02
		0.2350			0.2340	0.2362	802.92	0.7582	0.9686	CHLOREFM	-0.2177E-02	
		0.2420			0.1770	0.1746	440.14	1.1787	0.9676	BENZENE	0.2374E-02	
50	64.30	0.4960	760.00	760.71	0.6340	0.6400	921.87	1.0188	0.9597	METHYLAC	-0.6020E-02	0.4012E-02
		0.1550			0.1200	0.1193	793.15	0.7130	0.9685	CHLOREFM	0.6598E-03	
		0.3490			0.2460	0.2406	443.13	1.1411	0.9673	BENZENE	0.5356E-02	
51	63.30	0.5690	760.00	760.24	0.6550	0.6533	892.82	0.9414	0.9585	METHYLAC	-0.3276E-02	0.2220E-02
		0.3570			0.2900	0.2867	769.11	0.7665	0.9687	CHLOREFM	0.3328E-02	
		0.0740			0.0550	0.0551	428.41	1.2754	0.9693	BENZENE	-0.5664E-04	
52	63.40	0.5610	760.00	760.75	0.6590	0.6626	895.69	0.9587	0.9586	METHYLAC	-0.3555E-02	0.2368E-02
		0.3050			0.2410	0.2399	771.48	0.7491	0.9686	CHLOREFM	0.1056E-02	
		0.1340			0.1000	0.0975	429.87	1.2434	0.9688	BENZENE	0.2494E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
53	63.40	0.5540	760.00	762.03	0.6870	0.6867	895.69	1.0081	0.9588	METHYLAC	0.2860E-03	0.9831E-03
		0.1570			0.1140	0.1155	771.48	0.7013	0.9683	CHLOREFM	-0.1477E-02	
		0.2890			0.1990	0.1973	420.87	1.1704	0.9679	BENZENE	0.1186E-02	
54	63.20	0.5570	760.00	761.21	0.6980	0.7027	989.95	1.0316	0.9588	METHYLAC	-0.4743E-02	0.3824E-02
		0.0820			0.0570	0.0530	766.73	0.6778	0.9682	CHLOREFM	-0.9958E-03	
		0.3610			0.2450	0.2393	426.96	1.1394	0.9675	BENZENE	0.5733E-02	
55	62.40	0.6370	760.00	765.34	0.7380	0.7418	867.26	0.9811	0.9576	METHYLAC	-0.3782E-02	0.2520E-02
		0.2210			0.1610	0.1584	747.95	0.7081	0.9683	CHLOREFM	0.2573E-02	
		0.1420			0.1010	0.0998	415.48	1.2504	0.9692	BENZENE	0.1204E-02	
56	61.80	0.6550	760.00	760.58	0.7630	0.7660	850.53	0.9984	0.9576	METHYLAC	-0.2972E-02	0.1979E-02
		0.1480			0.1030	0.1007	734.09	0.6803	0.9692	CHLOREFM	0.2327E-02	
		0.1970			0.1340	0.1334	407.04	1.2217	0.9691	BENZENE	0.6385E-03	
57	61.20	0.7110	760.00	760.13	0.8000	0.8005	834.05	0.9791	0.9570	METHYLAC	-0.5407E-03	0.5714E-03
		0.2220			0.1530	0.1521	720.43	0.6982	0.9686	CHLOREFM	0.8534E-03	
		0.0670			0.0470	0.0473	398.73	1.3023	0.9705	BENZENE	-0.3200E-03	
58	61.00	0.7220	760.00	764.15	0.8120	0.8158	828.60	0.9939	0.9567	METHYLAC	-0.3802E-02	0.2532E-02
		0.1460			0.0980	0.0949	715.92	0.6698	0.9682	CHLOREFM	0.3075E-02	
		0.1320			0.0900	0.0893	395.08	1.2616	0.9699	BENZENE	0.7201E-03	
59	60.10	0.7890	760.00	763.18	0.8610	0.8646	804.45	0.9909	0.9561	METHYLAC	-0.3558E-02	0.2369E-02
		0.1510			0.0980	0.0946	695.89	0.6633	0.9684	CHLOREFM	0.3403E-02	
		0.0600			0.0410	0.0409	383.83	1.3102	0.9711	BENZENE	0.1457E-03	
60	59.90	0.7840	760.00	763.41	0.8600	0.8639	799.16	1.0033	0.9560	METHYLAC	-0.3918E-02	0.2609E-02
		0.0660			0.0400	0.0393	691.50	0.6342	0.9680	CHLOREFM	0.7077E-03	
		0.1500			0.1000	0.0968	381.17	1.2496	0.9702	BENZENE	0.3201E-02	
61	69.50	0.2070	760.00	768.73	0.2910	0.2930	1094.52	0.9808	0.9641	METHYLAC	-0.6991E-02	0.4660E-02
		0.3460			0.3670	0.3654	927.46	0.8460	0.9696	CHLOREFM	0.1635E-02	
		0.4470			0.3420	0.3366	526.16	1.0585	0.9653	BENZENE	0.5355E-02	

METHYL ETHYL KETONE(1) - HEPTANE(2) - TOLUENE(3) SYSTEM 064

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
533.20	39.50	288.40	0.337	0.215	2.700	0.0	MEK	28
540.20	27.00	431.90	0.349	0.0	0.0	0.0	HEPTANE	16
594.00	40.00	331.10	0.241	0.0	0.0	0.0	TOLUENE	33

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.69742E 01	0.12096E 04	0.21602E 03	MEK	0.7119E 02	0.9660E-02	0.1810E-03
0.69024E 01	0.12681E 04	0.21690E 03	HEPTANE	0.1288E 03	-0.6026E-01	0.4116E-03
0.69533E 01	0.13439E 04	0.21933E 03	TOLUENE	0.9836E 02	-0.5577E-01	0.2770E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
1081.56	-3.76	MEK - HEPTANE	167	0
396.95	-126.75	MEK - TOLUENE	168	0
51.00	197.15	HEPTANE - TOLUENE	117	0

HALA CONSISTENCY TEST

CI(1) 0.5576

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.1318E 02

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.5760E-02
COMPONENT 2	0.3582E-02
COMPONENT 3	0.2243E-02

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.3862E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	PICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	88.00	0.1020	760.00	786.08	0.3330	0.3449	962.62	2.6882	0.9769	MEK	-0.1190E-01	0.7931E-02
		0.8530			0.6400	0.6291	529.22	1.0251	0.9411	HEPTANE	0.1095E-01	
		0.0450			0.0270	0.0261	371.33	1.1585	0.9490	TOLUENE	0.9448E-03	
2	88.00	0.1130	760.00	783.24	0.3440	0.3525	962.62	2.4718	0.9771	MEK	-0.8538E-02	0.5688E-02
		0.7910			0.6000	0.5929	529.22	1.0384	0.9413	HEPTANE	0.7058E-02	
		0.0960			0.0560	0.0545	371.33	1.1326	0.9491	TOLUENE	0.1470E-02	
3	88.00	0.1250	760.00	779.49	0.3560	0.3608	962.62	2.2763	0.9773	MEK	-0.4771E-02	0.3178E-02
		0.7275			0.5600	0.5569	529.22	1.0556	0.9415	HEPTANE	0.3144E-02	
		0.1475			0.0840	0.0824	371.33	1.1086	0.9493	TOLUENE	0.1617E-02	
4	88.00	0.1555	760.00	773.05	0.3875	0.3839	962.62	1.9320	0.9778	MEK	0.3630E-02	0.2423E-02
		0.5955			0.4800	0.4813	529.22	1.1058	0.9418	HEPTANE	-0.1316E-02	
		0.2490			0.1325	0.1348	371.33	1.0661	0.9496	TOLUENE	-0.2322E-02	
5	88.00	0.2000	760.00	774.57	0.4250	0.4216	962.62	1.6537	0.9783	MEK	0.3431E-02	0.2532E-02
		0.4675			0.4000	0.4038	529.22	1.1835	0.9413	HEPTANE	-0.3801E-02	
		0.3325			0.1750	0.1746	371.33	1.0357	0.9491	TOLUENE	0.3645E-03	
6	88.00	0.2540	760.00	773.86	0.4710	0.4666	962.62	1.4406	0.9789	MEK	0.4445E-02	0.2965E-02
		0.3425			0.3200	0.3243	529.22	1.2958	0.9410	HEPTANE	-0.4335E-02	
		0.4035			0.2090	0.2091	371.33	1.0206	0.9487	TOLUENE	-0.1146E-03	
7	88.00	0.3140	760.00	768.72	0.5240	0.5186	962.62	1.2879	0.9797	MEK	0.5355E-02	0.3571E-02
		0.2270			0.2400	0.2415	529.22	1.4456	0.9408	HEPTANE	-0.1460E-02	
		0.4590			0.2360	0.2399	371.33	1.0222	0.9485	TOLUENE	-0.3899E-02	
8	88.00	0.3800	760.00	766.46	0.5850	0.5794	962.62	1.1863	0.9804	MEK	0.5568E-02	0.3713E-02
		0.1355			0.1600	0.1623	529.22	1.6220	0.9402	HEPTANE	-0.2290E-02	
		0.4845			0.2550	0.2583	371.33	1.0389	0.9479	TOLUENE	-0.3281E-02	
9	88.00	0.4160	760.00	765.52	0.6200	0.6140	962.62	1.1473	0.9807	MEK	0.5962E-02	0.3975E-02
		0.0955			0.1200	0.1217	529.22	1.7237	0.9399	HEPTANE	-0.1749E-02	
		0.4885			0.2600	0.2642	371.33	1.0523	0.9475	TOLUENE	-0.4214E-02	
10	88.00	0.4550	760.00	765.34	0.6580	0.6520	962.62	1.1147	0.9810	MEK	0.5995E-02	0.3997E-02
		0.0600			0.0800	0.0814	529.22	1.8347	0.9393	HEPTANE	-0.1430E-02	
		0.4850			0.2620	0.2666	371.33	1.0692	0.9469	TOLUENE	-0.4566E-02	
11	88.00	0.4930	760.00	768.11	0.6975	0.6937	962.62	1.0871	0.9813	MEK	0.3761E-02	0.2508E-02
		0.0290			0.0400	0.0419	529.22	1.9564	0.9385	HEPTANE	-0.1879E-02	
		0.4730			0.2625	0.2644	371.33	1.0896	0.9461	TOLUENE	-0.1883E-02	

ACETONE(1) - METHYL ETHYL KETONE(2) - WATER(3) SYSTEM 065

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
508.70	46.60	213.50	0.309	0.187	2.880	0.0	ACETONE	2
533.20	39.50	288.40	0.337	0.215	2.700	0.0	MEK	28
647.40	218.30	55.20	0.344	0.010	1.850	0.0	WATER	34

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.70200E 01	0.11610E 04	0.22400E 03	ACETONE	0.5688E 02	0.8426E-02	0.1651E-03
0.69742E 01	0.12096E 04	0.21610E 03	MEK	0.7119E 02	0.9660E-02	0.1810E-03
0.79668E 01	0.16682E 04	0.22800E 03	WATER	0.2289E 02	-0.3642E-01	0.6856E-04

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

				BINARY ID NUMBERS	ORDER
-233.69	495.71	ACETONE -	MEK	15	0
527.84	1439.95	ACETONE -	WATER	17	0
1012.37	1969.90	MEK -	WATER	169	0

HALA CONSISTENCY TEST

CI(1) 0.5439

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.4011E 02

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.1418E-01
COMPONENT 2	0.1306E-01
COMPONENT 3	0.1228E-01

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.1317E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	79.50	0.0220	760.00	941.22	0.1750	0.1650	1512.91	4.4539	0.9577	ACETONE	0.9971E-02	0.1529E-01
		0.0900			0.4860	0.4730	743.36	7.2307	0.9697	MEK	0.1296E-01	
		0.8980			0.3390	0.3619	346.72	1.0720	0.9806	WATER	-0.2294E-01	
2	72.90	0.0470	760.00	781.40	0.1130	0.1229	1249.75	1.5636	0.9594	ACETONE	-0.9861E-02	0.6574E-02
		0.3690			0.5610	0.5549	601.32	1.8987	0.9750	MEK	0.6127E-02	
		0.5840			0.3260	0.3223	263.83	1.6026	0.9812	WATER	0.3734E-02	
3	77.00	0.0710	760.00	811.82	0.1280	0.1349	1408.78	1.0443	0.9565	ACETONE	-0.6916E-02	0.1941E-01
		0.8990			0.7610	0.7832	696.77	1.0039	0.9783	MEK	-0.2220E-01	
		0.0300			0.1110	0.0819	313.08	6.8784	0.9726	WATER	0.2912E-01	
4	69.40	0.0790	760.00	761.79	0.3550	0.3858	1125.05	3.2074	0.9726	ACETONE	-0.3084E-01	0.2143E-01
		0.0930			0.3580	0.3259	535.13	4.8087	0.9674	MEK	0.3214E-01	
		0.8280			0.2870	0.2883	227.11	1.1441	0.9803	WATER	-0.1298E-02	
5	69.80	0.0820	760.00	761.38	0.2850	0.3324	1138.80	2.6223	0.9703	ACETONE	-0.4738E-01	0.3159E-01
		0.1390			0.4200	0.3749	542.39	3.6584	0.9695	MEK	0.4508E-01	
		0.7790			0.2950	0.2927	231.08	1.2135	0.9809	WATER	0.2302E-02	
6	71.40	0.0950	760.00	777.01	0.1940	0.1946	1195.09	1.2123	0.9623	ACETONE	0.9409E-02	0.6558E-02
		0.5030			0.5280	0.5270	572.22	1.3810	0.9741	MEK	0.1028E-02	
		0.4020			0.2780	0.2884	247.53	2.2070	0.9806	WATER	-0.1044E-01	
7	67.90	0.1110	760.00	744.75	0.3860	0.4208	1071.29	2.5599	0.9741	ACETONE	-0.3476E-01	0.2317E-01
		0.1200			0.3320	0.3062	506.84	3.6117	0.9665	MEK	0.2579E-01	
		0.7690			0.2920	0.2730	211.82	1.2221	0.9796	WATER	0.8966E-02	
8	78.30	0.1160	760.00	997.44	0.1930	0.1978	1462.22	1.1080	0.9560	ACETONE	-0.4823E-02	0.7738E-02
		0.5740			0.5150	0.5218	715.73	1.2219	0.9688	MEK	-0.6783E-02	
		0.3100			0.2920	0.2804	330.21	2.6657	0.9765	WATER	0.1161E-01	
9	72.30	0.1200	760.00	777.43	0.1970	0.2027	1227.66	1.0265	0.9621	ACETONE	-0.1574E-01	0.1049E-01
		0.7850			0.6400	0.6299	599.54	1.0293	0.9761	MEK	0.1011E-01	
		0.0950			0.1730	0.1674	257.21	5.1979	0.9767	WATER	0.5628E-02	
10	69.70	0.1210	760.00	770.31	0.2790	0.3136	1135.35	1.7267	0.9692	ACETONE	-0.3963E-01	0.2642E-01
		0.2530			0.4060	0.3978	540.57	2.1658	0.9699	MEK	0.8155E-02	
		0.6260			0.3150	0.2835	230.09	1.4857	0.9805	WATER	0.3147E-01	
11	67.50	0.1270	760.00	733.25	0.3690	0.3878	1061.44	2.0468	0.9731	ACETONE	-0.1875E-01	0.1250E-01
		0.1780			0.3520	0.3403	501.67	2.6966	0.9683	MEK	0.1173E-01	
		0.6950			0.2790	0.2720	209.05	1.3446	0.9802	WATER	0.7022E-02	
12	69.90	0.1590	760.00	794.60	0.3340	0.3403	1142.26	1.4390	0.9693	ACETONE	-0.6328E-02	0.5586E-02
		0.3160			0.3960	0.3881	544.22	1.7303	0.9685	MEK	-0.2050E-02	
		0.5250			0.2800	0.2716	232.08	1.7338	0.9794	WATER	0.8380E-02	
13	71.20	0.1610	760.00	819.14	0.2870	0.2896	1187.04	1.1947	0.9661	ACETONE	-0.2598E-02	0.9024E-02
		0.4470			0.4340	0.4449	568.42	1.3560	0.9700	MEK	-0.1094E-01	
		0.3820			0.2790	0.2655	245.42	2.2693	0.9791	WATER	0.1354E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	66.20	0.1630	760.00	773.95	0.6200	0.6134	1019.52	2.7894	0.9793	ACETONE	0.6626E-02	0.7756E-02
		0.0500			0.1480	0.1430	479.74	4.3908	0.9550	MEK	0.5008E-02	
		0.7870			0.2320	0.2436	197.41	1.1809	0.9737	WATER	-0.1163E-01	
15	68.40	0.1820	760.00	760.61	0.3390	0.3388	1091.22	1.2552	0.9700	ACETONE	0.1636E-03	0.1654E-01
		0.3960			0.3790	0.4038	517.31	1.4490	0.9698	MEK	-0.2481E-01	
		0.4220			0.2820	0.2574	217.45	2.0883	0.9796	WATER	0.2465E-01	
16	68.30	0.2080	760.00	777.87	0.3970	0.3855	1087.88	1.2835	0.9714	ACETONE	0.1154E-01	0.1300E-01
		0.3530			0.3440	0.3635	515.55	1.4977	0.9673	MEK	-0.1950E-01	
		0.4390			0.2590	0.2510	216.50	2.0093	0.9786	WATER	0.7961E-02	
17	64.60	0.2550	760.00	776.50	0.6950	0.6749	969.68	2.0720	0.9804	ACETONE	0.2008E-01	0.1351E-01
		0.0840			0.1030	0.1028	453.78	3.0868	0.9507	MEK	0.1846E-03	
		0.6910			0.2020	0.2223	183.93	1.3180	0.9707	WATER	-0.2027E-01	
18	67.80	0.2651	760.00	789.53	0.4230	0.4231	1071.29	1.1407	0.9724	ACETONE	-0.5770E-04	0.1296E-01
		0.4140			0.3330	0.3524	506.84	1.2759	0.9657	MEK	-0.1938E-01	
		0.3210			0.2440	0.2246	211.82	2.5459	0.9770	WATER	0.1944E-01	
19	67.30	0.2730	760.00	793.20	0.4750	0.4733	1054.90	1.2663	0.9743	ACETONE	0.1725E-02	0.5908E-02
		0.3030			0.2960	0.2949	498.24	1.4862	0.9627	MEK	-0.8860E-02	
		0.4240			0.2290	0.2319	207.22	2.0422	0.9763	WATER	0.7137E-02	
20	67.30	0.2970	760.00	796.11	0.4240	0.4374	1071.29	1.0613	0.9725	ACETONE	-0.1341E-01	0.1238E-01
		0.4950			0.3660	0.3712	506.84	1.1332	0.9656	MEK	-0.5165E-02	
		0.2080			0.2100	0.1914	211.82	3.3725	0.9757	WATER	0.1858E-01	
21	64.70	0.2980	760.00	777.40	0.6530	0.6330	972.74	1.6578	0.9794	ACETONE	0.2000E-01	0.1333E-01
		0.1070			0.1370	0.1475	455.37	2.2365	0.9536	MEK	-0.1052E-01	
		0.5950			0.2100	0.2195	184.66	1.5085	0.9720	WATER	-0.9479E-02	
22	63.90	0.3760	760.00	790.94	0.7270	0.6924	948.47	1.5009	0.9803	ACETONE	0.3456E-01	0.2304E-01
		0.0860			0.0940	0.1037	442.78	2.0361	0.9489	MEK	-0.9693E-02	
		0.5380			0.1790	0.2039	178.15	1.6288	0.9689	WATER	-0.2487E-01	
23	67.20	0.3870	760.00	835.95	0.5390	0.5412	1051.65	1.0808	0.9753	ACETONE	-0.2194E-02	0.3359E-02
		0.3740			0.2730	0.2758	496.54	1.1856	0.9584	MEK	-0.2843E-02	
		0.2390			0.1880	0.1830	206.32	3.0125	0.9722	WATER	0.5041E-02	
24	65.00	0.3880	760.00	792.70	0.6190	0.5996	981.97	1.1980	0.9778	ACETONE	0.2841E-01	0.1894E-01
		0.2440			0.1950	0.2096	460.17	1.4099	0.9562	MEK	-0.2461E-01	
		0.3680			0.1960	0.1908	187.15	2.2345	0.9723	WATER	-0.3802E-02	
25	63.80	0.4000	760.00	777.80	0.6720	0.6405	945.47	1.2863	0.9794	ACETONE	0.3154E-01	0.2103E-01
		0.1690			0.1390	0.1605	441.23	1.5908	0.9533	MEK	-0.2154E-01	
		0.4310			0.1890	0.1890	177.35	1.9650	0.9710	WATER	-0.9997E-02	
26	64.90	0.4100	760.00	797.69	0.6000	0.6005	978.88	1.1637	0.9779	ACETONE	-0.4680E-03	0.2757E-01
		0.2530			0.1660	0.2069	458.56	1.3549	0.9555	MEK	-0.4098E-01	
		0.3370			0.2340	0.1926	186.32	2.3765	0.9717	WATER	0.4135E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	66.70	0.4200	760.00	830.98	0.5460	0.5647	1035.50	1.0499	0.9760	ACETONE	-0.1870E-01	0.1247E-01
		0.4030			0.2820	0.2782	488.08	1.1215	0.9578	MEK	0.3792E-02	
		0.1770			0.1720	0.1571	201.82	3.5456	0.9710	WATER	0.1491E-01	
28	66.80	0.4240	760.00	841.67	0.5810	0.5734	1038.71	1.0663	0.9761	ACETONE	0.7626E-02	0.9087E-02
		0.3630			0.2440	0.2576	489.76	1.1621	0.9564	MEK	-0.1363E-01	
		0.2130			0.1750	0.1690	202.71	3.1956	0.9708	WATER	0.6007E-02	
29	65.80	0.4810	760.00	835.13	0.6100	0.6206	1006.88	1.0429	0.9775	ACETONE	-0.1063E-01	0.8709E-02
		0.3600			0.2370	0.2394	473.14	1.1160	0.9542	MEK	-0.2434E-02	
		0.1590			0.1530	0.1399	193.94	3.6681	0.9686	WATER	0.1307E-01	
30	61.80	0.5230	760.00	777.19	0.7400	0.7367	886.97	1.2076	0.9812	ACETONE	0.3276E-02	0.5029E-02
		0.1050			0.0830	0.0905	411.03	1.5377	0.9465	MEK	-0.7543E-02	
		0.3720			0.1770	0.1727	161.97	2.1517	0.9664	WATER	0.4267E-02	
31	62.50	0.5620	760.00	790.49	0.6920	0.7011	907.12	1.0625	0.9802	ACETONE	-0.9105E-02	0.7953E-02
		0.2120			0.1540	0.1568	421.41	1.1998	0.9496	MEK	-0.2825E-02	
		0.2060			0.1540	0.1421	167.22	3.1495	0.9667	WATER	0.1193E-01	
32	62.10	0.6140	760.00	790.93	0.7280	0.7321	895.56	1.0297	0.9807	ACETONE	-0.4053E-02	0.2703E-02
		0.2600			0.1630	0.1618	415.45	1.1195	0.9483	MEK	0.1197E-02	
		0.1260			0.1090	0.1061	164.20	3.9109	0.9645	WATER	0.2859E-02	
33	59.90	0.6280	760.00	754.11	0.7690	0.7681	834.01	1.0829	0.9820	ACETONE	0.9097E-03	0.3180E-02
		0.1320			0.0880	0.0928	383.88	1.3012	0.9457	MEK	-0.4771E-02	
		0.2400			0.1430	0.1391	148.43	2.8398	0.9648	WATER	0.3860E-02	
34	58.30	0.7400	760.00	744.16	0.8480	0.8281	791.33	1.0314	0.9828	ACETONE	0.1990E-01	0.1327E-01
		0.1140			0.0520	0.0719	362.14	1.2161	0.9422	MEK	-0.1985E-01	
		0.1460			0.1000	0.1001	137.78	3.5554	0.9612	WATER	-0.5412E-04	

ACETONE(1) - CHLOROFORM(2) - METHYL ISO-BUTYL KETONE(3) SYSTEM 066

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
508.70	46.60	213.50	0.309	0.187	2.880	0.0	ACETONE	2
536.60	54.00	276.00	0.214	0.187	1.020	0.28	CHLOROFM	8
575.10	36.10	338.50	0.400	0.302	1.650	0.50	MIBK	29

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.70200E 01	0.11610E 04	0.22400E 03	ACETONE	0.5696E 02	0.8426E-02	0.1651E-03
0.69033E 01	0.11630E 04	0.22740E 03	CHLOROFM	0.6107E 02	0.3026E-01	0.1191E-03
0.68256E 01	0.12567E 04	0.20240E 03	MIBK	0.1202E 03	-0.8257E-01	0.3367E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-34.50	-372.95	ACETONE - CHLOROFM	7	0
149.62	-3.89	ACETONE - MIBK	16	0
-462.24	201.10	CHLOROFM - MIBK	58	0

HALA CONSISTENCY TEST

CI(1) -0.4451

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.2270E 02

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.1143E-01
COMPONENT 2	0.8676E-02
COMPONENT 3	0.7461E-02

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.9190E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	111.96	0.0080	760.00	731.08	0.0450	0.0402	3424.97	1.0899	1.0008	ACETONE	0.4080E-02	0.2717E-02
		0.0350			0.0750	0.0770	2727.61	0.5833	0.9913	CHLOREFM	-0.2047E-02	
		0.9570			0.8800	0.8828	636.83	0.9997	0.9488	MIBK	-0.2024E-02	
2	109.14	0.0240	760.00	739.89	0.1080	0.1141	3219.96	1.0878	0.9985	ACETONE	-0.6083E-02	0.6889E-02
		0.0510			0.1010	0.1052	2568.62	0.5862	0.9889	CHLOREFM	-0.4247E-02	
		0.9250			0.7910	0.7807	589.22	0.9993	0.9470	MIBK	0.1034E-01	
3	102.04	0.0550	760.00	746.55	0.1960	0.2185	2725.30	1.0790	0.9942	ACETONE	-0.2248E-01	0.1565E-01
		0.1250			0.2250	0.2260	2184.03	0.6063	0.9838	CHLOREFM	-0.9919E-03	
		0.8200			0.5790	0.5555	477.61	0.9954	0.9441	MIBK	0.2347E-01	
4	105.52	0.0670	760.00	760.68	0.2380	0.2817	2950.53	1.0853	0.9956	ACETONE	-0.4370E-01	0.2957E-01
		0.0320			0.0570	0.0577	2367.11	0.5759	0.9860	CHLOREFM	-0.6514E-03	
		0.9010			0.7050	0.6607	530.10	1.0001	0.9436	MIBK	0.4435E-01	
5	96.07	0.0670	760.00	735.14	0.2170	0.2309	2353.11	1.0652	0.9921	ACETONE	-0.1387E-01	0.9248E-02
		0.2170			0.3680	0.3642	1893.53	0.6374	0.9909	CHLOREFM	0.3780E-02	
		0.7160			0.4150	0.4049	396.94	0.9836	0.9432	MIBK	0.1009E-01	
6	89.36	0.0780	760.00	722.22	0.2220	0.2250	1980.06	1.0395	0.9906	ACETONE	-0.2991E-02	0.5641E-02
		0.3280			0.5160	0.5075	1601.16	0.6810	0.9784	CHLOREFM	0.8459E-02	
		0.5940			0.2620	0.2675	319.28	0.9558	0.9424	MIBK	-0.5473E-02	
7	79.33	0.0780	760.00	709.00	0.1550	0.1614	1505.64	0.9620	0.9896	ACETONE	-0.6445E-02	0.1132E-01
		0.5240			0.7400	0.7230	1227.15	0.7752	0.9752	CHLOREFM	0.1698E-01	
		0.3980			0.1050	0.1155	225.95	0.8531	0.9402	MIBK	-0.1053E-01	
8	84.74	0.0810	760.00	725.91	0.1770	0.1992	1749.63	1.0071	0.9899	ACETONE	-0.2217E-01	0.1477E-01
		0.4250			0.5400	0.6193	1419.84	0.7254	0.9764	CHLOREFM	0.2070E-01	
		0.4940			0.1830	0.1815	273.09	0.9151	0.9409	MIBK	0.1462E-02	
9	99.85	0.0810	760.00	740.69	0.2950	0.3079	2584.23	1.0794	0.9934	ACETONE	-0.1289E-01	0.8590E-02
		0.0980			0.1700	0.1663	2074.04	0.5943	0.9834	CHLOREFM	0.3702E-02	
		0.8210			0.5350	0.5258	446.68	0.9977	0.9435	MIBK	0.9181E-02	
10	65.79	0.0990	760.00	724.93	0.0905	0.0996	1006.57	0.7139	0.9883	ACETONE	-0.9071E-02	0.6517E-02
		0.7980			0.9095	0.8897	830.02	0.9418	0.9700	CHLOREFM	0.9772E-02	
		0.1030			0.0100	0.0107	135.50	0.5157	0.9314	MIBK	-0.7086E-03	
11	94.36	0.1000	760.00	736.42	0.3200	0.3304	2253.59	1.0675	0.9914	ACETONE	-0.1037E-01	0.6911E-02
		0.1900			0.2320	0.2819	1815.66	0.6211	0.9806	CHLOREFM	0.9274E-04	
		0.7200			0.3980	0.3877	375.89	0.9898	0.9423	MIBK	0.1027E-01	
12	79.12	0.1210	760.00	716.78	0.2410	0.2499	1496.71	0.9755	0.9890	ACETONE	-0.8850E-02	0.1035E-01
		0.4790			0.6480	0.6325	1220.08	0.7542	0.9750	CHLOREFM	0.1552E-01	
		0.4000			0.1110	0.1177	224.16	0.9798	0.9393	MIBK	-0.6684E-02	
13	74.33	0.1220	760.00	713.86	0.1950	0.2068	1303.59	0.9153	0.9887	ACETONE	-0.1179E-01	0.1237E-01
		0.5910			0.7450	0.7254	1066.91	0.8120	0.9734	CHLOREFM	0.1856E-01	
		0.2970			0.0600	0.0668	188.17	0.7961	0.9374	MIBK	-0.6777E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FUGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	84.15	0.1260	760.00	735.64	0.2810	0.3041	1721.68	1.0175	0.9892	ACETONE	-0.2314E-01	0.1543E-01
		0.3750			0.5360	0.5141	1397.82	0.7023	0.9762	CHLOREFM	0.2189E-01	
		0.4990			0.1830	0.1818	267.59	0.9367	0.9396	MIBK	0.1246E-02	
15	87.84	0.1320	760.00	743.01	0.3360	0.3574	1901.93	1.0438	0.9896	ACETONE	-0.2136E-01	0.1424E-01
		0.2810			0.4100	0.3942	1539.76	0.6599	0.9775	CHLOREFM	0.1576E-01	
		0.5870			0.2540	0.2484	303.46	0.9697	0.9401	MIBK	0.5598E-02	
16	96.58	0.1345	760.00	762.01	0.4300	0.4584	2383.39	1.0777	0.9917	ACETONE	-0.2841E-01	0.1894E-01
		0.0570			0.0880	0.0844	1917.21	0.5758	0.9818	CHLOREFM	0.3646E-02	
		0.8085			0.4820	0.4672	403.39	1.0006	0.9409	MIBK	0.2476E-01	
17	70.40	0.1430	760.00	722.42	0.1870	0.1979	1159.67	0.8496	0.9882	ACETONE	-0.1088E-01	0.1157E-01
		0.6550			0.7850	0.7677	952.34	0.9614	0.9718	CHLOREFM	0.1735E-01	
		0.2020			0.0280	0.0345	162.21	0.7072	0.9346	MIBK	-0.6476E-02	
18	91.44	0.1590	760.00	754.43	0.4550	0.4763	2090.73	1.0674	0.9901	ACETONE	-0.2134E-01	0.1422E-01
		0.1320			0.1880	0.1813	1688.04	0.5994	0.9794	CHLOREFM	0.6702E-02	
		0.7090			0.3570	0.3424	341.96	0.9968	0.9399	MIBK	0.1463E-01	
19	78.37	0.1810	760.00	724.86	0.3550	0.3678	1465.15	0.9910	0.9883	ACETONE	-0.1284E-01	0.1189E-01
		0.4180			0.5320	0.5142	1195.08	0.7252	0.9747	CHLOREFM	0.1783E-01	
		0.4010			0.1130	0.1180	218.19	0.9129	0.9380	MIBK	-0.4997E-02	
20	82.71	0.1820	760.00	733.49	0.4190	0.4288	1654.89	1.0295	0.9886	ACETONE	-0.9757E-02	0.6590E-02
		0.3080			0.3990	0.3891	1345.11	0.6706	0.9762	CHLOREFM	0.9884E-02	
		0.5100			0.1820	0.1821	254.53	0.9618	0.9388	MIBK	-0.1284E-03	
21	74.29	0.1820	760.00	724.15	0.2980	0.3114	1302.06	0.9378	0.9881	ACETONE	-0.1343E-01	0.1390E-01
		0.5210			0.6400	0.6192	1065.70	0.7836	0.9732	CHLOREFM	0.2085E-01	
		0.2970			0.0620	0.0694	187.89	0.8399	0.9364	MIBK	-0.7430E-02	
22	70.60	0.1850	760.00	722.97	0.2570	0.2651	1166.69	0.8748	0.9879	ACETONE	-0.8085E-02	0.9238E-02
		0.6080			0.7110	0.6971	957.04	0.8387	0.9719	CHLOREFM	0.1385E-01	
		0.2070			0.0320	0.0378	163.46	0.7510	0.9345	MIBK	-0.5776E-02	
23	86.64	0.1980	760.00	749.15	0.5120	0.5215	1841.86	1.0566	0.9890	ACETONE	-0.9519E-02	0.6346E-02
		0.1750			0.2270	0.2193	1492.49	0.6131	0.9777	CHLOREFM	0.7724E-02	
		0.6270			0.2610	0.2592	291.40	0.9931	0.9386	MIBK	0.1794E-02	
24	87.25	0.2380	760.00	770.35	0.6250	0.6241	1872.22	1.0644	0.9887	ACETONE	0.9345E-03	0.1518E-01
		0.0800			0.0700	0.0928	1516.39	0.5748	0.9779	CHLOREFM	-0.2277E-01	
		0.6820			0.3050	0.2832	297.48	1.0035	0.9370	MIBK	0.2194E-01	
25	73.93	0.2520	760.00	730.04	0.4270	0.4359	1288.36	0.9652	0.9874	ACETONE	-0.8893E-02	0.9629E-02
		0.4420			0.5040	0.4896	1054.90	0.7439	0.9732	CHLOREFM	0.1444E-01	
		0.3060			0.0690	0.0746	185.39	0.8934	0.9354	MIBK	-0.5551E-02	
26	67.21	0.2540	760.00	739.24	0.2810	0.2990	1051.98	0.8141	0.9870	ACETONE	-0.1796E-01	0.1197E-01
		0.6450			0.7020	0.6867	866.35	0.8787	0.9701	CHLOREFM	0.1528E-01	
		0.1010			0.0170	0.0143	143.32	0.6777	0.9310	MIBK	0.2680E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
27	77.33	0.2570	760.00	736.91	0.5030	0.5080	1422.20	1.0087	0.9875	ACETONE	-0.5034E-02	0.5709E-02
		0.3360			0.3820	0.3734	1161.06	0.6854	0.9745	CHLORFRM	0.8563E-02	
		0.4070			0.1150	0.1185	210.12	0.9519	0.9362	MIBK	-0.3530E-02	
28	70.41	0.2600	760.00	731.49	0.3730	0.3791	1160.02	0.9052	0.9872	ACETONE	-0.6093E-02	0.6841E-02
		0.5375			0.5920	0.5817	952.62	0.8053	0.9718	CHLORFRM	0.1026E-01	
		0.2025			0.0350	0.0392	162.28	0.8103	0.9335	MIBK	-0.4169E-02	
29	80.17	0.2710	760.00	746.08	0.5820	0.5903	1541.76	1.0382	0.9876	ACETONE	-0.8264E-02	0.5509E-02
		0.2220			0.2500	0.2421	1255.72	0.6303	0.9756	CHLORFRM	0.7909E-02	
		0.5070			0.1680	0.1676	232.73	0.9881	0.9364	MIBK	0.3547E-03	
30	82.87	0.2850	760.00	764.01	0.6540	0.6643	1662.21	1.0553	0.9878	ACETONE	-0.1027E-01	0.6849E-02
		0.1110			0.1200	0.1176	1350.89	0.5832	0.9765	CHLORFRM	0.2441E-02	
		0.6040			0.2260	0.2182	255.96	1.0043	0.9358	MIBK	0.7832E-02	
31	72.81	0.3340	760.00	738.07	0.5580	0.5655	1246.41	0.9867	0.9867	ACETONE	-0.7543E-02	0.5028E-02
		0.3590			0.3670	0.3596	1021.44	0.7021	0.9731	CHLORFRM	0.7447E-02	
		0.3070			0.0750	0.0749	177.77	0.9418	0.9339	MIBK	0.9471E-04	
32	69.94	0.3395	760.00	739.25	0.4930	0.4999	1143.65	0.9365	0.9865	ACETONE	-0.6936E-02	0.4624E-02
		0.4575			0.4620	0.4588	939.56	0.7645	0.9717	CHLORFRM	0.3151E-02	
		0.2030			0.0450	0.0412	159.37	0.8742	0.9324	MIBK	0.3784E-02	
33	74.94	0.3560	760.00	744.66	0.6540	0.6589	1327.09	1.0219	0.9867	ACETONE	-0.4904E-02	0.3996E-02
		0.2400			0.2360	0.2300	1085.57	0.6385	0.9741	CHLORFRM	0.5988E-02	
		0.4040			0.1100	0.1111	192.48	0.9893	0.9341	MIBK	-0.1095E-02	
34	66.68	0.3625	760.00	745.85	0.4300	0.4399	1034.35	0.8601	0.9862	ACETONE	-0.9869E-02	0.6579E-02
		0.5525			0.5550	0.5469	852.65	0.8374	0.9701	CHLORFRM	0.8138E-02	
		0.0850			0.0150	0.0133	140.36	0.7679	0.9300	MIBK	0.1730E-02	
35	66.86	0.3825	760.00	743.00	0.4770	0.4814	1040.64	0.8836	0.9861	ACETONE	-0.4376E-02	0.5425E-02
		0.5165			0.5100	0.5019	857.28	0.8148	0.9704	CHLORFRM	0.8137E-02	
		0.1010			0.0130	0.0168	141.36	0.8077	0.9303	MIBK	-0.3761E-02	
36	76.65	0.3930	760.00	754.00	0.7440	0.7511	1394.64	1.0434	0.9867	ACETONE	-0.7140E-02	0.4760E-02
		0.1100			0.1000	0.0988	1139.19	0.5777	0.9750	CHLORFRM	0.1243E-02	
		0.5070			0.1560	0.1501	204.98	1.0123	0.9337	MIBK	0.5897E-02	
37	68.62	0.4400	760.00	744.61	0.6340	0.6388	1098.59	0.9674	0.9858	ACETONE	-0.4781E-02	0.4431E-02
		0.3580			0.3260	0.3194	903.60	0.7121	0.9716	CHLORFRM	0.6642E-02	
		0.2020			0.0400	0.0419	151.44	0.9445	0.9310	MIBK	-0.1870E-02	
38	70.51	0.4490	760.00	745.39	0.7200	0.7173	1163.52	1.0063	0.9859	ACETONE	0.2662E-02	0.4048E-02
		0.2480			0.2150	0.2116	955.42	0.6456	0.9727	CHLORFRM	0.3405E-02	
		0.3030			0.0650	0.0711	162.90	0.9955	0.9317	MIBK	-0.6076E-02	
39	65.85	0.4770	760.00	742.82	0.6060	0.6094	1008.45	0.9249	0.9856	ACETONE	-0.3408E-02	0.2269E-02
		0.4220			0.3750	0.3727	831.53	0.7635	0.9706	CHLORFRM	0.2260E-02	
		0.1010			0.0190	0.0179	135.83	0.8949	0.9295	MIBK	0.1139E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
40	71.63	0.4870	760.00	754.70	0.3080	0.8138	1203.35	1.0303	0.9858	ACETONE	-0.5796E-02	0.3862E-02
		0.1110			0.0900	0.0861	987.15	0.5755	0.9735	CHLORFRM	0.3910E-02	
		0.4020			0.1020	0.1001	170.01	1.0247	0.9312	MIBK	0.1879E-02	
41	64.89	0.5535	760.00	747.99	0.6945	0.7003	978.57	0.9500	0.9851	ACETONE	-0.5767E-02	0.3842E-02
		0.3495			0.2875	0.2822	807.59	0.7236	0.9704	CHLORFRM	0.5286E-02	
		0.0970			0.0180	0.0175	130.73	0.9553	0.9284	MIBK	0.4735E-03	
42	66.50	0.5640	760.00	750.88	0.7780	0.7821	1029.08	0.9939	0.9851	ACETONE	-0.4055E-02	0.3353E-02
		0.2350			0.1920	0.1770	848.04	0.6458	0.9714	CHLORFRM	0.5027E-02	
		0.2010			0.0300	0.0410	139.37	1.0156	0.9289	MIBK	-0.9788E-03	
43	67.17	0.5895	760.00	745.59	0.9600	0.8615	1050.68	1.0189	0.9853	ACETONE	-0.1459E-02	0.1564E-02
		0.1060			0.0750	0.0727	865.31	0.5726	0.9724	CHLORFRM	0.2343E-02	
		0.3045			0.0650	0.0659	143.10	1.0430	0.9293	MIBK	-0.8900E-03	
44	62.50	0.5895	760.00	671.91	0.8660	0.8065	907.12	0.9968	0.9862	ACETONE	0.5952E-01	0.3968E-01
		0.2135			0.1460	0.1550	750.28	0.6312	0.9733	CHLORFRM	-0.9027E-02	
		0.1970			-.0120	0.0385	118.70	1.0274	0.9330	MIBK	-0.5048E-01	
45	63.75	0.6925	760.00	748.83	0.8940	0.8964	943.98	1.0083	0.9847	ACETONE	-0.2429E-02	0.1813E-02
		0.1040			0.0670	0.0643	779.86	0.5747	0.9712	CHLORFRM	0.2716E-02	
		0.2035			0.0390	0.0393	124.87	1.0683	0.9270	MIBK	-0.2933E-03	
46	60.17	0.8175	760.00	748.51	0.9330	0.9373	841.38	1.0010	0.9841	ACETONE	-0.4316E-02	0.2876E-02
		0.0825			0.0470	0.0453	697.43	0.5697	0.9701	CHLORFRM	0.1724E-02	
		0.1000			0.0200	0.0174	107.85	1.1121	0.9245	MIBK	0.2588E-02	

ETHANOL(1) - CHLOROFORM(2) - ACETONE(3) - HEXANE(4) SYSTEM 067

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
516.00	63.00	161.30	0.637	0.152	1.690	1.10	ETHANOL	11
536.60	54.00	276.00	0.214	0.187	1.020	0.28	CHLOREFM	8
508.70	46.60	213.50	0.309	0.187	2.880	0.0	ACETONE	2
507.90	29.90	372.40	0.293	0.0	0.0	0.0	HEXANE	18

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.80449E 01	0.15543E 04	0.22265E 03	ETHANOL	0.5370E 02	-0.3111E-01	0.1600E-03
0.69033E 01	0.11630E 04	0.22740E 03	CHLOREFM	0.6107E 02	0.3026E-01	0.1191E-03
0.70200E 01	0.11610E 04	0.22400E 03	ACETONE	0.5686E 02	0.8426E-02	0.1651E-03
0.68778E 01	0.11715E 04	0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

		BINARY ID NUMBERS	ORDER
1368.94	-279.11	ETHANOL - CHLOREFM	281	1
231.01	244.30	ETHANOL - ACETONE	8	1
2398.28	299.98	ETHANOL - HEXANE	282	1
-443.65	19.73	CHLOREFM - ACETONE	285	1
170.67	244.97	CHLOREFM - HEXANE	283	0
906.64	425.30	ACETONE - HEXANE	284	0

HALA CONSISTENCY TEST

CI(1)	-0.0112
CI(2)	-4.1369
CI(3)	1.2595

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.1885E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.5178E-02
COMPONENT 2	0.6302E-02
COMPONENT 3	0.8837E-02
COMPONENT 4	0.1234E-01
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.8164E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	55.00	0.1000	738.20	738.55	0.1730	0.1861	274.09	4.8004	0.9593	ETHANOL	-0.1311E-01	0.6559E-02
		0.1000			0.0880	0.0877	590.36	1.0585	0.9674	CHLORFRM	0.2814E-03	
		0.1000			0.1900	0.1854	708.66	1.8703	0.9708	ACETONE	0.4625E-02	
		0.7000			0.5490	0.5408	465.17	1.1600	0.9504	HEXANE	0.8214E-02	
2	55.00	0.1000	783.20	781.28	0.1170	0.1330	274.09	3.7414	0.9534	ETHANOL	-0.2099E-01	0.1082E-01
		0.1000			0.0720	0.0712	590.36	0.9090	0.9678	CHLORFRM	0.7978E-03	
		0.2000			0.3080	0.3096	708.66	1.6511	0.9733	ACETONE	-0.6450E-03	
		0.6000			0.5030	0.4822	465.17	1.2706	0.9464	HEXANE	0.2083E-01	
3	55.00	0.1000	803.50	809.90	0.1110	0.1086	274.09	3.0364	0.9486	ETHANOL	0.2414E-02	0.3317E-02
		0.1000			0.0610	0.0604	590.36	0.7997	0.9677	CHLORFRM	0.5608E-03	
		0.3000			0.3860	0.3926	708.66	1.4536	0.9748	ACETONE	-0.6633E-02	
		0.5000			0.4420	0.4383	465.17	1.4319	0.9433	HEXANE	0.3661E-02	
4	55.00	0.1000	817.00	827.00	0.0960	0.0897	274.09	2.5521	0.9448	ETHANOL	0.6254E-02	0.3125E-02
		0.1000			0.0530	0.0533	590.36	0.7203	0.9676	CHLORFRM	-0.3237E-03	
		0.4000			0.4550	0.4557	708.66	1.2935	0.9759	ACETONE	-0.7413E-03	
		0.4000			0.3960	0.4012	465.17	1.6688	0.9411	HEXANE	-0.5183E-02	
5	55.00	0.1000	821.80	833.39	0.0790	0.0774	274.09	2.2117	0.9416	ETHANOL	0.1559E-02	0.4634E-02
		0.1000			0.0500	0.0488	590.36	0.6643	0.9676	CHLORFRM	0.1203E-02	
		0.5000			0.5170	0.5105	708.66	1.1692	0.9769	ACETONE	0.6510E-02	
		0.3000			0.3540	0.3633	465.17	2.0274	0.9398	HEXANE	-0.9265E-02	
6	55.00	0.1000	811.40	825.07	0.0740	0.0700	274.09	1.9722	0.9388	ETHANOL	0.4041E-02	0.1456E-01
		0.1000			0.0500	0.0466	590.36	0.6284	0.9680	CHLORFRM	0.3394E-02	
		0.6000			0.5910	0.5693	708.66	1.0772	0.9781	ACETONE	0.2168E-01	
		0.2000			0.2950	0.3141	465.17	2.6028	0.9395	HEXANE	-0.2911E-01	
7	55.00	0.1000	776.90	786.09	0.0700	0.0676	274.09	1.8122	0.9364	ETHANOL	0.2362E-02	0.1826E-01
		0.1000			0.0520	0.0477	590.36	0.6132	0.9693	CHLORFRM	0.4334E-02	
		0.7000			0.6860	0.6562	708.66	1.0163	0.9803	ACETONE	0.2982E-01	
		0.1000			0.1920	0.2285	465.17	3.6162	0.9414	HEXANE	-0.3652E-01	
8	55.00	0.1000	725.30	724.22	0.1440	0.1735	274.09	4.3880	0.9591	ETHANOL	-0.2953E-01	0.1477E-01
		0.2000			0.1790	0.1767	590.36	1.0456	0.9674	CHLORFRM	0.2272E-02	
		0.1000			0.1570	0.1548	708.66	1.5340	0.9723	ACETONE	0.2198E-02	
		0.6000			0.5200	0.4949	465.17	1.2162	0.9516	HEXANE	0.2506E-01	
9	55.00	0.1000	764.60	770.58	0.1090	0.1075	274.09	2.8655	0.9505	ETHANOL	0.1526E-02	0.1006E-02
		0.2000			0.1300	0.1298	590.36	0.8179	0.9683	CHLORFRM	0.1743E-03	
		0.3000			0.3540	0.3537	708.66	1.2477	0.9761	ACETONE	0.3081E-03	
		0.4000			0.4070	0.4090	465.17	1.5947	0.9463	HEXANE	-0.2014E-02	
10	55.00	0.1000	771.70	779.30	0.0960	0.0910	274.09	2.4439	0.9471	ETHANOL	0.5039E-02	0.7551E-02
		0.2000			0.1200	0.1175	590.36	0.7488	0.9686	CHLORFRM	0.2490E-02	
		0.4000			0.4310	0.4234	708.66	1.1344	0.9773	ACETONE	0.7572E-02	
		0.3000			0.3530	0.3681	465.17	1.9320	0.9448	HEXANE	-0.1510E-01	
11	55.00	0.1000	762.40	773.55	0.0830	0.0809	274.09	2.1509	0.9442	ETHANOL	0.2096E-02	0.1102E-01
		0.2000			0.1180	0.1111	590.36	0.7033	0.9691	CHLORFRM	0.6870E-02	
		0.5000			0.5050	0.4919	708.66	1.0480	0.9787	ACETONE	0.1307E-01	
		0.2000			0.2940	0.3160	465.17	2.4687	0.9444	HEXANE	-0.2204E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
12	55.00	0.1000	728.70	738.38	0.0800	0.0772	274.09	1.9541	0.9416	ETHANOL	0.2795E-02	0.2283E-01
		0.2000			0.1190	0.1126	590.36	0.6812	0.9704	CHLORFRM	0.6407E-02	
		0.6000			0.6190	0.5825	708.66	0.9896	0.9810	ACETONE	0.3646E-01	
		0.1000			0.1820	0.2277	465.17	3.4017	0.9460	HEXANE	-0.4567E-01	
13	55.00	0.1000	702.00	712.44	0.1620	0.1610	274.09	4.0033	0.9586	ETHANOL	0.9946E-03	0.6639E-02
		0.3000			0.2780	0.2657	590.36	1.0311	0.9674	CHLORFRM	0.1228E-01	
		0.1000			0.1180	0.1291	708.66	1.2607	0.9739	ACETONE	-0.1111E-01	
		0.5000			0.4420	0.4442	465.17	1.2901	0.9527	HEXANE	-0.2166E-02	
14	55.00	0.1000	716.50	726.34	0.1240	0.1278	274.09	3.2277	0.9551	ETHANOL	-0.3796E-02	0.2510E-02
		0.3000			0.2370	0.2320	590.36	0.9185	0.9684	CHLORFRM	0.5022E-02	
		0.2000			0.2330	0.2335	708.66	1.1647	0.9760	ACETONE	-0.4971E-03	
		0.4000			0.4060	0.4067	465.17	1.5021	0.9507	HEXANE	-0.7253E-03	
15	55.00	0.1000	725.10	733.74	0.1050	0.1063	274.09	2.7036	0.9520	ETHANOL	-0.1318E-02	0.9635E-02
		0.3000			0.2260	0.2090	590.36	0.8364	0.9690	CHLORFRM	0.1702E-01	
		0.3000			0.3210	0.3188	708.66	1.0725	0.9776	ACETONE	0.2241E-02	
		0.3000			0.3480	0.3660	465.17	1.9177	0.9493	HEXANE	-0.1795E-01	
16	55.00	0.1000	715.50	728.67	0.0980	0.0931	274.09	2.3449	0.9490	ETHANOL	0.4858E-02	0.5423E-02
		0.3000			0.1910	0.1963	590.36	0.7809	0.9697	CHLORFRM	-0.5316E-02	
		0.4000			0.3920	0.3975	708.66	0.9979	0.9792	ACETONE	-0.5531E-02	
		0.2000			0.3190	0.3130	465.17	2.3148	0.9488	HEXANE	0.5987E-02	
17	55.00	0.1000	692.90	701.63	0.1440	0.1491	274.09	3.6491	0.9580	ETHANOL	-0.5116E-02	0.6933E-02
		0.4000			0.3620	0.3548	590.36	1.0169	0.9675	CHLORFRM	0.7234E-02	
		0.1000			0.0990	0.1077	708.66	1.0379	0.9755	ACETONE	-0.8749E-02	
		0.4000			0.3950	0.3884	465.17	1.3903	0.9539	HEXANE	0.6634E-02	
18	55.00	0.1000	690.80	702.37	0.1200	0.1226	274.09	2.9962	0.9554	ETHANOL	-0.2635E-02	0.6817E-02
		0.4000			0.3220	0.3215	590.36	0.9238	0.9687	CHLORFRM	0.4673E-03	
		0.2000			0.1920	0.2030	708.66	0.9808	0.9776	ACETONE	-0.1100E-01	
		0.3000			0.3660	0.3528	465.17	1.6841	0.9528	HEXANE	0.1317E-01	
19	55.00	0.1000	681.90	694.88	0.1070	0.1060	274.09	2.5562	0.9528	ETHANOL	0.9596E-03	0.9879E-02
		0.4000			0.3100	0.3018	590.36	0.8588	0.9698	CHLORFRM	0.8181E-02	
		0.3000			0.2700	0.2898	708.66	0.9252	0.9794	ACETONE	-0.1976E-01	
		0.2000			0.3130	0.3024	465.17	2.1412	0.9525	HEXANE	0.1061E-01	
20	55.00	0.1000	654.20	664.30	0.0990	0.0984	274.09	2.2629	0.9505	ETHANOL	0.5783E-03	0.8969E-02
		0.4000			0.3100	0.3016	590.36	0.8220	0.9714	CHLORFRM	0.8382E-02	
		0.4000			0.3940	0.3850	708.66	0.8838	0.9819	ACETONE	0.8974E-02	
		0.1000			0.1970	0.2149	465.17	2.9150	0.9539	HEXANE	-0.1794E-01	
21	55.00	0.1000	683.80	689.99	0.1370	0.1384	274.09	3.3273	0.9572	ETHANOL	-0.1363E-02	0.1013E-01
		0.5000			0.4380	0.4457	590.36	1.0054	0.9678	CHLORFRM	-0.7671E-02	
		0.1000			0.0790	0.0902	708.66	0.8564	0.9774	ACETONE	-0.1122E-01	
		0.3000			0.3460	0.3257	465.17	1.5312	0.9551	HEXANE	0.2026E-01	
22	55.00	0.1000	665.50	676.04	0.1220	0.1185	274.09	2.7874	0.9554	ETHANOL	0.3477E-02	0.1099E-01
		0.5000			0.4390	0.4216	590.36	0.9335	0.9693	CHLORFRM	0.1736E-01	
		0.2000			0.1790	0.1779	708.66	0.8289	0.9795	ACETONE	0.1143E-02	
		0.2000			0.2600	0.2820	465.17	1.9484	0.9552	HEXANE	-0.2197E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIEL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
23	55.00	0.1000	634.70	644.69	0.1090	0.1086	274.09	2.4302	0.9536	ETHANOL	0.4383E-03	0.1082E-01
		0.5000			0.4420	0.4298	590.36	0.8903	0.9712	CHLORFRM	0.2119E-01	
		0.3000			0.2660	0.2704	708.66	0.8033	0.9822	ACETONE	-0.4361E-02	
		0.1000			0.1830	0.2003	465.17	2.6441	0.9567	HEXANE	-0.1728E-01	
24	55.00	0.1000	669.70	674.94	0.1230	0.1293	274.09	3.0402	0.9564	ETHANOL	-0.1344E-02	0.6774E-02
		0.6000			0.5350	0.5430	590.36	0.9991	0.9683	CHLORFRM	-0.8042E-02	
		0.1000			0.0720	0.0762	708.66	0.7087	0.9795	ACETONE	-0.4161E-02	
		0.2000			0.2650	0.2515	465.17	1.7376	0.9568	HEXANE	0.1355E-01	
25	55.00	0.1000	635.70	640.18	0.1150	0.1170	274.09	2.6065	0.9553	ETHANOL	-0.2032E-02	0.1134E-01
		0.6000			0.5670	0.5443	590.36	0.9522	0.9705	CHLORFRM	0.2268E-01	
		0.2000			0.1590	0.1592	708.66	0.7047	0.9823	ACETONE	-0.2097E-03	
		0.1000			0.1590	0.1794	465.17	2.3570	0.9586	HEXANE	-0.2043E-01	
26	55.00	0.1000	652.00	651.43	0.1200	0.1231	274.09	2.7907	0.9557	ETHANOL	-0.3095E-02	0.1548E-02
		0.7000			0.6530	0.6577	590.36	1.0023	0.9693	CHLORFRM	0.2558E-03	
		0.1000			0.0660	0.0654	708.66	0.5894	0.9822	ACETONE	0.5624E-03	
		0.1000			0.1560	0.1537	465.17	2.0562	0.9594	HEXANE	0.2277E-02	
27	55.00	0.2000	736.70	741.62	0.2280	0.2271	274.09	2.9394	0.9588	ETHANOL	0.8978E-03	0.8004E-02
		0.1000			0.0860	0.0879	590.36	1.0633	0.9664	CHLORFRM	-0.1857E-02	
		0.1000			0.1430	0.1571	708.66	1.5891	0.9690	ACETONE	-0.1415E-01	
		0.6000			0.5430	0.5279	465.17	1.3277	0.9513	HEXANE	0.1511E-01	
28	55.00	0.2000	773.40	776.75	0.1740	0.1859	274.09	2.5065	0.9537	ETHANOL	-0.1191E-01	0.8269E-02
		0.1000			0.0680	0.0726	590.36	0.9210	0.9669	CHLORFRM	-0.4627E-02	
		0.2000			0.2770	0.2692	708.66	1.4289	0.9714	ACETONE	0.7801E-02	
		0.5000			0.4810	0.4723	465.17	1.4875	0.9481	HEXANE	0.8733E-02	
29	55.00	0.2000	801.60	809.14	0.1380	0.1385	274.09	1.9290	0.9460	ETHANOL	-0.4840E-03	0.1322E-01
		0.1000			0.0530	0.0565	590.36	0.7463	0.9676	CHLORFRM	-0.3460E-02	
		0.4000			0.4480	0.4215	708.66	1.1694	0.9748	ACETONE	0.2645E-01	
		0.3000			0.3610	0.3835	465.17	2.0882	0.9442	HEXANE	-0.2251E-01	
30	55.00	0.2000	794.40	803.12	0.1260	0.1269	274.09	1.7494	0.9430	ETHANOL	-0.9300E-03	0.1303E-01
		0.1000			0.0510	0.0533	590.36	0.6992	0.9683	CHLORFRM	-0.2255E-02	
		0.5000			0.5160	0.4899	708.66	1.0811	0.9765	ACETONE	0.2606E-01	
		0.2000			0.3070	0.3299	465.17	2.6734	0.9439	HEXANE	-0.2288E-01	
31	55.00	0.2000	757.80	764.90	0.1250	0.1244	274.09	1.6286	0.9406	ETHANOL	0.6163E-03	0.5329E-02
		0.1000			0.0540	0.0540	590.36	0.6768	0.9700	CHLORFRM	-0.2763E-04	
		0.6000			0.5920	0.5820	708.66	1.0221	0.9792	ACETONE	0.1004E-01	
		0.1000			0.2290	0.2396	465.17	3.7076	0.9459	HEXANE	-0.1063E-01	
32	55.00	0.2000	720.70	729.15	0.2350	0.2144	274.09	2.7273	0.9592	ETHANOL	0.2056E-01	0.1111E-01
		0.2000			0.1690	0.1772	590.36	1.0543	0.9663	CHLORFRM	-0.8197E-02	
		0.1000			0.1330	0.1313	708.66	1.3080	0.9706	ACETONE	0.1661E-02	
		0.5000			0.4630	0.4770	465.17	1.4171	0.9523	HEXANE	-0.1402E-01	
33	55.00	0.2000	750.40	759.46	0.1590	0.1580	274.09	2.0772	0.9510	ETHANOL	0.9763E-03	0.7439E-02
		0.2000			0.1310	0.1359	590.36	0.8435	0.9680	CHLORFRM	-0.4895E-02	
		0.3000			0.3100	0.3200	708.66	1.1111	0.9748	ACETONE	-0.9986E-02	
		0.3000			0.4000	0.3861	465.17	1.9834	0.9488	HEXANE	0.1390E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
34	55.00	0.2000	743.40	754.77	0.1490	0.1436	274.09	1.8704	0.9480	ETHANOL	0.5378E-02	0.4147E-02
		0.2000			0.1300	0.1271	590.36	0.7847	0.9689	CHLOREFM	0.2913E-02	
		0.4000			0.3940	0.3991	708.66	1.0349	0.9768	ACETONE	-0.5052E-02	
		0.2000			0.3270	0.3302	465.17	2.5282	0.9484	HEXANE	-0.3245E-02	
35	55.00	0.2000	709.90	719.68	0.1350	0.1395	274.09	1.7286	0.9456	ETHANOL	-0.4531E-02	0.2212E-01
		0.2000			0.1330	0.1279	590.36	0.7539	0.9708	CHLOREFM	0.5228E-02	
		0.5000			0.5340	0.4950	708.66	0.9823	0.9797	ACETONE	0.3901E-01	
		0.1000			0.1980	0.2377	465.17	3.4781	0.9504	HEXANE	-0.3970E-01	
36	55.00	0.2000	710.90	722.79	0.1820	0.1766	274.09	2.2187	0.9547	ETHANOL	0.5375E-02	0.5399E-02
		0.3000			0.2440	0.2394	590.36	0.9427	0.9677	CHLOREFM	0.4604E-02	
		0.2000			0.1950	0.2058	708.66	1.0201	0.9747	ACETONE	-0.1080E-01	
		0.3000			0.3790	0.3782	465.17	1.8566	0.9525	HEXANE	0.8215E-03	
37	55.00	0.2000	702.20	716.54	0.1610	0.1600	274.09	1.9866	0.9520	ETHANOL	0.1024E-02	0.8463E-03
		0.3000			0.2230	0.2232	590.36	0.8724	0.9690	CHLOREFM	-0.1715E-03	
		0.3000			0.2920	0.2935	708.66	0.9638	0.9769	ACETONE	-0.1526E-02	
		0.2000			0.3240	0.3233	465.17	2.3600	0.9523	HEXANE	0.6638E-03	
38	55.00	0.2000	671.90	683.35	0.1570	0.1544	274.09	1.8240	0.9498	ETHANOL	0.2637E-02	0.6055E-02
		0.3000			0.2210	0.2229	590.36	0.8328	0.9711	CHLOREFM	-0.1895E-02	
		0.4000			0.4010	0.3915	708.66	0.9225	0.9799	ACETONE	0.9468E-02	
		0.1000			0.2210	0.2312	465.17	3.2260	0.9541	HEXANE	-0.1022E-01	
39	55.00	0.2000	691.60	704.65	0.1870	0.1907	274.09	2.3406	0.9568	ETHANOL	-0.3693E-02	0.6125E-02
		0.4000			0.3720	0.3610	590.36	1.0385	0.9668	CHLOREFM	0.1099E-01	
		0.1000			0.0840	0.0926	708.66	0.8944	0.9744	ACETONE	-0.8554E-02	
		0.3000			0.3570	0.3557	465.17	1.7071	0.9549	HEXANE	0.1266E-02	
40	55.00	0.2000	646.00	659.50	0.1680	0.1669	274.09	1.9105	0.9531	ETHANOL	0.1059E-02	0.8087E-02
		0.4000			0.3520	0.3369	590.36	0.9110	0.9708	CHLOREFM	0.1512E-01	
		0.3000			0.2730	0.2777	708.66	0.8421	0.9800	ACETONE	-0.4681E-02	
		0.1000			0.2070	0.2185	465.17	2.9517	0.9571	HEXANE	-0.1149E-01	
41	55.00	0.2000	678.30	687.44	0.1790	0.1815	274.09	2.1722	0.9561	ETHANOL	-0.2538E-02	0.7581E-02
		0.5000			0.4770	0.4618	590.36	1.0576	0.9675	CHLOREFM	0.1516E-01	
		0.1000			0.0770	0.0787	708.66	0.7439	0.9768	ACETONE	-0.1706E-02	
		0.2000			0.2670	0.2779	465.17	1.9558	0.9568	HEXANE	-0.1092E-01	
42	55.00	0.2000	641.70	651.18	0.1740	0.1750	274.09	1.9811	0.9550	ETHANOL	-0.9676E-03	0.6359E-02
		0.5000			0.4700	0.4612	590.36	0.9843	0.9700	CHLOREFM	0.8795E-02	
		0.2000			0.1690	0.1651	708.66	0.7415	0.9800	ACETONE	0.3923E-02	
		0.1000			0.1870	0.1989	465.17	2.6566	0.9590	HEXANE	-0.1175E-01	
43	55.00	0.2000	655.20	659.54	0.1750	0.1765	274.09	2.0254	0.9555	ETHANOL	-0.1517E-02	0.4322E-02
		0.6000			0.5750	0.5821	590.36	1.0472	0.9698	CHLOREFM	-0.7127E-02	
		0.1000			0.0700	0.0684	708.66	0.6225	0.9800	ACETONE	0.1574E-02	
		0.1000			0.1800	0.1729	465.17	2.3428	0.9598	HEXANE	0.7071E-02	
44	55.00	0.3000	731.30	737.94	0.2460	0.2464	274.09	2.1148	0.9586	ETHANOL	-0.3669E-03	0.3360E-02
		0.1000			0.0840	0.0904	590.36	1.0876	0.9660	CHLOREFM	-0.6350E-02	
		0.1000			0.1450	0.1446	708.66	1.4534	0.9683	ACETONE	0.4474E-03	
		0.5000			0.5250	0.5187	465.17	1.5588	0.9518	HEXANE	0.6277E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIEL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
45	55.00	0.3000	760.50	766.90	0.2130	0.2124	274.09	1.8856	0.9540	ETHANOL	0.5955E-03	0.8032E-02
		0.1000			0.0700	0.0758	590.36	0.9489	0.9668	CHLOREFM	-0.5796E-02	
		0.2000			0.2660	0.2505	708.66	1.3121	0.9707	ACETONE	0.1546E-01	
		0.4000			0.4510	0.4613	465.17	1.7958	0.9495	HEXANE	-0.1027E-01	
46	55.00	0.3000	774.90	781.75	0.1940	0.1990	274.09	1.7037	0.9502	ETHANOL	0.4963E-02	0.1306E-01
		0.1000			0.0620	0.0667	590.36	0.8522	0.9675	CHLOREFM	-0.4735E-02	
		0.3000			0.3560	0.3348	708.66	1.1943	0.9728	ACETONE	0.2115E-01	
		0.3000			0.3880	0.4094	465.17	2.1625	0.9479	HEXANE	-0.2138E-01	
47	55.00	0.3000	771.30	778.64	0.1820	0.1752	274.09	1.5673	0.9470	ETHANOL	0.6822E-02	0.5755E-02
		0.1000			0.0610	0.0619	590.36	0.7886	0.9685	CHLOREFM	-0.9375E-03	
		0.4000			0.4180	0.4133	708.66	1.1037	0.9750	ACETONE	0.4686E-02	
		0.2000			0.3390	0.3496	465.17	2.7580	0.9476	HEXANE	-0.1057E-01	
48	55.00	0.3000	719.90	725.02	0.2320	0.2348	274.09	1.9788	0.9579	ETHANOL	-0.2779E-02	0.3497E-02
		0.2000			0.1790	0.1832	590.36	1.0837	0.9661	CHLOREFM	-0.4213E-02	
		0.1000			0.1260	0.1212	708.66	1.1992	0.9701	ACETONE	0.4841E-02	
		0.4000			0.4630	0.4608	465.17	1.7032	0.9531	HEXANE	0.2156E-02	
49	55.00	0.3000	724.40	737.14	0.2070	0.2097	274.09	1.7909	0.9546	ETHANOL	-0.2729E-02	0.7690E-02
		0.2000			0.1520	0.1606	590.36	0.9668	0.9674	CHLOREFM	-0.8554E-02	
		0.2000			0.2360	0.2206	708.66	1.1129	0.9726	ACETONE	0.1538E-01	
		0.3000			0.4050	0.4091	465.17	2.0471	0.9520	HEXANE	-0.4094E-02	
50	55.00	0.3000	722.40	733.87	0.1910	0.1941	274.09	1.6445	0.9516	ETHANOL	-0.3055E-02	0.1528E-02
		0.2000			0.1490	0.1480	590.36	0.8882	0.9687	CHLOREFM	0.1040E-02	
		0.3000			0.3100	0.3100	708.66	1.0405	0.9751	ACETONE	0.2253E-04	
		0.2000			0.3500	0.3480	465.17	2.6001	0.9518	HEXANE	0.1995E-02	
51	55.00	0.3000	686.70	699.14	0.1930	0.1915	274.09	1.5425	0.9492	ETHANOL	0.1477E-02	0.1003E-01
		0.2000			0.1520	0.1473	590.36	0.8444	0.9710	CHLOREFM	0.4711E-02	
		0.4000			0.4250	0.4111	708.66	0.9895	0.9784	ACETONE	0.1387E-01	
		0.1000			0.2300	0.2501	465.17	3.5685	0.9540	HEXANE	-0.2007E-01	
52	55.00	0.3000	695.80	710.80	0.2190	0.2242	274.09	1.8513	0.9572	ETHANOL	-0.5205E-02	0.6706E-02
		0.3000			0.2820	0.2798	590.36	1.0821	0.9664	CHLOREFM	0.2212E-02	
		0.1000			0.0940	0.1022	708.66	0.9940	0.9723	ACETONE	-0.8205E-02	
		0.3000			0.4050	0.3938	465.17	1.9058	0.9547	HEXANE	0.1120E-01	
53	55.00	0.3000	685.90	703.29	0.2110	0.2091	274.09	1.7040	0.9548	ETHANOL	0.1892E-02	0.5813E-02
		0.3000			0.2630	0.2581	590.36	0.9893	0.9682	CHLOREFM	0.4950E-02	
		0.2000			0.1850	0.1966	708.66	0.9487	0.9749	ACETONE	-0.1162E-01	
		0.2000			0.3410	0.3362	465.17	2.4155	0.9549	HEXANE	0.4787E-02	
54	55.00	0.3000	653.20	663.92	0.2040	0.2064	274.09	1.5964	0.9528	ETHANOL	-0.2357E-02	0.7425E-02
		0.3000			0.2670	0.2556	590.36	0.9347	0.9703	CHLOREFM	0.1138E-01	
		0.3000			0.3010	0.2975	708.66	0.9137	0.9785	ACETONE	0.3473E-02	
		0.1000			0.2280	0.2405	465.17	3.2954	0.9572	HEXANE	-0.1249E-01	
55	55.00	0.3000	676.50	691.29	0.2200	0.2163	274.09	1.7353	0.9564	ETHANOL	0.3744E-02	0.4426E-02
		0.4000			0.3900	0.3849	590.36	1.0867	0.9672	CHLOREFM	0.5110E-02	
		0.1000			0.0830	0.0873	708.66	0.8285	0.9749	ACETONE	-0.4346E-02	
		0.2000			0.3070	0.3115	465.17	2.2044	0.9568	HEXANE	-0.4505E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
56	55.00	0.3000	640.10	654.58	0.2190	0.2149	274.09	1.6303	0.9552	ETHANOL	0.4173E-02	0.9891E-02
		0.4000			0.3970	0.3814	590.36	1.0228	0.9700	CHLOREFM	0.1561E-01	
		0.2000			0.1770	0.1808	708.66	0.8151	0.9784	ACETONE	-0.3837E-02	
		0.1000			0.2070	0.2229	465.17	2.9965	0.9594	HEXANE	-0.1594E-01	
57	55.00	0.3000	651.70	658.53	0.2140	0.2140	274.09	1.6350	0.9560	ETHANOL	0.2587E-04	0.8631E-02
		0.5000			0.5290	0.5118	590.36	1.1031	0.9687	CHLOREFM	0.1724E-01	
		0.1000			0.0710	0.0767	708.66	0.6958	0.9784	ACETONE	-0.5720E-02	
		0.1000			0.1860	0.1975	465.17	2.6736	0.9603	HEXANE	-0.1154E-01	
58	55.00	0.4000	760.20	730.92	0.2630	0.2638	274.09	1.6630	0.9585	ETHANOL	0.2206E-02	0.6287E-02
		0.1000			0.0990	0.0945	590.36	1.1266	0.9660	CHLOREFM	0.4518E-02	
		0.1000			0.1260	0.1386	708.66	1.3799	0.9681	ACETONE	-0.1257E-01	
		0.4000			0.5120	0.5061	465.17	1.9849	0.9527	HEXANE	0.5853E-02	
59	55.00	0.4000	743.60	752.04	0.2300	0.2181	274.09	1.4192	0.9508	ETHANOL	0.1193E-01	0.6723E-02
		0.1000			0.0710	0.0735	590.36	0.9036	0.9684	CHLOREFM	-0.2473E-02	
		0.3000			0.3360	0.3345	708.66	1.1485	0.9734	ACETONE	0.1516E-02	
		0.2000			0.3630	0.3740	465.17	2.8601	0.9509	HEXANE	-0.1098E-01	
60	55.00	0.4000	712.60	715.79	0.2250	0.2182	274.09	1.3492	0.9484	ETHANOL	0.6806E-02	0.1842E-01
		0.1000			0.0710	0.0728	590.36	0.8547	0.9710	CHLOREFM	-0.1815E-02	
		0.4000			0.4690	0.4390	708.66	1.0802	0.9772	ACETONE	0.3003E-01	
		0.1000			0.2350	0.2700	465.17	3.9424	0.9534	HEXANE	-0.3503E-01	
61	55.00	0.4000	699.10	714.46	0.2530	0.2517	274.09	1.5675	0.9578	ETHANOL	0.1338E-02	0.4578E-02
		0.2000			0.1940	0.1939	590.36	1.1308	0.9663	CHLOREFM	0.5186E-04	
		0.1000			0.1080	0.1172	708.66	1.1430	0.9703	ACETONE	-0.9154E-02	
		0.3000			0.4450	0.4372	465.17	2.1262	0.9544	HEXANE	0.7770E-02	
62	55.00	0.4000	693.60	712.39	0.2360	0.2363	274.09	1.4629	0.9548	ETHANOL	-0.2995E-03	0.2904E-02
		0.2000			0.1700	0.1755	590.36	1.0222	0.9681	CHLOREFM	-0.5506E-02	
		0.2000			0.2200	0.2187	708.66	1.0671	0.9733	ACETONE	0.1271E-02	
		0.2000			0.3740	0.3695	465.17	2.6875	0.9545	HEXANE	0.4538E-02	
63	55.00	0.4000	661.40	677.62	0.2260	0.2364	274.09	1.3894	0.9526	ETHANOL	-0.1045E-01	0.6661E-02
		0.2000			0.1790	0.1726	590.36	0.9590	0.9709	CHLOREFM	0.6425E-02	
		0.3000			0.3330	0.3261	708.66	1.0131	0.9772	ACETONE	0.6899E-02	
		0.1000			0.2620	0.2649	465.17	3.6761	0.9571	HEXANE	-0.2876E-02	
64	55.00	0.4000	635.60	655.35	0.2440	0.2476	274.09	1.4113	0.9555	ETHANOL	-0.3580E-02	0.5795E-02
		0.3000			0.3010	0.2972	590.36	1.0643	0.9703	CHLOREFM	0.3751E-02	
		0.2000			0.2120	0.2042	708.66	0.9201	0.9771	ACETONE	0.7839E-02	
		0.1000			0.2430	0.2510	465.17	3.3786	0.9596	HEXANE	-0.8009E-02	
65	55.00	0.4000	638.10	653.02	0.2330	0.2473	274.09	1.4065	0.9567	ETHANOL	-0.1430E-01	0.1224E-01
		0.4000			0.4550	0.4362	590.36	1.1656	0.9690	CHLOREFM	0.1885E-01	
		0.1000			0.0950	0.0894	708.66	0.8025	0.9770	ACETONE	0.5638E-02	
		0.1000			0.2170	0.2272	465.17	3.0509	0.9608	HEXANE	-0.1018E-01	
66	55.00	0.5000	700.20	717.57	0.2590	0.2767	274.09	1.3861	0.9536	ETHANOL	-0.1775E-01	0.1096E-01
		0.1000			0.0970	0.1009	590.36	1.1817	0.9664	CHLOREFM	-0.3899E-02	
		0.1000			0.1370	0.1373	708.66	1.3424	0.9685	ACETONE	-0.2626E-03	
		0.3000			0.5070	0.4851	465.17	2.3683	0.9541	HEXANE	0.2192E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
67	55.00	0.5000	708.90	722.74	0.2310	0.2588	274.09	1.3004	0.9548	ETHANOL	-0.2781E-01	0.1703E-01
		0.1000			0.0830	0.0893	590.36	1.0548	0.9682	CHLOREFM	-0.6257E-02	
		0.2000			0.2590	0.2472	708.66	1.2216	0.9717	ACETONE	0.1079E-01	
		0.2000			0.4280	0.4047	465.17	2.9847	0.9539	HEXANE	0.2328E-01	
68	55.00	0.5000	676.40	688.08	0.2700	0.2607	274.09	1.2438	0.9523	ETHANOL	0.9329E-02	0.4831E-02
		0.1000			0.0830	0.0870	590.36	0.9818	0.9712	CHLOREFM	-0.3980E-02	
		0.3000			0.3620	0.3617	708.66	1.1395	0.9761	ACETONE	0.3344E-03	
		0.1000			0.2850	0.2907	465.17	4.0946	0.9567	HEXANE	-0.5680E-02	
69	55.00	0.5000	670.90	690.67	0.2620	0.2736	274.09	1.3180	0.9579	ETHANOL	-0.1157E-01	0.7095E-02
		0.2000			0.2100	0.2126	590.36	1.1997	0.9673	CHLOREFM	-0.2622E-02	
		0.1000			0.1190	0.1186	708.66	1.1195	0.9714	ACETONE	0.4390E-03	
		0.2000			0.4090	0.3952	465.17	2.7944	0.9568	HEXANE	0.1375E-01	
70	55.00	0.5000	641.50	656.35	0.2670	0.2770	274.09	1.2641	0.9547	ETHANOL	-0.1001E-01	0.1978E-01
		0.2000			0.2320	0.2059	590.36	1.1068	0.9697	CHLOREFM	0.2611E-01	
		0.2000			0.2480	0.2346	708.66	1.0564	0.9749	ACETONE	0.1345E-01	
		0.1000			0.2530	0.2825	465.17	3.8050	0.9587	HEXANE	-0.2954E-01	
71	55.00	0.5000	626.90	644.28	0.2740	0.2806	274.09	1.2610	0.9578	ETHANOL	-0.6586E-02	0.3967E-02
		0.3000			0.3520	0.3504	590.36	1.2324	0.9694	CHLOREFM	0.1601E-02	
		0.1000			0.1130	0.1067	708.66	0.9438	0.9756	ACETONE	0.6334E-02	
		0.1000			0.2610	0.2623	465.17	3.4785	0.9615	HEXANE	-0.1347E-02	
72	55.00	0.6000	671.70	688.83	0.2900	0.3013	274.09	1.2076	0.9539	ETHANOL	-0.1125E-01	0.1005E-01
		0.1000			0.1030	0.1118	590.36	1.2592	0.9676	CHLOREFM	-0.8847E-02	
		0.1000			0.1590	0.1418	708.66	1.3330	0.9697	ACETONE	0.1720E-01	
		0.2000			0.4480	0.4451	465.17	3.1384	0.9568	HEXANE	0.2908E-02	
73	55.00	0.6000	641.70	656.97	0.3000	0.3042	274.09	1.1597	0.9562	ETHANOL	-0.4180E-02	0.5865E-02
		0.1000			0.0990	0.1065	590.36	1.1485	0.9712	CHLOREFM	-0.7549E-02	
		0.2000			0.2800	0.2723	708.66	1.2271	0.9747	ACETONE	0.7727E-02	
		0.1000			0.3210	0.3170	465.17	4.2733	0.9599	HEXANE	0.4005E-02	
74	55.00	0.6000	613.90	633.02	0.3120	0.3156	274.09	1.1631	0.9591	ETHANOL	-0.3641E-02	0.2825E-02
		0.2000			0.2490	0.2510	590.36	1.3020	0.9730	CHLOREFM	-0.2009E-02	
		0.1000			0.1350	0.1296	708.66	1.1248	0.9743	ACETONE	0.5448E-02	
		0.1000			0.3040	0.3038	465.17	3.9610	0.9622	HEXANE	0.2037E-03	
75	0.0	0.7000	0.0	619.98	0.3470	0.3533	274.09	1.0946	0.9605	ETHANOL	-0.6287E-02	0.6143E-02
		0.1000			0.1200	0.1350	590.36	1.3729	0.9709	CHLOREFM	-0.5999E-02	
		0.1000			0.1700	0.1594	708.66	1.3536	0.9730	ACETONE	0.1060E-01	
		0.1000			0.3540	0.3523	465.17	4.5032	0.9630	HEXANE	0.1693E-02	

CYCLOHEXANE(1) - BENZENE(2) - 2-PROPANOL(3) - MEK(4) SYSTEM 668

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
553.20	40.00	311.20	0.210	0.0	0.0	0.0	CYCLOHEX	9
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
508.50	47.00	219.50	0.663	0.187	1.660	0.0	2-CH3CH	22
533.20	39.50	288.40	0.337	0.215	2.700	0.0	MEK	28

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS

A	B	C	COMPONENT
0.69450E 01	0.12035E 04	0.22286E 03	CYCLOHEX
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE
0.66604E 01	0.91305E 03	0.13293E 03	2-CH3OH
0.69742E 01	0.12096E 04	0.21600E 03	MEK

MOLAR VOLUME EQUATION COEFFICIENTS

COMPONENT	A	B	C
CYCLOHEX	0.9291E 02	-0.2486E-01	0.2616E-03
BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
2-CH3OH	0.1418E 03	-0.4981E 00	0.9287E-03
MEK	0.7119E 02	0.9660E-02	0.1810E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
142.54	110.55	CYCLOHEX - BENZENE	27	1
42.18	2063.58	CYCLOHEX - 2-CH3OH	65	0
-288.79	1368.94	CYCLOHEX - MEK	288	1
173.17	1009.53	BENZENE - 2-CH3OH	234	0
-236.55	462.30	BENZENE - MEK	238	1
431.86	-123.96	2-CH3OH - MEK	240	1

HALA CONSISTENCY TEST

CI(1)	2.5130
CI(2)	2.4911
CI(3)	6.6696

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.1475E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.1190E-01
COMPONENT 2	0.1235E-01
COMPONENT 3	0.8060E-02
COMPONENT 4	0.1028E-01
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.1065E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIOL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	78.40	0.0290	760.00	761.16	0.0280	0.0273	679.63	1.4632	0.9606	CYCLOHEX	0.6877E-03	0.9948E-02
		0.8590			0.9390	0.9198	695.53	1.0063	0.9655	BENZENE	0.1921E-01	
		0.0960			0.0150	0.0200	640.94	3.9707	0.9792	2-CH3OH	-0.5028E-02	
		0.1160			0.1180	0.1329	718.00	1.1729	0.9692	MEK	-0.1487E-01	
2	77.80	0.0270	760.00	762.81	0.0410	0.0362	667.63	1.4633	0.9602	CYCLOHEX	0.4841E-02	0.8719E-02
		0.8410			0.8020	0.7894	682.95	1.0086	0.9652	BENZENE	0.1260E-01	
		0.0140			0.0380	0.0438	625.16	3.7303	0.9794	2-CH3OH	-0.5825E-02	
		0.1180			0.1190	0.1306	704.48	1.1579	0.9693	MEK	-0.1161E-01	
3	76.40	0.0410	760.00	765.76	0.0530	0.0527	640.24	1.4700	0.9593	CYCLOHEX	0.2575E-03	0.1268E-01
		0.8020			0.7500	0.7249	654.28	1.0168	0.9644	BENZENE	0.2510E-01	
		0.0380			0.0900	0.1011	599.51	3.3765	0.9798	2-CH3OH	-0.1109E-01	
		0.1190			0.1070	0.1213	673.71	1.1191	0.9695	MEK	-0.1427E-01	
4	74.20	0.0530	760.00	759.31	0.0710	0.0657	598.93	1.5010	0.9536	CYCLOHEX	0.5272E-02	0.5921E-02
		0.7500			0.6600	0.6534	611.09	1.0397	0.9636	BENZENE	0.6569E-02	
		0.0900			0.1300	0.1842	536.65	2.8311	0.9805	2-CH3OH	-0.4178E-02	
		0.1070			0.1890	0.0967	627.47	1.0566	0.9697	MEK	-0.7665E-02	
5	73.10	0.0510	760.00	755.53	0.0660	0.0645	579.05	1.5735	0.9580	CYCLOHEX	0.1541E-02	0.2987E-02
		0.6770			0.5920	0.5979	590.33	1.0817	0.9631	BENZENE	-0.5897E-02	
		0.1480			0.2410	0.2366	511.62	2.3096	0.9812	2-CH3OH	0.4433E-02	
		0.1220			0.1010	0.1011	605.29	1.0003	0.9704	MEK	-0.8821E-04	
6	71.00	0.1120	760.00	750.31	0.1510	0.1437	542.50	1.6914	0.9572	CYCLOHEX	0.7325E-02	0.6312E-02
		0.4990			0.4610	0.4736	552.21	1.2368	0.9622	BENZENE	-0.1263E-01	
		0.3160			0.3340	0.3288	466.34	1.6396	0.9816	2-CH3OH	0.5231E-02	
		0.0730			0.0540	0.0539	564.65	0.9491	0.9701	MEK	0.6754E-04	
7	70.20	0.1860	760.00	750.58	0.2350	0.2266	529.05	1.6473	0.9569	CYCLOHEX	0.8393E-02	0.7111E-02
		0.4210			0.3900	0.4042	538.20	1.2839	0.9620	BENZENE	-0.1422E-01	
		0.3520			0.3430	0.3392	449.93	1.5732	0.9814	2-CH3OH	0.3793E-02	
		0.0410			0.0320	0.0300	549.74	0.9640	0.9693	MEK	0.2035E-02	
8	79.20	0.0130	760.00	762.63	0.0250	0.0244	695.90	1.4234	0.9611	CYCLOHEX	0.5764E-03	0.5201E-02
		0.9560			0.9380	0.9282	712.57	1.0005	0.9661	BENZENE	0.9825E-02	
		0.0050			0.0170	0.0209	662.44	4.7006	0.9775	2-CH3OH	-0.3945E-02	
		0.0210			0.0200	0.0265	736.33	1.2567	0.9663	MEK	-0.6458E-02	
9	77.90	0.0250	760.00	760.41	0.0360	0.0328	669.62	1.4244	0.9607	CYCLOHEX	0.3226E-02	0.2878E-02
		0.9380			0.9320	0.9295	685.02	1.0017	0.9657	BENZENE	0.2530E-02	
		0.0170			0.0310	0.0340	627.77	4.4504	0.9780	2-CH3OH	-0.3044E-02	
		0.0200			0.0210	0.0237	706.72	1.2291	0.9667	MEK	-0.2713E-02	
10	77.80	0.0810	760.00	757.22	0.1040	0.1021	667.63	1.3809	0.9607	CYCLOHEX	0.9270E-03	0.8142E-02
		0.8360			0.8020	0.7866	682.95	1.0042	0.9657	BENZENE	0.1536E-01	
		0.0050			0.0110	0.0181	625.16	4.2866	0.9786	2-CH3OH	-0.7134E-02	
		0.0780			0.0830	0.0922	704.48	1.2251	0.9680	MEK	-0.9152E-02	
11	76.80	0.1460	760.00	759.92	0.1810	0.1757	647.98	1.3490	0.9599	CYCLOHEX	0.5338E-02	0.4480E-02
		0.7180			0.6570	0.6577	662.37	1.0108	0.9650	BENZENE	-0.7139E-03	
		0.0070			0.0140	0.0222	599.53	3.9339	0.9793	2-CH3OH	-0.8248E-02	
		0.1290			0.1480	0.1444	682.39	1.2039	0.9692	MEK	0.3621E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	TICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
12	73.20	0.2150	760.00	744.27	0.2530	0.2367	580.84	1.3476	0.9589	CYCLOHEX	0.1626E-01	0.1462E-01
		0.5830			0.4710	0.5002	592.20	1.0362	0.9640	BENZENE	-0.2923E-01	
		0.0550			0.1340	0.1223	513.86	3.1500	0.9805	2-CH3OH	0.1167E-01	
		0.1470			0.1420	0.1407	607.28	1.1344	0.9703	MEK	0.1299E-02	
13	70.10	0.2750	760.00	745.54	0.3010	0.3079	527.39	1.5088	0.9570	CYCLOHEX	-0.6940E-02	0.7783E-02
		0.3540			0.3130	0.3216	536.46	1.2109	0.9622	BENZENE	-0.8627E-02	
		0.2580			0.2910	0.2832	447.91	1.7885	0.9815	2-CH3OH	0.7763E-02	
		0.1130			0.0950	0.0872	547.89	1.0154	0.9702	MEK	0.7801E-02	
14	76.70	0.0350	760.00	759.06	0.0480	0.0498	646.04	1.5930	0.9577	CYCLOHEX	-0.1753E-02	0.6057E-02
		0.5460			0.5260	0.5232	660.35	1.0569	0.9627	BENZENE	0.2775E-02	
		0.0270			0.0420	0.0524	597.02	2.4150	0.9822	2-CH3OH	-0.1036E-01	
		0.3920			0.3840	0.3747	680.21	1.0365	0.9751	MEK	0.9338E-02	
15	75.90	0.0480	760.00	754.10	0.0710	0.0671	630.67	1.5943	0.9576	CYCLOHEX	0.3898E-02	0.2810E-02
		0.5260			0.4990	0.4999	644.26	1.0651	0.9626	BENZENE	0.1197E-03	
		0.0420			0.0710	0.0766	577.16	2.3349	0.9823	2-CH3OH	-0.5622E-02	
		0.3840			0.3590	0.3574	662.97	1.0287	0.9750	MEK	0.1602E-02	
16	74.90	0.0710	760.00	753.81	0.0970	0.0964	611.85	1.5946	0.9574	CYCLOHEX	0.6285E-03	0.5429E-02
		0.4990			0.4760	0.4658	624.59	1.0806	0.9624	BENZENE	0.1023E-01	
		0.0710			0.1070	0.1177	553.06	2.2128	0.9823	2-CH3OH	-0.1067E-01	
		0.3590			0.3200	0.3202	641.90	1.0173	0.9745	MEK	-0.1883E-03	
17	74.00	0.0930	760.00	764.69	0.1620	0.1236	595.28	1.6267	0.9565	CYCLOHEX	0.3837E-01	0.2252E-01
		0.4580			0.4310	0.4259	607.27	1.1222	0.9616	BENZENE	0.5120E-02	
		0.1340			0.1420	0.1870	532.03	1.9650	0.9823	2-CH3OH	-0.4503E-01	
		0.3150			0.2650	0.2635	623.29	0.9954	0.9735	MEK	0.1541E-02	
18	70.10	0.2560	760.00	734.28	0.3280	0.3128	527.39	1.6215	0.9570	CYCLOHEX	0.1525E-01	0.1627E-01
		0.2650			0.2230	0.2555	536.46	1.2658	0.9621	BENZENE	-0.3255E-01	
		0.2810			0.2860	0.2781	447.91	1.5899	0.9825	2-CH3OH	0.7857E-02	
		0.1980			0.1630	0.1536	547.89	1.0072	0.9722	MEK	0.9440E-02	
19	69.50	0.3400	760.00	737.84	0.3850	0.3864	517.49	1.5446	0.9569	CYCLOHEX	-0.1442E-02	0.1073E-01
		0.2250			0.1950	0.2150	526.16	1.2851	0.9621	BENZENE	-0.2002E-01	
		0.2970			0.3020	0.2906	435.94	1.6220	0.9820	2-CH3OH	0.1136E-01	
		0.1380			0.1180	0.1079	536.84	1.0398	0.9709	MEK	0.1009E-01	
20	78.80	0.0060	760.00	760.44	0.0140	0.0104	687.73	1.8086	0.9485	CYCLOHEX	0.3611E-02	0.2599E-01
		0.0750			0.1300	0.0938	704.01	1.1468	0.9534	BENZENE	0.4620E-01	
		0.0170			0.0260	0.0239	651.62	1.6020	0.9817	2-CH3OH	0.2163E-02	
		0.9020			0.8300	0.8820	727.12	0.9998	0.9810	MEK	-0.5198E-01	
21	78.20	0.0140	760.00	759.29	0.0260	0.0235	675.62	1.7885	0.9503	CYCLOHEX	0.2461E-02	0.2129E-01
		0.1300			0.1820	0.1419	691.32	1.1412	0.9552	BENZENE	0.4012E-01	
		0.0260			0.0350	0.0367	635.65	1.6523	0.9824	2-CH3OH	-0.1713E-02	
		0.8300			0.7570	0.7979	713.47	0.9998	0.9806	MEK	-0.4086E-01	
22	75.80	0.0460	760.00	746.89	0.0900	0.0746	628.77	1.8276	0.9528	CYCLOHEX	0.1542E-01	0.7733E-02
		0.1560			0.1570	0.1682	642.27	1.1971	0.9576	BENZENE	-0.1125E-01	
		0.1180			0.1430	0.1430	574.71	1.5441	0.9835	2-CH3OH	0.4727E-04	
		0.6800			0.6100	0.6142	660.84	0.9967	0.9795	MEK	-0.4217E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
23	73.40	0.1270	760.00	736.34	0.2080	0.1849	584.43	1.7449	0.9550	CYCLOHEX	0.2311E-01	0.1205E-01
		0.1910			0.1700	0.1836	595.04	1.1990	0.9599	BENZENE	-0.1356E-01	
		0.1500			0.1720	0.1710	518.36	1.5886	0.9837	2-CH3OH	0.9922E-03	
		0.5420			0.4500	0.4605	611.27	0.9974	0.9777	MEK	-0.1054E-01	
24	70.60	0.2750	760.00	723.36	0.3560	0.3410	535.74	1.5955	0.9568	CYCLOHEX	0.1505E-01	0.1141E-01
		0.1680			0.1360	0.1539	545.17	1.2026	0.9618	BENZENE	-0.2291E-01	
		0.1840			0.2020	0.1989	458.08	1.6741	0.9832	2-CH3OH	0.3070E-02	
		0.3730			0.3060	0.3013	557.15	1.0193	0.9750	MEK	0.4697E-02	
25	69.90	0.3500	760.00	724.54	0.3970	0.4080	524.07	1.5363	0.9569	CYCLOHEX	-0.1102E-01	0.1037E-01
		0.1350			0.1160	0.1257	533.91	1.2139	0.9620	BENZENE	-0.9723E-02	
		0.1990			0.2190	0.2114	443.89	1.6995	0.9830	2-CH3OH	0.7630E-02	
		0.3160			0.2680	0.2549	544.22	1.0426	0.9740	MEK	0.1312E-01	
26	77.50	0.0050	760.00	755.08	0.0150	0.0096	661.69	2.0754	0.9488	CYCLOHEX	0.5377E-02	0.8369E-02
		0.0160			0.0190	0.0204	676.72	1.3514	0.9535	BENZENE	-0.1390E-02	
		0.2370			0.2620	0.2506	617.39	1.2680	0.9831	2-CH3OH	0.1136E-01	
		0.7420			0.7040	0.7194	697.80	1.0253	0.9806	MEK	-0.1535E-01	
27	75.10	0.0430	760.00	734.46	0.1040	0.0791	615.58	2.0832	0.9525	CYCLOHEX	0.2487E-01	0.1452E-01
		0.0640			0.0720	0.0804	628.49	1.4015	0.9573	BENZENE	-0.8441E-02	
		0.3020			0.2970	0.2928	557.82	1.2533	0.9843	2-CH3OH	0.4165E-02	
		0.5910			0.5270	0.5476	646.07	1.0286	0.9797	MEK	-0.2060E-01	
28	72.50	0.1300	760.00	718.63	0.2280	0.2100	568.42	1.9429	0.9549	CYCLOHEX	0.1798E-01	0.9572E-02
		0.0720			0.0680	0.0829	579.24	1.3666	0.9597	BENZENE	-0.1490E-01	
		0.2910			0.2640	0.2682	498.35	1.3096	0.9845	2-CH3OH	-0.4244E-02	
		0.5030			0.4400	0.4338	593.45	1.0202	0.9784	MEK	0.1165E-02	
29	70.10	0.3060	760.00	721.80	0.3900	0.3901	527.29	1.6624	0.9565	CYCLOHEX	-0.1068E-03	0.5838E-02
		0.0840			0.0760	0.0836	536.46	1.2841	0.9615	BENZENE	-0.7649E-02	
		0.2480			0.2310	0.2349	447.91	1.4972	0.9835	2-CH3OH	-0.3920E-02	
		0.3620			0.3030	0.2913	547.89	1.0305	0.9751	MEK	0.1168E-01	
30	69.50	0.3760	760.00	720.76	0.4300	0.4423	517.49	1.5616	0.9569	CYCLOHEX	-0.1229E-01	0.1076E-01
		0.0330			0.0700	0.0792	526.16	1.2539	0.9619	BENZENE	-0.9237E-02	
		0.2230			0.2210	0.2260	435.94	1.6070	0.9831	2-CH3OH	0.4971E-02	
		0.3130			0.2690	0.2524	536.94	1.0512	0.9742	MEK	0.1656E-01	
31	73.70	0.0080	760.00	755.83	0.0170	0.0135	589.84	2.0528	0.9561	CYCLOHEX	0.3542E-02	0.1378E-01
		0.3640			0.3940	0.4216	601.59	1.3937	0.9610	BENZENE	-0.2755E-01	
		0.3950			0.3850	0.3653	525.16	1.3394	0.9836	2-CH3OH	0.1972E-01	
		0.2430			0.2040	0.1997	617.31	0.9772	0.9743	MEK	0.4284E-02	
32	71.90	0.0430	760.00	753.19	0.0700	0.0633	557.94	1.8933	0.9570	CYCLOHEX	0.6725E-02	0.4658E-02
		0.4790			0.4910	0.5002	568.31	1.3273	0.9620	BENZENE	-0.9317E-02	
		0.3940			0.3680	0.3658	485.35	1.4481	0.9823	2-CH3OH	0.2193E-02	
		0.1040			0.0710	0.0706	581.79	0.9411	0.9711	MEK	0.3988E-03	
33	71.00	0.0990	760.00	751.53	0.1380	0.1327	542.50	1.7702	0.9570	CYCLOHEX	0.5281E-02	0.6827E-02
		0.4760			0.4610	0.4722	552.21	1.2946	0.9621	BENZENE	-0.1122E-01	
		0.3670			0.3610	0.3526	466.34	1.5159	0.9818	2-CH3OH	0.8371E-02	
		0.0580			0.0400	0.0424	564.65	0.9415	0.9700	MEK	-0.2438E-02	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
34	69.80	0.2360	760.00	750.52	0.2670	0.2754	522.42	1.5974	0.9568	CYCLOHEX	-0.8371E-02	0.1037E-01
		0.3840			0.3550	0.3674	531.29	1.2957	0.9620	BENZENE	-0.1238E-01	
		0.3570			0.3580	0.3404	441.99	1.5843	0.9812	2-CH3OH	0.1764E-01	
		0.0230			0.0200	0.0169	542.39	0.9814	0.9688	MEK	0.3105E-02	
35	73.90	0.0750	760.00	736.64	0.1460	0.1190	593.46	1.8723	0.9546	CYCLOHEX	0.2702E-01	0.1758E-01
		0.1820			0.1800	0.1980	605.37	1.2660	0.9595	BENZENE	-0.1799E-01	
		0.2130			0.2340	0.2259	529.73	1.4470	0.9840	2-CH3OH	0.8136E-02	
		0.5300			0.4400	0.4572	621.35	0.9970	0.9781	MEK	-0.1718E-01	
36	72.40	0.1460	760.00	734.76	0.2300	0.2124	566.67	1.7952	0.9556	CYCLOHEX	0.1763E-01	0.1069E-01
		0.1900			0.1660	0.1874	577.41	1.2683	0.9605	BENZENE	-0.2138E-01	
		0.2320			0.2370	0.2350	496.17	1.4718	0.9838	2-CH3OH	0.1976E-02	
		0.4420			0.3670	0.3652	591.69	0.9991	0.9765	MEK	0.1777E-02	
37	72.50	0.7470	760.00	735.62	0.6030	0.6628	568.42	1.0967	0.9588	CYCLOHEX	-0.5981E-01	0.2990E-01
		0.0760			0.0720	0.0678	579.24	1.0891	0.9640	BENZENE	0.4174E-02	
		0.0100			0.0440	0.0338	498.35	4.8739	0.9810	2-CH3OH	0.1025E-01	
		0.1670			0.2810	0.2356	593.45	1.6937	0.9716	MEK	0.4538E-01	
38	70.00	0.5480	760.00	727.20	0.5210	0.5453	525.73	1.3123	0.9572	CYCLOHEX	-0.2430E-01	0.1437E-01
		0.0530			0.0410	0.0455	534.74	1.1187	0.9623	BENZENE	-0.4452E-02	
		0.0900			0.1380	0.1301	445.90	2.3092	0.9823	2-CH3OH	0.7919E-02	
		0.3090			0.3000	0.2792	546.06	1.1675	0.9735	MEK	0.2083E-01	
39	69.40	0.5980	760.00	726.29	0.5060	0.5357	515.86	1.4147	0.9567	CYCLOHEX	-0.2967E-01	0.1587E-01
		0.0200			0.0300	0.0180	524.46	1.1928	0.9619	BENZENE	0.1203E-01	
		0.1640			0.1940	0.1861	433.97	1.8607	0.9827	2-CH3OH	-0.2075E-02	
		0.3080			0.2800	0.2603	535.13	1.1130	0.9737	MEK	0.1971E-01	
40	69.60	0.4950	760.00	730.12	0.4910	0.5283	519.13	1.4300	0.9565	CYCLOHEX	-0.3727E-01	0.1966E-01
		0.0290			0.0160	0.0130	527.87	1.1965	0.9617	BENZENE	-0.2049E-02	
		0.1670			0.1980	0.1868	437.92	1.8274	0.9827	2-CH3OH	0.1122E-01	
		0.3130			0.2950	0.2669	538.75	1.1039	0.9737	MEK	0.2809E-01	
41	76.50	0.4660	760.00	748.65	0.4580	0.4592	642.17	1.0994	0.9607	CYCLOHEX	-0.1235E-02	0.6245E-02
		0.5100			0.4870	0.4993	656.29	1.0728	0.9658	BENZENE	-0.1126E-01	
		0.0010			0.0120	0.0054	592.01	6.6535	0.9776	2-CH3OH	0.6603E-02	
		0.0230			0.0430	0.0371	675.87	1.7212	0.9661	MEK	0.5884E-02	
42	73.80	0.4220	760.00	754.94	0.4200	0.4244	591.64	1.2050	0.9586	CYCLOHEX	-0.4420E-02	0.9925E-02
		0.3870			0.3440	0.3369	603.48	1.0459	0.9638	BENZENE	0.7136E-02	
		0.0200			0.0400	0.0554	527.44	3.3767	0.9801	2-CH3OH	-0.1543E-01	
		0.1640			0.1960	0.1833	619.33	1.3173	0.9701	MEK	0.1271E-01	
43	70.40	0.4060	760.00	747.11	0.4110	0.4264	532.39	1.4042	0.9566	CYCLOHEX	-0.1540E-01	0.1050E-01
		0.2040			0.1740	0.1796	541.68	1.1641	0.9618	BENZENE	-0.5606E-02	
		0.1700			0.2190	0.2111	453.99	2.0011	0.9818	2-CH3OH	0.7865E-02	
		0.2200			0.1960	0.1829	553.43	1.0366	0.9717	MEK	0.1314E-01	
44	69.20	0.4360	760.00	732.27	0.4470	0.4703	512.60	1.4687	0.9570	CYCLOHEX	-0.2326E-01	0.1539E-01
		0.1310			0.1150	0.1225	521.07	1.2604	0.9621	BENZENE	-0.7511E-02	
		0.2520			0.2720	0.2595	430.05	1.7177	0.9822	2-CH3OH	0.1248E-01	
		0.1810			0.1660	0.1477	531.53	1.0889	0.9717	MEK	0.1829E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
45	69.10	0.4670	760.00	735.67	0.4790	0.4941	510.97	1.4519	0.9568	CYCLOHEX	-0.1515E-01	0.1476E-01
		0.1160			0.0950	0.1074	519.38	1.2805	0.9620	BENZENE	-0.1436E-01	
		0.2670			0.2850	0.2725	428.10	1.7178	0.9820	2-CH3OH	0.1247E-01	
		0.1500			0.1410	0.1240	529.74	1.1108	0.9711	MEK	0.1704E-01	
46	70.10	0.7210	760.00	757.16	0.5890	0.5961	527.39	1.1311	0.9567	CYCLOHEX	-0.7150E-02	0.4800E-02
		0.1130			0.0960	0.0985	536.46	1.1791	0.9621	BENZENE	-0.2453E-02	
		0.1250			0.2590	0.2562	447.91	3.3875	0.9805	2-CH3OH	0.2807E-02	
		0.0410			0.0560	0.0492	547.89	1.6006	0.9683	MEK	0.6792E-02	
47	69.20	0.6070	760.00	749.78	0.5310	0.5676	512.60	1.3029	0.9565	CYCLOHEX	-0.3658E-01	0.1829E-01
		0.0910			0.0870	0.0843	521.07	1.2785	0.9618	BENZENE	0.2654E-02	
		0.2480			0.3130	0.2977	430.05	2.0474	0.9811	2-CH3OH	0.1533E-01	
		0.0540			0.0690	0.0504	531.53	1.2717	0.9690	MEK	0.1859E-01	
48	69.10	0.5080	760.00	746.94	0.5160	0.5399	510.97	1.4798	0.9564	CYCLOHEX	-0.2390E-01	0.1221E-01
		0.0770			0.0770	0.0775	519.38	1.3875	0.9616	BENZENE	-0.5105E-03	
		0.3420			0.3290	0.3208	428.10	1.6021	0.9816	2-CH3OH	0.8188E-02	
		0.0730			0.0780	0.0618	529.74	1.1532	0.9697	MEK	0.1622E-01	
49	69.60	0.4670	760.00	748.68	0.4580	0.4458	519.13	1.3120	0.9569	CYCLOHEX	0.1221E-01	0.6420E-02
		0.2550			0.2110	0.2225	527.87	1.1867	0.9621	BENZENE	-0.1149E-01	
		0.2070			0.2690	0.2703	437.92	2.1841	0.9809	2-CH3OH	-0.1349E-02	
		0.0710			0.0620	0.0614	538.75	1.1601	0.9691	MEK	0.6314E-03	
50	80.20	0.0040	760.00	743.97	0.0160	0.0142	716.63	3.5000	0.9545	CYCLOHEX	0.1815E-02	0.1090E-01
		0.0050			0.0340	0.0142	734.32	2.7429	0.9587	BENZENE	0.1983E-01	
		0.9170			0.8450	0.8669	690.08	1.0025	0.9865	2-CH3OH	-0.2180E-01	
		0.0740			0.1050	0.1049	759.75	1.3519	0.9775	MEK	0.1435E-03	
51	78.10	0.0140	760.00	741.69	0.0520	0.0430	673.61	3.2202	0.9551	CYCLOHEX	0.8960E-02	0.7264E-02
		0.0340			0.0770	0.0821	689.22	2.4867	0.9595	BENZENE	-0.5149E-02	
		0.8490			0.7360	0.7454	633.01	1.0116	0.9862	2-CH3OH	-0.9381E-02	
		0.1030			0.1350	0.1294	711.21	1.2763	0.9771	MEK	0.5564E-02	
52	75.90	0.0380	760.00	747.23	0.1060	0.0956	630.67	2.8351	0.9552	CYCLOHEX	0.1043E-01	0.6853E-02
		0.0710			0.1310	0.1377	644.26	2.1521	0.9598	BENZENE	-0.6712E-02	
		0.7410			0.5980	0.6050	577.16	1.0388	0.9854	2-CH3OH	-0.6994E-02	
		0.1500			0.1650	0.1617	662.97	1.1824	0.9762	MEK	0.3280E-02	
53	70.90	0.1650	760.00	736.25	0.2700	0.2561	540.81	2.0134	0.9566	CYCLOHEX	0.1390E-01	0.8147E-02
		0.1910			0.2190	0.2318	550.44	1.5561	0.9616	BENZENE	-0.1293E-01	
		0.4820			0.3780	0.3815	464.27	1.2308	0.9834	2-CH3OH	-0.3465E-02	
		0.1620			0.1330	0.1306	562.76	1.0229	0.9730	MEK	0.2391E-02	
54	70.00	0.2740	760.00	744.59	0.3530	0.3498	525.73	1.7224	0.9565	CYCLOHEX	0.3219E-02	0.7153E-02
		0.2050			0.2010	0.2153	534.74	1.4017	0.9616	BENZENE	-0.1431E-01	
		0.3960			0.3330	0.3335	445.90	1.4088	0.9823	2-CH3OH	0.2451E-02	
		0.1350			0.1130	0.1044	546.06	1.0204	0.9712	MEK	0.8634E-02	
55	69.20	0.3820	760.00	738.90	0.4120	0.4310	512.60	1.5499	0.9568	CYCLOHEX	-0.1898E-01	0.1672E-01
		0.1780			0.1610	0.1755	521.07	1.3403	0.9620	BENZENE	-0.1446E-01	
		0.3340			0.3330	0.3097	430.05	1.5602	0.9819	2-CH3OH	0.2325E-01	
		0.1060			0.0940	0.0838	531.53	1.0631	0.9705	MEK	0.1019E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
56	72.10	0.0230	760.00	753.16	0.0490	0.0450	561.42	2.0536	0.9569	CYCLOHEX	0.4024E-02	0.5616E-02
		0.4270			0.4790	0.4902	571.94	1.4493	0.9618	BENZENE	-0.1123E-01	
		0.4700			0.4140	0.4075	489.66	1.3069	0.9826	2-CH3OH	0.6458E-02	
		0.0750			0.0580	0.0573	585.66	0.9504	0.9714	MEK	0.7491E-03	
57	71.30	0.0560	760.00	749.58	0.0840	0.0801	547.61	1.8672	0.9572	CYCLOHEX	0.3872E-02	0.3174E-02
		0.4040			0.5040	0.5097	557.54	1.3302	0.9622	BENZENE	-0.5664E-02	
		0.4000			0.3760	0.3735	472.61	1.4503	0.9820	2-CH3OH	0.2475E-02	
		0.0500			0.0360	0.0367	570.32	0.9326	0.9703	MEK	-0.6857E-03	
58	70.70	0.1540	760.00	741.32	0.2460	0.2339	537.43	1.9961	0.9568	CYCLOHEX	0.1214E-01	0.1111E-01
		0.2480			0.2740	0.2962	546.92	1.5520	0.9618	BENZENE	-0.2222E-01	
		0.5000			0.3960	0.3934	460.13	1.2423	0.9828	2-CH3OH	0.2634E-02	
		0.1980			0.0840	0.0766	559.02	1.9032	0.9717	MEK	0.7445E-02	

CYCLOHEXANE(1) - BENZENE(2) - 2-PROPANOL(3) - MEK(4) SYSTEM 069

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
553.20	40.00	311.20	0.210	0.0	0.0	0.0	CYCLOHEX	9
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
508.50	47.00	218.50	0.668	0.187	1.660	0.0	2-CH3OH	22
533.20	39.50	288.40	0.337	0.215	2.700	0.0	MEK	28

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS

A	B	C	COMPONENT
0.68450E 01	0.12035E 04	0.22286E 03	CYCLOHEX
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE
0.66604E 01	0.81305E 03	0.13293E 03	2-CH3OH
0.69742E 01	0.12096E 04	0.21600E 03	MEK

MOLAR VOLUME EQUATION COEFFICIENTS

COMPONENT	A	B	C
CYCLOHEX	0.9291E 02	-0.2486E-01	0.2616E-03
BENZENE	0.7086E 02	0.1491E-01	0.1588E-03
2-CH3OH	0.1418E 03	-0.4981E 00	0.9287E-03
MEK	0.7119E 02	0.9660E-02	0.1810E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
219.59	93.10	CYCLOHEX - BENZENE	232	1
266.01	1525.84	CYCLOHEX - 2-CH3OH	64	0
-288.79	1368.94	CYCLOHEX - MEK	268	1
504.38	750.46	BENZENE - 2-CH3OH	233	0
42.98	74.41	BENZENE - MEK	237	1
104.90	429.93	2-CH3OH - MEK	239	1

HALA CONSISTENCY TEST

CI(1)	10.5337
CI(2)	0.0550
CI(3)	3.7283

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.1473E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.1293E-01
COMPONENT 2	0.1100E-01
COMPONENT 3	0.1408E-01
COMPONENT 4	0.7530E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.1138E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	63.70	0.0460	500.00	493.23	0.0930	0.0736	429.00	1.7687	0.9647	CYCLOHEX	0.1945E-01	0.9760E-02
		0.1560			0.1580	0.1689	434.25	1.1876	0.9683	BENZENE	-0.1083E-01	
		0.1180			0.1330	0.1417	332.57	1.7557	0.9877	2-CH3OH	-0.8695E-02	
		0.6820			0.6160	0.6159	439.68	0.9984	0.9848	MEK	0.7033E-04	
2	59.30	0.0920	500.00	491.65	0.1460	0.1364	370.96	1.7672	0.9683	CYCLOHEX	0.9630E-02	0.8547E-02
		0.4760			0.4920	0.4745	373.28	1.2735	0.9720	BENZENE	0.7459E-02	
		0.3670			0.3320	0.3458	267.82	1.7037	0.9867	2-CH3OH	-0.1385E-01	
		0.0580			0.0400	0.0433	375.61	0.9523	0.9778	MEK	-0.3252E-02	
3	60.40	0.1460	503.00	480.13	0.2400	0.2111	384.17	1.7432	0.9671	CYCLOHEX	0.2888E-01	0.1719E-01
		0.1800			0.1720	0.1850	387.95	1.2327	0.9707	BENZENE	-0.1304E-01	
		0.2320			0.2150	0.2263	282.98	1.7047	0.9881	2-CH3OH	-0.2133E-01	
		0.4420			0.3730	0.3675	390.89	1.0014	0.9827	MEK	0.5491E-02	
4	60.80	0.2150	500.00	479.73	0.2530	0.2424	389.40	1.3440	0.9700	CYCLOHEX	0.1057E-01	0.1655E-01
		0.5930			0.4780	0.5111	393.26	1.0391	0.9737	BENZENE	-0.3310E-01	
		0.0550			0.1280	0.1120	288.66	3.3302	0.9857	2-CH3OH	0.1599E-01	
		0.1470			0.1410	0.1345	396.56	1.0798	0.9780	MEK	0.6545E-02	
5	58.30	0.2750	500.00	485.15	0.3190	0.3091	357.59	1.4730	0.9684	CYCLOHEX	0.9867E-02	0.9118E-02
		0.3540			0.3190	0.3235	360.41	1.1932	0.9722	BENZENE	-0.4471E-02	
		0.2580			0.2670	0.2808	254.59	2.0421	0.9866	2-CH3OH	-0.1377E-01	
		0.1130			0.0950	0.0866	362.14	1.0023	0.9780	MEK	0.8365E-02	
6	57.40	0.5040	500.00	484.13	0.5390	0.5415	346.65	1.4372	0.9680	CYCLOHEX	-0.2455E-02	0.9363E-02
		0.0770			0.0810	0.0782	349.12	1.3653	0.9719	BENZENE	0.2824E-02	
		0.3420			0.2960	0.3123	243.14	1.7906	0.9867	2-CH3OH	-0.1627E-01	
		0.0730			0.0840	0.0681	350.35	1.2577	0.9778	MEK	0.1590E-01	
7	57.50	0.6070	500.00	485.85	0.5590	0.5687	347.95	1.2634	0.9692	CYCLOHEX	-0.9653E-02	0.9171E-02
		0.0910			0.0910	0.0857	350.36	1.2672	0.9720	BENZENE	0.5258E-02	
		0.2480			0.2820	0.2907	244.39	2.2941	0.9863	2-CH3OH	-0.8690E-02	
		0.0540			0.0680	0.0549	351.64	1.3701	0.9773	MEK	0.1308E-01	

CYCLOHEXANE(1) - BENZENE(2) - 2-PROPANOL(3) - MEK(4) SYSTEM 070

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
553.20	40.00	311.20	0.210	0.0	0.0	0.0	CYCLOHEX	9
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5
508.50	47.00	218.50	0.663	0.187	1.660	0.0	2-CH3OH	22
533.20	39.50	288.40	0.337	0.215	2.700	0.0	MEK	28

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.68450E 01	0.12035E 04	0.22286E 03	CYCLOHEX	0.9291E 02	-0.2486E-01	0.2616E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7096E 02	0.1491E-01	0.1588E-03
0.66604E 01	0.81305E 03	0.13293E 03	2-CH3OH	0.1416E 03	-0.4981E 00	0.9287E-03
0.69742E 01	0.12096E 04	0.21600E 03	MEK	0.7119E 02	0.9660E-02	0.1810E-03

BINARY INTERACTION PARAMETERS
MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
219.58	93.10	CYCLOHEX - BENZENE	232	1
266.01	1525.84	CYCLOHEX - 2-CH3OH	64	0
-288.79	1369.94	CYCLOHEX - MEK	288	1
504.38	750.46	BENZENE - 2-CH3OH	233	0
42.98	74.41	BENZENE - MEK	237	1
104.90	429.93	2-CH3OH - MEK	239	1

HALA CONSISTENCY TEST

CI(1)	10.5337
CI(2)	0.0550
CI(3)	3.7283

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.1861E 02
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.2210E-01
COMPONENT 2	0.1235E-01
COMPONENT 3	0.9617E-02
COMPONENT 4	0.7152E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.1280E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FUGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	54.70	0.0460	360.00	349.75	0.0900	0.0756	315.39	1.7687	0.9725	CYCLOHEX	0.1441E-01	0.7219E-02
		0.1560			0.1640	0.1732	316.93	1.1930	0.9753	BENZENE	-0.9197E-02	
		0.1180			0.1280	0.1280	211.20	1.7763	0.9904	2-CH3OH	0.2927E-04	
		0.6800			0.6180	0.6232	316.79	0.9983	0.9981	MEK	-0.5243E-02	
2	50.70	0.0990	360.00	344.11	0.1520	0.1439	273.18	1.7834	0.9757	CYCLOHEX	0.8072E-02	0.5950E-02
		0.4760			0.5000	0.4962	273.58	1.2810	0.9786	BENZENE	0.3824E-02	
		0.3670			0.3050	0.3155	170.10	1.7190	0.9896	2-CH3OH	-0.1053E-01	
		0.0580			0.0430	0.0444	271.83	0.9502	0.9827	MEK	-0.1373E-02	
3	51.20	0.1460	357.00	331.82	0.2600	0.2200	278.20	1.7488	0.9750	CYCLOHEX	0.4003E-01	0.2002E-01
		0.1930			0.1730	0.1921	278.73	1.2404	0.9777	BENZENE	-0.1911E-01	
		0.2320			0.1960	0.2130	174.86	1.7239	0.9909	2-CH3OH	-0.1696E-01	
		0.4420			0.3710	0.3750	277.15	1.0007	0.9867	MEK	-0.3971E-02	
4	51.30	0.2150	357.00	335.15	0.2830	0.2482	279.21	1.3509	0.9768	CYCLOHEX	0.3483E-01	0.1945E-01
		0.5830			0.4920	0.5190	279.76	1.0412	0.9797	BENZENE	-0.3603E-01	
		0.0550			0.0970	0.0999	175.82	3.4189	0.9889	2-CH3OH	-0.2876E-02	
		0.1470			0.1380	0.1330	278.22	1.0771	0.9829	MEK	0.4070E-02	
5	49.50	0.2750	359.00	338.74	0.3300	0.3229	261.43	1.4816	0.9758	CYCLOHEX	0.7130E-02	0.8565E-02
		0.3540			0.3240	0.3357	261.54	1.2003	0.9787	BENZENE	-0.1174E-01	
		0.2590			0.2480	0.2534	159.11	2.0665	0.9896	2-CH3OH	-0.5396E-02	
		0.1130			0.0980	0.0880	259.39	0.9981	0.9829	MEK	0.9997E-02	
6	48.90	0.5080	360.00	340.36	0.5630	0.5667	255.71	1.4457	0.9754	CYCLOHEX	-0.3721E-02	0.5172E-02
		0.0770			0.0900	0.0917	255.68	1.3791	0.9784	BENZENE	-0.1659E-02	
		0.3420			0.2770	0.2820	153.83	1.8029	0.9896	2-CH3OH	-0.4967E-02	
		0.0730			0.0800	0.0697	253.34	1.2578	0.9826	MEK	0.1034E-01	
7	49.00	0.6070	360.00	342.82	0.5460	0.5925	256.65	1.2694	0.9754	CYCLOHEX	-0.4651E-01	0.2325E-01
		0.1910			0.0940	0.0891	256.65	1.2779	0.9784	BENZENE	0.4880E-02	
		0.2480			0.2890	0.2624	154.70	2.3169	0.9893	2-CH3OH	0.2656E-01	
		0.0540			0.0710	0.0559	254.34	1.3691	0.9822	MEK	0.1507E-01	

METHY ETHYL KETONE(1) - 2-PROPANOL(2) - WATER(3) SYSTEM 071

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
533.20	39.50	288.40	0.337	0.215	2.700	0.0	MEK	28
508.30	47.00	218.50	0.663	0.187	1.600	0.0	ISOCH3OH	22
647.40	218.30	55.20	0.344	0.010	1.850	0.0	WATER	34

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.69742E 01	0.12096E 04	0.21600E 03	MEK	0.7119E 02	0.9660E-02	0.1810E-03
0.66604E 01	0.81305E 03	0.13293E 03	ISOCH3OH	0.1418E 03	-0.4981E 00	0.9287E-03
0.79668E 01	0.16682E 04	0.22800E 03	WATER	0.2289E 02	-0.3642E-01	0.6856E-04

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-123.96	431.86	MEK - ISOCH3OH	240	0
1012.37	1969.90	MEK - WATER	169	0
682.17	1337.98	ISOCH3OH - WATER	201	0

HALA CONSISTENCY TEST

CI(1) 0.7903

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS. 0.1740E 02

MEAN ABS. DEV. IN COMPOSITION CALCS.

COMPONENT 1	0.8943E-02
COMPONENT 2	0.1233E-01
COMPONENT 3	0.1440E-01

GRAND MEAN ABS. DEV. IN COMPOSITION CALCS. 0.1189E-01

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	77.70	0.0800	760.00	774.68	0.3290	0.3183	702.25	4.2574	0.9734	MEK	0.1074E-01	0.1396E-01
		0.1360			0.2670	0.2879	622.56	2.5914	0.9864	ISOCH3OH	-0.2095E-01	
		0.7840			0.4040	0.3938	322.21	1.1969	0.9868	WATER	0.1020E-01	
2	74.40	0.3930	760.00	773.15	0.5560	0.5470	631.56	1.6702	0.9761	MEK	0.9000E-02	0.1469E-01
		0.1070			0.0960	0.1190	541.30	1.5490	0.9859	ISOCH3OH	-0.2204E-01	
		0.5000			0.3480	0.3350	281.03	1.7984	0.9823	WATER	0.1303E-01	
3	79.10	0.0630	760.00	787.78	0.1230	0.1253	734.02	2.0658	0.9711	MEK	-0.2304E-02	0.4532E-02
		0.4810			0.5130	0.5175	659.72	1.2627	0.9858	ISOCH3OH	-0.4495E-02	
		0.4560			0.3640	0.3572	341.14	1.7874	0.9887	WATER	0.6797E-02	
4	88.40	0.0040	760.00	737.66	0.1780	0.1459	974.03	26.7524	0.9714	MEK	0.3207E-01	0.2138E-01
		0.0130			0.1790	0.1905	950.83	11.1923	0.9874	ISOCH3OH	-0.1146E-01	
		0.9830			0.6430	0.6636	492.06	1.0029	0.9916	WATER	-0.2061E-01	
5	75.60	0.0720	760.00	736.13	0.4760	0.4624	656.60	7.0049	0.9761	MEK	0.1361E-01	0.9137E-02
		0.0430			0.1340	0.1477	569.85	4.3680	0.9870	ISOCH3OH	-0.1371E-01	
		0.8850			0.3900	0.3899	295.46	1.0808	0.9852	WATER	0.9513E-04	
6	73.80	0.5220	760.00	767.38	0.5390	0.5958	619.33	1.3768	0.9768	MEK	-0.6829E-02	0.1267E-01
		0.0850			0.0730	0.0852	527.44	1.4330	0.9857	ISOCH3OH	-0.1218E-01	
		0.3930			0.3380	0.3190	274.04	2.2228	0.9812	WATER	0.1900E-01	
7	73.90	0.5630	760.00	771.99	0.5980	0.6021	621.35	1.2933	0.9768	MEK	-0.4081E-02	0.9719E-02
		0.0920			0.0780	0.0885	529.73	1.3775	0.9856	ISOCH3OH	-0.1050E-01	
		0.3450			0.3240	0.3094	275.20	2.4659	0.9809	WATER	0.1457E-01	
8	77.50	0.1000	760.00	779.80	0.3330	0.3254	697.80	3.5270	0.9734	MEK	0.7647E-02	0.1037E-01
		0.1620			0.2740	0.2896	617.39	2.2202	0.9863	ISOCH3OH	-0.1555E-01	
		0.7380			0.3930	0.3851	319.58	1.2552	0.9865	WATER	0.7904E-02	
9	74.10	0.3600	760.00	764.25	0.6000	0.5931	625.42	1.9763	0.9767	MEK	0.1867E-02	0.7177E-02
		0.0410			0.0450	0.0558	534.33	1.9128	0.9860	ISOCH3OH	-0.1077E-01	
		0.5990			0.3550	0.3461	277.52	1.5611	0.9817	WATER	0.8895E-02	
10	76.40	0.2160	760.00	785.12	0.3530	0.3524	673.71	1.8451	0.9739	MEK	0.6323E-03	0.8455E-02
		0.3040			0.2960	0.3087	589.51	1.4295	0.9860	ISOCH3OH	-0.1269E-01	
		0.4800			0.3510	0.3390	305.42	1.7876	0.9854	WATER	0.1205E-01	
11	76.80	0.2550	760.00	781.43	0.3230	0.3168	682.39	1.3821	0.9749	MEK	0.6196E-02	0.1127E-01
		0.5340			0.4510	0.4403	599.53	1.0564	0.9858	ISOCH3OH	0.1070E-01	
		0.2110			0.2260	0.2429	310.51	2.8520	0.9851	WATER	-0.1690E-01	
12	76.60	0.3910	760.00	776.80	0.4250	0.4160	678.04	1.2178	0.9768	MEK	0.8959E-02	0.1826E-01
		0.5060			0.4330	0.4146	594.51	1.0519	0.9855	ISOCH3OH	0.1844E-01	
		0.1130			0.1420	0.1694	307.95	3.7134	0.9827	WATER	-0.2740E-01	
13	75.90	0.4950	760.00	776.86	0.5130	0.5002	662.97	1.1532	0.9773	MEK	0.1282E-01	0.1645E-01
		0.3920			0.3360	0.3241	577.16	1.0933	0.9852	ISOCH3OH	0.1186E-01	
		0.1130			0.1510	0.1757	299.16	3.9583	0.9811	WATER	-0.2468E-01	

MULTICOMPONENT SOLUTION RESULTS (CONT.)

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FICI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
14	78.00	0.2130	760.00	774.19	0.2740	0.2677	708.97	1.3345	0.9758	MEK	0.6337E-02	0.1535E-01
		0.6760			0.5870	0.5703	630.39	1.0186	0.9859	ISOCH3OH	0.1668E-01	
		0.1110			0.1390	0.1620	326.19	3.4113	0.9853	WATER	-0.2302E-01	
15	75.40	0.7750	760.00	779.91	0.7050	0.6939	652.37	1.0439	0.9785	MEK	0.1106E-01	0.9561E-02
		0.1260			0.1230	0.1197	565.01	1.2872	0.9843	ISOCH3OH	0.3278E-02	
		0.0990			0.1720	0.1863	293.01	4.8929	0.9773	WATER	-0.1434E-01	
16	74.70	0.6740	760.00	778.87	0.6300	0.6211	637.75	1.0963	0.9776	MEK	0.8943E-02	0.7306E-02
		0.1690			0.1510	0.1490	548.33	1.2298	0.9849	ISOCH3OH	0.2012E-02	
		0.1570			0.2190	0.2300	284.58	3.9233	0.9793	WATER	-0.1096E-01	

HEXANE(1) - CYCLOHEXANE(2) - BENZENE(3) SYSTEM 072

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
507.90	29.90	372.40	0.298	0.0	0.0	0.0	HEXANE	18
553.20	40.00	311.20	0.210	0.0	0.0	0.0	CYCLOHEX	9
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.68778E 01	0.11715E 04	0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03
0.68450E 01	0.12035E 04	0.22236E 03	CYCLOHEX	0.9291E 02	-0.2486E-01	0.2616E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-401.41	521.61	HEXANE - CYCLOHEX	235	0
375.19	151.12	HEXANE - BENZENE	120	0
103.60	193.58	CYCLOHEX - BENZENE	25	1

HALA CONSISTENCY TEST

CI(1) -0.2212

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.1981E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.7249E-02
COMPONENT 2	0.8723E-02
COMPONENT 3	0.6333E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.7435E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	PICL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	10.00	0.1200	58.67	56.33	0.1870	0.1799	74.94	1.1183	0.9930	HEXANE	0.7124E-02	0.6123E-02
		0.3930			0.3660	0.3639	47.22	1.0972	0.9935	CYCLOHEX	0.2064E-02	
		0.4870			0.4470	0.4562	45.31	1.1575	0.9943	BENZENE	-0.9181E-02	
2	10.00	0.1500	56.14	56.70	0.2200	0.2107	74.94	1.0549	0.9929	HEXANE	0.9309E-02	0.6204E-02
		0.4820			0.4190	0.4260	47.22	1.0541	0.9935	CYCLOHEX	-0.7003E-02	
		0.3680			0.3610	0.3633	45.31	1.2280	0.9942	BENZENE	-0.2300E-02	
3	10.00	0.2150	60.68	58.03	0.2930	0.2895	74.94	1.0346	0.9928	HEXANE	0.8506E-02	0.5668E-02
		0.4950			0.4100	0.4180	47.22	1.0305	0.9933	CYCLOHEX	-0.8016E-02	
		0.2900			0.2920	0.2925	45.31	1.2836	0.9941	BENZENE	-0.4821E-03	
4	10.00	0.3360	64.25	61.41	0.4270	0.4288	74.94	1.0374	0.9923	HEXANE	-0.1843E-02	0.1232E-02
		0.4040			0.3180	0.3175	47.22	1.0145	0.9929	CYCLOHEX	0.5188E-03	
		0.2600			0.2550	0.2537	45.31	1.3136	0.9938	BENZENE	0.1334E-02	
5	10.00	0.2510	63.51	61.00	0.3530	0.3557	74.94	1.1442	0.9924	HEXANE	-0.2664E-02	0.6522E-02
		0.2560			0.2210	0.2112	47.22	1.0580	0.9930	CYCLOHEX	0.9788E-02	
		0.4930			0.4260	0.4331	45.31	1.1750	0.9938	BENZENE	-0.7115E-02	
6	10.00	0.1790	60.93	59.40	0.3100	0.3062	74.94	1.3452	0.9926	HEXANE	0.3805E-02	0.1081E-01
		0.1360			0.1350	0.1226	47.22	1.1257	0.9932	CYCLOHEX	0.1242E-01	
		0.6850			0.5550	0.5712	45.31	1.0862	0.9940	BENZENE	-0.1622E-01	
7	10.00	0.3330	65.43	64.99	0.4600	0.4632	74.94	1.1959	0.9919	HEXANE	-0.3232E-02	0.9049E-02
		0.1120			0.0960	0.0824	47.22	1.0049	0.9925	CYCLOHEX	0.1357E-01	
		0.5550			0.4440	0.4543	45.31	1.1659	0.9934	BENZENE	-0.1034E-01	
8	10.00	0.5270	71.34	69.92	0.6070	0.6183	74.94	1.0846	0.9913	HEXANE	-0.1129E-01	0.7522E-02
		0.0830			0.0620	0.0533	47.22	0.9438	0.9919	CYCLOHEX	0.8652E-02	
		0.3900			0.3310	0.3284	45.31	1.2896	0.9929	BENZENE	0.2629E-02	
9	10.00	0.5880	70.81	69.00	0.6490	0.6673	74.94	1.0354	0.9914	HEXANE	-0.1828E-01	0.1219E-01
		0.1930			0.1350	0.1233	47.22	0.9767	0.9920	CYCLOHEX	0.1166E-01	
		0.2290			0.2160	0.2094	45.31	1.3621	0.9930	BENZENE	0.6619E-02	
10	10.00	0.1610	56.42	54.61	0.2290	0.2226	74.94	1.0002	0.9932	HEXANE	0.6436E-02	0.9032E-02
		0.7010			0.6020	0.6156	47.22	1.0009	0.9937	CYCLOHEX	-0.1354E-01	
		0.1380			0.1690	0.1619	45.31	1.4057	0.9945	BENZENE	0.7116E-02	

HEXANE(1) - CYCLOHEXANE(2) - BENZENE(3) SYSTEM 023

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
507.90	29.90	372.40	0.298	0.0	0.0	0.0	HEXANE	18
553.20	40.00	311.20	0.210	0.0	0.0	0.0	CYCLOHEX	9
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.68778E 01	0.11715E 04	0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03
0.68450E 01	0.12035E 04	0.22286E 03	CYCLOHEX	0.9291E 02	-0.2486E-01	0.2616E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7096E 02	0.1491E-01	0.1588E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-401.41	521.61	HEXANE - CYCLOHEX	235	0
375.19	151.12	HEXANE - BENZENE	120	0
103.60	193.58	CYCLOHEX - BENZENE	25	1

HALA CONSISTENCY TEST

CI(1) -0.2212

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.2306E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.5494E-02
COMPONENT 2	0.8602E-02
COMPONENT 3	0.6261E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.6786E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	EIOI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	15.00	0.1030	73.39	71.64	0.1610	0.1550	95.12	1.1230	0.9917	HEXANE	0.6045E-02	0.4787E-02
		0.4010			0.3780	0.3769	60.57	1.1027	0.9923	CYCLOHEX	0.1135E-02	
		0.4960			0.4610	0.4682	58.49	1.1480	0.9932	BENZENE	-0.7182E-02	
2	15.00	0.1310	74.74	72.98	0.1920	0.1844	95.12	1.0571	0.9916	HEXANE	0.7624E-02	0.5443E-02
		0.4950			0.4350	0.4432	60.57	1.0569	0.9923	CYCLOHEX	-0.8166E-02	
		0.3740			0.3730	0.3725	58.48	1.2187	0.9932	BENZENE	0.5390E-03	
3	15.00	0.2220	77.54	74.61	0.2970	0.2961	95.12	1.0366	0.9913	HEXANE	0.8852E-03	0.2989E-02
		0.4920			0.4100	0.4145	60.57	1.0291	0.9920	CYCLOHEX	-0.4486E-02	
		0.2860			0.2930	0.2894	58.48	1.2814	0.9930	BENZENE	0.3597E-02	
4	15.00	0.3440	81.89	78.93	0.4270	0.4350	95.12	1.0391	0.9908	HEXANE	-0.8032E-02	0.5353E-02
		0.3970			0.3150	0.3117	60.57	1.0141	0.9915	CYCLOHEX	0.3271E-02	
		0.2590			0.2580	0.2532	58.48	1.3092	0.9926	BENZENE	0.4756E-02	
5	15.00	0.2560	81.27	78.36	0.3590	0.3579	95.12	1.1406	0.9909	HEXANE	0.1084E-02	0.1021E-01
		0.2560			0.2250	0.2108	60.57	1.0557	0.9916	CYCLOHEX	0.1424E-01	
		0.4880			0.4160	0.4313	58.48	1.1750	0.9926	BENZENE	-0.1532E-01	
6	15.00	0.1760	77.94	76.02	0.3000	0.2993	95.12	1.3464	0.9912	HEXANE	0.6964E-03	0.9487E-02
		0.1350			0.1360	0.1225	60.57	1.1289	0.9918	CYCLOHEX	0.1353E-01	
		0.6890			0.5640	0.5782	58.48	1.0827	0.9928	BENZENE	-0.1423E-01	
7	15.00	0.3440	85.32	83.55	0.4600	0.4687	95.12	1.1845	0.9903	HEXANE	-0.8744E-02	0.9027E-02
		0.1110			0.0950	0.0815	60.57	1.0028	0.9910	CYCLOHEX	0.1354E-01	
		0.5450			0.4450	0.4498	58.48	1.1692	0.9921	BENZENE	-0.4799E-02	
8	15.00	0.5190	90.82	89.06	0.6020	0.6039	95.12	1.0864	0.9897	HEXANE	-0.6908E-02	0.5660E-02
		0.0950			0.0640	0.0555	60.57	0.9506	0.9904	CYCLOHEX	0.8487E-02	
		0.3960			0.3340	0.3356	58.48	1.2790	0.9916	BENZENE	-0.1585E-02	
9	15.00	0.5610	89.76	87.38	0.6300	0.6418	95.12	1.0396	0.9899	HEXANE	-0.1180E-01	0.7863E-02
		0.1940			0.1420	0.1334	60.57	0.9821	0.9906	CYCLOHEX	0.8615E-02	
		0.2450			0.2280	0.2248	58.48	1.3591	0.9917	BENZENE	0.3177E-02	
10	15.00	0.1550	71.77	69.75	0.2170	0.2139	95.12	1.0031	0.9919	HEXANE	0.3124E-02	0.7031E-02
		0.7110			0.6170	0.6275	60.57	1.0085	0.9925	CYCLOHEX	-0.1055E-01	
		0.1340			0.1660	0.1586	58.48	1.4017	0.9934	BENZENE	0.7422E-02	

HEXANE(1) - CYCLOHEXANE(2) - BENZENE(3) SYSTEM 074

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
507.90	29.90	372.40	0.299	0.0	0.0	0.0	HEXANE	18
553.20	40.00	311.20	0.210	0.0	0.0	0.0	CYCLOHEX	9
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS				MOLAR VOLUME EQUATION COEFFICIENTS		
A	B	C	COMPONENT	A	B	C
0.68778E 01	0.11715E 04	0.22441E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03
0.68450E 01	0.12035E 04	0.22296E 03	CYCLOHEX	0.9291E 02	-0.2486E-01	0.2616E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-401.41	521.61	HEXANE - CYCLOHEX	235	0
375.19	151.12	HEXANE - BENZENE	120	0
103.60	193.58	CYCLOHEX - BENZENE	25	1

HALA CONSISTENCY TEST

CI(1) -0.2212

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.2962E 01
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.5015E-02
COMPONENT 2	0.6612E-02
COMPONENT 3	0.6785E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.6138E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FUGL	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	25.00	0.2510	126.58	123.12	0.3380	0.3355	148.78	1.0913	0.9875	HEXANE	0.2508E-02	0.4834E-02
		0.3420			0.2890	0.2843	96.64	1.0460	0.9885	CYCLOHEX	0.4738E-02	
		0.4070			0.3730	0.3803	94.39	1.2056	0.9809	BENZENE	-0.7255E-02	
2	25.00	0.4160	134.65	131.48	0.5000	0.5059	148.78	1.0595	0.9866	HEXANE	-0.5949E-02	0.5301E-02
		0.2720			0.2120	0.2040	96.64	1.0073	0.9877	CYCLOHEX	0.7950E-02	
		0.3120			0.2880	0.2900	94.39	1.2799	0.9892	BENZENE	-0.2003E-02	
3	25.00	0.5890	141.12	139.05	0.6520	0.6608	148.78	1.0327	0.9859	HEXANE	-0.8836E-02	0.5890E-02
		0.1930			0.1430	0.1345	96.64	0.9887	0.9869	CYCLOHEX	0.8514E-02	
		0.2180			0.2050	0.2047	94.39	1.3663	0.9886	BENZENE	0.3195E-03	
4	25.00	0.3250	123.93	120.40	0.4140	0.4138	148.78	1.0169	0.9878	HEXANE	0.1931E-03	0.2615E-02
		0.4520			0.4470	0.4509	96.64	1.0056	0.9887	CYCLOHEX	-0.3926E-02	
		0.1230			0.1390	0.1353	94.39	1.3881	0.9901	BENZENE	0.3725E-02	
5	25.00	0.2130	124.46	120.71	0.2950	0.2896	148.78	1.0886	0.9877	HEXANE	0.5402E-02	0.4478E-02
		0.3780			0.3240	0.3227	96.64	1.0536	0.9887	CYCLOHEX	0.1312E-02	
		0.4090			0.3810	0.3877	94.39	1.1996	0.9901	BENZENE	-0.6721E-02	
6	25.00	0.8240	147.41	146.73	0.8470	0.8547	148.78	1.0067	0.9851	HEXANE	-0.7738E-02	0.5158E-02
		0.0910			0.0660	0.0613	96.64	1.0077	0.9862	CYCLOHEX	0.4706E-02	
		0.0850			0.0870	0.0840	94.39	1.5159	0.9879	BENZENE	0.3029E-02	
7	25.00	0.1390	120.01	116.76	0.2070	0.2002	148.78	1.1162	0.9881	HEXANE	0.6765E-02	0.5662E-02
		0.3880			0.3540	0.3523	96.64	1.0843	0.9891	CYCLOHEX	0.1725E-02	
		0.4730			0.4290	0.4475	94.39	1.1584	0.9904	BENZENE	-0.8496E-02	
8	25.00	0.0880	115.65	112.95	0.1320	0.1250	148.78	1.0652	0.9885	HEXANE	0.6984E-02	0.1491E-01
		0.5160			0.4910	0.4756	96.64	1.0652	0.9894	CYCLOHEX	0.1538E-01	
		0.3960			0.3770	0.3994	94.39	1.1949	0.9907	BENZENE	-0.2237E-01	
9	25.00	0.2190	122.74	118.87	0.2920	0.2891	148.78	1.0412	0.9879	HEXANE	0.2864E-02	0.2980E-02
		0.4930			0.4130	0.4175	96.64	1.0293	0.9889	CYCLOHEX	-0.4474E-02	
		0.2880			0.2950	0.2934	94.39	1.2697	0.9902	BENZENE	0.1602E-02	
10	25.00	0.3420	129.11	125.48	0.4190	0.4283	148.78	1.0417	0.9872	HEXANE	-0.9257E-02	0.6168E-02
		0.3940			0.3200	0.3153	96.64	1.0157	0.9882	CYCLOHEX	0.4739E-02	
		0.2600			0.2610	0.2565	94.39	1.2971	0.9897	BENZENE	0.4518E-02	
11	25.00	0.2510	128.01	124.61	0.3450	0.3471	148.78	1.1425	0.9873	HEXANE	-0.2097E-02	0.6143E-02
		0.2560			0.2220	0.2128	96.64	1.0565	0.9883	CYCLOHEX	0.9210E-02	
		0.4930			0.4330	0.4401	94.39	1.1657	0.9898	BENZENE	-0.7121E-02	
12	25.00	0.1780	123.51	121.49	0.2960	0.2944	148.78	1.3327	0.9876	HEXANE	0.1592E-02	0.9510E-02
		0.1350			0.1360	0.1233	96.64	1.1263	0.9886	CYCLOHEX	0.1257E-01	
		0.6860			0.5680	0.5823	94.39	1.0809	0.9900	BENZENE	-0.1427E-01	

HEXANE(1) - CYCLOHEXANE(2) - BENZENE(3) SYSTEM 075

PURE COMPONENT PROPERTIES

TC	PC	VC	OMEGA	OMEGAH	DIPOLE	ETA	COMPONENT	ID
507.90	29.90	372.40	0.293	0.0	0.0	0.0	HEXANE	18
553.20	40.00	311.20	0.210	0.0	0.0	0.0	CYCLOHEX	9
562.00	48.60	260.10	0.211	0.0	0.0	0.0	BENZENE	5

PURE COMPONENT PREDICTIVE EQUATIONS

VAPOR PRESSURE (ANTOINE) EQUATION COEFFICIENTS — MOLAR VOLUME EQUATION COEFFICIENTS

A	B	C	COMPONENT	A	B	C
0.63778E 01	0.11715E 04	0.22437E 03	HEXANE	0.1260E 03	-0.1446E 00	0.5472E-03
0.68450E 01	0.12035E 04	0.22396E 03	CYCLOHEX	0.9291E 02	-0.2486E-01	0.2616E-03
0.69056E 01	0.12110E 04	0.22079E 03	BENZENE	0.7086E 02	0.1491E-01	0.1588E-03

BINARY INTERACTION PARAMETERS

MODEL NUMBER 4

			BINARY ID NUMBERS	ORDER
-401.41	521.61	HEXANE - CYCLOHEX	235	0
-142.85	454.27	HEXANE - BENZENE	236	0
219.58	93.10	CYCLOHEX - BENZENE	256	1

HALA CONSISTENCY TEST

CI(1) 0.7496

SUMMARY OF STATISTICAL INFORMATION

MEAN ABS. DEV. IN PRESSURE CALCS.	0.9642E 00
MEAN ABS. DEV. IN COMPOSITION CALCS.	
COMPONENT 1	0.2566E-02
COMPONENT 2	0.3799E-02
COMPONENT 3	0.1703E-02
GRAND MEAN ABS. DEV. IN COMPOSITION CALCS.	0.2689E-02

MULTICOMPONENT SOLUTION RESULTS

NO.	T	X	PEXP	PCALC	YEXP	YCALC	FIGI	GAMMA	PHI	COMPONENT	COMPOSITION RESIDUALS (EXP - CALC) BY COMPONENT	MEAN ABS DEV
1	70.00	0.6050	746.78	748.68	0.6520	0.6564	748.65	1.0306	0.9546	HEXANE	-0.4393E-02	0.2925E-02
		0.1750			0.1380	0.1339	525.73	1.0401	0.9580	CYCLOHEX	0.4054E-02	
		0.2200			0.2100	0.2097	534.74	1.2815	0.9636	BENZENE	0.3285E-03	
2	70.00	0.3230	668.20	669.01	0.3930	0.3949	748.65	1.0433	0.9593	HEXANE	-0.1842E-02	0.2282E-02
		0.5000			0.4180	0.4140	525.73	1.0119	0.9625	CYCLOHEX	0.3424E-02	
		0.1770			0.1890	0.1906	534.74	1.2994	0.9674	BENZENE	-0.1579E-02	
3	70.00	0.1640	619.41	619.07	0.2180	0.2179	748.65	1.0486	0.9622	HEXANE	0.9946E-03	0.2057E-02
		0.6950			0.6190	0.6169	525.73	1.0056	0.9653	CYCLOHEX	0.2092E-02	
		0.1410			0.1630	0.1661	534.74	1.3190	0.9699	BENZENE	-0.3084E-02	
4	70.00	0.1000	637.63	638.83	0.1530	0.1514	748.65	1.1345	0.9610	HEXANE	0.1569E-02	0.1521E-02
		0.3930			0.3650	0.3673	525.73	1.0913	0.9642	CYCLOHEX	-0.2281E-02	
		0.4980			0.4820	0.4813	534.74	1.1155	0.9689	BENZENE	0.7143E-03	
5	70.00	0.0690	623.33	624.50	0.1080	0.1059	748.65	1.2271	0.9619	HEXANE	0.2056E-02	0.1370E-02
		0.2480			0.2580	0.2600	525.73	1.1979	0.9651	CYCLOHEX	-0.1975E-02	
		0.6830			0.6340	0.6341	534.74	1.0485	0.9696	BENZENE	-0.7915E-04	
6	70.00	0.0730	618.71	618.45	0.1240	0.1195	748.65	1.2956	0.9623	HEXANE	0.4539E-02	0.5980E-02
		0.1470			0.1580	0.1670	525.73	1.2857	0.9654	CYCLOHEX	-0.8969E-02	
		0.7800			0.7180	0.7136	534.74	1.0234	0.9699	BENZENE	0.4432E-02	