Thermodynamic Properties of Xenon from the Triple Point to 800 K with Pressures up to 350 MPa

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A thermodynamic property formulation by Jůza has been tested in detail against available experimental data. The reliability of the formulation has been determined. Deviations of experimental and calculated data are generally within the limits of experimental accuracy. This article includes a survey of available experimental data and equations of state, a fundamental equation for xenon explicit in dimensionless Helmholtz energy as a function of reduced density and temperature, the values of its constants and coefficients, relations for computation of derived thermodynamic quantities, detailed comparison with experimental data, tables of thermodynamic functions calculated with the present formulation for the fluid state within the range of its validity for the single-phase region, along the saturation curve and for the critical region.

Key words: correlation, data evaluation, equation of state, fundamental equation, property tables, saturation curve, thermodynamic properties, xenon.

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Nomenclature

Symbol	Physical quantity	Unit
c_p	Specific isobaric heat capacity	J/(kg K)
c_v	Specific isochoric heat capacity	J/(kg K)
f	Specific Helmholtz Energy	J/kg
g	Specific Gibbs energy	J/kg
h	Specific enthalpy	J/kg
M	Molecular mass	g/mol
p	Pressure	Pa
R	Specific gas constant	J/(kg K)
s	Specific entropy	J/(kg K)
T	Temperature (IPTS-68)	K
u	Specific internal energy	J/kg
v	Specific volume	m^3/kg
w	Speed of sound	m/s
ρ	Density $\rho = 1/v$	kg/m^3

Dimensionless quantities

$\varphi = f/RT_r = f(\zeta,\tau)$	Helmholtz energy
$\zeta = 1/\omega = \rho/\rho_r$	Density
$\omega = v/v_r$	Volume
$\tau = T/T_r$	Temperature
$\pi = p/RT_r\rho_r$	Pressure
$\sigma = s/R$	Entropy
$\vartheta = u/RT_r$	Internal energy
$\epsilon = h/RT_r$	Enthalpy
$\gamma_V = c_v/R$	Isochoric heat capacity
$\gamma_P = c_p/R$	Isobaric heat capacity
$\nu = w/\sqrt{RT_r}$	Speed of sound
$\chi_k = f(\tau)$	Temperature function
$\psi_k = f(\zeta)$	Density function

Superscript

°	Ideal gas property
′	Saturated liquid state
″	Saturated vapor state

Subscripts

c	Value at critical point
r	Reference state
s	Under saturation conditions
tp	Value at triple point

Deviations

$\Delta y = y_{exp} - y_{cal}$	Absolute deviation
$\delta y = 100\ \Delta y/y_{cal}$	Relative deviation %
$\sigma = \Sigma[(\delta y_i)^2/n]^{\frac{1}{2}}$	Standard deviation %
$\bar{y} = \Sigma\lvert\delta y_i\rvert/n$	Mean deviation %
$s = \Sigma\delta y_i/n$	Systematic deviation %

Adopted Fixed Constants and Parameters for this Correlation

$M = 131.30$ g/mol	Molecular mass[83]
$R_m = 8.3143$ J/(mol K)	Molar gas constant[84]
$R = R_m/M$ J/(kg K)	Specific gas constant
$T_r = 289.734$ K	Arbitrary reference temperature
$\rho_r = 1000$ kg/m^3	Reference density

$$\left.\begin{array}{l} s = 0 \\ u = 0 \end{array}\right\} \begin{array}{l} \text{at } T = 273.15\ \text{K} \\ \text{and } p = 0.101325\ \text{MPa}\ (\rho = 5.898915\ \text{kg/m}^3) \end{array}$$

T_c	Critical temperature	289.734 ± 0.001 K[48]
p_c	Critical pressure	5.840 ± 0.0005 MPa[9]
ρ_c	Critical density	1.099 ± 0.002 g/cm^3 [9]
T_{tp}	Triple point temperature	161.36 ± 0.03 K[45]

Present correlation describes thermodynamic properties within reported accuracy using above given set of adopted fixed constants and parameters.

Recently internationally agreed values for the molecular mass of xenon and molar gas constant are

$$M = 131.29 \pm 0.02\ \text{g/mol}^{85}$$
$$R = 8.31451\ \text{J/(molK)}.^{86}$$

1. Introduction

1.1. Background

A thermodynamic property formulation for xenon was developed by Jůza and Šifner[1] in 1977. Recently, the present authors received inquiries on this formulation and recommendation to publish it including the computer programs. An updated literature search found little new experimental data since 1977. A new detailed comparison of the formulation with all available experimental data has shown that the original formulation describes all reliable data within their experimental accuracy. It would be expectable that the correlation published by 1993 uses the latest values of internationally accepted fundamental constants (M,R), and all temperatures reported are referred to the ITS–90 scale. Present correlation, developed in 1977, uses IPTS–68 and at that time valid fundamental constants. Experience shows that a simple recalculation of coefficients, respecting the change of the temperature scale, is not possible. New correlation with now available experimental date converted into the ITS–90 as well as the change of molecular weight and molar gas constant will have very little impact on the reported thermodynamic properties. New correlation is meaningful after getting new more precise multi-property experimental data. Therefore, development of a new formulation for xenon under present conditions is unwarranted. Potential users should deal with this formulation in the same way as they do with all up to now valid formulations published in this Journal prior 1990. Thus the earlier formulation for xenon, including detailed comparisons, is published here in an internationally accessible journal. Auxiliary equations for the saturation curve have been recorrelated for this work.

1.2. Comprehensive Compilations

Thermophysical properties of xenon, in comparison with other gases, have been studied to a limited extent. This is because of the substance is rare and difficult to obtain. The quality of data prior to 1940 was influenced by the uncertain purity of the sample studied. More intensive interest in xenon appeared after its application as a modeling gas for verification of the theory of intermolecular forces and especially for the study of critical phenomena and metastable states due to its favorable critical parameters.

A comprehensive compilation dealing with inert gases (from various points of view), including xenon, is the monograph by G. Cook[2] summarizing the knowledge up to 1960. The chapter on thermodynamic properties of the gaseous phase by J. A. Beattie, and the chapter by A.C.M. Malleta dealing with the solid and liquid phases, critically evaluate data for xenon existing at that time and attempt to select the most reliable data. Analogous is the book by Fastovskij *et al.*[3] The part concerning thermodynamic properties reveals nothing new. Its attention concentrates mainly on the production of inert gases. From newer reviews, the work by Pollack[4] treating the solid state, and the Monograph of the National Standard Reference Data Service of the USSR[5], dealing with thermodynamic and transport properties of neon, argon, krypton and xenon, can be mentioned.

2. Survey of Existing Experimental Data

The experimental data for xenon are summarized in this section primarily in tabular form. Some of the data were used for the determination of the property formulation and nearly all were compared to values calculated with the fundamental equation in Sec. 4.1.

2.1. Compressibility and P-ρ-T Data

Experimental works with their brief specification are summarized in Table 1. For the development of the equation of state, data sets by Michels *et al*[8]., Habgood and Schneider[9], Theeuwes and Bearman[14], Streett *et al.*[16], Rabinovich *et al.*[17] and Ulybin *et al.*[18] were used. Distribution of P-ρ-T data used for the correlation in P-T and P-ρ planes are shown in Figs. 1 and 2, respectively. Data points by Habgood and Schneider[9] between 5.4 and 6 MPa from 289.6 to 291.5 K are omitted in Fig. 1 for the sake of clarity.

2.2. Second Virial Coefficient

The literature contains values of the second virial coefficient for xenon which cover the temperature range from 160 to 973 K. The sources of available data are listed in Table 2.

Critical evaluation of the second virial coefficients was elaborated by Dymond and Smith[27]. They present 16 values of the second virial coefficient between 160 and 650 K obtained from a smoothed curve through nine experimental data sets. Second virial coefficient data were used for comparison only.

2.3. Vapor Pressure

Table 3 gives a survey of available experimental data for vapor pressure over solid and liquid phases. Data by Michels and Wassenaar[33], Bowman *et al.*[39] and Theeuwes and Bearman[40] covering the temperature range from 162 to 289.15 K were used as input data for the description of the vapor pressure along the liquid-vapor coexistence curve. The accuracy of measured data reported by their authors is of about 0.1 % in pressure, in reference[39] at higher temperatures of 0.3 %.

2.4. Fixed Point Data: Triple Point, Normal Boiling Point and Critical Point

Measured triple point and normal boiling point data are summarized in Table 4. The analysis of the measurements indicates that the most probable parameters of the triple point and normal boiling temperature (at 0.101325 MPa) are

$$T_{tp} = 161.36 \pm 0.03\ \mathrm{K}^{45} \text{ and } p_{tp} = 81.61973 \pm 0.02666\ \mathrm{kPa};^{45}$$
$$T_{NBP} = 165.03 \pm 0.1\ \mathrm{K}^{33}.$$

Measurements in the critical region were used to determine critical parameters, to specify the shape of the coexistence dome and quantify the influence of gravity on its shape. Available critical parameters for xenon are summarized in Table 5. In the present correlation critical parameters by Habgood and Schneider[9] were accepted, as they are consistent with the p-ρ-T measurements in the critical region. These parameters were considered as most reliable until the end of seventies. They were also confirmed by Vicentini-Missoni *et al.*[55] in their study based on the scaling idea. New precise measurements with samples of high purity by Baidakov *et al.*[60] and Närger and Balzarini[61] show that the critical temperature and critical density are higher than critical parameters by Habgood and Schneider[9] (see Table 5).

Available data allow only rough estimation of probable critical parameters without detailed scaling law analysis and due to their dramatic dependence on the sample purity[61]. Considering recent measurements, the estimated critical parameters are:

$$T_c = 289.765 \pm 0.025\ \mathrm{K} \quad p_c = 5.8405 \pm 0.0005\ \mathrm{MPa}$$
$$\rho_c = 1.113 \pm 0.003\ \mathrm{g/cm^3}$$

2.5. Saturated Liquid and Saturated Vapor Density

A survey of available experimental data for saturated liquid and vapor densities is displayed in Table 6. The purpose of the measurements by Weinberger and Schneider[48], and Whiteway and Mason[50] was to elucidate the shape of the coexistence curve in the neighborhood of the critical point. New measurements of saturated liquid densities and orthobaric densities were reported by Baidakov *et al.*[60], Cornfeld and Carr[58], and Närger and Balzarini[61]. Unfortunately no experimental data are presented except critical parameters. Saturated liquid densties reported by Leadbetter and Thomas[62], and Terry *et al.*[56] were measured by a pycnometric method, data by Theeuwes and Bearman[40] were obtained from the intersections of isochores with the vapor pressure equation. Though all investigators report high accuracy, their data are not mutually consistent. Subsequently gained experimental data by Cornfeld and Carr[58] exhibit high scatter and, thus, do not clear up the problem.

2.6. Speed of Sound Data

Experimental data for sound velocity are scarce. They cover critical region, the liquid region and the saturated liquid curve. Table 7 summarizes the existing data.

2.7. Heat Capacity Data

Specific heat capacity of monoatomic gases at zero pressure is independent of temperature and is represented by the following relationships

$$C_p^\circ = \frac{5}{2}R = 20.786 \text{ J/(mol K) and } C_v^\circ = \frac{3}{2}R = 12.471 \text{ J/(mol K)}.$$

Isochoric heat capacity has been measured only in the vicinity of the critical point by Voronel[69], Schmidt *et al.*[70], Edwards *et al.*[54], and Baidakov and Rubshtein[71]. Bernhardt[72] measured the internal energy of xenon in the critical region and calculated the isochoric heat capacity. Their papers do not include experimental data.

2.8. Melting Curve

There are five authors reporting P-T measurements along the melting curve. These data are summarized in Table 8. The measurements were correlated by their authors using Tammann's or Simon's equations. No attempt has been made to develop a melting curve equation for the entire measured range due to the inconsistency of experimental data. To identify the states of the coexisting liquid and solid phases (the lower range of the validity of the present formulation), the equation by Michels and Prins[46] combined with Stryland's equation[73] has been used. In the monograph by Rabinovich *et al.*[5] a correction term is introduced into Michels equation which reduces deviations between calculated and experimental values at low pressures.

3. Survey of Existing Equations of State for Xenon

Excluding analytical expressions for particular measured isotherms reported by Michels *et al.*[8] and Whalley *et al.*[11], there are only six other equations of state available in addition to Jůza's formulation.

Beattie and co-workers[7] correlated their measurements in the region 289.8 K to 573 K at densities 0.13 to 1.31 g/cm^3 (approximately 2 to 40 MPa) using a Beattie-Bridgeman equation. Two sets of coefficients are reported; one for the measured sample (99.86% Xe + 0.14% Kr) and one for pure xenon. Experimental data are represented with an average deviation of 0.54 % ; for densities between 0.13 and 0.786 g/cm^3 the deviations are between 0.14 % to 0.31 %, for higher densities they range from 0.69 % to 2.23 %.

Levelt[75] presented a reduced equation of state based on Michels experimental data[8]. The equation is more appropriate to theoretical studies than for practical applications.

Vukalovich *et al.*[57] reported a virial equation of state for gaseous xenon based on experimental data by Michels *et al.*[8] and the compressibility factors extrapolated to 1200 K and 100 MPa. According to the authors' statement the input data are represented within a root mean square deviation of 0.05 %, the equation yields realistic values of the second virial coefficient and is applicable from the normal boiling point temperature including the saturated vapor curve.

Abovskij and Rabinovich[76] developed an equation of state for liquids and dense gases based on a cell model of spherically symmetrical molecules. The equation was checked with experimental data by Michels *et al.*[8] Density deviations were between 0.67 % and 0.1 %. This equation was used for computation of tables in the region 1 to 500 MPa with temperatures from 170 K to 700 K at densities between 2.53 and 2.98 g/cm^3. The authors estimate a mean deviation in density of 0.3 %, and 1 % in the vicinity of ρ = 2.53 g/cm^3.

Streett *et al.*[16] described their results in the liquid region between 165 and 289.74 K from the vapor pressure curve to the melting curve at pressures up to 386.5 MPa (1.5 – 3.1 ρ_c) by means of a Strobridge equation (modified B-W-R equation with 16 coefficients). The experimental data are reproduced within 0.1% in density as stated by the authors.

In the monograph by Rabinovich[5] the liquid phase of xenon is described by the equation

$$p = A(T)\rho^2 + B(T)\rho^4 + C(T)\rho^6,$$

with six arbitrary coefficients, and the gaseous phase by a virial equation with 36 coefficients. Input data included experimental data and calculated data based on the principle of corresponding states up to 1300 K and 100 MPa. In the overlapping region and in the critical region, calculated values from both equations were smoothed by a graphical-analytical method. The authors estimated the errors in the thermodynamic functions for δv = ±0.15 %, Δh = 0.15 kJ/kg, Δs = 0.001 kJ/(kg K) and δc_p = ±2 %. In the overlapping and critical regions the deviations may be greater.

Recently a 32-term modified B-W-R equation for xenon has been reported in the article by Brennan *et al.*,[77] which describes the program MIPROPS developed in the National Institute of Standards and Technology for computing the properties of seventeen fluids. No details on its accuracy, range of validity and data selected for its correlation are reported. Updated interactive FORTRAN programs to calculate thermophysical properties of pure fluids – MIPROPS – is available from the National Institute of Standards and Technology as NIST Standard Reference Database 12 – Version 3.0.

4. Development of the Equation of State

Our first equation of state for xenon[78] from 161.36 to 423 K and pressures up to 300 MPa was developed by the application of the corresponding states principle to our equation of state for krypton[79]. Density deviations between calculated values and experimental data[8,9,14], reaching at high densities up to 1.5 %, were reduced by the introduction of appropriate correction functions derived from graphically processed deviations.

The equation of state derived in 1973 was of the virial type

$$z = pv/RT = 1 + \sum_{i_{\min}}^{i_{\max}} \sum_{j_{\min}}^{j_{\max}} a_{ij}\tau^{-i}\rho^j. \qquad (1)$$

After explicit expression of pressure and adding terms to describe the critical region we get

$$p = RT/v + (1/v^2)\{\tau\ \varphi_0(\rho) + \tau^0\ \varphi_1(\rho) + \tau^{-1}\varphi_2(\rho) + \tau^{-3}\varphi_3(\rho) + \tau^{-k}\varphi_k(\rho) + f_m(\tau)\ [\varphi_m(\rho) + \varphi_n(\rho)]\} \quad (2)$$

where

$$\varphi_i(\rho) = \sum_j^{j_{max}} a_{ij}\rho^j.$$

The wide range equation consists of the normal temperature terms with exponents $i = -1; 0; 1; 3$ and density terms with exponents $j = 0$ to 8. As the usual analytic equations fail in the critical region, Jûza[80] treated this problem by incorporating the additional functions with temperature terms of very high order, i.e. functions with exponents k, m and n and corresponding density functions with exponents $j = 0$ to 6 or 8. The values of the exponent k of the first additional function for the critical region τ^{-k} were 21 and 24.76 according to the density range. The second additional function was given by the expression $f_m(\tau) = A\tau^{-m} + B\tau^{-n}$ with coefficients $A = 1.12$, $B = 1.42$ and exponents $m = 330$ and $n = 21$. The density functions φ_k, φ_m and φ_n are zero except in a limited narrow range of densities.

4.1. Formulation

New reliable experimental data[15,16,17,18] appearing several years later stimulated the revision of the equation of state. The units adopted for this work were MPa, for pressure; kg/m^3, for density; K, IPTS–68, for temperature; and, J/kg, for energy. Units of experimental data were converted as necessary from those of the original publications to these units. Deviations of these data from the equation of state were determined and on this basis, the coefficients of [Eq. (2)] and the additional temperature functions were readjusted. Thus, successive approximations were used to get the optimal fit.

The final values of exponents were $k = 21$ or 24.83 according the density range, $m = 250$ and $n = 21$. The above-mentioned changes called for the readjustment of the isochoric heat capacity of the liquid. A new detailed calculation of density functions $\varphi_i(\rho)$ between 0.12 and 3.89 g/cm^3 followed with a new comparison to the experimental data. After appropriate amendments a satisfactory agreement between experimental and calculated values was achieved, and the equation was expressed by a fundamental equation in dimensionless Helmholtz energy [Eq. (3)], in Table 9. Its numerical constants and coefficients are given in Table 10.

In the dimensionless Eq. (3), Table 9, the terms

$$(\psi_4 + F_{40})\chi_{4k} + F_{40J}\chi_{4J} + (\psi_{5+L} - F_{5+L,0})\chi_5$$

correspond[80] with the additional terms

$$\tau^{-k}\varphi_k(\rho) + f_m(\tau)\ [\varphi_m(\rho) + \varphi_n(\rho)]$$

in Eq. (2).

The additional terms affect the vicinity of the critical point only. The functions with exponents 21 and 24.83 ought to be taken into account in the temperature interval from 240 to 360 K and densities between ζ_2 and ζ_3. The function with the exponent 250 has practical meaning in a very limited region between 283 and 310 K at densities from ζ_5 to ζ_6. Outside the specified ranges, the omission of the above mentioned terms results in errors $(\Delta v/v) < 0.01\ \%$ and $(\Delta c_V/c_V) < 0.1\ \%$.

The validity range of density functions in additional terms, i.e. functions ψ_4', ψ_5' and ψ_6', following from the expression for the reduced pressure π (Table 11), and corresponding to φ_k, φ_m and φ_n in Eq. (2), is shown in Fig. 3. At the terminal points the value of the function ψ_4' and its first and second derivatives are equal to zero. Functions ψ_5' and ψ_6' at ζ_7 have also zero values and common values of the first and second derivatives. These functions were chosen in such a way that the overall change of the internal energy, and isochoric specific heat capacity calculated from these functions between their terminal points ζ_5 and ζ_6, equals zero.

When calculating internal energy the value of c_V^0 was taken as 1.5 R in the entire range for $\rho < \rho_c$, and $T \geqslant T_c$ at $\rho \geqslant \rho_c$. In the liquid region $\rho > \rho_c$ at $T < T_c$, the relation for c_V on the isochore $\rho = 2.969\,096$ g/cm^3, which is very close to the triple point density, was derived. On the critical isotherm, c_V, and $(\delta c_V/\delta T)_V$ have common values for both regions.

Function ψ_4' has zero value at ζ_4. A sudden change of the exponent from 21 to 24.83 causes no discontinuity in pressure on the critical isotherm nor in $(\delta p/\delta v)_T$ and $(\delta^2 p/\delta^2 v)_T$.

On other isotherms a discontinuity of $(\delta p/\delta v)$ exists; it amounts to 0.031 MPa g/cm^3 at 304 K at an overall change 2.16 MPa g/cm^3, i.e. 1.44 % of the overall change. Such a value of discontinuity is acceptable. On other isotherms the discontinuity is smaller and for the critical temperature it equals zero.

The formulation is not suitable in the immediate vicinity of the critical point $(0.99$ to $1.002)T_c$ at $(0.7 < \rho$, g cm^{-3} < 1.4), where the equation is not concordant with the thermodynamic anomalies near the critical point.

The computation of thermodynamic properties along the saturation curve from the simultaneous solution of the vapor pressure equation and equation of state is much easier than using Maxwell's rule. Thus, an auxiliary vapor pressure equation has been derived using experimental data[33,39,40]

$$\log(p_S/10^5\text{Pa}) = \sum_{i=-1}^{7} a_{i+1}T^i. \quad (4)$$

Its coefficients are given in Table 12.

The pressure of the triple point, 81.571 kPa, calculated from Eq. (4) at 161.36 K, adopted as the triple point temperature, is in good agreement with experimental or calculated triple point pressures. See Table 4.

Equation (4) is not suitable in the vicinity of the critical point, as the condition $\lim_{T\to T_c} (\delta^2 p/\delta T^2) = \infty$ is not fulfilled.

4.2. Derived Thermodynamic Properties

Table 11 lists relations for the computation of other thermodynamic properties by means of differentiation of the fundamental equation [Eq. (3)]. These functions were used in calculating the tables of thermodynamic properties of xenon. (Table 28 – 30).

5. Comparisons of the Fundamental Equation with Experimental Data and with Thermophysical Tables by Rabinovich[5]

Comparisons of various thermodynamic properties calculated using the fundamental equation [Eq. (3)] with experimental data are given in this section. The comparisons are presented in tabular form and in graphs. Absolute or relative deviations are calculated for single points; for data sets, standard, mean and systematic deviations are calculated. These deviations are defined in the Nomenclature.

5.1. Comparison of the Fundamental Equation to P-ρ-T Data

When comparing experimental P-ρ-T data with calculated values, both deviations in density $\delta\rho$ and in pressure δp were calculated. Comparison of experimental data by various authors to the present formulation [Eq. (3)] is given in Tables 13 through 23.

The magnitude of the deviations depends on the slope of the isotherms, and/or density. In the final assessment the density of 1.4 g/cm^3 has been chosen for the dividing line. In the region with $\rho < 1.4$ g/cm^3 pressure deviations have been considered, and for $\rho > 1.4$ g/cm^3 density deviations have been considered. The results are summarized in Table 24.

Omitting the older and less accurate measurements,[7,13] the deviations in pressure for 756 points in the region $\rho < 1.4$ g/cm^3 , Table 24, Ref. [8,9,17,18], yield the resulting standard deviation of 0.071 %. The same procedure, applied in the region $\rho > 1.4$ g/cm^3 , gives the resulting standard deviation in density of 0.122 % for 735 points (Table 24, Ref.[8,14,15,16,18]). The resulting standard mixed deviation, i.e., calculated for all σ_p and σ_ρ, for all 1491 points, is 0.10 %.

5.2. Second Virial Coefficient

The second virial coefficient was derived from the expression for pressure in the low density region (i.e. $\zeta < \zeta_2, J = 0, K = 0$) as the sum of temperature functions at all terms proportional to ζ^2 . Comparison of experimental and calculated values is shown in Fig. 4. The agreement of experimental and calculated values is satisfactory, except the temperature range between 210 and 300 K. This temperature range corresponds to $B = -254 \pm 5$ and -133 ± 3 cm^3/mol, respectively, where the accuracy limits given by Dymond and Smith[27] are exceeded by -3 to -5.3 cm^3/mol. Fig. 5 presents the comparison of the smoothed values of the second virial coefficients by Dymond and Smith[27] and the calculated values.

5.3. Saturation Curve

Deviations of our vapor pressure equation [Eq. (4)] from the experimental data by Michels *et al.*[33] , Theeuwes and Bearman[40] and Bowman *et al.*[39] are shown in Fig. 6.

Recently a Wagner-type vapor pressure equation with fractional exponents has been used for the correlation of the same input data,

$$\ln(p_S/p_c) = T_cT^{-1} \sum_{n=1}^{4} a_i(1-T/T_c)^{\alpha_i}. \tag{5}$$

The coefficients and exponents for this equation are given in Table 12. Deviations in pressure from the input data[33,39,40] are as follows:

$$n = 103 \quad \sigma = 0.0068\,\%, \quad \bar{p}_S = 0.0045\,\% \quad s = 0.0011\,\%.$$

The triple point pressure at 161.36 K is 81.624 kPa, and the normal boiling point temperature is 165.351 K. Deviations between pressures calculated from Eq. (4) and Eq. (5) do not exceed 0.13 %.

Comparison of saturated liquid densities between 161.9 and 273 K measured by Leadbetter and Thomas[62] with those calculated from simultaneous solution of the vapor pressure equation [Eq. (4)] and the fundamental equation [Eq. (3)] yields a standard deviation of 0.34 % and a maximum deviation 0.48 % at 230.3 K. Experimental data points by Terry *et al.*[56] between 164 and 219 K give a standard deviation 0.132 % with a maximum deviation -0.227 % at 164.098 K. A comparison with Theeuwes and Bearman[40] data, extrapolated from P-ρ-T measurements, yields a standard deviation of 0.328 %, with the maximum deviation of 0.58 % at 192.984 K. Fig. 7 demonstrates the inconsistency of the experimental data. Smoothed data reported by Bogdanov *et al.*[81] based on Leadbetter and Thomas[62] and Habgood and Schneider[9] experiments are marked in Fig. 7 by asterisks.

Recently, data by Leadbetter and Thomas,[62] Terry *et al.*[56], Theeuwes and Bearman[40], and Weinberger and Schneider[48] have been fitted with an equation of the form

$$\rho'/\rho_c = 1 + \sum_{n=1}^{4} a_i(1-T/T_c)^{k_i}. \tag{6}$$

With regard to the inconsistency of experimental data we studied various combinations of input data. The results are summarized in Table 25. Data set No.4 yields the most acceptable correlation though data from Eq. (6) differ by 0.12 to 0.37 % from values calculated using the formulation Eq. (3) and the vapor pressure equation [Eq. (4)]. The coefficients and exponents of Eq. (6) for this data set are given in Table 12.

Comparison of the calculated speed of sound with 61 experimental points by Aziz *et al.*[65] along the saturation curve between 161.337 and 272.178 K gives a mean deviation of 1.428 % with the maximum deviation of 2.8 % at

193.46 K. Mean deviation from 23 data points by Blagoi *et al.*[64] is 2.06 %, with maximum deviation of 3.33 % at 260 K. These comparisons are shown in Fig. 8. The data by Blagoi[64] are in the liquid region rather than along the saturation line.

Considering that the saturation properties are calculated from independently fitted Eq. (3) and vapor pressure Eq. (4), a check of the enthalpy of evaporation was made using the Clausius-Clapeyron equation and enthalpy differences along the saturation curve calculated from the fundamental equation.

The thermodynamic consistency on the saturation curve was further checked by calculating the Gibbs energy of saturated vapor and saturated liquid.

$$\Delta h = [T(\mathrm{d}p_s/\mathrm{d}T)\,(v'' - v')] - (h'' - h')$$

and

$$\Delta g = (h'' - h') - T(s'' - s')$$

The results of this comparison are presented in Fig. 9. Larger differences in the enthalpy of evaporation are probably due to the inaccuracy of specific volumes of saturated vapor and liquid.

The enthalpy of evaporation at 165 K, calculated from Eq. (3) is 95.73 kJ/kg , that calculated from the Clausius-Clapeyron equation is 95.77 kJ/kg. The experimental value by Clusius and Riccoboni[43] at 165.13 K is 96.3 ± 0.096 kJ/kg (= 3020 ± 3 cal/mol). The value calculated from Eq. (3) is 95.69 kJ/kg.

5.4. Speed of Sound

Comparison of calculated values with experimental data by Lim *et al.*[66] is shown in Fig. 10, with smoothed data by Pitajevskaja *et al.*[67] in Fig. 11, and those with experimental data in the single-phase region by Baidakov *et al.*[68] in Fig. 12. Deviations between calculated and reported values are summarized in Table 26.

5.5. Comparison of the Fundamental Equation with Thermophysical Tables by Rabinovich[5]

Comparison of properties calculated with the fundamental equation [Eq. (3)] to the thermophysical tables by Rabinovich[5] for vapor pressure is shown in Fig. 6. A similar comparison for the saturated liquid density is shown in Fig. 7. These data conform to the data of Terry *et al.*[56] Comparisons of other thermodynamic functions along the saturation curve are in Figs. 13–15. Agreement of calculated data from Eq. (3) with tabulated data in the monograph by Rabinovich[5] is fairly good except in the vicinity of the critical point, where values in the monograph were determined using graphical methods.

Comparison of P-ρ-T data along selected isobars 0.1, 1, 10, 30 and 100 MPa in the single-phase region between 165 and 800 K is given in Table 27. Deviations of tabulated data calculated using Eq. (3) are well within ±0.2 % except for a few sporadic points. Deviation plots for enthalpy, entropy and heat capacity at constant pressure are given in Figs. 16–18. Deviations along studied isobars are very small: enthalpy deviations are between −0.2 and +0.3 J/g, entropy deviations between −0.0022 and +0.0002 J/(g K), deviations in isobaric heat capacity are between −4 and +2.7 %.

6. Tables of Thermodynamic Properties of Xenon

Tables of thermodynamic properties of xenon have been calculated using the fundamental equation of state [Eq. (3)], given in Tables 9 and 10, and derived thermodynamic quantities in Table 11.

Saturation properties, incremented by 2 K, covering the range from the triple point 161.36 K to 289 K are given in Table 28. These were calculated by the simultaneous solution of Eq. (3) and the vapor pressure equation [Eq. (4)]. Tables include: pressure, density, internal energy, enthalpy, entropy, isobaric and isochoric heat capacity, and speed of sound.

The same thermodynamic properties for the single-phase region along 25 isobars between 0.1 and 350 MPa ranging from 161.3 K to 800 K are tabulated in Table 29.

Properties in the critical region along 19 isochores between 0.650 to 1.500 g/cm³ at temperatures from approximately 286 to 310 K are displayed in Table 30.

7. Estimated Accuracy of Calculated Properties

A qualified assessment of accuracies can be carried out in regions covered with reliable experimental results. This is from the melting line up to 350 MPa and 473 K and approximately from 7 to 40 MPa between 473 and 750 K. In regions where experimental data are scarce or of poor quality or do not exist at all, the assessment can be based on experience only.

In the liquid range between the saturation and freezing curves up to T_C, the density values calculated with the present formulation are within ± 0.1 %. The same can be said about pressure values in the gaseous region.

In the range $T > T_C$ the densities calculated from the formulation Eq. (3) for $\rho > 1.4$ g/cm³ as well as pressures calculated for points with $\rho < 1.4$ g/cm³ are also accurate to within ± 0.13 %. Along the saturation curve and in its close vicinity the accuracy may be lower due to the inconsistency of the input data.

We believe, that in regions for which there are no experimental data, i.e. from 473 to 800 K between 40 and 350 MPa and from 423 to 800 K at pressures up to 40 MPa, the density and pressure values calculated from the present formulation are of an accuracy better than ± 0.5 % .

As for the saturation properties, the reliability of calculated values from this formulation can be estimated from comparisons with the experimental results and Thermophysical tables by Rabinovich[5]. This is illustrated in Figs. 6 through 9 and 13 to 15.

Calculated pressures from this formulation reproduce within ± 0.04 % experimental data by Habgood & Schneider[9] in the critical region ($0.618 < \rho$, g cm^{-3} < 1.3) and ($287.6 < T$,K < 291.5). The reliability of other thermodynamic quantities in the critical region is very difficult to estimate.

Comparison of calculated values from this formulation with tabulated values in the monograph by Rabinovich[5] along selected isobars between 0.1 and 100 MPa at temperatures from 165 to 800 K indicates that enthalpies are accurate within ± 0.2 J/g; entropies, within ± 0.002 J/(g K); and isobaric heat capacities, within ± 3 %, except in the vicinity of the critical point where the inaccuracy increases.

According to our assessment based on the comparison with experimental data, the speed of sound is described with the present formulation within ± 2 %.

8. Conclusion

The formulation presented describes the thermodynamic properties of liquid and gaseous xenon at temperatures ranging from 161.36 to 800 K and pressures up to 350 MPa. The coefficients of this equation have been developed by the readjustment of our previous equation of state[78] in order to fit all available experimental data. The thermodynamic consistency along the saturation curve was checked by comparison of Gibbs free energy of saturated liquid and saturated vapor as well as by calculation of enthalpy of evaporation by means of the Clausius-Clapeyron equation and from differences of enthalpies along the saturation curve. Comparisons of p-ρ-T data calculated from the present formulation to experimental data show that the deviations are generally within the limits of experimental error, except for the speed of sound. Description of the critical region is very accurate, and the standard deviation from experimental p-ρ-T data is less than 0.04 %. In the range (0.99 to 1.002)T_C at ($0.7 < \rho$, g cm^{-3} < 1.4) the equation is not concordant with the thermodynamic anomalies near the critical point. The present formulation may be used for extrapolation into the region not covered experimentally up to 800 K; in this case we believe that the accuracy of the predicted p-ρ-T values is better than 0.5 % and of about 4 % for heat capacity.

To reduce the uncertainty in the present formulation and to verify its validity in the extrapolated region, new precise multi-property experimental data in the single-phase and along the saturation curve are needed.

The program and source code in ANSI C for computation of thermodynamic quantities from the present formulation, for given pressure and temperature, is available on request from the NIST Standard Reference Data Program Office.

TABLE 1. Summary of experimental p-ρ-T data for xenon

Author(s)	Year	Temperature range T/K	Pressure range p/MPa	No. of points	Phase	Method	Purity	Estimated accuracy in ρ/%
Ramsay & Travers[6]	1901	284 and 510	2.6 – 10.4	22	G	v.v.	–	–
Beattie *et al.*[7]	1951	289.8 – 573	2.2 – 41.4	178	G	v.v.	0.14 mol% Kr	0.1 – 0.4
Michels *et al.*[8]	1954	273 – 423	1.67 – 283.6	412	G	v.v.	high purity	0.06 – 0.2
				25	L			
Habgood & Schneider[9]	1954	$1.4 \leq T_c \leq 1.8$	5.4 – 6	279	G,L	c.v.s.	high purity	±0.2
Reeves & Whytlaw-Gray[10]	1955	273 – 313	0.0185 – 0.1013	5	G	d.	impurities < 1 % Kr	
Whalley *et al.*[11]	1955	273 – 973	0.45 – 5.06	vir.eq. only	G	B.	< 0.01 %	
Packard & Swenson[12]	1963	20 – 160	(0.5 – 2 GPa)	202	S	m.Br.	99.9 %	
Waibel[13]	1969	323 – 873	0.4 – 60	214	G	B.	–	0.2 – 0.5
Theeuwes & Bearman[14]	1970	175 – 240	1.1 – 29.4	274	L	c.v.	impurities < 35 ppm	0.06
Blagoi & Sorokin[15]	1970	172 – 219	0.14 – 49	34	L	v.v.	99.92 %	0.2 – 0.5
Streett *et al.*[16]	1973	165 – 289.74	0.4 – 386.5	530	L	B.	impurities < 30 ppm	0.1 – 0.3
Rabinovich *et al.*[17]	1973	300 – 727	2.0 – 40.5	175	G	c.v.	< 0.08 %	0.1 – 0.2
Ulybin *et al.*[18]	1974	178 – 300	0.5 – 50	45	G	c.v.	–	0.1
				32	L			0.16

Classification of methods
- B. Burnett method
- c.v. constant volume piezometer
- c.v.s. c.v. with special modification for measurements in the critical region
- d. differential compressibility apparatus, N_2 as standard gas
- m.Br. modified Bridgman variable volume piston method
- v.v. variable volume piezometer

TABLE 2. Experimental values of the second virial coefficient for xenon

Author(s)	Year range T/K	Temperature points	No. of	Method	Estimated accuracy/cm^3.mol^{-1}
Beattie *et al.*[19]	1951	289 – 573	13	c.	±2
Michels *et al.*[8]	1954	273 – 423	7	c.	±2
Reewes & Whytlaw-Gray[10]	1955	273 – 313	5	d.	±10
Whalley *et al.*[11,20]	1955	273 – 973	10	c.	±1
Greenlief & Constabaris[21]	1966	298	1		±1
Brewer[22]	1967	173 – 223	3[a]		
Waibel[13]	1969	323 – 823	9	c.	±2
Pollard & Saville[23]	1971	160 – 300	18[b]	c.	±5
Hahn *et al.*[24]	1974	201 – 273	5	t.c.m.	±2
Rentschler *et al.*[25]	1977	309 – 713	7	t.c.m.	±4
Schramm *et al.*[26]	1977	231 – 491	11	c.m.	±4
			t.c.m.		

[a]Taken from Fastovskij[3]
[b]Taken from Dymond & Smith[27]

Classification of methods
- c. from compressibility measurements
- d. differential compressibility apparatus
- c.m. compressibility method
- t.c.m. temperature changing method

TABLE 3. Available experimental data of vapor pressure for xenon

Author(s)	Year	Temperature range T/K	No. of points	Phase	Purity
Ramsay & Travers[6]	1901	183.2 – 287.75	15	L	unspecified
Patterson *et al.*[28]	1912	253.2 – 283.15	4	L	unspecified
Peters & Weil[29]	1930	95 – 151.8	19	S	unspecified
		151 – 163.8	11	L	
Allen & Moore[30]	1931	155.8 – 166	18	S	unspecified
			13	L	
Heuse & Otto[31]	1932	160.6 – 166	32	L	0.5 % uncondensable gases at T_{NBP}
Clusius & Weigand[32]	1939	161.4 – 289.8	10	L	unspecified
Michels & Wassenaar[33]	1950	161.8 – 289.12	38	L	multiple rectification
S. Chu. Liang[34]	1951	77.3	1	S	multiple rectification
Habgood & Schneider[9]	1954	286.0 – 289.15	4	L	≈ 100 %
Freeman & Halsey[35]	1956	110 – 160.56	eq. only	S	0.18 % Kr purified by multiple
		160.5 – 166.2		L	rectification
Heastie & Lefebre[36]	1960	126 – 161.38	11	S	0.02 mol. % Kr, 0.01 mol. % N_2
Podgurski & Davis[37]	1961	77 – 90	11	S	spectral pure
Boato & Casanova[38]	1961	163 – 289	eq. only	S	
Bowman *et al.*[39]	1969	162 – 288.97	35	L	99.998 %
Theeuwes & Bearman[40]	1970	175 – 289.5	30	L	impurities < 36 ppm
Bryson *et al.*[41,42]	1974	53.7 – 59.6	7	S	99.9 %

TABLE 4. Measured triple point and normal boiling point data of xenon

Author(s)	Year	Triple point Temperature T/K	Triple point Pressure p/kPa	Normal boiling point Temperature T/K
Ramsay & Travers[6]	1901			163.9[a]
Peters & Weil[29]	1930	161.15 ± 0.5	82.06	164.55 ± 0.5[a]
Allen & Moore[30]	1931	161.65 ± 0.5	79.99 ± 2.6	166.05 ± 0.3
Heuse & Otto[31]	1932	161.26 ± 0.05	80.82	165.12
Clusius & Riccoboni[43]	1938	161.3 ± 0.1	81.46 ± 0.2[b]	
Clusius & Weigand[32]	1939			165.13
Clusius & Weigand[44]	1940	161.36 ± 0.03		
Clusius[45]	1941	161.36 ± 0.03	81.62 ± 0.027	
Michels & Wassenaar[33]	1950			165.03 ± 0.01
Freeman & Halsey[35]	1956	160.56	76.74	165.00
Heastie & Lefebre[36]	1960	161.38 ± 0.03	81.66 ± 0.133	
Michels & Prins[46]	1962	161.364	81.708[c]	
Lovejoy[47]	1963	161.3806		165.0435

[a]Extrapolated
[b]Extrapolation of izotopic composition influence
[c]Intersection of the melting and vapor pressure curves

TABLE 5. Available data for the critical parameters of xenon

Author(s)	Year	Temperature T/K	Pressure p/MPa	Density ρ/g.cm^{-3}
Ramsay & Travers[6]	1901	287.75	5.8811[a]	
		287.7	5.7995[b]	
Patterson *et al.*[28]	1912	289.75	5.8971[c]	1.155[d]
Beattie *et al.*[7 e]	1951	289.794	5.8657	1.0924
Weinberger & Schneider[48]	1952	289.734 ± 0.001		1.105[f]
Kobe & Lynn[49 g]	1953	289.694	5.8404	
Whiteway & Mason[50]	1953	289.744 ± 0.01[h]		1.110 ± 0.002
		289.734 ± 0.01[i]		1.110 ± 0.002
Palmer[51]	1954	289.624 ± 0.02[j]		
Habgood & Schneider[9]	1954	289.734[k]	5.8400 ± 0.0005[c]	1.099 ± 0.002[l]
Murray & Mason[52]	1955	289.774 ± 0.02[m]		
Julien[53 n]	1955	289.744	5.8404	1.109
Edwards *et al.*[54]	1968	289.697[o]		
Vicentini-Missoni *et al.*[55]	1969	289.73 ± 0.03[p]		1.110
Terry *et al.*[56]	1969	289.74[g]		1.095[q]
Vukalovich *et al.*[57]	1970	289.74	5.8364[r]	
Cornfeld & Carr[58]	1972	289.74		1.1128 ± 0.0003[d]
				1.1126 ± 0.0006[s]
				1.1095 ± 0.0017[u]
				1.1113 ± 0.0017[u]
Swinney & Henry[82]	1973	289.756 ± 0.02		
		289.760 ± 0.02		
Strumpf *et al.*[59]	1974	289.777 ± 0.005[j]		1.11 ± 0.01
Baidakov *et al.*[60]	1988	289.765 ± 0.005[c]	5.8415[c]	1.11128[c]
Närger & Balzarini[61]	1990	289.752 ± 0.001[t]		1.1160 ± 0.0017[v]
		289.789 ± 0.002[t]		1.1147 ± 0.0017[v]

[a]Measured
[b]Tabulated value
[b]Tabulated value
[c]From $p\rho T$ measurements
[d]From rectilinear diameter
[e]Approx. value, further unspecified
[f]From minimum slopes of the isotherms at and above T_c
[g]Critical evaluation
[h]Bomb height 40 mm unfinished measurement
[i]Bomb height 130 mm
[j]Meniscus method
[k]Accepted value; agreement with experiments within ± 0.002 – 0.003 K
[l]From a plot of densities of minimum slope of isotherms vs temperature
[m]From light dispersion
[n]Taken from Fastovskij[3]
[o]From c_v measurements
[p]From scaling
[q]Evaluation of own ρ' measurements
[r]Calculated from p_s
[s]*NMR* measurements of the rectilinear diameter and extrapolation to T_c
[t]Fitting the coexistence curve data, corrections to scaling
[u]Critical-isotherm data and gravitational effect analysis

TABLE 6. Available data for the density of saturated liquid and saturated vapor

Author(s)	Year	Data	Temperature range T/K	No. of points
Patterson *et al.*[28]	1912	ρ',ρ''	206 - 289	30
Weinberger & Schneider[48]	1952	ρ',ρ''	288 - 289.7	44
Whiteway & Mason[50]	1953	ρ',ρ''	289.64 - 289.74	32
Leadbetter & Thomas[62]	1965	ρ'	162 - 273	21
Terry *et al.*[56]	1969	ρ'	164 - 219	15
Theeuwes & Bearman[40]	1970	ρ'	165 - 236.4	21[a]
Cornfeld & Carr[58]	1972	ρ',ρ''	206.7 - 288.34	154

[a]3 points extrapolated

TABLE 7. Measurements of the speed of sound for xenon

Author(s)	Year	Temperature range T/K	Pressure range p/MPa	No. of points	Estimated accuracy in w/%
critical region					
Chynoweth & Schneider[63]	1952	288.43 - 296.06	5.6 - 6.3	85	±0.7
saturated liquid					
Blagoi *et al.*[64]	1967	161.8 - 270	p_s	23	0.2–0.3
Aziz *et al.*[65]	1967	161.33 - 272.18	p_s	61	±0.1
liquid					
Lim *et al.*[66]	1968	164.9 - 285.17	p_s - 6.58	116	±0.1
Pitaevskaja *et al.*[67]	1975	298.15 - 473.15	4 - 400	152[a]	~1–2
Baidakov *et al.*[68]	1985	200 - 270	1.7 - 4	57[b]	±0.1

[a]Smoothed values only.
[b]Metastable and stable region.

TABLE 8. Measurements along the melting curve of xenon

Author(s)	Year	Temperature range T/K	Pressure range p/MPa	Method	No. of points
Clusius & Riccoboni[43]	1938	161.3	(611 ± 15 mm Hg)		1[a]
Clusius & Weigand[44]	1940	161.36 - 164.34	0.08 - 7.71	c.m.	12
Stryland *et al.*[73]	1960	165.2 - 261.2	12.77 - 302.05	m.p.	18
Michels & Prins[46]	1962	161.55 - 215.26	0.56 - 151.38	b.c.	14
Lahr & Eversole[74]	1962	161.4 - 363	0 - 653.55	p.d.	10

[a]Melting enthalpy 548.5 cal/mol = 17.490 J/g.

Classification of methods
b.c. blocked capillary method
c.m. cooling method
m.p. moving pellet method
p.d. direct piston displacement method

Table 9. Fundamental equation of state for xenon

$$\varphi(\tau,\zeta) = X_{0J} + \tau \ln \zeta + [\psi_0 X_0 + \sum_{i=1}^{3} (\psi_i + F_{i0J}) X_i + (\psi_4 - F_{40}) X_{4K} + F_{40J} X_{4J} + (\psi_{5+L} - F_{5+L,0}) X_5] \quad (3)$$

$J = 1$ if $\tau < 1$ and $\zeta > \zeta_7$; else $J = 0$

$K = 1$ if $\zeta > \zeta_4$; else $K = 0$

$L = 1$ if $\zeta > \zeta_7$; else $L = 0$

$X_{0J} = \sum_{j=0}^{mJ} E_{Jj} \cdot \tau^{j} - E_J \cdot \tau \ln \tau$; $J = 0; 1$

$X_i = (1/\tau)^{Q_i} = \tau^{-Q_i}$; $i = 0; 1; 2; 3$

$X_{4Y} = \tau^{-Q_{4+Y}}$; $Y \in (J,K) = 0; 1$

$X_5 = E_2 . \tau^{-Q_6} + E_3 . \tau^{-Q_7}$, if $E_4 < \tau < E_5$; else $X_5 = 0$

$\psi_i = \psi_i(\chi_i) = \sum_{j=1}^{9} F_{ij} \chi_i{}^{j}$; $i = 0; 1; 2; 3; 4; 5+L$

$\chi_i = \zeta$; $i = 0; 1; 2; 3$

$\chi_4 = \zeta$, if $\zeta_2 < \zeta < \zeta_3$ $\quad \chi_{5+L} = \zeta$, if $\zeta_5 < \zeta < \zeta_6$; $L = 0; 1$

$\chi_4 = \zeta_2$, if $\zeta \leqslant \zeta_2$ $\quad \chi_{5+L} = \zeta_5$, if $\zeta \leqslant \zeta_5$; $L = 0$

$\chi_4 = \zeta_3$, if $\zeta \geqslant \zeta_3$ $\quad \chi_{5+L} = \zeta_6$, if $\zeta \geqslant \zeta_6$; $L = 1$

E_k = const; F_k = const; ζ_k = const; Q_k = const; (k is an arbitrary subscript)

$F_{i0J} = -\psi_i(\zeta_J)$; $\quad i = 1; 2; 3 \quad J = 0; 1$

$F_{40} = \psi_4(\zeta_4)$

$F_{40J} = F_{40} - \psi_4(\zeta_{2+J})$; $J = 0; 1$

$F_{5+L,0} = \psi_{5+L}(\zeta_{5+L})$; $L = 0; 1$

Table 10. Coefficients of the fundamental equation for xenon Eq.(3)

k	ζ_k	Q_k	E_k	J	m_J	E_{Jj}			
						j			
						0	1	2	3
0	0.000000000	−1.00	1.50000000						
1	2.969096800	0.00	1.94435064						
2	0.405560790	1.00	1.46000000						
3	2.325375200	3.00	1.02000000						
4	1.113492400	21.00	0.98300000						
5	0.611940840	24.83	1.17300000						
6	1.485456392	250.00	–	0	1	−1.4020567	6.5384430	–	–
7	1.101493512	21.00	–	1	3	−6.6047780	8.9685638	−0.87538506	0.19264642

F_{ij}

i	0	1	2	3	4	5	6
j							
1	0.48176287000	−1.17810687000	−0.2405126300	−0.075090870300	−0.21382659500	−0.00701074245	−3.56560121
2	−0.22996818000	0.61145818500	−0.3576334170	−0.039474165900	0.85313703300	0.03926238030	8.73657614
3	0.67678089000	−1.59127084000	1.3854592100	−0.037603850100	−1.77422585000	−0.11095677400	−11.83502506
4	−0.82687853000	2.18816951000	−2.2662842000	0.404244668000	2.11856977000	0.17579653100	9.56797096
5	0.59684665000	−1.66416239000	1.8913226900	−0.462622543000	−1.53874755000	−0.15813531700	−4.61464670
6	−0.26046265000	0.74157450600	−0.8963672240	0.240814610000	0.69373787200	0.07524343650	1.22917766
7	0.06824958400	−0.19223425600	0.2442593660	−0.06689881470	−0.19015391500	−0.01467539940	−0.13948161
8	−0.00989380260	0.02688153030	−0.0356830831	0.009675905940	0.02908669820	0.00000000000	0.00000000
9	0.00060938476	−0.00156464723	0.00216704074	−0.000575094683	−0.00190789666	0.00000000000	0.00000000

Table 11. Derived thermodynamic properties

reduced pressure

$$\pi = -(\partial \varphi / \partial \omega)_\tau = \zeta^2 (\partial \varphi / \partial \zeta)_\tau$$

$$\pi = \zeta [\tau + (\sum_{i=0}^{3} \psi_i' X_i + \psi_4' X_{4K} + \psi_{5+L}' X_5)]$$

$$\psi_i' = \sum_{j=1}^{9} j F_{ij} \chi_i^j ; i = 0; 1; 2; 3; 4; 5+L$$

[$\psi_4' (\zeta_2) = \psi_4' (\zeta_3) = \psi_5' (\zeta_5) = \psi_6' (\zeta_6) = 0$ exactly]

reduced entropy

$$\sigma = -(\partial \varphi / \partial \tau)_\omega = -(\partial \varphi / \partial \tau)_\zeta$$

$$\sigma = (1/\tau) \{X_{0J}' - \tau \ln \zeta + [\psi_0 X_0' + \sum_{i=2}^{3} (\psi_i + F_{i0J}) X_i' + (\psi_4 - F_{40}) X_{4K}' + F_{40J} X_{4J}' + (\psi_{5+L} - F_{5+L,0}) X_5']\}$$

$$X_{0J}' = E_J \tau (1 + \ln \tau) - \sum_{j=1}^{m_J} j E_{Jj} \tau^j$$

$$X_i' = Q_i X_i ; i = 0; 2; 3$$

$$X_{4Y}' = Q_{4+Y} X_{4Y} ; Y \in (J,K) = 0; 1$$

$$X_5' = Q_6 E_2 \tau^{-Q_6} + Q_7 E_3 \tau^{-Q_7}, \text{ if } E_4 < \tau < E_5 ; \text{ else } X_5' = 0$$

Table 11. Derived thermodynamic properties — Continued

reduced internal energy

$\vartheta = \varphi + \tau\sigma$

$\vartheta = X^{\dagger}_{0J} + [\sum_{i=1}^{3}(\psi_i + F_{i0J})X^{\dagger}_i + (\psi_4 - F_{40})X^{\dagger}_{4K} + F_{40J}X^{\dagger}_{4J} + (\psi_{5+L} - F_{5+L,0})X^{\dagger}_5]$

$X^{\dagger}_{0J} = E_J\tau + \sum_{j=0}^{m_J}(1-j)E_{Jj}\tau^j$

$X^{\dagger}_i = (Q_i + 1)X_i$; $i = 1; 2; 3$

$X^{\dagger}_{4Y} = (Q_{4+Y} + 1)X_{4Y}$; $Y \in (J,K) = 0; 1$

$X^{\dagger}_5 = (Q_6+1)E_2\tau^{-Q_6} + (Q_7+1)E_3\tau^{-Q_7}$, if $E_4 < \tau < E_5$; else $X^{\dagger}_5 = 0$

reduced enthalpy

$\epsilon = \vartheta + \pi/\zeta$

reduced isochoric heat capacity

$\gamma_v = -\tau(\partial^2\varphi/\partial\tau^2)_\omega = \tau(\partial\sigma/\partial\tau)_\zeta$

$\gamma_v = (1/\tau)\{X''_{0J} + [\sum_{i=2}^{3}(\psi_i + F_{i0J})X''_i + (\psi_4 - F_{40})X''_{4K} + F_{40J}X''_{4J} + (\psi_{5+L} - F_{5+L,0})X''_5]\}$

$X''_{0J} = E_J\tau - \sum_{j=1}^{m_J} j(j-1)E_{Jj}\tau^j$

$X''_i = -(Q_i+1)X'_i$; $i = 2; 3$

$X''_{4Y} = -(Q_{4+Y}+1)X'_{4Y}$; $Y \in (J,K) = 0; 1$

$X''_5 = -(Q_6+1)Q_6E_2\tau^{-Q_6} - (Q_7+1)Q_7E_3\tau^{-Q_7}$, if $E_4 < \tau < E_5$; else $X''_5 = 0$

reduced isobaric heat capacity

$\gamma_p = \gamma_v + \tau(\partial^2\varphi/\partial\omega\,\partial\tau)^2/(\partial^2\varphi/\partial\omega^2)_\tau = \gamma_v + \tau\,\xi^2/\kappa$

$(\partial^2\varphi/\partial\omega^2) = -(\partial\pi/\partial\omega)_\tau = \zeta^2(\partial\pi/\partial\zeta)_\tau = \zeta^2\kappa$

$(\partial^2\varphi/\partial\omega\,\partial\tau) = -(\partial\pi/\partial\tau)_\omega = \zeta^2(\partial\sigma/\partial\zeta)_\tau = -(\partial\sigma/\partial\omega)_\tau = -\xi\zeta$

$\kappa = \tau + \sum_{i=0}^{3}\psi''_i X_i + \psi''_4 X_{4K} + \psi''_{5+L}X_5$

$\psi''_i = \sum_{j=1}^{9} j(j+1)F_{ij}\chi^j_i$; $i = 0; 1; 2; 3; 4; 5+L$

$[\psi''_4(\zeta_2) = \psi''_4(\zeta_3) = \psi''_5(\zeta_5) = \psi''_6(\zeta_6) = 0$ exactly$]$

$\xi = 1 - (1/\tau)[\sum_{i=0}^{3}\psi'_i X'_i + \psi'_4 X'_{4K} + \psi'_{5+L}X'_5]$

reduced speed of sound

$\nu = \sqrt{(\kappa\,\gamma_p/\gamma_v)}$

$\nu = \sqrt{(\kappa + \tau\,\xi^2/\gamma_v)}$

TABLE 12. Saturation properties-coefficients and exponents

Vapor pressure equation (4)	
$a_0 = -8.48583984\times10^3$	$a_5 = 5.86334808\times10^{-7}$
$a_1 = 2.696183136\times10^2$	$a_6 = -1.215310816\times10^{-9}$
$a_2 = -3.94126562\times10^0$	$a_7 = 1.424073676\times10^{-12}$
$a_3 = 3.332691\times10^{-2}$	$a_8 = -7.2009907\times10^{-16}$
$a_4 = -1.75307022\times10^{-4}$	
Vapor pressure equation (5)	
$a_1 = -5.988397\times10^0$	$\alpha_1 = 1$
$a_2 = 1.358585\times10^0$	$\alpha_2 = 1.5$
$a_3 = -0.9018093\times10^0$	$\alpha_3 = 2.5$
$a_4 = -1.343456\times10^2$	$\alpha_4 = 12$
Saturated liquid equation (6)	
$a_1 = 0.5336001$	$k_1 = 1/4$
$a_2 = 2.461331$	$k_2 = 2/4$
$a_3 = -0.9772429$	$k_3 = 3/4$
$a_4 = 0.7076088$	$k_4 = 7/4$

$T_c = 289.74$ K $p_c = 5.84$ MPa $\rho_c = 1.099$ g/cm^3

TABLE 13. Comparison of Beattie *et al.* experimental p-ρ-T data[7] (gaseous phase) with Eq. (3)

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
289.800	0.13130	0.13132	−0.02	2.0941	2.0938	0.02
289.800	0.19695	0.19727	−0.16	2.9199	2.9162	0.13
289.800	0.26260	0.26339	−0.30	3.6124	3.6049	0.21
289.800	0.32825	0.32951	−0.38	4.1839	4.1740	0.24
289.800	0.39390	0.39526	−0.34	4.6461	4.6375	0.18
289.800	0.45955	0.46087	−0.29	5.0122	5.0058	0.13
289.800	0.52520	0.52674	−0.29	5.2916	5.2860	0.11
289.800	0.59085	0.59211	−0.21	5.4944	5.4911	0.06
289.800	0.65650	0.66265	−0.93	5.6458	5.6350	0.19
289.800	0.78780	0.81243	−3.03	5.8049	5.7899	0.26
289.800	0.91910	1.31751	−30.2	5.8546	5.8385	0.27
289.800	1.05040	1.35543	−22.5	5.8647	5.8448	0.34
289.800	1.18170	1.36336	−13.3	5.8677	5.8452	0.38
289.800	1.31300	1.38631	−5.29	5.8789	5.8537	0.43
298.150	0.13130	0.13136	−0.04	2.1727	2.1719	0.04
298.150	0.19695	0.19726	−0.16	3.0438	3.0400	0.13
298.150	0.26260	0.26335	−0.28	3.7861	3.7784	0.20
298.150	0.32825	0.32949	−0.38	4.4114	4.4006	0.24
298.150	0.39390	0.39547	−0.40	4.9315	4.9202	0.23
298.150	0.45955	0.46110	−0.34	5.3573	5.3482	0.17
298.150	0.52520	0.52717	−0.37	5.7028	5.6936	0.16
298.150	0.59085	0.59360	−0.46	5.9782	5.9680	0.17
298.150	0.65650	0.66053	−0.61	6.1950	6.1835	0.19
298.150	0.78780	0.79702	−1.16	6.4970	6.4811	0.24
298.150	0.91910	0.93681	−1.89	6.6844	6.6648	0.29
298.150	1.05040	1.07718	−2.49	6.8212	6.7962	0.37
298.150	1.18170	1.20762	−2.15	6.9509	6.9226	0.41
298.150	1.31300	1.33422	−1.59	7.1313	7.0943	0.52
323.150	0.13130	0.13134	−0.03	2.4045	2.4040	0.02
323.150	0.19695	0.19721	−0.13	3.4098	3.4061	0.11
323.150	0.26260	0.26325	−0.25	4.2980	4.2898	0.19
323.150	0.32825	0.32933	−0.33	5.0795	5.0675	0.24
323.150	0.39390	0.39544	−0.39	5.7663	5.7513	0.26

TABLE 13. Comparison of Beattie *et al.* experimental p-ρ-T data[7] (gaseous phase) with Eq. (3) – Continued

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
323.150	0.45955	0.46156	−0.43	6.3697	6.3525	0.27
323.150	0.52520	0.52754	−0.44	6.8988	6.8812	0.26
323.150	0.59085	0.59356	−0.46	7.3654	7.3474	0.25
323.150	0.65650	0.65962	−0.47	7.7793	7.7608	0.24
323.150	0.78780	0.79270	−0.62	8.4900	8.4661	0.28
323.150	0.91910	0.92645	−0.79	9.1010	9.0689	0.35
323.150	1.05040	1.06029	−0.93	9.6846	9.6407	0.46
323.150	1.18170	1.19075	−0.76	10.3037	10.2574	0.45
323.150	1.31300	1.32399	−0.83	11.0839	11.0110	0.66
348.150	0.13130	0.13138	−0.06	2.6352	2.6337	0.06
348.150	0.19695	0.19723	−0.14	3.7716	3.7670	0.12
348.150	0.26260	0.26323	−0.24	4.8015	4.7922	0.19
348.150	0.32825	0.32944	−0.36	5.7369	5.7209	0.28
348.150	0.39390	0.39531	−0.36	6.5820	6.5647	0.26
348.150	0.45955	0.46128	−0.37	7.3537	7.3343	0.26
348.150	0.52520	0.52721	−0.38	8.0604	8.0397	0.26
348.150	0.59085	0.59321	−0.40	8.7128	8.6903	0.26
348.150	0.65650	0.65912	−0.40	9.3189	9.2955	0.25
348.150	0.78780	0.79170	−0.49	10.4375	10.4060	0.30
348.150	0.91910	0.92483	−0.62	11.4913	11.4463	0.39
348.150	1.05040	1.05747	−0.67	12.5572	12.4984	0.47
348.150	1.18170	1.19005	−0.70	13.7366	13.6569	0.58
348.150	1.31300	1.31924	−0.47	15.1106	15.0372	0.49
373.150	0.13130	0.13143	−0.10	2.8643	2.8617	0.09
373.150	0.19695	0.19727	−0.16	4.1299	4.1240	0.14
373.150	0.26260	0.26321	−0.23	5.2983	5.2878	0.20
373.150	0.32825	0.32918	−0.28	6.3791	6.3645	0.23
373.150	0.39390	0.39522	−0.33	7.3846	7.3651	0.26
373.150	0.45955	0.46111	−0.34	8.3216	8.3001	0.26
373.150	0.52520	0.52114	0.78	9.1264	9.1793	−0.58
373.150	0.59085	0.59296	−0.36	10.0384	10.0122	0.26
373.150	0.65650	0.65893	−0.37	10.8369	10.8080	0.27
373.150	0.78780	0.79120	−0.43	12.3647	12.3261	0.31
373.150	0.91910	0.92387	−0.52	13.8684	13.8138	0.40
373.150	1.05040	1.05650	−0.58	15.4379	15.3627	0.49
373.150	1.18170	1.18902	−0.62	17.1847	17.0814	0.61
373.150	1.31300	1.32064	−0.58	19.2335	19.1032	0.68
398.150	0.13130	0.13144	−0.11	3.0916	3.0885	0.10
398.150	0.19695	0.19728	−0.17	4.4848	4.4782	0.15
398.150	0.26260	0.26325	−0.25	5.7909	5.7785	0.22
398.150	0.32825	0.32921	−0.29	7.0180	7.0006	0.25
398.150	0.39390	0.39516	−0.32	8.1771	8.1556	0.26
398.150	0.45955	0.46107	−0.33	9.2786	9.2538	0.27
398.150	0.52520	0.52701	−0.34	10.3334	10.3050	0.28
398.150	0.59085	0.59286	−0.34	11.3492	11.3187	0.27
398.150	0.65650	0.65866	−0.33	12.3366	12.3045	0.26
398.150	0.78780	0.79066	−0.36	14.2737	14.2319	0.29
398.150	0.91910	0.92301	−0.42	16.2313	16.1723	0.36
398.150	1.05040	1.05586	−0.52	18.3155	18.2260	0.49
398.150	1.18170	1.18807	−0.54	20.6328	20.5134	0.58
398.150	1.31300	1.32004	−0.53	23.3402	23.1828	0.68
423.150	0.13130	0.13144	−0.10	3.3175	3.3143	0.10
423.150	0.19695	0.19729	−0.17	4.8377	4.8300	0.16
423.150	0.26260	0.26327	−0.25	6.2794	6.2652	0.23
423.150	0.32825	0.32921	−0.29	7.6505	7.6311	0.26
423.150	0.39390	0.39517	−0.32	8.9632	8.9385	0.28
423.150	0.45955	0.46101	−0.32	10.2255	10.1980	0.27
423.150	0.52520	0.52684	−0.31	11.4497	11.4196	0.26
423.150	0.59085	0.59272	−0.31	12.6468	12.6132	0.27
423.150	0.65650	0.65858	−0.32	13.8254	13.7884	0.27
423.150	0.78780	0.79037	−0.33	16.1715	16.1254	0.29

TABLE 13. Comparison of Beattie *et al.* experimental p-ρ-T data[7] (gaseous phase) with Eq. (3) – Continued

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
423.150	0.91910	0.92266	−0.39	18.5881	18.5213	0.36
423.150	1.05040	1.05484	−0.42	21.1749	21.0838	0.43
423.150	1.18170	1.18735	−0.48	24.0758	23.9438	0.55
423.150	1.31300	1.31981	−0.52	27.4510	27.2629	0.69
448.150	0.13130	0.13145	−0.11	3.5430	3.5392	0.11
448.150	0.19695	0.19731	−0.18	5.1890	5.1802	0.17
448.150	0.26260	0.26324	−0.24	6.7638	6.7490	0.22
448.150	0.32825	0.32924	−0.30	8.2793	8.2570	0.27
448.150	0.39390	0.39514	−0.31	9.7424	9.7153	0.28
448.150	0.45955	0.46083	−0.28	11.1621	11.1348	0.24
448.150	0.52520	0.52300	0.42	12.4793	12.5256	−0.37
448.150	0.59085	0.59266	−0.31	13.9355	13.8979	0.27
448.150	0.65650	0.65841	−0.29	15.3015	15.2618	0.26
448.150	0.78780	0.79015	−0.30	18.0581	18.0083	0.28
448.150	0.91910	0.92187	−0.30	20.9226	20.8606	0.30
448.150	1.05040	1.05470	−0.41	24.0394	23.9335	0.44
448.150	1.18170	1.18717	−0.46	27.5209	27.3675	0.56
448.150	1.31300	1.31961	−0.50	31.5536	31.3361	0.69
473.150	0.13130	0.13149	−0.14	3.7687	3.7636	0.14
473.150	0.19695	0.19736	−0.21	5.5397	5.5289	0.20
473.150	0.26260	0.26338	−0.29	7.2500	7.2302	0.27
473.150	0.32825	0.32928	−0.31	8.9047	8.8793	0.29
473.150	0.39390	0.39530	−0.36	10.5214	10.4873	0.32
473.150	0.45955	0.46117	−0.35	12.1041	12.0655	0.32
473.150	0.52520	0.52704	−0.35	13.6679	13.6244	0.32
473.150	0.59085	0.59271	−0.31	15.2185	15.1745	0.29
473.150	0.65650	0.65858	−0.32	16.7758	16.7266	0.29
473.150	0.78780	0.79013	−0.30	19.9387	19.8817	0.29
473.150	0.91910	0.92201	−0.32	23.2662	23.1903	0.33
473.150	1.05040	1.05432	−0.37	26.8866	26.7740	0.42
473.150	1.18170	1.18662	−0.41	30.9426	30.7818	0.52
473.150	1.31300	1.31959	−0.50	35.6502	35.3984	0.71
498.150	0.13130	0.13151	−0.16	3.9934	3.9874	0.15
498.150	0.19695	0.19742	−0.24	5.8897	5.8764	0.23
498.150	0.26260	0.26341	−0.31	7.7319	7.7095	0.29
498.150	0.32825	0.32942	−0.36	9.5302	9.4986	0.33
498.150	0.39390	0.39539	−0.38	11.2950	11.2554	0.35
498.150	0.45955	0.46136	−0.39	13.0388	12.9913	0.37
498.150	0.52520	0.52707	−0.35	14.7664	14.7173	0.33
498.150	0.59085	0.59283	−0.33	16.4967	16.4444	0.32
498.150	0.65650	0.65849	−0.30	18.2369	18.1838	0.29
498.150	0.78780	0.79002	−0.28	21.8082	21.7465	0.28
498.150	0.91910	0.92171	−0.28	25.5886	25.5109	0.30
498.150	1.05040	1.05387	−0.33	29.7186	29.6046	0.39
498.150	1.18170	1.18528	−0.30	34.3188	34.1852	0.39
498.150	1.31300	1.31893	−0.45	39.7052	39.4476	0.65
523.150	0.13130	0.13156	−0.20	4.2189	4.2108	0.19
523.150	0.19695	0.19751	−0.29	6.2400	6.2230	0.27
523.150	0.26260	0.26356	−0.37	8.2156	8.1871	0.35
523.150	0.32825	0.32956	−0.40	10.1536	10.1154	0.38
523.150	0.39390	0.39562	−0.43	12.0696	12.0201	0.41
523.150	0.45955	0.46153	−0.43	13.9698	13.9129	0.41
523.150	0.52520	0.52747	−0.43	15.8709	15.8053	0.42
523.150	0.59085	0.59313	−0.39	17.7752	17.7087	0.38
523.150	0.65650	0.65889	−0.36	19.7053	19.6346	0.36
523.150	0.78780	0.79037	−0.33	23.6837	23.6038	0.34
523.150	0.91910	0.92207	−0.32	27.9221	27.8229	0.36
523.150	1.05040	1.05416	−0.36	32.5648	32.4257	0.43
523.150	1.18170	1.18668	−0.42	37.7861	37.5775	0.56

TABLE 13. Comparison of Beattie *et al.* experimental p-ρ-T data[7] (gaseous phase) with Eq. (3) – Continued

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
548.150	0.13130	0.13161	−0.24	4.4441	4.4338	0.23
548.150	0.19695	0.19757	−0.32	6.5888	6.5687	0.30
548.150	0.26260	0.26364	−0.39	8.6962	8.6634	0.38
548.150	0.32825	0.32969	−0.44	10.7755	10.7303	0.42
548.150	0.39390	0.39572	−0.46	12.8388	12.7821	0.44
548.150	0.45955	0.46164	−0.45	14.8963	14.8310	0.44
548.150	0.52520	0.52742	−0.42	16.9589	16.8890	0.41
548.150	0.59085	0.59327	−0.41	19.0454	18.9680	0.41
548.150	0.65650	0.65889	−0.36	21.1578	21.0800	0.37
548.150	0.78780	0.79029	−0.32	25.5400	25.4545	0.34
548.150	0.91910	0.92232	−0.35	30.2465	30.1271	0.40
548.150	1.05040	1.05389	−0.33	35.3807	35.2375	0.41
548.150	1.18170	1.18590	−0.35	41.1542	40.9586	0.48
573.150	0.13130	0.13159	−0.22	4.6667	4.6565	0.22
573.150	0.19695	0.19761	−0.34	6.9364	6.9138	0.33
573.150	0.26260	0.26371	−0.42	9.1757	9.1384	0.41
573.150	0.32825	0.32978	−0.46	11.3946	11.3434	0.45
573.150	0.39390	0.39585	−0.49	13.6069	13.5417	0.48
573.150	0.45955	0.46173	−0.47	15.8198	15.7462	0.47
573.150	0.52520	0.52759	−0.45	18.0506	17.9692	0.45
573.150	0.59085	0.59328	−0.41	20.3074	20.2232	0.42
573.150	0.65650	0.65914	−0.40	22.6141	22.5206	0.42
573.150	0.78780	0.79052	−0.34	27.4013	27.2991	0.37
573.150	0.91910	0.92199	−0.31	32.5415	32.4240	0.36
573.150	1.05040	1.05410	−0.35	38.2076	38.0404	0.44

TABLE 14. Comparison of Michels *et al.* experimental p-ρ-T data[8] (gaseous phase) with Eq. (3)

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
273.150	0.11031	0.11016	0.13	1.6692	1.6711	−0.11
273.150	0.13826	0.13813	0.10	2.0198	2.0214	−0.08
273.150	0.16624	0.16617	0.05	2.3430	2.3439	−0.04
273.150	0.19345	0.19345	0.00	2.6315	2.6315	−0.00
273.150	0.22198	0.22210	−0.05	2.9079	2.9067	0.04
273.150	0.25036	0.25055	−0.08	3.1566	3.1550	0.05
273.150	0.25969	0.25988	−0.07	3.2328	3.2312	0.05
273.150	0.27774	0.27793	−0.07	3.3729	3.3714	0.04
273.150	0.28586	0.28598	−0.04	3.4324	3.4315	0.02
273.150	0.30632	0.30629	0.01	3.5744	3.5746	−0.01
273.150	0.31186	0.31178	0.02	3.6109	3.6113	−0.01
273.150	0.33757	0.33711	0.14	3.7687	3.7714	−0.07
273.150	0.36367	0.36242	0.34	3.9102	3.9168	−0.17
273.150	0.39022	0.38769	0.65	4.0361	4.0480	−0.29
303.150	0.59873	0.59770	0.17	6.2789	6.2833	−0.07
303.150	0.65909	0.65761	0.22	6.5100	6.5151	−0.08
303.150	0.71902	0.71731	0.24	6.7012	6.7062	−0.07
303.150	0.77831	0.77637	0.25	6.8592	6.8640	−0.07
303.150	0.83850	0.83650	0.24	6.9952	6.9993	−0.06
303.150	0.89971	0.89778	0.22	7.1144	7.1179	−0.05
303.150	0.90153	0.89954	0.22	7.1176	7.1212	−0.05
303.150	0.96096	0.95975	0.13	7.2216	7.2236	−0.03
303.150	0.99240	0.99115	0.13	7.2727	7.2747	−0.03
303.150	1.01779	1.01657	0.12	7.3131	7.3151	−0.03
303.150	1.08265	1.08183	0.08	7.4164	7.4177	−0.02
303.150	1.17194	1.17157	0.03	7.5651	7.5658	−0.01
303.150	1.26257	1.26198	0.05	7.7422	7.7435	−0.02
303.150	1.35476	1.35370	0.08	7.9780	7.9813	−0.04

TABLE 14. Comparison of Michels *et al.* experimental p-ρ-T data[8] (gaseous phase) with Eq. (3) – Continued

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
303.150	1.38948	1.38806	0.10	8.0887	8.0936	−0.06
303.150	1.44702	1.44524	0.12	8.3100	8.3178	−0.09
303.150	1.52959	1.52736	0.15	8.7352	8.7489	−0.16
303.150	1.53262	1.53032	0.15	8.7534	8.7677	−0.16
303.150	1.66878	1.66691	0.11	9.8912	9.9117	−0.21
303.150	1.77925	1.77815	0.06	11.4140	11.4325	−0.16
303.150	1.80654	1.80554	0.06	11.9010	11.9198	−0.16
303.150	1.94648	1.94608	0.02	15.3387	15.3510	−0.08
303.150	1.95891	1.95857	0.02	15.7349	15.7457	−0.07
303.150	2.08897	2.08853	0.02	20.9900	21.0119	−0.10
303.150	2.13758	2.13706	0.02	23.5750	23.6047	−0.13
303.150	2.23179	2.23081	0.04	29.7480	29.8213	−0.25
303.150	2.31476	2.31338	0.06	36.6940	36.8242	−0.35
303.150	2.36456	2.36290	0.07	41.6455	41.8226	−0.42
303.150	2.49522	2.49306	0.09	57.9415	58.2566	−0.54
303.150	2.67972	2.67778	0.07	91.0177	91.4377	−0.46
303.150	2.86573	2.86497	0.03	139.8079	140.0434	−0.17
303.150	3.03999	3.03951	0.02	203.6192	203.8279	−0.10
313.150	0.59873	0.59803	0.12	6.8420	6.8458	−0.06
313.150	0.65909	0.65797	0.17	7.1456	7.1508	−0.07
313.150	0.71902	0.71762	0.19	7.4100	7.4158	−0.08
313.150	0.77831	0.77683	0.19	7.6422	7.6477	−0.07
313.150	0.83850	0.83698	0.18	7.8538	7.8588	−0.06
313.150	0.89971	0.89855	0.13	8.0518	8.0554	−0.04
313.150	0.90153	0.90038	0.13	8.0575	8.0610	−0.04
313.150	0.96096	0.96045	0.05	8.2389	8.2405	−0.02
313.150	0.99240	0.99206	0.03	8.3321	8.3331	−0.01
313.150	1.01779	1.01777	0.00	8.4075	8.4075	−0.00
313.150	1.08265	1.08300	−0.03	8.6011	8.6000	0.01
313.150	1.17194	1.17264	−0.06	8.8840	8.8817	0.03
313.150	1.26257	1.26294	−0.03	9.2132	9.2118	0.02
313.150	1.35476	1.35446	0.02	9.6263	9.6279	−0.02
313.150	1.38948	1.38864	0.06	9.8097	9.8145	−0.05
313.150	1.44702	1.44578	0.09	10.1628	10.1712	−0.08
313.150	1.52959	1.52772	0.12	10.7977	10.8144	−0.15
313.150	1.53262	1.53082	0.12	10.8254	10.8415	−0.15
313.150	1.66878	1.66705	0.10	12.3753	12.4001	−0.20
313.150	1.77925	1.77809	0.07	14.2951	14.3192	−0.17
313.150	1.80654	1.80550	0.06	14.8902	14.9138	−0.16
313.150	1.94648	1.94601	0.02	18.9346	18.9514	−0.09
313.150	1.95891	1.95846	0.02	19.3882	19.4046	−0.08
313.150	2.08897	2.08853	0.02	25.3046	25.3289	−0.10
313.150	2.13758	2.13702	0.03	28.1541	28.1895	−0.13
313.150	2.23179	2.23090	0.04	34.8868	34.9589	−0.21
313.150	2.31476	2.31347	0.06	42.3549	42.4852	−0.31
313.150	2.36456	2.36307	0.06	47.6446	47.8140	−0.35
313.150	2.49522	2.49325	0.08	64.8691	65.1702	−0.46
313.150	2.67972	2.67804	0.06	99.4085	99.7850	−0.38
313.150	2.86573	2.86527	0.02	149.8405	149.9877	−0.10
313.150	3.03999	3.03969	0.01	215.2834	215.4166	−0.06
298.150	0.11031	0.11018	0.12	1.8631	1.8650	−0.10
298.150	0.13826	0.13813	0.10	2.2689	2.2707	−0.08
298.150	0.16624	0.16612	0.07	2.6496	2.6512	−0.06
298.150	0.19345	0.19336	0.05	2.9963	2.9974	−0.04
298.150	0.22198	0.22195	0.01	3.3361	3.3364	−0.01
298.150	0.25036	0.25049	−0.05	3.6517	3.6504	0.04
298.150	0.25969	0.25983	−0.05	3.7500	3.7486	0.04
298.150	0.27774	0.27795	−0.08	3.9342	3.9321	0.05
298.150	0.28586	0.28606	−0.07	4.0138	4.0119	0.05
298.150	0.30632	0.30649	−0.06	4.2070	4.2053	0.04
298.150	0.31186	0.31213	−0.09	4.2584	4.2559	0.06
298.150	0.33757	0.33788	−0.09	4.4835	4.4809	0.06
298.150	0.36367	0.36391	−0.07	4.6954	4.6935	0.04

TABLE 14. Comparison of Michels *et al.* experimental p-ρ-T data[8] (gaseous phase) with Eq. (3) — Continued

T K	ρ_{exp} g/cm³	ρ_{cal} g/cm³	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
298.150	0.39022	0.39035	−0.03	4.8952	4.8942	0.02
298.150	0.39452	0.39463	−0.03	4.9261	4.9253	0.02
298.150	0.41679	0.41673	0.02	5.0798	5.0802	−0.01
298.150	0.43429	0.43404	0.06	5.1931	5.1947	−0.03
298.150	0.44143	0.44111	0.07	5.2376	5.2396	−0.04
298.150	0.47378	0.47323	0.12	5.4275	5.4305	−0.06
298.150	0.51285	0.51198	0.17	5.6310	5.6353	−0.08
298.150	0.55251	0.55129	0.22	5.8115	5.8167	−0.09
298.150	0.59284	0.59130	0.26	5.9708	5.9765	−0.10
298.150	0.59873	0.59730	0.24	5.9928	5.9980	−0.09
298.150	0.63321	0.63143	0.28	6.1087	6.1143	−0.09
298.150	0.65909	0.65731	0.27	6.1871	6.1922	−0.08
298.150	0.67065	0.66851	0.32	6.2187	6.2246	−0.09
298.150	0.71902	0.71701	0.28	6.3408	6.3454	−0.07
298.150	0.77831	0.77612	0.28	6.4619	6.4659	−0.06
298.150	0.83850	0.83601	0.30	6.5600	6.5636	−0.06
298.150	0.89971	0.89716	0.28	6.6411	6.6442	−0.05
298.150	0.90153	0.89911	0.27	6.6435	6.6464	−0.04
298.150	0.96096	0.95873	0.23	6.7096	6.7119	−0.03
298.150	0.99240	0.99034	0.21	6.7414	6.7434	−0.03
298.150	1.01779	1.01567	0.21	6.7658	6.7678	−0.03
298.150	1.08265	1.08032	0.22	6.8265	6.8287	−0.03
298.150	1.17194	1.16946	0.21	6.9125	6.9151	−0.04
298.150	1.26257	1.26023	0.19	7.0184	7.0216	−0.05
298.150	1.35476	1.35262	0.16	7.1695	7.1738	−0.06
298.150	1.38948	1.38689	0.19	7.2438	7.2500	−0.08
298.150	1.44702	1.44456	0.17	7.4012	7.4090	−0.11
298.150	1.52959	1.52668	0.19	7.7204	7.7343	−0.18
298.150	1.53262	1.52980	0.18	7.7353	7.7489	−0.18
298.150	1.66878	1.66675	0.12	8.6641	8.6829	−0.22
298.150	1.77925	1.77814	0.06	9.9838	10.0005	−0.17
298.150	1.80654	1.80564	0.05	10.4179	10.4330	−0.14
298.150	1.94648	1.94612	0.02	13.5446	13.5548	−0.07
298.150	1.95891	1.95860	0.02	13.9106	13.9197	−0.07
298.150	2.08897	2.08853	0.02	18.8304	18.8510	−0.11
298.150	2.13758	2.13703	0.03	21.2779	21.3078	−0.14
298.150	2.23179	2.23074	0.05	27.1685	27.2438	−0.28
298.150	2.31476	2.31331	0.06	33.8487	33.9809	−0.39
298.150	2.36456	2.36282	0.07	38.6316	38.8115	−0.46
298.150	2.49522	2.49295	0.09	54.4549	54.7773	−0.59
298.150	2.67972	2.67766	0.08	86.7935	87.2311	−0.50
298.150	2.86573	2.86482	0.03	134.7465	135.0268	−0.21
298.150	3.03999	3.03942	0.02	197.7366	197.9776	−0.12
323.150	0.11031	0.11019	0.11	2.0547	2.0567	−0.10
323.150	0.13826	0.13814	0.09	2.5145	2.5164	−0.08
323.150	0.16624	0.16612	0.08	2.9512	2.9531	−0.06
323.150	0.19345	0.19335	0.05	3.3546	3.3561	−0.04
323.150	0.22198	0.22194	0.02	3.7561	3.7566	−0.01
323.150	0.25036	0.25044	−0.03	4.1349	4.1339	0.02
323.150	0.25969	0.25976	−0.03	4.2543	4.2534	0.02
323.150	0.27774	0.27785	−0.04	4.4799	4.4785	0.03
323.150	0.28586	0.28598	−0.04	4.5788	4.5773	0.03
323.150	0.30632	0.30641	−0.03	4.8203	4.8192	0.02
323.150	0.31186	0.31205	−0.06	4.8852	4.8831	0.04
323.150	0.33757	0.33780	−0.07	5.1731	5.1706	0.05
323.150	0.36367	0.36390	−0.06	5.4503	5.4480	0.04
323.150	0.39022	0.39045	−0.06	5.7182	5.7159	0.04
323.150	0.39452	0.39477	−0.06	5.7604	5.7580	0.04
323.150	0.41679	0.41702	−0.06	5.9727	5.9705	0.04
323.150	0.43429	0.43446	−0.04	6.1326	6.1311	0.03
323.150	0.44143	0.44158	−0.03	6.1964	6.1950	0.02
323.150	0.47378	0.47387	−0.02	6.4745	6.4737	0.01
323.150	0.51285	0.51279	0.01	6.7873	6.7877	−0.01
323.150	0.55251	0.55224	0.05	7.0812	7.0831	−0.03

TABLE 14. Comparison of Michels *et al.* experimental p-ρ-T data[8] (gaseous phase) with Eq. (3) – Continued

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
323.150	0.59284	0.59237	0.08	7.3586	7.3617	−0.04
323.150	0.59873	0.59832	0.07	7.3980	7.4007	−0.04
323.150	0.63321	0.63255	0.10	7.6167	7.6208	−0.05
323.150	0.65909	0.65838	0.11	7.7732	7.7774	−0.05
323.150	0.67065	0.66974	0.13	7.8399	7.8452	−0.07
323.150	0.71902	0.71815	0.12	8.1106	8.1153	−0.06
323.150	0.77831	0.77738	0.12	8.4164	8.4210	−0.06
323.150	0.83850	0.83772	0.09	8.7052	8.7088	−0.04
323.150	0.89971	0.89932	0.04	8.9837	8.9854	−0.02
323.150	0.90153	0.90108	0.05	8.9915	8.9935	−0.02
323.150	0.96096	0.96120	−0.02	9.2541	9.2531	0.01
323.150	0.99240	0.99279	−0.04	9.3910	9.3893	0.02
323.150	1.01779	1.01841	−0.06	9.5025	9.4997	0.03
323.150	1.08265	1.08357	−0.09	9.7916	9.7874	0.04
323.150	1.17194	1.17304	−0.09	10.2164	10.2109	0.05
323.150	1.26257	1.26326	−0.06	10.7054	10.7013	0.04
323.150	1.35476	1.35464	0.01	11.3009	11.3018	−0.01
323.150	1.38948	1.38896	0.04	11.5601	11.5642	−0.04
323.150	1.44702	1.44599	0.07	12.0455	12.0550	−0.08
323.150	1.52959	1.52812	0.10	12.8937	12.9108	−0.13
323.150	1.53262	1.53110	0.10	12.9284	12.9462	−0.14
323.150	1.66878	1.66731	0.09	14.8890	14.9148	−0.17
323.150	1.77925	1.77823	0.06	17.1999	17.2250	−0.15
323.150	1.80654	1.80562	0.05	17.9002	17.9247	−0.14
323.150	1.94648	1.94605	0.02	22.5390	22.5563	−0.08
323.150	1.95891	1.95849	0.02	23.0496	23.0668	−0.07
323.150	2.08897	2.08853	0.02	29.6096	29.6363	−0.09
323.150	2.13758	2.13705	0.03	32.7228	32.7596	−0.11
323.150	2.23179	2.23095	0.04	39.9982	40.0712	−0.18
323.150	2.31476	2.31355	0.05	47.9816	48.1111	−0.27
323.150	2.36456	2.36317	0.06	53.5972	53.7640	−0.31
323.150	2.49522	2.49337	0.07	71.7298	72.0254	−0.41
323.150	2.67972	2.67821	0.06	107.6968	108.0481	−0.33
323.150	2.86573	2.86547	0.01	159.7329	159.8200	−0.05
323.150	3.03999	3.03997	0.00	226.8560	226.8654	−0.00
348.150	0.11031	0.11021	0.08	2.2450	2.2467	−0.08
348.150	0.13826	0.13818	0.06	2.7581	2.7596	−0.05
348.150	0.16624	0.16616	0.05	3.2498	3.2514	−0.05
348.150	0.19345	0.19339	0.03	3.7086	3.7097	−0.03
348.150	0.22198	0.22197	0.00	4.1702	4.1702	−0.00
348.150	0.25036	0.25046	−0.04	4.6106	4.6091	0.03
348.150	0.25969	0.25976	−0.03	4.7503	4.7492	0.02
348.150	0.27774	0.27784	−0.04	5.0163	5.0148	0.03
348.150	0.28586	0.28598	−0.04	5.1337	5.1321	0.03
348.150	0.30632	0.30643	−0.04	5.4227	5.4211	0.03
348.150	0.31186	0.31203	−0.05	5.5002	5.4979	0.04
348.150	0.33757	0.33779	−0.07	5.8491	5.8462	0.05
348.150	0.36367	0.36390	−0.06	6.1895	6.1867	0.05
348.150	0.39022	0.39047	−0.06	6.5232	6.5201	0.05
348.150	0.39452	0.39476	−0.06	6.5759	6.5730	0.04
348.150	0.41679	0.41704	−0.06	6.8446	6.8417	0.04
348.150	0.43429	0.43450	−0.05	7.0495	7.0471	0.04
348.150	0.44143	0.44163	−0.05	7.1318	7.1295	0.03
348.150	0.47378	0.47397	−0.04	7.4953	7.4931	0.03
348.150	0.51285	0.51296	−0.02	7.9135	7.9124	0.02
348.150	0.55251	0.55250	0.00	8.3173	8.3174	−0.00
348.150	0.59284	0.59272	0.02	8.7092	8.7104	−0.01
348.150	0.59873	0.59862	0.02	8.7652	8.7663	−0.01
348.150	0.63321	0.63300	0.03	9.0847	9.0866	−0.02
348.150	0.65909	0.65882	0.04	9.3174	9.3198	−0.03
348.150	0.67065	0.67030	0.05	9.4190	9.4221	−0.03
348.150	0.71902	0.71874	0.04	9.8369	9.8393	−0.02
348.150	0.77831	0.77804	0.03	10.3284	10.3306	−0.02
348.150	0.83850	0.83840	0.01	10.8126	10.8133	−0.01

TABLE 14. Comparison of Michels *et al.* experimental p-ρ-T data[8] (gaseous phase) with Eq. (3) — Continued

T K	ρ_{exp} g/cm³	ρ_{cal} g/cm³	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
348.150	0.89971	0.89995	−0.03	11.2977	11.2958	0.02
348.150	0.90153	0.90180	−0.03	11.3122	11.3101	0.02
348.150	0.96096	0.96164	−0.07	11.7836	11.7782	0.05
348.150	0.99240	0.99325	−0.08	12.0354	12.0286	0.06
348.150	1.01779	1.01876	−0.10	12.2412	12.2333	0.06
348.150	1.08265	1.08391	−0.12	12.7823	12.7716	0.08
348.150	1.17194	1.17321	−0.11	13.5794	13.5674	0.09
348.150	1.26257	1.26347	−0.07	14.4849	14.4752	0.07
348.150	1.35476	1.35516	−0.03	15.5541	15.5491	0.03
348.150	1.38948	1.38979	−0.02	16.0085	16.0044	0.03
348.150	1.44702	1.44693	0.01	16.8326	16.8341	−0.01
348.150	1.52959	1.52928	0.02	18.2159	18.2218	−0.03
348.150	1.53262	1.53220	0.03	18.2699	18.2777	−0.04
348.150	1.66878	1.66842	0.02	21.2501	21.2593	−0.04
348.150	1.77925	1.77912	0.01	24.5220	24.5262	−0.02
348.150	1.80654	1.80651	0.00	25.4809	25.4823	−0.01
348.150	1.94648	1.94659	−0.01	31.5651	31.5593	0.02
348.150	1.95891	1.95903	−0.01	32.2158	32.2091	0.02
348.150	2.08897	2.08896	0.00	40.3445	40.3456	−0.00
348.150	2.13758	2.13746	0.01	44.0963	44.1064	−0.02
348.150	2.23179	2.23131	0.02	52.6856	52.7341	−0.09
348.150	2.31476	2.31400	0.03	61.9277	62.0206	−0.15
348.150	2.36456	2.36354	0.04	68.3206	68.4603	−0.20
348.150	2.49522	2.49380	0.06	88.6681	88.9203	−0.28
348.150	2.67972	2.67865	0.04	128.0970	128.3664	−0.21
348.150	2.86573	2.86599	−0.01	184.0490	183.9586	0.05
348.150	3.03999	3.04068	−0.02	255.2642	254.9416	0.13
373.150	0.11031	0.11026	0.05	2.4346	2.4356	−0.04
373.150	0.13826	0.13821	0.04	2.9998	3.0008	−0.03
373.150	0.16624	0.16619	0.03	3.5458	3.5468	−0.03
373.150	0.19345	0.19342	0.02	4.0591	4.0596	−0.01
373.150	0.22198	0.22201	−0.01	4.5795	4.5790	0.01
373.150	0.25036	0.25044	−0.03	5.0795	5.0782	0.03
373.150	0.25969	0.25974	−0.02	5.2395	5.2385	0.02
373.150	0.27774	0.27781	−0.03	5.5450	5.5438	0.02
373.150	0.28586	0.28595	−0.03	5.6806	5.6792	0.02
373.150	0.30632	0.30644	−0.04	6.0163	6.0143	0.03
373.150	0.31186	0.31198	−0.04	6.1056	6.1037	0.03
373.150	0.33757	0.33773	−0.05	6.5140	6.5115	0.04
373.150	0.36367	0.36383	−0.04	6.9161	6.9138	0.03
373.150	0.39022	0.39038	−0.04	7.3139	7.3115	0.03
373.150	0.39452	0.39468	−0.04	7.3773	7.3749	0.03
373.150	0.41679	0.41695	−0.04	7.7010	7.6987	0.03
373.150	0.43429	0.43441	−0.03	7.9499	7.9482	0.02
373.150	0.44143	0.44155	−0.03	8.0504	8.0488	0.02
373.150	0.47378	0.47385	−0.02	8.4969	8.4959	0.01
373.150	0.51285	0.51284	0.00	9.0185	9.0186	−0.00
373.150	0.55251	0.55236	0.03	9.5300	9.5318	−0.02
373.150	0.59284	0.59260	0.04	10.0349	10.0379	−0.03
373.150	0.59873	0.59848	0.04	10.1075	10.1106	−0.03
373.150	0.63321	0.63287	0.05	10.5265	10.5305	−0.04
373.150	0.65909	0.65865	0.07	10.8348	10.8399	−0.05
373.150	0.67065	0.67018	0.07	10.9713	10.9768	−0.05
373.150	0.71902	0.71851	0.07	11.5353	11.5413	−0.05
373.150	0.77831	0.77779	0.07	12.2140	12.2200	−0.05
373.150	0.83850	0.83801	0.06	12.8956	12.9011	−0.04
373.150	0.89971	0.89943	0.03	13.5912	13.5944	−0.02
373.150	0.90153	0.90125	0.03	13.6120	13.6151	−0.02
373.150	0.96096	0.96093	0.00	14.2979	14.2982	−0.00
373.150	0.99240	0.99243	−0.00	14.6669	14.6666	0.00
373.150	1.01779	1.01793	−0.01	14.9706	14.9688	0.01
373.150	1.08265	1.08296	−0.03	15.7708	15.7669	0.03
373.150	1.17194	1.17236	−0.04	16.9535	16.9477	0.03
373.150	1.26257	1.26283	−0.02	18.2880	18.2840	0.02

TABLE 14. Comparison of Michels *et al.* experimental p-ρ-T data[8] (gaseous phase) with Eq. (3) – Continued

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
373.150	1.35476	1.35480	−0.00	19.8400	19.8394	0.00
373.150	1.38948	1.38941	0.01	20.4880	20.4894	−0.01
373.150	1.44702	1.44687	0.01	21.6563	21.6596	−0.02
373.150	1.52959	1.52930	0.02	23.5703	23.5777	−0.03
373.150	1.53262	1.53240	0.01	23.6484	23.6541	−0.02
373.150	1.66878	1.66861	0.01	27.6290	27.6346	−0.02
373.150	1.77925	1.77934	−0.00	31.8399	31.8361	0.01
373.150	1.80654	1.80668	−0.01	33.0478	33.0416	0.02
373.150	1.94648	1.94673	−0.01	40.5358	40.5200	0.04
373.150	1.95891	1.95917	−0.01	41.3212	41.3045	0.04
373.150	2.08897	2.08899	−0.00	50.9563	50.9544	0.00
373.150	2.13758	2.13747	0.01	55.3196	55.3303	−0.02
373.150	2.23179	2.23131	0.02	65.1718	65.2272	−0.08
373.150	2.31476	2.31391	0.04	75.5980	75.7158	−0.16
373.150	2.36456	2.36352	0.04	82.7570	82.9145	−0.19
373.150	2.49522	2.49375	0.06	105.2120	105.4971	−0.27
373.150	2.67972	2.67872	0.04	147.9840	148.2539	−0.18
373.150	2.86573	2.86634	−0.02	207.7710	207.5469	0.11
373.150	3.03999	3.04091	−0.03	282.7998	282.3481	0.16
398.150	0.11031	0.11028	0.02	2.6230	2.6236	−0.02
398.150	0.13826	0.13824	0.02	3.2402	3.2407	−0.01
398.150	0.16624	0.16624	0.00	3.8401	3.8402	−0.00
398.150	0.19345	0.19349	−0.02	4.4074	4.4067	0.02
398.150	0.22198	0.22205	−0.03	4.9856	4.9841	0.03
398.150	0.25036	0.25045	−0.03	5.5443	5.5427	0.03
398.150	0.25969	0.25977	−0.03	5.7244	5.7229	0.03
398.150	0.27774	0.27786	−0.04	6.0695	6.0672	0.04
398.150	0.28586	0.28596	−0.03	6.2221	6.2203	0.03
398.150	0.30632	0.30649	−0.06	6.6040	6.6008	0.05
398.150	0.31186	0.31198	−0.04	6.7049	6.7026	0.03
398.150	0.33757	0.33771	−0.04	7.1716	7.1690	0.04
398.150	0.36367	0.36381	−0.04	7.6345	7.6321	0.03
398.150	0.39022	0.39036	−0.04	8.0955	8.0931	0.03
398.150	0.39452	0.39466	−0.04	8.1692	8.1669	0.03
398.150	0.41679	0.41691	−0.03	8.5471	8.5451	0.02
398.150	0.43429	0.43437	−0.02	8.8394	8.8380	0.02
398.150	0.44143	0.44150	−0.02	8.9577	8.9565	0.01
398.150	0.47378	0.47380	−0.00	9.4864	9.4861	0.00
398.150	0.51285	0.51278	0.01	10.1101	10.1112	−0.01
398.150	0.55251	0.55225	0.05	10.7277	10.7316	−0.04
398.150	0.59284	0.59245	0.07	11.3441	11.3500	−0.05
398.150	0.59873	0.59838	0.06	11.4340	11.4395	−0.05
398.150	0.63321	0.63271	0.08	11.9511	11.9585	−0.06
398.150	0.65909	0.65852	0.09	12.3357	12.3441	−0.07
398.150	0.67065	0.67000	0.10	12.5058	12.5155	−0.08
398.150	0.71902	0.71830	0.10	13.2170	13.2276	−0.08
398.150	0.77831	0.77748	0.11	14.0827	14.0948	−0.09
398.150	0.83850	0.83763	0.10	14.9634	14.9761	−0.08
398.150	0.89971	0.89890	0.09	15.8709	15.8831	−0.08
398.150	0.90153	0.90066	0.10	15.8973	15.9103	−0.08
398.150	0.96096	0.96029	0.07	16.8012	16.8115	−0.06
398.150	0.99240	0.99168	0.07	17.2885	17.2999	−0.07
398.150	1.01779	1.01724	0.05	17.6926	17.7014	−0.05
398.150	1.08265	1.08212	0.05	18.7545	18.7635	−0.05
398.150	1.17194	1.17152	0.04	20.3273	20.3349	−0.04
398.150	1.26257	1.26216	0.03	22.0961	22.1045	−0.04
398.150	1.35476	1.35439	0.03	24.1355	24.1444	−0.04
398.150	1.38948	1.38914	0.02	24.9811	24.9895	−0.03
398.150	1.44702	1.44661	0.03	26.4886	26.4998	−0.04
398.150	1.52959	1.52931	0.02	28.9362	28.9453	−0.03
398.150	1.53262	1.53233	0.02	29.0327	29.0419	−0.03
398.150	1.66878	1.66881	−0.00	34.0099	34.0085	0.00
398.150	1.77925	1.77956	−0.02	39.1426	39.1264	0.04
398.150	1.80654	1.80688	−0.02	40.5943	40.5758	0.05

TABLE 14. Comparison of Michels *et al.* experimental p-ρ-T data[8] (gaseous phase) with Eq. (3) — Continued

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
398.150	1.94648	1.94685	−0.02	49.4470	49.4201	0.05
398.150	1.95891	1.95928	−0.02	50.3634	50.3356	0.06
398.150	2.08897	2.08900	−0.00	61.4591	61.4559	0.01
398.150	2.13758	2.13748	0.00	66.4178	66.4287	−0.02
398.150	2.23179	2.23126	0.02	77.4883	77.5570	−0.09
398.150	2.31476	2.31383	0.04	89.0709	89.2120	−0.16
398.150	2.36456	2.36339	0.05	96.9517	97.1474	−0.20
398.150	2.49522	2.49364	0.06	121.4577	121.7919	−0.27
398.150	2.67972	2.67849	0.05	167.4141	167.7701	−0.21
398.150	2.86573	2.86610	−0.01	230.8126	230.6702	0.06
423.150	0.11031	0.11028	0.03	2.8101	2.8109	−0.03
423.150	0.13826	0.13825	0.01	3.4790	3.4794	−0.01
423.150	0.16624	0.16625	−0.00	4.1321	4.1320	0.00
423.150	0.19345	0.19352	−0.03	4.7531	4.7517	0.03
423.150	0.22198	0.22207	−0.04	5.3883	5.3864	0.04
423.150	0.25036	0.25047	−0.04	6.0060	6.0037	0.04
423.150	0.25969	0.25982	−0.05	6.2063	6.2035	0.04
423.150	0.27774	0.27789	−0.05	6.5895	6.5863	0.05
423.150	0.28586	0.28602	−0.05	6.7603	6.7570	0.05
423.150	0.30632	0.30650	−0.06	7.1861	7.1823	0.05
423.150	0.31186	0.31205	−0.06	7.3004	7.2964	0.06
423.150	0.33757	0.33779	−0.06	7.8249	7.8205	0.06
423.150	0.36367	0.36388	−0.06	8.3478	8.3437	0.05
423.150	0.39022	0.39044	−0.05	8.8714	8.8672	0.05
423.150	0.39452	0.39475	−0.06	8.9556	8.9512	0.05
423.150	0.41679	0.41699	−0.05	9.3871	9.3832	0.04
423.150	0.43429	0.43447	−0.04	9.7226	9.7191	0.04
423.150	0.44143	0.44159	−0.03	9.8583	9.8553	0.03
423.150	0.47378	0.47389	−0.02	10.4686	10.4665	0.02
423.150	0.51285	0.51286	−0.00	11.1934	11.1931	0.00
423.150	0.55251	0.55238	0.02	11.9175	11.9199	−0.02
423.150	0.59284	0.59257	0.04	12.6453	12.6501	−0.04
423.150	0.59873	0.59841	0.05	12.7503	12.7561	−0.05
423.150	0.63321	0.63281	0.06	13.3670	13.3740	−0.05
423.150	0.65909	0.65853	0.08	13.8258	13.8356	−0.07
423.150	0.67065	0.67012	0.08	14.0320	14.0415	−0.07
423.150	0.71902	0.71828	0.10	14.8881	14.9012	−0.09
423.150	0.77831	0.77742	0.11	15.9414	15.9573	−0.10
423.150	0.83850	0.83749	0.12	17.0215	17.0397	−0.11
423.150	0.89971	0.89869	0.11	18.1426	18.1616	−0.10
423.150	0.90153	0.90054	0.11	18.1770	18.1954	−0.10
423.150	0.96096	0.96002	0.10	19.2985	19.3165	−0.09
423.150	0.99240	0.99148	0.09	19.9076	19.9257	−0.09
423.150	1.01779	1.01692	0.09	20.4100	20.4272	−0.08
423.150	1.08265	1.08188	0.07	21.7392	21.7555	−0.07
423.150	1.17194	1.17133	0.05	23.7063	23.7203	−0.06
423.150	1.26257	1.26208	0.04	25.9125	25.9249	−0.05
423.150	1.35476	1.35434	0.03	28.4374	28.4496	−0.04
423.150	1.38948	1.38920	0.02	29.4808	29.4895	−0.03
423.150	1.44702	1.44687	0.01	31.3333	31.3386	−0.02
423.150	1.52959	1.52966	−0.00	34.3100	34.3076	0.01
423.150	1.53262	1.53266	−0.00	34.4258	34.4243	0.00
423.150	1.66878	1.66924	−0.03	40.3874	40.3649	0.06
423.150	1.77925	1.77994	−0.04	46.4254	46.3836	0.09
423.150	1.80654	1.80730	−0.04	48.1205	48.0720	0.10
423.150	1.94648	1.94715	−0.03	58.3085	58.2529	0.10
423.150	1.95891	1.95955	−0.03	59.3509	59.2964	0.09
423.150	2.08897	2.08923	−0.01	71.8801	71.8515	0.04
423.150	2.13758	2.13762	−0.00	77.4101	77.4063	0.00
423.150	2.23179	2.23136	0.02	89.6738	89.7351	−0.07
423.150	2.31476	2.31381	0.04	102.3684	102.5273	−0.15
423.150	2.36456	2.36340	0.05	110.9706	111.1813	−0.19
423.150	2.49522	2.49347	0.07	137.4418	137.8383	−0.29
423.150	2.67972	2.67828	0.05	186.5228	186.9658	−0.24
423.150	2.86573	2.86590	−0.01	253.4644	253.3982	0.03

TABLE 15. Comparison of Michels *et al.* experimental p-ρ-T data [8] (liquid phase) with Eq. (3)

T K	ρ_{exp} g/cm³	ρ_{cal} g/cm³	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
273.150	1.94874	1.95209	−0.17	4.7785	4.7239	1.16
273.150	1.95891	1.96261	−0.19	4.9568	4.8928	1.31
273.150	2.03963	2.04151	−0.09	6.6672	6.6179	0.74
273.150	2.09114	2.09270	−0.07	8.1779	8.1266	0.63
273.150	2.13758	2.13871	−0.05	9.8488	9.8041	0.46
273.150	2.23381	2.23348	0.01	14.3800	14.3983	−0.13
273.150	2.24562	2.24503	0.03	15.0447	15.0790	−0.23
273.150	2.31476	2.31375	0.04	19.5719	19.6462	−0.38
273.150	2.36636	2.36480	0.07	23.6280	23.7621	−0.56
273.150	2.45072	2.44868	0.08	31.7613	31.9837	−0.70
273.150	2.49522	2.49292	0.09	36.8691	37.1510	−0.76
273.150	2.65451	2.65224	0.09	60.7474	61.1575	−0.67
273.150	2.67972	2.67738	0.09	65.3972	65.8438	−0.68
273.150	2.86279	2.86167	0.04	108.3114	108.6257	−0.29
273.150	2.86573	2.86447	0.04	109.0987	109.4533	−0.32
273.150	3.03999	3.03876	0.04	167.6078	168.0977	−0.29
273.150	3.07688	3.07527	0.05	182.6180	183.3057	−0.38
286.650	1.77925	1.77894	0.02	6.7523	6.7555	−0.05
286.650	1.95891	1.95946	−0.03	9.7505	9.7369	0.14
286.650	2.13758	2.13738	0.01	16.0073	16.0170	−0.06
286.650	2.31476	2.31339	0.06	27.2959	27.4097	−0.42
286.650	2.49522	2.49285	0.09	46.4018	46.7168	−0.67
286.650	2.67972	2.67746	0.08	77.0111	77.4680	−0.59
286.650	2.86573	2.86460	0.04	123.0339	123.3681	−0.27
286.650	3.03999	3.03903	0.03	183.9717	184.3685	−0.22

TABLE 16. Comparison of Waibel experimental p-ρ-T data [13] (gaseous phase) with Eq. (3)

T K	ρ_{exp} g/cm³	ρ_{cal} g/cm³	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
323.030	2.41592	2.37503	1.72	54.9660	60.2416	−8.76
323.030	2.23473	2.22926	0.25	39.7900	40.2671	−1.18
323.030	1.70559	1.68142	1.44	15.1110	15.5688	−2.94
323.030	1.57691	1.57189	0.32	13.4080	13.4744	−0.49
323.030	1.20402	1.18427	1.67	10.2570	10.3590	−0.98
323.030	1.11342	1.10244	1.00	9.8633	9.9141	−0.51
323.030	0.84951	0.82689	2.74	8.6448	8.7493	−1.19
323.030	0.78649	0.76888	2.29	8.3649	8.4519	−1.03
323.030	0.60004	0.58045	3.37	7.2720	7.4027	−1.77
323.030	0.55540	0.54253	2.37	7.0050	7.0978	−1.31
323.030	0.42410	0.41155	3.05	5.9172	6.0339	−1.93
323.030	0.39127	0.38461	1.73	5.6566	5.7224	−1.15
323.030	0.29936	0.29094	2.90	4.6355	4.7352	−2.11
323.030	0.27704	0.27102	2.22	4.3931	4.4674	−1.66
323.030	0.21139	0.20548	2.88	3.5258	3.6087	−2.30
323.030	0.19564	0.19135	2.24	3.3241	3.3858	−1.82
323.030	0.14968	0.14521	3.08	2.6257	2.6962	−2.61
323.030	0.13787	0.13516	2.00	2.4654	2.5089	−1.73
323.030	0.10530	0.10265	2.59	1.9257	1.9710	−2.30
323.030	0.09716	0.09557	1.66	1.8039	1.8314	−1.50
323.030	0.07445	0.07257	2.59	1.3969	1.4308	−2.37
323.030	0.06854	0.06757	1.44	1.3062	1.3239	−1.34
323.030	0.05252	0.05132	2.35	1.0058	1.0284	−2.19
323.030	0.04845	0.04777	1.43	0.9391	0.9519	−1.35
323.030	0.03703	0.03630	2.01	0.7205	0.7345	−1.91
323.030	0.03414	0.03378	1.05	0.6720	0.6788	−1.01
323.030	0.02600	0.02567	1.26	0.5142	0.5205	−1.21
323.030	0.02416	0.02389	1.13	0.4791	0.4844	−1.09

TABLE 16. Comparison of Waibel experimental p-ρ-T data [13] (gaseous phase) with Eq. (3) – Continued

T K	ρ_{exp} g/cm³	ρ_{cal} g/cm³	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
373.000	2.16251	2.15957	0.14	57.3970	57.6900	−0.51
373.000	2.07191	2.07708	−0.25	49.8900	49.4636	0.86
373.000	1.52439	1.54867	−1.57	24.0340	23.4155	2.64
373.000	1.46137	1.48242	−1.42	22.4140	21.9417	2.15
373.000	1.07403	1.08906	−1.38	15.8300	15.6406	1.21
373.000	1.02939	1.04347	−1.35	15.2630	15.0920	1.13
373.000	0.75760	0.75837	−0.10	11.9820	11.9732	0.07
373.000	0.72609	0.72882	−0.38	11.6440	11.6126	0.27
373.000	0.53439	0.52796	1.22	9.2093	9.2925	−0.90
373.000	0.51207	0.50761	0.88	8.9430	9.0018	−0.65
373.000	0.37683	0.37037	1.74	7.0107	7.1077	−1.37
373.000	0.36108	0.35628	1.34	6.7968	6.8699	−1.06
373.000	0.26523	0.26088	1.66	5.2560	5.3299	−1.39
373.000	0.25472	0.25091	1.52	5.0848	5.1505	−1.28
373.000	0.18645	0.18376	1.46	3.8769	3.9272	−1.28
373.000	0.17857	0.17664	1.09	3.7429	3.7794	−0.96
373.000	0.13130	0.12959	1.32	2.8262	2.8606	−1.20
373.000	0.12631	0.12459	1.38	2.7257	2.7603	−1.25
373.000	0.09283	0.09155	1.40	2.0441	2.0710	−1.30
373.000	0.08902	0.08796	1.21	1.9683	1.9907	−1.13
373.000	0.06539	0.06463	1.17	1.4672	1.4837	−1.11
373.000	0.06276	0.06216	0.96	1.4134	1.4265	−0.92
373.000	0.04609	0.04566	0.94	1.0487	1.0583	−0.91
373.000	0.04425	0.04393	0.72	1.0102	1.0172	−0.69
373.000	0.03256	0.03226	0.93	0.7472	0.7540	−0.90
373.000	0.03112	0.03105	0.23	0.7195	0.7212	−0.23
373.000	0.02285	0.02281	0.17	0.5313	0.5322	−0.17
373.000	0.02193	0.02195	−0.12	0.5116	0.5110	0.12
422.990	1.88022	1.94730	−3.45	58.2650	53.0397	9.85
422.990	1.70296	1.74042	−2.15	44.0820	42.0554	4.82
422.990	1.32744	1.37693	−3.59	29.0790	27.6409	5.20
422.990	1.20140	1.23428	−2.66	25.1870	24.3883	3.28
422.990	0.93748	0.96761	−3.11	19.4280	18.8538	3.05
422.990	0.84820	0.86448	−1.88	17.4990	17.2025	1.72
422.990	0.66307	0.67629	−1.96	14.1320	13.8969	1.69
422.990	0.59873	0.60276	−0.67	12.8200	12.7476	0.57
422.990	0.46874	0.48259	−2.87	10.6250	10.3657	2.50
422.990	0.42279	0.43203	−2.14	9.6703	9.4932	1.87
422.990	0.33088	0.33626	−1.60	7.7899	7.6809	1.42
422.990	0.29805	0.30262	−1.51	7.1022	7.0075	1.35
422.990	0.23371	0.23599	−0.96	5.6901	5.6406	0.88
422.990	0.21139	0.21265	−0.59	5.1780	5.1502	0.54
422.990	0.16544	0.16600	−0.34	4.1246	4.1116	0.32
422.990	0.14837	0.14987	−1.00	3.7504	3.7153	0.95
422.990	0.11659	0.11694	−0.29	2.9697	2.9614	0.28
422.990	0.10504	0.10559	−0.52	2.6952	2.6819	0.49
422.990	0.08233	0.08246	−0.16	2.1270	2.1238	0.15
422.990	0.07418	0.07451	−0.44	1.9290	1.9209	0.42
422.990	0.05817	0.06070	−4.18	1.5815	1.5172	4.24
422.990	0.05239	0.05260	−0.39	1.3754	1.3701	0.39
422.990	0.04110	0.04111	−0.04	1.0808	1.0804	0.04
422.990	0.03703	0.03714	−0.30	0.9781	0.9752	0.29
422.990	0.02902	0.02905	−0.11	0.7679	0.7670	0.11
422.990	0.02613	0.02625	−0.45	0.6947	0.6916	0.45
422.990	0.02048	0.02051	−0.13	0.5443	0.5436	0.13
422.990	0.01838	0.01855	−0.88	0.4926	0.4883	0.88
422.990	0.01444	0.01450	−0.40	0.3859	0.3843	0.40
472.990	1.71740	1.75065	−1.90	58.5810	56.2048	4.23
472.990	1.50207	1.53147	−1.92	45.0480	43.5632	3.41
472.990	1.21059	1.23436	−1.93	32.5280	31.7182	2.55
472.990	1.05828	1.06928	−1.03	27.3040	26.9848	1.18
472.990	0.85345	0.86384	−1.20	21.7600	21.4981	1.22
472.990	0.74578	0.75519	−1.25	19.0780	18.8508	1.21

TABLE 16. Comparison of Waibel experimental p-ρ-T data [13] (gaseous phase) with Eq. (3) — Continued

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
472.990	0.60135	0.60461	−0.54	15.4920	15.4152	0.50
472.990	0.52520	0.52832	−0.59	13.6920	13.6183	0.54
472.990	0.42410	0.42287	0.29	11.1820	11.2117	−0.26
472.990	0.37027	0.36951	0.20	9.8900	9.9084	−0.19
472.990	0.29936	0.29680	0.86	8.0921	8.1563	−0.79
472.990	0.26129	0.25943	0.71	7.1468	7.1941	−0.66
472.990	0.21139	0.21221	−0.39	5.9276	5.9061	0.36
472.990	0.18382	0.18533	−0.82	5.2197	5.1795	0.78
472.990	0.14837	0.14909	−0.48	4.2475	4.2279	0.46
472.990	0.12959	0.13027	−0.52	3.7340	3.7155	0.50
472.990	0.10478	0.10501	−0.22	3.0352	3.0288	0.21
472.990	0.09138	0.09165	−0.29	2.6611	2.6535	0.29
472.990	0.07392	0.07402	−0.14	2.1620	2.1591	0.13
472.990	0.06434	0.06462	−0.43	1.8933	1.8853	0.43
472.990	0.05213	0.05231	−0.35	1.5391	1.5338	0.34
472.990	0.04530	0.04560	−0.66	1.3448	1.3360	0.66
472.990	0.03676	0.03691	−0.38	1.0916	1.0875	0.38
472.990	0.03191	0.03222	−0.97	0.9545	0.9453	0.97
472.990	0.02587	0.02606	−0.73	0.7736	0.7680	0.73
472.990	0.02245	0.02277	−1.37	0.6766	0.6674	1.38
472.990	0.01825	0.01844	−1.02	0.5488	0.5433	1.02
472.990	0.01589	0.01608	−1.20	0.4791	0.4733	1.21
522.980	1.55459	1.58325	−1.81	59.1330	57.1822	3.41
522.980	1.36815	1.37944	−0.82	46.8110	46.2215	1.28
522.980	1.09504	1.11960	−2.19	35.0420	34.0883	2.80
522.980	0.96243	0.96672	−0.44	29.4250	29.2772	0.50
522.980	0.77073	0.78277	−1.54	23.4370	23.0655	1.61
522.980	0.67751	0.67247	0.75	20.0990	20.2486	−0.74
522.980	0.54358	0.54729	−0.68	16.4370	16.3298	0.66
522.980	0.46612	0.46854	−0.52	14.1660	14.0963	0.49
522.980	0.37552	0.38225	−1.76	11.6790	11.4842	1.70
522.980	0.32956	0.33385	−1.29	10.2750	10.1500	1.23
522.980	0.26523	0.27049	−1.95	8.4177	8.2620	1.88
522.980	0.23503	0.23503	−0.00	7.3649	7.3647	0.00
522.980	0.18776	0.18980	−1.07	6.0043	5.9425	1.04
522.980	0.16413	0.16535	−0.74	5.2593	5.2219	0.72
522.980	0.13261	0.13342	−0.60	4.2752	4.2502	0.59
522.980	0.11568	0.11650	−0.71	3.7482	3.7224	0.69
522.980	0.09349	0.09400	−0.55	3.0409	3.0246	0.54
522.980	0.08167	0.08212	−0.55	2.6644	2.6500	0.54
522.980	0.06604	0.06626	−0.33	2.1584	2.1513	0.33
522.980	0.05764	0.05791	−0.47	1.8903	1.8815	0.47
522.980	0.04661	0.04693	−0.68	1.5361	1.5257	0.68
522.980	0.04070	0.04088	−0.44	1.3401	1.3343	0.43
522.980	0.03296	0.03311	−0.47	1.0876	1.0825	0.47
522.980	0.02875	0.02887	−0.40	0.9492	0.9455	0.40
522.980	0.02324	0.02339	−0.64	0.7702	0.7652	0.64
522.980	0.02035	0.02027	0.41	0.6679	0.6706	−0.40
572.980	1.42986	1.44702	−1.19	60.0290	58.8551	1.99
572.980	1.07666	1.08710	−0.96	39.7040	39.2204	1.23
572.980	1.00707	1.01515	−0.80	36.4590	36.1066	0.98
572.980	0.75629	0.76075	−0.59	26.2800	26.1151	0.63
572.980	0.70771	0.70899	−0.18	24.3880	24.3415	0.19
572.980	0.51601	0.53251	−3.10	18.2120	17.6501	3.18
572.980	0.49894	0.49448	0.90	16.9200	17.0709	−0.88
572.980	0.36370	0.38039	−4.39	13.0850	12.5263	4.46
572.980	0.34269	0.35338	−3.02	12.1810	11.8232	3.03
572.980	0.25735	0.26378	−2.44	9.1752	8.9586	2.42
572.980	0.24159	0.24704	−2.21	8.6109	8.4267	2.19
572.980	0.18119	0.18463	−1.86	6.4913	6.3736	1.85
572.980	0.17069	0.17360	−1.68	6.1137	6.0137	1.66
572.980	0.12789	0.12961	−1.33	4.5966	4.5367	1.32
572.980	0.12080	0.12232	−1.25	4.3434	4.2903	1.24

TABLE 16. Comparison of Waibel experimental p-ρ-T data [13] (gaseous phase) with Eq. (3) — Continued

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
572.980	0.09020	0.09126	−1.15	3.2576	3.2206	1.15
572.980	0.08535	0.08622	−1.01	3.0805	3.0498	1.01
572.980	0.06381	0.06425	−0.69	2.3047	2.2890	0.69
572.980	0.06027	0.06076	−0.81	2.1806	2.1632	0.80
572.980	0.04490	0.04531	−0.89	1.6306	1.6163	0.89
572.980	0.04267	0.04286	−0.43	1.5431	1.5366	0.43
572.980	0.03164	0.03196	−1.00	1.1532	1.1417	1.01
572.980	0.03007	0.03023	−0.55	1.0911	1.0852	0.55
572.980	0.02232	0.02255	−1.03	0.8151	0.8067	1.04
572.980	0.02127	0.02136	−0.42	0.7721	0.7689	0.42
572.980	0.01510	0.01508	0.10	0.5459	0.5464	−0.10
669.200	0.45561	0.45666	−0.23	19.1180	19.0729	0.24
669.200	0.35582	0.36134	−1.53	15.0730	14.8413	1.56
669.200	0.32169	0.31878	0.91	13.2920	13.4132	−0.90
669.200	0.25078	0.25349	−1.07	10.5780	10.4657	1.07
669.200	0.22584	0.22533	0.22	9.4111	9.4319	−0.22
669.200	0.17726	0.18140	−2.28	7.5905	7.4187	2.32
669.200	0.16019	0.16206	−1.16	6.7884	6.7106	1.16
669.200	0.12513	0.12745	−1.82	5.3501	5.2534	1.84
669.200	0.11292	0.11427	−1.18	4.8009	4.7446	1.19
669.200	0.08836	0.08981	−1.61	3.7799	3.7195	1.62
669.200	0.07970	0.08056	−1.06	3.3928	3.3569	1.07
669.200	0.06237	0.06330	−1.48	2.6696	2.6304	1.49
669.200	0.05620	0.05681	−1.08	2.3969	2.3712	1.08
669.200	0.04399	0.04466	−1.50	1.8860	1.8578	1.52
669.200	0.03965	0.04009	−1.08	1.6936	1.6753	1.09
669.200	0.03112	0.03146	−1.10	1.3302	1.3156	1.11
669.200	0.02797	0.02829	−1.15	1.1964	1.1827	1.16
669.200	0.02193	0.02225	−1.46	0.9414	0.9277	1.48
669.200	0.01970	0.01998	−1.42	0.8454	0.8334	1.44
669.200	0.01549	0.01569	−1.28	0.6644	0.6558	1.30
669.200	0.01392	0.01412	−1.40	0.5976	0.5892	1.42
772.970	0.43460	0.43618	−0.36	21.7620	21.6794	0.38
772.970	0.35188	0.35035	0.44	17.3270	17.4054	−0.45
772.970	0.30593	0.30418	0.57	14.9910	15.0787	−0.58
772.970	0.24816	0.24504	1.27	12.0360	12.1909	−1.27
772.970	0.21533	0.21130	1.91	10.3650	10.5643	−1.89
772.970	0.17463	0.17393	0.40	8.5232	8.5576	−0.40
772.970	0.15231	0.15004	1.51	7.3495	7.4607	−1.49
772.970	0.12355	0.12528	−1.38	6.1347	6.0501	1.40
772.970	0.10727	0.10798	−0.65	5.2868	5.2522	0.66
772.970	0.08718	0.08822	−1.17	4.3190	4.2683	1.19
772.970	0.07563	0.07610	−0.61	3.7254	3.7025	0.62
772.970	0.06145	0.06216	−1.14	3.0430	3.0083	1.15
772.970	0.05331	0.05363	−0.60	2.6256	2.6097	0.61
772.970	0.04346	0.04381	−0.80	2.1447	2.1276	0.80
772.970	0.03755	0.03782	−0.72	1.8517	1.8384	0.72
772.970	0.03059	0.03090	−1.00	1.5128	1.4977	1.01
772.970	0.02652	0.02667	−0.55	1.3056	1.2984	0.55
772.970	0.02166	0.02180	−0.61	1.0671	1.0606	0.61
772.970	0.01864	0.01881	−0.90	0.9210	0.9127	0.91
772.970	0.01523	0.01538	−0.96	0.7528	0.7456	0.97
772.970	0.01313	0.01328	−1.10	0.6499	0.6428	1.12

TABLE 17. Comparison of Theeuwes & Bearman experimental p-ρ-T data [14] (liquid phase) with Eq. (3)

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
239.998	2.37260	2.37339	−0.03	3.6956	3.6462	1.35
239.012	2.37390	2.37452	−0.03	3.1475	3.1091	1.23
238.001	2.37520	2.37558	−0.02	2.5780	2.5545	0.92
236.999	2.37640	2.37658	−0.01	2.0089	1.9979	0.55
240.000	2.45250	2.45255	−0.00	9.4191	9.4148	0.04
237.001	2.46230	2.45843	0.16	7.8163	8.1351	−3.92
235.000	2.46890	2.46615	0.11	7.0441	7.2716	−3.13
232.000	2.47740	2.47658	0.03	5.7710	5.8386	−1.16
230.001	2.48120	2.48028	0.04	4.6399	4.7151	−1.60
228.000	2.48430	2.48302	0.05	3.4195	3.5229	−2.93
226.989	2.48570	2.48426	0.06	2.7876	2.9036	−4.00
225.000	2.48840	2.48624	0.09	1.5037	1.6746	−10.2
240.001	2.54970	2.55272	−0.12	19.2095	18.8677	1.81
237.001	2.55200	2.55416	−0.08	17.0200	16.7801	1.43
235.001	2.55360	2.55525	−0.06	15.5676	15.3868	1.18
232.001	2.55580	2.55708	−0.05	13.3987	13.2615	1.03
230.000	2.55750	2.55855	−0.04	11.9712	11.8599	0.94
227.000	2.56210	2.56148	0.02	9.8932	9.9579	−0.65
225.000	2.56790	2.56450	0.13	8.6074	8.9606	−3.94
222.000	2.57960	2.57415	0.21	7.1850	7.7535	−7.33
220.000	2.58560	2.58228	0.13	6.3950	6.7431	−5.16
217.001	2.59220	2.58987	0.09	4.7085	4.9507	−4.89
215.000	2.59560	2.59288	0.11	3.3537	3.6344	−7.72
212.999	2.59870	2.59526	0.13	1.9259	2.2758	−15.3
212.002	2.60010	2.59636	0.14	1.2014	1.5800	−23.9
232.001	2.65750	2.65974	−0.08	26.2787	25.9563	1.24
230.001	2.65800	2.66057	−0.10	24.6135	24.2476	1.51
227.000	2.65900	2.66191	−0.11	22.1146	21.7080	1.87
225.000	2.66030	2.66286	−0.10	20.4479	20.0949	1.76
222.000	2.66270	2.66439	−0.06	17.9506	17.7207	1.30
220.001	2.66450	2.66548	−0.04	16.2856	16.1541	0.81
217.001	2.66700	2.66748	−0.02	13.8213	13.7584	0.46
215.001	2.66880	2.66902	−0.01	12.1961	12.1672	0.24
212.000	2.67380	2.67218	0.06	9.8488	10.0565	−2.07
210.004	2.68040	2.67565	0.18	8.4478	9.0566	−6.72
207.000	2.69170	2.68655	0.19	7.0351	7.6997	−8.63
204.999	2.69840	2.69464	0.14	6.1813	6.6689	−7.31
201.999	2.70500	2.70198	0.11	4.2559	4.6443	−8.36
201.001	2.70680	2.70358	0.12	3.4988	3.9117	−10.5
200.001	2.70850	2.70504	0.13	2.7185	3.1607	−13.9
215.001	2.76920	2.77123	−0.07	27.6342	27.2845	1.28
212.001	2.77010	2.77265	−0.09	24.7774	24.3456	1.77
210.000	2.77080	2.77366	−0.10	22.8722	22.3920	2.14
207.000	2.77270	2.77530	−0.09	20.0156	19.5874	2.19
205.000	2.77460	2.77648	−0.07	18.1142	17.8076	1.72
202.001	2.77760	2.77849	−0.03	15.2811	15.1391	0.94
200.000	2.77940	2.78006	−0.02	13.4141	13.3102	0.78
197.000	2.78330	2.78311	0.01	10.7027	10.7330	−0.28
195.000	2.78890	2.78626	0.09	9.0523	9.4633	−4.34
192.001	2.80160	2.79595	0.20	7.3118	8.1981	−10.8
189.999	2.80830	2.80485	0.12	6.5054	7.0492	−7.71
187.000	2.81580	2.81418	0.06	4.6331	4.8879	−5.21
185.000	2.81990	2.81782	0.07	2.9542	3.2791	−9.91
183.001	2.82330	2.82083	0.09	1.1603	1.5430	−24.8
195.001	2.88210	2.88576	−0.13	26.8529	26.1090	2.85
192.000	2.88300	2.88755	−0.16	23.5731	22.6646	4.01
190.000	2.88410	2.88884	−0.16	21.3886	20.4531	4.57
187.000	2.88710	2.89096	−0.13	18.1216	17.3717	4.32
185.000	2.88930	2.89255	−0.11	15.9593	15.3344	4.07
182.000	2.89240	2.89547	−0.11	12.7874	12.2071	4.75

TABLE 17. Comparison of Theeuwes & Bearman experimental p-ρ-T data [14] (liquid phase) with Eq. (3) — Continued

T K	ρ_{exp} g/cm³	ρ_{cal} g/cm³	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
180.000	2.89550	2.89800	−0.09	10.7618	10.2930	4.55
177.002	2.90640	2.90436	0.07	8.1672	8.5496	−4.47
175.001	2.91510	2.91281	0.08	7.1913	7.6237	−5.67
175.001	2.91520	2.91281	0.08	7.1918	7.6426	−5.90
172.001	2.92432	2.92615	−0.06	5.8104	5.4625	6.37
170.000	2.92930	2.93165	−0.08	4.2102	3.7646	11.84
167.944	2.93350	2.93584	−0.08	2.2600	1.8189	24.25
167.000	2.93520	2.93752	−0.08	1.3084	0.8736	49.77
175.000	2.99480	3.00262	−0.26	26.4512	24.5754	7.63
172.001	2.99590	3.00507	−0.31	22.6945	20.5332	10.53
169.997	2.99760	3.00686	−0.31	20.1918	18.0328	11.97
239.999	2.43810	2.43506	0.12	8.0118	8.2503	−2.89
237.000	2.44860	2.44607	0.10	6.8244	7.0241	−2.84
235.000	2.45390	2.45329	0.02	6.0091	6.0573	−0.80
233.070	2.45770	2.45727	0.02	4.9767	5.0102	−0.67
232.000	2.45950	2.45891	0.02	4.3558	4.4017	−1.04
229.999	2.46240	2.46145	0.04	3.1480	3.2207	−2.26
240.002	2.52980	2.53226	−0.10	16.9559	16.6947	1.57
237.001	2.53210	2.53387	−0.07	14.8306	14.6461	1.26
235.000	2.53350	2.53513	−0.06	13.4255	13.2579	1.26
232.000	2.53630	2.53751	−0.05	11.3570	11.2351	1.08
230.000	2.53950	2.53954	−0.00	10.0144	10.0099	0.04
227.000	2.54870	2.54444	0.17	8.1664	8.5892	−4.92
225.001	2.55650	2.55135	0.20	7.2799	7.7937	−6.59
222.001	2.56550	2.56285	0.10	6.0386	6.3036	−4.21
219.999	2.56960	2.56750	0.08	4.8920	5.1013	−4.10
218.006	2.57300	2.57058	0.09	3.5858	3.8246	−6.24
217.000	2.57460	2.57185	0.11	2.8948	3.1645	−8.52
214.999	2.57740	2.57409	0.13	1.4861	1.8061	−17.7
237.000	2.63510	2.63729	−0.08	27.4647	27.1573	1.13
235.001	2.63560	2.63810	−0.09	25.8478	25.5012	1.36
232.001	2.63640	2.63935	−0.11	23.4144	23.0124	1.75
230.000	2.63730	2.64032	−0.11	21.8003	21.3946	1.90
226.999	2.63940	2.64183	−0.09	19.3762	19.0547	1.69
225.001	2.64110	2.64303	−0.07	17.7785	17.5260	1.44
221.999	2.64370	2.64485	−0.04	15.3654	15.2181	0.97
220.002	2.64330	2.64625	−0.11	13.7756	13.4025	2.78
217.001	2.64820	2.64869	−0.02	11.4126	11.3514	0.54
215.000	2.65190	2.65079	0.04	9.8842	10.0215	−1.37
212.000	2.66250	2.65673	0.22	7.9152	8.6262	−8.24
210.001	2.66950	2.66469	0.18	7.0736	7.6700	−7.78
207.000	2.67880	2.67585	0.11	5.6870	6.0546	−6.07
205.000	2.68290	2.67996	0.11	4.3323	4.6965	−7.76
203.000	2.68640	2.68297	0.13	2.8284	3.2496	−12.9
202.001	2.68800	2.68424	0.14	2.0451	2.5032	−18.3
220.001	2.74690	2.74912	−0.08	28.9297	28.5553	1.31
217.000	2.74820	2.75055	−0.09	26.1629	25.7735	1.51
215.001	2.74870	2.75156	−0.10	24.3179	23.8501	1.96
212.001	2.75000	2.75309	−0.11	21.5345	21.0385	2.36
210.000	2.75160	2.75423	−0.10	19.6861	19.2685	2.17
207.000	2.75440	2.75604	−0.06	16.9130	16.6569	1.54
205.000	2.75630	2.75735	−0.04	15.0695	14.9062	1.09
202.000	2.75910	2.75982	−0.03	12.3590	12.2499	0.89
200.000	2.76210	2.76200	0.00	10.6197	10.6346	−0.14
197.000	2.77200	2.76739	0.17	8.3011	8.9942	−7.71
195.000	2.78040	2.77484	0.20	7.3100	8.1510	−10.3
192.000	2.78980	2.78743	0.08	6.0033	6.3637	−5.66
189.999	2.79450	2.79244	0.07	4.5947	4.9070	−6.36
188.002	2.79840	2.79596	0.09	2.9474	3.3142	−11.0
187.000	2.80020	2.79746	0.10	2.0738	2.4845	−16.5

TABLE 17. Comparison of Theeuwes & Bearman experimental p-ρ-T data [14] (liquid phase) with Eq. (3) — Continued

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
200.000	2.86030	2.86352	−0.11	28.3126	27.6744	2.31
197.001	2.86140	2.86519	−0.13	25.1235	24.3854	3.03
195.000	2.86210	2.86641	−0.15	23.0014	22.1709	3.75
192.000	2.86430	2.86831	−0.14	19.8077	19.0472	3.99
190.000	2.86640	2.86973	−0.12	17.6903	17.0651	3.66
187.000	2.86950	2.87220	−0.09	14.5503	14.0519	3.55
185.000	2.87160	2.87421	−0.09	12.5050	12.0287	3.96
182.000	2.87770	2.87841	−0.02	9.6216	9.4936	1.35
180.000	2.88620	2.88337	0.10	8.0632	8.5770	−5.99
177.000	2.89790	2.89661	0.04	6.7320	6.9683	−3.39
175.000	2.90370	2.90477	−0.04	5.6936	5.4978	3.56
174.002	2.90620	2.90755	−0.05	4.9287	4.6820	5.27
171.999	2.91050	2.91190	−0.05	3.1500	2.8942	8.84
170.000	2.91430	2.91543	−0.04	1.2003	0.9958	20.54
240.000	2.40130	2.40159	−0.01	5.5500	5.5297	0.37
238.006	2.40470	2.40484	−0.01	4.4753	4.4654	0.22
237.001	2.40620	2.40617	0.00	3.9092	3.9112	−0.05
235.000	2.40890	2.40844	0.02	2.7518	2.7824	−1.10
240.000	2.48020	2.48232	−0.09	12.0113	11.8182	1.63
237.000	2.48430	2.48494	−0.03	10.0866	10.0292	0.57
235.000	2.48930	2.48755	0.07	8.8713	9.0266	−1.72
232.000	2.50020	2.49578	0.18	7.4099	7.8030	−5.04
230.001	2.50660	2.50400	0.10	6.6635	6.8953	−3.36
227.000	2.51380	2.51224	0.06	5.1559	5.2940	−2.61
225.000	2.51720	2.51535	0.07	3.9252	4.0882	−3.99
223.000	2.52020	2.51778	0.10	2.6275	2.8372	−7.39
221.999	2.52150	2.51885	0.11	1.9620	2.1899	−10.4
240.001	2.58240	2.58584	−0.13	23.1547	22.7268	1.88
237.001	2.58390	2.58711	−0.12	20.8674	20.4763	1.91
235.001	2.58530	2.58803	−0.11	19.3454	19.0163	1.73
232.000	2.58770	2.58953	−0.07	17.0630	16.8471	1.28
230.001	2.58930	2.59061	−0.05	15.5458	15.3924	1.00
227.001	2.59160	2.59251	−0.04	13.2875	13.1832	0.79
225.001	2.59340	2.59402	−0.02	11.8015	11.7311	0.60
222.000	2.59850	2.59713	0.05	9.6513	9.8037	−1.55
220.001	2.60500	2.60053	0.17	8.3535	8.8506	−5.62
217.001	2.61610	2.61119	0.19	6.9959	7.5454	−7.28
214.999	2.62260	2.61910	0.13	6.1611	6.5548	−6.01
212.001	2.62900	2.62600	0.11	4.3336	4.6686	−7.18
210.000	2.63230	2.62885	0.13	2.9040	3.2844	−11.5
209.002	2.63390	2.63005	0.15	2.1623	2.5845	-16.3
226.999	2.69480	2.69669	−0.07	27.2288	26.9386	1.08
225.001	2.69540	2.69758	−0.08	25.4969	25.1652	1.32
222.000	2.69630	2.69895	−0.10	22.8847	22.4889	1.76
220.001	2.69740	2.69988	−0.09	21.1368	20.7714	1.76
217.001	2.69980	2.70146	−0.06	18.5269	18.2869	1.31
215.001	2.70160	2.70260	−0.04	16.7901	16.6469	0.86
212.000	2.70430	2.70460	−0.01	14.2090	14.1664	0.30
210.001	2.70600	2.70617	−0.01	12.5116	12.4873	0.19
207.000	2.71070	2.70934	0.05	10.0563	10.2427	−1.82
204.999	2.71720	2.71273	0.16	8.5782	9.1909	−6.67
202.001	2.72860	2.72335	0.19	7.0888	7.8135	−9.27
200.000	2.73560	2.73177	0.14	6.2571	6.7886	−7.83
198.006	2.74040	2.73749	0.11	5.0442	5.4467	−7.39
197.001	2.74250	2.73948	0.11	4.3030	4.7195	−8.83
195.000	2.74610	2.74265	0.13	2.7072	3.1790	−14.8
210.000	2.80820	2.81084	−0.09	29.4457	28.9578	1.68
207.000	2.80970	2.81230	−0.09	26.4503	25.9771	1.82
205.000	2.81030	2.81332	−0.11	24.4482	23.9052	2.27
202.001	2.81170	2.81497	−0.12	21.4487	20.8697	2.77
200.000	2.81330	2.81618	−0.10	19.4516	18.9471	2.66

TABLE 17. Comparison of Theeuwes & Bearman experimental p-ρ-T data [14] (liquid phase) with Eq. (3) – Continued

T K	ρ_{exp} g/cm³	ρ_{cal} g/cm³	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
196.999	2.81640	2.81818	−0.06	16.4669	16.1602	1.90
195.000	2.81840	2.81975	−0.05	14.5044	14.2748	1.61
192.000	2.82160	2.82269	−0.04	11.6341	11.4517	1.59
189.998	2.82580	2.82544	0.01	9.8317	9.8921	−0.61
187.000	2.83800	2.83315	0.17	7.6950	8.5052	−9.53
185.000	2.84540	2.84200	0.12	6.8590	7.4304	−7.69
182.001	2.85410	2.85323	0.03	5.2243	5.3716	−2.74
180.000	2.85850	2.85753	0.03	3.5698	3.7321	−4.35
179.094	2.86040	2.85860	0.06	2.6662	2.9670	−10.1
177.000	2.86390	2.86249	0.05	0.7997	1.0336	−22.6
196.999	2.87340	2.87685	−0.12	27.4418	26.7487	2.59
195.001	2.87400	2.87798	−0.14	25.2816	24.4893	3.24
192.000	2.87520	2.87980	−0.16	22.0328	21.1335	4.26
190.000	2.87680	2.88111	−0.15	19.8689	19.0359	4.38
187.000	2.88010	2.88334	−0.11	16.6489	16.0318	3.85
185.000	2.88220	2.88505	−0.10	14.5251	13.9887	3.84
182.000	2.88570	2.88834	−0.09	11.4457	10.9562	4.47
180.000	2.89050	2.89149	−0.03	9.5479	9.3647	1.96
177.000	2.90350	2.90073	0.10	7.4895	8.0040	−6.43
175.000	2.91090	2.91001	0.03	6.6642	6.8314	−2.45
175.000	2.91110	2.91000	0.04	6.6640	6.8688	−2.98
172.000	2.91910	2.92088	−0.06	4.8125	4.4797	7.43
170.000	2.92350	2.92523	−0.06	3.0003	2.6791	11.99
240.000	2.42040	2.41793	0.10	6.7155	6.8976	−2.64
237.002	2.42740	2.42655	0.04	5.3466	5.4090	−1.15
235.001	2.43080	2.42969	0.05	4.2289	4.3095	−1.87
232.999	2.43360	2.43213	0.06	3.0520	3.1572	−3.33
232.002	2.43490	2.43316	0.07	2.4503	2.5736	−4.79
240.000	2.50310	2.50421	−0.04	14.0837	13.9751	0.78
236.999	2.50540	2.50625	−0.03	12.0611	11.9797	0.68
235.000	2.50780	2.50799	−0.01	10.7425	10.7245	0.17
232.000	2.51460	2.51177	0.11	8.8587	9.1237	−2.90
230.001	2.52190	2.51638	0.22	7.7862	8.3022	−6.22
227.000	2.53220	2.52830	0.15	6.6167	6.9836	−5.25
225.001	2.53730	2.53455	0.11	5.6641	5.9227	−4.37
222.000	2.54270	2.53968	0.12	3.8153	4.0952	−6.83
220.000	2.54570	2.54212	0.14	2.4806	2.8080	−11.6
219.002	2.54710	2.54318	0.15	1.7965	2.1532	−16.5
240.000	2.60590	2.60751	−0.06	25.9422	25.7288	0.83
237.000	2.60660	2.60876	−0.08	23.6015	23.3207	1.20
235.001	2.60740	2.60964	−0.09	22.0397	21.7527	1.32
232.001	2.60930	2.61102	−0.07	19.6926	19.4763	1.11
230.000	2.61090	2.61204	−0.04	18.1314	17.9900	0.79
227.000	2.61340	2.61366	−0.01	15.7907	15.7587	0.20
225.001	2.61500	2.61488	0.00	14.2396	14.2536	−0.10
222.000	2.61750	2.61712	0.01	11.9453	11.9902	−0.37
219.999	2.62040	2.61904	0.05	10.4552	10.6150	−1.51
217.001	2.62910	2.62373	0.20	8.4160	9.0415	−6.92
215.001	2.63720	2.63018	0.27	7.4235	8.2442	−9.95
212.000	2.64690	2.64226	0.18	6.1848	6.7312	−8.12
210.001	2.65130	2.64757	0.14	5.0235	5.4605	−8.00
208.000	2.65510	2.65094	0.16	3.6188	4.1034	−11.8
207.000	2.65670	2.65231	0.17	2.8766	3.3851	−15.0
205.001	2.65980	2.65468	0.19	1.3419	1.9288	−30.4
225.000	2.71370	2.71473	−0.04	28.1687	28.0050	0.58
222.000	2.71460	2.71605	−0.05	25.5049	25.2777	0.90
220.001	2.71520	2.71695	−0.06	23.7217	23.4516	1.15
217.000	2.71670	2.71844	−0.06	21.0526	20.7884	1.27
215.001	2.71820	2.71947	−0.05	19.2703	19.0792	1.00
212.000	2.72100	2.72120	−0.01	16.6044	16.5756	0.17
210.000	2.72280	2.72257	0.01	14.8493	14.8835	−0.23

TABLE 17. Comparison of Theeuwes & Bearman experimental p-ρ-T data [14] (liquid phase) with Eq. (3) – Continued

T K	ρ_{exp} g/cm³	ρ_{cal} g/cm³	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
207.000	2.72550	2.72495	0.02	12.2461	12.3252	−0.64
204.999	2.72850	2.72707	0.05	10.5730	10.7762	−1.89
202.001	2.73800	2.73225	0.21	8.3231	9.1390	−8.93
200.000	2.74640	2.73943	0.25	7.3265	8.3198	−11.9
197.000	2.75590	2.75197	0.14	6.0497	6.6141	−8.53
195.000	2.76060	2.75698	0.13	4.7009	5.2186	−9.92
193.000	2.76440	2.76044	0.14	3.1146	3.6763	−15.2
191.999	2.76620	2.76189	0.16	2.2737	2.8834	−21.1
190.001	2.76930	2.76471	0.17	0.5762	1.2188	−52.7
207.000	2.82200	2.82373	−0.06	28.5690	28.2442	1.15
204.999	2.82300	2.82476	−0.06	26.5440	26.2181	1.24
202.000	2.82390	2.82636	−0.09	23.5011	23.0516	1.95
200.001	2.82490	2.82753	−0.09	21.4751	21.0012	2.26
197.000	2.82760	2.82935	−0.06	18.4257	18.1148	1.72
195.000	2.82970	2.83078	−0.04	16.4171	16.2266	1.17
192.000	2.83260	2.83327	−0.02	13.4386	13.3226	0.87
190.000	2.83500	2.83535	−0.01	11.5080	11.4480	0.52
187.000	2.84310	2.84008	0.11	8.8562	9.3697	−5.48
185.000	2.85200	2.84633	0.20	7.5883	8.5563	−11.3
182.000	2.86270	2.85975	0.10	6.3313	6.8402	−7.44
179.999	2.86780	2.86649	0.05	5.0881	5.3138	−4.25
178.000	2.87220	2.87078	0.05	3.4023	3.6459	−6.68
177.000	2.87410	2.87253	0.05	2.4832	2.7514	−9.75
175.002	2.87750	2.87580	0.06	0.5928	0.8807	−32.7
187.000	2.93540	2.93952	−0.14	28.2580	27.3458	3.34
184.999	2.93620	2.94082	−0.16	25.9270	24.9147	4.06
182.000	2.93740	2.94291	−0.19	22.4305	21.2446	5.58
180.001	2.93900	2.94441	−0.18	20.1015	18.9492	6.08
176.999	2.94240	2.94692	−0.15	16.6238	15.6759	6.05
174.999	2.94460	2.94890	−0.15	14.3486	13.4557	6.64
172.001	2.94860	2.95276	−0.14	11.0832	10.2310	8.33
170.000	2.95450	2.95659	−0.07	9.1295	8.7036	4.89

TABLE 18. Comparison of Blagoi & Sorokin experimental p-ρ-T data[15] (liquid phase) with Eq. (3)

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
171.700	2.90600	2.89736	0.30	0.1469	1.6715	−91.2
171.700	2.90600	2.89800	0.28	0.2584	1.6715	−84.5
171.700	2.90900	2.90201	0.24	0.9626	2.2106	−56.4
171.700	2.92900	2.92408	0.17	4.9953	5.9303	−15.7
171.700	2.95200	2.94981	0.07	10.0413	10.4879	−4.26
171.700	2.99400	2.99622	−0.07	20.1434	19.6301	2.61
171.700	3.02200	3.02543	−0.11	27.2159	26.3545	3.27
179.450	2.84600	2.84113	0.17	0.2178	0.9951	−78.1
179.450	2.84700	2.84206	0.17	0.3648	1.1562	−68.4
179.450	2.85300	2.84893	0.14	1.4692	2.1328	−31.1
179.450	2.87200	2.86999	0.07	4.9953	5.3437	−6.52
179.450	2.89700	2.89807	−0.04	10.0514	9.8508	2.04
179.450	2.94300	2.94819	−0.18	20.1434	19.0317	5.84
179.450	2.98400	2.99226	−0.28	30.2455	28.2594	7.03
179.450	3.02100	3.03167	−0.35	40.3476	37.5084	7.57
179.450	3.05100	3.06396	−0.42	49.4466	45.7026	8.19
199.840	2.68800	2.68883	−0.03	0.5269	0.4276	23.21
199.840	2.69100	2.69242	−0.05	0.9626	0.7896	21.91
199.840	2.69900	2.70136	−0.09	2.0670	1.7721	16.64
199.840	2.72100	2.72467	−0.13	5.0966	4.6051	10.67
199.840	2.75300	2.76009	−0.26	10.1325	9.0812	11.58
199.840	2.81100	2.82172	−0.38	20.2143	18.3346	10.25
199.840	2.86200	2.87452	−0.44	30.3063	27.7848	9.08
199.840	2.90600	2.92096	−0.51	40.3983	37.0160	9.14
199.840	2.94500	2.96260	−0.59	50.5004	46.1033	9.54
219.670	2.53300	2.52920	0.15	1.0538	1.3855	−23.9
219.670	2.53900	2.53590	0.12	1.6415	1.9179	−14.4
219.670	2.55000	2.54699	0.12	2.6446	2.9232	−9.53
219.670	2.57500	2.57306	0.08	5.1574	5.3533	−3.66
219.670	2.62000	2.61935	0.02	10.1832	10.2593	−0.74
219.670	2.69300	2.69612	−0.12	20.2447	19.7904	2.30
219.670	2.75300	2.75942	−0.23	30.3266	29.2251	3.77
219.670	2.80700	2.81381	−0.24	40.4185	39.0784	3.43
219.670	2.85200	2.86175	−0.34	50.5105	48.3626	4.44

TABLE 19. Comparison of Streett *et al.* experimental p-ρ-T data[16] (liquid phase) with Eq. (3)

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
165.000	2.94243	2.94724	−0.16	0.4134		
165.000	2.94375	2.94912	−0.18	0.7721		
165.000	2.94506	2.94919	−0.14	0.7863		
165.000	2.94900	2.95374	−0.16	1.6597	0.7487	121.6
165.000	2.95425	2.95895	−0.16	2.6780	1.7592	52.23
165.000	2.95688	2.96204	−0.17	3.2890	2.2706	44.85
165.000	2.95819	2.96216	−0.13	3.3123	2.5278	31.04
165.000	2.96475	2.96957	−0.16	4.7998	3.8292	25.35
165.000	2.97263	2.97813	−0.18	6.5608	5.4253	20.93
165.000	2.97657	2.98350	−0.23	7.6896	6.2376	23.28
165.000	2.98182	2.98886	−0.24	8.8335	7.3356	20.42
170.000	2.90961	2.91131	−0.06	0.4347	0.1304	233.3
170.000	2.90961	2.91227	−0.09	0.6049	0.1304	363.9
170.000	2.91092	2.91304	−0.07	0.7437	0.3644	104.1
170.000	2.91355	2.91538	-0.06	1.1663	0.8352	39.64
170.000	2.91749	2.91943	−0.07	1.9039	1.5485	22.95
170.000	2.91749	2.92002	−0.09	2.0123	1.5485	29.96

TABLE 19. Comparison of Streett *et al.* experimental p-ρ-T data [16] (liquid phase) with Eq. (3) – Continued

T K	ρ_{exp} g/cm³	ρ_{cal} g/cm³	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
170.000	2.91880	2.92113	−0.08	2.2160	1.7881	23.93
170.000	2.92011	2.92278	−0.09	2.5210	2.0287	24.26
170.000	2.92011	2.92285	−0.09	2.5341	2.0287	24.91
170.000	2.92274	2.92679	−0.14	3.2667	2.5128	30.00
170.000	2.92405	2.92733	−0.11	3.3680	2.7562	22.20
170.000	2.93193	2.93592	−0.14	5.0004	4.2373	18.01
170.000	2.93849	2.94267	−0.14	6.3125	5.4984	14.81
170.000	2.95031	2.95337	−0.10	8.4475	7.8309	7.87
170.000	2.95688	2.96190	−0.17	10.1973	9.1622	11.30
170.000	2.97263	2.97923	−0.22	13.8896	12.4628	11.45
170.000	2.98708	2.99466	−0.25	17.3347	15.6230	10.96
170.000	3.00283	3.00943	−0.22	20.7787	19.2223	8.10
170.000	3.00808	3.01517	−0.24	22.1557	20.4582	8.30
180.000	2.84002	2.83995	0.00	0.6718	0.6827	−1.59
180.000	2.84133	2.84026	0.04	0.7204	0.8915	−19.1
180.000	2.84133	2.84130	0.00	0.8866	0.8915	−0.56
180.000	2.84265	2.84266	−0.00	1.1044	1.1012	0.29
180.000	2.84396	2.84371	0.01	1.2726	1.3118	−2.98
180.000	2.84658	2.84608	0.02	1.6536	1.7354	−4.71
180.000	2.84790	2.84782	0.00	1.9363	1.9484	−0.62
180.000	2.84790	2.84818	−0.01	1.9951	1.9484	2.39
180.000	2.84921	2.84943	−0.01	2.1988	2.1624	1.68
180.000	2.85184	2.85160	0.01	2.5534	2.5927	−1.52
180.000	2.85184	2.85169	0.01	2.5686	2.5927	−0.93
180.000	2.85184	2.85205	−0.01	2.6284	2.5927	1.38
180.000	2.85578	2.85616	−0.01	3.3093	3.2446	1.99
180.000	2.85578	2.85634	−0.02	3.3387	3.2446	2.90
180.000	2.85578	2.85626	−0.02	3.3255	3.2446	2.49
180.000	2.85578	2.85653	−0.03	3.3701	3.2446	3.87
180.000	2.85578	2.85661	−0.03	3.3832	3.2446	4.27
180.000	2.86497	2.86611	−0.04	4.9923	4.7958	4.10
180.000	2.87284	2.87370	−0.03	6.3095	6.1593	2.44
180.000	2.88466	2.88590	−0.04	8.4890	8.2644	2.72
180.000	2.89517	2.89796	−0.10	10.7212	10.1969	5.14
180.000	2.91092	2.91447	−0.12	13.9038	13.2067	5.28
180.000	2.92668	2.93145	−0.16	17.3347	16.3533	6.00
180.000	2.94769	2.95197	−0.15	21.7018	20.7692	4.49
180.000	2.95819	2.96331	−0.17	24.2228	23.0746	4.98
180.000	2.97263	2.97826	−0.19	27.6668	26.3541	4.98
180.000	2.98708	2.99150	−0.15	30.8362	29.7639	3.60
180.000	3.00283	3.00810	−0.18	34.9693	33.6373	3.96
180.000	3.01990	3.02503	−0.17	39.3779	38.0205	3.57
180.000	3.03828	3.04420	−0.19	44.6124	42.9671	3.83
180.000	3.05273	3.05964	−0.23	49.0220	47.0247	4.25
190.000	2.76780	2.76643	0.05	0.7812	0.9740	−19.8
190.000	2.77043	2.76893	0.05	1.1328	1.3437	−15.6
190.000	2.77437	2.77254	0.07	1.6435	1.9038	−13.6
190.000	2.77831	2.77662	0.06	2.2271	2.4707	−9.86
190.000	2.78093	2.78015	0.03	2.7378	2.8524	−4.02
190.000	2.78750	2.78589	0.06	3.5808	3.8202	−6.26
190.000	2.79538	2.79507	0.01	4.9599	5.0070	−0.94
190.000	2.80326	2.80407	−0.03	6.3490	6.2220	2.04
190.000	2.81639	2.81648	−0.00	8.3259	8.3107	0.18
190.000	2.82820	2.82932	−0.04	10.4476	10.2600	1.83
190.000	2.84790	2.84921	−0.05	13.8927	13.6586	1.71
190.000	2.86628	2.86880	−0.09	17.4765	17.0047	2.77
190.000	2.88335	2.88562	−0.08	20.7139	20.2672	2.20
190.000	2.91486	2.91940	−0.16	27.6729	26.7003	3.64
190.000	2.93062	2.93445	−0.13	30.9801	30.1244	2.84
190.000	2.94769	2.95130	−0.12	34.8386	33.9966	2.48
190.000	2.97132	2.97692	−0.19	41.0397	39.6483	3.51
190.000	3.00283	3.00664	−0.13	48.7576	47.7348	2.14
190.000	3.02515	3.03093	−0.19	55.5099	53.8651	3.05

TABLE 19. Comparison of Streett *et al*. experimental p-ρ-T data [16] (liquid phase) with Eq. (3) – Continued

T K	ρ_{exp} g/cm³	ρ_{cal} g/cm³	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
190.000	3.04747	3.05338	−0.19	62.1244	60.3483	2.94
190.000	3.06060	3.06679	−0.20	66.2595	64.3342	2.99
190.000	3.09080	3.09564	−0.16	75.6310	74.0118	2.19
200.000	2.69165	2.68991	0.06	0.8096	1.0206	−20.6
200.000	2.69428	2.69172	0.09	1.0295	1.3415	−23.2
200.000	2.69690	2.69563	0.05	1.5077	1.6651	−9.45
200.000	2.70347	2.70119	0.08	2.1998	2.4860	−11.5
200.000	2.70741	2.70654	0.03	2.8756	2.9868	−3.72
200.000	2.72316	2.72252	0.02	4.9659	5.0524	−1.71
200.000	2.73235	2.73260	−0.01	6.3389	6.3041	0.55
200.000	2.74811	2.74725	0.03	8.4079	8.5322	−1.46
200.000	2.76124	2.76269	−0.05	10.6888	10.4699	2.09
200.000	2.78225	2.78328	−0.04	13.8927	13.7275	1.20
200.000	2.80326	2.80375	−0.02	17.2688	17.1845	0.49
200.000	2.82295	2.82428	−0.05	20.8517	20.6129	1.16
200.000	2.84133	2.84264	−0.05	24.2278	23.9819	1.03
200.000	2.85840	2.86049	−0.07	27.6729	27.2612	1.51
200.000	2.87416	2.87755	−0.12	31.1179	30.4211	2.29
200.000	2.89123	2.89388	−0.09	34.5630	33.9927	1.68
200.000	2.92011	2.92466	−0.16	41.4531	40.4018	2.60
200.000	2.94900	2.95323	−0.14	48.3432	47.2913	2.22
200.000	2.97526	2.97993	−0.16	55.2343	53.9949	2.30
200.000	3.00021	3.00500	−0.16	62.1244	60.7733	2.22
200.000	3.02384	3.02864	−0.16	69.0155	67.5831	2.12
200.000	3.06848	3.07225	−0.12	82.7987	81.5501	1.53
200.000	3.10918	3.11173	−0.08	96.5810	95.6537	0.97
200.000	3.12757	3.13015	−0.08	103.4731	102.4884	0.96
210.000	2.61024	2.61181	−0.06	1.0568	0.8946	18.13
210.000	2.61550	2.61615	−0.02	1.5097	1.4413	4.75
210.000	2.62337	2.62526	−0.07	2.4835	2.2794	8.95
210.000	2.64570	2.64621	−0.02	4.8352	4.7750	1.26
210.000	2.66145	2.66429	−0.11	6.9945	6.6468	5.23
210.000	2.68902	2.69322	−0.16	10.7090	10.1497	5.51
210.000	2.71266	2.71690	−0.16	13.9960	13.3909	4.52
210.000	2.73498	2.73942	−0.16	17.3377	16.6623	4.05
210.000	2.75599	2.76124	−0.19	20.7828	19.9346	4.25
210.000	2.79800	2.80363	−0.20	28.0853	27.0681	3.76
210.000	2.83345	2.83973	−0.22	34.9754	33.7312	3.69
210.000	2.86497	2.87282	−0.27	41.8665	40.1797	4.20
210.000	2.89517	2.90340	−0.28	48.7566	46.8504	4.07
210.000	2.92536	2.93188	−0.22	55.6477	54.0286	3.00
210.000	2.95031	2.95855	−0.28	62.5378	60.3617	3.61
210.000	2.97526	2.98365	−0.28	69.4289	67.0789	3.50
210.000	3.02121	3.02983	−0.28	83.2111	80.5257	3.33
210.000	3.06323	3.07155	−0.27	96.9944	94.1388	3.03
210.000	3.10262	3.10959	−0.22	110.7786	108.1606	2.42
210.000	3.13807	3.14454	−0.21	124.5639	121.9247	2.16
210.000	3.15514	3.16101	−0.19	131.4570	128.9697	1.93
220.000	2.53146	2.53179	−0.01	1.5341	1.5053	1.91
220.000	2.53934	2.53911	0.01	2.1846	2.2053	−0.94
220.000	2.54722	2.54697	0.01	2.9019	2.9249	−0.78
220.000	2.55510	2.55556	−0.02	3.7085	3.6642	1.21
220.000	2.56035	2.56088	−0.02	4.2192	4.1683	1.22
220.000	2.56692	2.56777	−0.03	4.8960	4.8109	1.77
220.000	2.57479	2.57519	−0.02	5.6408	5.6009	0.71
220.000	2.58136	2.58216	−0.03	6.3581	6.2750	1.32
220.000	2.58792	2.58815	−0.01	6.9874	6.9637	0.34
220.000	2.59318	2.59470	−0.06	7.6906	7.5253	2.20
220.000	2.60105	2.60224	−0.05	8.5174	8.3854	1.57
220.000	2.61681	2.61800	−0.05	10.3098	10.1709	1.37
220.000	2.64570	2.64740	−0.06	13.8927	13.6766	1.58
220.000	2.67196	2.67344	−0.06	17.3377	17.1346	1.19

TABLE 19. Comparison of Streett *et al.* experimental p-ρ-T data [16] (liquid phase) with Eq. (3) – Continued

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
220.000	2.69559	2.69768	−0.08	20.7828	20.4769	1.49
220.000	2.71791	2.72039	−0.09	24.2278	23.8414	1.62
220.000	2.73892	2.74179	−0.10	27.6729	27.1989	1.74
220.000	2.75861	2.76205	−0.12	31.1169	30.5205	1.95
220.000	2.77831	2.77979	−0.05	34.2864	34.0157	0.80
220.000	2.81376	2.81722	−0.12	41.4531	40.7627	1.69
220.000	2.84658	2.85022	−0.13	48.3432	47.5576	1.65
220.000	2.87678	2.88080	−0.14	55.2333	54.3002	1.72
220.000	2.90567	2.90933	−0.13	62.1244	61.2140	1.49
220.000	2.93193	2.93610	−0.14	69.0155	67.9137	1.62
220.000	2.95688	2.96132	−0.15	75.9066	74.6627	1.67
220.000	2.97920	2.98518	−0.20	82.7977	81.0338	2.18
220.000	3.00414	3.00782	−0.12	89.6888	88.5446	1.29
220.000	3.02515	3.02937	−0.14	96.5810	95.2042	1.45
220.000	3.04485	3.04993	−0.17	103.4731	101.7389	1.70
220.000	3.06586	3.06958	−0.12	110.3652	109.0345	1.22
220.000	3.08555	3.08840	−0.09	117.2573	116.1936	0.92
220.000	3.10393	3.10646	−0.08	124.1505	123.1677	0.80
220.000	3.12231	3.12381	−0.05	131.0426	130.4371	0.46
220.000	3.13938	3.14051	−0.04	137.9357	137.4640	0.34
220.000	3.15645	3.15754	−0.03	145.2433	144.7697	0.33
220.000	3.17221	3.17301	−0.03	152.1364	151.7718	0.24
220.000	3.18796	3.18796	0.00	159.0306	159.0333	−0.00
220.000	3.20109	3.19955	0.05	164.5457	165.2908	−0.45
230.000	2.44743	2.44934	−0.08	2.2251	2.0858	6.68
230.000	2.45531	2.45788	−0.10	2.8594	2.6663	7.24
230.000	2.46713	2.46829	−0.05	3.6599	3.5693	2.54
230.000	2.47763	2.47899	−0.05	4.5150	4.4049	2.50
230.000	2.48288	2.48519	−0.09	5.0257	4.8345	3.95
230.000	2.49207	2.49346	−0.06	5.7238	5.6057	2.11
230.000	2.50783	2.50785	−0.00	6.9874	6.9859	0.02
230.000	2.52359	2.52323	0.01	8.4079	8.4415	−0.40
230.000	2.54328	2.54473	−0.06	10.5165	10.3699	1.41
230.000	2.57742	2.57686	0.02	13.9484	14.0111	−0.45
230.000	2.60631	2.60713	−0.03	17.5029	17.4019	0.58
230.000	2.62863	2.63287	−0.16	20.7828	20.2256	2.75
230.000	2.66145	2.66286	−0.05	24.9168	24.7153	0.82
230.000	2.67852	2.68157	−0.11	27.6729	27.2146	1.68
230.000	2.70084	2.70371	−0.11	31.1169	30.6596	1.49
230.000	2.72054	2.72465	−0.15	34.5620	33.8705	2.04
230.000	2.76124	2.76348	−0.08	41.4531	41.0378	1.01
230.000	2.79538	2.79891	−0.13	48.3432	47.6290	1.50
230.000	2.82689	2.83159	−0.17	55.2333	54.2100	1.89
230.000	2.85840	2.86195	−0.12	62.1244	61.2934	1.36
230.000	2.88597	2.89035	−0.15	69.0155	67.9250	1.61
230.000	2.91223	2.91704	−0.16	75.9066	74.6359	1.70
230.000	2.93718	2.94223	−0.17	82.7977	81.3854	1.74
230.000	2.96213	2.96610	−0.13	89.6888	88.5171	1.32
230.000	2.98445	2.98878	−0.15	96.5810	95.2373	1.41
230.000	3.00677	3.01040	−0.12	103.4731	102.2932	1.15
230.000	3.02909	3.03225	−0.10	110.7786	109.7005	0.98
230.000	3.06717	3.07085	−0.12	124.5639	123.1978	1.11
230.000	3.10525	3.10645	−0.04	138.3502	137.8654	0.35
230.000	3.13676	3.13946	−0.09	152.1364	150.9685	0.77
230.000	3.16958	3.17022	−0.02	165.9237	165.6300	0.18
230.000	3.19847	3.19898	−0.02	179.7131	179.4600	0.14
230.000	3.21948	3.21805	0.04	189.3653	190.1067	−0.39
230.000	3.23129	3.22884	0.08	195.0192	196.3263	−0.67
240.000	2.33977	2.34753	−0.33	2.1532	1.7237	24.91
240.000	2.35684	2.36150	−0.20	2.9607	2.6861	10.22
240.000	2.36471	2.37081	−0.26	3.5241	3.1530	11.77
240.000	2.37653	2.38312	−0.28	4.3012	3.8808	10.83
240.000	2.40673	2.41319	−0.27	6.3571	5.8960	7.82

TABLE 19. Comparison of Streett *et al.* experimental p-ρ-T data [16] (liquid phase) with Eq. (3) – Continued

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
240.000	2.43299	2.43990	−0.28	8.3796	7.8381	6.91
240.000	2.45794	2.46487	−0.28	10.4466	9.8553	6.00
240.000	2.49601	2.50239	−0.26	13.8917	13.2762	4.64
240.000	2.53015	2.53596	−0.23	17.3367	16.7152	3.72
240.000	2.56035	2.56644	−0.24	20.7818	20.0682	3.56
240.000	2.58924	2.59447	−0.20	24.2268	23.5630	2.82
240.000	2.61681	2.62046	−0.14	27.6719	27.1736	1.83
240.000	2.63913	2.64474	−0.21	31.1169	30.3014	2.69
240.000	2.66408	2.67021	−0.23	34.9754	34.0227	2.80
240.000	2.70478	2.71196	−0.26	41.8655	40.6291	3.04
240.000	2.74417	2.74982	−0.21	48.7566	47.6887	2.24
240.000	2.77962	2.78454	−0.18	55.6467	54.6369	1.85
240.000	2.80982	2.81668	−0.24	62.5378	61.0247	2.48
240.000	2.83871	2.84664	−0.28	69.4289	67.5592	2.77
240.000	2.86759	2.87473	−0.25	76.3200	74.5290	2.40
240.000	2.89385	2.90119	−0.25	83.2111	81.2610	2.40
240.000	2.91880	2.92622	−0.25	90.1033	88.0221	2.36
240.000	2.94375	2.94996	−0.21	96.9944	95.1561	1.93
240.000	2.96607	2.97257	−0.22	103.8865	101.8696	1.98
240.000	2.98708	2.99414	−0.24	110.7786	108.4862	2.11
240.000	3.00808	3.01477	−0.22	117.6707	115.4042	1.96
240.000	3.02778	3.03453	−0.22	124.5639	122.1756	1.95
240.000	3.04747	3.05350	−0.20	131.4570	129.2357	1.72
240.000	3.06586	3.07174	−0.19	138.3492	136.0968	1.65
240.000	3.10131	3.10621	−0.16	152.1364	150.1128	1.35
240.000	3.13413	3.13830	−0.13	165.9237	164.0771	1.13
240.000	3.16564	3.16830	−0.08	179.7131	178.4530	0.71
240.000	3.19584	3.19644	−0.02	193.5024	193.1985	0.16
240.000	3.22473	3.22292	0.06	207.2927	208.2668	−0.47
240.000	3.25099	3.24789	0.10	221.0841	222.8519	−0.79
240.000	3.26412	3.25985	0.13	227.9792	230.4828	−1.09
250.000	2.23341	2.24377	−0.46	2.7398	2.3104	18.59
250.000	2.24260	2.25051	−0.35	3.0296	2.6903	12.61
250.000	2.25705	2.26496	−0.35	3.6811	3.3194	10.90
250.000	2.26755	2.27470	−0.31	4.1432	3.8021	8.97
250.000	2.28331	2.28990	−0.29	4.9021	4.5671	7.34
250.000	2.29644	2.30359	−0.31	5.6266	5.2431	7.31
250.000	2.30957	2.31731	−0.33	6.3926	5.9553	7.34
250.000	2.32007	2.32898	−0.38	7.0624	6.5517	7.79
250.000	2.34239	2.35013	−0.33	8.3796	7.8856	6.26
250.000	2.37259	2.38038	−0.33	10.4466	9.8930	5.60
250.000	2.39885	2.40776	−0.37	12.5136	11.8200	5.87
250.000	2.42511	2.43285	−0.32	14.5807	13.9250	4.71
250.000	2.45531	2.46345	−0.33	17.3367	16.5777	4.58
250.000	2.49076	2.49805	−0.29	20.7818	20.0263	3.77
250.000	2.52227	2.52944	−0.28	24.2268	23.4129	3.48
250.000	2.55116	2.55826	−0.28	27.6719	26.7975	3.26
250.000	2.57742	2.58497	−0.29	31.1169	30.1182	3.32
250.000	2.60237	2.60990	−0.29	34.5620	33.4974	3.18
250.000	2.64701	2.65542	−0.32	41.4521	40.1184	3.32
250.000	2.68902	2.69633	−0.27	48.3432	47.0626	2.72
250.000	2.72710	2.73358	−0.24	55.2333	53.9915	2.30
250.000	2.76124	2.76985	−0.31	62.5378	60.7480	2.95
250.000	2.79406	2.80155	−0.27	69.4289	67.7568	2.47
250.000	2.82164	2.83118	−0.34	76.3200	74.0516	3.06
250.000	2.85052	2.85902	−0.30	83.2111	81.0644	2.65
250.000	2.87678	2.88530	−0.30	90.1033	87.8282	2.59
250.000	2.90173	2.91019	−0.29	96.9944	94.6124	2.52
250.000	2.92536	2.93385	−0.29	103.8865	101.3759	2.48
250.000	2.94769	2.95640	−0.29	110.7786	108.0773	2.50
250.000	2.97001	2.97794	−0.27	117.6707	115.0965	2.24
250.000	2.99101	2.99857	−0.25	124.5639	122.0057	2.10
250.000	3.01071	3.01835	−0.25	131.4570	128.7613	2.09
250.000	3.02909	3.03735	−0.27	138.3492	135.3194	2.24

TABLE 19. Comparison of Streett *et al*. experimental p-ρ-T data [16] (liquid phase) with Eq. (3) – Continued

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
250.000	3.06586	3.07326	−0.24	152.1364	149.2087	1.96
250.000	3.10131	3.10666	−0.17	165.9237	163.6471	1.39
250.000	3.13282	3.13788	−0.16	179.7131	177.4161	1.29
250.000	3.16433	3.16714	−0.09	193.5024	192.1399	0.71
250.000	3.19322	3.19467	−0.05	207.2927	206.5456	0.36
250.000	3.22079	3.22062	0.01	221.0841	221.1748	−0.04
250.000	3.24836	3.24516	0.10	234.8754	236.7329	−0.78
250.000	3.27331	3.26840	0.15	248.6688	251.6745	−1.19
250.000	3.29169	3.28506	0.20	259.0141	263.2487	−1.61
260.000	2.10999	2.12233	−0.58	3.3133	2.9678	11.64
260.000	2.10999	2.12233	−0.58	3.3133	2.9678	11.64
260.000	2.11918	2.13093	−0.55	3.5677	3.2231	10.69
260.000	2.12969	2.14162	−0.56	3.8990	3.5301	10.45
260.000	2.14150	2.15280	−0.52	4.2648	3.8954	9.48
260.000	2.15201	2.16224	−0.47	4.5890	4.2382	8.28
260.000	2.16251	2.17187	−0.43	4.9345	4.5985	7.31
260.000	2.18089	2.19010	−0.42	5.6306	5.2721	6.80
260.000	2.19796	2.20752	−0.43	6.3490	5.9484	6.74
260.000	2.21241	2.22046	−0.36	6.9175	6.5602	5.45
260.000	2.24129	2.25093	−0.43	8.3786	7.8974	6.09
260.000	2.26755	2.27674	−0.40	9.7576	9.2513	5.47
260.000	2.28987	2.30030	−0.45	11.1356	10.5113	5.94
260.000	2.31088	2.32203	−0.48	12.5136	11.7937	6.10
260.000	2.33189	2.34233	−0.45	13.8917	13.1683	5.49
260.000	2.37784	2.38764	−0.41	17.3367	16.5484	4.76
260.000	2.41723	2.42726	−0.41	20.7818	19.8697	4.59
260.000	2.45400	2.46266	−0.35	24.2268	23.3506	3.75
260.000	2.48551	2.49477	−0.37	27.6719	26.6465	3.85
260.000	2.51571	2.52424	−0.34	31.1169	30.0912	3.41
260.000	2.54459	2.55469	−0.40	34.9754	33.6618	3.90
260.000	2.59580	2.60372	−0.30	41.8655	40.6944	2.88
260.000	2.63913	2.64741	−0.31	48.7566	47.3939	2.88
260.000	2.67852	2.68696	−0.31	55.6467	54.1219	2.82
260.000	2.71397	2.72320	−0.34	62.5378	60.7281	2.98
260.000	2.74680	2.75671	−0.36	69.4289	67.3359	3.11
260.000	2.77831	2.78793	−0.35	76.3200	74.1464	2.93
260.000	2.80719	2.81718	−0.35	83.2111	80.8109	2.97
260.000	2.83477	2.84472	−0.35	90.1022	87.5660	2.90
260.000	2.85971	2.87077	−0.39	96.9944	94.0236	3.16
260.000	2.88597	2.89549	−0.33	103.8865	101.1919	2.66
260.000	2.90830	2.91902	−0.37	110.7786	107.5964	2.96
260.000	2.95294	2.96295	−0.34	124.5629	121.3127	2.68
260.000	2.97395	2.98354	−0.32	131.4560	128.2092	2.53
260.000	2.99364	3.00330	−0.32	138.3492	134.9457	2.52
260.000	3.03172	3.04061	−0.29	152.1364	148.7540	2.27
260.000	3.10131	3.10770	−0.21	179.7131	176.9188	1.58
260.000	3.13151	3.13806	−0.21	193.5024	190.4499	1.60
260.000	3.16039	3.16661	−0.20	207.2927	204.2153	1.51
260.000	3.18928	3.19353	−0.13	221.0830	218.8488	1.02
260.000	3.21816	3.21898	−0.03	234.8754	234.4211	0.19
260.000	3.29432	3.28770	0.20	276.2575	280.5945	−1.55
260.000	3.27068	3.26595	0.14	262.4621	265.4052	−1.11
260.000	3.24574	3.24308	0.08	248.6688	250.2342	−0.63
260.000	3.32452	3.31343	0.33	293.5020	301.2571	−2.57
270.000	1.99970	2.01119	−0.57	4.7197	4.4885	5.15
270.000	2.03121	2.04292	−0.57	5.4371	5.1585	5.40
270.000	2.06535	2.07640	−0.53	6.3288	6.0184	5.16
270.000	2.08767	2.09915	−0.55	7.0198	6.6621	5.37
270.000	2.10737	2.11921	−0.56	7.6896	7.2869	5.53
270.000	2.12575	2.13819	−0.58	8.3786	7.9207	5.78
270.000	2.14282	2.15579	−0.60	9.0676	8.5549	5.99
270.000	2.15989	2.17224	−0.57	9.7566	9.2349	5.65
270.000	2.17433	2.18681	−0.57	10.4051	9.8475	5.66

TABLE 19. Comparison of Streett *et al*. experimental p-ρ-T data [16] (liquid phase) with Eq. (3) – Continued

T K	ρ_{exp} g/cm³	ρ_{cal} g/cm³	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
270.000	2.19140	2.20229	−0.49	11.1346	10.6170	4.88
270.000	2.21897	2.22934	−0.46	12.5136	11.9691	4.55
270.000	2.24260	2.25398	−0.50	13.8917	13.2407	4.92
270.000	2.27806	2.28637	−0.36	15.8898	15.3560	3.48
270.000	2.29906	2.30782	−0.38	17.3367	16.7339	3.60
270.000	2.31876	2.32698	−0.35	18.7147	18.1145	3.31
270.000	2.33583	2.34502	−0.39	20.0927	19.3810	3.67
270.000	2.35290	2.36211	−0.39	21.4708	20.7190	3.63
270.000	2.38441	2.39385	−0.39	24.2268	23.3797	3.62
270.000	2.41986	2.42979	−0.41	27.6719	26.6843	3.70
270.000	2.45400	2.46242	−0.34	31.1169	30.1977	3.04
270.000	2.48288	2.49239	−0.38	34.5620	33.4394	3.36
270.000	2.54066	2.54907	−0.33	41.8655	40.7137	2.83
270.000	2.58661	2.59604	−0.36	48.7566	47.3089	3.06
270.000	2.62994	2.63825	−0.31	55.6467	54.2357	2.60
270.000	2.66802	2.67670	−0.32	62.5378	60.9280	2.64
270.000	2.70347	2.71210	−0.32	69.4289	67.6981	2.56
270.000	2.73629	2.74495	−0.32	76.3200	74.4554	2.50
270.000	2.76649	2.77565	−0.33	83.2111	81.1080	2.59
270.000	2.79538	2.80449	−0.32	90.1022	87.8806	2.53
270.000	2.82295	2.83170	−0.31	96.9944	94.7355	2.38
270.000	2.84790	2.85749	−0.34	103.8865	101.2803	2.57
270.000	2.87284	2.88200	−0.32	110.7786	108.1644	2.42
270.000	2.89648	2.90536	−0.31	117.6707	115.0122	2.31
270.000	2.91880	2.92769	−0.30	124.5629	121.7828	2.28
270.000	2.93981	2.94907	−0.31	131.4560	128.4350	2.35
270.000	2.96082	2.96958	−0.30	138.3492	135.3694	2.20
270.000	3.00021	3.00828	−0.27	152.1364	149.1725	1.99
270.000	3.03697	3.04422	−0.24	165.9237	163.0612	1.76
270.000	3.07242	3.07778	−0.17	179.7120	177.4487	1.28
270.000	3.10525	3.10921	−0.13	193.5014	191.7123	0.93
270.000	3.13544	3.13877	−0.11	207.2927	205.6993	0.77
270.000	3.16433	3.16663	−0.07	221.0830	219.9150	0.53
270.000	3.19190	3.19296	−0.03	234.8754	234.3073	0.24
270.000	3.21948	3.21790	0.05	248.6688	249.5668	−0.36
270.000	3.24574	3.24156	0.13	262.4621	264.9697	−0.95
270.000	3.26937	3.26406	0.16	276.2575	279.6147	−1.20
270.000	3.31664	3.30591	0.32	303.8494	311.3566	−2.41
270.000	3.34946	3.33485	0.44	324.5450	335.5413	−3.28
275.000	1.91304	1.92171	−0.45	4.9406	4.8165	2.58
275.000	1.95637	1.96590	−0.48	5.6793	5.5042	3.18
275.000	1.99051	1.99940	−0.44	6.3683	6.1738	3.15
275.000	2.01414	2.02586	−0.58	6.9995	6.7101	4.31
275.000	2.06404	2.07441	−0.50	8.3786	8.0586	3.97
275.000	2.10474	2.11453	−0.46	9.7566	9.3990	3.80
275.000	2.13888	2.14911	−0.48	11.1356	10.7081	3.99
275.000	2.16908	2.17964	−0.48	12.5136	12.0190	4.12
275.000	2.19665	2.20712	−0.47	13.8917	13.3505	4.05
275.000	2.22291	2.23218	−0.42	15.2697	14.7458	3.55
275.000	2.24523	2.25528	−0.45	16.6477	16.0351	3.82
275.000	2.26755	2.27673	−0.40	18.0257	17.4243	3.45
275.000	2.28725	2.29680	−0.42	19.4037	18.7367	3.56
275.000	2.30563	2.31567	−0.43	20.7818	20.0382	3.71
275.000	2.32401	2.33353	−0.41	22.1598	21.4164	3.47
275.000	2.33977	2.35045	−0.45	23.5378	22.6596	3.88
275.000	2.35552	2.36656	−0.47	24.9158	23.9644	3.97
275.000	2.37259	2.38195	−0.39	26.2938	25.4481	3.32
275.000	2.38703	2.39669	−0.40	27.6719	26.7623	3.40
275.000	2.40016	2.41084	−0.44	29.0499	28.0051	3.73
275.000	2.40804	2.41771	−0.40	29.7389	28.7731	3.36
275.000	2.42249	2.43107	−0.35	31.1169	30.2258	2.95
280.000	1.84477	1.85165	−0.37	5.6164	5.5370	1.44
280.000	1.89466	1.90350	−0.46	6.3277	6.1916	2.20

TABLE 19. Comparison of Streett *et al.* experimental p-ρ-T data [16] (liquid phase) with Eq. (3) – Continued

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
280.000	1.93142	1.94086	−0.49	6.9783	6.8021	2.59
280.000	1.96556	1.97504	−0.48	7.6885	7.4798	2.79
280.000	1.99445	2.00373	−0.46	8.3786	8.1453	2.86
280.000	2.04303	2.05209	−0.44	9.7566	9.4765	2.96
280.000	2.08111	2.09240	−0.54	11.1346	10.7261	3.81
280.000	2.11787	2.12727	−0.44	12.5136	12.1239	3.22
280.000	2.14807	2.15814	−0.47	13.8917	13.4252	3.47
280.000	2.17695	2.18595	−0.41	15.2697	14.8093	3.11
280.000	2.20190	2.21133	−0.43	16.6477	16.1218	3.26
280.000	2.22554	2.23474	−0.41	18.0257	17.4712	3.17
280.000	2.24654	2.25649	−0.44	19.4037	18.7618	3.42
280.000	2.26624	2.27683	−0.47	20.7818	20.0532	3.63
280.000	2.31351	2.32274	−0.40	24.2268	23.4948	3.12
280.000	2.35421	2.36316	−0.38	27.6719	26.8735	2.97
280.000	2.39097	2.39940	−0.35	31.1169	30.2843	2.75
280.000	2.42249	2.43236	−0.41	34.5620	33.4973	3.18
280.000	2.45400	2.46266	−0.35	38.0070	36.9936	2.74
280.000	2.48157	2.49077	−0.37	41.4521	40.2975	2.87
280.000	2.53540	2.54452	−0.36	48.7556	47.4485	2.75
280.000	2.58005	2.58956	−0.37	55.6467	54.1298	2.80
280.000	2.62206	2.63034	−0.31	62.5378	61.0866	2.38
280.000	2.65883	2.66770	−0.33	69.4279	67.7393	2.49
280.000	2.72579	2.73443	−0.32	83.2111	81.3142	2.33
280.000	2.78356	2.79299	−0.34	96.9944	94.6629	2.46
280.000	2.83608	2.84534	−0.33	110.7786	108.2355	2.35
280.000	2.88335	2.89277	−0.33	124.5629	121.7212	2.33
280.000	2.92536	2.93620	−0.37	138.3492	134.8004	2.63
280.000	2.96869	2.97626	−0.25	152.1364	149.4512	1.80
280.000	3.00414	3.01343	−0.31	165.9237	162.3849	2.18
280.000	3.04091	3.04812	−0.24	179.7120	176.7691	1.66
280.000	3.07373	3.08060	−0.22	193.5024	190.5125	1.57
280.000	3.10525	3.11113	−0.19	207.2927	204.5677	1.33
280.000	3.13676	3.13991	−0.10	221.0830	219.5335	0.71
280.000	3.16564	3.16710	−0.05	234.8754	234.1152	0.32
280.000	3.19190	3.19286	−0.03	248.6688	248.1436	0.21
280.000	3.21948	3.21730	0.07	262.4621	263.7265	−0.48
280.000	3.24442	3.24053	0.12	276.2575	278.6357	−0.85
280.000	3.29169	3.28375	0.24	303.8494	309.2124	−1.73
280.000	3.33633	3.32316	0.40	331.4442	341.2406	−2.87
283.000	1.75811	1.76301	−0.28	5.6154	5.5778	0.67
283.000	1.82507	1.83356	−0.46	6.3065	6.2072	1.60
283.000	1.87759	1.88818	−0.56	7.0674	6.9023	2.39
283.000	1.91698	1.92365	−0.35	7.6885	7.5634	1.65
283.000	1.94849	1.95709	−0.44	8.3786	8.1908	2.29
283.000	2.00233	2.01188	−0.47	9.7566	9.4925	2.78
283.000	2.04565	2.05647	−0.53	11.1356	10.7782	3.32
283.000	2.08373	2.09439	−0.51	12.5136	12.1060	3.37
283.000	2.11787	2.12761	−0.46	13.8917	13.4701	3.13
283.000	2.14676	2.15730	−0.49	15.2697	14.7637	3.43
283.000	2.17433	2.18423	−0.45	16.6477	16.1264	3.23
283.000	2.19796	2.20892	−0.50	18.0257	17.4002	3.60
283.000	2.22160	2.23178	−0.46	19.4037	18.7772	3.34
283.000	2.24260	2.25309	−0.47	20.7818	20.0922	3.43
283.000	2.26361	2.27307	−0.42	22.1598	21.4970	3.08
283.000	2.28199	2.29190	−0.43	23.5378	22.8030	3.22
283.000	2.30038	2.30973	−0.41	24.9158	24.1836	3.03
283.000	2.31745	2.32668	−0.40	26.2938	25.5347	2.97
283.000	2.33320	2.34283	−0.41	27.6719	26.8424	3.09
283.000	2.34764	2.35827	−0.45	29.0499	28.0948	3.40
283.000	2.36340	2.37307	−0.41	30.4279	29.5208	3.07
287.000	1.71478	1.72420	−0.55	6.3622	6.2928	1.10
287.000	1.78962	1.79692	−0.41	7.0472	6.9652	1.18
287.000	1.83951	1.84810	−0.46	7.7169	7.5922	1.64

TABLE 19. Comparison of Streett *et al*. experimental p-ρ-T data [16] (liquid phase) with Eq. (3) — Continued

T K	ρ_{exp} g/cm³	ρ_{cal} g/cm³	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
287.000	1.88153	1.88850	−0.37	8.3786	8.2552	1.49
287.000	1.94587	1.95441	−0.44	9.7566	9.5548	2.11
287.000	1.99576	2.00592	−0.51	11.1356	10.8404	2.72
287.000	2.03909	2.04865	−0.47	12.5136	12.1854	2.69
287.000	2.07454	2.08546	−0.52	13.8917	13.4633	3.18
287.000	2.10737	2.11796	−0.50	15.2697	14.8030	3.15
287.000	2.13756	2.14716	−0.45	16.6477	16.1796	2.89
287.000	2.16382	2.17375	−0.46	18.0257	17.4971	3.02
287.000	2.18877	2.19821	−0.43	19.4037	18.8592	2.89
287.000	2.21109	2.22089	−0.44	20.7818	20.1743	3.01
287.000	2.23473	2.24208	−0.33	22.1598	21.6713	2.25
287.000	2.25573	2.26198	−0.28	23.5378	23.0965	1.91
287.000	2.27280	2.28075	−0.35	24.9158	24.3230	2.44
287.000	2.30563	2.31547	−0.42	27.6719	26.8625	3.01
287.000	2.33714	2.34706	−0.42	30.4279	29.5362	3.02
289.740	1.59792	1.60143	−0.22	6.3065	6.2921	0.23
289.740	1.71347	1.71784	−0.25	7.0127	6.9766	0.52
289.740	1.77780	1.78507	−0.41	7.6885	7.6037	1.12
289.740	1.82901	1.83615	−0.39	8.3786	8.2717	1.29
289.740	1.87759	1.88398	−0.34	9.1922	9.0731	1.31
289.740	1.90516	1.91466	−0.50	9.8123	9.6115	2.09
289.740	1.96031	1.96931	−0.46	11.1346	10.8962	2.19
289.740	2.00626	2.01593	−0.48	12.5136	12.2070	2.51
289.740	2.04565	2.05555	−0.48	13.8917	13.5284	2.68
289.740	2.07979	2.09042	−0.51	15.2788	14.8378	2.97
289.740	2.11130	2.12112	−0.46	16.6477	16.1942	2.80
289.740	2.14019	2.14912	−0.42	18.0257	17.5720	2.58
289.740	2.16514	2.17477	−0.44	19.4037	18.8727	2.81
289.740	2.18877	2.19847	−0.44	20.7818	20.2053	2.85
289.740	2.20978	2.22054	−0.48	22.1598	21.4762	3.18
289.740	2.23079	2.24121	−0.46	23.5378	22.8323	3.09
289.740	2.25180	2.26067	−0.39	24.9158	24.2775	2.63
289.740	2.26886	2.27908	−0.45	26.2938	25.5200	3.03
289.740	2.28593	2.29655	−0.46	27.6719	26.8262	3.15
289.740	2.30300	2.31320	−0.44	29.0499	28.1981	3.02
289.740	2.33058	2.33680	−0.27	31.1169	30.5587	1.83
289.740	2.36603	2.37302	−0.29	34.5620	33.8705	2.04
289.740	2.39623	2.40605	−0.41	38.0070	36.9513	2.86
289.740	2.42642	2.43647	−0.41	41.4521	40.2849	2.90
289.740	2.45531	2.46472	−0.38	44.8971	43.7225	2.69
289.740	2.48157	2.49113	−0.38	48.3422	47.0692	2.70
289.740	2.50652	2.51597	−0.38	51.7882	50.4525	2.65
289.740	2.53015	2.53942	−0.37	55.2333	53.8486	2.57
289.740	2.55247	2.56167	−0.36	58.6783	57.2329	2.53
289.740	2.57479	2.58532	−0.41	62.5378	60.7951	2.87
289.740	2.61550	2.62466	−0.35	69.4279	67.7687	2.45
289.740	2.65095	2.66092	−0.37	76.3200	74.3706	2.62
289.740	2.68509	2.69458	−0.35	83.2111	81.2182	2.45
289.740	2.71660	2.72604	−0.35	90.1022	87.9874	2.40
289.740	2.74680	2.75561	−0.32	96.9944	94.8978	2.21
289.740	2.77437	2.78352	−0.33	103.8865	101.5850	2.27
289.740	2.80063	2.80997	−0.33	110.7786	108.3035	2.29
289.740	2.82426	2.83512	−0.38	117.6707	114.6533	2.63
289.740	2.84921	2.85911	−0.35	124.5629	121.6800	2.37
289.740	2.87284	2.88204	−0.32	131.4560	128.6558	2.18
289.740	2.89385	2.90401	−0.35	138.3492	135.1272	2.38
289.740	2.93587	2.94537	−0.32	152.1364	148.8727	2.19
289.740	2.97526	2.98373	−0.28	165.9237	162.7925	1.92
289.740	3.01202	3.01949	−0.25	179.7120	176.7561	1.67
289.740	3.04485	3.05296	−0.27	193.5014	190.0764	1.80
289.740	3.07767	3.08442	−0.22	207.2917	204.2619	1.48
289.740	3.10787	3.11407	−0.20	221.0830	218.1337	1.35
289.740	3.13676	3.14208	−0.17	234.8754	232.1942	1.15
289.740	3.16433	3.16861	−0.14	248.6688	246.3917	0.92

TABLE 19. Comparison of Streett *et al.* experimental p-ρ-T data [16] (liquid phase) with Eq. (3) — Continued

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
289.740	3.19190	3.19379	−0.06	262.4621	261.4043	0.40
289.740	3.21685	3.21702	−0.01	275.8431	275.7420	0.04
289.740	3.26674	3.26225	0.14	303.8494	306.7871	−0.96
289.740	3.31270	3.30284	0.30	331.4442	338.5300	−2.09

TABLE 20. Comparison of Rabinovich *et al.* experimental p-ρ-T data[17] (gaseous phase) with Eq. (3)

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
293.950	0.91660	0.92928	−1.36	6.2619	6.2540	0.13
325.610	0.91490	0.91383	0.12	9.2814	9.2864	−0.05
342.820	0.91410	0.91341	0.08	10.9026	10.9075	−0.05
355.350	0.91350	0.91422	−0.08	12.0881	12.0817	0.05
359.500	0.91330	0.91475	−0.16	12.4832	12.4695	0.11
407.050	0.91090	0.91179	−0.10	16.8909	16.8763	0.09
413.500	0.91070	0.91114	−0.05	17.4786	17.4710	0.04
426.450	0.91600	0.91095	0.55	18.6742	18.7710	−0.52*
453.060	0.90870	0.90993	−0.13	21.1060	21.0778	0.13
478.300	0.90750	0.90783	−0.04	23.3655	23.3566	0.04
513.160	0.90560	0.90652	−0.10	26.4965	26.4672	0.11
529.010	0.90500	0.90547	−0.05	27.8948	27.8790	0.06
535.690	0.90460	0.90504	−0.05	28.4825	28.4671	0.05
557.780	0.90350	0.90447	−0.11	30.4482	30.4113	0.12
579.120	0.90250	0.90254	−0.00	32.2821	32.2806	0.00
588.350	0.90180	0.90271	−0.10	33.1130	33.0744	0.12
633.000	0.89960	0.89997	−0.04	36.9532	36.9354	0.05
679.360	0.89700	0.89726	−0.03	40.8948	40.8805	0.03
728.450	0.89460	0.89397	0.07	44.9883	45.0272	−0.09
294.440	0.89750	0.91697	−2.12	6.3024	6.2883	0.22
301.140	0.89720	0.90411	−0.76	6.9357	6.9249	0.16
327.770	0.89600	0.89342	0.29	9.3827	9.3958	−0.14
343.800	0.89520	0.89649	−0.14	10.8722	10.8628	0.09
381.450	0.89330	0.89427	−0.11	14.2868	14.2746	0.09
396.030	0.89260	0.89393	−0.15	15.6041	15.5846	0.12
431.850	0.89090	0.89191	−0.11	18.7958	18.7759	0.11
441.010	0.89060	0.89096	−0.04	19.5963	19.5887	0.04
467.310	0.88930	0.88915	0.02	21.8963	21.9000	−0.02
474.540	0.88900	0.88905	−0.01	22.5347	22.5334	0.01
480.680	0.88850	0.88994	−0.16	23.1021	23.0637	0.17
537.600	0.88580	0.88738	−0.18	28.0366	27.9818	0.20
583.770	0.88340	0.88497	−0.18	31.9680	31.9032	0.20
630.550	0.88110	0.88233	−0.14	35.8893	35.8305	0.16
649.960	0.88020	0.88143	−0.14	37.5105	37.4487	0.17
669.470	0.87930	0.88050	−0.14	39.1317	39.0678	0.16
702.380	0.87740	0.87873	−0.15	41.8371	41.7603	0.18
291.580	0.82720	0.84975	−2.65	5.9883	5.9737	0.24
330.600	0.82550	0.82196	0.43	9.2459	9.2659	−0.22
346.930	0.82480	0.82138	0.42	10.5783	10.6051	−0.25
373.260	0.82370	0.82404	−0.04	12.7467	12.7428	0.03
418.870	0.82160	0.82011	0.18	16.3640	16.3901	−0.16
451.120	0.82020	0.81948	0.09	18.9174	18.9331	−0.08
470.320	0.81930	0.81827	0.13	20.4069	20.4320	−0.12
491.180	0.81830	0.81865	−0.04	22.0585	22.0490	0.04
507.430	0.81760	0.81834	−0.09	23.3250	23.3032	0.09
528.900	0.81670	0.81653	0.02	24.9462	24.9517	−0.02
529.300	0.81670	0.81745	−0.09	25.0070	24.9828	0.10
568.160	0.81490	0.81438	0.06	27.9150	27.9346	−0.07
623.960	0.81230	0.81305	−0.09	32.1504	32.1169	0.10

TABLE 20. Comparison of Rabinovich *et al.* experimental p-ρ-T data[17] (gaseous phase) with Eq. (3) – Continued

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
639.900	0.81170	0.81145	0.03	33.2954	33.3070	−0.03
675.810	0.81000	0.80971	0.04	35.9400	35.9551	−0.04
735.540	0.80710	0.80783	−0.09	40.3476	40.3046	0.11
327.520	0.63030	0.63191	−0.25	7.8709	7.8601	0.14
357.320	0.62930	0.62926	0.01	9.5783	9.5787	−0.00
368.950	0.62900	0.62842	0.09	10.2338	10.2405	−0.07
394.400	0.62810	0.62721	0.14	11.6574	11.6705	−0.11
397.270	0.62800	0.62829	−0.05	11.8348	11.8305	0.04
423.470	0.62710	0.62609	0.16	13.2634	13.2815	−0.14
448.840	0.62630	0.62531	0.16	14.6516	14.6722	−0.14
510.250	0.62410	0.62360	0.08	17.9649	17.9788	−0.08
545.010	0.62300	0.62280	0.03	19.8192	19.8257	−0.03
585.600	0.62150	0.62051	0.16	21.9166	21.9527	−0.16
603.780	0.62090	0.61982	0.17	22.8589	22.9005	−0.18
615.330	0.62050	0.62018	0.05	23.4871	23.4998	−0.05
632.150	0.62000	0.61941	0.10	24.3484	24.3729	−0.10
690.650	0.61780	0.61704	0.12	27.3274	27.3638	−0.13
740.490	0.61610	0.61593	0.03	29.8807	29.8897	−0.03
309.140	0.57590	0.57771	−0.31	6.5152	6.5057	0.15
346.120	0.57480	0.57667	−0.32	8.4505	8.4328	0.21
562.800	0.55250	0.54295	1.76	18.1068	18.4233	−1.72*
586.330	0.55150	0.55249	−0.18	19.5051	19.4697	0.18
600.780	0.55100	0.55210	−0.20	20.1535	20.1127	0.20
603.920	0.55090	0.55177	−0.16	20.2853	20.2525	0.16
629.040	0.55020	0.55043	−0.04	21.3796	21.3705	0.04
372.240	0.57400	0.57362	0.07	9.7525	9.7573	−0.05
398.690	0.57320	0.57636	−0.55	11.1255	11.0768	0.44*
420.120	0.57260	0.57232	0.05	12.1286	12.1335	−0.04
447.590	0.57180	0.57196	−0.03	13.4762	13.4729	0.02
467.910	0.57110	0.57141	−0.05	14.4591	14.4519	0.05
534.540	0.56900	0.56840	0.11	17.6002	17.6183	−0.10
554.450	0.56850	0.56808	0.07	18.5425	18.5562	−0.07
575.640	0.56760	0.56815	−0.10	19.5557	19.5366	0.10
587.770	0.56730	0.56815	−0.15	20.1333	20.1027	0.15
624.180	0.56620	0.56645	−0.04	21.7950	21.7851	0.05
654.900	0.56530	0.56550	−0.03	23.2034	23.1949	0.04
670.630	0.56490	0.56483	0.01	23.9127	23.9160	−0.01
723.990	0.56300	0.56310	−0.02	26.3242	26.3192	0.02
330.910	0.55920	0.56181	−0.46	7.5436	7.5229	0.28
350.430	0.55860	0.55907	−0.08	8.4961	8.4913	0.06
368.250	0.55810	0.55803	0.01	9.3624	9.3632	−0.01
395.570	0.55730	0.55690	0.07	10.6746	10.6807	−0.06
427.150	0.55630	0.55660	−0.05	12.1843	12.1787	0.05
444.300	0.55580	0.55609	−0.05	12.9899	12.9840	0.05
449.550	0.55570	0.55630	−0.11	13.2432	13.2305	0.10
470.650	0.55510	0.55569	−0.11	14.2260	14.2123	0.10
507.110	0.55390	0.55465	−0.14	15.9080	15.8876	0.13
509.470	0.55380	0.55507	−0.23	16.0296	15.9947	0.22
534.090	0.55310	0.55367	−0.10	17.1341	17.1170	0.10
305.800	0.51570	0.51779	−0.40	6.0207	6.0088	0.20
335.110	0.51490	0.51363	0.25	7.3359	7.3474	−0.16
373.960	0.51390	0.51394	−0.01	9.0686	9.0681	0.01
393.240	0.51330	0.51432	−0.20	9.9197	9.9041	0.16
450.280	0.51180	0.51215	−0.07	12.3414	12.3339	0.06
653.320	0.54950	0.54995	−0.08	22.4638	22.4444	0.09
678.250	0.54860	0.54870	−0.02	23.5378	23.5331	0.02
699.710	0.54790	0.54814	−0.04	24.4801	24.4686	0.05
725.350	0.54710	0.54755	−0.08	25.6048	25.5824	0.09
313.500	0.54470	0.54531	−0.11	6.5557	6.5520	0.06
339.650	0.54390	0.54497	−0.20	7.8324	7.8226	0.13

TABLE 20. Comparison of Rabinovich *et al.* experimental p-ρ-T data[17] (gaseous phase) with Eq. (3) — Continued

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
354.510	0.54350	0.54397	−0.09	8.5366	8.5316	0.06
402.510	0.54210	0.54262	−0.10	10.7810	10.7726	0.08
420.970	0.54160	0.54258	−0.18	11.6372	11.6194	0.15
444.010	0.54090	0.54093	−0.00	12.6656	12.6651	0.00
463.880	0.54040	0.54067	−0.05	13.5674	13.5612	0.05
481.860	0.53980	0.54082	−0.19	14.3882	14.3632	0.17
531.710	0.53840	0.53937	−0.18	16.5970	16.5681	0.17
547.600	0.53790	0.53929	−0.26	17.3063	17.2626	0.25
584.120	0.53680	0.53789	−0.20	18.8870	18.8487	0.20
592.320	0.53650	0.53735	−0.16	19.2315	19.2008	0.16
628.110	0.53550	0.53551	−0.00	20.7412	20.7410	0.00
677.850	0.53410	0.53473	−0.12	22.8893	22.8611	0.12
724.400	0.53250	0.53338	−0.16	24.8550	24.8115	0.18
717.750	0.40450	0.40457	−0.02	18.4006	18.3975	0.02
298.470	0.35650	0.36085	−1.21	4.6812	4.6464	0.75*
326.120	0.35600	0.35665	−0.18	5.4614	5.4544	0.13
342.100	0.35570	0.35619	−0.14	5.9174	5.9113	0.10
378.000	0.35510	0.35520	−0.03	6.9205	6.9189	0.02
396.120	0.35470	0.35410	0.17	7.4069	7.4174	−0.14
431.490	0.35400	0.35355	0.13	8.3694	8.3789	−0.11
452.320	0.51180	0.51187	−0.01	12.4224	12.4208	0.01
516.830	0.50990	0.51062	−0.14	15.1177	15.0974	0.13
550.790	0.50890	0.50926	−0.07	16.4957	16.4843	0.07
559.210	0.50860	0.50940	−0.16	16.8503	16.8245	0.15
636.090	0.50660	0.50682	−0.04	19.9306	19.9216	0.05
665.160	0.50580	0.50599	−0.04	21.0857	21.0773	0.04
695.380	0.50480	0.50475	0.01	22.2611	22.2635	−0.01
713.770	0.50450	0.50460	−0.02	23.0008	22.9962	0.02
325.140	0.41320	0.41447	−0.31	6.0187	6.0065	0.20
359.520	0.41250	0.41263	−0.03	7.1789	7.1771	0.02
370.120	0.41220	0.41204	0.04	7.5284	7.5307	−0.03
443.970	0.41070	0.41045	0.06	9.9400	9.9454	−0.05
448.310	0.41050	0.41071	−0.05	10.0869	10.0824	0.05
474.340	0.41000	0.41035	−0.08	10.9228	10.9144	0.08
530.920	0.40870	0.40912	−0.10	12.7062	12.6938	0.10
579.200	0.40770	0.40805	−0.09	14.2058	14.1937	0.09
621.870	0.40670	0.40674	−0.01	15.5027	15.5011	0.01
662.510	0.40550	0.40560	−0.03	16.7288	16.7245	0.03
691.070	0.40520	0.40518	0.00	17.6002	17.6010	−0.00
629.190	0.31440	0.31437	0.01	12.1793	12.1806	−0.01
661.350	0.31390	0.31337	0.17	12.8835	12.9054	−0.17
730.990	0.31260	0.31255	0.01	14.4489	14.4511	−0.02
320.410	0.27990	0.28056	−0.24	4.4532	4.4453	0.18
370.920	0.27910	0.27927	−0.06	5.5222	5.5194	0.05
429.970	0.27820	0.27826	−0.02	6.7381	6.7369	0.02
456.550	0.27780	0.27800	−0.07	7.2802	7.2755	0.06
482.450	0.27750	0.27765	−0.05	7.8020	7.7982	0.05
482.540	0.35310	0.35279	0.09	9.7373	9.7452	−0.08
576.800	0.35120	0.35097	0.06	12.1995	12.2072	−0.06
664.860	0.34950	0.34897	0.15	14.4388	14.4606	−0.15
694.260	0.34900	0.34881	0.06	15.1988	15.2072	−0.06
716.640	0.34870	0.34869	0.00	15.7763	15.7768	−0.00
329.960	0.31950	0.32107	−0.49	5.1625	5.1437	0.36
373.300	0.31880	0.31897	−0.05	6.2214	6.2187	0.04
413.690	0.31810	0.31807	0.01	7.1941	7.1947	−0.01
431.990	0.31780	0.31773	0.02	7.6298	7.6313	−0.02
466.620	0.31710	0.31728	−0.06	8.4505	8.4461	0.05
477.300	0.31690	0.31722	−0.10	8.7038	8.6957	0.09
534.420	0.31600	0.31596	0.01	10.0210	10.0222	−0.01
590.070	0.31500	0.31514	−0.04	11.2977	11.2928	0.04
537.920	0.27660	0.27669	−0.03	8.9014	8.8986	0.03

TABLE 20. Comparison of Rabinovich *et al.* experimental p-ρ-T data[17] (gaseous phase) with Eq. (3) — Continued

T K	ρ_{exp} g/cm³	ρ_{cal} g/cm³	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
580.320	0.27600	0.27599	0.00	9.7323	9.7325	−0.00
608.610	0.27560	0.27559	0.00	10.2845	10.2849	−0.00
661.810	0.27480	0.27478	0.01	11.3129	11.3139	−0.01
702.010	0.27420	0.27404	0.06	12.0779	12.0851	−0.06
719.840	0.27380	0.27387	−0.02	12.4224	12.4194	0.02

TABLE 21. Comparison of Ulybin *et al.* experimental p-ρ-T data [18] (gaseous phase) with Eq. (3)

T K	ρ_{exp} g/cm³	ρ_{cal} g/cm³	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
298.150	0.03775	0.03771	0.11	0.6863	0.6870	−0.10
298.150	0.09483	0.09480	0.03	1.6287	1.6292	−0.03
298.150	0.14258	0.14244	0.10	2.3292	2.3312	−0.08
298.150	0.19810	0.19823	−0.07	3.0560	3.0544	0.05
298.150	0.29504	0.29562	−0.20	4.1057	4.1002	0.13
298.150	0.36069	0.36147	−0.22	4.6764	4.6702	0.13
298.150	0.66085	0.65859	0.34	6.1913	6.1978	−0.10
298.150	1.15920	1.15878	0.04	6.9027	6.9031	−0.01
298.150	1.65040	1.65078	−0.02	8.5247	8.5215	0.04
298.150	2.06680	2.06901	−0.11	17.9510	17.8546	0.54
298.150	2.33980	2.34083	−0.04	36.4350	36.3352	0.27
298.150	2.47280	2.47328	−0.02	51.7380	51.6735	0.12
273.150	0.02225	0.02222	0.14	0.3746	0.3751	−0.13
273.150	0.02879	0.02875	0.14	0.4811	0.4817	−0.13
273.150	0.04304	0.04297	0.15	0.7071	0.7081	−0.15
273.150	0.06532	0.06525	0.10	1.0453	1.0463	−0.09
273.150	0.11686	0.11675	0.09	1.7544	1.7558	−0.08
273.150	0.12727	0.12716	0.09	1.8857	1.8870	−0.07
273.150	0.16484	0.16480	0.03	2.3279	2.3284	−0.02
273.150	0.23435	0.23455	−0.09	3.0198	3.0180	0.06
273.150	0.25996	0.26022	−0.10	3.2355	3.2334	0.06
273.150	0.29945	0.29911	0.11	3.5255	3.5278	−0.07
273.150	0.34521	0.34435	0.25	3.8108	3.8157	−0.13
273.150	2.18070	2.18268	−0.09	11.7560	11.6630	0.80
273.150	2.40620	2.40624	−0.00	27.4050	27.4014	0.01
273.150	2.44870	2.44850	0.01	31.7420	31.7638	−0.07
273.150	2.58780	2.58730	0.02	49.9020	49.9789	−0.15
273.150	0.01745	0.01742	0.15	0.2954	0.2959	−0.15
248.400	0.01747	0.01757	−0.58	0.2698	0.2683	0.57*
222.970	0.01751	0.01742	0.50	0.2388	0.2400	−0.48*
200.270	0.01753	0.01745	0.47	0.2133	0.2143	−0.45*
180.010	0.01755	0.01743	0.69	0.1898	0.1911	−0.66*
273.150	0.09215	0.09205	0.11	1.4267	1.4281	−0.10
254.340	0.09227	0.09212	0.17	1.3063	1.3082	−0.15
241.740	0.09235	0.09219	0.17	1.2249	1.2267	−0.15
224.980	0.09244	0.09222	0.24	1.1141	1.1163	−0.19
273.150	0.14217	0.14199	0.13	2.0659	2.0681	−0.11
262.530	0.14227	0.14206	0.15	1.9560	1.9583	−0.12
245.920	0.14243	0.14218	0.17	1.7813	1.7837	−0.13
273.150	0.20040	0.20051	−0.05	2.7021	2.7010	0.04
260.760	0.20057	0.20062	−0.03	2.5101	2.5096	0.02
252.760	0.20066	0.20061	0.03	2.3835	2.3839	−0.02
273.150	0.28650	0.28662	−0.04	3.4370	3.4362	0.02
267.570	0.28662	0.28651	0.04	3.3036	3.3043	−0.02
262.910	0.28673	0.28619	0.19	3.1899	3.1933	−0.11

TABLE 22. Comparison of Ulybin *et al*. experimental p-ρ-T data [18] (liquid phase) with Eq. (3)

T K	ρ_{exp} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
273.150	2.56270	2.56225	0.02	46.1420	46.2070	−0.14
261.450	2.56470	2.56400	0.03	37.3470	37.4428	−0.26
246.830	2.56620	2.56621	−0.00	26.1690	26.1680	0.00
246.810	2.71500	2.71513	-0.00	48.7840	48.7598	0.05
237.000	2.71790	2.71672	0.04	39.8720	40.0760	−0.51
225.830	2.72030	2.71839	0.07	29.5240	29.8347	−1.04
225.830	2.84330	2.84269	0.02	53.1420	53.2772	−0.25
214.120	2.84580	2.84510	0.02	40.6850	40.8301	−0.36
205.220	2.84790	2.84678	0.04	30.9770	31.1981	−0.71
205.220	2.94640	2.94690	−0.02	53.4360	53.3091	0.24
193.070	2.94890	2.95009	−0.04	38.5760	38.2941	0.74
186.900	2.95050	2.95187	−0.05	30.8800	30.5650	1.03
178.270	2.95250	2.95433	−0.06	19.8870	19.4909	2.03
169.310	2.95540	2.95765	−0.08	8.3727	7.9143	5.79
162.420	2.96350	2.96633	−0.10	0.5254		
273.150	2.09650	2.10291	−0.30	8.5216	8.3041	2.62
266.490	2.10020	2.10517	−0.24	5.6743	5.5237	2.73
266.480	2.35990	2.36066	−0.03	19.1980	19.1373	0.32
257.120	2.36160	2.36230	−0.03	13.5750	13.5236	0.38
249.580	2.36320	2.36401	−0.03	9.0407	8.9859	0.61
240.220	2.36910	2.36968	−0.02	3.5923	3.5564	1.01
240.220	2.54280	2.54176	0.04	18.1390	18.2534	−0.63
232.100	2.54460	2.54300	0.06	11.9760	12.1410	−1.36
225.590	2.54650	2.54450	0.08	7.0491	7.2441	−2.69
218.880	2.55270	2.54957	0.12	2.2599	2.5505	−11.3
218.880	2.68500	2.68250	0.09	17.5600	17.9109	−1.96
210.990	2.68650	2.68361	0.11	10.3640	10.7458	−3.55
200.060	2.69530	2.69089	0.16	0.9848	1.5247	−35.4
200.060	2.84340	2.84289	0.02	24.3430	24.4399	−0.40
192.000	2.84540	2.84443	0.03	15.3620	15.5361	−1.12
184.870	2.84790	2.84675	0.04	7.4716	7.6672	−2.55
178.020	2.85550	2.85402	0.05	0.6031	0.8435	−28.5

TABLE 23. Comparison of Habgoob & Schneider experimental p-ρ-T data [9] (critical region) with Eq. (3)

T K	ρ_{exp} g/cm^3	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %	T K	ρ_{exp} g/cm^3	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
289.528	1.27167	5.8146	5.8125	0.04	289.700	1.28383	5.8400	5.8362	0.06
289.700	1.25817	5.8375	5.8346	0.05	289.700	1.23352	5.8362	5.8337	0.04
289.700	1.20875	5.8358	5.8331	0.05	289.700	1.01275	5.8350	5.8333	0.03
289.700	0.98978	5.8344	5.8330	0.02	289.700	0.96687	5.8337	5.8323	0.02
289.700	0.94494	5.8324	5.8310	0.02	289.735	1.30426	5.8478	5.8433	0.08
289.735	1.27870	5.8439	5.8405	0.06	289.735	1.25268	5.8415	5.8389	0.04
289.735	1.22686	5.8405	5.8380	0.04	289.735	1.20046	5.8397	5.8374	0.04
289.735	1.17323	5.8395	5.8371	0.04	289.735	1.14733	5.8396	5.8369	0.04
289.735	1.06940	5.8394	5.8372	0.04	289.735	1.04316	5.8393	5.8373	0.04
289.735	1.01754	5.8391	5.8372	0.03	289.735	0.99172	5.8385	5.8369	0.03
289.735	0.96659	5.8375	5.8361	0.03	289.735	0.94157	5.8360	5.8344	0.03
289.735	0.91591	5.8337	5.8315	0.04	289.735	0.89197	5.8297	5.8273	0.04
289.740	1.30705	5.8485	5.8444	0.07	289.740	1.25890	5.8423	5.8399	0.04
289.740	1.23305	5.8411	5.8388	0.04	289.740	1.23305	5.8414	5.8388	0.05
289.740	1.20744	5.8404	5.8382	0.04	289.740	1.20744	5.8404	5.8382	0.04
289.740	1.18121	5.8401	5.8378	0.04	289.740	1.15681	5.8399	5.8376	0.04
289.740	1.13010	5.8400	5.8375	0.04	289.740	1.13010	5.8400	5.8375	0.04
289.740	1.10495	5.8399	5.8376	0.04	289.740	1.07965	5.8400	5.8377	0.04
289.740	1.05548	5.8399	5.8378	0.04	289.740	1.03114	5.8398	5.8378	0.03

TABLE 23. Comparison of Habgoob & Schneider experimental p-ρ-T data [9] (critical region) with Eq. (3) — Continued

T K	ρ_{exp} g/cm³	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %	T K	ρ_{exp} g/cm³	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
289.740	1.03114	5.8396	5.8378	0.03	289.740	1.00764	5.8394	5.8377	0.03
289.740	0.98294	5.8389	5.8372	0.03	289.740	0.96091	5.8407	5.8363	0.08
289.740	0.91503	5.8338	5.8318	0.03	289.740	1.30171	5.8476	5.8436	0.07
289.740	1.27556	5.8437	5.8410	0.05	289.740	1.24892	5.8416	5.8394	0.04
289.740	1.24892	5.8419	5.8394	0.04	289.740	1.22181	5.8407	5.8385	0.04
289.740	1.19470	5.8402	5.8379	0.04	289.740	1.16746	5.8400	5.8377	0.04
289.740	1.13958	5.8399	5.8375	0.04	289.740	1.13958	5.8400	5.8375	0.04
289.740	1.11185	5.8399	5.8376	0.04	289.740	1.08557	5.8399	5.8377	0.04
289.740	1.05939	5.8399	5.8378	0.04	289.740	1.03310	5.8397	5.8378	0.03
289.740	1.00750	5.8395	5.8377	0.03	289.740	1.00750	5.8395	5.8377	0.03
289.740	0.98199	5.8388	5.8372	0.03	289.740	0.95589	5.8377	5.8360	0.03
289.750	1.29780	5.8484	5.8445	0.07	289.750	1.27366	5.8449	5.8422	0.05
289.750	1.24912	5.8431	5.8407	0.04	289.750	1.22412	5.8423	5.8398	0.04
289.750	1.20006	5.8417	5.8393	0.04	289.750	1.17592	5.8412	5.8390	0.04
289.750	1.15091	5.8408	5.8388	0.03	289.750	1.12685	5.8411	5.8387	0.04
289.750	1.10289	5.8411	5.8388	0.04	289.750	1.07818	5.8410	5.8389	0.04
289.750	1.05437	5.8411	5.8390	0.04	289.750	1.03150	5.8408	5.8390	0.03
289.750	1.00903	5.8406	5.8389	0.03	289.750	0.98674	5.8402	5.8384	0.03
289.750	0.96522	5.8390	5.8376	0.02	289.750	0.92303	5.8352	5.8339	0.02
289.770	1.27140	5.8472	5.8447	0.04	289.770	1.24667	5.8454	5.8432	0.04
289.770	1.22215	5.8443	5.8423	0.03	289.770	1.19793	5.8438	5.8418	0.03
289.770	1.17260	5.8436	5.8414	0.04	289.770	1.14784	5.8432	5.8412	0.03
289.770	1.12321	5.8430	5.8412	0.03	289.770	1.09844	5.8430	5.8412	0.03
289.770	1.07441	5.8427	5.8412	0.03	289.770	1.05009	5.8428	5.8413	0.03
289.770	1.02694	5.8426	5.8413	0.02	289.770	1.00470	5.8422	5.8410	0.02
289.770	0.98257	5.8413	5.8405	0.01	289.770	0.95964	5.8403	5.8394	0.02
289.770	0.93619	5.8387	5.8375	0.02	289.770	0.91686	5.8362	5.8352	0.02
289.770	0.87630	5.8287	5.8271	0.03	289.528	1.27167	5.8146	5.8125	0.04
289.640	1.27167	5.8293	5.8273	0.03	289.740	1.27167	5.8429	5.8407	0.04
289.840	1.27167	5.8564	5.8541	0.04	289.940	1.27167	5.8701	5.8675	0.04
290.040	1.27167	5.8837	5.8810	0.04	290.140	1.27167	5.8976	5.8946	0.05
290.340	1.27167	5.9246	5.9218	0.05	290.540	1.27167	5.9520	5.9492	0.05
290.740	1.27167	5.9798	5.9767	0.05	290.940	1.27167	6.0074	6.0043	0.05
291.140	1.27167	6.0351	6.0320	0.05	290.740	1.27167	5.9797	5.9767	0.05
290.340	1.27167	5.9246	5.9218	0.05	289.940	1.27167	5.8702	5.8675	0.05
289.540	1.27167	5.8164	5.8141	0.04	289.740	1.17819	5.8400	5.8377	0.04
289.840	1.17819	5.8523	5.8502	0.04	289.940	1.17819	5.8648	5.8626	0.04
290.140	1.17819	5.8899	5.8876	0.04	290.340	1.17819	5.9151	5.9127	0.04
290.740	1.17819	5.9655	5.9631	0.04	291.140	1.17819	6.0164	6.0138	0.04
291.140	1.17819	6.0164	6.0138	0.04	291.540	1.17819	6.0675	6.0646	0.05
290.140	1.17819	5.8900	5.8876	0.04	289.940	1.17819	5.8649	5.8626	0.04
289.740	1.17819	5.8401	5.8377	0.04	289.840	1.14341	5.8522	5.8497	0.04
289.840	1.14341	5.8523	5.8497	0.04	289.940	1.14341	5.8643	5.8619	0.04
290.040	1.14341	5.8765	5.8741	0.04	290.140	1.14341	5.8887	5.8864	0.04
290.540	1.14341	5.9378	5.9354	0.04	291.540	1.14341	6.0612	6.0588	0.04
290.540	1.14341	5.9378	5.9354	0.04	290.140	1.14341	5.8886	5.8864	0.04
289.740	1.14341	5.8400	5.8375	0.04	289.740	1.09947	5.8400	5.8376	0.04
289.840	1.09947	5.8519	5.8495	0.04	289.940	1.09947	5.8639	5.8614	0.04
290.140	1.09947	5.8874	5.8853	0.04	290.340	1.09947	5.9114	5.9091	0.04
290.740	1.09947	5.9590	5.9568	0.04	291.140	1.09947	6.0067	6.0044	0.04
291.540	1.09947	6.0544	6.0521	0.04	290.740	1.09947	5.9592	5.9568	0.04
290.140	1.09947	5.8876	5.8853	0.04	289.940	1.09947	5.8638	5.8614	0.04
289.740	1.09947	5.8400	5.8376	0.04	289.740	1.08216	5.8402	5.8377	0.04
289.740	1.08216	5.8403	5.8377	0.04	289.840	1.08216	5.8519	5.8495	0.04
289.940	1.08216	5.8637	5.8613	0.04	290.140	1.08216	5.8873	5.8848	0.04
290.340	1.08216	5.9109	5.9084	0.04	290.340	1.08216	5.9109	5.9084	0.04
290.740	1.08216	5.9578	5.9554	0.04	291.140	1.08216	6.0049	6.0024	0.04
291.640	1.08216	6.0637	6.0612	0.04	289.740	1.08216	5.8400	5.8377	0.04
289.740	1.08216	5.8401	5.8377	0.04	289.840	1.08216	5.8520	5.8495	0.04
289.940	1.08216	5.8639	5.8613	0.04	289.740	1.07904	5.8401	5.8377	0.04

TABLE 23. Comparison of Habgoob & Schneider experimental p-ρ-T data [9] (critical region) with Eq .(3) — Continued

T K	ρ_{exp} g/cm³	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %	T K	ρ_{exp} g/cm³	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
289.840	1.07904	5.8519	5.8495	0.04	289.940	1.07904	5.8637	5.8612	0.04
289.840	1.07904	5.8873	5.8495	0.65*	289.840	1.07904	5.8877	5.8495	0.65*
290.340	1.07904	5.9110	5.9082	0.05	290.540	1.07904	5.9341	5.9317	0.04
290.940	1.07904	5.9816	5.9786	0.05	291.140	1.07904	6.0049	6.0021	0.05
291.340	1.07904	6.0283	6.0255	0.05	289.740	1.06706	5.8399	5.8377	0.04
289.840	1.06706	5.8518	5.8494	0.04	289.940	1.06706	5.8634	5.8611	0.04
290.140	1.06706	5.8865	5.8844	0.04	290.340	1.06706	5.9101	5.9077	0.04
290.740	1.06706	5.9566	5.9542	0.04	291.140	1.06706	6.0032	6.0007	0.04
291.540	1.06706	6.0494	6.0470	0.04	290.140	1.06706	5.8867	5.8844	0.04
289.940	1.06706	5.8634	5.8611	0.04	289.840	1.06706	5.8517	5.8494	0.04
289.740	1.06706	5.8398	5.8377	0.04	289.740	1.05461	5.8400	5.8378	0.04
289.840	1.05461	5.8518	5.8494	0.04	289.940	1.05461	5.8634	5.8610	0.04
290.140	1.05461	5.8866	5.8841	0.04	290.140	1.05461	5.8868	5.8841	0.05
290.340	1.05461	5.9101	5.9072	0.05	290.740	1.05461	5.9558	5.9532	0.04
291.340	1.05461	6.0248	6.0221	0.05	291.540	1.05461	6.0478	6.0451	0.04
291.140	1.05461	6.0018	5.9992	0.04	290.140	1.05461	5.8867	5.8841	0.04
289.940	1.05461	5.8637	5.8610	0.05	289.840	1.05461	5.8520	5.8494	0.05
289.740	1.05461	5.8405	5.8378	0.05	289.656	1.00835	5.8299	5.8283	0.03
289.840	1.00835	5.8509	5.8489	0.03	289.940	1.00835	5.8618	5.8601	0.03
290.140	1.00835	5.8845	5.8824	0.04	290.140	1.00835	5.8844	5.8824	0.03
290.540	1.00835	5.9289	5.9268	0.04	290.740	1.00835	5.9511	5.9489	0.04
290.940	1.00835	5.9733	5.9710	0.04	291.140	1.00835	5.9952	5.9930	0.04
291.140	1.00835	5.9952	5.9930	0.04	291.540	1.00835	6.0395	6.0370	0.04
291.140	1.00835	5.9952	5.9930	0.04	291.540	1.00835	6.0394	6.0370	0.04
290.340	1.00835	5.9069	5.9046	0.04	290.540	1.00835	5.9290	5.9268	0.04
289.940	1.00835	5.8620	5.8601	0.03	289.840	1.00835	5.8509	5.8489	0.03
289.740	1.00835	5.8396	5.8377	0.03	289.663	1.00835	5.8307	5.8291	0.03
289.656	0.96356	5.8289	5.8274	0.03	289.740	0.96356	5.8381	5.8364	0.03
289.840	0.96356	5.8488	5.8472	0.03	289.940	0.96356	5.8602	5.8579	0.04
290.140	0.96356	5.8815	5.8793	0.04	290.340	0.96356	5.9030	5.9006	0.04
290.740	0.96356	5.9453	5.9430	0.04	291.140	0.96356	5.9876	5.9851	0.04
291.540	0.96356	6.0297	6.0272	0.04	291.940	0.96356	6.0721	6.0691	0.05
292.340	0.96356	6.1141	6.1109	0.05	289.940	0.96356	5.8598	5.8579	0.03
289.840	0.96356	5.8490	5.8472	0.03	289.740	0.96356	5.8383	5.8364	0.03
289.640	0.96356	5.8274	5.8257	0.03	289.740	0.96356	5.8383	5.8364	0.03
289.540	0.96048	5.8161	5.8148	0.02	289.740	0.96048	5.8381	5.8363	0.03
289.940	0.96048	5.8596	5.8577	0.03	290.140	0.96048	5.8809	5.8790	0.03
290.340	0.96048	5.9022	5.9002	0.03	290.840	0.96048	5.9553	5.9530	0.04
291.540	0.96048	6.0287	6.0264	0.04	290.040	0.96048	5.8703	5.8683	0.03
289.840	0.96048	5.8487	5.8470	0.03	289.740	0.96048	5.8381	5.8363	0.03
289.640	0.96048	5.8274	5.8255	0.03	289.540	0.96048	5.8160	5.8148	0.02
289.140	0.86446	5.7654	5.7633	0.04	289.440	0.86446	5.7941	5.7922	0.03
289.390	0.86446	5.8132	5.7874	0.45*	289.740	0.86446	5.8230	5.8209	0.04
289.840	0.86446	5.8322	5.8304	0.03	289.940	0.86446	5.8420	5.8399	0.04
290.140	0.86446	5.8607	5.8589	0.03	290.540	0.86446	5.8986	5.8967	0.03
291.040	0.86446	5.9455	5.9436	0.03	291.540	0.86446	5.9924	5.9904	0.03
289.940	0.86446	5.8416	5.8399	0.03	289.240	0.86446	5.7747	5.7729	0.03
289.040	0.86446	5.7553	5.7536	0.03	289.040	0.86446	5.7552	5.7536	0.03
288.940	0.86446	5.7445	5.7438	0.01	287.940	0.74938	5.6114	5.6093	0.04
288.440	0.74938	5.6521	5.6500	0.04	288.940	0.74938	5.6925	5.6903	0.04
289.340	0.74938	5.7243	5.7224	0.03	289.640	0.74938	5.7483	5.7463	0.03
289.840	0.74938	5.7640	5.7623	0.03	290.140	0.74938	5.7879	5.7861	0.03
290.540	0.74938	5.8195	5.8178	0.03	290.940	0.74938	5.8510	5.8494	0.03
291.540	0.74938	5.8981	5.8967	0.02	289.340	0.74938	5.7249	5.7224	0.04
289.140	0.74938	5.7090	5.7063	0.05	285.905	0.61835	5.3162	5.3157	0.01
287.840	0.61835	5.4384	5.4367	0.03	287.840	0.61835	5.4385	5.4367	0.03
288.522	0.61835	5.4813	5.4791	0.04	289.040	0.61835	5.5131	5.5112	0.04
289.940	0.61835	5.5693	5.5667	0.05	290.440	0.61835	5.5998	5.5975	0.04

TABLE 23. Comparison of Habgoob & Schneider experimental p-ρ-T data [9] (critical region) with Eq. (3) — Continued

T K	ρ_{exp} g/cm³	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %	T K	ρ_{exp} g/cm³	p_{exp} MPa	p_{cal} MPa	$\Delta p/p$ %
290.440	0.61835	5.5996	5.5975	0.04	291.040	0.61835	5.6366	5.6343	0.04
291.540	0.61835	5.6673	5.6649	0.04	289.940	0.61835	5.5685	5.5667	0.03
289.540	0.61835	5.5439	5.5420	0.03	287.196	0.33015	4.1292	4.1172	0.29*
288.140	0.33015	4.1552	4.1432	0.29*	288.140	0.33015	4.1551	4.1432	0.29*
289.140	0.33015	4.1827	4.1707	0.29*	290.140	0.33015	4.2104	4.1982	0.29*
290.140	0.33015	4.2106	4.1982	0.29*	291.140	0.33015	4.2382	4.2256	0.30*
288.140	0.33015	4.1551	4.1432	0.29*					

TABLE 24. Summary of deviations of p-ρ-Texperimental data and calculated with Eq. (3)

	No. of points				Range of deviations
		$\rho<1.4$ g.cm^{-3}			
		Deviation in p/%			
		standard	mean	systematic	
Michels *et al.* [8]	278	0.052	0.043	−0.014	−0.29–0.09
Habgood & Schneider [9]	268	0.039	0.038	0.038 [a]	0.01–0.08
Rabinovich *et al.* [17]	171	0.113	0.090	0.043 [d]	−0.25–0.36
Ulybin *et al.* [18]	39	0.108	0.093	−0.044 [e]	−0.19–0.27
Beattie *et al.* [7]	178	0.348	0.319	0.308	−0.58–0.71
Waibel [13]	193	1.356	1.097	0.389	−2.61–5.20
		$\rho>1.4$ g.cm^{-3}			
		Deviation in ρ/%			
		standard	mean	systematic	
Michels *et al.* [8]	159	0.061	0.046	0.033	−0.19–0.19
Theeuwes & Bearman [14]	274	0.109	0.092	0.032	−0.31–0.27
Blagoi & Sorokin [15]	34	0.249	0.205	0.081	−0.59–0.30
Streett *et al.* [16]	526	0.295	0.249	0.230 [b]	−0.60–0.44
	236	0.143	0.117	−0.106 [c]	−0.33–0.13
Ulybin *et al.* [18]	32	0.091	0.064	0.001	−0.30–0.16
Waibel [13]	14	1.653	1.395	−0.842	−3.45–1.72

[a]Omitting 3 random points with several times higher deviation than the mean deviation and 8 points along the isochore 0.33015 g.cm^{-3}, where leakage was observed (marked with asterisks in Table 23).
[b]Deviation for all points.
[c]Omitting isoterms 250 to 287 K with higher systematic deviation than −0.2%.
[d]Omitting 3 misprinted points (marked with asterisks in Table 20).
[e]Omitting 4 unsound points, 4 along the isochore 0.017 g.cm^{-3} (marked with asterisks in Table 21).

TABLE 25. Correlation of saturated liquid density-Results for various combinations of input data[40,48,56,62]

No.	Data set	Deviation in ρ'/% standard	mean	systematic
1	LT[62], T[56], TB[40], WS[48]	0.1864	0.1497	0.0003
2	LT[62], T[56], WS[48]	0.1785	0.0978	0.0104
3	LT[62], TB[40]	0.1290	0.1013	−0.0029
4	LT[62], TB[40], WS[48]	0.1743	0.1097	0.0061
5	T[56], WS[48]	0.1542	0.0602	0.0083

TABLE 26. Summary of deviations of the speed of sound data and values calculated with Eq. (3)

Author(s)	No. of points	Deviation in w/% standard	mean	systematic
Lim *et al.* [66]	112	1.67	1.45	1.43
Pitajevskaja *et al.* [67]	128	1.99	1.49	0.25
Baidakov *et al.* [68]	66	1.27	1.06	0.96

TABLE 27. Comparison of p-ρ-T data from Tables by Rabinovich [5] along selected isobars with Eq. (3)

T K	ρ_{tab} g/cm^3	ρ_{cal} g/cm^3	$\Delta\rho/\rho$ %	p_{tab} MPa	p_{cal} MPa	$\Delta p/p$ %
165.000	0.00987	0.00987	0.03	0.1000	0.1000	−0.03
180.000	0.00898	0.00898	0.06	0.1000	0.1001	−0.06
200.000	0.00803	0.00803	0.04	0.1000	0.1000	−0.04
220.000	0.00727	0.00727	0.05	0.1000	0.1001	−0.05
240.000	0.00664	0.00664	0.01	0.1000	0.1000	−0.01
260.000	0.00612	0.00612	0.05	0.1000	0.1001	−0.05
280.000	0.00568	0.00567	0.01	0.1000	0.1000	−0.01
300.000	0.00529	0.00529	0.01	0.1000	0.1000	−0.01
350.000	0.00453	0.00453	0.02	0.1000	0.1000	−0.02
400.000	0.00396	0.00396	0.03	0.1000	0.1000	−0.03
500.000	0.00316	0.00316	0.01	0.1000	0.1000	−0.01
600.000	0.00263	0.00263	−0.00	0.1000	0.1000	0.00
700.000	0.00226	0.00226	0.00	0.1000	0.1000	−0.00
800.000	0.00197	0.00197	0.00	0.1000	0.1000	−0.00
180.000	2.84333	2.84201	0.05	1.0000	1.2114	−17.4
200.000	2.69542	2.69148	0.15	1.0000	1.4819	−32.5
220.000	0.08396	0.08392	0.05	1.0000	1.0004	−0.04
240.000	0.07380	0.07370	0.14	1.0000	1.0012	−0.12
260.000	0.06627	0.06620	0.11	1.0000	1.0010	−0.10
280.000	0.06042	0.06033	0.16	1.0000	1.0015	−0.15
300.000	0.05562	0.05555	0.12	1.0000	1.0011	−0.11
350.000	0.04666	0.04662	0.09	1.0000	1.0009	−0.09
400.000	0.04036	0.04032	0.09	1.0000	1.0009	−0.09
500.000	0.03190	0.03188	0.06	1.0000	1.0006	−0.09
600.000	0.02643	0.02642	0.04	1.0000	1.0004	−0.04
700.000	0.02259	0.02259	0.03	1.0000	1.0003	−0.03
800.000	0.01974	0.01973	0.02	1.0000	1.0002	−0.02
165.000	2.96472	2.97055	−0.20	5.0000	3.8224	30.81
180.000	2.86615	2.86616	−0.00	5.0000	4.9988	0.02
200.000	2.72554	2.72277	0.10	5.0000	5.3727	−6.94
220.000	2.57069	2.56882	0.07	5.0000	5.1873	−3.61
240.000	2.39234	2.39372	−0.06	5.0000	4.9077	1.88
260.000	2.17061	2.17365	−0.14	5.0000	4.8884	2.28
280.000	1.78063	1.78815	−0.42	5.0000	4.9429	1.16
300.000	0.39604	0.39615	−0.03	5.0000	4.9992	0.02
350.000	0.27412	0.27405	0.03	5.0000	5.0011	−0.02
400.000	0.22153	0.22129	0.11	5.0000	5.0049	−0.10
500.000	0.16562	0.16550	0.07	5.0000	5.0034	−0.07
600.000	0.13421	0.13417	0.03	5.0000	5.0015	−0.03
700.000	0.11347	0.11344	0.02	5.0000	5.0011	−0.02
800.000	0.09852	0.09852	−0.00	5.0000	4.9999	0.00
180.000	2.89268	2.89411	−0.05	10.0000	9.7347	2.73
200.000	2.76014	2.75810	0.07	10.0000	10.3054	−2.96
220.000	2.61712	2.61533	0.07	10.0000	10.2065	−2.02
240.000	2.45881	2.45965	−0.03	10.0000	9.9296	0.71
260.000	2.27739	2.28103	−0.16	10.0000	9.7937	2.11
280.000	2.05846	2.05970	−0.06	10.0000	9.9599	0.40
300.000	1.74551	1.74284	0.15	10.0000	10.0363	−0.36
350.000	0.72202	0.72291	−0.12	10.0000	9.9923	0.08
400.000	0.50050	0.50095	−0.09	10.0000	9.9928	0.07
500.000	0.34495	0.34511	−0.05	10.0000	9.9956	0.04
600.000	0.27226	0.27246	−0.07	10.0000	9.9929	0.07
700.000	0.22743	0.22763	−0.09	10.0000	9.9913	0.09
800.000	0.19635	0.19645	−0.05	10.0000	9.9945	0.05
180.000	2.98240	2.98805	−0.19	30.0000	28.6466	4.72
200.000	2.87026	2.87209	−0.06	30.0000	29.6283	1.25
220.000	2.75558	2.75559	−0.00	30.0000	29.9978	0.01
240.000	2.63783	2.63704	0.03	30.0000	30.1136	−0.38
260.000	2.51509	2.51494	0.01	30.0000	30.0179	−0.06
280.000	2.38892	2.38805	0.04	30.0000	30.0840	−0.28
300.000	2.25683	2.25551	0.06	30.0000	30.1035	−0.34

TABLE 27. Comparison of p-ρ-T data from Tables by Rabinovich [5] along selected isobars with Eq. (3) — Continued

T K	ρ_{tab} g/cm³	ρ_{cal} g/cm³	$\Delta\rho/\rho$ %	p_{tab} MPa	p_{cal} MPa	$\Delta p/p$ %
350.000	1.90006	1.90148	−0.07	30.0000	29.9335	0.22
400.000	1.54991	1.54963	0.02	30.0000	30.0093	−0.03
500.000	1.05831	1.05613	0.21	30.0000	30.0729	−0.24
600.000	0.80645	0.80550	0.12	30.0000	30.0394	−0.13
700.000	0.66094	0.66106	−0.02	30.0000	29.9941	0.02
800.000	0.56529	0.56554	−0.04	30.0000	29.9856	0.05
200.000	3.11429	3.12097	−0.21	100.0000	97.5237	2.54
220.000	3.03398	3.03969	−0.19	100.0000	98.0978	1.94
240.000	2.95596	2.95996	−0.14	100.0000	98.7890	1.23
260.000	2.88018	2.88171	−0.05	100.0000	99.5779	0.42
280.000	2.80662	2.80488	0.06	100.0000	100.4475	−0.45
300.000	2.73448	2.72945	0.18	100.0000	101.1959	−1.18
350.000	2.55363	2.54728	0.25	100.0000	101.2676	−1.25
400.000	2.37135	2.37525	−0.16	100.0000	99.3350	0.67
500.000	2.05804	2.06633	−0.40	100.0000	98.8611	1.15
600.000	1.80343	1.80756	−0.23	100.0000	99.4927	0.51
700.000	1.59541	1.59667	−0.08	100.0000	99.8509	0.15
800.000	1.42755	1.42657	0.07	100.0000	100.1157	−0.12

TABLE 28. Thermodynamic properties of saturated xenon

T K	p MPa	ρ'' g/cm³	ρ' g/cm³	u'' J/g	u' J/g	h'' J/g	h' J/g	s'' J/(g·K)	s' J/(g·K)	c_p'' J/(g·K)	c_p' J/(g.K)	c_v'' J/(g.K)	c_v' J/(g.K)	w'' m/s	w' m/s
161.360	0.081572	0.00820	2.97168	−10.97	−97.62	−1.02	−97.59	−0.07233	−0.67094	0.17156	0.34843	0.1007	0.1622	128.44	650.99
162.000	0.084778	0.00849	2.96710	−10.92	−97.39	−0.94	−97.36	−0.07424	−0.66956	0.17189	0.34842	0.1008	0.1622	128.64	648.63
164.000	0.095418	0.00947	2.95276	−10.79	−96.70	−0.71	−95.87	−0.08008	−0.66530	0.17294	0.34840	0.1012	0.1619	129.26	641.40
166.000	0.107047	0.01052	2.93841	−10.66	−96.00	−0.48	−95.97	−0.08575	−0.66108	0.17404	0.34842	0.1016	0.1616	129.87	634.35
168.000	0.119724	0.01165	2.92403	−10.53	−95.31	−0.26	−95.27	−0.09126	−0.65692	0.17519	0.34848	0.1020	0.1613	130.46	627.47
170.000	0.133513	0.01288	2.90963	−10.40	−94.61	−0.04	−94.57	−0.09663	−0.65281	0.17640	0.34859	0.1024	0.1609	131.04	620.74
172.000	0.148476	0.01420	2.89519	−10.28	−93.92	0.17	−93.87	−0.10186	−0.64874	0.17766	0.34876	0.1028	0.1605	131.60	614.16
174.000	0.164680	0.01561	2.88073	−10.17	−93.22	0.38	−93.17	−0.10696	−0.64472	0.17898	0.34899	0.1032	0.1601	132.15	607.69
176.000	0.182191	0.01713	2.86623	−10.05	−92.53	0.58	−92.47	−0.11193	−0.64075	0.18037	0.34929	0.1037	0.1597	132.69	601.34
178.000	0.201076	0.01876	2.85169	−9.94	−91.83	0.77	−91.76	−0.11679	−0.63682	0.18181	0.34967	0.1041	0.1593	133.21	595.08
180.000	0.221404	0.02050	2.83710	−9.84	−91.14	0.96	−91.06	−0.12154	−0.63293	0.18333	0.35013	0.1046	0.1589	133.71	588.91
182.000	0.243246	0.02236	2.82246	−9.74	−90.44	1.14	−90.35	−0.12618	−0.62907	0.18491	0.35068	0.1051	0.1584	134.20	582.82
184.000	0.266673	0.02434	2.80777	−9.65	−89.74	1.31	−89.65	−0.13073	−0.62526	0.18657	0.35132	0.1055	0.1580	134.67	576.79
186.000	0.291755	0.02645	2.79302	−9.56	−89.04	1.48	−88.94	−0.13518	−0.62148	0.18830	0.35206	0.1060	0.1575	135.13	570.81
188.000	0.318566	0.02869	2.77820	−9.47	−88.34	1.63	−88.23	−0.13955	−0.61774	0.19012	0.35289	0.1065	0.1570	135.57	564.88
190.000	0.347178	0.03107	2.76330	−9.39	−87.64	1.78	−87.52	−0.14383	−0.61403	0.19203	0.35383	0.1070	0.1565	136.00	558.98
192.000	0.377666	0.03361	2.74833	−9.32	−86.94	1.92	−86.81	−0.14803	−0.61035	0.19402	0.35487	0.1075	0.1561	136.41	553.12
194.000	0.410104	0.03629	2.73327	−9.25	−86.24	2.05	−86.09	−0.15216	−0.60670	0.19612	0.35603	0.1081	0.1556	136.80	547.27
196.000	0.444566	0.03913	2.71812	−9.18	−85.53	2.18	−85.37	−0.15621	−0.60307	0.19832	0.35731	0.1086	0.1551	137.18	541.44
198.000	0.481129	0.04214	2.70287	−9.13	−84.83	2.29	−84.65	−0.16020	−0.59948	0.20062	0.35871	0.1092	0.1546	137.54	535.61
200.000	0.519868	0.04532	2.68751	−9.08	−84.12	2.40	−83.92	−0.16413	−0.59591	0.20305	0.36023	0.1097	0.1541	137.89	529.79
202.000	0.560859	0.04868	2.67203	−9.03	−83.40	2.49	−83.19	−0.16800	−0.59236	0.20560	0.36189	0.1103	0.1536	138.21	523.95
204.000	0.604179	0.05222	2.65644	−8.99	−82.69	2.58	−82.46	−0.17181	−0.58883	0.20828	0.36368	0.1109	0.1531	138.53	518.11
206.000	0.649904	0.05597	2.64071	−8.96	−81.97	2.65	−81.73	−0.17557	−0.58533	0.21111	0.36562	0.1115	0.1527	138.82	512.25
208.000	0.698112	0.05991	2.62484	−8.94	−81.25	2.71	−80.99	−0.17928	−0.58184	0.21409	0.36772	0.1121	0.1522	139.10	506.37
210.000	0.748880	0.06407	2.60883	−8.92	−80.53	2.77	−80.24	−0.18295	−0.57838	0.21723	0.36997	0.1127	0.1517	139.37	500.45
212.000	0.802285	0.06845	2.59265	−8.91	−79.80	2.81	−79.49	−0.18657	−0.57492	0.22055	0.37239	0.1133	0.1512	139.61	494.51
214.000	0.858406	0.07306	2.57631	−8.91	−79.07	2.84	−78.74	−0.19016	−0.57149	0.22406	0.37499	0.1140	0.1507	139.84	488.53
216.000	0.917321	0.07792	2.55978	−8.92	−78.34	2.86	−77.98	−0.19371	−0.56806	0.22778	0.37779	0.1146	0.1502	140.06	482.50
218.000	0.979109	0.08302	2.54307	−8.93	−77.60	2.86	−77.22	−0.19723	−0.56465	0.23171	0.38078	0.1153	0.1498	140.25	476.43
220.000	1.043848	0.08839	2.52615	−8.95	−76.86	2.85	−76.45	−0.20071	−0.56124	0.23589	0.38399	0.1160	0.1493	140.43	470.31
222.000	1.111616	0.09404	2.50901	−8.99	−76.11	2.83	−75.67	−0.20418	−0.55785	0.24033	0.38743	0.1167	0.1488	140.60	464.13
224.000	1.182494	0.09998	2.49165	−9.03	−75.36	2.80	−74.88	−0.20761	−0.55446	0.24505	0.39112	0.1174	0.1484	140.74	457.89
226.000	1.256561	0.10622	2.47404	−9.08	−74.60	2.75	−74.09	−0.21103	−0.55108	0.25008	0.39507	0.1181	0.1479	140.87	451.59
228.000	1.333896	0.11278	2.45617	−9.15	−73.84	2.68	−73.29	−0.21444	−0.54770	0.25545	0.39932	0.1189	0.1474	140.99	445.23

TABLE 28. Thermodynamic properties of saturated xenon — Continued

T K	p MPa	ρ'' g/cm³	ρ' g/cm³	u'' J/g	u' J/g	h'' J/g	h' J/g	s'' J/(g·K)	s' J/(g·K)	c_p'' J/(g·K)	c_p' J/(g.K)	c_v'' J/(g.K)	c_v' J/(g.K)	w'' m/s	w' m/s
230.000	1.414580	0.11967	2.43802	−9.22	−73.07	2.60	−72.49	−0.21783	−0.54432	0.26119	0.40388	0.1197	0.1470	141.08	438.79
232.000	1.498693	0.12692	2.41958	−9.31	−72.29	2.50	−71.67	−0.22120	−0.54095	0.26733	0.40878	0.1205	0.1466	141.16	432.27
234.000	1.586315	0.13454	2.40083	−9.41	−71.51	2.38	−70.85	−0.22458	−0.53757	0.27391	0.41406	0.1213	0.1461	141.23	425.68
236.000	1.677529	0.14255	2.38174	−9.52	−70.72	2.25	−70.02	−0.22795	−0.53418	0.28099	0.41976	0.1221	0.1457	141.27	419.00
238.000	1.772416	0.15097	2.36229	−9.64	−69.92	2.10	−69.17	−0.23132	−0.53079	0.28860	0.42591	0.1230	0.1453	141.30	412.23
240.000	1.871060	0.15984	2.34246	−9.78	−69.12	1.93	−68.32	−0.23469	−0.52739	0.29682	0.43256	0.1239	0.1449	141.32	405.37
242.000	1.973542	0.16917	2.32161	−9.93	−68.29	1.74	−67.44	−0.23807	−0.52392	0.30571	0.43643	0.1248	0.1446	141.32	396.72
244.000	2.079949	0.17899	2.30105	−10.10	−67.47	1.52	−66.57	−0.24146	−0.52052	0.31534	0.44521	0.1257	0.1445	141.30	389.82
246.000	2.190367	0.18935	2.27998	−10.28	−66.64	1.29	−65.68	−0.24487	−0.51709	0.32581	0.45450	0.1266	0.1442	141.27	382.81
248.000	2.304883	0.20026	2.25838	−10.48	−65.79	1.03	−64.77	−0.24830	−0.51364	0.33722	0.46450	0.1276	0.1440	141.23	375.64
250.000	2.423587	0.21178	2.23619	−10.70	−64.94	0.74	−63.86	−0.25176	−0.51016	0.34969	0.47541	0.1286	0.1437	141.17	368.28
252.000	2.546571	0.22394	2.21336	−10.94	−64.07	0.44	−62.92	−0.25524	−0.50665	0.36337	0.48743	0.1297	0.1434	141.10	360.69
254.000	2.673933	0.23679	2.18983	−11.19	−63.18	0.10	−61.96	−0.25876	−0.50310	0.37842	0.50078	0.1307	0.1432	141.01	352.81
256.000	2.805770	0.25040	2.16552	−11.47	−62.28	−0.27	−60.99	−0.26232	−0.49950	0.39507	0.51569	0.1318	0.1430	140.91	344.61
258.000	2.942186	0.26482	2.14035	−11.78	−61.36	−0.67	−59.99	−0.26593	−0.49586	0.41354	0.53246	0.1329	0.1429	140.80	336.05
260.000	3.083291	0.28013	2.11420	−12.11	−60.42	−1.10	−58.96	−0.26960	−0.49216	0.43415	0.55144	0.1341	0.1429	140.68	327.10
262.000	3.229200	0.29640	2.08698	−12.46	−59.46	−1.57	−57.91	−0.27334	−0.48840	0.45728	0.57309	0.1353	0.1430	140.55	317.74
264.000	3.380037	0.31374	2.05855	−12.85	−58.47	−2.07	−56.83	−0.27714	−0.48456	0.48339	0.59801	0.1365	0.1433	140.41	307.94
266.000	3.535931	0.33226	2.02874	−13.26	−57.45	−2.62	−55.71	−0.28103	−0.48063	0.51308	0.62701	0.1377	0.1439	140.27	297.68
268.000	3.697026	0.35209	1.99736	−13.72	−56.40	−3.22	−54.55	−0.28503	−0.47660	0.54713	0.66119	0.1389	0.1446	140.12	286.94
270.000	3.863474	0.37338	1.96418	−14.21	−55.32	−3.86	−53.35	−0.28913	−0.47245	0.58657	0.70211	0.1402	0.1457	139.97	275.72
272.000	4.035443	0.39635	1.92891	−14.74	−54.19	−4.56	−52.10	−0.29337	−0.46816	0.63277	0.75203	0.1415	0.1472	139.82	263.99
274.000	4.213113	0.42140	1.89116	−15.34	−53.02	−5.34	−50.79	−0.29780	−0.46369	0.70395	0.81433	0.1429	0.1491	139.47	251.74
276.000	4.396687	0.44971	1.85043	−16.03	−51.78	−6.25	−49.40	−0.30266	−0.45902	0.81653	0.89434	0.1449	0.1515	139.45	238.95
278.000	4.586382	0.48205	1.80601	−16.85	−50.47	−7.34	−47.93	−0.30804	−0.45407	0.98035	1.00096	0.1485	0.1546	139.58	225.60
280.000	4.782443	0.51945	1.75693	−17.84	−49.07	−8.63	−46.35	−0.31408	−0.44878	1.22374	1.15014	0.1541	0.1586	139.40	211.63
282.000	4.985138	0.56351	1.70164	−19.03	−47.54	−10.19	−44.61	−0.32095	−0.44302	1.60135	1.37362	0.1624	0.1636	138.57	197.01
284.000	5.194764	0.61691	1.63763	−20.51	−45.84	−12.09	−42.66	−0.32893	−0.43659	2.23410	1.74436	0.1737	0.1702	136.79	181.63
286.000	5.411652	0.68622	1.56015	−22.46	−43.86	−14.57	−40.39	−0.33882	−0.42908	3.87695	2.47645	0.2017	0.1791	131.53	165.50
288.000	5.636169	0.78590	1.45653	−25.26	−41.34	−18.09	−37.47	−0.35212	−0.41942	8.77304	4.79346	0.2640	0.1925	118.46	147.11
289.000	5.751414	0.86110	1.36260	−27.30	−39.22	−20.62	−35.00	−0.36139	−0.41117	17.40413	16.31403	0.2990	0.2352	111.36	121.18

TABLE 29. Thermodynamic properties of xenon - single-phase region

T K	ρ g/cm³	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 0.10 MPa				
165.000	0.00987	−10.71	−0.58	−0.08219	0.17330	0.1013	129.59
170.000	0.00955	−10.19	0.28	−0.07704	0.17151	0.1005	131.79
175.000	0.00926	−9.67	1.13	−0.07209	0.17000	0.0998	133.94
180.000	0.00898	−9.16	1.98	−0.06732	0.16871	0.0992	136.03
185.000	0.00872	−8.65	2.82	−0.06272	0.16761	0.0987	138.08
190.000	0.00848	−8.14	3.66	−0.05826	0.16667	0.0982	140.09
195.000	0.00825	−7.64	4.49	−0.05394	0.16585	0.0978	142.05
200.000	0.00803	−7.14	5.32	−0.04975	0.16514	0.0975	143.99
205.000	0.00782	−6.64	6.14	−0.04568	0.16452	0.0973	145.89
210.000	0.00763	−6.15	6.96	−0.04172	0.16398	0.0970	147.76
215.000	0.00744	−5.65	7.78	−0.03787	0.16350	0.0968	149.60
220.000	0.00727	−5.16	8.60	−0.03412	0.16308	0.0966	151.41
225.000	0.00710	−4.67	9.41	−0.03046	0.16270	0.0965	153.20
230.000	0.00694	−4.18	10.22	−0.02688	0.16236	0.0963	154.96
235.000	0.00679	−3.69	11.04	−0.02340	0.16206	0.0962	156.70
240.000	0.00664	−3.21	11.84	−0.01999	0.16179	0.0961	158.42
245.000	0.00650	−2.72	12.65	−0.01665	0.16155	0.0960	160.11
250.000	0.00637	−2.24	13.46	−0.01339	0.16133	0.0959	161.79
255.000	0.00624	−1.75	14.27	−0.01020	0.16114	0.0958	163.44
260.000	0.00612	−1.27	15.07	−0.00707	0.16096	0.0958	165.08
265.000	0.00600	−0.78	15.88	−0.00401	0.16079	0.0957	166.70
270.000	0.00589	−0.30	16.68	−0.00100	0.16064	0.0956	168.30
275.000	0.00578	0.18	17.48	0.00194	0.16051	0.0956	169.89
280.000	0.00567	0.66	18.28	0.00483	0.16038	0.0955	171.46
285.000	0.00557	1.14	19.09	0.00767	0.16026	0.0955	173.01
289.774	0.00548	1.60	19.85	0.01033	0.16017	0.0955	174.48
300.000	0.00529	2.59	21.49	0.01588	0.15998	0.0954	177.59
320.000	0.00496	4.50	24.68	0.02620	0.15968	0.0953	183.50
340.000	0.00466	6.42	27.88	0.03587	0.15945	0.0952	189.21
360.000	0.00440	8.33	31.06	0.04498	0.15928	0.0952	194.76
380.000	0.00417	10.24	34.25	0.05359	0.15914	0.0951	200.14
400.000	0.00396	12.15	37.43	0.06175	0.15903	0.0951	205.37
425.000	0.00372	14.54	41.40	0.07139	0.15892	0.0951	211.73
450.000	0.00351	16.92	45.37	0.08047	0.15884	0.0951	217.90
475.000	0.00333	19.30	49.35	0.08905	0.15877	0.0950	223.90
500.000	0.00316	21.68	53.31	0.09720	0.15871	0.0950	229.73
525.000	0.00301	24.06	57.28	0.10494	0.15867	0.0950	235.42
550.000	0.00287	26.44	61.25	0.11232	0.15863	0.0950	240.98
575.000	0.00275	28.82	65.21	0.11937	0.15859	0.0950	246.40
600.000	0.00263	31.20	69.18	0.12612	0.15857	0.0950	251.71
625.000	0.00253	33.58	73.14	0.13259	0.15854	0.0950	256.91
650.000	0.00243	35.95	77.10	0.13881	0.15852	0.0950	262.01
675.000	0.00234	38.33	81.07	0.14479	0.15850	0.0950	267.00
700.000	0.00226	40.71	85.03	0.15056	0.15849	0.0950	271.91
725.000	0.00218	43.08	88.99	0.15612	0.15847	0.0950	276.72
750.000	0.00211	45.46	92.95	0.16149	0.15846	0.0950	281.46
775.000	0.00204	47.84	96.91	0.16668	0.15845	0.0950	286.11
800.000	0.00197	50.21	100.88	0.17172	0.15844	0.0950	290.69
			p = 0.101325 MPa				
165.000	2.94559	−96.35	−96.32	−0.66318	0.34841	0.1618	637.85
170.000	0.00968	−10.20	0.27	−0.07793	0.17170	0.1005	131.76
175.000	0.00938	−9.68	1.12	−0.07297	0.17016	0.0998	133.91
180.000	0.00910	−9.16	1.97	−0.06820	0.16886	0.0992	136.01
185.000	0.00884	−8.65	2.81	−0.06359	0.16774	0.0987	138.06
190.000	0.00859	−8.15	3.65	−0.05913	0.16678	0.0983	140.07
195.000	0.00836	−7.64	4.48	−0.05481	0.16596	0.0979	142.04
200.000	0.00814	−7.14	5.31	−0.05061	0.16524	0.0976	143.97
205.000	0.00793	−6.65	6.13	−0.04654	0.16461	0.0973	145.87
210.000	0.00773	−6.15	6.95	−0.04258	0.16406	0.0970	147.74
215.000	0.00754	−5.66	7.77	−0.03873	0.16357	0.0968	149.58

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm³	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 0.101325 MPa				
220.000	0.00737	−5.16	8.59	−0.03497	0.16314	0.0966	151.40
225.000	0.00720	−4.67	9.40	−0.03131	0.16276	0.0965	153.18
230.000	0.00704	−4.19	10.22	−0.02774	0.16242	0.0963	154.95
235.000	0.00688	−3.70	11.03	−0.02425	0.16212	0.0962	156.69
240.000	0.00673	−3.21	11.84	−0.02084	0.16184	0.0961	158.41
245.000	0.00659	−2.72	12.65	−0.01750	0.16160	0.0960	160.10
250.000	0.00646	−2.24	13.45	−0.01424	0.16138	0.0959	161.78
255.000	0.00633	−1.75	14.26	−0.01105	0.16117	0.0958	163.43
260.000	0.00620	−1.27	15.07	−0.00792	0.16099	0.0958	165.07
265.000	0.00608	−0.79	15.87	−0.00485	0.16083	0.0957	166.69
270.000	0.00597	−0.30	16.67	−0.00185	0.16068	0.0956	168.30
275.000	0.00586	0.18	17.48	0.00110	0.16054	0.0956	169.88
280.000	0.00575	0.66	18.28	0.00399	0.16041	0.0956	171.45
285.000	0.00565	1.14	19.08	0.00683	0.16029	0.0955	173.00
289.774	0.00555	1.60	19.85	0.00949	0.16019	0.0955	174.48
300.000	0.00536	2.58	21.48	0.01504	0.16000	0.0954	177.58
320.000	0.00502	4.50	24.68	0.02536	0.15970	0.0953	183.49
340.000	0.00472	6.42	27.87	0.03503	0.15947	0.0952	189.21
360.000	0.00446	8.33	31.06	0.04414	0.15929	0.0952	194.75
380.000	0.00422	10.24	34.24	0.05275	0.15915	0.0951	200.14
400.000	0.00401	12.15	37.43	0.06091	0.15904	0.0951	205.37
425.000	0.00377	14.53	41.40	0.07055	0.15893	0.0951	211.73
450.000	0.00356	16.92	45.37	0.07963	0.15884	0.0951	217.90
475.000	0.00337	19.30	49.34	0.08822	0.15877	0.0950	223.90
500.000	0.00320	21.68	53.31	0.09636	0.15872	0.0950	229.73
525.000	0.00305	24.06	57.28	0.10410	0.15867	0.0950	235.42
550.000	0.00291	26.44	61.24	0.11148	0.15863	0.0950	240.98
575.000	0.00278	28.82	65.21	0.11853	0.15860	0.0950	246.41
600.000	0.00267	31.20	69.17	0.12528	0.15857	0.0950	251.71
625.000	0.00256	33.57	73.14	0.13176	0.15855	0.0950	256.91
650.000	0.00246	35.95	77.10	0.13797	0.15853	0.0950	262.01
675.000	0.00237	38.33	81.06	0.14396	0.15851	0.0950	267.00
700.000	0.00229	40.71	85.03	0.14972	0.15849	0.0950	271.91
725.000	0.00221	43.08	88.99	0.15528	0.15848	0.0950	276.72
750.000	0.00213	45.46	92.95	0.16065	0.15846	0.0950	281.46
775.000	0.00206	47.84	96.91	0.16585	0.15845	0.0950	286.11
800.000	0.00200	50.21	100.87	0.17088	0.15844	0.0950	290.69
			p = 0.50 MPa				
165.000	2.94769	−96.41	−96.24	−0.66351	0.34809	0.1618	639.49
170.000	2.91168	−94.67	−94.50	−0.65312	0.34825	0.1610	622.29
175.000	2.87543	−92.93	−92.75	−0.64302	0.34879	0.1600	605.91
180.000	2.83887	−91.18	−91.01	−0.63318	0.34979	0.1589	590.15
185.000	2.80189	−89.43	−89.25	−0.62358	0.35136	0.1577	574.81
190.000	2.76440	−87.67	−87.49	−0.61418	0.35357	0.1566	559.71
195.000	2.72627	−85.90	−85.72	−0.60496	0.35651	0.1553	544.72
200.000	0.04339	−8.97	2.55	−0.16113	0.20080	0.1091	138.20
205.000	0.04201	−8.36	3.54	−0.15623	0.19627	0.1075	140.57
210.000	0.04073	−7.76	4.51	−0.15155	0.19242	0.1061	142.86
215.000	0.03954	−7.18	5.47	−0.14706	0.18912	0.1049	145.08
220.000	0.03843	−6.60	6.40	−0.14275	0.18627	0.1038	147.23
225.000	0.03740	−6.04	7.33	−0.13859	0.18378	0.1029	149.32
230.000	0.03643	−5.48	8.24	−0.13457	0.18161	0.1022	151.35
235.000	0.03551	−4.93	9.14	−0.13069	0.17970	0.1015	153.34
240.000	0.03465	−4.39	10.04	−0.12692	0.17801	0.1009	155.29
245.000	0.03383	−3.85	10.93	−0.12327	0.17651	0.1003	157.19
250.000	0.03305	−3.32	11.80	−0.11972	0.17517	0.0999	159.06
255.000	0.03232	−2.79	12.68	−0.11626	0.17397	0.0994	160.89
260.000	0.03162	−2.27	13.54	−0.11289	0.17290	0.0991	162.69
265.000	0.03095	−1.75	14.41	−0.10961	0.17192	0.0987	164.46
270.000	0.03031	−1.23	15.26	−0.10640	0.17105	0.0984	166.21

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm³	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 0.50 MPa				
275.000	0.02970	−0.72	16.12	−0.10327	0.17025	0.0981	167.92
280.000	0.02912	−0.20	16.97	−0.10021	0.16953	0.0979	169.61
285.000	0.02856	0.30	17.81	−0.09722	0.16886	0.0977	171.28
289.774	0.02804	0.79	18.62	−0.09442	0.16829	0.0975	172.85
300.000	0.02701	1.82	20.33	−0.08860	0.16720	0.0971	176.15
320.000	0.02520	3.82	23.66	−0.07786	0.16552	0.0966	182.38
340.000	0.02363	5.80	26.96	−0.06787	0.16428	0.0962	188.35
360.000	0.02226	7.77	30.23	−0.05851	0.16334	0.0960	194.09
380.000	0.02104	9.72	33.49	−0.04970	0.16261	0.0958	199.64
400.000	0.01995	11.67	36.74	−0.04137	0.16202	0.0956	205.01
425.000	0.01874	14.10	40.78	−0.03157	0.16145	0.0955	211.51
450.000	0.01767	16.51	44.81	−0.02235	0.16100	0.0954	217.80
475.000	0.01672	18.92	48.83	−0.01366	0.16065	0.0953	223.89
500.000	0.01587	21.33	52.84	−0.00542	0.16036	0.0953	229.81
525.000	0.01510	23.73	56.85	0.00239	0.16012	0.0952	235.56
550.000	0.01440	26.13	60.85	0.00984	0.15992	0.0952	241.17
575.000	0.01377	28.53	64.85	0.01694	0.15975	0.0951	246.65
600.000	0.01319	30.92	68.84	0.02374	0.15961	0.0951	252.00
625.000	0.01265	33.31	72.83	0.03025	0.15949	0.0951	257.23
650.000	0.01216	35.70	76.81	0.03651	0.15938	0.0951	262.36
675.000	0.01171	38.09	80.80	0.04252	0.15929	0.0951	267.38
700.000	0.01129	40.48	84.78	0.04831	0.15921	0.0951	272.31
725.000	0.01089	42.86	88.76	0.05390	0.15914	0.0951	277.15
750.000	0.01053	45.25	92.73	0.05929	0.15908	0.0950	281.90
775.000	0.01019	47.63	96.71	0.06451	0.15902	0.0950	286.57
800.000	0.00987	50.02	100.69	0.06955	0.15897	0.0950	291.16
			p = 1.00 MPa				
165.000	2.95031	−96.47	−96.14	−0.66393	0.34769	0.1619	641.54
170.000	2.91446	−94.74	−94.40	−0.65354	0.34780	0.1610	624.38
175.000	2.87839	−93.00	−92.66	−0.64346	0.34827	0.1600	608.06
180.000	2.84201	−91.26	−90.91	−0.63363	0.34919	0.1590	592.36
185.000	2.80525	−89.52	−89.16	−0.62405	0.35066	0.1578	577.09
190.000	2.76799	−87.77	−87.41	−0.61467	0.35275	0.1566	562.09
195.000	2.73011	−86.00	−85.64	−0.60547	0.35554	0.1554	547.20
200.000	2.69148	−84.22	−83.85	−0.59643	0.35913	0.1542	532.29
205.000	2.65193	−82.42	−82.04	−0.58751	0.36361	0.1529	517.24
210.000	2.61126	−80.59	−80.21	−0.57868	0.36915	0.1517	501.92
215.000	2.56926	−78.74	−78.35	−0.56992	0.37592	0.1505	486.22
220.000	0.08392	−8.74	3.17	−0.19695	0.23064	0.1149	141.04
225.000	0.08101	−8.04	4.30	−0.19186	0.22266	0.1127	143.67
230.000	0.07836	−7.36	5.40	−0.18704	0.21598	0.1108	146.18
235.000	0.07594	−6.70	6.47	−0.18246	0.21033	0.1092	148.58
240.000	0.07370	−6.06	7.51	−0.17808	0.20549	0.1078	150.90
245.000	0.07163	−5.44	8.52	−0.17389	0.20132	0.1066	153.13
250.000	0.06970	−4.83	9.52	−0.16986	0.19768	0.1055	155.30
255.000	0.06789	−4.23	10.50	−0.16598	0.19450	0.1046	157.40
260.000	0.06620	−3.64	11.47	−0.16223	0.19169	0.1037	159.45
265.000	0.06460	−3.06	12.42	−0.15860	0.18920	0.1030	161.44
270.000	0.06310	−2.49	13.36	−0.15508	0.18699	0.1023	163.39
275.000	0.06168	−1.92	14.29	−0.15167	0.18500	0.1017	165.29
280.000	0.06033	−1.37	15.21	−0.14836	0.18322	0.1012	167.16
285.000	0.05905	−0.81	16.12	−0.14513	0.18160	0.1007	168.98
289.774	0.05788	−0.29	16.98	−0.14212	0.18022	0.1003	170.70
300.000	0.05555	0.81	18.81	−0.13592	0.17763	0.0995	174.27
320.000	0.05156	2.93	22.32	−0.12458	0.17375	0.0984	180.93
340.000	0.04815	5.00	25.77	−0.11414	0.17094	0.0976	187.23
360.000	0.04520	7.04	29.17	−0.10443	0.16885	0.0970	193.24
380.000	0.04261	9.06	32.53	−0.09535	0.16724	0.0966	199.00
400.000	0.04032	11.06	35.86	−0.08680	0.16599	0.0963	204.56

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm³	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 1.00 MPa				
425.000	0.03780	13.54	39.99	−0.07678	0.16476	0.0960	211.24
450.000	0.03558	16.00	44.10	−0.06739	0.16381	0.0958	217.67
475.000	0.03363	18.45	48.19	−0.05855	0.16306	0.0957	223.88
500.000	0.03188	20.89	52.25	−0.05020	0.16246	0.0955	229.89
525.000	0.03031	23.32	56.31	−0.04229	0.16197	0.0954	235.73
550.000	0.02889	25.74	60.35	−0.03476	0.16156	0.0954	241.42
575.000	0.02760	28.16	64.39	−0.02759	0.16122	0.0953	246.95
600.000	0.02642	30.57	68.41	−0.02073	0.16093	0.0953	252.35
625.000	0.02534	32.98	72.43	−0.01417	0.16068	0.0952	257.63
650.000	0.02435	35.39	76.45	−0.00787	0.16047	0.0952	262.80
675.000	0.02344	37.79	80.46	−0.00182	0.16028	0.0952	267.85
700.000	0.02259	40.19	84.46	0.00401	0.16012	0.0951	272.81
725.000	0.02180	42.59	88.46	0.00962	0.15998	0.0951	277.67
750.000	0.02106	44.98	92.46	0.01504	0.15985	0.0951	282.45
775.000	0.02038	47.38	96.46	0.02028	0.15974	0.0951	287.14
800.000	0.01973	49.77	100.45	0.02535	0.15964	0.0951	291.75
			p = 2.00 MPa				
165.000	2.95549	−96.61	−95.93	−0.66474	0.34692	0.1620	645.58
170.000	2.91996	−94.88	−94.20	−0.65439	0.34693	0.1612	628.50
175.000	2.88422	−93.15	−92.46	−0.64432	0.34727	0.1602	612.28
180.000	2.84821	−91.42	−90.72	−0.63453	0.34804	0.1591	596.70
185.000	2.81185	−89.69	−88.98	−0.62498	0.34932	0.1579	581.58
190.000	2.77504	−87.95	−87.23	−0.61564	0.35117	0.1567	566.75
195.000	2.73766	−86.20	−85.47	−0.60649	0.35369	0.1555	552.07
200.000	2.69960	−84.43	−83.69	−0.59749	0.35693	0.1543	537.40
205.000	2.66069	−82.65	−81.90	−0.58863	0.36100	0.1530	522.64
210.000	2.62077	−80.84	−80.08	−0.57988	0.36602	0.1518	507.66
215.000	2.57964	−79.01	−78.23	−0.57119	0.37213	0.1505	492.36
220.000	2.53705	−77.14	−76.36	−0.56256	0.37956	0.1493	476.62
225.000	2.49272	−75.24	−74.44	−0.55393	0.38861	0.1482	460.33
230.000	2.44625	−73.28	−72.47	−0.54527	0.39971	0.1470	443.34
235.000	2.39716	−71.27	−70.43	−0.53653	0.41351	0.1459	425.50
240.000	2.34479	−69.18	−68.33	−0.52765	0.43104	0.1449	406.60
245.000	0.16762	−9.49	2.44	−0.23583	0.29690	0.1233	142.98
250.000	0.16049	−8.59	3.88	−0.23002	0.27855	0.1202	146.13
255.000	0.15424	−7.73	5.23	−0.22465	0.26411	0.1176	149.07
260.000	0.14868	−6.93	6.52	−0.21964	0.25243	0.1153	151.85
265.000	0.14369	−6.16	7.76	−0.21493	0.24279	0.1134	154.48
270.000	0.13915	−5.42	8.95	−0.21047	0.23470	0.1117	156.99
275.000	0.13499	−4.71	10.11	−0.20623	0.22782	0.1102	159.39
280.000	0.13117	−4.02	11.23	−0.20218	0.22190	0.1089	161.70
285.000	0.12762	−3.34	12.33	−0.19829	0.21675	0.1077	163.93
289.774	0.12447	−2.71	13.35	−0.19473	0.21245	0.1068	166.00
300.000	0.11836	−1.41	15.48	−0.18750	0.20477	0.1050	170.23
320.000	0.10834	1.01	19.46	−0.17465	0.19398	0.1024	177.89
340.000	0.10019	3.30	23.27	−0.16313	0.18668	0.1006	184.94
360.000	0.09335	5.52	26.95	−0.15261	0.18147	0.0993	191.52
380.000	0.08751	7.68	30.53	−0.14291	0.17762	0.0984	197.74
400.000	0.08244	9.80	34.06	−0.13387	0.17469	0.0978	203.65
425.000	0.07694	12.39	38.39	−0.12337	0.17190	0.0972	210.70
450.000	0.07219	14.95	42.66	−0.11361	0.16978	0.0967	217.42
475.000	0.06804	17.48	46.88	−0.10447	0.16814	0.0964	223.87
500.000	0.06436	19.99	51.07	−0.09588	0.16684	0.0961	230.08
525.000	0.06108	22.48	55.22	−0.08777	0.16579	0.0959	236.08
550.000	0.05814	24.96	59.36	−0.08008	0.16493	0.0958	241.90
575.000	0.05548	27.42	63.47	−0.07276	0.16421	0.0957	247.55
600.000	0.05306	29.87	67.57	−0.06579	0.16361	0.0956	253.06
625.000	0.05085	32.32	71.65	−0.05912	0.16309	0.0955	258.42
650.000	0.04882	34.76	75.72	−0.05273	0.16265	0.0954	263.66
675.000	0.04695	37.19	79.79	−0.04660	0.16227	0.0954	268.78

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm³	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 2.00 MPa				
700.000	0.04523	39.62	83.84	−0.04071	0.16194	0.0953	273.79
725.000	0.04362	42.04	87.88	−0.03503	0.16165	0.0953	278.70
750.000	0.04214	44.46	91.92	−0.02955	0.16140	0.0952	283.52
775.000	0.04075	46.87	95.95	−0.02426	0.16117	0.0952	288.25
800.000	0.03945	49.28	99.98	−0.01915	0.16097	0.0952	292.89
			p = 3.00 MPa				
165.000	2.96059	−96.74	−95.73	−0.66555	0.34618	0.1622	649.56
170.000	2.92536	−95.02	−94.00	−0.65522	0.34610	0.1613	632.55
175.000	2.88995	−93.30	−92.26	−0.64518	0.34631	0.1603	616.43
180.000	2.85430	−91.58	−90.53	−0.63542	0.34694	0.1592	600.96
185.000	2.81833	−89.86	−88.79	−0.62590	0.34804	0.1581	585.98
190.000	2.78194	−88.13	−87.05	−0.61660	0.34968	0.1568	571.31
195.000	2.74504	−86.39	−85.30	−0.60749	0.35194	0.1556	556.82
200.000	2.70751	−84.64	−83.53	−0.59854	0.35488	0.1544	542.38
205.000	2.66921	−82.87	−81.75	−0.58973	0.35857	0.1531	527.88
210.000	2.62999	−81.08	−79.94	−0.58104	0.36312	0.1519	513.21
215.000	2.58966	−79.27	−78.11	−0.57243	0.36865	0.1506	498.27
220.000	2.54803	−77.43	−76.25	−0.56388	0.37534	0.1494	482.97
225.000	2.50483	−75.56	−74.36	−0.55536	0.38343	0.1482	467.18
230.000	2.45974	−73.64	−72.42	−0.54683	0.39324	0.1470	450.81
235.000	2.41236	−71.66	−70.42	−0.53825	0.40527	0.1459	433.72
240.000	2.36216	−69.63	−68.36	−0.52956	0.42023	0.1449	415.74
245.000	2.30799	−67.50	−66.20	−0.52067	0.43706	0.1441	439.35
250.000	2.24983	−65.29	−63.95	−0.51159	0.46366	0.1435	375.13
255.000	2.18526	−62.92	−61.55	−0.50207	0.50013	0.1429	352.47
260.000	0.26693	−11.59	−0.36	−0.26557	0.40807	0.1323	141.74
265.000	0.25168	−10.36	1.56	0.25826	0.36278	0.1279	145.63
270.000	0.23917	−9.25	3.29	−0.25178	0.33122	0.1244	149.14
275.000	0.22857	−8.24	4.89	−0.24593	0.30779	0.1214	152.37
280.000	0.21937	−7.29	6.38	−0.24056	0.28961	0.1188	155.38
285.000	0.21126	−6.41	7.79	−0.23556	0.27506	0.1166	158.20
289.774	0.20433	−5.61	9.08	−0.23109	0.26366	0.1147	160.76
300.000	0.19151	−3.99	11.67	−0.22229	0.24481	0.1115	165.86
320.000	0.17193	−1.14	16.31	−0.20732	0.22101	0.1070	174.75
340.000	0.15698	1.46	20.57	−0.19439	0.20637	0.1040	182.64
360.000	0.14497	3.90	24.59	−0.18289	0.19657	0.1019	189.84
380.000	0.13500	6.23	28.45	−0.17246	0.18962	0.1004	196.53
400.000	0.12653	8.48	32.19	−0.16287	0.18448	0.0994	202.82
425.000	0.11754	11.22	36.74	−0.15183	0.17973	0.0984	210.23
450.000	0.10988	13.89	41.19	−0.14167	0.17622	0.0977	217.24
475.000	0.10326	16.51	45.56	−0.13221	0.17353	0.0971	223.92
500.000	0.09746	19.09	49.87	−0.12337	0.17143	0.0967	230.31
525.000	0.09233	21.64	54.13	−0.11505	0.16976	0.0964	236.47
550.000	0.08775	24.17	58.36	−0.10718	0.16839	0.0962	242.42
575.000	0.08363	26.68	62.56	−0.09972	0.16727	0.0960	248.18
600.000	0.07990	29.18	66.72	−0.09262	0.16633	0.0959	253.77
625.000	0.07650	31.66	70.87	−0.08585	0.16553	0.0957	259.22
650.000	0.07340	34.13	75.00	−0.07937	0.16486	0.0956	264.52
675.000	0.07055	36.59	79.12	−0.07316	0.16427	0.0956	269.70
700.000	0.06792	39.05	83.22	−0.06719	0.16377	0.0955	274.77
725.000	0.06548	41.49	87.31	−0.06146	0.16333	0.0954	279.72
750.000	0.06322	43.93	91.38	−0.05593	0.16294	0.0954	284.58
775.000	0.06112	46.37	95.45	−0.05059	0.16259	0.0953	289.35
800.000	0.05916	48.80	99.51	−0.04543	0.16229	0.0953	294.02
			p = 4.00 MPa				
165.000	2.96561	−96.87	−95.52	−0.66635	0.34547	0.1624	653.46
170.000	2.93068	−95.16	−93.79	−0.65604	0.34529	0.1615	636.54
175.000	2.89559	−93.45	−92.07	−0.64603	0.34540	0.1605	620.50

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm³	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 4.00 MPa				
180.000	2.86028	−91.74	−90.34	−0.63629	0.34588	0.1594	605.14
185.000	2.82468	−90.02	−88.61	−0.62680	0.34682	0.1582	590.28
190.000	2.78870	−88.30	−86.87	−0.61753	0.34827	0.1570	575.77
195.000	2.75226	−86.58	−85.12	−0.60846	0.35029	0.1557	561.46
200.000	2.71523	−84.84	−83.37	−0.59956	0.35294	0.1545	547.23
205.000	2.67750	−83.09	−81.59	−0.59081	0.35629	0.1532	532.97
210.000	2.63893	−81.32	−79.80	−0.58217	0.36043	0.1520	518.59
215.000	2.59936	−79.53	−77.99	−0.57364	0.36544	0.1507	503.99
220.000	2.55861	−77.71	−76.15	−0.56517	0.37149	0.1495	489.08
225.000	2.51644	−75.86	−74.27	−0.55674	0.37874	0.1483	473.76
230.000	2.47259	−73.97	−72.36	−0.54832	0.38747	0.1471	457.93
235.000	2.42673	−72.04	−70.39	−0.53988	0.39803	0.1460	441.50
240.000	2.37842	−70.05	−68.37	−0.53137	0.41097	0.1449	424.32
245.000	2.32709	−68.00	−66.28	−0.52274	0.42709	0.1438	406.25
250.000	2.27173	−65.85	−64.09	−0.51390	0.44666	0.1432	386.12
255.000	2.21173	−63.60	−61.79	−0.50479	0.47501	0.1425	365.52
260.000	2.14477	−61.19	−59.32	−0.49520	0.51465	0.1421	342.20
265.000	2.06742	−58.54	−56.61	−0.48487	0.57524	0.1425	314.59
270.000	1.97261	−55.52	−53.49	−0.47322	0.68369	0.1451	279.88
275.000	0.36826	−13.33	−2.47	−0.28538	0.52687	0.1370	143.29
280.000	0.34241	−11.75	−0.06	−0.27670	0.44374	0.1320	147.66
285.000	0.32240	−10.39	2.02	−0.26933	0.39188	0.1279	151.50
289.774	0.30675	−9.24	3.80	−0.26312	0.35734	0.1247	154.82
300.000	0.28040	−7.08	7.18	−0.25164	0.30877	0.1193	161.15
320.000	0.24457	−3.56	12.79	−0.23353	0.25814	0.1122	171.57
340.000	0.21959	−0.55	17.66	−0.21876	0.23123	0.1077	180.42
360.000	0.20058	2.17	22.11	−0.20605	0.21461	0.1047	188.29
380.000	0.18537	4.70	26.28	−0.19476	0.20343	0.1026	195.46
400.000	0.17277	7.12	30.27	−0.18454	0.19546	0.1010	202.12
425.000	0.15965	10.00	35.06	−0.17292	0.18829	0.0996	209.88
450.000	0.14867	12.79	39.70	−0.16231	0.18311	0.0987	217.16
475.000	0.13930	15.51	44.22	−0.15252	0.17922	0.0979	224.06
500.000	0.13118	18.17	48.67	−0.14341	0.17622	0.0974	230.63
525.000	0.12404	20.79	53.04	−0.13487	0.17386	0.0970	236.92
550.000	0.11771	23.38	57.36	−0.12682	0.17195	0.0966	242.99
575.000	0.11204	25.94	61.64	−0.11922	0.17039	0.0964	248.85
600.000	0.10694	28.48	65.88	−0.11199	0.16909	0.0962	254.53
625.000	0.10231	31.00	70.10	−0.10511	0.16800	0.0960	260.04
650.000	0.09809	33.51	74.29	−0.09854	0.16707	0.0959	265.41
675.000	0.09422	36.00	78.45	−0.09225	0.16628	0.0958	270.65
700.000	0.09066	38.48	82.60	−0.08622	0.16559	0.0957	275.76
725.000	0.08737	40.95	86.73	−0.08042	0.16499	0.0956	280.76
750.000	0.08432	43.42	90.85	−0.07483	0.16447	0.0955	285.65
775.000	0.08149	45.87	94.96	−0.06945	0.16401	0.0955	290.44
800.000	0.07885	48.32	99.05	−0.06425	0.16360	0.0954	295.15
			p = 5.00 MPa				
165.000	2.97055	−97.00	−95.31	−0.66713	0.34478	0.1626	657.31
170.000	2.93591	−95.29	−93.59	−0.65685	0.34452	0.1617	640.46
175.000	2.90114	−93.59	−91.87	−0.64686	0.34452	0.1606	624.50
180.000	2.86616	−91.89	−90.14	−0.63715	0.34488	0.1595	609.25
185.000	2.83092	−90.18	−88.42	−0.62769	0.34566	0.1583	594.51
190.000	2.79533	−88.47	−86.69	−0.61846	0.34693	0.1571	580.13
195.000	2.75932	−86.76	−84.95	−0.60942	0.34873	0.1559	565.99
200.000	2.72277	−85.03	−83.20	−0.60057	0.35112	0.1546	551.96
205.000	2.68559	−83.30	−81.44	−0.59186	0.35416	0.1533	537.93
210.000	2.64763	−81.54	−79.66	−0.58328	0.35792	0.1521	523.82
215.000	2.60876	−79.77	−77.86	−0.57481	0.36247	0.1508	509.52
220.000	2.56882	−77.98	−76.03	−0.56641	0.36794	0.1496	494.97
225.000	2.52760	−76.15	−74.17	−0.55808	0.37448	0.1484	480.07
230.000	2.48488	−74.29	−72.28	−0.54976	0.38228	0.1472	464.74

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm^3	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 5.00 MPa				
235.000	2.44037	−72.40	−70.35	−0.54144	0.39163	0.1460	448.88
240.000	2.39372	−70.45	−68.36	−0.53308	0.40292	0.1449	432.41
245.000	2.34448	−68.45	−66.32	−0.52464	0.41673	0.1438	415.18
250.000	2.29179	−66.37	−64.19	−0.51604	0.43279	0.1430	396.21
255.000	2.23541	−64.20	−61.97	−0.50725	0.45567	0.1423	377.11
260.000	2.17365	−61.92	−59.62	−0.49812	0.48586	0.1416	356.16
265.000	2.10444	−59.46	−57.09	−0.48849	0.52817	0.1413	332.45
270.000	2.02422	−56.77	−54.30	−0.47807	0.59263	0.1421	304.72
275.000	1.92571	−53.68	−51.08	−0.46626	0.70697	0.1451	270.74
280.000	1.78815	−49.76	−46.97	−0.45144	0.99774	0.1541	224.66
285.000	0.50983	−16.76	−6.95	−0.30963	0.90768	0.1474	143.05
289.774	0.45837	−14.37	−3.47	−0.29750	0.61145	0.1380	147.85
300.000	0.39615	−10.97	1.65	−0.28013	0.42683	0.1286	156.13
320.000	0.32963	−6.34	8.83	−0.25694	0.31123	0.1181	168.49
340.000	0.28937	−2.77	14.51	−0.23968	0.26293	0.1118	178.39
360.000	0.26082	0.31	19.48	−0.22548	0.23618	0.1077	186.94
380.000	0.23892	3.10	24.02	−0.21319	0.21926	0.1048	194.59
400.000	0.22129	5.69	28.29	−0.20226	0.20767	0.1028	201.60
425.000	0.20334	8.76	33.34	−0.18999	0.19757	0.1010	209.70
450.000	0.18859	11.68	38.19	−0.17891	0.19044	0.0997	217.23
475.000	0.17617	14.50	42.88	−0.16876	0.18519	0.0987	224.32
500.000	0.16550	17.25	47.46	−0.15937	0.18120	0.0980	231.05
525.000	0.15621	19.94	51.95	−0.15060	0.17807	0.0975	237.47
550.000	0.14801	22.59	56.37	−0.14238	0.17558	0.0971	243.64
575.000	0.14072	25.20	60.73	−0.13462	0.17355	0.0968	249.59
600.000	0.13417	27.78	65.05	−0.12727	0.17188	0.0965	255.34
625.000	0.12825	30.34	69.33	−0.12028	0.17048	0.0963	260.92
650.000	0.12287	32.88	73.57	−0.11362	0.16930	0.0961	266.34
675.000	0.11796	35.41	77.79	−0.10725	0.16828	0.0960	271.62
700.000	0.11344	37.92	81.99	−0.10115	0.16741	0.0958	276.78
725.000	0.10928	40.41	86.17	−0.09529	0.16666	0.0957	281.81
750.000	0.10543	42.90	90.32	−0.08965	0.16599	0.0957	286.73
775.000	0.10185	45.38	94.47	−0.08422	0.16541	0.0956	291.55
800.000	0.09852	47.85	98.59	−0.07897	0.16489	0.0955	296.28
			p = 6.00 MPa				
165.000	2.97542	−97.12	−95.11	−0.66791	0.34412	0.1628	661.10
170.000	2.94107	−95.43	−93.39	−0.65765	0.34377	0.1619	644.31
175.000	2.90659	−93.73	−91.67	−0.64768	0.34368	0.1608	628.44
180.000	2.87193	−92.04	−89.95	−0.63800	0.34391	0.1597	613.27
185.000	2.83704	−90.34	−88.23	−0.62857	0.34455	0.1585	598.65
190.000	2.80183	−88.64	−86.50	−0.61937	0.34565	0.1573	584.41
195.000	2.76623	−86.94	−84.77	−0.61037	0.34725	0.1560	570.42
200.000	2.73014	−85.23	−83.03	−0.60155	0.34940	0.1547	556.57
205.000	2.69347	−83.50	−81.28	−0.59289	0.35216	0.1535	542.76
210.000	2.65609	−81.76	−79.51	−0.58437	0.35557	0.1522	528.89
215.000	2.61789	−80.01	−77.72	−0.57595	0.35971	0.1509	514.88
220.000	2.57870	−78.23	−75.91	−0.56763	0.36467	0.1497	500.66
225.000	2.53836	76.43	−74.07	0.55937	0.37058	0.1485	486.14
230.000	2.49666	−74.60	−72.20	−0.55115	0.37758	0.1473	471.26
235.000	2.45338	−72.74	−70.29	−0.54294	0.38590	0.1461	455.93
240.000	2.40820	−70.83	−68.34	−0.53472	0.39584	0.1449	440.07
245.000	2.36077	−68.87	−66.33	−0.52643	0.40782	0.1438	423.58
250.000	2.31037	−66.85	−64.25	−0.51803	0.42116	0.1429	405.58
255.000	2.25695	−64.76	−62.10	−0.50951	0.44018	0.1421	387.64
260.000	2.19922	−62.57	−59.84	−0.50074	0.46413	0.1413	368.39
265.000	2.13582	−60.25	−57.44	−0.49161	0.49583	0.1407	347.25
270.000	2.06467	−57.77	−54.86	−0.48196	0.53997	0.1406	323.53
275.000	1.98221	−55.03	−52.01	−0.47149	0.60641	0.1416	296.31
280.000	1.88146	−51.91	−48.72	−0.45964	0.72084	0.1447	264.03
285.000	1.74452	−48.01	−44.58	−0.44498	0.98503	0.1524	223.43

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm^3	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 6.00 MPa				
289.774	1.49253	−41.76	−37.74	−0.42122	2.55498	0.1791	162.07
300.000	0.57268	−16.60	−6.12	−0.31311	0.77906	0.1435	150.78
320.000	0.43260	−9.60	4.26	−0.27948	0.39188	0.1245	165.70
340.000	0.36806	−5.21	11.09	−0.25876	0.30385	0.1161	176.69
360.000	0.32636	−1.68	16.71	−0.24270	0.26192	0.1108	185.89
380.000	0.29593	1.41	21.68	−0.22925	0.23729	0.1072	193.99
400.000	0.27222	4.22	26.26	−0.21751	0.22117	0.1046	201.33
425.000	0.24864	7.47	31.60	−0.20454	0.20755	0.1023	209.72
450.000	0.22964	10.54	36.67	−0.19296	0.19819	0.1007	217.48
475.000	0.21384	13.48	41.53	−0.18243	0.19142	0.0996	224.74
500.000	0.20041	16.31	46.25	−0.17275	0.18633	0.0987	231.60
525.000	0.18880	19.08	50.86	−0.16376	0.18239	0.0981	238.13
550.000	0.17863	21.79	55.38	−0.15535	0.17927	0.0975	244.39
575.000	0.16962	24.46	59.83	−0.14743	0.17676	0.0971	250.41
600.000	0.16157	27.09	64.22	−0.13996	0.17469	0.0968	256.23
625.000	0.15432	29.69	68.57	−0.13286	0.17297	0.0966	261.86
650.000	0.14775	32.26	72.87	−0.12611	0.17152	0.0963	267.33
675.000	0.14175	34.82	77.14	−0.11966	0.17029	0.0962	272.65
700.000	0.13626	37.35	81.39	−0.11348	0.16923	0.0960	277.84
725.000	0.13121	39.88	85.61	−0.10756	0.16831	0.0959	282.90
750.000	0.12654	42.39	89.80	−0.10187	0.16751	0.0958	287.85
775.000	0.12221	44.89	93.98	−0.09639	0.16680	0.0957	292.69
800.000	0.11818	47.37	98.14	−0.09110	0.16618	0.0956	297.44
			p = 8.00 MPa				
165.000	2.98496	−97.37	−94.69	−0.66945	0.34285	0.1632	668.51
170.000	2.95115	−95.68	−92.97	−0.65922	0.34236	0.1622	651.84
175.000	2.91725	−94.01	−91.26	−0.64930	0.34208	0.1612	636.11
180.000	2.88320	−92.33	−89.55	−0.63966	0.34210	0.1600	621.12
185.000	2.84896	−90.65	−87.84	−0.63029	0.34249	0.1588	606.70
190.000	2.81446	−88.97	−86.13	−0.62114	0.34328	0.1576	592.71
195.000	2.77964	−87.29	−84.41	−0.61221	0.34452	0.1563	579.01
200.000	2.74441	−85.60	−82.68	−0.60347	0.34624	0.1550	565.49
205.000	2.70869	−83.90	−80.95	−0.59489	0.34850	0.1537	552.07
210.000	2.67238	−82.19	−79.20	−0.58646	0.35131	0.1525	538.64
215.000	2.63537	−80.47	−77.43	−0.57816	0.35474	0.1512	525.15
220.000	2.59755	−78.73	−75.65	−0.56995	0.35884	0.1499	511.51
225.000	2.55877	−76.97	−73.84	−0.56184	0.36369	0.1487	497.66
230.000	2.51889	−75.18	−72.01	−0.55378	0.36939	0.1475	483.55
235.000	2.47773	−73.37	−70.15	−0.54577	0.37608	0.1463	469.12
240.000	2.43507	−71.53	−68.25	−0.53777	0.38392	0.1451	454.30
245.000	2.39067	−69.65	−66.30	−0.52976	0.39316	0.1440	439.04
250.000	2.34420	−67.72	−64.31	−0.52171	0.40411	0.1429	423.27
255.000	2.29516	−65.74	−62.26	−0.51357	0.41656	0.1419	406.40
260.000	2.24338	−63.70	−60.13	−0.50533	0.43296	0.1410	389.44
265.000	2.18795	−61.58	−57.92	−0.49690	0.45306	0.1401	371.51
270.000	2.12795	−59.35	−55.60	−0.48821	0.47841	0.1394	352.32
275.000	2.06208	−57.00	−53.12	−0.47914	0.51133	0.1391	331.59
280.000	1.98846	−54.49	−50.46	−0.46955	0.55577	0.1393	309.06
285.000	1.90413	−51.74	−47.54	−0.45919	0.62049	0.1403	284.74
289.774	1.80895	−48.80	−44.38	−0.44820	0.71121	0.1425	258.56
300.000	1.50791	−40.41	−35.11	−0.41681	1.21637	0.1534	195.22
320.000	0.74011	−18.64	−7.83	−0.32850	0.77552	0.1406	163.10
340.000	0.56161	−10.96	3.28	−0.29470	0.42836	0.1249	175.26
360.000	0.47620	−6.09	10.71	−0.27344	0.32877	0.1170	185.23
380.000	0.42135	−2.23	16.76	−0.25709	0.28057	0.1119	193.92
400.000	0.38159	1.10	22.06	−0.24348	0.25204	0.1083	201.71
425.000	0.34406	4.81	28.06	−0.22892	0.22953	0.1051	210.54
450.000	0.31497	8.20	33.60	−0.21625	0.21481	0.1028	218.61
475.000	0.29144	11.39	38.84	−0.20493	0.20451	0.1012	226.11
500.000	0.27185	14.42	43.85	−0.19464	0.19698	0.1001	233.17

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm³	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 8.00 MPa				
525.000	0.25516	17.35	48.70	−0.18517	0.19126	0.0991	239.86
550.000	0.24072	20.19	53.42	−0.17638	0.18679	0.0984	246.24
575.000	0.22805	22.97	58.05	−0.16816	0.18323	0.0979	252.37
600.000	0.21681	25.69	62.59	−0.16042	0.18034	0.0975	258.27
625.000	0.20676	28.38	67.07	−0.15311	0.17795	0.0971	263.98
650.000	0.19769	31.02	71.49	−0.14617	0.17595	0.0968	269.51
675.000	0.18946	33.64	75.87	−0.13956	0.17426	0.0966	274.88
700.000	0.18195	36.24	80.21	−0.13325	0.17282	0.0964	280.11
725.000	0.17506	38.81	84.51	−0.12721	0.17157	0.0962	285.22
750.000	0.16872	41.37	88.79	−0.12141	0.17049	0.0961	290.20
775.000	0.16285	43.91	93.04	−0.11584	0.16954	0.0960	295.07
800.000	0.15740	46.44	97.26	−0.11047	0.16870	0.0959	299.85
			p = 10.00 MPa				
170.000	2.96094	−95.94	−92.56	−0.66076	0.34104	0.1626	659.15
175.000	2.92758	−94.27	−90.86	−0.65088	0.34061	0.1615	643.55
180.000	2.89411	−92.61	−89.15	−0.64129	0.34044	0.1604	628.71
185.000	2.86048	−90.95	−87.45	−0.63196	0.34059	0.1592	614.48
190.000	2.82665	−89.28	−85.75	−0.62287	0.34111	0.1579	600.70
195.000	2.79254	−87.62	−84.04	−0.61400	0.34204	0.1566	587.25
200.000	2.75810	−85.95	−82.33	−0.60532	0.34340	0.1553	574.03
205.000	2.72324	−84.28	−80.60	−0.59682	0.34523	0.1541	560.94
210.000	2.68789	−82.59	−78.87	−0.58847	0.34754	0.1528	547.91
215.000	2.65195	−80.90	−77.13	−0.58026	0.35038	0.1515	534.86
220.000	2.61533	−79.19	−75.37	−0.57217	0.35378	0.1502	521.72
225.000	2.57792	−77.47	−73.59	−0.56418	0.35779	0.1490	508.45
230.000	2.53960	−75.73	−71.79	−0.55626	0.36248	0.1477	495.00
235.000	2.50023	−73.96	−69.96	−0.54841	0.36793	0.1465	481.31
240.000	2.45965	−72.17	−68.11	−0.54060	0.37424	0.1453	467.34
245.000	2.41768	−70.35	−66.22	−0.53281	0.38156	0.1442	453.05
250.000	2.37411	−68.50	−64.29	−0.52502	0.39005	0.1430	438.40
255.000	2.32869	−66.61	−62.32	−0.51720	0.39995	0.1419	423.34
260.000	2.28103	−64.67	−60.29	−0.50932	0.41124	0.1410	407.50
265.000	2.23094	−62.68	−58.20	−0.50135	0.42530	0.1400	391.53
270.000	2.17780	−60.62	−56.03	−0.49325	0.44208	0.1391	374.87
275.000	2.12099	−58.48	−53.77	−0.48496	0.46238	0.1383	357.40
280.000	2.05970	−56.25	−51.40	−0.47641	0.48734	0.1377	339.03
285.000	1.99291	−53.90	−48.89	−0.46753	0.51958	0.1375	320.05
289.774	1.92268	−51.52	−46.32	−0.45861	0.55647	0.1376	300.47
300.000	1.74284	−45.81	−40.07	−0.43741	0.67846	0.1381	257.87
320.000	1.21663	−30.74	−22.52	−0.38093	1.03208	0.1435	186.35
340.000	0.81956	−18.06	−5.86	−0.33029	0.61872	0.1322	179.88
360.000	0.65494	−11.10	4.17	−0.30156	0.41776	0.1226	187.73
380.000	0.56279	−6.19	11.58	−0.28151	0.33317	0.1162	195.99
400.000	0.50095	−2.21	17.75	−0.26569	0.28754	0.1117	203.71
425.000	0.44556	2.03	24.48	−0.24936	0.25372	0.1077	212.58
450.000	0.40424	5.80	30.54	−0.23549	0.23258	0.1049	220.74
475.000	0.37170	9.26	36.16	−0.22333	0.21824	0.1029	228.32
500.000	0.34511	12.51	41.48	−0.21241	0.20797	0.1014	235.44
525.000	0.32280	15.60	46.58	−0.20245	0.20030	0.1002	242.19
550.000	0.30369	18.58	51.51	−0.19328	0.19439	0.0993	248.62
575.000	0.28708	21.48	56.31	−0.18474	0.18973	0.0987	254.79
600.000	0.27246	24.30	61.01	−0.17675	0.18597	0.0981	260.72
625.000	0.25945	27.07	65.61	−0.16922	0.18289	0.0977	266.46
650.000	0.24777	29.80	70.15	−0.16210	0.18033	0.0973	272.01
675.000	0.23722	32.48	74.63	−0.15534	0.17817	0.0970	277.40
700.000	0.22763	35.13	79.07	−0.14889	0.17634	0.0967	282.65
725.000	0.21885	37.76	83.45	−0.14273	0.17476	0.0965	287.76
750.000	0.21079	40.37	87.81	−0.13683	0.17340	0.0964	292.76
775.000	0.20335	42.95	92.13	−0.13117	0.17220	0.0962	297.64
800.000	0.19645	45.52	96.42	−0.12572	0.17115	0.0961	302.42

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm³	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
				p = 12.00 MPa			
170.000	2.97047	−96.18	−92.14	−0.66226	0.33981	0.1630	666.24
175.000	2.93762	−94.53	−90.44	−0.65242	0.33924	0.1619	650.76
180.000	2.90469	−92.88	−88.75	−0.64287	0.33890	0.1608	636.06
185.000	2.87164	−91.23	−87.05	−0.63358	0.33885	0.1595	621.99
190.000	2.83842	−89.59	−85.36	−0.62454	0.33914	0.1583	608.41
195.000	2.80498	−87.94	−83.66	−0.61573	0.33979	0.1570	595.19
200.000	2.77126	−86.29	−81.96	−0.60711	0.34083	0.1557	582.23
205.000	2.73720	−84.64	−80.25	−0.59868	0.34229	0.1544	569.44
210.000	2.70272	−82.98	−78.54	−0.59041	0.34418	0.1531	556.75
215.000	2.66774	−81.31	−76.81	−0.58228	0.34652	0.1518	544.08
220.000	2.63219	−79.63	−75.07	−0.57429	0.34934	0.1505	531.39
225.000	2.59598	−77.94	−73.32	−0.56640	0.35268	0.1493	518.62
230.000	2.55901	−76.23	−71.54	−0.55861	0.35656	0.1481	505.72
235.000	2.52118	−74.51	−69.75	−0.55089	0.36105	0.1468	492.66
240.000	2.48235	−72.76	−67.93	−0.54324	0.36620	0.1456	479.40
245.000	2.44241	−71.00	−66.09	−0.53563	0.37209	0.1444	465.91
250.000	2.40119	−69.21	−64.21	−0.52804	0.37883	0.1433	452.17
255.000	2.35852	−67.38	−62.30	−0.52047	0.38655	0.1421	438.13
260.000	2.31412	−65.52	−60.34	−0.51287	0.39498	0.1411	423.51
265.000	2.26794	−63.63	−58.34	−0.50525	0.40545	0.1400	408.90
270.000	2.21957	−61.69	−56.28	−0.49756	0.41745	0.1390	393.88
275.000	2.16866	−59.69	−54.16	−0.48978	0.43137	0.1381	378.41
280.000	2.11481	−57.64	−51.97	−0.48186	0.44764	0.1372	362.45
285.000	2.05754	−55.51	−49.68	−0.47378	0.46761	0.1365	346.31
289.774	1.99910	−53.40	−47.40	−0.46585	0.48834	0.1360	329.88
300.000	1.85881	−48.58	−42.13	−0.44796	0.54703	0.1343	295.55
320.000	1.50555	−37.52	−29.55	−0.40743	0.71825	0.1343	231.57
340.000	1.11038	−25.43	−14.62	−0.36218	0.70708	0.1330	198.15
360.000	0.85900	−16.51	−2.55	−0.32761	0.50819	0.1261	195.72
380.000	0.71865	−10.39	6.31	−0.30365	0.38994	0.1196	201.09
400.000	0.62905	−5.67	13.40	−0.28544	0.32554	0.1146	207.75
425.000	0.55216	−0.82	20.91	−0.26722	0.27913	0.1101	216.07
450.000	0.49669	3.35	27.51	−0.25213	0.25094	0.1068	223.97
475.000	0.45401	7.10	33.53	−0.23909	0.23224	0.1044	231.42
500.000	0.41972	10.58	39.17	−0.22753	0.21907	0.1026	238.46
525.000	0.39131	13.85	44.52	−0.21709	0.20936	0.1012	245.16
550.000	0.36723	16.98	49.65	−0.20753	0.20196	0.1002	251.56
575.000	0.34646	19.99	54.63	−0.19868	0.19617	0.0994	257.69
600.000	0.32828	22.92	59.47	−0.19044	0.19153	0.0987	263.61
625.000	0.31220	25.78	64.21	−0.18270	0.18775	0.0982	269.32
650.000	0.29784	28.58	68.87	−0.17540	0.18462	0.0978	274.86
675.000	0.28490	31.33	73.45	−0.16848	0.18200	0.0974	280.23
700.000	0.27317	34.04	77.97	−0.16190	0.17977	0.0971	285.47
725.000	0.26247	36.72	82.44	−0.15563	0.17787	0.0968	290.57
750.000	0.25267	39.37	86.86	−0.14962	0.17622	0.0966	295.55
775.000	0.24363	42.00	91.25	−0.14387	0.17479	0.0965	300.42
800.000	0.23528	44.60	95.61	−0.13834	0.17353	0.0963	305.18
				p = 14.00 MPa			
170.000	2.97973	−96.42	−91.72	−0.66373	0.33866	0.1635	673.14
175.000	2.94737	−94.78	−90.03	−0.65393	0.33796	0.1624	657.76
180.000	2.91496	−93.14	−88.34	−0.64441	0.33747	0.1612	643.19
185.000	2.88245	−91.51	−86.65	−0.63517	0.33724	0.1599	629.27
190.000	2.84982	−89.88	−84.97	−0.62618	0.33732	0.1586	615.86
195.000	2.81700	−88.25	−83.28	−0.61741	0.33773	0.1573	602.84
200.000	2.78395	−86.62	−81.59	−0.60885	0.33850	0.1560	590.11
205.000	2.75061	−84.98	−79.89	−0.60048	0.33964	0.1547	577.59
210.000	2.71692	−83.34	−78.19	−0.59228	0.34116	0.1534	565.20
215.000	2.68282	−81.70	−76.48	−0.58423	0.34308	0.1522	552.88
220.000	2.64824	−80.05	−74.76	−0.57631	0.34542	0.1509	540.57
225.000	2.61310	−78.38	−73.03	−0.56852	0.34819	0.1496	528.23

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm³	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 14.00 MPa				
230.000	2.57732	−76.71	−71.28	−0.56083	0.35142	0.1484	515.82
235.000	2.54082	−75.02	−69.51	−0.55324	0.35514	0.1471	503.30
240.000	2.50351	−73.32	−67.72	−0.54572	0.35938	0.1459	490.64
245.000	2.46527	−71.59	−65.92	−0.53826	0.36420	0.1447	477.83
250.000	2.42601	−69.85	−64.08	−0.53085	0.36964	0.1436	464.82
255.000	2.38558	−68.09	−62.22	−0.52347	0.37579	0.1424	451.62
260.000	2.34386	−66.29	−60.32	−0.51610	0.38274	0.1413	438.21
265.000	2.30063	−64.47	−58.39	−0.50874	0.39035	0.1402	424.39
270.000	2.25583	−62.62	−56.41	−0.50136	0.39938	0.1391	410.56
275.000	2.20917	−60.73	−54.39	−0.49394	0.40954	0.1381	396.47
280.000	2.16042	−58.80	−52.32	−0.48646	0.42105	0.1371	382.10
285.000	2.10933	−56.82	−50.18	−0.47889	0.43481	0.1362	367.77
289.774	2.05806	−54.88	−48.07	−0.47157	0.44821	0.1355	353.28
300.000	1.93887	−50.54	−43.32	−0.45544	0.48329	0.1329	323.67
320.000	1.66127	−41.20	−32.77	−0.42143	0.57558	0.1302	267.55
340.000	1.33993	−30.96	−20.51	−0.38429	0.63094	0.1300	226.44
360.000	1.06422	−21.70	−8.54	−0.35006	0.54802	0.1268	210.86
380.000	0.88168	−14.62	1.26	−0.32354	0.43677	0.1217	210.13
400.000	0.76267	−9.18	9.18	−0.30321	0.36127	0.1169	214.25
425.000	0.66217	−3.71	17.43	−0.28318	0.30403	0.1120	221.15
450.000	0.59123	0.89	24.56	−0.26686	0.26910	0.1084	228.37
475.000	0.53760	4.94	30.99	−0.25297	0.24609	0.1058	235.44
500.000	0.49510	8.65	36.93	−0.24078	0.23003	0.1038	242.24
525.000	0.46026	12.11	42.52	−0.22986	0.21828	0.1022	248.77
550.000	0.43098	15.38	47.86	−0.21992	0.20939	0.1010	255.04
575.000	0.40589	18.52	53.01	−0.21077	0.20247	0.1001	261.08
600.000	0.38406	21.55	58.00	−0.20227	0.19695	0.0993	266.92
625.000	0.36483	24.49	62.86	−0.19432	0.19248	0.0987	272.57
650.000	0.34772	27.37	67.63	−0.18685	0.18879	0.0982	278.05
675.000	0.33236	30.19	72.31	−0.17978	0.18571	0.0978	283.37
700.000	0.31847	32.96	76.92	−0.17308	0.18311	0.0974	288.56
725.000	0.30583	35.69	81.47	−0.16669	0.18088	0.0971	293.63
750.000	0.29427	38.39	85.97	−0.16059	0.17896	0.0969	298.57
775.000	0.28364	41.06	90.42	−0.15475	0.17729	0.0967	303.41
800.000	0.27382	43.70	94.83	−0.14915	0.17583	0.0965	308.15
			p = 16.00 MPa				
170.000	2.98876	−96.65	−91.29	−0.66517	0.33758	0.1639	679.86
175.000	2.95687	−95.02	−89.61	−0.65540	0.33676	0.1628	664.57
180.000	2.92494	−93.40	−87.93	−0.64592	0.33614	0.1616	650.11
185.000	2.89295	−91.78	−86.25	−0.63672	0.33575	0.1603	636.32
190.000	2.86086	−90.16	−84.57	−0.62777	0.33565	0.1590	623.07
195.000	2.82862	−88.54	−82.89	−0.61905	0.33584	0.1577	610.23
200.000	2.79619	−86.93	−81.21	−0.61054	0.33637	0.1564	597.71
205.000	2.76353	−85.31	−79.53	−0.60222	0.33723	0.1551	585.43
210.000	2.73057	−83.69	−77.84	−0.59408	0.33843	0.1538	573.31
215.000	2.69727	−82.07	−76.14	−0.58610	0.34000	0.1525	561.30
220.000	2.66356	−80.44	−74.44	−0.57826	0.34192	0.1512	549.33
225.000	2.62938	−78.80	−72.72	−0.57056	0.34422	0.1500	537.37
230.000	2.59466	−77.16	−70.99	−0.56296	0.34691	0.1487	525.38
235.000	2.55934	−75.50	−69.25	−0.55547	0.35000	0.1475	513.33
240.000	2.52334	−73.83	−67.49	−0.54806	0.35352	0.1463	501.19
245.000	2.48658	−72.15	−65.71	−0.54073	0.35749	0.1451	488.94
250.000	2.44897	−70.45	−63.92	−0.53347	0.36195	0.1439	476.57
255.000	2.41043	−68.73	−62.09	−0.52625	0.36693	0.1427	464.06
260.000	2.37084	−66.99	−60.25	−0.51907	0.37248	0.1416	451.41
265.000	2.33010	−65.23	−58.37	−0.51192	0.37867	0.1404	438.61
270.000	2.28806	−63.45	−56.46	−0.50478	0.38542	0.1394	425.54
275.000	2.24464	−61.64	−54.51	−0.49764	0.39315	0.1383	412.48
280.000	2.19967	−59.80	−52.52	−0.49048	0.40171	0.1372	399.27
285.000	2.15300	−57.92	−50.49	−0.48329	0.41181	0.1362	386.21

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm³	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 16.00 MPa				
289.774	2.10666	−56.10	−48.51	−0.47637	0.42116	0.1353	373.05
300.000	2.00101	−52.08	−44.08	−0.46137	0.44444	0.1323	346.60
320.000	1.76568	−43.70	−34.64	−0.43093	0.50181	0.1284	296.20
340.000	1.49856	−34.74	−24.06	−0.39888	0.54944	0.1276	254.50
360.000	1.24090	−26.02	−13.13	−0.36761	0.53118	0.1260	230.93
380.000	1.03919	−18.58	−3.19	−0.34073	0.45892	0.1225	223.13
400.000	0.89635	−12.59	5.25	−0.31906	0.38826	0.1183	223.38
425.000	0.77317	−6.57	14.13	−0.29753	0.32609	0.1136	227.91
450.000	0.68651	−1.56	21.74	−0.28010	0.28605	0.1099	233.96
475.000	0.62160	2.80	28.54	−0.26540	0.25930	0.1070	240.36
500.000	0.57064	6.74	34.77	−0.25260	0.24056	0.1048	246.74
525.000	0.52920	10.37	40.61	−0.24121	0.22689	0.1031	252.98
550.000	0.49459	13.80	46.15	−0.23091	0.21657	0.1018	259.05
575.000	0.46510	17.06	51.46	−0.22146	0.20856	0.1007	264.93
600.000	0.43956	20.19	56.59	−0.21273	0.20220	0.0999	270.63
625.000	0.41715	23.22	61.58	−0.20458	0.19706	0.0992	276.17
650.000	0.39726	26.17	66.45	−0.19694	0.19283	0.0986	281.56
675.000	0.37946	29.06	71.22	−0.18973	0.18930	0.0982	286.82
700.000	0.36340	31.89	75.92	−0.18290	0.18632	0.0978	291.94
725.000	0.34882	34.68	80.54	−0.17641	0.18378	0.0974	296.94
750.000	0.33550	37.42	85.11	−0.17021	0.18160	0.0972	301.83
775.000	0.32328	40.13	89.63	−0.16429	0.17970	0.0969	306.62
800.000	0.31200	42.82	94.10	−0.15861	0.17804	0.0967	311.31
			p = 20.00 MPa				
170.000	3.00615	−97.09	−90.44	−0.66797	0.33559	0.1649	692.80
175.000	2.97513	−95.48	−88.76	−0.65826	0.33459	0.1637	677.67
180.000	2.94411	−93.88	−87.09	−0.64885	0.33374	0.1625	663.40
185.000	2.91307	−92.29	−85.42	−0.63971	0.33308	0.1612	649.84
190.000	2.88198	−90.70	−83.76	−0.63084	0.33266	0.1599	636.85
195.000	2.85080	−89.11	−82.10	−0.62220	0.33250	0.1585	624.32
200.000	2.81951	−87.53	−80.43	−0.61378	0.33262	0.1572	612.16
205.000	2.78805	−85.94	−78.77	−0.60556	0.33302	0.1559	600.29
210.000	2.75639	−84.36	−77.10	−0.59753	0.33371	0.1546	588.63
215.000	2.72450	−82.77	−75.43	−0.58967	0.33468	0.1533	577.13
220.000	2.69231	−81.18	−73.75	−0.58196	0.33595	0.1520	565.74
225.000	2.65979	−79.59	−72.07	−0.57439	0.33751	0.1507	554.42
230.000	2.62689	−77.99	−70.38	−0.56695	0.33936	0.1495	543.14
235.000	2.59357	−76.39	−68.68	−0.55963	0.34150	0.1483	531.86
240.000	2.55976	−74.78	−66.96	−0.55242	0.34394	0.1470	520.56
245.000	2.52542	−73.16	−65.24	−0.54530	0.34668	0.1458	509.24
250.000	2.49050	−71.53	−63.50	−0.53826	0.34973	0.1446	497.87
255.000	2.45494	−69.89	−61.74	−0.53131	0.35310	0.1434	486.46
260.000	2.41868	−68.23	−59.96	−0.52441	0.35679	0.1423	474.99
265.000	2.38167	−66.57	−58.17	−0.51758	0.36082	0.1411	463.46
270.000	2.34384	−64.89	−56.36	−0.51080	0.36521	0.1400	451.89
275.000	2.30510	−63.19	−54.52	−0.50405	0.36988	0.1388	440.22
280.000	2.26545	−61.48	−52.66	−0.49734	0.37506	0.1377	428.60
285.000	2.22479	−59.76	−50.77	−0.49065	0.38115	0.1367	417.28
289.774	2.18496	−58.09	−48.94	−0.48428	0.38629	0.1356	405.88
300.000	2.09613	−54.47	−44.92	−0.47068	0.39826	0.1323	383.51
320.000	1.90773	−47.18	−36.69	−0.44413	0.42587	0.1272	340.71
340.000	1.70245	−39.64	−27.89	−0.41746	0.45283	0.1254	301.75
360.000	1.49315	−32.10	−18.70	−0.39120	0.46170	0.1242	272.87
380.000	1.30075	−24.99	−9.61	−0.36662	0.44270	0.1222	255.76
400.000	1.14030	−18.66	−1.12	−0.34484	0.40464	0.1194	247.98
425.000	0.98648	−11.93	8.34	−0.32187	0.35366	0.1155	246.11
450.000	0.87301	−6.26	16.64	−0.30288	0.31229	0.1119	248.51
475.000	0.78707	−1.36	24.05	−0.28686	0.28168	0.1089	252.75
500.000	0.71970	3.01	30.80	−0.27301	0.25924	0.1065	257.76

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm³	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 20.00 MPa				
525.000	0.66524	6.99	37.06	−0.26078	0.24253	0.1046	263.07
550.000	0.62008	10.70	42.95	−0.24981	0.22979	0.1031	268.46
575.000	0.58184	14.20	48.57	−0.23982	0.21988	0.1019	273.83
600.000	0.54892	17.53	53.97	−0.23064	0.21200	0.1009	279.14
625.000	0.52018	20.74	59.18	−0.22212	0.20563	0.1001	284.35
650.000	0.49480	23.84	64.26	−0.21416	0.20040	0.0994	289.47
675.000	0.47216	26.85	69.21	−0.20668	0.19605	0.0988	294.49
700.000	0.45181	29.80	74.06	−0.19961	0.19238	0.0984	299.41
725.000	0.43339	32.69	78.83	−0.19292	0.18925	0.0980	304.24
750.000	0.41660	35.52	83.53	−0.18655	0.18657	0.0976	308.97
775.000	0.40123	38.32	88.17	−0.18047	0.18424	0.0974	313.62
800.000	0.38709	41.08	92.75	−0.17465	0.18221	0.0971	318.18
			p = 30.00 MPa				
175.000	3.01711	−96.54	−86.59	−0.66495	0.33013	0.1661	707.83
180.000	2.98805	−94.98	−84.95	−0.65567	0.32888	0.1648	693.89
185.000	2.95904	−93.44	−83.30	−0.64667	0.32776	0.1635	680.73
190.000	2.93005	−91.91	−81.67	−0.63794	0.32679	0.1621	668.21
195.000	2.90108	−90.38	−80.04	−0.62947	0.32602	0.1608	656.24
200.000	2.87209	−88.85	−78.41	−0.62122	0.32543	0.1594	644.71
205.000	2.84308	−87.33	−76.78	−0.61319	0.32505	0.1581	633.57
210.000	2.81400	−85.82	−75.16	−0.60536	0.32487	0.1567	622.73
215.000	2.78485	−84.30	−73.53	−0.59771	0.32490	0.1554	612.15
220.000	2.75559	−82.79	−71.91	−0.59024	0.32511	0.1541	601.78
225.000	2.72621	−81.28	−70.28	−0.58293	0.32551	0.1528	591.58
230.000	2.69667	−79.78	−68.65	−0.57577	0.32609	0.1516	581.51
235.000	2.66695	−78.27	−67.02	−0.56875	0.32683	0.1503	571.56
240.000	2.63704	−76.76	−65.38	−0.56186	0.32773	0.1491	561.70
245.000	2.60690	−75.25	−63.74	−0.55509	0.32877	0.1479	551.92
250.000	2.57652	−73.74	−62.10	−0.54844	0.32995	0.1467	542.20
255.000	2.54587	−72.23	−60.44	−0.54189	0.33126	0.1455	532.55
260.000	2.51494	−70.71	−58.78	−0.53545	0.33268	0.1443	522.94
265.000	2.48371	−69.19	−57.12	−0.52910	0.33421	0.1431	513.40
270.000	2.45216	−67.67	−55.44	−0.52283	0.33584	0.1420	503.90
275.000	2.42028	−66.15	−53.76	−0.51666	0.33756	0.1408	494.48
280.000	2.38805	−64.63	−52.06	−0.51056	0.33936	0.1396	485.12
285.000	2.35547	−63.10	−50.36	−0.50454	0.34162	0.1385	476.12
289.774	2.32401	−61.64	−48.73	−0.49885	0.34304	0.1374	467.04
300.000	2.25551	−58.51	−45.21	−0.48690	0.34581	0.1338	449.89
320.000	2.11717	−52.40	−38.23	−0.46439	0.35234	0.1281	416.98
340.000	1.97406	−46.30	−31.10	−0.44279	0.36039	0.1253	384.63
360.000	1.82885	−40.24	−23.83	−0.42201	0.36589	0.1235	356.41
380.000	1.68576	−34.30	−16.50	−0.40220	0.36611	0.1217	333.98
400.000	1.54963	−28.59	−9.23	−0.38355	0.36007	0.1198	317.52
425.000	1.39528	−21.90	−0.40	−0.36214	0.34494	0.1171	304.24
450.000	1.26206	−15.79	7.98	−0.34297	0.32488	0.1144	297.12
475.000	1.14986	−10.26	15.83	−0.32598	0.30377	0.1117	294.22
500.000	1.05613	−5.23	23.18	−0.31090	0.28416	0.1094	294.04
525.000	0.97760	−0.62	30.06	−0.29746	0.26712	0.1073	295.56
550.000	0.91123	3.63	36.56	−0.28538	0.25277	0.1056	298.15
575.000	0.85452	7.61	42.72	−0.27441	0.24085	0.1041	301.38
600.000	0.80550	11.37	48.61	−0.26438	0.23096	0.1029	305.02
625.000	0.76267	14.95	54.28	−0.25512	0.22273	0.1018	308.90
650.000	0.72488	18.38	59.76	−0.24652	0.21584	0.1010	312.93
675.000	0.69124	21.68	65.08	−0.23849	0.21002	0.1003	317.04
700.000	0.66106	24.89	70.27	−0.23094	0.20507	0.0996	321.18
725.000	0.63379	28.01	75.34	−0.22382	0.20083	0.0991	325.33
750.000	0.60900	31.06	80.32	−0.21708	0.19716	0.0987	329.47
775.000	0.58635	34.04	85.21	−0.21067	0.19398	0.0983	333.60
800.000	0.56554	36.97	90.02	−0.20455	0.19119	0.0980	337.69

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm³	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 40.00 MPa				
180.000	3.02736	−95.95	−82.74	−0.66190	0.32516	0.1674	721.33
185.000	3.00002	−94.45	−81.12	−0.65301	0.32375	0.1660	708.41
190.000	2.97274	−92.96	−79.50	−0.64439	0.32246	0.1646	696.19
195.000	2.94553	−91.47	−77.90	−0.63603	0.32130	0.1632	684.56
200.000	2.91836	−90.00	−76.29	−0.62791	0.32029	0.1618	673.44
205.000	2.89123	−88.53	−74.69	−0.62001	0.31944	0.1604	662.75
210.000	2.86412	−87.06	−73.10	−0.61232	0.31875	0.1590	652.44
215.000	2.83702	−85.60	−71.50	−0.60483	0.31821	0.1577	642.44
220.000	2.80990	−84.15	−69.91	−0.59752	0.31782	0.1564	632.72
225.000	2.78277	−82.70	−68.33	−0.59038	0.31756	0.1551	623.23
230.000	2.75560	−81.25	−66.74	−0.58340	0.31744	0.1538	613.94
235.000	2.72837	−79.81	−65.15	−0.57657	0.31744	0.1525	604.82
240.000	2.70108	−78.37	−63.56	−0.56989	0.31754	0.1513	595.86
245.000	2.67371	−76.94	−61.98	−0.56334	0.31774	0.1501	587.03
250.000	2.64625	−75.50	−60.39	−0.55692	0.31802	0.1489	578.33
255.000	2.61870	−74.07	−58.80	−0.55062	0.31837	0.1477	569.73
260.000	2.59103	−72.64	−57.20	−0.54443	0.31879	0.1465	561.25
265.000	2.56325	−71.21	−55.61	−0.53835	0.31926	0.1453	552.86
270.000	2.53535	−69.79	−54.01	−0.53238	0.31977	0.1441	544.57
275.000	2.50732	−68.36	−52.41	−0.52651	0.32030	0.1430	536.38
280.000	2.47917	−66.94	−50.81	−0.52073	0.32086	0.1418	528.30
285.000	2.45088	−65.52	−49.20	−0.51505	0.32176	0.1406	520.59
289.774	2.42374	−64.17	−47.67	−0.50971	0.32198	0.1395	512.80
300.000	2.36521	−61.28	−44.37	−0.49854	0.32183	0.1359	498.40
320.000	2.24931	−55.72	−37.94	−0.47777	0.32236	0.1300	470.70
340.000	2.13208	−50.23	−31.47	−0.45815	0.32486	0.1270	442.60
360.000	2.01463	−44.80	−24.95	−0.43952	0.32672	0.1249	416.90
380.000	1.89855	−39.48	−18.41	−0.42185	0.32666	0.1229	394.93
400.000	1.78568	−34.30	−11.90	−0.40515	0.32420	0.1208	376.98
425.000	1.65184	−28.08	−3.86	−0.38567	0.31779	0.1182	359.89
450.000	1.52862	−22.20	3.97	−0.36776	0.30829	0.1157	347.96
475.000	1.41756	−16.68	11.53	−0.35139	0.29678	0.1133	340.17
500.000	1.31891	−11.53	18.80	−0.33648	0.28444	0.1110	335.54
525.000	1.23199	−6.71	25.76	−0.32290	0.27219	0.1090	333.25
550.000	1.15565	−2.20	32.42	−0.31051	0.26069	0.1073	332.65
575.000	1.08851	2.05	38.80	−0.29916	0.25023	0.1057	333.28
600.000	1.02927	6.07	44.94	−0.28871	0.24094	0.1044	334.78
625.000	0.97673	9.90	50.86	−0.27904	0.23277	0.1032	336.90
650.000	0.92987	13.57	56.58	−0.27005	0.22564	0.1023	339.47
675.000	0.88783	17.09	62.15	−0.26166	0.21942	0.1014	342.35
700.000	0.84991	20.50	67.56	−0.25378	0.21400	0.1007	345.46
725.000	0.81551	23.80	72.85	−0.24635	0.20925	0.1001	348.72
750.000	0.78416	27.02	78.03	−0.23933	0.20509	0.0996	352.09
775.000	0.75543	30.16	83.11	−0.23267	0.20143	0.0991	355.54
800.000	0.72901	33.24	88.10	−0.22632	0.19818	0.0987	359.04
			p = 50.00 MPa				
180.000	3.06298	−96.82	−80.49	−0.66765	0.32220	0.1700	746.47
185.000	3.03706	−95.35	−78.89	−0.65884	0.32061	0.1686	733.70
190.000	3.01123	−93.89	−77.29	−0.65031	0.31911	0.1671	721.65
195.000	2.98548	−92.44	−75.70	−0.64204	0.31771	0.1656	710.24
200.000	2.95981	−91.00	−74.11	−0.63401	0.31643	0.1642	699.37
205.000	2.93422	−89.57	−72.53	−0.62621	0.31527	0.1628	688.99
210.000	2.90869	−88.15	−70.96	−0.61863	0.31425	0.1614	679.02
215.000	2.88321	−86.73	−69.39	−0.61125	0.31335	0.1600	669.41
220.000	2.85778	−85.32	−67.82	−0.60405	0.31258	0.1586	660.12
225.000	2.83238	−83.91	−66.26	−0.59703	0.31192	0.1573	651.11
230.000	2.80700	−82.52	−64.70	−0.59018	0.31137	0.1560	642.34
235.000	2.78164	−81.12	−63.15	−0.58349	0.31091	0.1548	633.79
240.000	2.75629	−79.73	−61.59	−0.57695	0.31054	0.1535	625.44
245.000	2.73094	−78.35	−60.04	−0.57055	0.31025	0.1523	617.25

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm^3	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 50.00 MPa				
250.000	2.70559	−76.97	−58.49	−0.56429	0.31002	0.1511	609.23
255.000	2.68022	−75.60	−56.94	−0.55815	0.30984	0.1499	601.35
260.000	2.65483	−74.23	−55.39	−0.55213	0.30971	0.1487	593.61
265.000	2.62941	−72.86	−53.85	−0.54623	0.30961	0.1475	586.00
270.000	2.60398	−71.50	−52.30	−0.54045	0.30954	0.1463	578.51
275.000	2.57851	−70.14	−50.75	−0.53477	0.30947	0.1451	571.14
280.000	2.55302	−68.79	−49.20	−0.52919	0.30942	0.1440	563.89
285.000	2.52750	−67.44	−47.66	−0.52372	0.30965	0.1428	557.03
289.774	2.50309	−66.15	−46.18	−0.51858	0.30931	0.1417	550.07
300.000	2.45075	−63.42	−43.02	−0.50787	0.30783	0.1380	537.46
320.000	2.34817	−58.18	−36.89	−0.48809	0.30576	0.1320	513.19
340.000	2.24567	−53.04	−30.78	−0.46955	0.30588	0.1289	488.05
360.000	2.14385	−47.98	−24.66	−0.45207	0.30594	0.1267	464.55
380.000	2.04349	−43.01	−18.55	−0.43554	0.30500	0.1245	443.82
400.000	1.94549	−38.17	−12.47	−0.41995	0.30284	0.1223	426.10
425.000	1.82766	−32.30	−4.95	−0.40171	0.29846	0.1196	408.03
450.000	1.71646	−26.69	2.44	−0.38482	0.29243	0.1170	394.12
475.000	1.61303	−21.33	9.66	−0.36920	0.28511	0.1146	383.76
500.000	1.51796	−16.25	16.69	−0.35478	0.27697	0.1124	376.37
525.000	1.43134	−11.42	23.51	−0.34147	0.26844	0.1104	371.36
550.000	1.35289	−6.84	30.11	−0.32918	0.25993	0.1086	368.22
575.000	1.28203	−2.49	36.51	−0.31781	0.25173	0.1070	366.56
600.000	1.21808	1.66	42.70	−0.30726	0.24402	0.1056	366.04
625.000	1.16031	5.62	48.71	−0.29744	0.23692	0.1044	366.40
650.000	1.10801	9.43	54.56	−0.28828	0.23046	0.1033	367.43
675.000	1.06053	13.10	60.24	−0.27969	0.22462	0.1024	368.99
700.000	1.01728	16.64	65.79	−0.27162	0.21937	0.1016	370.94
725.000	0.97774	20.08	71.22	−0.26401	0.21466	0.1009	373.20
750.000	0.94148	23.42	76.53	−0.25680	0.21044	0.1003	375.70
775.000	0.90809	26.68	81.74	−0.24996	0.20666	0.0998	378.38
800.000	0.87725	29.87	86.86	−0.24346	0.20327	0.0993	381.20
			p = 70.00 MPa				
190.000	3.07856	−95.47	−72.73	−0.66090	0.31419	0.1722	767.23
195.000	3.05518	−94.08	−71.17	−0.65276	0.31252	0.1707	756.03
200.000	3.03191	−92.70	−69.61	−0.64487	0.31094	0.1691	745.42
205.000	3.00874	−91.32	−68.06	−0.63721	0.30945	0.1676	735.35
210.000	2.98567	−89.96	−66.51	−0.62977	0.30805	0.1661	725.76
215.000	2.96269	−88.60	−64.98	−0.62254	0.30676	0.1647	716.59
220.000	2.93979	−87.26	−63.45	−0.61550	0.30555	0.1633	707.80
225.000	2.91699	−85.92	−61.92	−0.60865	0.30444	0.1619	699.34
230.000	2.89426	−84.59	−60.40	−0.60197	0.30342	0.1605	691.20
235.000	2.87161	−83.26	−58.89	−0.59545	0.30247	0.1592	683.32
240.000	2.84903	−81.95	−57.38	−0.58909	0.30158	0.1579	675.70
245.000	2.82653	−80.64	−55.87	−0.58288	0.30076	0.1566	668.30
250.000	2.80408	−79.33	−54.37	−0.57682	0.29999	0.1554	661.11
255.000	2.78170	−78.03	−52.87	−0.57088	0.29927	0.1541	654.12
260.000	2.75938	−76.74	−51.38	−0.56508	0.29857	0.1529	647.30
265.000	2.73712	−75.46	−49.89	−0.55940	0.29790	0.1517	640.64
270.000	2.71491	−74.18	−48.40	−0.55383	0.29725	0.1505	634.15
275.000	2.69276	−72.91	−46.91	−0.54839	0.29661	0.1493	627.81
280.000	2.67067	−71.64	−45.43	−0.54305	0.29598	0.1481	621.61
285.000	2.64863	−70.38	−43.95	−0.53781	0.29558	0.1469	615.80
289.774	2.62764	−69.18	−42.54	−0.53291	0.29473	0.1458	609.88
300.000	2.58284	−66.64	−39.54	−0.52273	0.29209	0.1421	599.52
320.000	2.49598	−61.79	−33.75	−0.50404	0.28781	0.1359	579.63
340.000	2.41025	−57.06	−28.01	−0.48665	0.28597	0.1327	558.49
360.000	2.32589	−52.40	−22.31	−0.47035	0.28446	0.1302	538.34
380.000	2.24319	−47.84	−16.64	−0.45502	0.28249	0.1279	520.09
400.000	2.16244	−43.38	−11.01	−0.44059	0.27998	0.1255	503.89

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm³	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 70.00 MPa				
425.000	2.06469	−37.96	−4.06	−0.42373	0.27619	0.1225	486.39
450.000	1.97097	−32.72	2.79	−0.40806	0.27187	0.1197	471.73
475.000	1.88173	−27.67	9.53	−0.39348	0.26716	0.1171	459.62
500.000	1.79728	−22.80	16.15	−0.37991	0.26216	0.1148	449.79
525.000	1.71781	−18.11	22.64	−0.36724	0.25698	0.1126	441.95
550.000	1.64337	−13.60	29.00	−0.35541	0.25171	0.1108	435.83
575.000	1.57389	−9.25	35.22	−0.34433	0.24646	0.1091	431.17
600.000	1.50921	−5.06	41.32	−0.33395	0.24131	0.1076	427.75
625.000	1.44909	−1.02	47.29	−0.32421	0.23633	0.1063	425.37
650.000	1.39326	2.90	53.14	−0.31503	0.23157	0.1051	423.86
675.000	1.34140	6.69	58.87	−0.30638	0.22706	0.1041	423.07
700.000	1.29322	10.37	64.49	−0.29820	0.22283	0.1032	422.89
725.000	1.24841	13.94	70.01	−0.29045	0.21888	0.1024	423.21
750.000	1.20669	17.43	75.44	−0.28309	0.21522	0.1017	423.95
775.000	1.16777	20.83	80.78	−0.27609	0.21182	0.1011	425.03
800.000	1.13141	24.16	86.03	−0.26941	0.20868	0.1005	426.41
			p = 100.00 MPa				
200.000	3.12097	−94.66	−62.62	−0.65869	0.30564	0.1763	805.27
205.000	3.10050	−93.35	−61.10	−0.65116	0.30393	0.1747	795.31
210.000	3.08013	−92.05	−59.59	−0.64386	0.30230	0.1731	785.87
215.000	3.05986	−90.76	−58.08	−0.63676	0.30074	0.1715	776.91
220.000	3.03969	−89.47	−56.58	−0.62987	0.29926	0.1699	768.38
225.000	3.01961	−88.20	−55.08	−0.62316	0.29786	0.1684	760.24
230.000	2.99963	−86.94	−53.60	−0.61663	0.29652	0.1670	752.47
235.000	2.97975	−85.68	−52.12	−0.61026	0.29525	0.1656	745.03
240.000	2.95996	−84.43	−50.65	−0.60406	0.29404	0.1642	737.89
245.000	2.94026	−83.19	−49.18	−0.59801	0.29288	0.1628	731.03
250.000	2.92065	−81.96	−47.72	−0.59210	0.29176	0.1615	724.43
255.000	2.90113	−80.73	−46.26	−0.58634	0.29069	0.1602	718.07
260.000	2.88171	−79.51	−44.81	−0.58070	0.28964	0.1589	711.93
265.000	2.86237	−78.30	−43.36	−0.57519	0.28863	0.1576	705.99
270.000	2.84312	−77.10	−41.92	−0.56981	0.28763	0.1563	700.26
275.000	2.82395	−75.90	−40.49	−0.56454	0.28664	0.1550	694.71
280.000	2.80488	−74.71	−39.06	−0.55938	0.28567	0.1538	689.33
285.000	2.78589	−73.53	−37.63	−0.55434	0.28489	0.1525	684.35
289.774	2.76784	−72.40	−36.28	−0.54962	0.28378	0.1513	679.28
300.000	2.72945	−70.03	−33.39	−0.53983	0.28049	0.1475	670.74
320.000	2.65546	−65.50	−27.84	−0.52192	0.27507	0.1412	654.55
340.000	2.58295	−61.08	−22.37	−0.50533	0.27225	0.1377	637.04
360.000	2.51202	−56.75	−16.95	−0.48983	0.26996	0.1350	620.23
380.000	2.44276	−52.51	−11.57	−0.47530	0.26743	0.1325	604.87
400.000	2.37525	−48.35	−6.25	−0.46166	0.26456	0.1298	591.02
425.000	2.29345	−43.29	0.31	−0.44574	0.26067	0.1265	575.62
450.000	2.21464	−38.37	6.78	−0.43095	0.25663	0.1234	562.12
475.000	2.13891	−33.61	13.15	−0.41718	0.25259	0.1205	550.31
500.000	2.06633	−28.98	19.41	−0.40433	0.24860	0.1179	540.03
525.000	1.99691	−24.50	25.58	−0.39229	0.24472	0.1156	531.13
550.000	1.93067	−20.15	31.65	−0.38100	0.24096	0.1135	523.50
575.000	1.86757	−15.92	37.63	−0.37037	0.23731	0.1117	517.00
600.000	1.80756	−11.81	43.51	−0.36034	0.23378	0.1100	511.54
625.000	1.75057	−7.81	49.32	−0.35087	0.23036	0.1086	507.00
650.000	1.69650	−3.91	55.03	−0.34190	0.22707	0.1073	503.28
675.000	1.64524	−0.11	60.67	−0.33339	0.22391	0.1061	500.28
700.000	1.59667	3.60	66.23	−0.32530	0.22088	0.1051	497.93
725.000	1.55065	7.23	71.72	−0.31760	0.21799	0.1042	496.15
750.000	1.50706	10.78	77.13	−0.31026	0.21523	0.1034	494.87
775.000	1.46574	14.25	82.48	−0.30324	0.21261	0.1026	494.03
800.000	1.42657	17.67	87.76	−0.29653	0.21013	0.1020	493.58

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm³	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 125.00 MPa				
210.000	3.14561	−93.40	−53.66	−0.65388	0.29906	0.1785	830.54
215.000	3.12708	−92.14	−52.17	−0.64686	0.29740	0.1768	821.55
220.000	3.10864	−90.89	−50.69	−0.64004	0.29582	0.1752	813.02
225.000	3.09029	−89.66	−49.21	−0.63341	0.29430	0.1736	804.91
230.000	3.07202	−88.43	−47.74	−0.62696	0.29285	0.1720	797.19
235.000	3.05384	−87.21	−46.28	−0.62067	0.29146	0.1705	789.84
240.000	3.03576	−86.00	−44.83	−0.61455	0.29013	0.1690	782.82
245.000	3.01776	−84.80	−43.38	−0.60858	0.28884	0.1676	776.10
250.000	2.99984	−83.61	−41.94	−0.60276	0.28760	0.1662	769.68
255.000	2.98202	−82.42	−40.50	−0.59708	0.28640	0.1648	763.53
260.000	2.96428	−81.24	−39.08	−0.59153	0.28522	0.1634	757.62
265.000	2.94663	−80.07	−37.65	−0.58610	0.28408	0.1620	751.96
270.000	2.92907	−78.91	−36.23	−0.58081	0.28295	0.1607	746.51
275.000	2.91159	−77.75	−34.82	−0.57562	0.28185	0.1594	741.27
280.000	2.89421	−76.60	−33.42	−0.57056	0.28075	0.1580	736.23
285.000	2.87691	−75.46	−32.01	−0.56560	0.27983	0.1567	731.60
289.774	2.86048	−74.38	−30.68	−0.56096	0.27863	0.1555	726.89
300.000	2.82555	−72.09	−27.85	−0.55135	0.27512	0.1515	719.16
320.000	2.75832	−67.73	−22.41	−0.53380	0.26933	0.1450	704.70
340.000	2.69256	−63.48	−17.06	−0.51757	0.26623	0.1413	689.06
360.000	2.62833	−59.32	−11.76	−0.50243	0.26373	0.1385	674.10
380.000	2.56567	−55.23	−6.51	−0.48824	0.26104	0.1358	660.49
400.000	2.50462	−51.23	−1.32	−0.47492	0.25808	0.1329	648.21
425.000	2.43064	−46.34	5.08	−0.45939	0.25414	0.1294	634.50
450.000	2.35926	−41.59	11.39	−0.44498	0.25012	0.1261	622.32
475.000	2.29052	−36.98	17.59	−0.43157	0.24617	0.1231	611.45
500.000	2.22438	−32.50	23.70	−0.41904	0.24236	0.1203	601.74
525.000	2.16084	−28.14	29.71	−0.40730	0.23873	0.1177	593.07
550.000	2.09984	−23.89	35.64	−0.39627	0.23530	0.1155	585.36
575.000	2.04134	−19.76	41.48	−0.38589	0.23206	0.1135	578.54
600.000	1.98528	−15.72	47.24	−0.37608	0.22899	0.1117	572.54
625.000	1.93160	−11.78	52.93	−0.36679	0.22608	0.1102	567.29
650.000	1.88022	−7.94	58.54	−0.35797	0.22331	0.1088	562.73
675.000	1.83108	−4.17	64.09	−0.34960	0.22067	0.1075	558.81
700.000	1.78408	−0.48	69.58	−0.34162	0.21816	0.1064	555.47
725.000	1.73916	3.13	75.00	−0.33400	0.21577	0.1054	552.66
750.000	1.69622	6.68	80.37	−0.32673	0.21348	0.1045	550.33
775.000	1.65518	10.16	85.68	−0.31976	0.21130	0.1037	548.44
800.000	1.61595	13.58	90.93	−0.31309	0.20922	0.1030	546.94
			p = 150.00 MPa				
220.000	3.16827	−92.04	−44.69	−0.64900	0.29320	0.1801	854.45
225.000	3.15135	−90.83	−43.23	−0.64243	0.29161	0.1784	846.26
230.000	3.13450	−89.63	−41.78	−0.63604	0.29010	0.1767	838.48
235.000	3.11773	−88.44	−40.33	−0.62982	0.28864	0.1751	831.08
240.000	3.10103	−87.26	−38.89	−0.62376	0.28724	0.1736	824.04
245.000	3.08441	−86.09	−37.46	−0.61785	0.28588	0.1720	817.32
250.000	3.06787	−84.92	−36.03	−0.61208	0.28457	0.1705	810.92
255.000	3.05140	−83.77	−34.61	−0.60646	0.28330	0.1690	804.81
260.000	3.03501	−82.62	−33.20	−0.60097	0.28206	0.1676	798.97
265.000	3.01870	−81.48	−31.79	−0.59561	0.28085	0.1662	793.39
270.000	3.00247	−80.35	−30.39	−0.59037	0.27966	0.1648	788.05
275.000	2.98632	−79.22	−28.99	−0.58525	0.27849	0.1634	782.94
280.000	2.97025	−78.10	−27.60	−0.58024	0.27733	0.1620	778.05
285.000	2.95426	−76.99	−26.22	−0.57535	0.27633	0.1606	773.58
289.774	2.93906	−75.94	−24.91	−0.57077	0.27509	0.1593	769.05
300.000	2.90677	−73.71	−22.11	−0.56129	0.27148	0.1552	761.73
320.000	2.84460	−69.48	−16.75	−0.54398	0.26552	0.1485	748.28
340.000	2.78380	−65.35	−11.47	−0.52798	0.26230	0.1446	733.83
360.000	2.72439	−61.31	−6.25	−0.51306	0.25973	0.1416	720.14

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm³	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 150.00 MPa				
380.000	2.66643	−57.34	−1.08	−0.49909	0.25702	0.1387	707.81
400.000	2.60993	−53.44	4.03	−0.48598	0.25406	0.1357	696.77
425.000	2.54141	−48.69	10.33	−0.47070	0.25014	0.1320	684.48
450.000	2.47524	−44.06	16.54	−0.45651	0.24616	0.1285	673.55
475.000	2.41140	−39.56	22.64	−0.44331	0.24226	0.1253	663.71
500.000	2.34988	−35.18	28.65	−0.43098	0.23852	0.1223	654.80
525.000	2.29061	−30.92	34.57	−0.41943	0.23498	0.1197	646.71
550.000	2.23356	−26.76	40.40	−0.40857	0.23166	0.1173	639.36
575.000	2.17864	−22.70	46.15	−0.39834	0.22857	0.1152	632.70
600.000	2.12581	−18.73	51.83	−0.38868	0.22567	0.1133	626.67
625.000	2.07500	−14.85	57.44	−0.37952	0.22297	0.1116	621.25
650.000	2.02614	−11.05	62.98	−0.37083	0.22043	0.1101	616.39
675.000	1.97915	−7.33	68.46	−0.36255	0.21805	0.1088	612.05
700.000	1.93399	−3.68	73.88	−0.35466	0.21581	0.1076	608.21
725.000	1.89057	−0.09	79.25	−0.34713	0.21368	0.1065	604.83
750.000	1.84884	3.44	84.57	−0.33992	0.21167	0.1055	601.87
775.000	1.80872	6.91	89.84	−0.33301	0.20975	0.1047	599.32
800.000	1.77016	10.32	95.06	−0.32638	0.20793	0.1039	597.13
			p = 200.00 MPa				
240.000	3.20911	−89.11	−26.79	−0.63933	0.28297	0.1817	900.04
245.000	3.19469	−87.98	−25.38	−0.63351	0.28153	0.1800	893.09
250.000	3.18032	−86.86	−23.97	−0.62783	0.28014	0.1783	886.49
255.000	3.16600	−85.75	−22.58	−0.62230	0.27879	0.1767	880.19
260.000	3.15173	−84.64	−21.19	−0.61690	0.27748	0.1751	874.20
265.000	3.13752	−83.55	−19.80	−0.61163	0.27620	0.1735	868.50
270.000	3.12336	−82.46	−18.42	−0.60647	0.27495	0.1720	863.07
275.000	3.10926	−81.38	−17.05	−0.60144	0.27372	0.1705	857.89
280.000	3.09522	−80.30	−15.69	−0.59652	0.27251	0.1689	852.97
285.000	3.08123	−79.24	−14.33	−0.59171	0.27144	0.1674	848.48
289.774	3.06793	−78.22	−13.03	−0.58721	0.27018	0.1660	844.00
300.000	3.03963	−76.09	−10.29	−0.57790	0.26649	0.1617	836.78
320.000	2.98501	−72.03	−5.03	−0.56091	0.26043	0.1545	823.91
340.000	2.93142	−68.08	0.15	−0.54523	0.25719	0.1503	810.49
360.000	2.87892	−64.20	5.27	−0.53060	0.25467	0.1470	798.10
380.000	2.82755	−60.40	10.33	−0.51690	0.25205	0.1437	787.25
400.000	2.77735	−56.66	15.35	−0.50404	0.24922	0.1405	777.78
425.000	2.71630	−52.10	21.53	−0.48905	0.24548	0.1365	767.49
450.000	2.65715	−47.65	27.62	−0.47512	0.24168	0.1327	758.50
475.000	2.59992	−43.31	33.61	−0.46216	0.23794	0.1291	750.46
500.000	2.54459	−39.08	39.52	−0.45004	0.23434	0.1259	743.16
525.000	2.49113	−34.95	45.33	−0.43869	0.23092	0.1230	736.45
550.000	2.43948	−30.92	51.07	−0.42803	0.22772	0.1204	730.23
575.000	2.38960	−26.97	56.72	−0.41797	0.22473	0.1180	724.45
600.000	2.34142	−23.11	62.30	−0.40847	0.22195	0.1159	719.06
625.000	2.29489	−19.33	67.82	−0.39946	0.21937	0.1141	714.04
650.000	2.24992	−15.62	73.27	−0.39090	0.21698	0.1124	709.36
675.000	2.20647	−11.97	78.67	−0.38276	0.21477	0.1109	705.03
700.000	2.16447	−8.39	84.01	−0.37498	0.21271	0.1096	701.01
725.000	2.12388	−4.86	89.31	−0.36755	0.21080	0.1084	697.31
750.000	2.08462	−1.39	94.55	−0.36044	0.20900	0.1073	693.91
775.000	2.04665	2.04	99.76	−0.35361	0.20733	0.1063	690.80
800.000	2.00992	5.42	104.92	−0.34705	0.20575	0.1054	687.96
			p = 250.00 MPa				
250.000	3.27058	−88.15	−11.72	−0.64078	0.27681	0.1851	957.01
255.000	3.25794	−87.07	−10.33	−0.63531	0.27539	0.1833	950.39
260.000	3.24534	−85.99	−8.96	−0.62998	0.27402	0.1816	944.09
265.000	3.23277	−84.93	−7.59	−0.62477	0.27268	0.1799	938.09
270.000	3.22024	−83.87	−6.23	−0.61969	0.27138	0.1782	932.37

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm³	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 250.00 MPa				
275.000	3.20774	−82.82	−4.88	−0.61472	0.27011	0.1766	926.92
280.000	3.19527	−81.77	−3.53	−0.60986	0.26886	0.1749	921.74
285.000	3.18285	−80.74	−2.19	−0.60512	0.26774	0.1733	917.00
289.774	3.17102	−79.76	−0.92	−0.60068	0.26648	0.1718	912.32
300.000	3.14579	−77.68	1.79	−0.59150	0.26276	0.1673	904.65
320.000	3.09695	−73.75	6.98	−0.57475	0.25669	0.1597	891.22
340.000	3.04881	−69.92	12.08	−0.55930	0.25351	0.1551	877.65
360.000	3.00143	−66.17	17.12	−0.54487	0.25111	0.1515	865.41
380.000	2.95486	−62.48	22.12	−0.53136	0.24867	0.1480	854.95
400.000	2.90918	−58.87	27.07	−0.51867	0.24604	0.1444	846.08
425.000	2.85337	−54.44	33.18	−0.50386	0.24257	0.1402	836.75
450.000	2.79908	−50.12	39.20	−0.49010	0.23905	0.1361	828.88
475.000	2.74634	−45.90	45.13	−0.47726	0.23556	0.1323	822.06
500.000	2.69517	−41.78	50.98	−0.46527	0.23217	0.1289	815.98
525.000	2.64557	−37.76	56.74	−0.45402	0.22894	0.1257	810.46
550.000	2.59752	−33.82	62.42	−0.44344	0.22587	0.1229	805.36
575.000	2.55099	−29.97	68.03	−0.43347	0.22299	0.1204	800.59
600.000	2.50594	−26.19	73.58	−0.42403	0.22030	0.1182	796.09
625.000	2.46231	−22.48	79.05	−0.41509	0.21778	0.1161	791.82
650.000	2.42006	−18.84	84.47	−0.40660	0.21545	0.1143	787.78
675.000	2.37913	−15.25	89.82	−0.39851	0.21328	0.1127	783.93
700.000	2.33948	−11.73	95.13	−0.39079	0.21127	0.1113	780.28
725.000	2.30104	−8.26	100.39	−0.38341	0.20940	0.1100	776.82
750.000	2.26376	−4.83	105.60	−0.37634	0.20766	0.1088	773.55
775.000	2.22761	−1.45	110.77	−0.36955	0.20604	0.1077	770.46
800.000	2.19253	1.88	115.90	−0.36304	0.20453	0.1068	767.56
			p = 300.00 MPa				
260.000	3.32274	−86.89	3.39	−0.64100	0.27121	0.1872	1011.12
265.000	3.31151	−85.85	4.75	−0.63585	0.26980	0.1854	1004.78
270.000	3.30031	−84.81	6.09	−0.63082	0.26843	0.1836	998.73
275.000	3.28913	−83.78	7.43	−0.62591	0.26710	0.1819	992.95
280.000	3.27796	−82.76	8.76	−0.62110	0.26580	0.1802	987.44
285.000	3.26683	−81.74	10.09	−0.61641	0.26462	0.1784	982.37
289.774	3.25621	−80.78	11.35	−0.61203	0.26334	0.1768	977.39
300.000	3.23354	−78.75	14.02	−0.60296	0.25956	0.1721	969.07
320.000	3.18949	−74.91	19.15	−0.58642	0.25345	0.1642	954.52
340.000	3.14586	−71.18	24.18	−0.57116	0.25031	0.1593	940.13
360.000	3.10271	−67.53	29.16	−0.55692	0.24801	0.1554	927.31
380.000	3.06011	−63.93	34.10	−0.54357	0.24572	0.1516	916.49
400.000	3.01811	−60.41	38.99	−0.53103	0.24330	0.1479	907.47
425.000	2.96655	−56.09	45.03	−0.51637	0.24013	0.1433	898.25
450.000	2.91612	−51.88	51.00	−0.50274	0.23691	0.1390	890.74
475.000	2.86689	−47.76	56.88	−0.49001	0.23373	0.1350	884.48
500.000	2.81893	−43.74	62.68	−0.47810	0.23063	0.1314	879.11
525.000	2.77227	−39.80	68.41	−0.46692	0.22765	0.1281	874.38
550.000	2.72692	−35.95	74.07	−0.45640	0.22480	0.1251	870.12
575.000	2.68287	−32.17	79.65	−0.44647	0.22209	0.1225	866.18
600.000	2.64011	−28.46	85.17	−0.43707	0.21953	0.1201	862.50
625.000	2.59862	−24.81	90.63	−0.42816	0.21712	0.1179	859.00
650.000	2.55835	−21.23	96.03	−0.41969	0.21486	0.1160	855.66
675.000	2.51927	−17.71	101.38	−0.41162	0.21275	0.1143	852.45
700.000	2.48134	−14.23	106.67	−0.40392	0.21077	0.1127	849.35
725.000	2.44451	−10.81	111.92	−0.39655	0.20893	0.1113	846.36
750.000	2.40875	−7.43	117.12	−0.38950	0.20721	0.1101	843.47
775.000	2.37400	−4.09	122.28	−0.38273	0.20560	0.1089	840.69
800.000	2.34023	−0.79	127.40	−0.37623	0.20410	0.1079	838.02

TABLE 29. Thermodynamic properties of xenon - single-phase region — Continued

T K	ρ g/cm³	u J/g	h J/g	s J/(g·K)	c_p J/(g·K)	c_v J/(g·K)	w m/s
			p = 350.00 MPa				
280.000	3.34778	−83.40	21.15	−0.63075	0.26318	0.1847	1051.32
285.000	3.33772	−82.40	22.46	−0.62611	0.26193	0.1829	1045.92
289.774	3.32813	−81.45	23.71	−0.62177	0.26061	0.1812	1040.64
300.000	3.30763	−79.46	26.36	−0.61279	0.25673	0.1763	1031.62
320.000	3.26768	−75.69	31.42	−0.59645	0.25051	0.1681	1015.77
340.000	3.22794	−72.03	36.40	−0.58136	0.24733	0.1630	1000.26
360.000	3.18848	−68.45	41.32	−0.56729	0.24507	0.1588	986.47
380.000	3.14933	−64.93	46.20	−0.55410	0.24289	0.1548	974.84
400.000	3.11056	−61.48	51.03	−0.54170	0.24061	0.1508	965.18
425.000	3.06271	−57.26	57.01	−0.52720	0.23770	0.1461	955.40
450.000	3.01565	−53.14	62.92	−0.51369	0.23478	0.1416	947.60
475.000	2.96948	−49.11	68.75	−0.50108	0.23191	0.1374	941.30
500.000	2.92427	−45.17	74.52	−0.48925	0.22913	0.1336	936.11
525.000	2.88009	−41.31	80.21	−0.47814	0.22644	0.1302	931.72
550.000	2.83698	−37.53	85.84	−0.46767	0.22386	0.1271	927.92
575.000	2.79497	−33.82	91.40	−0.45777	0.22139	0.1243	924.53
600.000	2.75406	−30.17	96.91	−0.44840	0.21903	0.1218	921.45
625.000	2.71427	−26.59	102.36	−0.43950	0.21679	0.1195	918.57
650.000	2.67556	−23.06	107.75	−0.43104	0.21466	0.1175	915.84
675.000	2.63792	−19.59	113.09	−0.42298	0.21264	0.1157	913.22
700.000	2.60133	−16.16	118.38	−0.41528	0.21074	0.1140	910.69
725.000	2.56575	−12.78	123.63	−0.40792	0.20895	0.1126	908.22
750.000	2.53115	−9.45	128.83	−0.40086	0.20727	0.1112	905.81
775.000	2.49749	−6.15	133.99	−0.39409	0.20568	0.1100	903.45
800.000	2.46473	−2.89	139.12	−0.38758	0.20420	0.1089	901.15

TABLE 30. Thermodynamic properties of xenon - critical region

T K	p MPa	u J/g	s J/(g·K)	c_v J/(g·K)	T K	p MPa	u J/g	s J/(g·K)	c_v J/(g·K)
				ρ = 0.650 g·cm⁻³					
286.000	5.3715	−21.258	−0.3331	0.1791	292.000	5.7692	−20.232	−0.3295	0.1645
287.000	5.4387	−21.081	−0.3325	0.1759	300.000	6.2841	−18.968	−0.3253	0.1524
288.000	5.5055	−20.906	−0.3319	0.1732	295.000	5.9640	−19.746	−0.3279	0.1593
289.000	5.5720	−20.735	−0.3313	0.1708	305.000	6.6000	−18.220	−0.3228	0.1470
290.000	5.6380	−20.565	−0.3307	0.1685	310.000	6.9126	−17.496	−0.3204	0.1428
291.000	5.7038	−20.397	−0.3301	0.1664					
				ρ = 0.700 g·cm⁻³					
287.000	5.4986	−22.711	−0.3402	0.1997	292.000	5.8642	−21.793	−0.3371	0.1745
288.000	5.5730	−22.517	−0.3396	0.1902	295.000	6.0786	−21.280	−0.3353	0.1675
289.000	5.6465	−22.330	−0.3389	0.1845	300.000	6.4308	−20.466	−0.3326	0.1585
290.000	5.7195	−22.147	−0.3383	0.1805	305.000	6.7779	−19.691	−0.3300	0.1517
291.000	5.7920	−21.968	−0.3377	0.1773	310.000	7.1213	−18.947	−0.3276	0.1464
				ρ = 0.750 g·cm⁻³					
288.000	5.6167	−24.114	−0.3470	0.2230	295.000	6.1697	−22.781	−0.3424	0.1757
289.000	5.6977	−23.901	−0.3462	0.2050	300.000	6.5537	−21.932	−0.3395	0.1645
290.000	5.7776	−23.701	−0.3455	0.1954	305.000	6.9322	−21.132	−0.3369	0.1562
291.000	5.8569	−23.509	−0.3449	0.1894	310.000	7.3067	−20.367	−0.3344	0.1499
292.000	5.9357	−23.322	−0.3442	0.1851					

TABLE 30. Thermodynamic properties of xenon - critical region — Continued

T K	p MPa	u J/g	s J/(g·K)	c_v J/(g·K)	T K	p MPa	u J/g	s J/(g·K)	c_v J/(g·K)
				ρ = 0.800 g·cm^{-3}					
289.000	5.7304	−25.447	−0.3532	0.2375	295.000	6.2417	−24.246	−0.3491	0.1836
290.000	5.8173	−25.222	−0.3524	0.2150	300.000	6.6573	−23.364	−0.3461	0.1700
291.000	5.9033	−25.013	−0.3517	0.2033	305.000	7.0671	−22.539	−0.3434	0.1603
292.000	5.9885	−24.814	−0.3510	0.1961	310.000	7.4730	−21.757	−0.3409	0.1530
				ρ = 0.850 g·cm^{-3}					
289.000	5.7489	−26.965	−0.3599	0.2860	295.000	6.2986	−25.669	−0.3555	0.1907
290.000	5.8428	−26.705	−0.3590	0.2408	300.000	6.7452	−24.758	−0.3524	0.1749
291.000	5.9353	−26.476	−0.3583	0.2191	305.000	7.1864	−23.912	−0.3496	0.1638
292.000	6.0268	−26.263	−0.3575	0.2075	310.000	7.6238	−23.115	−0.3470	0.1556
				ρ = 0.900 g·cm^{-3}					
290.000	5.8579	−28.146	−0.3653	0.2723	300.000	6.8212	−26.114	−0.3584	0.1789
291.000	5.9566	−27.893	−0.3645	0.2366	305.000	7.2937	−25.251	−0.3556	0.1666
292.000	6.0542	−27.667	−0.3637	0.2187	310.000	7.7629	−24.442	−0.3529	0.1576
295.000	6.3440	−27.049	−0.3616	0.1967					
				ρ = 0.950 g·cm^{-3}					
290.000	5.8658	−29.540	−0.3713	0.3069	300.000	6.8885	−27.431	−0.3642	0.1818
291.000	5.9704	−29.262	−0.3704	0.2544	305.000	7.3924	−26.557	−0.3613	0.1686
292.000	6.0738	−29.022	−0.3695	0.2292	310.000	7.8938	−25.739	−0.3586	0.1590
295.000	6.3811	−28.385	−0.3674	0.2014					
				ρ = 1.000 g·cm^{-3}					
290.000	5.8694	−30.880	−0.3770	0.3395	300.000	6.9502	−28.711	−0.3696	0.1836
291.000	5.9793	−30.580	−0.3760	0.2702	305.000	7.4858	−27.829	−0.3667	0.1697
292.000	6.0882	−30.328	−0.3751	0.2378	310.000	8.0201	−27.007	−0.3641	0.1597
295.000	6.4127	−29.676	−0.3729	0.2045					
				ρ = 1.050 g·cm^{-3}					
290.000	5.8708	−32.162	−0.3824	0.3632	300.000	7.0092	−29.955	−0.3749	0.1842
291.000	5.9856	−31.845	−0.3813	0.2812	305.000	7.5771	−29.071	−0.3720	0.1700
292.000	6.0998	−31.585	−0.3804	0.2433	310.000	8.1453	−28.248	−0.3693	0.1597
295.000	6.4411	−30.925	−0.3782	0.2059					
				ρ = 1.100 g·cm^{-3}					
290.000	5.8717	−33.380	−0.3875	0.3717	300.000	7.0680	−31.166	−0.3799	0.1837
291.000	5.9909	−33.057	−0.3864	0.2846	305.000	7.6695	−30.286	−0.3770	0.1694
292.000	6.1102	−32.795	−0.3855	0.2445	310.000	8.2730	−29.466	−0.3744	0.1591
295.000	6.4687	−32.134	−0.3832	0.2056					
				ρ = 1.150 g·cm^{-3}					
290.000	5.8726	−34.534	−0.3922	0.3614	292.000	6.1205	−33.962	−0.3903	0.2410
291.000	5.9960	−34.219	−0.3912	0.2790	295.000	6.4965	−33.308	−0.3880	0.2036
300.000	7.1284	−32.349	−0.3848	0.1820	310.000	8.4057	−30.663	−0.3793	0.1580
305.000	7.7651	−31.476	−0.3819	0.1680					
				ρ = 1.200 g·cm^{-3}					
290.000	5.8741	−35.631	−0.3968	0.3338	300.000	7.1938	−33.508	−0.3896	0.1794
291.000	6.0023	−35.336	−0.3957	0.2650	305.000	7.8682	−32.646	−0.3867	0.1659
292.000	6.1322	−35.089	−0.3949	0.2328	310.000	8.5482	−31.842	−0.3841	0.1563
295.000	6.5271	−34.451	−0.3927	0.1999					

TABLE 30. Thermodynamic properties of xenon - critical region — Continued

T K	p MPa	u J/g	s J/(g·K)	c_v J/(g·K)	T K	p MPa	u J/g	s J/(g·K)	c_v J/(g·K)
				ρ = 1.250 g·cm^{-3}					
290.000	5.8771	−36.685	−0.4011	0.2947	300.000	7.2681	−34.647	−0.3942	0.1759
291.000	6.0111	−36.418	−0.4002	0.2452	305.000	7.9831	−33.801	−0.3914	0.1633
292.000	6.1475	−36.186	−0.3994	0.2214	310.000	8.7055	−33.009	−0.3888	0.1542
295.000	6.5633	−35.570	−0.3973	0.1948					
				ρ = 1.300 g·cm^{-3}					
290.000	5.8832	−37.715	−0.4052	0.2537	300.000	7.3555	−35.772	−0.3987	0.1719
291.000	6.0248	−37.478	−0.4044	0.2240	305.000	8.1146	−34.944	−0.3959	0.1602
292.000	6.1689	−37.263	−0.4037	0.2088	310.000	8.8827	−34.165	−0.3934	0.1518
295.000	6.6086	−36.671	−0.4017	0.1888					
				ρ = 1.350 g·cm^{-3}					
290.000	5.8965	−38.741	−0.4094	0.2199	300.000	7.4611	−36.889	−0.4031	0.1674
291.000	6.0476	−38.529	−0.4086	0.2054	305.000	8.2685	−36.080	−0.4004	0.1569
292.000	6.2008	−38.328	−0.4079	0.1969	310.000	9.0862	−35.316	−0.3979	0.1492
295.000	6.6676	−37.762	−0.4060	0.1824					
				ρ = 1.400 g·cm^{-3}					
289.000	5.7641	−39.977	−0.4142	0.2074	295.000	6.7466	−38.848	−0.4103	0.1760
290.000	5.9238	−39.775	−0.4135	0.1979	300.000	7.5918	−38.002	−0.4075	0.1629
291.000	6.0858	−39.580	−0.4128	0.1917	305.000	8.4521	−37.213	−0.4048	0.1535
292.000	6.2493	−39.391	−0.4121	0.1869	310.000	9.3234	−36.464	−0.4024	0.1466
				ρ = 1.450 g·cm^{-3}					
289.000	5.8015	−41.008	−0.4182	0.1897	295.000	6.8538	−39.935	−0.4145	0.1698
290.000	5.9739	−40.821	−0.4176	0.1857	300.000	7.7558	−39.116	−0.4118	0.1584
291.000	6.1477	−40.637	−0.4169	0.1820	305.000	8.6737	−38.346	−0.4093	0.1501
292.000	6.3226	−40.457	−0.4163	0.1786	310.000	9.6032	−37.612	−0.4069	0.1440
				ρ = 1.500 g·cm^{-3}					
288.000	5.6876	−42.238	−0.4229	0.1838	295.000	6.9982	−41.027	−0.4188	0.1638
289.000	5.8712	−42.056	−0.4223	0.1803	300.000	7.9627	−40.234	−0.4161	0.1540
290.000	6.0561	−41.878	−0.4217	0.1771	305.000	8.9432	−39.483	−0.4136	0.1468
291.000	6.2423	−41.702	−0.4211	0.1741	310.000	9.9355	−38.763	−0.4113	0.1415
292.000	6.4297	−41.529	−0.4205	0.1713					

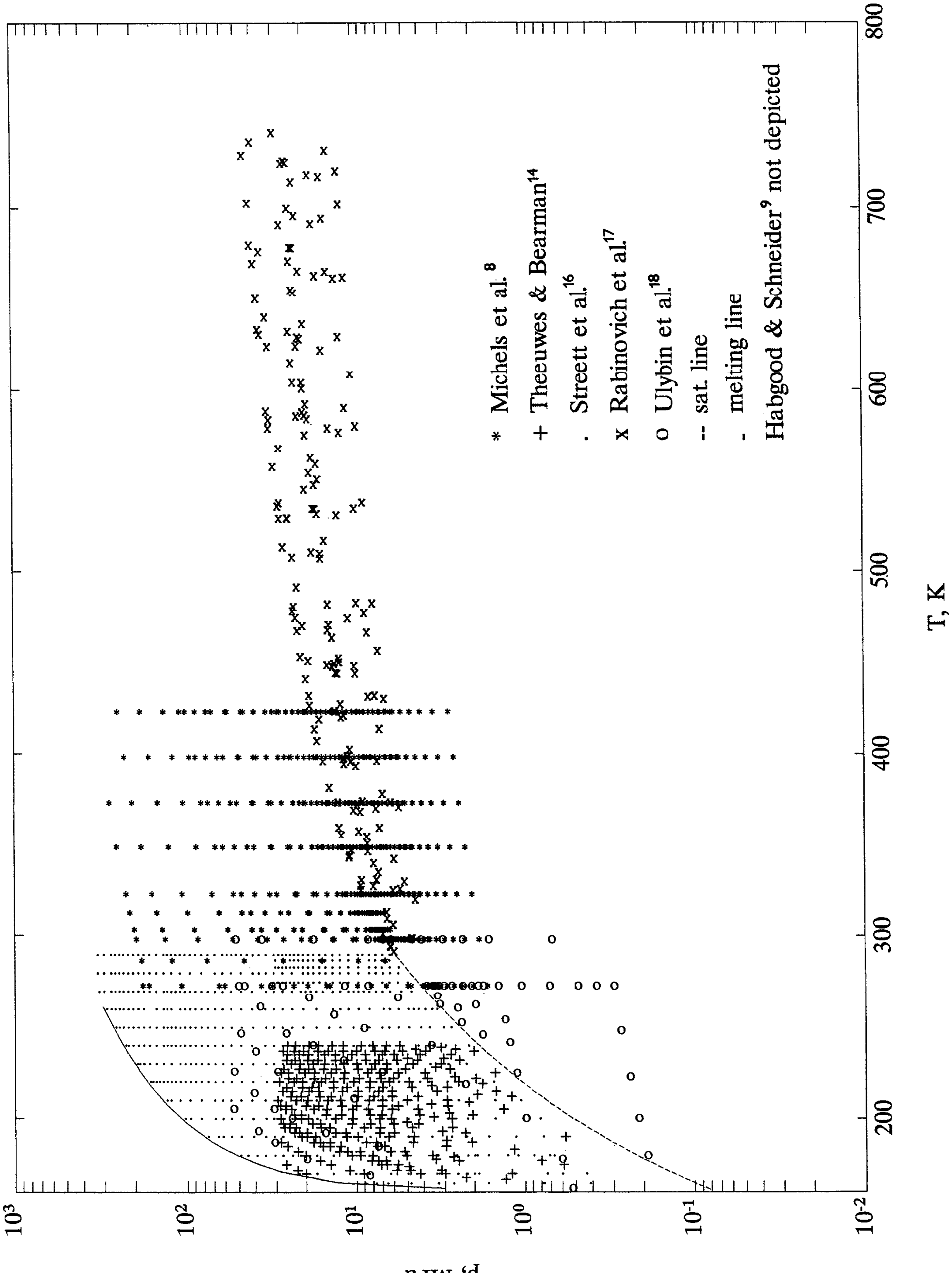

FIG. 1. Distribution of p-ρ-T data used for correlation (p-T plane).

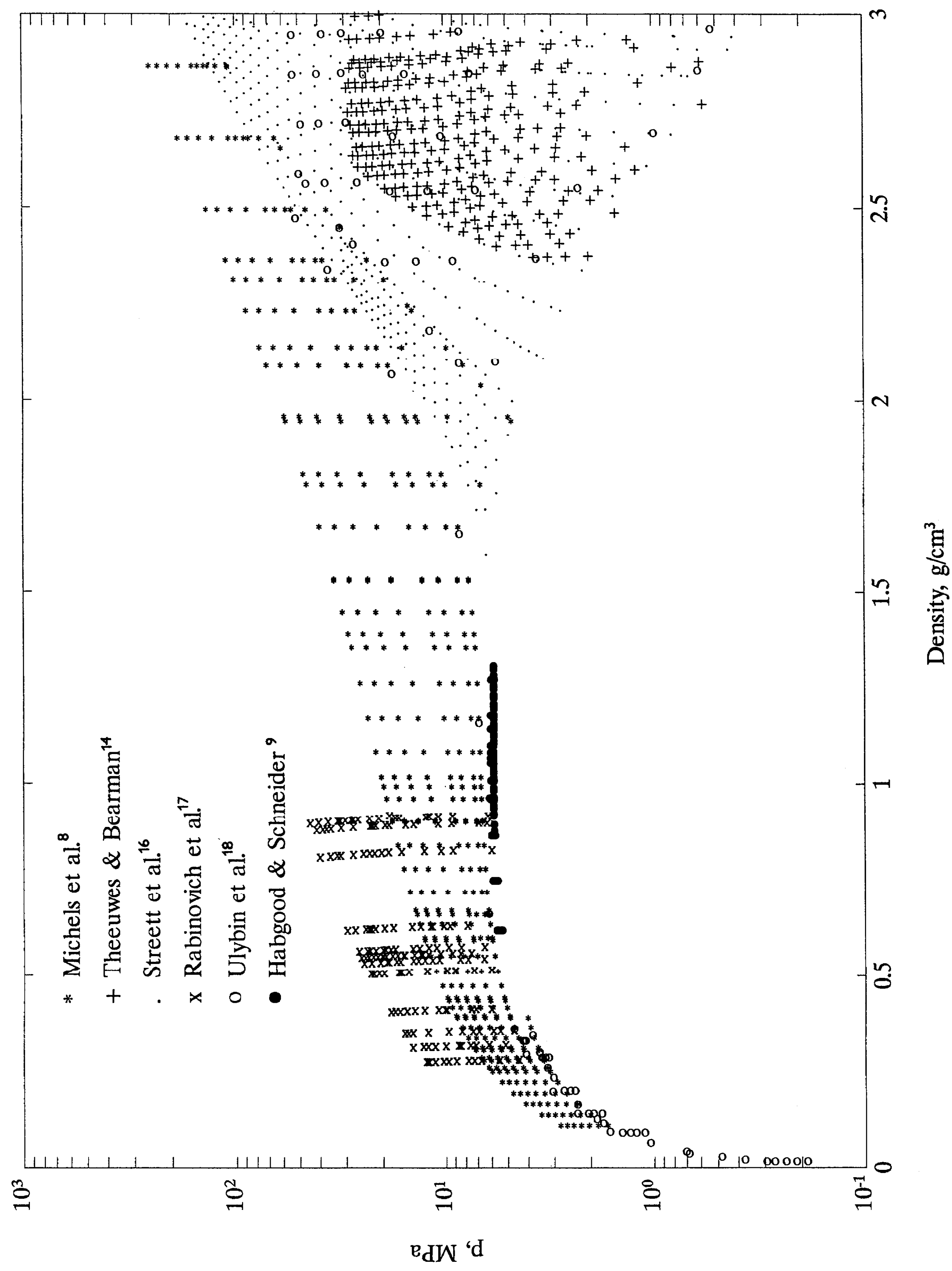

FIG. 2. Distribution of p-ρ-T data used for correlation (p-τ plane)

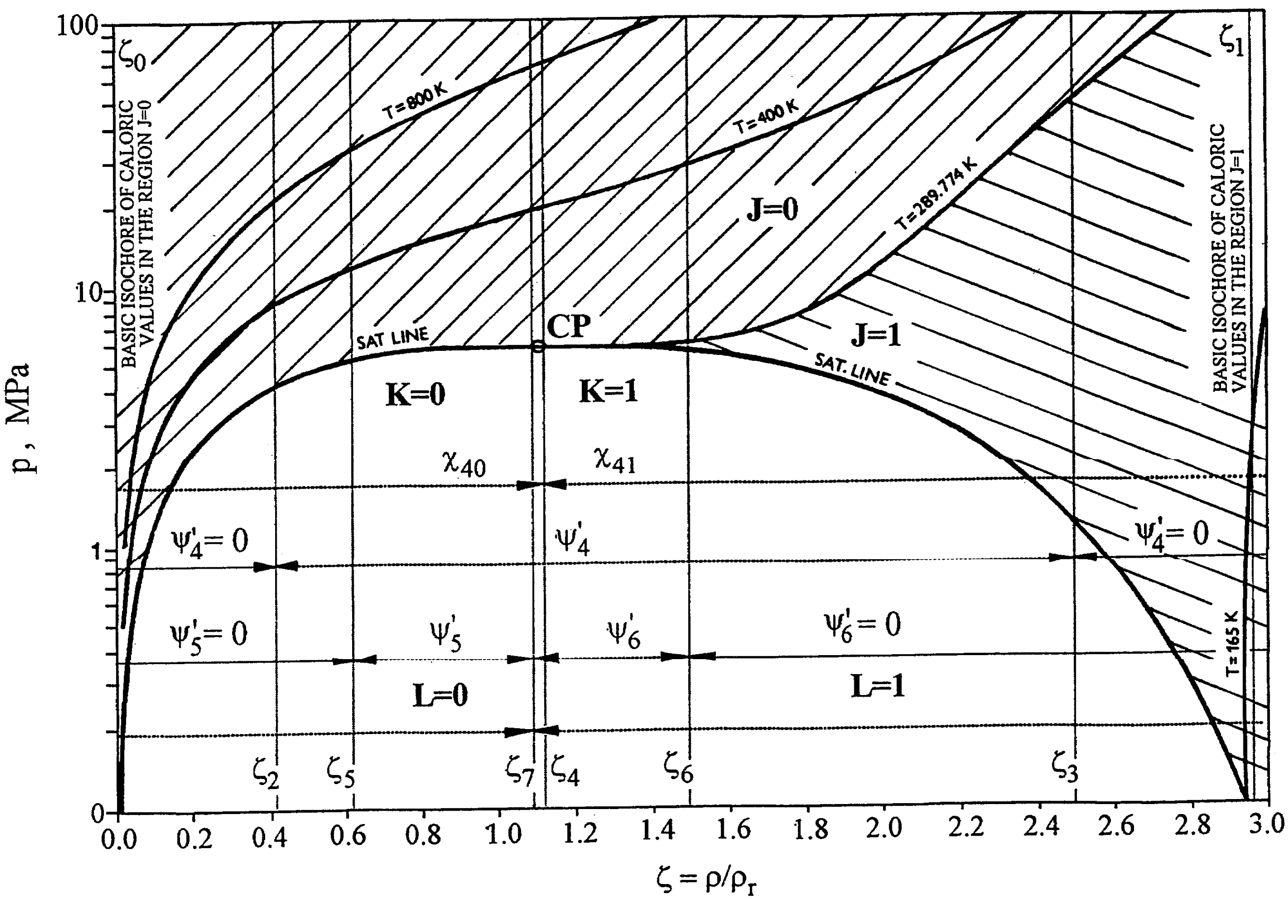

FIG. 3. Range of the validity of density functions in additional terms of the fundamental equation for xenon. Eq. (3).

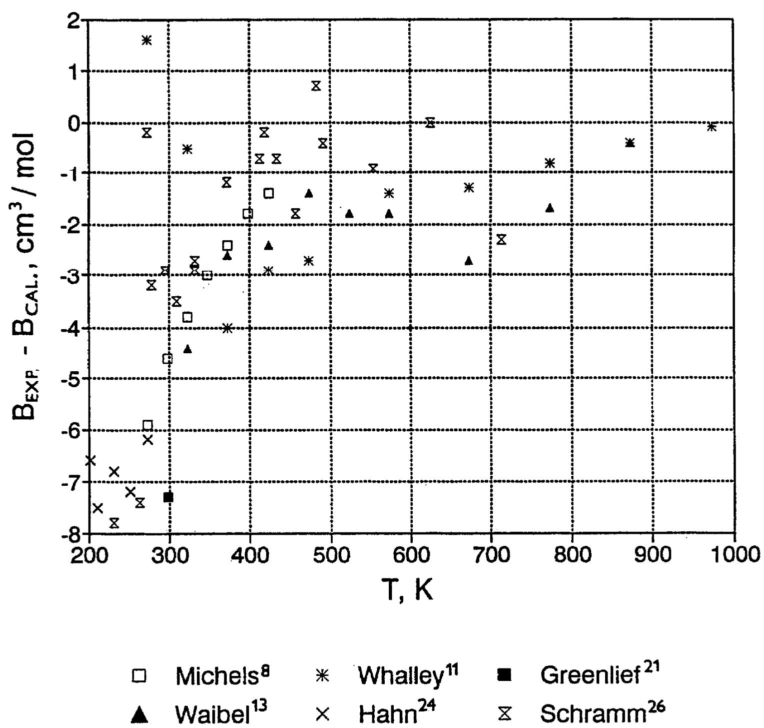

FIG. 4. Deviations of experimental and calculated values of the second virial coefficient.

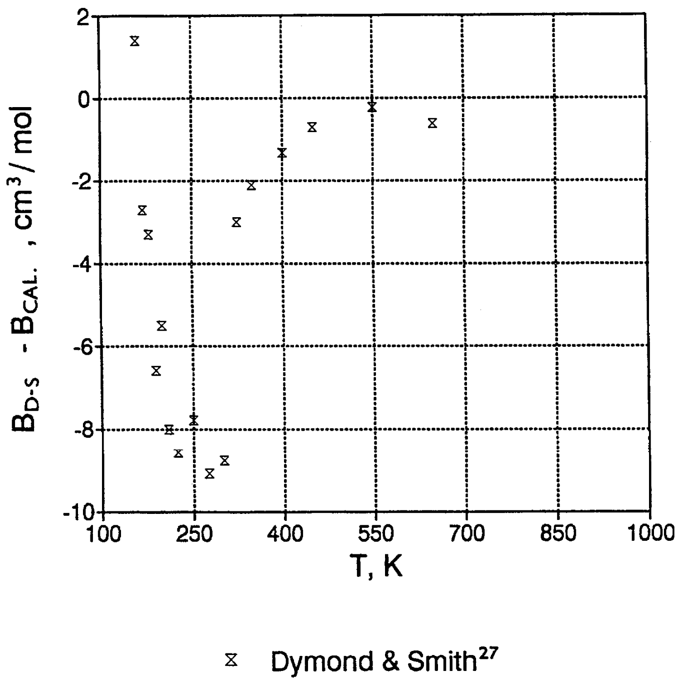

FIG. 5. Deviations of smoothed second virial coefficients by Dymond and Smith[27] and calculated values from Eq. (3).

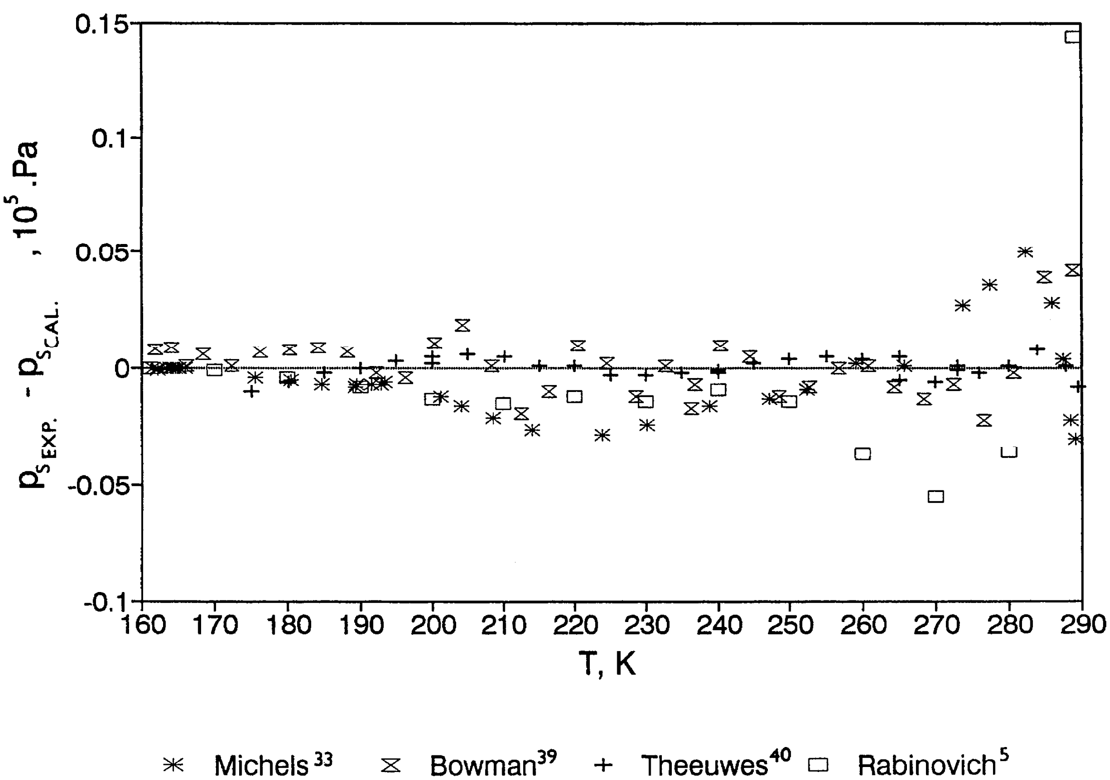

FIG. 6. Comparison of experimental vapor pressure to the auxiliary Eq. (4).

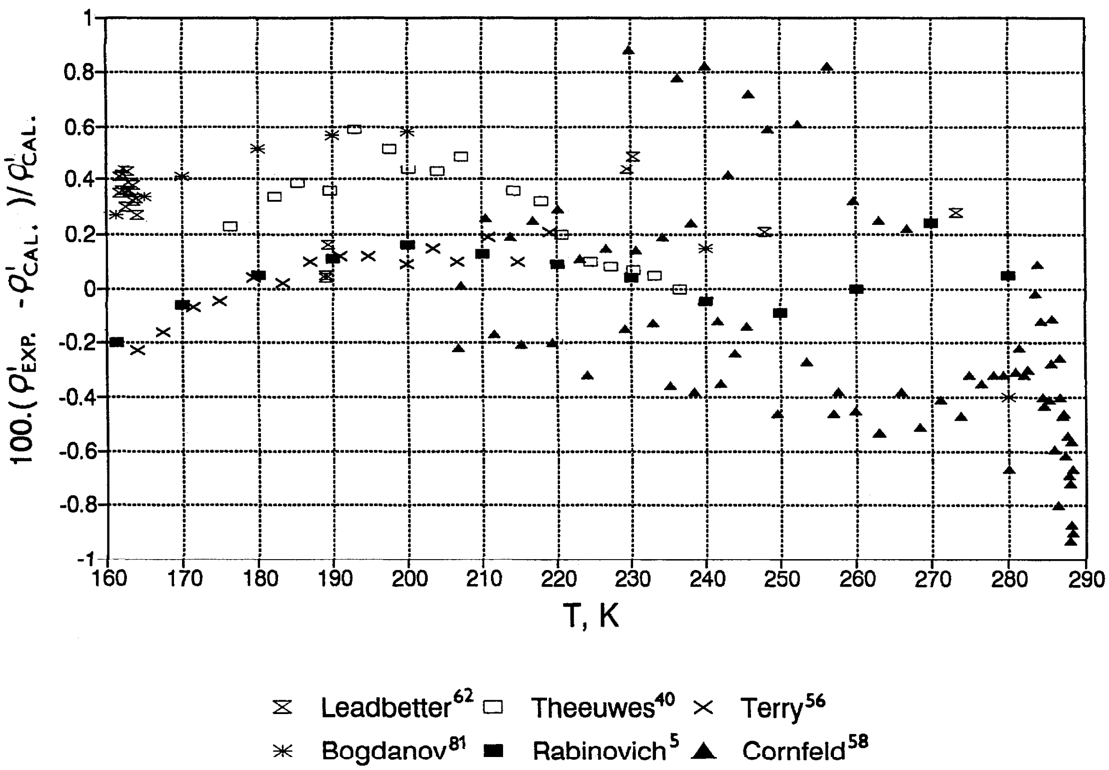

FIG. 7. Comparison of experimental saturated liquid densities with Eq. (3).

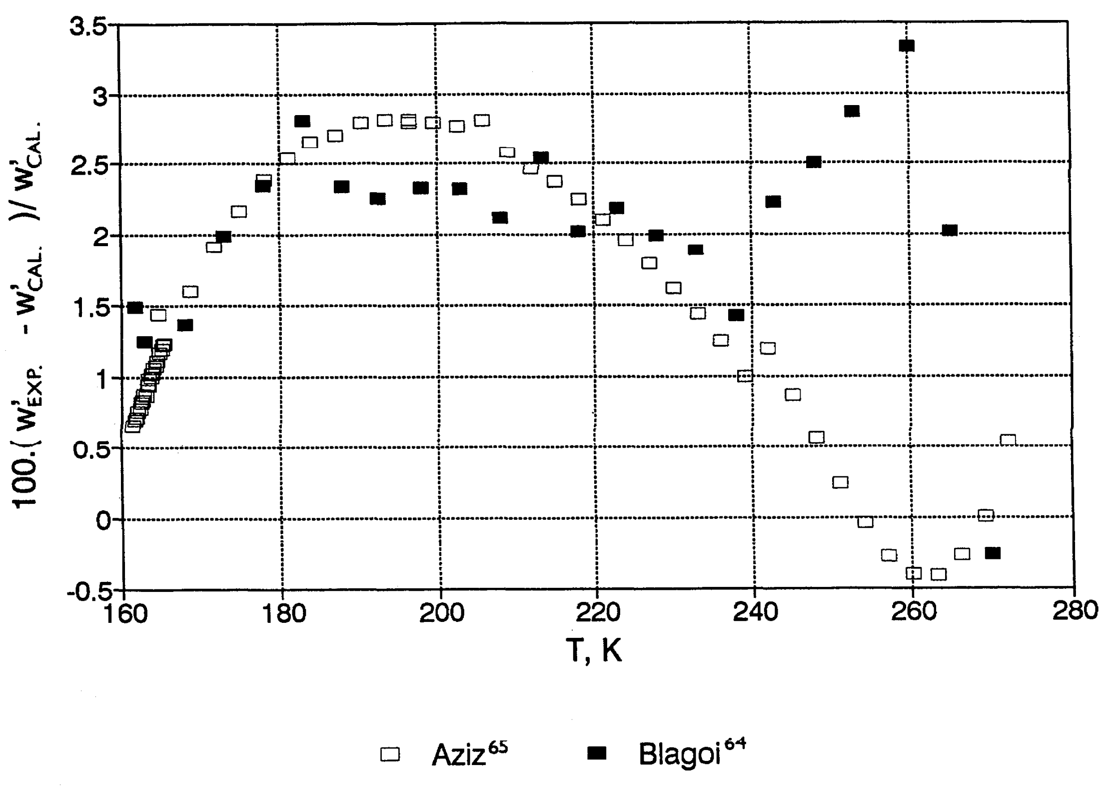

FIG. 8. Comparison of measured speed of sound along the saturation curve to calculated values with Eq. (3).

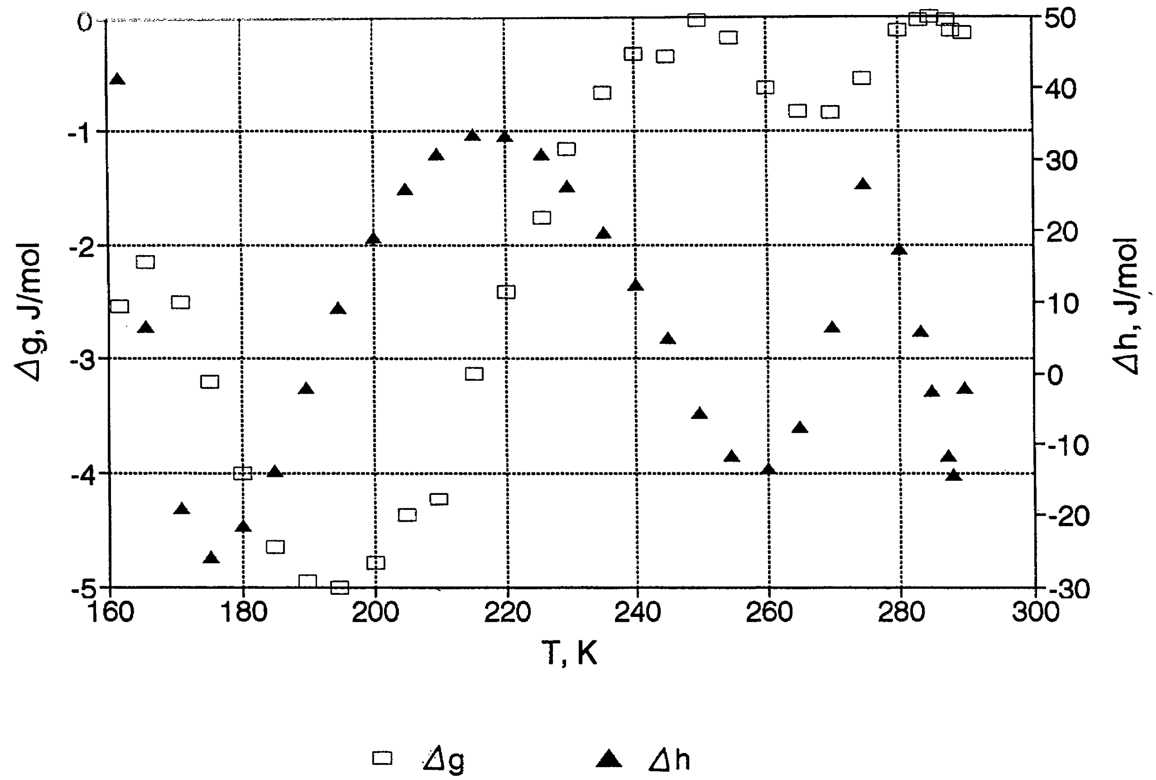

FIG. 9. Comparison of enthalpy of evaporation and Gibbs energy along the saturation curve calculated from Eq. (3).

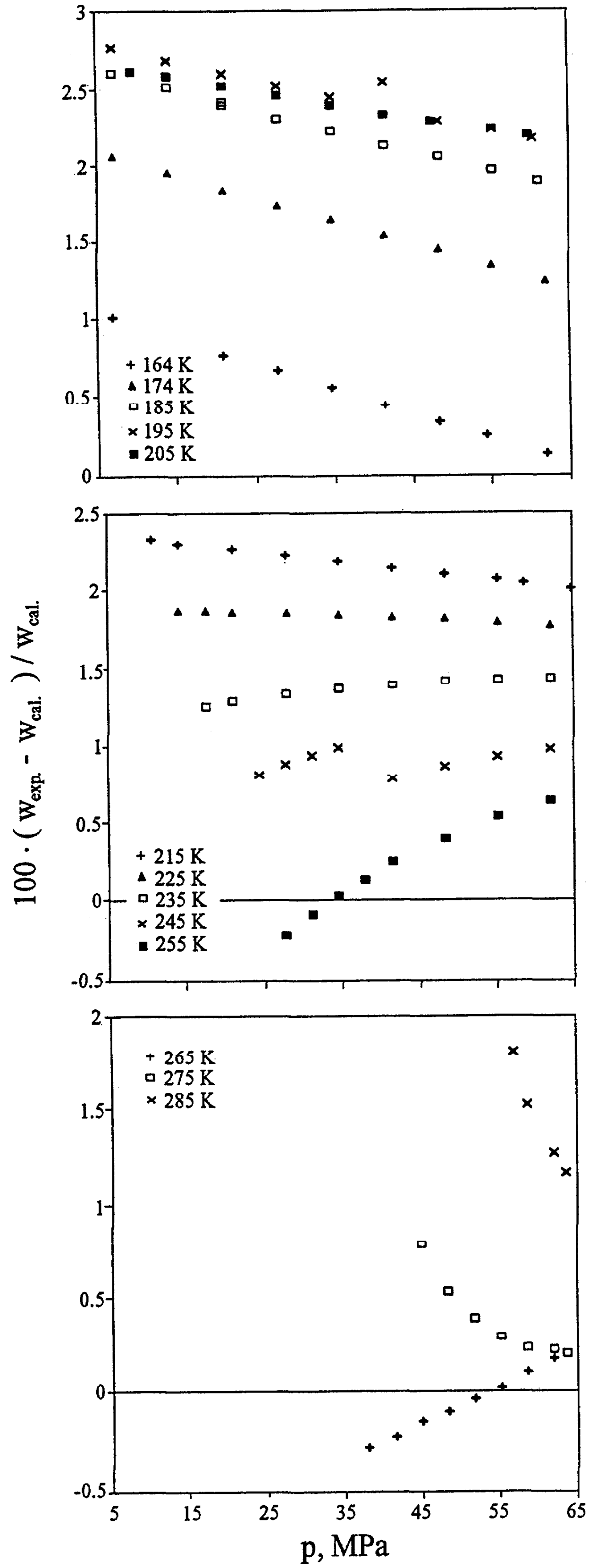

FIG. 10. Comparison of measured speed of sound by Lim *et al.*[66] with Eq. (3).

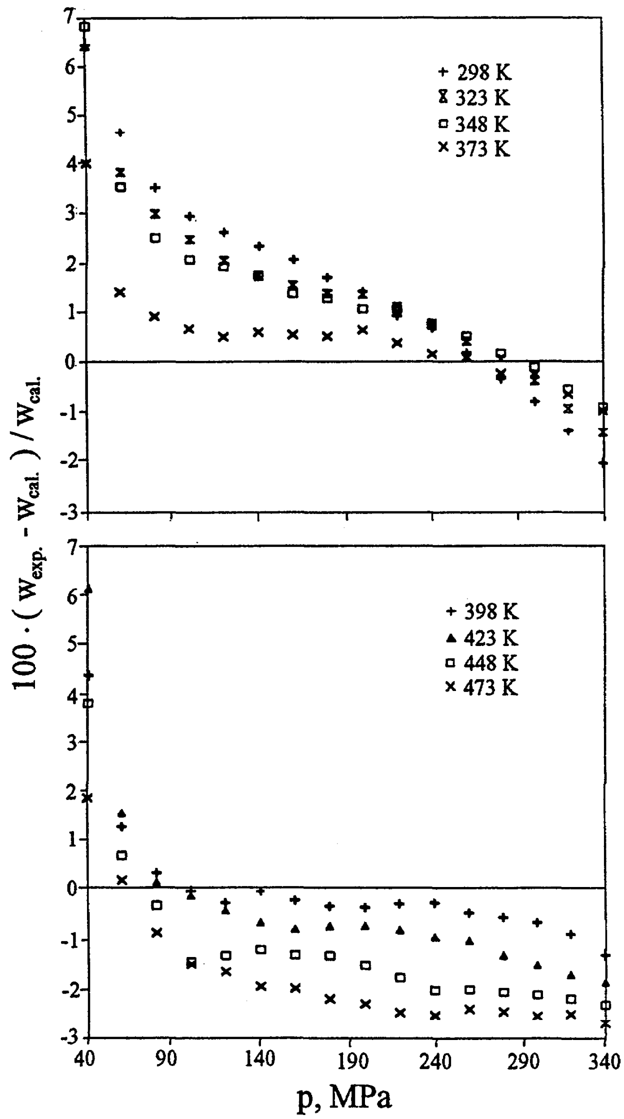

FIG. 11. Comparison of smoothed speed of sound data by Pitajevskaja *et al.*[67] with Eq. (3).

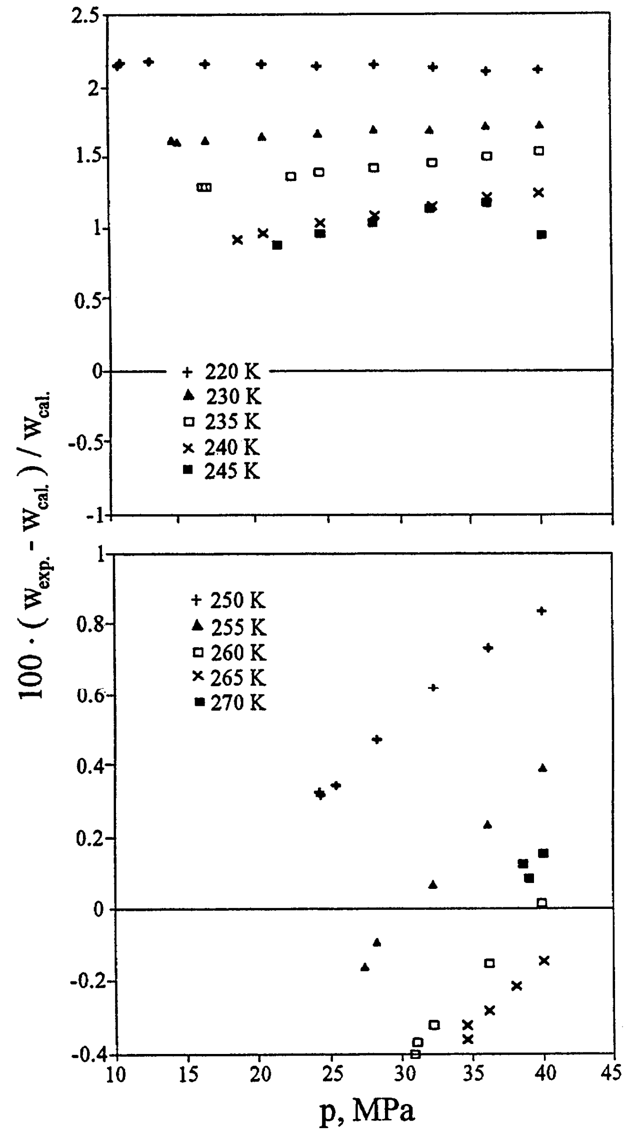

FIG. 12. Comparison of measured speed of sound data by Baidakov *et al.* [68] with Eq. (3).

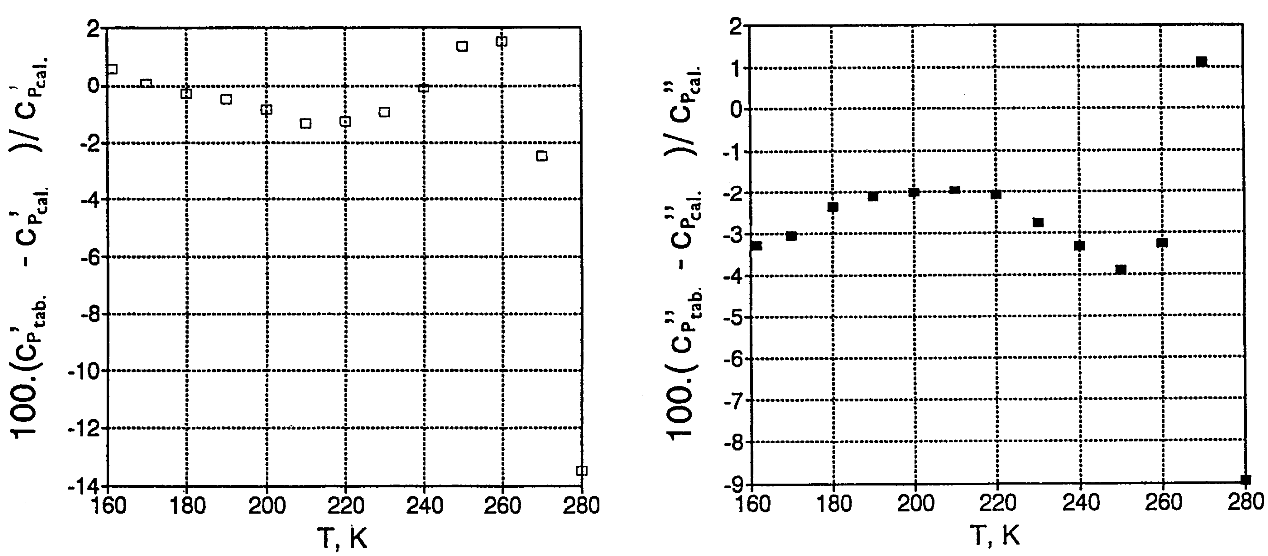

FIG. 13. Comparison of isobaric heat capacities along the saturation curve from Tables by Rabinovich[5] with calculated from Eq. (3).

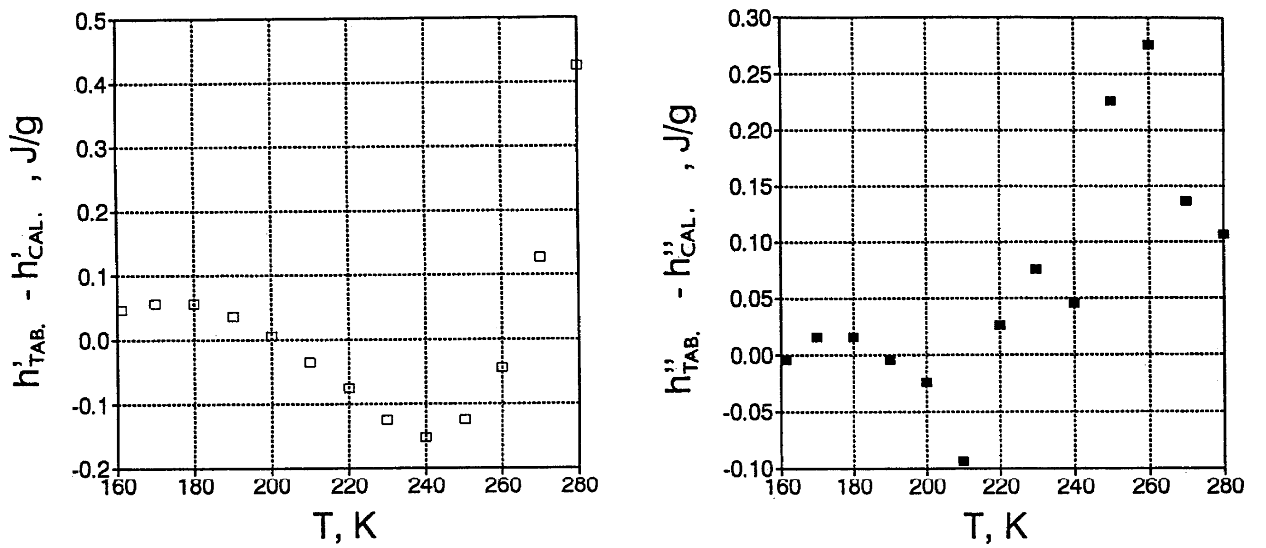

FIG. 14. Comparison of enthalpies along the saturation curve from Tables by Rabinovich[5] with calculated from Eq. (3).

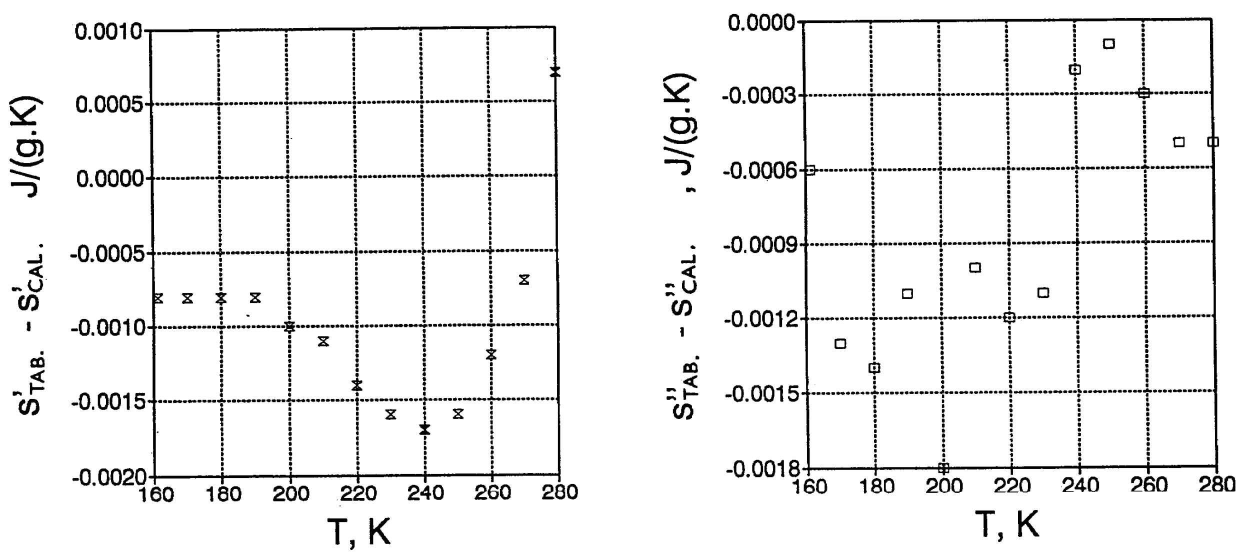

FIG. 15. Comparison of entropies along the saturation curve from Tables by Rabinovich[5] with calculated from Eq. (3).

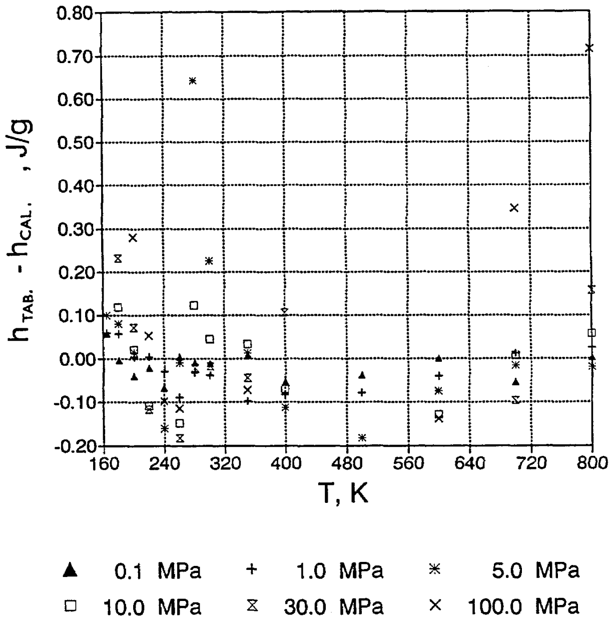

FIG. 16. Comparison of enthalpies along selected isobars from Tables by Rabinovich[5] with calculated from Eq. (3).

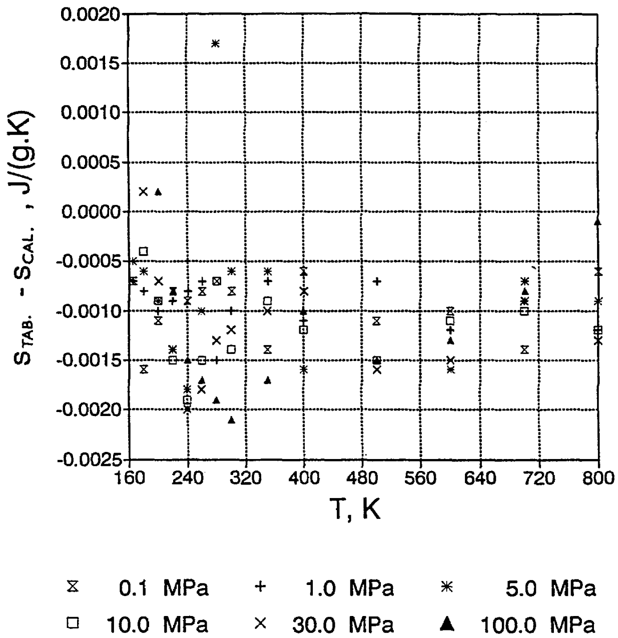

FIG. 18. Comparison of entropies along selected isobars from Tables by Rabinovich[5] with calculated from Eq. (3).

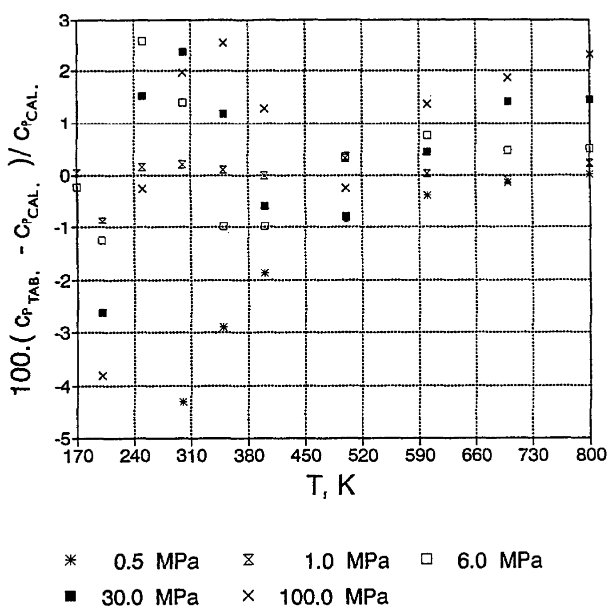

FIG. 17. Comparison of isobaric heat capacities along selected isobars from Tables by Rabinovich[5] with calculated from Eq. (3).

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