

Manual of Petroleum Measurement Standards

Chapter 11.2.2M—Compressibility Factors for Hydrocarbons: 350–637 Kilograms per Cubic Metre Density (15°C) and –46°C to 60°C Metering Temperature

GPA 8286-86 (M)

FIRST EDITION, OCTOBER 1986

REAFFIRMED, SEPTEMBER 2017



AMERICAN PETROLEUM INSTITUTE



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**Chapter 11.2.2M—Compressibility Factors for
Hydrocarbons: 350–637
Kilograms per Cubic Metre
Density (15°C) and –46°C to 60°C
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Measurement Coordination

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FOREWORD

This publication provides tables to correct hydrocarbon volumes metered under pressure to corresponding volumes at the equilibrium pressure for the metered temperature. The parallel publication in customary units is the *Manual of Petroleum Measurement Standards*, Chapter 11.2.2.

The table presented in this volume is also available from API as a computer tape, along with a manual containing the text information in this publication.

Suggested revisions are invited and should be submitted to the director, Measurement Coordination Department, American Petroleum Institute, 1220 L Street, N.W., Washington, D.C. 20005.

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SECTION 2—VOLUME CORRECTION FACTORS FOR METER PROVING AND HYDROCARBON COMPRESSIBILITY

11.2.2M Compressibility Factors for Hydrocarbons: 350–637 Kilograms per Cubic Metre Density (15°C) and –46°C to 60°C Metering Temperature

11.2.2.1M SCOPE

The purpose of this standard is to correct hydrocarbon volumes metered under pressure to the corresponding volumes at the equilibrium pressure for the metered temperature. This standard contains compressibility factors related to the meter temperature and density at 15°C of the metered material. The corresponding customary version is Chapter 11.2.2.

11.2.2.2M HISTORY AND DEVELOPMENT

The previous API standard for hydrocarbon compressibility, Standard 1101, *Measurement of Petroleum Liquid Hydrocarbons by Positive Displacement Meter*, was developed from graphical correlations prepared in 1945. This standard was based on limited data with only a few points for pure fluids in the range from propane to pentane. No lighter mixtures and no effect of pressure on the compressibility factor were considered. In addition, no metric (SI) version was available.

In 1981, the Committee on Static Petroleum Measurement formed a subcommittee, the Hydrocarbon Compressibility Group, to revise the compressibility tables of Standard 1101. As a result of an extensive literature survey, the data base found for the relative density portion of the table covers a broader range than that used in Standard 1101 but is lacking in data for unsaturated hydrocarbons. The data base was used to develop a mathematical model that includes the effect of pressure on the compressibility factor. The printed table produced from the model is the standard. This standard replaces the discontinued Standard 1101 and the first edition of Chapter 11.2.2, *Compressibility Factors for Hydrocarbons: 0.500–0.611 Relative Density Range and 20–128°F*.

11.2.2.3M TYPE OF STANDARD AND LIMITS

The actual standard is the printed table of 251 pages that follows this text. The increments used in the table are 0.25°C and 2 kilograms per cubic metre. Interpolation to 1 kilogram per cubic metre in density is allowed. Compressibilities are in the usual units of reciprocal kilopascals but are calculated from two terms, A and B , and the pressure difference from

equilibrium, D_p . This is necessary to obtain the desired accuracy in volume because of the important effect of pressure on the compressibility factor for light hydrocarbons. The range of the table is from –46°C to 60°C and from 350 to 637 kilograms per cubic metre density (15°C), for use with pressure differences above equilibrium from 0 to 15,200 kilopascals.

The equation used to generate the table is given for those who wish to duplicate the table using their specific computer and language. Identical table information is available on a computer tape. The use of this computer tape to verify individually developed computer subroutines is highly recommended.

11.2.2.4M EXAMPLE USE OF THE STANDARD

In this standard, the compressibility factor (F) is used in the normal manner for volume correction (* denotes multiplication):

$$C_{pl} = V_e/V_m = 1/(1 - F * D_p)$$

Where:

C_{pl} = correction factor for pressure.

V_e = volume at the equilibrium (bubble point) pressure, P_e .

V_m = volume at the meter pressure, P_m .

$D_p = P_m - P_e$.

P_e and P_m may be in either kilopascals gage or kilopascals absolute, but both must be in the same units.

As an example, calculate the volume at equilibrium pressure of 1000 cubic metres (V_m) of a material with a density (15°C) of 530.4 kilograms per cubic metre metered under a pressure of 5000 kilopascals at a temperature of 5.1°C. The equilibrium pressure (P_e) for this material at 5.1°C is 450 kilopascals. The rounded density and temperature values of 530 kilograms per cubic metre and 5.0°C yield an A factor of 281,093 and a B factor of 5.504. The compressibility factor (F) is calculated as follows:

$$\begin{aligned} F &= 1/(A + D_p * B) \\ &= 1/[281,093 + (5000 - 450) * 5.504] \\ &= 0.000003267 \end{aligned}$$

The value for F is rounded to the ninth decimal place, to the maximum of four significant digits.

Then,

$$C_{pl} = 1/[1.0 - 0.000003267 * (5000 - 450)] \\ = 1.0151$$

The value for C_{pl} is rounded to the maximum of four decimal places.

$$V_e = V_m * C_{pl} \\ = 1000 * 1.0151 \\ = 1015.1 \text{ cubic metres}$$

The value for V_e is rounded to the nearest 0.1 cubic metre.

11.2.2.5M DATA BASE

An initial 2278 data points were obtained from the literature for pure fluid compounds and mixtures of light hydrocarbon liquids. These data were examined to eliminate data for gases, data with large errors, and data with other abnormalities. The final data base used in this standard consists of 1724 data points from 13 sources (see Table 1). This metric standard was derived from the data base in U.S.

customary units, so all discussion of the data base is limited to customary units.

The ranges of the experimental data were relative densities (60°F/60°F) from 0.3477 to 0.6312, temperatures from -28°F to 160°F, and pressure differences from 41 to 2036 pounds per square inch gage (see Figure 1). The actual ranges for the standard, as determined by an API survey, are relative densities (60°F/60°F) from 0.350 to 0.637, temperatures from 50°F to 140°F, and pressure differences from 0 to 2200 pounds per square inch gage. Hence, some portions of the standard represent extrapolated results. The uncertainty analysis presented in 11.2.2.7M may not be valid for these extrapolated portions. For the lower relative densities, 140°F is above the pseudocritical temperature at which liquid exists. For these fluids, the range is restricted to 96 percent of the pseudocritical temperature.

The data set contains 46 different mixtures of normal hydrocarbons from methane to decane. The compositions of the mixtures are listed in Table 2. The use of the standard for compositions not close to those in the data base represents an extrapolation whose results may have a greater uncertainty.

Table 1—Summary of Data Base

Sample	Relative Density (60°/60°F)	Temperature (°F)	Pressure (pounds per square inch gage)	Number of Data Points	References
NGPA/TP2	0.35 0.61	32 140	180 2000	455	12
NGPA/TP1	0.35 0.51	40 130	150 2000	218	21
Cal Tech	0.50–0.63	70 160	100 2000	157	9, 10, 13, 14, 15, 16, 17
Tulsa	0.35 0.51	-20 120	100 1500	542	1
Manley/Swift	0.508	-20 100	300 1600	13	8
Pope	0.356	-25 63	198 1788	36	11
Straty	0.356	-28 66	320 2200	67	18
Douslin	0.356	-13 32	460–2100	5	3
Dittmar	0.508	32–140	140 2120	33	2
Haynes	0.51 0.58	-28 80	242 2040	81	5, 6, 7
Ely	0.508	-28 100	121 2130	57	4
Thomas	0.508	32 122	121 1477	50	20
Teichmann	0.508	122 149	400 1465	10	19

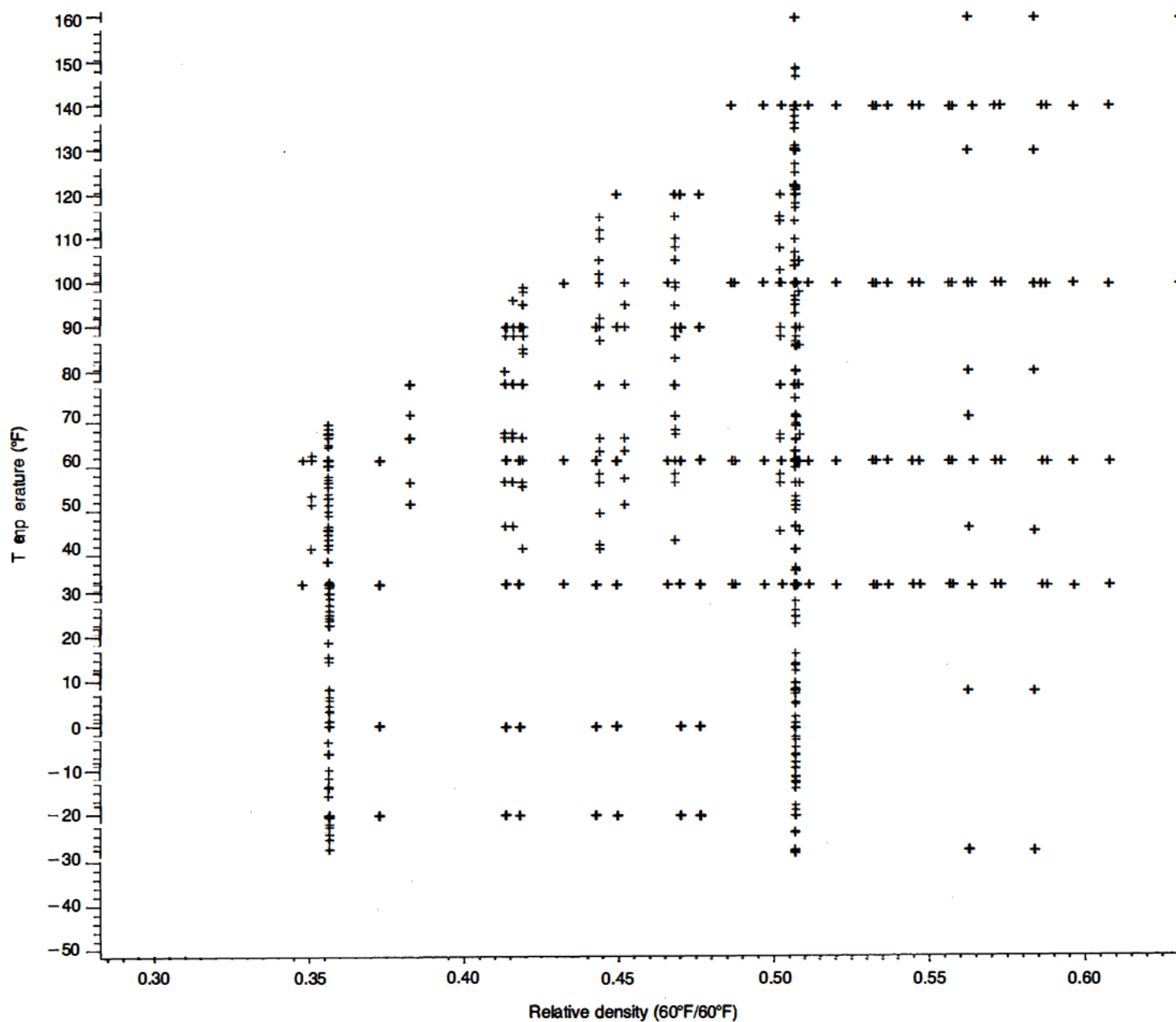


Figure 1—Limits of Data Base by Relative Density and Temperature

Table 2—Data Mixture Compositions (Mole Percent)

Sample	C ₁	C ₂	C ₃	nC ₄	iC ₄	nC ₅	iC ₅	C ₆	C ₇	C ₈	C ₉	C ₁₀
1	3.10	96.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.02	35.29	19.80	8.11	6.70	5.74	6.54	6.88	5.71	3.18	2.03
3	0.28	8.83	32.08	18.00	7.37	6.09	5.22	5.95	6.25	5.19	2.89	1.85
4	0.52	16.17	29.41	16.50	6.76	5.58	4.78	5.45	5.73	4.76	2.65	1.69
5	0.89	27.70	25.21	14.14	5.79	4.79	4.10	4.67	4.91	4.08	2.27	1.45
6	1.16	36.33	22.06	12.38	5.07	4.19	3.59	4.09	4.30	3.57	1.99	1.27
7	1.55	48.45	17.64	9.90	4.06	3.35	2.87	3.27	3.44	2.86	1.59	1.02
8	1.88	58.83	13.87	7.78	3.19	2.63	2.26	2.57	2.70	2.24	1.25	0.80
9	0.00	0.02	50.13	18.20	7.17	4.46	3.82	4.35	4.58	3.80	2.12	1.35
10	0.28	8.83	45.59	16.54	6.52	4.05	3.47	3.95	4.16	3.45	1.93	1.23
11	0.52	16.17	41.77	15.17	5.97	3.72	3.18	3.62	3.82	3.17	1.77	1.12
12	0.89	27.70	35.81	13.00	5.12	3.19	2.73	3.11	3.27	2.71	1.51	0.96
13	1.16	36.34	31.33	11.38	4.48	2.79	2.39	2.72	2.86	2.38	1.33	0.84
14	1.55	48.44	25.07	9.10	3.59	2.23	1.91	2.18	2.29	1.90	1.06	0.68
15	1.88	58.84	19.70	7.15	2.82	1.75	1.50	1.71	1.80	1.49	0.83	0.53
16	0.00	0.00	63.77	17.74	6.21	2.90	1.97	2.91	2.62	0.93	0.95	0.00
17	0.29	8.93	57.89	16.11	5.64	2.63	1.79	2.64	2.38	0.84	0.86	0.00
18	0.52	16.15	53.17	14.78	5.17	2.42	1.62	2.43	2.18	0.77	0.79	0.00
19	0.89	27.68	45.55	12.67	4.44	2.07	1.41	2.08	1.87	0.66	0.68	0.00
20	1.16	36.34	39.86	11.09	3.88	1.81	1.23	1.82	1.64	0.58	0.59	0.00
21	1.55	48.45	31.86	8.87	3.11	1.45	0.99	1.46	1.31	0.47	0.48	0.00
22	1.88	58.83	25.06	6.97	2.44	1.14	0.77	1.14	1.03	0.37	0.37	0.00
23	2.33	72.67	15.93	4.44	1.55	0.73	0.49	0.73	0.66	0.23	0.24	0.00
24	0.00	0.08	99.85	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	2.42	0.00	97.58	0	0	0	0	0	0	0	0	0
27	0.00	0.00	99.11	0.89	0	0	0	0	0	0	0	0
28	0.00	37.00	63.00	0.00	0	0	0	0	0	0	0	0
29	0.00	49.89	50.11	0.00	0	0	0	0	0	0	0	0
30	3.23	48.28	48.49	0.00	0	0	0	0	0	0	0	0
31	0.00	71.71	28.29	0.00	0	0	0	0	0	0	0	0
32	2.31	70.05	27.64	0.00	0	0	0	0	0	0	0	0
33	2.18	69.52	27.47	0.83	0	0	0	0	0	0	0	0
34	0.00	89.97	10.03	0.00	0	0	0	0	0	0	0	0
35	0.00	100.00	0.00	0.00	0	0	0	0	0	0	0	0
36	2.26	97.74	0.00	0.00	0	0	0	0	0	0	0	0
37	0.00	0.00	0.00	100.00	0	0	0	0	0	0	0	0
38	0.00	0.00	0.00	0.00	0	100	0	0	0	0	0	0
39	0.00	0.00	100.00	0.00	0	0	0	0	0	0	0	0
40	0.00	0.00	0.00	0.00	100	0	0	0	0	0	0	0
44	0.00	0.00	100.00	0.00	0	0	0	0	0	0	0	0
45	0.00	30.13	69.87	0.00	0	0	0	0	0	0	0	0
46	0.00	51.28	48.72	0.00	0	0	0	0	0	0	0	0
47	0.00	71.60	28.40	0.00	0	0	0	0	0	0	0	0
48	0.00	100.00	0.00	0.00	0	0	0	0	0	0	0	0
49	2.55	28.90	68.55	0.00	0	0	0	0	0	0	0	0
50	2.70	49.17	48.13	0.00	0	0	0	0	0	0	0	0
51	2.52	67.76	29.72	0.00	0	0	0	0	0	0	0	0
52	2.51	87.76	9.73	0.00	0	0	0	0	0	0	0	0
68	0.00	0.00	100.00	0.00	0	0	0	0	0	0	0	0
70	0	100	0	0	0	0	0	0	0	0	0	0
71	0	100	0	0	0	0	0	0	0	0	0	0
72	0	100	0	0	0	0	0	0	0	0	0	0
73	0	0	100	0	0	0	0	0	0	0	0	0
74	0	0	100	0	0	0	0	0	0	0	0	0
75	0	0	100	0	0	0	0	0	0	0	0	0
76	0	0	100	0	0	0	0	0	0	0	0	0
77	0	0	100	0	0	0	0	0	0	0	0	0
78	0	0	100	0	0	0	0	0	0	0	0	0
79	0	0	0	0	100	0	0	0	0	0	0	0
80	0	0	0	0	100	0	0	0	0	0	0	0
81	0	0	0	100	0	0	0	0	0	0	0	0
82	0	0	0	100	0	0	0	0	0	0	0	0

11.2.2.6M BASIC MODEL

This metric standard is developed by converting metered temperature in degrees Celsius to degrees Rankine and density in kilograms per cubic metre at 15°C to relative density at 60°F. The converted parameters are then used in the compressibility factor equation from Chapter 11.2.2. In this metric standard, the compressibility factor (F) is used in the normal manner for volume correction:

$$C_{pl} = V_e/V_m = 1/(1 - F * D_p)$$

The effect of pressure on the compressibility factor (F) is not negligible for the range of conditions of the standard. Therefore, the pressure effect is included in the model by the use of two factors, A and B . The basic mathematical model used to develop this standard relates compressibility to relative density, temperature, and pressure difference as follows:

$$F = 1/(A + D_p * B)$$

$$\begin{aligned} A * 10^{-5} = & 2.1465891D-6 * TR^2 + 1.5774390D-5 * TR^2 * G^2 \\ & - 1.0502139D-5 * TR^2 * G^4 + 2.8324481D-7 * TR^3 * G^6 \\ & - 0.95495939D0 + 7.2900662D-8 * TR^3 * G^2 \\ & - 2.7769343D-7 * TR^3 * G^4 + 0.03645838D0 * TR * G^2 \\ & - 0.05110158D0 * TR * G + 0.00795529D0 * TR \\ & + 9.13114910D0 * G \end{aligned}$$

$$A = A * 6.894757D0$$

$$\begin{aligned} B * 10^{-5} = & -6.0357667D-10 * TR^2 + 2.2112678D-6 * TR * G^2 \\ & + 0.00088384D0 * G - 0.00204016D0 * G^2 \end{aligned}$$

Where:

D_p = pressure above the equilibrium bubble point pressure, in consistent units of kilopascals gage or kilopascals absolute.

DX = double-precision accuracy to the X th power of 10.

TR = temperature, in degrees Rankine.

G = relative density (60°F/60°F).

The use of higher powers of TR and G and other combinations of them did not improve the correlation.

11.2.2.7M UNCERTAINTY ANALYSIS

The uncertainty in the compressibility factor is ± 10.8 percent at the 95-percent confidence level. (The figure 10.8 is 2.0 times the standard deviation of 5.4 percent, where 2.0 is the two-tail probability value of a normal distribution for 1709 degrees of freedom at 95 percent.) These uncertainties represent the likelihood of the correlation's ability to reproduce the data for a specific sample. They do not indicate how accurate the data are. In many cases, the accuracy of the experimental data is unknown. The corresponding uncertainty in volume and in C_{pl} is ± 0.56 percent at the 95-percent confidence level, derived from a computed standard deviation of 0.28 percent, as described above.

These volumetric uncertainties depend on operating conditions, the type of material, and the effect of pressure on the compressibility factor. They may not be true for the extrapolated portions of the standard. The regions where various uncertainties can be expected, averaged for all pressures, are plotted in Figure 2. The uncertainty for specific materials and temperature conditions can be obtained from this figure. For samples at lower relative densities, the uncertainty increases as the mixture's critical temperature is approached. The correlation is valid for temperatures less than or equal to 96 percent of the pseudocritical temperature.

If the effect of pressure on compressibility were ignored, there would be greater uncertainties in the volume. To il-

lustrate this, the uncertainties in the calculated volume would range from 0.2 to 11 percent if a mean compressibility factor for 500 pounds per square inch, instead of the compressibility factor at the correct pressure, were used. This is from 2 to more than 100 times the desired uncertainty of 0.1 percent in the volume. Table 3 provides more details about the uncertainties due to ignoring the effect of pressure on compressibility at various conditions.

In situations where either Chapter 11.2.2M or Chapter 11.2.2 could be used to obtain corrected volumes, differences in C_{pl} can arise. Because of rounding, the increment in metered temperature of 0.25°C in Chapter 11.2.2M does not always yield C_{pl} values equal to those from Chapter 11.2.2, which uses 0.5°F increments. Table 4 shows the frequency of errors that can be expected when using temperature to the nearest 0.25°C, as opposed to the nearest 0.5°F. In addition, maximum differences in C_{pl} of ± 0.0001 can be expected (at a frequency of 0.4 percent) because of conversion of pressure from pounds per square inch to kilopascals. It is therefore recommended that in cases where one party ordinarily uses metric units and the other party ordinarily uses customary units, the use of either Chapter 11.2.2M or Chapter 11.2.2 should be agreed on before a transaction is made.

Table 3 Effect of Pressure on Compressibility Factors

Relative Density	Temperature (°F)	F Errors (%)		C_{pl} Errors (%)	
		$D_p = 1000$ psi	$D_p = 2000$ psi	$D_p = 1000$ psi	$D_p = 2000$ psi
0.360	-20	11.0	27.0	1.5	3.9
	68	26.0	52.0	5.4	11.1
0.636	-20	0.5	1.5	0.4	0.2
	140	5.1	13.8	0.9	2.5

NOTE: The values in the table are the errors when the compressibility factor at 500 psi, instead of the one at the measured pressure, is used.

Table 4 Expected Frequency of Errors When Using Temperatures to the Nearest 0.25°C Versus the Nearest 0.5°F

Absolute Difference in C_{pl}	Frequency (%)
$0.0010 \leq \text{Difference} \leq 0.0015$	0.06
$\text{Difference} \geq 0.0005$	0.28
$\text{Difference} \geq 0.0001$	2.9

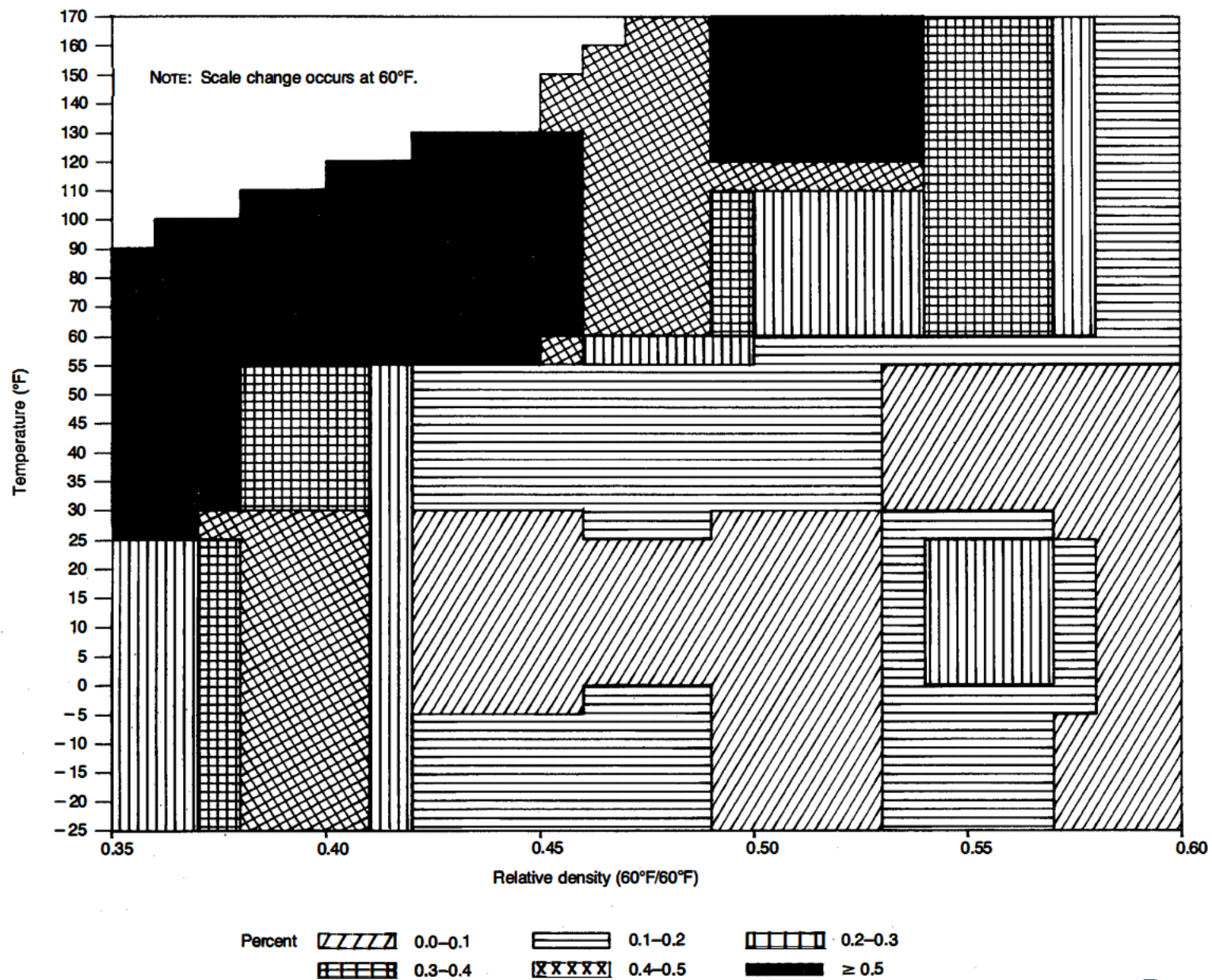


Figure 2—Uncertainties (95-Percent Confidence Level) in Volume Versus Temperature and Relative Density

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11.2.2.8M CALCULATION PROCEDURE

This procedure is recommended for computers with 11 or more significant digits. With some computers, this could require the use of double precision for all variables and constants, as shown in the following steps and example.

11.2.2.8.1M Procedure Used to Generate Chapter 11.2.2M

1. Vary temperature (TPC) from -46.00°C to 60.00°C (inclusive) in precise increments of 0.25; that is,

$$\text{TPC} = -46.00, -45.75, -45.50, \dots, 60.00$$

2. Convert TPC to degrees Rankine (TR) and round TR to the nearest 0.01:

$$\text{TR} = 1.80\text{D0} * \text{TPC} + 32.00\text{D0} + 459.70\text{D0}$$

$$\text{TR} = \text{INT}(\text{TR} * 100.00\text{D0} + 0.5\text{D0}) * 0.01\text{D0}$$

The INT intrinsic function returns an integer by truncating all digits to the right of the decimal point.

3. Vary density (DN) from 350 to 636 kilograms per cubic metre (inclusive) in precise increments of 2; that is,

$$\text{DN} = 350, 352, 354, \dots, 636$$

Extend the table to 637 kilograms per cubic metre.

4. Convert the density in kilograms per cubic metre (DN) to density in grams per cubic centimetre (G):

$$\text{G} = \text{DN}/1000.00\text{D0}$$

5. Obtain three significant decimal figures by:

$$\text{G} = \text{INT}(\text{G} * 1000.00\text{D0} + 0.5\text{D0}) * 0.001\text{D0}$$

6. Convert the density (15°C) in grams per cubic centimetre to density (60°F) in grams per cubic centimetre:

$$\text{G1} = \text{G}$$

$$\text{G2} = \text{G} * \text{G}$$

$$\text{G3} = \text{G2} * \text{G}$$

$$\text{G4} = \text{G2} * \text{G2}$$

$$\text{G} = 0.0\text{D0}$$

$$\text{G} = \text{G} - 0.03689636\text{D0}$$

$$\text{G} = \text{G} + 1.24446244\text{D0} * \text{G1}$$

$$\text{G} = \text{G} - 0.63291568\text{D0} * \text{G2}$$

$$\text{G} = \text{G} + 0.73861488\text{D0} * \text{G3}$$

$$\text{G} = \text{G} - 0.32478413\text{D0} * \text{G4}$$

7. Convert the calculated density (60°F) in grams per cubic centimetre to relative density using the density of water at 60°F :

$$\text{G} = \text{G}/0.999012\text{D0}$$

8. Obtain three significant decimal figures by:

$$\text{G} = \text{INT}(\text{G} * 1000.00\text{D0} + 0.5\text{D0}) * 0.001\text{D0}$$

9. Calculate 96 percent of the critical temperature (TC):

$$\begin{aligned} \text{TC} &= 0.96\text{D0} * (621.418\text{D0} - 822.686\text{D0} * \text{G} \\ &\quad + 1737.86\text{D0} * \text{G} * \text{G}) \end{aligned}$$

10. If the temperature in degrees Rankine (TR) is more than the near critical limit (TC), void the calculation, output a message, and start the next density and temperature set.

11. If the temperature in degrees Rankine (TR) is less than or equal to the near critical limit (TC), then calculate the A and B factors using Steps 12–18.

12. Calculate the powers of temperature using temperature in degrees Rankine (TR):

$$\text{TR2} = \text{TR} * \text{TR}$$

$$\text{TR3} = \text{TR} * \text{TR2}$$

13. Calculate the powers of relative density:

$$\text{G2} = \text{G} * \text{G}$$

$$\text{G4} = \text{G2} * \text{G2}$$

$$\text{G6} = \text{G2} * \text{G4}$$

14. Calculate the A factor:

$$\text{A} = 0.0\text{D0}$$

$$\text{A} = \text{A} - 2.1465891\text{D}-6 * \text{TR2}$$

$$\text{A} = \text{A} + 1.5774390\text{D}-5 * \text{TR2} * \text{G2}$$

$$\text{A} = \text{A} - 1.0502139\text{D}-5 * \text{TR2} * \text{G4}$$

$$\text{A} = \text{A} + 2.8324481\text{D}-7 * \text{TR3} * \text{G6}$$

$$\text{A} = \text{A} - 0.95495939\text{D0}$$

$$\text{A} = \text{A} + 7.2900662\text{D}-8 * \text{TR3} * \text{G2}$$

$$\text{A} = \text{A} - 2.7769343\text{D}-7 * \text{TR3} * \text{G4}$$

$$\text{A} = \text{A} + 0.03645838\text{D0} * \text{TR} * \text{G2}$$

$$\text{A} = \text{A} - 0.05110158\text{D0} * \text{TR} * \text{G}$$

$$\text{A} = \text{A} + 0.00795529\text{D0} * \text{TR}$$

$$\text{A} = \text{A} + 9.13114910\text{D0} * \text{G}$$

15. Convert the A factor to kilopascals:

$$\text{A} = \text{A} * 6.894757\text{D0}$$

16. Round the A factor to the nearest whole number.

$$\text{A} = \text{INT}(\text{A} * 100000.00\text{D0} + 0.5\text{D0})$$

17. Calculate the B factor:

$$\begin{aligned}
 B &= 0.0D0 \\
 B &= B - 6.0357667D-10 * TR^2 \\
 B &= B + 2.2112678D-6 * TR * G^2 \\
 B &= B + 0.00088384D0 * G \\
 B &= B - 0.00204016D0 * G^2
 \end{aligned}$$

18. Round the B factor to the nearest 0.001:

$$B = \text{INT}(B * 100000000.0D0 + 0.5D0) * 0.001D0$$

19. Verify the table. Because of the complexity of the calculations, each term in the table should be verified against the standard. A tape of the table is available for use in verifying that the computer procedure will reproduce the standard.

11.2.2.8.2M Use of the Procedure to Calculate Individual A and B Values

1. Round the temperature to the nearest 0.25°C and initialize the temperature in °C:

$$\text{TPC} = \text{XX.XX}: -46.00 \leq \text{TPC} \leq 60.00$$

TPC is rounded to the nearest 0.25°C as follows:

$\text{TT} = \text{INT}(\text{TPC})$: that is, truncation.

$$\text{DIFF} = \text{TPC} - \text{TT}$$

If $\text{DIFF} \geq 0$ then $\text{SIGN} = 1.0$ else $\text{SIGN} = -1.0$.

$\text{DIFF} = \text{ABS}(\text{DIFF})$: that is, the absolute value.

If $\text{DIFF} < 0.125$ then $\text{TPC} = \text{TT}$.

If $0.125 \leq \text{DIFF} < 0.375$ then $\text{TPC} = \text{TT} + 0.25 * \text{SIGN}$.

If $0.375 \leq \text{DIFF} < 0.625$ then $\text{TPC} = \text{TT} + 0.50 * \text{SIGN}$.

If $0.625 \leq \text{DIFF} < 0.875$ then $\text{TPC} = \text{TT} + 0.75 * \text{SIGN}$.

If $\text{DIFF} \geq 0.875$ then $\text{TPC} = \text{TT} + 1.00 * \text{SIGN}$.

2. Round the density to the nearest 2 kilograms per cubic metre as follows:

$$G = \text{INT}(G/2.0D0 + 0.5D0) * 2$$

3. Follow Steps 4–18 of the procedure given in 11.2.2.8.1M.

11.2.2.8.3M Example

In this example, the temperature is 5.0°C and the density is 530 kilograms per cubic metre.

NOTE: Results are shown to 18 digits for comparison purposes. Only 11 digits are required to generate the standard. Constants must use 11 digits, as indicated by the D exponent.

1. Convert density at 15°C to relative density at 60°F:

$$\begin{aligned}
 G &= DN/1000.0D0 = & 0.5300000000000000D+00 \\
 G1 &= G = & 0.5300000000000000D+00 \\
 G2 &= G * G = & 0.2809000000000000D+00 \\
 G3 &= G2 * G = & 0.1488770000000000D+00 \\
 G4 &= G2 * G2 = & 0.7890481000000000D 01 \\
 G &= 0.0D0 = & 0.0000000000000000D+00 \\
 G &= G 0.03689636D0 = & 0.3689636000000000D-01 \\
 G &= G + 1.24446244D0 * G1 = & 0.6226687332000000D+00 \\
 G &= G 0.63291568D0 * G2 = & 0.4448827186880000D+00 \\
 G &= G + 0.73861488D0 * G3 = & 0.5548454861777600D+00 \\
 G &= G 0.32478413D0 * G4 = & 0.5292184561090947D+00 \\
 G &= G/0.999012D0 = & 0.5297418410480501D+00 \\
 G &= INT(G * 1000.0D0 + 0.5D0) * 0.001D0 = & 0.5300000000000000D+00
 \end{aligned}$$

2. Before rounding, the temperature is 5.00 = TPC. After rounding, the temperature is 0.5000000000000000D+01.

$$\begin{aligned}
 TC &= 0.96D0 * (621.418D0 - 822.686D0 * G + 1737.86D0 * G * G) \\
 &= 0.6466169222400000D+03 \\
 TR &= 1.80D0 * TPC + 32.00D0 + 459.70D0 \\
 &= 0.5007000000000000D+03
 \end{aligned}$$

3. Calculate the powers of temperature:

$$\begin{aligned}
 TR2 &= TR * TR = 0.2507004900000000D+06 \\
 TR3 &= TR * TR2 = 0.1255257353430000D+09
 \end{aligned}$$

4. Calculate the powers of relative density:

$$\begin{aligned}
 G2 &= G * G = 0.2809000000000000D+00 \\
 G4 &= G2 * G2 = 0.7890481000000000D 01 \\
 G6 &= G2 * G4 = 0.2216436112900000D-01
 \end{aligned}$$

5. Calculate the A factor.

Calculate the terms and sum to A:

$$\begin{aligned}
 A &= 0.0D0 \\
 A &= A 2.1465891D -6 * TR2 = 0.5381509391986590D+00 \\
 A &= A + 1.5774390D -5 * TR2 * G2 = 0.5727094880598549D+00 \\
 A &= A 1.0502139D -5 * TR2 * G4 = 0.3649616929170871D+00 \\
 A &= A + 2.8324481D -7 * TR3 * G6 = 0.115300476008567951D+01 \\
 A &= A 0.95495939D0 = 0.19804537008567951D+00 \\
 A &= A + 7.2900662D -8 * TR3 * G2 = 0.276853576564138604D+01 \\
 A &= A 2.7769343D -7 * TR3 * G4 = 0.180977793862079819D 01
 \end{aligned}$$

$$\begin{aligned}
 A &= A + 0.03645838D0 * TR * G2 = 0.514584606164560798D+01 \\
 A &= A - 0.05110158D0 * TR * G = -0.841503132453439202D+01 \\
 A &= A + 0.00795529D0 * TR = -0.443181762153439202D+01 \\
 A &= A + 9.13114910D0 * G = 0.407691401465607976D+00 \\
 A &= A * 6.894757D0 = 0.281093314409481085D+01
 \end{aligned}$$

Round and scale A to get the A factor rounded to the nearest whole number:

$$A = \text{INT}(A * 100000.0D0 + 0.5D0) = 281093$$

6. Calculate the B factor.

Calculate the terms and sum to B:

$$\begin{aligned}
 B &= 0.0D0 \\
 B &= B - 6.0357667D-10 * TR2 = -0.151316966921568300D-03 \\
 B &= B + 2.2112678D-6 * TR * G2 = 0.159690397175945700D-03 \\
 B &= B + 0.00088384D0 * G = 0.628125597175945700D-03 \\
 B &= B - 0.00204016D0 * G2 = 0.550446531759456999D-04
 \end{aligned}$$

Round and scale B to get the B factor rounded to the nearest 0.001:

$$B = \text{INT}(B * 100000000.0D0 + 0.5D0) * 0.001D0 = 5.504$$

11.2.2.9M REFERENCES

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**API MANUAL OF PETROLEUM MEASUREMENT STANDARDS
CHAPTER 11.2.2M**

**COMPRESSIBILITY FACTORS FOR HYDROCARBONS:
350–637 KILOGRAMS PER CUBIC METRE DENSITY (15°C) AND
–46°C TO 60°C METERING TEMPERATURE**

TEMP DEG C		COMPRESSIBILITY FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C										F=1/(A+DP*B) KILOGRAM PER CUBIC METRE					
		350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380
46.00	A	209375	210804	212297	213854	215474	217157	218903	221638	223538	225500	227523	229606	231749	233952	236215	238536
	B	6.909	6.927	6.944	6.961	6.976	6.991	7.004	7.023	7.034	7.045	7.054	7.063	7.071	7.078	7.084	7.089
-45.75	A	208416	209838	211323	212873	214485	216161	217900	220624	222517	224472	226487	228563	230700	232896	235151	237465
	B	6.899	6.917	6.934	6.951	6.966	6.981	6.995	7.014	7.025	7.036	7.046	7.055	7.062	7.069	7.075	7.081
-45.50	A	207459	208873	210351	211893	213499	215167	216899	219612	221498	223446	225454	227523	229652	231841	234089	236396
	B	6.888	6.907	6.924	6.941	6.957	6.972	6.986	7.005	7.016	7.027	7.037	7.046	7.054	7.061	7.067	7.073
-45.25	A	206503	207910	209381	210916	212514	214175	215899	218602	220481	222421	224422	226484	228606	230787	233029	235329
	B	6.878	6.897	6.915	6.931	6.947	6.962	6.976	6.996	7.007	7.018	7.028	7.037	7.046	7.053	7.059	7.065
-45.00	A	205549	206948	208412	209940	211531	213185	214902	217593	219465	221398	223392	225447	227562	229736	231970	234263
	B	6.868	6.887	6.905	6.921	6.937	6.953	6.967	6.986	6.998	7.009	7.020	7.029	7.037	7.045	7.051	7.057
-44.75	A	204597	205989	207445	208965	210549	212196	213906	216587	218451	220377	222364	224412	226519	228687	230914	233200
	B	6.858	6.877	6.895	6.912	6.928	6.943	6.957	6.977	6.989	7.001	7.011	7.020	7.029	7.036	7.043	7.049
-44.50	A	203646	205031	206480	207993	209570	211209	212912	215582	217440	219358	221338	223378	225479	227639	229859	232138
	B	6.847	6.866	6.885	6.902	6.918	6.933	6.948	6.968	6.980	6.992	7.002	7.012	7.020	7.028	7.035	7.041
-44.25	A	202697	204075	205516	207022	208592	210224	211919	214579	216429	218341	220314	222347	224440	226594	228806	231078
	B	6.837	6.856	6.874	6.892	6.908	6.924	6.938	6.959	6.971	6.983	6.993	7.003	7.012	7.019	7.026	7.033
-44.00	A	201750	203120	204555	206053	207616	209241	210929	213578	215421	217326	219291	221317	223404	225550	227756	230020
	B	6.827	6.846	6.864	6.882	6.898	6.914	6.929	6.949	6.962	6.974	6.984	6.994	7.003	7.011	7.018	7.024
-43.75	A	200804	202167	203595	205086	206641	208259	209940	212579	214415	216312	218271	220290	222369	224508	226707	228964
	B	6.816	6.836	6.854	6.872	6.889	6.905	6.919	6.940	6.953	6.965	6.975	6.985	6.995	7.003	7.010	7.016
-43.50	A	199861	201216	202636	204121	205669	207280	208953	211581	213410	215300	217252	219264	221336	223468	225660	227910
	B	6.806	6.826	6.844	6.862	6.879	6.895	6.910	6.931	6.944	6.956	6.967	6.977	6.986	6.994	7.002	7.008
-43.25	A	198918	200267	201680	203157	204698	206302	207968	210585	212407	214290	216235	218240	220305	222430	224614	226858
	B	6.796	6.815	6.834	6.852	6.869	6.885	6.900	6.921	6.934	6.946	6.958	6.968	6.977	6.986	6.993	7.000
-43.00	A	197978	199319	200725	202195	203729	205325	206985	209591	211406	213282	215220	217218	219276	221394	223571	225808
	B	6.785	6.805	6.824	6.842	6.859	6.875	6.891	6.912	6.925	6.937	6.949	6.959	6.969	6.977	6.985	6.992
-42.75	A	197039	198374	199772	201235	202761	204351	206004	208599	210407	212276	214206	216197	218248	220359	222530	224760
	B	6.775	6.795	6.814	6.832	6.849	6.866	6.881	6.903	6.916	6.928	6.940	6.950	6.960	6.969	6.977	6.984
-42.50	A	196102	197429	198821	200277	201796	203378	205024	207609	209410	211272	213195	215179	217223	219327	221490	223713
	B	6.764	6.784	6.804	6.822	6.839	6.856	6.871	6.893	6.907	6.919	6.931	6.941	6.951	6.960	6.968	6.975
-42.25	A	195167	196487	197871	199320	200832	202408	204046	206620	208414	210269	212185	214162	216199	218296	220453	222669
	B	6.754	6.774	6.793	6.812	6.829	6.846	6.862	6.884	6.897	6.910	6.922	6.933	6.943	6.952	6.960	6.967

		COMPRESSIBILITY FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE															F=1/(A+DP*B)	
TEMP		350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380	
DEG C																		
-42.00	A	194234	195546	196924	198365	199870	201439	203070	205634	207420	209269	211178	213148	215178	217268	219417	221626	
	B	6.743	6.763	6.783	6.802	6.819	6.836	6.852	6.874	6.888	6.901	6.913	6.924	6.934	6.943	6.951	6.959	
-41.75	A	193302	194607	195978	197412	198910	200471	202096	204649	206429	208270	210172	212135	214158	216241	218384	220585	
	B	6.733	6.753	6.773	6.791	6.809	6.826	6.842	6.865	6.879	6.892	6.904	6.915	6.925	6.934	6.943	6.950	
-41.50	A	192372	193670	195033	196461	197952	199506	201123	203666	205439	207273	209168	211124	213140	215216	217352	219547	
	B	6.722	6.743	6.762	6.781	6.799	6.816	6.833	6.855	6.869	6.882	6.895	6.906	6.916	6.926	6.934	6.942	
-41.25	A	191443	192735	194091	195511	196995	198542	200152	202685	204450	206278	208166	210115	212124	214193	216322	218510	
	B	6.711	6.732	6.752	6.771	6.789	6.807	6.823	6.846	6.860	6.873	6.885	6.897	6.907	6.917	6.926	6.934	
-41.00	A	190517	191801	193150	194563	196040	197580	199183	201705	203464	205284	207166	209108	211110	213172	215294	217475	
	B	6.701	6.722	6.742	6.761	6.779	6.797	6.813	6.836	6.850	6.864	6.876	6.888	6.899	6.908	6.917	6.925	
-40.75	A	189592	190869	192211	193617	195087	196620	198216	200728	202480	204293	206167	208102	210098	212153	214268	216442	
	B	6.690	6.711	6.731	6.751	6.769	6.787	6.803	6.827	6.841	6.854	6.867	6.879	6.890	6.900	6.909	6.917	
-40.50	A	188669	189939	191274	192673	194136	195662	197251	199752	201497	203303	205171	207099	209087	211136	213244	215411	
	B	6.679	6.701	6.721	6.740	6.759	6.777	6.793	6.817	6.831	6.845	6.858	6.870	6.881	6.891	6.900	6.908	
-40.25	A	187747	189010	190338	191730	193186	194705	196288	198778	200516	202316	204176	206097	208079	210120	212221	214382	
	B	6.669	6.690	6.710	6.730	6.749	6.767	6.784	6.807	6.822	6.836	6.849	6.861	6.872	6.882	6.891	6.900	
-40.00	A	186828	188084	189405	190790	192239	193751	195326	197806	199537	201330	203183	205098	207072	209107	211201	213354	
	B	6.658	6.679	6.700	6.720	6.739	6.757	6.774	6.798	6.812	6.826	6.839	6.852	6.863	6.873	6.883	6.891	
-39.75	A	185910	187159	188473	189851	191293	192798	194366	196836	198560	200346	202192	204100	206068	208095	210183	212329	
	B	6.647	6.669	6.690	6.709	6.728	6.747	6.764	6.788	6.803	6.817	6.830	6.843	6.854	6.865	6.874	6.883	
-39.50	A	184994	186236	187542	188914	190349	191847	193408	195868	197585	199364	201203	203104	205065	207086	209166	211306	
	B	6.636	6.658	6.679	6.699	6.718	6.736	6.754	6.778	6.793	6.808	6.821	6.833	6.845	6.856	6.865	6.874	
-39.25	A	184079	185314	186614	187978	189406	190898	192452	194901	196612	198383	200216	202110	204064	206078	208152	210284	
	B	6.626	6.647	6.669	6.689	6.708	6.726	6.744	6.768	6.784	6.798	6.812	6.824	6.836	6.847	6.857	6.866	
-39.00	A	183166	184395	185687	187045	188466	189950	191498	193937	195640	197405	199231	201118	203065	205072	207139	209265	
	B	6.615	6.637	6.658	6.678	6.698	6.716	6.734	6.759	6.774	6.789	6.802	6.815	6.827	6.838	6.848	6.857	
-38.75	A	182256	183477	184763	186113	187527	189005	190545	192974	194670	196428	198248	200128	202068	204068	206128	208247	
	B	6.604	6.626	6.647	6.668	6.687	6.706	6.724	6.749	6.764	6.779	6.793	6.806	6.818	6.829	6.839	6.849	
-38.50	A	181346	182560	183839	185183	186590	188061	189595	192013	193703	195454	197266	199139	201073	203067	205120	207232	
	B	6.593	6.615	6.637	6.657	6.677	6.696	6.714	6.739	6.755	6.770	6.784	6.797	6.809	6.820	6.830	6.840	
-38.25	A	180439	181646	182918	184255	185655	187119	188646	191054	192737	194481	196287	198153	200080	202067	204113	206218	
	B	6.582	6.605	6.626	6.647	6.667	6.686	6.704	6.729	6.745	6.760	6.774	6.787	6.800	6.811	6.822	6.831	

		COMPRESSIBILITY FACTOR PER KILOPASCAL										F=1/(A+DP*B)					
TEMP		DENSITY AT 15 DEGREES C										KILOGRAM PER CUBIC METRE					
DEG C		350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380
-38.00	A	179533	180733	181999	183328	184722	186179	187699	190097	191773	193510	195309	197169	199089	201068	203108	205207
	B	6.571	6.594	6.615	6.636	6.656	6.675	6.694	6.719	6.735	6.750	6.765	6.778	6.791	6.802	6.813	6.823
-37.75	A	178629	179823	181081	182404	183790	185241	186754	189141	190810	192541	194333	196186	198099	200072	202105	204197
	B	6.560	6.583	6.605	6.626	6.646	6.665	6.684	6.709	6.726	6.741	6.755	6.769	6.781	6.793	6.804	6.814
-37.50	A	177727	178914	180165	181481	182861	184304	185811	188188	189850	191574	193359	195205	197112	199078	201104	203189
	B	6.549	6.572	6.594	6.615	6.636	6.655	6.673	6.700	6.716	6.731	6.746	6.759	6.772	6.784	6.795	6.805
-37.25	A	176827	178006	179251	180560	181933	183369	184869	187236	188892	190609	192387	194227	196126	198086	200105	202183
	B	6.538	6.561	6.583	6.605	6.625	6.645	6.663	6.690	6.706	6.722	6.736	6.750	6.763	6.775	6.786	6.796
-37.00	A	175928	177101	178338	179641	181007	182437	183929	186286	187935	189646	191417	193250	195143	197095	199108	201180
	B	6.527	6.550	6.573	6.594	6.615	6.634	6.653	6.680	6.696	6.712	6.727	6.741	6.754	6.766	6.777	6.788
-36.75	A	175031	176197	177428	178723	180083	181506	182992	185338	186980	188684	190449	192275	194161	196107	198113	200178
	B	6.516	6.539	6.562	6.583	6.604	6.624	6.643	6.670	6.686	6.702	6.717	6.731	6.744	6.757	6.768	6.779
-36.50	A	174136	175295	176519	177808	179160	180576	182056	184392	186028	187725	189483	191302	193181	195121	197120	199178
	B	6.505	6.528	6.551	6.573	6.594	6.614	6.633	6.660	6.676	6.692	6.708	6.722	6.735	6.748	6.759	6.770
-36.25	A	173243	174395	175612	176894	178240	179649	181122	183448	185077	186767	188518	190331	192203	194136	196128	198180
	B	6.494	6.518	6.540	6.562	6.583	6.603	6.622	6.650	6.667	6.683	6.698	6.712	6.726	6.738	6.750	6.761
-36.00	A	172351	173496	174707	175982	177321	178724	180189	182506	184128	185811	187556	189362	191228	193153	195139	197184
	B	6.483	6.507	6.529	6.551	6.572	6.593	6.612	6.639	6.657	6.673	6.688	6.703	6.717	6.729	6.741	6.752
35.75	A	171461	172600	173803	175072	176404	177800	179259	181565	183180	184857	186595	188394	190254	192173	194152	196190
	B	6.472	6.496	6.519	6.541	6.562	6.582	6.602	6.629	6.647	6.663	6.679	6.693	6.707	6.720	6.732	6.743
-35.50	A	170573	171705	172902	174163	175489	176878	178331	180627	182235	183905	185637	187429	189282	191194	193166	195198
	B	6.460	6.484	6.508	6.530	6.551	6.572	6.591	6.619	6.637	6.653	6.669	6.684	6.698	6.711	6.723	6.734
-35.25	A	169687	170812	172002	173257	174576	175958	177404	179690	181292	182955	184680	186466	188311	190217	192183	194208
	B	6.449	6.473	6.497	6.519	6.541	6.561	6.581	6.609	6.627	6.643	6.659	6.674	6.688	6.702	6.714	6.725
-35.00	A	168802	169921	171104	172352	173664	175040	176479	178755	180350	182007	183725	185504	187343	189243	191202	193220
	B	6.438	6.462	6.486	6.508	6.530	6.551	6.571	6.599	6.617	6.634	6.650	6.665	6.679	6.692	6.705	6.716
-34.75	A	167920	169031	170208	171449	172755	174124	175556	177822	179411	181061	182772	184545	186377	188270	190222	192233
	B	6.427	6.451	6.475	6.497	6.519	6.540	6.560	6.589	6.607	6.624	6.640	6.655	6.669	6.683	6.696	6.707
-34.50	A	167039	168144	169314	170548	171847	173209	174635	176891	178473	180117	181821	183587	185413	187299	189245	191249
	B	6.416	6.440	6.464	6.487	6.509	6.530	6.550	6.579	6.597	6.614	6.630	6.645	6.660	6.674	6.686	6.698
-34.25	A	166160	167258	168421	169649	170941	172297	173716	175962	177537	179174	180872	182631	184451	186330	188269	190267
	B	6.404	6.429	6.453	6.476	6.498	6.519	6.539	6.568	6.587	6.604	6.620	6.636	6.651	6.664	6.677	6.689

		COMPRESSIBILITY FACTOR PER KILOPASCAL										F=1/(A+DP*B)					
		DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE															
TEMP DEG C		350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380
-34.00	A	165282	166374	167530	168752	170037	171386	172798	175035	176603	178234	179925	181677	183490	185363	187295	189287
	B	6.393	6.418	6.442	6.465	6.487	6.508	6.529	6.558	6.576	6.594	6.610	6.626	6.641	6.655	6.668	6.680
-33.75	A	164407	165491	166641	167856	169135	170477	171883	174109	175671	177295	178980	180726	182532	184398	186324	188309
	B	6.382	6.407	6.431	6.454	6.476	6.498	6.518	6.548	6.566	6.584	6.601	6.616	6.631	6.646	6.659	6.671
-33.50	A	163533	164611	165754	166962	168234	169570	170969	173186	174741	176358	178037	179776	181575	183435	185354	187333
	B	6.370	6.395	6.420	6.443	6.465	6.487	6.508	6.537	6.556	6.574	6.591	6.607	6.622	6.636	6.650	6.662
-33.25	A	162661	163732	164869	166070	167336	168665	170058	172264	173813	175423	177095	178828	180621	182474	184387	186358
	B	6.359	6.384	6.408	6.432	6.455	6.476	6.497	6.527	6.546	6.564	6.581	6.597	6.612	6.627	6.640	6.653
-33.00	A	161791	162856	163986	165180	166439	167762	169148	171344	172887	174491	176156	177882	179668	181515	183421	185386
	B	6.347	6.373	6.397	6.421	6.444	6.466	6.487	6.517	6.536	6.554	6.571	6.587	6.603	6.617	6.631	6.644
-32.75	A	160922	161980	163104	164292	165544	166860	168240	170427	171962	173560	175218	176938	178718	180558	182457	184416
	B	6.336	6.361	6.386	6.410	6.433	6.455	6.476	6.506	6.525	6.544	6.561	6.577	6.593	6.608	6.622	6.635
-32.50	A	160056	161107	162224	163406	164651	165961	167334	169511	171040	172631	174283	175996	177769	179603	181496	183448
	B	6.324	6.350	6.375	6.399	6.422	6.444	6.466	6.496	6.515	6.534	6.551	6.568	6.583	6.598	6.612	6.625
-32.25	A	159191	160236	161346	162521	163760	165063	166430	168597	170119	171704	173349	175056	176823	178649	180536	182481
	B	6.313	6.339	6.364	6.388	6.411	6.433	6.455	6.486	6.505	6.523	6.541	6.558	6.574	6.589	6.603	6.616
-32.00	A	158328	159366	160470	161638	162871	164167	165527	167685	169201	170779	172418	174118	175878	177698	179578	181517
	B	6.301	6.327	6.352	6.377	6.400	6.423	6.444	6.475	6.495	6.513	6.531	6.548	6.564	6.579	6.593	6.607
-31.75	A	157467	158499	159596	160757	161984	163273	164627	166774	168284	169855	171488	173181	174935	176749	178622	180555
	B	6.290	6.316	6.341	6.366	6.389	6.412	6.434	6.465	6.484	6.503	6.521	6.538	6.554	6.569	6.584	6.597
-31.50	A	156607	157633	158723	159878	161098	162381	163728	165866	167369	168934	170560	172247	173994	175802	177669	179595
	B	6.278	6.305	6.330	6.354	6.378	6.401	6.423	6.454	6.474	6.493	6.511	6.528	6.544	6.560	6.574	6.588
-31.25	A	155750	156768	157852	159001	160214	161491	162832	164960	166456	168015	169634	171315	173056	174857	176717	178637
	B	6.267	6.293	6.319	6.343	6.367	6.390	6.412	6.444	6.463	6.483	6.501	6.518	6.535	6.550	6.565	6.579
-31.00	A	154894	155906	156984	158126	159333	160603	161937	164055	165545	167097	168710	170384	172119	173913	175767	177680
	B	6.255	6.282	6.307	6.332	6.356	6.379	6.401	6.433	6.453	6.472	6.491	6.508	6.525	6.540	6.555	6.569
-30.75	A	154040	155046	156117	157252	158453	159717	161044	163153	164636	166182	167789	169456	171184	172972	174820	176726
	B	6.243	6.270	6.296	6.321	6.345	6.368	6.391	6.422	6.443	6.462	6.480	6.498	6.515	6.531	6.546	6.560
-30.50	A	153188	154187	155252	156381	157574	158832	160153	162252	163729	165268	166869	168530	170251	172033	173874	175774
	B	6.232	6.259	6.285	6.310	6.334	6.357	6.380	6.412	6.432	6.452	6.470	6.488	6.505	6.521	6.536	6.551
-30.25	A	152337	153330	154388	155511	156698	157949	159264	161353	162824	164357	165951	167605	169320	171095	172930	174824
	B	6.220	6.247	6.273	6.298	6.323	6.346	6.369	6.401	6.422	6.441	6.460	6.478	6.495	6.511	6.527	6.541

		COMPRESSIBILITY FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE										F=1/(A+DP*B)					
TEMP DEG C		350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380
-30.00	A	151489	152475	153527	154643	155824	157069	158377	160456	161921	163447	165034	166683	168391	170160	171988	173876
	B	6.208	6.235	6.262	6.287	6.312	6.335	6.358	6.391	6.411	6.431	6.450	6.468	6.485	6.502	6.517	6.532
-29.75	A	150642	151622	152667	153777	154952	156190	157491	159562	161020	162539	164120	165762	167465	169227	171049	172930
	B	6.197	6.224	6.250	6.276	6.300	6.324	6.347	6.380	6.401	6.421	6.440	6.458	6.475	6.492	6.507	6.522
-29.50	A	149797	150771	151809	152913	154081	155313	156608	158669	160120	161634	163208	164844	166540	168296	170111	171985
	B	6.185	6.212	6.239	6.264	6.289	6.313	6.336	6.369	6.390	6.410	6.429	6.448	6.465	6.482	6.498	6.513
-29.25	A	148954	149921	150954	152051	153212	154438	155726	157778	159223	160730	162298	163927	165617	167366	169175	171043
	B	6.173	6.201	6.227	6.253	6.278	6.302	6.325	6.358	6.380	6.400	6.419	6.438	6.455	6.472	6.488	6.503
-29.00	A	148113	149074	150099	151190	152345	153564	154847	156888	158327	159828	161390	163013	164696	166439	168242	170103
	B	6.161	6.189	6.216	6.242	6.267	6.291	6.314	6.348	6.369	6.389	6.409	6.427	6.445	6.462	6.478	6.494
-28.75	A	147274	148228	149247	150332	151480	152693	153969	156001	157434	158928	160484	162100	163777	165514	167310	169165
	B	6.149	6.177	6.204	6.230	6.255	6.280	6.303	6.337	6.358	6.379	6.398	6.417	6.435	6.452	6.469	6.484
-28.50	A	146436	147384	148397	149475	150617	151824	153094	155116	156542	158030	159579	161189	162860	164590	166380	168229
	B	6.138	6.166	6.193	6.219	6.244	6.269	6.292	6.326	6.348	6.368	6.388	6.407	6.425	6.442	6.459	6.474
-28.25	A	145600	146542	147548	148620	149756	150956	152220	154233	155653	157134	158677	160281	161945	163669	165453	167295
	B	6.126	6.154	6.181	6.207	6.233	6.257	6.281	6.315	6.337	6.358	6.378	6.397	6.415	6.432	6.449	6.465
-28.00	A	144766	145701	146702	147767	148897	150091	151348	153351	154765	156240	157777	159374	161032	162750	164527	166363
	B	6.114	6.142	6.169	6.196	6.221	6.246	6.270	6.304	6.326	6.347	6.367	6.387	6.405	6.422	6.439	6.455
-27.75	A	143934	144863	145857	146916	148040	149227	150478	152472	153879	155348	156878	158470	160121	161833	163603	165433
	B	6.102	6.130	6.158	6.184	6.210	6.235	6.259	6.294	6.316	6.337	6.357	6.376	6.395	6.413	6.429	6.445
-27.50	A	143104	144026	145014	146067	147184	148365	149610	151594	152995	154458	155982	157567	159212	160917	162682	164506
	B	6.090	6.118	6.146	6.173	6.199	6.224	6.248	6.283	6.305	6.326	6.346	6.366	6.385	6.402	6.419	6.436
-27.25	A	142276	143192	144173	145220	146331	147505	148744	150719	152114	153570	155088	156666	158305	160004	161762	163580
	B	6.078	6.107	6.134	6.161	6.187	6.212	6.237	6.272	6.294	6.315	6.336	6.356	6.374	6.392	6.410	6.426
-27.00	A	141449	142359	143334	144374	145479	146647	147879	149845	151234	152684	154195	155768	157400	159093	160845	162656
	B	6.066	6.095	6.123	6.150	6.176	6.201	6.226	6.261	6.283	6.305	6.325	6.345	6.364	6.382	6.400	6.416
-26.75	A	140624	141528	142497	143531	144629	145791	147017	148974	150356	151800	153305	154871	156497	158184	159929	161734
	B	6.054	6.083	6.111	6.138	6.164	6.190	6.214	6.250	6.272	6.294	6.315	6.335	6.354	6.372	6.390	6.406
-26.50	A	139802	140699	141661	142689	143781	144937	146157	148104	149480	150918	152417	153976	155596	157277	159016	160815
	B	6.042	6.071	6.099	6.126	6.153	6.178	6.203	6.239	6.262	6.283	6.304	6.324	6.344	6.362	6.380	6.397
-26.25	A	138981	139871	140828	141849	142935	144085	145298	147236	148606	150037	151530	153084	154698	156371	158105	159897
	B	6.030	6.059	6.087	6.115	6.141	6.167	6.192	6.228	6.251	6.273	6.294	6.314	6.333	6.352	6.370	6.387

		COMPRESSIBILITY FACTOR PER KILOPASCAL										F=1/(A+DP*B)					
		DENSITY AT 15 DEGREES C KILOGRAM PER										CUBIC METRE					
TEMP DEG C		350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380
-26.00	A	138161	139046	139996	141011	142091	143235	144442	146370	147734	149159	150646	152193	153801	155468	157195	158981
	B	6.018	6.047	6.075	6.103	6.130	6.156	6.181	6.217	6.240	6.262	6.283	6.304	6.323	6.342	6.360	6.377
-25.75	A	137344	138223	139166	140175	141249	142386	143587	145506	146864	148283	149763	151304	152906	154567	156288	158068
	B	6.006	6.035	6.064	6.091	6.118	6.144	6.169	6.206	6.229	6.251	6.273	6.293	6.313	6.332	6.350	6.367
-25.50	A	136529	137401	138339	139341	140409	141540	142735	144644	145996	147409	148883	150418	152013	153668	155383	157156
	B	5.993	6.023	6.052	6.080	6.107	6.133	6.158	6.195	6.218	6.240	6.262	6.283	6.302	6.321	6.340	6.357
-25.25	A	135715	136581	137513	138509	139570	140695	141884	143785	145130	146536	148004	149533	151122	152771	154480	156247
	B	5.981	6.011	6.040	6.068	6.095	6.121	6.147	6.184	6.207	6.229	6.251	6.272	6.292	6.311	6.330	6.347
-25.00	A	134903	135763	136688	137679	138734	139853	141035	142927	144265	145666	147128	148650	150233	151876	153578	155339
	B	5.969	5.999	6.028	6.056	6.083	6.110	6.135	6.172	6.196	6.219	6.240	6.261	6.282	6.301	6.319	6.337
-24.75	A	134093	134947	135866	136851	137899	139012	140188	142071	143403	144798	146253	147770	149347	150983	152679	154434
	B	5.957	5.987	6.016	6.044	6.072	6.098	6.124	6.161	6.185	6.208	6.230	6.251	6.271	6.291	6.309	6.327
-24.50	A	133285	134133	135046	136024	137067	138173	139343	141216	142543	143931	145381	146891	148462	150092	151782	153531
	B	5.945	5.975	6.004	6.032	6.060	6.087	6.113	6.150	6.174	6.197	6.219	6.240	6.261	6.280	6.299	6.317
-24.25	A	132479	133321	134227	135200	136236	137337	138501	140364	141685	143067	144510	146015	147579	149203	150887	152630
	B	5.932	5.963	5.992	6.021	6.048	6.075	6.101	6.139	6.163	6.186	6.208	6.230	6.250	6.270	6.289	6.307
-24.00	A	131675	132510	133411	134377	135407	136502	137660	139514	140829	142205	143642	145140	146698	148317	149994	151731
	B	5.920	5.950	5.980	6.009	6.037	6.064	6.090	6.128	6.152	6.175	6.197	6.219	6.240	6.260	6.279	6.297
-23.75	A	130872	131702	132596	133556	134580	135669	136821	138666	139974	141344	142776	144268	145820	147432	149103	150834
	B	5.908	5.938	5.968	5.997	6.025	6.052	6.078	6.116	6.141	6.164	6.187	6.208	6.229	6.249	6.269	6.287
-23.50	A	130072	130895	131784	132737	133755	134838	135983	137820	139122	140486	141911	143397	144943	146549	148214	149939
	B	5.895	5.926	5.956	5.985	6.013	6.040	6.067	6.105	6.129	6.153	6.176	6.198	6.219	6.239	6.258	6.277
-23.25	A	129273	130090	130973	131920	132933	134009	135148	136976	138272	139630	141049	142529	144069	145669	147328	149046
	B	5.883	5.914	5.944	5.973	6.001	6.029	6.055	6.094	6.118	6.142	6.165	6.187	6.208	6.228	6.248	6.267
-23.00	A	128476	129287	130164	131105	132111	133182	134315	136134	137424	138775	140188	141662	143196	144790	146443	148155
	B	5.870	5.901	5.932	5.961	5.989	6.017	6.044	6.082	6.107	6.131	6.154	6.176	6.198	6.218	6.238	6.257
-22.75	A	127681	128486	129357	130292	131292	132356	133484	135293	136577	137923	139330	140798	142326	143913	145560	147266
	B	5.858	5.889	5.919	5.949	5.977	6.005	6.032	6.071	6.096	6.120	6.143	6.165	6.187	6.208	6.227	6.246
-22.50	A	126888	127687	128552	129481	130475	131533	132655	134455	135733	137073	138474	139935	141457	143039	144680	146380
	B	5.846	5.877	5.907	5.937	5.966	5.993	6.021	6.060	6.085	6.109	6.132	6.155	6.176	6.197	6.217	6.236
-22.25	A	126097	126890	127748	128672	129660	130712	131828	133619	134891	136224	137619	139075	140591	142166	143801	145495
	B	5.833	5.865	5.895	5.925	5.954	5.982	6.009	6.048	6.073	6.098	6.121	6.144	6.166	6.187	6.207	6.226

		COMPRESSIBILITY FACTOR PER KILOPASCAL										F=1/(A+DP*B)					
		DENSITY AT 15 DEGREES C KILOGRAM PER										CUBIC METRE					
TEMP		350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380
DEG C																	
-22.00	A	125308	126094	126947	127864	128847	129893	131002	132784	134050	135378	136767	138217	139726	141296	142925	144612
	B	5.821	5.852	5.883	5.913	5.942	5.970	5.997	6.037	6.062	6.086	6.110	6.133	6.155	6.176	6.196	6.216
-21.75	A	124520	125301	126148	127059	128035	129075	130179	131952	133212	134534	135917	137360	138864	140428	142050	143732
	B	5.808	5.840	5.871	5.901	5.930	5.958	5.986	6.025	6.051	6.075	6.099	6.122	6.144	6.165	6.186	6.205
-21.50	A	123735	124510	125350	126256	127226	128260	129358	131122	132376	133692	135069	136506	138004	139561	141178	142854
	B	5.796	5.827	5.858	5.888	5.918	5.946	5.974	6.014	6.039	6.064	6.088	6.111	6.133	6.155	6.175	6.195
-21.25	A	122951	123720	124554	125454	126418	127446	128538	130294	131542	132851	134222	135654	137146	138697	140308	141977
	B	5.783	5.815	5.846	5.876	5.906	5.934	5.962	6.002	6.028	6.053	6.077	6.100	6.123	6.144	6.165	6.185
-21.00	A	122169	122932	123761	124654	125613	126635	127721	129467	130709	132013	133378	134804	136290	137835	139440	141103
	B	5.770	5.802	5.834	5.864	5.894	5.923	5.950	5.991	6.017	6.042	6.066	6.089	6.112	6.134	6.154	6.174
-20.75	A	121389	122146	122969	123857	124809	125825	126905	128643	129879	131177	132536	133956	135436	136975	138574	140231
	B	5.758	5.790	5.821	5.852	5.882	5.911	5.939	5.979	6.005	6.030	6.055	6.078	6.101	6.123	6.144	6.164
-20.50	A	120611	121362	122179	123061	124007	125018	126092	127821	129051	130343	131696	133110	134584	136117	137710	139361
	B	5.745	5.778	5.809	5.840	5.870	5.899	5.927	5.968	5.994	6.019	6.044	6.067	6.090	6.112	6.133	6.154
-20.25	A	119835	120580	121391	122267	123208	124212	125280	127000	128225	129511	130858	132266	133734	135261	136848	138494
	B	5.732	5.765	5.797	5.827	5.858	5.887	5.915	5.956	5.982	6.008	6.032	6.056	6.079	6.101	6.123	6.143
-20.00	A	119061	119800	120605	121475	122410	123409	124471	126182	127400	128680	130022	131424	132886	134407	135988	137628
	B	5.720	5.752	5.784	5.815	5.845	5.875	5.903	5.944	5.971	5.996	6.021	6.045	6.068	6.091	6.112	6.133
-19.75	A	118289	119022	119821	120685	121614	122607	123663	125366	126578	127852	129188	130584	132040	133556	135131	136764
	B	5.707	5.740	5.772	5.803	5.833	5.863	5.891	5.933	5.959	5.985	6.010	6.034	6.057	6.080	6.102	6.122
-19.50	A	117518	118246	119039	119898	120820	121807	122858	124551	125758	127026	128356	129746	131196	132706	134275	135903
	B	5.694	5.727	5.759	5.791	5.821	5.851	5.879	5.921	5.948	5.974	5.999	6.023	6.046	6.069	6.091	6.112
-19.25	A	116750	117472	118259	119111	120029	121010	122054	123739	124940	126202	127526	128910	130354	131858	133422	135043
	B	5.682	5.715	5.747	5.778	5.809	5.839	5.868	5.909	5.936	5.962	5.988	6.012	6.036	6.058	6.080	6.101
-19.00	A	115983	116699	117481	118327	119239	120214	121253	122929	124124	125380	126698	128076	129515	131013	132570	134186
	B	5.669	5.702	5.734	5.766	5.797	5.827	5.856	5.898	5.925	5.951	5.976	6.001	6.025	6.047	6.069	6.091
-18.75	A	115219	115929	116704	117545	118451	119420	120453	122120	123309	124560	125872	127245	128677	130170	131721	133331
	B	5.656	5.689	5.722	5.753	5.784	5.814	5.844	5.886	5.913	5.939	5.965	5.990	6.013	6.037	6.059	6.080
-18.50	A	114456	115160	115930	116765	117665	118628	119655	121314	122497	123742	125049	126415	127842	129328	130874	132478
	B	5.643	5.677	5.709	5.741	5.772	5.802	5.832	5.874	5.901	5.928	5.954	5.978	6.002	6.026	6.048	6.070
-18.25	A	113695	114393	115158	115987	116881	117839	118860	120510	121687	122927	124227	125588	127009	128489	130029	131627
	B	5.630	5.664	5.697	5.729	5.760	5.790	5.820	5.862	5.890	5.916	5.942	5.967	5.991	6.015	6.037	6.059

TEMP DEG C		COMPRESSIBILITY FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE															F=1/(A+DP*B)	
		350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380	
-18.00	A	112936	113629	114387	115211	116099	117051	118066	119707	120879	122113	123407	124762	126177	127652	129186	130778	
	B	5.617	5.651	5.684	5.716	5.747	5.778	5.808	5.850	5.878	5.905	5.931	5.956	5.980	6.004	6.026	6.048	
-17.75	A	112179	112866	113619	114436	115319	116265	117275	118907	120073	121301	122590	123939	125348	126817	128345	129931	
	B	5.604	5.638	5.671	5.704	5.735	5.766	5.795	5.839	5.866	5.893	5.919	5.945	5.969	5.993	6.016	6.038	
-17.50	A	111424	112105	112852	113664	114541	115481	116485	118109	119269	120491	121774	123118	124521	125984	127506	129086	
	B	5.592	5.626	5.659	5.691	5.723	5.753	5.783	5.827	5.855	5.882	5.908	5.933	5.958	5.982	6.005	6.027	
-17.25	A	110671	111346	112087	112894	113764	114699	115698	117313	118467	119684	120961	122298	123696	125153	126669	128244	
	B	5.579	5.613	5.646	5.679	5.710	5.741	5.771	5.815	5.843	5.870	5.897	5.922	5.947	5.971	5.994	6.016	
-17.00	A	109919	110589	111325	112125	112990	113919	114912	116519	117668	118878	120149	121481	122873	124324	125835	127404	
	B	5.566	5.600	5.633	5.666	5.698	5.729	5.759	5.803	5.831	5.858	5.885	5.911	5.936	5.960	5.983	6.005	
-16.75	A	109170	109834	110564	111359	112218	113142	114128	115727	116870	118074	119340	120666	122052	123498	125002	126565	
	B	5.553	5.587	5.621	5.653	5.685	5.717	5.747	5.791	5.819	5.847	5.874	5.899	5.924	5.949	5.972	5.995	
-16.50	A	108422	109081	109805	110594	111448	112366	113347	114936	116074	117273	118533	119853	121233	122673	124172	125729	
	B	5.540	5.574	5.608	5.641	5.673	5.704	5.735	5.779	5.807	5.835	5.862	5.888	5.913	5.938	5.961	5.984	
-16.25	A	107677	108330	109048	109832	110680	111592	112567	114148	115280	116473	117728	119042	120417	121851	123344	124895	
	B	5.526	5.561	5.595	5.628	5.660	5.692	5.723	5.767	5.796	5.823	5.850	5.877	5.902	5.926	5.950	5.973	
-16.00	A	106933	107580	108293	109071	109914	110820	111790	113362	114488	115676	116924	118233	119602	121031	122518	124063	
	B	5.513	5.548	5.582	5.616	5.648	5.680	5.710	5.755	5.784	5.812	5.839	5.865	5.891	5.915	5.939	5.962	
-15.75	A	106192	106833	107540	108313	109149	110050	111014	112578	113699	114881	116123	117427	118790	120212	121694	123234	
	B	5.500	5.535	5.569	5.603	5.635	5.667	5.698	5.743	5.772	5.800	5.827	5.854	5.879	5.904	5.928	5.951	
-15.50	A	105452	106088	106789	107556	108387	109282	110241	111796	112911	114087	115324	116622	117979	119396	120872	122406	
	B	5.487	5.522	5.557	5.590	5.623	5.655	5.686	5.731	5.760	5.788	5.816	5.842	5.868	5.893	5.917	5.941	
-15.25	A	104714	105344	106040	106801	107627	108516	109469	111017	112126	113296	114528	115819	117171	118582	120052	121581	
	B	5.474	5.509	5.544	5.577	5.610	5.642	5.673	5.719	5.748	5.776	5.804	5.831	5.857	5.882	5.906	5.930	
-15.00	A	103978	104603	105293	106049	106869	107753	108700	110239	111342	112507	113733	115019	116365	117771	119235	120758	
	B	5.461	5.496	5.531	5.565	5.598	5.630	5.661	5.707	5.736	5.765	5.792	5.819	5.845	5.871	5.895	5.919	
-14.75	A	103244	103863	104548	105298	106112	106991	107933	109463	110561	111720	112940	114221	115561	116961	118419	119936	
	B	5.448	5.483	5.518	5.552	5.585	5.617	5.649	5.695	5.724	5.753	5.781	5.808	5.834	5.859	5.884	5.908	
-14.50	A	102512	103126	103805	104549	105358	106231	107167	108689	109781	110935	112150	113424	114759	116153	117606	119117	
	B	5.434	5.470	5.505	5.539	5.572	5.605	5.636	5.682	5.712	5.741	5.769	5.796	5.822	5.848	5.873	5.897	
-14.25	A	101782	102390	103064	103803	104606	105473	106404	107917	109004	110152	111361	112630	113959	115348	116795	118301	
	B	5.421	5.457	5.492	5.526	5.560	5.592	5.624	5.670	5.700	5.729	5.757	5.784	5.811	5.837	5.862	5.886	

		COMPRESSIBILITY FACTOR PER KILOPASCAL										F=1/(A+DP*B)					
		DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE															
TEMP DEG C		350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380
-14.00	A	101054	101657	102325	103058	103856	104717	105642	107148	108229	109371	110575	111838	113162	114545	115986	117486
	B	5.408	5.444	5.479	5.513	5.547	5.580	5.612	5.658	5.688	5.717	5.745	5.773	5.799	5.825	5.850	5.875
-13.75	A	100328	100925	101588	102315	103107	103964	104883	106380	107456	108592	109790	111048	112366	113743	115179	116673
	B	5.395	5.431	5.466	5.500	5.534	5.567	5.599	5.646	5.676	5.705	5.733	5.761	5.788	5.814	5.839	5.864
-13.50	A	99604	100195	100852	101575	102361	103212	104126	105614	106684	107816	109008	110260	111573	112944	114375	115863
	B	5.381	5.417	5.453	5.488	5.521	5.554	5.587	5.633	5.664	5.693	5.722	5.749	5.776	5.803	5.828	5.853
-13.25	A	98882	99468	100119	100836	101617	102462	103371	104851	105915	107041	108228	109475	110781	112147	113572	115055
	B	5.368	5.404	5.440	5.475	5.509	5.542	5.574	5.621	5.652	5.681	5.710	5.738	5.765	5.791	5.817	5.841
-13.00	A	98161	98742	99388	100099	100875	101714	102617	104090	105148	106269	107450	108691	109992	111353	112772	114249
	B	5.355	5.391	5.427	5.462	5.496	5.529	5.562	5.609	5.639	5.669	5.698	5.726	5.753	5.780	5.805	5.830
-12.75	A	97443	98018	98659	99364	100135	100969	101866	103330	104384	105498	106674	107910	109205	110560	111973	113445
	B	5.341	5.378	5.414	5.449	5.483	5.516	5.549	5.597	5.627	5.657	5.686	5.714	5.742	5.768	5.794	5.819
-12.50	A	96727	97296	97931	98632	99396	100225	101117	102573	103621	104730	105900	107130	108420	109769	111177	112643
	B	5.328	5.364	5.400	5.436	5.470	5.504	5.536	5.584	5.615	5.645	5.674	5.702	5.730	5.757	5.783	5.808
-12.25	A	96012	96576	97206	97901	98660	99484	100370	101818	102860	103964	105128	106353	107637	108981	110383	111844
	B	5.314	5.351	5.387	5.423	5.457	5.491	5.524	5.572	5.603	5.633	5.662	5.691	5.718	5.745	5.771	5.797
-12.00	A	95300	95858	96483	97172	97926	98744	99625	101064	102101	103200	104359	105578	106857	108195	109591	111046
	B	5.301	5.338	5.374	5.410	5.444	5.478	5.511	5.559	5.590	5.621	5.650	5.679	5.707	5.734	5.760	5.786
-11.75	A	94589	95143	95761	96446	97194	98006	98882	100313	101345	102438	103591	104805	106078	107411	108802	110251
	B	5.287	5.324	5.361	5.397	5.431	5.465	5.499	5.547	5.578	5.609	5.638	5.667	5.695	5.722	5.749	5.774
-11.50	A	93881	94429	95042	95721	96464	97271	98141	99564	100590	101678	102826	104034	105302	106629	108014	109458
	B	5.274	5.311	5.348	5.383	5.418	5.453	5.486	5.534	5.566	5.596	5.626	5.655	5.683	5.711	5.737	5.763
-11.25	A	93174	93717	94325	94998	95736	96537	97402	98817	99838	100920	102062	103265	104528	105849	107229	108667
	B	5.260	5.298	5.334	5.370	5.405	5.440	5.473	5.522	5.553	5.584	5.614	5.643	5.672	5.699	5.726	5.752
-11.00	A	92470	93007	93610	94277	95010	95806	96666	98072	99088	100164	101301	102498	103755	105071	106446	107878
	B	5.247	5.284	5.321	5.357	5.392	5.427	5.460	5.509	5.541	5.572	5.602	5.631	5.660	5.687	5.714	5.740
-10.75	A	91767	92299	92896	93559	94286	95077	95931	97329	98339	99410	100542	101734	102985	104296	105665	107092
	B	5.233	5.271	5.308	5.344	5.379	5.414	5.448	5.497	5.529	5.560	5.590	5.619	5.648	5.676	5.703	5.729
-10.50	A	91066	91593	92185	92842	93564	94349	95198	96589	97593	98659	99785	100972	102218	103523	104886	106308
	B	5.219	5.257	5.294	5.331	5.366	5.401	5.435	5.484	5.516	5.547	5.578	5.607	5.636	5.664	5.691	5.718
-10.25	A	90368	90889	91476	92127	92844	93624	94468	95850	96849	97909	99030	100211	101452	102751	104109	105525
	B	5.206	5.244	5.281	5.318	5.353	5.388	5.422	5.472	5.504	5.535	5.566	5.595	5.624	5.652	5.680	5.706

TEMP DEG C		COMPRESSIBILITY FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE F=1/(A+DP*B)															
		350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380
-10.00	A	89671	90187	90768	91415	92126	92901	93739	95113	96107	97162	98278	99453	100688	101982	103335	104746
	B	5.192	5.230	5.268	5.304	5.340	5.375	5.409	5.459	5.491	5.523	5.553	5.583	5.612	5.641	5.668	5.695
-9.75	A	88976	89487	90063	90704	91410	92180	93012	94379	95367	96417	97527	98697	99927	101216	102563	103968
	B	5.178	5.217	5.254	5.291	5.327	5.362	5.396	5.447	5.479	5.510	5.541	5.571	5.600	5.629	5.657	5.683
-9.50	A	88283	88789	89360	89996	90696	91460	92288	93647	94630	95674	96779	97943	99168	100451	101793	103192
	B	5.165	5.203	5.241	5.278	5.314	5.349	5.384	5.434	5.466	5.498	5.529	5.559	5.589	5.617	5.645	5.672
-9.25	A	87593	88093	88658	89289	89984	90743	91566	92916	93894	94933	96032	97192	98411	99688	101025	102419
	B	5.151	5.190	5.227	5.264	5.301	5.336	5.371	5.421	5.454	5.486	5.517	5.547	5.577	5.605	5.633	5.660
-9.00	A	86904	87399	87959	88585	89275	90028	90845	92188	93160	94194	95288	96442	97656	98928	100259	101648
	B	5.137	5.176	5.214	5.251	5.287	5.323	5.358	5.408	5.441	5.473	5.505	5.535	5.565	5.593	5.622	5.649
-8.75	A	86217	86707	87262	87882	88567	89315	90127	91462	92429	93457	94546	95695	96903	98170	99495	100879
	B	5.123	5.162	5.200	5.238	5.274	5.310	5.345	5.396	5.429	5.461	5.492	5.523	5.553	5.582	5.610	5.637
-8.50	A	85532	86017	86567	87182	87861	88605	89411	90738	91700	92723	93806	94950	96152	97414	98734	100112
	B	5.110	5.149	5.187	5.224	5.261	5.297	5.332	5.383	5.416	5.448	5.480	5.511	5.541	5.570	5.598	5.626
-8.25	A	84849	85329	85873	86483	87158	87896	88697	90016	90972	91990	93068	94206	95404	96660	97975	99347
	B	5.096	5.135	5.173	5.211	5.248	5.284	5.319	5.370	5.403	5.436	5.468	5.498	5.529	5.558	5.586	5.614
-8.00	A	84169	84643	85182	85787	86456	87189	87985	89296	90247	91260	92333	93465	94658	95909	97218	98585
	B	5.082	5.121	5.160	5.197	5.234	5.270	5.306	5.357	5.391	5.423	5.455	5.486	5.516	5.546	5.575	5.602
-7.75	A	83490	83959	84493	85093	85757	86484	87275	88578	89524	90532	91599	92727	93914	95159	96463	97825
	B	5.068	5.107	5.146	5.184	5.221	5.257	5.293	5.345	5.378	5.411	5.443	5.474	5.504	5.534	5.563	5.591
-7.50	A	82813	83277	83806	84400	85059	85782	86567	87863	88804	89805	90868	91990	93172	94412	95710	97067
	B	5.054	5.094	5.132	5.170	5.208	5.244	5.280	5.332	5.365	5.398	5.430	5.462	5.492	5.522	5.551	5.579
-7.25	A	82138	82597	83121	83710	84364	85081	85861	87149	88085	89081	90139	91256	92432	93667	94960	96311
	B	5.040	5.080	5.119	5.157	5.194	5.231	5.267	5.319	5.353	5.386	5.418	5.449	5.480	5.510	5.539	5.567
-7.00	A	81465	81919	82438	83022	83670	84383	85158	86438	87368	88360	89412	90523	91694	92924	94212	95557
	B	5.026	5.066	5.105	5.143	5.181	5.218	5.254	5.306	5.340	5.373	5.406	5.437	5.468	5.498	5.527	5.556
-6.75	A	80794	81243	81757	82336	82979	83686	84456	85728	86654	87640	88687	89793	90959	92183	93466	94806
	B	5.012	5.052	5.091	5.130	5.167	5.204	5.240	5.293	5.327	5.360	5.393	5.425	5.456	5.486	5.515	5.544
-6.50	A	80125	80569	81078	81652	82290	82992	83757	85021	85941	86922	87964	89065	90226	91445	92722	94057
	B	4.998	5.038	5.078	5.116	5.154	5.191	5.227	5.280	5.314	5.348	5.381	5.412	5.444	5.474	5.503	5.532
-6.25	A	79459	79897	80401	80970	81603	82299	83059	84316	85231	86207	87243	88339	89495	90708	91980	93310
	B	4.984	5.024	5.064	5.103	5.141	5.178	5.214	5.267	5.302	5.335	5.368	5.400	5.431	5.462	5.492	5.520

TEMP DEG C		COMPRESSIBILITY FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE															F=1/(A+DP*B)	
		350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380	
6.00	A	78794	79227	79726	80290	80918	81609	82364	83613	84523	85494	86525	87616	88766	89974	91241	92565	
	B	4.970	5.010	5.050	5.089	5.127	5.164	5.201	5.254	5.289	5.322	5.355	5.388	5.419	5.450	5.480	5.509	
5.75	A	78131	78559	79053	79612	80235	80921	81671	82912	83817	84783	85809	86894	88039	89242	90504	91823	
	B	4.956	4.997	5.036	5.075	5.113	5.151	5.188	5.241	5.276	5.310	5.343	5.375	5.407	5.438	5.468	5.497	
5.50	A	77470	77893	78382	78936	79554	80235	80980	82214	83113	84074	85094	86175	87314	88513	89769	91082	
	B	4.942	4.983	5.022	5.062	5.100	5.138	5.174	5.228	5.263	5.297	5.330	5.363	5.394	5.425	5.456	5.485	
5.25	A	76811	77230	77713	78262	78875	79551	80291	81517	82412	83367	84382	85458	86592	87785	89036	90344	
	B	4.928	4.969	5.009	5.048	5.086	5.124	5.161	5.215	5.250	5.284	5.318	5.350	5.382	5.413	5.444	5.473	
5.00	A	76155	76568	77046	77590	78198	78869	79604	80823	81712	82662	83673	84743	85872	87060	88305	89609	
	B	4.914	4.955	4.995	5.034	5.073	5.111	5.148	5.202	5.237	5.271	5.305	5.338	5.370	5.401	5.431	5.461	
4.75	A	75500	75908	76382	76920	77523	78190	78919	80130	81015	81960	82965	84030	85154	86337	87577	88875	
	B	4.899	4.940	4.981	5.020	5.059	5.097	5.134	5.189	5.224	5.259	5.292	5.325	5.357	5.389	5.419	5.449	
-4.50	A	74847	75250	75719	76253	76851	77512	78237	79440	80319	81259	82260	83319	84438	85616	86851	88144	
	B	4.885	4.926	4.967	5.007	5.046	5.084	5.121	5.176	5.211	5.246	5.280	5.313	5.345	5.376	5.407	5.437	
4.25	A	74196	74595	75058	75587	76180	76837	77556	78752	79626	80561	81556	82611	83725	84897	86127	87414	
	B	4.871	4.912	4.953	4.993	5.032	5.070	5.108	5.162	5.198	5.233	5.267	5.300	5.332	5.364	5.395	5.425	
4.00	A	73548	73941	74400	74924	75512	76163	76878	78066	78935	79865	80855	81905	83013	84181	85405	86688	
	B	4.857	4.898	4.939	4.979	5.018	5.057	5.094	5.149	5.185	5.220	5.254	5.287	5.320	5.352	5.383	5.413	
3.75	A	72901	73289	73743	74262	74845	75492	76201	77382	78246	79171	80156	81201	82304	83466	84686	85963	
	B	4.842	4.884	4.925	4.965	5.004	5.043	5.081	5.136	5.172	5.207	5.241	5.275	5.308	5.340	5.371	5.401	
3.50	A	72256	72640	73089	73603	74181	74822	75527	76700	77560	78479	79459	80499	81597	82754	83969	85241	
	B	4.828	4.870	4.911	4.951	4.991	5.029	5.067	5.123	5.159	5.194	5.228	5.262	5.295	5.327	5.359	5.389	
-3.25	A	71614	71992	72436	72945	73519	74155	74855	76021	76875	77790	78765	79799	80893	82044	83254	84520	
	B	4.814	4.856	4.897	4.937	4.977	5.016	5.054	5.109	5.146	5.181	5.216	5.249	5.282	5.315	5.346	5.377	
3.00	A	70973	71347	71786	72290	72858	73490	74185	75344	76193	77103	78072	79102	80190	81337	82541	83803	
	B	4.799	4.842	4.883	4.923	4.963	5.002	5.040	5.096	5.132	5.168	5.203	5.237	5.270	5.302	5.334	5.365	
-2.75	A	70335	70704	71138	71637	72200	72827	73517	74668	75512	76417	77382	78407	79490	80631	81831	83087	
	B	4.785	4.827	4.869	4.909	4.949	4.988	5.027	5.083	5.119	5.155	5.190	5.224	5.257	5.290	5.322	5.353	
2.50	A	69698	70062	70492	70986	71545	72167	72851	73995	74834	75734	76694	77714	78792	79928	81122	82373	
	B	4.771	4.813	4.855	4.895	4.935	4.975	5.013	5.070	5.106	5.142	5.177	5.211	5.245	5.277	5.309	5.341	
2.25	A	69064	69423	69848	70337	70891	71508	72188	73324	74158	75053	76008	77023	78096	79227	80416	81662	
	B	4.756	4.799	4.840	4.881	4.922	4.961	5.000	5.056	5.093	5.129	5.164	5.198	5.232	5.265	5.297	5.328	

		COMPRESSIBILITY FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE										F=1/(A+DP*B)					
TEMP DEG C		350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380
-2.00	A	68431	68786	69205	69690	70239	70851	71526	72655	73485	74375	75325	76334	77402	78528	79712	80953
	B	4.742	4.784	4.826	4.867	4.908	4.947	4.986	5.043	5.080	5.116	5.151	5.186	5.219	5.252	5.285	5.316
-1.75	A	67801	68150	68565	69045	69589	70197	70867	71989	72813	73698	74643	75648	76711	77832	79011	80247
	B	4.727	4.770	4.812	4.853	4.894	4.933	4.972	5.029	5.066	5.103	5.138	5.173	5.207	5.240	5.272	5.304
-1.50	A	67172	67517	67928	68403	68942	69544	70210	71324	72144	73024	73964	74963	76021	77138	78312	79542
	B	4.713	4.756	4.798	4.839	4.880	4.920	4.959	5.016	5.053	5.089	5.125	5.160	5.194	5.227	5.260	5.292
-1.25	A	66546	66886	67292	67762	68296	68894	69555	70662	71477	72352	73287	74281	75334	76446	77614	78840
	B	4.698	4.741	4.784	4.825	4.866	4.906	4.945	5.002	5.040	5.076	5.112	5.147	5.181	5.215	5.248	5.279
-1.00	A	65922	66257	66658	67123	67653	68246	68902	70002	70811	71682	72612	73602	74650	75756	76920	78140
	B	4.684	4.727	4.769	4.811	4.852	4.892	4.931	4.989	5.026	5.063	5.099	5.134	5.169	5.202	5.235	5.267
-0.75	A	65300	65630	66026	66487	67012	67600	68251	69344	70149	71014	71939	72924	73967	75068	76227	77443
	B	4.669	4.712	4.755	4.797	4.838	4.878	4.918	4.975	5.013	5.050	5.086	5.121	5.156	5.190	5.223	5.255
-0.50	A	64680	65005	65397	65853	66373	66956	67602	68688	69488	70348	71269	72249	73287	74383	75537	76747
	B	4.655	4.698	4.741	4.783	4.824	4.864	4.904	4.962	5.000	5.037	5.073	5.108	5.143	5.177	5.210	5.242
-0.25	A	64061	64383	64769	65220	65736	66314	66956	68034	68829	69685	70601	71575	72609	73700	74849	76054
	B	4.640	4.684	4.726	4.768	4.810	4.850	4.890	4.948	4.986	5.023	5.060	5.095	5.130	5.164	5.198	5.230
0.00	A	63445	63762	64144	64590	65101	65675	66311	67382	68173	69024	69935	70904	71933	73019	74163	75363
	B	4.625	4.669	4.712	4.754	4.796	4.836	4.876	4.935	4.973	5.010	5.047	5.082	5.117	5.152	5.185	5.218
0.25	A	62831	63143	63520	63962	64468	65037	65669	66733	67519	68365	69271	70236	71259	72341	73479	74675
	B	4.611	4.654	4.698	4.740	4.782	4.822	4.862	4.921	4.959	4.997	5.033	5.069	5.104	5.139	5.172	5.205
0.50	A	62219	62527	62899	63336	63837	64402	65029	66086	66867	67708	68609	69569	70588	71664	72798	73989
	B	4.596	4.640	4.683	4.726	4.767	4.808	4.849	4.908	4.946	4.983	5.020	5.056	5.092	5.126	5.160	5.193
0.75	A	61610	61912	62280	62712	63209	63769	64391	65441	66217	67053	67950	68905	69919	70990	72119	73305
	B	4.581	4.625	4.669	4.711	4.753	4.794	4.835	4.894	4.932	4.970	5.007	5.043	5.079	5.113	5.147	5.180
1.00	A	61002	61300	61663	62091	62583	63138	63755	64798	65569	66401	67292	68243	69252	70318	71442	72623
	B	4.566	4.611	4.654	4.697	4.739	4.780	4.821	4.880	4.919	4.957	4.994	5.030	5.066	5.100	5.135	5.168
1.25	A	60396	60689	61048	61471	61958	62509	63122	64157	64924	65751	66637	67583	68587	69649	70768	71943
	B	4.552	4.596	4.640	4.683	4.725	4.766	4.807	4.866	4.905	4.943	4.980	5.017	5.053	5.088	5.122	5.155
1.50	A	59792	60081	60435	60854	61336	61882	62490	63519	64281	65103	65985	66925	67925	68982	70096	71266
	B	4.537	4.581	4.625	4.668	4.711	4.752	4.793	4.853	4.892	4.930	4.967	5.004	5.040	5.075	5.109	5.143
1.75	A	59191	59475	59824	60238	60716	61257	61861	62882	63640	64457	65334	66270	67264	68316	69426	70591
	B	4.522	4.567	4.611	4.654	4.696	4.738	4.779	4.839	4.878	4.916	4.954	4.991	5.027	5.062	5.096	5.130

		COMPRESSIBILITY FACTOR PER KILOPASCAL										F=1/(A+DP*B)					
		DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE															
TEMP DEG C		350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380
2.00	A	58591	58871	59216	59625	60098	60635	61234	62248	63001	63813	64686	65617	66606	67654	68758	69919
	B	4.507	4.552	4.596	4.640	4.682	4.724	4.765	4.825	4.864	4.903	4.941	4.977	5.014	5.049	5.084	5.118
2.25	A	57994	58269	58609	59014	59483	60014	60609	61616	62364	63172	64040	64966	65951	66993	68093	69249
	B	4.492	4.537	4.582	4.625	4.668	4.710	4.751	4.811	4.851	4.889	4.927	4.964	5.001	5.036	5.071	5.105
2.50	A	57398	57669	58005	58405	58869	59396	59986	60987	61730	62533	63396	64317	65297	66335	67430	68581
	B	4.477	4.523	4.567	4.611	4.653	4.696	4.737	4.798	4.837	4.876	4.914	4.951	4.987	5.023	5.058	5.092
2.75	A	56805	57071	57402	57798	58257	58780	59365	60359	61097	61896	62754	63671	64646	65679	66769	67915
	B	4.463	4.508	4.552	4.596	4.639	4.681	4.723	4.784	4.823	4.862	4.900	4.938	4.974	5.010	5.045	5.080
3.00	A	56214	56475	56802	57193	57648	58166	58747	59734	60467	61261	62115	63027	63997	65025	66110	67251
	B	4.448	4.493	4.538	4.582	4.625	4.667	4.709	4.770	4.810	4.849	4.887	4.924	4.961	4.997	5.032	5.067
3.25	A	55625	55882	56204	56590	57041	57555	58131	59110	59839	60629	61477	62385	63351	64374	65454	66590
	B	4.433	4.478	4.523	4.567	4.610	4.653	4.695	4.756	4.796	4.835	4.873	4.911	4.948	4.984	5.020	5.054
3.50	A	55038	55290	55608	55990	56436	56945	57517	58489	59214	59998	60843	61745	62706	63725	64800	65932
	B	4.418	4.463	4.508	4.552	4.596	4.639	4.681	4.742	4.782	4.821	4.860	4.898	4.935	4.971	5.007	5.041
3.75	A	54453	54701	55014	55392	55833	56338	56905	57870	58590	59370	60210	61108	62064	63078	64148	65275
	B	4.403	4.448	4.494	4.538	4.581	4.624	4.666	4.728	4.768	4.808	4.846	4.884	4.922	4.958	4.994	5.029
4.00	A	53870	54113	54422	54795	55232	55732	56295	57254	57969	58745	59579	60473	61424	62433	63499	64621
	B	4.388	4.434	4.479	4.523	4.567	4.610	4.652	4.714	4.754	4.794	4.833	4.871	4.908	4.945	4.981	5.016
4.25	A	53289	53528	53832	54201	54634	55129	55687	56639	57350	58121	58951	59840	60787	61791	62852	63969
	B	4.373	4.419	4.464	4.509	4.552	4.596	4.638	4.700	4.741	4.780	4.819	4.858	4.895	4.932	4.968	5.003
4.50	A	52710	52945	53245	53609	54037	54528	55082	56027	56733	57500	58325	59209	60151	61151	62207	63319
	B	4.357	4.404	4.449	4.494	4.538	4.581	4.624	4.686	4.727	4.767	4.806	4.844	4.882	4.919	4.955	4.990
4.75	A	52134	52364	52659	53019	53443	53930	54479	55417	56119	56880	57701	58581	59518	60513	61564	62672
	B	4.342	4.389	4.434	4.479	4.523	4.567	4.609	4.672	4.713	4.753	4.792	4.831	4.868	4.905	4.942	4.977
5.00	A	51559	51785	52076	52432	52851	53333	53877	54809	55507	56264	57080	57955	58887	59878	60924	62027
	B	4.327	4.374	4.419	4.465	4.509	4.552	4.595	4.658	4.699	4.739	4.778	4.817	4.855	4.892	4.929	4.964
5.25	A	50987	51208	51495	51846	52261	52739	53279	54204	54896	55649	56461	57331	58259	59244	60286	61384
	B	4.312	4.359	4.405	4.450	4.494	4.538	4.581	4.644	4.685	4.725	4.765	4.804	4.842	4.879	4.916	4.952
5.50	A	50416	50634	50916	51263	51673	52146	52682	53600	54289	55036	55844	56709	57633	58613	59651	60744
	B	4.297	4.344	4.390	4.435	4.480	4.523	4.566	4.630	4.671	4.711	4.751	4.790	4.828	4.866	4.903	4.939
5.75	A	49848	50061	50339	50681	51087	51556	52087	52999	53683	54426	55229	56090	57009	57985	59017	60106
	B	4.282	4.329	4.375	4.420	4.465	4.509	4.552	4.616	4.657	4.698	4.737	4.777	4.815	4.853	4.889	4.926

		COMPRESSIBILITY FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE $F=1/(A+DP*B)$															
TEMP DEG C		350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380
6.00	A	49282	49491	49764	50102	50504	50968	51495	52400	53079	53818	54616	55473	56387	57359	58386	59470
	B	4.266	4.313	4.360	4.405	4.450	4.494	4.538	4.601	4.643	4.684	4.724	4.763	4.801	4.839	4.876	4.913
6.25	A	48718	48922	49192	49525	49923	50383	50905	51804	52478	53213	54006	54858	55768	56734	57758	58837
	B	4.251	4.298	4.345	4.391	4.436	4.480	4.523	4.587	4.629	4.670	4.710	4.749	4.788	4.826	4.863	4.900
6.50	A	48156	48356	48621	48950	49343	49799	50317	51209	51879	52609	53398	54246	55151	56113	57131	58206
	B	4.236	4.283	4.330	4.376	4.421	4.465	4.509	4.573	4.615	4.656	4.696	4.736	4.775	4.813	4.850	4.887
6.75	A	47596	47792	48053	48378	48766	49218	49731	50617	51283	52008	52792	53635	54536	55493	56507	57577
	B	4.221	4.268	4.315	4.361	4.406	4.451	4.494	4.559	4.601	4.642	4.682	4.722	4.761	4.799	4.837	4.874
7.00	A	47038	47230	47486	47807	48192	48639	49148	50027	50688	51409	52189	53027	53923	54876	55886	56951
	B	4.205	4.253	4.300	4.346	4.391	4.436	4.480	4.544	4.587	4.628	4.668	4.708	4.747	4.786	4.824	4.860
7.25	A	46483	46670	46922	47239	47619	48062	48567	49439	50096	50812	51588	52422	53313	54261	55266	56327
	B	4.190	4.238	4.285	4.331	4.377	4.421	4.465	4.530	4.572	4.614	4.655	4.695	4.734	4.772	4.810	4.847
7.50	A	45929	46112	46360	46673	47048	47487	47988	48853	49506	50218	50989	51818	52705	53649	54649	55705
	B	4.174	4.222	4.270	4.316	4.362	4.407	4.451	4.516	4.558	4.600	4.641	4.681	4.720	4.759	4.797	4.834
7.75	A	45378	45557	45801	46109	46480	46914	47411	48270	48918	49626	50392	51217	52100	53039	54034	55085
	B	4.159	4.207	4.254	4.301	4.347	4.392	4.436	4.501	4.544	4.586	4.627	4.667	4.707	4.746	4.784	4.821
8.00	A	44829	45003	45243	45547	45914	46344	46836	47689	48332	49036	49798	50618	51496	52431	53422	54468
	B	4.144	4.192	4.239	4.286	4.332	4.377	4.422	4.487	4.530	4.572	4.613	4.653	4.693	4.732	4.770	4.808
8.25	A	44282	44452	44688	44987	45350	45776	46264	47110	47749	48448	49206	50022	50895	51825	52812	53854
	B	4.128	4.177	4.224	4.271	4.317	4.362	4.407	4.473	4.516	4.558	4.599	4.640	4.679	4.719	4.757	4.795
8.50	A	43737	43903	44134	44430	44788	45210	45693	46533	47168	47863	48616	49428	50296	51222	52204	53241
	B	4.113	4.161	4.209	4.256	4.302	4.348	4.393	4.458	4.501	4.543	4.585	4.626	4.666	4.705	4.744	4.781
8.75	A	43194	43356	43583	43874	44229	44646	45125	45958	46589	47280	48029	48836	49700	50621	51598	52631
	B	4.097	4.146	4.194	4.241	4.287	4.333	4.378	4.444	4.487	4.529	4.571	4.612	4.652	4.691	4.730	4.768
9.00	A	42653	42811	43034	43321	43672	44085	44559	45386	46013	46699	47443	48246	49106	50023	50995	52024
	B	4.082	4.130	4.178	4.226	4.272	4.318	4.363	4.429	4.473	4.515	4.557	4.598	4.638	4.678	4.717	4.755
9.25	A	42114	42268	42487	42770	43116	43525	43996	44816	45438	46120	46860	47659	48514	49426	50395	51418
	B	4.066	4.115	4.163	4.211	4.257	4.303	4.348	4.415	4.458	4.501	4.543	4.584	4.625	4.664	4.703	4.742
9.50	A	41578	41728	41943	42221	42563	42968	43434	44249	44866	45544	46280	47073	47925	48832	49796	50815
	B	4.051	4.100	4.148	4.195	4.242	4.288	4.334	4.400	4.444	4.487	4.529	4.570	4.611	4.651	4.690	4.728
9.75	A	41044	41189	41400	41675	42013	42413	42875	43683	44297	44970	45701	46491	47337	48241	49200	50215
	B	4.035	4.084	4.133	4.180	4.227	4.273	4.319	4.386	4.430	4.472	4.515	4.556	4.597	4.637	4.676	4.715

		COMPRESSIBILITY FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE										F=1/(A+DP*B)					
TEMP DEG C		350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380
10.00	A	40511	40653	40860	41130	41464	41860	42318	43120	43729	44398	45125	45910	46753	47651	48606	49616
	B	4.019	4.069	4.117	4.165	4.212	4.259	4.304	4.371	4.415	4.458	4.501	4.542	4.583	4.623	4.663	4.701
10.25	A	39981	40119	40321	40588	40918	41310	41764	42559	43164	43828	44551	45332	46170	47064	48015	49020
	B	4.004	4.053	4.102	4.150	4.197	4.244	4.289	4.357	4.401	4.444	4.486	4.528	4.569	4.610	4.649	4.688
10.50	A	39453	39587	39785	40048	40373	40761	41211	42000	42601	43261	43980	44756	45590	46480	47426	48427
	B	3.988	4.038	4.086	4.135	4.182	4.229	4.275	4.342	4.386	4.430	4.472	4.514	4.555	4.596	4.636	4.675
10.75	A	38928	39057	39252	39510	39831	40215	40661	41444	42040	42696	43411	44183	45012	45898	46839	47835
	B	3.972	4.022	4.071	4.119	4.167	4.214	4.260	4.327	4.372	4.415	4.458	4.500	4.541	4.582	4.622	4.661
11.00	A	38404	38530	38720	38974	39292	39671	40113	40889	41482	42134	42844	43611	44436	45318	46255	47247
	B	3.957	4.006	4.056	4.104	4.152	4.199	4.245	4.313	4.357	4.401	4.444	4.486	4.528	4.568	4.608	4.648
11.25	A	37882	38004	38190	38441	38754	39130	39567	40337	40926	41573	42279	43043	43863	44740	45673	46660
	B	3.941	3.991	4.040	4.089	4.136	4.184	4.230	4.298	4.343	4.386	4.430	4.472	4.514	4.555	4.595	4.634
11.50	A	37363	37481	37663	37909	38219	38590	39024	39788	40372	41015	41717	42476	43292	44165	45093	46076
	B	3.925	3.975	4.025	4.073	4.121	4.169	4.215	4.283	4.328	4.372	4.415	4.458	4.500	4.541	4.581	4.621
11.75	A	36846	36960	37138	37380	37686	38053	38482	39240	39820	40459	41157	41912	42724	43592	44515	45494
	B	3.909	3.960	4.009	4.058	4.106	4.153	4.200	4.269	4.314	4.358	4.401	4.444	4.486	4.527	4.567	4.607
12.00	A	36331	36441	36615	36853	37155	37518	37943	38695	39271	39906	40599	41350	42157	43021	43941	44915
	B	3.893	3.944	3.994	4.043	4.091	4.138	4.185	4.254	4.299	4.343	4.387	4.430	4.472	4.513	4.554	4.594
12.25	A	35818	35924	36094	36329	36626	36985	37407	38152	38724	39355	40044	40790	41593	42453	43368	44338
	B	3.878	3.928	3.978	4.027	4.075	4.123	4.170	4.239	4.284	4.329	4.372	4.415	4.458	4.499	4.540	4.580
12.50	A	35307	35409	35576	35806	36099	36455	36872	37611	38179	38806	39490	40233	41032	41887	42798	43763
	B	3.862	3.912	3.962	4.012	4.060	4.108	4.155	4.224	4.270	4.314	4.358	4.401	4.443	4.485	4.526	4.566
12.75	A	34798	34897	35059	35286	35575	35927	36340	37073	37637	38259	38940	39678	40473	41323	42230	43191
	B	3.846	3.897	3.947	3.996	4.045	4.093	4.140	4.209	4.255	4.300	4.344	4.387	4.429	4.471	4.512	4.553
13.00	A	34292	34386	34545	34767	35053	35401	35810	36537	37096	37715	38391	39125	39916	40762	41664	42621
	B	3.830	3.881	3.931	3.981	4.029	4.078	4.125	4.195	4.240	4.285	4.329	4.373	4.415	4.457	4.498	4.539
13.25	A	33788	33878	34033	34252	34533	34877	35282	36003	36558	37173	37845	38575	39361	40203	41101	42053
	B	3.814	3.865	3.915	3.965	4.014	4.062	4.110	4.180	4.225	4.270	4.315	4.358	4.401	4.443	4.485	4.525
13.50	A	33286	33372	33523	33738	34015	34355	34756	35472	36023	36633	37301	38027	38809	39647	40540	41488
	B	3.798	3.849	3.900	3.950	3.999	4.047	4.095	4.165	4.211	4.256	4.300	4.344	4.387	4.429	4.471	4.512
13.75	A	32786	32868	33016	33226	33500	33836	34233	34942	35490	36096	36760	37481	38259	39093	39982	40926
	B	3.782	3.833	3.884	3.934	3.983	4.032	4.080	4.150	4.196	4.241	4.286	4.330	4.373	4.415	4.457	4.498

		COMPRESSIBILITY FACTOR PER KILOPASCAL										F=1/(A+DP*B)					
		DENSITY AT 15 DEGREES C KILOGRAM PER										CUBIC METRE					
TEMP DEG C		350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380
14.00	A	32288	32367	32510	32717	32987	33319	33712	34415	34959	35560	36220	36938	37711	38541	39426	40365
	B	3.766	3.818	3.868	3.918	3.968	4.016	4.064	4.135	4.181	4.227	4.271	4.315	4.358	4.401	4.443	4.484
14.25	A	31792	31867	32007	32210	32476	32804	33193	33891	34430	35028	35684	36397	37166	37992	38872	39807
	B	3.750	3.802	3.853	3.903	3.952	4.001	4.049	4.120	4.166	4.212	4.257	4.301	4.344	4.387	4.429	4.470
14.50	A	31299	31370	31506	31705	31967	32291	32677	33368	33903	34497	35149	35858	36623	37445	38321	39252
	B	3.734	3.786	3.837	3.887	3.937	3.986	4.034	4.105	4.151	4.197	4.242	4.286	4.330	4.373	4.415	4.456
14.75	A	30807	30875	31007	31202	31461	31781	32163	32848	33379	33969	34617	35322	36083	36900	37772	38699
	B	3.718	3.770	3.821	3.872	3.921	3.970	4.019	4.090	4.137	4.182	4.228	4.272	4.316	4.359	4.401	4.443
15.00	A	30318	30382	30510	30702	30957	31273	31651	32330	32857	33443	34087	34788	35545	36358	37226	38148
	B	3.702	3.754	3.805	3.856	3.906	3.955	4.003	4.075	4.122	4.168	4.213	4.257	4.301	4.345	4.387	4.429
15.25	A	29831	29892	30016	30204	30455	30767	31141	31815	32338	32920	33559	34256	35009	35818	36681	37599
	B	3.686	3.738	3.789	3.840	3.890	3.940	3.988	4.060	4.107	4.153	4.198	4.243	4.287	4.330	4.373	4.415
15.50	A	29347	29403	29524	29708	29955	30264	30633	31301	31821	32399	33034	33727	34476	35280	36140	37053
	B	3.669	3.722	3.773	3.824	3.875	3.924	3.973	4.045	4.092	4.138	4.184	4.228	4.273	4.316	4.359	4.401
15.75	A	28864	28917	29034	29214	29457	29762	30128	30790	31306	31880	32511	33200	33945	34745	35600	36510
	B	3.653	3.706	3.758	3.809	3.859	3.909	3.958	4.030	4.077	4.123	4.169	4.214	4.258	4.302	4.345	4.387
16.00	A	28384	28433	28546	28723	28962	29263	29625	30282	30793	31363	31991	32675	33416	34212	35063	35969
	B	3.637	3.690	3.742	3.793	3.843	3.893	3.942	4.014	4.062	4.108	4.154	4.199	4.244	4.288	4.331	4.373
16.25	A	27906	27951	28060	28233	28469	28766	29125	29775	30283	30849	31473	32153	32890	33682	34529	35430
	B	3.621	3.674	3.726	3.777	3.828	3.878	3.927	3.999	4.047	4.093	4.139	4.185	4.229	4.273	4.316	4.359
16.50	A	27429	27471	27577	27746	27978	28272	28626	29271	29775	30337	30957	31633	32366	33154	33997	34893
	B	3.605	3.657	3.710	3.761	3.812	3.862	3.911	3.984	4.032	4.079	4.125	4.170	4.215	4.259	4.302	4.345
16.75	A	26956	26994	27096	27262	27490	27780	28130	28769	29269	29827	30443	31116	31844	32628	33467	34360
	B	3.588	3.641	3.694	3.745	3.796	3.846	3.896	3.969	4.017	4.064	4.110	4.156	4.200	4.245	4.288	4.331
17.00	A	26484	26518	26617	26779	27003	27290	27637	28270	28766	29320	29932	30601	31325	32105	32940	33828
	B	3.572	3.625	3.678	3.729	3.780	3.831	3.880	3.954	4.001	4.049	4.095	4.141	4.186	4.230	4.274	4.317
17.25	A	26015	26045	26140	26299	26519	26802	27145	27773	28265	28815	29423	30088	30808	31584	32415	33299
	B	3.556	3.609	3.662	3.713	3.765	3.815	3.865	3.938	3.986	4.034	4.080	4.126	4.171	4.216	4.260	4.303
17.50	A	25547	25575	25666	25821	26038	26316	26656	27278	27766	28313	28917	29577	30294	31066	31892	32772
	B	3.539	3.593	3.645	3.698	3.749	3.800	3.849	3.923	3.971	4.019	4.065	4.111	4.157	4.201	4.245	4.289
17.75	A	25082	25106	25194	25345	25558	25833	26169	26785	27270	27813	28413	29069	29782	30550	31372	32248
	B	3.523	3.576	3.629	3.682	3.733	3.784	3.834	3.908	3.956	4.004	4.051	4.097	4.142	4.187	4.231	4.274

		COMPRESSIBILITY FACTOR PER KILOPASCAL										F=1/(A+DP*B)					
		DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE															
TEMP		350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380
DEG C																	
18.00	A		24639	24724	24871	25081	25352	25684	26295	26776	27315	27911	28564	29272	30036	30854	31726
	B		3.560	3.613	3.666	3.717	3.768	3.818	3.892	3.941	3.989	4.036	4.082	4.128	4.173	4.217	4.260
18.25	A			24256	24400	24606	24874	25202	25807	26284	26819	27411	28060	28765	29525	30339	31207
	B			3.597	3.650	3.701	3.752	3.803	3.877	3.926	3.973	4.021	4.067	4.113	4.158	4.202	4.246
18.50	A			23790	23931	24133	24397	24722	25322	25795	26326	26914	27559	28260	29016	29826	30690
	B			3.581	3.634	3.685	3.737	3.787	3.862	3.910	3.958	4.006	4.052	4.098	4.144	4.188	4.232
18.75	A				23464	23663	23923	24244	24838	25308	25835	26420	27061	27758	28509	29315	30175
	B				3.617	3.670	3.721	3.772	3.846	3.895	3.943	3.991	4.038	4.084	4.129	4.174	4.218
19.00	A				22999	23195	23451	23769	24357	24823	25347	25927	26565	27257	28005	28807	29663
	B				3.601	3.654	3.705	3.756	3.831	3.880	3.928	3.976	4.023	4.069	4.114	4.159	4.203
19.25	A					22729	22982	23296	23879	24341	24860	25437	26071	26760	27504	28302	29153
	B					3.638	3.689	3.740	3.815	3.864	3.913	3.961	4.008	4.054	4.100	4.145	4.189
19.50	A					22265	22515	22825	23402	23861	24377	24950	25579	26264	27004	27798	28646
	B					3.622	3.673	3.724	3.800	3.849	3.898	3.946	3.993	4.039	4.085	4.130	4.175
19.75	A						22050	22356	22928	23383	23895	24465	25090	25772	26507	27298	28141
	B						3.658	3.709	3.784	3.834	3.883	3.931	3.978	4.025	4.071	4.116	4.160
20.00	A							21890	22457	22908	23416	23982	24604	25281	26013	26799	27639
	B							3.693	3.769	3.818	3.867	3.915	3.963	4.010	4.056	4.101	4.146
20.25	A							21426	21987	22435	22939	23501	24119	24793	25521	26303	27139
	B							3.677	3.753	3.803	3.852	3.900	3.948	3.995	4.041	4.087	4.132
20.50	A								21520	21964	22465	23023	23638	24307	25031	25810	26641
	B								3.738	3.787	3.837	3.885	3.933	3.980	4.027	4.072	4.117
20.75	A								21056	21496	21993	22548	23158	23824	24544	25319	26146
	B								3.722	3.772	3.821	3.870	3.918	3.965	4.012	4.058	4.103
21.00	A								20593	21030	21524	22074	22681	23343	24059	24830	25653
	B								3.706	3.757	3.806	3.855	3.903	3.950	3.997	4.043	4.088
21.25	A									20566	21056	21603	22206	22864	23577	24344	25163
	B									3.741	3.791	3.840	3.888	3.935	3.982	4.028	4.074
21.50	A									20105	20591	21135	21734	22388	23097	23860	24675
	B									3.725	3.775	3.824	3.873	3.920	3.967	4.014	4.059
21.75	A										20129	20669	21264	21915	22620	23378	24190
	B										3.760	3.809	3.858	3.905	3.953	3.999	4.045

TEMP DEG C	COMPRESSIBILITY FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE										F=1/(A+DP*B)					
	350	352	354	356	358	360	362	364	366	368	370	372	374	376	378	380
22.00 A										19669	20205	20797	21443	22145	22899	23707
B										3.744	3.794	3.842	3.890	3.938	3.984	4.030
22.25 A											19743	20331	20975	21672	22423	23227
B											3.778	3.827	3.875	3.923	3.970	4.016
22.50 A											19284	19869	20508	21202	21949	22749
B											3.763	3.812	3.860	3.908	3.955	4.001
22.75 A												19409	20044	20734	21477	22273
B												3.797	3.845	3.893	3.940	3.987
23.00 A												18951	19583	20269	21008	21800
B												3.782	3.830	3.878	3.925	3.972
23.25 A													19124	19806	20542	21330
B													3.815	3.863	3.911	3.957
23.50 A													18667	19345	20077	20862
B													3.800	3.848	3.896	3.942
23.75 A														18887	19616	20396
B														3.833	3.881	3.928
24.00 A														18432	19156	19933
B														3.818	3.866	3.913
24.25 A															18699	19472
B															3.851	3.898
24.50 A															18245	19014
B															3.836	3.883
24.75 A																18559
B																3.869
25.00 A																18105
B																3.854

NOTE: FOR 350.0 TO 380.0 HIGHER TEMPERATURES ARE ABOVE THE NEAR CRITICAL LIMIT

		COMPRESSIBILITY FACTOR PER KILOPASCAL										F=1/(A+DP*B)					
		DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE															
TEMP		382	384	386	388	390	392	394	396	398	400	402	404	406	408	410	412
DEG C																	
-46.00	A	240917	243356	245852	248407	251019	253688	256413	259196	262034	264928	267878	270883	273943	277059	280228	283452
	B	7.093	7.096	7.098	7.100	7.100	7.100	7.098	7.096	7.093	7.089	7.084	7.078	7.071	7.063	7.055	7.045
45.75	A	239839	242270	244760	247307	249912	252574	255292	258067	260899	263786	266729	269727	272780	275888	279050	282267
	B	7.085	7.088	7.091	7.092	7.093	7.093	7.091	7.089	7.086	7.082	7.077	7.072	7.065	7.058	7.049	7.040
-45.50	A	238762	241187	243669	246209	248807	251462	254173	256941	259766	262646	265581	268572	271618	274719	277874	281084
	B	7.077	7.081	7.083	7.085	7.086	7.085	7.084	7.082	7.080	7.076	7.071	7.066	7.059	7.052	7.043	7.034
-45.25	A	237688	240105	242581	245114	247704	250352	253056	255817	258634	261507	264436	267420	270458	273552	276700	279902
	B	7.069	7.073	7.076	7.077	7.078	7.078	7.078	7.076	7.073	7.069	7.065	7.060	7.053	7.046	7.038	7.029
-45.00	A	236615	239025	241494	244020	246603	249244	251941	254695	257505	260371	263292	266269	269301	272387	275528	278723
	B	7.061	7.065	7.068	7.070	7.071	7.071	7.071	7.069	7.066	7.063	7.059	7.053	7.047	7.040	7.032	7.023
-44.75	A	235545	237948	240409	242928	245504	248138	250828	253575	256378	259236	262151	265120	268145	271224	274358	277546
	B	7.054	7.057	7.061	7.063	7.064	7.064	7.064	7.062	7.060	7.057	7.052	7.047	7.041	7.034	7.027	7.018
-44.50	A	234476	236872	239326	241838	244407	247034	249717	252457	255252	258104	261011	263974	266991	270064	273190	276371
	B	7.046	7.050	7.053	7.055	7.057	7.057	7.057	7.055	7.053	7.050	7.046	7.041	7.035	7.028	7.021	7.012
-44.25	A	233409	235798	238245	240750	243312	245932	248608	251340	254129	256974	259874	262829	265840	268905	272025	275198
	B	7.038	7.042	7.045	7.048	7.049	7.050	7.050	7.049	7.046	7.043	7.040	7.035	7.029	7.023	7.015	7.007
-44.00	A	232344	234726	237166	239664	242219	244831	247500	250226	253008	255845	258738	261687	264690	267748	270861	274028
	B	7.030	7.034	7.038	7.040	7.042	7.043	7.043	7.042	7.040	7.037	7.033	7.029	7.023	7.017	7.009	7.001
-43.75	A	231281	233656	236089	238580	241128	243733	246395	249114	251888	254719	257605	260546	263543	266594	269699	272859
	B	7.022	7.026	7.030	7.033	7.035	7.036	7.036	7.035	7.033	7.030	7.027	7.022	7.017	7.011	7.004	6.995
-43.50	A	230220	232588	235014	237498	240039	242637	245292	248003	250771	253594	256473	259408	262397	265441	268539	271692
	B	7.014	7.018	7.022	7.025	7.027	7.028	7.029	7.028	7.026	7.024	7.020	7.016	7.011	7.005	6.998	6.990
-43.25	A	229161	231522	233941	236417	238951	241543	244191	246895	249656	252472	255344	258271	261253	264290	267382	270527
	B	7.006	7.011	7.015	7.018	7.020	7.021	7.021	7.021	7.019	7.017	7.014	7.010	7.005	6.999	6.992	6.984
-43.00	A	228103	230457	232869	235339	237866	240450	243091	245789	248542	251352	254217	257137	260112	263142	266226	269365
	B	6.998	7.003	7.007	7.010	7.012	7.014	7.014	7.014	7.013	7.010	7.007	7.003	6.999	6.993	6.986	6.979
-42.75	A	227048	229395	231800	234263	236783	239360	241994	244684	247431	250233	253091	256004	258973	261995	265073	268204
	B	6.990	6.995	6.999	7.002	7.005	7.006	7.007	7.007	7.006	7.004	7.001	6.997	6.992	6.987	6.980	6.973
-42.50	A	225995	228335	230733	233188	235701	238272	240899	243582	246322	249117	251968	254874	257835	260851	263921	267045
	B	6.982	6.987	6.991	6.995	6.997	6.999	7.000	7.000	6.999	6.997	6.994	6.991	6.986	6.981	6.974	6.967
-42.25	A	224943	227276	229667	232116	234622	237185	239805	242482	245214	248003	250847	253746	256700	259709	262772	265889
	B	6.973	6.979	6.983	6.987	6.990	6.992	6.993	6.993	6.992	6.990	6.988	6.984	6.980	6.975	6.968	6.961

		COMPRESSIBILITY FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE F=1/(A+DP*B)															
TEMP DEG C		382	384	386	388	390	392	394	396	398	400	402	404	406	408	410	412
-42.00	A	223894	226220	228604	231045	233545	236101	238714	241383	244109	246890	249727	252619	255566	258568	261624	264735
	B	6.965	6.971	6.976	6.979	6.982	6.984	6.986	6.986	6.985	6.984	6.981	6.978	6.974	6.968	6.962	6.956
-41.75	A	222846	225165	227542	229977	232469	235018	237624	240287	243006	245780	248610	251495	254435	257430	260479	263582
	B	6.957	6.963	6.968	6.972	6.975	6.977	6.978	6.979	6.978	6.977	6.975	6.971	6.967	6.962	6.956	6.950
41.50	A	221800	224112	226482	228910	231396	233938	236537	239193	241904	244672	247495	250373	253306	256294	259336	262432
	B	6.949	6.955	6.960	6.964	6.967	6.970	6.971	6.972	6.971	6.970	6.968	6.965	6.961	6.956	6.950	6.944
-41.25	A	220756	223062	225425	227846	230324	232860	235452	238100	240805	243565	246381	249253	252179	255159	258195	261284
	B	6.941	6.947	6.952	6.956	6.960	6.962	6.964	6.964	6.964	6.963	6.961	6.958	6.955	6.950	6.944	6.938
-41.00	A	219715	222013	224369	226783	229255	231783	234368	237010	239708	242461	245270	248134	251054	254027	257055	260138
	B	6.932	6.939	6.944	6.948	6.952	6.955	6.956	6.957	6.957	6.956	6.955	6.952	6.948	6.944	6.938	6.932
40.75	A	218675	220966	223315	225722	228187	230709	233287	235922	238612	241359	244161	247018	249930	252897	255918	258994
	B	6.924	6.931	6.936	6.941	6.944	6.947	6.949	6.950	6.950	6.949	6.948	6.945	6.942	6.938	6.932	6.926
40.50	A	217637	219921	222264	224664	227121	229636	232207	234835	237519	240259	243054	245904	248809	251769	254783	257852
	B	6.916	6.922	6.928	6.933	6.937	6.940	6.942	6.943	6.943	6.943	6.941	6.939	6.935	6.931	6.926	6.920
-40.25	A	216601	218878	221214	223607	226058	228566	231130	233751	236428	239161	241949	244792	247690	250643	253650	256712
	B	6.908	6.914	6.920	6.925	6.929	6.932	6.934	6.936	6.936	6.936	6.934	6.932	6.929	6.925	6.920	6.914
40.00	A	215567	217837	220166	222552	224996	227497	230055	232669	235339	238065	240846	243682	246574	249519	252520	255574
	B	6.899	6.906	6.912	6.917	6.921	6.924	6.927	6.928	6.929	6.929	6.928	6.926	6.923	6.919	6.914	6.908
39.75	A	214534	216798	219120	221500	223937	226431	228981	231588	234252	236970	239745	242574	245459	248398	251391	254438
	B	6.891	6.898	6.904	6.909	6.913	6.917	6.919	6.921	6.922	6.922	6.921	6.919	6.916	6.912	6.908	6.902
39.50	A	213504	215761	218076	220449	222879	225366	227910	230510	233166	235878	238646	241468	244346	247278	250264	253304
	B	6.882	6.890	6.896	6.901	6.906	6.909	6.912	6.914	6.915	6.915	6.914	6.912	6.910	6.906	6.902	6.896
39.25	A	212476	214726	217034	219400	221823	224304	226841	229434	232083	234788	237549	240365	243235	246160	249140	252173
	B	6.874	6.881	6.888	6.893	6.898	6.902	6.904	6.906	6.908	6.908	6.907	6.905	6.903	6.900	6.895	6.890
39.00	A	211450	213693	215994	218353	220770	223243	225773	228360	231002	233700	236454	239263	242127	245045	248017	251043
	B	6.866	6.873	6.880	6.885	6.890	6.894	6.897	6.899	6.900	6.901	6.900	6.899	6.896	6.893	6.889	6.884
38.75	A	210425	212662	214956	217308	219718	222185	224708	227287	229923	232615	235361	238163	241020	243931	246897	249916
	B	6.857	6.865	6.871	6.877	6.882	6.886	6.889	6.892	6.893	6.894	6.893	6.892	6.890	6.887	6.883	6.878
38.50	A	209403	211633	213920	216266	218668	221128	223645	226217	228846	231531	234271	237066	239915	242820	245778	248791
	B	6.849	6.856	6.863	6.869	6.874	6.879	6.882	6.884	6.886	6.887	6.886	6.885	6.883	6.880	6.877	6.872
38.25	A	208383	210605	212886	215225	217621	220074	222583	225149	227771	230449	233182	235970	238813	241710	244662	247668
	B	6.840	6.848	6.855	6.861	6.866	6.871	6.874	6.877	6.879	6.879	6.879	6.878	6.877	6.874	6.870	6.866

		COMPRESSIBILITY FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE										F=1/(A+DP*B)					
TEMP DEG C		382	384	386	388	390	392	394	396	398	400	402	404	406	408	410	412
-38.00	A	207364	209580	211854	214186	216575	219021	221524	224083	226698	229369	232095	234877	237713	240603	243548	246547
	B	6.832	6.840	6.847	6.853	6.859	6.863	6.867	6.869	6.871	6.872	6.872	6.872	6.870	6.867	6.864	6.860
-37.75	A	206348	208557	210824	213149	215531	217971	220467	223019	225627	228291	231011	233785	236614	239498	242436	245428
	B	6.823	6.831	6.839	6.845	6.851	6.855	6.859	6.862	6.864	6.865	6.865	6.865	6.863	6.861	6.858	6.853
-37.50	A	205333	207536	209796	212114	214490	216922	219411	221957	224558	227216	229928	232696	235518	238395	241326	244311
	B	6.814	6.823	6.830	6.837	6.843	6.847	6.851	6.854	6.857	6.858	6.858	6.858	6.857	6.854	6.851	6.847
-37.25	A	204321	206516	208770	211081	213450	215876	218358	220897	223492	226142	228848	231608	234424	237294	240218	243196
	B	6.806	6.814	6.822	6.829	6.835	6.840	6.844	6.847	6.849	6.851	6.851	6.851	6.850	6.848	6.845	6.841
-37.00	A	203310	205499	207746	210051	212413	214831	217307	219839	222427	225070	227769	230523	233332	236195	239112	242083
	B	6.797	6.806	6.814	6.821	6.827	6.832	6.836	6.839	6.842	6.843	6.844	6.844	6.843	6.841	6.838	6.835
-36.75	A	202301	204484	206724	209022	211377	213789	216258	218783	221364	224001	226693	229440	232242	235098	238009	240973
	B	6.789	6.797	6.805	6.812	6.819	6.824	6.828	6.832	6.834	6.836	6.837	6.837	6.836	6.835	6.832	6.828
-36.50	A	201295	203470	205704	207995	210343	212749	215211	217729	220304	222934	225619	228359	231154	234003	236907	239864
	B	6.780	6.789	6.797	6.804	6.810	6.816	6.820	6.824	6.827	6.829	6.830	6.830	6.829	6.828	6.825	6.822
-36.25	A	200290	202459	204686	206970	209312	211710	214166	216677	219245	221868	224547	227280	230068	232911	235807	238758
	B	6.771	6.780	6.788	6.796	6.802	6.808	6.813	6.817	6.820	6.822	6.823	6.823	6.823	6.821	6.819	6.816
-36.00	A	199287	201449	203669	205947	208282	210674	213123	215628	218188	220805	223477	226203	228985	231820	234710	237654
	B	6.762	6.772	6.780	6.788	6.794	6.800	6.805	6.809	6.812	6.814	6.816	6.816	6.816	6.815	6.812	6.809
-35.75	A	198287	200442	202655	204926	207255	209640	212082	214580	217134	219744	222409	225128	227903	230732	233615	236552
	B	6.754	6.763	6.772	6.779	6.786	6.792	6.797	6.801	6.805	6.807	6.808	6.809	6.809	6.808	6.806	6.803
-35.50	A	197288	199437	201643	203908	206229	208608	211043	213534	216082	218685	221343	224056	226824	229646	232522	235452
	B	6.745	6.754	6.763	6.771	6.778	6.784	6.789	6.794	6.797	6.800	6.801	6.802	6.802	6.801	6.799	6.797
-35.25	A	196291	198433	200633	202891	205206	207578	210006	212491	215031	217627	220279	222985	225746	228561	231431	234354
	B	6.736	6.746	6.755	6.763	6.770	6.776	6.781	6.786	6.789	6.792	6.794	6.795	6.795	6.794	6.793	6.790
-35.00	A	195296	197432	199625	201876	204184	206549	208971	211449	213983	216572	219217	221917	224671	227479	230342	233258
	B	6.727	6.737	6.746	6.754	6.762	6.768	6.773	6.778	6.782	6.785	6.787	6.788	6.788	6.788	6.786	6.784
-34.75	A	194304	196432	198619	200863	203165	205523	207938	210410	212937	215519	218157	220850	223598	226399	229255	232165
	B	6.718	6.728	6.738	6.746	6.753	6.760	6.765	6.770	6.774	6.777	6.779	6.781	6.781	6.781	6.779	6.777
-34.50	A	193313	195435	197615	199853	202147	204499	206908	209372	211893	214469	217100	219786	222527	225322	228170	231073
	B	6.709	6.720	6.729	6.737	6.745	6.752	6.758	6.762	6.767	6.770	6.772	6.774	6.774	6.774	6.773	6.771
-34.25	A	192324	194439	196613	198844	201132	203477	205879	208337	210851	213420	216044	218724	221458	224246	227088	229984
	B	6.701	6.711	6.720	6.729	6.737	6.744	6.750	6.755	6.759	6.762	6.765	6.766	6.767	6.767	6.766	6.764

		COMPRESSION FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE $F=1/(A+DP*B)$															
TEMP		382	384	386	388	390	392	394	396	398	400	402	404	406	408	410	412
DEG C																	
-34.00	A	191337	193446	195613	197837	200119	202457	204852	207304	209811	212373	214991	217664	220391	223172	226008	228897
	B	6.692	6.702	6.712	6.721	6.728	6.735	6.742	6.747	6.751	6.755	6.757	6.759	6.760	6.760	6.759	6.758
-33.75	A	190353	192455	194615	196833	199107	201439	203828	206272	208773	211329	213940	216606	219326	222101	224929	227812
	B	6.683	6.693	6.703	6.712	6.720	6.727	6.733	6.739	6.743	6.747	6.750	6.752	6.753	6.753	6.753	6.751
-33.50	A	189370	191465	193619	195830	198098	200424	202805	205243	207737	210286	212890	215550	218263	221031	223853	226729
	B	6.674	6.685	6.694	6.703	6.712	6.719	6.725	6.731	6.736	6.740	6.743	6.745	6.746	6.746	6.746	6.744
-33.25	A	188389	190478	192625	194829	197091	199410	201785	204216	206703	209246	211843	214496	217203	219964	222779	225648
	B	6.665	6.676	6.686	6.695	6.703	6.711	6.717	6.723	6.728	6.732	6.735	6.737	6.739	6.739	6.739	6.738
-33.00	A	187410	189493	191633	193831	196086	198398	200766	203191	205671	208207	210798	213444	216144	218899	221707	224569
	B	6.656	6.667	6.677	6.686	6.695	6.703	6.709	6.715	6.720	6.724	6.728	6.730	6.732	6.732	6.732	6.731
-32.75	A	186433	188509	190643	192834	195083	197388	199750	202168	204642	207171	209755	212395	215088	217836	220638	223493
	B	6.647	6.658	6.668	6.678	6.686	6.694	6.701	6.707	6.712	6.717	6.720	6.723	6.724	6.725	6.725	6.724
-32.50	A	185459	187528	189655	191840	194082	196381	198736	201147	203614	206137	208715	211347	214034	216775	219570	222418
	B	6.638	6.649	6.660	6.669	6.678	6.686	6.693	6.699	6.705	6.709	6.713	6.715	6.717	6.718	6.718	6.718
-32.25	A	184486	186549	188669	190847	193083	195375	197724	200129	202589	205105	207676	210302	212982	215716	218505	221346
	B	6.628	6.640	6.651	6.661	6.669	6.678	6.685	6.691	6.697	6.701	6.705	6.708	6.710	6.711	6.712	6.711
-32.00	A	183515	185571	187685	189857	192086	194372	196714	199112	201566	204075	206639	209259	211932	214660	217441	220276
	B	6.619	6.631	6.642	6.652	6.661	6.669	6.677	6.683	6.689	6.694	6.698	6.701	6.703	6.704	6.705	6.704
-31.75	A	182546	184596	186704	188869	191091	193370	195706	198097	200545	203047	205605	208218	210884	213605	216380	219208
	B	6.610	6.622	6.633	6.643	6.652	6.661	6.668	6.675	6.681	6.686	6.690	6.693	6.696	6.697	6.698	6.697
-31.50	A	181580	183623	185724	187882	190098	192371	194700	197085	199525	202022	204573	207179	209839	212553	215321	218143
	B	6.601	6.613	6.624	6.634	6.644	6.652	6.660	6.667	6.673	6.678	6.682	6.686	6.688	6.690	6.691	6.691
-31.25	A	180615	182652	184746	186898	189107	191373	193696	196074	198508	200998	203542	206142	208795	211503	214264	217079
	B	6.592	6.604	6.615	6.626	6.635	6.644	6.652	6.659	6.665	6.670	6.675	6.678	6.681	6.683	6.684	6.684
-31.00	A	179652	181682	183770	185916	188119	190378	192694	195066	197494	199976	202514	205107	207754	210455	213210	216018
	B	6.583	6.595	6.606	6.617	6.627	6.636	6.644	6.651	6.657	6.662	6.667	6.671	6.674	6.676	6.677	6.677
-30.75	A	178692	180715	182797	184936	187132	189385	191694	194060	196481	198957	201488	204074	206715	209409	212157	214958
	B	6.573	6.586	6.597	6.608	6.618	6.627	6.635	6.643	6.649	6.655	6.659	6.663	6.666	6.668	6.670	6.670
-30.50	A	177733	179750	181825	183958	186147	188394	190697	193056	195470	197940	200465	203044	205678	208365	211107	213901
	B	6.564	6.577	6.588	6.599	6.609	6.619	6.627	6.634	6.641	6.647	6.652	6.656	6.659	6.661	6.663	6.663
-30.25	A	176776	178787	180856	182982	185165	187405	189701	192054	194461	196925	199443	202016	204643	207324	210058	212846
	B	6.555	6.568	6.579	6.591	6.601	6.610	6.619	6.626	6.633	6.639	6.644	6.648	6.651	6.654	6.655	6.656

		COMPRESSIBILITY FACTOR PER KILOPASCAL										F=1/(A+DP*B)					
		DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE															
TEMP DEG C		382	384	386	388	390	392	394	396	398	400	402	404	406	408	410	412
-30.00	A	175822	177826	179888	182008	184185	186418	188708	191054	193455	195912	198423	200989	203610	206284	209012	211794
	B	6.545	6.558	6.570	6.582	6.592	6.601	6.610	6.618	6.625	6.631	6.636	6.640	6.644	6.647	6.648	6.649
-29.75	A	174869	176867	178923	181036	183206	185433	187716	190056	192451	194901	197406	199965	202579	205247	207968	210743
	B	6.536	6.549	6.561	6.573	6.583	6.593	6.602	6.610	6.617	6.623	6.628	6.633	6.636	6.639	6.641	6.642
-29.50	A	173919	175910	177959	180066	182230	184450	186727	189060	191448	193892	196390	198943	201551	204212	206927	209695
	B	6.527	6.540	6.552	6.564	6.575	6.584	6.593	6.601	6.609	6.615	6.620	6.625	6.629	6.632	6.634	6.635
-29.25	A	172970	174955	176998	179098	181256	183470	185740	188066	190448	192885	195377	197924	200524	203179	205887	208649
	B	6.517	6.531	6.543	6.555	6.566	6.576	6.585	6.593	6.600	6.607	6.613	6.617	6.621	6.625	6.627	6.628
-29.00	A	172024	174002	176039	178133	180284	182491	184755	187075	189450	191881	194366	196906	199500	202148	204850	207605
	B	6.508	6.521	6.534	6.546	6.557	6.567	6.576	6.585	6.592	6.599	6.605	6.610	6.614	6.617	6.620	6.621
-28.75	A	171079	173051	175081	177169	179313	181515	183772	186085	188454	190878	193357	195891	198478	201120	203814	206563
	B	6.498	6.512	6.525	6.537	6.548	6.558	6.568	6.576	6.584	6.591	6.597	6.602	6.606	6.610	6.612	6.614
-28.50	A	170137	172103	174126	176207	178346	180540	182791	185098	187461	189878	192350	194877	197458	200093	202781	205523
	B	6.489	6.503	6.516	6.528	6.539	6.550	6.559	6.568	6.576	6.583	6.589	6.594	6.599	6.602	6.605	6.607
-28.25	A	169197	171156	173173	175248	177380	179568	181813	184113	186469	188880	191346	193866	196441	199069	201751	204485
	B	6.480	6.494	6.507	6.519	6.530	6.541	6.551	6.560	6.568	6.575	6.581	6.587	6.591	6.595	6.598	6.600
-28.00	A	168258	170211	172222	174291	176416	178598	180836	183130	185479	187884	190343	192857	195425	198047	200722	203450
	B	6.470	6.484	6.497	6.510	6.521	6.532	6.542	6.551	6.559	6.567	6.573	6.579	6.583	6.587	6.590	6.593
-27.75	A	167322	169269	171273	173335	175454	177630	179861	182149	184492	186890	189343	191850	194412	197027	199695	202417
	B	6.460	6.475	6.488	6.501	6.513	6.523	6.533	6.543	6.551	6.558	6.565	6.571	6.576	6.580	6.583	6.586
-27.50	A	166388	168328	170326	172382	174495	176664	178889	181170	183507	185898	188345	190846	193400	196009	198671	201386
	B	6.451	6.465	6.479	6.492	6.504	6.515	6.525	6.534	6.543	6.550	6.557	6.563	6.568	6.572	6.576	6.578
-27.25	A	165456	167390	169382	171431	173537	175700	177919	180193	182524	184909	187349	189843	192391	194993	197649	200357
	B	6.441	6.456	6.470	6.483	6.495	6.506	6.516	6.526	6.534	6.542	6.549	6.555	6.560	6.565	6.568	6.571
-27.00	A	164526	166453	168439	170482	172582	174738	176951	179219	181543	183921	186355	188843	191384	193980	196629	199331
	B	6.432	6.446	6.460	6.473	6.486	6.497	6.507	6.517	6.526	6.534	6.541	6.547	6.553	6.557	6.561	6.564
-26.75	A	163598	165519	167498	169535	171628	173778	175985	178246	180564	182936	185363	187844	190380	192969	195611	198307
	B	6.422	6.437	6.451	6.464	6.477	6.488	6.499	6.509	6.518	6.526	6.533	6.539	6.545	6.550	6.554	6.557
-26.50	A	162672	164587	166560	168590	170677	172821	175021	177276	179587	181953	184374	186848	189377	191960	194596	197284
	B	6.412	6.427	6.442	6.455	6.468	6.479	6.490	6.500	6.509	6.517	6.525	6.531	6.537	6.542	6.546	6.549
-26.25	A	161748	163657	165623	167647	169728	171865	174059	176308	178612	180972	183386	185855	188377	190953	193582	196264
	B	6.403	6.418	6.432	6.446	6.458	6.470	6.481	6.491	6.501	6.509	6.517	6.523	6.529	6.534	6.539	6.542

		COMPRESSIBILITY FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE $F=1/(A+DP*B)$															
TEMP DEG C		382	384	386	388	390	392	394	396	398	400	402	404	406	408	410	412
-26.00	A	160826	162728	164689	166706	168781	170912	173099	175342	177640	179993	182401	184863	187379	189948	192571	195247
	B	6.393	6.408	6.423	6.437	6.449	6.461	6.472	6.483	6.492	6.501	6.509	6.515	6.522	6.527	6.531	6.535
-25.75	A	159906	161802	163757	165768	167836	169961	172142	174378	176670	179016	181418	183873	186383	188946	191562	194231
	B	6.383	6.399	6.413	6.427	6.440	6.452	6.464	6.474	6.484	6.492	6.500	6.507	6.514	6.519	6.524	6.527
-25.50	A	158988	160878	162826	164831	166893	169012	171186	173416	175702	178042	180437	182886	185389	187945	190555	193218
	B	6.374	6.389	6.404	6.418	6.431	6.443	6.455	6.465	6.475	6.484	6.492	6.499	6.506	6.511	6.516	6.520
-25.25	A	158073	159957	161898	163897	165953	168065	170233	172457	174736	177070	179458	181901	184397	186947	189551	192207
	B	6.364	6.380	6.395	6.409	6.422	6.434	6.446	6.457	6.467	6.476	6.484	6.491	6.498	6.504	6.508	6.512
-25.00	A	157159	159037	160972	162965	165014	167120	169282	171499	173772	176099	178482	180918	183408	185951	188548	191198
	B	6.354	6.370	6.385	6.399	6.413	6.425	6.437	6.448	6.458	6.467	6.476	6.483	6.490	6.496	6.501	6.505
-24.75	A	156248	158119	160048	162034	164078	166177	168333	170544	172810	175131	177507	179937	182421	184958	187548	190191
	B	6.344	6.360	6.375	6.390	6.404	6.416	6.428	6.439	6.449	6.459	6.467	6.475	6.482	6.488	6.493	6.498
-24.50	A	155338	157203	159126	161106	163143	165237	167386	169591	171851	174166	176535	178958	181436	183966	186550	189187
	B	6.334	6.351	6.366	6.381	6.394	6.407	6.419	6.430	6.441	6.450	6.459	6.467	6.474	6.480	6.486	6.490
-24.25	A	154431	156290	158207	160180	162211	164298	166441	168640	170893	173202	175565	177982	180453	182977	185554	188184
	B	6.324	6.341	6.356	6.371	6.385	6.398	6.410	6.422	6.432	6.442	6.451	6.459	6.466	6.472	6.478	6.483
-24.00	A	153526	155378	157289	159257	161281	163362	165498	167691	169938	172240	174597	177008	179472	181990	184561	187184
	B	6.314	6.331	6.347	6.362	6.376	6.389	6.401	6.413	6.424	6.433	6.442	6.451	6.458	6.464	6.470	6.475
-23.75	A	152622	154469	156373	158335	160353	162428	164558	166744	168985	171281	173631	176036	178494	181005	183569	186187
	B	6.305	6.321	6.337	6.352	6.366	6.380	6.392	6.404	6.415	6.425	6.434	6.442	6.450	6.457	6.462	6.467
-23.50	A	151721	153562	155460	157415	159427	161495	163620	165799	168034	170324	172668	175066	177517	180022	182580	185191
	B	6.295	6.311	6.327	6.343	6.357	6.371	6.383	6.395	6.406	6.416	6.426	6.434	6.442	6.449	6.455	6.460
-23.25	A	150822	152657	154549	156498	158503	160566	162684	164857	167086	169369	171706	174098	176543	179042	181594	184198
	B	6.285	6.302	6.318	6.333	6.348	6.361	6.374	6.386	6.397	6.408	6.417	6.426	6.434	6.441	6.447	6.452
-23.00	A	149925	151754	153639	155582	157582	159638	161750	163917	166139	168416	170747	173133	175571	178064	180609	183207
	B	6.275	6.292	6.308	6.324	6.338	6.352	6.365	6.377	6.389	6.399	6.409	6.418	6.426	6.433	6.439	6.445
-22.75	A	149030	150853	152732	154669	156662	158712	160818	162979	165195	167465	169790	172169	174602	177088	179626	182218
	B	6.265	6.282	6.298	6.314	6.329	6.343	6.356	6.368	6.380	6.390	6.400	6.409	6.417	6.425	6.431	6.437
-22.50	A	148138	149954	151827	153758	155745	157789	159888	162043	164252	166517	168836	171208	173634	176114	178646	181231
	B	6.254	6.272	6.289	6.304	6.319	6.334	6.347	6.359	6.371	6.382	6.392	6.401	6.409	6.417	6.423	6.429
-22.25	A	147247	149057	150924	152849	154830	156867	158960	161109	163312	165571	167883	170249	172669	175142	177668	180247
	B	6.244	6.262	6.279	6.295	6.310	6.324	6.338	6.350	6.362	6.373	6.383	6.393	6.401	6.409	6.416	6.421

		COMPRESSIBILITY FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE															
TEMP DEG C		382	384	386	388	390	392	394	396	398	400	402	404	406	408	410	412
-22.00	A	146358	148162	150024	151942	153917	155948	158035	160177	162375	164627	166933	169293	171706	174173	176692	179265
	B	6.234	6.252	6.269	6.285	6.300	6.315	6.329	6.341	6.353	6.364	6.375	6.384	6.393	6.401	6.408	6.414
-21.75	A	145472	147270	149125	151037	153006	155031	157112	159248	161439	163685	165985	168338	170745	173206	175719	178285
	B	6.224	6.242	6.259	6.276	6.291	6.306	6.319	6.332	6.344	6.356	6.366	6.376	6.385	6.393	6.400	6.406
-21.50	A	144588	146379	148228	150135	152097	154116	156191	158321	160506	162745	165039	167386	169787	172241	174748	177307
	B	6.214	6.232	6.249	6.266	6.281	6.296	6.310	6.323	6.336	6.347	6.358	6.367	6.376	6.384	6.392	6.398
-21.25	A	143705	145491	147334	149234	151191	153203	155272	157396	159574	161807	164095	166436	168831	171278	173779	176331
	B	6.204	6.222	6.240	6.256	6.272	6.287	6.301	6.314	6.327	6.338	6.349	6.359	6.368	6.376	6.384	6.390
-21.00	A	142825	144605	146442	148336	150286	152293	154355	156473	158645	160872	163153	165488	167876	170318	172812	175358
	B	6.194	6.212	6.230	6.246	6.262	6.277	6.292	6.305	6.318	6.329	6.340	6.350	6.360	6.368	6.376	6.383
-20.75	A	141947	143721	145552	147440	149384	151384	153441	155552	157718	159939	162214	164543	166925	169360	171847	174387
	B	6.183	6.202	6.220	6.237	6.253	6.268	6.282	6.296	6.309	6.321	6.332	6.342	6.351	6.360	6.368	6.375
-20.50	A	141071	142839	144664	146545	148484	150478	152528	154633	156794	159008	161277	163599	165975	168404	170885	173419
	B	6.173	6.192	6.210	6.227	6.243	6.258	6.273	6.287	6.300	6.312	6.323	6.333	6.343	6.352	6.360	6.367
-20.25	A	140197	141959	143778	145654	147586	149574	151618	153717	155871	158079	160342	162658	165027	167450	169925	172452
	B	6.163	6.182	6.200	6.217	6.233	6.249	6.264	6.278	6.291	6.303	6.314	6.325	6.335	6.344	6.352	6.359
-20.00	A	139326	141081	142894	144764	146690	148672	150710	152803	154951	157153	159409	161719	164082	166498	168967	171488
	B	6.153	6.172	6.190	6.207	6.224	6.239	6.254	6.268	6.282	6.294	6.305	6.316	6.326	6.335	6.344	6.351
-19.75	A	138456	140206	142012	143876	145796	147772	149804	151891	154033	156229	158479	160782	163139	165549	168011	170526
	B	6.142	6.161	6.180	6.197	6.214	6.230	6.245	6.259	6.272	6.285	6.297	6.308	6.318	6.327	6.335	6.343
-19.50	A	137588	139332	141133	142991	144905	146875	148900	150981	153117	155307	157550	159848	162199	164602	167058	169566
	B	6.132	6.151	6.170	6.187	6.204	6.220	6.235	6.250	6.263	6.276	6.288	6.299	6.309	6.319	6.327	6.335
-19.25	A	136723	138461	140256	142107	144015	145979	147999	150074	152203	154387	156624	158916	161260	163657	166107	168609
	B	6.122	6.141	6.160	6.177	6.194	6.211	6.226	6.241	6.254	6.267	6.279	6.290	6.301	6.310	6.319	6.327
-19.00	A	135860	137592	139380	141226	143128	145086	147100	149168	151292	153469	155701	157986	160324	162715	165158	167654
	B	6.111	6.131	6.150	6.168	6.185	6.201	6.217	6.231	6.245	6.258	6.270	6.282	6.292	6.302	6.311	6.319
-18.75	A	134999	136724	138507	140347	142243	144195	146203	148265	150382	152554	154779	157058	159390	161774	164212	166701
	B	6.101	6.121	6.139	6.158	6.175	6.191	6.207	6.222	6.236	6.249	6.261	6.273	6.284	6.294	6.303	6.311
-18.50	A	134140	135860	137637	139470	141360	143306	145308	147364	149475	151640	153860	156132	158458	160836	163267	165750
	B	6.090	6.110	6.129	6.148	6.165	6.182	6.198	6.212	6.227	6.240	6.253	6.264	6.275	6.285	6.294	6.303
-18.25	A	133283	134997	136768	138596	140480	142420	144415	146465	148570	150729	152942	155209	157528	159901	162325	164802
	B	6.080	6.100	6.119	6.138	6.155	6.172	6.188	6.203	6.217	6.231	6.244	6.255	6.267	6.277	6.286	6.295

TEMP DEG C		COMPRESSIBILITY FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE															F=1/(A+DP*B)	
		382	384	386	388	390	392	394	396	398	400	402	404	406	408	410	412	
-18.00	A	132428	134136	135901	137723	139601	141535	143524	145569	147668	149821	152028	154288	156601	158967	161386	163856	
	B	6.069	6.090	6.109	6.128	6.145	6.162	6.178	6.194	6.208	6.222	6.235	6.247	6.258	6.268	6.278	6.287	
-17.75	A	131576	133278	135037	136853	138725	140653	142636	144674	146767	148914	151115	153369	155676	158036	160448	162912	
	B	6.059	6.079	6.099	6.118	6.135	6.153	6.169	6.184	6.199	6.213	6.226	6.238	6.249	6.260	6.270	6.278	
-17.50	A	130725	132421	134174	135984	137851	139773	141750	143782	145869	148010	150204	152452	154753	157107	159513	161971	
	B	6.048	6.069	6.089	6.107	6.125	6.143	6.159	6.175	6.190	6.204	6.217	6.229	6.241	6.251	6.261	6.270	
-17.25	A	129877	131567	133314	135118	136979	138895	140866	142892	144973	147108	149296	151538	153833	156180	158580	161031	
	B	6.038	6.058	6.078	6.097	6.116	6.133	6.150	6.165	6.180	6.194	6.208	6.220	6.232	6.243	6.253	6.262	
-17.00	A	129030	130715	132456	134255	136109	138019	139984	142004	144079	146208	148390	150626	152915	155256	157649	160095	
	B	6.027	6.048	6.068	6.087	6.106	6.123	6.140	6.156	6.171	6.185	6.199	6.211	6.223	6.234	6.244	6.254	
-16.75	A	128186	129865	131601	133393	135241	137145	139105	141119	143188	145310	147487	149716	151999	154334	156721	159160	
	B	6.017	6.038	6.058	6.077	6.096	6.113	6.130	6.146	6.162	6.176	6.190	6.202	6.214	6.226	6.236	6.246	
-16.50	A	127344	129017	130747	132533	134376	136274	138227	140236	142298	144415	146585	148809	151085	153414	155795	158227	
	B	6.006	6.027	6.047	6.067	6.086	6.103	6.120	6.137	6.152	6.167	6.181	6.194	6.206	6.217	6.228	6.237	
-16.25	A	126505	128172	129895	131676	133513	135405	137352	139354	141411	143522	145686	147903	150173	152496	154871	157297	
	B	5.995	6.017	6.037	6.057	6.075	6.094	6.111	6.127	6.143	6.157	6.171	6.185	6.197	6.208	6.219	6.229	
-16.00	A	125667	127328	129046	130821	132651	134538	136479	138476	140526	142631	144789	147000	149264	151581	153949	156370	
	B	5.985	6.006	6.027	6.046	6.065	6.084	6.101	6.118	6.133	6.148	6.162	6.176	6.188	6.200	6.211	6.221	
-15.75	A	124832	126487	128199	129968	131793	133673	135609	137599	139644	141742	143894	146099	148357	150668	153030	155444	
	B	5.974	5.995	6.016	6.036	6.055	6.074	6.091	6.108	6.124	6.139	6.153	6.167	6.179	6.191	6.202	6.212	
-15.50	A	123998	125648	127354	129117	130936	132810	134740	136724	138763	140856	143002	145201	147453	149757	152113	154521	
	B	5.963	5.985	6.006	6.026	6.045	6.064	6.081	6.098	6.114	6.130	6.144	6.158	6.170	6.182	6.194	6.204	
-15.25	A	123167	124811	126511	128268	130081	131950	133874	135852	137885	139971	142111	144305	146550	148848	151198	153600	
	B	5.952	5.974	5.995	6.016	6.035	6.054	6.072	6.089	6.105	6.120	6.135	6.149	6.162	6.174	6.185	6.196	
-15.00	A	122338	123976	125671	127422	129229	131092	133010	134982	137009	139090	141223	143410	145650	147942	150286	152681	
	B	5.942	5.964	5.985	6.005	6.025	6.044	6.062	6.079	6.095	6.111	6.126	6.139	6.153	6.165	6.176	6.187	
-14.75	A	121511	123143	124832	126578	128379	130236	132148	134115	136135	138210	140338	142519	144752	147038	149376	151765	
	B	5.931	5.953	5.974	5.995	6.015	6.034	6.052	6.069	6.086	6.101	6.116	6.130	6.144	6.156	6.168	6.179	
-14.50	A	120686	122313	123996	125736	127531	129382	131288	133249	135264	137332	139454	141629	143857	146136	148468	150851	
	B	5.920	5.942	5.964	5.985	6.004	6.024	6.042	6.059	6.076	6.092	6.107	6.121	6.135	6.147	6.159	6.170	
-14.25	A	119864	121485	123162	124896	126686	128531	130431	132386	134395	136457	138573	140742	142963	145237	147563	149939	
	B	5.909	5.932	5.953	5.974	5.994	6.013	6.032	6.050	6.066	6.082	6.098	6.112	6.126	6.139	6.151	6.162	

		COMPRESSIBILITY FACTOR PER KILOPASCAL										F=1/(A+DP*B)					
		DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE															
TEMP DEG C		382	384	386	388	390	392	394	396	398	400	402	404	406	408	410	412
-14.00	A	119044	120658	122330	124058	125842	127681	129576	131525	133528	135584	137694	139857	142072	144340	146659	149030
	B	5.898	5.921	5.943	5.964	5.984	6.003	6.022	6.040	6.057	6.073	6.088	6.103	6.117	6.130	6.142	6.153
-13.75	A	118225	119835	121501	123223	125001	126834	128723	130666	132663	134714	136818	138974	141184	143445	145758	148123
	B	5.887	5.910	5.932	5.953	5.974	5.993	6.012	6.030	6.047	6.063	6.079	6.094	6.108	6.121	6.133	6.145
-13.50	A	117409	119013	120673	122390	124162	125990	127872	129809	131800	133845	135943	138094	140297	142553	144860	147218
	B	5.876	5.899	5.921	5.943	5.963	5.983	6.002	6.020	6.037	6.054	6.070	6.085	6.099	6.112	6.124	6.136
-13.25	A	116595	118193	119848	121558	123325	125147	127024	128955	130940	132979	135071	137216	139413	141663	143963	146316
	B	5.865	5.888	5.911	5.932	5.953	5.973	5.992	6.010	6.028	6.044	6.060	6.075	6.090	6.103	6.116	6.128
-13.00	A	115784	117376	119025	120730	122490	124307	126178	128103	130082	132115	134201	136340	138531	140775	143069	145416
	B	5.854	5.878	5.900	5.922	5.943	5.963	5.982	6.000	6.018	6.035	6.051	6.066	6.080	6.094	6.107	6.119
-12.75	A	114974	116561	118204	119903	121658	123468	125334	127253	129227	131254	133334	135467	137652	139889	142178	144518
	B	5.843	5.867	5.889	5.911	5.932	5.952	5.972	5.990	6.008	6.025	6.041	6.057	6.071	6.085	6.098	6.110
-12.50	A	114167	115748	117385	119079	120828	122632	124492	126406	128373	130394	132469	134595	136775	139006	141288	143622
	B	5.832	5.856	5.879	5.901	5.922	5.942	5.962	5.980	5.998	6.016	6.032	6.047	6.062	6.076	6.089	6.102
-12.25	A	113362	114937	116569	118256	120000	121799	123652	125560	127522	129537	131606	133726	135900	138125	140401	142729
	B	5.821	5.845	5.868	5.890	5.911	5.932	5.952	5.970	5.989	6.006	6.022	6.038	6.053	6.067	6.080	6.093
-12.00	A	112559	114128	115754	117436	119174	120967	122815	124717	126673	128682	130745	132860	135027	137246	139517	141838
	B	5.810	5.834	5.857	5.879	5.901	5.922	5.941	5.960	5.979	5.996	6.013	6.029	6.044	6.058	6.072	6.084
-11.75	A	111758	113322	114942	116619	118351	120138	121980	123876	125826	127830	129886	131995	134157	136370	138634	140950
	B	5.799	5.823	5.846	5.869	5.890	5.911	5.931	5.950	5.969	5.986	6.003	6.019	6.035	6.049	6.063	6.075
-11.50	A	110959	112517	114132	115803	117530	119311	121147	123038	124982	126980	129030	131133	133289	135496	137754	140064
	B	5.788	5.812	5.836	5.858	5.880	5.901	5.921	5.940	5.959	5.977	5.994	6.010	6.025	6.040	6.054	6.067
-11.25	A	110163	111715	113325	114990	116710	118486	120317	122202	124140	126132	128176	130274	132423	134624	136876	139180
	B	5.777	5.801	5.825	5.847	5.869	5.890	5.911	5.930	5.949	5.967	5.984	6.000	6.016	6.031	6.045	6.058
-11.00	A	109368	110916	112519	114179	115894	117664	119489	121368	123300	125286	127325	129416	131560	133755	136001	138298
	B	5.766	5.790	5.814	5.837	5.859	5.880	5.901	5.920	5.939	5.957	5.975	5.991	6.007	6.022	6.036	6.049
-10.75	A	108576	110118	111716	113370	115079	116844	118663	120536	122463	124443	126476	128561	130698	132887	135128	137419
	B	5.754	5.779	5.803	5.826	5.848	5.870	5.890	5.910	5.929	5.947	5.965	5.982	5.997	6.012	6.027	6.040
-10.50	A	107787	109322	110915	112563	114267	116026	117839	119706	121627	123602	125629	127708	129840	132023	134257	136542
	B	5.743	5.768	5.792	5.815	5.838	5.859	5.880	5.900	5.919	5.938	5.955	5.972	5.988	6.003	6.018	6.031
-10.25	A	106999	108529	110116	111759	113457	115210	117017	118879	120794	122763	124784	126858	128983	131160	133389	135668
	B	5.732	5.757	5.781	5.804	5.827	5.849	5.870	5.890	5.909	5.928	5.946	5.962	5.979	5.994	6.009	6.022

		COMPRESSIBILITY FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE $F=1/(A+DP*B)$															
TEMP DEG C		382	384	386	388	390	392	394	396	398	400	402	404	406	408	410	412
-10.00	A	106213	107738	109319	110956	112649	114396	116198	118054	119964	121926	123942	126009	128129	130300	132522	134795
	B	5.721	5.746	5.770	5.794	5.816	5.838	5.859	5.880	5.899	5.918	5.936	5.953	5.969	5.985	6.000	6.014
-9.75	A	105430	106949	108525	110156	111843	113585	115381	117231	119135	121092	123102	125163	127277	129442	131659	133926
	B	5.709	5.735	5.759	5.783	5.806	5.828	5.849	5.869	5.889	5.908	5.926	5.943	5.960	5.976	5.991	6.005
-9.50	A	104649	106163	107733	109359	111040	112776	114567	116411	118309	120260	122264	124320	126428	128587	130797	133058
	B	5.698	5.723	5.748	5.772	5.795	5.817	5.838	5.859	5.879	5.898	5.916	5.934	5.950	5.966	5.981	5.996
-9.25	A	103870	105378	106943	108563	110239	111969	113754	115593	117485	119431	121428	123479	125580	127734	129938	132193
	B	5.687	5.712	5.737	5.761	5.784	5.806	5.828	5.849	5.869	5.888	5.906	5.924	5.941	5.957	5.972	5.987
-9.00	A	103093	104596	106155	107770	109440	111165	112944	114777	116664	118603	120595	122640	124736	126883	129081	131330
	B	5.675	5.701	5.726	5.750	5.773	5.796	5.818	5.839	5.859	5.878	5.897	5.914	5.931	5.948	5.963	5.978
-8.75	A	102319	103816	105370	106979	108643	110363	112136	113964	115844	117778	119764	121803	123893	126035	128227	130470
	B	5.664	5.690	5.715	5.739	5.763	5.785	5.807	5.828	5.849	5.868	5.887	5.905	5.922	5.938	5.954	5.969
-8.50	A	101547	103039	104586	106190	107849	109563	111331	113152	115027	116955	118936	120969	123053	125188	127375	129612
	B	5.653	5.678	5.704	5.728	5.752	5.775	5.797	5.818	5.838	5.858	5.877	5.895	5.912	5.929	5.945	5.960
-8.25	A	100777	102263	103805	105404	107057	108765	110527	112343	114213	116135	118110	120137	122215	124345	126525	128756
	B	5.641	5.667	5.693	5.717	5.741	5.764	5.786	5.808	5.828	5.848	5.867	5.885	5.903	5.920	5.935	5.951
-8.00	A	100009	101490	103027	104619	106267	107970	109726	111537	113400	115317	117286	119307	121379	123503	125678	127903
	B	5.630	5.656	5.681	5.706	5.730	5.753	5.776	5.797	5.818	5.838	5.857	5.876	5.893	5.910	5.926	5.941
-7.75	A	99243	100719	102250	103837	105480	107176	108927	110732	112590	114501	116464	118480	120546	122664	124833	127052
	B	5.618	5.645	5.670	5.695	5.719	5.742	5.765	5.787	5.808	5.828	5.847	5.866	5.884	5.901	5.917	5.932
-7.50	A	98480	99950	101476	103057	104694	106386	108131	109930	111783	113688	115645	117655	119715	121827	123990	126203
	B	5.607	5.633	5.659	5.684	5.708	5.732	5.754	5.776	5.797	5.818	5.837	5.856	5.874	5.891	5.908	5.923
-7.25	A	97719	99183	100704	102280	103911	105597	107337	109130	110977	112877	114828	116832	118887	120993	123150	125357
	B	5.595	5.622	5.648	5.673	5.697	5.721	5.744	5.766	5.787	5.808	5.827	5.846	5.864	5.882	5.898	5.914
-7.00	A	96960	98419	99934	101505	103130	104811	106545	108333	110174	112068	114014	116011	118061	120161	122312	124513
	B	5.583	5.610	5.636	5.662	5.686	5.710	5.733	5.755	5.777	5.797	5.817	5.836	5.855	5.872	5.889	5.905
-6.75	A	96203	97657	99166	100732	102352	104027	105755	107538	109373	111261	113201	115193	117237	119331	121476	123672
	B	5.572	5.599	5.625	5.651	5.675	5.699	5.722	5.745	5.766	5.787	5.807	5.826	5.845	5.863	5.879	5.896
-6.50	A	95449	96897	98401	99961	101576	103245	104968	106745	108575	110457	112391	114378	116415	118504	120643	122832
	B	5.560	5.587	5.614	5.640	5.664	5.688	5.712	5.734	5.756	5.777	5.797	5.817	5.835	5.853	5.870	5.886
-6.25	A	94696	96139	97638	99192	100802	102465	104183	105954	107778	109655	111584	113564	115596	117679	119812	121996
	B	5.549	5.576	5.603	5.628	5.653	5.678	5.701	5.724	5.746	5.767	5.787	5.807	5.825	5.843	5.861	5.877

		COMPRESSIBILITY FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE										F=1/(A+DP*B)					
TEMP DEG C		382	384	386	388	390	392	394	396	398	400	402	404	406	408	410	412
-6.00	A	93946	95384	96877	98426	100030	101688	103400	105166	106984	108855	110779	112753	114780	116856	118984	121161
	B	5.537	5.564	5.591	5.617	5.642	5.667	5.690	5.713	5.735	5.756	5.777	5.797	5.816	5.834	5.851	5.868
-5.75	A	93198	94631	96119	97662	99261	100913	102620	104380	106193	108058	109976	111945	113965	116036	118158	120329
	B	5.525	5.553	5.580	5.606	5.631	5.656	5.680	5.703	5.725	5.746	5.767	5.787	5.806	5.824	5.842	5.858
-5.50	A	92453	93880	95363	96901	98493	100141	101842	103596	105404	107263	109175	111139	113153	115218	117334	119500
	B	5.514	5.541	5.568	5.595	5.620	5.645	5.669	5.692	5.714	5.736	5.757	5.777	5.796	5.814	5.832	5.849
-5.25	A	91710	93131	94608	96141	97729	99370	101066	102815	104617	106471	108377	110335	112343	114403	116513	118672
	B	5.502	5.530	5.557	5.583	5.609	5.634	5.658	5.681	5.704	5.726	5.746	5.767	5.786	5.805	5.823	5.840
-5.00	A	90968	92385	93857	95384	96966	98602	100292	102036	103832	105681	107581	109533	111536	113590	115694	117848
	B	5.490	5.518	5.545	5.572	5.598	5.623	5.647	5.671	5.693	5.715	5.736	5.757	5.776	5.795	5.813	5.830
-4.75	A	90230	91641	93107	94629	96206	97837	99521	101259	103050	104893	106787	108734	110731	112779	114877	117025
	B	5.478	5.507	5.534	5.561	5.587	5.612	5.636	5.660	5.683	5.705	5.726	5.747	5.766	5.785	5.803	5.821
-4.50	A	89493	90899	92360	93877	95448	97073	98752	100485	102270	104107	105996	107937	109928	111971	114063	116205
	B	5.466	5.495	5.523	5.549	5.575	5.601	5.625	5.649	5.672	5.694	5.716	5.736	5.756	5.775	5.794	5.811
-4.25	A	88759	90159	91615	93126	94692	96312	97986	99713	101492	103324	105207	107142	109128	111165	113251	115387
	B	5.455	5.483	5.511	5.538	5.564	5.590	5.614	5.638	5.662	5.684	5.706	5.726	5.746	5.766	5.784	5.802
-4.00	A	88027	89422	90872	92378	93939	95553	97221	98943	100717	102543	104421	106350	108330	110361	112442	114572
	B	5.443	5.471	5.499	5.527	5.553	5.579	5.604	5.628	5.651	5.673	5.695	5.716	5.736	5.756	5.774	5.792
-3.75	A	87297	88686	90132	91632	93188	94797	96460	98175	99944	101764	103637	105560	107535	109560	111635	113759
	B	5.431	5.460	5.488	5.515	5.542	5.568	5.593	5.617	5.640	5.663	5.685	5.706	5.726	5.746	5.765	5.783
3.50	A	86569	87954	89394	90889	92439	94043	95700	97410	99173	100988	102855	104773	106742	108761	110830	112949
	B	5.419	5.448	5.476	5.504	5.530	5.556	5.582	5.606	5.630	5.652	5.675	5.696	5.716	5.736	5.755	5.773
-3.25	A	85844	87223	88658	90148	91692	93291	94943	96647	98405	100214	102076	103988	105951	107964	110028	112141
	B	5.407	5.436	5.465	5.492	5.519	5.545	5.571	5.595	5.619	5.642	5.664	5.686	5.706	5.726	5.745	5.764
-3.00	A	85121	86495	87924	89409	90948	92541	94188	95887	97639	99443	101299	103205	105163	107170	109228	111335
	B	5.395	5.424	5.453	5.481	5.508	5.534	5.560	5.584	5.608	5.631	5.654	5.675	5.696	5.716	5.736	5.754
-2.75	A	84400	85769	87193	88672	90206	91794	93435	95129	96875	98674	100524	102425	104377	106379	108430	110532
	B	5.383	5.413	5.441	5.469	5.496	5.523	5.548	5.573	5.597	5.621	5.643	5.665	5.686	5.706	5.726	5.745
-2.50	A	83681	85045	86464	87938	89467	91049	92685	94373	96114	97907	99752	101647	103593	105589	107635	109731
	B	5.371	5.401	5.430	5.458	5.485	5.512	5.537	5.562	5.587	5.610	5.633	5.655	5.676	5.696	5.716	5.735
-2.25	A	82965	84323	85737	87206	88729	90306	91937	93620	95355	97143	98982	100871	102812	104802	106843	108932
	B	5.359	5.389	5.418	5.446	5.474	5.500	5.526	5.551	5.576	5.599	5.622	5.644	5.666	5.686	5.706	5.725

		COMPRESSIBILITY FACTOR PER KILOPASCAL DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE $F=1/(A+DP*B)$															
TEMP DEG C		382	384	386	388	390	392	394	396	398	400	402	404	406	408	410	412
-2.00	A	82251	83604	85013	86476	87994	89566	91191	92869	94599	96381	98214	100098	102033	104018	106052	108136
	B	5.347	5.377	5.406	5.434	5.462	5.489	5.515	5.540	5.565	5.589	5.612	5.634	5.656	5.676	5.696	5.716
-1.75	A	81539	82887	84291	85749	87262	88828	90447	92120	93844	95621	97449	99327	101257	103236	105265	107343
	B	5.335	5.365	5.394	5.423	5.451	5.478	5.504	5.529	5.554	5.578	5.601	5.624	5.645	5.666	5.686	5.706
-1.50	A	80829	82172	83571	85024	86531	88092	89706	91373	93093	94864	96686	98559	100483	102456	104479	106551
	B	5.323	5.353	5.382	5.411	5.439	5.466	5.493	5.518	5.543	5.567	5.591	5.613	5.635	5.656	5.677	5.696
-1.25	A	80122	81460	82853	84301	85803	87359	88968	90629	92343	94109	95925	97793	99711	101679	103696	105763
	B	5.311	5.341	5.371	5.400	5.428	5.455	5.482	5.507	5.532	5.557	5.580	5.603	5.625	5.646	5.667	5.686
-1.00	A	79417	80750	82138	83581	85077	86628	88231	89888	91596	93356	95167	97029	98942	100904	102916	104976
	B	5.298	5.329	5.359	5.388	5.416	5.444	5.470	5.496	5.522	5.546	5.570	5.593	5.615	5.636	5.657	5.676
-0.75	A	78715	80042	81425	82862	84354	85899	87497	89148	90851	92606	94412	96268	98175	100131	102137	104192
	B	5.286	5.317	5.347	5.376	5.405	5.432	5.459	5.485	5.511	5.535	5.559	5.582	5.604	5.626	5.647	5.667
-0.50	A	78014	79337	80714	82147	83633	85173	86766	88411	90109	91858	93658	95509	97410	99361	101362	103411
	B	5.274	5.305	5.335	5.364	5.393	5.421	5.448	5.474	5.500	5.524	5.548	5.572	5.594	5.616	5.637	5.657
-0.25	A	77316	78633	80006	81433	82914	84449	86037	87677	89369	91113	92907	94753	96648	98594	100588	102632
	B	5.262	5.293	5.323	5.353	5.381	5.409	5.437	5.463	5.489	5.514	5.538	5.561	5.584	5.606	5.627	5.647
0.00	A	76620	77932	79300	80722	82198	83727	85310	86944	88631	90369	92159	93999	95889	97828	99817	101855
	B	5.250	5.281	5.311	5.341	5.370	5.398	5.425	5.452	5.478	5.503	5.527	5.551	5.573	5.595	5.617	5.637
0.25	A	75927	77234	78596	80013	81484	83008	84585	86214	87896	89629	91413	93247	95131	97065	99049	101081
	B	5.237	5.269	5.299	5.329	5.358	5.386	5.414	5.441	5.467	5.492	5.516	5.540	5.563	5.585	5.607	5.627
0.50	A	75235	76537	77895	79306	80772	82291	83863	85487	87163	88890	90669	92498	94377	96305	98283	100309
	B	5.225	5.256	5.287	5.317	5.346	5.375	5.402	5.429	5.455	5.481	5.506	5.529	5.552	5.575	5.596	5.617
0.75	A	74546	75843	77196	78602	80062	81576	83143	84762	86432	88154	89927	91751	93624	95547	97519	99540
	B	5.213	5.244	5.275	5.305	5.335	5.363	5.391	5.418	5.444	5.470	5.495	5.519	5.542	5.565	5.586	5.607
1.00	A	73860	75152	76499	77900	79355	80864	82425	84039	85704	87421	89188	91006	92874	94791	96758	98773
	B	5.200	5.232	5.263	5.293	5.323	5.352	5.380	5.407	5.433	5.459	5.484	5.508	5.532	5.554	5.576	5.597
1.25	A	73175	74462	75804	77200	78651	80154	81710	83318	84978	86690	88452	90264	92127	94038	95999	98008
	B	5.188	5.220	5.251	5.281	5.311	5.340	5.368	5.396	5.422	5.448	5.473	5.497	5.521	5.544	5.566	5.587
1.50	A	72493	73775	75112	76503	77948	79446	80997	82600	84255	85961	87718	89525	91381	93287	95243	97246
	B	5.176	5.208	5.239	5.270	5.299	5.328	5.357	5.384	5.411	5.437	5.462	5.487	5.511	5.534	5.556	5.577
1.75	A	71813	73090	74422	75808	77248	78741	80287	81885	83534	85235	86986	88787	90639	92539	94489	96487
	B	5.163	5.195	5.227	5.258	5.288	5.317	5.345	5.373	5.400	5.426	5.451	5.476	5.500	5.523	5.546	5.567

		COMPRESSIBILITY FACTOR PER KILOPASCAL										F=1/(A+DP*B)					
		DENSITY AT 15 DEGREES C KILOGRAM PER CUBIC METRE															
TEMP DEG C		382	384	386	388	390	392	394	396	398	400	402	404	406	408	410	412
2.00	A	71136	72408	73735	75116	76550	78038	79579	81171	82815	84511	86256	88053	89898	91793	93737	95729
	B	5.151	5.183	5.215	5.246	5.276	5.305	5.334	5.362	5.389	5.415	5.441	5.465	5.489	5.513	5.535	5.557
2.25	A	70460	71727	73049	74425	75855	77338	78873	80460	82099	83789	85529	87320	89160	91050	92988	94975
	B	5.138	5.171	5.203	5.234	5.264	5.293	5.322	5.350	5.377	5.404	5.430	5.455	5.479	5.502	5.525	5.547
2.50	A	69787	71050	72366	73737	75162	76639	78170	79752	81385	83070	84805	86590	88425	90309	92241	94222
	B	5.126	5.158	5.190	5.222	5.252	5.282	5.311	5.339	5.366	5.393	5.419	5.444	5.468	5.492	5.515	5.537
2.75	A	69117	70374	71686	73052	74471	75944	77469	79045	80674	82353	84083	85863	87692	89570	91497	93473
	B	5.113	5.146	5.178	5.209	5.240	5.270	5.299	5.327	5.355	5.382	5.408	5.433	5.458	5.481	5.504	5.527
3.00	A	68449	69701	71008	72368	73783	75250	76770	78342	79965	81639	83363	85137	86961	88834	90756	92725
	B	5.101	5.134	5.166	5.197	5.228	5.258	5.287	5.316	5.344	5.370	5.397	5.422	5.447	5.471	5.494	5.517
3.25	A	67783	69030	70332	71688	73097	74559	76074	77640	79258	80927	82646	84415	86233	88100	90016	91980
	B	5.088	5.121	5.154	5.185	5.216	5.246	5.276	5.304	5.332	5.359	5.386	5.411	5.436	5.460	5.484	5.506
3.50	A	67119	68361	69658	71009	72413	73870	75380	76941	78554	80217	81931	83694	85507	87369	89280	91238
	B	5.075	5.109	5.141	5.173	5.204	5.234	5.264	5.293	5.321	5.348	5.375	5.400	5.425	5.450	5.473	5.496
3.75	A	66457	67695	68987	70333	71732	73184	74688	76244	77852	79510	81218	82976	84784	86640	88545	90498
	B	5.063	5.096	5.129	5.161	5.192	5.223	5.252	5.281	5.309	5.337	5.364	5.390	5.415	5.439	5.463	5.486
4.00	A	65798	67031	68318	69659	71053	72500	73999	75550	77152	78805	80508	82261	84063	85914	87813	89761
	B	5.050	5.084	5.117	5.149	5.180	5.211	5.241	5.270	5.298	5.326	5.353	5.379	5.404	5.429	5.452	5.476
4.25	A	65142	66369	67651	68987	70376	71818	73313	74858	76455	78103	79801	81548	83345	85190	87084	89026
	B	5.038	5.071	5.104	5.137	5.168	5.199	5.229	5.258	5.287	5.314	5.341	5.368	5.393	5.418	5.442	5.465
4.50	A	64487	65710	66987	68318	69702	71139	72628	74169	75761	77403	79095	80837	82629	84469	86357	88293
	B	5.025	5.059	5.092	5.124	5.156	5.187	5.217	5.246	5.275	5.303	5.330	5.357	5.382	5.407	5.431	5.455
4.75	A	63835	65053	66325	67651	69030	70462	71946	73482	75068	76705	78392	80129	81915	83750	85632	87563
	B	5.012	5.046	5.080	5.112	5.144	5.175	5.205	5.235	5.264	5.292	5.319	5.346	5.372	5.397	5.421	5.445
5.00	A	63185	64398	65666	66987	68361	69788	71267	72797	74378	76010	77692	79424	81204	83033	84910	86835
	B	4.999	5.034	5.067	5.100	5.132	5.163	5.193	5.223	5.252	5.280	5.308	5.335	5.361	5.386	5.410	5.434
5.25	A	62538	63746	65009	66325	67694	69116	70590	72115	73691	75318	76994	78720	80495	82319	84191	86110
	B	4.987	5.021	5.055	5.087	5.120	5.151	5.182	5.212	5.241	5.269	5.297	5.324	5.350	5.375	5.400	5.424
5.50	A	61893	63096	64354	65665	67029	68446	69915	71435	73006	74627	76299	78019	79789	81607	83474	85387
	B	4.974	5.008	5.042	5.075	5.107	5.139	5.170	5.200	5.229	5.258	5.285	5.313	5.339	5.364	5.389	5.413
5.75	A	61250	62449	63701	65008	66367	67779	69242	70757	72323	73940	75606	77321	79085	80898	82759	84667
	B	4.961	4.996	5.030	5.063	5.095	5.127	5.158	5.188	5.218	5.246	5.274	5.301	5.328	5.354	5.379	5.403