CHAPTER 3

THE THERMODYNAMIC PROPERTIES OF ARGON

Since the discovery of argon by Lord Rayleigh in 1890, many thermodynamic and related properties of the gas have been investigated. The density, compressibility factor, Joule-Thomson coefficient, sound velocity, thermal conductivity, viscosity, and diffusion coefficient are known with accuracies comparable to those of the common gases such as air, nitrogen, and oxygen. Probably only helium has been investigated more extensively. Interest in argon arises from its relatively high abundance (approximately 1 percent in air), its chemical inertness, and its structural simplicity. Studies of the structurally simple substances such as argon and other noble gases aid in the development of theories of atomic and molecular structure.

In spite of the scientific interest in argon, no up-to-date correlation of the thermodynamic data has been available. Such tables as have been published are limited to the experimental range covered by the individual investigators. At present technological interests focus attention on the high-temperature, high-pressure region, for which consistent tables are lacking.

The Correlation of the Experimental Data

The first extensive measurements of the data of state for argon were made at Leiden about 1910 [1]. This work, which covers the low-temperature region (123° to 293°K) at pressures from 1 to 62 atmospheres, was later shown by Cragoe [2] to require a correction to make it consistent with more recent results. The data of Holborn and others [3, 38-40] cover the temperature range -200° to +400°C at pressures from 0 to 80 meters of mercury. Other PVT measurements are reported by Tanner and Masson [4] at temperatures between 25° and 175°C and at pressures from 30 to 125 atmospheres, by Oishi [5] at temperatures between 0° and 100°C at low pressures, and most recently by Michels, et al., [6] at temperatures between 0° and 150°C and at pressures to 2900 atmospheres. This last extensive work is the most accurate.

Other data considered in this correlation include the Joule-Thomson data from Roebuck and Osterberg [7] as corrected by Roebuck [34, page 61]; sound velocity data from Van Itterbeek and Van Paemel [8] and self-diffusion data from Winn [9]. Some experimental viscosities [10 - 16] were considered also in the course of the selection of the force constants for argon.

The compressibility factor was computed from the equation

$$Z = 1 + B_1P + C_1P^2 + D_1P^3 + E_1P^4 + F_1P^5.$$

The virial coefficients B_1 and C_1 were obtained by fitting the data of state to a theoretical model having a Lennard-Jones 6-12 intermolecular potential, for which virial coefficient functions had been calculated previously by Bird, Spotz, and Hirschfelder [17]. The intermolecular force constants, $\epsilon/k = 119.5°K$ and $b_o = 50.51\ cm^3mole^{-1}$, were evaluated by correlating the available

data on several different properties: PVT, Joule-Thomson, sound velocity, self-diffusion, and viscosity. The higher virial coefficients, D_1, E_1, and F_1, were obtained by a least-squares treatment of the more reliable experimental PVT data. The values of the thermodynamic properties--namely, entropy, enthalpy, specific heat, specific-heat ratio, and sound velocity at low frequency--were computed by means of the usual thermodynamic relationships from the virial coefficients given in table 3-13 and their derivatives and from the values for the ideal gas given in table 3-12. The ideal gas properties were calculated using the electronic energy levels given by Moore [35].

This semi-empirical correlation permitted the calculation of a consistent set of thermodynamic properties at pressures from 1 to 100 atmospheres and temperatures from about 100° to 5000°K. Although far superior to a separate empirical fit for each kind of experimental data, such extrapolations are not without uncertainty.

As indicated above, the second and third virial coefficients were computed from the 6-12 Lennard-Jones intermolecular potential with force constants, b_o and ϵ/k, obtained from the pertinent experimental data. Since the most accurate and abundant experiments are those on the data of state, these were given the most weight. The details of the fitting of the data are to be found in a report by Beckett and Fano [18] from which figure 3a is taken. This plot of $b_o = 2/3\pi Nr_o^3$ versus temperature was used to fix the value of b_o at 50.51 $cm^3\,mole^{-1}$ after the value of $\epsilon/k = 119.5°K$ was fixed. The plot permits the simultaneous consideration of such diverse properties as viscosity, sound velocity at low frequency, Joule-Thomson coefficient, self-diffusion, and PVT data. The value of 50.51 was obtained by averaging, with appropriate weights, the values of b_o obtained from the above-mentioned experimental data.

The dimensionless representation has been accomplished for certain properties by expressing them relative to the value at standard conditions (0°C and 1 atmosphere). Thus, the density is expressed as ρ/ρ_0, the sound velocity at low frequency as a/a_0, the thermal conductivity as k/k_0, and the viscosity as η/η_0. The reference values ρ_0, a_0, and η_0 were computed on the basis of the Lennard-Jones intermolecular potential, whose force constants were evaluated in the manner outlined above. The value k_0 was determined from an equation based on an empirical fit of the experimental data. Values for these quantities are given in various units in table 3-b. The agreement of ρ_0 and k_0 with the experimental data is shown in figures 3b and 3f. It can be seen from figure 3e that the average departure of the experimental data at standard conditions from the adopted value of η_0 is about 1 percent. The value of 307.88 m/sec for a_0 is in agreement with the value 307.8 m/sec cited in the International Critical Tables [36] and is further corroborated by the very recent determination by Greenspan of the National Bureau of Standards [37] who reports a provisional value 307.86 m/sec.

The viscosity was computed on the basis of the Lennard-Jones 6-12 intermolecular potential with the same force constants as were used for the thermodynamic properties (see summary table 1-B). The thermal conductivities were computed from an empirical fit of the experimental data [19-22] using the equation given in summary table 1-C.

The tables of vapor pressure are based on an analysis of the data in references 23 - 30, which are arranged roughly in order of the weight given to the data taken from them. The accepted triple and boiling points are those of Frank , et al., [25] whose work makes it almost certain that

Born's results [30] are in error. At other temperatures Crommelin's work [23, 24] has been given the greatest weight. In the analysis of the data, his second rather than his first measurements on the solid were accepted. The table for the liquid was partially determined from the law of corresponding states, using oxygen as the reference substance. The critical point is that given by Crommelin.

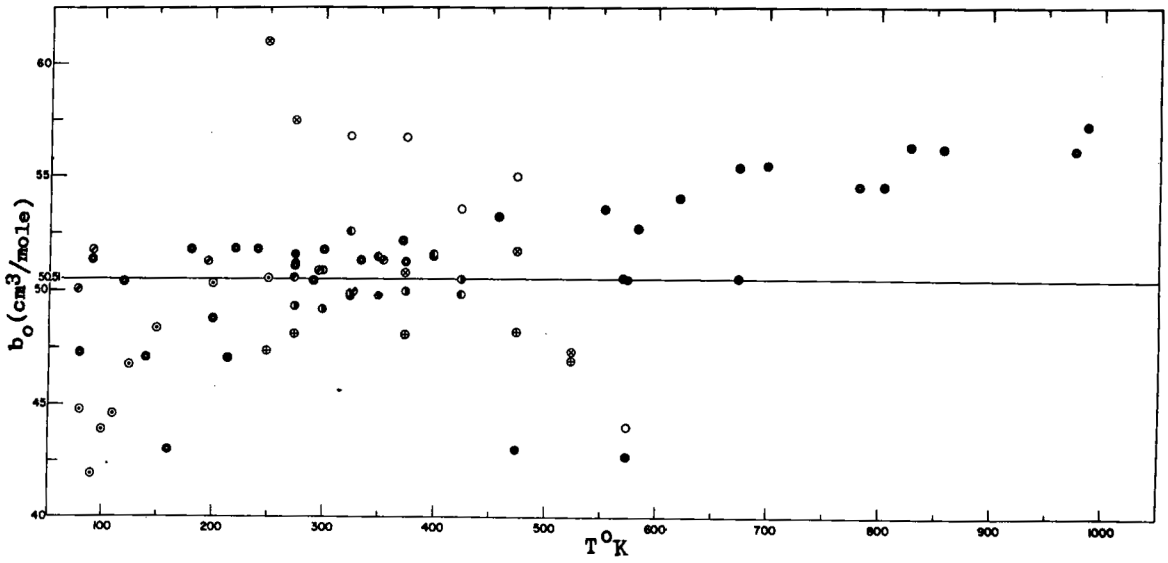

Figure 3a. $b_o = \frac{2}{3}\pi N r_o^3$ from various experimental data

From Joule-Thomson coefficient data μ_o		⊕
From Joule-Thomson coefficient data $\partial\mu/\partial p$		⊗
From self-diffusion data		⊘
From sound-velocity data		⊙
From viscosity data		◎
From PVT data - Michels 6 power series:	from B ◑	from C ◐
From PVT data - Holborn, et al.:	from B ●	from C ○

The Reliability of the Tables

Throughout the experimental range, the uncertainties of the tabulated values of the compressibility factor (table 3-1) are essentially the same as the uncertainties of the experimental values (see figure 3b). That is, above 200°K, they are no more than one part in one thousand and in most cases about two or three parts in ten thousand; below 200°K, the uncertainties are larger—of the order of several parts in one thousand. The uncertainties in the table of density (table 3-2) correspond to those for the table of the compressibility factor, since the densities were computed directly from the compressibility factors.

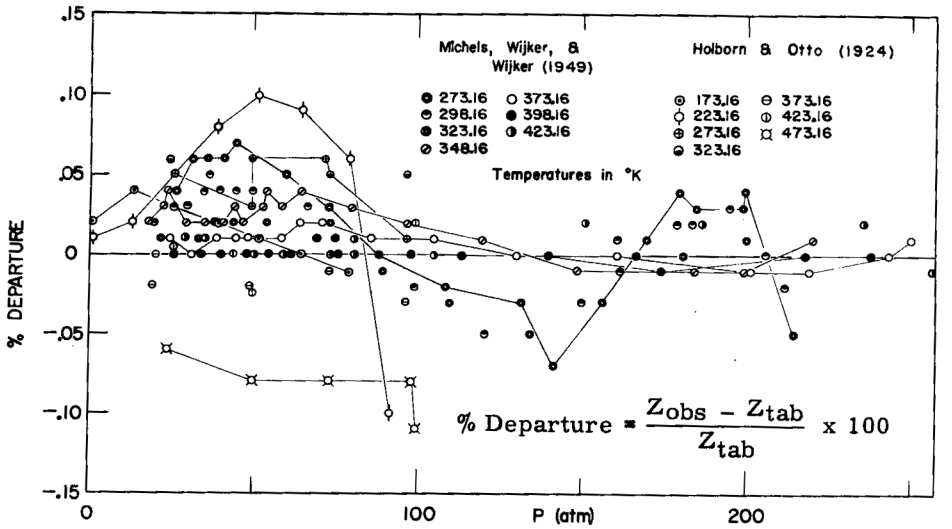

Figure 3b. Departures of experimental compressibility factors obtained from the virial equation used to calculate table 3-1

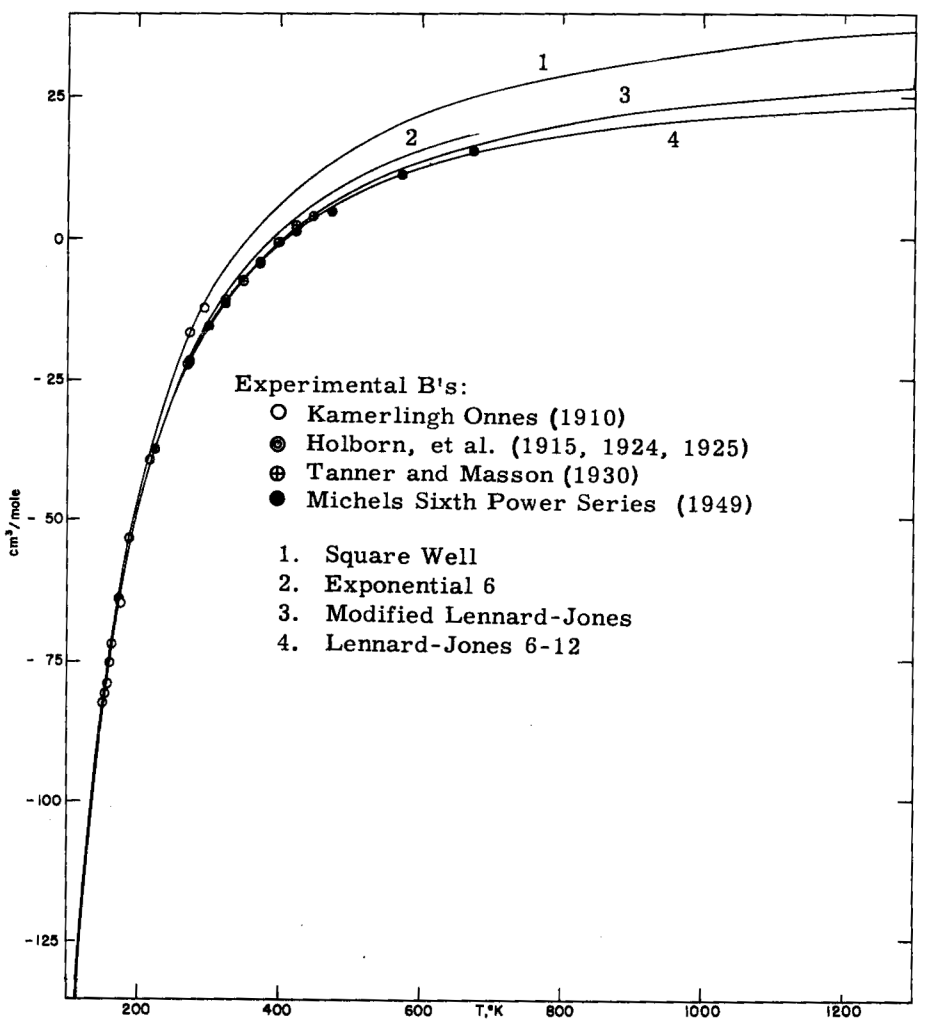

Figure 3c. Second virial coefficient, B, of argon

An indication of the probable uncertainty of the tabulated Z and ρ values at temperatures above the experimental range can be obtained from figure 3c, which shows a comparison of the second virial coefficients for various models with those derived from the experimental PVT data of various authors. The models considered were the exponential 6 function of Herzfeld [31], the modified Lennard-Jones potential (hard-sphere core) [32], and the square-well and Lennard-Jones 6-12 potentials as tabulated by Hirschfelder, et al., [17]. It will be seen that in the experimental region, the Lennard-Jones 6-12 potential is slightly favored by the experimental data. A fuller discussion of the fitting of the higher virials used here is to be found in the report of Beckett and Fano [18]. The uncertainties of the tabulated compressibility factors above the experimental temperature range are estimated to be 10 percent of (Z-1).

The ideal-gas thermodynamic properties for argon (table 3-12) are quite reliable, since the atomic weight and the fundamental constants are the only source of uncertainty. The uncertainty in the real-gas properties, is, therefore, due almost entirely to the uncertainty in the pressure correction, that is, to the uncertainty in the virial coefficients and their derivatives. At high temperatures and moderate pressures, where the gas imperfection is small, the thermodynamic properties should be reliable as tabulated. Outside this region, the pressure correction for entropy (table 3-5) and enthalpy (table 3-4) depends on the first derivative of the virial coefficients,

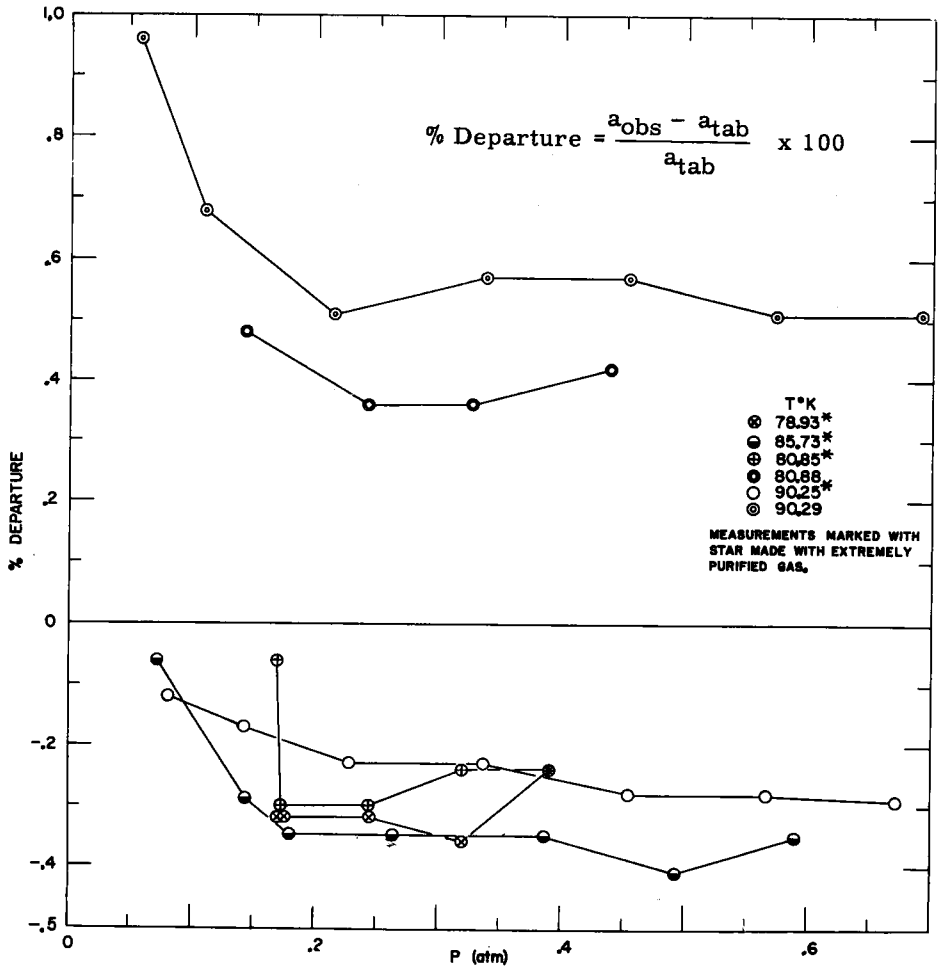

Figure 3d. Departures of experimental sound velocities from the tabulated values for argon (table 3-7)

and therefore, it is estimated that the uncertainty in the tables is in the worst cases of the order of 10 percent of the gas imperfection. For specific heat (table 3-3), the pressure correction depends on the second derivative of the virial coefficients, and therefore, the uncertainties for this property are correspondingly larger, namely, of the order of 10 percent of the pressure correction around the ice point and up to about 30 percent at 100°K. For the specific-heat ratio (table 3-6) and sound velocity at low frequency (table 3-7), the tabulated values are in good agreement with the experimental data [33 and 8] (see figure 3d). The tabulated values are thought to be accurate within a few units in the last tabulated figure above the ice point at moderate pressures. At lower temperatures and high pressures, the accuracy decreases somewhat, whereas it increases at high temperature where the gas approaches ideality.

A graphical comparison of the tabulated and experimental viscosities [10 - 16] is given in figure 3e. From this it would seem that the viscosity table is reliable to within 2 percent between 200° and 600°K and to within 3 percent at higher temperatures. Below 200°K, the uncertainties increase to 4 percent. The values of thermal conductivity are considered reliable to within 2 percent. Figure 3f shows the deviations of the tabulated values from the experimental data [19 - 22].

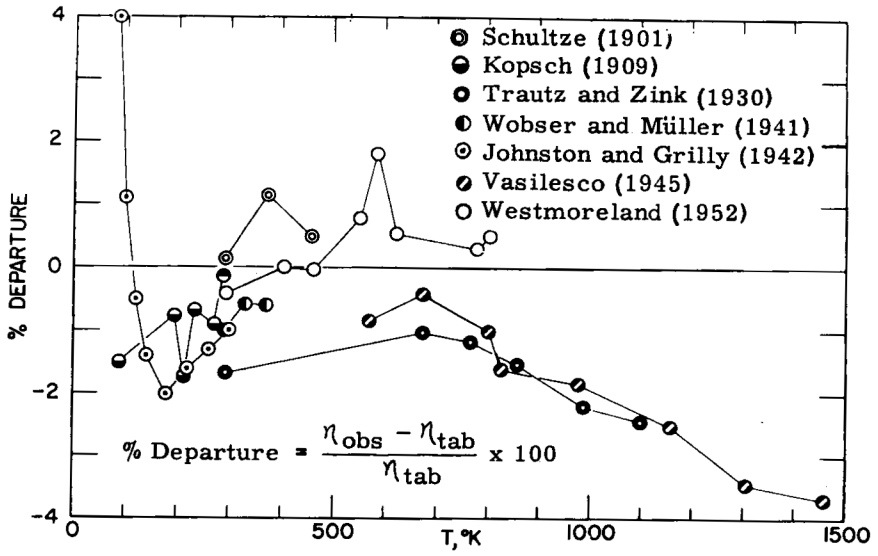

Figure 3e. Departures of experimental viscosities from the tabulated values for argon (table 3-8)

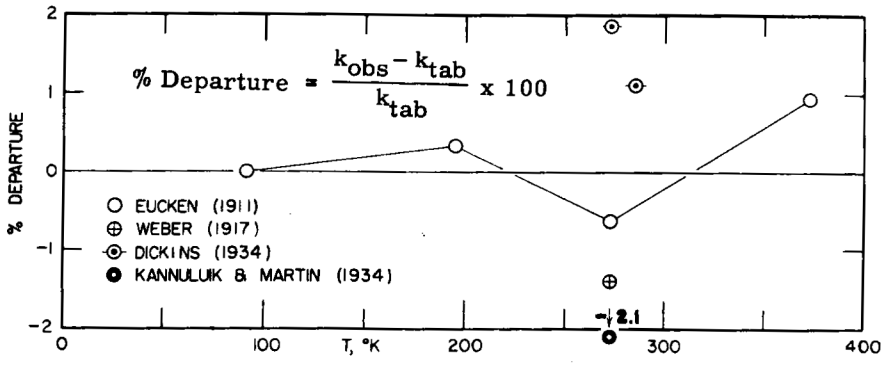

Figure 3f. Departures of experimental thermal conductivities from the tabulated values for argon (table 3-9)

For vapor pressure, the empirical equation which was used to compute the tables for the solid appears to yield results which are reliable to about ± 0. 1°K. This corresponds to ± 0. 5 mm Hg at 65°K and ± 7 mm Hg at the triple point (83. 78°K). Tabulated values for the liquid between the triple point and about 95°K appear to be reliable to about ± 0. 05°K, or roughly to ± 5 mm Hg. At higher temperatures, the tables should not be considered reliable to better than ± 0. 2°K. This corresponds to ± 40 mm Hg at 100°K, to ± 120 mm Hg at 125°K, and to ± 280 mm Hg at the critical point. The triple-point pressure, being independent of the temperature-scale error, is probably accurate to ± 0. 2 mm Hg. Figure 3g shows the deviation of the experimental data from the calculated values, except for a few experimental points outside the range of the graphs.

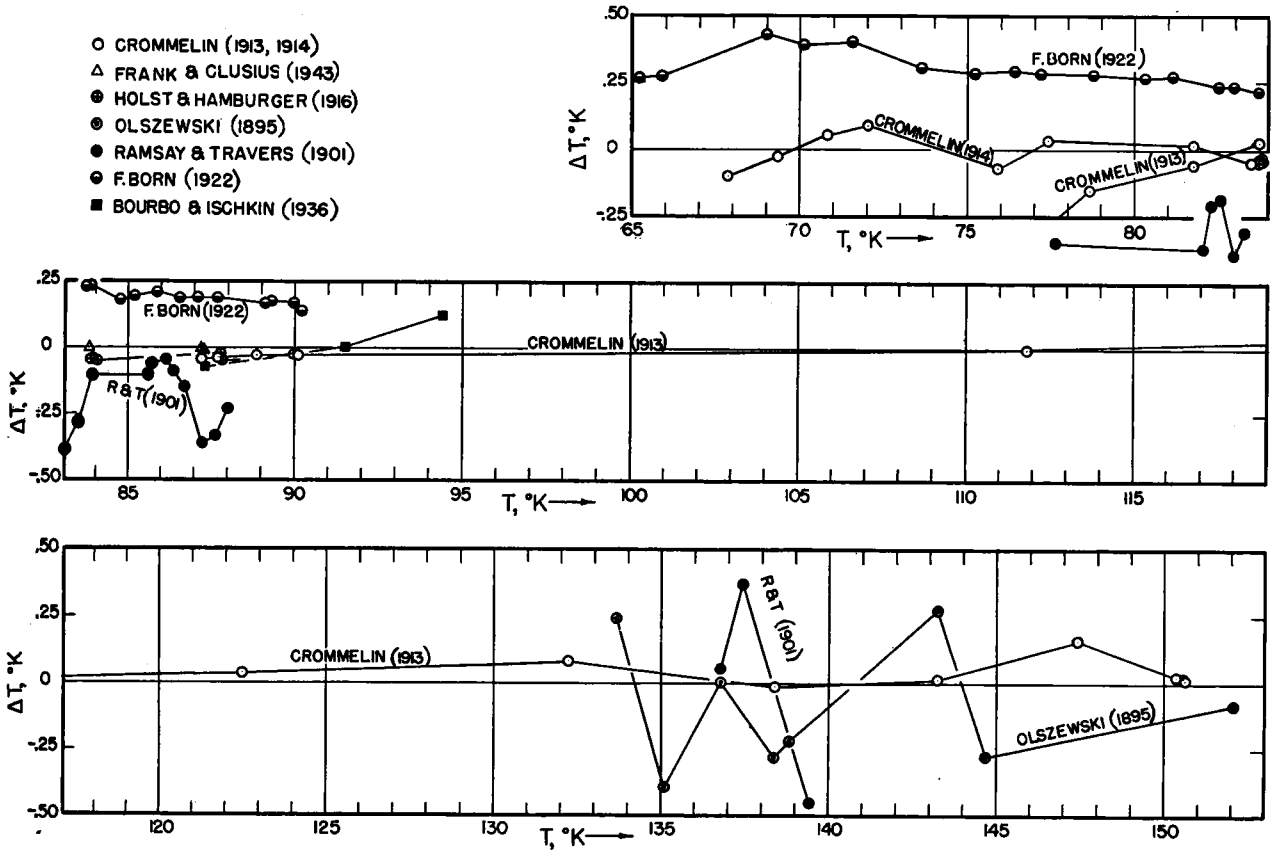

Figure 3g. Departures of the experimental vapor pressure from the tabulated values for argon (table 3-11)

References

[1] H. Kamerlingh Onnes and C. A. Crommelin, Communs. Phys. Lab. Univ. Leiden No. 118b (1910).

[2] C. S. Cragoe, J. Research Natl. Bur. Standards 26, 495 (1941) RP 1393.

[3] L. Holborn and H. Schultze, Ann. Physik [4] 47, 1089 (1915).

[4] C. C. Tanner and I. Masson, Proc. Roy. Soc. (London) [A] 126, 268 (1930).

[5] J. Oishi, J. Sci. Research Inst. (Tokyo) 43, 220 (1949).

[6] A. Michels, H. Wijker, and H. Wijker, Physica 15, 627 (1949).

[7] J. R. Roebuck and H. Osterberg, Phys. Rev. [2] 46, 785 (1934).

[8] A. Van Itterbeek and O. Van Paemel, Physica 5, 845 (1938).

[9] E. B. Winn, Phys. Rev. [2] 80, 1024 (1950).

[10] H. L. Johnston and E. R. Grilly, J. Phys. Chem. 46, 948 (1942).

[11] W. Kopsch, Dissertation, Halle (1909).

[12] H. Schultze, Ann. Physik [4] 5, 140 (1901).

[13] M. Trautz and R. Zink, Ann. Physik [5] 7, 427 (1930).

[14] V. Vasilesco, Ann. phys. [11] 20, 137 and 292 (1945).

[15] J. C. Westmoreland, unpublished data, National Bureau of Standards.

[16] R. Wobser and Fr. Müller, Kolloid-Beih. 52, 165 (1941).

[17] R. B. Bird, E. L. Spotz, and J. O. Hirschfelder, J. Chem. Phys. 18, 1395 (1950).

[18] C. W. Beckett and L. Fano, Natl. Advisory Comm. Aeronaut. Tech. Note 3274.

[19] A. Eucken, Physik. Z. 12, 1101 (1911).

[20] S. Weber, Ann. Physik [4] 54, 437 (1917).

[21] B. G. Dickins, Proc. Roy. Soc. (London) [A] 143, 517 (1934).

[22] W. G. Kannuluik and L. H. Martin, Proc. Roy. Soc. (London) [A] 144, 496 (1934).

[23] C. A. Crommelin, Communs. Phys. Lab. Univ. Leiden, No. 138c (1913).

[24] C. A. Crommelin, Communs. Phys. Lab. Univ. Leiden, No. 140a (1914).

[25] A. Frank and K. Clusius, Z. physik. Chem. [B] 42, 395 (1939).

[26] G. Holst and L. Hamburger, Z. physik. Chem. 91, 513 (1916).

[27] P. Bourbo and I. Ischkin, Physica 3, 1067 (1936).

[28] K. Olszewski, Trans. Roy. Soc. (London) [A] 186, 253 (1895).

[29] W. Ramsay and M. W. Travers, Trans. Roy. Soc. (London) [A] 197, 47 (1901).

[30] F. Born, Ann. Physik [4] 69, 473 (1922).

[31] K. F. Herzfeld, Phys. Rev. [2] 52, 374 (1937).

[32] J. G. Kirkwood, V. A. Lewinson, and B. J. Alder, J. Chem. Phys. 20, 929 (1952).

[33] A. L. Clark and L. Katz, Can. J. Research [A] 21, 1 (1943).

[34] J. R. Roebuck, in Am. Inst. Phys., Temperature, its measurement and control in science and industry, p. 61 (Reinhold Publishing Corp., New York, N. Y., 1941).

[35] C. E. Moore, Natl. Bur. Standards (U. S.) Circ. 467, Atomic energy levels, I (Supt. of Documents, Govt. Printing Office, Washington 25, D. C., 1949).

[36] National Research Council, International critical tables of numerical data, physics, chemistry, and technology, VI, 462 (McGraw-Hill Book Company, Inc., New York, N. Y., 1929).

[37] M. Greenspan, private communication.

[38] L. Holborn and J. Otto, Z. Physik 23, 77 (1924).

[39] L. Holborn and J. Otto, Z. Physik 30, 320 (1924).

[40] L. Holborn and J. Otto, Z. Physik 33, 1 (1925).

Table 3-a. VALUES OF THE GAS CONSTANT, R, FOR ARGON.

Values of R for Argon for Temperatures in Degrees Kelvin

Pressure / Density	atm	kg/cm^2	mm Hg	lb/in^2
g/cm^3	2.05429	2.12255	1561.26	30.1899
$mole/cm^3$	82.0567	84.7832	62363.1	1205.91
mole/liter	0.0820544	0.0847809	62.3613	1.20587
lb/ft^3	0.0329063	0.0339997	25.0088	0.483591
lb $mole/ft^3$	1.31441	1.35808	998.952	19.3166

Values of R for Argon for Temperatures in Degrees Rankine

Pressure / Density	atm	kg/cm^2	mm Hg	lb/in^2
g/cm^3	1.14127	1.17919	867.367	16.7722
$mole/cm^3$	45.5871	47.1018	34646.2	669.950
mole/liter	0.0455858	0.0471005	34.6452	0.669928
lb/ft^3	0.0182813	0.0188887	13.8938	0.268662
lb $mole/ft^3$	0.730228	0.754489	554.973	10.7314

Table 3-b. CONVERSION FACTORS FOR THE ARGON TABLES

Conversion Factors for Table 3-2

To Convert Tabulated Value of	To	Having the Dimensions Indicated Below	Multiply by
ρ/ρ_0	ρ	g cm^{-3}	1.78377×10^{-3}
		mole cm^{-3}	4.46568×10^{-5}
		g $liter^{-1}$	1.78382
		lb in^{-3}	6.44432×10^{-5}
		lb ft^{-3}	0.111358

Conversion Factors for Tables 3-4 and 3-12

To Convert Tabulated Value of	To	Having the Dimensions Indicated Below	Multiply by
$(H^o - E_0^o)/RT_0$,	$(H^o - E_0^o)$,	cal $mole^{-1}$	542.821
$(H - E_0^o)/RT_0$	$(H - E_0^o)$	cal g^{-1}	13.5896
		joules g^{-1}	56.8589
		Btu $(lb\ mole)^{-1}$	976.437
		Btu lb^{-1}	24.4451

Conversion Factors for Tables 3-3, 3-5, and 3-12

To Convert Tabulated Value of	To	Having the Dimensions Indicated Below	Multiply by
C_p^o/R, S^o/R,	C_p^o, S^o,	cal $mole^{-1}\ {}^oK^{-1}$ (or $^oC^{-1}$)	1.98719
C_p/R, S/R	C_p, S	cal $g^{-1}\ {}^oK^{-1}$ (or $^oC^{-1}$)	0.0497494
		joules $g^{-1}\ {}^oK^{-1}$ (or $^oC^{-1}$)	0.208152
		Btu $(lb\ mole)^{-1}\ {}^oR^{-1}$ (or $^oF^{-1}$)	1.98588
		Btu $lb^{-1}\ {}^oR^{-1}$ (or $^oF^{-1}$)	0.0497166

The molecular weight of argon is 39.944 g $mole^{-1}$. Unless otherwise specified, the mole is the gram-mole; the calorie is the thermochemical calorie; and the joule is the absolute joule.

Table 3-b. CONVERSION FACTORS FOR THE ARGON TABLES - Cont.

Conversion Factors for Table 3-7

To Convert Tabulated Value of	To	Having the Dimensions Indicated Below	Multiply by
a_0	a	m sec^{-1}	307.88
		ft sec^{-1}	1010.10

Conversion Factors for Table 3-8

To Convert Tabulated Value of	To	Having the Dimensions Indicated Below	Multiply by
η/η_0	η	poise or g sec^{-1} cm^{-1}	2.125×10^{-4}
		kg hr^{-1} m^{-1}	7.650×10^{-2}
		slug hr^{-1} ft^{-1}	1.598×10^{-3}
		lb sec^{-1} ft^{-1}	1.428×10^{-5}
		lb hr^{-1} ft^{-1}	5.140×10^{-2}

Conversion Factors for Table 3-9

To Convert Tabulated Value of	To	Having the Dimensions Indicated Below	Multiply by
k/k_0	k	cal cm^{-1} sec^{-1} $^oK^{-1}$	3.905×10^{-5}
		Btu ft^{-1} hr^{-1} $^oR^{-1}$	9.444×10^{-3}
		watts cm^{-1} $^oK^{-1}$	1.634×10^{-4}

Table 3-1. COMPRESSIBILITY FACTOR FOR ARGON $Z = PV/RT$

°K	.01 atm		.1 atm		.4 atm		.7 atm		°R
70	.9994	2							126
80	.9996	1	.996	1					144
90	.9997	1	.9972	6	.9885	29			162
100	.99979	5	.99782	54	.99142	198	.98490	349	180
110	.99984	3	.99836	35	.99340	141	.98839	248	198
120	.99987	3	.99871	25	.99481	103	.99087	183	216
130	.99990	2	.99896	20	.99584	78	.99270	137	234
140	.99992	1	.99916	15	.99662	60	.99407	105	252
150	.99993	1	.99931	11	.99722	47	.99512	83	270
160	.99994	1	.99942	10	.99769	38	.99595	66	288
170	.99995	1	.99952	7	.99807	30	.99661	53	306
180	.99996	1	.99959	6	.99837	25	.99714	44	324
190	.99997		.99965	6	.99862	20	.99758	36	342
200	.99997	1	.99971	4	.99882	17	.99794	30	360
210	.99998		.99975	3	.99899	15	.99824	25	378
220	.99998		.99978	3	.99914	12	.99849	21	396
230	.99998		.99981	3	.99926	10	.99870	19	414
240	.99998	1	.99984	2	.99936	9	.99889	15	432
250	.99999		.99986	2	.99945	8	.99904	14	450
260	.99999		.99988	2	.99953	7	.99918	11	468
270	.99999		.99990	1	.99960	5	.99929	10	486
280	.99999		.99991	2	.99965	5	.99939	9	504
290	.99999		.99993	1	.99970	5	.99948	8	522
300	.99999	1	.99994	1	.99975	4	.99956	7	540
310	1.00000		.99995	1	.99979	3	.99963	6	558
320	1.00000		.99996		.99982	3	.99969	5	576
330	1.00000		.99996	1	.99985	3	.99974	5	594
340	1.00000		.99997	1	.99988	2	.99979	4	612
350	1.00000		.99998		.99990	2	.99983	4	630
360	1.00000		.99998	1	.99992	2	.99987	3	648
370	1.00000		.99999		.99994	2	.99990	3	666
380	1.00000		.99999		.99996	2	.99993	3	684
390	1.00000		.99999	1	.99998	1	.99996	2	702
400	1.00000		1.00000		.99999	1	.99998	2	720
410	1.00000		1.00000		1.00000	1	1.00000	2	738
420	1.00000		1.00000	1	1.00001	1	1.00002	2	756
430	1.00000		1.00001		1.00002	1	1.00004	2	774
440	1.00000		1.00001		1.00003	1	1.00006	1	792
450	1.00000		1.00001		1.00004	1	1.00007	1	810
460	1.00000		1.00001		1.00005		1.00008	2	828
470	1.00000		1.00001	1	1.00005	1	1.00010	1	846
480	1.00000		1.00002		1.00006	1	1.00011	1	864
490	1.00000		1.00002		1.00007		1.00012	1	882
500	1.00000		1.00002		1.00007	1	1.00013		900
510	1.00000		1.00002		1.00008		1.00013	1	918
520	1.00000		1.00002		1.00008		1.00014	1	936
530	1.00000		1.00002		1.00008	1	1.00015		954
540	1.00000		1.00002		1.00009		1.00015	1	972
550	1.00000		1.00002		1.00009		1.00016		990
560	1.00000		1.00002		1.00009	1	1.00016	1	1008
570	1.00000		1.00002		1.00010		1.00017		1026
580	1.00000		1.00002	1	1.00010		1.00017		1044
590	1.00000		1.00003		1.00010		1.00017	1	1062
600	1.00000		1.00003		1.00010		1.00018		1080
610	1.00000		1.00003		1.00010		1.00018		1098
620	1.00000		1.00003		1.00010	1	1.00018		1116
630	1.00000		1.00003		1.00011		1.00018	1	1134
640	1.00000		1.00003		1.00011		1.00019		1152
650	1.00000		1.00003		1.00011		1.00019		1170

Table 3-1. COMPRESSIBILITY FACTOR FOR ARGON - Cont. $Z = PV/RT$

°K	.01 atm	.1 atm	.4 atm	.7 atm	°R
650	1.00000	1.00003	1.00011	1.00019	1170
660	1.00000	1.00003	1.00011	1.00019	1188
670	1.00000	1.00003	1.00011	1.00019	1206
680	1.00000	1.00003	1.00011	1.00019	1224
690	1.00000	1.00003	1.00011	1.00019	1242
700	1.00000	1.00003	1.00011	1.00019	1260
710	1.00000	1.00003	1.00011	1.00019	1278
720	1.00000	1.00003	1.00011	1.00019	1296
730	1.00000	1.00003	1.00011	1.00020	1314
740	1.00000	1.00003	1.00011	1.00020	1332
750	1.00000	1.00003	1.00011	1.00020	1350
760	1.00000	1.00003	1.00011	1.00020	1368
770	1.00000	1.00003	1.00011	1.00020	1386
780	1.00000	1.00003	1.00011	1.00020	1404
790	1.00000	1.00003	1.00011	1.00020	1422
800	1.00000	1.00003	1.00011	1.00020	1440
850	1.00000	1.00003	1.00011	1.00019	1530
900	1.00000	1.00003	1.00011	1.00019	1620
950	1.00000	1.00003	1.00011	1.00019	1710
1000	1.00000	1.00003	1.00010	1.00018	1800
1050	1.00000	1.00003	1.00010	1.00018	1890
1100	1.00000	1.00003	1.00010	1.00017	1980
1150	1.00000	1.00002	1.00010	1.00017	2070
1200	1.00000	1.00002	1.00010	1.00017	2160
1250	1.00000	1.00002	1.00009	1.00016	2250
1300	1.00000	1.00002	1.00009	1.00016	2340
1350	1.00000	1.00002	1.00009	1.00015	2430
1400	1.00000	1.00002	1.00009	1.00015	2520
1450	1.00000	1.00002	1.00008	1.00015	2610
1500	1.00000	1.00002	1.00008	1.00014	2700
1550	1.00000	1.00002	1.00008	1.00014	2790
1600	1.00000	1.00002	1.00008	1.00014	2880
1650	1.00000	1.00002	1.00008	1.00013	2970
1700	1.00000	1.00002	1.00007	1.00013	3060
1750	1.00000	1.00002	1.00007	1.00013	3150
1800	1.00000	1.00002	1.00007	1.00012	3240
1850	1.00000	1.00002	1.00007	1.00012	3330
1900	1.00000	1.00002	1.00007	1.00012	3420
1950	1.00000	1.00002	1.00007	1.00011	3510
2000	1.00000	1.00002	1.00006	1.00011	3600
2050	1.00000	1.00002	1.00006	1.00011	3690
2100	1.00000	1.00002	1.00006	1.00011	3780
2150	1.00000	1.00002	1.00006	1.00010	3870
2200	1.00000	1.00002	1.00006	1.00010	3960
2250	1.00000	1.00001	1.00006	1.00010	4050
2300	1.00000	1.00001	1.00006	1.00010	4140
2350	1.00000	1.00001	1.00006	1.00010	4230
2400	1.00000	1.00001	1.00005	1.00010	4320
2450	1.00000	1.00001	1.00005	1.00009	4410
2500	1.00000	1.00001	1.00005	1.00009	4500
2550	1.00000	1.00001	1.00005	1.00009	4590
2600	1.00000	1.00001	1.00005	1.00009	4680
2650	1.00000	1.00001	1.00005	1.00009	4770
2700	1.00000	1.00001	1.00005	1.00008	4860
2750	1.00000	1.00001	1.00005	1.00008	4950
2800	1.00000	1.00001	1.00005	1.00008	5040
2850	1.00000	1.00001	1.00005	1.00008	5130
2900	1.00000	1.00001	1.00005	1.00008	5220
2950	1.00000	1.00001	1.00004	1.00008	5310
3000	1.00000	1.00001	1.00004	1.00008	5400
3100	1.00000	1.00001	1.00004	1.00007	5580

Table 3-1. COMPRESSIBILITY FACTOR FOR ARGON - Cont. $Z = PV/RT$

°K	.01 atm	.1 atm	.4 atm	.7 atm	°R
3100	1.00000	1.00001	1.00004	1.00007	5580
3200	1.00000	1.00001	1.00004	1.00007	5760
3300	1.00000	1.00001	1.00004	1.00007	5940
3400	1.00000	1.00001	1.00004	1.00007	6120
3500	1.00000	1.00001	1.00004	1.00007 - 1	6300
3600	1.00000	1.00001	1.00004	1.00006	6480
3700	1.00000	1.00001	1.00004 - 1	1.00006	6660
3800	1.00000	1.00001	1.00003	1.00006	6840
3900	1.00000	1.00001	1.00003	1.00006	7020
4000	1.00000	1.00001	1.00003	1.00006	7200
4100	1.00000	1.00001	1.00003	1.00006 - 1	7380
4200	1.00000	1.00001	1.00003	1.00005	7560
4300	1.00000	1.00001	1.00003	1.00005	7740
4400	1.00000	1.00001	1.00003	1.00005	7920
4500	1.00000	1.00001	1.00003	1.00005	8100
4600	1.00000	1.00001	1.00003	1.00005	8280
4700	1.00000	1.00001	1.00003	1.00005	8460
4800	1.00000	1.00001	1.00003	1.00005	8640
4900	1.00000	1.00001	1.00003	1.00005 - 1	8820
5000	1.00000	1.00001	1.00003	1.00004	9000

Table 3-1. COMPRESSIBILITY FACTOR FOR ARGON - Cont. $Z = PV/RT$

°K	1 atm		4 atm		7 atm		10 atm		°R
100	.9782	53	.9079	223					180
110	.9835	34	.9302	156	.872	30			198
120	.9869	26	.9458	113	.902	21	.855	39	216
130	.9895	20	.9571	82	.923	15	.888	22	234
140	.9915	15	.9653	63	.938	12	.910	17	252
150	.9930	12	.9716	49	.950	8	.927	13	270
160	.9942	9	.9765	39	.9584	70	.940	10	288
170	.9951	8	.9804	31	.9654	56	.950	8	306
180	.99592	62	.98354	255	.97099	453	.9582	66	324
190	.99654	52	.98609	209	.97552	371	.9648	54	342
200	.99706	42	.98818	173	.97923	307	.97023	443	360
210	.99748	36	.98991	145	.98230	257	.97466	371	378
220	.99784	31	.99136	123	.98487	217	.97837	313	396
230	.99815	26	.99259	105	.98704	184	.98150	264	414
240	.99841	22	.99364	89	.98888	157	.98414	225	432
250	.99863	19	.99453	77	.99045	135	.98639	193	450
260	.99882	17	.99530	67	.99180	117	.98832	168	468
270	.99899	14	.99597	58	.99297	102	.99000	145	486
280	.99913	13	.99655	50	.99399	88	.99145	126	504
290	.99926	11	.99705	45	.99487	78	.99271	111	522
300	.99937	10	.99750	38	.99565	67	.99382	97	540
310	.99947	8	.99788	35	.99632	60	.99479	85	558
320	.99955	8	.99823	30	.99692	53	.99564	76	576
330	.99963	7	.99853	27	.99745	48	.99640	67	594
340	.99970	6	.99880	24	.99793	41	.99707	59	612
350	.99976	5	.99904	22	.99834	38	.99766	54	630
360	.99981	5	.99926	19	.99872	33	.99820	47	648
370	.99986	5	.99945	17	.99905	30	.99867	43	666
380	.99991	3	.99962	15	.99935	26	.99910	38	684
390	.99994	4	.99977	14	.99961	25	.99948	34	702
400	.99998	3	.99991	12	.99986	21	.99982	31	720
410	1.00001	2	1.00003	11	1.00007	20	1.00013	27	738
420	1.00003	3	1.00014	10	1.00027	17	1.00040	25	756
430	1.00006	2	1.00024	9	1.00044	16	1.00065	22	774
440	1.00008	2	1.00033	8	1.00060	14	1.00087	20	792
450	1.00010	2	1.00041	8	1.00074	13	1.00107	19	810
460	1.00012	2	1.00049	6	1.00087	11	1.00126	15	828
470	1.00014	1	1.00055	7	1.00098	11	1.00141	16	846
480	1.00015	2	1.00062	5	1.00109	9	1.00157	13	864
490	1.00017	1	1.00067	5	1.00118	9	1.00170	13	882
500	1.00018	1	1.00072	4	1.00127	7	1.00183	10	900
510	1.00019	1	1.00076	4	1.00134	7	1.00193	10	918
520	1.00020	1	1.00080	4	1.00141	7	1.00203	9	936
530	1.00021		1.00084	3	1.00148	6	1.00212	9	954
540	1.00021	1	1.00087	3	1.00154	5	1.00221	7	972
550	1.00022	1	1.00090	3	1.00159	4	1.00228	6	990
560	1.00023	1	1.00093	2	1.00163	4	1.00234	6	1008
570	1.00024		1.00095	2	1.00167	4	1.00240	5	1026
580	1.00024	1	1.00097	2	1.00171	3	1.00245	5	1044
590	1.00025		1.00099	2	1.00174	4	1.00250	5	1062
600	1.00025	1	1.00101	2	1.00178	2	1.00255	4	1080
610	1.00026		1.00103	1	1.00180	2	1.00259	2	1098
620	1.00026		1.00104	1	1.00182	3	1.00261	3	1116
630	1.00026	1	1.00105	1	1.00185	2	1.00264	3	1134
640	1.00027		1.00106	2	1.00187	2	1.00267	3	1152
650	1.00027		1.00108		1.00189	1	1.00270	2	1170
660	1.00027		1.00108	1	1.00190	1	1.00272	2	1188
670	1.00027		1.00109		1.00191	1	1.00274	1	1206
680	1.00027		1.00109	1	1.00192	1	1.00275	1	1224
690	1.00027		1.00110	1	1.00193	1	1.00276	2	1242
700	1.00027		1.00111		1.00194		1.00278		1260

Table 3-1. COMPRESSIBILITY FACTOR FOR ARGON - Cont. $Z = PV/RT$

°K	1 atm	4 atm	7 atm	10 atm	°R
700	1.00027	1.00111	1.00194	1.00278	1260
710	1.00027	1.00111	1.00195	1.00279	1278
720	1.00028	1.00111	1.00195	1.00279	1296
730	1.00028	1.00111	1.00195	1.00279	1314
740	1.00028	1.00111	1.00195	1.00279	1332
750	1.00028	1.00112	1.00196	1.00280	1350
760	1.00028	1.00112	1.00196	1.00280	1368
770	1.00028	1.00112	1.00196	1.00280	1386
780	1.00028	1.00112	1.00196	1.00280	1404
790	1.00028	1.00112	1.00196	1.00280	1422
800	1.00028	1.00111	1.00195	1.00279	1440
850	1.00028	1.00111	1.00194	1.00277	1530
900	1.00027	1.00109	1.00191	1.00273	1620
950	1.00027	1.00107	1.00187	1.00268	1710
1000	1.00026	1.00104	1.00183	1.00261	1800
1050	1.00026	1.00102	1.00179	1.00255	1890
1100	1.00025	1.00100	1.00174	1.00249	1980
1150	1.00024	1.00097	1.00170	1.00243	2070
1200	1.00024	1.00095	1.00166	1.00237	2160
1250	1.00023	1.00092	1.00161	1.00230	2250
1300	1.00023	1.00090	1.00158	1.00225	2340
1350	1.00022	1.00088	1.00153	1.00219	2430
1400	1.00021	1.00085	1.00149	1.00213	2520
1450	1.00021	1.00083	1.00146	1.00208	2610
1500	1.00020	1.00081	1.00142	1.00203	2700
1550	1.00020	1.00079	1.00138	1.00197	2790
1600	1.00019	1.00077	1.00135	1.00193	2880
1650	1.00019	1.00075	1.00132	1.00188	2970
1700	1.00018	1.00073	1.00128	1.00183	3060
1750	1.00018	1.00072	1.00125	1.00179	3150
1800	1.00018	1.00070	1.00123	1.00175	3240
1850	1.00017	1.00068	1.00120	1.00171	3330
1900	1.00017	1.00067	1.00117	1.00167	3420
1950	1.00016	1.00065	1.00114	1.00163	3510
2000	1.00016	1.00064	1.00111	1.00159	3600
2050	1.00016	1.00062	1.00109	1.00156	3690
2100	1.00015	1.00061	1.00107	1.00153	3780
2150	1.00015	1.00060	1.00104	1.00149	3870
2200	1.00015	1.00058	1.00102	1.00146	3960
2250	1.00014	1.00057	1.00100	1.00143	4050
2300	1.00014	1.00056	1.00098	1.00140	4140
2350	1.00014	1.00055	1.00096	1.00137	4230
2400	1.00014	1.00054	1.00095	1.00135	4320
2450	1.00013	1.00053	1.00092	1.00132	4410
2500	1.00013	1.00052	1.00091	1.00130	4500
2550	1.00013	1.00051	1.00089	1.00127	4590
2600	1.00013	1.00050	1.00088	1.00125	4680
2650	1.00012	1.00049	1.00086	1.00123	4770
2700	1.00012	1.00048	1.00084	1.00120	4860
2750	1.00012	1.00047	1.00083	1.00118	4950
2800	1.00012	1.00046	1.00081	1.00116	5040
2850	1.00011	1.00046	1.00080	1.00114	5130
2900	1.00011	1.00045	1.00078	1.00112	5220
2950	1.00011	1.00044	1.00077	1.00110	5310
3000	1.00011	1.00043	1.00076	1.00108	5400
3100	1.00011	1.00042	1.00074	1.00105	5580
3200	1.00011	1.00041	1.00072	1.00102	5760
3300	1.00010	1.00039	1.00069	1.00098	5940
3400	1.00010	1.00038	1.00067	1.00096	6120
3500	1.00009	1.00037	1.00065	1.00093	6300
3600	1.00009	1.00036	1.00063	1.00090	6480

Table 3-1. COMPRESSIBILITY FACTOR FOR ARGON - Cont. $Z = PV/RT$

°K	1 atm		4 atm		7 atm		10 atm		°R
3600	1.00009		1.00036	- 1	1.00063	- 1	1.00090	- 2	6480
3700	1.00009		1.00035	- 1	1.00062	- 2	1.00088	- 3	6660
3800	1.00009	- 1	1.00034	- 1	1.00060	- 2	1.00085	- 2	6840
3900	1.00008		1.00033	- 1	1.00058	- 1	1.00083	- 2	7020
4000	1.00008		1.00032		1.00057	- 2	1.00081	- 2	7200
4100	1.00008		1.00032	- 1	1.00055	- 1	1.00079	- 2	7380
4200	1.00008		1.00031	- 1	1.00054	- 1	1.00077	- 2	7560
4300	1.00008	- 1	1.00030	- 1	1.00053	- 2	1.00075	- 2	7740
4400	1.00007		1.00029	- 1	1.00051	- 1	1.00073	- 2	7920
4500	1.00007		1.00028		1.00050	- 1	1.00071	- 1	8100
4600	1.00007		1.00028	- 1	1.00049	- 1	1.00070	- 2	8280
4700	1.00007		1.00027	- 1	1.00048	- 2	1.00068	- 2	8460
4800	1.00007		1.00026		1.00046	-	1.00066	- 1	8640
4900	1.00007	- 1	1.00026	- 1	1.00046	- 2	1.00065	- 2	8820
5000	1.00006		1.00025		1.00044		1.00063		9000

Table 3-1. COMPRESSIBILITY FACTOR FOR ARGON - Cont. $Z = PV/RT$

°K	10 atm		40 atm		70 atm		100 atm		°R
180	.9582	66	.8189	338	.6542	786	.4589	1484	324
190	.9648	54	.8527	251	.7328	510	.6073	844	342
200	.9702	45	.8778	200	.7838	392	.6917	627	360
210	.9747	37	.8978	163	.8230	313	.7544	486	378
220	.9784	31	.9141	134	.8543	245	.8030	363	396
230	.9815	26	.9275	109	.8788	194	.8393	270	414
240	.9841	23	.9384	92	.8982	159	.8663	215	432
250	.9864	19	.9476	78	.9141	133	.8878	177	450
260	.9883	17	.9554	68	.9274	114	.9055	153	468
270	.9900	15	.9622	57	.9388	98	.9208	132	486
280	.9915	12	.9679	50	.9486	84	.9340	114	504
290	.9927	11	.9729	44	.9570	73	.9454	99	522
300	.9938	10	.9773	37	.9643	63	.9553	84	540
310	.9948	8	.9810	33	.9706	55	.9637	73	558
320	.9956	8	.9843	30	.9761	48	.9710	64	576
330	.9964	7	.9873	25	.9809	41	.9774	56	594
340	.9971	6	.9898	23	.9850	38	.9830	49	612
350	.9977	5	.9921	20	.9888	33	.9879	45	630
360	.9982	5	.9941	18	.9921	30	.9924	39	648
370	.9987	4	.9959	17	.9951	27	.9963	36	666
380	.9991	4	.9976	14	.9978	23	.9999	30	684
390	.9995	3	.9990	12	1.0001	21	1.0029	28	702
400	.9998	3	1.0002	12	1.0022	19	1.0057	24	720
410	1.0001	3	1.0014	11	1.0041	17	1.0081	24	738
420	1.0004	3	1.0025	9	1.0058	16	1.0105	21	756
430	1.0007	2	1.0034	9	1.0074	14	1.0126	19	774
440	1.0009	2	1.0043	7	1.0088	13	1.0145	17	792
450	1.0011	2	1.0050	7	1.0101	11	1.0162	15	810
460	1.0013	1	1.0057	6	1.0112	10	1.0177	13	828
470	1.0014	2	1.0063	6	1.0122	9	1.0190	13	846
480	1.0016	1	1.0069	5	1.0131	9	1.0203	11	864
490	1.0017	1	1.0074	5	1.0140	7	1.0214	10	882
500	1.0018	1	1.0079	4	1.0147	6	1.0224	8	900
510	1.0019	1	1.0083	3	1.0153	6	1.0232	8	918
520	1.0020	1	1.0086	3	1.0159	6	1.0240	7	936
530	1.0021	1	1.0089	3	1.0165	5	1.0247	7	954
540	1.0022	1	1.0092	3	1.0170	4	1.0254	5	972
550	1.0023		1.0095	3	1.0174	4	1.0259	5	990
560	1.0023	1	1.0098	2	1.0178	3	1.0264	4	1008
570	1.0024	1	1.0100	2	1.0181	3	1.0268	4	1026
580	1.0025		1.0102	1	1.0184	3	1.0272	3	1044
590	1.0025	1	1.0103	2	1.0187	3	1.0275	4	1062
600	1.0026		1.0105	1	1.0190	1	1.0279	2	1080
610	1.0026		1.0106	1	1.0191	2	1.0281	2	1098
620	1.0026		1.0107	1	1.0193	2	1.0283	2	1116
630	1.0026	1	1.0108	2	1.0195	1	1.0285	2	1134
640	1.0027		1.0110	1	1.0196	2	1.0287	2	1152
650	1.0027		1.0111		1.0198	1	1.0289	1	1170
660	1.0027		1.0111	1	1.0199	1	1.0290	1	1188
670	1.0027	1	1.0112		1.0200		1.0291		1206
680	1.0028		1.0112		1.0200		1.0291		1224
690	1.0028		1.0112	1	1.0200	1	1.0291	1	1242
700	1.0028		1.0113		1.0201	1	1.0292	1	1260
710	1.0028		1.0113		1.0202	- 1	1.0293	- 1	1278
720	1.0028		1.0113		1.0201		1.0292		1296
730	1.0028		1.0113		1.0201		1.0292	- 1	1314
740	1.0028		1.0113	1	1.0201	1	1.0291	1	1332
750	1.0028		1.0114		1.0202		1.0292		1350

Table 3-1. COMPRESSIBILITY FACTOR FOR ARGON - Cont. Z = PV/RT

°K	10 atm		40 atm		70 atm		100 atm		°R
750	1.0028		1.0114		1.0202	- 1	1.0292	- 1	1350
760	1.0028		1.0114		1.0201		1.0291		1368
770	1.0028		1.0114	- 1	1.0201		1.0291	- 1	1386
780	1.0028		1.0113		1.0201		1.0290		1404
790	1.0028		1.0113		1.0201	- 2	1.0290	- 2	1422
800	1.0028		1.0113	- 1	1.0199	- 2	1.0288	- 4	1440
850	1.0028	- 1	1.0112	- 2	1.0197	- 3	1.0284	- 5	1530
900	1.0027		1.0110	- 2	1.0194	- 5	1.0279	- 7	1620
950	1.0027	- 1	1.0108	- 3	1.0189	- 4	1.0272	- 7	1710
1000	1.0026		1.0105	- 2	1.0185	- 5	1.0265	- 6	1800
1050	1.0026	- 1	1.0103	- 3	1.0180	- 4	1.0259	- 7	1890
1100	1.0025	- 1	1.0100	- 2	1.0176	- 5	1.0252	- 7	1980
1150	1.0024		1.0098	- 3	1.0171	- 4	1.0245	- 6	2070
1200	1.0024	- 1	1.0095	- 3	1.0167	- 5	1.0239	- 7	2160
1250	1.0023		1.0092	- 2	1.0162	- 4	1.0232	- 6	2250
1300	1.0023	- 1	1.0090	- 2	1.0158	- 4	1.0226	- 6	2340
1350	1.0022	- 1	1.0088	- 3	1.0154	- 5	1.0220	- 7	2430
1400	1.0021		1.0085	- 2	1.0149	- 3	1.0213	- 5	2520
1450	1.0021	- 1	1.0083	- 2	1.0146	- 4	1.0208	- 5	2610
1500	1.0020		1.0081	- 2	1.0142	- 4	1.0203	- 6	2700
1550	1.0020	- 1	1.0079	- 2	1.0138	- 3	1.0197	- 4	2790
1600	1.0019		1.0077	- 2	1.0135	- 3	1.0193	- 5	2880
1650	1.0019	- 1	1.0075	- 2	1.0132	- 4	1.0188	- 5	2970
1700	1.0018		1.0073	- 1	1.0128	- 3	1.0183	- 4	3060
1750	1.0018		1.0072	- 2	1.0125	- 2	1.0179	- 4	3150
1800	1.0018	- 1	1.0070	- 2	1.0123	- 3	1.0175	- 4	3240
1850	1.0017		1.0068	- 1	1.0120	- 3	1.0171	- 4	3330
1900	1.0017	- 1	1.0067	- 2	1.0117	- 3	1.0167	- 4	3420
1950	1.0016		1.0065	- 1	1.0114	- 3	1.0163	- 4	3510
2000	1.0016		1.0064	- 2	1.0111	- 2	1.0159	- 3	3600
2050	1.0016	- 1	1.0062	- 1	1.0109	- 2	1.0156	- 3	3690
2100	1.0015		1.0061	- 1	1.0107	- 3	1.0153	- 4	3780
2150	1.0015		1.0060	- 2	1.0104	- 2	1.0149	- 3	3870
2200	1.0015	- 1	1.0058	- 1	1.0102	- 2	1.0146	- 3	3960
2250	1.0014		1.0057	- 1	1.0100	- 2	1.0143	- 3	4050
2300	1.0014		1.0056	- 1	1.0098	- 2	1.0140	- 3	4140
2350	1.0014		1.0055	- 1	1.0096	- 1	1.0137	- 2	4230
2400	1.0014	- 1	1.0054	- 1	1.0095	- 3	1.0135	- 3	4320
2450	1.0013		1.0053	- 1	1.0092	- 1	1.0132	- 2	4410
2500	1.0013		1.0052	- 1	1.0091	- 2	1.0130	- 3	4500
2550	1.0013		1.0051	- 1	1.0089	- 1	1.0127	- 2	4590
2600	1.0013	- 1	1.0050	- 1	1.0088	- 2	1.0125	- 2	4680
2650	1.0012		1.0049	- 1	1.0086	- 2	1.0123	- 3	4770
2700	1.0012		1.0048	- 1	1.0084	- 1	1.0120	- 2	4860
2750	1.0012		1.0047	- 1	1.0083	- 2	1.0118	- 2	4950
2800	1.0012	- 1	1.0046		1.0081	- 1	1.0116	- 2	5040
2850	1.0011		1.0046	- 1	1.0080	- 2	1.0114	- 2	5130
2900	1.0011		1.0045	- 1	1.0078	- 1	1.0112	- 2	5220
2950	1.0011		1.0044	- 1	1.0077	- 1	1.0110	- 2	5310
3000	1.0011		1.0043	- 1	1.0076	- 2	1.0108	- 3	5400
3100	1.0011	- 1	1.0042	- 1	1.0074	- 2	1.0105	- 3	5580
3200	1.0010		1.0041	- 2	1.0072	- 3	1.0102	- 4	5760
3300	1.0010		1.0039	- 1	1.0069	- 2	1.0098	- 2	5940
3400	1.0010	- 1	1.0038	- 1	1.0067	- 2	1.0096	- 3	6120
3500	1.0009		1.0037	- 1	1.0065	- 2	1.0093	- 3	6300
3600	1.0009		1.0036	- 1	1.0063	- 1	1.0090	- 2	6480
3700	1.0009		1.0035	- 1	1.0062	- 2	1.0088	- 3	6660
3800	1.0009	- 1	1.0034	- 1	1.0060	- 2	1.0085	- 2	6840
3900	1.0008		1.0033	- 1	1.0058	- 1	1.0083	- 2	7020
4000	1.0008		1.0032		1.0057	- 2	1.0081	- 2	7200
4100	1.0008		1.0032		1.0055		1.0079		7380

Table 3-1. COMPRESSIBILITY FACTOR FOR ARGON - Cont. $Z = PV/RT$

°K	10 atm		40 atm		70 atm		100 atm		°R
4100	1.0008		1.0032	- 1	1.0055	- 1	1.0079	- 2	7380
4200	1.0008		1.0031	- 1	1.0054	- 1	1.0077	- 2	7560
4300	1.0008	- 1	1.0030	- 1	1.0053	- 2	1.0075	- 2	7740
4400	1.0007		1.0029	- 1	1.0051	- 1	1.0073	- 2	7920
4500	1.0007		1.0028		1.0050	- 1	1.0071	- 1	8100
4600	1.0007		1.0028	- 1	1.0049	- 1	1.0070	- 2	8280
4700	1.0007		1.0027	- 1	1.0048	- 2	1.0068	- 2	8460
4800	1.0007		1.0026		1.0046		1.0066	- 1	8640
4900	1.0007	- 1	1.0026	- 1	1.0046	- 2	1.0065	- 2	8820
5000	1.0006		1.0025		1.0044		1.0063		9000

Table 3-2. DENSITY OF ARGON ρ/ρ_0

°K	.01 atm		.1 atm		.4 atm		.7 atm		°R
70	.03901	-488							126
80	.03413	-380	.342	-38					144
90	.03033	-304	.3041	-306	1.227	-126			162
100	.027295	-2482	.27349	-2499	1.1010	-1020	1.9396	-1826	180
110	.024813	-2069	.24850	-2079	.99895	- 8455	1.7570	-1504	198
120	.022744	-1750	.22771	-1757	.91440	- 7121	1.6066	-1263	216
130	.020994	-1500	.21014	-1505	.84319	- 6084	1.4803	-1077	234
140	.019494	-1300	.19509	-1303	.78235	- 5260	1.3726	- 928	252
150	.018194	-1137	.18206	-1140	.72975	- 4593	1.2798	- 810	270
160	.017057	-1003	.17066	-1006	.68382	- 4047	1.1988	- 713	288
170	.016054	- 892	.16060	- 893	.64335	- 3592	1.1275	- 632	306
180	.015162	- 799	.15167	- 799	.60743	- 3212	1.0643	- 565	324
190	.014363	- 718	.14368	- 719	.57531	- 2887	1.0078	- 507	342
200	.013645	- 650	.13649	- 651	.54644	- 2611	.95711	- 4585	360
210	.012995	- 590	.12998	- 591	.52033	- 2373	.91126	- 4164	378
220	.012405	- 540	.12407	- 540	.49660	- 2165	.86962	- 3798	396
230	.011865	- 494	.11867	- 494	.47495	- 1983	.83164	- 3481	414
240	.011371	- 455	.11373	- 456	.45512	- 1824	.79683	- 3199	432
250	.010916	- 420	.10917	- 420	.43688	- 1684	.76484	- 2951	450
260	.010496	- 389	.10497	- 389	.42004	- 1559	.73533	- 2732	468
270	.010107	- 361	.10108	- 361	.40445	- 1446	.70801	- 2535	486
280	.0097464	- 3361	.097472	- 3363	.38999	- 1347	.68266	- 2360	504
290	.0094103	- 3136	.094109	- 3138	.37652	- 1257	.65906	- 2202	522
300	.0090967	- 2936	.090971	- 2935	.36395	- 1175	.63704	- 2059	540
310	.0088031	- 2751	.088036	- 2752	.35220	- 1102	.61645	- 1930	558
320	.0085280	- 2584	.085284	- 2585	.34118	- 1035	.59715	- 1813	576
330	.0082696	- 2432	.082699	- 2433	.33083	- 974	.57902	- 1706	594
340	.0080264	- 2293	.080266	- 2294	.32109	- 918	.56196	- 1607	612
350	.0077971	- 2166	.077972	- 2166	.31191	- 867	.54589	- 1519	630
360	.0075805	- 2049	.075806	- 2049	.30324	- 820	.53070	- 1436	648
370	.0073756	- 1941	.073757	- 1941	.29504	- 777	.51634	- 1360	666
380	.0071815	- 1841	.071816	- 1842	.28727	- 737	.50274	- 1291	684
390	.0069974	- 1750	.069974	- 1750	.27990	- 700	.48983	- 1225	702
400	.0068224	- 1664	.068224	- 1664	.27290	- 666	.47758	- 1166	720
410	.0066560	- 1585	.066560	- 1585	.26624	- 634	.46592	- 1110	738
420	.0064975	- 1511	.064975	- 1511	.25990	- 605	.45482	- 1059	756
430	.0063464	- 1442	.063464	- 1443	.25385	- 577	.44423	- 1010	774
440	.0062022	- 1378	.062021	- 1378	.24808	- 551	.43413	- 965	792
450	.0060644	- 1319	.060643	- 1318	.24257	- 528	.42448	- 924	810
460	.0059325	- 1262	.059325	- 1262	.23729	- 505	.41524	- 884	828
470	.0058063	- 1209	.058063	- 1211	.23224	- 484	.40640	- 847	846
480	.0056854	- 1161	.056852	- 1160	.22740	- 464	.39793	- 812	864
490	.0055693	- 1114	.055692	- 1114	.22276	- 446	.38981	- 780	882
500	.0054579	- 1070	.054578	- 1070	.21830	- 428	.38201	- 749	900
510	.0053509	- 1029	.053508	- 1029	.21402	- 412	.37452	- 721	918
520	.0052480	- 990	.052479	- 990	.20990	- 396	.36731	- 693	936
530	.0051490	- 954	.051489	- 954	.20594	- 381	.36038	- 668	954
540	.0050536	- 918	.050535	- 918	.20213	- 368	.35370	- 643	972
550	.0049618	- 886	.049617	- 886	.19845	- 354	.34727	- 620	990
560	.0048732	- 855	.048731	- 855	.19491	- 342	.34107	- 599	1008
570	.0047877	- 826	.047876	- 826	.19149	- 330	.33508	- 578	1026
580	.0047051	- 797	.047050	- 798	.18819	- 319	.32930	- 558	1044
590	.0046254	- 771	.046252	- 771	.18500	- 309	.32372	- 540	1062
600	.0045483	- 746	.045481	- 745	.18191	- 298	.31832	- 522	1080
610	.0044737	- 721	.044736	- 722	.17893	- 289	.31310	- 505	1098
620	.0044016	- 699	.044014	- 698	.17604	- 279	.30805	- 489	1116
630	.0043317	- 677	.043316	- 677	.17325	- 271	.30316	- 474	1134
640	.0042640	- 656	.042639	- 656	.17054	- 262	.29842	- 459	1152
650	.0041984		.041983		.16792		.29383		1170

Table 3-2. DENSITY OF ARGON - Cont.

ρ/ρ_0

°K	.01 atm	.1 atm	.4 atm	.7 atm	°R
650	.0041984 - 636	.041983 - 636	.16792 - 255	.29383 - 445	1170
660	.0041348 - 617	.041347 - 617	.16537 - 246	.28938 - 432	1188
670	.0040731 - 599	.040730 - 599	.16291 - 240	.28506 - 419	1206
680	.0040132 - 582	.040131 - 582	.16051 - 233	.28087 - 407	1224
690	.0039550 - 565	.039549 - 565	.15818 - 226	.27680 - 395	1242
700	.0038985 - 549	.038984 - 549	.15592 - 219	.27285 - 385	1260
710	.0038436 - 534	.038435 - 534	.15373 - 214	.26900 - 373	1278
720	.0037902 - 519	.037901 - 519	.15159 - 207	.26527 - 364	1296
730	.0037383 - 505	.037382 - 505	.14952 - 202	.26163 - 354	1314
740	.0036878 - 492	.036877 - 492	.14750 - 197	.25809 - 344	1332
750	.0036386 - 479	.036385 - 479	.14553 - 192	.25465 - 335	1350
760	.0035907 - 466	.035906 - 466	.14361 - 186	.25130 - 326	1368
770	.0035441 - 454	.035440 - 454	.14175 - 182	.24804 - 318	1386
780	.0034987 - 443	.034986 - 443	.13993 - 177	.24486 - 310	1404
790	.0034544 - 432	.034543 - 432	.13816 - 173	.24176 - 302	1422
800	.0034112 - 2006	.034111 - 2006	.13643 - 802	.23874 - 1404	1440
850	.0032106 - 1784	.032105 - 1784	.12841 - 714	.22470 - 1249	1530
900	.0030322 - 1596	.030321 - 1596	.12127 - 638	.21221 - 1117	1620
950	.0028726 - 1436	.028725 - 1436	.11489 - 574	.20104 - 1005	1710
1000	.0027290 - 1300	.027289 - 1300	.10915 - 520	.19099 - 909	1800
1050	.0025990 - 1181	.025989 - 1181	.10395 - 473	.18190 - 827	1890
1100	.0024809 - 1079	.024808 - 1078	.099225 - 4314	.17363 - 755	1980
1150	.0023730 - 989	.023730 - 989	.094911 - 3954	.16608 - 692	2070
1200	.0022741 - 909	.022741 - 910	.090957 - 3638	.15916 - 636	2160
1250	.0021832 - 840	.021831 - 839	.087319 - 3358	.15280 - 588	2250
1300	.0020992 - 777	.020992 - 778	.083961 - 3110	.14692 - 544	2340
1350	.0020215 - 722	.020214 - 722	.080851 - 2887	.14148 - 505	2430
1400	.0019493 - 673	.019492 - 672	.077964 - 2688	.13643 - 471	2520
1450	.0018820 - 627	.018820 - 627	.075276 - 2509	.13172 - 439	2610
1500	.0018193 - 587	.018193 - 587	.072767 - 2348	.12733 - 410	2700
1550	.0017606 - 550	.017606 - 550	.070419 - 2200	.12323 - 385	2790
1600	.0017056 - 517	.017056 - 517	.068219 - 2067	.11938 - 362	2880
1650	.0016539 - 486	.016539 - 487	.066152 - 1945	.11576 - 341	2970
1700	.0016053 - 459	.016052 - 458	.064207 - 1835	.11235 - 321	3060
1750	.0015594 - 433	.015594 - 433	.062372 - 1732	.10914 - 303	3150
1800	.0015161 - 410	.015161 - 410	.060640 - 1639	.10611 - 286	3240
1850	.0014751 - 388	.014751 - 388	.059001 - 1553	.10325 - 272	3330
1900	.0014363 - 368	.014363 - 369	.057448 - 1473	.10053 - 258	3420
1950	.0013995 - 350	.013994 - 349	.055975 - 1399	.097952 - 2449	3510
2000	.0013645 - 333	.013645 - 333	.054576 - 1331	.095503 - 2329	3600
2050	.0013312 - 317	.013312 - 317	.053245 - 1268	.093174 - 2218	3690
2100	.0012995 - 302	.012995 - 302	.051977 - 1209	.090956 - 2115	3780
2150	.0012693 - 289	.012693 - 289	.050768 - 1153	.088841 - 2019	3870
2200	.0012404 - 275	.012404 - 275	.049615 - 1103	.086822 - 1929	3960
2250	.0012129 - 264	.012129 - 264	.048512 - 1055	.084893 - 1846	4050
2300	.0011865 - 252	.011865 - 252	.047457 - 1009	.083047 - 1767	4140
2350	.0011613 - 242	.011613 - 242	.046448 - 967	.081280 - 1693	4230
2400	.0011371 - 232	.011371 - 232	.045481 - 929	.079587 - 1623	4320
2450	.0011139 - 223	.011139 - 223	.044552 - 891	.077964 - 1560	4410
2500	.0010916 - 420	.010916 - 420	.043661 - 1679	.076404 - 2938	4500
2600	.0010496 - 389	.010496 - 389	.041982 - 1555	.073466 - 2721	4680
2700	.0010107 - 361	.010107 - 361	.040427 - 1444	.070745 - 2526	4860
2800	.00097463 - 3361	.0097462 - 3361	.038983 - 1344	.068219 - 2353	5040
2900	.00094102 - 3136	.0094101 - 3136	.037639 - 1254	.065866 - 2195	5220
3000	.00090966 - 2935	.0090965 - 2935	.036385 - 1174	.063671 - 2053	5400
3100	.00088031 - 2751	.0088030 - 2751	.035211 - 1100	.061618 - 1926	5580
3200	.00085280 - 2584	.0085279 - 2584	.034111 - 1034	.059692 - 1809	5760
3300	.00082696 - 2432	.0082695 - 2432	.033077 - 973	.057883 - 1702	5940
3400	.00080264 - 2293	.0080263 - 2293	.032104 - 917	.056181 - 1605	6120
3500	.00077971 - 2166	.0077970 - 2166	.031187 - 866	.054576 - 1516	6300
3600	.00075805	.0075804	.030321	.053060	6480

Table 3-2. DENSITY OF ARGON - Cont.

ρ / ρ_0

°K	.01 atm	.1 atm	.4 atm	.7 atm	°R
3600	.00075805 - 2049	.0075804 - 2049	.030321 - 820	.053060 - 1434	6480
3700	.00073756 - 1941	.0073755 - 1941	.029501 - 776	.051626 - 1359	6660
3800	.00071815 - 1841	.0071814 - 1841	.028725 - 736	.050267 - 1288	6840
3900	.00069974 - 1750	.0069973 - 1749	.027989 - 700	.048979 - 1225	7020
4000	.00068224 - 1664	.0068224 - 1664	.027289 - 666	.047754 - 1165	7200
4100	.00066560 - 1585	.0066560 - 1585	.026623 - 634	.046589 - 1108	7380
4200	.00064975 - 1511	.0064975 - 1511	.025989 - 604	.045481 - 1058	7560
4300	.00063464 - 1442	.0063464 - 1443	.025385 - 577	.044423 - 1010	7740
4400	.00062022 - 1378	.0062021 - 1378	.024808 - 551	.043413 - 964	7920
4500	.00060644 - 1319	.0060643 - 1318	.024257 - 528	.042449 - 923	8100
4600	.00059325 - 1262	.0059325 - 1262	.023729 - 504	.041526 - 884	8280
4700	.00058063 - 1209	.0058063 - 1210	.023225 - 484	.040642 - 847	8460
4800	.00056854 - 1161	.0056853 - 1160	.022741 - 464	.039795 - 812	8640
4900	.00055693 - 1114	.0055693 - 1114	.022277 - 446	.038983 - 779	8820
5000	.00054579	.0054579	.021831	.038204	9000

Table 3-2. DENSITY OF ARGON - Cont.

ρ/ρ_0

°K	1 atm		4 atm		7 atm		10 atm		°R
100	2.790	-267	12.02	-135					180
110	2.523	-219	10.67	-105	19.9	-23			198
120	2.304	-183	9.618	- 845	17.6	-17	26.6	-30	216
130	2.121	-155	8.773	- 696	15.9	-14	23.6	-22	234
140	1.966	-134	8.077	- 587	14.5	-11	21.4	-18	252
150	1.832	-116	7.490	- 504	13.4	- 9	19.6	-15	270
160	1.716	-103	6.986	- 437	12.46	- 82	18.1	-12	288
170	1.613	- 91	6.549	- 383	11.64	- 71	16.9	-11	306
180	1.5223	- 810	6.1659	- 3397	10.930	- 624	15.81	- 93	324
190	1.4413	- 728	5.8262	- 3030	10.306	- 552	14.88	- 82	342
200	1.3685	- 657	5.5232	- 2722	9.7540	- 4935	14.064	- 731	360
210	1.3028	- 597	5.2510	- 2460	9.2605	- 4440	13.333	- 654	378
220	1.2431	- 544	5.0050	- 2235	8.8165	- 4019	12.679	- 590	396
230	1.1887	- 498	4.7815	- 2041	8.4146	- 3656	12.089	- 535	414
240	1.1389	- 458	4.5774	- 1870	8.0490	- 3342	11.554	- 488	432
250	1.0931	- 423	4.3904	- 1722	7.7148	- 3068	11.066	- 446	450
260	1.0508	- 390	4.2182	- 1589	7.4080	- 2828	10.620	- 411	468
270	1.0118	- 363	4.0593	- 1473	7.1252	- 2615	10.209	- 379	486
280	.97548	- 3376	3.9120	- 1368	6.8637	- 2426	9.8304	- 3511	504
290	.94172	- 3149	3.7752	- 1275	6.6211	- 2257	9.4793	- 3262	522
300	.91023	- 2945	3.6477	- 1190	6.3954	- 2105	9.1531	- 3039	540
310	.88078	- 2759	3.5287	- 1114	6.1849	- 1968	8.8492	- 2838	558
320	.85319	- 2592	3.4173	- 1046	5.9881	- 1846	8.5654	- 2659	576
330	.82727	- 2439	3.3127	- 983	5.8035	- 1733	8.2995	- 2495	594
340	.80288	- 2299	3.2144	- 926	5.6302	- 1632	8.0500	- 2347	612
350	.77989	- 2170	3.1218	- 874	5.4670	- 1539	7.8153	- 2211	630
360	.75819	- 2053	3.0344	- 825	5.3131	- 1453	7.5942	- 2088	648
370	.73766	- 1944	2.9519	- 782	5.1678	- 1375	7.3854	- 1974	666
380	.71822	- 1844	2.8737	- 741	5.0303	- 1303	7.1880	- 1870	684
390	.69978	- 1752	2.7996	- 704	4.9000	- 1236	7.0010	- 1773	702
400	.68226	- 1666	2.7292	- 669	4.7764	- 1175	6.8237	- 1685	720
410	.66560	- 1586	2.6623	- 636	4.6589	- 1118	6.6552	- 1603	738
420	.64974	- 1513	2.5987	- 607	4.5471	- 1065	6.4949	- 1526	756
430	.63461	- 1444	2.5380	- 579	4.4406	- 1017	6.3423	- 1455	774
440	.62017	- 1379	2.4801	- 553	4.3389	- 970	6.1968	- 1389	792
450	.60638	- 1320	2.4248	- 529	4.2419	- 927	6.0579	- 1328	810
460	.59318	- 1263	2.3719	- 507	4.1492	- 888	5.9251	- 1270	828
470	.58055	- 1210	2.3212	- 485	4.0604	- 850	5.7981	- 1216	846
480	.56845	- 1161	2.2727	- 465	3.9754	- 815	5.6765	- 1167	864
490	.55684	- 1114	2.2262	- 446	3.8939	- 782	5.5598	- 1118	882
500	.54570	- 1071	2.1816	- 429	3.8157	- 751	5.4480	- 1074	900
510	.53499	- 1029	2.1387	- 412	3.7406	- 722	5.3406	- 1032	918
520	.52470	- 991	2.0975	- 396	3.6684	- 694	5.2374	- 993	936
530	.51479	- 953	2.0579	- 382	3.5990	- 669	5.1381	- 956	954
540	.50526	- 919	2.0197	- 368	3.5321	- 644	5.0425	- 920	972
550	.49607	- 887	1.9829	- 354	3.4677	- 620	4.9505	- 887	990
560	.48720	- 855	1.9475	- 343	3.4057	- 599	4.8618	- 856	1008
570	.47865	- 825	1.9132	- 330	3.3458	- 578	4.7762	- 826	1026
580	.47040	- 798	1.8802	- 319	3.2880	- 559	4.6936	- 798	1044
590	.46242	- 771	1.8483	- 308	3.2321	- 540	4.6138	- 771	1062
600	.45471	- 745	1.8175	- 299	3.1781	- 521	4.5367	- 745	1080
610	.44726	- 722	1.7876	- 288	3.1260	- 505	4.4622	- 721	1098
620	.44004	- 698	1.7588	- 279	3.0755	- 489	4.3901	- 698	1116
630	.43306	- 677	1.7309	- 271	3.0266	- 474	4.3203	- 676	1134
640	.42629	- 656	1.7038	- 262	2.9792	- 459	4.2527	- 656	1152
650	.41973	- 636	1.6776	- 255	2.9333	- 444	4.1871	- 635	1170
660	.41337	- 617	1.6521	- 246	2.8889	- 432	4.1236	- 616	1188
670	.40720	- 599	1.6275	- 240	2.8457	- 419	4.0620	- 598	1206
680	.40121	- 581	1.6035	- 232	2.8038	- 406	4.0022	- 581	1224
690	.39540	- 565	1.5803	- 226	2.7632	- 395	3.9441	- 564	1242
700	.38975		1.5577		2.7237		3.8877		1260

Table 3-2. DENSITY OF ARGON - Cont.

ρ/ρ_0

°K	1 atm		4 atm		7 atm		10 atm		°R
700	.38975	- 549	1.5577	- 220	2.7237	- 384	3.8877	- 548	1260
710	.38426	- 534	1.5357	- 213	2.6853	- 373	3.8329	- 532	1278
720	.37892	- 519	1.5144	- 207	2.6480	- 363	3.7797	- 518	1296
730	.37373	- 505	1.4937	- 202	2.6117	- 353	3.7279	- 504	1314
740	.36868	- 492	1.4735	- 197	2.5764	- 343	3.6775	- 490	1332
750	.36376	- 479	1.4538	- 191	2.5421	- 335	3.6285	- 478	1350
760	.35897	- 466	1.4347	- 186	2.5086	- 326	3.5807	- 465	1368
770	.35431	- 454	1.4161	- 182	2.4760	- 317	3.5342	- 453	1386
780	.34977	- 443	1.3979	- 177	2.4443	- 310	3.4889	- 442	1404
790	.34534	- 431	1.3802	- 172	2.4133.	- 301	3.4447	- 430	1422
800	.34103	- 2006	1.3630	- 802	2.3832	- 1402	3.4017	- 2000	1440
850	.32097	- 1783	1.2828	- 712	2.2430	- 1245	3.2017	- 1778	1530
900	.30314	- 1596	1.2116	- 638	2.1185	- 1114	3.0239	- 1590	1620
950	.28718	- 1435	1.1478	- 573	2.0071	- 1003	2.8649	- 1430	1710
1000	.27283	- 1300	1.0905	- 520	1.9068	- 907	2.7219	- 1295	1800
1050	.25983	- 1180	1.0385	- 471	1.8161	- 825	2.5924	- 1177	1890
1100	.24803	- 1079	.99136	- 4307	1.7336	- 753	2.4747	- 1074	1980
1150	.23724	- 988	.94829	- 3950	1.6583	- 690	2.3673	- 985	2070
1200	.22736	- 909	.90879	- 3632	1.5893	- 635	2.2688	- 907	2160
1250	.21827	- 840	.87247	- 3354	1.5258	- 587	2.1781	- 836	2250
1300	.20987	- 777	.83893	- 3106	1.4671	- 542	2.0945	- 775	2340
1350	.20210	- 721	.80787	- 2883	1.4129	- 504	2.0170	- 719	2430
1400	.19489	- 672	.77904	- 2685	1.3625	- 470	1.9451	- 670	2520
1450	.18817	- 628	.75219	- 2505	1.3155	- 438	1.8781	- 625	2610
1500	.18189	- 586	.72714	- 2345	1.2717	- 410	1.8156	- 585	2700
1550	.17603	- 550	.70369	- 2197	1.2307	- 384	1.7571	- 548	2790
1600	.17053	- 517	.68172	- 2065	1.1923	- 361	1.7023	- 515	2880
1650	.16536	- 486	.66107	- 1943	1.1562	- 339	1.6508	- 485	2970
1700	.16050	- 459	.64164	- 1832	1.1223	- 321	1.6023	- 457	3060
1750	.15591	- 433	.62332	- 1731	1.0902	- 302	1.5566	- 432	3150
1800	.15158	- 409	.60601	- 1636	1.0600	- 287	1.5134	- 408	3240
1850	.14749	- 388	.58965	- 1551	1.0313	- 271	1.4726	- 387	3330
1900	.14361	- 369	.57414	- 1472	1.0042	- 257	1.4339	- 367	3420
1950	.13992	- 349	.55942	- 1398	.97851	- 2443	1.3972	- 349	3510
2000	.13643	- 333	.54544	- 1329	.95408	- 2325	1.3623	- 332	3600
2050	.13310	- 317	.53215	- 1266	.93083	- 2215	1.3291	- 316	3690
2100	.12993	- 302	.51949	- 1208	.90868	- 2110	1.2975	- 301	3780
2150	.12691	- 288	.50741	- 1152	.88758	- 2016	1.2674	- 288	3870
2200	.12403	- 276	.49589	- 1102	.86742	- 1926	1.2386	- 275	3960
2250	.12127	- 264	.48487	- 1053	.84816	- 1842	1.2111	- 263	4050
2300	.11863	- 252	.47434	- 1009	.82974	- 1764	1.1848	- 251	4140
2350	.11611	- 242	.46425	- 967	.81210	- 1690	1.1597	- 242	4230
2400	.11369	- 232	.45458	- 927	.79520	- 1621	1.1355	- 231	4320
2450	.11137	- 223	.44531	- 890	.77899	- 1557	1.1124	- 222	4410
2500	.10914	- 419	.43641	- 1678	.76342	- 2934	1.0902	- 419	4500
2600	.10495	- 389	.41963	- 1553	.73408	- 2716	1.0483	- 388	4680
2700	.10106	- 361	.40410	- 1443	.70692	- 2523	1.0095	- 360	4860
2800	.097452	- 3360	.38967	- 1343	.68169	- 2349	.97350	- 3353	5040
2900	.094092	- 3136	.37624	- 1253	.65820	- 2192	.93997	- 3129	5220
3000	.090956	- 2934	.36371	- 1173	.63628	- 2052	.90868	- 2929	5400
3100	.088022	- 2751	.35198	- 1100	.61576	- 1923	.87939	- 2746	5580
3200	.085271	- 2583	.34098	- 1032	.59653	- 1806	.85193	- 2579	5760
3300	.082688	- 2432	.33066	- 973	.57847	- 1700	.82614	- 2427	5940
3400	.080256	- 2292	.32093	- 916	.56147	- 1603	.80187	- 2289	6120
3500	.077964	- 2166	.31177	- 866	.54544	- 1514	.77898	- 2161	6300
3600	.075798	- 2049	.30311	- 819	.53030	- 1433	.75737	- 2046	6480
3700	.073749	- 1940	.29492	- 776	.51597	- 1357	.73691	- 1937	6660
3800	.071809	- 1841	.28716	- 736	.50240	- 1287	.71754	- 1838	6840
3900	.069968	- 1749	.27980	- 699	.48953	- 1223	.69916	- 1747	7020
4000	.068219	- 1664	.27281	- 665	.47730	- 1163	.68169	- 1661	7200
4100	.066555		.26616		.46567		.66508		7380

Table 3-2. DENSITY OF ARGON - Cont.

ρ/ρ_0

°K	1 atm		4 atm		7 atm		10 atm		°R
4100	.066555	- 1585	.26616	- 634	.46567	- 1109	.66508	- 1583	7380
4200	.064970	- 1511	.25982	- 604	.45458	- 1056	.64925	- 1508	7560
4300	.063459	- 1441	.25378	- 576	.44402	- 1009	.63417	- 1440	7740
4400	.062018	- 1378	.24802	- 551	.43393	- 964	.61977	- 1376	7920
4500	.060640	- 1319	.24251	- 527	.42429	- 922	.60601	- 1317	8100
4600	.059321	- 1262	.23724	- 505	.41507	- 882	.59284	- 1260	8280
4700	.058059	- 1209	.23219	- 483	.40625	- 846	.58024	- 1208	8460
4800	.056850	- 1161	.22736	- 464	.39779	- 812	.56816	- 1159	8640
4900	.055689	- 1113	.22272	- 446	.38967	- 778	.55657	- 1112	8820
5000	.054576		.21826		.38189		.54545		9000

Table 3-2. DENSITY OF ARGON - Cont.

ρ/ρ_0

°K	10 atm		40 atm		70 atm		100 atm		°R
180	15.81	-93	74.06	-668	162.2	-250	330.4	-939	324
190	14.88	-82	67.38	-520	137.2	-153	236.5	-392	342
200	14.06	-73	62.18	-428	121.9	-114	197.3	-250	360
210	13.33	-65	57.90	-362	110.5	- 89	172.3	-178	378
220	12.68	-59	54.28	-310	101.6	- 71	154.5	-131	396
230	12.09	-54	51.18	-271	94.51	- 589	141.4	-101	414
240	11.55	-48	48.47	-239	88.62	- 503	131.3	- 83	432
250	11.07	-45	46.08	-214	83.59	- 437	123.0	- 71	450
260	10.62	-41	43.94	-192	79.22	- 386	115.9	- 61	468
270	10.21	-38	42.02	-174	75.36	- 344	109.8	- 54	486
280	9.830	-351	40.28	-159	71.92	- 309	104.4	- 49	504
290	9.479	-326	38.69	-146	68.83	- 280	99.54	- 432	522
300	9.153	-304	37.23	-134	66.03	- 254	95.22	- 387	540
310	8.849	-283	35.89	-123	63.49	- 233	91.35	- 352	558
320	8.566	-267	34.66	-116	61.16	- 215	87.83	- 322	576
330	8.299	-249	33.50	-107	59.01	- 198	84.61	- 296	594
340	8.050	-235	32.43	- 99	57.03	- 183	81.65	- 272	612
350	7.815	-221	31.44	- 94	55.20	- 171	78.93	- 254	630
360	7.594	-209	30.50	- 88	53.49	- 161	76.39	- 237	648
370	7.385	-197	29.62	- 82	51.88	- 150	74.02	- 220	666
380	7.188	-187	28.80	- 78	50.38	- 140	71.82	- 205	684
390	7.001	-177	28.02	- 74	48.98	- 133	69.77	- 193	702
400	6.824	-169	27.28	- 69	47.65	- 125	67.84	- 182	720
410	6.655	-160	26.59	- 66	46.40	- 118	66.02	- 172	738
420	6.495	-153	25.93	- 63	45.22	- 112	64.30	- 163	756
430	6.342	-145	25.30	- 60	44.10	- 106	62.67	- 153	774
440	6.197	-139	24.70	- 56	43.04	- 101	61.14	- 146	792
450	6.058	-133	24.14	- 54	42.03	- 96	59.68	- 139	810
460	5.925	-127	23.60	- 52	41.07	- 92	58.29	- 131	828
470	5.798	-122	23.08	- 49	40.15	- 87	56.98	- 126	846
480	5.676	-116	22.59	- 48	39.28	- 83	55.72	- 119	864
490	5.560	-112	22.11	- 45	38.45	- 80	54.53	- 115	882
500	5.448	-107	21.66	- 43	37.65	- 76	53.38	- 108	900
510	5.341	-103	21.23	- 42	36.89	- 73	52.30	- 105	918
520	5.238	-100	20.81	- 40	36.16	- 70	51.25	- 100	936
530	5.138	- 95	20.41	- 38	35.46	- 68	50.25	- 97	954
540	5.043	- 93	20.03	- 37	34.78	- 64	49.28	- 92	972
550	4.950	- 88	19.66	- 36	34.14	- 62	48.36	- 88	990
560	4.862	- 86	19.30	- 34	33.52	- 60	47.48	- 85	1008
570	4.776	- 83	18.96	- 33	32.92	- 58	46.63	- 82	1026
580	4.693	- 79	18.63	- 32	32.34	- 56	45.81	- 80	1044
590	4.614	- 78	18.31	- 31	31.78	- 53	45.01	- 76	1062
600	4.536	- 74	18.00	- 29	31.25	- 52	44.25	- 74	1080
610	4.462	- 72	17.71	- 29	30.73	- 50	43.51	- 71	1098
620	4.390	- 70	17.42	- 28	30.23	- 49	42.80	- 68	1116
630	4.320	- 67	17.14	- 27	29.74	- 47	42.12	- 67	1134
640	4.253	- 66	16.87	- 26	29.27	- 45	41.45	- 65	1152
650	4.187	- 63	16.61	- 25	28.82	- 44	40.80	- 62	1170
660	4.124	- 62	16.36	- 25	28.38	- 43	40.18	- 60	1188
670	4.062	- 60	16.11	- 24	27.95	- 41	39.58	- 58	1206
680	4.002	- 58	15.87	- 23	27.54	- 40	39.00	- 57	1224
690	3.944	- 56	15.64	- 22	27.14	- 39	38.43	- 55	1242
700	3.888	- 55	15.42	- 22	26.75	- 38	37.88	- 54	1260
710	3.833	- 53	15.20	- 21	26.37	- 36	37.34	- 51	1278
720	3.780	- 52	14.99	- 20	26.01	- 36	36.83	- 51	1296
730	3.728	- 51	14.79	- 20	25.65	- 34	36.32	- 49	1314
740	3.677	- 49	14.59	- 20	25.31	- 34	35.83	- 48	1332
750	3.628		14.39		24.97		35.35		1350

Table 3-2. DENSITY OF ARGON - Cont.

ρ / ρ_0

°K	10 atm		40 atm		70 atm		100 atm		°R
750	3.628	- 47	14.39	- 19	24.97	- 33	35.35	- 46	1350
760	3.581	- 47	14.20	- 18	24.64	- 32	34.89	- 45	1368
770	3.534	- 45	14.02	- 18	24.32	- 31	34.44	- 44	1386
780	3.489	- 44	13.84	- 18	24.01	- 31	34.00	- 43	1404
790	3.445	- 43	13.66	- 17	23.70	- 29	33.57	- 41	1422
800	3.402	-200	13.49	- 79	23.41	- 137	33.16	- 194	1440
850	3.202	-178	12.70	- 70	22.04	- 122	31.22	- 172	1530
900	3.024	-159	12.00	- 63	20.82	- 108	29.50	- 153	1620
950	2.865	-143	11.37	- 57	19.74	- 98	27.97	- 138	1710
1000	2.722	-130	10.80	- 51	18.76	- 89	26.59	- 126	1800
1050	2.592	-117	10.29	- 47	17.87	- 80	25.33	- 113	1890
1100	2.475	-108	9.825	- 425	17.07	- 74	24.20	- 104	1980
1150	2.367	- 98	9.400	- 389	16.33	- 67	23.16	- 95	2070
1200	2.269	- 91	9.011	- 358	15.66	- 62	22.21	- 87	2160
1250	2.178	- 84	8.653	- 331	15.04	- 57	21.34	- 81	2250
1300	2.094	- 77	8.322	- 307	14.47	- 53	20.53	- 75	2340
1350	2.017	- 72	8.015	- 284	13.94	- 50	19.78	- 69	2430
1400	1.945	- 67	7.731	- 265	13.44	- 46	19.09	- 65	2520
1450	1.878	- 62	7.466	- 247	12.98	- 42	18.44	- 61	2610
1500	1.816	- 59	7.219	- 232	12.56	- 40	17.83	- 57	2700
1550	1.757	- 55	6.987	- 217	12.16	- 38	17.26	- 53	2790
1600	1.702	- 51	6.770	- 204	11.78	- 35	16.73	- 50	2880
1650	1.651	- 49	6.566	- 191	11.43	- 34	16.23	- 47	2970
1700	1.602	- 45	6.375	- 182	11.09	- 31	15.76	- 44	3060
1750	1.557	- 44	6.193	- 171	10.78	- 30	15.32	- 42	3150
1800	1.513	- 40	6.022	- 161	10.48	- 28	14.90	- 40	3240
1850	1.473	- 39	5.861	- 154	10.20	- 26	14.50	- 37	3330
1900	1.434	- 37	5.707	- 145	9.938	- 252	14.13	- 36	3420
1950	1.397	- 35	5.562	- 139	9.686	- 239	13.77	- 34	3510
2000	1.362	- 33	5.423	- 131	9.447	- 229	13.43	- 32	3600
2050	1.329	- 31	5.292	- 125	9.218	- 218	13.11	- 31	3690
2100	1.298	- 31	5.167	- 120	9.000	- 206	12.80	- 29	3780
2150	1.267	- 28	5.047	- 114	8.794	- 199	12.51	- 28	3870
2200	1.239	- 28	4.933	- 109	8.595	- 189	12.23	- 27	3960
2250	1.211	- 26	4.824	- 104	8.406	- 181	11.96	- 26	4050
2300	1.185	- 25	4.720	- 100	8.225	- 173	11.70	- 24	4140
2350	1.160	- 25	4.620	- 96	8.052	- 167	11.46	- 24	4230
2400	1.135	- 23	4.524	- 92	7.885	- 159	11.22	- 23	4320
2450	1.112	- 22	4.432	- 88	7.726	- 154	10.99	- 21	4410
2500	1.090	- 42	4.344	- 166	7.572	- 289	10.78	- 41	4500
2600	1.048	- 38	4.178	- 154	7.283	- 267	10.37	- 38	4680
2700	1.010	- 36	4.024	- 143	7.016	- 248	9.987	- 352	4860
2800	.9735	- 335	3.881	- 134	6.768	- 232	9.635	- 329	5040
2900	.9400	- 313	3.747	- 124	6.536	- 216	9.306	- 307	5220
3000	.9087	- 294	3.623	- 116	6.320	- 203	8.999	- 287	5400
3100	.8793	- 273	3.507	- 110	6.117	- 190	8.712	- 270	5580
3200	.8520	- 259	3.397	- 102	5.927	- 178	8.442	- 253	5760
3300	.8261	- 243	3.295	- 97	5.749	- 168	8.189	- 239	5940
3400	.8018	- 228	3.198	- 91	5.581	- 158	7.950	- 225	6120
3500	.7790	- 216	3.107	- 86	5.423	- 150	7.725	- 212	6300
3600	.7574	- 205	3.021	- 81	5.273	- 142	7.513	- 202	6480
3700	.7369	- 194	2.940	- 77	5.131	- 134	7.311	- 190	6660
3800	.7175	- 183	2.863	- 73	4.997	- 127	7.121	- 181	6840
3900	.6992	- 175	2.790	- 70	4.870	- 121	6.940	- 172	7020
4000	.6817	- 166	2.720	- 66	4.749	- 115	6.768	- 164	7200
4100	.6651	- 159	2.654	- 63	4.634	- 110	6.604	- 156	7380
4200	.6492	- 151	2.591	- 60	4.524	- 105	6.448	- 149	7560
4300	.6341	- 143	2.531	- 57	4.419	- 99	6.299	- 142	7740
4400	.6198	- 138	2.474	- 55	4.320	- 96	6.157	- 135	7920
4500	.6060	- 132	2.419	- 53	4.224	- 91	6.022	- 131	8100
4600	.5928		2.366		4.133		5.891		8280

Table 3-2. DENSITY OF ARGON - Cont.

ρ/ρ_o

°K	10 atm		40 atm		70 atm		100 atm		°R
4600	.5928	- 126	2.366	- 50	4.133	- 88	5.891	- 124	8280
4700	.5802	- 121	2.316	- 48	4.045	- 84	5.767	- 119	8460
4800	.5681	- 116	2.268	- 46	3.961	- 80	5.648	- 115	8640
4900	.5565	- 110	2.222	- 44	3.881	- 77	5.533	- 109	8820
5000	.5455		2.178		3.804		5.424		9000

Table 3-3. SPECIFIC HEAT OF ARGON

C_p/R

°K	.01 atm		.1 atm		.4 atm		.7 atm		°R
100	2.5010	-2	2.5100	-24	2.5413	-105	2.5739	-191	180
110	2.5008	-2	2.5076	-17	2.5308	- 69	2.5548	-126	198
120	2.5006	-1	2.5059	-12	2.5239	- 49	2.5422	- 88	216
130	2.5005	-1	2.5047	- 9	2.5190	- 35	2.5334	- 61	234
140	2.5004	-1	2.5038	- 6	2.5155	- 27	2.5273	- 48	252
150	2.5003		2.5032	- 5	2.5128	- 20	2.5225	- 36	270
160	2.5003	-1	2.5027	- 4	2.5108	- 15	2.5189	- 27	288
170	2.5002		2.5023	- 3	2.5093	- 12	2.5162	- 23	306
180	2.5002		2.5020	- 3	2.5081	- 12	2.5139	- 17	324
190	2.5002		2.5017	- 2	2.5069	- 8	2.5122	- 15	342
200	2.5002	-1	2.5015	- 2	2.5061	- 7	2.5107	- 12	360
210	2.5001		2.5013	- 1	2.5054	- 6	2.5095	- 11	378
220	2.5001		2.5012	- 1	2.5048	- 5	2.5084	- 9	396
230	2.5001		2.5011	- 1	2.5043	- 4	2.5075	- 7	414
240	2.5001		2.5010	- 1	2.5039	- 4	2.5068	- 7	432
250	2.5001		2.5009	- 1	2.5035	- 3	2.5061	- 5	450
260	2.5001		2.5008	- 1	2.5032	- 3	2.5056	- 5	468
270	2.5001		2.5007		2.5029	- 2	2.5051	- 4	486
280	2.5001		2.5007	- 1	2.5027	- 2	2.5047	- 4	504
290	2.5001		2.5006		2.5025	- 2	2.5043	- 3	522
300	2.5001		2.5006	- 1	2.5023	- 2	2.5040	- 3	540
310	2.5001	-1	2.5005		2.5021	- 1	2.5037	- 3	558
320	2.5000		2.5005		2.5020	- 2	2.5034	- 2	576
330	2.5000		2.5005	- 1	2.5018	- 1	2.5032	- 2	594
340	2.5000		2.5004		2.5017	- 1	2.5030	- 2	612
350	2.5000		2.5004		2.5016	- 1	2.5028	- 2	630
360	2.5000		2.5004		2.5015	- 1	2.5026	- 1	648
370	2.5000		2.5004	- 1	2.5014	- 1	2.5025	- 2	666
380	2.5000		2.5003		2.5013	- 1	2.5023	- 1	684
390	2.5000		2.5003		2.5012		2.5022	- 1	702
400	2.5000		2.5003		2.5012	- 1	2.5021	- 1	720
410	2.5000		2.5003		2.5011	- 1	2.5020	- 2	738
420	2.5000		2.5003	- 1	2.5010		2.5018		756
430	2.5000		2.5002		2.5010		2.5018	- 1	774
440	2.5000		2.5002		2.5010	- 1	2.5017	- 1	792
450	2.5000		2.5002		2.5009		2.5016	- 1	810
460	2.5000		2.5002		2.5009	- 1	2.5015	- 1	828
470	2.5000		2.5002		2.5008		2.5014		846
480	2.5000		2.5002		2.8008	- 1	2.5014	- 1	864
490	2.5000		2.5002		2.5007		2.5013	- 1	882
500	2.5000		2.5002		2.5007		2.5012		900
510	2.5000		2.5002		2.5007		2.5012	- 1	918
520	2.5000		2.5002		2.5007	- 1	2.5011		936
530	2.5000		2.5002	- 1	2.5006		2.5011	- 1	954
540	2.5000		2.5001		2.5006		2.5010		972
550	2.5000		2.5001		2.5006		2.5010		990
560	2.5000		2.5001		2.5006		2.5010	- 1	1008
570	2.5000		2.5001		2.5006	- 1	2.5009		1026
580	2.5000		2.5001		2.5005		2.5009		1044
590	2.5000		2.5001		2.5005		2.5009	- 1	1062
600	2.5000		2.5001		2.5005		2.5008		1080
610	2.5000		2.5001		2.5005	- 1	2.5008		1098
620	2.5000		2.5001		2.5004		2.5008	- 1	1116
630	2.5000		2.5001		2.5004		2.5007		1134
640	2.5000		2.5001		2.5004		2.5007		1152
650	2.5000		2.5001		2.5004		2.5007		1170
660	2.5000		2.5001		2.5004		2.5007	- 1	1188
670	2.5000		2.5001		2.5004		2.5006		1206
680	2.5000		2.5001		2.5004	- 1	2.5006		1224
690	2.5000		2.5001		2.5003		2.5006		1242
700	2.5000		2.5001		2.5003		2.5006		1260

Table 3-3. SPECIFIC HEAT OF ARGON - Cont.

Cp/R

°K	.01 atm	.1 atm	.4 atm	.7 atm	°R
700	2.5000	2.5001	2.5003	2.5006	1260
710		2.5001	2.5003	2.5006	1278
720		2.5001	2.5003	2.5006 - 1	1296
730		2.5001	2.5003	2.5005	1314
740		2.5001	2.5003	2.5005	1332
750		2.5001	2.5003	2.5005	1350
760		2.5001	2.5003	2.5005	1368
770		2.5001	2.5003	2.5005	1386
780		2.5001	2.5003	2.5005 - 1	1404
790		2.5001	2.5003	2.5004	1422
800		2.5001 - 1	2.5003 - 1	2.5004 - 1	1440
900		2.5000	2.5002	2.5003	1620
1000		2.5000	2.5002 - 1	2.5003 - 1	1800
1100		2.5000	2.5001	2.5002	1980
1200		2.5000	2.5001	2.5002 - 1	2160
1300		2.5000	2.5001	2.5001	2340
1400		2.5000	2.5001	2.5001	2520
1500		2.5000	2.5001	2.5001	2700
1600		2.5000	2.5001 - 1	2.5001	2880
1700		2.5000	2.5000	2.5001	3060
1800		2.5000	2.5000	2.5001	3240
1900		2.5000	2.5000	2.5001	3420
2000		2.5000	2.5000	2.5001 - 1	3600
2100		2.5000	2.5000	2.5000	3780
2200		2.5000	2.5000	2.5000	3960
2300		2.5000	2.5000	2.5000	4140
2400		2.5000	2.5000	2.5000	4320
2500		2.5000	2.5000	2.5000	4500
2600		2.5000	2.5000	2.5000	4680
2700		2.5000	2.5000	2.5000	4860
2800		2.5000	2.5000	2.5000	5040
2900		2.5000	2.5000	2.5000	5220
3000	2.5000	2.5000	2.5000	2.5000	5400

Table 3-3. SPECIFIC HEAT OF ARGON - Cont. C_p/R

°K	1 atm		4 atm		7 atm		10 atm		°R
100	2.6077	-281	3.016	-151	3.55	-33			180
110	2.5796	-186	2.865	- 93	3.22	-20			198
120	2.5610	-125	2.772	- 62	3.02	-12			216
130	2.5485	- 94	2.710	- 42	2.90	- 9			234
140	2.5391	- 67	2.668	- 31	2.81	- 6			252
150	2.5324	- 52	2.637	- 23	2.753	- 43	2.98	-17	270
160	2.5272	- 40	2.614	- 18	2.710	- 35	2.81	- 5	288
170	2.5232	- 33	2.596	- 14	2.675	- 26	2.76	- 5	306
180	2.5199	- 24	2.582	- 11	2.649	- 21	2.71	- 3	324
190	2.5175	- 21	2.571	- 8	2.628	- 16	2.68	- 2	342
200	2.5154	- 17	2.5626	- 75	2.6120	- 137	2.663	- 22	360
210	2.5137	- 14	2.5551	- 61	2.5983	- 111	2.641	- 14	378
220	2.5123	- 13	2.5490	- 52	2.5872	- 94	2.627	- 14	396
230	2.5110	- 13	2.5438	- 43	2.5778	- 80	2.613	- 12	414
240	2.5097	- 9	2.5395	- 39	2.5698	- 67	2.601	- 10	432
250	2.5088	- 8	2.5356	- 32	2.5631	- 59	2.5910	- 85	450
260	2.5080	- 7	2.5324	- 29	2.5572	- 50	2.5825	- 75	468
270	2.5073	- 6	2.5295	- 25	2.5522	- 44	2.5750	- 64	486
280	2.5067	- 5	2.5270	- 21	2.5478	- 40	2.5686	- 56	504
290	2.5062	- 5	2.5249	- 19	2.5438	- 34	2.5630	- 49	522
300	2.5057	- 4	2.5230	- 18	2.5404	- 30	2.5581	- 46	540
310	2.5053	- 4	2.5212	- 15	2.5374	- 27	2.5535	- 38	558
320	2.5049	- 3	2.5197	- 13	2.5347	- 25	2.5497	- 35	576
330	2.5046	- 3	2.5184	- 12	2.5322	- 21	2.5462	- 31	594
340	2.5043	- 3	2.5172	- 12	2.5301	- 21	2.5431	- 29	612
350	2.5040	- 3	2.5160	- 10	2.5280	- 17	2.5402	- 26	630
360	2.5037	- 2	2.5150	- 10	2.5263	- 16	2.5376	- 24	648
370	2.5035	- 2	2.5140	- 8	2.5247	- 15	2.5352	- 21	666
380	2.5033	- 2	2.5132	- 7	2.5232	- 14	2.5331	- 19	684
390	2.5031	- 2	2.5125	- 7	2.5218	- 12	2.5312	- 18	702
400	2.5029	- 1	2.5118	- 7	2.5206	- 11	2.5294	- 16	720
410	2.5028	- 2	2.5111	- 6	2.5195	- 11	2.5278	- 15	738
420	2.5026	- 1	2.5105	- 5	2.5184	- 9	2.5263	- 14	756
430	2.5025	- 1	2.5100	- 5	2.5175	- 9	2.5249	- 12	774
440	2.5024	- 2	2.5095	- 5	2.5166	- 9	2.5237	- 12	792
450	2.5022	- 1	2.5090	- 4	2.5157	- 7	2.5225	- 12	810
460	2.5021	- 1	2.5086	- 4	2.5150	- 7	2.5213	- 10	828
470	2.5020	- 1	2.5082	- 4	2.5143	- 7	2.5203	- 10	846
480	2.5019		2.5078	- 4	2.5136	- 6	2.5193	- 8	864
490	2.5019	- 1	2.5074	- 3	2.5130	- 6	2.5185	- 9	882
500	2.5018	- 1	2.5071	- 3	2.5124	- 5	2.5176	- 7	900
510	2.5017	- 1	2.5068	- 3	2.5119	- 5	2.5169	- 8	918
520	2.5016		2.5065	- 3	2.5114	- 5	2.5161	- 6	936
530	2.5016	- 1	2.5062	- 2	2.5109	- 5	2.5155	- 7	954
540	2.5015	- 1	2.5060	- 3	2.5104	- 4	2.5148	- 6	972
550	2.5014		2.5057	- 2	2.5100	- 4	2.5142	- 6	990
560	2.5014	- 1	2.5055	- 2	2.5096	- 4	2.5136	- 5	1008
570	2.5013		2.5053	- 2	2.5092	- 3	2.5131	- 5	1026
580	2.5013	- 1	2.5051	- 2	2.5089	- 3	2.5126	- 5	1044
590	2.5012		2.5049	- 2	2.5086	- 4	2.5121	- 4	1062
600	2.5012	- 1	2.5047	- 2	2.5082	- 3	2.5117	- 5	1080
610	2.5011		2.5045	- 1	2.5079	- 2	2.5112	- 4	1098
620	2.5011		2.5044	- 2	2.5077	- 3	2.5108	- 3	1116
630	2.5011	- 1	2.5042	- 1	2.5074	- 3	2.5105	- 4	1134
640	2.5010		2.5041	- 2	2.5071	- 2	2.5101	- 4	1152
650	2.5010		2.5039	- 1	2.5069	- 2	2.5097	- 3	1170
660	2.5010	- 1	2.5038	- 1	2.5067	- 3	2.5094	- 3	1188
670	2.5009		2.5037	- 1	2.5064	- 2	2.5091	- 3	1206
680	2.5009		2.5036	- 2	2.5062	- 2	2.5088	- 3	1224
690	2.5009	- 1	2.5034	- 1	2.5060	- 2	2.5085	- 3	1242
700	2.5008		2.5033		2.5058		2.5082		1260

Table 3-3. SPECIFIC HEAT OF ARGON - Cont. Cp/R

°K	1 atm		4 atm		7 atm		10 atm		°R
700	2.5008		2.5033	- 1	2.5058		2.5082	- 1	1260
710	2.5008		2.5032	- 1	2.5058	- 3	2.5081	- 3	1278
720	2.5008		2.5031	- 1	2.5055	- 2	2.5078	- 2	1296
730	2.5008	- 1	2.5030	- 1	2.5053	- 2	2.5076	- 3	1314
740	2.5007		2.5029		2.5051	- 1	2.5073	- 2	1332
750	2.5007		2.5029	- 1	2.5050	- 2	2.5071	- 2	1350
760	2.5007		2.5028	- 1	2.5048	- 1	2.5069	- 2	1368
770	2.5007		2.5027	- 1	2.5047	- 1	2.5067	- 2	1386
780	2.5007	- 1	2.5026	- 1	2.5046	- 2	2.5065	- 2	1404
790	2.5006		2.5025		2.5044	- 1	2.5063	- 1	1422
800	2.5006	- 1	2.5025	- 5	2.5043	- 10	2.5062	- 15	1440
900	2.5005	- 1	2.5020	- 5	2.5033	- 7	2.5047	- 10	1620
1000	2.5004	- 1	2.5015	- 3	2.5026	- 5	2.5037	- 7	1800
1100	2.5003	- 1	2.5012	- 2	2.5021	- 4	2.5030	- 6	1980
1200	2.5002		2.5010	- 2	2.5017	- 3	2.5024	- 4	2160
1300	2.5002		2.5008	- 1	2.5014	- 2	2.5020	- 3	2340
1400	2.5002	- 1	2.5007	- 1	2.5012	- 2	2.5017	- 3	2520
1500	2.5001		2.5006	- 1	2.5010	- 1	2.5014	- 2	2700
1600	2.5001		2.5005	- 1	2.5009	- 2	2.5012	- 1	2880
1700	2.5001		2.5004		2.5007	- 1	2.5011	- 2	3060
1800	2.5001		2.5004	- 1	2.5006		2.5009	- 1	3240
1900	2.5001		2.5003		2.5006	- 1	2.5008	- 1	3420
2000	2.5001		2.5003	- 1	2.5005	- 1	2.5007	- 1	3600
2100	2.5001		2.5002		2.5004		2.5006	- 1	3780
2200	2.5001	- 1	2.5002		2.5004	- 1	2.5005		3960
2300	2.5000		2.5002		2.5003		2.5005	- 1	4140
2400	2.5000		2.5002		2.5003		2.5004		4320
2500	2.5000		2.5002	- 1	2.5003	- 1	2.5004	- 1	4500
2600	2.5000		2.5001		2.5002		2.5003		4680
2700	2.5000		2.5001		2.5002		2.5003		4860
2800	2.5000		2.5001		2.5002		2.5003		5040
2900	2.5000		2.5001		2.5002		2.5003	- 1	5220
3000	2.5000		2.5001		2.5002		2.5002		5400

Table 3-3. SPECIFIC HEAT OF ARGON - Cont. C_p/R

°K	10 atm		40 atm		70 atm		100 atm		°R
200	2.66	-2	3.31	-12	4.2	-3	5.2	-5	360
210	2.64	-1	3.19	-10	3.9	-2	4.7	-3	378
220	2.63	-2	3.09	- 9	3.7	-2	4.4	-2	396
230	2.61	-1	3.00	- 4	3.5	-1	4.2	-3	414
240	2.60	-1	2.96	- 6	3.4	-1	3.9	-2	432
250	2.59	-1	2.90	- 5	3.26	-13	3.66	-26	450
260	2.58	-1	2.85	- 4	3.13	- 7	3.40	-10	468
270	2.57		2.81	- 2	3.06	- 5	3.30	- 7	486
280	2.57	-1	2.79	- 2	3.01	- 4	3.23	- 6	504
290	2.56		2.77	- 3	2.97	- 4	3.17	- 5	522
300	2.56	-1	2.74	- 2	2.93	- 4	3.12	- 5	540
310	2.55		2.72	- 1	2.89	- 4	3.07	- 4	558
320	2.55		2.71	- 2	2.85	- 4	3.03	- 4	576
330	2.55	-1	2.69	- 2	2.81	- 4	2.99	- 3	594
340	2.54		2.67	- 2	2.77	- 2	2.96	- 4	612
350	2.54		2.65		2.75	1	2.92	- 4	630
360	2.54		2.65	- 1	2.75	- 1	2.88	- 3	648
370	2.54	-1	2.64	- 1	2.74	- 1	2.85	- 2	666
380	2.53		2.63		2.73	- 1	2.83	- 1	684
390	2.53		2.63	- 2	2.72	- 2	2.82	- 3	702
400	2.53		2.61		2.70	- 1	2.79	- 1	720
410	2.53		2.61	- 1	2.69	- 1	2.78	- 2	738
420	2.53	-1	2.60		2.68	- 1	2.76	- 1	756
430	2.52		2.600	- 6	2.674	- 10	2.747	- 13	774
440	2.52		2.594	- 5	2.664	- 9	2.734	- 13	792
450	2.523	- 2	2.589	- 4	2.655	- 7	2.721	- 12	810
460	2.521	- 1	2.585	- 4	2.648	- 8	2.709	- 11	828
470	2.520	- 1	2.581	- 4	2.640	- 7	2.698	- 10	846
480	2.519		2.577	- 4	2.633	- 6	2.688	- 9	864
490	2.519	- 1	2.573	- 3	2.627	- 6	2.679	- 9	882
500	2.518	- 1	2.570	- 3	2.621	- 5	2.670	- 7	900
510	2.517	- 1	2.567	- 3	2.616	- 5	2.663	- 7	918
520	2.516		2.564	- 3	2.611	- 5	2.656	- 7	936
530	2.516	- 1	2.561	- 2	2.606	- 5	2.649	- 7	954
540	2.515	- 1	2.559	- 3	2.601	- 4	2.642	- 6	972
550	2.514		2.556	- 2	2.597	- 4	2.636	- 6	990
560	2.514	- 1	2.554	- 2	2.593	- 4	2.630	- 5	1008
570	2.513		2.552	- 2	2.589	- 3	2.625	- 5	1026
580	2.513	- 1	2.550	- 2	2.586	- 3	2.620	- 5	1044
590	2.512		2.548	- 2	2.583	- 4	2.615	- 4	1062
600	2.512	- 1	2.546	- 2	2.579	- 3	2.611	- 4	1080
610	2.511		2.544	- 1	2.576	- 2	2.607	- 4	1098
620	2.511		2.543	- 2	2.574	- 3	2.603	- 3	1116
630	2.511	- 1	2.541	- 1	2.571	- 3	2.600	- 4	1134
640	2.510		2.540	- 2	2.568	- 2	2.596	- 4	1152
650	2.510	- 1	2.538	- 1	2.566	- 2	2.592	- 3	1170
660	2.509		2.537	- 1	2.564	- 3	2.589	- 3	1188
670	2.509		2.536	- 1	2.561	- 2	2.586	- 2	1206
680	2.509		2.535	- 2	2.559	- 2	2.584	- 3	1224
690	2.509	- 1	2.533	- 1	2.557	- 2	2.581	- 3	1242
700	2.508		2.532	- 1	2.555	- 1	2.578	- 2	1260
710	2.508		2.531	- 1	2.554	- 1	2.576	- 3	1278
720	2.508		2.530	- 1	2.553	- 2	2.573	- 2	1296
730	2.508	- 1	2.529	- 1	2.551	- 2	2.571	- 2	1314
740	2.507		2.528		2.549	- 1	2.569	- 2	1332
750	2.507		2.528	- 1	2.548	- 2	2.567	- 2	1350
760	2.507		2.527	- 1	2.546	- 1	2.565	- 2	1368
770	2.507		2.526	- 1	2.545	- 1	2.563	- 2	1386
780	2.507	- 1	2.525	- 1	2.544	- 2	2.561	- 2	1404
790	2.506		2.524		2.542	- 1	2.559	- 1	1422
800	2.506		2.524		2.541		2.558		1440

Table 3-3. SPECIFIC HEAT OF ARGON - Cont. C_p/R

°K	10 atm		40 atm		70 atm		100 atm		°R
800	2.506	- 1	2.524	- 5	2.541	- 10	2.558	- 14	1440
900	2.505	- 1	2.519	- 4	2.531	- 6	2.544	- 8	1620
1000	2.504	- 1	2.515	- 3	2.525	- 5	2.536	- 8	1800
1100	2.503	- 1	2.512	- 2	2.520	- 4	2.528	- 5	1980
1200	2.502		2.510	- 2	2.516	- 2	2.523	- 4	2160
1300	2.502		2.508	- 1	2.514	- 2	2.519	- 3	2340
1400	2.502	- 1	2.507	- 1	2.512	- 2	2.516	- 3	2520
1500	2.501		2.506	- 1	2.510	- 1	2.513	- 2	2700
1600	2.501		2.505	- 1	2.509	- 2	2.511		2880
1700	2.501		2.504		2.507	- 1	2.511	- 2	3060
1800	2.501		2.504	- 1	2.506		2.509	- 1	3240
1900	2.501		2.503		2.506	- 1	2.508	- 1	3420
2000	2.501		2.503	- 1	2.505	- 1	2.507	- 1	3600
2100	2.501		2.502		2.504		2.506	- 1	3780
2200	2.501		2.502		2.504	- 1	2.505		3960
2300	2.501	- 1	2.502		2.503		2.505	- 1	4140
2400	2.500		2.502		2.503		2.504		4320
2500	2.500		2.502	- 1	2.503	- 1	2.504	- 1	4500
2600	2.500		2.501		2.502		2.503		4680
2700	2.500		2.501		2.502		2.503		4860
2800	2.500		2.501		2.502		2.503		5040
2900	2.500		2.501		2.502		2.503	- 1	5220
3000	2.500		2.501		2.502		2.502		5400

Table 3-4. ENTHALPY OF ARGON* $(H-E_0^\circ)/RT_0$

°K	.01 atm		.1 atm		.4 atm		.7 atm		°R
100	.9150	915	.9131	918	.9066	928	.9000	939	180
110	1.0065	916	1.0049	918	.9994	927	.9939	934	198
120	1.0981	916	1.0967	917	1.0921	922	1.0873	928	216
130	1.1897	915	1.1884	917	1.1843	922	1.1801	927	234
140	1.2812	915	1.2801	916	1.2765	920	1.2728	924	252
150	1.3727	915	1.3717	916	1.3685	919	1.3652	923	270
160	1.4642	916	1.4633	917	1.4604	920	1.4575	922	288
170	1.5558	915	1.5550	916	1.5524	918	1.5497	920	306
180	1.6473	915	1.6466	916	1.6442	917	1.6417	920	324
190	1.7388	915	1.7382	915	1.7359	918	1.7337	919	342
200	1.8303	916	1.8297	917	1.8277	918	1.8256	920	360
210	1.9219	915	1.9214	915	1.9195	917	1.9176	918	378
220	2.0134	915	2.0129	916	2.0112	916	2.0094	918	396
230	2.1049	915	2.1045	915	2.1028	917	2.1012	918	414
240	2.1964	916	2.1960	915	2.1945	916	2.1930	917	432
250	2.2880	916	2.2875	917	2.2861	917	2.2847	918	450
260	2.3796	915	2.3792	915	2.3778	916	2.3765	917	468
270	2.4711	915	2.4707	915	2.4694	917	2.4682	917	486
280	2.5626	915	2.5622	915	2.5611	915	2.5599	917	504
290	2.6541	915	2.6537	916	2.6526	916	2.6516	916	522
300	2.7456	916	2.7453	916	2.7442	917	2.7432	917	540
310	2.8372	915	2.8369	915	2.8359	916	2.8349	917	558
320	2.9287	915	2.9284	915	2.9275	916	2.9266	916	576
330	3.0202	915	3.0199	915	3.0191	915	3.0182	916	594
340	3.1117	916	3.1114	916	3.1106	917	3.1098	917	612
350	3.2033	915	3.2030	916	3.2023	915	3.2015	916	630
360	3.2948	915	3.2946	915	3.2938	916	3.2931	916	648
370	3.3863	915	3.3861	915	3.3854	915	3.3847	916	666
380	3.4778	915	3.4776	915	3.4769	916	3.4763	916	684
390	3.5693	916	3.5691	916	3.5685	916	3.5679	917	702
400	3.6609	915	3.6607	915	3.6601	916	3.6596	915	720
410	3.7524	915	3.7522	915	3.7517	915	3.7511	916	738
420	3.8439	915	3.8437	915	3.8432	916	3.8427	916	756
430	3.9354	915	3.9352	915	3.9348	915	3.9343	915	774
440	4.0269	916	4.0267	917	4.0263	916	4.0258	917	792
450	4.1185	915	4.1184	915	4.1179	916	4.1175	915	810
460	4.2100	915	4.2099	915	4.2095	915	4.2090	916	828
470	4.3015	915	4.3014	915	4.3010	915	4.3006	915	846
480	4.3930	916	4.3929	916	4.3925	916	4.3921	917	864
490	4.4846	915	4.4845	915	4.4841	916	4.4838	915	882
500	4.5761	915	4.5760	915	4.5757	915	4.5753	916	900
510	4.6676	915	4.6675	915	4.6672	915	4.6669	915	918
520	4.7591	915	4.7590	915	4.7587	915	4.7584	916	936
530	4.8506	916	4.8505	916	4.8502	917	4.8500	916	954
540	4.9422	915	4.9421	915	4.9419	915	4.9416	915	972
550	5.0337	915	5.0336	915	5.0334	915	5.0331	916	990
560	5.1252	915	5.1251	915	5.1249	915	5.1247	915	1008
570	5.2167	915	5.2166	915	5.2164	915	5.2162	915	1026
580	5.3082	916	5.3081	916	5.3079	917	5.3077	917	1044
590	5.3998	915	5.3997	915	5.3996	915	5.3994	915	1062
600	5.4913	915	5.4912	915	5.4911	915	5.4909	915	1080
610	5.5828	915	5.5827	916	5.5826	915	5.5824	916	1098
620	5.6743	916	5.6743	916	5.6741	916	5.6740	916	1116
630	5.7659	915	5.7659	915	5.7657	915	5.7656	915	1134
640	5.8574	915	5.8574	915	5.8572	916	5.8571	915	1152
650	5.9489	915	5.9489	915	5.9488	915	5.9486	916	1170
660	6.0404	915	6.0404	915	6.0403	915	6.0402	915	1188
670	6.1319	916	6.1319	916	6.1318	916	6.1317	916	1206
680	6.2235	915	6.2235	915	6.2234	915	6.2233	915	1224
690	6.3150	915	6.3150	915	6.3149	915	6.3148	916	1242
700	6.4065		6.4065		6.4064		6.4064		1260

*The enthalpy function is divided here by a constant RT_0 where T_0 = 273.16°K (491.688°R).

Table 3-4. ENTHALPY OF ARGON - Cont.* $(H-E_0^o)/RT_0$

°K	.01 atm		.1 atm		.4 atm		.7 atm		°R
700	6.4065	915	6.4065	915	6.4064	915	6.4064	915	1260
710	6.4980	915	6.4980	915	6.4979	915	6.4979	915	1278
720	6.5895	916	6.5895	916	6.5894	917	6.5894	916	1296
730	6.6811	915	6.6811	915	6.6811	915	6.6810	915	1314
740	6.7726	915	6.7726	915	6.7726	915	6.7725	913	1332
750	6.8641	915	6.8641	915	6.8641	915	6.8638	917	1350
760	6.9556	916	6.9556	916	6.9556	916	6.9555	917	1368
770	7.0472	915	7.0472	915	7.0472	915	7.0472	915	1386
780	7.1387	915	7.1387	915	7.1387	915	7.1387	915	1404
790	7.2302	915	7.2302	915	7.2302	915	7.2302	916	1422
800	7.3217	4576	7.3217	4576	7.3217	4577	7.3218	4576	1440
850	7.7793	4576	7.7793	4576	7.7794	4576	7.7794	4577	1530
900	8.2369	4576	8.2369	4576	8.2370	4576	8.2371	4576	1620
950	8.6945	4576	8.6945	4576	8.6946	4577	8.6947	4577	1710
1000	9.1521	4577	9.1521	4577	9.1523	4577	9.1524	4577	1800
1050	9.6098	4576	9.6098	4577	9.6100	4576	9.6101	4577	1890
1100	10.0674	4576	10.0675	4576	10.0676	4576	10.0678	4576	1980
1150	10.5250	4576	10.5251	4576	10.5252	4577	10.5254	4577	2070
1200	10.9826	4576	10.9827	4576	10.9829	4576	10.9831	4576	2160
1250	11.4402	4576	11.4403	4576	11.4405	4576	11.4407	4576	2250
1300	11.8978	4576	11.8979	4576	11.8981	4576	11.8983	4576	2340
1350	12.3554	4576	12.3555	4576	12.3557	4576	12.3559	4577	2430
1400	12.8130	4576	12.8131	4576	12.8133	4576	12.8136	4576	2520
1450	13.2706	4576	13.2707	4576	13.2709	4576	13.2712	4576	2610
1500	13.7282	4576	13.7283	4576	13.7285	4577	13.7288	4576	2700
1550	14.1858	4576	14.1859	4576	12.1862	4576	14.1864	4576	2790
1600	14.6434	4576	14.6435	4576	14.6438	4576	14.6440	4576	2880
1650	15.1010	4576	15.1011	4576	15.1014	4576	15.1016	4577	2970
1700	15.5586	4577	15.5587	4577	15.5590	4577	15.5593	4577	3060
1750	16.0163	4576	16.0164	4576	16.0167	4576	16.0170	4576	3150
1800	16.4739	4576	16.4740	4576	16.4743	4576	16.4746	4576	3240
1850	16.9315	4576	16.9316	4576	16.9319	4576	16.9222	4576	3330
1900	17.3891	4576	17.3892	4576	17.3895	4576	17.3898	4576	3420
1950	17.8467	4576	17.8468	4576	17.8471	4576	17.8474	4576	3510
2000	18.3043	4576	18.3044	4576	18.3047	4576	18.3050	4576	3600
2050	18.7619	4576	18.7620	4576	18.7623	4576	18.7626	4576	3690
2100	19.2195	4576	19.2196	4576	19.2199	4576	19.2202	4577	3780
2150	19.6771	4576	19.6772	4576	19.6775	4576	19.6779	4576	3870
2200	20.1347	4576	20.1348	4576	20.1351	4576	20.1355	4576	3960
2250	20.5923	4576	20.5924	4576	20.5927	4576	20.5931	4576	4050
2300	21.0499	4576	21.0500	4576	21.0503	4577	21.0507	4576	4140
2350	21.5075	4576	21.5076	4576	21.5080	4576	21.5083	4576	4230
2400	21.9651	4577	21.9652	4577	21.9656	4577	21.9659	4577	4320
2450	22.4228	4576	22.4229	4576	22.4233	4576	22.4236	4576	4410
2500	22.8804	4576	22.8805	4576	22.8809	4576	22.8812	4576	4500
2550	23.3380	4576	23.3381	4576	23.3385	4576	23.3388	4576	4590
2600	23.7956	4576	23.7957	4576	23.7961	4576	23.7964	4576	4680
2650	24.2532	4576	24.2533	4576	24.2537	4576	24.2540	4576	4770
2700	24.7108	4576	24.7109	4576	24.7113	4576	24.7116	4576	4860
2750	25.1684	4576	25.1685	4576	25.1689	4576	25.1692	4576	4950
2800	25.6260	4576	25.6261	4576	25.6265	4576	25.6268	4576	5040
2850	26.0836	4576	26.0837	4576	26.0841	4576	26.0844	4576	5130
2900	26.5412	4576	26.5413	4576	26.5417	4576	26.5420	4576	5220
2950	26.9988	4576	26.9989	4576	26.9993	4576	26.9996	4576	5310
3000	27.4564		27.4565		27.4569		27.4572		5400

* The enthalpy function is divided here by a constant RT_0 where $T_0 = 273.16°K$ (491.688°R).

Table 3-4. ENTHALPY OF ARGON - Cont.* $(H-E_0^\circ)/RT_0$

°K	1 atm		4 atm		7 atm		10 atm		°R
100	.8935	949	.8220	1075	.7413	1235			180
110	.9884	941	.9295	1031	.8648	1142			198
120	1.0825	935	1.0326	1003	.9790	1082	.92	12	216
130	1.1760	931	1.1329	983	1.0872	1045	1.04	11	234
140	1.2691	928	1.2312	972	1.1917	1018	1.15	11	252
150	1.3619	925	1.3284	960	1.2935	999	1.258	104	270
160	1.4544	926	1.4244	954	1.3934	986	1.362	102	288
170	1.5470	923	1.5198	948	1.4920	975	1.464	100	306
180	1.6393	922	1.6146	943	1.5895	965	1.564	99	324
190	1.7315	921	1.7089	940	1.6860	959	1.663	98	342
200	1.8236	921	1.8029	937	1.7819	954	1.7606	973	360
210	1.9157	920	1.8966	934	1.8773	949	1.8579	963	378
220	2.0077	919	1.9900	932	1.9722	945	1.9542	960	396
230	2.0996	919	2.0832	930	2.0667	942	2.0502	953	414
240	2.1915	918	2.1762	928	2.1609	939	2.1455	951	432
250	2.2833	919	2.2690	930	2.2548	939	2.2406	947	450
260	2.3752	918	2.3620	926	2.3487	934	2.3353	944	468
270	2.4670	917	2.4546	925	2.4421	934	2.4297	941	486
280	2.5587	918	2.5471	925	2.5355	932	2.5238	939	504
290	2.6505	917	2.6396	923	2.6287	930	2.6177	937	522
300	2.7422	918	2.7319	924	2.7217	930	2.7114	936	540
310	2.8340	917	2.8243	923	2.8147	928	2.8050	934	558
320	2.9257	916	2.9166	922	2.9075	927	2.8984	932	576
330	3.0173	917	3.0088	921	3.0002	926	2.9916	932	594
340	3.1090	918	3.1009	922	3.0928	927	3.0848	932	612
350	3.2008	916	3.1931	921	3.1855	925	3.1780	929	630
360	3.2924	916	3.2852	920	3.2780	925	3.2709	928	648
370	3.3840	917	3.3772	920	3.3705	924	3.3637	927	666
380	3.4757	916	3.4692	920	3.4629	923	3.4564	927	684
390	3.5673	917	3.5612	920	3.5552	924	3.5491	927	702
400	3.6590	916	3.6532	920	3.6476	922	3.6418	926	720
410	3.7506	916	3.7452	918	3.7398	922	3.7344	925	738
420	3.8422	916	3.8370	919	3.8320	922	3.8269	924	756
430	3.9338	916	3.9289	919	3.9242	921	3.9193	924	774
440	4.0254	917	4.0208	919	4.0163	922	4.0117	924	792
450	4.1171	915	4.1127	918	4.1085	920	4.1041	923	810
460	4.2086	916	4.2045	918	4.2005	921	4.1964	923	828
470	4.3002	916	4.2963	918	4.2926	920	4.2887	922	846
480	4.3918	917	4.3881	919	4.3846	921	4.3809	923	864
490	4.4835	915	4.4800	918	4.4767	919	4.4732	922	882
500	4.5750	916	4.5718	917	4.5686	920	4.5654	921	900
510	4.6666	915	4.6635	918	4.6606	919	4.6575	921	918
520	4.7581	916	4.7553	917	4.7525	919	4.7496	921	936
530	4.8497	917	4.8470	918	4.8444	920	4.8417	922	954
540	4.9414	915	4.9388	917	4.9364	919	4.9339	920	972
550	5.0329	916	5.0305	918	5.0283	917	5.0259	920	990
560	5.1245	915	5.1223	916	5.1200	919	5.1179	920	1008
570	5.2160	916	5.2139	917	5.2119	918	5.2099	920	1026
580	5.3076	916	5.3056	918	5.3037	919	5.3019	920	1044
590	5.3992	915	5.3974	917	5.3956	918	5.3939	920	1062
600	5.4907	916	5.4891	917	5.4874	918	5.4859	919	1080
610	5.5823	915	5.5808	916	5.5792	918	5.5778	919	1098
620	5.6738	917	5.6724	918	5.6710	919	5.6697	920	1116
630	5.7655	915	5.7642	916	5.7629	918	5.7617	919	1134
640	5.8570	915	5.8558	917	5.8547	917	5.8536	919	1152
650	5.9485	916	5.9475	916	5.9464	918	5.9455	918	1170
660	6.0401	915	6.0391	917	6.0382	917	6.0373	919	1188
670	6.1316	916	6.1308	917	6.1299	918	6.1292	919	1206
680	6.2232	916	6.2225	916	6.2217	918	6.2211	918	1224
690	6.3148	915	6.3141	916	6.3135	917	6.3129	918	1242
700	6.4063		6.4057		6.4052		6.4047		1260

* The enthalpy function is divided here by a constant RT_0 where $T_0 = 273.16^\circ K$ (491.688°R).

Table 3-4. ENTHALPY OF ARGON - Cont.* $(H-E_0^o)/RT_0$

°K	1 atm		4 atm		7 atm		10 atm		°R
700	6.4063	915	6.4057	917	6.4052	917	6.4047	918	1260
710	6.4978	916	6.4974	916	6.4969	917	6.4965	918	1278
720	6.5894	916	6.5890	917	6.5886	918	6.5883	919	1296
730	6.6810	915	6.6807	916	6.6804	917	6.6802	918	1314
740	6.7725	916	6.7723	916	6.7721	917	6.7720	917	1332
750	6.8641	915	6.8639	916	6.8638	917	6.8637	918	1350
760	6.9556	916	6.9555	917	6.9555	917	6.9555	918	1368
770	7.0472	915	7.0472	916	7.0472	917	7.0473	918	1386
780	7.1387	916	7.1388	916	7.1389	917	7.1391	917	1404
790	7.2303	915	7.2304	916	7.2306	916	7.2308	918	1422
800	7.3218	9154	7.3220	9160	7.3222	9166	7.3226	9170	1440
900	8.2372	9153	8.2380	9158	8.2388	9163	8.2396	9168	1620
1000	9.1525	9154	9.1538	9158	9.1551	9161	9.1564	9165	1800
1100	10.0679	9153	10.0696	9156	10.0712	9159	10.0729	9162	1980
1200	10.9832	9153	10.9852	9155	10.9871	9158	10.9891	9160	2160
1300	11.8985	9153	11.9007	9155	11.9029	9157	11.9051	9159	2340
1400	12.8138	9153	12.8162	9154	12.8186	9156	12.8210	9157	2520
1500	13.7291	9152	13.7316	9154	13.7342	9155	13.7367	9157	2700
1600	14.6443	9152	14.6470	9154	14.6497	9155	14.6524	9156	2880
1700	15.5595	9154	15.5624	9154	15.5652	9156	15.5680	9157	3060
1800	16.4749	9152	16.4778	9153	16.4808	9154	16.4837	9155	3240
1900	17.3901	9152	17.3931	9154	17.3962	9154	17.3992	9155	3420
2000	18.3053	9153	18.3085	9153	18.3116	9153	18.3147	9154	3600
2100	19.2206	9152	19.2238	9152	19.2269	9154	19.2301	9155	3780
2200	20.1358	9152	20.1390	9153	20.1423	9153	20.1456	9153	3960
2300	21.0510	9152	21.0543	9153	21.0576	9153	21.0609	9154	4140
2400	21.9662	9153	21.9696	9153	21.9729	9155	21.9763	9155	4320
2500	22.8815	9152	22.8849	9153	22.8884	9152	22.8918	9153	4500
2600	23.7967	9153	23.8002	9152	23.8036	9153	23.8071	9153	4680
2700	24.7120	9152	24.7154	9153	24.7189	9153	24.7224	9153	4860
2800	25.6272	9152	25.6307	9152	25.6342	9153	25.6377	9153	5040
2900	26.5424	9152	26.5459	9153	26.5495	9152	26.5530	9153	5220
3000	27.4576		27.4612		27.4647		27.4683		5400

*The enthalpy function is divided here by a constant RT_0 where T_0 = 273.16°K (491.688°R).

Table 3-4. ENTHALPY OF ARGON - Cont.* $(H-E_0^0)/RT_0$

°K	10 atm		40 atm		70 atm		100 atm		°R
200	1.7606	973	1.53	12	1.3	1			360
210	1.8579	963	1.65	12	1.4	2			378
220	1.9542	960	1.77	11	1.6	1			396
230	2.0502	953	1.88	11	1.7	1			414
240	2.1455	951	1.99	11	1.8	2			432
250	2.2406	947	2.096	106	1.95	12	1.81	13	450
260	2.3353	944	2.202	103	2.07	12	1.94	12	468
270	2.4297	941	2.305	103	2.19	10	2.06	12	486
280	2.5238	939	2.408	101	2.29	11	2.18	12	504
290	2.6177	937	2.509	101	2.40	11	2.30	12	522
300	2.7114	936	2.610	100	2.512	108	2.42	12	540
310	2.8050	934	2.710	100	2.620	106	2.54	11	558
320	2.8984	932	2.810	98	2.726	104	2.65	11	576
330	2.9916	932	2.908	98	2.830	103	2.76	10	594
340	3.0848	932	3.006	98	2.933	101	2.86	11	612
350	3.1780	929	3.104	97	3.034	101	2.97	10	630
360	3.2709	928	3.201	96	3.135	100	3.07	11	648
370	3.3637	927	3.297	97	3.235	101	3.18	10	666
380	3.4564	927	3.394	96	3.336	99	3.28	10	684
390	3.5491	927	3.490	96	3.435	98	3.38	10	702
400	3.6418	926	3.586	96	3.533	99	3.480	104	720
410	3.7344	925	3.682	96	3.632	98	3.584	102	738
420	3.8269	924	3.778	95	3.730	99	3.686	101	756
430	3.9193	924	3.873	95	3.829	97	3.787	100	774
440	4.0117	924	3.968	95	3.926	98	3.887	100	792
450	4.1041	923	4.063	94	4.024	97	3.987	99	810
460	4.1964	923	4.157	95	4.121	96	4.086	99	828
470	4.2887	922	4.252	94	4.217	97	4.185	99	846
480	4.3809	923	4.346	95	4.314	96	4.284	98	864
490	4.4732	922	4.441	94	4.410	96	4.382	98	882
500	4.5654	921	4.535	94	4.506	96	4.480	97	900
510	4.6575	921	4.629	94	4.602	96	4.577	98	918
520	4.7496	921	4.723	93	4.698	95	4.675	97	936
530	4.8417	922	4.816	94	4.793	96	4.772	97	954
540	4.9339	920	4.910	94	4.889	95	4.869	96	972
550	5.0259	920	5.004	93	4.984	95	4.965	97	990
560	5.1179	920	5.097	94	5.079	94	5.062	96	1008
570	5.2099	920	5.191	93	5.173	95	5.158	96	1026
580	5.3019	920	5.284	94	5.268	95	5.254	96	1044
590	5.3939	920	5.378	93	5.363	94	5.350	95	1062
600	5.4859	919	5.471	93	5.457	95	5.445	96	1080
610	5.5778	919	5.564	93	5.552	94	5.541	95	1098
620	5.6697	920	5.657	93	5.646	94	5.636	96	1116
630	5.7617	919	5.750	93	5.740	94	5.732	95	1134
640	5.8536	919	5.843	93	5.834	94	5.827	95	1152
650	5.9455	918	5.936	93	5.928	94	5.922	94	1170
660	6.0373	919	6.029	93	6.022	94	6.016	95	1188
670	6.1292	919	6.122	92	6.116	94	6.111	95	1206
680	6.2211	918	6.214	93	6.210	93	6.206	94	1224
690	6.3129	918	6.307	93	6.303	94	6.300	95	1242
700	6.4047		6.400		6.397		6.395		1260

* The enthalpy function is divided here by a constant RT_0 where T_0 = 273.16°K (491.688°R).

Table 3-4. ENTHALPY OF ARGON - Cont.* $(H-E_0^o)/RT_0$

°K	10 atm		40 atm		70 atm		100 atm		°R
700	6.4047	918	6.400	93	6.397	93	6.395	94	1260
710	6.4965	918	6.493	92	6.490	94	6.489	94	1278
720	6.5883	919	6.585	93	6.584	93	6.583	95	1296
730	6.6802	918	6.678	93	6.677	94	6.678	94	1314
740	6.7720	917	6.771	92	6.771	93	6.772	94	1332
750	6.8637	918	6.863	93	6.864	93	6.866	94	1350
760	6.9555	918	6.956	92	6.957	93	6.960	93	1368
770	7.0473	918	7.048	93	7.050	94	7.053	94	1386
780	7.1391	917	7.141	92	7.144	93	7.147	94	1404
790	7.2308	918	7.233	93	7.237	93	7.241	94	1422
800	7.3226	9170	7.326	923	7.330	928	7.335	933	1440
900	8.2396	9168	8.249	921	8.258	926	8.268	930	1620
1000	9.1564	9165	9.170	920	9.184	923	9.198	927	1800
1100	10.0729	9162	10.090	919	10.107	922	10.125	924	1980
1200	10.9891	9160	11.009	918	11.029	921	11.049	923	2160
1300	11.9051	9159	11.927	918	11.950	919	11.972	922	2340
1400	12.8210	9157	12.845	918	12.869	919	12.894	921	2520
1500	13.7367	9157	13.763	917	13.788	919	13.815	920	2700
1600	14.6524	9156	14.680	917	14.707	918	14.735	919	2880
1700	15.5680	9157	15.597	916	15.625	918	15.654	918	3060
1800	16.4837	9155	16.513	917	16.543	917	16.572	919	3240
1900	17.3992	9155	17.430	916	17.460	917	17.491	918	3420
2000	18.3147	9154	18.346	916	18.377	917	18.409	917	3600
2100	19.2301	9155	19.262	916	19.294	917	19.326	917	3780
2200	20.1456	9153	20.178	916	20.211	916	20.243	917	3960
2300	21.0609	9154	21.094	916	21.127	917	21.160	917	4140
2400	21.9763	9155	22.010	916	22.044	916	22.077	917	4320
2500	22.8918	9153	22.926	916	22.960	916	22.994	917	4500
2600	23.8071	9153	23.842	915	23.876	916	23.911	916	4680
2700	24.7224	9153	24.757	916	24.792	916	24.827	916	4860
2800	25.6377	9153	25.673	916	25.708	916	25.743	916	5040
2900	26.5530	9153	26.589	915	26.624	916	26.659	916	5220
3000	27.4683		27.504		27.540		27.575		5400

* The enthalpy function is divided here by a constant RT_0 where $T_0 = 273.16^oK$ (491.688°R).

Table 3-5. ENTROPY OF ARGON

S/R

°K	.01 atm		.1 atm		.4 atm		.7 atm		°R
100	20.4852	2384	18.1793	2392	16.7818	2417	16.2108	2444	180
110	20.7236	2176	18.4185	2180	17.0235	2199	16.4552	2217	198
120	20.9412	2001	18.6365	2006	17.2434	2018	16.6769	2031	216
130	21.1413	1853	18.8371	1856	17.4452	1866	16.8800	1875	234
140	21.3266	1726	19.0227	1727	17.6318	1735	17.0675	1743	252
150	21.4992	1613	19.1954	1615	17.8053	1620	17.2418	1626	270
160	21.6605	1516	19.3569	1518	17.9673	1522	17.4044	1527	288
170	21.8121	1429	19.5087	1430	18.1195	1434	17.5571	1438	306
180	21.9550	1352	19.6517	1353	18.2629	1356	17.7009	1359	324
190	22.0902	1282	19.7870	1283	18.3985	1285	17.8368	1287	342
200	22.2184	1220	19.9153	1220	18.5270	1223	17.9655	1225	360
210	22.3404	1163	20.0373	1164	18.6493	1166	18.0880	1167	378
220	22.4567	1112	20.1537	1111	18.7659	1113	18.2047	1115	396
230	22.5679	1064	20.2648	1065	18.8772	1065	18.3162	1067	414
240	22.6743	1020	20.3713	1020	18.9837	1022	18.4229	1023	432
250	22.7763	981	20.4733	982	19.0859	982	18.5252	983	450
260	22.8744	944	20.5715	944	19.1841	945	18.6235	946	468
270	22.9688	909	20.6659	909	19.2786	910	18.7181	911	486
280	23.0597	877	20.7568	877	19.3696	878	18.8092	878	504
290	23.1474	848	20.8445	849	19.4574	849	18.8970	850	522
300	23.2322	819	20.9294	819	19.5423	820	18.9820	820	540
310	23.3141	794	21.0113	794	19.6243	794	19.0640	795	558
320	23.3935	769	21.0907	769	19.7037	770	19.1435	770	576
330	23.4704	747	21.1676	747	19.7807	748	19.2205	748	594
340	23.5451	724	21.2423	724	19.8555	724	19.2953	725	612
350	23.6175	705	21.3147	705	19.9279	705	19.3678	706	630
360	23.6880	685	21.3852	685	19.9984	686	19.4384	685	648
370	23.7565	666	21.4537	667	20.0670	666	19.5069	667	666
380	23.8231	650	21.5204	650	20.1336	651	19.5736	650	684
390	23.8881	633	21.5854	633	20.1987	633	19.6386	634	702
400	23.9514	617	21.6487	617	20.2620	617	19.7020	618	720
410	24.0131	602	21.7104	602	20.3237	602	19.7638	602	738
420	24.0733	589	21.7706	589	20.3839	590	19.8240	589	756
430	24.1322	574	21.8295	574	20.4429	574	19.8829	575	774
440	24.1896	562	21.8869	562	20.5003	562	19.9404	562	792
450	24.2458	550	21.9431	550	20.5565	550	19.9966	550	810
460	24.3008	537	21.9981	537	50.6115	537	20.0516	538	828
470	24.3545	527	22.0518	527	20.6652	528	20.1054	527	846
480	24.4072	515	22.1045	515	20.7180	515	20.1581	515	864
490	24.4587	505	22.1560	505	20.7695	505	20.2096	506	882
500	24.5092	495	22.2065	495	20.8200	495	20.2602	495	900
510	24.5587	486	22.2560	486	20.8695	486	20.3097	486	918
520	24.6073	476	22.3046	476	20.9181	476	20.3583	476	936
530	24.6549	467	22.3522	467	20.9657	467	20.4059	468	954
540	24.7016	459	22.3989	459	21.0124	460	20.4527	459	972
550	24.7475	450	22.4448	450	21.0584	450	20.4986	450	990
560	24.7925	443	22.4898	443	21.1034	443	20.5436	443	1008
570	24.8368	435	22.5341	435	21.1477	435	20.5879	435	1026
580	24.8803	427	22.5776	427	21.1912	427	20.6314	427	1044
590	24.9230	420	22.6203	420	21.2339	420	20.6741	420	1062
600	24.9650	413	22.6623	414	21.2759	413	20.7161	414	1080
610	25.0063	407	22.7037	407	21.3172	407	20.7575	407	1098
620	25.0470	400	22.7444	400	21.3579	400	20.7982	400	1116
630	25.0870	394	22.7844	394	21.3979	394	20.8382	394	1134
640	25.1264	387	22.8238	387	21.4373	387	20.8776	387	1152
650	25.1651	382	22.8625	382	21.4760	382	20.9163	382	1170
660	25.2033	376	22.9007	376	21.5142	376	20.9545	376	1188
670	25.2409	370	22.9383	370	21.5518	371	20.9921	370	1206
680	25.2779	365	22.9753	365	21.5889	365	21.0291	365	1224
690	25.3144	360	23.0118	360	21.6254	360	21.0656	361	1242
700	25.3504		23.0478		21.6614		21.1017		1260

°K	.01 atm		.1 atm		.4 atm		.7 atm		°R
700	25.3504	355	23.0478	355	21.6614	355	21.1017	355	1260
710	25.3859	349	23.0833	349	21.6969	349	21.1372	349	1278
720	25.4208	345	23.1182	345	21.7318	345	21.1721	345	1296
730	25.4553	340	23.1527	340	21.7663	340	21.2066	340	1314
740	25.4893	336	23.1867	336	21.8003	336	21.2406	336	1332
750	25.5229	331	23.2203	331	21.8339	331	21.2742	331	1350
760	25.5560	327	23.2534	327	21.8670	327	21.3073	327	1368
770	25.5887	322	23.2861	322	21.8997	322	21.3400	322	1386
780	25.6209	319	23.3183	319	21.9319	319	21.3722	319	1404
790	25.6528	314	23.3502	314	21.9638	314	21.4041	314	1422
800	25.6842	1516	23.3816	1516	21.9952	1516	21.4355	1516	1440
850	25.8358	1429	23.5332	1429	22.1468	1429	21.5871	1430	1530
900	25.9787	1352	23.6761	1352	22.2897	1352	21.7301	1352	1620
950	26.1139	1282	23.8113	1282	22.4249	1282	21.8653	1282	1710
1000	26.2421	1220	23.9395	1220	22.5531	1220	21.9935	1220	1800
1050	26.3641	1163	24.0615	1163	22.6751	1164	22.1155	1163	1890
1100	26.4804	1111	24.1778	1111	22.7915	1111	22.2318	1111	1980
1150	26.5915	1064	24.2889	1064	22.9026	1064	22.3429	1064	2070
1200	26.6979	1020	24.3953	1020	23.0090	1020	22.4493	1020	2160
1250	26.7999	981	24.4973	981	23.1110	981	22.5513	981	2250
1300	26.8980	943	24.5954	943	23.2091	943	22.6494	944	2340
1350	26.9923	910	24.6897	910	23.3034	910	22.7438	910	2430
1400	27.0833	877	24.7807	877	23.3944	877	22.8348	877	2520
1450	27.1710	847	24.8684	847	23.4821	847	22.9225	847	2610
1500	27.2557	820	24.9531	820	23.5668	820	23.0072	820	2700
1550	27.3377	794	25.0351	794	23.6488	794	23.0892	794	2790
1600	27.4171	769	25.1145	769	23.7282	769	23.1686	769	2880
1650	27.4940	747	25.1914	747	23.8051	747	23.2455	747	2970
1700	27.5687	724	25.2661	724	23.8798	724	23.3202	724	3060
1750	27.6411	705	25.3385	705	23.9522	705	23.3926	705	3150
1800	27.7116	684	25.4090	684	24.0227	684	23.4631	684	3240
1850	27.7800	667	25.4774	667	24.0911	667	23.5315	667	3330
1900	27.8467	650	25.5441	650	24.1578	650	23.5982	650	3420
1950	27.9117	633	25.6091	633	24.2228	633	23.6632	633	3510
2000	27.9750	617	25.6724	617	24.2861	617	23.7265	617	3600
2050	28.0367	602	25.7341	602	24.3478	602	23.7882	602	3690
2100	28.0969	589	25.7943	589	24.4080	589	23.8484	589	3780
2150	28.1558	574	25.8532	574	24.4669	574	23.9073	574	3870
2200	28.2132	562	25.9106	562	24.5243	562	23.9647	562	3960
2250	28.2694	550	25.9668	550	24.5805	550	24.0209	550	4050
2300	28.3244	537	26.0218	537	24.6355	537	24.0759	537	4140
2350	28.3781	527	26.0755	527	24.6892	527	24.1296	527	4230
2400	28.4308	515	26.1282	515	24.7419	515	24.1823	515	4320
2450	28.4823	505	26.1797	505	24.7934	505	24.2338	505	4410
2500	28.5328	495	26.2302	495	24.8439	495	24.2843	495	4500
2550	28.5823	486	26.2797	486	24.8934	486	24.3338	486	4590
2600	28.6309	476	26.3283	476	24.9420	476	24.3824	476	4680
2650	28.6785	467	26.3759	467	24.9896	467	24.4300	467	4770
2700	28.7252	459	26.4226	459	25.0363	459	24.4767	459	4860
2750	28.7711	450	26.4685	450	25.0822	450	24.5226	450	4950
2800	28.8161	443	26.5135	443	25.1272	443	24.5676	443	5040
2850	28.8604	435	26.5578	435	25.1715	435	24.6119	435	5130
2900	28.9039	427	26.6013	427	25.2150	427	24.6554	427	5220
2950	28.9466	420	26.6440	420	25.2577	420	24.6981	420	5310
3000	28.9886		26.6860		25.2997		24.7401		5400

Table 3-5. ENTROPY OF ARGON - Cont.

S/R

°K	1 atm		4 atm		7 atm		10 atm		°R
100	15.8425	2472	14.328	280	13.620	322			180
110	16.0897	2235	14.608	245	13.942	271			198
120	16.3132	2045	14.853	220	14.213	237	13.77	26	216
130	16.5177	1885	15.073	199	14.450	211	14.03	22	234
140	16.7062	1750	15.272	183	14.661	192	14.25	20	252
150	16.8812	1632	15.455	169	14.853	177	14.453	183	270
160	17.0444	1531	15.624	158	15.030	163	14.636	169	288
170	17.1975	1442	15.782	148	15.193	152	14.805	157	306
180	17.3417	1362	15.930	140	15.345	142	14.962	146	324
190	17.4779	1290	16.070	131	15.487	135	15.108	137	342
200	17.6069	1227	16.2012	1249	15.6218	1271	15.2450	1294	360
210	17.7296	1169	16.3261	1186	15.7489	1206	15.3744	1226	378
220	17.8465	1116	16.4447	1132	15.8695	1148	15.4970	1165	396
230	17.9581	1068	16.5579	1082	15.9843	1095	15.6135	1109	414
240	18.0649	1024	16.6661	1035	16.0938	1047	15.7244	1059	432
250	18.1673	984	16.7696	995	16.1985	1008	15.8303	1013	450
260	18.2657	947	16.8691	955	16.2990	965	15.9318	974	468
270	18.3604	912	16.9646	920	16.3955	926	16.0292	935	486
280	18.4516	879	17.0566	886	16.4881	894	16.1227	900	504
290	18.5395	850	17.1452	856	16.5775	862	16.2127	868	522
300	18.6245	821	17.2308	826	16.6637	832	16.2995	838	540
310	18.7066	796	17.3134	800	16.7469	805	16.3833	810	558
320	18.7862	770	17.3934	775	16.8274	779	16.4643	784	576
330	18.8632	748	17.4709	753	16.9053	757	16.5427	760	594
340	18.9380	726	17.5462	728	16.9810	732	16.6187	736	612
350	19.0106	706	17.6190	710	17.0542	713	16.6923	716	630
360	19.0812	686	17.6900	689	17.1255	692	16.7639	695	648
370	19.1498	667	17.7589	669	17.1947	672	16.8334	675	666
380	19.2165	650	17.8258	654	17.2619	656	16.9009	658	684
390	19.2815	634	17.8912	636	17.3275	638	16.9667	641	702
400	19.3449	618	17.9548	620	17.3913	622	17.0308	624	720
410	19.4067	603	18.0168	604	17.4535	607	17.0932	608	738
420	19.4670	589	18.0772	592	17.5142	593	17.1540	595	756
430	19.5259	575	18.1364	576	17.5735	578	17.2135	580	774
440	19.5834	562	18.1940	564	17.6313	565	17.2715	567	792
450	19.6396	551	18.2504	552	17.6878	554	17.3282	555	810
460	19.6947	537	18.3056	539	17.7432	540	17.3837	541	828
470	19.7484	528	18.3595	528	17.7972	530	17.4378	532	846
480	19.8012	515	18.4123	517	17.8502	518	17.4910	519	864
490	19.8527	505	18.4640	506	17.9020	507	17.5429	508	882
500	19.9032	496	18.5146	497	17.9527	498	17.5937	499	900
510	19.9528	486	18.5643	487	18.0025	488	17.6436	489	918
520	20.0014	476	18.6130	477	18.0513	478	17.6925	479	936
530	20.0490	468	18.6607	468	18.0991	469	17.7404	470	954
540	20.0958	459	18.7075	460	18.1460	461	17.7874	461	972
550	20.1417	450	18.7535	451	18.1921	452	17.8335	453	990
560	20.1867	443	18.7986	444	18.2373	444	17.8788	445	1008
570	20.2310	436	18.8430	436	18.2817	437	17.9233	438	1026
580	20.2746	427	18.8866	428	18.3254	428	17.9671	429	1044
590	20.3173	420	18.9294	421	18.3682	422	18.0100	422	1062
600	20.3593	413	18.9715	414	18.4104	414	18.0522	415	1080
610	20.4006	408	19.0129	407	18.4518	408	18.0937	408	1098
620	20.4414	400	19.0536	401	18.4926	402	18.1345	402	1116
630	20.4814	394	19.0937	395	18.5328	395	18.1747	396	1134
640	20.5208	387	19.1332	387	18.5723	388	18.2143	388	1152
650	20.5595	382	19.1719	383	18.6111	383	18.2531	384	1170
660	20.5977	376	19.2102	377	18.6494	377	18.2915	377	1188
670	20.6353	370	19.2479	370	18.6871	371	18.3292	372	1206
680	20.6723	365	19.2849	366	18.7242	366	18.3664	366	1224
690	20.7088	361	19.3215	360	18.7608	361	18.4030	361	1242
700	20.7449		19.3575		18.7969		18.4391		1260

°K	1 atm		4 atm		7 atm		10 atm		°R
700	20.7449	355	19.3575	355	18.7969	355	18.4391	356	1260
710	20.7804	349	19.3930	350	18.8324	350	18.4747	350	1278
720	20.8153	345	19.4280	345	18.8674	346	18.5097	346	1296
730	20.8498	340	19.4625	341	18.9020	341	18.5443	341	1314
740	20.8838	336	19.4966	336	18.9361	336	18.5784	337	1332
750	20.9174	331	19.5302	332	18.9697	332	18.6121	332	1350
760	20.9505	327	19.5634	327	19.0029	328	18.6453	328	1368
770	20.9832	322	19.5961	322	19.0357	322	18.6781	323	1386
780	21.0154	319	19.6283	320	19.0679	320	18.7104	320	1404
790	21.0473	314	19.6603	314	19.0999	314	18.7424	315	1422
800	21.0787	1517	19.6917	1517	19.1313	1519	18.7739	1519	1440
850	21.2304	1429	19.8434	1430	19.2832	1431	18.9258	1432	1530
900	21.3733	1352	19.9864	1353	19.4263	1353	19.0690	1354	1620
950	21.5085	1283	20.1217	1283	19.5616	1284	19.2044	1284	1710
1000	21.6368	1220	20.2500	1221	19.6900	1221	19.3328	1222	1800
1050	21.7588	1163	20.3721	1163	19.8121	1164	19.4550	1165	1890
1100	21.8751	1111	20.4884	1112	19.9285	1112	19.5715	1112	1980
1150	21.9862	1064	20.5996	1064	20.0397	1065	19.6827	1065	2070
1200	22.0926	1020	20.7060	1021	20.1462	1020	19.7892	1021	2160
1250	22.1946	981	20.8081	981	20.2482	982	19.8913	982	2250
1300	22.2927	943	20.9062	943	20.3464	944	19.9895	944	2340
1350	22.3870	910	21.0005	911	20.4408	910	20.0839	910	2430
1400	22.4780	877	21.0916	877	20.5318	877	20.1749	878	2520
1450	22.5657	848	21.1793	847	20.6195	848	20.2627	847	2610
1500	22.6505	820	21.2640	820	20.7043	820	20.3474	821	2700
1550	22.7325	794	21.3460	794	20.7863	794	20.4295	794	2790
1600	22.8119	769	21.4254	770	20.8657	770	20.5089	769	2880
1650	22.8888	747	21.5024	747	20.9427	747	20.5858	748	2970
1700	22.9635	724	21.5771	724	21.0174	724	20.6606	724	3060
1750	23.0359	705	21.6495	705	21.0898	705	20.7330	705	3150
1800	23.1064	684	21.7200	684	21.1603	684	20.8035	685	3240
1850	23.1748	667	21.7884	667	21.2287	668	20.8720	667	3330
1900	23.2415	650	21.8551	650	21.2955	650	20.9387	650	3420
1950	23.3065	633	21.9201	633	21.3605	633	21.0037	633	3510
2000	23.3698	617	21.9834	617	21.4238	617	21.0670	617	3600
2050	23.4315	602	22.0451	602	21.4855	602	21.1287	603	3690
2100	23.4917	589	22.1053	589	21.5457	589	21.1890	589	3780
2150	23.5506	574	22.1642	575	21.6046	574	21.2479	574	3870
2200	23.6080	562	22.2217	562	21.6620	562	21.3053	562	3960
2250	23.6642	550	22.2779	550	21.7182	550	21.3615	550	4050
2300	23.7192	537	22.3329	537	21.7732	537	21.4165	537	4140
2350	23.7729	527	22.3866	527	21.8269	528	21.4702	527	4230
2400	23.8256	515	22.4393	515	21.8797	515	21.5229	515	4320
2450	23.8771	505	22.4908	505	21.9312	505	21.5744	505	4410
2500	23.9276	495	22.5413	495	21.9817	495	21.6249	495	4500
2550	23.9771	486	22.5908	486	22.0312	486	21.6744	487	4590
2600	24.0257	476	22.6394	476	22.0798	476	21.7231	476	4680
2650	24.0733	467	22.6870	467	22.1274	467	21.7707	467	4770
2700	24.1200	459	22.7337	459	22.1741	459	21.8174	459	4860
2750	24.1659	450	22.7796	450	22.2200	450	21.8633	450	4950
2800	24.2109	443	22.8246	443	22.2650	443	21.9083	443	5040
2850	24.2552	435	22.8689	435	22.3093	435	21.9526	435	5130
2900	24.2987	427	22.9124	427	22.3528	427	21.9961	427	5220
2950	24.3414	420	22.9551	420	22.3955	420	22.0388	420	5310
3000	24.3834		22.9971		22.4375		22.0808		5400

Table 3-5. ENTROPY OF ARGON - Cont. S/R

°K	10 atm		40 atm		70 atm		100 atm		°R
120	13.77	26	11.1	6					216
130	14.03	22	11.7	5					234
140	14.25	20	12.2	3					252
150	14.453	183	12.5	3	11.2	5			270
160	14.636	169	12.8	3	11.7	3			288
170	14.805	157	13.1	2	12.0	3			306
180	14.962	146	13.3	2	12.3	3	11.6	3	324
190	15.108	137	13.5	1	12.6	2	11.9	3	342
200	15.2450	1294	13.64	16	12.83	19	12.2	2	360
210	15.3744	1226	13.80	14	13.02	18	12.4	2	378
220	15.4970	1165	13.94	14	13.20	16	12.6	2	396
230	15.6135	1109	14.08	13	13.36	15	12.8	2	414
240	15.7244	1059	14.21	12	13.51	13	13.0	2	432
250	15.8303	1015	14.326	113	13.64	13	13.18	13	450
260	15.9318	974	14.439	107	13.77	12	13.31	13	468
270	16.0292	935	14.546	102	13.889	111	13.44	12	486
280	16.1227	900	14.6479	975	14.000	106	13.56	11	504
290	16.2127	868	14.7454	935	14.106	101	13.67	11	522
300	16.2995	838	14.8389	895	14.2067	952	13.781	101	540
310	16.3833	810	14.9284	862	14.3019	916	13.882	97	558
320	16.4643	784	15.0146	830	14.3935	881	13.979	94	576
330	16.5427	760	15.0976	801	14.4816	841	14.073	85	594
340	16.6187	736	15.1777	771	14.5657	802	14.158	78	612
350	16.6923	716	15.2548	748	14.6459	778	14.236	82	630
360	16.7639	695	15.3296	724	14.7237	752	14.318	79	648
370	16.8334	675	15.4020	702	14.7989	729	14.397	76	666
380	16.9009	658	15.4722	684	14.8718	711	14.473	74	684
390	16.9667	641	15.5406	661	14.9429	689	14.547	71	702
400	17.0308	624	15.6067	646	15.0118	652	14.618	68	720
410	17.0932	608	15.6713	628	15.0770	647	14.686	67	738
420	17.1540	595	15.7341	613	15.1417	631	14.753	65	756
430	17.2135	580	15.7954	596	15.2048	613	14.818	63	774
440	17.2715	567	15.8550	583	15.2661	598	14.881	61	792
450	17.3282	555	15.9133	569	15.3259	583	14.9422	597	810
460	17.3837	541	15.9702	555	15.3842	568	15.0019	581	828
470	17.4378	532	16.0257	544	15.4410	558	15.0600	570	846
480	17.4910	519	16.0801	530	15.4968	540	15.1170	551	864
490	17.5429	508	16.1331	519	15.5508	529	15.1721	540	882
500	17.5937	499	16.1850	509	15.6037	520	15.2261	529	900
510	17.6436	489	16.2359	499	15.6557	507	15.2790	516	918
520	17.6925	479	16.2858	488	15.7064	496	15.3306	505	936
530	17.7404	470	16.3346	478	15.7560	488	15.3811	495	954
540	17.7874	461	16.3824	469	15.8048	476	15.4306	483	972
550	17.8335	453	16.4293	460	15.8524	467	15.4789	475	990
560	17.8788	445	16.4753	452	15.8991	459	15.5264	465	1008
570	17.9233	438	16.5205	444	15.9450	450	15.5729	457	1026
580	17.9671	429	16.5649	435	15.9900	441	15.6186	446	1044
590	18.0100	422	16.6084	429	16.0341	435	15.6632	440	1062
600	18.0522	415	16.6513	420	16.0776	425	15.7072	431	1080
610	18.0937	408	16.6933	414	16.1201	419	15.7503	424	1098
620	18.1345	402	16.7347	407	16.1620	411	15.7927	416	1116
630	18.1747	396	16.7754	400	16.2031	406	15.8343	409	1134
640	18.2143	388	16.8154	394	16.2437	397	15.8752	402	1152
650	18.2531	384	16.8548	387	16.2834	392	15.9154	395	1170
660	18.2915	377	16.8935	382	16.3226	386	15.9549	391	1188
670	18.3292	372	16.9317	374	16.3612	378	15.9940	382	1206
680	18.3664	366	16.9691	371	16.3990	374	16.0322	377	1224
690	18.4030	361	17.0062	364	16.4364	368	16.0699	371	1242
700	18.4391		17.0426		16.4732		16.1070		1260

Table 3-5. ENTROPY OF ARGON - Cont. S/R

°K	10 atm		40 atm		70 atm		100 atm		°R
700	18.4391	356	17.0426	360	16.4732	362	16.1070	366	1260
710	18.4747	350	17.0786	354	16.5094	358	16.1436	360	1278
720	18.5097	346	17.1140	349	16.5452	351	16.1796	354	1296
730	18.5443	341	17.1489	344	16.5803	347	16.2150	350	1314
740	18.5784	337	17.1833	340	16.6150	343	16.2500	345	1332
750	18.6121	332	17.2173	334	16.6493	336	16.2845	339	1350
760	18.6453	328	17.2507	330	16.6829	333	16.3184	336	1368
770	18.6781	323	17.2837	325	16.7162	329	16.3520	330	1386
780	18.7104	320	17.3162	323	16.7491	324	16.3850	327	1404
790	18.7424	315	17.3485	317	16.7815	319	16.4177	321	1422
800	18.7739	1519	17.3802	1530	16.8134	1539	16.4498	1549	1440
850	18.9258	1432	17.5332	1440	16.9673	1449	16.6047	1456	1530
900	19.0690	1354	17.6772	1361	17.1122	1368	16.7503	1375	1620
950	19.2044	1284	17.8133	1290	17.2490	1295	16.8878	1301	1710
1000	19.3328	1222	17.9423	1227	17.3785	1232	17.0179	1236	1800
1050	19.4550	1165	18.0650	1169	17.5017	1173	17.1415	1177	1890
1100	19.5715	1112	18.1819	1116	17.6190	1120	17.2592	1123	1980
1150	19.6827	1065	18.2935	1068	17.7310	1071	17.3715	1074	2070
1200	19.7892	1021	18.4003	1023	17.8381	1026	17.4789	1029	2160
1250	19.8913	982	18.5026	984	17.9407	987	17.5818	989	2250
1300	19.9895	944	18.6010	946	18.0394	948	17.6807	950	2340
1350	20.0839	910	18.6956	913	18.1342	914	17.7757	916	2430
1400	20.1749	878	18.7869	879	18.2256	882	17.8673	883	2520
1450	20.2627	847	18.8748	849	18.3138	850	17.9556	852	2610
1500	20.3474	821	18.9597	822	18.3988	822	18.0408	823	2700
1550	20.4295	794	19.0419	795	18.4810	797	18.1231	798	2790
1600	20.5089	769	19.1214	771	18.5607	771	18.2029	773	2880
1650	20.5858	748	19.1985	748	18.6378	750	18.2802	750	2970
1700	20.6606	724	19.2733	725	18.7128	726	18.3552	727	3060
1750	20.7330	705	19.3458	707	18.7854	707	18.4279	708	3150
1800	20.8035	685	19.4165	685	18.8561	686	18.4987	687	3240
1850	20.8720	667	19.4850	668	18.9247	668	18.5674	669	3330
1900	20.9387	650	19.5518	650	18.9915	652	18.6343	652	3420
1950	21.0037	633	19.6168	634	19.0567	634	18.6995	635	3510
2000	21.0670	617	19.6802	618	19.1201	618	18.7630	617	3600
2050	21.1287	603	19.7420	602	19.1819	603	18.8247	604	3690
2100	21.1890	589	19.8022	590	19.2422	590	18.8851	590	3780
2150	21.2479	574	19.8612	575	19.3012	575	18.9441	576	3870
2200	21.3053	562	19.9187	562	19.3587	563	19.0017	563	3960
2250	21.3615	550	19.9749	550	19.4150	551	19.0580	551	4050
2300	21.4165	537	20.0299	538	19.4701	537	19.1131	538	4140
2350	21.4702	527	20.0837	527	19.5238	528	19.1669	528	4230
2400	21.5229	515	20.1364	516	19.5766	516	19.2197	516	4320
2450	21.5744	505	20.1880	505	19.6282	505	19.2713	505	4410
2500	21.6249	495	20.2385	495	19.6787	495	19.3218	496	4500
2550	21.6744	487	20.2880	486	19.7282	487	19.3714	487	4590
2600	21.7231	476	20.3366	477	19.7769	477	19.4201	477	4680
2650	21.7707	467	20.3843	467	19.8246	467	19.4678	467	4770
2700	21.8174	459	20.4310	459	19.8713	460	19.5145	460	4860
2750	21.8633	450	20.4769	450	19.9173	450	19.5605	450	4950
2800	21.9083	443	20.5219	444	19.9623	443	19.6055	444	5040
2850	21.9526	435	20.5663	435	20.0066	435	19.6499	435	5130
2900	21.9961	427	20.6098	427	20.0501	428	19.6934	428	5220
2950	22.0388	420	20.6525	420	20.0929	420	19.7362	420	5310
3000	22.0808		20.6945		20.1349		19.7782		5400

Table 3-6. SPECIFIC-HEAT RATIO OF ARGON $\gamma = C_p/C_v$

°K	.01 atm		.1 atm		°R
100	1.667		1.670	-1	180
120	1.667		1.669	-1	216
140	1.667		1.668		252
160	1.667		1.668		288
180	1.667		1.668	-1	324

At higher temperatures in this pressure range, the values of the specific-heat ratio are constant (1.667).

Table 3-6. SPECIFIC-HEAT RATIO OF ARGON - Cont. $\gamma = C_p/C_v$

°K	1 atm		4 atm		7 atm		10 atm		°R
100	1.706	-14	1.858	-88					180
120	1.692	- 8	1.770	-30	1.890	-80			216
140	1.684	- 5	1.740	-20	1.810	-47			252
160	1.679	- 3	1.720	-13	1.763	-25			288
180	1.676	- 2	1.707	-10	1.738	-16	1.781	-33	324
200	1.674	- 1	1.697	- 6	1.722	-12	1.748	-18	360
220	1.673	- 1	1.691	- 4	1.710	- 8	1.730	-12	396
240	1.672	- 1	1.687	- 4	1.702	- 6	1.718	- 9	432
260	1.671	- 1	1.683	- 2	1.696	- 5	1.709	- 7	468
280	1.670		1.681	- 2	1.691	- 3	1.702	- 5	504
300	1.670	- 1	1.679	- 2	1.688	- 3	1.697	- 4	540
320	1.669		1.677	- 1	1.685	- 3	1.693	- 4	576
340	1.669		1.676	- 1	1.682	- 1	1.689	- 3	612
360	1.669	- 1	1.675	- 1	1.681	- 2	1.686	- 2	648
380	1.668		1.674	- 1	1.679	- 2	1.684	- 2	684
400	1.668		1.673	- 1	1.677	- 1	1.682	- 1	720
420	1.668		1.672		1.676	- 1	1.681	- 2	756
440	1.668		1.672	- 1	1.675	- 1	1.679	- 1	792
460	1.668		1.671		1.674		1.678	- 1	828
480	1.668		1.671	- 1	1.674	- 1	1.677	- 1	864
500	1.668		1.670		1.673	- 1	1.676	- 1	900
520	1.668		1.670		1.672		1.675	- 1	936
540	1.668	- 1	1.670	- 1	1.672		1.674		972
560	1.667		1.669		1.672	- 1	1.674	- 1	1008
580	1.667		1.669		1.671		1.673		1044
600	1.667		1.669		1.671	- 1	1.673	- 1	1080
620	1.667		1.669		1.670		1.672		1116
640	1.667		1.669		1.670		1.672	- 1	1152
660	1.667		1.669	- 1	1.670		1.671		1188
680	1.667		1.668		1.670		1.671		1224
700	1.667		1.668		1.670	- 1	1.671		1260
720	1.667		1.668		1.669		1.671	- 1	1296
740	1.667		1.668		1.669		1.670		1332
760	1.667		1.668		1.669		1.670		1368
780	1.667		1.668		1.669		1.670	- 1	1404
800	1.667		1.668	- 1	1.669	- 1	1.669		1440
900	1.667		1.667		1.668		1.669	- 1	1620
1000	1.667		1.667		1.668		1.668		1800
1100	1.667		1.667		1.668	- 1	1.668		1980
1200	1.667		1.667		1.667		1.668	- 1	2160
1300	1.667		1.667		1.667		1.667		2340

At higher temperatures in this pressure range, the values of the specific-heat ratio are constant.

Table 3-6. SPECIFIC-HEAT RATIO OF ARGON - Cont. $\gamma = C_p/C_v$

°K	10 atm		40 atm		70 atm		100 atm		°R
180	1.781	-39							324
200	1.748	-18							360
220	1.730	-12							396
240	1.718	- 9	1.89	-4	2.08	-7	2.3	-1	432
260	1.709	- 7	1.85	-4	2.01	-7	2.17	-11	468
280	1.702	- 5	1.81	-2	1.94	-7	2.06	-10	504
300	1.697	- 4	1.79	-2	1.87	-3	1.96	- 5	540
320	1.693	- 4	1.77	-1	1.84	-1	1.91	- 2	576
340	1.689	- 3	1.76	-1	1.83	-2	1.89	- 4	612
360	1.686	- 2	1.75	-1	1.81	-2	1.85	- 2	648
380	1.684	- 2	1.74	-1	1.79	-3	1.83	- 3	684
400	1.682	- 1	1.726	- 4	1.76		1.80		720
420	1.681	- 2	1.722	- 6	1.76	-1	1.80	- 1	756
440	1.679	- 1	1.716	- 5	1.751	- 9	1.786	- 13	792
460	1.678	- 1	1.711	- 5	1.742	- 7	1.773	- 11	828
480	1.677	- 1	1.706	- 3	1.735	- 7	1.762	- 9	864
500	1.676	- 1	1.703	- 4	1.728	- 6	1.753	- 9	900
520	1.675	- 1	1.699	- 3	1.722	- 5	1.744	- 7	936
540	1.674		1.696	- 2	1.717	- 4	1.737	- 5	972
560	1.674	- 1	1.694	- 2	1.713	- 4	1.732	- 6	1008
580	1.673		1.692	- 2	1.709	- 3	1.726	- 5	1044
600	1.673	- 1	1.690	- 2	1.706	- 3	1.721	- 4	1080
620	1.672		1.688	- 2	1.703	- 3	1.717	- 4	1116
640	1.672	- 1	1.686	- 1	1.700	- 2	1.713	- 3	1152
660	1.671		1.685	- 2	1.698	- 3	1.710	- 4	1188
680	1.671		1.683	- 1	1.695	- 2	1.706	- 2	1224
700	1.671		1.682	- 1	1.693	- 2	1.704	- 3	1260
720	1.671	- 1	1.681		1.691	- 2	1.701	- 2	1296
740	1.670		1.681	- 2	1.689	- 1	1.699	- 2	1332
760	1.670		1.679		1.688	- 1	1.697	- 2	1368
780	1.670	- 1	1.679	- 1	1.687	- 2	1.695	- 2	1404
800	1.669		1.678	- 3	1.685	- 4	1.693	- 7	1440
900	1.669	- 1	1.675	- 2	1.681	- 4	1.686	- 6	1620
1000	1.668		1.673	- 2	1.677	- 3	1.680	- 2	1800
1100	1.668		1.671	- 1	1.674	- 1	1.678	- 3	1980
1200	1.668	- 1	1.670	- 1	1.673	- 2	1.675	- 2	2160
1300	1.667		1.669		1.671	- 1	1.673	- 1	2340
1400	1.667		1.669	- 1	1.670	- 1	1.672	- 1	2520
1500	1.667		1.668		1.669		1.671	- 1	2700
1600	1.667		1.668		1.669	- 1	1.670	- 2	2880
1700	1.667		1.668	- 1	1.668		1.668		3060
1800	1.667		1.667		1.668	- 1	1.668		3240
1900	1.667		1.667		1.667		1.668	- 1	3420
2000	1.667		1.667		1.667		1.667		3600
2100	1.667		1.667		1.667		1.667		3780
2200	1.667		1.667		1.667		1.667		3960
2300	1.667		1.667		1.667		1.667		4140
2400	1.667		1.667		1.667		1.667		4320
2500	1.667		1.667		1.667		1.667		4500
2600	1.667		1.667		1.667		1.667		4680
2700	1.667		1.667		1.667		1.667		4860
2800	1.667		1.667		1.667		1.667		5040
2900	1.667		1.667		1.667		1.667		5220
3000	1.667		1.667		1.667		1.667		5400

Table 3-7. SOUND VELOCITY AT LOW FREQUENCY IN ARGON

°K	.01 atm		.1 atm		1 atm		a/a_0 °R
100	.605	58	.604	58	.599	60	180
120	.663	53	.662	53	.659	54	216
140	.716	49	.715	50	.713	51	252
160	.765	47	.765	47	.764	47	288
180	.812	44	.812	43	.811	44	324
200	.856	41	.855	42	.855	42	360
220	.897	40	.897	40	.897	40	396
240	.937	39	.937	38	.937	39	432
260	.976	36	.975	37	.976	36	468
280	1.012	36	1.012	36	1.012	36	504
300	1.048	34	1.048	34	1.048	34	540
320	1.082	34	1.082	34	1.082	34	576
340	1.116	32	1.116	32	1.116	32	612
360	1.148	31	1.148	31	1.148	32	648
380	1.179	31	1.179	31	1.180	30	684
400	1.210	30	1.210	30	1.210	30	720
420	1.240	29	1.240	29	1.240	30	756
440	1.269	29	1.269	29	1.270	28	792
460	1.298	28	1.298	28	1.298	28	828
480	1.326	27	1.326	27	1.326	28	864
500	1.353	27	1.353	27	1.354	26	900
520	1.380	26	1.380	26	1.380	27	936
540	1.406	26	1.406	26	1.407	25	972
560	1.432	25	1.432	25	1.432	25	1008
580	1.457	25	1.457	25	1.457	25	1044
600	1.482	25	1.482	25	1.482	25	1080
620	1.507	24	1.507	24	1.507	24	1116
640	1.531	23	1.531	23	1.531	24	1152
660	1.554	24	1.554	24	1.555	23	1188
680	1.578	23	1.578	23	1.578	23	1224
700	1.601	22	1.601	22	1.601	23	1260
720	1.623	23	1.623	23	1.624	22	1296
740	1.646	22	1.646	22	1.646	22	1332
760	1.668	22	1.668	22	1.668	22	1368
780	1.690	21	1.690	21	1.690	22	1404
800	1.711	104	1.711	104	1.712	104	1440
900	1.815	98	1.815	98	1.816	98	1620
1000	1.913	94	1.913	94	1.914	93	1800
1100	2.007	89	2.007	89	2.007	89	1980
1200	2.096	85	2.096	85	2.096	86	2160
1300	2.181	83	2.181	83	2.182	82	2340
1400	2.264	79	2.264	79	2.264	80	2520
1500	2.343	77	2.343	77	2.344	77	2700
1600	2.420	75	2.420	75	2.421	74	2880
1700	2.495	72	2.495	72	2.495	72	3060
1800	2.567	70	2.567	70	2.567	71	3240
1900	2.637	69	2.637	69	2.638	68	3420
2000	2.706	67	2.706	67	2.706	67	3600
2100	2.773	65	2.773	65	2.773	65	3780
2200	2.838	64	2.838	64	2.838	64	3960
2300	2.902	62	2.902	62	2.902	62	4140
2400	2.964	61	2.964	61	2.964	61	4320
2500	3.025	60	3.025	60	3.025	60	4500
2600	3.085	59	3.085	59	3.085	59	4680
2700	3.144	57	3.144	57	3.144	58	4860
2800	3.201	57	3.201	57	3.202	56	5040
2900	3.258	56	3.258	56	3.258	56	5220
3000	3.314		3.314		3.314		5400

Table 3-7. SOUND VELOCITY AT LOW FREQUENCY IN ARGON - Cont. a/a_0

°K	1 atm		4 atm		7 atm		10 atm		°R
100	.599	60	.578	67					180
120	.659	54	.645	61	.63	7			216
140	.713	51	.706	53	.70	5			252
160	.764	47	.759	49	.754	51			288
180	.811	44	.808	45	.805	46	.80	5	324
200	.855	42	.853	43	.851	44	.850	44	360
220	.897	40	.896	41	.895	42	.894	42	396
240	.937	39	.937	39	.937	39	.936	40	432
260	.976	36	.976	37	.976	38	.976	38	468
280	1.012	36	1.013	36	1.014	36	1.014	37	504
300	1.048	34	1.049	35	1.050	35	1.051	35	540
320	1.082	34	1.084	33	1.085	33	1.086	34	576
340	1.116	32	1.117	33	1.118	33	1.120	32	612
360	1.148	32	1.150	31	1.151	32	1.152	32	648
380	1.180	30	1.181	31	1.183	30	1.184	31	684
400	1.210	30	1.212	30	1.213	31	1.215	31	720
420	1.240	30	1.242	29	1.244	29	1.246	29	756
440	1.270	28	1.271	29	1.273	28	1.275	29	792
460	1.298	28	1.300	28	1.301	29	1.304	28	828
480	1.326	28	1.328	27	1.330	27	1.332	27	864
500	1.354	26	1.355	27	1.357	27	1.359	27	900
520	1.380	27	1.382	26	1.384	26	1.386	26	936
540	1.407	25	1.408	26	1.410	26	1.412	26	972
560	1.432	25	1.434	25	1.436	25	1.438	25	1008
580	1.457	25	1.459	25	1.461	25	1.463	25	1044
600	1.482	25	1.484	25	1.486	25	1.488	25	1080
620	1.507	24	1.509	24	1.511	24	1.513	24	1116
640	1.531	24	1.533	24	1.535	24	1.537	23	1152
660	1.555	23	1.557	23	1.559	23	1.560	24	1188
680	1.578	23	1.580	23	1.582	23	1.584	23	1224
700	1.601	23	1.603	23	1.605	23	1.607	23	1260
720	1.624	22	1.626	22	1.628	22	1.630	22	1296
740	1.646	22	1.648	22	1.650	22	1.652	22	1332
760	1.668	22	1.670	22	1.672	22	1.674	22	1368
780	1.690	22	1.692	22	1.694	22	1.696	21	1404
800	1.712	104	1.714	103	1.716	103	1.717	104	1440
900	1.816	98	1.817	98	1.819	98	1.821	98	1620
1000	1.914	93	1.915	94	1.917	94	1.919	93	1800
1100	2.007	89	2.009	89	2.011	88	2.012	89	1980
1200	2.096	86	2.098	85	2.099	86	2.101	85	2160
1300	2.182	82	2.183	83	2.185	82	2.186	83	2340
1400	2.264	80	2.266	79	2.267	80	2.269	79	2520
1500	2.344	77	2.345	77	2.347	76	2.348	77	2700
1600	2.421	74	2.422	74	2.423	75	2.425	74	2880
1700	2.495	72	2.496	73	2.498	72	2.499	72	3060
1800	2.567	71	2.569	70	2.570	70	2.571	71	3240
1900	2.638	68	2.639	69	2.640	69	2.642	68	3420
2000	2.706	67	2.708	66	2.709	67	2.710	67	3600
2100	2.773	65	2.774	65	2.776	65	2.777	65	3780
2200	2.838	64	2.839	64	2.841	63	2.842	64	3960
2300	2.902	62	2.903	63	2.904	63	2.906	62	4140
2400	2.964	61	2.966	61	2.967	61	2.968	61	4320
2500	3.025	60	3.027	60	3.028	60	3.029	60	4500
2600	3.085	59	3.087	58	3.088	58	3.089	59	4680
2700	3.144	58	3.145	58	3.146	58	3.148	57	4860
2800	3.202	56	3.203	57	3.204	57	3.205	57	5040
2900	3.258	56	3.260	55	3.261	55	3.262	55	5220
3000	3.314		3.315		3.316		3.317		5400

Table 3-7. SOUND VELOCITY AT LOW FREQUENCY IN ARGON - Cont. a/a_0

°K	10 atm		40 atm		70 atm		100 atm		°R
180	.80	5							324
200	.850	44							360
220	.894	42							396
240	.936	40	.94	4	.95	5	.98	4	432
260	.976	38	.98	4	1.00	4	1.02	4	468
280	1.014	37	1.02	4	1.04	4	1.06	4	504
300	1.051	35	1.06	4	1.08	4	1.10	4	540
320	1.086	34	1.10	4	1.12	4	1.14	4	576
340	1.120	32	1.14	3	1.16	3	1.18	3	612
360	1.152	32	1.17	3	1.19	3	1.21	3	648
380	1.184	31	1.20	3	1.22	3	1.24	3	684
400	1.215	31	1.232	32	1.25	3	1.27	4	720
420	1.246	29	1.264	30	1.284	30	1.31	3	756
440	1.275	29	1.294	29	1.314	29	1.34	3	792
460	1.304	28	1.323	28	1.343	29	1.366	28	828
480	1.332	27	1.351	28	1.372	27	1.394	28	864
500	1.359	27	1.379	26	1.399	27	1.422	26	900
520	1.386	26	1.405	27	1.426	26	1.448	26	936
540	1.412	26	1.432	26	1.452	26	1.474	26	972
560	1.438	25	1.458	25	1.478	26	1.500	25	1008
580	1.463	25	1.483	25	1.504	25	1.525	25	1044
600	1.488	25	1.508	25	1.529	24	1.550	24	1080
620	1.513	24	1.533	24	1.553	24	1.574	24	1116
640	1.537	23	1.557	23	1.577	24	1.598	24	1152
660	1.560	24	1.580	23	1.601	22	1.622	22	1188
680	1.584	23	1.603	23	1.623	23	1.644	23	1224
700	1.607	23	1.626	23	1.646	23	1.667	22	1260
720	1.630	22	1.649	23	1.669	22	1.689	22	1296
740	1.652	22	1.672	21	1.691	22	1.711	22	1332
760	1.674	22	1.693	22	1.713	22	1.733	21	1368
780	1.696	21	1.715	21	1.735	20	1.754	21	1404
800	1.717	104	1.736	104	1.755	103	1.775	102	1440
900	1.821	98	1.840	97	1.858	97	1.877	95	1620
1000	1.919	93	1.937	92	1.955	91	1.972	92	1800
1100	2.012	89	2.029	89	2.046	89	2.064	87	1980
1200	2.101	85	2.118	85	2.135	84	2.151	84	2160
1300	2.186	83	2.203	81	2.219	81	2.235	81	2340
1400	2.269	79	2.284	79	2.300	78	2.316	78	2520
1500	2.348	77	2.363	77	2.378	76	2.394	75	2700
1600	2.425	74	2.440	74	2.454	73	2.469	72	2880
1700	2.499	72	2.514	71	2.527	72	2.541	72	3060
1800	2.571	71	2.585	70	2.599	69	2.613	69	3240
1900	2.642	68	2.655	68	2.668	68	2.682	67	3420
2000	2.710	67	2.723	67	2.736	66	2.749	66	3600
2100	2.777	65	2.790	64	2.802	65	2.815	64	3780
2200	2.842	64	2.854	64	2.867	63	2.879	62	3960
2300	2.906	62	2.918	61	2.930	62	2.941	62	4140
2400	2.968	61	2.979	61	2.992	60	3.003	61	4320
2500	3.029	60	3.040	60	3.052	59	3.064	59	4500
2600	3.089	59	3.100	58	3.111	58	3.123	58	4680
2700	3.148	57	3.158	57	3.169	58	3.181	57	4860
2800	3.205	57	3.215	57	3.227	56	3.238	56	5040
2900	3.262	55	3.272	55	3.283	55	3.294	55	5220
3000	3.317		3.327		3.338		3.349		5400

Table 3-8. VISCOSITY OF ARGON AT ATMOSPHERIC PRESSURE

°K	η/η_0		°R
50	.1965	371	90
60	.2336	382	108
70	.2718	390	126
80	.3108	398	144
90	.3506	399	162
100	.3905	397	180
110	.4302	394	198
120	.4696	386	216
130	.5082	386	234
140	.5468	381	252
150	.5849	372	270
160	.6221	367	288
170	.6588	358	306
180	.6946	353	324
190	.7299	348	342
200	.7647	344	360
210	.7991	324	378
220	.8315	334	396
230	.8649	325	414
240	.8974	315	432
250	.9289	311	450
260	.9600	306	468
270	.9906	301	486
280	1.0207	297	504
290	1.0504	291	522
300	1.0795	287	540
310	1.1082	283	558
320	1.1365	277	576
330	1.1642	278	594
340	1.1920	27	612
350	1.219	26	630
360	1.245	27	648
370	1.272	26	666
380	1.298	25	684
390	1.323	26	702
400	1.349	25	720
410	1.374	24	738
420	1.398	25	756
430	1.423	25	774
440	1.448	24	792
450	1.472	24	810
460	1.496	23	828
470	1.519	23	846
480	1.542	23	864
490	1.565	23	882
500	1.588	23	900
510	1.611	22	918
520	1.633	22	936
530	1.655	22	954
540	1.677	22	972
550	1.699		990

°K	η/η_0		°R
550	1.699	22	990
560	1.721	21	1008
570	1.742	22	1026
580	1.764	21	1044
590	1.785	21	1062
600	1.806	21	1080
610	1.827	20	1098
620	1.847	21	1116
630	1.868	20	1134
640	1.888	20	1152
650	1.908	20	1170
660	1.928	20	1188
670	1.948	20	1206
680	1.968	20	1224
690	1.988	20	1242
700	2.008	20	1260
710	2.028	19	1278
720	2.047	20	1296
730	2.067	19	1314
740	2.086	19	1332
750	2.105	18	1350
760	2.123	19	1368
770	2.142	19	1386
780	2.161	19	1404
790	2.180	18	1422
800	2.198	18	1440
810	2.216	19	1458
820	2.235	19	1476
830	2.254	18	1494
840	2.272	18	1512
850	2.290	18	1530
860	2.308	18	1548
870	2.326	18	1566
880	2.344	17	1584
890	2.361	18	1602
900	2.379	17	1620
910	2.396	18	1638
920	2.414	17	1656
930	2.431	18	1674
940	2.449	17	1692
950	2.466	17	1710
960	2.483	17	1728
970	2.500	17	1746
980	2.517	17	1764
990	2.534	17	1782
1000	2.551	17	1800
1010	2.568	17	1818
1020	2.585	17	1836
1030	2.602	16	1854
1040	2.618	16	1872
1050	2.634		1890

°K	η/η_0		°R
1050	2.634	17	1890
1060	2.651	17	1908
1070	2.668	16	1926
1080	2.684	17	1944
1090	2.701	16	1962
1100	2.717	16	1980
1110	2.733	17	1998
1120	2.750	16	2016
1130	2.766	16	2034
1140	2.782	16	2052
1150	2.798	16	2070
1160	2.814	16	2088
1170	2.830	15	2106
1180	2.845	16	2124
1190	2.861	15	2142
1200	2.876	16	2160
1210	2.892	16	2178
1220	2.908	16	2196
1230	2.924	16	2214
1240	2.940	16	2232
1250	2.956	15	2250
1260	2.971	16	2268
1270	2.987	15	2286
1280	3.002	16	2304
1290	3.018	16	2322
1300	3.034	15	2340
1310	3.049	16	2358
1320	3.065	16	2376
1330	3.081	16	2394
1340	3.097	15	2412
1350	3.112	15	2430
1360	3.127	15	2448
1370	3.142	15	2466
1380	3.157	15	2484
1390	3.172	14	2502
1400	3.186	15	2520
1410	3.201	15	2538
1420	3.216	14	2556
1430	3.230	15	2574
1440	3.245	14	2592
1450	3.259	15	2610
1460	3.274	14	2628
1470	3.288	15	2646
1480	3.303	14	2664
1490	3.317	14	2682
1500	3.331		2700

Table 3-9. THERMAL CONDUCTIVITY OF ARGON AT ATMOSPHERIC PRESSURE

°K	k/k_0		°R
90	.361	33	162
100	.394	44	180
110	.438	38	198
120	.476	38	216
130	.514	36	234
140	.550	36	252
150	.586	36	270
160	.622	36	288
170	.658	35	306
180	.693	35	324
190	.728	35	342
200	.763	33	360
210	.796	34	378
220	.830	33	396
230	.863	33	414
240	.896	31	432
250	.927	31	450
260	.958	33	468
270	.991	31	486
280	1.022	30	504
290	1.052	29	522
300	1.081	30	540
310	1.111	29	558
320	1.140	29	576
330	1.169	29	594
340	1.198	29	612
350	1.227	28	630
360	1.255	28	648
370	1.283	27	666
380	1.310	27	684
390	1.337	26	702
400	1.363	27	720
410	1.390	26	738
420	1.416	26	756
430	1.442	25	774
440	1.467	26	792
450	1.493	25	810
460	1.518	25	828
470	1.543	25	846
480	1.568	24	864
490	1.592	24	882
500	1.616	24	900
510	1.640	24	918
520	1.664	24	936
530	1.688	23	954
540	1.711	23	972
550	1.734	23	990
560	1.757	23	1008
570	1.780	22	1026
580	1.802	22	1044
590	1.824	22	1062
600	1.846	211	1080
700	2.057	197	1260
800	2.254	184	1440
900	2.438	173	1620
1000	2.611	164	1800
1100	2.775	157	1980
1200	2.932	149	2160
1300	3.081	144	2340
1400	3.225	137	2520
1500	3.362		2700

Table 3-10. PRANDTL NUMBER OF ARGON AT ATMOSPHERIC PRESSURE $\eta\ C_p/k$

°K	(N_{Pr})		$(N_{Pr})^{2/3}$		$(N_{Pr})^{1/3}$		$(N_{Pr})^{1/2}$		°R
100	.700	-14	.789	-11	.888	-6	.836	-8	180
110	.686	- 3	.778	- 3	.882	-1	.828	-2	198
120	.683	- 1	.775	- 1	.881	-1	.826		216
130	.682	1	.774	1	.880	1	.826		234
140	.683	1	.775	1	.881		.826	1	252
150	.684	- 1	.776	- 1	.881		.827	-1	270
160	.683		.775		.881		.826		288
170	.683		.775		.881		.826		306
180	.683		.775		.881		.826		324
190	.683		.775		.881		.826		342
200	.683		.775		.881		.826		360
210	.683	- 2	.775	- 1	.881	-1	.826	-1	378
220	.681		.774		.880		.825		396
230	.681	- 1	.774		.880	-1	.825		414
240	.680		.774		.879		.825		432
250	.680	- 1	.774	- 1	.879		.825	-1	450
260	.679	- 1	.773	- 1	.879	-1	.824		468
270	.678	- 1	.772	- 1	.878		.824	-1	486
280	.677		.771		.878		.823		504
290	.677		.771		.878		.823		522
300	.677	- 1	.771	- 1	.878		.823	-1	540
310	.676	- 1	.770		.878	-1	.822		558
320	.675		.770		.877		.822		576
330	.675	- 1	.770	- 1	.877		.822	-1	594
340	.674	- 1	.769	- 1	.877	-1	.821	-1	612
350	.673	- 1	.768	- 1	.876		.820		630
360	.672		.767		.876		.820		648
370	.672	- 1	.767	- 1	.876	-1	.820	-1	666
380	.671		.766		.875		.819		684
390	.671		.766		.875		.819		702
400	.671	- 1	.766		.875		.819		720
420	.670	- 1	.766	- 1	.875		.819	-1	756
440	.669	- 1	.765	- 1	.875	-1	.818	-1	792
460	.668	- 2	.764	- 1	.874	-1	.817	-1	828
480	.666		.763		.873		.816		864
500	.666	- 1	.763	- 1	.873		.816	-1	900
520	.665	- 1	.762	- 1	.873	-1	.815		936
540	.664	- 1	.761	- 1	.872		.815	-1	972
560	.663		.760		.872		.814		1008
580	.663	- 1	.760		.872		.814		1044
600	.662	- 1	.760	- 1	.872	-1	.814	-1	1080
700	.661	- 1	.759	- 1	.871		.813	-1	1260
800	.660	1	.758	1	.871		.812	1	1440
900	.661		.759		.871		.813		1620
1000	.661	2	.759	1	.871	1	.813	1	1800
1100	.663	1	.760	1	.872		.814	1	1980
1200	.664	3	.761	2	.872	2	.815	2	2160
1300	.667	2	.763	2	.874	1	.817	1	2340
1400	.669	2	.765	1	.875		.818	1	2520
1500	.671		.766		.875		.819		2700

Table 3-11 VAPOR PRESSURE OF ARGON

Remarks	T	P	P	P	T
	°K	m Hg	atm	psia	°R
Triple point - - - - - - -	83.78	.5168	.6800	9.993	150.80
Normal boiling point- - -	87.29	.7600	1.000	14.696	157.12
Critical point- - - - - -	150.65	36.45	48.0	705.	271.17
Solid- - - - - - - - - - -	65	.021	.028	.40	117.
	70	.058	.076	1.12	126.
	75	.141	.185	2.72	135.
	80	.306	.402	5.91	144.
Liquid- - - - - - - - - -	85	.593	.780	11.46	153.
	90	1.004	1.321	19.41	162.
	95	1.617	2.13	31.3	171.
	100	2.46	3.23	47.5	180.
	105	3.56	4.69	68.9	189.
	110	5.01	6.59	96.9	198.
	115	6.84	9.00	132.3	207.
	120	9.11	11.98	176.1	216.
	125	11.86	15.61	229.	225.
	130	15.19	19.99	294.	234.
	135	19.15	25.2	370.	243.
	140	23.8	31.3	461.	252.
	145	29.3	38.5	566.	261.
	150	35.6	46.8	688.	270.

Table 3-11/a. VAPOR PRESSURE OF LIQUID ARGON.

200/T	T	Log_{10}P (atm)*		P	T	360/T
$°K^{-1}$	°K			atm	°R	$°R^{-1}$
2.4	83.33	(9.810 - 10)**	174	(.646)	150.00	2.4
2.3	86.96	9.984 - 10	176	.964	156.52	2.3
2.2	90.91	.160	177	1.45	163.64	2.2
2.1	95.24	.337	172	2.17	171.43	2.1
2.0	100.00	.509	170	3.23	180.00	2.0
1.9	105.26	.679	171	4.78	189.47	1.9
1.8	111.11	.850	171	7.08	200.00	1.8
1.7	117.65	1.021	172	10.5	211.76	1.7
1.6	125.00	1.193	175	15.61	225.00	1.6
1.5	133.33	1.368	179	23.3	240.00	1.5
1.4	142.86	1.547	185	35.2	257.14	1.4
1.3	153.85	(1.732)		(54.0)	276.92	1.3

*Tabulated values in this column are for interpolation with respect to reciprocal temperature.

**Figures in parentheses are extrapolated to permit interpolation to the critical point and triple point.

Table 3-11/b. CONSTANTS FOR LOG_{10}P (SOLID) = A - B/T

Units of P	A	Units of T	B
mm Hg	7.5344	°K	403.91
atm	4.6536	°R	727.04
psia	5.8208		

Table 3-12. IDEAL-GAS THERMODYNAMIC FUNCTIONS FOR ARGON

°K	$\frac{C_p^\circ}{R}$	$\frac{(H^\circ - E_0^\circ)^*}{RT_0}$		$\frac{S^\circ}{R}$		°R
10	2.5000	.0915	915	10.1240	17328	18
20		.1830	916	11.8568	10137	36
30		.2746	915	12.8705	7192	54
40		.3661	915	13.5897	5579	72
50		.4576	915	14.1476	4558	90
60		.5491	916	14.6034	3853	108
70		.6407	915	14.9887	3339	126
80		.7322	915	15.3226	2944	144
90		.8237	915	15.6170	2634	162
100		.9152	915	15.8804	2383	180
110		1.0067	916	16.1187	2175	198
120		1.0983	915	16.3362	2001	216
130		1.1898	915	16.5363	1853	234
140		1.2813	915	16.7216	1725	252
150		1.3728	915	16.8941	1613	270
160		1.4643	916	17.0554	1516	288
170		1.5559	915	17.2070	1429	306
180		1.6474	915	17.3499	1352	324
190		1.7389	915	17.4851	1282	342
200		1.8304	916	17.6133	1220	360
210		1.9220	915	17.7353	1163	378
220		2.0135	915	17.8516	1111	396
230		2.1050	915	17.9627	1064	414
240		2.1965	915	18.0691	1020	432
250		2.2880	916	18.1711	981	450
260		2.3796	915	18.2692	944	468
270		2.4711	915	18.3636	909	486
280		2.5626	915	18.4545	877	504
290		2.6541	915	18.5422	848	522
300		2.7456	916	18.6270	819	540
310		2.8372	915	18.7089	794	558
320		2.9287	915	18.7883	769	576
330		3.0202	915	18.8652	747	594
340		3.1117	916	18.9399	724	612
350		3.2033	915	19.0123	705	630
360		3.2948	915	19.0828	685	648
370		3.3863	915	19.1513	666	666
380		3.4778	915	19.2179	650	684
390		3.5693	916	19.2829	633	702
400		3.6609	915	19.3462	617	720
410		3.7524	915	19.4079	602	738
420		3.8439	915	19.4681	589	756
430		3.9354	915	19.5270	574	774
440		4.0269	916	19.5844	562	792
450		4.1185	915	19.6406	550	810
460		4.2100	915	19.6956	537	828
470		4.3015	915	19.7493	527	846
480		4.3930	916	19.8020	515	864
490		4.4846	915	19.8535	505	882
500		4.5761	915	19.9040	495	900
510		4.6676	915	19.9535	486	918
520		4.7591	915	20.0021	476	936
530		4.8506	916	20.0497	467	954
540		4.9422	915	20.0964	459	972
550		5.0337	915	20.1423	450	990
560		5.1252	915	20.1873	443	1008
570		5.2167	915	20.2316	435	1026
580		5.3082	916	20.2751	427	1044
590		5.3998	915	20.3178	420	1062
600	2.5000	5.4913		20.3598		1080

* The enthalpy function is divided here by a constant RT_0 where T_0 = 273.16°K (491.688°R).

Table 3-12. IDEAL-GAS THERMODYNAMIC FUNCTIONS FOR ARGON - Cont.

°K	$\frac{C_p^\circ}{R}$	$\frac{(H^\circ - E_0^\circ)^*}{RT_o}$		$\frac{S^\circ}{R}$		°R
600	2.5000	5.4913	915	20.3598	413	1080
610		5.5828	915	20.4011	407	1098
620		5.6743	916	20.4418	400	1116
630		5.7659	915	20.4818	394	1134
640		5.8574	915	20.5212	387	1152
650		5.9489	915	20.5599	382	1170
660		6.0404	915	20.5981	376	1188
670		6.1319	916	20.6357	370	1206
680		6.2235	915	20.6727	365	1224
690		6.3150	915	20.7092	360	1242
700		6.4065	915	20.7452	355	1260
710		6.4980	915	20.7807	349	1278
720		6.5895	916	20.8156	345	1296
730		6.6811	915	20.8501	340	1314
740		6.7726	915	20.8841	336	1332
750		6.8641	915	20.9177	331	1350
760		6.9556	916	20.9508	327	1368
770		7.0472	915	20.9835	322	1386
780		7.1387	915	21.0157	319	1404
790		7.2302	915	21.0476	314	1422
800		7.3217	4576	21.0790	1516	1440
850		7.7793	4576	21.2306	1429	1530
900		8.2369	4576	21.3735	1352	1620
950		8.6945	4576	21.5087	1282	1710
1000		9.1521	4577	21.6369	1220	1800
1050		9.6098	4576	21.7589	1163	1890
1100		10.0674	4576	21.8752	1111	1980
1150		10.5250	4576	21.9863	1064	2070
1200		10.9826	4576	22.0927	1020	2160
1250		11.4402	4576	22.1947	981	2250
1300		11.8978	4576	22.2928	943	2340
1350		12.3554	4576	22.3871	910	2430
1400		12.8130	4576	22.4781	877	2520
1450		13.2706	4576	22.5658	847	2610
1500		13.7282	4576	22.6505	820	2700
1550		14.1858	4576	22.7325	794	2790
1600		14.6434	4576	22.8119	769	2880
1650		15.1010	4576	22.8888	747	2970
1700		15.5586	4577	22.9635	724	3060
1750		16.0163	4576	23.0359	705	3150
1800		16.4739	4576	23.1064	684	3240
1850		16.9315	4576	23.1748	667	3330
1900		17.3891	4576	23.2415	650	3420
1950		17.8467	4576	23.3065	633	3510
2000		18.3043	4576	23.3698	617	3600
2050		18.7619	4576	23.4315	602	3690
2100		19.2195	4576	23.4917	589	3780
2150		19.6771	4576	23.5506	574	3870
2200		20.1347	4576	23.6080	562	3960
2250		20.5923	4576	23.6642	550	4050
2300		21.0499	4576	23.7192	537	4140
2350		21.5075	4576	23.7729	527	4230
2400		21.9651	4577	23.8256	515	4320
2450		22.4228	4576	23.8771	505	4410
2500		22.8804	4576	23.9276	495	4500
2550		23.3380	4576	23.9771	486	4590
2600		23.7956	4576	24.0257	476	4680
2650		24.2532	4576	24.0733	467	4770
2700		24.7108	4576	24.1200	459	4860
2750		25.1684	4576	24.1659	450	4950
2800	2.5000	25.6260		24.2109		5040

* The enthalpy function is divided here by a constant RT_0 where $T_0 = 273.16°K$ (491.688°R).

Table 3-12. IDEAL-GAS THERMODYNAMIC FUNCTIONS FOR ARGON - Cont.

°K	$\frac{C_p^\circ}{R}$	$\frac{(H^\circ - E_0^\circ)^*}{RT_0}$		$\frac{S^\circ}{R}$		°R
2800	2.5000	25.6260	4576	24.2109	443	5040
2850		26.0836	4576	24.2552	435	5130
2900		26.5412	4576	24.2987	427	5220
2950		26.9988	4576	24.3414	420	5310
3000		27.4564	4576	24.3834	413	5400
3050		27.9140	4577	24.4247	407	5490
3100		28.3717	4576	24.4654	400	5580
3150		28.8293	4576	24.5054	394	5670
3200		29.2869	4576	24.5448	387	5760
3250		29.7445	4576	24.5835	382	5850
3300		30.2021	4576	24.6217	376	5940
3350		30.6597	4576	24.6593	370	6030
3400		31.1173	4576	24.6963	365	6120
3450		31.5749	4576	24.7328	360	6210
3500		32.0325	4576	24.7688	355	6300
3550		32.4901	4576	24.8043	349	6390
3600		32.9477	4576	24.8392	345	6480
3650		33.4053	4576	24.8737	340	6570
3700		33.8629	4576	24.9077	336	6660
3750		34.3205	4577	24.9413	331	6750
3800		34.7782	4576	24.9744	327	6840
3850		35.2358	4576	25.0071	322	6930
3900		35.6934	4576	25.0393	319	7020
3950		36.1510	4576	25.0712	314	7110
4000		36.6086	4576	25.1026	311	7200
4050		37.0662	4576	25.1337	307	7290
4100		37.5238	4576	25.1644	303	7380
4150		37.9814	4576	25.1947	299	7470
4200		38.4390	4576	25.2246	296	7560
4250		38.8966	4576	25.2542	292	7650
4300		39.3542	4576	25.2834	289	7740
4350		39.8118	4576	25.3123	286	7830
4400		40.2694	4576	25.3409	282	7920
4450		40.7270	4577	25.3691	280	8010
4500		41.1847	4576	25.3971	276	8100
4550		41.6423	4576	25.4247	273	8190
4600		42.0999	4576	25.4520	271	8280
4650		42.5575	4576	25.4791	267	8370
4700		43.0151	4576	25.5058	264	8460
4750		43.4727	4576	25.5322	262	8550
4800		43.9303	4576	25.5584	259	8640
4850		44.3879	4576	25.5843	257	8730
4900		44.8455	4576	25.6100	254	8820
4950		45.3031	4576	25.6354	251	8910
5000	2.5000	45.7607		25.6605		9000

* The enthalpy function is divided here by a constant RT_0 where T_0 = 273.16°K (491.688°R).

Table 3-13. COEFFICIENTS FOR THE EQUATION OF STATE FOR ARGON

$$Z = \frac{PV}{RT} = 1 + B_1P + C_1P^2 + D_1P^3 + E_1P^4 + F_1P^5$$

T	B_1	$C_1 \times 10^3$	$D_1 \times 10^9$	$E_1 \times 10^{11}$	$F_1 \times 10^{13}$
°K	atm^{-1}	atm^{-2}	atm^{-3}	atm^{-4}	atm^{-5}
80	-.(1)3919*	-1.82			
90	-.(1)2836	-.885			
100	-.(1)2127	-.4677			
110	-.(1)1640	-.2634			
120	-.(1)1292	-.1555			
130	-.(1)1036	-.(1)9513			
140	-.(2)8432	-.(1)5973			
150	-.(2)6938	-.(1)3816			
160	-.(2)5765	-.(1)2463			
170	-.(2)4830	-.(1)1595			
180	-.(2)4072	-.(1)1025	-29.40	-2.02	+0.01
190	-.(2)3453	-.(2)646	+20.00	-3.65	0.86
200	-.(2)2941	-.(2)391	28.47	-5.16	1.58
210	-.(2)2515	-.(2)219	31.97	-6.25	2.06
220	-.(2)2156	-.(2)101	33.24	-6.98	2.39
230	-.(2)1851	-.(3)21	31.56	-7.43	2.40
240	-.(2)1592	+.(3)33	27.62	-7.69	2.25
250	-.(2)1370	.(3)69	23.66	-7.76	2.03
260	-.(2)1179	.(3)93	20.12	-7.80	1.80
270	-.(2)1012	.(2)107	17.47	-7.75	1.60
280	-.(3)868	.(2)116	15.45	-7.63	1.50
290	-.(3)742	.(2)119	13.53	-7.24	1.45
300	-.(3)631	.(2)120	11.61	-6.60	1.40
310	-.(3)534	.(2)119	9.68	-5.74	1.24
320	-.(3)448	.(2)116	7.81	-4.54	0.94
330	-.(3)372	.(2)113	5.95	-3.21	0.51
340	-.(3)304	.(2)109	4.09	-1.90	0.12
350	-.(3)244	.(2)104	2.75	-0.87	0.02
360	-.(3)190	.(3)99	1.88	-0.41	0
370	-.(3)142	.(3)94	1.40	-0.30	
380	-.(4)99	.(3)90	1.06	-0.29	
390	-.(4)61	.(3)85	0.75	-0.22	
400	-.(4)26	.(3)81	0.42	-0.10	
410	+.(5)5	.(3)76	0	0	
420	+.(4)33	.(3)72			
430	.(4)58	.(3)68			
440	.(4)81	.(3)64			
450	.(3)101	.(3)61			
460	.(3)120	.(3)57			
470	.(3)136	.(3)54			
480	.(3)152	.(3)51			
490	.(3)165	.(3)49			
500	.(3)178	.(3)46			
510	.(3)189	.(3)43			
520	.(3)199	.(3)41			
530	.(3)208	.(3)39			
540	.(3)217	.(3)37			
550	.(3)224	.(3)35			
560	.(3)231	.(3)33			
570	.(3)237	.(3)31			
580	.(3)242	.(3)30			
590	.(3)247	.(3)28			
600	.(3)252	.(3)27			
650	.(3)268	.(3)21			
700	.(3)276	.(3)16			
750	.(3)279	.(3)13			
800	.(3)278	.(3)10			
850	.(3)276	.(4)8			
900	.(3)272	.(4)7			
950	.(3)267	.(4)5			
1000	.(3)261	.(4)4			

T	B_1	$C_1 \times 10^3$
°K	atm^{-1}	atm^{-2}
1200	+.(3)237	+.(4)2
1400	.(3)213	0
1600	.(3)193	
1800	.(3)175	
2000	.(3)159	
2200	.(3)146	
2400	.(3)135	
2600	.(3)125	
2800	.(3)116	
3000	.(3)108	
3200	.(3)102	
3400	.(4)96	
3600	.(4)90	
3800	.(4)85	
4000	.(4)81	
4200	.(4)77	
4400	.(4)73	
4600	.(4)70	
4800	.(4)66	
5000	.(4)63	

*Numbers in parentheses indicate the number of zeros immediately to the right of the decimal point.

Table 3-14. A COMPARISON OF EXPERIMENTAL AND CALCULATED SECOND VIRIAL COEFFICIENTS, B, FOR ARGON**

	Experimental *								Calculated
T	a	b	c	d	e	f	g	h	NBS
°K				cm^3/mole					
80						-227.89	-278.7		-257.3
90						-179.31	-217.4		-209.5
100						-150.66	-178.6		-174.5
110						-130.96	-150.9		-148.0
125						-109.02	-120.7		-118.5
150						- 82.38	- 85.51		- 85.40
151.92	-82.52								- 83.41
152.89	-82.14								- 82.43
153.93	-81.17								- 81.40
156.51	-79.00								- 78.90
157.27	-79.25								- 78.19
159.33	-75.67								- 76.29
163.25	-72.22								- 72.85
170.62	-65.07								- 66.89
173.16		-64.32							- 64.98
186.07	-53.83								- 56.22
200.00						- 48.35	- 44.55		- 48.27
215.43	-37.02								- 40.88
223.16		-37.79							- 37.61
250.00						- 28.21	- 23.06		- 28.10
273.16	-16.55	-22.08		-21.45	-21.12			-22.6	- 21.62
293.55	-12.54								- 16.88
298.16			-16.34	-15.75	-15.48				- 15.91
323.16		-11.02	-11.48	-11.24	-11.05				- 11.20
348.16			- 7.49	- 7.25	- 7.14				- 7.28
373.16		- 4.29	- 4.10	- 4.00	- 3.89			- 4.9	- 3.92
398.16			- .72	- 1.18	- 1.08				- 1.06
423.16		+ 1.16	+ 2.18	+ 1.38	+ 1.42				+ 1.42
447.16			3.71						3.50
473.16		4.67							5.49
573.16		11.22							11.23
673.16		15.29							15.03

* a Kamerlingh Onnes and Crommelin [1] from PVT data.
b Holborn and Schultze and Holborn and Otto [3, 38, 39, 40] from PVT data.
c Tanner and Masson [4] from PVT data.
d Michels, et al., [6] from PVT data fitted to a third degree series.
e Michels, et al., [6] from P VT data fitted to a sixth degree series.
f Van Itterbeek and Van Paemel [8] from sound velocity data and Holborn's B.
g Van Itterbeek and Van Paemel [8] from sound velocity data and Onnes B.
h Oishi [5] from PVT data.

**This coefficient appears in the equation $PV/RT = 1 + B/V + C/V^2 + D/V^3$.

Table 3-15. A COMPARISON OF EXPERIMENTAL AND CALCULATED THIRD, C, AND FOURTH, D, VIRIAL COEFFICIENTS FOR ARGON**

	Experimental*							Calculated	
	a	b		c	d	e		NBS	
T	C	C	$Dx10^5$	C	C	C	$Dx10^5$	C	$Dx10^5$
°K	$\frac{cm^6}{mole^2}$	$\frac{cm^6}{mole^2}$	$\frac{cm^9}{mole^3}$	$\frac{cm^6}{mole^2}$	$\frac{cm^6}{mole^2}$	$\frac{cm^6}{mole^2}$	$\frac{cm^9}{mole^3}$	$\frac{cm^6}{mole^2}$	$\frac{cm^9}{mole^3}$
151.92	+2141.7							1509.6	
152.89	2240.5							1507.3	
153.93	2058.0							1504.7	
156.51	2241.0							1496.8	
157.27	2388.4							1494.0	
159.33	2029.4							1486.4	
163.25	2155.2							1469.5	
170.62	1829.8							1432.8	
173.16		+ 888.9	+ 3.6					1419.5	
186.07	1564.5							1349.1	
215.43	1042.0							1204.7	
223.16		1752.9	-0.9					1172.7	
273.16	2.45	1676.3			+1270.1	+1053.20	+0.26	1021.8	+1.4
293.56	309.39							981.2	
298.16				+1464.2	1157.4	1990.5	0.22	973.2	1.2
323.16		1186.4		1263.9	1129.4	1016.3	0.095	936.6	1.1
348.16				1141.6	1039.9	959.0	0.099	908.6	0.5
373.16		1120.51		1029.4	1003.5	918.0	0.12	886.8	0.3
398.16				822.4	967.4	876.9	0.14	869.5	0.1
423.16		967.1		704.5	884.0	832.6	0.16	855.7	0.01
447.16				835.0				844.7	
473.16		991.0						835.0	
573.16		609.9						808.5	

*a Kamerlingh Onnes and Crommelin [1] from PVT data.
b Holborn and Schultze and Holborn and Otto [3, 38, 39, 40] from PVT data.
c Tanner and Masson [4] from PVT data.
d Michels, et al., [6] from PVT data fitted to a third degree series.
e Michels, et al., [6] from PVT data fitted to a sixth degree series.

**These coefficients appear in the equation $PV/RT = 1 + B/V + C/V^2 + D/V^3$.