CHAPTER 5

THE THERMODYNAMIC PROPERTIES OF CARBON MONOXIDE

The Correlation of the Experimental Data

The computation of a set of mutually consistent tables of thermodynamic properties for carbon monoxide has been accomplished through the representation of the data of state by the equation $Z = PV/RT = 1 + B_1P + C_1P^2$. The virial coefficients and their temperature derivatives were used, together with the values for the ideal gas, to obtain values for the various derived thermodynamic properties. The second virial coefficient, B_1, was obtained by fitting the available data of state to the Lennard-Jones 6-12 intermolecular potential using the force constants $\epsilon/k = 100.8°K$ and $r_o = 3.80$ **A.** These force constants were obtained through a graphical treatment of the data of state. Values of the third virial coefficient, C_1, were then obtained empirically by a graphical treatment of the experimental data. At temperatures above the experimental range, values of C_1 were extrapolated in such a way as to approach values of the third virials obtained from the above force constants. The virial coefficients are given in table 5-13.

Data of state for carbon monoxide have been reported by Scott [1], Goig-Botella [2, 3], Bartlett, Hetherington, Kvalnes, and Tremearne [4], Townend and Bhatt [5], and most recently by Michels, Lupton, Wassenaar, and DeGraaff [6]. The data from Scott, Goig-Botella, and Bartlett, et al., were correlated graphically by Deming and Shupe [7], who published tables to 400°C. The experimental data have been recorrelated as indicated above in such a manner as to permit extrapolation to higher temperatures. The adequacy of the correlation is corroborated by the data and calculations of Michels, et al., [6, 8, 9] which, though not considered in this correlation, show very satisfactory agreement with the present tables (see table 5-a). The other thermodynamic data for carbon monoxide which have been considered are the specific-heat measurements of Eucken and Von Lüde [10] and Sherratt and Griffiths [11].

The tabulated viscosities were computed independently from the parameters $\epsilon/k = 110.3$ and $r_o = 3.59$ A, for the Lennard-Jones 6-12 intermolecular potential. These constants were obtained by Hirschfelder, et al., [29] largely on the basis of the data of Johnston and Grilly [19]. No effort was made here to evaluate or reconcile the earlier data [20 - 23]. The departures of these data from the tabulated values are shown in figure 5d. The thermal conductivities were computed from an empirical equation fitted to the experimental data [24 - 28]. Summary tables 1-B and 1-C give the equations employed for both of the above transport properties.

The tables and equations for the vapor pressure of carbon monoxide are based on an analysis of the data in references [12 - 16], which are arranged roughly in the order of the weight given to the data taken from them. Carbon monoxide has a solid phase transition point at 61.57°K and a triple point at 68.09°K [30]. The triple-point and transition-point pressures are those of

Clayton and Giauque [13]; the critical temperature and pressure are from Crommelin, Bijleveld, and Brown [12]. Deviations of the experimental data [12 - 16] from the tabulated values are shown in figure 5f. The systematic differences appear to be due primarily to the use of different temperature scales.

The tabulated ideal-gas thermodynamic properties (table 5-12) are based on the calculations of Goff and Gratch [17] below 2800°K and of Belzer, Savedoff and Johnston [18] at higher temperatures. The values joined smoothly at this point except for the values of the enthalpy function which were joined at 2000° in favor of the later values [18] which were slightly higher (0.003) at 2800°K. The uncertainties in these values are indicated in summary table 1-D.

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, for density, the property is expressed as ρ/ρ_0, for sound velocity as a/a_0, for thermal conductivity as k/k_0, and for viscosity as η/η_0. The reference values, ρ_0, a_0, k_0, and η_0 were computed on the basis of the Lennard-Jones intermolecular potential, whose force constants were obtained in the manner outlined above. The value of k_0 was determined from an equation based on an empirical fit of the experimental data. The value of ρ_0 for carbon monoxide as given, 1.25052 $g\ell^{-1}$, is within the range of the experimental determinations at standard conditions [31 - 36], though above their mean of 1.25012 $g\ell^{-1}$. Comparisons of the adopted values of η_0 and k_0 with the experimental data at standard conditions can be made by examining figures 5d and 5e, respectively. The value of a_0 for carbon monoxide as given, 336.93 m/sec, is slightly below the mean value, 337.4 m/sec, of the experimental determinations [37, 38].

The Reliability of the Tables

The departures of the experimental data from the tabulated values for Z (table 5-1) are shown in figure 5a. The data of Bartlett, et al., [4], part of which are shown in figure 5a (and to which little weight was given in the correlation), show a maximum deviation of 4 percent. Up to 10 atmospheres, the uncertainty in the table should not exceed 10 percent in the value of (Z - 1), except in the low-temperature region (below 250°K), between 1 and 10 atmospheres where the error may approach 20 percent in (Z - 1). Above 10 atmospheres, the uncertainty in (Z - 1) runs from 25 percent at the lowest temperatures to 10 percent at higher temperatures. These uncertainties apply also to the tabulated densities (table 5-2). The uncertainties in the values of the derived thermodynamic properties depend on the uncertainties of the ideal-gas values (see summary table 1-D) and of the corrections for gas imperfection. It is difficult to formulate precise estimates of the uncertainties in the corrections for gas imperfection, since these corrections were computed on the basis of virial coefficients fitted to the rather limited experimental PVT data. It is possible that virial coefficients somewhat different from those chosen might represent the PVT data as closely and at the same time yield somewhat different temperature derivatives and, hence, different pressure corrections to the thermodynamic properties. The corrections for enthalpy and entropy are estimated to be accurate to within about 10 percent for pressures below 10 atmospheres and temperatures above 400°K and to within roughly 20 percent for higher pressures and lower temperatures.

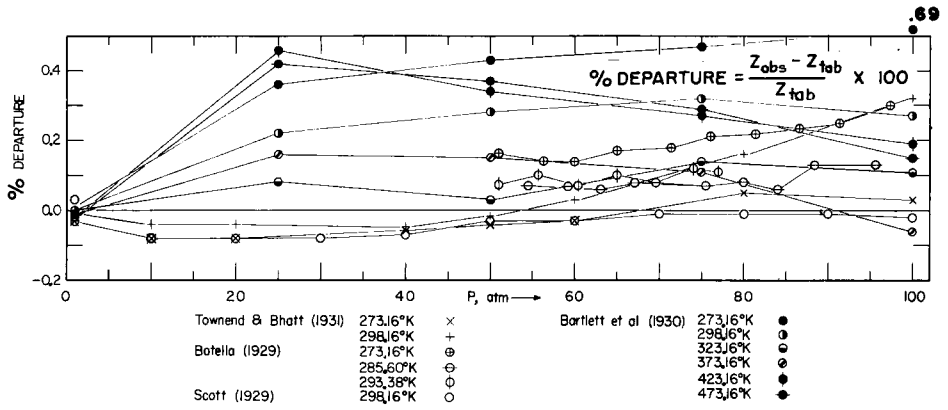

Figure 5a. Departures of experimental compressibility factors from the the tabulated values for carbon monoxide (table 5-1)

Figure 5b shows the departures of the experimental heat-capacity data from the values contained in table 5-3. Below 10 atmospheres and above 400°K, the estimate of the uncertainty in the calculated $C_p/R - C_p^o/R$ is about 20 percent and 30 to 50 percent at higher pressures and at lower temperatures.

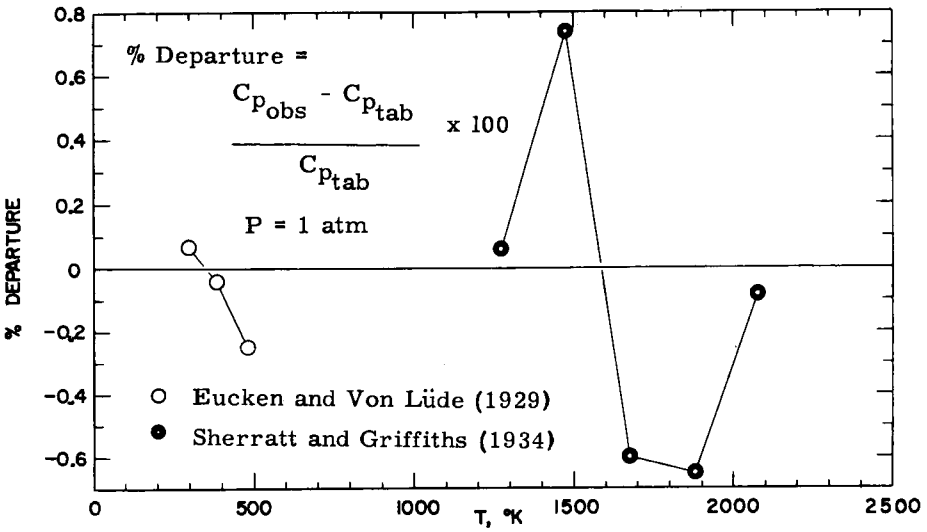

Figure 5b. Departures of experimental specific heats from the tabulated values for carbon monoxide (table 5-3)

A comparison of this correlation with the entropy and specific heats derived by Michels, et al., [8, 9] from their own PVT data is given in table 5-a. Since their data were not considered in this correlation, they may be taken as verification of the reliability of the derived thermodynamic properties.

The tabulated values of the specific-heat ratio and sound velocity at low frequency are estimated to be uncertain by about ±.002 between the ice point and 1000°K below 10 atmospheres. Above this pressure and at lower temperatures, the uncertainties increase to 1 percent at the

Table 5-a. COMPARISON OF RECENTLY PUBLISHED RESULTS WITH THIS CORRELATION

T	P = 1 atm		P = 50 atm		P = 100 atm	
°K	Z (M)*	Z (NBS)	Z (M)	Z (NBS)	Z (M)	Z (NBS)
273.16	.99939	.99933	.97689	.9749	.97136	.966
298.16	.99967	.99964	.99005	.9889	.99375	.9921
323.16	.99989	.99986	.99928	.9988	1.00929	1.0089
348.16	1.00005	1.00002	1.00596	1.0057	1.02026	1.0208
373.16	1.00017	1.00014	1.01078	1.0109	1.02805	1.0293
398.16	1.00026	1.00023	1.01425	1.0145	1.03360	1.0355
423.16	1.00031	1.00029	1.01677	1.0173	1.03772	1.0399

T	P = 1 atm		P = 50 atm		P = 100 atm	
°K	C_p/R(M)	C_p/R(NBS)	C_p/R(M)	C_p/R(NBS)	C_p/R(M)	C_p/R(NBS)
273.16	3.51	3.51	3.86	3.853	4.22	4.13
298.16	3.51	3.51	3.80	3.792	4.07	4.02
323.16	3.51	3.51	3.75	3.751	3.97	3.95
348.16	3.52	3.52	3.72	3.722	3.90	3.90
373.16	3.52	3.52	3.69	3.700	3.85	3.86
398.16	3.53	3.53	3.68	3.685	3.81	3.83
423.16	3.54	3.54	3.66	3.676	3.78	3.80

T	P = 1 atm		P = 50 atm		P = 100 atm	
°K	S/R(M)	S/R(NBS)	S/R(M)	S/R(NBS)	S/R(M)	S/R(NBS)
273.16			19.387	19.344	18.552	18.531
298.16	23.756	23.757	19.723	19.691	18.915	18.901
323.16	24.311	24.040	20.026	19.996	19.239	19.226
348.16	24.300	24.301	20.304	20.275	19.531	19.521
373.16	24.545	24.546	20.561	20.532	19.801	19.791
398.16	24.773	24.775	20.800	20.771	20.049	20.040
423.16	24.988	24.990	21.024	20.996	20.281	20.273

* (M) refers to data of Michels, Lupton, Wassenaar, and De Graaf [6, 8, 9].

lowest temperatures. Above 1000°K, where the gas approaches ideality, the values may be accurate to about ±.001. Figure 5c shows a comparison of the tabulated values of the heat-capacity ratios with those obtained from experimental heat capacities [10, 11]. The values of the thermal conductivity (table 5-9) are considered to be reliable to within 3 percent. Figure 5e shows the deviations of the tabulated values from the experimental data.

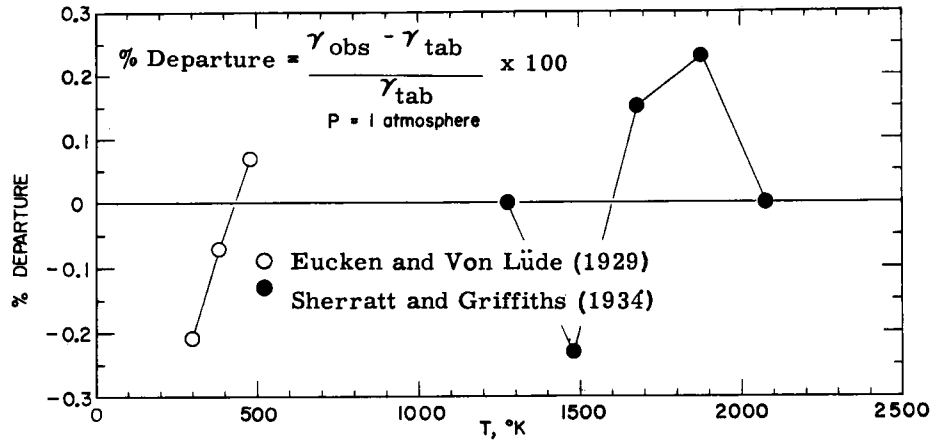

Figure 5c. Departures of experimentally derived γ's from the tabulated values for carbon monoxide (table 5-6)

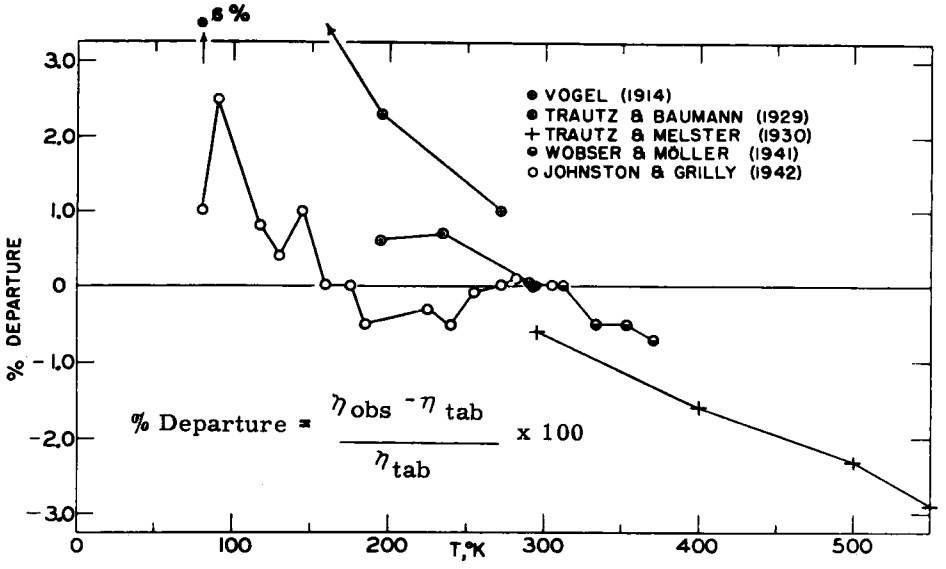

Figure 5d. Departures of experimental viscosities from the tabulated values for carbon monoxide (table 5-8)

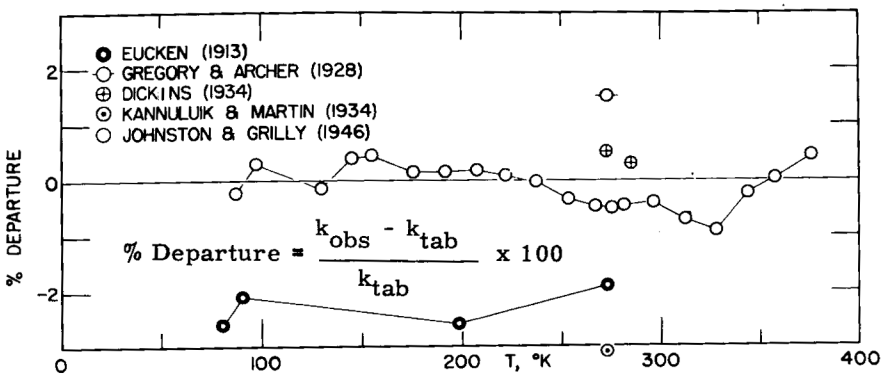

Figure 5e. Departures of experimental thermal conductivities from the tabulated values for carbon monoxide (table 5-9)

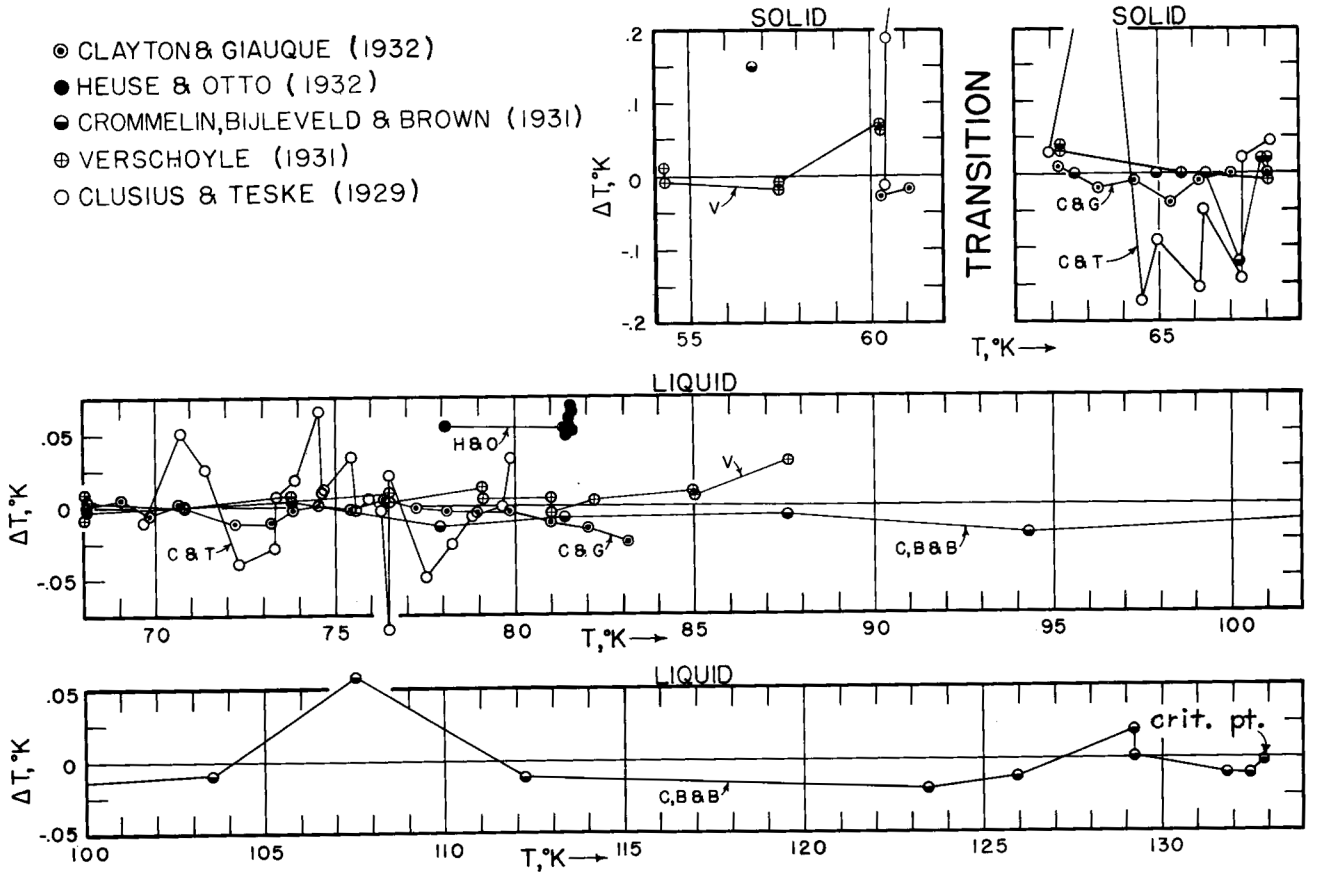

Figure 5f. Departures of the experimental vapor pressures from the tabulated values for carbon monoxide (table 5-11)

The values of the vapor pressure for the solid (5-11) were computed from two equations whose constants are given in table 5-11/b. The values for the solid are probably uncertain by about +0.1°K. The values for the liquid (tables 5-11 and 5-11/a) up to 85°K are reliable to about +0.03°K. At higher temperatures, where the tables are based entirely on the work of Crommelin, et al., [12], the reliability may be about ±0.06°K. The corresponding uncertainties in vapor pressure (mm Hg) are given below.

T, °K	54	61.57	68.09	68.09	85	110	132.88
P(±)	0.1	0.7	2(solid)	0.6(liquid)	3.5	30	70

The triple-point and transition-point pressures are independent of temperature-scale error and are probably accurate to ±0.2 mm Hg. See also figure 5f.

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Table 5-b. VALUES OF THE GAS CONSTANT, R, FOR CARBON MONOXIDE

Values of R for Carbon Monoxide for Temperatures in Degrees Kelvin

Pressure / Density	atm	kg/cm^2	mm Hg	lb/in^2
g/cm^3	2.92955	3.02689	2226.46	43.0527
$mole/cm^3$	82.0567	84.7832	62363.1	1205.91
mole/liter	0.0820544	0.0847809	62.3613	1.20587
lb/ft^3	0.0469264	0.0484858	35.6641	0.689631
lb $mole/ft^3$	1.31441	1.35808	998.952	19.3166

Values of R for Carbon Monoxide for Temperatures in Degrees Rankine

Pressure / Density	atm	kg/cm^2	mm Hg	lb/in^2
g/cm^3	1.62753	1.68161	1236.92	23.9182
$mole/cm^3$	45.5871	47.1018	34646.2	669.950
mole/liter	0.0455858	0.0471005	34.6452	0.669928
lb/ft^3	0.0260702	0.0269364	19.8134	0.383128
lb $mole/ft^3$	0.730228	0.754489	554.973	10.7314

Table 5-c. CONVERSION FACTORS FOR THE CARBON MONOXIDE TABLES

Conversion Factors for Table 5-2

To Convert Tabulated Value of	To	Having the Dimensions Indicated Below	Multiply by
ρ/ρ_0	ρ	g cm^{-3}	1.25048×10^{-3}
		mole cm^{-3}	4.46441×10^{-5}
		g $liter^{-1}$	1.25052
		lb in^{-3}	4.51768×10^{-5}
		lb ft^{-3}	7.80654×10^{-2}

Conversion Factors for Tables 5-4 and 5-12

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}	19.3795
		joules g^{-1}	81.0840
		Btu $(lb\ mole)^{-1}$	976.437
		Btu lb^{-1}	34.8603

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

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 $^oC^{-1}$)	0.0709457
$-(F^o - E_0^o)/RT$	$-(F^o - E_0^o)/T$	joules $g^{-1}\ {}^oK^{-1}$ (or $^oC^{-1}$)	0.296838
		Btu $(lb\ mole)^{-1}\ {}^oR^{-1}$ (or $^oF^{-1}$)	1.98588
		Btu $lb^{-1}\ {}^oR^{-1}$ (or $^oF^{-1}$)	0.0708989

The molecular weight of carbon monoxide is 28.010 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 5-c. CONVERSION FACTORS FOR THE CARBON MONOXIDE TABLES - Cont.

Conversion Factors for Table 5-7

To Convert Tabulated Value of	To	Having the Dimensions Indicated Below	Multiply by
a_0	a	$m\ sec^{-1}$	336.93
		$ft\ sec^{-1}$	1105.41

Conversion Factors for Table 5-8

To Convert Tabulated Value of	To	Having the Dimensions Indicated Below	Multiply by
η/η_0	η	poise or $g\ sec^{-1}\ cm^{-1}$	1.6568×10^{-4}
		$kg\ hr^{-1}\ m^{-1}$	5.9644×10^{-2}
		$slug\ hr^{-1}\ ft^{-1}$	1.2457×10^{-3}
		$lb\ sec^{-1}\ ft^{-1}$	1.1132×10^{-5}
		$lb\ hr^{-1}\ ft^{-1}$	4.0079×10^{-2}

Conversion Factors for Table 5-9

To Convert Tabulated Value of	To	Having the Dimensions Indicated Below	Multiply by
k/k_0	k	$cal\ cm^{-1}\ sec^{-1}\ {}^{o}K^{-1}$	5.549×10^{-5}
		$Btu\ ft^{-1}\ hr^{-1}\ {}^{o}R^{-1}$	1.342×10^{-2}
		$watts\ cm^{-1}\ {}^{o}K^{-1}$	2.322×10^{-4}

Table 5-1. COMPRESSIBILITY FACTOR FOR CARBON MONOXIDE $Z = PV/RT$

°K	.01 atm	.1 atm		.4 atm		.7 atm		°R
200	1.00000	.99973	4	.99892	18	.99811	31	360
210	1.00000	.99977	4	.99910	15	.99842	26	378
220	1.00000	.99981	3	.99925	12	.99868	22	396
230	1.00000	.99984	2	.99937	10	.99890	18	414
240	1.00000	.99986	3	.99947	9	.99908	16	432
250	1.00000	.99989	2	.99956	8	.99924	13	450
260	1.00000	.99991	1	.99964	7	.99937	12	468
270	1.00000	.99992	2	.99971	6	.99949	10	486
280	1.00000	.99994	1	.99977	5	.99959	9	504
290	1.00000	.99995	1	.99982	4	.99968	8	522
300	1.00000	.99996	1	.99986	4	.99976	6	540
310	1.00000	.99997	1	.99990	3	.99982	6	558
320	1.00000	.99998	1	.99993	3	.99988	6	576
330	1.00000	.99999	1	.99996	3	.99994	4	594
340	1.00000	1.00000		.99999	2	.99998	4	612
350	1.00000	1.00000	1	1.00001	2	1.00002	4	630
360	1.00000	1.00001		1.00003	2	1.00006	3	648
370	1.00000	1.00001	1	1.00005	2	1.00009	3	666
380	1.00000	1.00002		1.00007	1	1.00012	2	684
390	1.00000	1.00002		1.00008	1	1.00014	2	702
400	1.00000	1.00002	1	1.00009	1	1.00016	2	720
410	1.00000	1.00003		1.00010	1	1.00018	2	738
420	1.00000	1.00003		1.00011	1	1.00020	1	756
430	1.00000	1.00003		1.00012	1	1.00021	2	774
440	1.00000	1.00003		1.00013	1	1.00023	1	792
450	1.00000	1.00003	1	1.00014		1.00024	1	810
460	1.00000	1.00004		1.00014	1	1.00025	1	828
470	1.00000	1.00004		1.00015		1.00026	1	846
480	1.00000	1.00004		1.00015	1	1.00027	1	864
490	1.00000	1.00004		1.00016		1.00028		882
500	1.00000	1.00004		1.00016		1.00028	1	900
510	1.00000	1.00004		1.00016	1	1.00029		918
520	1.00000	1.00004		1.00017		1.00029	1	936
530	1.00000	1.00004		1.00017		1.00030		954
540	1.00000	1.00004		1.00017		1.00030		972
550	1.00000	1.00004		1.00017	1	1.00030	1	990
560	1.00000	1.00004		1.00018		1.00031		1008
570	1.00000	1.00004		1.00018		1.00031		1026
580	1.00000	1.00004		1.00018		1.00031		1044
590	1.00000	1.00004		1.00018		1.00031	1	1062
600	1.00000	1.00004		1.00018		1.00032		1080
610	1.00000	1.00004		1.00018		1.00032		1098
620	1.00000	1.00004		1.00018		1.00032		1116
630	1.00000	1.00004		1.00018		1.00032		1134
640	1.00000	1.00004		1.00018		1.00032		1152
650	1.00000	1.00004		1.00018		1.00032		1170
660	1.00000	1.00004		1.00018		1.00032		1188
670	1.00000	1.00004		1.00018		1.00032		1206
680	1.00000	1.00004		1.00018		1.00032		1224
690	1.00000	1.00004		1.00018		1.00032		1242
700	1.00000	1.00004		1.00018		1.00032	- 1	1260
710	1.00000	1.00004		1.00018		1.00031		1278
720	1.00000	1.00004		1.00018		1.00031		1296
730	1.00000	1.00004		1.00018		1.00031		1314
740	1.00000	1.00004		1.00018		1.00031		1332
750	1.00000	1.00004		1.00018		1.00031		1350
760	1.00000	1.00004		1.00018		1.00031		1368
770	1.00000	1.00004		1.00018		1.00031		1386
780	1.00000	1.00004		1.00018	- 1	1.00031	- 1	1404
790	1.00000	1.00004		1.00017		1.00030		1422
800	1.00000	1.00004		1.00017		1.00030		1440

Table 5-1. COMPRESSIBILITY FACTOR FOR CARBON MONOXIDE - Cont. $Z = PV/RT$

°K	.01 atm	.1 atm	.4 atm	.7 atm	°R
800	1.00000	1.00004	1.00017	1.00030	1440
850	1.00000	1.00004	1.00017	1.00030 − 1	1530
900	1.00000	1.00004	1.00016	1.00029 − 1	1620
950	1.00000	1.00004	1.00016 − 1	1.00028 − 1	1710
1000	1.00000	1.00004	1.00015	1.00027 − 1	1800
1050	1.00000	1.00004	1.00015 − 1	1.00026	1890
1100	1.00000	1.00004	1.00014	1.00026 − 1	1980
1150	1.00000	1.00004 − 1	1.00014	1.00025 − 1	2070
1200	1.00000	1.00003	1.00014 − 1	1.00024 − 1	2160
1250	1.00000	1.00003	1.00013	1.00023 − 1	2250
1300	1.00000	1.00003	1.00013 − 1	1.00022	2340
1350	1.00000	1.00003	1.00012	1.00022 − 1	2430
1400	1.00000	1.00003	1.00012	1.00021	2520
1450	1.00000	1.00003	1.00012 − 1	1.00021 − 1	2610
1500	1.00000	1.00003	1.00011	1.00020	2700
1550	1.00000	1.00003	1.00011	1.00020 − 1	2790
1600	1.00000	1.00003	1.00011 − 1	1.00019 − 1	2880
1650	1.00000	1.00003	1.00010	1.00018	2970
1700	1.00000	1.00003 − 1	1.00010	1.00018	3060
1750	1.00000	1.00002	1.00010	1.00018 − 1	3150
1800	1.00000	1.00002	1.00010	1.00017	3240
1850	1.00000	1.00002	1.00010 − 1	1.00017 − 1	3330
1900	1.00000	1.00002	1.00009	1.00016	3420
1950	1.00000	1.00002	1.00009	1.00016	3510
2000	1.00000	1.00002	1.00009	1.00016 − 1	3600
2050	1.00000	1.00002	1.00009 − 1	1.00015	3690
2100	1.00000	1.00002	1.00008	1.00015 − 1	3780
2150	1.00000	1.00002	1.00008	1.00014	3870
2200	1.00000	1.00002	1.00008	1.00014	3960
2250	1.00000	1.00002	1.00008	1.00014	4050
2300	1.00000	1.00002	1.00008	1.00014 − 1	4140
2350	1.00000	1.00002	1.00008 − 1	1.00013	4230
2400	1.00000	1.00002	1.00007	1.00013	4320
2450	1.00000	1.00002	1.00007	1.00013 − 1	4410
2500	1.00000	1.00002	1.00007	1.00012	4500
2550	1.00000	1.00002	1.00007	1.00012	4590
2600	1.00000	1.00002	1.00007	1.00012	4680
2650	1.00000	1.00002	1.00007	1.00012	4770
2700	1.00000	1.00002	1.00007 − 1	1.00012 − 1	4860
2750	1.00000	1.00002	1.00006	1.00011	4950
2800	1.00000	1.00002	1.00006	1.00011	5040
2850	1.00000	1.00002	1.00006	1.00011	5130
2900	1.00000	1.00002	1.00006	1.00011 − 1	5220
2950	1.00000	1.00002	1.00006	1.00010	5310
3000	1.00000	1.00002	1.00006	1.00010	5400

Table 5-1. COMPRESSIBILITY FACTOR FOR CARBON MONOXIDE - Cont. $Z = PV/RT$

°K	1 atm		4 atm		7 atm		10 atm		°R
200	.99730	44	.98927	177	.98131	311	.97344	444	360
210	.99774	37	.99104	148	.98442	259	.97788	371	378
220	.99811	32	.99252	124	.98701	218	.98159	311	396
230	.99843	26	.99376	106	.98919	185	.98470	262	414
240	.99869	23	.99482	90	.99104	157	.98732	223	432
250	.99892	19	.99572	77	.99261	134	.98955	191	450
260	.99911	17	.99649	67	.99395	115	.99146	165	468
270	.99928	14	.99716	57	.99510	100	.99311	142	486
280	.99942	13	.99773	50	.99610	87	.99453	123	504
290	.99955	11	.99823	43	.99697	75	.99576	107	522
300	.99966	9	.99866	38	.99772	66	.99683	93	540
310	.99975	9	.99904	34	.99838	58	.99776	82	558
320	.99984	7	.99938	28	.99896	50	.99858	72	576
330	.99991	7	.99966	27	.99946	45	.99930	64	594
340	.99998	5	.99993	22	.99991	40	.99994	56	612
350	1.00003	5	1.00015	20	1.00031	35	1.00050	49	630
360	1.00008	5	1.00035	18	1.00066	30	1.00099	43	648
370	1.00013	4	1.00053	16	1.00096	27	1.00142	39	666
380	1.00017	3	1.00069	14	1.00123	24	1.00181	34	684
390	1.00020	3	1.00083	12	1.00147	22	1.00215	30	702
400	1.00023	3	1.00095	11	1.00169	19	1.00245	27	720
410	1.00026	3	1.00106	10	1.00188	17	1.00272	24	738
420	1.00029	2	1.00116	8	1.00205	15	1.00296	21	756
430	1.00031	2	1.00124	8	1.00220	13	1.00317	19	774
440	1.00033	1	1.00132	7	1.00233	12	1.00336	16	792
450	1.00034	2	1.00139	6	1.00245	10	1.00352	15	810
460	1.00036	1	1.00145	5	1.00255	9	1.00367	13	828
470	1.00037	1	1.00150	5	1.00264	9	1.00380	12	846
480	1.00038	1	1.00155	4	1.00273	7	1.00392	10	864
490	1.00039	1	1.00159	4	1.00280	6	1.00402	9	882
500	1.00040	1	1.00163	3	1.00286	5	1.00411	7	900
510	1.00041	1	1.00166	3	1.00291	5	1.00418	7	918
520	1.00042	1	1.00169	2	1.00296	5	1.00425	6	936
530	1.00043		1.00171	2	1.00301	4	1.00431	6	954
540	1.00043	1	1.00173	2	1.00305	3	1.00437	4	972
550	1.00044		1.00175	2	1.00308	2	1.00441	3	990
560	1.00044		1.00177	1	1.00310	2	1.00444	3	1008
570	1.00044		1.00178	1	1.00312	2	1.00447	3	1026
580	1.00044	1	1.00179	1	1.00314	1	1.00450	2	1044
590	1.00045		1.00180		1.00315	1	1.00452	1	1062
600	1.00045		1.00180	1	1.00316	1	1.00453	1	1080
610	1.00045		1.00181		1.00317	1	1.00454	1	1098
620	1.00045		1.00181	1	1.00318		1.00455	1	1116
630	1.00045		1.00182		1.00318	1	1.00456		1134
640	1.00045		1.00182		1.00319		1.00456		1152
650	1.00045		1.00182		1.00319	- 1	1.00456	- 1	1170
660	1.00045		1.00182	- 1	1.00318		1.00455	- 1	1188
670	1.00045		1.00181		1.00318	- 1	1.00454		1206
680	1.00045		1.00181		1.00317		1.00454	- 1	1224
690	1.00045		1.00181	- 1	1.00317	- 1	1.00453	- 1	1242
700	1.00045		1.00180		1.00316	- 1	1.00452	- 1	1260
710	1.00045		1.00180	- 1	1.00315	- 1	1.00451	- 1	1278
720	1.00045		1.00179		1.00314	- 1	1.00450	- 2	1296
730	1.00045	- 1	1.00179	- 1	1.00313	- 1	1.00448	- 2	1314
740	1.00044		1.00178		1.00312	- 1	1.00446	- 1	1332
750	1.00044		1.00178	- 1	1.00311	- 1	1.00445	- 2	1350
760	1.00044		1.00177	- 1	1.00310	- 2	1.00443	- 2	1368
770	1.00044		1.00176	- 1	1.00308	- 1	1.00441	- 2	1386
780	1.00044		1.00175	- 1	1.00307	- 1	1.00439	- 2	1404
790	1.00044	- 1	1.00174		1.00306	- 2	1.00437	- 2	1422
800	1.00043		1.00174		1.00304		1.00435		1440

Table 5-1. COMPRESSIBILITY FACTOR FOR CARBON MONOXIDE - Cont. $Z = PV/RT$

°K	1 atm		4 atm		7 atm		10 atm		°R
800	1.00043	- 1	1.00174	- 5	1.00304	- 8	1.00435	- 11	1440
850	1.00042	- 1	1.00169	- 4	1.00296	- 8	1.00424	- 12	1530
900	1.00041	- 1	1.00165	- 5	1.00288	- 9	1.00412	- 12	1620
950	1.00040	- 1	1.00160	- 5	1.00279	- 8	1.00400	- 12	1710
1000	1.00039	- 1	1.00155	- 5	1.00271	- 8	1.00388	- 12	1800
1050	1.00038	- 2	1.00150	- 4	1.00263	- 8	1.00376	- 12	1890
1100	1.00036	- 1	1.00146	- 5	1.00255	- 8	1.00364	- 11	1980
1150	1.00035	- 1	1.00141	- 4	1.00247	- 7	1.00353	- 10	2070
1200	1.00034	- 1	1.00137	- 4	1.00240	- 7	1.00343	- 11	2160
1250	1.00033	- 1	1.00133	- 4	1.00233	- 7	1.00332	- 10	2250
1300	1.00032	- 1	1.00129	- 4	1.00226	- 7	1.00322	- 9	2340
1350	1.00031	- 1	1.00125	- 4	1.00219	- 6	1.00313	- 9	2430
1400	1.00030		1.00121	- 3	1.00213	- 6	1.00304	- 9	2520
1450	1.00030	- 1	1.00118	- 3	1.00207	- 6	1.00295	- 8	2610
1500	1.00029	- 1	1.00115	- 3	1.00201	- 6	1.00287	- 8	2700
1550	1.00028	- 1	1.00112	- 3	1.00195	- 5	1.00279	- 8	2790
1600	1.00027	- 1	1.00109	- 3	1.00190	- 5	1.00271	- 7	2880
1650	1.00026		1.00106	- 3	1.00185	- 5	1.00264	- 7	2970
1700	1.00026	- 1	1.00103	- 3	1.00180	- 5	1.00257	- 6	3060
1750	1.00025	- 1	1.00100	- 2	1.00175	- 4	1.00251	- 7	3150
1800	1.00024		1.00098	- 3	1.00171	- 4	1.00244	- 6	3240
1850	1.00024	- 1	1.00095	- 2	1.00167	- 4	1.00238	- 6	3330
1900	1.00023		1.00093	- 2	1.00163	- 4	1.00232	- 5	3420
1950	1.00023	- 1	1.00091	- 2	1.00159	- 4	1.00227	- 6	3510
2000	1.00022		1.00089	- 2	1.00155	- 4	1.00221	- 5	3600
2050	1.00022	- 1	1.00087	- 2	1.00151	- 3	1.00216	- 5	3690
2100	1.00021		1.00085	- 2	1.00148	- 3	1.00211	- 4	3780
2150	1.00021	- 1	1.00083	- 2	1.00145	- 3	1.00207	- 5	3870
2200	1.00020		1.00081	- 2	1.00142	- 3	1.00202	- 4	3960
2250	1.00020	- 1	1.00079	- 2	1.00139	- 3	1.00198	- 4	4050
2300	1.00019		1.00077	- 1	1.00136	- 3	1.00194	- 4	4140
2350	1.00019	- 1	1.00076	- 2	1.00133	- 3	1.00190	- 4	4230
2400	1.00018		1.00074	- 1	1.00130	- 3	1.00186	- 4	4320
2450	1.00018		1.00073	- 2	1.00127	- 2	1.00182	- 4	4410
2500	1.00018	- 1	1.00071	- 1	1.00125	- 3	1.00178	- 3	4500
2550	1.00017		1.00070	- 1	1.00122	- 2	1.00175	- 4	4590
2600	1.00017		1.00069	- 2	1.00120	- 2	1.00171	- 3	4680
2650	1.00017	- 1	1.00067	- 1	1.00118	- 2	1.00168	- 3	4770
2700	1.00016		1.00066	- 1	1.00116	- 3	1.00165	- 3	4860
2750	1.00016		1.00065	- 1	1.00113	- 2	1.00162	- 3	4950
2800	1.00016		1.00064	- 1	1.00111	- 2	1.00159	- 3	5040
2850	1.00016	- 1	1.00063	- 2	1.00109	- 2	1.00156	- 3	5130
2900	1.00015		1.00061	- 1	1.00107	- 1	1.00153	- 2	5220
2950	1.00015		1.00060	- 1	1.00106	- 2	1.00151	- 3	5310
3000	1.00015		1.00059		1.00104		1.00148		5400

Table 5-1. COMPRESSIBILITY FACTOR FOR CARBON MONOXIDE - Cont. $Z = PV/RT$

°K	10 atm		40 atm		70 atm		100 atm		°R
250	.9896	19	.9632	73					450
260	.9915	16	.9705	63					468
270	.9931	14	.9768	53	.9669	87			486
280	.9945	13	.9821	46	.9756	75	.9752	99	504
290	.9958	10	.9867	40	.9831	65	.9851	84	522
300	.9968	10	.9907	35	.9896	56	.9935	73	540
310	.9978	8	.9942	30	.9952	48	1.0008	63	558
320	.9986	7	.9972	26	1.0000	42	1.0071	54	576
330	.9993	6	.9998	23	1.0042	37	1.0125	48	594
340	.9999	6	1.0021	21	1.0079	33	1.0173	43	612
350	1.0005	5	1.0042	18	1.0112	29	1.0216	36	630
360	1.0010	4	1.0060	16	1.0141	25	1.0252	32	648
370	1.0014	4	1.0076	14	1.0166	22	1.0284	29	666
380	1.0018	4	1.0090	12	1.0188	20	1.0313	25	684
390	1.0022	3	1.0102	11	1.0208	17	1.0338	21	702
400	1.0025	2	1.0113	10	1.0225	15	1.0359	19	720
410	1.0027	3	1.0123	8	1.0240	14	1.0378	17	738
420	1.0030	2	1.0131	8	1.0254	11	1.0395	15	756
430	1.0032	2	1.0139	7	1.0265	10	1.0410	13	774
440	1.0034	1	1.0146	6	1.0275	10	1.0423	10	792
450	1.0035	2	1.0152	5	1.0285	8	1.0433	9	810
460	1.0037	1	1.0157	5	1.0293	6	1.0442	9	828
470	1.0038	1	1.0162	4	1.0299	6	1.0451	7	846
480	1.0039	1	1.0166	3	1.0305	5	1.0458	6	864
490	1.0040	1	1.0169	3	1.0310	4	1.0464	5	882
500	1.0041	1	1.0172	2	1.0314	4	1.0469	4	900
510	1.0042	1	1.0174	3	1.0318	4	1.0473	4	918
520	1.0043		1.0177	2	1.0322	3	1.0477	3	936
530	1.0043	1	1.0179	2	1.0325	2	1.0480	2	954
540	1.0044		1.0181	1	1.0327	2	1.0482	2	972
550	1.0044		1.0182	1	1.0329	1	1.0484	1	990
560	1.0044	1	1.0183	1	1.0330		1.0485		1008
570	1.0045		1.0184	1	1.0330	1	1.0485		1026
580	1.0045		1.0185		1.0331	1	1.0485		1044
590	1.0045		1.0185	1	1.0332		1.0485		1062
600	1.0045		1.0186		1.0332		1.0485	- 1	1080
610	1.0045	1	1.0186		1.0332		1.0484	- 1	1098
620	1.0046		1.0186		1.0332	- 1	1.0483	- 1	1116
630	1.0046		1.0186		1.0331		1.0482	- 1	1134
640	1.0046		1.0186		1.0331	- 1	1.0481	- 2	1152
650	1.0046		1.0186	- 1	1.0330	- 1	1.0479	- 2	1170
660	1.0046	- 1	1.0185		1.0329	- 1	1.0477	- 1	1188
670	1.0045		1.0185	- 1	1.0328	- 1	1.0476	- 2	1206
680	1.0045		1.0184		1.0327	- 1	1.0474	- 2	1224
690	1.0045		1.0184	- 1	1.0326	- 1	1.0472	- 2	1242
700	1.0045		1.0183	- 1	1.0325	- 2	1.0470	- 3	1260
710	1.0045		1.0182		1.0323	- 1	1.0467	- 2	1278
720	1.0045		1.0182	- 1	1.0322	- 2	1.0465	- 2	1296
730	1.0045		1.0181	- 1	1.0320	- 1	1.0463	- 3	1314
740	1.0045		1.0180		1.0319	- 2	1.0460	- 2	1332
750	1.0045	- 1	1.0180	- 1	1.0317	- 1	1.0458	- 3	1350
760	1.0044		1.0179	- 1	1.0316	- 2	1.0455	- 2	1368
770	1.0044		1.0178	- 1	1.0314	- 2	1.0453	- 3	1386
780	1.0044		1.0177	- 1	1.0312	- 1	1.0450	- 2	1404
790	1.0044		1.0176	- 1	1.0311	- 2	1.0448	- 3	1422
800	1.0044	- 2	1.0175	- 5	1.0309	- 9	1.0445	- 14	1440
850	1.0042	- 1	1.0170	- 4	1.0300	- 9	1.0431	- 13	1530
900	1.0041	- 1	1.0166	- 5	1.0291	- 9	1.0418	- 14	1620
950	1.0040	- 1	1.0161	- 5	1.0282	- 9	1.0404	- 13	1710
1000	1.0039	- 1	1.0156	- 5	1.0273	- 9	1.0391	- 14	1800
1050	1.0038		1.0151		1.0264		1.0377		1890

Table 5-1. COMPRESSIBILITY FACTOR FOR CARBON MONOXIDE - Cont. Z = PV/RT

°K	10 atm		40 atm		70 atm		100 atm		°R
1050	1.0038	- 2	1.0151	- 5	1.0264	- 8	1.0377	- 13	1890
1100	1.0036	- 1	1.0146	- 4	1.0256	- 8	1.0364	- 11	1980
1150	1.0035	- 1	1.0142	- 5	1.0248	- 8	1.0353	- 10	2070
1200	1.0034	- 1	1.0137	- 4	1.0240	- 7	1.0343	- 11	2160
1250	1.0033	- 1	1.0133	- 4	1.0233	- 7	1.0332	- 10	2250
1300	1.0032	- 1	1.0129	- 4	1.0226	- 7	1.0322	- 9	2340
1350	1.0031	- 1	1.0125	- 4	1.0219	- 7	1.0313	- 9	2430
1400	1.0030		1.0121	- 3	1.0212	- 6	1.0304	- 9	2520
1450	1.0030	- 1	1.0118	- 3	1.0206	- 6	1.0295	- 9	2610
1500	1.0029	- 1	1.0115	- 4	1.0200	- 5	1.0286	- 8	2700
1550	1.0028	- 1	1.0111	- 3	1.0195	- 5	1.0278	- 8	2790
1600	1.0027	- 1	1.0108	- 2	1.0190	- 5	1.0270	- 7	2880
1650	1.0026		1.0106	- 3	1.0185	- 5	1.0263	- 7	2970
1700	1.0026	- 1	1.0103	- 3	1.0180	- 5	1.0256	- 7	3060
1750	1.0025	- 1	1.0100	- 2	1.0175	- 4	1.0249	- 6	3150
1800	1.0024		1.0098	- 3	1.0171	- 5	1.0243	- 6	3240
1850	1.0024	- 1	1.0095	- 2	1.0166	- 4	1.0237	- 6	3330
1900	1.0023		1.0093	- 3	1.0162	- 4	1.0231	- 5	3420
1950	1.0023	- 1	1.0090	- 2	1.0158	- 3	1.0226	- 5	3510
2000	1.0022		1.0088	- 2	1.0155	- 4	1.0221	- 5	3600
2050	1.0022	- 1	1.0086	- 2	1.0151	- 3	1.0216	- 5	3690
2100	1.0021		1.0084	- 1	1.0148	- 4	1.0211	- 5	3780
2150	1.0021	- 1	1.0083	- 2	1.0144	- 3	1.0206	- 4	3870
2200	1.0020		1.0081	- 2	1.0141	- 3	1.0202	- 5	3960
2250	1.0020	- 1	1.0079	- 2	1.0138	- 3	1.0197	- 4	4050
2300	1.0019		1.0077	- 1	1.0135	- 3	1.0193	- 4	4140
2350	1.0019		1.0076	- 2	1.0132	- 3	1.0189	- 4	4230
2400	1.0019	- 1	1.0074	- 1	1.0129	- 2	1.0185	- 4	4320
2450	1.0018		1.0073	- 2	1.0127	- 3	1.0181	- 3	4410
2500	1.0018	- 1	1.0071	- 1	1.0124	- 2	1.0178	- 4	4500
2550	1.0017		1.0070	- 2	1.0122	- 2	1.0174	- 3	4590
2600	1.0017		1.0068	- 1	1.0120	- 3	1.0171	- 3	4680
2650	1.0017		1.0067	- 1	1.0117	- 2	1.0168	- 3	4770
2700	1.0017	- 1	1.0066	- 1	1.0115	- 2	1.0165	- 3	4860
2750	1.0016		1.0065	- 1	1.0113	- 2	1.0162	- 3	4950
2800	1.0016		1.0064	- 2	1.0111	- 2	1.0159	- 3	5040
2850	1.0016	- 1	1.0062	- 1	1.0109	- 2	1.0156	- 3	5130
2900	1.0015		1.0061	- 1	1.0107	- 2	1.0153	- 3	5220
2950	1.0015		1.0060	- 1	1.0105	- 1	1.0150	- 2	5310
3000	1.0015		1.0059		1.0104		1.0148		5400

Table 5-2. DENSITY OF CARBON MONOXIDE

ρ/ρ_0

°K	.01 atm		.1 atm		.4 atm		.7 atm		°R
200	.013649	−650	.136524	−6507	.54654	−2612	.95722	−4587	360
210	.012999	−591	.130017	−5914	.52042	−2373	.91135	−4165	378
220	.012408	−539	.124103	−5400	.49669	−2165	.86970	−3799	396
230	.011869	−495	.118703	−4949	.47504	−1984	.83171	−3480	414
240	.011374	−455	.113754	−4553	.45520	−1825	.79691	−3200	432
250	.010919	−420	.109201	−4202	.43695	−1684	.76491	−2952	450
260	.010499	−389	.104999	−3890	.42011	−1559	.73539	−2732	468
270	.010110	−361	.101109	−3613	.40452	−1447	.70807	−2536	486
280	.009749	−336	.097496	−3363	.39005	−1347	.68271	−2360	504
290	.009413	−314	.094133	−3138	.37658	−1256	.65911	−2202	522
300	.009099	−293	.090995	−2937	.36402	−1176	.63709	−2059	540
310	.008806	−276	.088058	−2752	.35226	−1102	.61650	−1930	558
320	.008530	−258	.085306	−2586	.34124	−1035	.59720	−1813	576
330	.008272	−243	.082720	−2433	.33089	− 974	.57907	−1705	594
340	.008029	−230	.080287	−2295	.32115	− 918	.56202	−1608	612
350	.007799	−216	.077992	−2166	.31197	− 867	.54594	−1519	630
360	.007583	−205	.075826	−2050	.30330	− 821	.53075	−1436	648
370	.007378	−194	.073776	−1942	.29509	− 777	.51639	−1360	666
380	.007184	−185	.071834	−1842	.28732	− 737	.50279	−1291	684
390	.006999	−175	.069992	−1750	.27995	− 701	.48988	−1225	702
400	.006824	−166	.068242	−1665	.27294	− 665	.47763	−1166	720
410	.006658	−159	.066577	−1585	.26629	− 634	.46597	−1110	738
420	.006499	−151	.064992	−1512	.25995	− 605	.45487	−1059	756
430	.006348	−144	.063480	−1443	.25390	− 577	.44428	−1010	774
440	.006204	−138	.062037	−1378	.24813	− 552	.43418	− 966	792
450	.006066	−132	.060659	−1319	.24261	− 527	.42452	− 923	810
460	.005934	−126	.059340	−1263	.23734	− 506	.41529	− 884	828
470	.005808	−121	.058077	−1210	.23228	− 484	.40645	− 847	846
480	.005687	−116	.056867	−1160	.22744	− 464	.39798	− 813	864
490	.005571	−112	.055707	−1114	.22280	− 446	.38985	− 779	882
500	.005459	−107	.054593	−1071	.21834	− 428	.38206	− 750	900
510	.005352	−103	.053522	−1029	.21406	− 412	.37456	− 720	918
520	.005249	− 99	.052493	− 991	.20994	− 396	.36736	− 694	936
530	.005150	− 95	.051502	− 953	.20598	− 381	.36042	− 667	954
540	.005055	− 92	.050549	− 920	.20217	− 368	.35375	− 643	972
550	.004963	− 88	.049629	− 886	.19849	− 354	.34732	− 621	990
560	.004875	− 86	.048743	− 855	.19495	− 342	.34111	− 598	1008
570	.004789	− 83	.047888	− 826	.19153	− 331	.33513	− 578	1026
580	.004706	− 79	.047062	− 797	.18822	− 319	.32935	− 558	1044
590	.004627	− 77	.046265	− 771	.18503	− 308	.32377	− 540	1062
600	.004550	− 75	.045494	− 746	.18195	− 298	.31837	− 522	1080
610	.004475	− 72	.044748	− 722	.17897	− 289	.31315	− 505	1098
620	.004403	− 70	.044026	− 699	.17608	− 279	.30810	− 489	1116
630	.004333	− 68	.043327	− 677	.17329	− 271	.30321	− 474	1134
640	.004265	− 65	.042650	− 656	.17058	− 263	.29847	− 459	1152
650	.004200	− 64	.041994	− 636	.16795	− 254	.29388	− 445	1170
660	.004136	− 62	.041358	− 617	.16541	− 247	.28943	− 432	1188
670	.004074	− 60	.040741	− 600	.16294	− 240	.28511	− 420	1206
680	.004014	− 58	.040141	− 581	.16054	− 232	.28091	− 407	1224
690	.003956	− 56	.039560	− 565	.15822	− 226	.27684	− 395	1242
700	.003900	− 55	.038995	− 550	.15596	− 220	.27289	− 384	1260
710	.003845	− 54	.038445	− 534	.15376	− 214	.26905	− 374	1278
720	.003791	− 52	.037911	− 519	.15162	− 207	.26531	− 364	1296
730	.003739	− 50	.037392	− 505	.14955	− 202	.26167	− 353	1314
740	.003689	− 49	.036887	− 492	.14753	− 197	.25814	− 344	1332
750	.003640	− 48	.036395	− 479	.14556	− 192	.25470	− 335	1350
760	.003592	− 47	.035916	− 466	.14364	− 186	.25135	− 327	1368
770	.003545	− 45	.035450	− 455	.14178	− 182	.24808	− 318	1386
780	.003500	− 45	.034995	− 443	.13996	− 177	.24490	− 310	1404
790	.003455	− 43	.034552	− 432	.13819	− 173	.24180	− 302	1422
800	.003412		.034120		.13646		.23878		1440

Table 5-2. DENSITY OF CARBON MONOXIDE - Cont. ρ/ρ_0

°K	.01 atm		.1 atm		.4 atm		.7 atm		°R
800	.003412	−201	.034120	−2007	.13646	− 802	.23878	−1405	1440
850	.003211	−178	.032113	−1784	.12844	− 714	.22473	−1248	1530
900	.003033	−160	.030329	−1596	.12130	− 638	.21225	−1117	1620
950	.002873	−143	.028733	−1437	.11492	− 575	.20108	−1005	1710
1000	.002730	−130	.027296	−1299	.10917	− 520	.19103	− 909	1800
1050	.002600	−118	.025997	−1182	.10397	− 472	.18194	− 827	1890
1100	.002482	−108	.024815	−1079	.099249	− 4315	.17367	− 755	1980
1150	.002374	− 99	.023736	− 989	.094934	− 3955	.16612	− 692	2070
1200	.002275	− 91	.022747	− 910	.090979	− 3639	.15920	− 637	2160
1250	.002184	− 84	.021837	− 840	.087340	− 3359	.15283	− 588	2250
1300	.002100	− 78	.020997	− 777	.083981	− 3110	.14695	− 544	2340
1350	.002022	− 72	.020220	− 722	.080871	− 2888	.14151	− 505	2430
1400	.001950	− 67	.019498	− 673	.077983	− 2689	.13646	− 471	2520
1450	.001883	− 63	.018825	− 627	.075294	− 2509	.13175	− 439	2610
1500	.001820	− 59	.018198	− 587	.072785	− 2348	.12736	− 411	2700
1550	.001761	− 55	.017611	− 551	.070437	− 2201	.12325	− 385	2790
1600	.001706	− 52	.017060	− 517	.068236	− 2067	.11940	− 361	2880
1650	.001654	− 48	.016543	− 486	.066169	− 1946	.11579	− 341	2970
1700	.001606	− 46	.016057	− 459	.064223	− 1835	.11238	− 321	3060
1750	.001560	− 43	.015598	− 433	.062388	− 1733	.10917	− 303	3150
1800	.001517	− 41	.015165	− 410	.060655	− 1639	.10614	− 287	3240
1850	.001476	− 39	.014755	− 388	.059016	− 1553	.10327	− 272	3330
1900	.001437	− 37	.014367	− 369	.057463	− 1473	.10055	− 258	3420
1950	.001400	− 35	.013998	− 350	.055990	− 1400	.09797	− 245	3510
2000	.001365	− 33	.013648	− 332	.054590	− 1332	.09552	− 233	3600
2050	.001332	− 32	.013316	− 318	.053258	− 1267	.09319	− 222	3690
2100	.001300	− 30	.012998	− 302	.051991	− 1209	.09097	− 211	3780
2150	.001270	− 29	.012696	− 288	.050782	− 1154	.08886	− 202	3870
2200	.001241	− 28	.012408	− 276	.049628	− 1103	.08684	− 193	3960
2250	.001213	− 26	.012132	− 264	.048525	− 1055	.08491	− 185	4050
2300	.001187	− 25	.011868	− 252	.047470	− 1010	.08306	− 176	4140
2350	.001162	− 25	.011616	− 242	.046460	− 968	.08130	− 170	4230
2400	.001137	− 23	.011374	− 232	.045492	− 928	.07960	− 162	4320
2450	.001114	− 22	.011142	− 223	.044564	− 891	.07798	− 156	4410
2500	.001092	− 22	.010919	− 214	.043673	− 857	.07642	− 150	4500
2550	.001070	− 20	.010705	− 206	.042816	− 823	.07492	− 144	4590
2600	.001050	− 20	.010499	− 198	.041993	− 792	.07348	− 139	4680
2650	.001030	− 19	.010301	− 191	.041201	− 763	.07209	− 133	4770
2700	.001011	− 18	.010110	− 184	.040438	− 735	.07076	− 129	4860
2750	.000993	− 18	.009926	− 177	.039703	− 709	.06947	− 124	4950
2800	.000975	− 17	.009749	− 171	.038994	− 684	.06823	− 120	5040
2850	.000958	− 17	.009578	− 165	.038310	− 661	.06703	− 115	5130
2900	.000941	− 16	.009413	− 160	.037649	− 638	.06588	− 112	5220
2950	.000925	− 15	.009253	− 154	.037011	− 617	.06476	− 108	5310
3000	.000910	− 15	.009099	− 149	.036394	− 596	.06368	− 104	5400

Table 5-2. DENSITY OF CARBON MONOXIDE - Cont.

ρ/ρ_0

°K	1 atm		4 atm		7 atm		10 atm		°R
200	1.3686	-658	5.5187	-2722	9.7361	-4930	14.021	-728	360
210	1.3028	-597	5.2465	-2459	9.2431	-4433	13.293	-652	378
220	1.2431	-544	5.0006	-2234	8.7998	-4011	12.641	-588	396
230	1.1887	-498	4.7772	-2039	8.3987	-3650	12.053	-533	414
240	1.1389	-458	4.5733	-1869	8.0337	-3335	11.520	-486	432
250	1.0931	-423	4.3864	-1720	7.7002	-3062	11.034	-445	450
260	1.0508	-391	4.2144	-1588	7.3940	-2820	10.589	-409	468
270	1.0117	-362	4.0556	-1471	7.1120	-2609	10.180	-377	486
280	.97547	-3376	3.9085	-1367	6.8511	-2420	9.8027	-3497	504
290	.94171	-3149	3.7718	-1273	6.6091	-2252	9.4530	-3249	522
300	.91022	-2944	3.6445	-1189	6.3839	-2100	9.1281	-3027	540
310	.88078	-2760	3.5256	-1113	6.1739	-1964	8.8254	-2828	558
320	.85318	-2591	3.4143	-1044	5.9775	-1840	8.5426	-2649	576
330	.82727	-2439	3.3099	- 982	5.7935	-1729	8.2777	-2486	594
340	.80288	-2298	3.2117	- 925	5.6206	-1628	8.0291	-2337	612
350	.77990	-2170	3.1192	- 872	5.4578	-1535	7.7954	-2203	630
360	.75820	-2053	3.0320	- 825	5.3043	-1449	7.5751	-2079	648
370	.73767	-1944	2.9495	- 781	5.1594	-1371	7.3672	-1967	666
380	.71823	-1844	2.8714	- 740	5.0223	-1300	7.1705	-1862	684
390	.69979	-1751	2.7974	- 703	4.8923	-1233	6.9843	-1766	702
400	.68228	-1666	2.7271	- 668	4.7690	-1172	6.8077	-1679	720
410	.66562	-1587	2.6603	- 636	4.6518	-1115	6.6398	-1596	738
420	.64975	-1512	2.5967	- 606	4.5403	-1063	6.4802	-1520	756
430	.63463	-1444	2.5361	- 578	4.4340	-1013	6.3282	-1450	774
440	.62019	-1379	2.4783	- 552	4.3327	- 968	6.1832	-1384	792
450	.60640	-1319	2.4231	- 528	4.2359	- 925	6.0448	-1323	810
460	.59321	-1263	2.3703	- 506	4.1434	- 885	5.9125	-1265	828
470	.58058	-1210	2.3197	- 484	4.0549	- 849	5.7860	-1212	846
480	.56848	-1161	2.2713	- 465	3.9700	- 813	5.6648	-1162	864
490	.55687	-1114	2.2248	- 446	3.8887	- 780	5.5486	-1115	882
500	.54573	-1071	2.1802	- 428	3.8107	- 749	5.4371	-1069	900
510	.53502	-1029	2.1374	- 411	3.7358	- 720	5.3302	-1029	918
520	.52473	- 991	2.0963	- 396	3.6638	- 693	5.2273	- 990	936
530	.51482	- 953	2.0567	- 382	3.5945	- 667	5.1283	- 952	954
540	.50529	- 919	2.0185	- 367	3.5278	- 643	5.0331	- 917	972
550	.49610	- 886	1.9818	- 354	3.4635	- 619	4.9414	- 884	990
560	.48724	- 855	1.9464	- 342	3.4016	- 597	4.8530	- 853	1008
570	.47869	- 825	1.9122	- 330	3.3419	- 577	4.7677	- 823	1026
580	.47044	- 798	1.8792	- 319	3.2842	- 557	4.6854	- 795	1044
590	.46246	- 771	1.8473	- 307	3.2285	- 538	4.6059	- 768	1062
600	.45475	- 745	1.8166	- 298	3.1747	- 521	4.5291	- 743	1080
610	.44730	- 722	1.7868	- 289	3.1226	- 504	4.4548	- 719	1098
620	.44008	- 698	1.7579	- 279	3.0722	- 488	4.3829	- 696	1116
630	.43310	- 677	1.7300	- 270	3.0234	- 472	4.3133	- 674	1134
640	.42633	- 656	1.7030	- 262	2.9762	- 458	4.2459	- 654	1152
650	.41977	- 636	1.6768	- 254	2.9304	- 444	4.1805	- 633	1170
660	.41341	- 617	1.6514	- 246	2.8860	- 431	4.1172	- 614	1188
670	.40724	- 599	1.6268	- 240	2.8429	- 418	4.0558	- 596	1206
680	.40125	- 581	1.6028	- 232	2.8011	- 405	3.9962	- 579	1224
690	.39544	- 565	1.5796	- 226	2.7606	- 395	3.9383	- 562	1242
700	.38979	- 549	1.5570	- 219	2.7211	- 383	3.8821	- 547	1260
710	.38430	- 534	1.5351	- 213	2.6828	- 372	3.8274	- 531	1278
720	.37896	- 519	1.5138	- 207	2.6456	- 362	3.7743	- 516	1296
730	.37377	- 505	1.4931	- 202	2.6094	- 352	3.7227	- 502	1314
740	.36872	- 491	1.4729	- 196	2.5742	- 343	3.6725	- 490	1332
750	.36381	- 479	1.4533	- 191	2.5399	- 334	3.6235	- 476	1350
760	.35902	- 466	1.4342	- 186	2.5065	- 325	3.5759	- 463	1368
770	.35436	- 455	1.4156	- 182	2.4740	- 317	3.5296	- 452	1386
780	.34981	- 443	1.3974	- 177	2.4423	- 309	3.4844	- 441	1404
790	.34538	- 431	1.3797	- 172	2.4114	- 301	3.4403	- 429	1422
800	.34107		1.3625		2.3813		3.3974		1440

Table 5-2. DENSITY OF CARBON MONOXIDE - Cont.

ρ/ρ_0

°K	1 atm		4 atm		7 atm		10 atm		°R
800	.34107	-2006	1.3625	- 801	2.3813	-1399	3.3974	-1995	1440
850	.32101	-1783	1.2824	- 712	2.2414	-1244	3.1979	-1773	1530
900	.30318	-1595	1.2112	- 637	2.1170	-1112	3.0206	-1586	1620
950	.28723	-1436	1.1475	- 573	2.0058	-1001	2.8620	-1428	1710
1000	.27287	-1299	1.0902	- 519	1.9057	- 906	2.7192	-1292	1800
1050	.25988	-1181	1.0383	- 471	1.8151	- 824	2.5900	-1174	1890
1100	.24807	-1078	.99119	- 4305	1.7327	- 752	2.4726	-1073	1980
1150	.23729	- 989	.94814	- 3947	1.6575	- 690	2.3653	- 983	2070
1200	.22740	- 909	.90867	- 3631	1.5885	- 634	2.2670	- 904	2160
1250	.21831	- 840	.87236	- 3352	1.5251	- 586	2.1766	- 835	2250
1300	.20991	- 777	.83884	- 3104	1.4665	- 542	2.0931	- 774	2340
1350	.20214	- 722	.80780	- 2882	1.4123	- 503	2.0157	- 718	2430
1400	.19492	- 672	.77898	- 2684	1.3620	- 469	1.9439	- 669	2520
1450	.18820	- 627	.75214	- 2505	1.3151	- 438	1.8770	- 624	2610
1500	.18193	- 587	.72709	- 2343	1.2713	- 409	1.8146	- 584	2700
1550	.17606	- 550	.70366	- 2197	1.2304	- 384	1.7562	- 547	2790
1600	.17056	- 516	.68169	- 2064	1.1920	- 361	1.7015	- 515	2880
1650	.16540	- 487	.66105	- 1942	1.1559	- 339	1.6500	- 484	2970
1700	.16053	- 458	.64163	- 1831	1.1220	- 320	1.6016	- 457	3060
1750	.15595	- 433	.62332	- 1731	1.0900	- 302	1.5559	- 431	3150
1800	.15162	- 410	.60601	- 1636	1.0598	- 286	1.5128	- 408	3240
1850	.14752	- 388	.58965	- 1550	1.0312	- 271	1.4720	- 386	3330
1900	.14364	- 369	.57415	- 1471	1.0041	- 257	1.4334	- 367	3420
1950	.13995	- 349	.55944	- 1398	.97835	- 2442	1.3967	- 348	3510
2000	.13646	- 333	.54546	- 1329	.95393	- 2323	1.3619	- 332	3600
2050	.13313	- 317	.53217	- 1266	.93070	- 2213	1.3287	- 316	3690
2100	.12996	- 302	.51951	- 1207	.90857	- 2110	1.2971	- 301	3780
2150	.12694	- 289	.50744	- 1153	.88747	- 2015	1.2670	- 287	3870
2200	.12405	- 275	.49591	- 1101	.86732	- 1925	1.2383	- 275	3960
2250	.12130	- 264	.48490	- 1053	.84807	- 1841	1.2108	- 263	4050
2300	.11866	- 252	.47437	- 1009	.82966	- 1763	1.1845	- 251	4140
2350	.11614	- 242	.46428	- 966	.81203	- 1689	1.1594	- 241	4230
2400	.11372	- 232	.45462	- 927	.79514	- 1620	1.1353	- 231	4320
2450	.11140	- 223	.44535	- 890	.77894	- 1557	1.1122	- 222	4410
2500	.10917	- 214	.43645	- 856	.76337	- 1494	1.0900	- 214	4500
2550	.10703	- 206	.42789	- 822	.74843	- 1438	1.0686	- 205	4590
2600	.10497	- 198	.41967	- 791	.73405	- 1384	1.0481	- 197	4680
2650	.10299	- 190	.41176	- 762	.72021	- 1332	1.0284	- 191	4770
2700	.10109	- 185	.40414	- 734	.70689	- 1283	1.0093	- 183	4860
2750	.09924	- 177	.39680	- 709	.69406	- 1238	.9910	- 176	4950
2800	.09747	- 171	.38971	- 683	.68168	- 1195	.9734	- 171	5040
2850	.09576	- 165	.38288	- 659	.66973	- 1153	.9563	- 164	5130
2900	.09411	- 159	.37629	- 638	.65820	- 1115	.9399	- 160	5220
2950	.09252	- 155	.36991	- 616	.64705	- 1077	.9239	- 153	5310
3000	.09097		.36375		.63628		.9086		5400

Table 5-2. DENSITY OF CARBON MONOXIDE - Cont. ρ/ρ_0

°K	10 atm		40 atm		70 atm		100 atm		°R
250	11.03	-44	45.34	-207					450
260	10.59	-41	43.27	-187					468
270	10.18	-38	41.40	-169					486
280	9.803	-349	39.71	-155	69.95	-293	99.97	- 442	504
290	9.454	-326	38.16	-142	67.02	-266	95.55	- 396	522
300	9.128	-303	36.74	-131	64.36	-242	91.59	- 360	540
310	8.825	-283	35.43	-121	61.94	-223	87.99	- 329	558
320	8.542	-264	34.22	-113	59.71	-205	84.70	- 300	576
330	8.278	-249	33.09	-104	57.66	-190	81.70	- 278	594
340	8.029	-234	32.05	- 98	55.76	-177	78.92	- 258	612
350	7.795	-220	31.07	- 92	53.99	-165	76.34	- 238	630
360	7.575	-208	30.15	- 86	52.34	-154	73.96	- 222	648
370	7.367	-196	29.29	- 81	50.80	-144	71.74	- 208	666
380	7.171	-186	28.48	- 77	49.36	-136	69.66	- 196	684
390	6.985	-177	27.71	- 72	48.00	-128	67.70	- 182	702
400	6.808	-168	26.99	- 68	46.72	-121	65.88	- 173	720
410	6.640	-160	26.31	- 65	45.51	-114	64.15	- 163	738
420	6.480	-152	25.66	- 62	44.37	-108	62.52	- 154	756
430	6.328	-144	25.04	- 58	43.29	-102	60.98	- 146	774
440	6.184	-139	24.46	- 56	42.27	- 98	59.52	- 138	792
450	6.045	-133	23.90	- 53	41.29	- 93	58.14	- 131	810
460	5.912	-126	23.37	- 51	40.36	- 88	56.83	- 126	828
470	5.786	-121	22.86	- 48	39.48	- 85	55.57	- 119	846
480	5.665	-116	22.38	- 47	38.63	- 81	54.38	- 114	864
490	5.549	-112	21.91	- 44	37.82	- 77	53.24	- 109	882
500	5.437	-107	21.47	- 43	37.05	- 74	52.15	- 104	900
510	5.330	-102	21.04	- 41	36.31	- 71	51.11	- 101	918
520	5.228	-100	20.63	- 39	35.60	- 68	50.10	- 95	936
530	5.128	- 95	20.24	- 38	34.92	- 65	49.15	- 92	954
540	5.033	- 92	19.86	- 36	34.27	- 63	48.23	- 89	972
550	4.941	- 88	19.50	- 35	33.64	- 61	47.34	- 85	990
560	4.853	- 85	19.15	- 34	33.03	- 58	46.49	- 82	1008
570	4.768	- 83	18.81	- 33	32.45	- 56	45.67	- 78	1026
580	4.685	- 79	18.48	- 31	31.89	- 54	44.89	- 76	1044
590	4.606	- 77	13.17	- 30	31.35	- 53	44.13	- 74	1062
600	4.529	- 74	17.87	- 30	30.82	- 50	43.39	- 71	1080
610	4.455	- 72	17.57	- 28	30.32	- 49	42.68	- 68	1098
620	4.383	- 69	17.29	- 27	29.83	- 47	42.00	- 66	1116
630	4.314	- 68	17.02	- 27	29.36	- 46	41.34	- 65	1134
640	4.246	- 65	16.75	- 26	28.90	- 44	40.69	- 61	1152
650	4.181	- 64	16.49	- 25	28.46	- 43	40.08	- 60	1170
660	4.117	- 61	16.24	- 24	28.03	- 42	39.48	- 59	1188
670	4.056	- 60	16.00	- 23	27.61	- 40	38.89	- 56	1206
680	3.996	- 58	15.77	- 23	27.21	- 39	38.33	- 55	1224
690	3.938	- 56	15.54	- 22	26.82	- 38	37.78	- 53	1242
700	3.882	- 55	15.32	- 22	26.44	- 37	37.25	- 52	1260
710	3.827	- 53	15.10	- 21	26.07	- 36	36.73	- 50	1278
720	3.774	- 51	14.89	- 20	25.71	- 35	36.23	- 49	1296
730	3.723	- 51	14.69	- 20	25.36	- 34	35.74	- 47	1314
740	3.672	- 48	14.49	- 19	25.02	- 33	35.27	- 47	1332
750	3.624	- 48	14.30	- 19	24.69	- 32	34.80	- 45	1350
760	3.576	- 46	14.11	- 18	24.37	- 31	34.35	- 44	1368
770	3.530	- 46	13.93	- 17	24.06	- 30	33.91	- 42	1386
780	3.484	- 44	13.76	- 18	23.76	- 30	33.49	- 42	1404
790	3.440	- 42	13.58	- 17	23.46	- 29	33.07	- 40	1422
800	3.398	-200	13.41	- 78	23.17	-134	32.67	- 188	1440
850	3.198	-177	12.63	- 70	21.83	-120	30.79	- 168	1530
900	3.021	-159	11.93	- 62	20.63	-107	29.11	- 149	1620
950	2.862	-143	11.31	- 56	19.56	- 96	27.62	- 135	1710
1000	2.719	-129	10.75	- 51	18.60	- 87	26.27	- 122	1800
1050	2.590		10.24		17.73		25.05		1890

Table 5-2. DENSITY OF CARBON MONOXIDE - Cont.

ρ/ρ_0

°K	10 atm		40 atm		70 atm		100 atm		°R
1050	2.590	-117	10.24	- 46	17.73	- 79	25.05	- 111	1890
1100	2.473	-108	9.783	- 421	16.94	- 73	23.94	- 101	1980
1150	2.365	- 98	9.362	- 386	16.21	- 66	22.93	- 94	2070
1200	2.267	- 90	8.976	- 355	15.55	- 61	21.99	- 85	2160
1250	2.177	- 84	8.621	- 329	14.94	- 57	21.14	- 80	2250
1300	2.093	- 77	8.292	- 304	14.37	- 52	20.34	- 73	2340
1350	2.016	- 72	7.988	- 282	13.85	- 48	19.61	- 69	2430
1400	1.944	- 67	7.706	- 264	13.37	- 46	18.92	- 63	2520
1450	1.877	- 62	7.442	- 245	12.91	- 42	18.29	- 60	2610
1500	1.815	- 59	7.197	- 230	12.49	- 40	17.69	- 56	2700
1550	1.756	- 55	6.967	- 216	12.09	- 37	17.13	- 52	2790
1600	1.701	- 51	6.751	- 203	11.72	- 35	16.61	- 49	2880
1650	1.650	- 48	6.548	- 191	11.37	- 33	16.12	- 46	2970
1700	1.602	- 46	6.357	- 179	11.04	- 31	15.66	- 44	3060
1750	1.556	- 43	6.178	- 171	10.73	- 29	15.22	- 42	3150
1800	1.513	- 41	6.007	- 160	10.44	- 28	14.80	- 39	3240
1850	1.472	- 39	5.847	- 153	10.16	- 26	14.41	- 37	3330
1900	1.433	- 36	5.694	- 144	9.897	- 250	14.04	- 35	3420
1950	1.397	- 35	5.550	- 138	9.647	- 239	13.69	- 34	3510
2000	1.362	- 33	5.412	- 131	9.408	- 226	13.35	- 32	3600
2050	1.329	- 32	5.281	- 125	9.182	- 216	13.03	- 30	3690
2100	1.297	- 30	5.156	- 119	8.966	- 205	12.73	- 29	3780
2150	1.267	- 29	5.037	- 114	8.761	- 196	12.44	- 28	3870
2200	1.238	- 27	4.923	- 108	8.565	- 188	12.16	- 26	3960
2250	1.211	- 26	4.815	- 104	8.377	- 180	11.90	- 26	4050
2300	1.185	- 26	4.711	- 100	8.197	- 172	11.64	- 24	4140
2350	1.159	- 24	4.611	- 95	8.025	- 165	11.40	- 23	4230
2400	1.135	- 23	4.516	- 92	7.860	- 159	11.17	- 23	4320
2450	1.112	- 22	4.424	- 87	7.701	- 151	10.94	- 21	4410
2500	1.090	- 21	4.337	- 85	7.550	- 147	10.73	- 21	4500
2550	1.069	- 21	4.252	- 81	7.403	- 141	10.52	- 20	4590
2600	1.048	- 20	4.171	- 78	7.262	- 135	10.32	- 19	4680
2650	1.028	- 19	4.093	- 75	7.127	- 130	10.13	- 18	4770
2700	1.009	- 18	4.018	- 73	6.997	- 126	9.946	- 178	4860
2750	.9910	- 177	3.945	- 70	6.871	- 122	9.768	- 172	4950
2800	.9733	- 170	3.875	- 67	6.749	- 117	9.596	- 165	5040
2850	.9563	- 164	3.808	- 66	6.632	- 113	9.431	- 160	5130
2900	.9399	- 160	3.742	- 63	6.519	- 109	9.271	- 154	5220
2950	.9239	- 153	3.679	- 61	6.410	- 106	9.117	- 151	5310
3000	.9086		3.618		6.304		8.966		5400

Table 5-3. SPECIFIC HEAT OF CARBON MONOXIDE C_p/R

°K	.01 atm		.1 atm		1 atm		10 atm		°R
200	3.501		3.503	- 1	3.517	- 1	3.665	-20	360
210	3.501		3.502		3.516	- 2	3.645	-16	378
220	3.501		3.502		3.514	- 1	3.629	-14	396
230	3.501	1	3.502	1	3.513		3.615	-10	414
240	3.502		3.503		3.513	- 1	3.605	- 9	432
250	3.502		3.503		3.512	- 1	3.596	- 9	450
260	3.502	1	3.503	1	3.511		3.587	- 6	468
270	3.503		3.504		3.511	- 1	3.581	- 6	486
280	3.503	1	3.504	1	3.510	1	3.575	- 5	504
290	3.504	1	3.505	1	3.511		3.570	- 3	522
300	3.505	1	3.506	1	3.511	1	3.567	- 4	540
310	3.506	2	3.507	2	3.512	1	3.563	- 2	558
320	3.508	1	3.509	1	3.513	1	3.561	- 3	576
330	3.509	2	3.510	1	3.514	2	3.558	- 1	594
340	3.511	2	3.511	2	3.516	1	3.557		612
350	3.513	3	3.513	3	3.517	3	3.557		630
360	3.516	3	3.516	3	3.520	3	3.557	1	648
370	3.519	3	3.519	3	3.523	3	3.558	1	666
380	3.522	3	3.522	3	3.526	2	3.559	1	684
390	3.525	4	3.525	4	3.528	4	3.560	2	702
400	3.529	4	3.529	4	3.532	4	3.562	2	720
410	3.533	4	3.533	4	3.536	4	3.564	2	738
420	3.537	5	3.537	5	3.540	5	3.566	4	756
430	3.542	5	3.542	5	3.545	5	3.570	3	774
440	3.547	5	3.547	5	3.550	4	3.573	4	792
450	3.552	6	3.552	6	3.554	6	3.577	5	810
460	3.558	6	3.558	6	3.560	6	3.582	4	828
470	3.564	6	3.564	6	3.566	6	3.586	5	846
480	3.570	7	3.570	7	3.572	7	3.591	6	864
490	3.577	6	3.577	6	3.579	6	3.597	6	882
500	3.583	7	3.583	7	3.585	7	3.603	6	900
510	3.590	7	3.590	7	3.592	7	3.609	6	918
520	3.597	8	3.597	8	3.599	8	3.615	7	936
530	3.605	7	3.605	7	3.607	7	3.622	6	954
540	3.612	8	3.612	8	3.614	8	3.628	8	972
550	3.620	8	3.620	8	3.622	8	3.636	7	990
560	3.628	8	3.628	8	3.630	7	3.643	8	1008
570	3.636	8	3.636	8	3.637	8	3.651	7	1026
580	3.644	9	3.644	9	3.645	9	3.658	8	1044
590	3.653	8	3.653	8	3.654	8	3.666	8	1062
600	3.661	9	3.661	9	3.662	9	3.674	8	1080
610	3.670	8	3.670	8	3.671	8	3.682	8	1098
620	3.678	9	3.678	9	3.679	9	3.690	9	1116
630	3.687	9	3.687	9	3.688	9	3.699	8	1134
640	3.696	9	3.696	9	3.697	9	3.707	9	1152
650	3.705	9	3.705	9	3.706	9	3.716	8	1170
660	3.714	8	3.714	8	3.715	8	3.724	8	1188
670	3.722	9	3.722	9	3.723	9	3.732	9	1206
680	3.731	9	3.731	9	3.732	9	3.741	8	1224
690	3.740	9	3.740	9	3.741	9	3.749	9	1242
700	3.749	9	3.749	9	3.750	9	3.758	9	1260
710	3.758	9	3.758	9	3.759	9	3.767	9	1278
720	3.767	9	3.767	9	3.768	9	3.776	8	1296
730	3.776	9	3.776	9	3.777	9	3.784	9	1314
740	3.785	9	3.785	9	3.786	9	3.793	9	1332
750	3.794	8	3.794	8	3.795	8	3.802	8	1350
760	3.802	9	3.802	9	3.803	9	3.810	8	1368
770	3.811	9	3.811	9	3.812	9	3.818	9	1386
780	3.820	8	3.820	8	3.821	8	3.827	8	1404
790	3.828	9	3.828	9	3.829	9	3.835	9	1422
800	3.837		3.837		3.838		3.844		1440

At higher temperatures in the .01, .1, and 1 atmosphere range, the values of the specific heat are equal to the value for the ideal gas (see table 5-12). In the 10 atmosphere range, values at higher temperatures may be found on page 227.

Table 5-3. SPECIFIC HEAT OF CARBON MONOXIDE - Cont. C_p/R

°K	10 atm		40 atm		70 atm		100 atm		°R
250	3.596	- 9	3.855	-32					450
260	3.587	- 6	3.823	-27					468
270	3.581	- 6	3.796	-23	3.984	-39			486
280	3.575	- 5	3.773	-20	3.945	-32	4.091	-42	504
290	3.570	- 3	3.753	-17	3.913	-26	4.049	-33	522
300	3.567	- 4	3.736	-14	3.887	-25	4.016	-30	540
310	3.563	- 2	3.722	-12	3.862	-19	3.986	-26	558
320	3.561	- 3	3.710	-12	3.843	-19	3.960	-23	576
330	3.558	- 1	3.698	- 9	3.824	-16	3.937	-21	594
340	3.557		3.689	- 9	3.808	-14	3.916	-19	612
350	3.557		3.680	- 7	3.794	-12	3.897	-16	630
360	3.557	1	3.673	- 6	3.782	-11	3.881	-15	648
370	3.558	1	3.667	- 5	3.771	-11	3.866	-15	666
380	3.559	1	3.662	- 5	3.760	- 9	3.851	-13	684
390	3.560	2	3.657	- 2	3.751	- 8	3.838	-11	702
400	3.562	2	3.655	- 3	3.743	- 7	3.827	-11	720
410	3.564	2	3.652	- 2	3.736	- 7	3.816	-10	738
420	3.566	4	3.650	- 1	3.729	- 5	3.806	- 8	756
430	3.570	3	3.649	- 1	3.724	- 3	3.798	- 9	774
440	3.573	4	3.648	1	3.721	- 4	3.789	- 6	792
450	3.577	5	3.649	1	3.717	- 2	3.783	- 6	810
460	3.582	4	3.650	1	3.715	- 1	3.777	- 5	828
470	3.586	5	3.651	2	3.714	- 2	3.772	- 3	846
480	3.591	6	3.653	3	3.712	1	3.769	- 3	864
490	3.597	6	3.656	3	3.713		3.766	- 3	882
500	3.603	6	3.659	4	3.713	1	3.763	- 2	900
510	3.609	6	3.663	4	3.714	1	3.761	1	918
520	3.615	7	3.667	5	3.715	3	3.762	1	936
530	3.622	6	3.672	4	3.718	3	3.763	1	954
540	3.628	8	3.676	5	3.721	3	3.764	1	972
550	3.636	7	3.681	6	3.724	4	3.765	2	990
560	3.643	8	3.687	6	3.728	4	3.767	3	1008
570	3.651	7	3.693	5	3.732	5	3.770	3	1026
580	3.658	8	3.698	7	3.737	5	3.773	4	1044
590	3.666	8	3.705	6	3.742	5	3.777	3	1062
600	3.674	8	3.711	7	3.747	5	3.780	4	1080
610	3.682	8	3.718	7	3.752	6	3.784	4	1098
620	3.690	9	3.725	7	3.758	6	3.788	5	1116
630	3.699	8	3.732	8	3.764	6	3.793	6	1134
640	3.707	9	3.740	7	3.770	7	3.799	5	1152
650	3.716	8	3.747	8	3.777	6	3.804	6	1170
660	3.724	8	3.755	6	3.783	6	3.810	5	1188
670	3.732	9	3.761	8	3.789	7	3.815	6	1206
680	3.741	8	3.769	8	3.796	6	3.821	6	1224
690	3.749	9	3.777	8	3.802	8	3.827	6	1242
700	3.758	9	3.785	7	3.810	7	3.833	6	1260
710	3.767	9	3.792	8	3.817	7	3.839	7	1278
720	3.776	8	3.800	8	3.824	7	3.846	6	1296
730	3.784	9	3.808	8	3.831	7	3.852	7	1314
740	3.793	9	3.816	8	3.838	8	3.859	7	1332
750	3.802	8	3.824	8	3.846	6	3.866	6	1350
760	3.810	8	3.832	8	3.852	8	3.872	7	1368
770	3.818	9	3.840	8	3.860	7	3.879	7	1386
780	3.827	8	3.848	7	3.867	7	3.886	6	1404
790	3.835	9	3.855	8	3.874	8	3.892	7	1422
800	3.844		3.863		3.882		3.899		1440

Table 5-3. SPECIFIC HEAT OF CARBON MONOXIDE - Cont. C_p/R

°K	10 atm		40 atm		70 atm		100 atm		°R
800	3.844	40	3.863	38	3.882	35	3.899	33	1440
850	3.884	39	3.901	37	3.917	35	3.932	34	1530
900	3.923	38	3.938	36	3.952	34	3.966	32	1620
950	3.961	34	3.974	33	3.986	32	3.998	31	1710
1000	3.995	33	4.007	31	4.018	31	4.029	29	1800
1050	4.028	29	4.038	29	4.049	27	4.058	26	1890
1100	4.057	29	4.067	27	4.076	27	4.084	26	1980
1150	4.086	27	4.094	26	4.103	25	4.110	25	2070
1200	4.113	24	4.120	24	4.128	23	4.135	23	2160
1250	4.137	23	4.144	23	4.151	22	4.158	21	2250
1300	4.160	21	4.167	20	4.173	19	4.179	19	2340
1350	4.181	20	4.187	19	4.192	19	4.198	18	2430
1400	4.201	19	4.206	19	4.211	18	4.216	18	2520
1450	4.220	18	4.225	17	4.229	18	4.234	17	2610
1500	4.238	15	4.242	16	4.247	15	4.251	15	2700
1550	4.253	15	4.258	14	4.262	14	4.266	14	2790
1600	4.268	14	4.272	14	4.276	13	4.280	13	2880
1650	4.282	13	4.286	12	4.289	13	4.293	12	2970
1700	4.295	13	4.298	13	4.302	12	4.305	12	3060
1750	4.308	12	4.311	12	4.314	12	4.317	11	3150
1800	4.320	11	4.323	11	4.326	10	4.328	11	3240
1850	4.331	10	4.334	9	4.336	10	4.339	9	3330
1900	4.341	10	4.343	10	4.346	9	4.348	10	3420
1950	4.351	9	4.353	9	4.355	9	4.358	8	3510
2000	4.360	9	4.362	9	4.364	9	4.366	9	3600
2050	4.369	8	4.371	8	4.373	7	4.375	7	3690
2100	4.377	8	4.379	7	4.380	8	4.382	8	3780
2150	4.385	7	4.386	7	4.388	7	4.390	6	3870
2200	4.392	7	4.393	7	4.395	7	4.396	7	3960
2250	4.399	6	4.400	7	4.402	6	4.403	7	4050
2300	4.405	7	4.407	7	4.408	7	4.410	6	4140
2350	4.412	6	4.414	6	4.415	6	4.416	6	4230
2400	4.418	6	4.420	6	4.421	6	4.422	6	4320
2450	4.424	5	4.426	5	4.427	5	4.428	5	4410
2500	4.429	6	4.431	5	4.432	5	4.433	6	4500
2550	4.435	5	4.436	5	4.437	5	4.439	4	4590
2600	4.440	5	4.441	5	4.442	5	4.443	5	4680
2650	4.445	5	4.446	5	4.447	5	4.448	5	4770
2700	4.450	5	4.451	5	4.452	5	4.453	5	4860
2750	4.455	5	4.456	5	4.457	5	4.458	5	4950
2800	4.460	4	4.461	4	4.462	4	4.463	3	5040
2850	4.464	4	4.465	4	4.466	4	4.466	4	5130
2900	4.468	4	4.469	4	4.470	4	4.470	4	5220
2950	4.472	4	4.473	4	4.474	3	4.474	4	5310
3000	4.476		4.477		4.477		4.478		5400

Table 5-4. ENTHALPY OF CARBON MONOXIDE* $(H-E_0^o)/RT_0$

°K	.01 atm		.1 atm		1 atm		10 atm		°R
200	2.5595	1281	2.5589	1281	2.5525	1287	2.4886	1340	360
210	2.6876	1282	2.6870	1283	2.6812	1287	2.6226	1333	378
220	2.8158	1282	2.8153	1282	2.8099	1286	2.7559	1328	396
230	2.9440	1282	2.9435	1283	2.9385	1286	2.8887	1324	414
240	3.0722	1283	3.0718	1282	3.0671	1286	3.0211	1319	432
250	3.2005	1282	3.2000	1283	3.1957	1285	3.1530	1315	450
260	3.3287	1282	3.3283	1282	3.3242	1286	3.2845	1313	468
270	3.4569	1282	3.4565	1282	3.4528	1284	3.4158	1310	486
280	3.5851	1283	3.5847	1283	3.5812	1286	3.5468	1309	504
290	3.7134	1283	3.7130	1284	3.7098	1285	3.6777	1307	522
300	3.8417	1283	3.8414	1283	3.8383	1285	3.8084	1304	540
310	3.9700	1284	3.9697	1284	3.9668	1287	3.9388	1305	558
320	4.0984	1284	4.0981	1284	4.0955	1285	4.0693	1303	576
330	4.2268	1285	4.2265	1285	4.2240	1287	4.1996	1302	594
340	4.3553	1286	4.3550	1287	4.3527	1288	4.3298	1303	612
350	4.4839	1287	4.4837	1287	4.4815	1288	4.4601	1302	630
360	4.6126	1287	4.6124	1287	4.6103	1289	4.5903	1302	648
370	4.7413	1289	4.7411	1289	4.7392	1290	4.7205	1302	666
380	4.8702	1290	4.8700	1290	4.8682	1292	4.8507	1303	684
390	4.9992	1291	4.9990	1291	4.9974	1292	4.9810	1303	702
400	5.1283	1293	5.1281	1293	5.1266	1294	5.1113	1305	720
410	5.2576	1294	5.2574	1295	5.2560	1295	5.2418	1305	738
420	5.3870	1296	5.3869	1296	5.3855	1297	5.3723	1306	756
430	5.5166	1297	5.5165	1297	5.5152	1298	5.5029	1307	774
440	5.6463	1300	5.6462	1300	5.6450	1301	5.6336	1309	792
450	5.7763	1301	5.7762	1301	5.7751	1302	5.7645	1310	810
460	5.9064	1304	5.9063	1304	5.9053	1305	5.8955	1312	828
470	6.0368	1306	6.0367	1306	6.0358	1307	6.0267	1314	846
480	6.1674	1308	6.1673	1308	6.1665	1308	6.1581	1316	864
490	6.2982	1310	6.2981	1310	6.2973	1311	6.2897	1317	882
500	6.4292	1314	6.4291	1314	6.4284	1315	6.4214	1321	900
510	6.5606	1315	6.5605	1315	6.5599	1315	6.5535	1322	918
520	6.6921	1319	6.6920	1319	6.6914	1320	6.6857	1325	936
530	6.8240	1321	6.8239	1321	6.8234	1322	6.8182	1328	954
540	6.9561	1323	6.9560	1324	6.9556	1323	6.9510	1328	972
550	7.0884	1327	7.0884	1327	7.0879	1328	7.0838	1333	990
560	7.2211	1330	7.2211	1330	7.2207	1330	7.2171	1335	1008
570	7.3541	1333	7.3541	1333	7.3537	1334	7.3506	1338	1026
580	7.4874	1335	7.4874	1335	7.4871	1335	7.4844	1341	1044
590	7.6209	1339	7.6209	1339	7.6206	1340	7.6185	1343	1062
600	7.7548	1342	7.7548	1342	7.7546	1342	7.7528	1347	1080
610	7.8890	1345	7.8890	1345	7.8888	1346	7.8875	1349	1098
620	8.0235	1348	8.0235	1348	8.0234	1348	8.0224	1353	1116
630	8.1583	1352	8.1583	1352	8.1582	1353	8.1577	1356	1134
640	8.2935	1355	8.2935	1355	8.2935	1355	8.2933	1359	1152
650	8.4290	1357	8.4290	1357	8.4290	1357	8.4292	1361	1170
660	8.5647	1361	8.5647	1361	8.5647	1362	8.5653	1365	1188
670	8.7008	1365	8.7008	1365	8.7009	1365	8.7018	1368	1206
680	8.8373	1368	8.8373	1368	8.8374	1369	8.8386	1372	1224
690	8.9741	1371	8.9741	1371	8.9743	1371	8.9758	1374	1242
700	9.1112	1373	9.1112	1373	9.1114	1373	9.1132	1376	1260
710	9.2485	1378	9.2485	1378	9.2487	1379	9.2508	1382	1278
720	9.3863	1381	9.3863	1381	9.3866	1381	9.3890	1384	1296
730	9.5244	1384	9.5244	1384	9.5247	1384	9.5274	1387	1314
740	9.6628	1387	9.6628	1387	9.6631	1387	9.6661	1390	1332
750	9.8015	1390	9.8015	1390	9.8018	1391	9.8051	1392	1350
760	9.9405	139	9.9405	139	9.9409	139	9.9443	140	1368
770	10.080	140	10.080	140	10.080	140	10.084	140	1386
780	10.220	140	10.220	140	10.220	140	10.224	141	1404
790	10.360	140	10.360	140	10.360	140	10.365	140	1422
800	10.500		10.500		10.500		10.505		1440

At higher temperatures in the .01, .1, and 1 atmosphere pressure range, the values for the enthalpy are equal to that for the ideal gas (see table 5-12). In the 10 atmosphere range, values at higher temperatures may be found on page 230.

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

Table 5-4. ENTHALPY OF CARBON MONOXIDE - Cont.* $(H-E_0^0)/RT_0$

°K	10 atm		40 atm		70 atm		100 atm		°R
250	3.1530	1315	3.0145	1420					450
260	3.2845	1313	3.1565	1407					468
270	3.4158	1310	3.2972	1395	3.1857	1480			486
280	3.5468	1309	3.4367	1386	3.3337	1462	3.2379	1538	504
290	3.6777	1307	3.5753	1377	3.4799	1447	3.3917	1514	522
300	3.8084	1304	3.7130	1369	3.6246	1430	3.5431	1491	540
310	3.9388	1305	3.8499	1364	3.7676	1422	3.6922	1477	558
320	4.0693	1303	3.9863	1358	3.9098	1411	3.8399	1461	576
330	4.1996	1302	4.1221	1353	4.0509	1402	3.9860	1448	594
340	4.3298	1303	4.2574	1351	4.1911	1396	4.1308	1439	612
350	4.4601	1302	4.3925	1347	4.3307	1390	4.2747	1430	630
360	4.5903	1302	4.5272	1343	4.4697	1382	4.4177	1419	648
370	4.7205	1302	4.6615	1342	4.6079	1380	4.5596	1415	666
380	4.8507	1303	4.7957	1341	4.7459	1376	4.7011	1410	684
390	4.9810	1303	4.9298	1337	4.8835	1370	4.8421	1401	702
400	5.1113	1305	5.0635	1339	5.0205	1370	4.9822	1400	720
410	5.2418	1305	5.1974	1335	5.1575	1365	5.1222	1393	738
420	5.3723	1306	5.3309	1337	5.2940	1365	5.2615	1392	756
430	5.5029	1307	5.4646	1335	5.4305	1363	5.4007	1389	774
440	5.6336	1309	5.5981	1336	5.5668	1361	5.5396	1385	792
450	5.7645	1310	5.7317	1336	5.7029	1361	5.6781	1385	810
460	5.8955	1312	5.8653	1337	5.8390	1360	5.8166	1382	828
470	6.0267	1314	5.9990	1337	5.9750	1360	5.9548	1381	846
480	6.1581	1316	6.1327	1338	6.1110	1359	6.0929	1380	864
490	6.2897	1317	6.2665	1339	6.2469	1359	6.2309	1378	882
500	6.4214	1321	6.4004	1341	6.3828	1360	6.3687	1378	900
510	6.5535	1322	6.5345	1341	6.5188	1359	6.5065	1377	918
520	6.6857	1325	6.6686	1344	6.6547	1363	6.6442	1379	936
530	6.8182	1328	6.8030	1346	6.7910	1362	6.7821	1378	954
540	6.9510	1328	6.9376	1345	6.9272	1362	6.9199	1377	972
550	7.0838	1333	7.0721	1349	7.0634	1363	7.0576	1377	990
560	7.2171	1335	7.2070	1350	7.1997	1365	7.1953	1378	1008
570	7.3506	1338	7.3420	1354	7.3362	1368	7.3331	1381	1026
580	7.4844	1341	7.4774	1354	7.4730	1368	7.4712	1382	1044
590	7.6185	1343	7.6128	1358	7.6098	1371	7.6094	1383	1062
600	7.7528	1347	7.7486	1360	7.7469	1373	7.7477	1385	1080
610	7.8875	1349	7.8846	1362	7.8842	1374	7.8862	1384	1098
620	8.0224	1353	8.0208	1365	8.0216	1376	8.0246	1388	1116
630	8.1577	1356	8.1573	1368	8.1592	1380	8.1634	1390	1134
640	8.2933	1359	8.2941	1371	8.2972	1381	8.3024	1392	1152
650	8.4292	1361	8.4312	1372	8.4353	1383	8.4416	1392	1170
660	8.5653	1365	8.5684	1376	8.5736	1386	8.5808	1396	1188
670	8.7018	1368	8.7060	1379	8.7122	1388	8.7204	1397	1206
680	8.8386	1372	8.8439	1381	8.8510	1391	8.8601	1400	1224
690	8.9758	1374	8.9820	1384	8.9901	1393	9.0001	1402	1242
700	9.1132	1376	9.1204	1386	9.1294	1396	9.1403	1403	1260
710	9.2508	1382	9.2590	1391	9.2690	1399	9.2806	1408	1278
720	9.3890	1384	9.3981	1393	9.4089	1401	9.4214	1409	1296
730	9.5274	1387	9.5374	1395	9.5490	1404	9.5623	1411	1314
740	9.6661	1390	9.6769	1399	9.6894	1406	9.7034	1414	1332
750	9.8051	1392	9.8168	1400	9.8300	1408	9.8448	1415	1350
760	9.9443	140	9.9568	140	9.9708	141	9.9863	142	1368
770	10.084	140	10.097	141	10.112	142	10.128	143	1386
780	10.224	141	10.238	141	10.254	142	10.271	142	1404
790	10.365	140	10.379	141	10.396	141	10.413	142	1422
800	10.505		10.520		10.537		10.555		1440

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

Table 5-4. ENTHALPY OF CARBON MONOXIDE - Cont.* $(H-E_0^\circ)/RT_0$

°K	10 atm		40 atm		70 atm		100 atm		°R
800	10.505	707	10.520	711	10.537	714	10.555	717	1440
850	11.212	715	11.231	718	11.251	721	11.272	723	1530
900	11.927	721	11.949	723	11.972	725	11.995	728	1620
950	12.648	729	12.672	731	12.697	734	12.723	736	1710
1000	13.377	733	13.403	736	13.431	737	13.459	739	1800
1050	14.110	740	14.139	742	14.168	744	14.198	745	1890
1100	14.850	746	14.881	747	14.912	748	14.943	750	1980
1150	15.596	750	15.628	752	15.660	754	15.693	755	2070
1200	16.346	756	16.380	757	16.414	758	16.448	759	2160
1250	17.102	759	17.137	760	17.172	762	17.207	763	2250
1300	17.861	763	17.897	765	17.934	765	17.970	767	2340
1350	18.624	768	18.662	768	18.699	770	18.737	770	2430
1400	19.392	770	19.430	771	19.469	772	19.507	773	2520
1450	20.162	775	20.201	775	20.241	776	20.280	777	2610
1500	20.937	776	20.976	778	21.017	778	21.057	779	2700
1550	21.713	780	21.754	781	21.795	781	21.836	782	2790
1600	22.493	782	22.535	782	22.576	784	22.618	784	2880
1650	23.275	785	23.317	786	23.360	786	23.402	787	2970
1700	24.060	788	24.103	788	24.146	789	24.189	789	3060
1750	24.848	790	24.891	791	24.935	791	24.978	792	3150
1800	25.638	792	25.682	792	25.726	793	25.770	794	3240
1850	26.430	793	26.474	794	26.519	794	26.564	794	3330
1900	27.223	795	27.268	796	27.313	796	27.358	797	3420
1950	28.018	797	28.064	797	28.109	798	28.155	798	3510
2000	28.815	799	28.861	800	28.907	800	28.953	800	3600
2050	29.614	801	29.661	800	29.707	801	29.753	801	3690
2100	30.415	802	30.461	803	30.508	803	30.554	803	3780
2150	31.217	803	31.264	803	31.311	803	31.357	804	3870
2200	32.020	805	32.067	805	32.114	806	32.161	806	3960
2250	32.825	805	32.872	806	32.920	806	32.967	806	4050
2300	33.630	807	33.678	807	33.726	807	33.773	808	4140
2350	34.437	809	34.485	809	34.533	810	34.581	810	4230
2400	35.246	809	35.294	810	35.343	809	35.391	810	4320
2450	36.055	810	36.104	810	36.152	811	36.201	810	4410
2500	36.865	811	36.914	811	36.963	811	37.011	812	4500
2550	37.676	812	37.725	813	37.774	813	37.823	813	4590
2600	38.488	814	38.538	814	38.587	814	38.636	814	4680
2650	39.302	815	39.352	814	39.401	814	39.450	815	4770
2700	40.117	815	40.166	815	40.215	816	40.265	815	4860
2750	40.932	817	40.981	817	41.031	816	41.080	816	4950
2800	41.749	817	41.798	817	41.847	816	41.896	816	5040
2850	42.566	818	42.615	817	42.663	816	42.712	816	5130
2900	43.384	818	43.432	817	43.479	818	43.528	816	5220
2950	44.202	819	44.249	819	44.297	818	44.344	818	5310
3000	45.021		45.068		45.115		45.162		5400

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

Table 5-5. ENTROPY OF CARBON MONOXIDE S/R

°K	.01 atm		.1 atm		.4 atm		.7 atm		°R
200	26.967	170	24.665	170	23.275	171	22.714	171	360
210	27.137	163	24.835	163	23.446	163	22.885	163	378
220	27.300	156	24.998	156	23.609	156	23.048	156	396
230	27.456	149	25.154	149	23.765	149	23.204	150	414
240	27.605	143	25.303	143	23.914	143	23.354	143	432
250	27.748	137	25.446	137	24.057	138	23.497	137	450
260	27.885	132	25.583	132	24.195	132	23.634	133	468
270	28.017	128	25.715	128	24.327	128	23.767	128	486
280	28.145	123	25.843	123	24.455	123	23.895	123	504
290	28.268	119	25.966	119	24.578	119	24.018	119	522
300	28.387	115	26.085	115	24.697	115	24.137	115	540
310	28.502	111	26.200	111	24.812	111	24.252	111	558
320	28.613	108	26.311	108	24.923	108	24.363	108	576
330	28.721	105	26.419	105	25.031	105	24.471	106	594
340	28.826	101	26.524	101	25.136	101	24.577	101	612
350	28.927	99	26.625	99	25.237	99	24.678	99	630
360	29.026	97	26.724	97	25.336	97	24.777	97	648
370	29.123	94	26.821	94	25.433	94	24.874	94	666
380	29.217	91	26.915	91	25.527	91	24.968	91	684
390	29.308	89	27.006	89	25.618	89	25.059	89	702
400	29.397	88	27.095	88	25.707	88	25.148	88	720
410	29.485	85	27.183	85	25.795	85	25.236	85	738
420	29.570	83	27.268	83	25.880	84	25.321	83	756
430	29.653	82	27.351	82	25.964	82	25.404	82	774
440	29.735	79	27.433	79	26.046	79	25.486	79	792
450	29.814	79	27.512	79	26.125	79	25.565	79	810
460	29.893	76	27.591	76	26.204	76	25.644	76	828
470	29.969	75	27.667	75	26.280	75	25.720	75	846
480	30.044	73	27.742	73	26.355	73	25.795	73	864
490	30.117	73	27.815	73	26.428	73	25.868	73	882
500	30.190	71	27.888	71	26.501	71	25.941	71	900
510	30.261	71	27.959	71	26.572	71	26.012	71	918
520	30.332	68	28.030	68	26.643	68	26.083	68	936
530	30.400	67	28.098	67	26.711	67	26.151	68	954
540	30.467	66	28.165	66	26.778	66	26.219	66	972
550	30.533	66	28.231	66	26.844	66	26.285	66	990
560	30.599	64	28.297	64	26.910	64	26.351	64	1008
570	30.663	63	28.361	63	26.974	63	26.415	63	1026
580	30.726	63	28.424	63	27.037	63	26.478	63	1044
590	30.789	61	28.487	61	27.100	61	26.541	61	1062
600	30.850	61	28.548	61	27.161	61	26.602	61	1080
610	30.911	60	28.609	60	27.222	60	26.663	60	1098
620	30.971	58	28.669	58	27.282	58	26.723	58	1116
630	31.029	59	28.727	59	27.340	59	26.781	59	1134
640	31.088	57	28.786	57	27.399	57	26.840	57	1152
650	31.145	57	28.843	57	27.456	57	26.897	57	1170
660	31.202	55	28.900	55	27.513	55	26.954	55	1188
670	31.257	56	28.955	56	27.568	56	27.009	56	1206
680	31.313	54	29.011	54	27.624	54	27.065	54	1224
690	31.367	54	29.065	54	27.678	54	27.119	54	1242
700	31.421	53	29.119	53	27.732	53	27.173	53	1260
710	31.474	53	29.172	53	27.785	53	27.226	53	1278
720	31.527	52	29.225	52	27.838	52	27.279	52	1296
730	31.579	51	29.277	51	27.890	51	27.331	51	1314
740	31.630	51	29.328	51	27.941	51	27.382	51	1332
750	31.681	51	29.379	51	27.992	51	27.433	51	1350
760	31.732	49	29.430	49	28.043	49	27.484	49	1368
770	31.781	50	29.479	50	28.092	50	27.533	50	1386
780	31.831	48	29.529	48	28.142	48	27.583	48	1404
790	31.879	49	29.577	49	28.190	49	27.631	49	1422
800	31.928		29.626		28.239		27.680		1440

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°K	.01 atm		.1 atm		.4 atm		.7 atm		°R
800	31.928	233	29.626	233	28.239	233	27.680	233	1440
850	32.161	223	29.859	223	28.472	223	27.913	223	1530
900	32.384	213	30.082	213	28.695	213	28.136	213	1620
950	32.597	204	30.295	204	28.908	204	28.349	204	1710
1000	32.801	195	30.499	195	29.112	195	28.553	195	1800
1050	32.996	188	30.694	188	29.307	188	28.748	188	1890
1100	33.184	181	30.882	181	29.495	181	28.936	181	1980
1150	33.365	174	31.063	174	29.676	174	29.117	174	2070
1200	33.539	169	31.237	169	29.850	169	29.291	169	2160
1250	33.708	162	31.406	162	30.019	162	29.460	162	2250
1300	33.870	158	31.568	158	30.181	158	29.622	158	2340
1350	34.028	152	31.726	152	30.339	152	29.780	152	2430
1400	34.180	148	31.878	148	30.491	148	29.932	148	2520
1450	34.328	143	32.026	143	30.639	143	30.080	143	2610
1500	34.471	139	32.169	139	30.782	139	30.223	139	2700
1550	34.610	135	32.308	135	30.921	135	30.362	135	2790
1600	34.745	132	32.443	132	31.056	132	30.497	132	2880
1650	34.877	128	32.575	128	31.188	128	30.629	128	2970
1700	35.005	125	32.703	125	31.316	125	30.757	125	3060
1750	35.130	121	32.828	121	31.441	121	30.882	121	3150
1800	35.251	119	32.949	119	31.562	119	31.003	119	3240
1850	35.370	115	33.068	115	31.681	115	31.122	115	3330
1900	35.485	113	33.183	113	31.796	113	31.237	113	3420
1950	35.598	110	33.296	110	31.909	110	31.350	110	3510
2000	35.708	108	33.406	108	32.019	108	31.460	108	3600
2050	35.816	105	33.514	105	32.127	105	31.568	105	3690
2100	35.921	103	33.619	103	32.232	103	31.673	103	3780
2150	36.024	101	33.722	101	32.335	101	31.776	101	3870
2200	36.125	99	33.823	99	32.436	99	31.877	99	3960
2250	36.224	97	33.922	97	32.535	97	31.976	97	4050
2300	36.321	95	34.019	95	32.632	95	32.073	95	4140
2350	36.416	93	34.114	93	32.727	93	32.168	93	4230
2400	36.509	91	34.207	91	32.820	91	32.261	91	4320
2450	36.600	89	34.298	89	32.911	89	32.352	89	4410
2500	36.689	88	34.387	88	33.000	88	32.441	88	4500
2550	36.777	86	34.475	86	33.088	86	32.529	86	4590
2600	36.863	85	34.561	85	33.174	85	32.615	85	4680
2650	36.948	83	34.646	83	33.259	83	32.700	83	4770
2700	37.031	82	34.729	82	33.342	82	32.783	82	4860
2750	37.113	80	34.811	80	33.424	80	32.865	80	4950
2800	37.193		34.891		33.504		32.945		5040

°K	1 atm		4 atm		7 atm		10 atm		°R
200	22.355	171	20.948	173	20.367	176	19.989	178	360
210	22.526	163	21.121	166	20.543	167	20.167	169	378
220	22.689	157	21.287	158	20.710	160	20.336	162	396
230	22.846	149	21.445	151	20.870	152	20.498	154	414
240	22.995	144	21.596	144	21.022	146	20.652	147	432
250	23.139	137	21.740	139	21.168	139	20.799	140	450
260	23.276	133	21.879	133	21.307	135	20.939	135	468
270	23.409	128	22.012	129	21.442	130	21.074	131	486
280	23.537	123	22.141	124	21.572	124	21.205	126	504
290	23.660	119	22.265	120	21.696	121	21.331	121	522
300	23.779	115	22.385	116	21.817	116	21.452	116	540
310	23.894	112	22.501	112	21.933	113	21.568	113	558
320	24.006	108	22.613	108	22.046	109	21.681	110	576
330	24.114	105	22.721	106	22.155	106	21.791	107	594
340	24.219	101	22.827	101	22.261	102	21.898	102	612
350	24.320	99	22.928	100	22.363	99	22.000	100	630
360	24.419	97	23.028	97	22.462	98	22.100	98	648
370	24.516	94	23.125	95	22.560	95	22.198	95	666
380	24.610	92	23.220	91	22.655	92	22.293	92	684
390	24.702	89	23.311	89	22.747	89	22.385	90	702
400	24.791	88	23.400	88	22.836	89	22.475	89	720
410	24.879	85	23.488	85	22.925	85	22.564	85	738
420	24.964	83	23.573	84	23.010	84	22.649	84	756
430	25.047	82	23.657	82	23.094	82	22.733	83	774
440	25.129	79	23.739	80	23.176	79	22.816	79	792
450	25.208	79	23.819	79	23.255	80	22.895	80	810
460	25.287	76	23.898	76	23.335	76	22.975	76	828
470	25.363	75	23.974	75	23.411	76	23.051	76	846
480	25.438	73	24.049	73	23.487	73	23.127	73	864
490	25.511	73	24.122	74	23.560	73	23.200	74	882
500	25.584	71	24.196	71	23.633	71	23.274	71	900
510	25.655	71	24.267	71	23.704	72	23.345	71	918
520	25.726	68	24.338	68	23.776	68	23.416	69	936
530	25.794	67	24.406	67	23.844	67	23.485	67	954
540	25.861	66	24.473	66	23.911	66	23.552	66	972
550	25.927	66	24.539	66	23.977	66	23.618	67	990
560	25.993	64	24.605	65	24.043	65	23.685	64	1008
570	26.057	63	24.670	63	24.108	63	23.749	63	1026
580	26.120	63	24.733	63	24.171	63	23.812	63	1044
590	26.183	61	24.796	61	24.234	61	23.875	62	1062
600	26.244	61	24.857	61	24.295	61	23.937	61	1080
610	26.305	60	24.918	60	24.356	60	23.998	60	1098
620	26.365	59	24.978	58	24.416	59	24.058	58	1116
630	26.424	59	25.036	59	24.475	59	24.116	59	1134
640	26.483	57	25.095	57	24.534	57	24.175	57	1152
650	26.540	57	25.152	57	24.591	57	24.232	58	1170
660	26.597	55	25.209	55	24.648	55	24.290	55	1188
670	26.652	56	25.264	56	24.703	56	24.345	56	1206
680	26.708	54	25.320	54	24.759	54	24.401	54	1224
690	26.762	54	25.374	54	24.813	54	24.455	54	1242
700	26.816	53	25.428	54	24.867	54	24.509	53	1260
710	26.869	53	25.482	53	24.921	53	24.562	53	1278
720	26.922	52	25.535	52	24.974	52	24.615	53	1296
730	26.974	51	25.587	51	25.026	51	24.668	51	1314
740	27.025	51	25.638	51	25.077	51	24.719	51	1332
750	27.076	51	25.689	51	25.128	51	24.770	51	1350
760	27.127	49	25.740	49	25.179	49	24.821	49	1368
770	27.176	50	25.789	49	25.228	50	24.870	50	1386
780	27.226	48	25.838	49	25.278	48	24.920	48	1404
790	27.274	49	25.887	49	25.326	49	24.968	49	1422
800	27.323		25.936		25.375		25.017		1440

Table 5-5. ENTROPY OF CARBON MONOXIDE - Cont.

°K	1 atm		4 atm		7 atm		10 atm		°R
800	27.323	233	25.936	233	25.375	233	25.017	234	1440
850	27.556	223	26.169	223	25.608	224	25.251	223	1530
900	27.779	213	26.392	213	25.832	213	25.474	213	1620
950	27.992	204	26.605	204	26.045	204	25.687	204	1710
1000	28.196	195	26.809	195	26.249	195	25.891	195	1800
1050	28.391	188	27.004	189	26.444	188	26.086	189	1890
1100	28.579	181	27.193	181	26.632	181	26.275	181	1980
1150	28.760	174	27.374	174	26.813	174	26.456	174	2070
1200	28.934	169	27.548	169	26.987	169	26.630	169	2160
1250	29.103	162	27.717	162	27.156	163	26.799	162	2250
1300	29.265	158	27.879	158	27.319	158	26.961	158	2340
1350	29.423	152	28.037	152	27.477	152	27.119	153	2430
1400	29.575	148	28.189	148	27.629	148	27.272	148	2520
1450	29.723	143	28.337	143	27.777	143	27.420	143	2610
1500	29.866	139	28.480	139	27.920	139	27.563	139	2700
1550	30.005	135	28.619	135	28.059	135	27.702	135	2790
1600	30.140	132	28.754	132	28.194	132	27.837	132	2880
1650	30.272	128	28.886	128	28.326	128	27.969	128	2970
1700	30.400	125	29.014	125	28.454	125	28.097	125	3060
1750	30.525	121	29.139	121	28.579	121	28.222	121	3150
1800	30.646	119	29.260	119	28.700	119	28.343	119	3240
1850	30.765	115	29.379	115	28.819	115	28.462	115	3330
1900	30.880	113	29.494	113	28.934	113	28.577	113	3420
1950	30.993	110	29.607	110	29.047	110	28.690	110	3510
2000	31.103	108	29.717	108	29.157	108	28.800	108	3600
2050	31.211	105	29.825	105	29.265	105	28.908	105	3690
2100	31.316	103	29.930	103	29.370	103	29.013	103	3780
2150	31.419	101	30.033	101	29.473	101	29.116	101	3870
2200	31.520	99	30.134	99	29.574	99	29.217	99	3960
2250	31.619	97	30.233	97	29.673	97	29.316	97	4050
2300	31.716	95	30.330	95	29.770	95	29.413	95	4140
2350	31.811	93	30.425	93	29.865	93	29.508	93	4230
2400	31.904	91	30.518	91	29.958	91	29.601	91	4320
2450	31.995	89	30.609	89	30.049	89	29.692	89	4410
2500	32.084	88	30.698	88	30.138	88	29.781	88	4500
2550	32.172	86	30.786	86	30.226	86	29.869	86	4590
2600	32.258	85	30.872	85	30.312	85	29.955	85	4680
2650	32.343	83	30.957	83	30.397	83	30.040	83	4770
2700	32.426	82	31.040	82	30.480	82	30.123	82	4860
2750	32.508	80	31.122	80	30.562	80	30.205	80	4950
2800	32.588		31.202		30.642		30.285		5040

°K	10 atm		40 atm		70 atm		100 atm		°R
250	20.799	140	19.291	152					450
260	20.939	135	19.443	145					468
270	21.074	131	19.588	139	18.932	147			486
280	21.205	126	19.727	133	19.079	140	18.638	147	504
290	21.331	121	19.860	127	19.219	135	18.785	141	522
300	21.452	116	19.987	123	19.354	128	18.926	133	540
310	21.568	113	20.110	118	19.482	123	19.059	128	558
320	21.681	110	20.228	114	19.605	118	19.187	123	576
330	21.791	107	20.342	111	19.723	115	19.310	118	594
340	21.898	102	30.453	106	19.838	110	19.428	113	612
350	22.000	100	20.559	104	19.948	107	19.541	110	630
360	22.100	98	20.663	101	20.055	104	19.651	107	648
370	22.198	95	20.764	98	20.159	100	19.758	103	666
380	22.293	92	20.862	94	20.259	98	19.861	100	684
390	22.385	90	20.956	92	20.357	94	19.961	97	702
400	22.475	89	21.048	92	20.451	93	20.058	95	720
410	22.564	85	21.140	87	20.544	90	20.153	91	738
420	22.649	84	21.227	86	20.634	87	20.244	90	756
430	22.733	83	21.313	82	20.721	86	20.334	87	774
440	22.816	79	21.395	83	20.807	83	20.421	85	792
450	22.895	80	21.478	82	20.890	83	20.506	84	810
460	22.975	76	21.560	78	20.973	79	20.590	80	828
470	23.051	76	21.638	76	21.052	78	20.670	79	846
480	23.127	73	21.714	75	21.130	76	20.749	77	864
490	23.200	74	21.789	75	21.206	76	20.826	77	882
500	23.274	71	21.864	72	21.282	73	20.903	75	900
510	23.345	71	21.936	72	21.355	74	20.978	74	918
520	23.416	69	22.008	70	21.429	70	21.052	71	936
530	23.485	67	22.078	68	21.499	69	21.123	70	954
540	23.552	66	22.146	67	21.568	68	21.193	69	972
550	23.618	67	22.213	67	21.636	68	21.262	68	990
560	23.685	64	22.280	65	21.704	65	21.330	67	1008
570	23.749	63	22.345	64	21.769	65	21.397	65	1026
580	23.812	63	22.409	64	21.834	65	21.462	65	1044
590	23.875	62	22.473	62	21.899	62	21.527	63	1062
600	23.937	61	22.535	61	21.961	62	21.590	63	1080
610	23.998	60	22.596	61	22.023	62	21.653	62	1098
620	24.058	58	22.657	59	22.085	59	21.715	59	1116
630	24.116	59	22.716	60	22.144	60	21.774	61	1134
640	24.175	57	22.776	58	22.204	58	21.835	59	1152
650	24.232	58	22.834	57	22.262	58	21.894	58	1170
660	24.290	55	22.891	56	22.320	56	21.952	57	1188
670	24.345	56	22.947	56	22.376	57	22.009	57	1206
680	24.401	54	23.003	55	22.433	55	22.066	55	1224
690	24.455	54	23.058	54	22.488	55	22.121	55	1242
700	24.509	53	23.112	54	22.543	54	22.176	55	1260
710	24.562	53	23.166	53	22.597	54	22.231	54	1278
720	24.615	53	23.219	52	22.651	53	22.285	53	1296
730	24.668	51	23.271	52	22.704	51	22.338	52	1314
740	24.719	51	23.323	51	22.755	52	22.390	52	1332
750	24.770	51	23.374	52	22.807	52	22.442	52	1350
760	24.821	49	23.426	49	22.859	49	22.494	50	1368
770	24.870	50	23.475	51	22.908	51	22.544	50	1386
780	24.920	48	23.526	48	22.959	49	22.594	49	1404
790	24.968	49	23.574	49	23.008	49	22.643	50	1422
800	25.017		23.623		23.057		22.693		1440

°K	10 atm		40 atm		70 atm		100 atm		°R
800	25.017	234	23.623	235	23.057	235	22.693	236	1440
850	25.251	223	23.858	224	23.292	226	22.929	227	1530
900	25.474	213	24.082	214	23.518	214	23.156	215	1620
950	25.687	204	24.296	205	23.732	206	23.371	206	1710
1000	25.891	195	24.501	196	23.938	196	23.577	197	1800
1050	26.086	189	24.697	188	24.134	190	23.744	189	1890
1100	26.275	181	24.885	182	24.324	181	23.963	182	1980
1150	26.456	174	25.067	174	24.505	175	24.145	175	2070
1200	26.630	169	25.241	170	24.680	169	24.320	170	2160
1250	26.799	162	25.411	162	24.849	163	24.490	163	2250
1300	26.961	158	25.573	158	25.012	159	24.653	159	2340
1350	27.119	153	25.731	153	25.171	152	24.812	152	2430
1400	27.272	148	25.884	148	25.323	149	24.964	149	2520
1450	27.420	143	26.032	143	25.472	143	25.113	144	2610
1500	27.563	139	26.175	139	25.615	139	25.257	139	2700
1550	27.702	135	26.314	136	25.754	136	25.396	136	2790
1600	27.837	132	26.450	132	25.890	132	25.532	132	2880
1650	27.969	128	26.582	128	26.022	128	25.664	128	2970
1700	28.097	125	26.710	125	26.150	125	25.792	126	3060
1750	28.222	121	26.835	121	26.275	122	25.918	121	3150
1800	28.343	119	26.956	119	26.397	119	26.039	119	3240
1850	28.462	115	27.075	115	26.516	115	26.158	115	3330
1900	28.577	113	27.190	113	26.631	113	26.273	114	3420
1950	28.690	110	27.303	110	26.744	110	26.387	110	3510
2000	28.800	108	27.413	109	26.854	108	26.497	108	3600
2050	28.908	105	27.522	105	26.962	105	26.605	105	3690
2100	29.013	103	27.627	103	27.067	103	26.710	103	3780
2150	29.116	101	27.730	101	27.170	102	26.813	101	3870
2200	29.217	99	27.831	99	27.272	99	26.914	99	3960
2250	29.316	97	27.930	97	27.371	97	27.013	97	4050
2300	29.413	95	28.027	95	27.468	95	27.110	96	4140
2350	29.508	93	28.122	93	27.563	93	27.206	93	4230
2400	29.601	91	28.215	91	27.656	91	27.299	91	4320
2450	29.692	89	28.306	89	27.747	89	27.390	89	4410
2500	29.781	88	28.395	88	27.836	88	27.479	88	4500
2550	29.869	86	28.483	86	27.924	86	27.567	86	4590
2600	29.955	85	28.569	85	28.010	85	27.653	85	4680
2650	30.040	83	28.654	83	28.095	83	27.738	83	4770
2700	30.123	82	28.737	82	28.178	82	27.821	82	4860
2750	30.205	80	28.819	80	28.260	80	27.903	80	4950
2800	30.285		28.899		28.340		27.983		5040

Table 5-6. SPECIFIC-HEAT RATIO OF CARBON MONOXIDE $\gamma = C_p/C_v$

°K	.01 atm		.1 atm		1 atm		10 atm		°R
200	1.400		1.400		1.405	-1	1.456	-8	360
210	1.400		1.400		1.404		1.448	-4	378
220	1.400		1.400		1.404		1.444	-5	396
230	1.400		1.400		1.404	-1	1.439	-4	414
240	1.400		1.400		1.403		1.435	-3	432
250	1.400		1.400		1.403	-1	1.432	-3	450
260	1.400		1.400		1.402		1.429	-3	468
270	1.400		1.400		1.402		1.426	-2	486
280	1.400	-1	1.400	-1	1.402		1.424	-2	504
290	1.399		1.399		1.402	-1	1.422	-2	522
300	1.399		1.399		1.401		1.420	-2	540
310	1.399		1.399		1.401		1.418	-2	558
320	1.399		1.399		1.401		1.416	-1	576
330	1.399	-1	1.399	-1	1.401	-1	1.415	-1	594
340	1.398		1.398		1.400	-1	1.414	-2	612
350	1.398	-1	1.398		1.399		1.412	-1	630
360	1.397		1.398	-1	1.399	-1	1.411	-2	648
370	1.397		1.397		1.398		1.409	-1	666
380	1.397	-1	1.397	-1	1.398	-1	1.408	-1	684
390	1.396	-1	1.396	-1	1.397	-1	1.407	-1	702
400	1.395		1.395		1.396		1.406	-1	720
410	1.395	-1	1.395	-1	1.396	-1	1.405	-2	738
420	1.394	-1	1.394	-1	1.395	-1	1.403	-1	756
430	1.393		1.393		1.394	-1	1.402	-1	774
440	1.393	-1	1.393	-1	1.393	-1	1.401	-1	792
450	1.392	-1	1.392	-1	1.392	-1	1.400	-2	810
460	1.391	-1	1.391	-1	1.391	-1	1.398	-1	828
470	1.390	-1	1.390	-1	1.390	-1	1.397	-1	846
480	1.389	-1	1.389	-1	1.389	-1	1.396	-2	864
490	1.388	-1	1.388	-1	1.388	-1	1.394	-1	882
500	1.387	-1	1.387	-1	1.387	-1	1.393	-1	900
510	1.386	-1	1.386	-1	1.386	-1	1.392	-2	918
520	1.385	-1	1.385	-1	1.385	-1	1.390	-1	936
530	1.384	-1	1.384	-1	1.384	-1	1.389	-1	954
540	1.383	-1	1.383	-1	1.383	-1	1.388	-1	972
550	1.382	-1	1.382	-1	1.382	-1	1.387	-1	990
560	1.381	-2	1.381	-2	1.381	-1	1.386	-1	1008
570	1.379	-1	1.379	-1	1.380	-2	1.385	-1	1026
580	1.378	-1	1.378	-1	1.378	-1	1.384	-2	1044
590	1.377	-1	1.377	-1	1.377	-1	1.382	-1	1062
600	1.376	-1	1.376	-1	1.376	-1	1.381	-2	1080
610	1.375	-2	1.375	-2	1.375	-1	1.379	-2	1098
620	1.373	-1	1.373	-1	1.374	-2	1.377	-2	1116
630	1.372	-1	1.372	-1	1.372	-1	1.375	-1	1134
640	1.371	-1	1.371	-1	1.371	-1	1.374	-1	1152
650	1.370	-2	1.370	-2	1.370	-1	1.373	-2	1170
660	1.368	-1	1.368	-1	1.369	-2	1.371	-1	1188
670	1.367	-1	1.367	-1	1.367	-1	1.370	-1	1206
680	1.366	-1	1.366	-1	1.366	-1	1.369	-1	1224
690	1.365	-1	1.365	-1	1.365	-1	1.368	-2	1242
700	1.364	-1	1.364	-1	1.364	-1	1.366	-1	1260
710	1.363	-2	1.363	-2	1.363	-2	1.365	-1	1278
720	1.361	-1	1.361	-1	1.361	-1	1.364	-2	1296
730	1.360	-1	1.360	-1	1.360	-1	1.362	-1	1314
740	1.359	-1	1.359	-1	1.359	-1	1.361	-1	1332
750	1.358	-1	1.358	-1	1.358	-1	1.360	-1	1350
760	1.357	-1	1.357	-1	1.357	-1	1.359	-1	1368
770	1.356	-1	1.356	-1	1.356	-1	1.358	-2	1386
780	1.355	-1	1.355	-1	1.355	-1	1.356	-1	1404
790	1.354	-2	1.354	-2	1.354	-2	1.355	-1	1422
800	1.352		1.352		1.352		1.354		1440

Table 5-6. SPECIFIC-HEAT RATIO OF CARBON MONOXIDE - Cont. $\gamma = C_p/C_v$

°K	.01 atm		.1 atm		1 atm		10 atm		°R
800	1.352	-5	1.352	-5	1.352	-5	1.354	-5	1440
850	1.347	-4	1.347	-4	1.347	-4	1.349	-5	1530
900	1.343	-5	1.343	-5	1.343	-5	1.344	-5	1620
950	1.338	-4	1.338	-4	1.338	-4	1.339	-4	1710
1000	1.334	-3	1.334	-3	1.334	-3	1.335	-4	1800
1050	1.331	-4	1.331	-4	1.331	-4	1.331	-3	1890
1100	1.327	-3	1.327	-3	1.327	-3	1.328	-3	1980
1150	1.324	-2	1.324	-2	1.324	-2	1.325	-3	2070
1200	1.322	-3	1.322	-3	1.322	-3	1.322	-3	2160
1250	1.319	-2	1.319	-2	1.319	-2	1.319	-2	2250
1300	1.317	-2	1.317	-2	1.317	-2	1.317	-2	2340
1350	1.315	-2	1.315	-2	1.315	-2	1.315	-2	2430
1400	1.313	-2	1.313	-2	1.313	-2	1.313	-2	2520
1450	1.311	-2	1.311	-2	1.311	-2	1.311	-2	2610
1500	1.309	-1	1.309	-1	1.309	-1	1.309	-1	2700
1550	1.308	-2	1.308	-2	1.308	-2	1.308	-2	2790
1600	1.306	-1	1.306	-1	1.306	-1	1.306	-1	2880
1650	1.305	-1	1.305	-1	1.305	-1	1.305	-1	2970
1700	1.304	-2	1.304	-2	1.304	-2	1.304	-2	3060
1750	1.302	-1	1.302	-1	1.302	-1	1.302	-1	3150
1800	1.301	-1	1.301	-1	1.301	-1	1.301	-1	3240
1850	1.300	-1	1.300	-1	1.300	-1	1.300	-1	3330
1900	1.299		1.299		1.299		1.299	-1	3420
1950	1.299	-1	1.299	-1	1.299	-1	1.298		3510
2000	1.298	-3	1.298	-3	1.298	-3	1.298	-3	3600
2200	1.295	-3	1.295	-3	1.295	-3	1.295	-3	3960
2400	1.292	-1	1.292	-1	1.292	-1	1.292	-1	4320
2600	1.291	-2	1.291	-2	1.291	-2	1.291	-2	4680
2800	1.289	-1	1.289	-1	1.289	-1	1.289	-1	5040
3000	1.288		1.288		1.288		1.288		5400

Table 5-6. SPECIFIC-HEAT RATIO OF CARBON MONOXIDE - Cont. $\gamma = C_p/C_v$

°K	10 atm		40 atm		70 atm		100 atm		°R
250	1.432	-3	1.543	-16					450
260	1.429	-3	1.527	-13					468
270	1.426	-2	1.514	-11	1.617	-24			486
280	1.424	-2	1.503	- 9	1.593	-20	1.698	-35	504
290	1.422	-2	1.494	- 9	1.573	-18	1.663	-30	522
300	1.420	-2	1.485	- 7	1.555	-14	1.633	-24	540
310	1.418	-2	1.478	- 7	1.541	-13	1.609	-21	558
320	1.416	-1	1.471	- 6	1.528	-11	1.588	-17	576
330	1.415	-1	1.465	- 5	1.517	-10	1.571	-15	594
340	1.414	-2	1.460	- 5	1.507	- 8	1.556	-14	612
350	1.412	-1	1.455	- 4	1.499	- 8	1.542	-12	630
360	1.411	-2	1.451	- 4	1.491	- 7	1.530	-10	648
370	1.409	-1	1.447	- 4	1.484	- 7	1.520	-10	666
380	1.408	-1	1.443	- 3	1.477	- 6	1.510	- 8	684
390	1.407	-1	1.440	- 4	1.471	- 5	1.502	- 8	702
400	1.406	-1	1.436	- 3	1.466	- 5	1.494	- 7	720
410	1.405	-2	1.433	- 3	1.461	- 5	1.487	- 7	738
420	1.403	-1	1.430	- 2	1.456	- 4	1.480	- 6	756
430	1.402	-1	1.428	- 3	1.452	- 4	1.474	- 5	774
440	1.401	-1	1.425	- 3	1.448	- 4	1.469	- 6	792
450	1.400	-2	1.422	- 2	1.444	- 4	1.463	- 5	810
460	1.398	-1	1.420	- 3	1.440	- 4	1.458	- 4	828
470	1.397	-1	1.417	- 2	1.436	- 3	1.454	- 5	846
480	1.396	-2	1.415	- 2	1.433	- 4	1.449	- 4	864
490	1.394	-1	1.413	- 3	1.429	- 3	1.445	- 4	882
500	1.393	-1	1.410	- 2	1.426	- 3	1.441	- 4	900
510	1.392	-2	1.408	- 2	1.423	- 3	1.437	- 4	918
520	1.390	-1	1.406	- 2	1.420	- 2	1.433	- 3	936
530	1.389	-1	1.404	- 2	1.418	- 3	1.430	- 4	954
540	1.388	-1	1.402	- 2	1.415	- 3	1.426	- 3	972
550	1.387	-1	1.400	- 2	1.412	- 2	1.423	- 3	990
560	1.386	-1	1.398	- 2	1.410	- 3	1.420	- 3	1008
570	1.385	-1	1.396	- 2	1.407	- 2	1.417	- 3	1026
580	1.384	-2	1.394	- 2	1.405	- 3	1.414	- 3	1044
590	1.382	-1	1.392	- 2	1.402	- 2	1.411	- 2	1062
600	1.381	-2	1.390	- 2	1.400	- 2	1.409	- 3	1080
610	1.379	-2	1.388	- 1	1.398	- 3	1.406	- 2	1098
620	1.377	-2	1.387	- 2	1.395	- 2	1.404	- 3	1116
630	1.375	-1	1.385	- 2	1.393	- 2	1.401	- 2	1134
640	1.374	-1	1.383	- 2	1.391	- 2	1.399	- 3	1152
650	1.373	-2	1.381	- 1	1.389	- 2	1.396	- 2	1170
660	1.371	-1	1.380	- 2	1.387	- 2	1.394	- 2	1188
670	1.370	-1	1.378	- 2	1.385	- 2	1.392	- 2	1206
680	1.369	-1	1.376	- 1	1.383	- 1	1.390	- 2	1224
690	1.368	-2	1.375	- 2	1.382	- 2	1.388	- 2	1242
700	1.366	-1	1.373	- 1	1.380	- 2	1.386	- 2	1260
710	1.365	-1	1.372	- 2	1.378	- 2	1.384	- 3	1278
720	1.364	-2	1.370	- 1	1.376	- 2	1.381	- 1	1296
730	1.362	-1	1.369	- 2	1.374	- 1	1.380	- 2	1314
740	1.361	-1	1.367	- 1	1.373	- 2	1.378	- 2	1332
750	1.360	-1	1.366	- 2	1.371	- 1	1.376	- 2	1350
760	1.359	-1	1.364	- 1	1.370	- 2	1.374	- 2	1368
770	1.358	-2	1.363	- 1	1.368	- 2	1.372	- 1	1386
780	1.356	-1	1.362	- 2	1.366	- 1	1.371	- 2	1404
790	1.355	-1	1.360	- 1	1.365	- 2	1.369	- 1	1422
800	1.354	-5	1.359	- 6	1.363	- 6	1.368	- 8	1440
850	1.349	-5	1.353	- 6	1.357	- 6	1.360	- 7	1530
900	1.344	-5	1.347	- 5	1.351	- 6	1.353	- 6	1620
950	1.339	-4	1.342	- 4	1.345	- 5	1.347	- 5	1710
1000	1.335	-4	1.338	- 4	1.340	- 4	1.342	- 5	1800
1050	1.331		1.334		1.336		1.337		1890

Table 5-6. SPECIFIC-HEAT RATIO OF CARBON MONOXIDE - Cont. $\gamma = C_p/C_v$

°K	10 atm		40 atm		70 atm		100 atm		°R
1050	1.331	-3	1.334	- 4	1.336	- 4	1.337	- 4	1890
1100	1.328	-3	1.330	- 3	1.332	- 4	1.333	- 4	1980
1150	1.325	-3	1.327	- 4	1.328	- 3	1.329	- 3	2070
1200	1.322	-3	1.323	- 2	1.325	- 3	1.326	- 3	2160
1250	1.319	-2	1.321	- 3	1.322	- 3	1.323	- 3	2250
1300	1.317	-2	1.318	- 2	1.319	- 2	1.320	- 3	2340
1350	1.315	-2	1.316	- 2	1.317	- 3	1.317	- 2	2430
1400	1.313	-2	1.314	- 2	1.314	- 2	1.315	- 2	2520
1450	1.311	-2	1.312	- 2	1.312	- 2	1.313	- 2	2610
1500	1.309	-1	1.310	- 2	1.310	- 1	1.311	- 2	2700
1550	1.308	-2	1.308	- 1	1.309	- 2	1.309	- 2	2790
1600	1.306	-1	1.307	- 2	1.307	- 1	1.307	- 1	2880
1650	1.305	-1	1.305	- 1	1.306	- 2	1.306	- 1	2970
1700	1.304	-2	1.304	- 1	1.304	- 1	1.305	- 2	3060
1750	1.302	-1	1.303	- 1	1.303	- 1	1.303	- 1	3150
1800	1.301	-1	1.302	- 1	1.302	- 1	1.302	- 1	3240
1850	1.300	-1	1.301	- 1	1.301	- 1	1.301	- 1	3330
1900	1.299	-1	1.300	- 1	1.300	- 1	1.300	- 1	3420
1950	1.298		1.299	- 1	1.299	- 1	1.299	- 1	3510
2000	1.298		1.298		1.298		1.298		3600
2200	1.295	-3	1.295	- 3	1.295	- 3	1.295	- 3	3960
2400	1.292	-1	1.292	- 1	1.292	- 1	1.292	- 1	4320
2600	1.291	-2	1.291	- 2	1.291	- 2	1.291	- 2	4680
2800	1.289	-1	1.289	- 1	1.289	- 1	1.289	- 1	5040
3000	1.288		1.288		1.288		1.288		5400

Table 5-7. SOUND VELOCITY AT LOW FREQUENCY IN CARBON MONOXIDE a/a_0

°K	.01 atm		.1 atm		1 atm		10 atm		°R
200	.856	21	.856	21	.855	21	.850	22	360
210	.877	20	.877	20	.876	21	.872	22	378
220	.897	20	.897	20	.897	20	.894	22	396
230	.917	20	.917	20	.917	20	.916	21	414
240	.937	20	.937	20	.937	20	.937	21	432
250	.957	19	.957	19	.957	19	.958	19	450
260	.976	18	.976	18	.976	18	.977	20	468
270	.994	18	.994	18	.994	19	.997	19	486
280	1.012	18	1.012	18	1.013	18	1.016	18	504
290	1.030	18	1.030	18	1.031	17	1.034	18	522
300	1.048	17	1.048	17	1.048	18	1.052	18	540
310	1.065	17	1.065	17	1.066	17	1.070	17	558
320	1.082	17	1.082	17	1.083	16	1.087	17	576
330	1.099	16	1.099	16	1.099	17	1.104	17	594
340	1.115	16	1.115	16	1.116	16	1.121	17	612
350	1.131	16	1.131	16	1.132	16	1.138	16	630
360	1.147	16	1.147	16	1.148	15	1.154	15	648
370	1.163	15	1.163	15	1.163	16	1.169	16	666
380	1.178	15	1.178	15	1.179	15	1.185	15	684
390	1.193	15	1.193	15	1.194	15	1.200	16	702
400	1.208	15	1.208	14	1.209	15	1.216	15	720
410	1.223	14	1.222	15	1.224	14	1.231	14	738
420	1.237	15	1.237	15	1.238	14	1.245	15	756
430	1.252	14	1.252	14	1.252	14	1.260	14	774
440	1.266	14	1.266	14	1.266	14	1.274	14	792
450	1.280	14	1.280	14	1.280	14	1.288	14	810
460	1.294	13	1.294	13	1.294	14	1.302	13	828
470	1.307	13	1.307	13	1.308	13	1.315	14	846
480	1.320	14	1.320	14	1.321	13	1.329	13	864
490	1.334	13	1.334	13	1.334	13	1.342	13	882
500	1.347	13	1.347	13	1.347	13	1.355	13	900
510	1.360	12	1.360	12	1.360	13	1.368	13	918
520	1.372	13	1.372	13	1.373	13	1.381	12	936
530	1.385	12	1.385	12	1.386	12	1.393	13	954
540	1.397	13	1.397	13	1.398	13	1.406	13	972
550	1.410	12	1.410	12	1.411	12	1.419	12	990
560	1.422	12	1.422	12	1.423	12	1.431	12	1008
570	1.434	12	1.434	12	1.435	12	1.443	12	1026
580	1.446	12	1.446	12	1.447	11	1.455	12	1044
590	1.458	12	1.458	12	1.458	12	1.467	12	1062
600	1.470	11	1.470	11	1.470	12	1.479	11	1080
610	1.481	11	1.481	11	1.482	11	1.490	11	1098
620	1.492	11	1.492	11	1.493	11	1.501	11	1116
630	1.503	12	1.503	12	1.504	12	1.512	11	1134
640	1.515	11	1.515	11	1.516	11	1.523	11	1152
650	1.526	11	1.526	11	1.527	11	1.534	11	1170
660	1.537	11	1.537	11	1.538	10	1.545	11	1188
670	1.548	11	1.548	11	1.548	11	1.556	11	1206
680	1.559	10	1.559	10	1.559	11	1.567	11	1224
690	1.569	11	1.569	11	1.570	11	1.578	10	1242
700	1.580	11	1.580	11	1.581	11	1.588	11	1260
710	1.591	10	1.591	10	1.592	10	1.599	11	1278
720	1.601	10	1.601	10	1.602	10	1.610	10	1296
730	1.611	11	1.611	11	1.612	11	1.620	10	1314
740	1.622	10	1.622	10	1.623	10	1.630	10	1332
750	1.632	10	1.632	10	1.633	10	1.640	11	1350
760	1.642	10	1.642	10	1.643	10	1.651	10	1368
770	1.652	10	1.652	10	1.653	10	1.661	9	1386
780	1.662	10	1.662	10	1.663	10	1.670	10	1404
790	1.672	10	1.672	10	1.673	10	1.680	10	1422
800	1.682		1.682		1.683		1.690		1440

Table 5-7. SOUND VELOCITY AT LOW FREQUENCY IN CARBON MONOXIDE - Cont. a/a_0

°K	.01 atm		.1 atm		1 atm		10 atm		°R
800	1.682	48	1.682	48	1.683	48	1.690	52	1440
850	1.730	47	1.730	47	1.731	47	1.742	44	1530
900	1.777	46	1.777	46	1.778	46	1.786	45	1620
950	1.823	45	1.823	45	1.824	45	1.831	44	1710
1000	1.868	44	1.868	44	1.869	43	1.875	44	1800
1050	1.912	42	1.912	42	1.912	42	1.919	43	1890
1100	1.954	41	1.954	41	1.954	42	1.962	41	1980
1150	1.995	41	1.995	41	1.996	41	2.003	40	2070
1200	2.036	40	2.036	40	2.037	40	2.043	40	2160
1250	2.076	40	2.076	40	2.077	39	2.083	39	2250
1300	2.116	39	2.116	39	2.116	39	2.122	39	2340
1350	2.155	38	2.155	38	2.155	38	2.161	38	2430
1400	2.193	37	2.193	37	2.193	37	2.199	37	2520
1450	2.230	36	2.230	36	2.230	36	2.236	37	2610
1500	2.266	36	2.266	37	2.266	37	2.273	36	2700
1550	2.302	36	2.303	35	2.303	35	2.309	35	2790
1600	2.338	35	2.338	35	2.338	35	2.344	35	2880
1650	2.373	34	2.373	34	2.373	34	2.379	35	2970
1700	2.407	34	2.407	34	2.407	34	2.414	33	3060
1750	2.441	34	2.441	34	2.441	34	2.447	33	3150
1800	2.475	33	2.475	33	2.475	33	2.480	33	3240
1850	2.508	32	2.508	33	2.508	33	2.513	33	3330
1900	2.540	33	2.541	33	2.541	33	2.546	33	3420
1950	2.573	32	2.574	32	2.574	32	2.579	32	3510
2000	2.605	32	2.606	31	2.606	31	2.611	32	3600
2050	2.637	31	2.637	31	2.637	31	2.643	31	3690
2100	2.668	31	2.668	31	2.668	31	2.674	30	3780
2150	2.699	30	2.699	30	2.699	31	2.704	31	3870
2200	2.729	30	2.729	30	2.730	30	2.735	30	3960
2250	2.759	31	2.759	30	2.760	30	2.765	30	4050
2300	2.790	29	2.789	30	2.790	29	2.795	29	4140
2350	2.819	29	2.819	30	2.819	29	2.824	29	4230
2400	2.848	29	2.849	28	2.848	29	2.853	29	4320
2450	2.877	29	2.877	29	2.877	29	2.882	29	4410
2500	2.906	28	2.906	28	2.906	28	2.911	28	4500
2550	2.934	28	2.934	28	2.934	28	2.939	28	4590
2600	2.962	28	2.962	28	2.962	28	2.967	28	4680
2650	2.990	28	2.990	28	2.990	28	2.995	28	4770
2700	3.018	27	3.018	27	3.018	27	3.023	27	4860
2750	3.045	27	3.045	27	3.045	27	3.050	27	4950
2800	3.072	27	3.072	27	3.072	27	3.077	26	5040
2850	3.099	27	3.099	27	3.099	27	3.103	27	5130
2900	3.126	26	3.126	26	3.126	27	3.130	27	5220
2950	3.152	26	3.152	26	3.153	26	3.157	26	5310
3000	3.178		3.178		3.179		3.183		5400

Table 5-7. SOUND VELOCITY AT LOW FREQUENCY IN CARBON MONOXIDE - Cont. a/a_0

°K	10 atm		40 atm		70 atm		100 atm		°R
250	.958	19	.971	21					450
260	.977	20	.992	21					468
270	.997	19	1.013	20	1.042	20			486
280	1.016	18	1.033	20	1.062	20	1.106	18	504
290	1.034	18	1.053	19	1.082	19	1.124	17	522
300	1.052	18	1.072	18	1.101	18	1.141	17	540
310	1.070	17	1.090	18	1.119	18	1.158	17	558
320	1.087	17	1.108	18	1.137	18	1.175	17	576
330	1.104	17	1.126	17	1.155	17	1.192	17	594
340	1.121	17	1.143	17	1.172	18	1.209	16	612
350	1.138	16	1.160	17	1.190	17	1.225	16	630
360	1.154	15	1.177	17	1.207	16	1.241	16	648
370	1.169	16	1.194	16	1.223	16	1.257	15	666
380	1.185	15	1.210	16	1.239	16	1.272	16	684
390	1.200	16	1.226	15	1.255	15	1.288	15	702
400	1.216	15	1.241	15	1.270	15	1.303	15	720
410	1.231	14	1.256	15	1.285	15	1.318	15	738
420	1.245	15	1.271	15	1.300	15	1.333	14	756
430	1.260	14	1.286	14	1.315	14	1.347	14	774
440	1.274	14	1.300	14	1.329	15	1.361	14	792
450	1.288	14	1.314	14	1.344	13	1.375	14	810
460	1.302	13	1.328	14	1.357	14	1.389	14	828
470	1.315	14	1.342	14	1.371	14	1.403	13	846
480	1.329	13	1.356	13	1.385	12	1.416	13	864
490	1.342	13	1.369	13	1.397	14	1.429	12	882
500	1.355	13	1.382	13	1.411	13	1.441	12	900
510	1.368	13	1.395	13	1.424	13	1.453	14	918
520	1.381	12	1.408	12	1.437	12	1.467	12	936
530	1.393	13	1.420	13	1.449	13	1.479	12	954
540	1.406	13	1.433	13	1.462	12	1.491	12	972
550	1.419	12	1.446	12	1.474	12	1.503	12	990
560	1.431	12	1.458	12	1.486	11	1.515	12	1008
570	1.443	12	1.470	12	1.497	12	1.527	11	1026
580	1.455	12	1.482	11	1.509	12	1.538	12	1044
590	1.467	12	1.493	12	1.521	12	1.550	12	1062
600	1.479	11	1.505	11	1.533	11	1.562	11	1080
610	1.490	11	1.516	12	1.544	11	1.573	11	1098
620	1.501	11	1.528	11	1.555	11	1.584	11	1116
630	1.512	11	1.539	11	1.566	11	1.595	11	1134
640	1.523	11	1.550	11	1.577	11	1.606	10	1152
650	1.534	11	1.561	11	1.588	11	1.616	11	1170
660	1.545	11	1.572	11	1.599	11	1.627	11	1188
670	1.556	11	1.583	10	1.610	10	1.638	10	1206
680	1.567	11	1.593	11	1.620	11	1.648	11	1224
690	1.578	10	1.604	11	1.631	11	1.659	10	1242
700	1.588	11	1.615	10	1.642	10	1.669	10	1260
710	1.599	11	1.625	10	1.652	10	1.679	10	1278
720	1.610	10	1.635	11	1.662	10	1.689	10	1296
730	1.620	10	1.646	10	1.672	10	1.699	10	1314
740	1.630	10	1.656	10	1.682	10	1.709	10	1332
750	1.640	11	1.666	10	1.692	10	1.719	10	1350
760	1.651	10	1.676	10	1.702	10	1.729	10	1368
770	1.661	9	1.686	10	1.712	10	1.739	10	1386
780	1.670	10	1.696	10	1.722	10	1.749	9	1404
790	1.680	10	1.706	10	1.732	9	1.758	10	1422
800	1.690		1.716		1.741		1.768		1440

Table 5-7. SOUND VELOCITY AT LOW FREQUENCY IN CARBON MONOXIDE - Cont. a/a_0

°K	10 atm		40 atm		70 atm		100 atm		°R
800	1.690	52	1.716	48	1.741	48	1.768	46	1440
850	1.742	44	1.764	46	1.789	46	1.814	45	1530
900	1.786	45	1.810	46	1.835	44	1.859	45	1620
950	1.831	44	1.856	44	1.879	44	1.904	43	1710
1000	1.875	44	1.900	43	1.923	43	1.947	42	1800
1050	1.919	43	1.943	41	1.966	41	1.989	41	1890
1100	1.962	41	1.984	41	2.007	41	2.030	40	1980
1150	2.003	40	2.025	40	2.048	40	2.070	40	2070
1200	2.043	40	2.065	40	2.088	39	2.110	39	2160
1250	2.083	39	2.105	39	2.127	39	2.149	38	2250
1300	2.122	39	2.144	38	2.166	38	2.187	37	2340
1350	2.161	38	2.182	38	2.204	36	2.224	37	2430
1400	2.199	37	2.220	36	2.240	36	2.261	36	2520
1450	2.236	37	2.256	37	2.276	36	2.297	35	2610
1500	2.273	36	2.293	35	2.312	36	2.332	35	2700
1550	2.309	35	2.328	36	2.348	35	2.367	34	2790
1600	2.344	35	2.364	34	2.383	35	2.401	35	2880
1650	2.379	35	2.398	34	2.418	33	2.436	34	2970
1700	2.414	33	2.432	34	2.451	34	2.470	32	3060
1750	2.447	33	2.466	34	2.485	33	2.502	34	3150
1800	2.480	33	2.500	32	2.518	33	2.536	32	3240
1850	2.513	33	2.532	33	2.551	32	2.568	32	3330
1900	2.546	33	2.565	32	2.583	31	2.600	31	3420
1950	2.579	32	2.597	31	2.614	32	2.631	31	3510
2000	2.611	32	2.628	31	2.646	31	2.662	31	3600
2050	2.643	31	2.659	31	2.677	31	2.693	31	3690
2100	2.674	30	2.690	31	2.708	31	2.724	30	3780
2150	2.704	31	2.721	30	2.739	29	2.754	30	3870
2200	2.735	30	2.751	30	2.768	29	2.784	30	3960
2250	2.765	30	2.781	30	2.797	30	2.814	30	4050
2300	2.795	29	2.811	29	2.827	29	2.844	28	4140
2350	2.824	29	2.840	29	2.856	29	2.872	28	4230
2400	2.853	29	2.869	29	2.885	28	2.900	29	4320
2450	2.882	29	2.898	28	2.913	28	2.929	28	4410
2500	2.911	28	2.926	28	2.941	29	2.957	28	4500
2550	2.939	28	2.954	28	2.970	28	2.985	27	4590
2600	2.967	28	2.982	28	2.998	27	3.012	28	4680
2650	2.995	28	3.010	28	3.025	28	3.040	26	4770
2700	3.023	27	3.038	26	3.053	26	3.066	28	4860
2750	3.050	27	3.064	27	3.079	27	3.094	26	4950
2800	3.077	26	3.091	27	3.106	27	3.120	27	5040
2850	3.103	27	3.118	27	3.133	26	3.147	26	5130
2900	3.130	27	3.145	26	3.159	26	3.173	26	5220
2950	3.157	26	3.171	26	3.185	26	3.199	27	5310
3000	3.183		3.197		3.211		3.226		5400

Table 5-8. VISCOSITY OF CARBON MONOXIDE AT ATMOSPHERIC PRESSURE

°K	η/η_0		°R	°K	η/η_0		°R	°K	η/η_0		°R
50	.1982	389	90	550	1.683	21	990	1050	2.601	17	1890
60	.2365	393	108	560	1.704	21	1008	1060	2.618	16	1908
70	.2758	401	126	570	1.725	21	1026	1070	2.634	16	1926
80	.3159	404	144	580	1.746	20	1044	1080	2.650	16	1944
90	.3563	403	162	590	1.766	21	1062	1090	2.666	16	1962
100	.3966	401	180	600	1.787	20	1080	1100	2.682	16	1980
110	.4367	395	198	610	1.807	21	1098	1110	2.698	16	1998
120	.4762	389	216	620	1.828	20	1116	1120	2.714	16	2016
130	.5151	384	234	630	1.848	20	1134	1130	2.730	16	2034
140	.5535	376	252	640	1.868	20	1152	1140	2.746	16	2052
150	.5911	370	270	650	1.888	20	1170	1150	2.762	15	2070
160	.6281	363	288	660	1.908	20	1188	1160	2.777	16	2088
170	.6644	356	306	670	1.928	19	1206	1170	2.793	16	2106
180	.7000	350	324	680	1.947	20	1224	1180	2.809	16	2124
190	.7350	342	342	690	1.967	19	1242	1190	2.825	17	2142
200	.7692	334	360	700	1.986	19	1260	1200	2.842	17	2160
210	.8026	327	378	710	2.005	18	1278	1210	2.859	16	2178
220	.8353	321	396	720	2.023	19	1296	1220	2.875	15	2196
230	.8674	316	414	730	2.042	19	1314	1230	2.890	15	2214
240	.8990	310	432	740	2.061	19	1332	1240	2.905	16	2232
250	.9300	305	450	750	2.080	19	1350	1250	2.921	15	2250
260	.9605	301	468	760	2.099	18	1368	1260	2.936	15	2268
270	.9906	294	486	770	2.117	19	1386	1270	2.951	15	2286
280	1.0200	290	504	780	2.136	18	1404	1280	2.966	14	2304
290	1.0490	286	522	790	2.154	18	1422	1290	2.980	15	2322
300	1.0776	277	540	800	2.172	19	1440	1300	2.995	15	2340
310	1.1053	276	558	810	2.191	18	1458	1310	3.010	15	2358
320	1.1329	271	576	820	2.209	17	1476	1320	3.025	14	2376
330	1.1600	269	594	830	2.226	18	1494	1330	3.039	15	2394
340	1.1869	26	612	840	2.244	18	1512	1340	3.054	15	2412
350	1.213	26	630	850	2.262	17	1530	1350	3.069	15	2430
360	1.239	26	648	860	2.279	18	1548	1360	3.084	14	2448
370	1.265	25	666	870	2.297	18	1566	1370	3.098	15	2466
380	1.290	25	684	880	2.315	17	1584	1380	3.113	14	2484
390	1.315	25	702	890	2.332	17	1602	1390	3.127	15	2502
400	1.340	25	720	900	2.349	17	1620	1400	3.142	14	2520
410	1.365	24	738	910	2.366	17	1638	1410	3.156	15	2538
420	1.389	24	756	920	2.383	17	1656	1420	3.171	14	2556
430	1.413	24	774	930	2.400	17	1674	1430	3.185	15	2574
440	1.437	23	792	940	2.417	17	1692	1440	3.200	14	2592
450	1.460	24	810	950	2.434	17	1710	1450	3.214	14	2610
460	1.484	23	828	960	2.451	17	1728	1460	3.228	15	2628
470	1.507	22	846	970	2.468	17	1746	1470	3.243	14	2646
480	1.529	23	864	980	2.485	17	1764	1480	3.257	14	2664
490	1.552	22	882	990	2.502	17	1782	1490	3.271	14	2682
500	1.574	22	900	1000	2.519	17	1800	1500	3.285		2700
510	1.596	22	918	1010	2.536	16	1818				
520	1.618	22	936	1020	2.552	16	1836				
530	1.640	22	954	1030	2.568	16	1854				
540	1.662	21	972	1040	2.584	17	1872				
550	1.683		990	1050	2.601		1890				

Table 5-9. THERMAL CONDUCTIVITY OF CARBON MONOXIDE AT ATMOSPHERIC PRESSURE

°K	k/k_0		°R
70	.260	37	126
80	.297	38	144
90	.335	39	162
100	.374	39	180
110	.413	39	198
120	.452	38	216
130	.490	38	234
140	.528	38	252
150	.566	37	270
160	.603	37	288
170	.640	37	306
180	.677	37	324
190	.714	36	342
200	.750	35	360
210	.785	35	378
220	.820	34	396
230	.854	34	414
240	.888	35	432
250	.923	33	450
260	.956	33	468
270	.989	33	486
280	1.022	32	504
290	1.054	33	522
300	1.087	32	540
310	1.119	31	558
320	1.150	31	576
330	1.181	31	594
340	1.212	30	612
350	1.242		630

°K	k/k_0		°R
350	1.242	30	630
360	1.272	30	648
370	1.302	29	666
380	1.331	29	684
390	1.360	29	702
400	1.389	29	720
410	1.418	28	738
420	1.446	28	756
430	1.474	28	774
440	1.502	28	792
450	1.530	27	810
460	1.557	27	828
470	1.584	27	846
480	1.611	27	864
490	1.638	26	882
500	1.664	26	900
510	1.690	26	918
520	1.716	25	936
530	1.741	25	954
540	1.766	25	972
550	1.791	25	990
560	1.816	25	1008
570	1.841	24	1026
580	1.865	25	1044
590	1.890	24	1062
600	1.914		1080

Table 5-10. PRANDTL NUMBER OF CARBON MONOXIDE AT ATMOSPHERIC PRESSURE $\eta C_p/k$

°K	(N_{Pr})		$(N_{Pr})^{2/3}$		$(N_{Pr})^{1/3}$		$(N_{Pr})^{1/2}$		°R
200	.764	-3	.836	-2	.914	-1	.874	-2	360
210	.761	-3	.834	-3	.913	-1	.872	-1	378
220	.758	-2	.831	-1	.912	-1	.871	-1	396
230	.756	-3	.830	-2	.911	-1	.870	-2	414
240	.753	-3	.828	-2	.910	-1	.868	-2	432
250	.750	-3	.826	-3	.909	-2	.866	-2	450
260	.747	-2	.823	-1	.907		.864	-1	468
270	.745	-3	.822	-2	.907	-2	.863	-2	486
280	.742	-2	.820	-2	.905		.861	-1	504
290	.740	-3	.818	-2	.905	-2	.860	-2	522
300	.737	-2	.816	-2	.903	-1	.858	-1	540
310	.735	-2	.814	-1	.902		.857	-1	558
320	.733	-2	.813	-2	.902	-1	.856	-1	576
330	.731	-2	.811	-1	.901	-1	.855	-1	594
340	.729	-1	.810	-1	.900		.854	-1	612
350	.728	-2	.809	-1	.900	-1	.853	-1	630
360	.726	-1	.808	-1	.899	-1	.852	-1	648
370	.725	-1	.807	-1	.898		.851		666
380	.724	-1	.806		.898		.851	-1	684
390	.723	-1	.806	-1	.898	-1	.850		702
400	.722	-1	.805	-1	.897		.850	-1	720
410	.721	-1	.804	-1	.897	-1	.849		738
420	.720		.803		.896		.849		756
430	.720	-1	.803		.896		.849	-1	774
440	.719	-1	.803	-1	.896	-1	.848	-1	792
450	.718	1	.802	1	.895	1	.847	1	810
460	.719		.803		.896		.848		828
470	.719	-1	.803	-1	.896	-1	.848	-1	846
480	.718		.802		.895		.847		864
490	.718		.802		.895		.847		882
500	.718		.802	1	.895	1	.847	1	900
510	.718	1	.803		.896		.848		918
520	.719	1	.803		.896		.848	1	936
530	.720		.803		.896		.849		954
540	.720	1	.803	1	.896	1	.849	1	972
550	.721	1	.804	1	.897		.850		990
560	.722		.805		.897		.850		1008
570	.722	1	.805	1	.897	1	.850		1026
580	.723		.806		.898		.850		1044
590	.723	1	.806		.898		.850	1	1062
600	.724		.806		.898		.851		1080

Table 5-11. VAPOR PRESSURE OF CARBON MONOXIDE

Remarks	T	P	P	P	T
	°K	m Hg	atm	psia	°R
Transition- - - - - - - -	61.5_7	.0281	.0370	.543	110.8_3
Triple point- - - - - - -	68.0_9	.1153	.1517	2.230	122.5_6
Normal boiling point- -	81.6_2	.7600	1.000	14.696	146.9_2
Critical point - - - - -	132.8_8	26.2_{42}	34.5_{29}	$507._4$	239.1_8
Solid below transition	55	.0042	.0055	.081	99
	60	.0186	.0244	.359	108
Solid above transition	65	.061	.081	1.183	117
Liquid- - - - - - - - - -	70	.158	.208	3.06	126
	75	.332	.437	6.42	135
	80	.629	.828	12.16	144
	85	1.098	1.445	21.2	153
	90	1.796	2.36	34.7	162
	95	2.78	3.66	53.8	171
	100	4.11	5.41	79.5	180
	105	5.84	7.68	112.9	189
	110	8.04	10.57	155.4	198
	115	10.77	14.17	208.	207
	120	14.11	18.57	273.	216
	125	18.14	23.87	351.	225
	130	22.99	30.25	445.	234

Table 5-11/a. VAPOR PRESSURE OF LIQUID CARBON MONOXIDE

40/T	T	$Log_{10}P$ (atm)*		P	T	72/T
$^oK^{-1}$	^oK			atm	^oR	$^oR^{-1}$
.59	67.80	(9.1591 -10)	859	(.144)	122.03	.59
.58	68.97	9.2450 -10	855	.176	124.14	.58
.57	70.18	9.3305 -10	851	.214	126.32	.57
.56	71.43	9.4156 -10	846	.260	128.57	.56
.55	72.73	9.5002 -10	842	.316	130.91	.55
.54	74.07	9.5844 -10	838	.384	133.33	.54
.53	75.47	9.6682 -10	835	.466	135.85	.53
.52	76.92	9.7517 -10	832	.565	138.46	.52
.51	78.43	9.8349 -10	830	.684	141.18	.51
.50	80.00	9.9179 -10	826	.828	144.00	.50
.49	81.63	.0005	823	1.001	146.94	.49
.48	83.33	.0828	820	1.210	150.00	.48
.47	85.11	.1648	818	1.462	153.19	.47
.46	86.96	.2466	816	1.76	156.52	.46
.45	88.89	.3282	816	2.13	160.00	.45
.44	90.91	.4098	814	2.57	163.64	.44
.43	93.02	.4912	810	3.10	167.44	.43
.42	95.24	.5722	807	3.73	171.43	.42
.41	97.56	.6529	802	4.50	175.61	.41
.40	100.00	.7331	800	5.41	180.00	.40
.39	102.53	.8131	800	6.50	184.62	.39
.38	105.26	.8931	801	7.82	189.47	.38
.37	108.11	.9732	802	9.40	194.59	.37
.36	111.11	1.0534	805	11.31	200.00	.36
.35	114.29	1.1339	808	13.61	205.71	.35
.34	117.65	1.2147	812	16.40	211.76	.34
.33	121.21	1.2959	819	19.77	218.18	.33
.32	125.00	1.3778	834	23.87	225.00	.32
.31	129.03	1.4612	859	28.92	232.26	.31
.30	133.33	(1.5471)	896	(35.25)	240.00	.30
.29	137.93	(1.6367)		(43.32)	248.28	.29

*Tabulated values in this column are for interpolation in terms of reciprocal temperature.

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

Table 5-11/b. CONSTANTS FOR $LOG_{10}P$ (SOLID) = A - B/T

	Units of P	A	Units of T	B
Below the transition	mm Hg	8.3509	^oK	424.94
	atm	5.4701	^oR	764.89
	psia	6.6373		
Above the transition	mm Hg	7.8469	^oK	393.91
	atm	4.9661	^oR	709.04
	psia	6.1333		

Table 5-12. IDEAL-GAS THERMODYNAMIC FUNCTIONS FOR CARBON MONOXIDE

°K	$\frac{C_p^\circ}{R}$		$\frac{(H^\circ - E_0^\circ)^*}{RT_0}$		$\frac{S^\circ}{R}$		$\frac{-(F^\circ - E_0^\circ)}{RT}$		°R
60	3.500		.76543	12814	18.147	540	14.662	538	108
70	3.500		.89357	1281	18.687	467	15.200	465	126
80	3.500		1.0217	1281	19.154	412	15.665	412	144
90	3.500		1.1498	1282	19.566	369	16.077	367	162
100	3.500	1	1.2780	1282	19.935	334	16.444	333	180
110	3.501		1.4062	1281	20.269	304	16.777	304	198
120	3.501		1.5343	1282	20.573	281	17.081	279	216
130	3.501		1.6625	1281	20.854	259	17.360	259	234
140	3.501		1.7906	1282	21.113	241	17.619	241	252
150	3.501		1.9188	1281	21.354	226	17.860	226	270
160	3.501		2.0469	1282	21.580	213	18.086	212	288
170	3.501		2.1751	1281	21.793	200	18.298	199	306
180	3.501		2.3032	1282	21.993	189	18.497	189	324
190	3.501		2.4314	1282	22.182	180	18.686	180	342
200	3.501		2.5596	1281	22.362	170	18.866	170	360
210	3.501		2.6877	1282	22.532	163	19.036	163	378
220	3.501		2.8159	1282	22.695	156	19.199	155	396
230	3.501	1	2.9441	1282	22.851	149	19.354	149	414
240	3.502		3.0723	1282	23.000	143	19.503	143	432
250	3.502		3.2005	1282	23.143	137	19.646	137	450
260	3.502	1	3.3287	1282	23.280	132	19.783	132	468
270	3.503		3.4569	1282	23.412	128	19.915	127	486
280	3.503	1	3.5851	1283	23.540	123	20.042	123	504
290	3.504	1	3.7134	1283	23.663	119	20.165	119	522
300	3.505	1	3.8417	1283	23.782	115	20.284	114	540
310	3.506	2	3.9700	1284	23.897	111	20.398	111	558
320	3.508	1	4.0984	1284	24.008	108	20.509	108	576
330	3.509	2	4.2268	1285	24.116	105	20.617	104	594
340	3.511	2	4.3553	1286	24.221	101	20.721	102	612
350	3.513	3	4.4839	1287	24.322	99	20.823	98	630
360	3.516	3	4.6126	1287	24.421	97	20.921	96	648
370	3.519	3	4.7413	1289	24.518	94	21.017	94	666
380	3.522	3	4.8702	1290	24.612	91	21.111	91	684
390	3.525	4	4.9992	1291	24.703	89	21.202	88	702
400	3.529	4	5.1283	1293	24.792	88	21.290	87	720
410	3.533	4	5.2576	1294	24.880	85	21.377	84	738
420	3.537	5	5.3870	1296	24.965	83	21.461	83	756
430	3.542	5	5.5166	1297	25.048	82	21.544	80	774
440	3.547	5	5.6463	1300	25.130	79	21.624	79	792
450	3.552	6	5.7763	1301	25.209	79	21.703	77	810
460	3.558	6	5.9064	1304	25.288	76	21.780	76	828
470	3.564	6	6.0368	1306	25.364	75	21.856	73	846
480	3.570	7	6.1674	1308	25.439	73	21.929	72	864
490	3.577	6	6.2982	1310	25.512	73	22.001	72	882
500	3.583	7	6.4292	1314	25.585	71	22.073	69	900
510	3.590	7	6.5606	1315	25.656	71	22.142	69	918
520	3.597	8	6.6921	1319	25.727	68	22.211	67	936
530	3.605	7	6.8240	1321	25.795	67	22.278	65	954
540	3.612	8	6.9561	1323	25.862	66	22.343	65	972
550	3.620	8	7.0884	1327	25.928	66	22.408	63	990
560	3.628	8	7.2211	1330	25.994	64	22.471	63	1008
570	3.636	8	7.3541	1333	26.058	63	22.534	61	1026
580	3.644	9	7.4874	1335	26.121	63	22.595	60	1044
590	3.653	8	7.6209	1339	26.184	61	22.655	60	1062
600	3.661		7.7548		26.245		22.715		1080

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

Table 5-12. IDEAL-GAS THERMODYNAMIC FUNCTIONS FOR CARBON MONOXIDE - Cont.

°K	$\frac{C_p^\circ}{R}$		$\frac{(H^\circ - E_0^\circ)^*}{RT_0}$		$\frac{S^\circ}{R}$		$\frac{-(F^\circ - E_0^\circ)}{RT}$		°R
600	3.661	9	7.7548	1342	26.245	61	22.715	58	1080
610	3.670	8	7.8890	1345	26.306	60	22.773	57	1098
620	3.678	9	8.0235	1348	26.366	58	22.830	57	1116
630	3.687	9	8.1583	1352	26.424	59	22.887	56	1134
640	3.696	9	8.2935	1355	26.483	57	22.943	55	1152
650	3.705	9	8.4290	1357	26.540	57	22.998	54	1170
660	3.714	8	8.5647	1361	26.597	55	23.052	53	1188
670	3.722	9	8.7008	1365	26.652	56	23.105	53	1206
680	3.731	9	8.8373	1368	26.708	54	23.158	52	1224
690	3.740	9	8.9741	1371	26.762	54	23.210	51	1242
700	3.749	9	9.1112	1373	26.816	53	23.261	50	1260
710	3.758	9	9.2485	1378	26.869	53	23.311	50	1278
720	3.767	9	9.3863	1381	26.922	52	23.361	49	1296
730	3.776	9	9.5244	1384	26.974	51	23.410	49	1314
740	3.785	9	9.6628	1387	27.025	51	23.459	47	1332
750	3.794	8	9.8015	1390	27.076	51	23.506	48	1350
760	3.802	9	9.9405	139	27.127	49	23.554	46	1368
770	3.811	9	10.080	140	27.176	50	23.600	47	1386
780	3.820	8	10.220	140	27.226	48	23.647	45	1404
790	3.828	9	10.360	140	27.274	49	23.692	45	1422
800	3.837	41	10.500	706	27.323	233	23.737	218	1440
850	3.878	40	11.206	714	27.556	223	23.955	207	1530
900	3.918	38	11.920	720	27.779	213	24.162	196	1620
950	3.956	35	12.640	728	27.992	204	24.358	186	1710
1000	3.991	33	13.368	733	28.196	195	24.544	179	1800
1050	4.024	30	14.101	739	28.391	188	24.723	171	1890
1100	4.054	29	14.840	745	28.579	181	24.894	164	1980
1150	4.083	27	15.585	750	28.760	174	25.058	158	2070
1200	4.110	25	16.335	755	28.934	169	25.216	153	2160
1250	4.135	23	17.090	759	29.103	162	25.369	146	2250
1300	4.158	21	17.849	763	29.265	158	25.515	142	2340
1350	4.179	20	18.612	767	29.423	152	25.657	137	2430
1400	4.199	19	19.379	770	29.575	148	25.794	133	2520
1450	4.218	18	20.149	774	29.723	143	25.927	129	2610
1500	4.236	16	20.923	776	29.866	139	26.056	125	2700
1550	4.252	15	21.699	780	30.005	135	26.181	122	2790
1600	4.267	14	22.479	782	30.140	132	26.303	118	2880
1650	4.281	13	23.261	785	30.272	128	26.421	115	2970
1700	4.294	13	24.046	787	30.400	125	26.536	112	3060
1750	4.307	12	24.833	790	30.525	121	26.648	110	3150
1800	4.319	11	25.623	792	30.646	119	26.758	106	3240
1850	4.330	10	26.415	793	30.765	115	26.864	105	3330
1900	4.340	10	27.208	795	30.880	113	26.969	101	3420
1950	4.350	9	28.003	798	30.993	110	27.070	100	3510
2000	4.359	9	28.801	799	31.103	108	27.170	97	3600
2050	4.368	8	29.600	801	31.211	105	27.267	95	3690
2100	4.376	8	30.401	802	31.316	103	27.362	93	3780
2150	4.384	7	31.203	803	31.419	101	27.455	92	3870
2200	4.391	7	32.006	804	31.520	99	27.547	89	3960
2250	4.398	7	32.810	806	31.619	97	27.636	88	4050
2300	4.405	7	33.616	807	31.716	95	27.724	86	4140
2350	4.412	6	34.423	809	31.811	93	27.810	84	4230
2400	4.418	6	35.232	809	31.904	91	27.894	83	4320
2450	4.424	5	36.041	810	31.995	89	27.977	81	4410
2500	4.429	6	36.851	812	32.084	88	28.058	80	4500
2550	4.435	5	37.663	812	32.172	86	28.138	78	4590
2600	4.440	5	38.475	814	32.258	85	28.216	77	4680
2650	4.445	5	39.289	814	32.343	83	28.293	76	4770
2700	4.450	4	40.103	815	32.426	82	28.369	75	4860
2750	4.454	5	40.918	816	32.508	80	28.444	73	4950
2800	4.459		41.734		32.588		28.517		5040

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

Table 5-12. IDEAL-GAS THERMODYNAMIC FUNCTIONS FOR CARBON MONOXIDE - Cont.

°K	C_p°/R		$(H^\circ - E_0^\circ)^*/RT_0$		S°/R		$-(F^\circ - E_0^\circ)/RT$		°R
2800	4.459	5	41.734	817	32.588	79	28.517	71	5040
2850	4.464	4	42.551	817	32.667	77	28.588	71	5130
2900	4.468	4	43.368	818	32.744	77	28.659	70	5220
2950	4.472	4	44.186	819	32.821	75	28.729	69	5310
3000	4.476	4	45.005	820	32.896	74	28.798	68	5400
3050	4.480	4	45.825	820	32.970	73	28.866	67	5490
3100	4.484	3	46.645	821	33.043	72	28.933	65	5580
3150	4.487	4	47.466	822	33.115	70	28.998	65	5670
3200	4.491	3	48.288	822	33.185	70	29.063	64	5760
3250	4.494	3	49.110	823	33.255	69	29.127	63	5850
3300	4.497	3	49.933	824	33.324	67	29.190	62	5940
3350	4.500	4	50.757	824	33.391	67	29.252	62	6030
3400	4.504	3	51.581	824	33.458	66	29.314	60	6120
3450	4.507	3	52.405	826	33.524	65	29.374	60	6210
3500	4.510	2	53.231	825	33.589	64	29.434	59	6300
3550	4.512	3	54.056	827	33.653	63	29.493	58	6390
3600	4.515	3	54.883	826	33.716	62	29.551	58	6480
3650	4.518	3	55.709	828	33.778	61	29.609	57	6570
3700	4.521	2	56.537	827	33.839	61	29.666	56	6660
3750	4.523	3	57.364	828	33.900	60	29.722	55	6750
3800	4.526	3	58.192	829	33.960	59	29.777	55	6840
3850	4.529	2	59.021	829	34.019	59	29.832	54	6930
3900	4.531	3	59.850	830	34.078	57	29.886	53	7020
3950	4.534	2	60.680	830	34.135	57	29.939	53	7110
4000	4.536	3	61.510	830	34.192	57	29.992	52	7200
4050	4.539	2	62.340	831	34.249	56	30.044	52	7290
4100	4.541	2	63.171	832	34.305	55	30.096	51	7380
4150	4.543	3	64.003	832	34.360	54	30.147	50	7470
4200	4.546	2	64.835	832	34.414	54	30.197	50	7560
4250	4.548	2	65.667	832	34.468	53	30.247	50	7650
4300	4.550	2	66.499	834	34.521	53	30.297	48	7740
4350	4.552	2	67.333	833	34.574	52	30.345	49	7830
4400	4.554	3	68.166	834	34.626	51	30.394	48	7920
4450	4.557	2	69.000	834	34.677	51	30.442	47	8010
4500	4.559	2	69.834	835	34.728	50	30.489	47	8100
4550	4.561	2	70.669	835	34.778	50	30.536	46	8190
4600	4.563	2	71.504	835	34.828	50	30.582	46	8280
4650	4.565	2	72.339	836	34.878	49	30.628	46	8370
4700	4.567	2	73.175	836	34.927	48	30.674	45	8460
4750	4.569	2	74.011	837	34.975	48	30.719	44	8550
4800	4.571	2	74.848	837	35.023	47	30.763	44	8640
4850	4.573	2	75.685	837	35.070	47	30.807	44	8730
4900	4.575	2	76.522	838	35.117	46	30.851	43	8820
4950	4.577	2	77.360	837	35.163	46	30.894	43	8910
5000	4.579		78.197		35.209		30.937		9000

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

Table 5-13. COEFFICIENTS FOR THE EQUATION OF STATE FOR CARBON MONOXIDE

$$Z = 1 + B_1P + C_1P^2$$

T	B_1	C_1	T	B_1	C_1
°K	atm^{-1} *	atm^{-2} *	°K	atm^{-1} *	atm^{-2} *
200	-.(2)2701	+.(5)4485	800	+.(3)434	+.(6)111
210	-.(2)2260	.(5)4873	810	.(3)432	.(6)105
220	-.(2)1890	.(5)4851	820	.(3)430	.(7)99
230	-.(2)1578	.(5)4714	830	.(3)427	.(7)94
240	-.(2)1313	.(5)4480	840	.(3)425	.(7)89
250	-.(2)1087	.(5)4200	850	.(3)423	.(7)84
260	-.(3)893	.(5)3904	860	.(3)421	.(7)79
270	-.(3)725	.(5)3608	870	.(3)418	.(7)75
280	-.(3)580	.(5)3323	880	.(3)416	.(7)71
290	-.(3)455	.(5)3053	890	.(3)414	.(7)67
300	-.(3)345	.(5)2803	900	.(3)411	.(7)64
310	-.(3)249	.(5)2574	910	.(3)409	.(7)60
320	-.(3)165	.(5)2365	920	.(3)406	.(7)57
330	-.(4)92	.(5)2174	930	.(3)404	.(7)54
340	-.(4)26	.(5)2002	940	.(3)402	.(7)51
350	+.(4)31	.(5)1847	950	.(3)399	.(7)48
360	.(4)82	.(5)1706	960	.(3)397	.(7)45
370	.(3)126	.(5)1581	970	.(3)394	.(7)43
380	.(3)166	.(5)1466	980	.(3)392	.(7)40
390	.(3)201	.(5)1362	990	.(3)390	.(7)38
400	.(3)232	.(5)1269	1000	.(3)387	.(7)36
410	.(3)260	.(5)1182	1050	.(3)376	.(7)26
420	.(3)285	.(5)1104	1100	.(3)364	.(7)19
430	.(3)307	.(5)1031	1150	.(3)353	.(7)13
440	.(3)326	.(6)965	1200	.(3)342	.(8)9
450	.(3)343	.(6)903	1250	.(3)332	.(8)6
460	.(3)359	.(6)846	1300	.(3)322	.(8)3
470	.(3)372	.(6)792	1350	.(3)313	
480	.(3)384	.(6)742	1400	.(3)304	
490	.(3)395	.(6)696	1450	.(3)295	
500	.(3)404	.(6)652	1500	.(3)287	
510	.(3)412	.(6)612	1550	.(3)279	
520	.(3)419	.(6)574	1600	.(3)271	
530	.(3)426	.(6)538	1650	.(3)264	
540	.(3)432	.(6)505	1700	.(3)257	
550	.(3)437	.(6)474	1750	.(3)250	
560	.(3)440	.(6)447	1800	.(3)244	
570	.(3)443	.(6)420	1850	.(3)238	
580	.(3)446	.(6)395	1900	.(3)232	
590	.(3)448	.(6)372	1950	.(3)227	
600	.(3)450	.(6)350	2000	.(3)221	
610	.(3)451	.(6)330	2050	.(3)216	
620	.(3)452	.(6)311	2100	.(3)211	
630	.(3)453	.(6)293	2150	.(3)207	
640	.(3)453	.(6)276	2200	.(3)202	
650	.(3)453	.(6)260	2250	.(3)198	
660	.(3)453	.(6)245	2300	.(3)194	
670	.(3)453	.(6)231	2350	.(3)190	
680	.(3)452	.(6)218	2400	.(3)186	
690	.(3)451	.(6)206	2450	.(3)182	
700	.(3)450	.(6)195	2500	.(3)178	
710	.(3)449	.(6)184	2550	.(3)175	
720	.(3)448	.(6)174	2600	.(3)171	
730	.(3)446	.(6)164	2650	.(3)168	
740	.(3)445	.(6)155	2700	.(3)165	
750	.(3)443	.(6)146	2750	.(3)162	
760	.(3)442	.(6)139	2800	.(3)159	
770	.(3)440	.(6)131	2850	.(3)156	
780	.(3)438	.(6)124	2900	.(3)153	
790	.(3)436	.(6)117	2950	.(3)151	
			3000	.(3)148	

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