Carbon Monoxide Thermophysical Properties from 68 to 1000 K at Pressures to 100 MPa

Robert D. Goodwin

Chemical Engineering Science Division, National Engineering Laboratory, National Bureau of Standards, Boulder, Colorado 80303

An improved form of the nonanalytic equation of state is used to compute thermodynamic properties of carbon monoxide along isobars up to 100 MPa, at integral temperatures from coexistence to 1000 K.

Key words: carbon monoxide; compressibility factors; densities; enthalpies; entropies; equation of state; fugacities; heats of vaporization; ideal gas; Joule–Thomson inversion; orthobaric densities; specific heats; speeds of sounds; vapor pressures.

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Symbols and Units

Subscripts c and t refer to critical and to liquid triple points
Subscripts g and l refer to saturated vapor and liquid
Subscript σ refers to liquid–vapor coexistence

$\alpha, \beta, \gamma, \epsilon, \eta, p$	exponents in various functions
$C_\sigma(T)$	saturated liquid heat capacity, J mol^{-1} K^{-1}
$C_v(\rho,T)$	isochoric heat capacity, J mol^{-1} K^{-1}
$C_v(T)_\sigma$	isochoric heat capacity at the liquid boundary, J mol^{-1} K^{-1}
$C_p(\rho,T)$	isobaric heat capacity, J mol^{-1} K^{-1}
d	density, kg/m^3
$E(\rho,T)$	internal energy, J/mol
E°_0	4555.006 J/mol (arbitrary)
f/P	fugacity/pressure coefficient
$F(\rho,T)$	defined function in the EOS
$G(\rho,T)$	Gibbs energy, J/mol
$H(\rho,T)$	enthalpy, J/mol
H°_0	enthalpy for ideal gas state at $T = 0$
J	joule, 1 N · m
L	liter, 10^{-3} m^3
mol	28.01 g of carbon monoxide
P	pressure in MPa; 1 MPa = 10^6 N/m^2, 1 bar = 10^5 N/m^2, 1 atm = 1.013 25 bar = 0.101 325 MPa
$P_\sigma(T)$	vapor pressure of saturated liquid, MPa
$P_\sigma(\rho)$	$P_\sigma[T_\sigma(\rho)]$, vapor pressure as function of density
Q_{vap}	ΔH_{vap}, the heat of vaporization, J/mol
R	gas constant, 8.3145 J mol^{-1} K^{-1}, 0.008 314 5 (MPa · L/mol)/K
ρ	density, mol/L
σ	ρ/ρ_c, reduced density
$S(\rho,T)$	entropy, J mol^{-1} K^{-1}
T	temperature, K
$T_\sigma(\rho)$	liquid–vapor coexistence temperature, K
$\Theta(\rho)$	defined locus of temperatures for the EOS, K
v	$1/\rho$, molal volume, L/mol
$\omega(\rho,T)$	$[1 - \Theta(\rho)/T]$, for the EOS
$W(\rho,T)$	speed of sound, m/s
$x(T)$	T/T_c, reduced temperature for the EOS
$x_\sigma(\rho)$	$T_\sigma(\rho)/T_c$, reduced coexistence temperature for the EOS
$Z(P,\rho,T)$	$P/(\rho \cdot R \cdot T)$, the "compressibility factor"

1. Introduction

Carbon monoxide (CO) is an industrially important fluid, yet the only thorough correlation of its thermophysical properties apparently is the 1956 report by Leah.[50] In 1955, ideal gas state functions and low-density $P\rho T$ data were tabulated to high temperatures by Hilsenrath *et al.*[45] In 1963, Mullins *et al.* derived vapor pressures and heats of vaporization up to the normal boiling point (nbp).[62] Also in 1963 Hust and Stewart tabulated properties along isobars by corresponding states with nitrogen.[47] Some more recent data are mentioned in sections below, including our recent $P\rho T$ measurements.[36]

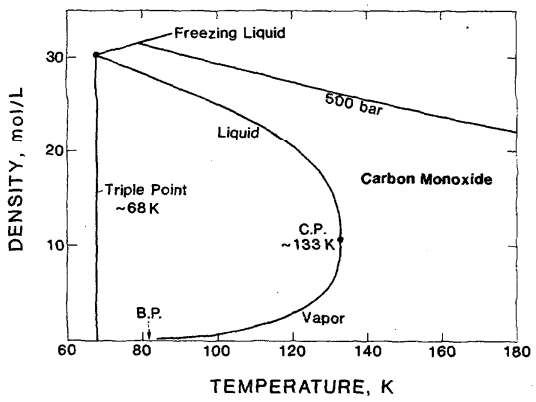

FIG. 1. Density–temperature phase diagram of carbon monoxide.

In the present report we give a significantly improved version of the nonanalytic equation of state that has been used for the light hydrocarbons and for hydrogen sulfide.[37–39,44] The density–temperature phase diagram is outlined in Fig. 1. Selected fixed-point values are in Table 1.

The triple-point temperature is from Mullins *et al.*[62]; the normal boiling-point temperature is from vapor-pressure Eq. (2). Our selected critical-point temperature, T_c = 132.85 K, is lower than 132.92 K reported by Mathias and Crommelin.[52,53]

Densities of liquid and of vapor at the triple and at the boiling-point temperatures are from Eqs. (3) and (4). Our selected critical density is ρ_c = 10.85 mol/L, as compared with the 10.65 mol/L value reported by Mathias and Crommelin.[53] Rectilinear diameter data in Ref. 53 extrapolate linearly to about 10.9 mol/L at $T = T_c$, as plotted in Ref. 36.

Our fixed-point pressures are from vapor-pressure Eq. (2). Our P_c = 3.4935 MPa agrees with Mathias and Crommelin, 3.4987 MPa. Critical constants given by Cardoso[13] were T_c = 134.45 K, ρ_c = 11.10 mol/L, and P_c = 3.506 MPa.

2. Developing the Equation of State

This isochoric equation of state (EOS) originates on a given, liquid–vapor coexistence boundary.[35] Hence we first formulate the melting line, the vapor pressures, and the orthobaric densities.

2.1. Melting and Vapor Pressures

a. The Melting Line

Data of Verschoyle[81] and of Clusius *et al.*[18] from 1.0 to 25 MPa are formulated by the Simon equation

TABLE 1. Fixed-point values used for carbon monoxide

	Triple point	Boiling point	Critical point
Temperature, K	68.127	81.6375	132.85
Pressure, MPa	0.015 40	0.101 325	3.4935
Density, mol/L			
vapor	0.027 45	0.155 79	10.85
liquid	30.2497	28.2544	10.85

$$P = P_t + P_0 \cdot [(T/T_t)^{\epsilon} - 1], \quad (1)$$

where $P_0 = 169.065$ MPa and $\epsilon = 1.79$. For the 16 data points used, the rms of relative pressure deviations is 1.0%. This formulation is used only as a low-temperature limit for the isobar tabulations in Table 15, where it is extrapolated to 100 MPa.

b. The Vapor Pressures

Table 2 presents experimental and formulated data. Temperatures of Clayton and Giauque[16] are increased by 0.025 K,[46] and those of Michels *et al.*[60] are adjusted to the IPTS-68.[3] The exponent p in Eq. (2) was adjusted such that, at the critical point, the slope is approximately equal to that of the critical isochore from the EOS. Let $x \equiv T/T_c$ then, for P in MPa,

$$\ln(10 \cdot P) = a/x + b + c \cdot x + d \cdot x^2 + e \cdot x^3 + f \cdot (1-x)^p, \quad (2)$$

where $p =$ 1.25, and

$a =$ − 7.461 267 899,

$b =$ 16.516 128 685,

$c =$ − 12.217 914 523,

$d =$ 9.048 182 735,

$e =$ − 2.331 639 377,

$f =$ 0.892 713 142.

For the 56 vapor-pressure data used, the rms relative deviation is 0.06%. The experimental residual in the last column of Table 2 is derived from the elementary vapor-pressure equation, $\ln(P_\sigma) = a - b/T$, by constraint to the end points. It is

$$\ln(P/P_t)/\ln(P_c/P_t) - (1 - T_t/T)/(1 - T_t/T_c).$$

Its cubic behavior versus T dictates the number of terms needed for Eq. (2).

2.2. The Orthobaric Densities

a. Saturated Liquid Densities

Table 3 presents experimental and formulated data. Densities of Terry *et al.*[74] are increased by 0.35%; see Refs. 1, 42, and 43. Recent data at ID = 92 were derived by Goodwin as detailed in Ref. 36. For Eq. (3) the argument is $u(T) \equiv (1 - T/T_c)$, and the coefficient b is constrained to a rectilinear diameter determined by the average of liquid and vapor densities at 110.0 K. With $\beta = 0.35$,

$$(\rho_l/\rho_c - 1) = a \cdot u^{\beta} + b \cdot u + c \cdot u^2 + d \cdot u^3, \quad (3)$$

$a =$ 1.858 874 11,

$b =$ 0.786 203 43,

$c =$ − 0.340 489 76,

$d =$ 0.350 409 79.

The rms relative deviation is 0.036% for the 33 selected liquid density data. Excluded data, with zero least-squares weights, appear at the bottom of Table 3.

TABLE 2. Comparison of reported vapor pressures with values calculated from Eq. (2)

ID	Wt	T,K	T/T_c	P,MPa	Calc. P MPa	% dev.	dP_σ/dT MPa/K	Resid.
3	1.00	68.127	.51281	.01540	.01540	-.01	.00263	-.00002
4	.50	68.296	.51408	.01584	.01585	-.07	.00269	.00010
4	.50	68.681	.51698	.01691	.01691	-.02	.00283	.00067
3	1.00	69.000	.51938	.01784	.01784	.02	.00296	.00113
4	.50	68.292	.51405	.01586	.01584	.13	.00269	.00045
6	.50	69.125	.52033	.01820	.01821	-.04	.00301	.00117
4	.50	69.590	.52382	.01962	.01965	-.16	.00320	.00148
6	.50	69.916	.52628	.02074	.02072	.12	.00333	.00235
3	1.00	70.000	.52691	.02100	.02100	.01	.00337	.00224
4	.50	70.490	.53060	.02264	.02270	-.27	.00359	.00222
6	.50	70.715	.53229	.02352	.02352	-.00	.00369	.00294
3	1.00	71.000	.53444	.02460	.02459	.04	.00382	.00328
4	.50	71.523	.53837	.02658	.02666	-.29	.00408	.00315
3	1.00	72.000	.54196	.02867	.02866	.04	.00432	.00415
6	.50	72.252	.54386	.02982	.02976	.17	.00445	.00459
3	1.00	73.000	.54949	.03325	.03324	.02	.00486	.00487
6	.50	73.272	.55154	.03463	.03458	.12	.00501	.00523
6	.50	73.886	.55616	.03776	.03777	-.02	.00537	.00537
3	1.00	74.000	.55702	.03840	.03839	.03	.00544	.00553
6	.50	74.612	.56163	.04179	.04183	-.10	.00582	.00563
3	1.00	75.000	.56455	.04415	.04414	.02	.00607	.00606
6	.50	75.460	.56801	.04697	.04700	-.08	.00638	.00609
3	1.00	76.000	.57207	.05056	.05055	.03	.00675	.00652
6	.50	76.378	.57492	.05304	.05315	-.20	.00702	.00625
3	1.00	77.000	.57960	.05767	.05766	.02	.00748	.00688
6	.50	77.294	.58181	.05981	.05989	-.14	.00770	.00668
3	1.00	78.000	.58713	.06553	.06552	.01	.00826	.00715
6	.50	78.137	.58816	.06657	.06666	-.13	.00837	.00691
6	.50	78.976	.59447	.07387	.07397	-.14	.00907	.00709
3	1.00	79.000	.59466	.07420	.07419	.01	.00909	.00736
6	.50	79.886	.60132	.08249	.08259	-.12	.00987	.00725
3	1.00	80.000	.60218	.08373	.08372	.01	.00998	.00752
3	1.00	81.000	.60971	.09416	.09416	-.01	.01092	.00758
6	.50	81.130	.61069	.09558	.09560	-.02	.01105	.00756
3	1.00	81.638	.61451	.10133	.10133	-.00	.01155	.00762
6	.50	82.061	.61769	.10632	.10630	.02	.01198	.00766
6	.10	83.161	.62598	.12027	.12012	.12	.01314	.00783
5	1.50	93.253	.70194	.31878	.31862	.05	.02724	.00557
5	1.50	94.801	.71359	.36298	.36287	.03	.02996	.00502
5	1.50	96.238	.72441	.40770	.40783	-.03	.03263	.00441
5	1.50	101.273	.76231	.59754	.59769	-.03	.04307	.00265
5	1.50	103.078	.77590	.67904	.67915	-.02	.04723	.00204
5	1.50	105.130	.79134	.78113	.78113	-.00	.05223	.00139
5	1.50	108.807	.81902	.99057	.99074	-.02	.06195	.00023
5	1.50	108.810	.81904	.99085	.99093	-.01	.06195	.00025
5	1.50	112.470	.84659	1.23712	1.23690	.02	.07263	.00065
5	1.50	116.307	.87548	1.53911	1.53887	.02	.08497	-.00140
5	1.50	116.309	.87549	1.53922	1.53904	.01	.08498	-.00141
5	1.50	119.363	.89848	1.81486	1.81475	.01	.09572	-.00180
5	1.50	122.686	.92349	2.15378	2.15367	.01	.10846	-.00197
5	1.50	124.966	.94065	2.41080	2.41163	-.03	.11794	-.00198
5	1.50	127.557	.96016	2.73207	2.73212	-.00	.12964	-.00165
5	1.50	129.851	.97743	3.04295	3.04247	.02	.14118	-.00115
5	1.50	131.117	.98696	3.22624	3.22567	.02	.14839	-.00076
5	1.50	131.880	.99270	3.34073	3.34074	-.00	.15336	-.00050
5	1.50	132.572	.99791	3.44808	3.44872	-.02	.15910	-.00021

56 data points, rms deviation .063%.
ID code: (3) Mullins, (4) Shimoda, (5) Michels, (6) Clayton.

b. Saturated Vapor Densities

Table 4 presents experimental and formulated data. At ID = 10, the heat of vaporization of Clayton and Giauque,[16] 1640 J/mol, has been used in the Clapeyron equation with Eqs. (2) and (3) to derive the vapor density at the normal boiling point. Data at ID = 91,92 were derived by Good-

TABLE 3. Comparison of reported saturated liquid densities with values calculated from Eq. (3)

ID	Wt	T,K	T/T_c	d kg/m³	ρ mol/L	Calc. ρ mol/L	% dev	$d\rho_1/dT$ mol $L^{-1}K^{-1}$
4	1.00	68.130	.51283	847.1	30.244	30.249	-.02	-.1423
4	1.00	73.560	.55371	825.5	29.473	29.466	.02	-.1463
3	1.00	77.729	.58509	808.3	28.857	28.849	.03	-.1500
4	1.00	78.030	.58735	806.4	28.790	28.804	-.05	-.1503
3	1.00	79.995	.60215	798.3	28.500	28.506	-.02	-.1524
81	1.00	81.650	.61460	791.8	28.270	28.252	.06	-.1543
3	1.00	82.415	.62036	788.1	28.136	28.134	.01	-.1552
3	1.00	84.953	.63947	776.7	27.728	27.736	-.03	-.1584
3	1.00	87.788	.66081	764.2	27.282	27.281	.00	-.1625
81	1.00	90.000	.67746	754.0	26.919	26.918	.00	-.1661
3	1.00	90.067	.67796	753.5	26.901	26.907	-.02	-.1662
3	1.00	92.865	.69902	740.5	26.439	26.435	.01	-.1712
4	1.00	94.160	.70877	734.1	26.208	26.212	-.01	-.1738
3	1.00	94.678	.71267	731.5	26.115	26.121	-.02	-.1748
81	1.00	95.000	.71509	730.4	26.075	26.065	.04	-.1755
92	1.00	95.933	.72212	725.5	25.900	25.900	-.00	-.1775
3	1.00	96.399	.72562	723.4	25.825	25.817	.03	-.1786
3	1.00	98.153	.73883	714.1	25.495	25.500	-.02	-.1827
3	1.00	99.859	.75167	705.9	25.200	25.185	.06	-.1871
81	1.00	100.000	.75273	704.9	25.165	25.159	.03	-.1875
4	1.00	100.930	.75973	699.5	24.974	24.983	-.04	-.1901
3	1.00	101.645	.76511	695.9	24.846	24.846	-.00	-.1921
4	1.00	103.500	.77907	685.6	24.477	24.485	-.03	-.1979
81	1.00	105.000	.79037	677.5	24.187	24.184	.01	-.2030
3	1.00	105.374	.79318	675.3	24.111	24.108	.01	-.2044
92	1.00	106.319	.80029	669.4	23.900	23.913	-.06	-.2079
4	1.00	107.610	.81001	661.7	23.623	23.641	-.08	-.2131
81	1.00	110.000	.82800	647.9	23.131	23.119	.05	-.2240
92	1.00	115.658	.87059	609.2	21.750	21.760	-.05	-.2592
92	1.00	121.801	.91683	560.2	20.000	19.982	.09	-.3277
4	1.00	125.600	.94543	520.8	18.594	18.593	.01	-.4133
92	1.00	127.378	.95881	498.6	17.800	17.800	-.00	-.4845
92	1.00	129.839	.97734	459.4	16.400	16.400	-.00	-.6859
81	0.00	80.000	.60218	800.0	28.560	28.505	.19	-.1524
4	0.00	82.250	.61912	790.9	28.235	28.160	.27	-.1550
4	0.00	87.150	.65600	769.0	27.456	27.385	.26	-.1616
4	0.00	90.280	.67956	754.5	26.935	26.871	.24	-.1665
3	0.00	102.887	.77446	690.2	24.641	24.606	.14	-.1959
3	0.00	106.735	.80342	668.8	23.879	23.826	.22	-.2096
3	0.00	108.171	.81423	659.4	23.542	23.521	.09	-.2155
4	0.00	109.050	.82085	652.6	23.300	23.330	-.13	-.2195
3	0.00	109.578	.82482	651.7	23.268	23.213	.23	-.2220
3	0.00	111.044	.83586	641.9	22.916	22.883	.14	-.2294
81	0.00	115.000	.86564	615.3	21.966	21.929	.17	-.2542
81	0.00	120.000	.90327	577.3	20.609	20.549	.29	-.3022
4	0.00	120.900	.91005	565.8	20.201	20.271	-.35	-.3142
81	0.00	125.000	.94091	526.7	18.805	18.836	-.16	-.3953
4	0.00	127.820	.96214	491.9	17.562	17.581	-.11	-.5085
4	0.00	129.810	.97712	456.4	16.294	16.420	-.77	-.6820
4	0.00	130.560	.98276	440.3	15.718	15.865	-.93	-.8075
4	0.00	130.860	.98502	433.7	15.482	15.613	-.84	-.8787
4	0.00	131.390	.98901	422.0	15.066	15.103	-.24	-1.0607

33 data points, rms deviation 0.036%.
ID code: (3) Terry, (4) Mathias, (81) Barreiros, (92) Isochores/EOS/vapor pressure.

win.[36] Equation (4) has been developed to yield a compressibility factor for saturated vapor which approaches unity in the limit of low densities.[34] Thus $Z_\sigma(T)$ is formulated by using vapor-pressure Eq. (2), the reduced vapor pressure,

$$\Pi(T) \equiv P_\sigma(T)/P_c,$$

and

$$x(T) \equiv T/T_c, \quad u(T) \equiv (1-x),$$

when

$$Z_\sigma(T) = 1 + (Z_c - 1)\cdot\Pi\cdot x^{-2}\cdot f(x), \tag{4}$$

$$f(x) \equiv 1 + A_1\cdot u^\beta + A_2\cdot u^\gamma + \sum_{i=3}^{5} A_i\cdot u^{i-2},$$

where $\beta = 0.35$, $\gamma = 0.70$, and

$$A_1 = -0.764\,788\,8,$$
$$A_2 = -0.518\,366\,5,$$
$$A_3 = \ \ 2.029\,468\,1,$$
$$A_4 = -2.040\,045\,2,$$
$$A_5 = \ \ 1.796\,599\,1.$$

The first coefficient in Eq. (4) is constrained, for symmetry of orthobaric densities near T_c, in terms of the first coefficient in Eq. (3),

$$A_1 \equiv a\cdot Z_c/(Z_c - 1),$$

as reported in Ref. 36. The experimental residual in the last column of Table 4 is

$$F(Z) \equiv [(Z-1)/(Z_c - 1)]\cdot x^2/\Pi. \tag{5}$$

The rms relative deviation is 0.47% for the 26 selected vapor density data. Excluded data appear at the bottom of Table 4. Clearly, the precision (or accuracy) of available data is less than desired to derive accurate heats of vaporization.

2.3. The Equation of State

Table 5 summarizes sources of $P\rho T$ data, their ranges, and deviations from the following EOS. Results of Deming and Schupe are weighted (Wt.) zero because they were smoothed from data of Bartlett *et al.* Data of Robertson and Babb at extreme pressures are weighted zero in deference to the precise data of Michels *et al.* Data of Barreiros *et al.* have a low weight because they are for the compressed liquid where derivatives $\partial P/\partial\rho$, $\partial P/\partial T$ are extremely large. Plots of data of Michels *et al.* at extreme pressures show strong, negative isochore curvatures at high densities and temperatures. This behavior has been the key for developing the following EOS where, for any density (isochore), the coexistence temperature $T_\sigma(\rho)$ is obtained by iteration from Eqs. (3) or (4), and thus the vapor pressure $P_\sigma[T_\sigma(\rho)]$ is a function of density,

$$P - P_\sigma(\rho) = \rho R\cdot[T - T_\sigma(\rho)] + \sigma\cdot(\rho R T_c)\cdot F(\rho,T), \tag{6}$$

$$F(\rho,T) \equiv A_1\cdot F_1(\rho,T) + A_2\cdot\sigma\cdot F_2(\rho,T) + A_3\cdot\sigma^2\cdot F_3(\rho,T) + A_4\cdot f(\rho)\cdot F_4(\rho,T), \tag{6a}$$

$$f(\rho) \equiv (\sigma - 1)\cdot(\sigma - \sigma_0)\cdot(\sigma - \sigma_t). \tag{6b}$$

Here, R is the gas constant; σ is the reduced density; σ_0 is a constant near 2.0; and $\sigma_t \equiv \rho_t/\rho_c$ is the reduced density of liquid at the triple point.

The first three temperature-dependent functions in Eq. (6a) are designed to give isochores whose curvatures become increasingly negative with increase of the density,

$$F_1(\rho,T) \equiv x(T) - x_\sigma(\rho), \tag{6c}$$

$$F_2(\rho,T) \equiv x^\epsilon\cdot\exp\{b\cdot[1 - T_\sigma(\rho)/T]\} - x_\sigma^\epsilon, \tag{6d}$$

where

$$\epsilon = 1/2,$$

and

TABLE 4. Comparison of reported saturated vapor densities with values calculated from Eq. (4)

ID	Wt	T,K	T/T_C	d,kg/m^3	ρ mol/L	Calc. ρ mol/L	% dev.	$d\rho_g/dT$ mol L^{-1}K^{-1}	$F(Z)$
91	.02	70.000	.52691	1.026	.03663	.03652	.30	.00540	.9917
91	.06	75.000	.56455	2.035	.07265	.07238	.38	.00917	.9169
81	.49	80.000	.60218	3.663	.13079	.13059	.16	.01438	.8040
91	.10	80.000	.60218	3.674	.13118	.13059	.46	.01438	.8651
10	.54	81.638	.61451	4.347	.15521	.15580	-.38	.01644	.7017
81	.54	81.650	.61460	4.375	.15621	.15599	.14	.01645	.7925
91	.12	85.000	.63982	6.162	.22000	.21894	.48	.02127	.8245
81	.71	90.000	.67746	9.709	.34662	.34652	.03	.03013	.7556
91	.14	90.000	.67746	9.749	.34806	.34652	.44	.03013	.7917
81	.78	95.000	.71509	14.679	.52405	.52421	-.03	.04140	.7442
91	.16	95.000	.71509	14.730	.52588	.52421	.32	.04140	.7654
81	.83	100.000	.75273	21.429	.76505	.76557	-.07	.05573	.7374
91	.83	100.000	.75273	21.470	.76652	.76557	.12	.05573	.7458
81	.87	105.000	.79037	30.469	1.08778	1.08840	-.06	.07421	.7342
91	.87	105.000	.79037	30.455	1.08730	1.08840	-.10	.07421	.7328
81	.90	110.000	.82800	42.530	1.51837	1.51753	.06	.09866	.7350
81	.93	115.000	.86564	58.795	2.09908	2.09059	.41	.13260	.7417
91	.95	120.000	.90327	80.551	2.87580	2.87229	.12	.18422	.7418
92	.98	125.513	.94477	115.401	4.12000	4.14857	-.69	.29444	.7533
4	.98	125.600	.94543	116.070	4.14388	4.17430	-.73	.29717	.7535
4	.99	129.810	.97712	163.570	5.83970	5.85000	-.18	.55848	.8034
92	.99	129.883	.97767	165.259	5.90000	5.89111	.15	.56796	.8071
4	.99	130.560	.98276	177.670	6.34309	6.31037	.52	.67830	.8231
4	.99	130.860	.98502	184.620	6.59122	6.52362	1.04	.74596	.8337
4	1.00	131.390	.98901	193.920	6.92324	6.96072	-.54	.91783	.8389
92	1.00	131.914	.99295	212.316	7.58000	7.51382	.88	1.23086	.8682
92	0.00	94.460	.71103	14.005	.50000	.50222	-.44	.04004	.7187
4	0.00	100.930	.75973	23.890	.85291	.81882	4.16	.05882	.9050
92	0.00	103.319	.77771	26.890	.96000	.96943	-.97	.06744	.7022
4	0.00	103.500	.77907	28.240	1.00821	.98170	2.70	.06814	.8303
92	0.00	107.456	.80885	35.573	1.27000	1.28397	-1.09	.08531	.7037
4	0.00	107.610	.81001	36.810	1.31417	1.29717	1.31	.08606	.7706
4	0.00	109.050	.82085	40.140	1.43306	1.42632	.47	.09343	.7460
91	0.00	110.000	.82800	42.382	1.51310	1.51753	-.29	.09866	.7265
92	0.00	112.339	.84561	48.737	1.74000	1.76465	-1.40	.11303	.7031
91	0.00	115.000	.86564	58.376	2.08410	2.09059	-.31	.13260	.7285
92	0.00	118.596	.89271	72.546	2.59000	2.62600	-1.37	.16706	.7166
81	0.00	120.000	.90327	81.495	2.90951	2.87229	1.30	.18422	.7581
4	0.00	120.900	.91005	82.020	2.92824	3.04362	-3.79	.19675	.6895
81	0.00	125.000	.94091	116.562	4.16146	4.00147	4.00	.27931	.7978
91	0.00	125.000	.94091	114.438	4.08560	4.00147	2.10	.27931	.7791
4	0.00	127.820	.96214	136.010	4.85577	4.92791	-1.46	.39077	.7655

26 data points, rms deviation 0.465%.
ID code: (4) Mathias, (10) Claypeyron equation, (81) Barreiros, (91) Virial/vapor pressure, (92) Isochores/EOS/vapor pressure.

$$b \equiv (1-\epsilon) + (1-\epsilon)^{1/2}, \tag{6e}$$

$$F_3(\rho,T) \equiv \exp\{2 \cdot [1 - T_\sigma(\rho)/T]\} - 1, \tag{6f}$$

and the following function is designed to give nonanalytic behavior approaching the critical point [an infinity in $C_v(\rho,T)$],

$$F_4(\rho,T) \equiv \psi(\rho,T)/\psi_\sigma(\rho) - 1, \tag{6g}$$

where $\psi_\sigma(\rho)$ is obtained from $\psi(\rho,T)$ merely by replacing T with $T_\sigma(\rho)$, and

$$\psi(\rho,T) \equiv 1 - (\omega - \omega^\eta/\eta)/(1 - 1/\eta). \tag{6h}$$

Here, $\omega(\rho,T) \equiv [1 - \Theta(\rho)/T]$, and $\Theta(\rho)$ is a locus of temperatures inside the coexistence envelope of Fig. 1,

$$\Theta(\rho) \equiv T_\sigma(\rho) \cdot \exp[-\alpha \cdot g(\rho)], \tag{6i}$$

$$g(\rho) \equiv |\sigma - 1|^3/(\sigma_t - 1)^3. \tag{6j}$$

Parameters and least-squares coefficients for carbon monoxide are $\alpha = 1.0$, $\eta = 1.10$, $\sigma_0 = 1.90$, and

$$A_1 = 0.490\ 725\ 120\ 28,$$

$$A_2 = 0.166\ 134\ 648\ 74,$$

$$A_3 = 0.037\ 576\ 577\ 50,$$

$$A_4 = 0.138\ 101\ 467\ 46.$$

A value for η cannot be established by fitting $P\rho T$ data due to lack of accuracy near the critical point. The present value is selected to be reasonable for specific heats, as discussed in

TABLE 5. Summary of PpT data used for carbon monoxide

ID	Authors	Wt.	Range of the data T,K	Range of the data ρ, mol/L	Range of the data P, MPa	NP[a]	Relative deviations in percent $\Delta\rho/\rho$ rms	$\Delta\rho/\rho$ Trend[b]	$\Delta P/P$ Mean[c]
81	Barreiros(Ref. 6)	0.2	80– 125	19 –32	2 –140	125	0.14	+0.07	1.19
2	Bartlett (Ref. 7)	1.0	203– 473	0.06–25	0.1 –101	126	0.27	−0.13	0.43
3	Deming (Ref. 23)	0.0	203– 673	0.5 –25	2.5 –122	143	0.33	−0.07	0.43
100+	Goodwin (Ref. 36)	1.0	100– 300	0.5 –25	0.4 – 36	159	0.73	+0.42	0.53
564	Hilsenrath (Ref. 45)	1.0	200–1000	0.01– 4.1	0.01– 10.1	69	0.13	−0.08	0.09
4	Michels (Ref. 57)	1.0	273– 423	0.04–27	0.1 –345	112	0.15	+0.07	0.19
5	Robertson (Ref. 65)	0.0	308– 573	21 –30	117 –655	36	0.17	+0.06	0.34
						591	0.46	+0.11	0.40

[a] Number of PpT data.
[b] Trend = average of signed relative density deviations.
[c] Mean = average of absolute relative pressure deviations.

Ref. 37. The slope of the critical isochore from Eq. (6) at the critical point is constrained to equal the slope of the vapor-pressure equation [Eq. (2)] at the critical point via the least-squares program of McCarty.[56]

Table 6 presents deviations of experimental densities and pressures from the EOS. Pressures of our recent data[36] at ID = 103–1807 are several percent lower than calculated in the critical region due possibly to an impurity or to an inaccurate coexistence boundary. Osugi,[63] with a 14-term BWR type of EOS, found large, systematic deviations from data of Michels *et al.* at extreme pressures.

Pressures and derivatives of the $P(\rho,T)$ surface along the critical isotherm, computed by the EOS, Eq. (6), are presented in Table 7 at reduced densities from 0.5 to 1.5.

3. Thermal Properties and Computations

3.1. Functions for Ideal Gas States

The following type of formulation was developed for polyatomic hydrocarbons, and is applied here to the tabulated data of Hilsenrath *et al.*[45] Define $x \equiv T/100$, when

$$C_p^\circ/R = 3.5 + \exp(-\epsilon/x)\cdot\sum_{i=1}^{5} A_i \cdot x^{2-i}, \qquad (7)$$

$$\epsilon = \quad 17.80,$$
$$A_1 = \quad 0.059\,485\,855,$$
$$A_2 = -1.707\,646\,79,$$
$$A_3 = \quad 67.483\,204,$$
$$A_4 = -315.657\,869,$$
$$A_5 = \quad 432.946\,687.$$

The enthalpy and entropy are obtained by numerical integration, starting with values at 300 K. Data and calculated values are in Table 8.

3.2. Derived Saturated Liquid Properties

a. Heats of Vaporization

The Clapeyron equation,

$$Q_{\rm vap} = 100\cdot T\cdot(dP_\sigma/dT)\cdot(v_g - v_l) \quad \text{J/mol}, \qquad (8)$$

is used to derive heats of vaporization $Q_{\rm vap}$ in J/mol, where dP_σ/dT from Eq. (2) is in units of bar/K, and the orthobaric volumes, v_g, v_l, in L/mol are from Eqs. (3) and (4).

b. Enthalpies of Saturated Liquid

Data for $H_\sigma(T)$ along the saturated liquid boundary were derived by using the ideal gas functions, the EOS, and heats of vaporization. They are represented in J/mol using the argument

$$u(T) \equiv (T_c - T)/(T_c - T_t),$$
$$\frac{(H_\sigma - H_c)}{(H_t - H_c)} = u + (u^\beta - u)\cdot\sum_{i=1}^{5} A_i\cdot u^{i-1}, \qquad (9)$$

where now $\beta = 0.340$, $H_t = 0.510$ J/mol, $H_c = 5271.879$ J/mol, and

$$A_1 = \quad 0.458\,005\,588,$$
$$A_2 = -0.115\,257\,944,$$
$$A_3 = -0.176\,519\,530,$$
$$A_4 = \quad 0.485\,799\,407,$$
$$A_5 = -0.249\,044\,812.$$

For 16 data at $T_t < T < T_c$, the rms relative deviation is 0.03%, and the maximum deviation is 3.7 J/mol at 132.5 K.

c. Entropies of Saturated Liquid

Data for $S_\sigma(T)$ along the saturated liquid boundary, derived as for $H_\sigma(T)$ above, are represented in J mol^{-1} K^{-1} with a minimum of coefficients because the formula is used to derive specific heats on this path. The arguments are $x(T) \equiv T/T_c$,

$$u(T) \equiv (T_c - T)/(T_c - T_t),$$

and we use the constant $k \equiv \ln(T_t/T_c)$, when

$$(S_\sigma - S_c)/(S_t - S_c) = u^\beta + A_1\cdot[\ln(x)/k - u^\beta] + A_2\cdot(u - u^\beta) + A_3\cdot(u^2 - u^\beta), \qquad (10)$$

where $\beta = 0.35$, $S_t = 74.482\,66$ J mol^{-1} K^{-1}, $S_c = 124.219\,63$ J mol^{-1} K^{-1}, and

$A_1 = 0.171\ 865\ 846,$

$A_2 = 0.135\ 372\ 195,$

$A_3 = 0.308\ 872\ 376.$

For the 16 data $T_t < T < T_c$, the rms deviation is 0.015%, and the maximum deviation is 0.05 J mol^{-1} K^{-1} at 132.5 K.

d. Specific Heats of Saturated Liquid

Specific heats, $C_\sigma(T)$ in J mol^{-1} K^{-1}, along the liquid coexistence path, are derived from Eq. (10) via $C_\sigma = T \cdot (dS_\sigma/dT)$. Let

$$S_n \equiv (S_t - S_c), \quad A_4 \equiv 1 - A_1 - A_2 - A_3,$$

and

$$\text{sum} \equiv A_2 + 2 \cdot A_3 \cdot u + A_4 \cdot \beta / u^c,$$

then,

$$C_\sigma(T) = S_n \cdot [A_1/k + x \cdot \text{sum} \cdot (du/dx)], \tag{11}$$

where $\beta = 0.35, c = 0.660$, and $(du/dx) = -T_c/(T_c - T_t)$. The exponent $c = 0.660$ is selected different from $(1 - \beta)$ to obtain an acceptable behavior for derived single-phase specific heats $C_v(T)_\sigma$ at the liquid boundary via Eq. (20), approaching T_c.

3.3. Computational Methods

The numerical values for E and H in this report are based on the assigned value $E = 0$ for saturated liquid at the triple point, obtained by adding the arbitrary value $H^\circ_0 = E^\circ_0 = 4555.006$ J/mol to the ideal gas state values of $(E^\circ - E^\circ_0)$ and $(H^\circ - H^\circ_0)$ from Eq. (7). Leah[50] refers to the perfect crystal at $T = 0$, obtaining $H_{nbp} = 4212.76$ J/mol for enthalpy of saturated liquid at the normal boiling point, whereas our corresponding value is $H_{nbp} = 822.5$ J/mol.

a. The Homogeneous Domain

The homogeneous domain of Fig. 1 includes all regions which can be attained by integration along isotherms starting at zero density without crossing the vapor–liquid "dome," and without passing very close to the critical point.

We start our computations with ideal gas state thermodynamic functions at zero density, and then apply the Romberg numerical integration technique[15] along isotherms by using Eq. (6) in the following relations,

$$\Delta E = \int [P - T \cdot (\partial P/\partial T)] \cdot d\rho/\rho^2, \tag{12}$$

$$\Delta C_v = -T \cdot \int (\partial^2 P/\partial T^2) \cdot d\rho/\rho^2, \tag{13}$$

$$\Delta S = R \cdot \ln[P^\circ/(\rho RT)] + \int_0^\rho [R - (\partial P/\partial T)/\rho] \cdot d\rho/\rho. \tag{14}$$

Equation (14) is for use with initial entropies in hypothetical ideal gas states at $P^\circ = 1$ atm (0.101 325 MPa). For all other initial states we use

$$\Delta S = -\int (\partial P/\partial T) \cdot d\rho/\rho^2. \tag{14a}$$

In each (ρ, T) state, reached by above integrations, we compute

$$H = E + P/\rho, \tag{15}$$

$$C_p = C_v + T \cdot [(\partial P/\partial T)^2/(\partial P/\partial \rho)]/\rho^2, \tag{16}$$

$$W^2 = C_p \cdot (\partial P/\partial \rho)/C_v. \tag{17}$$

The fugacity/pressure coefficient f/P for any state is computed by reference to the hypothetical ideal gas state at the same temperature and at $P^\circ \equiv 1$ atm (0.101 325 MPa),

$$f/P = (P^\circ/P) \cdot \exp(\Delta G/RT), \tag{18}$$

$$\Delta G = (H - E^\circ_0) - H^\circ - T \cdot (S - S^\circ),$$

where ΔG is the isothermal Gibbs free energy change, and the arbitrary value E°_0 was added to our tabulated values for $H(\rho, T)$ relative to $(H^\circ - H^\circ_0)$ from Eq. (7).

b. The Saturated Liquid

At temperatures from the triple point to the critical point, thermofunctions for the saturated vapor are obtained via Eqs. (12)–(15). Then Eq. (8) for the heat of vaporization Q_{vap} is used to compute

$$\Delta H = -Q_{vap}, \quad \Delta S = \Delta H/T, \tag{19}$$

such that the free energy of vaporization, $\Delta G \equiv \Delta H - T \cdot \Delta S$, is zero. See Sec. 3.2 for consistency of the formulations. Having obtained H and S for the saturated liquid, $E = H - P \cdot v$ is computed.

The single-phase isochoric specific heat $C_v(T)_\sigma$ at the saturated liquid boundary is obtained via Eq. (11) for $C_\sigma(T)$ and the thermodynamic relation,

$$C_v(T)_\sigma = C_\sigma(T) + T \cdot (\partial P/\partial T) \cdot (d\rho_l/dT)/\rho_l^2, \tag{20}$$

where ρ_l is density of the saturated liquid. Values for $C_p(\rho, T)$ and $W(\rho, T)$ on this boundary follow from Eqs. (16) and (17).

c. The Compressed Liquid

Starting with above values for E, S, and $C_v(T)_\sigma$ on the saturated liquid boundary at $T < T_c$, we use Eqs. (12), (13), and (14a) to integrate along isotherms, and then obtain H, C_p, and W via Eqs. (15)–(17).

3.4. Comparisons

Specific heats for liquid along the coexistence path, computed here as

$$C_\sigma(T) = T \cdot dS_\sigma(T)/dT$$

via Eq. (11), are compared with the measurements of Clayton and Giauque in Fig. 2. Maximum differences of only about 3% are well within the accuracy expected from the computational methods via available data for saturated vapor densities, etc., used in the Clapeyron equation.

Our derived $P\rho T$ locus of the Joule–Thomson inversion, $(\partial T/\partial P)_H = 0$, is given in Table 9, obtained from Eq. (6) under the condition

$$T \cdot (\partial P/\partial T) = \rho \cdot (\partial P/\partial \rho).$$

In Fig. 3 the pressures are compared with Leah. He used graphical methods, and did not have the later compressibili-

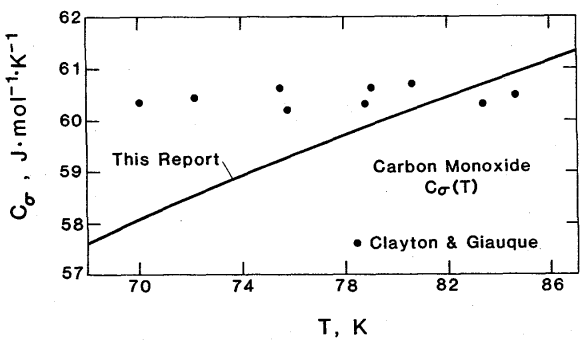

FIG. 2. Comparison of $C_\sigma(T)$ with Clayton and Giauque.

ty data of Barreiros *et al.*, Michels *et al.*, and of Robertson and Babb. Behavior of this locus is an exacting test of any equation of state, and the agreement is reasonable for the very different computational methods.

To validate thermodynamic results, some comparisons are made with derived properties of earlier authors. Table 10 compares $(C_p - C_v)$ data of Deming and Shupe at $P = 50$ atm with the computation

$$(C_p - C_v) = T \cdot (\partial P/\partial T)^2/(\partial P/\partial \rho)/\rho^2$$

using the EOS [Eq. (6)]. Maximum differences are about 3%. Their $P\rho T$ data from Bartlett *et al.* terminated at T below 203.15 K, and were extrapolated above 500 K.

Tables 11 and 12 compare densities, enthalpies, and entropies at $P = 50$ atm for data of Leah, and of Hust and Stewart. We adjusted their enthalpies to agree with our enthalpy of liquid at nbp. Enthalpy deviations are roughly constant at higher temperatures, i.e., the changes of enthalpy at 50 atm agree fairly well.

Table 13 compares densities, enthalpies, and entropies of Michels *et al.*[58,59] along isobars at $P = 50$, and at $P = 600$ atm. Their reference point (zero) for enthalpy and entropy was standard conditions (STP), $T = 273.15$ K and $P = 1$ atm. We adjusted their values to our values at STP by adding 12 488.6 J/mol to their enthalpies, and 194.978 J mol^{-1} K^{-1} to their entropies. The differences in Table 13 are smaller than in Tables 11 and 12.

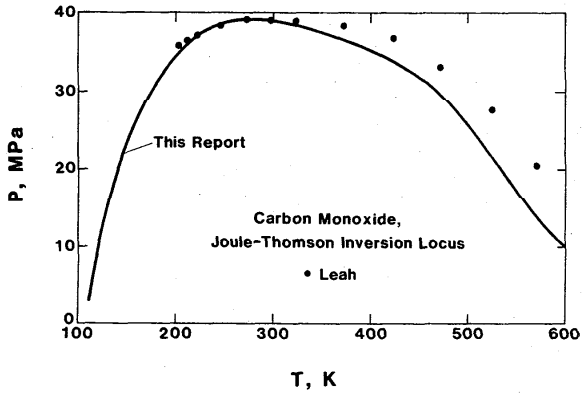

FIG. 3. The Joule–Thomson inversion locus for carbon monoxide.

4. Tables of Thermophysical Properties

All of the following tabulated properties are interpolated or extrapolated in ranges for which no $P\rho T$ compressibility exist (Table 5). This includes temperatures above about 473 K.

4.1. Properties of the Saturated Liquid

Table 14 gives properties at the saturated liquid coexistence boundary, computed as described in Secs. 3.2 and 3.3. The single-phase, isochoric specific heats $C_v(T)_\sigma$ at this boundary (derived via the Clapeyron equation, etc.) may be too small as $T \to T_c$, and this will affect derived values for $C_p(\rho,T)$ and $W(\rho,T)$ for the compressed liquid at $T < T_c$ via Eqs. (16) and (17). The heat of vaporization at the nbp, 81.638 K in Table 14, is 6018 J/mol as compared with 6040 ± 6 J/mol measured by Clayton and Giauque.[16] The derivatives, $\partial P/\partial T$ and $\partial P/\partial \rho$ in Table 14, are for the single-phase domain, taken at the liquid coexistence boundary. Similarly, the specific heats, C_v and C_p in Table 14, refer to the single-phase domain.

4.2. Properties Along Selected Isobars

Table 15 gives thermophysical properties along selected isobars, computed as described in Sec. 3.3 via the EOS of Eq. (6). Each isobar starts with freezing liquid on the melting line of Eq. (1). At pressures below the critical, each table contains a blank line for the transition from saturated liquid to vapor at the constant coexistence temperature. For compressed liquid states at $T < T_c$, properties are based on the formulated saturated liquid properties of Eqs. (9)–(11) and (20).

Small discontinuities at $T = T_c$ along isobars at $P > P_c$ are expected, due to change in the paths of computation from $T < T_c$ to $T > T_c$. In particular, the values of C_v, C_p, and W for compressed liquid near T_c must be affected by the presumed inaccurate values for $C_v(T)_\sigma$, derived via Eq. (20).

5. Comments

The critical density for carbon monoxide is quite uncertain, as are saturated liquid densities near T_c, and saturated vapor densities over the entire range. The classic Amsterdam technique for measuring $P\rho T$ data, with mercury in a glass pipet, cannot be applied for carbon monoxide because the mercury would be solid at $T_c = 133$ K. Hence other methods, such as the magnetic suspension densimeter[43] might be used to obtain the urgently needed definition of coexisting densities near T_c. Dielectric constant measurements in domains where ρ is known accurately as a function of P and T permit extrapolation via the Clausius–Mossotti function to estimate densities in other domains. Specific heat measurements for $C_\sigma(T)$ and for $C_v(\rho,T)$ would add to the store of useful data on carbon monoxide, including especially the need for $C_\sigma(T)$ data in Eq. (20). Speed of sound data also clearly would be useful to confirm computations from the EOS. It should be noted that Bartlett *et al.* and Robertson and Babb experienced difficulties with the formation of iron carbonyl in their high-temperature experiments, and that Crommelin, Bijveld, and Brown stored their purified sample in a steel cylinder.

TABLE 6a. Comparison of ID code (564) Hilsenrath $P\rho T$ compressibility data with values calculated from Eq. (6)

Wt	T,K	ρ mol/L	Calc. ρ mol/L	$\Delta\rho/\rho$ %	P, MPa	Calc. P MPa	$\Delta P/P$ %
1.00	200.000	.0061	.0061	.00	.0101	.0101	-.00
1.00	200.000	.0611	.0611	-.01	.1013	.1013	.01
1.00	200.000	.2464	.2464	.01	.4053	.4053	-.01
1.00	200.000	.4347	.4343	.08	.7093	.7098	-.07
1.00	200.000	.6260	.6249	.17	1.0133	1.0149	-.16
1.00	300.000	.0041	.0041	.00	.0101	.0101	-.00
1.00	300.000	.0406	.0406	-.02	.1013	.1013	.02
1.00	300.000	.1627	.1628	-.06	.4053	.4051	.06
1.00	300.000	.2850	.2852	-.08	.7093	.7087	.08
1.00	300.000	.4075	.4078	-.08	1.0133	1.0125	.08
1.00	300.000	1.6402	1.6363	.24	4.0530	4.0627	-.24
0.00	300.000	2.8735	2.8572	.57	7.0928	7.1335	-.57
0.00	300.000	4.0889	4.0613	.68	10.1325	10.2030	-.69
1.00	400.000	.0030	.0030	.00	.0101	.0101	-.00
1.00	400.000	.0305	.0305	-.02	.1013	.1013	.02
1.00	400.000	.1218	.1218	-.06	.4053	.4050	.06
1.00	400.000	.2129	.2131	-.10	.7093	.7086	.10
1.00	400.000	.3039	.3043	-.12	1.0133	1.0121	.12
1.00	400.000	1.2051	1.2065	-.12	4.0530	4.0483	.12
1.00	400.000	2.0858	2.0864	-.03	7.0928	7.0906	.03
1.00	400.000	2.9412	2.9414	-.01	10.1325	10.1316	.01
1.00	500.000	.0024	.0024	.00	.0101	.0101	-.00
1.00	500.000	.0244	.0244	-.01	.1013	.1013	.01
1.00	500.000	.0973	.0974	-.05	.4053	.4051	.05
1.00	500.000	.1701	.1703	-.09	.7093	.7087	.09
1.00	500.000	.2427	.2430	-.11	1.0133	1.0121	.11
1.00	500.000	.9585	.9605	-.21	4.0530	4.0442	.22
1.00	500.000	1.6542	1.6579	-.22	7.0928	7.0766	.23
1.00	500.000	2.3282	2.3342	-.26	10.1325	10.1051	.27
1.00	600.000	.0020	.0020	.00	.0101	.0101	-.00
1.00	600.000	.0203	.0203	-.01	.1013	.1013	.01
1.00	600.000	.0811	.0811	-.04	.4053	.4051	.04
1.00	600.000	.1417	.1418	-.07	.7093	.7088	.07
1.00	600.000	.2022	.2024	-.09	1.0133	1.0123	.09
1.00	600.000	.7976	.7994	-.22	4.0530	4.0437	.23

TABLE 6a. Comparison of ID code (564) Hilsenrath $P\rho T$ compressibility data with values calculated from Eq. (6) — Continued

Wt	T,K	ρ mol/L	Calc. ρ mol/L	$\Delta\rho/\rho$ %	P, MPa	Calc. P MPa	$\Delta P/P$ %
1.00	600.000	1.3761	1.3798	-.27	7.0928	7.0730	.28
1.00	600.000	1.9372	1.9433	-.31	10.1325	10.0990	.33
1.00	700.000	.0017	.0017	.00	.0101	.0101	-.00
1.00	700.000	.0174	.0174	-.01	.1013	.1013	.01
1.00	700.000	.0695	.0695	-.03	.4053	.4052	.03
1.00	700.000	.1215	.1216	-.06	.7093	.7089	.06
1.00	700.000	.1733	.1735	-.08	1.0133	1.0125	.08
1.00	700.000	.6839	.6852	-.20	4.0530	4.0449	.20
1.00	700.000	1.1803	1.1834	-.26	7.0928	7.0738	.27
1.00	700.000	1.6629	1.6679	-.30	10.1325	10.1004	.32
1.00	800.000	.0015	.0015	.00	.0101	.0101	-.00
1.00	800.000	.0152	.0152	-.00	.1013	.1013	.00
1.00	800.000	.0608	.0608	-.03	.4053	.4052	.03
1.00	800.000	.1063	.1064	-.05	.7093	.7090	.05
1.00	800.000	.1517	.1518	-.06	1.0133	1.0126	.06
1.00	800.000	.5989	.5999	-.17	4.0530	4.0461	.17
1.00	800.000	1.0344	1.0367	-.23	7.0928	7.0763	.23
1.00	800.000	1.4585	1.4624	-.27	10.1325	10.1042	.28
1.00	900.000	.0014	.0014	.00	.0101	.0101	-.00
1.00	900.000	.0135	.0135	-.00	.1013	.1013	.00
1.00	900.000	.0541	.0541	-.02	.4053	.4052	.02
1.00	900.000	.0945	.0945	-.04	.7093	.7090	.04
1.00	900.000	.1349	.1349	-.05	1.0133	1.0127	.05
1.00	900.000	.5328	.5336	-.15	4.0530	4.0470	.15
1.00	900.000	.9211	.9228	-.19	7.0928	7.0788	.20
1.00	900.000	1.2998	1.3028	-.23	10.1325	10.1083	.24
1.00	1000.000	.0012	.0012	.00	.0101	.0101	-.00
1.00	1000.000	.0122	.0122	-.00	.1013	.1013	.00
1.00	1000.000	.0487	.0487	-.02	.4053	.4052	.02
1.00	1000.000	.0851	.0851	-.03	.7093	.7091	.03
1.00	1000.000	.1214	.1214	-.04	1.0133	1.0128	.04
1.00	1000.000	.4800	.4806	-.12	4.0530	4.0481	.12
1.00	1000.000	.8304	.8317	-.16	7.0928	7.0813	.16
1.00	1000.000	1.1728	1.1750	-.18	10.1325	10.1130	.19

69 data points, $|\Delta\rho/\rho|$, rms %=0.129, $\Delta\rho/\rho$, av. %=0.076, $|\Delta P/P|$, av. %=0.094.

TABLE 6b. Comparison of ID code (4) Michels $P\rho T$ compressibility data with values calculated from Eq. (6)

Wt	T,K	ρ mol/L	Calc. ρ mol/L	$\Delta\rho/\rho$ %	P, MPa	Calc. P MPa	$\Delta P/P$ %
1.00	273.150	.0446	.0447	-.03	.1013	.1013	.03
1.00	273.150	1.7857	1.7810	.26	3.9759	3.9863	-.26
1.00	273.150	3.5714	3.5483	.65	7.8784	7.9296	-.65
1.00	273.150	5.3572	5.3309	.49	11.8512	11.9105	-.50
1.00	273.150	7.1429	7.1351	.11	16.0590	16.0780	-.12
1.00	273.150	8.9286	8.9376	-.10	20.7062	20.6814	.12
1.00	273.150	10.7143	10.7179	-.03	26.0499	26.0381	.05
1.00	273.150	12.5000	12.4867	.11	32.4213	32.4740	-.16
1.00	273.150	14.2858	14.2625	.16	40.2596	40.3740	-.28
1.00	273.150	16.0715	16.0462	.16	50.1431	50.3011	-.31
1.00	273.150	17.8572	17.8328	.14	62.8170	63.0137	-.31
1.00	273.150	19.6429	19.6204	.11	79.2396	79.4754	-.30
1.00	273.150	21.4286	21.4075	.10	100.5871	100.8741	-.28
1.00	273.150	23.2144	23.1948	.08	128.3129	128.6586	-.27
1.00	273.150	25.0001	24.9824	.07	164.1830	164.5841	-.24
1.00	273.150	26.7858	26.7694	.06	210.2818	210.7589	-.23
1.00	298.150	.0446	.0447	-.03	.1106	.1106	.03
1.00	298.150	1.7857	1.7822	.19	4.3849	4.3934	-.19
1.00	298.150	3.5714	3.5528	.52	8.7765	8.8232	-.53
1.00	298.150	5.3572	5.3369	.38	13.3271	13.3800	-.40
1.00	298.150	7.1429	7.1389	.06	18.2164	18.2277	-.06
1.00	298.150	8.9286	8.9381	-.11	23.6665	23.6355	.13
1.00	298.150	10.7143	10.7173	-.03	29.9566	29.9452	.04
1.00	298.150	12.5000	12.4872	.10	37.4500	37.5096	-.16
1.00	298.150	14.2858	14.2636	.16	46.6163	46.7431	-.27
1.00	298.150	16.0715	16.0470	.15	58.0641	58.2403	-.30
1.00	298.150	17.8572	17.8326	.14	72.5661	72.7916	-.31
1.00	298.150	19.6429	19.6202	.12	91.1236	91.3900	-.29
1.00	298.150	21.4286	21.4077	.10	114.9319	115.2479	-.27
1.00	298.150	23.2144	23.1959	.08	145.4713	145.8278	-.24
1.00	298.150	25.0001	24.9839	.06	184.4855	184.8840	-.22
1.00	298.150	26.7858	26.7692	.06	233.9837	234.5006	-.22
1.00	323.150	.0446	.0447	-.03	.1199	.1199	.03
1.00	323.150	1.7857	1.7833	.14	4.7930	4.7996	-.14
1.00	323.150	3.5714	3.5566	.42	9.6717	9.7131	-.43
1.00	323.150	5.3572	5.3420	.28	14.7974	14.8423	-.30
1.00	323.150	7.1429	7.1425	.00	20.3644	20.3655	-.01
1.00	323.150	8.9286	8.9390	-.12	26.6100	26.5712	.15
1.00	323.150	10.7143	10.7180	-.03	33.8395	33.8234	.05
1.00	323.150	12.5000	12.4883	.09	42.4370	42.4998	-.15
1.00	323.150	14.2858	14.2650	.15	52.9065	53.0419	-.26
1.00	323.150	16.0715	16.0480	.15	65.8818	66.0723	-.29
1.00	323.150	17.8572	17.8343	.13	82.1754	82.4098	-.28
1.00	323.150	19.6429	19.6220	.11	102.8023	103.0735	-.26
1.00	323.150	21.4286	21.4102	.09	128.9928	129.2962	-.23
1.00	323.150	23.2144	23.2015	.06	162.2831	162.5522	-.17
1.00	323.150	25.0001	24.9928	.03	204.3999	204.5927	-.09
1.00	323.150	26.7858	26.7817	.02	257.3442	257.4783	-.05
1.00	348.150	.0446	.0447	-.03	.1292	.1292	.03
1.00	348.150	1.7857	1.7845	.07	5.2013	5.2051	-.07
1.00	348.150	3.5714	3.5597	.33	10.5640	10.6003	-.34
1.00	348.150	5.3572	5.3463	.20	16.2629	16.2987	-.22
1.00	348.150	7.1429	7.1452	-.03	22.5016	22.4933	.04
1.00	348.150	8.9286	8.9398	-.13	29.5379	29.4904	.16
1.00	348.150	10.7143	10.7185	-.04	37.6958	37.6751	.06
1.00	348.150	12.5000	12.4894	.08	47.3846	47.4482	-.13
1.00	348.150	14.2858	14.2662	.14	59.1330	59.2755	-.24
1.00	348.150	16.0715	16.0498	.13	73.6102	73.8055	-.26
1.00	348.150	17.8572	17.8365	.12	91.6485	91.8823	-.25
1.00	348.150	19.6429	19.6248	.09	114.2905	114.5480	-.22
1.00	348.150	21.4286	21.4148	.06	142.8075	143.0536	-.17

TABLE 6b. Comparison of ID code (4) Michels $P\rho T$ compressibility data with values calculated from Eq. (6) — Continued

Wt	T,K	ρ mol/L	Calc. ρ mol/L	$\Delta\rho/\rho$ %	P, MPa	Calc. P MPa	$\Delta P/P$ %
1.00	348.150	23.2144	23.2068	.03	178.7130	178.8825	-.09
1.00	348.150	25.0001	25.0010	-.00	223.8087	223.7825	.01
1.00	348.150	26.7858	26.7978	-.04	280.2092	279.7912	.15
1.00	373.150	.0446	.0447	-.03	.1385	.1385	.03
1.00	373.150	1.7857	1.7851	.03	5.6082	5.6101	-.03
1.00	373.150	3.5714	3.5619	.27	11.4532	11.4853	-.28
1.00	373.150	5.3572	5.3488	.16	17.7197	17.7504	-.17
1.00	373.150	7.1429	7.1458	-.04	24.6244	24.6125	.05
1.00	373.150	8.9286	8.9386	-.11	32.4420	32.3951	.14
1.00	373.150	10.7143	10.7175	-.03	41.5204	41.5027	.04
1.00	373.150	12.5000	12.4894	.09	52.2869	52.3578	-.14
1.00	373.150	14.2858	14.2667	.13	65.2948	65.4489	-.24
1.00	373.150	16.0715	16.0500	.13	81.2354	81.4480	-.26
1.00	373.150	17.8572	17.8369	.11	100.9728	101.2220	-.25
1.00	373.150	19.6429	19.6254	.09	125.5650	125.8338	-.21
1.00	373.150	21.4286	21.4178	.05	156.3435	156.5504	-.13
1.00	373.150	23.2144	23.2131	.01	194.8318	194.8629	-.02
1.00	373.150	25.0001	25.0119	-.05	242.8659	242.5147	.14
1.00	373.150	26.7858	26.8148	-.11	302.5879	301.5219	.35
1.00	398.150	.0446	.0447	-.03	.1478	.1478	.03
1.00	398.150	1.7857	1.7857	.00	6.0144	6.0146	-.00
1.00	398.150	3.5714	3.5634	.23	12.3390	12.3686	-.24
1.00	398.150	5.3572	5.3501	.13	19.1698	19.1981	-.15
1.00	398.150	7.1429	7.1456	-.04	26.7365	26.7242	.05
1.00	398.150	8.9286	8.9369	-.09	35.3296	35.2866	.12
1.00	398.150	10.7143	10.7152	-.01	45.3135	45.3083	.01
1.00	398.150	12.5000	12.4873	.10	57.1386	57.2318	-.16
1.00	398.150	14.2858	14.2645	.15	71.3795	71.5671	-.26
1.00	398.150	16.0715	16.0482	.15	88.7565	89.0075	-.28
1.00	398.150	17.8572	17.8358	.12	110.1565	110.4410	-.26
1.00	398.150	19.6429	19.6261	.09	136.6722	136.9493	-.20
1.00	398.150	21.4286	21.4202	.04	169.6414	169.8133	-.10
1.00	398.150	23.2144	23.2194	-.02	210.6577	210.5310	.06
1.00	398.150	25.0001	25.0219	-.09	261.5219	260.8413	.26
1.00	398.150	26.7858	26.8311	-.17	324.4791	322.7399	.54
1.00	423.150	.0446	.0447	-.03	.1571	.1571	.03
1.00	423.150	1.7857	1.7861	-.02	6.4204	6.4189	.02
1.00	423.150	3.5714	3.5648	.19	13.2243	13.2505	-.20
1.00	423.150	5.3572	5.3515	.11	20.6179	20.6425	-.12
1.00	423.150	7.1429	7.1458	-.04	28.8433	28.8293	.05
1.00	423.150	8.9286	8.9361	-.08	38.2084	38.1663	.11
1.00	423.150	10.7143	10.7143	.00	49.0937	49.0938	-.00
1.00	423.150	12.5000	12.4876	.10	61.9744	62.0733	-.16
1.00	423.150	14.2858	14.2662	.14	77.4474	77.6346	-.24
1.00	423.150	16.0715	16.0504	.13	96.2464	96.4911	-.25
1.00	423.150	17.8572	17.8382	.11	119.2788	119.5502	-.23
1.00	423.150	19.6429	19.6295	.07	147.6741	147.9104	-.16
1.00	423.150	21.4286	21.4253	.02	182.7923	182.8657	-.04
1.00	423.150	23.2144	23.2253	-.05	226.2131	225.9197	.13
1.00	423.150	25.0001	25.0284	-.11	279.7360	278.8066	.33
1.00	423.150	26.7858	26.8382	-.20	345.6013	343.5033	.61

112 data points, $|\Delta\rho/\rho|$, rms %=0.154, $\Delta\rho/\rho$, av.%=0.074, $|\Delta P/P|$, av.%=0.188.

TABLE 6c. Comparison of ID code (81) Barreiros $P\rho T$ compressibility data with values calculated from Eq. (6)

Wt	T,K	ρ mol/L	Calc. ρ mol/L	$\Delta\rho/\rho$ %	P, MPa	Calc. P MPa	$\Delta P/P$ %
.20	81.640	28.4382	28.4389	-.00	2.1600	2.1513	.40
.20	81.640	28.6238	28.6161	.03	4.2400	4.3328	-2.14
.20	81.640	28.7068	28.7086	-.01	5.3700	5.3469	.43
.20	81.640	28.8850	28.8959	-.04	7.7500	7.6087	1.86
.20	81.640	29.1104	29.1358	-.09	10.9900	10.6360	3.33
.20	81.640	29.8757	29.8927	-.06	22.7300	22.4387	1.30
.20	81.640	30.2691	30.2952	-.09	30.0100	29.5144	1.68
.20	81.640	30.8814	30.9151	-.11	42.8300	42.0779	1.79
.20	81.640	31.3273	31.3408	-.04	52.8900	52.5543	.64
.20	81.640	31.8137	31.8193	-.02	65.5700	65.4116	.24
.20	90.240	27.1843	27.1924	-.03	3.0000	2.9248	2.57
.20	90.240	27.3650	27.3733	-.03	4.7100	4.6298	1.73
.20	90.240	27.6449	27.6432	.01	7.4400	7.4584	-.25
.20	90.240	27.9580	27.9652	-.03	10.9900	10.9067	.76
.20	90.240	28.8027	28.8320	-.10	22.2900	21.8627	1.95
.20	90.240	29.5037	29.5127	-.03	33.1800	33.0232	.47
.20	90.240	30.4405	30.4458	-.02	51.5100	51.3937	.23
.20	90.240	30.9857	30.9688	.05	63.7800	64.2016	-.66
.20	90.240	31.7390	31.6685	.22	82.8000	84.8987	-2.47
.20	90.240	32.1368	32.0480	.28	94.5200	97.4144	-2.97
.20	90.240	32.6968	32.5699	.39	112.4400	117.1411	-4.01
.20	95.210	26.2419	26.2486	-.03	1.9800	1.9296	2.61
.20	95.210	26.3950	26.4089	-.05	3.2200	3.1096	3.55
.20	95.210	26.6553	26.6680	-.05	5.3600	5.2512	2.07
.20	95.210	26.9020	26.9059	-.01	7.4800	7.4441	.48
.20	95.210	27.1857	27.1913	-.02	10.2300	10.1737	.55
.20	95.210	27.9830	28.0145	-.11	19.5300	19.1333	2.07
.20	95.210	28.7323	28.7652	-.11	30.0100	29.5066	1.71
.20	95.210	29.3910	29.4096	-.06	40.7600	40.4250	.83
.20	95.210	30.4609	30.4434	.06	61.9800	62.3846	-.65
.20	95.210	30.9339	30.8896	.14	72.8800	74.0251	-1.55
.20	95.210	31.4238	31.3705	.17	85.9700	87.5135	-1.76
.20	95.210	31.7591	31.6804	.25	95.2100	97.6645	-2.51
.20	95.210	31.9122	31.8253	.27	99.7600	102.5629	-2.73
.20	95.210	32.4055	32.2721	.41	114.7800	119.5657	-4.00
.20	95.210	32.7033	32.5482	.48	124.8500	130.7896	-4.54
.20	100.180	25.5232	25.5241	-.00	3.0200	3.0144	.19
.20	100.180	25.8652	25.8663	-.00	5.4100	5.4021	.15
.20	100.180	26.1657	26.1640	.01	7.7100	7.7235	-.17
.20	100.180	26.4816	26.4733	.03	10.3300	10.4040	-.71
.20	100.180	26.4957	26.4936	.01	10.5100	10.5290	-.18
.20	100.180	27.6174	27.6274	-.04	22.4300	22.3085	.54
.20	100.180	28.2478	28.2601	-.04	30.8400	30.6628	.58
.20	100.180	29.4733	29.4672	.02	51.1000	51.2181	-.23
.20	100.180	30.4804	30.4487	.10	72.4600	73.2344	-1.06
.20	100.180	30.9157	30.8543	.20	82.8000	84.4507	-1.95
.20	100.180	31.9295	31.8129	.37	111.3400	115.2456	-3.39
.20	105.140	24.5152	24.5241	-.04	2.6000	2.5532	1.83
.20	105.140	25.0238	25.0320	-.03	5.5200	5.4686	.94
.20	105.140	25.3949	25.3943	.00	7.9200	7.9244	-.06
.20	105.140	25.7632	25.7697	-.03	10.7100	10.6590	.48
.20	105.140	26.1904	26.1983	-.03	14.3000	14.2291	.50
.20	105.140	26.7594	26.7822	-.09	19.9500	19.7123	1.21
.20	105.140	27.6068	27.6272	-.07	29.8700	29.6035	.90
.20	105.140	28.3648	28.3840	-.07	40.7600	40.4568	.75
.20	105.140	29.0588	29.0681	-.03	52.4800	52.3081	.33
.20	105.140	29.5299	29.5252	.02	61.4300	61.5276	-.16
.20	105.140	30.0824	30.0473	.12	72.8700	73.6890	-1.11
.20	105.140	30.4146	30.3846	.10	81.0100	81.7618	-.92
.20	105.140	30.8995	30.8345	.21	92.8600	94.6713	-1.91
.20	105.140	31.4475	31.3745	.23	108.7200	111.0120	-2.06
.20	105.140	32.1388	32.0222	.36	130.3600	134.5885	-3.14
.20	105.140	32.3457	32.2405	.33	138.3600	142.3496	-2.80
.20	110.190	23.5466	23.5380	.04	2.8600	2.8961	-1.25

TABLE 6c. Comparison of ID code (81) Barreiros $P\rho T$ compressibility data with values calculated from Eq. (6) — Continued

Wt	T,K	ρ mol/L	Calc. ρ mol/L	$\Delta\rho/\rho$ %	P, MPa	Calc. P MPa	$\Delta P/P$ %
.20	110.190	24.0981	24.0826	.06	5.3900	5.4693	-1.45
.20	110.190	24.4882	24.4822	.02	7.5700	7.6052	-.46
.20	110.190	24.9538	24.9551	-.00	10.5400	10.5316	.08
.20	110.190	26.0940	26.0939	.00	19.6700	19.6705	-.00
.20	110.190	27.8327	27.8456	-.05	40.4800	40.2911	.47
.20	110.190	29.2269	29.2156	.04	64.1900	64.4194	-.36
.20	110.190	29.5875	29.5452	.14	71.0900	72.0149	-1.28
.20	110.190	30.4210	30.3569	.21	90.3900	92.0656	-1.82
.20	110.190	31.0965	31.0147	.26	108.7200	111.1838	-2.22
.20	110.190	31.4080	31.3444	.20	118.9200	120.9712	-1.70
.20	110.190	31.7712	31.7169	.17	131.3300	133.2216	-1.42
.20	110.190	32.0020	31.9160	.27	138.3700	141.5030	-2.21
.20	114.880	22.5657	22.5490	.07	3.1600	3.2155	-1.73
.20	114.880	23.0601	23.0528	.03	5.0000	5.0290	-.58
.20	114.880	24.3339	24.3219	.05	11.3500	11.4228	-.64
.20	114.880	25.6134	25.6044	.04	20.8400	20.9199	-.38
.20	114.880	26.5682	26.5658	.01	30.4900	30.5166	-.09
.20	114.880	27.4529	27.4622	-.03	41.8600	41.7293	.31
.20	114.880	28.1770	28.1714	.02	52.7500	52.8433	-.18
.20	114.880	28.7687	28.7590	.03	63.2200	63.4043	-.29
.20	114.880	29.2252	29.2009	.08	72.0500	72.5617	-.71
.20	114.880	29.6209	29.5946	.09	80.6700	81.2722	-.74
.20	114.880	30.1114	30.0564	.18	91.7600	93.1568	-1.50
.20	114.880	30.4340	30.3838	.17	100.3100	101.6748	-1.34
.20	114.880	30.7768	30.7043	.24	109.2700	111.3828	-1.90
.20	114.880	31.1313	31.0936	.12	120.9900	122.1775	-.97
.20	114.880	31.4990	31.4128	.27	131.3300	134.2410	-2.17
.20	114.880	31.7138	31.6579	.18	139.7400	141.7186	-1.40
.20	120.040	21.1488	21.0969	.25	2.9600	3.0746	-3.73
.20	120.040	22.3060	22.2565	.22	6.2000	6.3728	-2.71
.20	120.040	23.3345	23.2979	.16	10.5400	10.7215	-1.69
.20	120.040	23.3465	23.3120	.15	10.6100	10.7814	-1.59
.20	120.040	24.9283	24.9126	.06	20.7800	20.9048	-.60
.20	120.040	25.9047	25.9028	.01	29.7400	29.7596	-.07
.20	120.040	26.8327	26.8450	-.05	40.6200	40.4613	.39
.20	120.040	27.6457	27.6416	.01	51.9300	51.9943	-.12
.20	120.040	28.1611	28.1595	.01	60.4700	60.4971	-.04
.20	120.040	28.8193	28.7990	.07	72.4600	72.8671	-.56
.20	120.040	29.2398	29.2251	.05	81.4200	81.7440	-.40
.20	120.040	29.7380	29.7015	.12	92.4500	93.3406	-.95
.20	120.040	30.0625	30.0407	.07	101.0000	101.5702	-.56
.20	120.040	30.5120	30.4558	.18	112.3100	113.9177	-1.41
.20	120.040	30.7324	30.7201	.04	120.0300	120.3985	-.31
.20	120.040	30.9550	30.9579	-.01	127.3400	127.2460	.07
.20	125.020	19.3558	19.3673	-.06	2.9900	2.9760	.47
.20	125.020	20.5255	20.5151	.05	4.8600	4.8816	-.44
.20	125.020	21.5592	21.5605	-.01	7.5500	7.5457	.06
.20	125.020	22.4507	22.4555	-.02	10.8100	10.7898	.19
.20	125.020	24.1937	24.1713	.09	20.2900	20.4477	-.77
.20	125.020	25.3646	25.3534	.04	30.0100	30.1171	-.36
.20	125.020	26.3692	26.3598	.04	40.9000	41.0147	-.28
.20	125.020	27.1069	27.0966	.04	50.6900	50.8385	-.29
.20	125.020	27.8660	27.8500	.06	62.5400	62.8139	-.44
.20	125.020	28.3897	28.3617	.10	71.7800	72.3159	-.74
.20	125.020	28.8317	28.7962	.12	80.4600	81.2055	-.92
.20	125.020	29.3979	29.3558	.14	92.8700	93.8637	-1.06
.20	125.020	29.7983	29.7448	.18	102.3800	103.7477	-1.32
.20	125.020	30.2261	30.1605	.22	113.4100	115.2366	-1.59
.20	125.020	30.4035	30.3464	.19	118.6500	120.2967	-1.37
.20	125.020	30.7920	30.7611	.10	131.0600	132.0251	-.73
.20	125.020	31.0251	30.9903	.11	138.3700	139.5063	-.81

125 data points, $|\Delta\rho/\rho|$, rms %=0.142, $\Delta\rho/\rho$, av. %=0.071, $|\Delta P/P|$, av. %=1.187.

TABLE 6d. Comparison of ID code (103-1807) Goodwin $P\rho T$ compressibility data with values calculated from Eq. (6).

ID	Wt	T,K	ρ, mol/L	Calc. ρ mol/L	$\Delta\rho/P$ %	P, MPa	Calc. P MPa	$\Delta P/P$ %
202	1.00	100.000	.5054	.5067	-.26	.3819	.3810	.23
203	1.00	120.000	.5046	.5042	.08	.4715	.4718	-.08
204	1.00	140.000	.5038	.5032	.12	.5591	.5597	-.12
205	1.00	160.000	.5030	.5025	.10	.6456	.6462	-.09
206	1.00	180.000	.5022	.5019	.05	.7314	.7318	-.05
207	1.00	200.000	.5013	.5013	-.00	.8166	.8165	.00
208	1.00	220.000	.5005	.5006	-.02	.9011	.9010	.02
209	1.00	240.000	.4996	.4999	-.05	.9853	.9848	.05
210	1.00	260.000	.4986	.4991	-.10	1.0690	1.0679	.10
211	1.00	280.000	.4977	.4983	-.12	1.1523	1.1509	.12
212	1.00	300.000	.4967	.4974	-.15	1.2351	1.2333	.15
103	1.00	120.000	.9699	.9695	.04	.8506	.8509	-.04
104	1.00	140.000	.9684	.9649	.36	1.0272	1.0306	-.33
105	1.00	160.000	.9668	.9634	.35	1.2005	1.2044	-.33
106	1.00	180.000	.9652	.9624	.29	1.3713	1.3751	-.28
107	1.00	200.000	.9635	.9615	.21	1.5403	1.5435	-.20
108	1.00	220.000	.9618	.9605	.14	1.7080	1.7103	-.13
109	1.00	240.000	.9600	.9593	.07	1.8744	1.8757	-.07
110	1.00	260.000	.9582	.9580	.02	2.0397	2.0401	-.02
111	1.00	280.000	.9564	.9567	-.03	2.2041	2.2035	.03
112	1.00	300.000	.9545	.9553	-.08	2.3676	2.3658	.08
302	1.00	120.000	1.2806	1.2805	.01	1.0747	1.0747	-.00
303	1.00	140.000	1.2785	1.2719	.52	1.3158	1.3218	-.46
304	1.00	160.000	1.2763	1.2694	.55	1.5505	1.5583	-.50
305	1.00	180.000	1.2742	1.2682	.47	1.7813	1.7892	-.44
306	1.00	200.000	1.2719	1.2672	.37	2.0093	2.0163	-.35
307	1.00	220.000	1.2697	1.2661	.28	2.2349	2.2411	-.27
308	1.00	240.002	1.2673	1.2648	.20	2.4587	2.4635	-.19
309	1.00	240.000	1.2673	1.2648	.20	2.4587	2.4635	-.20
310	1.00	260.000	1.2649	1.2634	.12	2.6810	2.6842	-.12
311	1.00	280.000	1.2625	1.2617	.07	2.9017	2.9035	-.07
312	1.00	300.000	1.2600	1.2599	.01	3.1210	3.1213	-.01
402	1.00	120.000	1.7489	1.7531	-.24	1.3715	1.3691	.18
403	1.00	140.000	1.7460	1.7327	.77	1.7166	1.7276	-.64
404	1.00	160.000	1.7430	1.7280	.87	2.0492	2.0651	-.77
405	1.00	180.000	1.7400	1.7266	.78	2.3749	2.3920	-.71
406	1.00	200.000	1.7369	1.7259	.64	2.6960	2.7123	-.60
407	1.00	220.000	1.7337	1.7250	.50	3.0134	3.0280	-.48
408	1.00	240.000	1.7305	1.7237	.39	3.3275	3.3403	-.38
409	1.00	260.003	1.7272	1.7221	.30	3.6391	3.6498	-.29
410	1.00	260.000	1.7272	1.7220	.30	3.6390	3.6498	-.29
411	1.00	280.000	1.7238	1.7202	.21	3.9484	3.9567	-.21
412	1.00	300.000	1.7204	1.7180	.14	4.2555	4.2615	-.14
502	1.00	140.000	2.6006	2.5683	1.26	2.3489	2.3710	-.93
503	1.00	160.000	2.5959	2.5586	1.46	2.8771	2.9120	-1.20
504	1.00	180.000	2.5913	2.5580	1.30	3.3908	3.4299	-1.14
505	1.00	200.000	2.5865	2.5586	1.09	3.8949	3.9341	-1.00
506	1.00	220.000	2.5817	2.5589	.89	4.3922	4.4292	-.84
507	1.00	240.000	2.5768	2.5584	.72	4.8836	4.9176	-.69
508	1.00	260.000	2.5717	2.5569	.58	5.3699	5.4004	-.56
509	1.00	280.000	2.5666	2.5550	.45	5.8523	5.8788	-.45
510	1.00	300.000	2.5614	2.5523	.36	6.3304	6.3532	-.36
601	1.00	130.000	4.1453	4.1102	.85	2.7150	2.7255	-.39
602	1.00	140.000	4.1413	4.0580	2.05	3.2048	3.2434	-1.19
603	1.00	160.000	4.1335	4.0449	2.19	4.1359	4.2027	-1.59
604	1.00	180.000	4.1256	4.0510	1.84	5.0336	5.1101	-1.50
605	1.00	200.000	4.1176	4.0573	1.49	5.9109	5.9886	-1.30
606	1.00	220.000	4.1096	4.0611	1.19	6.7733	6.8482	-1.09
607	1.00	240.000	4.1014	4.0627	.95	7.6241	7.6937	-.90
608	1.00	260.000	4.0931	4.0621	.76	8.4645	8.5282	-.75
609	1.00	280.000	4.0847	4.0598	.61	9.2962	9.3535	-.61
610	1.00	300.000	4.0761	4.0561	.49	10.1194	10.1703	-.50
702	1.00	140.000	5.9447	5.7985	2.52	3.8468	3.8870	-1.03

TABLE 6d. Comparison of ID code (103-1807) Goodwin $P\rho T$ compressibility data with values calculated from Eq. (6) — Continued

ID	Wt	T,K	ρ, mol/L	Calc. ρ mol/L	$\Delta\rho/P$ %	P, MPa	Calc. P MPa	$\Delta P/P$ %
703	1.00	160.000	5.9327	5.8050	2.20	5.3191	5.3947	-1.40
704	1.00	180.000	5.9207	5.8245	1.65	6.7362	6.8227	-1.27
705	1.00	200.000	5.9087	5.8369	1.23	8.1207	8.2072	-1.05
706	1.00	220.000	5.8966	5.8429	.92	9.4814	9.5623	-.85
707	1.00	240.000	5.8843	5.8434	.70	10.8210	10.8948	-.68
708	1.00	260.000	5.8719	5.8404	.54	12.1430	12.2091	-.54
709	1.00	280.000	5.8594	5.8357	.41	13.4508	13.5077	-.42
710	1.00	300.000	5.8468	5.8285	.31	14.7428	14.7921	-.33
801	1.00	140.000	7.6328	7.4630	2.28	4.2149	4.2436	-.68
802	1.00	160.000	7.6165	7.5141	1.36	6.2559	6.3083	-.83
803	1.00	180.000	7.6004	7.5363	.85	8.2328	8.2880	-.67
804	1.00	200.000	7.5841	7.5440	.53	10.1697	10.2184	-.48
805	1.00	220.000	7.5678	7.5429	.33	12.0738	12.1128	-.32
806	1.00	240.000	7.5515	7.5369	.19	13.9499	13.9779	-.20
807	1.00	260.000	7.5351	7.5277	.10	15.8008	15.8175	-.11
808	1.00	280.000	7.5186	7.5165	.03	17.6288	17.6342	-.03
809	1.00	300.000	7.5021	7.5039	-.02	19.4354	19.4300	.03
901	1.00	140.000	9.1109	8.9427	1.88	4.4345	4.4565	-.49
902	1.00	160.000	9.0907	9.0193	.79	7.0176	7.0541	-.52
903	1.00	180.000	9.0705	9.0325	.42	9.5468	9.5814	-.36
904	1.00	200.000	9.0503	9.0316	.21	12.0359	12.0605	-.20
905	1.00	220.000	9.0301	9.0232	.08	14.4874	14.4993	-.08
906	1.00	240.000	9.0100	9.0101	-.00	16.9027	16.9025	.00
907	1.00	260.000	8.9900	8.9944	-.05	19.2840	19.2729	.06
908	1.00	280.000	8.9701	8.9778	-.09	21.6355	21.6130	.10
909	1.00	300.000	8.9504	8.9607	-.11	23.9588	23.9250	.14
1001	1.00	140.000	10.8894	10.6401	2.34	4.6570	4.6919	-.74
1002	1.00	160.000	10.8640	10.7761	.82	7.9735	8.0257	-.65
1003	1.00	180.000	10.8384	10.7949	.40	11.2738	11.3204	-.41
1004	1.00	200.000	10.8130	10.7898	.22	14.5341	14.5702	-.25
1005	1.00	220.000	10.7879	10.7753	.12	17.7478	17.7733	-.14
1006	1.00	240.000	10.7632	10.7570	.06	20.9150	20.9306	-.07
1007	1.00	260.000	10.7390	10.7366	.02	24.0367	24.0438	-.03
1008	1.00	280.000	10.7153	10.7155	-.00	27.1157	27.1150	.00
1009	1.00	300.000	10.6920	10.6941	-.02	30.1546	30.1463	.03
1101	1.00	140.000	12.2219	11.8970	2.73	4.8457	4.9013	-1.14
1102	1.00	160.000	12.1921	12.0745	.97	8.8047	8.8874	-.93
1103	1.00	180.000	12.1621	12.0984	.53	12.7774	12.8573	-.62
1104	1.00	200.000	12.1325	12.0940	.32	16.7119	16.7814	-.41
1105	1.00	220.000	12.1035	12.0776	.21	20.5894	20.6505	-.30
1106	1.00	240.000	12.0755	12.0563	.16	24.4076	24.4630	-.23
1107	1.00	260.000	12.0485	12.0339	.12	28.1701	28.2201	-.18
1108	1.00	280.000	12.0222	12.0104	.10	31.8766	31.9232	-.15
1109	1.00	300.000	11.9964	11.9863	.08	35.5291	35.5741	-.13
1201	1.00	140.000	14.2041	13.9600	1.75	5.2986	5.3753	-1.43
1202	1.00	160.000	14.1665	14.0533	.81	10.4414	10.5551	-1.08
1203	1.00	180.000	14.1291	14.0619	.48	15.6165	15.7303	-.72
1204	1.00	200.000	14.0929	14.0455	.34	20.7321	20.8446	-.54
1205	1.00	220.000	14.0585	14.0218	.26	25.7699	25.8814	-.43
1206	1.00	240.000	14.0259	13.9948	.22	30.7217	30.8365	-.37
1207	1.00	260.000	13.9947	13.9666	.20	35.5886	35.7100	-.34
1301	1.00	130.000	16.4866	16.4868	-.00	3.1211	3.1210	.00
1302	1.00	140.000	16.4628	16.3375	.77	6.4720	6.5700	-1.49
1303	1.00	160.000	16.4142	16.3347	.49	13.4072	13.5428	-1.00
1304	1.00	180.000	16.3675	16.3127	.34	20.3158	20.4578	-.69
1305	1.00	200.000	16.3242	16.2799	.27	27.1072	27.2598	-.56
1306	1.00	220.000	16.2843	16.2447	.24	33.7649	33.9341	-.50
1307	1.00	231.000	16.2636	16.2256	.23	37.3702	37.5496	-.48
1401	1.00	130.000	17.8841	17.8427	.23	3.8238	3.8558	-.83
1402	1.00	140.000	17.8557	17.7738	.46	7.9340	8.0435	-1.36
1403	1.00	150.000	17.8272	17.7584	.39	12.1015	12.2313	-1.06
1404	1.00	160.000	17.7993	17.7425	.32	16.2581	16.3956	-.84

TABLE 6d. Comparison of ID code (103-1807) Goodwin $P\rho T$ compressibility data with values calculated from Eq. (6) — Continued

ID	Wt	T,K	ρ, mol/L	Calc. ρ mol/L	Δρ/P %	P, MPa	Calc. P MPa	ΔP/P %
1405	1.00	170.000	17.7725	17.7242	.27	20.3832	20.5255	-.69
1406	1.00	180.000	17.7470	17.7045	.24	24.4687	24.6155	-.60
1407	1.00	190.000	17.7229	17.6831	.23	28.5060	28.6633	-.55
1408	1.00	200.000	17.7001	17.6619	.22	32.4983	32.6677	-.52
1409	1.00	210.000	17.6783	17.6412	.21	36.4456	36.6276	-.50
1502	1.00	130.000	20.0986	20.0565	.21	6.8259	6.9147	-1.28
1503	1.00	140.000	20.0618	20.0180	.22	12.3991	12.5231	-.99
1504	1.00	150.000	20.0264	19.9877	.19	17.9247	18.0610	-.75
1505	1.00	160.000	19.9933	19.9595	.17	23.3836	23.5251	-.60
1506	1.00	170.000	19.9628	19.9289	.17	28.7514	28.9152	-.57
1507	1.00	180.000	19.9347	19.9008	.17	34.0471	34.2318	-.54
1601	1.00	116.000	21.8526	21.8615	-.04	1.9882	1.9652	1.17
1602	1.00	120.000	21.8344	21.8184	.07	4.7709	4.8180	-.98
1603	1.00	130.000	21.7891	21.7661	.11	11.7640	11.8516	-.74
1604	1.00	140.000	21.7462	21.7258	.09	18.6576	18.7522	-.50
1605	1.00	150.000	21.7071	21.6868	.09	25.4191	25.5296	-.43
1606	1.00	160.000	21.6722	21.6493	.11	32.0506	32.1927	-.44
1607	1.00	165.000	21.6560	21.6320	.11	35.3236	35.4820	-.45
1701	1.00	108.000	23.9498	23.9580	-.03	2.6624	2.6245	1.44
1702	1.00	110.000	23.9382	23.9352	.01	4.4750	4.4893	-.32
1703	1.00	115.000	23.9088	23.9093	-.00	9.1035	9.1008	.03
1704	1.00	120.000	23.8805	23.8828	-.01	13.6642	13.6504	.10
1705	1.00	125.000	23.8534	23.8574	-.02	18.1667	18.1414	.14
1706	1.00	130.000	23.8280	23.8326	-.02	22.6112	22.5796	.14
1707	1.00	135.000	23.8046	23.8072	-.01	26.9895	26.9705	.07
1708	1.00	140.000	23.7828	23.7820	.00	31.3077	31.3142	-.02
1709	1.00	145.000	23.7626	23.7587	.02	35.5807	35.6135	-.09
1801	1.00	97.000	25.9642	25.9697	-.02	2.2153	2.1761	1.80
1802	1.00	100.000	25.9414	25.9554	-.05	5.8528	5.7472	1.84
1803	1.00	105.000	25.9046	25.9291	-.09	11.8205	11.6203	1.72
1804	1.00	110.000	25.8699	25.9000	-.12	17.6693	17.4036	1.53
1805	1.00	115.000	25.8381	25.8700	-.12	23.4106	23.1095	1.30
1806	1.00	120.000	25.8094	25.8392	-.12	29.0455	28.7462	1.04
1807	1.00	125.000	25.7834	25.8099	-.10	34.5974	34.3158	.82

159 data points, $|\Delta\rho/\rho|$, rms %=0.726, $\Delta\rho/\rho$, av. %=0.424, $|\Delta P/P|$, av. %=0.532.

TABLE 6e. Comparison of ID code (2) Bartlett $P\rho T$ compressibility data with values calculated from Eq. (6).

Wt	T/K	ρ mol/L	Calc. ρ mol/L	Δρ/ρ %	P, MPa	Calc. P MPa	ΔP/P %
1.00	203.250	.0601	.0601	-.02	.1013	.1013	.02
1.00	203.250	1.5876	1.5841	.22	2.5331	2.5384	-.21
1.00	203.250	3.3637	3.3314	.97	5.0663	5.1108	-.87
1.00	203.250	5.2953	5.2489	.88	7.5994	7.6584	-.77
1.00	203.250	7.2626	7.2685	-.08	10.1325	10.1251	.07
1.00	203.250	9.1362	9.1956	-.65	12.6656	12.5828	.66
1.00	203.250	10.8182	10.8730	-.50	15.1988	15.1090	.59
1.00	203.250	13.4650	13.4983	-.25	20.2650	20.1890	.38
1.00	203.250	16.8358	16.8590	-.14	30.3975	30.3060	.30
1.00	203.250	18.9286	18.9616	-.17	40.5300	40.3387	.47
1.00	203.250	20.4410	20.4761	-.17	50.6625	50.3945	.53
1.00	203.250	21.6259	21.6617	-.17	60.7950	60.4566	.56
1.00	203.250	23.4408	23.4716	-.13	81.0600	80.6594	.50
1.00	203.250	24.8127	24.8457	-.13	101.3250	100.7817	.54
1.00	223.220	.0547	.0547	-.01	.1013	.1013	.01
1.00	223.220	1.4122	1.4167	-.31	2.5331	2.5254	.30
1.00	223.220	2.9286	2.9187	.34	5.0663	5.0825	-.32
1.00	223.220	4.5320	4.4972	.77	7.5994	7.6541	-.72
1.00	223.220	6.1458	6.1224	.38	10.1325	10.1690	-.36
1.00	223.220	7.7003	7.7193	-.25	12.6656	12.6346	.25
1.00	223.220	9.1682	9.1998	-.34	15.1988	15.1418	.38
1.00	223.220	11.6622	11.6782	-.14	20.2650	20.2280	.18
1.00	223.220	15.0957	15.1409	-.30	30.3975	30.2311	.55
1.00	223.220	17.3624	17.4179	-.32	40.5300	40.2359	.73
1.00	223.220	18.9890	19.0695	-.42	50.6625	50.1002	1.12
1.00	223.220	20.2539	20.3594	-.52	60.7950	59.8811	1.53
1.00	223.220	22.1829	22.3169	-.60	81.0600	79.4515	2.02
1.00	223.220	23.6570	23.7926	-.57	101.3250	99.2527	2.09
1.00	248.160	.0492	.0492	-.04	.1013	.1013	.04
1.00	248.160	1.2487	1.2559	-.58	2.5331	2.5188	.57
1.00	248.160	2.5458	2.5494	-.14	5.0663	5.0592	.14
1.00	248.160	3.8789	3.8691	.25	7.5994	7.6180	-.24
1.00	248.160	5.2509	5.2003	.97	10.1325	10.2291	-.94
1.00	248.160	6.4903	6.5137	-.36	12.6656	12.6197	.36
1.00	248.160	7.7300	7.7708	-.53	15.1988	15.1137	.56
1.00	248.160	9.8965	10.0053	-1.09	20.2650	19.9946	1.35
1.00	248.160	13.2774	13.3708	-.70	30.3975	30.0597	1.12
1.00	248.160	15.6601	15.7376	-.49	40.5300	40.1426	.97
1.00	248.160	17.3966	17.5001	-.59	50.6625	49.9899	1.35
1.00	248.160	18.7550	18.8871	-.70	60.7950	59.7328	1.78
1.00	248.160	20.8211	20.9936	-.82	81.0600	79.1384	2.43
1.00	248.160	22.3943	22.5766	-.81	101.3250	98.7304	2.63
1.00	273.150	.0446	.0447	-.03	.1013	.1013	.03
1.00	273.150	1.1280	1.1303	-.20	2.5331	2.5281	.20
1.00	273.150	2.2786	2.2743	.19	5.0663	5.0758	-.19
1.00	273.150	3.4376	3.4220	.46	7.5994	7.6339	-.45
1.00	273.150	4.5811	4.5649	.36	10.1325	10.1687	-.36
1.00	273.150	5.6960	5.6894	.12	12.6656	12.6807	-.12
1.00	273.150	6.7716	6.7773	-.08	15.1988	15.1853	.09
1.00	273.150	8.7535	8.7766	-.26	20.2650	20.2022	.31
1.00	273.150	11.9462	11.9609	-.12	30.3975	30.3425	.18
1.00	273.150	14.3006	14.3173	-.12	40.5300	40.4475	.20
1.00	273.150	16.1248	16.1290	-.03	50.6625	50.6359	.05
1.00	273.150	17.5576	17.5766	-.11	60.7950	60.6478	.24
1.00	273.150	19.7711	19.7925	-.11	81.0600	80.8308	.28
1.00	273.150	21.4352	21.4617	-.12	101.3250	100.9633	.36
1.00	298.150	.0409	.0409	-.02	.1013	.1013	.02
1.00	298.150	1.0271	1.0289	-.17	2.5331	2.5287	.17
1.00	298.150	2.0609	2.0588	.10	5.0663	5.0715	-.10
1.00	298.150	3.0911	3.0814	.31	7.5994	7.6233	-.31
1.00	298.150	4.1093	4.0917	.43	10.1325	10.1769	-.44
1.00	298.150	5.0962	5.0825	.27	12.6656	12.7012	-.28
1.00	298.150	6.0410	6.0444	-.06	15.1988	15.1896	.06
1.00	298.150	7.8218	7.8436	-.28	20.2650	20.2003	.32

TABLE 6e. Comparison of ID code (2) Bartlett $P\rho T$ compressibility data with values calculated from Eq. (6) — Continued

Wt	T/K	ρ mol/L	Calc. ρ mol/L	Δρ/ρ %	P, MPa	Calc. P MPa	ΔP/P %
1.00	298.150	10.7955	10.8310	-.33	30.3975	30.2593	.46
1.00	298.150	13.1062	13.1260	-.15	40.5300	40.4311	.24
1.00	298.150	14.9408	14.9412	-.00	50.6625	50.6599	.01
1.00	298.150	16.4159	16.4177	-.01	60.7950	60.7813	.02
1.00	298.150	18.6840	18.7062	-.12	81.0600	80.8314	.28
1.00	298.150	20.4251	20.4413	-.08	101.3250	101.1123	.21
1.00	323.150	.0377	.0377	-.02	.1013	.1013	.02
1.00	323.150	.9441	.9451	-.11	2.5331	2.5304	.11
1.00	323.150	1.8875	1.8840	.18	5.0663	5.0756	-.19
1.00	323.150	2.8179	2.8105	.26	7.5994	7.6199	-.27
1.00	323.150	3.7343	3.7209	.36	10.1325	10.1700	-.37
1.00	323.150	4.6237	4.6116	.26	12.6656	12.7007	-.28
1.00	323.150	5.4925	5.4773	.28	15.1988	15.2441	-.30
1.00	323.150	7.1082	7.1120	-.05	20.2650	20.2528	.06
1.00	323.150	9.9053	9.9087	-.03	30.3975	30.3834	.05
1.00	323.150	12.1346	12.1230	.10	40.5300	40.5891	-.15
1.00	323.150	13.9309	13.9135	.13	50.6625	50.7717	-.22
1.00	323.150	15.4136	15.3949	.12	60.7950	60.9351	-.23
1.00	323.150	17.7296	17.7244	.03	81.0600	81.1118	-.06
1.00	323.150	19.5127	19.5072	.03	101.3250	101.3947	-.07
1.00	373.150	.0327	.0327	-.02	.1013	.1013	.02
1.00	373.150	.8116	.8139	-.28	2.5331	2.5259	.28
1.00	373.150	1.6132	1.6156	-.15	5.0663	5.0584	.16
1.00	373.150	2.4009	2.4012	-.02	7.5994	7.5981	.02
1.00	373.150	3.1747	3.1691	.18	10.1325	10.1514	-.19
1.00	373.150	3.9243	3.9179	.16	12.6656	12.6876	-.17
1.00	373.150	4.6542	4.6462	.17	15.1988	15.2270	-.19
1.00	373.150	6.0353	6.0338	.03	20.2650	20.2708	-.03
1.00	373.150	8.4776	8.4945	-.20	30.3975	30.3213	.25
1.00	373.150	10.5272	10.5376	-.10	40.5300	40.4733	.14
1.00	373.150	12.2410	12.2417	-.01	50.6625	50.6581	.01
1.00	373.150	13.6963	13.6899	.05	60.7950	60.8429	-.08
1.00	373.150	15.9839	16.0323	-.30	81.0600	80.5832	.59
1.00	373.150	17.9038	17.8656	.21	101.3250	101.7974	-.46
1.00	423.150	.0288	.0288	-.01	.1013	.1013	.01
1.00	423.150	.7111	.7155	-.62	2.5331	2.5172	.63
1.00	423.150	1.4107	1.4175	-.48	5.0663	5.0416	.49
1.00	423.150	2.0957	2.1032	-.36	7.5994	7.5711	.37
1.00	423.150	2.7634	2.7720	-.31	10.1325	10.0995	.33
1.00	423.150	3.4202	3.4235	-.10	12.6656	12.6526	.10
1.00	423.150	4.0494	4.0573	-.20	15.1988	15.1666	.21
1.00	423.150	5.2561	5.2698	-.26	20.2650	20.2060	.29
1.00	423.150	7.4183	7.4612	-.58	30.3975	30.1838	.71
1.00	423.150	9.3113	9.3407	-.31	40.5300	40.3584	.43
1.00	423.150	10.9152	10.9475	-.30	50.6625	50.4427	.44
1.00	423.150	12.3114	12.3376	-.21	60.7950	60.5905	.34
1.00	423.150	14.6119	14.6373	-.17	81.0600	80.8086	.31
1.00	423.150	16.4480	16.4772	-.18	101.3250	100.9690	.35
1.00	473.150	.0258	.0258	.00	.1013	.1013	-.00
1.00	473.150	.6350	.6388	-.60	2.5331	2.5178	.61
1.00	473.150	1.2570	1.2642	-.57	5.0663	5.0365	.59
1.00	473.150	1.8655	1.8746	-.48	7.5994	7.5613	.50
1.00	473.150	2.4602	2.4694	-.37	10.1325	10.0928	.39
1.00	473.150	3.0399	3.0488	-.29	12.6656	12.6264	.31
1.00	473.150	3.6006	3.6127	-.33	15.1988	15.1438	.36
1.00	473.150	4.6771	4.6943	-.37	20.2650	20.1819	.41
1.00	473.150	6.6357	6.6712	-.53	30.3975	30.2039	.64
1.00	473.150	8.3523	8.4038	-.61	40.5300	40.2080	.80
1.00	473.150	9.8650	9.9155	-.51	50.6625	50.3010	.72
1.00	473.150	11.1967	11.2421	-.40	60.7950	60.4269	.61
1.00	473.150	13.4255	13.4736	-.36	81.0600	80.5734	.60
1.00	473.150	15.2553	15.2931	-.25	101.3250	100.8638	.46

126 data points, $|\Delta\rho/\rho|$, rms %=0.370, $\Delta\rho/\rho$, av. %=0.134, $|\Delta P/P|$, av. %=0.432.

TABLE 6f. Comparison of ID code (3) Deming PρT compressibility data with values calculated from Eq. (6)

Wt	T/K	ρ mol/L	Calc. ρ mol/L	Δρ/ρ %	P, MPa	Calc. P MPa	ΔP/P %
.00	203.150	1.5900	1.5851	.31	2.5331	2.5406	-.29
.00	203.150	3.3546	3.3339	.62	5.0663	5.0949	-.56
.00	203.150	5.2667	5.2535	.25	7.5994	7.6161	-.22
.00	203.150	7.2306	7.2757	-.62	10.1325	10.0758	.56
.00	203.150	10.8227	10.8830	-.55	15.1988	15.1000	.65
.00	203.150	13.5221	13.5088	.10	20.2650	20.2955	-.15
.00	203.150	16.8571	16.8683	-.07	30.3975	30.3532	.15
.00	203.150	18.9495	18.9698	-.11	40.5300	40.4124	.29
.00	203.150	20.4456	20.4834	-.18	50.6625	50.3737	.57
.00	203.150	21.6311	21.6684	-.17	60.7950	60.4413	.59
.00	203.150	23.4271	23.4776	-.21	81.0600	80.4034	.82
.00	203.150	24.7840	24.8511	-.27	101.3250	100.2201	1.10
.00	203.150	25.8945	25.9648	-.27	121.5900	120.1960	1.16
.00	223.150	1.4211	1.4172	.28	2.5331	2.5400	-.27
.00	223.150	2.9419	2.9199	.75	5.0663	5.1023	-.71
.00	223.150	4.5312	4.4993	.71	7.5994	7.6494	-.65
.00	223.150	6.1380	6.1256	.20	10.1325	10.1518	-.19
.00	223.150	9.1445	9.2047	-.65	15.1988	15.0903	.72
.00	223.150	11.6261	11.6837	-.49	20.2650	20.1314	.66
.00	223.150	15.1075	15.1464	-.26	30.3975	30.2539	.47
.00	223.150	17.2320	17.4230	-1.10	40.5300	39.5289	2.53
.00	223.150	19.0138	19.0742	-.32	50.6625	50.2398	.84
.00	223.150	20.4385	20.3638	.37	60.7950	61.4526	-1.07
.00	223.150	22.2238	22.3208	-.43	81.0600	79.8921	1.46
.00	223.150	23.7199	23.7961	-.32	101.3250	100.1545	1.17
.00	223.150	24.9197	24.9858	-.26	121.5900	120.3586	1.02
.00	248.150	1.2583	1.2560	.18	2.5331	2.5377	-.18
.00	248.150	2.5659	2.5496	.64	5.0663	5.0978	-.62
.00	248.150	3.8992	3.8693	.77	7.5994	7.6563	-.74
.00	248.150	5.2275	5.2006	.52	10.1325	10.1838	-.50
.00	248.150	7.7591	7.7713	-.16	15.1988	15.1732	.17
.00	248.150	9.9657	10.0059	-.40	20.2650	20.1649	.50
.00	248.150	13.3793	13.3714	.06	30.3975	30.4263	-.09
.00	248.150	15.7216	15.7382	-.11	40.5300	40.4468	.21
.00	248.150	17.4355	17.5007	-.37	50.6625	50.2381	.84
.00	248.150	18.7745	18.8877	-.60	60.7950	59.8845	1.52
.00	248.150	20.8955	20.9941	-.47	81.0600	79.9555	1.38
.00	248.150	22.4988	22.5771	-.35	101.3250	100.2011	1.12
.00	248.150	23.8020	23.8491	-.20	121.5900	120.7679	.68
.00	273.150	1.1312	1.1303	.08	2.5331	2.5351	-.08
.00	273.150	2.2852	2.2743	.48	5.0663	5.0904	-.47
.00	273.150	3.4453	3.4220	.68	7.5994	7.6510	-.67
.00	273.150	4.5919	4.5649	.59	10.1325	10.1927	-.59
.00	273.150	6.7843	6.7773	.10	15.1988	15.2154	-.11
.00	273.150	8.7588	8.7766	-.20	20.2650	20.2166	.24
.00	273.150	11.9474	11.9609	-.11	30.3975	30.3471	.17
.00	273.150	14.2934	14.3173	-.17	40.5300	40.4115	.29
.00	273.150	16.0823	16.1290	-.29	50.6625	50.3686	.58
.00	273.150	17.5034	17.5766	-.42	60.7950	60.2308	.94
.00	273.150	19.7136	19.7925	-.40	81.0600	80.2202	1.05
.00	273.150	21.4061	21.4617	-.26	101.3250	100.5679	.75
.00	273.150	22.7808	22.8021	-.09	121.5900	121.2373	.29
.00	298.150	1.0291	1.0289	.01	2.5331	2.5335	-.01
.00	298.150	2.0653	2.0588	.32	5.0663	5.0823	-.32
.00	298.150	3.0976	3.0814	.52	7.5994	7.6395	-.53
.00	298.150	4.1134	4.0917	.53	10.1325	10.1874	-.54
.00	298.150	6.0558	6.0444	.19	15.1988	15.2294	-.20
.00	298.150	7.8376	7.8436	-.08	20.2650	20.2473	.09
.00	298.150	10.8227	10.8310	-.08	30.3975	30.3650	.11
.00	298.150	13.1150	13.1260	-.08	40.5300	40.4751	.14
.00	298.150	14.9147	14.9412	-.18	50.6625	50.4975	.33
.00	298.150	16.4108	16.4177	-.04	60.7950	60.7426	.09
.00	298.150	18.6746	18.7062	-.17	81.0600	80.7345	.40
.00	298.150	20.4206	20.4413	-.10	101.3250	101.0541	.27

TABLE 6f. Comparison of ID code (3) Deming PρT compressibility data with values calculated from Eq. (6) — Continued

Wt	T/K	ρ mol/L	Calc. ρ mol/L	Δρ/ρ %	P, MPa	Calc. P MPa	ΔP/P %
.00	298.150	21.8489	21.8370	.05	121.5900	121.7798	-.16
.00	323.150	.9444	.9451	-.07	2.5331	2.5314	.07
.00	323.150	1.8875	1.8840	.18	5.0663	5.0755	-.18
.00	323.150	2.8205	2.8105	.36	7.5994	7.6270	-.36
.00	323.150	3.7349	3.7209	.38	10.1325	10.1718	-.39
.00	323.150	5.4881	5.4773	.20	15.1988	15.2310	-.21
.00	323.150	7.1128	7.1120	.01	20.2650	20.2676	-.01
.00	323.150	9.9014	9.9087	-.07	30.3975	30.3678	.10
.00	323.150	12.1260	12.1230	.02	40.5300	40.5451	-.04
.00	323.150	13.9113	13.9135	-.02	50.6625	50.6489	.03
.00	323.150	15.4038	15.3949	.06	60.7950	60.8617	-.11
.00	323.150	17.6926	17.7244	-.18	81.0600	80.7403	.40
.00	323.150	19.5030	19.5072	-.02	101.3250	101.2706	.05
.00	323.150	20.9848	20.9465	.18	121.5900	122.1833	-.49
.00	373.150	.8127	.8139	-.15	2.5331	2.5294	.15
.00	373.150	1.6147	1.6156	-.06	5.0663	5.0631	.06
.00	373.150	2.4031	2.4012	.08	7.5994	7.6053	-.08
.00	373.150	3.1740	3.1691	.15	10.1325	10.1488	-.16
.00	373.150	4.6526	4.6462	.14	15.1988	15.2213	-.15
.00	373.150	6.0344	6.0338	.01	20.2650	20.2675	-.01
.00	373.150	8.4803	8.4945	-.17	30.3975	30.3335	.21
.00	373.150	10.5227	10.5376	-.14	40.5300	40.4493	.20
.00	373.150	12.2402	12.2417	-.01	50.6625	50.6529	.02
.00	373.150	13.6935	13.6899	.03	60.7950	60.8218	-.04
.00	373.150	16.0144	16.0323	-.11	81.0600	80.8836	.22
.00	373.150	17.8855	17.8656	.11	101.3250	101.5707	-.24
.00	373.150	19.3923	19.3618	.16	121.5900	122.0423	-.37
.00	423.150	.7141	.7155	-.19	2.5331	2.5282	.19
.00	423.150	1.4143	1.4175	-.22	5.0663	5.0548	.23
.00	423.150	2.0999	2.1032	-.16	7.5994	7.5870	.16
.00	423.150	2.7690	2.7720	-.11	10.1325	10.1211	.11
.00	423.150	4.0527	4.0573	-.11	15.1988	15.1801	.12
.00	423.150	5.2596	5.2698	-.19	20.2650	20.2208	.22
.00	423.150	7.4341	7.4612	-.36	30.3975	30.2627	.45
.00	423.150	9.3087	9.3407	-.34	40.5300	40.3433	.46
.00	423.150	10.9155	10.9475	-.29	50.6625	50.4451	.43
.00	423.150	12.3152	12.3376	-.18	60.7950	60.6205	.29
.00	423.150	14.6147	14.6373	-.15	81.0600	80.8364	.28
.00	423.150	16.4679	16.4772	-.06	101.3250	101.2115	.11
.00	423.150	18.0176	17.9988	.10	121.5900	121.8626	-.22
.00	473.150	.6370	.6388	-.28	2.5331	2.5260	.28
.00	473.150	1.2601	1.2642	-.33	5.0663	5.0492	.34
.00	473.150	1.8685	1.8746	-.32	7.5994	7.5740	.34
.00	473.150	2.4613	2.4694	-.33	10.1325	10.0973	.35
.00	473.150	3.5992	3.6127	-.37	15.1988	15.1374	.41
.00	473.150	4.6740	4.6943	-.43	20.2650	20.1669	.49
.00	473.150	6.6343	6.6712	-.55	30.3975	30.1960	.67
.00	473.150	8.3554	8.4038	-.58	40.5300	40.2271	.75
.00	473.150	9.8657	9.9155	-.50	50.6625	50.3063	.71
.00	473.150	11.2012	11.2421	-.36	60.7950	60.4632	.55
.00	473.150	13.4435	13.4736	-.22	81.0600	80.7557	.38
.00	473.150	15.2682	15.2931	-.16	101.3250	101.0208	.30
.00	473.150	16.8035	16.8175	-.08	121.5900	121.3892	.17
0.00	573.150	.5249	.5266	-.32	2.5331	2.5250	.32
0.00	573.150	1.0373	1.0415	-.41	5.0663	5.0451	.42
0.00	573.150	1.5361	1.5441	-.52	7.5994	7.5585	.54
0.00	573.150	2.0224	2.0342	-.58	10.1325	10.0708	.61
0.00	573.150	2.9583	2.9779	-.66	15.1988	15.0908	.72
0.00	573.150	3.8670	3.8748	-.20	20.2650	20.2202	.22
0.00	573.150	5.4881	5.5353	-.85	30.3975	30.0945	1.01
0.00	573.150	6.9664	7.0283	-.88	40.5300	40.0870	1.11
0.00	573.150	8.2911	8.3680	-.92	50.6625	50.0500	1.22
0.00	573.150	9.4944	9.5720	-.81	60.7950	60.1092	1.14
0.00	573.150	11.5725	11.6480	-.65	81.0600	80.2538	1.00
0.00	573.150	13.3293	13.3876	-.44	101.3250	100.5903	.73
0.00	573.150	14.8361	14.8778	-.28	121.5900	120.9818	.50
0.00	673.150	.4470	.4482	-.26	2.5331	2.5266	.26

TABLE 6f. Comparison of ID code (3) Deming PρT compressibility data with values calculated from Eq. (6) — Continued

Wt	T/K	ρ mol/L	Calc. ρ mol/L	Δρ/ρ %	P, MPa	Calc. P MPa	ΔP/P %
0.00	673.150	.8827	.8867	-.46	5.0663	5.0426	.47
0.00	673.150	1.3072	1.3152	-.61	7.5994	7.5517	.63
0.00	673.150	1.7214	1.7336	-.70	10.1325	10.0577	.74
0.00	673.150	2.5198	2.5413	-.85	15.1988	15.0607	.92
0.00	673.150	3.2800	3.3120	-.96	20.2650	20.0502	1.07
0.00	673.150	4.6990	4.7503	-1.08	30.3975	30.0198	1.26
0.00	673.150	5.9916	6.0623	-1.17	40.5300	39.9594	1.43
0.00	673.150	7.1735	7.2597	-1.19	50.6625	49.9014	1.53
0.00	673.150	8.2625	8.3538	-1.09	60.7950	59.9144	1.47
0.00	673.150	10.1835	10.2787	-.93	81.0600	79.9762	1.36
0.00	673.150	11.8475	11.9233	-.64	101.3250	100.3236	1.00
0.00	673.150	13.2900	13.3550	-.49	121.5900	120.6114	.81

143 data points, $|\Delta\rho/\rho|$, rms %=0.334, $\Delta\rho/\rho$, av. %=-0.069, $|\Delta P/P|$, av. %=0.429.

TABLE 6g. Comparison of ID code (2) Robertson $P\rho T$ compressibility data with values calculated from Eq. (6)

Wt	T/K	ρ mol/L	Calc. ρ mol/L	Δρ/ρ %	P, MPa	Calc. P MPa	ΔP/P %
.00	308.150	21.2054	21.1817	.11	117.1000	117.4606	-.31
.00	308.150	22.3215	22.3001	.10	135.4000	135.7775	-.28
.00	308.150	23.4376	23.4185	.08	156.7000	157.0914	-.25
.00	308.150	24.5537	24.5430	.04	181.6000	181.8533	-.14
.00	308.150	25.6697	25.6565	.05	210.2000	210.5644	-.17
.00	308.150	26.7858	26.7708	.06	243.3000	243.7774	-.20
.00	308.150	27.9019	27.8829	.07	281.4000	282.0961	-.25
.00	308.150	29.0180	28.9949	.08	325.2000	326.1727	-.30
.00	308.150	30.1340	30.1029	.10	375.2000	376.7032	-.40
.00	373.150	21.2054	21.1932	.06	152.1000	152.3283	-.15
.00	373.150	22.3215	22.2956	.12	174.1000	174.6544	-.32
.00	373.150	23.4376	23.4184	.08	199.8000	200.2699	-.23
.00	373.150	24.5537	24.5494	.02	229.5000	229.6207	-.05
.00	373.150	25.6697	25.6761	-.02	263.4000	263.1946	.08
.00	373.150	26.7858	26.8016	-.06	302.1000	301.5219	.19
.00	373.150	27.9019	27.9241	-.08	346.1000	345.1723	.27
.00	373.150	29.0180	29.0444	-.09	396.0000	394.7502	.32
.00	373.150	30.1340	30.1623	-.09	452.4000	450.8879	.34
.00	473.150	21.2054	21.1880	.08	202.7000	203.1089	-.20
.00	473.150	22.3215	22.2641	.26	229.5000	231.0203	-.66
.00	473.150	23.4376	23.4044	.14	261.6000	262.5964	-.38
.00	473.150	24.5537	24.5955	-.17	299.7000	298.2750	.48
.00	473.150	25.6697	25.6664	.01	338.4000	338.5276	-.04
.00	473.150	26.7858	26.7961	-.04	384.3000	383.8572	.12
.00	473.150	27.9019	27.9227	-.07	435.8000	434.7942	.23
.00	473.150	29.0180	29.0495	-.11	493.6000	491.8898	.35
.00	473.150	30.1340	30.1752	-.14	558.2000	555.7082	.45
.00	573.150	21.2054	21.0744	.62	247.8000	251.4335	-1.45
.00	573.150	22.3215	22.2201	.46	281.3000	284.4579	-1.11
.00	573.150	23.4376	23.3583	.34	318.7000	321.4679	-.86
.00	573.150	24.5537	24.4950	.24	360.6000	362.8953	-.63
.00	573.150	25.6697	25.6309	.15	407.5000	409.1988	-.42
.00	573.150	26.7858	26.7661	.07	459.9000	460.8620	-.21
.00	573.150	27.9019	27.9003	.01	518.3000	518.3872	-.02
.00	573.150	29.0180	29.0331	-.05	583.2000	582.2890	.16
.00	573.150	30.1340	30.1657	-.10	655.2000	653.0853	.32

36 data points, $|\Delta\rho/\rho|$, rms %=0.173, $\Delta\rho/\rho$, av. %=0.064, $|\Delta P/P|$, av. %=0.342.

Results for Tables 6a - 6g combined:

775 data points, $|\Delta\rho/\rho|$, rms %=0.464, $\Delta\rho/\rho$, av. %=0.113, $|\Delta P/P|$, av. %=0.401.

TABLE 7. The critical isotherm for carbon monoxide

ρ/ρ_c	P MPa	Z	$\partial P/\partial\rho$ MPa-L/mol	$\partial\rho/\partial T$ mol $L^{-1}K^{-1}$	$\partial P/\partial T$ MPa/K	$\partial^2 P/\partial T^2$ MPa K^{-2}
.50	3.2182	.53706	.19492	-.3831E+00	.07468	-.0008300
.52	3.2582	.52282	.17411	-.4510E+00	.07853	-.0009204
.54	3.2939	.50897	.15466	-.5328E+00	.08240	-.0010200
.56	3.3255	.49549	.13656	-.6319E+00	.08630	-.0011303
.58	3.3533	.48240	.11980	-.7530E+00	.09021	-.0012531
.60	3.3776	.46970	.10434	-.9022E+00	.09413	-.0013909
.62	3.3986	.45739	.09016	-.1088E+01	.09807	-.0015464
.64	3.4168	.44546	.07723	-.1321E+01	.10200	-.0017235
.66	3.4322	.43392	.06552	-.1617E+01	.10593	-.0019270
.68	3.4453	.42276	.05498	-.1998E+01	.10986	-.0021633
.70	3.4562	.41198	.04557	-.2497E+01	.11378	-.0024408
.72	3.4652	.40157	.03724	-.3160E+01	.11769	-.0027708
.74	3.4724	.39154	.02994	-.4060E+01	.12158	-.0031688
.76	3.4782	.38187	.02362	-.5310E+01	.12544	-.0036568
.78	3.4827	.37256	.01822	-.7095E+01	.12929	-.0042664
.80	3.4862	.36361	.01369	-.9725E+01	.13310	-.0050443
.82	3.4887	.35500	.00995	-.1376E+02	.13687	-.0060629
.84	3.4906	.34673	.00695	-.2024E+02	.14060	-.0074385
.86	3.4918	.33878	.00461	-.3132E+02	.14428	-.0093683
.88	3.4926	.33116	.00286	-.5176E+02	.14790	-.0122113
.90	3.4931	.32385	.00162	-.9363E+02	.15144	-.0166807
.92	3.4933	.31683	.00080	-.1931E+03	.15489	-.0243796
.94	3.4935	.31010	.00032	-.4907E+03	.15823	-.0396594
.96	3.4935	.30364	.00009	-.1820E+04	.16142	-.0781779
.98	3.4935	.29745	.00001	-.1722E+05	.16438	-.2460439
1.00	3.4935	.29150	0.00000	$-\infty$	.16685	-.0000000
1.02	3.4935	.28578	.00002	-.8718E+04	.16940	.2538247
1.04	3.4935	.28029	.00015	-.1155E+04	.17263	.0830016
1.06	3.4936	.27500	.00050	-.3507E+03	.17628	.0432148
1.08	3.4938	.26992	.00120	-.1502E+03	.18030	.0272252
1.10	3.4941	.26505	.00238	-.7769E+02	.18465	.0190361
1.12	3.4948	.26036	.00417	-.4539E+02	.18931	.0142263
1.14	3.4960	.25588	.00673	-.2885E+02	.19428	.0111288
1.16	3.4978	.25160	.01023	-.1951E+02	.19955	.0090015
1.18	3.5005	.24753	.01483	-.1384E+02	.20511	.0074687
1.20	3.5044	.24367	.02070	-.1019E+02	.21097	.0063221
1.22	3.5096	.24003	.02804	-.7742E+01	.21712	.0054381
1.24	3.5166	.23664	.03705	-.6035E+01	.22356	.0047394
1.26	3.5258	.23349	.04791	-.4807E+01	.23030	.0041754
1.28	3.5376	.23061	.06085	-.3900E+01	.23733	.0037117
1.30	3.5524	.22801	.07607	-.3216E+01	.24466	.0033244
1.32	3.5708	.22572	.09380	-.2690E+01	.25228	.0029962
1.34	3.5933	.22375	.11425	-.2278E+01	.26021	.0027145
1.36	3.6206	.22213	.13766	-.1950E+01	.26843	.0024699
1.38	3.6533	.22089	.16426	-.1686E+01	.27696	.0022550
1.40	3.6921	.22005	.19428	-.1471E+01	.28580	.0020644
1.42	3.7379	.21964	.22797	-.1294E+01	.29493	.0018937
1.44	3.7913	.21969	.26557	-.1146E+01	.30438	.0017395
1.46	3.8534	.22022	.30732	-.1022E+01	.31414	.0015989
1.48	3.9250	.22129	.35347	-.9172E+00	.32421	.0014697
1.50	4.0072	.22290	.40428	-.8276E+00	.33460	.0013502

TABLE 8. Ideal gas state functions for carbon monoxide

T/K	$H°(T)-H°_0$, J/mol		%	$S°(T)$, J mol^{-1}K^{-1}		%	$C°_p(T)$, J mol^{-1}K^{-1}		%
	Reported	Calc.	dev.	Reported	Calc.	dev.	Reported	Calc.	dev.
60.0	1738.4	1738.8	-.02	150.883	150.895	-.01	29.10	29.10	-.00
80.0	2320.5	2320.8	-.01	159.256	159.265	-.01	29.10	29.10	-.00
100.0	2902.6	2902.8	-.01	165.750	165.757	-.00	29.10	29.10	-.00
120.0	3484.7	3484.8	-.00	171.054	171.062	-.00	29.11	29.10	.03
140.0	4066.8	4066.8	-.00	175.544	175.548	-.00	29.11	29.10	.02
160.0	4648.9	4648.9	.00	179.427	179.434	-.00	29.11	29.10	.02
180.0	5231.0	5231.0	.00	182.861	182.862	-.00	29.11	29.11	.01
200.0	5813.3	5813.1	.00	185.929	185.929	.00	29.11	29.11	-.00
220.0	6395.4	6395.3	.00	188.698	188.703	-.00	29.11	29.11	-.01
250.0	7268.9	7268.8	.00	192.422	192.425	-.00	29.12	29.12	-.00
300.0	8725.2	8725.2	-.00	197.735	197.735	0.00	29.14	29.14	-.00
350.0	10183.8	10183.8	-.00	202.225	202.232	-.00	29.21	29.21	-.00
400.0	11647.3	11647.2	.00	206.133	206.140	-.00	29.34	29.34	.02
450.0	13119.1	13118.7	.00	209.600	209.606	-.00	29.53	29.53	-.00
500.0	14601.9	14601.6	.00	212.726	212.731	-.00	29.79	29.79	-.00
550.0	16099.1	16098.7	.00	215.578	215.584	-.00	30.10	30.10	-.00
600.0	17612.6	17612.1	.00	218.214	218.218	-.00	30.44	30.44	-.01
650.0	19143.9	19143.2	.00	220.667	220.669	-.00	30.81	30.80	.01
700.0	20693.3	20692.6	.00	222.962	222.965	-.00	31.17	31.17	-.01
750.0	22261.1	22260.5	.00	225.123	225.128	-.00	31.55	31.54	.01
800.0	23847.5	23846.6	.00	227.177	227.175	.00	31.90	31.90	.00
900.0	27072.6	27071.2	.01	230.968	230.972	-.00	32.58	32.58	-.01
1000.0	30361.3	30359.9	.00	234.436	234.437	-.00	33.18	33.18	-.00
1200.0	37099.9	37100.2	-.00	240.572	240.579	-.00	34.17	34.17	.00
1400.0	44013.4	44012.1	.00	245.901	245.905	-.00	34.91	34.91	-.00

TABLE 9. The Joule-Thomson inversion locus for carbon monoxide

T,K	ρ, mol/L	P, MPa	T,K	ρ, mol/L	P, MPa
100	25.159	.545	360	10.241	37.061
110	23.598	2.941	370	9.863	36.545
120	22.922	8.762	380	9.496	35.996
130	22.254	13.766	390	9.138	35.403
140	21.598	18.077	400	8.785	34.757
150	20.958	21.799	410	8.435	34.053
160	20.334	25.019	420	8.088	33.285
170	19.728	27.806	430	7.740	32.446
180	19.139	30.215	440	7.391	31.529
190	18.565	32.290	450	7.037	30.527
200	18.005	34.064	460	6.679	29.432
210	17.459	35.567	470	6.312	28.234
220	16.923	36.819	480	5.935	26.922
230	16.396	37.840	490	5.545	25.483
240	15.876	38.644	500	5.140	23.906
250	15.363	39.245	510	4.718	22.184
260	14.856	39.657	520	4.278	20.322
270	14.353	39.893	530	3.827	18.348
280	13.855	39.967	540	3.376	16.324
290	13.363	39.895	550	2.942	14.350
300	12.877	39.694	560	2.544	12.523
310	12.400	39.386	570	2.193	10.906
320	11.934	38.993	580	1.892	9.509
330	11.482	38.540	590	1.635	8.313
340	11.048	38.053	600	1.416	7.287
350	10.634	37.558	610	1.228	6.399

TABLE 10. Comparison of reported (C_p - C_v) of Deming and Shupe with calculated values along the 50 atm isobar

			Calc.		(C_p - C_v)		
	ρ, mol/L		$\frac{\partial P}{\partial T}$	$\frac{\partial P}{\partial \rho}$	J mol^{-1}K^{-1}		%
T,K	Reported	Calc.	bar/K	bar·L mol^{-1}	Reported	Calc.	diff.
203.15	3.355	3.334	.33969	13.803	14.48	15.28	-5.20
223.15	2.942	2.920	.28742	16.419	13.27	13.17	.77
248.15	2.566	2.550	.24380	19.364	11.93	11.72	1.82
273.15	2.285	2.274	.21318	22.085	11.22	10.87	3.25
298.15	2.065	2.059	.19018	24.663	10.63	10.32	3.07
323.15	1.888	1.884	.17211	27.141	10.26	9.94	3.22
373.15	1.615	1.616	.14526	31.902	9.75	9.45	3.16
423.15	1.414	1.417	.12605	36.497	9.21	9.17	.45
473.15	1.260	1.264	.11152	40.988	9.17	8.98	2.06
573.15	1.037	1.042	.09086	49.784	8.92	8.76	1.78
673.15	.885	.887	.07678	58.432	8.75	8.64	1.31

TABLE 11. Comparisons of values of properties reported by Leah with calculated values along the 50 atm isobar

T/K	ρ, mol/L			H, J/mol			S, J mol^{-1}K^{-1}		
	Reported	Calc.	Diff.	Reported	Calc.	Diff.	Reported	Calc.	Diff.
143.15	9.0090	10.1288	-1.1198	6400.4	5995.4	405.0	130.997	128.388	2.609
153.15	6.2893	6.3135	-.0241	7327.7	7270.4	57.3	137.256	137.041	.214
163.15	5.1151	5.0957	.0194	8000.1	7954.9	45.3	141.505	141.380	.126
173.15	4.4170	4.4151	.0018	8533.1	8480.3	52.9	144.679	144.508	.171
183.15	3.9683	3.9528	.0154	9011.3	8933.3	77.9	147.333	147.053	.281
193.15	3.6284	3.6073	.0212	9445.4	9345.2	100.2	149.657	149.243	.414
203.15	3.3568	3.3339	.0230	9846.1	9730.9	115.2	151.688	151.190	.498
213.15	3.1328	3.1093	.0235	10223.8	10098.4	125.4	153.501	152.956	.545
223.15	2.9429	2.9199	.0230	10583.0	10452.8	130.2	155.150	154.581	.569
248.15	2.5661	2.5496	.0165	11433.7	11300.7	133.1	158.763	158.184	.580
273.15	2.2852	2.2743	.0109	12243.5	12114.0	129.5	161.870	161.307	.563
298.15	2.0653	2.0588	.0065	13031.8	12906.6	125.2	164.629	164.084	.545
323.15	1.8875	1.8840	.0035	13806.0	13685.9	120.1	167.120	166.594	.526
373.15	1.6145	1.6156	-.0012	15335.4	15221.0	114.4	171.512	171.012	.500
423.15	1.4142	1.4175	-.0032	16857.3	16740.9	116.4	175.335	174.835	.500
473.15	1.2601	1.2642	-.0042	18379.2	18257.5	121.8	178.730	178.222	.508
573.15	1.0370	1.0415	-.0045	21435.2	21308.2	127.0	184.571	184.070	.501
673.15	.8826	.8867	-.0041	24558.9	24408.4	150.6	189.587	189.055	.532

TABLE 12. Comparisons of values of properties reported by Hust and Stewart with calculated values along the 50 atm isobar

T/K	ρ, mol/L			H, J mol			S, J mol^{-1}K^{-1}		
	Reported	Calc.	Diff.	Reported	Calc.	Diff.	Reported	Calc.	Diff.
70	30.1107	30.3120	-.2013	189.0	225.6	-36.6	73.896	75.319	-1.423
80	28.7590	28.9191	-.1601	799.6	823.2	-23.6	82.055	83.308	-1.252
90	27.3063	27.4464	-.1401	1404.4	1431.4	-27.1	89.178	90.471	-1.293
100	25.7333	25.8496	-.1163	2007.1	2042.8	-35.6	95.531	96.899	-1.368
110	23.9764	24.0552	-.0788	2620.8	2651.6	-30.7	101.379	102.708	-1.328
120	21.8904	21.9171	-.0267	3275.7	3270.5	5.2	107.077	108.105	-1.028
130	19.0628	19.0298	.0330	4045.4	3966.8	78.6	113.244	113.644	-.400
140	13.1846	13.0576	.1270	5354.6	5313.1	41.5	122.899	123.567	-.668
150	7.1121	6.9810	.1311	6939.1	6980.5	-41.3	133.888	135.128	-1.240
160	5.5116	5.3920	.1196	7682.5	7763.9	-81.4	138.697	140.198	-1.501
170	4.6908	4.5982	.0927	8231.5	8324.9	-93.3	142.028	143.602	-1.575
180	4.1539	4.0828	.0711	8700.7	8796.0	-95.4	144.711	146.297	-1.586
190	3.7619	3.7068	.0551	9125.9	9218.8	-93.0	147.010	148.583	-1.573
200	3.4571	3.4139	.0432	9523.3	9611.6	-88.3	149.050	150.598	-1.549
220	3.0037	2.9764	.0274	10265.6	10342.4	-76.8	152.590	154.083	-1.493
240	2.6753	2.6574	.0180	10964.2	11029.0	-64.8	155.629	157.071	-1.442
260	2.4222	2.4100	.0122	11635.0	11689.4	-54.4	158.315	159.714	-1.399
280	2.2189	2.2103	.0086	12287.6	12332.9	-45.2	160.733	162.099	-1.366
300	2.0509	2.0446	.0063	12927.1	12964.7	-37.5	162.937	164.278	-1.341

TABLE 13. Comparisons of values of properties reported by Michels et al. with calculated values

T/K	ρ, mol/L			H, J/mol			S, J mol^{-1}K^{-1}		
	Reported	Calc.	Diff.	Reported	Calc.	Diff.	Reported	Calc.	Diff.
				50 atm isobar					
273.15	2.2836	2.2743	.0092	12088.9	12114.0	-25.1	161.193	161.307	-.114
298.15	2.0643	2.0588	.0055	12880.4	12906.6	-26.2	163.985	164.084	-.100
323.15	1.8870	1.8840	.0030	13663.9	13685.9	-22.0	166.509	166.594	-.086
348.15	1.7399	1.7388	.0011	14439.5	14456.4	-16.9	168.819	168.891	-.072
373.15	1.6156	1.6156	-.0001	15210.1	15221.0	-11.0	170.958	171.012	-.054
398.15	1.5089	1.5097	-.0008	15976.4	15982.0	-5.6	172.946	172.986	-.040
423.15	1.4163	1.4175	-.0012	16739.9	16740.9	-1.1	174.808	174.835	-.026
				600 atm isobar					
273.15	17.6020	17.5766	.0254	11057.6	11117.0	-59.3	135.134	135.292	-.158
298.15	16.4426	16.4177	.0249	12038.7	12103.7	-65.0	138.566	138.750	-.184
323.15	15.4185	15.3949	.0236	12996.8	13060.3	-63.6	141.647	141.831	-.185
348.15	14.5114	14.4912	.0202	13934.7	13991.0	-56.3	144.443	144.606	-.163
373.15	13.7075	13.6899	.0175	14853.4	14899.8	-46.4	146.996	147.127	-.131
398.15	12.9925	12.9764	.0161	15753.3	15790.4	-37.1	149.331	149.437	-.106
423.15	12.3495	12.3376	.0119	16640.2	16666.1	-25.9	151.499	151.570	-.071

TABLE 14. Properties of saturated liquid carbon monoxide

T,K	P, MPa	ρ_l mol/L	ρ_g mol/L	Z_l	Z_g	dP_σ/dT MPa/K	$d\rho_l/dT$ mol/L^{-1}K^{-1}	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol
68.127	.01540	30.250	.02745	.00090	.99045	.002627	-.1423	2.1686	15.22241
70.000	.02100	29.982	.03652	.00120	.98776	.003370	-.1435	2.0959	14.57743
72.000	.02866	29.693	.04863	.00161	.98432	.004319	-.1450	2.0203	13.90176
74.000	.03839	29.402	.06365	.00212	.98026	.005441	-.1466	1.9467	13.23938
76.000	.05055	29.107	.08200	.00275	.97553	.006750	-.1484	1.8750	12.59012
78.000	.06552	28.808	.10415	.00351	.97007	.008259	-.1503	1.8051	11.95388
80.000	.08372	28.505	.13059	.00442	.96386	.009978	-.1524	1.7369	11.33059
81.638	.10133	28.254	.15579	.00528	.95819	.011548	-.1543	1.6822	10.82988
84.000	.13153	27.887	.19844	.00675	.94905	.014081	-.1572	1.6052	10.12274
86.000	.16206	27.570	.24100	.00822	.94041	.016481	-.1599	1.5416	9.53818
88.000	.19762	27.247	.29013	.00991	.93091	.019121	-.1628	1.4793	8.96659
90.000	.23870	26.918	.34652	.01185	.92055	.022007	-.1661	1.4183	8.40804
92.000	.28581	26.582	.41090	.01406	.90933	.025143	-.1696	1.3586	7.86261
94.000	.33944	26.239	.48406	.01655	.89723	.028533	-.1734	1.3000	7.33039
96.000	.40011	25.888	.56689	.01936	.88425	.032181	-.1777	1.2424	6.81151
98.000	.46834	25.528	.66036	.02252	.87040	.036092	-.1823	1.1859	6.30608
100.000	.54466	25.159	.76557	.02604	.85567	.040268	-.1875	1.1303	5.81426
102.000	.62960	24.778	.88373	.02996	.84005	.044715	-.1932	1.0756	5.33619
104.000	.72370	24.385	1.01626	.03432	.82354	.049437	-.1996	1.0217	4.87205
106.000	.82753	23.979	1.16476	.03916	.80613	.054439	-.2067	.9685	4.42201
108.000	.94165	23.558	1.33111	.04451	.78780	.059729	-.2148	.9160	3.98628
110.000	1.06664	23.119	1.51753	.05044	.76851	.065313	-.2240	.8640	3.56509
112.000	1.20310	22.661	1.72672	.05701	.74822	.071201	-.2347	.8125	3.15872
114.000	1.35166	22.180	1.96195	.06429	.72684	.077405	-.2471	.7613	2.76747
116.000	1.51294	21.671	2.22738	.07239	.70426	.083938	-.2619	.7103	2.39173
118.000	1.68764	21.130	2.52840	.08141	.68033	.090820	-.2798	.6594	2.03197
120.000	1.87647	20.549	2.87229	.09153	.65478	.098073	-.3022	.6084	1.68878
122.000	2.08020	19.917	3.26938	.10296	.62726	.105730	-.3310	.5568	1.36297
124.000	2.29969	19.218	3.73529	.11607	.59716	.113839	-.3700	.5044	1.05562
126.000	2.53591	18.425	4.29578	.13137	.56349	.122473	-.4266	.4503	.76830
128.000	2.79002	17.488	4.99918	.14990	.52440	.131760	-.5192	.3932	.50346
130.000	3.06356	16.288	5.95849	.17401	.47568	.141986	-.7086	.3301	.26547
131.000	3.20835	15.487	6.63063	.19020	.44424	.147682	-.9183	.2938	.15916
132.000	3.35920	14.346	7.62303	.21335	.40151	.154218	-1.4811	.2498	.06451
132.500	3.43729	13.396	8.47378	.23292	.36820	.158361	-2.5871	.2194	.02361
132.850	3.49350	10.850	10.85000	.29150	.29150	.166847	$-\infty$	.1668	0.00000

TABLE 14. Properties of saturated liquid carbon monoxide — Continued

T,K	Q_{vap} J/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_v	C_σ J mol^{-1}K^{-1}	C_p	f/P	W m/s
68.127	6514.2	.0	.5	74.483	36.29	59.26	59.29	.99099	942
70.000	6451.5	112.0	112.7	76.096	36.29	59.72	59.76	.98944	925
72.000	6382.8	232.0	233.0	77.785	36.24	60.17	60.22	.98652	908
74.000	6312.0	352.6	353.9	79.439	36.14	60.57	60.64	.98260	890
76.000	6238.8	473.8	475.6	81.059	35.98	60.94	61.03	.97787	873
78.000	6163.1	595.7	598.0	82.646	35.78	61.28	61.39	.97251	855
80.000	6084.5	718.2	721.1	84.201	35.51	61.57	61.72	.96659	838
81.638	6017.8	819.0	822.5	85.450	35.26	61.79	61.98	.96138	824
84.000	5917.9	965.0	969.7	87.216	34.82	62.08	62.32	.95332	804
86.000	5829.6	1089.3	1095.2	88.679	34.40	62.29	62.59	.94602	787
88.000	5737.7	1214.0	1221.3	90.112	33.92	62.48	62.85	.93826	770
90.000	5642.0	1339.2	1348.0	91.517	33.39	62.65	63.11	.93005	753
92.000	5542.4	1464.6	1475.4	92.895	32.81	62.81	63.37	.92135	736
94.000	5438.6	1590.4	1603.4	94.246	32.17	62.96	63.65	.91218	719
96.000	5330.4	1716.4	1731.9	95.571	31.49	63.11	63.95	.90249	702
98.000	5217.6	1842.7	1861.0	96.872	30.75	63.27	64.29	.89233	686
100.000	5099.9	1969.1	1990.7	98.150	29.97	63.45	64.69	.88166	669
102.000	4976.9	2095.6	2121.1	99.406	29.14	63.66	65.16	.87054	652
104.000	4848.3	2222.5	2252.2	100.642	28.27	63.93	65.74	.85898	635
106.000	4713.7	2349.7	2384.2	101.860	27.36	64.26	66.46	.84704	619
108.000	4572.3	2477.3	2517.3	103.062	26.41	64.69	67.36	.83476	602
110.000	4423.5	2605.6	2651.7	104.250	25.43	65.26	68.52	.82221	585
112.000	4266.4	2734.9	2788.0	105.427	24.42	66.00	70.00	.80946	568
114.000	4099.8	2865.6	2926.5	106.598	23.39	66.99	71.92	.79659	551
116.000	3922.1	2998.2	3068.1	107.768	22.36	68.32	74.47	.78367	533
118.000	3731.4	3133.6	3213.5	108.943	21.35	70.12	77.91	.77079	514
120.000	3524.6	3272.7	3364.0	110.133	20.36	72.61	82.65	.75801	494
122.000	3297.8	3417.1	3521.6	111.350	19.46	76.14	89.43	.74538	472
124.000	3044.6	3569.2	3688.9	112.614	18.70	81.35	99.61	.73292	448
126.000	2754.7	3732.7	3870.3	113.958	18.22	89.52	116.16	.72057	418
128.000	2409.2	3914.7	4074.2	115.443	18.32	103.75	146.81	.70815	379
130.000	1964.5	4131.5	4319.6	117.215	19.85	134.46	220.98	.69517	324
131.000	1668.5	4267.0	4474.2	118.333	22.11	169.50	318.42	.68806	286
132.000	1251.5	4448.6	4682.7	119.855	27.97	265.23	648.15	.67990	231
132.500	909.8	4591.1	4847.7	121.077	36.58	455.79	1542.65	.67492	188
132.850	0.0	4949.9	5271.9	124.220	∞	∞	∞	.67379	0

TABLE 15. Properties of carbon monoxide along isobars

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					0.020000 MPa						
68.128	30.24981	.00117	2.168664	15.2234	.0	.7	74.483	36.29	59.29	.76347	942
69.698	30.02526	.00115	2.107484	14.6805	94.0	94.6	75.846	36.29	59.68	.98894	928
69.698	.03492	.98822	.000294	.5653	5983.7	6556.4	168.556	21.11	29.87	.98894	168
70.000	.03477	.98839	.000293	.5680	5990.1	6565.4	168.685	21.10	29.85	.98908	169
80.000	.03030	.99233	.000254	.6547	6201.8	6861.8	172.643	20.93	29.49	.99259	181
90.000	.02687	.99455	.000224	.7400	6411.7	7155.9	176.107	20.86	29.34	.99463	192
100.000	.02415	.99594	.000201	.8247	6620.8	7448.9	179.194	20.83	29.26	.99591	203
110.000	.02194	.99687	.000183	.9089	6829.5	7741.3	181.980	20.81	29.22	.99681	213
120.000	.02010	.99753	.000167	.9928	7038.0	8033.3	184.520	20.80	29.19	.99745	223
130.000	.01854	.99801	.000154	1.0766	7246.3	8325.1	186.856	20.80	29.17	.99793	232
140.000	.01721	.99837	.000143	1.1603	7454.6	8616.7	189.017	20.80	29.16	.99830	240
150.000	.01606	.99865	.000134	1.2438	7662.7	8908.2	191.028	20.79	29.15	.99858	249
160.000	.01505	.99887	.000125	1.3273	7870.8	9199.7	192.909	20.79	29.14	.99881	257
170.000	.01416	.99905	.000118	1.4108	8078.9	9491.1	194.675	20.79	29.14	.99899	265
180.000	.01337	.99919	.000111	1.4942	8287.0	9782.4	196.340	20.79	29.13	.99914	273
190.000	.01267	.99931	.000105	1.5776	8495.1	10073.8	197.915	20.80	29.13	.99926	280
200.000	.01203	.99941	.000100	1.6610	8703.2	10365.1	199.410	20.80	29.13	.99936	288
210.000	.01146	.99949	.000095	1.7443	8911.2	10656.4	200.831	20.80	29.13	.99945	295
220.000	.01094	.99956	.000091	1.8276	9119.3	10947.7	202.186	20.80	29.13	.99952	302
230.000	.01046	.99962	.000087	1.9109	9327.4	11239.0	203.481	20.80	29.13	.99958	309
240.000	.01003	.99967	.000083	1.9942	9535.5	11530.3	204.721	20.80	29.13	.99964	315
250.000	.00962	.99971	.000080	2.0775	9743.6	11821.6	205.910	20.80	29.13	.99968	322
260.000	.00925	.99975	.000077	2.1607	9951.7	12112.9	207.052	20.81	29.13	.99972	328
270.000	.00891	.99978	.000074	2.2440	10159.8	12404.3	208.152	20.81	29.14	.99976	334
280.000	.00859	.99981	.000071	2.3272	10368.0	12695.6	209.211	20.82	29.14	.99979	341
290.000	.00830	.99984	.000069	2.4105	10576.3	12987.1	210.234	20.82	29.15	.99982	347
300.000	.00802	.99986	.000067	2.4937	10784.6	13278.6	211.222	20.83	29.15	.99984	352
310.000	.00776	.99988	.000065	2.5769	10992.9	13570.1	212.178	20.84	29.16	.99986	358
320.000	.00752	.99990	.000063	2.6601	11201.4	13861.8	213.104	20.85	29.17	.99988	364
330.000	.00729	.99992	.000061	2.7434	11410.0	14153.5	214.002	20.86	29.18	.99990	370
340.000	.00708	.99993	.000059	2.8266	11618.7	14445.5	214.874	20.88	29.20	.99991	375
350.000	.00687	.99994	.000057	2.9098	11827.6	14737.5	215.720	20.89	29.22	.99993	381
360.000	.00668	.99995	.000056	2.9930	12036.7	15029.8	216.543	20.92	29.24	.99994	386
370.000	.00650	.99997	.000054	3.0762	12246.0	15322.2	217.345	20.94	29.26	.99995	391
380.000	.00633	.99997	.000053	3.1594	12455.5	15614.9	218.125	20.96	29.28	.99996	396
390.000	.00617	.99998	.000051	3.2426	12665.3	15907.9	218.886	20.99	29.31	.99997	402
400.000	.00601	.99999	.000050	3.3258	12875.4	16201.2	219.629	21.02	29.34	.99998	407
410.000	.00587	1.00000	.000049	3.4089	13085.8	16494.8	220.354	21.06	29.38	.99999	412
420.000	.00573	1.00000	.000048	3.4921	13296.6	16788.7	221.062	21.09	29.41	.99999	416
430.000	.00559	1.00001	.000047	3.5753	13507.8	17083.0	221.755	21.13	29.45	1.00000	421
440.000	.00547	1.00001	.000045	3.6585	13719.3	17377.7	222.432	21.17	29.49	1.00000	426
450.000	.00535	1.00002	.000044	3.7417	13931.3	17672.9	223.095	21.22	29.54	1.00001	431
470.000	.00512	1.00003	.000043	3.9080	14356.7	18264.6	224.382	21.32	29.63	1.00002	440
500.000	.00481	1.00004	.000040	4.1576	14998.6	19156.0	226.220	21.48	29.80	1.00003	453
550.000	.00437	1.00005	.000036	4.5734	16080.0	20653.2	229.074	21.79	30.10	1.00004	474
600.000	.00401	1.00006	.000033	4.9893	17177.8	22166.8	231.708	22.13	30.44	1.00005	495
650.000	.00370	1.00006	.000031	5.4051	18293.2	23697.9	234.159	22.49	30.81	1.00006	514
700.000	.00344	1.00006	.000029	5.8209	19426.9	25247.4	236.455	22.86	31.17	1.00006	532
750.000	.00321	1.00006	.000027	6.2367	20579.1	26815.4	238.619	23.23	31.54	1.00006	549
800.000	.00301	1.00006	.000025	6.6525	21749.5	28401.6	240.666	23.59	31.90	1.00006	566
850.000	.00283	1.00006	.000024	7.0683	22937.6	30005.4	242.610	23.93	32.25	1.00006	583
900.000	.00267	1.00006	.000022	7.4840	24142.7	31626.2	244.463	24.26	32.58	1.00006	598
950.000	.00253	1.00006	.000021	7.8998	25363.8	33263.1	246.233	24.58	32.89	1.00006	614
1000.000	.00241	1.00006	.000020	8.3156	26600.0	34915.0	247.928	24.87	33.18	1.00006	629

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					0.050000 MPa						
68.135	30.25081	.00292	2.168943	15.2297	.1	1.8	74.484	36.29	59.29	.30627	942
70.000	29.98397	.00287	2.096421	14.5858	111.7	113.3	76.092	36.29	59.75	.41620	925
75.919	29.11889	.00272	1.877857	12.6162	469.0	470.7	81.000	35.99	61.02	.97757	873
75.919	.08118	.97573	.000695	.5993	6096.7	6712.6	163.217	21.47	30.75	.97757	175
80.000	.07674	.97959	.000652	.6371	6185.6	6837.2	164.815	21.27	30.34	.98089	180
90.000	.06778	.98585	.000571	.7267	6399.9	7137.6	168.354	21.03	29.81	.98641	191
100.000	.06077	.98962	.000510	.8140	6611.6	7434.4	171.481	20.92	29.56	.98983	202
110.000	.05510	.99209	.000461	.9000	6821.9	7729.3	174.291	20.87	29.42	.99215	212
120.000	.05043	.99380	.000421	.9854	7031.5	8023.1	176.848	20.84	29.34	.99379	222
130.000	.04649	.99504	.000388	1.0702	7240.7	8316.2	179.194	20.82	29.29	.99500	231
140.000	.04313	.99596	.000360	1.1547	7449.6	8608.9	181.362	20.81	29.25	.99591	240
150.000	.04022	.99667	.000335	1.2389	7658.2	8901.2	183.379	20.81	29.22	.99661	249
160.000	.03769	.99722	.000314	1.3230	7866.7	9193.4	185.264	20.80	29.20	.99717	257
170.000	.03546	.99767	.000295	1.4070	8075.2	9485.3	187.034	20.80	29.19	.99761	265
180.000	.03347	.99802	.000279	1.4908	8283.5	9777.2	188.702	20.80	29.18	.99798	273
190.000	.03170	.99832	.000264	1.5745	8491.8	10068.9	190.280	20.80	29.17	.99828	280
200.000	.03011	.99856	.000251	1.6582	8700.1	10360.6	191.776	20.80	29.16	.99852	288
210.000	.02867	.99876	.000239	1.7418	8908.4	10652.2	193.199	20.80	29.16	.99873	295
220.000	.02736	.99894	.000228	1.8254	9116.6	10943.8	194.555	20.80	29.16	.99891	302
230.000	.02617	.99908	.000218	1.9089	9324.8	11235.4	195.851	20.80	29.15	.99906	309
240.000	.02508	.99921	.000209	1.9924	9533.0	11526.9	197.092	20.80	29.15	.99919	315
250.000	.02407	.99932	.000200	2.0759	9741.2	11818.4	198.282	20.81	29.15	.99930	322
260.000	.02314	.99941	.000193	2.1593	9949.4	12109.9	199.425	20.81	29.15	.99940	328
270.000	.02228	.99949	.000185	2.2427	10157.7	12401.5	200.525	20.81	29.15	.99948	334
280.000	.02149	.99956	.000179	2.3261	10366.0	12693.0	201.585	20.82	29.16	.99956	341
290.000	.02074	.99963	.000173	2.4095	10574.3	12984.6	202.609	20.82	29.16	.99962	347
300.000	.02005	.99968	.000167	2.4928	10782.6	13276.2	203.597	20.83	29.17	.99968	353
310.000	.01940	.99973	.000161	2.5762	10991.1	13567.9	204.554	20.84	29.17	.99973	358
320.000	.01880	.99977	.000156	2.6595	11199.6	13859.7	205.480	20.85	29.18	.99978	364
330.000	.01823	.99981	.000152	2.7428	11408.3	14151.5	206.378	20.86	29.19	.99982	370
340.000	.01769	.99985	.000147	2.8261	11617.0	14443.5	207.250	20.88	29.21	.99986	375
350.000	.01718	.99988	.000143	2.9094	11826.0	14735.7	208.097	20.90	29.22	.99989	381
360.000	.01671	.99991	.000139	2.9927	12035.1	15028.1	208.920	20.92	29.24	.99992	386
370.000	.01625	.99993	.000135	3.0760	12244.5	15320.6	209.722	20.94	29.27	.99994	391
380.000	.01583	.99995	.000132	3.1593	12454.0	15613.4	210.503	20.96	29.29	.99997	396
390.000	.01542	.99997	.000128	3.2425	12663.9	15906.4	211.264	20.99	29.32	.99999	402
400.000	.01503	.99999	.000125	3.3258	12874.0	16199.8	212.007	21.02	29.35	1.00001	407
410.000	.01467	1.00001	.000122	3.4091	13084.5	16493.4	212.732	21.06	29.38	1.00003	412
420.000	.01432	1.00002	.000119	3.4923	13295.3	16787.4	213.440	21.09	29.42	1.00004	416
430.000	.01398	1.00004	.000116	3.5755	13506.5	17081.8	214.133	21.13	29.46	1.00006	421
440.000	.01367	1.00005	.000114	3.6588	13718.0	17376.6	214.810	21.17	29.50	1.00007	426
450.000	.01336	1.00006	.000111	3.7420	13930.1	17671.8	215.474	21.22	29.54	1.00008	431
470.000	.01279	1.00008	.000106	3.9085	14355.5	18263.6	216.761	21.32	29.64	1.00010	440
500.000	.01203	1.00010	.000100	4.1581	14997.5	19155.1	218.599	21.48	29.80	1.00013	453
550.000	.01093	1.00013	.000091	4.5742	16079.0	20652.6	221.453	21.79	30.11	1.00016	475
600.000	.01002	1.00015	.000083	4.9902	17176.9	22166.3	224.087	22.13	30.45	1.00017	495
650.000	.00925	1.00016	.000077	5.4061	18292.3	23697.6	226.539	22.49	30.81	1.00019	514
700.000	.00859	1.00016	.000071	5.8221	19426.1	25247.2	228.835	22.86	31.18	1.00019	532
750.000	.00802	1.00016	.000067	6.2380	20578.3	26815.3	230.999	23.23	31.54	1.00020	549
800.000	.00752	1.00017	.000063	6.6538	21748.8	28401.5	233.046	23.59	31.90	1.00020	566
850.000	.00707	1.00017	.000059	7.0697	22937.0	30005.5	234.991	23.93	32.25	1.00020	583
900.000	.00668	1.00016	.000056	7.4855	24142.1	31626.3	236.844	24.26	32.58	1.00020	599
950.000	.00633	1.00016	.000053	7.9014	25363.2	33263.2	238.614	24.58	32.89	1.00020	614
1000.000	.00601	1.00016	.000050	8.3172	26599.5	34915.3	240.308	24.87	33.19	1.00020	629

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					0.101325 MPa						
68.146	30.25254	.00591	2.169421	15.2404	-.2	3.6	74.486	36.29	59.28	.15189	942
70.000	29.98749	.00581	2.097344	14.6006	111.1	114.5	76.083	36.29	59.74	.20598	926
80.000	28.50703	.00534	1.737181	11.3358	717.9	721.5	84.197	35.51	61.72	.79940	838
81.638	28.25440	.00528	1.682220	10.8299	819.0	822.5	85.444	35.26	61.98	.96211	824
81.638	.15579	.95819	.001363	.6196	6190.0	6840.4	159.158	21.98	32.07	.96211	179
90.000	.13962	.96984	.001198	.7019	6377.1	7102.8	162.218	21.42	30.86	.97187	190
100.000	.12457	.97829	.001057	.7948	6594.3	7407.7	165.431	21.13	30.19	.97924	201
110.000	.11263	.98367	.000950	.8845	6808.0	7707.7	168.290	21.00	29.84	.98412	211
120.000	.10286	.98732	.000864	.9724	7019.9	8005.0	170.877	20.92	29.64	.98753	221
130.000	.09470	.98992	.000794	1.0591	7230.7	8300.7	173.243	20.88	29.51	.99000	231
140.000	.08776	.99185	.000735	1.1452	7440.8	8595.3	175.426	20.85	29.42	.99186	240
150.000	.08179	.99331	.000684	1.2306	7650.4	8889.2	177.454	20.84	29.36	.99329	248
160.000	.07659	.99445	.000640	1.3157	7859.6	9182.6	179.347	20.82	29.32	.99442	257
170.000	.07202	.99535	.000601	1.4005	8068.7	9475.5	181.123	20.82	29.28	.99531	265
180.000	.06797	.99608	.000567	1.4851	8277.5	9768.3	182.796	20.81	29.26	.99604	273
190.000	.06435	.99667	.000537	1.5694	8486.2	10060.7	184.378	20.81	29.24	.99664	280
200.000	.06111	.99716	.000510	1.6537	8694.9	10353.1	185.877	20.81	29.22	.99714	287
210.000	.05817	.99757	.000485	1.7378	8903.4	10645.2	187.303	20.81	29.21	.99755	295
220.000	.05551	.99792	.000463	1.8218	9112.0	10937.3	188.661	20.81	29.20	.99791	302
230.000	.05308	.99821	.000443	1.9057	9320.4	11229.3	189.959	20.81	29.20	.99820	308
240.000	.05086	.99846	.000424	1.9895	9528.8	11521.2	191.202	20.81	29.19	.99846	315
250.000	.04881	.99867	.000407	2.0733	9737.3	11813.1	192.393	20.81	29.19	.99868	322
260.000	.04692	.99886	.000391	2.1570	9945.7	12105.0	193.538	20.81	29.18	.99888	328
270.000	.04518	.99902	.000376	2.2407	10154.1	12396.8	194.639	20.81	29.18	.99904	334
280.000	.04356	.99916	.000363	2.3243	10362.5	12688.6	195.700	20.82	29.18	.99919	341
290.000	.04205	.99929	.000350	2.4079	10570.9	12980.4	196.724	20.82	29.18	.99932	347
300.000	.04065	.99940	.000339	2.4915	10779.4	13272.3	197.714	20.83	29.19	.99943	353
310.000	.03933	.99950	.000328	2.5750	10988.0	13564.2	198.671	20.84	29.19	.99953	358
320.000	.03810	.99958	.000317	2.6586	11196.6	13856.1	199.598	20.85	29.20	.99962	364
330.000	.03694	.99966	.000308	2.7420	11405.4	14148.2	200.496	20.86	29.21	.99970	370
340.000	.03585	.99972	.000299	2.8255	11614.2	14440.4	201.369	20.88	29.23	.99977	375
350.000	.03483	.99979	.000290	2.9090	11823.3	14732.7	202.216	20.90	29.24	.99984	381
360.000	.03386	.99984	.000282	2.9924	12032.5	15025.2	203.040	20.92	29.26	.99989	386
370.000	.03294	.99989	.000274	3.0758	12241.9	15317.9	203.842	20.94	29.28	.99995	391
380.000	.03207	.99993	.000267	3.1592	12451.5	15610.8	204.623	20.96	29.30	.99999	397
390.000	.03125	.99997	.000260	3.2426	12661.4	15904.0	205.385	20.99	29.33	1.00003	402
400.000	.03047	1.00001	.000254	3.3260	12871.6	16197.5	206.128	21.02	29.36	1.00007	407
410.000	.02972	1.00004	.000247	3.4093	13082.1	16491.2	206.853	21.06	29.39	1.00011	412
420.000	.02901	1.00007	.000242	3.4927	13293.0	16785.3	207.562	21.09	29.43	1.00014	417
430.000	.02834	1.00010	.000236	3.5760	13504.2	17079.8	208.255	21.13	29.47	1.00016	421
440.000	.02769	1.00012	.000231	3.6594	13715.9	17374.7	208.933	21.18	29.51	1.00019	426
450.000	.02708	1.00014	.000225	3.7427	13927.9	17670.0	209.596	21.22	29.55	1.00021	431
470.000	.02592	1.00018	.000216	3.9093	14353.5	18262.0	210.883	21.32	29.65	1.00025	440
500.000	.02437	1.00022	.000203	4.1592	14995.6	19153.7	212.722	21.48	29.81	1.00030	453
550.000	.02215	1.00027	.000184	4.5756	16077.3	20651.5	215.577	21.79	30.11	1.00036	475
600.000	.02030	1.00031	.000169	4.9918	17175.3	22165.5	218.212	22.13	30.45	1.00039	495
650.000	.01874	1.00033	.000156	5.4080	18290.9	23697.0	220.663	22.49	30.81	1.00041	514
700.000	.01740	1.00034	.000145	5.8241	19424.7	25246.9	222.960	22.86	31.18	1.00043	532
750.000	.01624	1.00034	.000135	6.2402	20577.1	26815.1	225.124	23.23	31.55	1.00043	550
800.000	.01523	1.00034	.000127	6.6562	21747.6	28401.5	227.172	23.59	31.91	1.00044	566
850.000	.01433	1.00034	.000119	7.0722	22935.9	30005.6	229.116	23.93	32.25	1.00044	583
900.000	.01354	1.00034	.000113	7.4882	24141.0	31626.6	230.969	24.26	32.58	1.00043	599
950.000	.01282	1.00033	.000107	7.9041	25362.2	33263.6	232.739	24.58	32.89	1.00043	614
1000.000	.01218	1.00033	.000101	8.3200	26598.5	34915.7	234.434	24.87	33.19	1.00043	629

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
0.150000 MPa											
68.157	30.25417	.00875	2.169872	15.2506	-.4	5.3	74.488	36.29	59.28	.10308	943
70.000	29.99082	.00859	2.098219	14.6146	110.5	115.5	76.076	36.29	59.74	.13953	926
80.000	28.51132	.00791	1.738059	11.3503	717.2	722.4	84.188	35.51	61.71	.54138	839
85.247	27.68952	.00764	1.565359	9.7567	1042.4	1047.8	88.123	34.57	62.49	.94977	793
85.247	.22424	.94376	.001999	.6258	6242.2	6911.1	156.903	22.40	33.23	.94977	182
90.000	.21023	.95347	.001842	.6764	6352.7	7066.2	158.672	21.90	32.12	.95764	188
100.000	.18656	.96703	.001603	.7756	6576.4	7380.5	161.984	21.38	30.90	.96899	200
110.000	.16814	.97544	.001430	.8692	6794.0	7686.1	164.897	21.14	30.29	.97641	210
120.000	.15324	.98106	.001296	.9598	7008.3	7987.2	167.517	21.01	29.95	.98155	221
130.000	.14088	.98503	.001187	1.0486	7220.8	8285.5	169.905	20.94	29.74	.98526	230
140.000	.13044	.98794	.001096	1.1361	7432.2	8582.1	172.103	20.89	29.60	.98803	239
150.000	.12147	.99013	.001019	1.2228	7642.7	8877.6	174.141	20.86	29.50	.99015	248
160.000	.11368	.99183	.000953	1.3089	7852.7	9172.2	176.042	20.85	29.43	.99182	256
170.000	.10685	.99318	.000894	1.3945	8062.4	9466.2	177.825	20.83	29.38	.99314	264
180.000	.10081	.99426	.000843	1.4797	8271.8	9759.8	179.503	20.82	29.34	.99422	272
190.000	.09542	.99514	.000798	1.5647	8480.9	10053.0	181.088	20.82	29.31	.99510	280
200.000	.09058	.99586	.000757	1.6495	8689.9	10345.9	182.590	20.82	29.28	.99583	287
210.000	.08621	.99647	.000720	1.7340	8898.8	10638.7	184.019	20.81	29.26	.99644	295
220.000	.08225	.99697	.000687	1.8184	9107.6	10931.2	185.380	20.81	29.25	.99696	302
230.000	.07864	.99741	.000657	1.9027	9316.3	11223.6	186.679	20.81	29.24	.99740	308
240.000	.07534	.99777	.000629	1.9869	9524.9	11515.9	187.923	20.81	29.23	.99777	315
250.000	.07230	.99809	.000603	2.0710	9733.5	11808.2	189.116	20.81	29.22	.99810	322
260.000	.06950	.99836	.000580	2.1550	9942.1	12100.3	190.262	20.81	29.21	.99838	328
270.000	.06691	.99860	.000558	2.2389	10150.6	12392.4	191.364	20.82	29.21	.99862	334
280.000	.06451	.99881	.000538	2.3228	10359.2	12684.5	192.427	20.82	29.21	.99884	341
290.000	.06227	.99899	.000519	2.4066	10567.8	12976.5	193.451	20.83	29.21	.99903	347
300.000	.06019	.99915	.000502	2.4904	10776.4	13268.6	194.442	20.83	29.21	.99919	353
310.000	.05824	.99929	.000486	2.5741	10985.0	13560.7	195.399	20.84	29.21	.99934	358
320.000	.05641	.99941	.000470	2.6578	11193.8	13852.9	196.327	20.85	29.22	.99947	364
330.000	.05470	.99952	.000456	2.7414	11402.6	14145.1	197.226	20.86	29.23	.99958	370
340.000	.05308	.99962	.000442	2.8250	11611.6	14437.4	198.099	20.88	29.24	.99969	375
350.000	.05156	.99971	.000430	2.9086	11820.7	14729.9	198.947	20.90	29.26	.99978	381
360.000	.05012	.99979	.000418	2.9922	12030.0	15022.6	199.771	20.92	29.27	.99986	386
370.000	.04877	.99986	.000406	3.0757	12239.5	15315.4	200.573	20.94	29.29	.99994	391
380.000	.04748	.99993	.000396	3.1592	12449.2	15608.4	201.355	20.96	29.32	1.00000	397
390.000	.04626	.99998	.000385	3.2427	12659.1	15901.7	202.117	20.99	29.34	1.00007	402
400.000	.04510	1.00003	.000376	3.3262	12869.4	16195.3	202.860	21.02	29.37	1.00012	407
410.000	.04400	1.00008	.000367	3.4097	13080.0	16489.2	203.586	21.06	29.40	1.00017	412
420.000	.04295	1.00012	.000358	3.4931	13290.9	16783.4	204.295	21.09	29.44	1.00021	417
430.000	.04195	1.00016	.000349	3.5766	13502.2	17078.0	204.988	21.13	29.48	1.00025	422
440.000	.04099	1.00020	.000341	3.6600	13713.9	17373.0	205.666	21.18	29.52	1.00029	426
450.000	.04008	1.00023	.000334	3.7434	13926.0	17668.4	206.330	21.22	29.56	1.00032	431
470.000	.03837	1.00028	.000320	3.9102	14351.6	18260.5	207.617	21.32	29.65	1.00038	440
500.000	.03607	1.00035	.000300	4.1603	14993.8	19152.5	209.457	21.48	29.81	1.00045	454
550.000	.03279	1.00042	.000273	4.5769	16075.7	20650.6	212.312	21.79	30.12	1.00053	475
600.000	.03005	1.00046	.000250	4.9935	17173.8	22164.8	214.947	22.13	30.46	1.00058	495
650.000	.02774	1.00049	.000231	5.4098	18289.5	23696.6	217.399	22.49	30.82	1.00061	514
700.000	.02576	1.00051	.000214	5.8261	19423.5	25246.6	219.696	22.86	31.18	1.00063	532
750.000	.02404	1.00051	.000200	6.2424	20575.9	26815.0	221.860	23.23	31.55	1.00064	550
800.000	.02254	1.00051	.000188	6.6585	21746.5	28401.5	223.908	23.59	31.91	1.00064	567
850.000	.02121	1.00051	.000177	7.0746	22934.8	30005.8	225.853	23.93	32.26	1.00064	583
900.000	.02004	1.00050	.000167	7.4907	24140.0	31626.8	227.706	24.26	32.59	1.00064	599
950.000	.01898	1.00050	.000158	7.9067	25361.3	33264.0	229.476	24.58	32.90	1.00063	614
1000.000	.01803	1.00049	.000150	8.3227	26597.6	34916.2	231.171	24.87	33.19	1.00062	629

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					0.200000 MPa						
68.169	30.25585	.01166	2.170336	15.2611	.5	7.1	74.490	36.29	59.27	.07769	943
70.000	29.99424	.01146	2.099117	14.6290	110.0	116.7	76.068	36.29	59.73	.10495	927
80.000	28.51572	.01054	1.738961	11.3651	716.4	723.4	84.179	35.51	61.69	.40711	839
88.124	27.22662	.01003	1.475488	8.9316	1221.7	1229.0	90.192	33.89	62.87	.93853	769
88.124	.29341	.93029	.002662	.6265	6279.3	6960.9	155.236	22.80	34.38	.93853	183
90.000	.28572	.93543	.002568	.6482	6324.8	7024.8	155.951	22.52	33.74	.94268	186
100.000	.25189	.95495	.002196	.7550	6556.7	7350.7	159.387	21.67	31.74	.95834	198
110.000	.22620	.96675	.001942	.8531	6778.8	7662.9	162.363	21.31	30.81	.96845	209
120.000	.20569	.97453	.001751	.9467	6995.9	7968.3	165.019	21.12	30.30	.97541	220
130.000	.18882	.97995	.001599	1.0376	7210.4	8269.6	167.431	21.01	29.99	.98041	229
140.000	.17463	.98391	.001473	1.1268	7423.1	8568.4	169.646	20.94	29.79	.98413	239
150.000	.16250	.98688	.001368	1.2148	7634.7	8865.5	171.696	20.90	29.65	.98697	248
160.000	.15199	.98917	.001277	1.3019	7845.6	9161.5	173.606	20.87	29.55	.98919	256
170.000	.14279	.99097	.001198	1.3884	8055.9	9456.6	175.395	20.85	29.47	.99096	264
180.000	.13466	.99241	.001129	1.4743	8265.8	9751.1	177.078	20.84	29.42	.99239	272
190.000	.12742	.99359	.001067	1.5599	8475.4	10045.0	178.667	20.83	29.38	.99356	280
200.000	.12093	.99455	.001012	1.6452	8684.8	10338.6	180.173	20.82	29.34	.99453	287
210.000	.11508	.99536	.000963	1.7303	8894.0	10631.9	181.604	20.82	29.32	.99534	294
220.000	.10977	.99603	.000918	1.8151	9103.0	10925.0	182.967	20.82	29.29	.99602	301
230.000	.10494	.99660	.000877	1.8998	9312.0	11217.8	184.269	20.82	29.28	.99661	308
240.000	.10052	.99709	.000840	1.9843	9520.9	11510.5	185.514	20.81	29.26	.99710	315
250.000	.09646	.99751	.000806	2.0687	9729.7	11803.1	186.709	20.81	29.25	.99753	322
260.000	.09271	.99787	.000774	2.1530	9938.4	12095.6	187.856	20.82	29.24	.99790	328
270.000	.08925	.99818	.000745	2.2371	10147.1	12387.9	188.959	20.82	29.24	.99823	334
280.000	.08604	.99845	.000718	2.3212	10355.8	12680.3	190.022	20.82	29.23	.99851	341
290.000	.08305	.99869	.000693	2.4053	10564.5	12972.6	191.048	20.83	29.23	.99876	347
300.000	.08027	.99890	.000670	2.4892	10773.3	13264.9	192.039	20.83	29.23	.99898	353
310.000	.07767	.99909	.000648	2.5732	10982.0	13557.2	192.998	20.84	29.23	.99917	358
320.000	.07523	.99925	.000628	2.6570	11190.9	13849.5	193.926	20.85	29.24	.99934	364
330.000	.07294	.99940	.000609	2.7408	11399.8	14142.0	194.826	20.87	29.25	.99949	370
340.000	.07078	.99953	.000590	2.8246	11608.9	14434.5	195.699	20.88	29.26	.99963	375
350.000	.06875	.99965	.000573	2.9083	11818.1	14727.1	196.547	20.90	29.27	.99975	381
360.000	.06683	.99975	.000557	2.9920	12027.4	15019.9	197.372	20.92	29.29	.99986	386
370.000	.06502	.99984	.000542	3.0757	12237.0	15312.9	198.175	20.94	29.31	.99996	392
380.000	.06331	.99993	.000528	3.1593	12446.8	15606.1	198.956	20.97	29.33	1.00005	397
390.000	.06168	1.00000	.000514	3.2429	12656.8	15899.5	199.719	20.99	29.35	1.00013	402
400.000	.06013	1.00007	.000501	3.3265	12867.1	16193.2	200.462	21.02	29.38	1.00020	407
410.000	.05866	1.00013	.000489	3.4101	13077.8	16487.2	201.188	21.06	29.41	1.00026	412
420.000	.05726	1.00018	.000477	3.4936	13288.7	16781.5	201.897	21.09	29.45	1.00032	417
430.000	.05593	1.00023	.000466	3.5772	13500.1	17076.2	202.591	21.13	29.49	1.00037	422
440.000	.05465	1.00028	.000456	3.6607	13711.8	17371.2	203.269	21.18	29.53	1.00042	426
450.000	.05344	1.00032	.000445	3.7442	13924.0	17666.7	203.933	21.22	29.57	1.00047	431
470.000	.05116	1.00039	.000426	3.9111	14349.7	18259.0	205.221	21.32	29.66	1.00054	440
500.000	.04809	1.00048	.000401	4.1614	14992.0	19151.2	207.061	21.48	29.82	1.00063	454
550.000	.04371	1.00057	.000364	4.5784	16074.1	20649.6	209.917	21.79	30.12	1.00074	475
600.000	.04007	1.00063	.000334	4.9951	17172.3	22164.1	212.552	22.13	30.46	1.00080	495
650.000	.03698	1.00066	.000308	5.4117	18288.1	23696.1	215.005	22.49	30.82	1.00084	514
700.000	.03434	1.00068	.000286	5.8282	19422.2	25246.3	217.302	22.86	31.19	1.00086	532
750.000	.03205	1.00069	.000267	6.2446	20574.7	26814.9	219.466	23.23	31.55	1.00087	550
800.000	.03005	1.00069	.000250	6.6609	21745.4	28401.6	221.514	23.59	31.91	1.00088	567
850.000	.02828	1.00068	.000235	7.0771	22933.8	30005.9	223.459	23.93	32.26	1.00088	583
900.000	.02671	1.00068	.000222	7.4933	24139.0	31627.1	225.313	24.26	32.59	1.00087	599
950.000	.02530	1.00067	.000211	7.9094	25360.3	33264.4	227.083	24.58	32.90	1.00086	614
1000.000	.02404	1.00066	.000200	8.3255	26596.7	34916.7	228.778	24.87	33.19	1.00085	629

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol⁻¹K⁻¹	C_V J mol⁻¹K⁻¹	C_P J mol⁻¹K⁻¹	f/P	W m/s
					0.300000 MPa						
68.191	30.25920	.01749	2.171262	15.2821	.8	10.7	74.494	36.29	59.26	.05229	943
70.000	30.00107	.01718	2.100913	14.6578	108.9	118.9	76.052	36.29	59.71	.07037	927
80.000	28.52451	.01581	1.740762	11.3948	714.9	725.5	84.160	35.52	61.66	.27284	840
90.000	26.92524	.01489	1.419541	8.4274	1337.9	1349.0	91.503	33.39	63.08	.74228	753
92.554	26.48806	.01472	1.342222	7.7138	1499.3	1510.6	93.269	32.64	63.45	.91898	731
92.554	.43026	.90606	.004029	.6196	6327.4	7024.7	152.845	23.55	36.65	.91898	185
100.000	.38830	.92923	.003498	.7110	6513.1	7285.7	155.557	22.40	33.81	.93654	195
110.000	.34576	.94869	.003031	.8196	6746.1	7613.7	158.684	21.70	32.01	.95231	207
120.000	.31284	.96114	.002702	.9199	6969.8	7928.8	161.426	21.35	31.09	.96301	218
130.000	.28623	.96967	.002450	1.0155	7188.6	8236.7	163.891	21.16	30.54	.97064	228
140.000	.26412	.97580	.002248	1.1081	7404.5	8540.3	166.140	21.05	30.20	.97628	238
150.000	.24536	.98037	.002080	1.1988	7618.4	8841.1	168.215	20.97	29.96	.98057	247
160.000	.22921	.98386	.001937	1.2881	7831.0	9139.8	170.143	20.93	29.80	.98391	255
170.000	.21513	.98659	.001815	1.3763	8042.7	9437.2	171.946	20.89	29.68	.98657	264
180.000	.20273	.98877	.001707	1.4638	8253.7	9733.5	173.640	20.87	29.59	.98871	272
190.000	.19172	.99054	.001612	1.5506	8464.3	10029.1	175.238	20.85	29.52	.99045	279
200.000	.18187	.99199	.001528	1.6370	8674.5	10324.0	176.751	20.84	29.47	.99190	287
210.000	.17300	.99319	.001452	1.7230	8884.3	10618.5	178.187	20.84	29.42	.99310	294
220.000	.16497	.99419	.001384	1.8087	9094.0	10912.6	179.555	20.83	29.39	.99412	301
230.000	.15766	.99504	.001322	1.8941	9303.5	11206.3	180.861	20.83	29.36	.99498	308
240.000	.15098	.99576	.001265	1.9793	9512.8	11499.8	182.110	20.82	29.34	.99572	315
250.000	.14485	.99638	.001213	2.0643	9722.0	11793.1	183.307	20.82	29.32	.99636	322
260.000	.13920	.99692	.001166	2.1491	9931.1	12086.2	184.457	20.82	29.30	.99691	328
270.000	.13399	.99738	.001121	2.2338	10140.1	12379.2	185.563	20.82	29.29	.99738	334
280.000	.12915	.99779	.001081	2.3184	10349.1	12672.0	186.628	20.83	29.28	.99780	341
290.000	.12465	.99814	.001043	2.4029	10558.1	12964.8	187.655	20.83	29.28	.99817	347
300.000	.12046	.99845	.001007	2.4872	10767.1	13257.6	188.647	20.84	29.27	.99849	353
310.000	.11654	.99872	.000974	2.5715	10976.1	13550.3	189.607	20.84	29.27	.99877	359
320.000	.11287	.99896	.000944	2.6557	11185.1	13843.0	190.537	20.85	29.28	.99903	364
330.000	.10943	.99918	.000915	2.7398	11394.3	14135.8	191.438	20.87	29.28	.99925	370
340.000	.10619	.99937	.000887	2.8239	11603.5	14428.7	192.312	20.88	29.29	.99945	376
350.000	.10314	.99954	.000862	2.9079	11812.9	14721.6	193.161	20.90	29.30	.99963	381
360.000	.10026	.99969	.000838	2.9919	12022.4	15014.7	193.987	20.92	29.32	.99979	386
370.000	.09753	.99983	.000815	3.0758	12232.1	15307.9	194.790	20.94	29.33	.99994	392
380.000	.09496	.99995	.000793	3.1597	12442.0	15601.4	195.573	20.97	29.35	1.00006	397
390.000	.09251	1.00006	.000773	3.2435	12652.2	15895.0	196.335	20.99	29.38	1.00018	402
400.000	.09019	1.00016	.000753	3.3273	12862.6	16189.0	197.080	21.03	29.41	1.00029	407
410.000	.08798	1.00024	.000735	3.4111	13073.4	16483.2	197.806	21.06	29.44	1.00038	412
420.000	.08588	1.00033	.000717	3.4948	13284.5	16777.7	198.516	21.10	29.47	1.00047	417
430.000	.08388	1.00040	.000700	3.5785	13495.9	17072.6	199.210	21.13	29.51	1.00054	422
440.000	.08197	1.00046	.000684	3.6622	13707.7	17367.8	199.888	21.18	29.55	1.00062	427
450.000	.08014	1.00052	.000669	3.7458	13920.0	17663.5	200.553	21.22	29.59	1.00068	431
470.000	.07672	1.00063	.000640	3.9131	14345.9	18256.1	201.841	21.32	29.68	1.00079	441
500.000	.07211	1.00075	.000602	4.1638	14988.4	19148.8	203.682	21.48	29.83	1.00092	454
550.000	.06554	1.00088	.000547	4.5814	16070.8	20647.8	206.540	21.79	30.13	1.00107	475
600.000	.06008	1.00097	.000501	4.9986	17169.3	22162.9	209.176	22.13	30.47	1.00116	495
650.000	.05545	1.00101	.000462	5.4156	18285.4	23695.3	211.629	22.49	30.83	1.00122	514
700.000	.05149	1.00104	.000429	5.8325	19419.7	25245.8	213.927	22.86	31.19	1.00125	533
750.000	.04806	1.00105	.000400	6.2492	20572.3	26814.7	216.092	23.23	31.56	1.00127	550
800.000	.04505	1.00105	.000375	6.6657	21743.2	28401.7	218.140	23.59	31.92	1.00127	567
850.000	.04240	1.00104	.000353	7.0822	22931.7	30006.3	220.085	23.93	32.26	1.00127	583
900.000	.04005	1.00103	.000334	7.4986	24137.0	31627.8	221.939	24.26	32.59	1.00126	599
950.000	.03794	1.00101	.000316	7.9149	25358.4	33265.2	223.709	24.58	32.90	1.00124	615
1000.000	.03605	1.00099	.000300	8.3312	26594.9	34917.7	225.405	24.87	33.19	1.00123	630

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					0.400000 MPa						
68.214	30.26254	.02330	2.172188	15.3030	1.1	14.3	74.498	36.29	59.25	.03960	944
70.000	30.00789	.02290	2.102707	14.6866	107.8	121.1	76.036	36.29	59.69	.05308	928
80.000	28.53327	.02108	1.742561	11.4244	713.4	727.5	84.141	35.52	61.64	.20571	841
90.000	26.93708	.01984	1.421507	8.4590	1335.8	1350.6	91.480	33.40	63.03	.55948	754
95.996	25.88894	.01936	1.242536	6.8124	1716.1	1731.6	95.572	31.49	63.95	.90206	702
95.996	.56674	.88428	.005462	.6074	6356.4	7062.2	151.101	24.24	38.92	.90206	186
100.000	.53383	.90120	.004997	.6631	6463.6	7212.9	152.637	23.33	36.55	.91423	192
110.000	.47043	.92968	.004222	.7845	6710.5	7560.8	155.954	22.17	33.46	.93601	205
120.000	.42320	.94733	.003714	.8924	6942.1	7887.2	158.795	21.63	31.99	.95058	217
130.000	.38581	.95920	.003342	.9931	7165.8	8202.6	161.320	21.34	31.16	.96090	227
140.000	.35513	.96763	.003050	1.0894	7385.1	8511.5	163.609	21.16	30.65	.96849	237
150.000	.32934	.97385	.002813	1.1829	7601.5	8816.1	165.711	21.06	30.30	.97425	246
160.000	.30726	.97858	.002613	1.2744	7816.1	9117.9	167.658	20.99	30.07	.97871	255
170.000	.28810	.98227	.002443	1.3645	8029.3	9417.7	169.476	20.94	29.90	.98225	263
180.000	.27129	.98519	.002295	1.4534	8241.5	9716.0	171.181	20.90	29.77	.98510	271
190.000	.25640	.98755	.002165	1.5416	8453.1	10013.2	172.788	20.88	29.67	.98742	279
200.000	.24310	.98948	.002050	1.6291	8664.1	10309.5	174.308	20.86	29.60	.98934	287
210.000	.23115	.99108	.001947	1.7160	8874.7	10605.1	175.750	20.85	29.54	.99094	294
220.000	.22035	.99241	.001854	1.8025	9084.9	10900.2	177.123	20.84	29.49	.99228	301
230.000	.21053	.99354	.001770	1.8887	9294.9	11194.9	178.433	20.84	29.45	.99342	308
240.000	.20156	.99449	.001694	1.9746	9504.7	11489.2	179.685	20.83	29.41	.99440	315
250.000	.19334	.99531	.001624	2.0602	9714.3	11783.2	180.885	20.83	29.39	.99524	322
260.000	.18577	.99602	.001559	2.1456	9923.8	12076.9	182.037	20.83	29.36	.99596	328
270.000	.17878	.99663	.001500	2.2307	10133.2	12370.5	183.145	20.83	29.35	.99659	334
280.000	.17231	.99716	.001445	2.3158	10342.5	12663.9	184.212	20.83	29.33	.99714	341
290.000	.16629	.99762	.001394	2.4007	10551.7	12957.2	185.241	20.83	29.32	.99762	347
300.000	.16068	.99803	.001346	2.4854	10760.9	13250.4	186.235	20.84	29.32	.99805	353
310.000	.15544	.99839	.001302	2.5700	10970.2	13543.5	187.196	20.85	29.31	.99842	359
320.000	.15053	.99870	.001261	2.6546	11179.4	13836.6	188.127	20.86	29.31	.99876	364
330.000	.14593	.99898	.001222	2.7390	11388.8	14129.8	189.029	20.87	29.32	.99905	370
340.000	.14160	.99923	.001185	2.8234	11598.2	14422.9	189.904	20.88	29.32	.99931	376
350.000	.13753	.99946	.001151	2.9077	11807.7	14716.2	190.754	20.90	29.33	.99955	381
360.000	.13368	.99965	.001119	2.9919	12017.4	15009.6	191.581	20.92	29.34	.99976	387
370.000	.13005	.99983	.001088	3.0761	12227.2	15303.1	192.385	20.94	29.36	.99995	392
380.000	.12660	.99999	.001059	3.1602	12437.3	15596.8	193.168	20.97	29.38	1.00012	397
390.000	.12334	1.00013	.001031	3.2442	12647.6	15890.7	193.932	21.00	29.40	1.00027	402
400.000	.12024	1.00026	.001005	3.3282	12858.2	16184.8	194.676	21.03	29.43	1.00041	407
410.000	.11729	1.00038	.000981	3.4122	13069.0	16479.3	195.403	21.06	29.46	1.00053	412
420.000	.11449	1.00048	.000957	3.4961	13280.2	16774.0	196.114	21.10	29.49	1.00065	417
430.000	.11182	1.00058	.000935	3.5800	13491.8	17069.1	196.808	21.14	29.52	1.00075	422
440.000	.10927	1.00066	.000913	3.6638	13703.7	17364.5	197.487	21.18	29.56	1.00084	427
450.000	.10683	1.00074	.000893	3.7477	13916.1	17660.3	198.152	21.22	29.60	1.00092	432
470.000	.10227	1.00087	.000854	3.9152	14342.1	18253.3	199.441	21.32	29.69	1.00107	441
500.000	.09612	1.00103	.000803	4.1663	14984.9	19146.4	201.283	21.48	29.85	1.00124	454
550.000	.08737	1.00120	.000729	4.5845	16067.6	20646.1	204.142	21.79	30.15	1.00143	475
600.000	.08008	1.00131	.000668	5.0022	17166.4	22161.6	206.779	22.13	30.48	1.00155	495
650.000	.07391	1.00137	.000617	5.4196	18282.7	23694.5	209.232	22.49	30.84	1.00162	515
700.000	.06863	1.00140	.000572	5.8368	19417.1	25245.4	211.531	22.86	31.20	1.00166	533
750.000	.06405	1.00141	.000534	6.2538	20570.0	26814.7	213.696	23.23	31.57	1.00168	550
800.000	.06005	1.00141	.000501	6.6706	21741.0	28401.9	215.745	23.59	31.92	1.00168	567
850.000	.05652	1.00139	.000471	7.0873	22929.6	30006.8	217.691	23.93	32.27	1.00168	584
900.000	.05338	1.00138	.000445	7.5039	24135.1	31628.4	219.544	24.26	32.60	1.00166	599
950.000	.05057	1.00135	.000421	7.9204	25356.6	33266.0	221.315	24.58	32.91	1.00164	615
1000.000	.04804	1.00133	.000400	8.3369	26593.2	34918.7	223.010	24.87	33.20	1.00162	630

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					0.500000 MPa						
68.236	30.26589	.02912	2.173112	15.3240	1.4	17.9	74.502	36.29	59.25	.03199	945
70.000	30.01469	.02862	2.104500	14.7154	106.6	123.3	76.020	36.29	59.68	.04271	929
80.000	28.54201	.02634	1.744357	11.4540	711.9	729.5	84.123	35.52	61.61	.16544	842
90.000	26.94888	.02479	1.423468	8.4905	1333.7	1352.3	91.457	33.40	62.98	.44981	755
98.856	25.37131	.02398	1.161996	6.0938	1896.8	1916.5	97.430	30.42	64.45	.88700	678
98.856	.70391	.86420	.006966	.5923	6374.0	7084.3	149.706	24.89	41.24	.88700	187
100.000	.69086	.87045	.006762	.6104	6407.1	7130.8	150.171	24.53	40.22	.89143	189
110.000	.60098	.90966	.005533	.7475	6671.8	7503.8	153.729	22.72	35.19	.91951	203
120.000	.53707	.93309	.004795	.8640	6912.6	7843.6	156.687	21.94	33.01	.93808	215
130.000	.48768	.94855	.004277	.9703	7142.0	8167.3	159.278	21.53	31.84	.95114	226
140.000	.44772	.95939	.003883	1.0706	7365.1	8481.9	161.609	21.29	31.13	.96070	236
150.000	.41445	.96733	.003567	1.1670	7584.3	8790.7	163.740	21.15	30.67	.96793	245
160.000	.38615	.97333	.003305	1.2608	7800.8	9095.7	165.709	21.05	30.35	.97353	254
170.000	.36171	.97798	.003084	1.3528	8015.6	9398.0	167.541	20.99	30.12	.97795	263
180.000	.34033	.98165	.002893	1.4433	8229.2	9698.3	169.258	20.94	29.95	.98150	271
190.000	.32145	.98461	.002726	1.5327	8441.8	9997.2	170.874	20.91	29.83	.98440	279
200.000	.30463	.98702	.002579	1.6213	8653.6	10294.9	172.401	20.89	29.73	.98679	287
210.000	.28954	.98902	.002447	1.7092	8864.9	10591.8	173.849	20.87	29.65	.98877	294
220.000	.27592	.99068	.002329	1.7966	9075.8	10888.0	175.227	20.86	29.58	.99045	301
230.000	.26355	.99208	.002223	1.8835	9286.4	11183.5	176.541	20.85	29.53	.99186	308
240.000	.25227	.99326	.002126	1.9701	9496.6	11478.7	177.797	20.84	29.49	.99307	315
250.000	.24193	.99428	.002037	2.0563	9706.6	11773.4	179.000	20.84	29.46	.99411	322
260.000	.23242	.99515	.001955	2.1422	9916.5	12067.8	180.155	20.84	29.43	.99501	328
270.000	.22364	.99591	.001880	2.2279	10126.2	12361.9	181.265	20.83	29.40	.99579	335
280.000	.21551	.99656	.001811	2.3133	10335.8	12655.9	182.334	20.84	29.38	.99648	341
290.000	.20796	.99714	.001747	2.3986	10545.3	12949.6	183.365	20.84	29.37	.99707	347
300.000	.20093	.99764	.001687	2.4838	10754.8	13243.3	184.360	20.84	29.36	.99760	353
310.000	.19436	.99808	.001631	2.5688	10964.3	13536.8	185.323	20.85	29.35	.99806	359
320.000	.18821	.99847	.001579	2.6536	11173.8	13830.3	186.254	20.86	29.35	.99847	365
330.000	.18245	.99882	.001530	2.7384	11383.3	14123.8	187.158	20.87	29.35	.99884	370
340.000	.17703	.99912	.001484	2.8230	11592.9	14417.3	188.034	20.89	29.35	.99916	376
350.000	.17192	.99940	.001441	2.9076	11802.6	14710.9	188.885	20.90	29.36	.99945	381
360.000	.16710	.99964	.001400	2.9921	12012.4	15004.6	189.712	20.92	29.37	.99971	387
370.000	.16255	.99986	.001362	3.0765	12222.4	15298.4	190.517	20.94	29.39	.99994	392
380.000	.15824	1.00005	.001326	3.1608	12432.6	15592.3	191.301	20.97	29.40	1.00015	397
390.000	.15416	1.00023	.001291	3.2451	12643.1	15886.5	192.065	21.00	29.43	1.00034	402
400.000	.15028	1.00039	.001258	3.3293	12853.7	16180.8	192.810	21.03	29.45	1.00051	408
410.000	.14660	1.00053	.001227	3.4134	13064.7	16475.5	193.538	21.06	29.48	1.00066	413
420.000	.14309	1.00066	.001198	3.4975	13276.0	16770.4	194.248	21.10	29.51	1.00080	417
430.000	.13974	1.00077	.001169	3.5816	13487.7	17065.7	194.943	21.14	29.54	1.00093	422
440.000	.13655	1.00088	.001143	3.6656	13699.7	17361.3	195.623	21.18	29.58	1.00104	427
450.000	.13351	1.00097	.001117	3.7496	13912.1	17657.3	196.288	21.22	29.62	1.00114	432
470.000	.12780	1.00113	.001069	3.9174	14338.4	18250.6	197.578	21.32	29.71	1.00132	441
500.000	.12011	1.00132	.001004	4.1690	14981.4	19144.1	199.421	21.48	29.86	1.00153	454
550.000	.10917	1.00154	.000912	4.5877	16064.4	20644.4	202.280	21.79	30.16	1.00177	476
600.000	.10006	1.00166	.000836	5.0059	17163.5	22160.5	204.918	22.13	30.49	1.00191	496
650.000	.09236	1.00173	.000771	5.4237	18280.0	23693.8	207.373	22.49	30.84	1.00200	515
700.000	.08576	1.00177	.000716	5.8412	19414.6	25245.1	209.672	22.86	31.21	1.00204	533
750.000	.08004	1.00178	.000668	6.2585	20567.7	26814.6	211.838	23.23	31.57	1.00206	551
800.000	.07504	1.00177	.000626	6.6756	21738.8	28402.2	213.887	23.59	31.93	1.00207	567
850.000	.07062	1.00175	.000589	7.0925	22927.5	30007.3	215.833	23.93	32.27	1.00206	584
900.000	.06670	1.00173	.000556	7.5093	24133.1	31629.1	217.687	24.26	32.60	1.00204	600
950.000	.06319	1.00170	.000527	7.9260	25354.7	33266.9	219.458	24.58	32.91	1.00201	615
1000.000	.06004	1.00167	.000501	8.3426	26591.4	34919.8	221.153	24.87	33.20	1.00198	630

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					0.600000 MPa						
68.259	30.26922	.03493	2.174035	15.3449	1.7	21.5	74.506	36.29	59.24	.02691	945
70.000	30.02148	.03434	2.106292	14.7442	105.5	125.5	76.004	36.29	59.66	.03579	930
80.000	28.55073	.03159	1.746151	11.4836	710.5	731.5	84.104	35.52	61.58	.13859	843
90.000	26.96064	.02974	1.425424	8.5220	1331.7	1353.9	91.433	33.40	62.93	.37670	757
100.000	25.16815	.02867	1.131616	5.8335	1967.4	1991.2	98.133	29.97	64.63	.80246	670
101.327	24.90750	.02859	1.093936	5.4956	2053.1	2077.2	98.996	29.43	64.99	.87337	658
101.327	.84242	.84541	.008546	.5757	6383.9	7096.1	148.528	25.52	43.63	.87337	187
110.000	.73833	.88853	.006990	.7086	6629.9	7442.6	151.808	23.36	37.27	.90284	200
120.000	.65480	.91839	.005953	.8348	6881.5	7797.8	154.901	22.29	34.17	.92553	213
130.000	.59199	.93769	.005260	.9472	7117.3	8130.8	157.567	21.74	32.58	.94143	225
140.000	.54197	.95107	.004747	1.0516	7344.5	8451.6	159.944	21.43	31.65	.95298	235
150.000	.50072	.96079	.004344	1.1512	7566.6	8764.9	162.106	21.24	31.05	.96169	245
160.000	.46589	.96808	.004014	1.2474	7785.4	9073.2	164.096	21.12	30.64	.96842	254
170.000	.43595	.97372	.003738	1.3412	8001.8	9378.1	165.945	21.04	30.36	.97373	262
180.000	.40986	.97815	.003501	1.4333	8216.7	9680.6	167.673	20.98	30.14	.97799	271
190.000	.38688	.98171	.003295	1.5241	8430.3	9981.2	169.299	20.94	29.98	.98145	279
200.000	.36646	.98461	.003114	1.6138	8643.1	10280.4	170.833	20.91	29.86	.98431	286
210.000	.34816	.98700	.002953	1.7027	8855.2	10578.5	172.288	20.89	29.76	.98668	294
220.000	.33167	.98899	.002809	1.7909	9066.7	10875.7	173.670	20.87	29.68	.98868	301
230.000	.31671	.99066	.002679	1.8785	9277.8	11172.3	174.988	20.86	29.62	.99037	308
240.000	.30308	.99207	.002561	1.9657	9488.5	11468.2	176.248	20.85	29.57	.99182	315
250.000	.29060	.99328	.002453	2.0525	9699.0	11763.7	177.454	20.85	29.52	.99305	322
260.000	.27914	.99432	.002354	2.1390	9909.2	12058.7	178.611	20.84	29.49	.99413	328
270.000	.26855	.99522	.002263	2.2252	10119.3	12353.5	179.724	20.84	29.46	.99505	335
280.000	.25876	.99600	.002179	2.3111	10329.2	12647.9	180.795	20.84	29.44	.99586	341
290.000	.24967	.99668	.002102	2.3968	10539.0	12942.2	181.827	20.84	29.42	.99657	347
300.000	.24120	.99728	.002029	2.4823	10748.7	13236.3	182.824	20.85	29.40	.99720	353
310.000	.23330	.99780	.001962	2.5677	10958.4	13530.2	183.788	20.85	29.39	.99775	359
320.000	.22590	.99826	.001899	2.6529	11168.1	13824.1	184.721	20.86	29.39	.99824	365
330.000	.21897	.99867	.001840	2.7379	11377.8	14118.0	185.625	20.87	29.38	.99867	370
340.000	.21245	.99903	.001784	2.8228	11587.6	14411.8	186.502	20.89	29.39	.99906	376
350.000	.20631	.99936	.001732	2.9077	11797.5	14705.7	187.354	20.90	29.39	.99940	382
360.000	.20052	.99965	.001683	2.9924	12007.5	14999.6	188.182	20.92	29.40	.99971	387
370.000	.19505	.99990	.001637	3.0770	12217.6	15293.7	188.988	20.95	29.41	.99998	392
380.000	.18988	1.00013	.001593	3.1616	12428.0	15587.9	189.773	20.97	29.43	1.00023	397
390.000	.18497	1.00034	.001551	3.2461	12638.5	15882.3	190.537	21.00	29.45	1.00046	403
400.000	.18031	1.00053	.001512	3.3305	12849.3	16176.9	191.283	21.03	29.47	1.00066	408
410.000	.17589	1.00069	.001474	3.4148	13060.4	16471.7	192.011	21.06	29.50	1.00084	413
420.000	.17167	1.00084	.001439	3.4991	13271.8	16766.9	192.722	21.10	29.53	1.00100	418
430.000	.16766	1.00098	.001405	3.5833	13483.6	17062.3	193.418	21.14	29.56	1.00115	422
440.000	.16383	1.00110	.001373	3.6675	13695.7	17358.1	194.098	21.18	29.60	1.00128	427
450.000	.16017	1.00121	.001342	3.7516	13908.3	17654.3	194.763	21.22	29.64	1.00140	432
470.000	.15332	1.00140	.001284	3.9198	14334.6	18247.9	196.054	21.32	29.73	1.00161	441
500.000	.14409	1.00163	.001206	4.1717	14977.9	19141.9	197.898	21.48	29.88	1.00186	455
550.000	.13096	1.00187	.001095	4.5909	16061.3	20642.8	200.758	21.79	30.17	1.00214	476
600.000	.12003	1.00202	.001003	5.0096	17160.6	22159.4	203.397	22.13	30.50	1.00231	496
650.000	.11079	1.00210	.000926	5.4278	18277.3	23693.1	205.852	22.49	30.85	1.00241	515
700.000	.10287	1.00214	.000859	5.8456	19412.2	25244.8	208.152	22.86	31.22	1.00246	533
750.000	.09601	1.00215	.000802	6.2632	20565.3	26814.6	210.318	23.23	31.58	1.00249	551
800.000	.09001	1.00214	.000751	6.6806	21736.6	28402.4	212.368	23.59	31.93	1.00249	568
850.000	.08472	1.00212	.000707	7.0977	22925.5	30007.8	214.314	23.93	32.28	1.00247	584
900.000	.08001	1.00209	.000668	7.5147	24131.2	31629.9	216.168	24.26	32.60	1.00245	600
950.000	.07581	1.00205	.000632	7.9316	25352.9	33267.9	217.939	24.58	32.91	1.00242	615
1000.000	.07202	1.00201	.000601	8.3483	26589.7	34920.9	219.635	24.87	33.20	1.00238	630

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					0.700000 MPa						
68.281	30.27255	.04073	2.174957	15.3658	2.0	25.1	74.510	36.29	59.23	.02329	946
70.000	30.02825	.04005	2.108082	14.7730	104.4	127.8	75.988	36.29	59.65	.03086	931
80.000	28.55943	.03685	1.747942	11.5132	709.0	733.5	84.085	35.53	61.55	.11942	843
90.000	26.97235	.03468	1.427376	8.5535	1329.6	1355.6	91.411	33.41	62.88	.32449	758
100.000	25.18524	.03343	1.133946	5.8681	1964.3	1992.1	98.102	29.98	64.52	.69112	671
103.515	24.48189	.03322	1.034700	4.9834	2191.9	2220.5	100.355	28.49	65.59	.86090	640
103.515	.98271	.82763	.010203	.5581	6388.2	7100.5	147.499	26.13	46.12	.86090	187
110.000	.88366	.86613	.008622	.6675	6584.3	7376.4	150.082	24.11	39.80	.88603	198
120.000	.77678	.90320	.007199	.8048	6848.7	7749.8	153.333	22.67	35.48	.91297	212
130.000	.69889	.92663	.006295	.9237	7091.5	8093.1	156.082	21.98	33.39	.93170	223
140.000	.63793	.94267	.005645	1.0326	7323.3	8420.6	158.509	21.58	32.20	.94527	234
150.000	.58820	.95422	.005144	1.1353	7548.5	8738.6	160.703	21.35	31.45	.95547	244
160.000	.54649	.96285	.004741	1.2340	7769.6	9050.5	162.716	21.19	30.95	.96333	253
170.000	.51083	.96948	.004405	1.3298	7987.8	9358.2	164.581	21.09	30.60	.96953	262
180.000	.47987	.97469	.004120	1.4235	8204.1	9662.8	166.323	21.02	30.34	.97449	270
190.000	.45268	.97885	.003873	1.5155	8418.8	9965.2	167.958	20.97	30.15	.97852	278
200.000	.42856	.98224	.003656	1.6064	8632.5	10265.9	169.500	20.93	30.00	.98184	286
210.000	.40700	.98502	.003465	1.6962	8845.4	10565.3	170.960	20.91	29.88	.98460	294
220.000	.38759	.98733	.003293	1.7853	9057.6	10863.6	172.348	20.89	29.79	.98692	301
230.000	.37001	.98927	.003139	1.8737	9269.2	11161.0	173.670	20.87	29.71	.98888	308
240.000	.35401	.99092	.003000	1.9616	9480.4	11457.8	174.933	20.86	29.65	.99056	315
250.000	.33937	.99232	.002872	2.0490	9691.3	11754.0	176.143	20.85	29.59	.99199	322
260.000	.32592	.99352	.002756	2.1360	9902.0	12049.7	177.302	20.85	29.55	.99323	328
270.000	.31352	.99456	.002649	2.2226	10112.4	12345.1	178.417	20.85	29.52	.99431	335
280.000	.30205	.99546	.002550	2.3090	10322.6	12640.1	179.490	20.85	29.49	.99525	341
290.000	.29140	.99625	.002458	2.3951	10532.7	12934.8	180.524	20.85	29.46	.99607	347
300.000	.28150	.99694	.002373	2.4810	10742.7	13229.4	181.523	20.85	29.45	.99679	353
310.000	.27225	.99754	.002294	2.5667	10952.6	13523.7	182.488	20.86	29.43	.99743	359
320.000	.26360	.99807	.002220	2.6522	11162.5	13818.0	183.422	20.87	29.42	.99799	365
330.000	.25549	.99855	.002151	2.7376	11372.4	14112.2	184.328	20.88	29.42	.99850	371
340.000	.24788	.99896	.002086	2.8228	11582.4	14406.4	185.206	20.89	29.42	.99894	376
350.000	.24070	.99934	.002024	2.9079	11792.4	14700.6	186.058	20.91	29.42	.99934	382
360.000	.23394	.99967	.001967	2.9928	12002.6	14994.8	186.887	20.93	29.43	.99969	387
370.000	.22755	.99996	.001912	3.0777	12212.9	15289.1	187.694	20.95	29.44	1.00001	392
380.000	.22150	1.00023	.001861	3.1625	12423.3	15583.6	188.479	20.97	29.45	1.00030	398
390.000	.21577	1.00047	.001812	3.2472	12634.0	15878.2	189.244	21.00	29.47	1.00056	403
400.000	.21033	1.00068	.001766	3.3318	12845.0	16173.0	189.991	21.03	29.49	1.00079	408
410.000	.20516	1.00087	.001722	3.4163	13056.2	16468.1	190.719	21.06	29.52	1.00100	413
420.000	.20024	1.00104	.001681	3.5007	13267.7	16763.4	191.431	21.10	29.55	1.00118	418
430.000	.19556	1.00120	.001641	3.5851	13479.5	17059.1	192.127	21.14	29.58	1.00135	423
440.000	.19109	1.00134	.001603	3.6695	13691.8	17355.0	192.807	21.18	29.62	1.00151	428
450.000	.18682	1.00147	.001567	3.7538	13904.4	17651.4	193.473	21.22	29.66	1.00165	432
470.000	.17883	1.00168	.001499	3.9222	14331.0	18245.3	194.764	21.32	29.74	1.00189	441
500.000	.16806	1.00194	.001408	4.1745	14974.4	19139.7	196.609	21.48	29.89	1.00217	455
550.000	.15273	1.00222	.001279	4.5943	16058.1	20641.3	199.471	21.79	30.18	1.00249	476
600.000	.13998	1.00238	.001171	5.0134	17157.7	22158.3	202.111	22.13	30.51	1.00269	496
650.000	.12920	1.00247	.001081	5.4320	18274.7	23692.5	204.567	22.49	30.86	1.00280	515
700.000	.11997	1.00251	.001003	5.8501	19409.7	25244.5	206.867	22.86	31.22	1.00286	534
750.000	.11197	1.00252	.000936	6.2680	20563.0	26814.6	209.033	23.23	31.58	1.00288	551
800.000	.10497	1.00251	.000877	6.6856	21734.5	28402.8	211.083	23.59	31.94	1.00288	568
850.000	.09880	1.00248	.000825	7.1030	22923.5	30008.3	213.030	23.93	32.28	1.00286	584
900.000	.09332	1.00244	.000779	7.5202	24129.3	31630.6	214.884	24.26	32.61	1.00284	600
950.000	.08841	1.00240	.000738	7.9372	25351.1	33268.8	216.655	24.58	32.92	1.00280	616
1000.000	.08399	1.00235	.000701	8.3541	26587.9	34922.0	218.351	24.87	33.21	1.00276	631

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					0.800000 MPa						
68.303	30.27587	.04653	2.175877	15.3868	2.2	28.7	74.514	36.29	59.22	.02058	946
70.000	30.03502	.04576	2.109871	14.8017	103.3	130.0	75.972	36.29	59.63	.02715	931
80.000	28.56810	.04210	1.749731	11.5427	707.5	735.5	84.067	35.53	61.53	.10505	844
90.000	26.98402	.03962	1.429323	8.5849	1327.5	1357.2	91.388	33.41	62.83	.28534	759
100.000	25.20223	.03818	1.136266	5.9027	1961.3	1993.1	98.072	29.98	64.42	.60762	672
105.488	24.08465	.03787	.982047	4.5358	2317.3	2350.5	101.560	27.59	66.26	.84934	623
105.488	1.12513	.81068	.011941	.5399	6388.2	7099.3	146.577	26.73	48.74	.84934	187
110.000	1.03854	.84224	.010471	.6238	6534.4	7304.7	148.480	24.98	42.91	.86903	195
120.000	.90347	.88748	.008543	.7739	6814.0	7699.5	151.919	23.10	36.96	.90036	210
130.000	.80857	.91536	.007386	.8998	7064.8	8054.2	154.759	22.23	34.28	.92197	222
140.000	.73569	.93418	.006579	1.0134	7301.5	8388.9	157.240	21.74	32.79	.93757	233
150.000	.67690	.94763	.005970	1.1194	7530.1	8712.0	159.469	21.46	31.88	.94927	243
160.000	.62797	.95762	.005485	1.2206	7753.6	9027.5	161.506	21.27	31.27	.95827	253
170.000	.58635	.96527	.005086	1.3184	7973.7	9338.0	163.389	21.15	30.85	.96534	262
180.000	.55036	.97125	.004749	1.4137	8191.3	9644.9	165.143	21.06	30.54	.97101	270
190.000	.51885	.97603	.004459	1.5072	8407.3	9949.2	166.788	21.00	30.31	.97561	278
200.000	.49096	.97990	.004205	1.5991	8621.9	10251.4	168.338	20.96	30.14	.97939	286
210.000	.46607	.98307	.003982	1.6900	8835.5	10552.0	169.805	20.93	30.00	.98253	294
220.000	.44369	.98571	.003783	1.7799	9048.4	10851.4	171.198	20.90	29.89	.98517	301
230.000	.42345	.98792	.003604	1.8690	9260.6	11149.9	172.524	20.89	29.80	.98741	308
240.000	.40504	.98979	.003442	1.9575	9472.4	11447.5	173.791	20.87	29.73	.98931	315
250.000	.38821	.99139	.003294	2.0455	9683.7	11744.4	175.003	20.86	29.66	.99094	322
260.000	.37277	.99275	.003160	2.1331	9894.7	12040.8	176.165	20.86	29.61	.99235	328
270.000	.35854	.99393	.003036	2.2202	10105.4	12336.7	177.282	20.85	29.57	.99357	335
280.000	.34538	.99495	.002922	2.3070	10316.0	12632.3	178.357	20.85	29.54	.99464	341
290.000	.33317	.99584	.002816	2.3935	10526.3	12927.5	179.393	20.85	29.51	.99557	347
300.000	.32181	.99662	.002718	2.4798	10736.6	13222.5	180.393	20.86	29.49	.99639	353
310.000	.31122	.99730	.002627	2.5658	10946.8	13517.3	181.360	20.86	29.47	.99711	359
320.000	.30131	.99791	.002542	2.6517	11156.9	13811.9	182.295	20.87	29.46	.99775	365
330.000	.29202	.99844	.002462	2.7373	11367.0	14106.5	183.201	20.88	29.45	.99832	371
340.000	.28330	.99891	.002388	2.8228	11577.1	14401.0	184.081	20.89	29.45	.99882	376
350.000	.27509	.99933	.002317	2.9082	11787.4	14695.5	184.934	20.91	29.45	.99927	382
360.000	.26735	.99970	.002251	2.9934	11997.7	14990.0	185.764	20.93	29.45	.99968	387
370.000	.26004	1.00004	.002189	3.0785	12208.1	15284.6	186.571	20.95	29.46	1.00004	393
380.000	.25312	1.00034	.002130	3.1635	12418.7	15579.3	187.357	20.97	29.48	1.00036	398
390.000	.24656	1.00060	.002074	3.2483	12629.5	15874.2	188.123	21.00	29.49	1.00065	403
400.000	.24034	1.00084	.002021	3.3331	12840.6	16169.2	188.870	21.03	29.52	1.00091	408
410.000	.23443	1.00106	.001971	3.4179	13051.9	16464.5	189.599	21.06	29.54	1.00115	413
420.000	.22880	1.00125	.001923	3.5025	13263.6	16760.0	190.311	21.10	29.57	1.00136	418
430.000	.22344	1.00143	.001877	3.5870	13475.5	17055.9	191.007	21.14	29.60	1.00155	423
440.000	.21833	1.00158	.001834	3.6715	13687.8	17352.0	191.688	21.18	29.63	1.00173	428
450.000	.21345	1.00173	.001792	3.7560	13900.6	17648.5	192.354	21.22	29.67	1.00189	432
470.000	.20432	1.00197	.001715	3.9247	14327.3	18242.8	193.647	21.32	29.76	1.00216	442
500.000	.19200	1.00225	.001611	4.1773	14971.0	19137.6	195.492	21.48	29.90	1.00248	455
550.000	.17449	1.00257	.001462	4.5977	16055.0	20639.7	198.355	21.79	30.19	1.00284	476
600.000	.15992	1.00275	.001339	5.0172	17154.9	22157.3	200.996	22.13	30.52	1.00306	497
650.000	.14761	1.00285	.001236	5.4362	18272.0	23691.9	203.452	22.49	30.87	1.00318	516
700.000	.13706	1.00289	.001147	5.8547	19407.3	25244.2	205.753	22.86	31.23	1.00325	534
750.000	.12792	1.00290	.001070	6.2728	20560.8	26814.7	207.920	23.23	31.59	1.00327	551
800.000	.11993	1.00288	.001003	6.6907	21732.3	28403.1	209.970	23.59	31.94	1.00327	568
850.000	.11288	1.00285	.000943	7.1083	22921.4	30008.9	211.917	23.93	32.29	1.00325	585
900.000	.10661	1.00280	.000891	7.5257	24127.4	31631.4	213.772	24.26	32.61	1.00321	600
950.000	.10100	1.00275	.000844	7.9429	25349.3	33269.8	215.543	24.58	32.92	1.00317	616
1000.000	.09596	1.00270	.000801	8.3600	26586.2	34923.2	217.239	24.87	33.21	1.00312	631

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					1.000000 MPa						
68.348	30.28251	.05811	2.177714	15.4286	2.8	35.8	74.522	36.29	59.20	.01678	947
70.000	30.04850	.05718	2.113445	14.8592	101.1	134.4	75.941	36.29	59.60	.02197	933
80.000	28.58539	.05259	1.753302	11.6018	704.5	739.5	84.030	35.53	61.47	.08492	846
90.000	27.00723	.04948	1.433203	8.6476	1323.5	1360.5	91.342	33.42	62.73	.23054	761
100.000	25.23592	.04766	1.140876	5.9715	1955.3	1995.0	98.012	30.00	64.22	.49076	675
108.956	23.35066	.04727	.891044	3.7831	2538.8	2581.7	103.637	25.94	67.88	.82845	594
108.956	1.41756	.77870	.015672	.5024	6378.4	7083.8	144.958	27.90	54.40	.82845	187
110.000	1.38636	.78867	.015077	.5263	6418.0	7139.3	145.460	27.28	51.99	.83435	189
120.000	1.17328	.85425	.011581	.7089	6738.5	7590.8	149.396	24.09	40.58	.87499	206
130.000	1.03708	.89209	.009755	.8509	7008.3	7972.6	152.453	22.78	36.30	.90252	220
140.000	.93693	.91692	.008565	.9745	7256.2	8323.5	155.055	22.09	34.10	.92223	231
150.000	.85814	.93436	.007700	1.0876	7492.1	8657.4	157.359	21.69	32.79	.93694	242
160.000	.79363	.94717	.007031	1.1941	7720.9	8980.9	159.447	21.44	31.95	.94821	252
170.000	.73936	.95689	.006490	1.2960	7944.8	9297.4	161.366	21.27	31.38	.95706	261
180.000	.69280	.96445	.006039	1.3946	8165.5	9608.9	163.147	21.15	30.96	.96412	269
190.000	.65228	.97046	.005656	1.4907	8383.9	9917.0	164.812	21.07	30.66	.96985	278
200.000	.61658	.97531	.005324	1.5850	8600.5	10222.3	166.378	21.01	30.42	.97455	286
210.000	.58484	.97928	.005033	1.6778	8815.7	10525.6	167.858	20.97	30.24	.97846	293
220.000	.55639	.98256	.004775	1.7694	9030.0	10827.3	169.261	20.94	30.10	.98173	301
230.000	.53072	.98531	.004544	1.8601	9243.4	11127.6	170.597	20.91	29.98	.98450	308
240.000	.50741	.98763	.004336	1.9499	9456.2	11427.0	171.870	20.90	29.89	.98686	315
250.000	.48614	.98960	.004147	2.0391	9668.4	11725.4	173.089	20.88	29.81	.98888	322
260.000	.46665	.99128	.003975	2.1277	9880.2	12023.1	174.256	20.87	29.74	.99062	328
270.000	.44871	.99274	.003818	2.2158	10091.7	12320.3	175.378	20.87	29.69	.99213	335
280.000	.43214	.99399	.003672	2.3035	10302.8	12616.9	176.457	20.86	29.64	.99344	341
290.000	.41678	.99509	.003538	2.3908	10513.8	12913.1	177.496	20.86	29.60	.99459	348
300.000	.40250	.99604	.003414	2.4778	10724.5	13209.0	178.499	20.86	29.57	.99560	354
310.000	.38919	.99688	.003298	2.5645	10935.2	13504.6	179.469	20.87	29.55	.99650	360
320.000	.37675	.99762	.003190	2.6510	11145.7	13800.0	180.406	20.88	29.53	.99728	365
330.000	.36509	.99827	.003090	2.7372	11356.2	14095.3	181.315	20.89	29.52	.99798	371
340.000	.35415	.99885	.002995	2.8232	11566.8	14390.4	182.196	20.90	29.51	.99860	377
350.000	.34385	.99936	.002906	2.9091	11777.3	14685.5	183.051	20.91	29.51	.99916	382
360.000	.33415	.99982	.002823	2.9948	11987.9	14980.6	183.883	20.93	29.51	.99965	388
370.000	.32499	1.00023	.002744	3.0803	12198.7	15275.7	184.691	20.95	29.52	1.00009	393
380.000	.31632	1.00059	.002670	3.1657	12409.6	15570.9	185.479	20.98	29.53	1.00049	398
390.000	.30811	1.00091	.002599	3.2510	12620.6	15866.3	186.246	21.00	29.54	1.00085	404
400.000	.30032	1.00121	.002532	3.3362	12831.9	16161.8	186.994	21.03	29.56	1.00117	409
410.000	.29292	1.00147	.002469	3.4213	13043.5	16457.4	187.724	21.07	29.58	1.00146	414
420.000	.28587	1.00170	.002409	3.5062	13255.3	16753.4	188.437	21.10	29.61	1.00172	419
430.000	.27917	1.00191	.002352	3.5911	13467.5	17049.6	189.134	21.14	29.64	1.00195	423
440.000	.27277	1.00210	.002297	3.6759	13680.0	17346.1	189.816	21.18	29.67	1.00217	428
450.000	.26666	1.00228	.002245	3.7606	13892.9	17643.0	190.483	21.23	29.70	1.00236	433
470.000	.25524	1.00257	.002147	3.9299	14320.0	18237.9	191.776	21.32	29.79	1.00269	442
500.000	.23985	1.00291	.002016	4.1833	14964.2	19133.5	193.624	21.48	29.93	1.00308	456
550.000	.21796	1.00328	.001830	4.6047	16048.8	20636.8	196.489	21.79	30.21	1.00352	477
600.000	.19975	1.00350	.001676	5.0251	17149.2	22155.4	199.131	22.13	30.54	1.00378	497
650.000	.18437	1.00361	.001546	5.4448	18266.8	23690.7	201.589	22.49	30.88	1.00393	516
700.000	.17119	1.00366	.001434	5.8639	19402.4	25243.8	203.891	22.86	31.24	1.00401	534
750.000	.15978	1.00366	.001338	6.2826	20556.2	26814.9	206.058	23.23	31.60	1.00403	552
800.000	.14980	1.00363	.001254	6.7010	21728.1	28403.8	208.109	23.59	31.95	1.00402	569
850.000	.14099	1.00359	.001180	7.1190	22917.4	30010.1	210.057	23.93	32.29	1.00399	585
900.000	.13317	1.00353	.001114	7.5368	24123.6	31633.0	211.912	24.26	32.62	1.00395	601
950.000	.12617	1.00346	.001055	7.9543	25345.7	33271.8	213.684	24.58	32.93	1.00389	616
1000.000	.11987	1.00339	.001002	8.3717	26582.8	34925.5	215.380	24.87	33.22	1.00383	631

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol⁻¹K⁻¹	C_V J mol⁻¹K⁻¹	C_P J mol⁻¹K⁻¹	f/P	W m/s
					1.200000 MPa						
68.393	30.28912	.06967	2.179547	15.4705	3.4	43.0	74.531	36.29	59.18	.01425	949
70.000	30.06193	.06859	2.117013	14.9167	99.0	138.9	75.909	36.29	59.57	.01852	934
80.000	28.60258	.06307	1.756863	11.6607	701.6	743.6	83.993	35.54	61.42	.07152	848
90.000	27.03028	.05933	1.437065	8.7101	1319.4	1363.8	91.297	33.43	62.63	.19403	763
100.000	25.26922	.05712	1.145448	6.0400	1949.4	1996.9	97.952	30.01	64.03	.41288	678
110.000	23.15653	.05666	.868079	3.6179	2599.1	2650.9	104.189	25.43	68.16	.73546	588
111.956	22.67121	.05686	.813574	3.1674	2732.3	2785.2	105.402	24.44	69.96	.80993	568
111.956	1.72189	.74867	.019762	.4643	6358.3	7055.2	143.541	29.05	60.81	.80993	186
120.000	1.47014	.81810	.015210	.6389	6653.5	7469.8	147.118	25.30	45.40	.84939	202
130.000	1.27940	.86775	.012413	.8000	6947.5	7885.4	150.448	23.41	38.70	.88307	217
140.000	1.14644	.89922	.010721	.9349	7208.4	8255.1	153.189	22.48	35.57	.90697	229
150.000	1.04479	.92092	.009543	1.0556	7452.7	8601.2	155.577	21.94	33.80	.92477	240
160.000	.96301	.93669	.008656	1.1676	7687.2	8933.3	157.721	21.61	32.68	.93833	251
170.000	.89502	.94856	.007952	1.2737	7915.4	9256.1	159.678	21.40	31.93	.94894	260
180.000	.83719	.95774	.007375	1.3758	8139.3	9572.7	161.487	21.25	31.40	.95739	269
190.000	.78717	.96499	.006889	1.4747	8360.2	9884.6	163.174	21.15	31.01	.96424	277
200.000	.74331	.97083	.006471	1.5713	8578.8	10193.2	164.757	21.07	30.72	.96986	285
210.000	.70447	.97559	.006108	1.6661	8795.8	10499.2	166.250	21.02	30.49	.97452	293
220.000	.66975	.97952	.005787	1.7594	9011.5	10803.2	167.664	20.98	30.31	.97842	301
230.000	.63849	.98280	.005501	1.8516	9226.1	11105.6	169.008	20.94	30.17	.98171	308
240.000	.61017	.98556	.005244	1.9427	9440.0	11406.6	170.290	20.92	30.05	.98452	315
250.000	.58437	.98790	.005012	2.0331	9653.1	11706.6	171.514	20.90	29.95	.98692	322
260.000	.56076	.98990	.004801	2.1227	9865.7	12005.7	172.687	20.89	29.87	.98899	329
270.000	.53906	.99163	.004608	2.2118	10077.9	12304.0	173.813	20.88	29.80	.99078	335
280.000	.51902	.99312	.004431	2.3003	10289.7	12601.7	174.896	20.88	29.75	.99234	342
290.000	.50047	.99441	.004267	2.3885	10501.2	12898.9	175.939	20.87	29.70	.99371	348
300.000	.48324	.99554	.004116	2.4762	10712.5	13195.7	176.945	20.87	29.66	.99491	354
310.000	.46719	.99653	.003975	2.5636	10923.6	13492.2	177.917	20.88	29.63	.99596	360
320.000	.45220	.99740	.003844	2.6506	11134.6	13788.3	178.857	20.88	29.60	.99689	366
330.000	.43816	.99817	.003721	2.7374	11345.5	14084.3	179.768	20.89	29.59	.99772	372
340.000	.42498	.99884	.003607	2.8240	11556.4	14380.1	180.651	20.90	29.57	.99846	377
350.000	.41259	.99945	.003499	2.9104	11767.3	14675.8	181.508	20.92	29.57	.99911	383
360.000	.40091	.99998	.003398	2.9965	11978.3	14971.4	182.341	20.94	29.56	.99970	388
370.000	.38989	1.00046	.003302	3.0825	12189.3	15267.1	183.151	20.96	29.57	1.00022	394
380.000	.37947	1.00089	.003212	3.1683	12400.5	15562.8	183.940	20.98	29.57	1.00069	399
390.000	.36960	1.00127	.003127	3.2540	12611.8	15858.6	184.708	21.01	29.59	1.00111	404
400.000	.36024	1.00161	.003046	3.3396	12823.4	16154.5	185.457	21.04	29.60	1.00149	409
410.000	.35134	1.00191	.002970	3.4250	13035.1	16450.6	186.188	21.07	29.62	1.00183	414
420.000	.34288	1.00219	.002897	3.5103	13247.2	16746.9	186.902	21.10	29.64	1.00214	419
430.000	.33483	1.00243	.002828	3.5955	13459.6	17043.5	187.600	21.14	29.67	1.00241	424
440.000	.32715	1.00266	.002762	3.6806	13672.3	17340.4	188.283	21.18	29.70	1.00266	429
450.000	.31981	1.00285	.002699	3.7656	13885.4	17637.6	188.951	21.23	29.74	1.00289	433
470.000	.30610	1.00320	.002581	3.9354	14312.8	18233.1	190.245	21.32	29.82	1.00328	443
500.000	.28762	1.00359	.002423	4.1895	14957.4	19129.6	192.094	21.48	29.95	1.00374	456
550.000	.26136	1.00402	.002199	4.6119	16042.7	20634.1	194.962	21.79	30.23	1.00425	477
600.000	.23952	1.00426	.002013	5.0331	17143.6	22153.6	197.606	22.13	30.55	1.00455	498
650.000	.22107	1.00438	.001857	5.4536	18261.6	23689.8	200.065	22.49	30.90	1.00472	517
700.000	.20527	1.00443	.001723	5.8733	19397.6	25243.5	202.368	22.86	31.25	1.00481	535
750.000	.19159	1.00443	.001607	6.2926	20551.7	26815.2	204.536	23.23	31.61	1.00483	552
800.000	.17962	1.00439	.001506	6.7114	21723.9	28404.7	206.588	23.59	31.96	1.00482	569
850.000	.16906	1.00433	.001416	7.1298	22913.5	30011.4	208.536	23.93	32.30	1.00478	586
900.000	.15968	1.00426	.001337	7.5479	24119.8	31634.7	210.392	24.26	32.63	1.00472	601
950.000	.15129	1.00418	.001267	7.9658	25342.1	33273.9	212.164	24.58	32.93	1.00465	617
1000.000	.14374	1.00409	.001203	8.3835	26579.4	34927.9	213.861	24.87	33.22	1.00458	632

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
1.400000 MPa											
68.438	30.29572	.08121	2.181375	15.5123	4.0	50.2	74.539	36.29	59.17	.01245	950
70.000	30.07532	.07998	2.120576	14.9741	96.8	143.3	75.878	36.30	59.54	.01606	936
80.000	28.61969	.07354	1.760414	11.7195	698.7	747.6	83.956	35.54	61.37	.06195	849
90.000	27.05316	.06916	1.440909	8.7724	1315.4	1367.2	91.252	33.43	62.54	.16796	765
100.000	25.30215	.06655	1.149983	6.1082	1943.6	1998.9	97.893	30.02	63.84	.35728	680
110.000	23.21122	.06595	.874151	3.6965	2589.5	2649.8	104.101	25.45	67.65	.63637	592
114.617	22.02582	.06670	.745564	2.6499	2906.3	2969.8	106.952	23.08	72.63	.79326	545
114.617	2.04035	.72001	.024240	.4257	6330.0	7016.1	142.255	30.19	68.19	.79326	185
120.000	1.80322	.77815	.019647	.5624	6556.3	7332.7	144.951	26.80	52.13	.82349	197
130.000	1.53798	.84217	.015413	.7471	6881.8	7792.0	148.633	24.12	41.60	.86366	214
140.000	1.36512	.88103	.013068	.8944	7158.2	8183.7	151.537	22.90	37.24	.89183	227
150.000	1.23722	.90731	.011508	1.0233	7411.8	8543.4	154.019	22.22	34.90	.91268	239
160.000	1.13628	.92617	.010365	1.1411	7652.6	8884.7	156.222	21.80	33.47	.92852	250
170.000	1.05341	.94025	.009476	1.2517	7885.3	9214.3	158.221	21.53	32.52	.94090	259
180.000	.98356	.95108	.008757	1.3572	8112.6	9536.0	160.060	21.35	31.86	.95074	268
190.000	.92352	.95961	.008158	1.4590	8336.2	9852.2	161.770	21.22	31.38	.95870	277
200.000	.87114	.96644	.007647	1.5580	8557.0	10164.1	163.370	21.13	31.02	.96523	285
210.000	.82492	.97199	.007206	1.6548	8775.8	10472.9	164.876	21.06	30.75	.97063	293
220.000	.78373	.97657	.006818	1.7498	8992.9	10779.2	166.301	21.01	30.53	.97515	301
230.000	.74674	.98037	.006474	1.8435	9208.8	11083.6	167.655	20.97	30.35	.97897	308
240.000	.71330	.98358	.006167	1.9360	9423.7	11386.4	168.943	20.95	30.21	.98222	315
250.000	.68289	.98629	.005889	2.0275	9637.8	11687.9	170.174	20.92	30.09	.98500	322
260.000	.65508	.98860	.005637	2.1182	9851.3	11988.4	171.352	20.91	30.00	.98739	329
270.000	.62955	.99059	.005408	2.2082	10064.2	12288.0	172.483	20.90	29.92	.98946	335
280.000	.60602	.99231	.005197	2.2976	10276.6	12586.8	173.570	20.89	29.85	.99127	342
290.000	.58425	.99380	.005003	2.3865	10488.7	12885.0	174.616	20.88	29.79	.99284	348
300.000	.56403	.99510	.004823	2.4749	10700.5	13182.7	175.625	20.88	29.75	.99423	354
310.000	.54522	.99623	.004657	2.5630	10912.1	13479.9	176.600	20.88	29.71	.99544	360
320.000	.52765	.99723	.004502	2.6507	11123.6	13776.9	177.543	20.89	29.68	.99652	366
330.000	.51121	.99811	.004357	2.7380	11334.9	14073.5	178.456	20.90	29.65	.99747	372
340.000	.49579	.99889	.004222	2.8251	11546.2	14370.0	179.341	20.91	29.64	.99832	378
350.000	.48129	.99958	.004095	2.9120	11757.4	14666.3	180.199	20.92	29.62	.99907	383
360.000	.46763	1.00019	.003976	2.9986	11968.7	14962.5	181.034	20.94	29.62	.99975	389
370.000	.45475	1.00074	.003864	3.0850	12180.0	15258.6	181.845	20.96	29.62	1.00035	394
380.000	.44257	1.00122	.003758	3.1712	12391.5	15554.8	182.635	20.98	29.62	1.00089	399

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol⁻¹K⁻¹	C_V J mol⁻¹K⁻¹	C_P J mol⁻¹K⁻¹	f/P	W m/s
					1.600000 MPa						
68.483	30.30229	.09273	2.183197	15.5541	4.6	57.4	74.547	36.29	59.15	.01111	951
70.000	30.08865	.09137	2.124134	15.0314	94.6	147.8	75.847	36.30	59.51	.01421	937
80.000	28.63671	.08400	1.763956	11.7783	695.8	751.7	83.919	35.54	61.32	.05478	851
90.000	27.07588	.07897	1.444736	8.8345	1311.4	1370.5	91.207	33.44	62.45	.14843	767
100.000	25.33471	.07596	1.154481	6.1760	1937.8	2000.9	97.834	30.03	63.65	.31560	683
110.000	23.26476	.07520	.880123	3.7742	2580.0	2648.8	104.014	25.46	67.17	.56208	596
117.016	21.40044	.07684	.684485	2.2069	3066.4	3141.1	108.352	21.84	76.09	.77807	523
117.016	2.37550	.69228	.029145	.3870	6294.6	6968.1	141.057	31.35	76.87	.77807	184
120.000	2.18827	.73283	.025276	.4770	6441.9	7173.1	142.781	28.76	62.33	.79721	192
130.000	1.81604	.81511	.018827	.6917	6810.5	7691.6	146.939	24.94	45.14	.84421	211
140.000	1.59405	.86229	.015631	.8530	7105.3	8109.0	150.035	23.35	39.13	.87674	225
150.000	1.43586	.89347	.013605	.9906	7369.4	8483.7	152.621	22.51	36.10	.90067	238
160.000	1.31362	.91558	.012163	1.1145	7617.0	8835.0	154.889	22.00	34.31	.91881	249
170.000	1.21462	.93195	.011064	1.2297	7854.6	9171.9	156.932	21.67	33.14	.93294	259
180.000	1.13193	.94448	.010187	1.3388	8085.6	9499.1	158.803	21.45	32.34	.94417	268
190.000	1.06133	.95429	.009464	1.4435	8312.0	9819.5	160.535	21.30	31.77	.95324	277
200.000	1.00006	.96212	.008853	1.5449	8535.0	10134.9	162.153	21.19	31.34	.96067	285
210.000	.94619	.96847	.008328	1.6437	8755.6	10446.6	163.674	21.11	31.01	.96681	293
220.000	.89834	.97369	.007869	1.7405	8974.3	10755.4	165.110	21.05	30.75	.97195	301
230.000	.85547	.97803	.007464	1.8357	9191.5	11061.8	166.472	21.01	30.54	.97629	308
240.000	.81678	.98167	.007103	1.9295	9407.5	11366.4	167.768	20.97	30.38	.97997	315
250.000	.78166	.98475	.006778	2.0222	9622.5	11669.5	169.006	20.95	30.24	.98312	322
260.000	.74960	.98737	.006484	2.1139	9836.8	11971.3	170.189	20.93	30.13	.98583	329
270.000	.72020	.98962	.006216	2.2049	10050.4	12272.1	171.325	20.91	30.03	.98818	336
280.000	.69312	.99156	.005971	2.2952	10263.6	12572.0	172.415	20.90	29.95	.99023	342
290.000	.66808	.99325	.005745	2.3848	10476.3	12871.2	173.465	20.89	29.89	.99201	348
300.000	.64486	.99471	.005537	2.4740	10688.6	13169.8	174.478	20.89	29.83	.99357	355
310.000	.62326	.99599	.005344	2.5627	10900.7	13467.9	175.455	20.89	29.79	.99495	361
320.000	.60310	.99712	.005165	2.6510	11112.6	13765.6	176.400	20.90	29.75	.99617	367
330.000	.58424	.99811	.004998	2.7389	11324.3	14062.9	177.315	20.90	29.72	.99724	372
340.000	.56656	.99898	.004842	2.8265	11536.0	14360.0	178.202	20.91	29.70	.99820	378
350.000	.54995	.99975	.004695	2.9139	11747.5	14656.9	179.063	20.93	29.68	.99905	384
360.000	.53431	1.00044	.004558	3.0009	11959.1	14953.7	179.899	20.94	29.67	.99981	389
370.000	.51955	1.00105	.004428	3.0878	12170.8	15250.4	180.712	20.96	29.67	1.00049	394
380.000	.50560	1.00159	.004306	3.1744	12382.5	15547.0	181.503	20.99	29.67	1.00110	400
390.000	.49240	1.00208	.004191	3.2608	12594.3	15843.7	182.273	21.01	29.67	1.00164	405
400.000	.47988	1.00251	.004081	3.3471	12806.4	16140.5	183.025	21.04	29.68	1.00213	410
410.000	.46800	1.00290	.003978	3.4332	13018.6	16437.5	183.758	21.07	29.70	1.00258	415
420.000	.45669	1.00325	.003879	3.5191	13231.1	16734.6	184.474	21.11	29.72	1.00297	420
430.000	.44593	1.00356	.003786	3.6049	13443.9	17031.9	185.174	21.15	29.74	1.00333	425
440.000	.43568	1.00384	.003697	3.6906	13657.0	17329.4	185.858	21.19	29.77	1.00365	430
450.000	.42589	1.00409	.003612	3.7762	13870.4	17627.3	186.527	21.23	29.80	1.00394	435
470.000	.40759	1.00452	.003454	3.9470	14298.5	18224.0	187.824	21.32	29.87	1.00444	444
500.000	.38295	1.00501	.003241	4.2025	14944.1	19122.2	189.677	21.48	30.01	1.00503	457
550.000	.34795	1.00554	.002940	4.6269	16030.6	20628.9	192.549	21.79	30.27	1.00568	479
600.000	.31887	1.00583	.002690	5.0498	17132.5	22150.3	195.196	22.13	30.59	1.00606	499
650.000	.29430	1.00597	.002480	5.4716	18251.4	23688.1	197.658	22.49	30.93	1.00627	518
700.000	.27326	1.00601	.002301	5.8925	19388.1	25243.2	199.963	22.86	31.28	1.00637	536
750.000	.25505	1.00599	.002145	6.3128	20542.9	26816.1	202.133	23.23	31.63	1.00639	554
800.000	.23913	1.00593	.002010	6.7325	21715.6	28406.6	204.186	23.59	31.98	1.00636	570
850.000	.22508	1.00584	.001891	7.1517	22905.6	30014.2	206.135	23.93	32.32	1.00630	587
900.000	.21260	1.00573	.001785	7.5706	24112.4	31638.4	207.991	24.26	32.64	1.00622	602
950.000	.20143	1.00562	.001690	7.9892	25335.1	33278.2	209.764	24.58	32.95	1.00612	618
1000.000	.19138	1.00550	.001605	8.4074	26572.7	34932.9	211.462	24.87	33.24	1.00601	633

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol⁻¹K⁻¹	C_V J mol⁻¹K⁻¹	C_P J mol⁻¹K⁻¹	f/P	W m/s
					1.800000 MPa						
68.528	30.30884	.10423	2.185015	15.5958	5.2	64.6	74.555	36.29	59.13	.01006	952
70.000	30.10193	.10274	2.127686	15.0888	92.5	152.3	75.816	36.30	59.47	.01278	939
80.000	28.65365	.09444	1.767489	11.8369	692.9	755.7	83.883	35.55	61.27	.04921	853
90.000	27.09844	.08877	1.448545	8.8965	1307.5	1373.9	91.162	33.45	62.36	.13324	769
100.000	25.36692	.08534	1.158943	6.2435	1932.1	2003.0	97.776	30.04	63.47	.28321	686
110.000	23.31722	.08440	.886001	3.8513	2570.8	2648.0	103.929	25.47	66.71	.50434	600
119.208	20.78405	.08738	.628628	1.8226	3216.5	3303.2	109.643	20.75	80.58	.76416	502
119.208	2.73049	.66510	.034526	.3480	6252.5	6911.7	139.914	32.54	87.31	.76416	182
120.000	2.65694	.67901	.032900	.3773	6300.5	6977.9	140.461	31.53	80.30	.77026	185
130.000	2.11802	.78626	.022747	.6333	6732.8	7582.6	145.316	25.86	49.54	.82470	208
140.000	1.83453	.84291	.018435	.8105	7049.5	8030.7	148.641	23.85	41.29	.86170	223
150.000	1.64120	.87939	.015844	.9575	7325.5	8422.2	151.343	22.81	37.41	.88874	236
160.000	1.49525	.90490	.014056	1.0878	7580.6	8784.4	153.681	22.21	35.20	.90918	248
170.000	1.37873	.92365	.012718	1.2077	7823.4	9128.9	155.770	21.82	33.80	.92507	258
180.000	1.28235	.93790	.011666	1.3205	8058.2	9461.8	157.674	21.56	32.84	.93768	267
190.000	1.20063	.94902	.010808	1.4282	8287.5	9786.7	159.430	21.38	32.16	.94791	276
200.000	1.13006	.95787	.010089	1.5321	8512.9	10105.7	161.066	21.26	31.66	.95623	285
210.000	1.06826	.96502	.009474	1.6329	8735.3	10420.3	162.601	21.16	31.28	.96311	293
220.000	1.01354	.97089	.008940	1.7315	8955.6	10731.5	164.049	21.09	30.98	.96886	301
230.000	.96464	.97576	.008470	1.8282	9174.1	11040.1	165.420	21.04	30.74	.97370	308
240.000	.92060	.97983	.008053	1.9233	9391.2	11346.4	166.724	21.00	30.55	.97782	316
250.000	.88069	.98328	.007678	2.0172	9607.2	11651.1	167.968	20.97	30.39	.98134	323
260.000	.84430	.98620	.007341	2.1100	9822.4	11954.3	169.157	20.94	30.26	.98437	329
270.000	.81097	.98871	.007033	2.2019	10036.8	12256.3	170.297	20.93	30.15	.98699	336
280.000	.78030	.99087	.006753	2.2930	10250.6	12557.4	171.392	20.91	30.06	.98927	343
290.000	.75197	.99275	.006495	2.3835	10463.9	12857.6	172.445	20.91	29.98	.99126	349
300.000	.72571	.99437	.006257	2.4733	10676.8	13157.1	173.461	20.90	29.92	.99300	355
310.000	.70130	.99580	.006037	2.5627	10889.3	13456.0	174.441	20.90	29.87	.99454	361
320.000	.67853	.99704	.005833	2.6516	11101.7	13754.4	175.388	20.90	29.82	.99589	367
330.000	.65725	.99814	.005643	2.7401	11313.8	14052.5	176.306	20.91	29.79	.99709	373
340.000	.63730	.99911	.005465	2.8282	11525.8	14350.2	177.194	20.92	29.76	.99816	379
350.000	.61856	.99996	.005299	2.9160	11737.7	14647.7	178.057	20.93	29.74	.99910	384
360.000	.60092	1.00072	.005143	3.0035	11949.6	14945.0	178.894	20.95	29.73	.99995	390
370.000	.58429	1.00140	.004996	3.0908	12161.6	15242.2	179.709	20.97	29.72	1.00070	395
380.000	.56857	1.00200	.004857	3.1778	12373.6	15539.4	180.501	20.99	29.72	1.00138	400
390.000	.55370	1.00253	.004726	3.2646	12585.7	15836.6	181.273	21.02	29.72	1.00198	405
400.000	.53960	1.00301	.004602	3.3512	12798.0	16133.8	182.025	21.04	29.73	1.00253	411
410.000	.52621	1.00344	.004485	3.4376	13010.4	16431.1	182.760	21.08	29.74	1.00302	416
420.000	.51349	1.00382	.004374	3.5239	13223.2	16728.6	183.476	21.11	29.76	1.00346	421
430.000	.50138	1.00416	.004268	3.6100	13436.1	17026.3	184.177	21.15	29.78	1.00385	426
440.000	.48983	1.00447	.004167	3.6960	13649.4	17324.2	184.862	21.19	29.80	1.00421	430
450.000	.47881	1.00475	.004071	3.7818	13863.1	17622.4	185.532	21.23	29.83	1.00453	435
470.000	.45823	1.00521	.003892	3.9531	14291.5	18219.7	186.831	21.33	29.90	1.00509	444
500.000	.43050	1.00575	.003651	4.2093	14937.5	19118.6	188.685	21.49	30.03	1.00573	458
550.000	.39114	1.00632	.003311	4.6346	16024.6	20626.5	191.559	21.79	30.29	1.00645	479
600.000	.35844	1.00663	.003030	5.0583	17127.1	22148.9	194.208	22.13	30.60	1.00687	499
650.000	.33082	1.00677	.002792	5.4808	18246.4	23687.4	196.671	22.49	30.94	1.00709	518
700.000	.30718	1.00681	.002590	5.9023	19383.4	25243.2	198.976	22.86	31.29	1.00719	537
750.000	.28671	1.00678	.002415	6.3231	20538.5	26816.7	201.147	23.23	31.65	1.00721	554
800.000	.26881	1.00670	.002262	6.7432	21711.4	28407.6	203.201	23.59	31.99	1.00718	571
850.000	.25302	1.00660	.002128	7.1629	22901.8	30015.7	205.151	23.93	32.33	1.00710	587
900.000	.23900	1.00648	.002009	7.5821	24108.8	31640.3	207.008	24.26	32.65	1.00701	603
950.000	.22645	1.00634	.001902	8.0009	25331.6	33280.5	208.781	24.58	32.96	1.00690	618
1000.000	.21515	1.00620	.001806	8.4195	26569.4	34935.5	210.479	24.87	33.24	1.00677	633

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					2.000000 MPa						
68.573	30.31538	.11571	2.186828	15.6376	5.8	71.7	74.563	36.29	59.11	.00923	953
70.000	30.11516	.11411	2.131233	15.1461	90.3	156.7	75.784	36.30	59.44	.01163	941
80.000	28.67051	.10487	1.771013	11.8955	690.1	759.8	83.847	35.55	61.21	.04475	855
90.000	27.12084	.09855	1.452338	8.9584	1303.6	1377.3	91.118	33.46	62.27	.12111	771
100.000	25.39878	.09471	1.163371	6.3108	1926.4	2005.2	97.719	30.05	63.29	.25732	688
110.000	23.36864	.09358	.891788	3.9277	2561.8	2647.4	103.845	25.49	66.27	.45818	603
120.000	20.62054	.09721	.614499	1.7493	3260.6	3357.6	110.029	20.36	81.28	.71548	499
121.230	20.16682	.09839	.576750	1.4862	3360.0	3459.2	110.860	19.80	86.51	.75122	481
121.230	3.10946	.63811	.040451	.3088	6203.8	6847.0	138.804	33.77	100.22	.75122	180
130.000	2.45018	.75518	.027306	.5713	6647.0	7463.3	143.722	26.93	55.19	.80508	204
140.000	2.08816	.82282	.021513	.7668	6990.7	7948.4	147.323	24.38	43.76	.84670	221
150.000	1.85384	.86503	.018239	.9238	7279.9	8358.8	150.155	23.14	38.85	.87694	235
160.000	1.68141	.89413	.016048	1.0609	7543.2	8732.7	152.569	22.42	36.16	.89967	247
170.000	1.54586	.91533	.014443	1.1858	7791.5	9085.3	154.708	21.97	34.49	.91732	257
180.000	1.43486	.93135	.013197	1.3024	8030.4	9424.2	156.645	21.67	33.37	.93130	267
190.000	1.34141	.94380	.012191	1.4131	8262.7	9753.7	158.426	21.47	32.57	.94263	276
200.000	1.26115	.95367	.011355	1.5194	8490.5	10076.4	160.082	21.32	31.99	.95184	285
210.000	1.19114	.96164	.010644	1.6224	8714.9	10394.0	161.631	21.21	31.55	.95945	293
220.000	1.12935	.96815	.010031	1.7227	8936.8	10707.7	163.091	21.13	31.21	.96580	301
230.000	1.07426	.97355	.009493	1.8209	9156.6	11018.4	164.472	21.07	30.94	.97116	308
240.000	1.02475	.97806	.009017	1.9174	9374.9	11326.6	165.784	21.03	30.72	.97571	316
250.000	.97995	.98186	.008591	2.0125	9591.9	11632.9	167.034	20.99	30.54	.97959	323
260.000	.93917	.98509	.008208	2.1063	9807.9	11937.5	168.229	20.96	30.39	.98293	330
270.000	.90185	.98786	.007860	2.1992	10023.1	12240.8	169.373	20.94	30.27	.98582	336
280.000	.86755	.99024	.007542	2.2911	10237.6	12542.9	170.472	20.93	30.16	.98834	343
290.000	.83590	.99230	.007251	2.3823	10451.5	12844.1	171.529	20.92	30.08	.99053	349
300.000	.80658	.99408	.006984	2.4729	10664.9	13144.5	172.547	20.91	30.01	.99245	355
310.000	.77934	.99565	.006736	2.5629	10878.0	13444.3	173.530	20.91	29.95	.99414	361
320.000	.75395	.99701	.006506	2.6524	11090.8	13743.5	174.480	20.91	29.90	.99563	367
330.000	.73022	.99822	.006292	2.7414	11303.3	14042.2	175.400	20.92	29.85	.99695	373
340.000	.70799	.99928	.006093	2.8301	11515.7	14340.6	176.290	20.93	29.82	.99812	379
350.000	.68712	1.00021	.005906	2.9184	11728.0	14638.7	177.154	20.94	29.80	.99916	385
360.000	.66748	1.00104	.005731	3.0063	11940.2	14936.5	177.994	20.95	29.78	1.00009	390
370.000	.64896	1.00178	.005566	3.0940	12152.4	15234.3	178.809	20.97	29.77	1.00092	395
380.000	.63147	1.00243	.005411	3.1814	12364.7	15531.9	179.603	20.99	29.76	1.00166	401
390.000	.61492	1.00302	.005264	3.2686	12577.1	15829.5	180.376	21.02	29.76	1.00232	406
400.000	.59924	1.00354	.005125	3.3556	12789.6	16127.2	181.130	21.05	29.77	1.00292	411
410.000	.58435	1.00400	.004994	3.4423	13002.3	16424.9	181.865	21.08	29.78	1.00346	416
420.000	.57020	1.00442	.004870	3.5289	13215.2	16722.8	182.583	21.11	29.79	1.00394	421
430.000	.55674	1.00479	.004751	3.6153	13428.4	17020.8	183.284	21.15	29.81	1.00437	426
440.000	.54390	1.00512	.004639	3.7015	13641.9	17319.0	183.969	21.19	29.84	1.00477	431
450.000	.53166	1.00542	.004531	3.7876	13855.7	17617.5	184.640	21.23	29.86	1.00512	436
470.000	.50878	1.00593	.004331	3.9594	14284.5	18215.5	185.940	21.33	29.93	1.00572	445
500.000	.47798	1.00651	.004063	4.2163	14930.9	19115.2	187.796	21.49	30.06	1.00643	458
550.000	.43426	1.00712	.003683	4.6425	16018.7	20624.2	190.672	21.79	30.31	1.00721	480
600.000	.39794	1.00744	.003370	5.0670	17121.6	22147.5	193.323	22.13	30.62	1.00766	500
650.000	.36728	1.00759	.003105	5.4901	18241.4	23686.8	195.787	22.49	30.96	1.00790	519
700.000	.34103	1.00762	.002880	5.9122	19378.8	25243.3	198.094	22.86	31.30	1.00801	537
750.000	.31831	1.00758	.002685	6.3335	20534.2	26817.3	200.265	23.23	31.66	1.00802	555
800.000	.29845	1.00749	.002515	6.7540	21707.4	28408.8	202.320	23.59	32.00	1.00798	571
850.000	.28092	1.00737	.002366	7.1741	22897.9	30017.3	204.270	23.93	32.34	1.00789	588
900.000	.26535	1.00722	.002233	7.5936	24105.1	31642.2	206.127	24.26	32.66	1.00778	604
950.000	.25143	1.00707	.002114	8.0128	25328.2	33282.8	207.901	24.58	32.96	1.00765	619
1000.000	.23889	1.00691	.002008	8.4316	26566.1	34938.1	209.599	24.87	33.25	1.00752	634

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
2.200000 MPa											
68.617	30.32190	.12717	2.188636	15.6793	6.3	78.9	74.571	36.30	59.10	.00855	954
70.000	30.12834	.12546	2.134775	15.2033	88.2	161.2	75.753	36.30	59.41	.01070	942
80.000	28.68728	.11529	1.774528	11.9540	687.2	763.9	83.810	35.56	61.16	.04111	856
90.000	27.14309	.10831	1.456114	9.0200	1299.7	1380.7	91.074	33.46	62.18	.11119	773
100.000	25.43030	.10405	1.167765	6.3777	1920.8	2007.4	97.662	30.06	63.12	.23615	691
110.000	23.41907	.10271	.897489	4.0035	2552.9	2646.8	103.762	25.50	65.85	.42044	607
120.000	20.73183	.10636	.624049	1.8453	3241.8	3347.9	109.868	20.36	79.29	.65677	506
123.110	19.53872	.11000	.527876	1.1900	3499.6	3612.2	112.029	19.02	94.52	.73914	459
123.110	3.51811	.61092	.047017	.2692	6147.9	6773.2	137.706	35.08	116.77	.73914	178
130.000	2.82201	.72125	.032701	.5050	6551.1	7330.7	142.117	28.19	62.76	.78530	200
140.000	2.35691	.80189	.024905	.7218	6928.3	7861.8	146.060	24.96	46.62	.83177	219
150.000	2.07441	.85035	.020802	.8897	7232.7	8293.3	149.038	23.48	40.43	.86519	233
160.000	1.87237	.88323	.018146	1.0338	7504.9	8679.8	151.534	22.65	37.18	.89023	246
170.000	1.71611	.90697	.016239	1.1638	7759.1	9041.1	153.725	22.13	35.21	.90963	257
180.000	1.58950	.92481	.014780	1.2842	8002.2	9386.2	155.698	21.79	33.91	.92499	267
190.000	1.48371	.93861	.013614	1.3980	8237.7	9720.5	157.505	21.55	33.00	.93740	276
200.000	1.39332	.94952	.012652	1.5069	8468.0	10047.0	159.180	21.39	32.33	.94750	285
210.000	1.31482	.95830	.011840	1.6120	8694.4	10367.7	160.745	21.27	31.83	.95583	293
220.000	1.24574	.96547	.011142	1.7141	8917.9	10684.0	162.216	21.17	31.44	.96279	301
230.000	1.18431	.97139	.010533	1.8138	9139.2	10996.8	163.607	21.11	31.14	.96865	309
240.000	1.12922	.97633	.009995	1.9117	9358.6	11306.9	164.927	21.05	30.89	.97363	316
250.000	1.07945	.98050	.009516	2.0079	9576.6	11614.7	166.184	21.01	30.69	.97787	323
260.000	1.03420	.98403	.009085	2.1028	9793.5	11920.8	167.384	20.98	30.52	.98153	330
270.000	.99285	.98705	.008695	2.1966	10009.5	12225.3	168.533	20.96	30.39	.98468	337
280.000	.95488	.98965	.008340	2.2895	10224.6	12528.6	169.636	20.94	30.27	.98743	343
290.000	.91987	.99189	.008015	2.3815	10439.1	12830.8	170.697	20.93	30.17	.98982	350
300.000	.88746	.99384	.007716	2.4727	10653.1	13132.1	171.718	20.92	30.09	.99191	356
310.000	.85737	.99553	.007440	2.5634	10866.7	13432.7	172.704	20.92	30.02	.99376	362
320.000	.82934	.99702	.007184	2.6534	11079.9	13732.6	173.656	20.92	29.97	.99538	368
330.000	.80316	.99833	.006946	2.7430	11292.9	14032.1	174.577	20.92	29.92	.99682	374
340.000	.77864	.99948	.006724	2.8322	11505.6	14331.1	175.470	20.93	29.88	.99809	379
350.000	.75562	1.00049	.006517	2.9209	11718.3	14629.8	176.336	20.94	29.85	.99923	385
360.000	.73397	1.00139	.006322	3.0094	11930.8	14928.2	177.177	20.96	29.83	1.00024	391
370.000	.71357	1.00219	.006139	3.0974	12143.3	15226.4	177.994	20.98	29.82	1.00114	396
380.000	.69430	1.00289	.005967	3.1852	12355.9	15524.6	178.789	21.00	29.81	1.00195	401
390.000	.67607	1.00353	.005805	3.2728	12568.5	15822.6	179.563	21.02	29.81	1.00267	407
400.000	.65880	1.00409	.005651	3.3601	12781.3	16120.7	180.318	21.05	29.81	1.00332	412
410.000	.64241	1.00459	.005506	3.4471	12994.2	16418.8	181.054	21.08	29.82	1.00390	417
420.000	.62684	1.00504	.005368	3.5340	13207.4	16717.1	181.773	21.12	29.83	1.00443	422
430.000	.61202	1.00544	.005237	3.6207	13420.8	17015.4	182.475	21.15	29.85	1.00490	427
440.000	.59789	1.00580	.005112	3.7072	13634.4	17314.0	183.161	21.19	29.87	1.00532	431
450.000	.58442	1.00612	.004994	3.7936	13848.4	17612.8	183.833	21.24	29.90	1.00571	436
470.000	.55925	1.00666	.004772	3.9659	14277.5	18211.4	185.134	21.33	29.96	1.00636	445
500.000	.52537	1.00728	.004476	4.2234	14924.4	19111.9	186.991	21.49	30.08	1.00713	459
550.000	.47730	1.00793	.004057	4.6505	16012.8	20622.0	189.870	21.79	30.33	1.00797	480
600.000	.43738	1.00827	.003710	5.0758	17116.2	22146.2	192.522	22.13	30.64	1.00845	500
650.000	.40368	1.00841	.003419	5.4996	18236.4	23686.3	194.987	22.49	30.97	1.00871	519
700.000	.37483	1.00844	.003170	5.9222	19374.2	25243.4	197.295	22.86	31.32	1.00881	538
750.000	.34986	1.00838	.002956	6.3439	20529.8	26818.0	199.467	23.23	31.67	1.00882	555
800.000	.32803	1.00827	.002768	6.7649	21703.3	28410.0	201.522	23.59	32.01	1.00877	572
850.000	.30878	1.00814	.002604	7.1853	22894.1	30018.9	203.473	23.93	32.35	1.00867	588
900.000	.29167	1.00798	.002457	7.6052	24101.5	31644.2	205.331	24.26	32.67	1.00855	604
950.000	.27637	1.00780	.002327	8.0247	25324.7	33285.2	207.105	24.58	32.97	1.00840	619
1000.000	.26259	1.00763	.002209	8.4438	26562.9	34940.8	208.803	24.87	33.25	1.00825	634

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					2.400000 MPa						
68.662	30.32839	.13861	2.190440	15.7210	6.9	86.1	74.580	36.30	59.08	.00799	955
70.000	30.14147	.13681	2.138311	15.2605	86.0	165.7	75.723	36.30	59.39	.00992	944
80.000	28.70397	.12570	1.778033	12.0124	684.4	768.0	83.774	35.56	61.12	.03808	858
90.000	27.16519	.11806	1.459874	9.0815	1295.8	1384.2	91.031	33.47	62.09	.10293	775
100.000	25.46150	.11337	1.172127	6.4443	1915.3	2009.6	97.606	30.07	62.96	.21853	694
110.000	23.46857	.11181	.903107	4.0786	2544.2	2646.5	103.681	25.51	65.45	.38902	611
120.000	20.83754	.11544	.633205	1.9390	3223.9	3339.1	109.714	20.37	77.51	.60788	513
124.867	18.88808	.12239	.481169	.9285	3637.8	3764.8	113.176	18.45	105.73	.72778	435
124.867	3.96462	.58308	.054363	.2291	6083.7	6689.1	136.595	36.49	138.96	.72778	176
130.000	3.24885	.68344	.039250	.4329	6441.5	7180.2	140.450	29.71	73.54	.76529	195
140.000	2.64329	.78001	.028658	.6752	6862.1	7770.1	144.832	25.59	49.96	.81685	216
150.000	2.30370	.83533	.023548	.8550	7183.7	8225.5	147.976	23.84	42.17	.85349	232
160.000	2.06842	.87220	.020356	1.0065	7465.6	8625.9	150.562	22.88	38.27	.88085	245
170.000	1.88961	.89857	.018112	1.1417	7726.1	8996.2	152.808	22.29	35.97	.90201	256
180.000	1.74635	.91827	.016418	1.2661	7973.6	9347.9	154.818	21.90	34.47	.91873	266
190.000	1.62754	.93345	.015078	1.3831	8212.5	9687.1	156.652	21.64	33.43	.93224	276
200.000	1.52660	.94541	.013981	1.4945	8445.4	10017.5	158.347	21.45	32.68	.94321	285
210.000	1.43929	.95501	.013061	1.6017	8673.8	10341.3	159.927	21.32	32.12	.95227	293
220.000	1.36271	.96283	.012274	1.7056	8899.0	10660.2	161.411	21.22	31.68	.95982	301
230.000	1.29478	.96928	.011590	1.8070	9121.6	10975.2	162.811	21.14	31.34	.96619	309
240.000	1.23399	.97466	.010988	1.9062	9342.3	11287.2	164.139	21.08	31.06	.97158	316
250.000	1.17916	.97918	.010452	2.0036	9561.3	11596.7	165.402	21.04	30.84	.97619	323
260.000	1.12938	.98301	.009973	2.0996	9779.1	11904.2	166.608	21.00	30.66	.98015	330
270.000	1.08395	.98629	.009539	2.1943	9995.8	12210.0	167.762	20.98	30.50	.98357	337
280.000	1.04227	.98910	.009145	2.2880	10211.7	12514.3	168.869	20.96	30.38	.98654	344
290.000	1.00386	.99152	.008785	2.3808	10426.8	12817.6	169.933	20.94	30.27	.98913	350
300.000	.96835	.99363	.008454	2.4727	10641.3	13119.8	170.958	20.93	30.18	.99140	356
310.000	.93538	.99546	.008149	2.5640	10855.4	13421.2	171.946	20.93	30.10	.99339	362
320.000	.90470	.99706	.007866	2.6547	11069.1	13721.9	172.901	20.93	30.04	.99515	368
330.000	.87605	.99847	.007604	2.7448	11282.5	14022.1	173.825	20.93	29.99	.99671	374
340.000	.84923	.99971	.007359	2.8345	11495.6	14321.7	174.719	20.94	29.95	.99809	380
350.000	.82406	1.00080	.007131	2.9237	11708.6	14621.0	175.587	20.95	29.91	.99931	386
360.000	.80040	1.00177	.006917	3.0126	11921.5	14920.0	176.429	20.96	29.89	1.00040	391
370.000	.77810	1.00262	.006715	3.1010	12134.3	15218.7	177.248	20.98	29.87	1.00138	397
380.000	.75705	1.00338	.006526	3.1892	12347.1	15517.3	178.044	21.00	29.86	1.00225	402
390.000	.73714	1.00406	.006348	3.2771	12560.0	15815.9	178.819	21.03	29.85	1.00303	407
400.000	.71828	1.00466	.006179	3.3648	12773.0	16114.3	179.575	21.05	29.85	1.00373	412
410.000	.70039	1.00520	.006019	3.4522	12986.2	16412.9	180.312	21.08	29.86	1.00436	417
420.000	.68339	1.00568	.005868	3.5393	13199.6	16711.5	181.032	21.12	29.87	1.00492	422
430.000	.66721	1.00610	.005724	3.6263	13413.1	17010.2	181.735	21.15	29.88	1.00543	427
440.000	.65180	1.00649	.005587	3.7131	13627.0	17309.1	182.422	21.19	29.90	1.00589	432
450.000	.63710	1.00683	.005457	3.7997	13841.2	17608.3	183.094	21.24	29.93	1.00630	437
470.000	.60964	1.00741	.005215	3.9725	14270.6	18207.4	184.397	21.33	29.99	1.00701	446
500.000	.57269	1.00806	.004890	4.2306	14917.9	19108.7	186.256	21.49	30.10	1.00782	459
550.000	.52027	1.00875	.004431	4.6587	16006.9	20619.9	189.136	21.79	30.35	1.00872	481
600.000	.47675	1.00910	.004051	5.0847	17110.9	22145.0	191.790	22.13	30.65	1.00924	501
650.000	.44001	1.00925	.003733	5.5091	18231.4	23685.8	194.256	22.49	30.98	1.00951	520
700.000	.40858	1.00926	.003461	5.9323	19369.6	25243.6	196.565	22.86	31.33	1.00962	538
750.000	.38136	1.00919	.003226	6.3545	20525.6	26818.7	198.738	23.23	31.68	1.00962	556
800.000	.35757	1.00907	.003022	6.7759	21699.3	28411.2	200.794	23.59	32.02	1.00956	573
850.000	.33659	1.00891	.002842	7.1967	22890.3	30020.6	202.745	23.94	32.35	1.00945	589
900.000	.31795	1.00873	.002682	7.6169	24097.9	31646.3	204.603	24.27	32.67	1.00931	605
950.000	.30127	1.00854	.002539	8.0367	25321.3	33287.6	206.378	24.58	32.97	1.00915	620
1000.000	.28626	1.00834	.002411	8.4561	26559.6	34943.5	208.077	24.87	33.26	1.00898	635

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					2.600000 MPa						
68.707	30.33487	.15004	2.192238	15.7627	7.5	93.2	74.588	36.30	59.06	.00752	956
70.000	30.15455	.14814	2.141843	15.3177	83.9	170.1	75.692	36.30	59.36	.00926	945
80.000	28.72058	.13610	1.781530	12.0707	681.6	772.1	83.739	35.57	61.07	.03552	860
90.000	27.18713	.12780	1.463617	9.1429	1292.0	1387.6	90.987	33.48	62.01	.09595	777
100.000	25.49238	.12267	1.176456	6.5107	1909.9	2011.8	97.550	30.08	62.79	.20363	696
110.000	23.51716	.12088	.908647	4.1531	2535.6	2646.2	103.601	25.52	65.06	.36245	614
120.000	20.93831	.12446	.642011	2.0307	3206.8	3331.0	109.567	20.37	75.93	.56653	519
126.518	18.19935	.13581	.435822	.6974	3777.6	3920.4	114.328	18.17	122.21	.71703	409
126.518	4.46155	.55398	.062705	.1885	6009.3	6592.1	135.445	38.06	170.67	.71703	173
130.000	3.75863	.63998	.047527	.3529	6311.6	7003.4	138.649	31.65	90.54	.74492	189
140.000	2.95053	.75702	.032833	.6270	6791.5	7672.6	143.624	26.27	53.91	.80191	214
150.000	2.54259	.81992	.026495	.8196	7132.9	8155.4	146.958	24.21	44.08	.84183	230
160.000	2.26989	.86102	.022685	.9789	7425.3	8570.7	149.640	23.12	39.44	.87154	244
170.000	2.06652	.89012	.020063	1.1195	7692.5	8950.6	151.944	22.45	36.77	.89445	255
180.000	1.90545	.91173	.018111	1.2480	7944.7	9309.2	153.994	22.02	35.05	.91253	266
190.000	1.77293	.92831	.016583	1.3682	8187.0	9653.5	155.855	21.73	33.88	.92712	275
200.000	1.66098	.94133	.015342	1.4822	8422.5	9987.9	157.571	21.52	33.04	.93897	284
210.000	1.56455	.95176	.014307	1.5916	8653.1	10314.9	159.167	21.37	32.41	.94874	293
220.000	1.48025	.96024	.013426	1.6973	8880.0	10636.5	160.663	21.26	31.92	.95690	301
230.000	1.40567	.96722	.012663	1.8002	9104.1	10953.7	162.073	21.18	31.54	.96376	309
240.000	1.33906	.97303	.011994	1.9008	9326.0	11267.6	163.409	21.11	31.24	.96957	316
250.000	1.27908	.97791	.011401	1.9994	9546.0	11578.8	164.679	21.06	30.99	.97454	324
260.000	1.22471	.98204	.010871	2.0965	9764.7	11887.7	165.891	21.02	30.79	.97880	331
270.000	1.17514	.98556	.010392	2.1922	9982.2	12194.7	167.050	20.99	30.62	.98248	337
280.000	1.12970	.98859	.009958	2.2867	10198.8	12500.2	168.161	20.97	30.48	.98568	344
290.000	1.08788	.99119	.009562	2.3802	10414.5	12804.5	169.228	20.95	30.37	.98847	350
300.000	1.04923	.99345	.009198	2.4729	10629.6	13107.6	170.256	20.94	30.27	.99091	357
310.000	1.01337	.99542	.008864	2.5648	10844.2	13409.9	171.247	20.94	30.18	.99305	363
320.000	.98001	.99714	.008554	2.6561	11058.3	13711.3	172.204	20.93	30.11	.99494	369
330.000	.94888	.99864	.008266	2.7468	11272.1	14012.2	173.130	20.94	30.05	.99661	375
340.000	.91976	.99997	.007999	2.8369	11485.6	14312.5	174.026	20.94	30.01	.99809	380
350.000	.89244	1.00113	.007749	2.9266	11699.0	14612.3	174.896	20.95	29.97	.99941	386
360.000	.86675	1.00217	.007514	3.0159	11912.2	14911.9	175.739	20.97	29.94	1.00058	392
370.000	.84256	1.00308	.007295	3.1048	12125.3	15211.1	176.559	20.98	29.92	1.00163	397
380.000	.81972	1.00389	.007088	3.1934	12338.4	15510.2	177.357	21.00	29.90	1.00256	402
390.000	.79813	1.00461	.006893	3.2816	12551.6	15809.2	178.134	21.03	29.89	1.00340	408
400.000	.77768	1.00525	.006709	3.3696	12764.8	16108.1	178.890	21.06	29.89	1.00415	413
410.000	.75828	1.00583	.006535	3.4573	12978.2	16407.0	179.628	21.09	29.89	1.00482	418
420.000	.73985	1.00634	.006370	3.5448	13191.8	16706.0	180.349	21.12	29.90	1.00543	423
430.000	.72232	1.00679	.006213	3.6321	13405.6	17005.1	181.053	21.16	29.92	1.00597	428
440.000	.70562	1.00720	.006064	3.7191	13619.6	17304.3	181.741	21.20	29.93	1.00646	433
450.000	.68969	1.00756	.005922	3.8060	13834.0	17603.8	182.414	21.24	29.96	1.00690	437
470.000	.65994	1.00817	.005658	3.9792	14263.8	18203.5	183.717	21.33	30.02	1.00765	447
500.000	.61992	1.00886	.005304	4.2380	14911.5	19105.6	185.578	21.49	30.13	1.00853	460
550.000	.56316	1.00958	.004805	4.6670	16001.1	20617.9	188.461	21.79	30.37	1.00948	481
600.000	.51605	1.00994	.004393	5.0937	17105.6	22143.9	191.116	22.13	30.67	1.01003	501
650.000	.47628	1.01008	.004047	5.5188	18226.5	23685.5	193.584	22.49	31.00	1.01031	521
700.000	.44226	1.01009	.003752	5.9425	19365.0	25243.9	195.893	22.86	31.34	1.01042	539
750.000	.41281	1.01000	.003497	6.3652	20521.3	26819.6	198.067	23.23	31.69	1.01042	556
800.000	.38707	1.00986	.003275	6.7870	21695.3	28412.5	200.123	23.59	32.03	1.01034	573
850.000	.36436	1.00969	.003080	7.2081	22886.5	30022.3	202.075	23.94	32.36	1.01022	589
900.000	.34419	1.00949	.002907	7.6287	24094.4	31648.4	203.934	24.27	32.68	1.01006	605
950.000	.32614	1.00928	.002752	8.0487	25317.9	33290.0	205.709	24.58	32.98	1.00989	620
1000.000	.30990	1.00906	.002613	8.4684	26556.4	34946.3	207.408	24.87	33.27	1.00970	635

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
2.800000 MPa											
68.752	30.34133	.16144	2.194032	15.8044	8.1	100.4	74.596	36.30	59.04	.00711	958
70.000	30.16758	.15947	2.145369	15.3748	81.8	174.6	75.661	36.30	59.33	.00870	947
80.000	28.73711	.14648	1.785018	12.1289	678.8	776.2	83.703	35.57	61.02	.03333	861
90.000	27.20894	.13752	1.467345	9.2041	1288.2	1391.1	90.944	33.49	61.92	.08998	779
100.000	25.52294	.13194	1.180754	6.5768	1904.4	2014.1	97.495	30.09	62.63	.19088	699
110.000	23.56489	.12992	.914111	4.2271	2527.2	2646.1	103.523	25.54	64.69	.33970	618
120.000	21.03468	.13342	.650504	2.1206	3190.4	3323.5	109.425	20.38	74.50	.53111	526
128.076	17.44881	.15069	.390917	.4939	3922.8	4083.2	115.519	18.34	148.49	.70680	377
128.076	5.02972	.52277	.072401	.1472	5921.2	6477.9	134.216	39.90	220.24	.70680	170
130.000	4.41261	.58706	.058807	.2607	6147.4	6781.9	136.566	34.36	122.92	.72400	182
140.000	3.28285	.73273	.037507	.5770	6715.5	7568.5	142.420	27.00	58.68	.78695	211
150.000	2.79212	.80408	.029661	.7836	7079.9	8082.8	145.973	24.60	46.20	.83022	229
160.000	2.47716	.84967	.025140	.9511	7383.9	8514.2	148.759	23.36	40.69	.86227	243
170.000	2.24696	.88161	.022096	1.0972	7658.3	8904.4	151.126	22.62	37.60	.88694	255
180.000	2.06687	.90518	.019863	1.2299	7915.3	9270.0	153.217	22.14	35.66	.90638	265
190.000	1.91991	.92318	.018132	1.3533	8161.3	9619.7	155.107	21.82	34.34	.92205	275
200.000	1.79647	.93728	.016737	1.4700	8399.5	9958.1	156.843	21.59	33.40	.93477	284
210.000	1.69061	.94855	.015580	1.5815	8632.3	10288.5	158.455	21.43	32.70	.94527	293
220.000	1.59837	.95768	.014600	1.6892	8861.0	10612.7	159.964	21.30	32.17	.95401	301
230.000	1.51698	.96520	.013755	1.7936	9086.5	10932.3	161.384	21.21	31.75	.96136	309
240.000	1.44443	.97144	.013016	1.8956	9309.6	11248.1	162.728	21.14	31.42	.96760	317
250.000	1.37921	.97668	.012362	1.9954	9530.7	11560.9	164.005	21.08	31.15	.97291	324
260.000	1.32018	.98111	.011779	2.0935	9750.3	11871.2	165.223	21.04	30.93	.97748	331
270.000	1.26641	.98488	.011254	2.1902	9968.6	12179.6	166.386	21.01	30.75	.98143	338
280.000	1.21719	.98811	.010779	2.2856	10185.9	12486.2	167.502	20.98	30.59	.98485	344
290.000	1.17191	.99090	.010346	2.3799	10402.2	12791.5	168.573	20.97	30.46	.98783	351
300.000	1.13010	.99331	.009949	2.4732	10617.9	13095.6	169.604	20.95	30.35	.99044	357
310.000	1.09134	.99541	.009584	2.5658	10833.0	13398.6	170.597	20.95	30.26	.99273	363
320.000	1.05529	.99724	.009246	2.6577	11047.6	13700.9	171.557	20.94	30.19	.99475	369
330.000	1.02167	.99884	.008933	2.7489	11261.8	14002.4	172.485	20.94	30.12	.99654	375
340.000	.99022	1.00025	.008642	2.8396	11475.7	14303.3	173.383	20.95	30.07	.99812	381
350.000	.96074	1.00150	.008370	2.9297	11689.4	14603.8	174.254	20.96	30.03	.99952	387
360.000	.93303	1.00259	.008115	3.0194	11902.9	14903.9	175.099	20.97	29.99	1.00077	392
370.000	.90693	1.00356	.007877	3.1087	12116.3	15203.7	175.921	20.99	29.97	1.00189	398
380.000	.88231	1.00442	.007652	3.1977	12329.7	15503.2	176.720	21.01	29.95	1.00289	403
390.000	.85903	1.00519	.007441	3.2863	12543.2	15802.6	177.497	21.03	29.94	1.00378	408
400.000	.83699	1.00587	.007241	3.3746	12756.6	16102.0	178.255	21.06	29.93	1.00458	413
410.000	.81609	1.00647	.007052	3.4626	12970.3	16401.3	178.994	21.09	29.93	1.00529	418
420.000	.79623	1.00701	.006873	3.5504	13184.0	16700.6	179.716	21.12	29.94	1.00594	423
430.000	.77734	1.00749	.006704	3.6379	13398.0	17000.1	180.420	21.16	29.95	1.00652	428
440.000	.75935	1.00792	.006542	3.7253	13612.3	17299.6	181.109	21.20	29.97	1.00704	433
450.000	.74220	1.00830	.006389	3.8124	13826.8	17599.4	181.783	21.24	29.99	1.00751	438
470.000	.71016	1.00895	.006103	3.9861	14256.9	18199.7	183.088	21.33	30.04	1.00831	447
500.000	.66707	1.00967	.005720	4.2455	14905.1	19102.5	184.950	21.49	30.15	1.00924	461
550.000	.60598	1.01042	.005181	4.6754	15995.3	20615.9	187.835	21.79	30.39	1.01025	482
600.000	.55528	1.01079	.004736	5.1028	17100.3	22142.8	190.491	22.13	30.69	1.01082	502
650.000	.51249	1.01093	.004362	5.5285	18221.7	23685.2	192.960	22.49	31.01	1.01111	521
700.000	.47589	1.01092	.004044	5.9528	19360.5	25244.2	195.271	22.86	31.35	1.01122	539
750.000	.44421	1.01082	.003769	6.3759	20517.1	26820.4	197.446	23.23	31.70	1.01121	557
800.000	.41651	1.01066	.003529	6.7981	21691.3	28413.8	199.502	23.59	32.04	1.01113	574
850.000	.39209	1.01047	.003319	7.2196	22882.8	30024.1	201.455	23.94	32.37	1.01099	590
900.000	.37038	1.01025	.003132	7.6405	24090.8	31650.6	203.314	24.27	32.69	1.01082	606
950.000	.35097	1.01002	.002965	8.0608	25314.6	33292.5	205.089	24.58	32.99	1.01063	621
1000.000	.33350	1.00978	.002815	8.4808	26553.2	34949.1	206.789	24.87	33.27	1.01042	636

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					3.000000 MPa						
68.796	30.34777	.17282	2.195821	15.8460	8.7	107.6	74.604	36.30	59.03	.00676	959
70.000	30.18057	.17079	2.148890	15.4319	79.7	179.1	75.630	36.30	59.30	.00821	948
80.000	28.75356	.15686	1.788497	12.1870	676.0	780.3	83.667	35.57	60.97	.03144	863
90.000	27.23059	.14723	1.471057	9.2651	1284.4	1394.6	90.901	33.49	61.84	.08481	781
100.000	25.55320	.14120	1.185021	6.6426	1899.1	2016.5	97.440	30.10	62.48	.17984	701
110.000	23.61180	.13892	.919502	4.3005	2519.0	2646.0	103.446	25.55	64.34	.32001	621
120.000	21.12708	.14232	.658714	2.2087	3174.7	3316.7	109.289	20.38	73.20	.50044	532
129.548	16.59396	.16784	.345155	.3165	4079.4	4260.2	116.802	19.27	196.36	.69698	339
129.548	5.70809	.48793	.084119	.1051	5812.6	6338.2	132.842	42.23	309.80	.69698	165
130.000	5.41453	.51260	.077451	.1434	5902.0	6456.0	133.742	39.41	224.92	.70204	170
140.000	3.64597	.70688	.042785	.5250	6633.4	7456.2	141.205	27.81	64.53	.77194	208
150.000	3.05350	.78776	.033069	.7469	7024.8	8007.3	145.013	25.01	48.56	.81865	227
160.000	2.69062	.83813	.027728	.9229	7341.5	8456.4	147.914	23.61	42.03	.85306	242
170.000	2.43112	.87303	.024215	1.0749	7623.4	8857.4	150.346	22.79	38.48	.87948	254
180.000	2.23069	.89861	.021674	1.2118	7885.6	9230.5	152.479	22.27	36.29	.90029	265
190.000	2.06851	.91807	.019724	1.3385	8135.3	9585.6	154.399	21.91	34.82	.91703	275
200.000	1.93310	.93326	.018164	1.4578	8376.4	9928.3	156.157	21.66	33.78	.93062	284
210.000	1.81747	.94536	.016879	1.5716	8611.4	10262.0	157.786	21.48	33.01	.94183	293
220.000	1.71706	.95516	.015794	1.6811	8841.8	10589.0	159.307	21.35	32.42	.95116	301
230.000	1.62868	.96321	.014863	1.7872	9068.9	10910.8	160.738	21.25	31.96	.95901	309
240.000	1.55008	.96989	.014051	1.8905	9293.2	11228.6	162.090	21.17	31.60	.96565	317
250.000	1.47954	.97548	.013336	1.9915	9515.4	11543.1	163.374	21.11	31.31	.97132	324
260.000	1.41578	.98021	.012698	2.0907	9735.9	11854.9	164.597	21.06	31.07	.97619	331
270.000	1.35777	.98423	.012126	2.1883	9955.0	12164.5	165.766	21.03	30.87	.98039	338
280.000	1.30471	.98767	.011608	2.2846	10173.0	12472.3	166.885	21.00	30.70	.98404	345
290.000	1.25596	.99063	.011136	2.3796	10390.0	12778.6	167.960	20.98	30.56	.98721	351
300.000	1.21096	.99320	.010705	2.4737	10606.2	13083.6	168.994	20.96	30.44	.98999	358
310.000	1.16927	.99543	.010309	2.5669	10821.8	13387.5	169.990	20.96	30.34	.99243	364
320.000	1.13052	.99737	.009943	2.6594	11036.9	13690.5	170.952	20.95	30.26	.99458	370
330.000	1.09440	.99907	.009604	2.7512	11251.5	13992.7	171.882	20.95	30.19	.99648	376
340.000	1.06062	1.00057	.009288	2.8423	11465.8	14294.3	172.783	20.96	30.13	.99816	381
350.000	1.02897	1.00188	.008994	2.9329	11679.8	14595.4	173.655	20.96	30.08	.99965	387
360.000	.99923	1.00304	.008719	3.0231	11893.7	14896.0	174.502	20.98	30.04	1.00098	393
370.000	.97123	1.00407	.008462	3.1128	12107.4	15196.3	175.325	20.99	30.01	1.00217	398
380.000	.94481	1.00498	.008219	3.2021	12321.1	15496.3	176.125	21.01	29.99	1.00322	403
390.000	.91985	1.00578	.007991	3.2911	12534.8	15796.2	176.904	21.04	29.98	1.00417	409
400.000	.89621	1.00650	.007776	3.3797	12748.5	16095.9	177.663	21.06	29.97	1.00502	414
410.000	.87380	1.00714	.007572	3.4681	12962.3	16395.6	178.403	21.09	29.97	1.00578	419
420.000	.85252	1.00771	.007379	3.5561	13176.3	16695.3	179.125	21.13	29.97	1.00646	424
430.000	.83227	1.00821	.007196	3.6440	13390.5	16995.1	179.831	21.16	29.98	1.00708	429
440.000	.81299	1.00866	.007022	3.7315	13605.0	17295.0	180.520	21.20	30.00	1.00763	434
450.000	.79461	1.00906	.006857	3.8189	13819.7	17595.1	181.194	21.24	30.02	1.00812	438
470.000	.76029	1.00974	.006549	3.9931	14250.1	18196.0	182.501	21.34	30.07	1.00897	448
500.000	.71414	1.01049	.006138	4.2531	14898.7	19099.6	184.365	21.49	30.18	1.00995	461
550.000	.64872	1.01127	.005557	4.6839	15989.6	20614.1	187.251	21.80	30.41	1.01102	483
600.000	.59444	1.01165	.005079	5.1121	17095.0	22141.8	189.910	22.13	30.70	1.01162	503
650.000	.54864	1.01178	.004677	5.5383	18216.8	23684.9	192.380	22.49	31.02	1.01192	522
700.000	.50946	1.01176	.004335	5.9631	19356.0	25244.6	194.691	22.86	31.36	1.01203	540
750.000	.47555	1.01165	.004040	6.3867	20512.8	26821.3	196.867	23.23	31.71	1.01201	557
800.000	.44591	1.01147	.003783	6.8093	21687.4	28415.2	198.924	23.59	32.05	1.01191	574
850.000	.41977	1.01125	.003557	7.2312	22879.1	30025.9	200.877	23.94	32.38	1.01176	590
900.000	.39654	1.01101	.003357	7.6524	24087.3	31652.7	202.737	24.27	32.69	1.01157	606
950.000	.37576	1.01076	.003178	8.0730	25311.2	33295.0	204.512	24.58	32.99	1.01137	622
1000.000	.35706	1.01051	.003017	8.4932	26550.0	34951.9	206.212	24.87	33.28	1.01114	636

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					3.200000 MPa						
68.841	30.35419	.18418	2.197605	15.8877	9.3	114.8	74.612	36.30	59.01	.00646	960
70.000	30.19350	.18210	2.152406	15.4890	77.6	183.6	75.600	36.30	59.27	.00778	950
80.000	28.76993	.16722	1.791967	12.2451	673.2	784.4	83.632	35.58	60.92	.02978	865
90.000	27.25211	.15692	1.474753	9.3260	1280.6	1398.1	90.858	33.50	61.76	.08029	783
100.000	25.58316	.15044	1.189258	6.7081	1893.8	2018.9	97.385	30.11	62.32	.17019	704
110.000	23.65792	.14789	.924824	4.3733	2510.9	2646.1	103.369	25.56	64.00	.30280	625
120.000	21.21589	.15117	.666668	2.2954	3159.6	3310.4	109.158	20.39	72.01	.47362	537
130.000	16.71702	.17710	.352667	.3736	4066.6	4258.0	116.678	19.41	174.25	.67064	346
130.943	15.53831	.18916	.296045	.1649	4260.3	4466.3	118.288	21.93	310.16	.68748	288
130.943	6.58671	.44623	.099379	.0625	5667.9	6153.8	131.176	45.60	522.75	.68748	159
140.000	4.04788	.67914	.048809	.4709	6543.6	7334.2	139.960	28.70	71.93	.75684	205
150.000	3.32818	.77093	.036746	.7096	6967.3	7928.8	144.071	25.43	51.20	.80710	225
160.000	2.91072	.82640	.030460	.8945	7297.9	8397.3	147.097	23.87	43.46	.84390	241
170.000	2.61917	.86437	.026423	1.0524	7588.0	8809.7	149.599	22.97	39.41	.87208	253
180.000	2.39699	.89202	.023546	1.1936	7855.5	9190.6	151.777	22.39	36.94	.89424	265
190.000	2.21876	.91296	.021361	1.3237	8109.0	9551.3	153.727	22.00	35.31	.91206	275
200.000	2.07086	.92925	.019626	1.4457	8353.1	9898.3	155.508	21.73	34.16	.92652	284
210.000	1.94513	.94221	.018204	1.5617	8590.3	10235.5	157.153	21.54	33.31	.93843	293
220.000	1.83631	.95268	.017010	1.6731	8822.6	10565.3	158.687	21.39	32.67	.94835	302
230.000	1.74079	.96126	.015989	1.7808	9051.2	10889.4	160.128	21.28	32.18	.95668	310
240.000	1.65601	.96837	.015102	1.8855	9276.8	11209.2	161.489	21.20	31.78	.96374	317
250.000	1.58006	.97432	.014321	1.9878	9500.1	11525.3	162.780	21.13	31.46	.96976	325
260.000	1.51150	.97934	.013627	2.0880	9721.5	11838.6	164.009	21.08	31.20	.97493	332
270.000	1.44920	.98361	.013006	2.1866	9941.5	12149.6	165.182	21.04	30.99	.97939	339
280.000	1.39228	.98726	.012444	2.2837	10160.1	12458.5	166.306	21.01	30.81	.98325	345
290.000	1.34000	.99040	.011934	2.3796	10377.8	12765.8	167.384	20.99	30.66	.98662	352
300.000	1.29179	.99311	.011468	2.4744	10594.6	13071.8	168.421	20.97	30.53	.98957	358
310.000	1.24716	.99547	.011039	2.5682	10810.7	13376.5	169.421	20.96	30.42	.99215	364
320.000	1.20570	.99753	.010644	2.6612	11026.2	13680.2	170.385	20.96	30.33	.99443	370
330.000	1.16706	.99932	.010279	2.7535	11241.2	13983.2	171.317	20.96	30.25	.99644	376
340.000	1.13095	1.00090	.009939	2.8452	11455.9	14285.4	172.219	20.96	30.19	.99822	382
350.000	1.09712	1.00229	.009622	2.9363	11670.3	14587.0	173.094	20.97	30.14	.99980	388
360.000	1.06534	1.00351	.009327	3.0269	11884.5	14888.2	173.942	20.98	30.10	1.00120	393
370.000	1.03543	1.00459	.009049	3.1170	12098.5	15189.0	174.766	21.00	30.06	1.00246	399
380.000	1.00723	1.00555	.008789	3.2067	12312.5	15489.5	175.568	21.02	30.04	1.00358	404
390.000	.98057	1.00640	.008544	3.2960	12526.4	15789.8	176.348	21.04	30.02	1.00458	409
400.000	.95534	1.00715	.008312	3.3850	12740.4	16090.0	177.108	21.07	30.01	1.00547	414
410.000	.93142	1.00782	.008094	3.4736	12954.5	16390.1	177.849	21.10	30.01	1.00628	420
420.000	.90871	1.00841	.007887	3.5620	13168.7	16690.2	178.572	21.13	30.01	1.00700	425
430.000	.88711	1.00894	.007690	3.6501	13383.1	16990.3	179.278	21.16	30.02	1.00764	429
440.000	.86655	1.00942	.007504	3.7379	13597.7	17290.5	179.968	21.20	30.03	1.00823	434
450.000	.84694	1.00983	.007327	3.8256	13812.6	17590.9	180.643	21.25	30.05	1.00875	439
470.000	.81033	1.01054	.006997	4.0002	14243.4	18192.4	181.951	21.34	30.10	1.00964	448
500.000	.76112	1.01133	.006556	4.2609	14892.4	19096.7	183.816	21.49	30.20	1.01067	462
550.000	.69138	1.01213	.005935	4.6925	15983.9	20612.3	186.705	21.80	30.43	1.01179	483
600.000	.63352	1.01251	.005423	5.1214	17089.8	22140.9	189.365	22.14	30.72	1.01242	503
650.000	.58472	1.01264	.004993	5.5482	18212.0	23684.7	191.836	22.49	31.04	1.01273	522
700.000	.54297	1.01261	.004628	5.9735	19351.5	25245.0	194.149	22.86	31.38	1.01283	540
750.000	.50684	1.01247	.004312	6.3976	20508.7	26822.3	196.325	23.23	31.72	1.01281	558
800.000	.47525	1.01228	.004038	6.8206	21683.4	28416.7	198.383	23.59	32.06	1.01270	575
850.000	.44740	1.01204	.003796	7.2428	22875.3	30027.8	200.336	23.94	32.39	1.01253	591
900.000	.42265	1.01178	.003582	7.6643	24083.8	31655.0	202.196	24.27	32.70	1.01233	607
950.000	.40052	1.01151	.003391	8.0852	25307.9	33297.6	203.972	24.58	33.00	1.01210	622
1000.000	.38059	1.01123	.003219	8.5056	26546.8	34954.7	205.672	24.87	33.28	1.01187	637

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
3.400000 MPa											
68.886	30.36059	.19553	2.199384	15.9293	9.9	121.9	74.621	36.30	58.99	.00620	961
70.000	30.20639	.19340	2.155917	15.5460	75.5	188.1	75.569	36.30	59.24	.00741	951
80.000	28.78622	.17757	1.795429	12.3031	670.4	788.5	83.597	35.58	60.88	.02833	866
90.000	27.27349	.16659	1.478434	9.3868	1276.9	1401.6	90.816	33.51	61.68	.07631	785
100.000	25.61283	.15966	1.193466	6.7734	1888.5	2021.3	97.331	30.12	62.18	.16169	706
110.000	23.70328	.15683	.930079	4.4456	2502.9	2646.3	103.294	25.57	63.67	.28763	628
120.000	21.30144	.15998	.674389	2.3807	3144.9	3304.6	109.031	20.40	70.92	.44999	543
130.000	17.17133	.18319	.377656	.5109	3996.7	4194.7	116.100	19.08	142.16	.63811	368
132.263	13.91146	.22225	.235193	.0423	4512.9	4757.3	120.396	31.38	925.23	.67822	210
132.263	8.01003	.38599	.123843	.0194	5427.3	5851.8	128.671	52.93	1681.50	.67822	148
140.000	4.50011	.64907	.055779	.4145	6444.3	7199.8	138.665	29.68	81.58	.74164	201
150.000	3.61784	.75353	.040720	.6716	6907.1	7846.9	143.140	25.87	54.17	.79558	224
160.000	3.13797	.81447	.033343	.8658	7253.1	8336.6	146.304	24.13	45.00	.83478	240
170.000	2.81128	.85564	.028724	1.0298	7551.8	8761.3	148.881	23.14	40.38	.86472	253
180.000	2.56583	.88541	.025482	1.1755	7825.1	9150.2	151.104	22.52	37.62	.88824	264
190.000	2.37070	.90785	.023044	1.3089	8082.6	9516.7	153.086	22.10	35.81	.90713	275
200.000	2.20978	.92526	.021122	1.4337	8329.6	9868.2	154.890	21.80	34.55	.92245	284
210.000	2.07360	.93907	.019557	1.5520	8569.2	10208.9	156.552	21.59	33.63	.93507	293
220.000	1.95613	.95022	.018248	1.6652	8803.4	10541.5	158.099	21.44	32.93	.94557	302
230.000	1.85330	.95933	.017133	1.7745	9033.5	10868.0	159.551	21.32	32.39	.95439	310
240.000	1.76222	.96688	.016166	1.8806	9260.4	11189.8	160.920	21.23	31.97	.96186	317
250.000	1.68077	.97318	.015319	1.9841	9484.8	11507.7	162.218	21.16	31.62	.96823	325
260.000	1.60734	.97850	.014567	2.0855	9707.2	11822.4	163.453	21.10	31.34	.97369	332
270.000	1.54070	.98302	.013895	2.1850	9927.9	12134.7	164.631	21.06	31.11	.97841	339
280.000	1.47987	.98687	.013288	2.2830	10147.3	12444.8	165.759	21.03	30.92	.98249	346
290.000	1.42405	.99019	.012738	2.3796	10365.6	12753.1	166.841	21.00	30.75	.98605	352
300.000	1.37261	.99306	.012236	2.4751	10583.0	13060.0	167.881	20.99	30.62	.98916	359
310.000	1.32502	.99554	.011775	2.5696	10799.6	13365.6	168.883	20.97	30.50	.99189	365
320.000	1.28083	.99771	.011351	2.6632	11015.5	13670.1	169.850	20.97	30.40	.99429	371
330.000	1.23966	.99960	.010958	2.7561	11231.0	13973.7	170.785	20.97	30.32	.99641	377
340.000	1.20121	1.00126	.010594	2.8482	11446.1	14276.6	171.689	20.97	30.25	.99829	383
350.000	1.16519	1.00272	.010254	2.9398	11660.8	14578.8	172.565	20.98	30.20	.99996	388
360.000	1.13137	1.00400	.009937	3.0308	11875.3	14880.5	173.415	20.99	30.15	1.00144	394
370.000	1.09955	1.00513	.009640	3.1213	12089.7	15181.8	174.240	21.00	30.11	1.00276	399
380.000	1.06955	1.00614	.009361	3.2114	12303.9	15482.8	175.043	21.02	30.08	1.00394	405
390.000	1.04121	1.00703	.009099	3.3010	12518.1	15783.5	175.824	21.04	30.06	1.00499	410
400.000	1.01438	1.00782	.008851	3.3903	12732.3	16084.1	176.585	21.07	30.05	1.00594	415
410.000	.98895	1.00852	.008617	3.4793	12946.6	16384.6	177.327	21.10	30.05	1.00678	420
420.000	.96481	1.00914	.008396	3.5679	13161.1	16685.1	178.051	21.13	30.05	1.00754	425
430.000	.94186	1.00969	.008186	3.6563	13375.7	16985.5	178.758	21.17	30.05	1.00822	430
440.000	.92000	1.01018	.007987	3.7444	13590.5	17286.1	179.449	21.21	30.06	1.00883	435
450.000	.89917	1.01062	.007798	3.8323	13805.5	17586.8	180.125	21.25	30.08	1.00938	440
470.000	.86028	1.01135	.007446	4.0074	14236.6	18188.8	181.434	21.34	30.12	1.01032	449
500.000	.80802	1.01217	.006975	4.2687	14886.1	19094.0	183.301	21.50	30.22	1.01140	462
550.000	.73396	1.01299	.006313	4.7012	15978.2	20610.6	186.191	21.80	30.45	1.01257	484
600.000	.67254	1.01338	.005767	5.1308	17084.6	22140.0	188.853	22.14	30.73	1.01322	504
650.000	.62073	1.01350	.005310	5.5582	18207.2	23684.6	191.325	22.50	31.05	1.01354	523
700.000	.57642	1.01346	.004920	5.9840	19347.0	25245.5	193.639	22.86	31.39	1.01364	541
750.000	.53807	1.01331	.004585	6.4085	20504.5	26823.3	195.816	23.23	31.73	1.01361	558
800.000	.50455	1.01309	.004292	6.8319	21679.5	28418.2	197.874	23.59	32.06	1.01349	575
850.000	.47499	1.01283	.004035	7.2545	22871.7	30029.7	199.828	23.94	32.39	1.01330	592
900.000	.44873	1.01255	.003808	7.6763	24080.3	31657.2	201.688	24.27	32.71	1.01308	607
950.000	.42523	1.01226	.003604	8.0975	25304.6	33300.2	203.465	24.58	33.01	1.01284	623
1000.000	.40409	1.01196	.003422	8.5181	26543.7	34957.6	205.165	24.87	33.29	1.01259	638

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					3.493501 MPa						
68.906	30.36358	.20082	2.200214	15.9487	10.2	125.3	74.625	36.30	58.99	.00609	961
70.000	30.21240	.19867	2.157557	15.5727	74.6	190.2	75.555	36.30	59.23	.00725	952
80.000	28.79382	.18240	1.797045	12.3302	669.2	790.5	83.580	35.58	60.86	.02770	867
90.000	27.28343	.17111	1.480150	9.4152	1275.2	1403.2	90.796	33.51	61.65	.07461	786
100.000	25.62660	.16396	1.195423	6.8038	1886.1	2022.4	97.306	30.13	62.11	.15806	707
110.000	23.72423	.16101	.932514	4.4793	2499.2	2646.4	103.260	25.58	63.52	.28114	630
120.000	21.34039	.16407	.677923	2.4201	3138.3	3302.0	108.973	20.40	70.44	.43987	546
130.000	17.34446	.18635	.387509	.5699	3969.8	4171.2	115.878	18.98	132.85	.62416	377
140.000	4.73341	.63405	.059442	.3873	6393.7	7131.8	138.035	30.18	87.19	.73447	199
150.000	3.75895	.74519	.042691	.6537	6877.9	7807.3	142.707	26.08	55.68	.79019	223
160.000	3.24680	.80881	.034746	.8524	7231.7	8307.7	145.941	24.26	45.75	.83052	239
170.000	2.90255	.85152	.029834	1.0192	7534.7	8738.3	148.553	23.22	40.84	.86130	252
180.000	2.64566	.88230	.026410	1.1670	7810.7	9131.2	150.799	22.57	37.94	.88545	264
190.000	2.44232	.90546	.023847	1.3020	8070.1	9500.5	152.797	22.14	36.05	.90484	275
200.000	2.27512	.92340	.021834	1.4281	8318.6	9854.1	154.610	21.84	34.73	.92056	284
210.000	2.13393	.93762	.020198	1.5474	8559.3	10196.4	156.281	21.62	33.78	.93351	293
220.000	2.01234	.94907	.018834	1.6615	8794.4	10530.4	157.835	21.46	33.05	.94428	302
230.000	1.90604	.95844	.017673	1.7716	9025.2	10858.0	159.291	21.33	32.50	.95333	310
240.000	1.81197	.96619	.016669	1.8784	9252.7	11180.7	160.665	21.24	32.05	.96099	318
250.000	1.72791	.97266	.015789	1.9825	9477.6	11499.4	161.966	21.17	31.70	.96752	325
260.000	1.65219	.97812	.015010	2.0843	9700.4	11814.9	163.203	21.11	31.41	.97312	332
270.000	1.58330	.98275	.014313	2.1843	9921.6	12127.7	164.384	21.07	31.17	.97795	339
280.000	1.52083	.98670	.013686	2.2826	10141.3	12438.4	165.514	21.04	30.97	.98214	346
290.000	1.46334	.99010	.013117	2.3796	10359.9	12747.2	166.597	21.01	30.80	.98579	352
300.000	1.41039	.99304	.012597	2.4755	10577.5	13054.5	167.639	20.99	30.66	.98898	359
310.000	1.36140	.99558	.012121	2.5703	10794.4	13360.5	168.642	20.98	30.54	.99177	365
320.000	1.31593	.99780	.011683	2.6642	11010.6	13665.4	169.610	20.97	30.44	.99423	371
330.000	1.27358	.99973	.011277	2.7573	11226.2	13969.3	170.546	20.97	30.35	.99641	377
340.000	1.23403	1.00143	.010901	2.8497	11441.5	14272.5	171.451	20.97	30.28	.99833	383
350.000	1.19699	1.00292	.010550	2.9414	11656.4	14575.0	172.328	20.98	30.22	1.00004	388
360.000	1.16222	1.00424	.010223	3.0326	11871.1	14877.0	173.178	20.99	30.17	1.00155	394
370.000	1.12950	1.00539	.009917	3.1233	12085.5	15178.5	174.005	21.00	30.14	1.00291	399
380.000	1.09866	1.00642	.009629	3.2136	12299.9	15479.7	174.808	21.02	30.11	1.00411	405
390.000	1.06952	1.00733	.009359	3.3034	12514.2	15780.6	175.590	21.04	30.08	1.00519	410
400.000	1.04195	1.00813	.009104	3.3929	12728.6	16081.4	176.351	21.07	30.07	1.00616	415
410.000	1.01582	1.00885	.008863	3.4820	12943.0	16382.1	177.093	21.10	30.06	1.00702	420
420.000	.99101	1.00948	.008635	3.5708	13157.5	16682.7	177.818	21.13	30.06	1.00780	425
430.000	.96742	1.01005	.008419	3.6593	13372.2	16983.3	178.525	21.17	30.07	1.00849	430
440.000	.94497	1.01055	.008214	3.7475	13587.1	17284.1	179.217	21.21	30.08	1.00912	435
450.000	.92356	1.01099	.008019	3.8355	13802.3	17584.9	179.893	21.25	30.09	1.00968	440
470.000	.88361	1.01174	.007656	4.0108	14233.5	18187.2	181.202	21.34	30.14	1.01064	449
500.000	.82991	1.01257	.007171	4.2724	14883.2	19092.7	183.070	21.50	30.23	1.01174	463
550.000	.75384	1.01340	.006489	4.7052	15975.5	20609.8	185.961	21.80	30.46	1.01293	484
600.000	.69076	1.01379	.005928	5.1352	17082.1	22139.7	188.624	22.14	30.74	1.01359	504
650.000	.63755	1.01391	.005458	5.5629	18204.9	23684.5	191.097	22.50	31.06	1.01392	523
700.000	.59204	1.01386	.005057	5.9890	19344.9	25245.7	193.410	22.86	31.39	1.01402	541
750.000	.55266	1.01370	.004712	6.4136	20502.6	26823.8	195.588	23.23	31.73	1.01398	559
800.000	.51823	1.01347	.004412	6.8372	21677.7	28418.9	197.646	23.59	32.07	1.01385	576
850.000	.48788	1.01320	.004147	7.2599	22869.9	30030.6	199.600	23.94	32.40	1.01366	592
900.000	.46090	1.01291	.003913	7.6819	24078.7	31658.3	201.461	24.27	32.71	1.01344	608
950.000	.43678	1.01261	.003704	8.1032	25303.0	33301.4	203.238	24.58	33.01	1.01318	623
1000.000	.41506	1.01230	.003517	8.5240	26542.2	34959.0	204.938	24.87	33.29	1.01292	638

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
3.600000 MPa											
68.930	30.36698	.20685	2.201159	15.9709	10.6	129.1	74.629	36.30	58.98	.00596	962
70.000	30.21923	.20468	2.159423	15.6030	73.5	192.6	75.539	36.30	59.21	.00708	953
80.000	28.80244	.18791	1.798882	12.3610	667.7	792.7	83.561	35.59	60.83	.02703	868
90.000	27.29472	.17626	1.482101	9.4474	1273.2	1405.1	90.774	33.52	61.60	.07278	787
100.000	25.64222	.16885	1.197645	6.8384	1883.4	2023.7	97.278	30.13	62.03	.15415	708
110.000	23.74791	.16575	.935270	4.5175	2495.0	2646.6	103.220	25.58	63.35	.27416	631
120.000	21.38400	.16873	.681894	2.4646	3130.8	3299.2	108.908	20.40	69.91	.42900	549
130.000	17.52146	.19009	.397778	.6342	3942.1	4147.6	115.649	18.89	124.54	.60912	386
140.000	5.02018	.61605	.063998	.3558	6332.3	7049.4	137.290	30.79	94.73	.72626	197
150.000	3.92449	.73552	.045030	.6331	6843.9	7761.3	142.216	26.33	57.52	.78405	222
160.000	3.37289	.80231	.036389	.8370	7207.1	8274.4	145.532	24.40	46.65	.82569	239
170.000	3.00767	.84681	.031124	1.0071	7515.1	8712.0	148.186	23.32	41.39	.85741	252
180.000	2.73731	.87876	.027484	1.1573	7794.2	9109.4	150.458	22.64	38.32	.88228	264
190.000	2.52436	.90274	.024774	1.2942	8055.9	9482.0	152.473	22.19	36.33	.90224	275
200.000	2.34986	.92128	.022654	1.4217	8305.9	9838.0	154.299	21.87	34.95	.91842	284
210.000	2.20287	.93596	.020937	1.5422	8548.0	10182.2	155.979	21.65	33.95	.93174	293
220.000	2.07652	.94778	.019508	1.6574	8784.1	10517.7	157.540	21.48	33.19	.94282	302
230.000	1.96621	.95743	.018294	1.7683	9015.7	10846.7	159.003	21.35	32.61	.95213	310
240.000	1.86871	.96542	.017246	1.8758	9243.9	11170.4	160.381	21.26	32.15	.96001	318
250.000	1.78166	.97208	.016329	1.9806	9469.4	11490.0	161.685	21.18	31.78	.96672	325
260.000	1.70330	.97769	.015517	2.0830	9692.8	11806.3	162.926	21.12	31.48	.97248	332
270.000	1.63227	.98245	.014793	2.1835	9914.3	12119.9	164.109	21.08	31.23	.97744	339
280.000	1.56749	.98652	.014140	2.2823	10134.5	12431.1	165.241	21.04	31.03	.98175	346
290.000	1.50810	.99001	.013549	2.3797	10353.4	12740.5	166.327	21.02	30.85	.98549	353
300.000	1.45340	.99302	.013010	2.4759	10571.4	13048.3	167.370	21.00	30.71	.98877	359
310.000	1.40283	.99563	.012516	2.5711	10788.5	13354.7	168.375	20.98	30.58	.99164	365
320.000	1.35589	.99791	.012062	2.6653	11004.9	13660.0	169.345	20.98	30.48	.99417	371
330.000	1.31220	.99989	.011642	2.7587	11220.8	13964.3	170.281	20.97	30.39	.99640	377
340.000	1.27139	1.00163	.011252	2.8513	11436.3	14267.8	171.187	20.98	30.31	.99838	383
350.000	1.23318	1.00316	.010889	2.9434	11651.4	14570.7	172.065	20.98	30.25	1.00013	389
360.000	1.19732	1.00451	.010550	3.0348	11866.2	14872.9	172.916	20.99	30.20	1.00169	394
370.000	1.16359	1.00570	.010233	3.1257	12080.8	15174.7	173.743	21.01	30.16	1.00307	400
380.000	1.13178	1.00675	.009936	3.2162	12295.4	15476.2	174.547	21.02	30.13	1.00431	405
390.000	1.10175	1.00767	.009656	3.3062	12509.8	15777.4	175.330	21.05	30.11	1.00542	410
400.000	1.07333	1.00850	.009392	3.3958	12724.3	16078.4	176.092	21.07	30.09	1.00641	416
410.000	1.04639	1.00923	.009143	3.4851	12938.8	16379.2	176.834	21.10	30.08	1.00730	421
420.000	1.02082	1.00988	.008907	3.5740	13153.5	16680.0	177.559	21.13	30.08	1.00809	426
430.000	.99651	1.01045	.008684	3.6627	13368.3	16980.9	178.267	21.17	30.08	1.00880	431
440.000	.97337	1.01096	.008472	3.7510	13583.3	17281.8	178.959	21.21	30.09	1.00945	435
450.000	.95131	1.01142	.008271	3.8392	13798.5	17582.8	179.635	21.25	30.11	1.01002	440
470.000	.91015	1.01218	.007896	4.0147	14229.9	18185.3	180.946	21.34	30.15	1.01100	450
500.000	.85482	1.01302	.007395	4.2766	14879.9	19091.2	182.814	21.50	30.25	1.01213	463
550.000	.77646	1.01387	.006691	4.7099	15972.5	20608.9	185.707	21.80	30.47	1.01335	484
600.000	.71148	1.01426	.006112	5.1402	17079.4	22139.2	188.370	22.14	30.75	1.01402	504
650.000	.65668	1.01437	.005626	5.5683	18202.4	23684.5	190.843	22.50	31.06	1.01435	523
700.000	.60981	1.01431	.005213	5.9946	19342.6	25246.0	193.158	22.86	31.40	1.01445	542
750.000	.56925	1.01414	.004857	6.4195	20500.3	26824.4	195.335	23.23	31.74	1.01441	559
800.000	.53380	1.01390	.004547	6.8433	21675.6	28419.7	197.394	23.59	32.07	1.01427	576
850.000	.50254	1.01362	.004275	7.2662	22868.0	30031.6	199.349	23.94	32.40	1.01407	592
900.000	.47476	1.01332	.004033	7.6883	24076.8	31659.5	201.210	24.27	32.71	1.01384	608
950.000	.44991	1.01301	.003818	8.1098	25301.3	33302.8	202.986	24.58	33.01	1.01357	623
1000.000	.42755	1.01269	.003624	8.5307	26540.6	34960.6	204.687	24.87	33.29	1.01330	638

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					3.800000 MPa						
68.975	30.37334	.21815	2.202927	16.0124	11.2	136.3	74.637	36.30	58.96	.00576	963
70.000	30.23203	.21596	2.162924	15.6600	71.4	197.1	75.509	36.31	59.19	.00678	954
80.000	28.81858	.19824	1.802327	12.4188	665.0	796.8	83.526	35.59	60.79	.02588	870
90.000	27.31583	.18590	1.485752	9.5079	1269.5	1408.6	90.732	33.52	61.53	.06963	789
100.000	25.67133	.17803	1.201796	6.9032	1878.2	2026.2	97.225	30.14	61.89	.14741	711
110.000	23.79183	.17463	.940398	4.5888	2487.3	2647.0	103.148	25.60	63.05	.26213	635
120.000	21.46381	.17744	.689202	2.5474	3117.2	3294.2	108.789	20.41	68.98	.41024	554
130.000	17.81112	.19738	.415026	.7486	3896.5	4109.9	115.272	18.77	113.05	.58314	401
140.000	5.63607	.57922	.073940	.2953	6203.3	6877.5	135.793	32.03	113.64	.71069	193
150.000	4.25052	.71683	.049716	.5941	6777.6	7671.6	141.291	26.80	61.34	.77255	220
160.000	3.61608	.78993	.039609	.8080	7159.7	8210.6	144.775	24.67	48.43	.81666	237
170.000	3.20853	.83790	.033625	.9844	7477.6	8661.9	147.513	23.50	42.46	.85014	252
180.000	2.91150	.87208	.029552	1.1391	7762.9	9068.1	149.836	22.77	39.05	.87637	264
190.000	2.67978	.89762	.026552	1.2795	8028.9	9446.9	151.884	22.28	36.86	.89739	274
200.000	2.49113	.91732	.024222	1.4098	8282.2	9807.6	153.734	21.95	35.36	.91443	284
210.000	2.33296	.93287	.022345	1.5326	8526.6	10155.4	155.432	21.70	34.27	.92845	293
220.000	2.19747	.94537	.020790	1.6497	8764.7	10493.9	157.007	21.52	33.46	.94011	302
230.000	2.07951	.95556	.019473	1.7622	8997.9	10825.3	158.480	21.39	32.83	.94990	310
240.000	1.97546	.96398	.018340	1.8711	9227.5	11151.1	159.866	21.29	32.34	.95818	318
250.000	1.88273	.97100	.017352	1.9771	9454.1	11472.4	161.178	21.21	31.95	.96524	326
260.000	1.79937	.97691	.016478	2.0806	9678.4	11790.2	162.425	21.14	31.62	.97129	333
270.000	1.72389	.98191	.015700	2.1821	9900.8	12105.1	163.613	21.10	31.36	.97651	340
280.000	1.65513	.98618	.015000	2.2818	10121.7	12417.6	164.749	21.06	31.14	.98103	347
290.000	1.59214	.98985	.014367	2.3800	10341.2	12728.0	165.839	21.03	30.95	.98496	353
300.000	1.53417	.99301	.013791	2.4769	10559.8	13036.7	166.885	21.01	30.79	.98840	360
310.000	1.48059	.99575	.013263	2.5727	10777.4	13344.0	167.893	20.99	30.66	.99142	366
320.000	1.43090	.99813	.012778	2.6675	10994.3	13650.0	168.865	20.98	30.55	.99407	372
330.000	1.38466	1.00021	.012329	2.7614	11210.7	13955.0	169.803	20.98	30.46	.99641	378
340.000	1.34149	1.00203	.011914	2.8546	11426.5	14259.2	170.711	20.98	30.38	.99848	384
350.000	1.30109	1.00363	.011527	2.9470	11642.0	14562.6	171.591	20.99	30.31	1.00032	389
360.000	1.26318	1.00503	.011167	3.0389	11857.1	14865.4	172.444	21.00	30.25	1.00195	395
370.000	1.22752	1.00627	.010829	3.1302	12072.1	15167.7	173.272	21.01	30.21	1.00340	400
380.000	1.19392	1.00737	.010513	3.2210	12286.9	15469.6	174.077	21.03	30.18	1.00470	406
390.000	1.16219	1.00834	.010215	3.3114	12501.6	15771.3	174.861	21.05	30.15	1.00586	411
400.000	1.13217	1.00919	.009935	3.4014	12716.3	16072.7	175.624	21.08	30.13	1.00690	416
410.000	1.10373	1.00995	.009671	3.4909	12931.0	16373.9	176.368	21.10	30.12	1.00782	421
420.000	1.07673	1.01063	.009420	3.5802	13145.9	16675.1	177.093	21.14	30.12	1.00866	426
430.000	1.05107	1.01123	.009183	3.6691	13360.9	16976.3	177.802	21.17	30.12	1.00940	431
440.000	1.02664	1.01176	.008958	3.7577	13576.1	17277.5	178.495	21.21	30.13	1.01007	436
450.000	1.00336	1.01223	.008745	3.8461	13791.5	17578.8	179.172	21.25	30.14	1.01067	441
470.000	.95992	1.01301	.008347	4.0221	14223.3	18181.9	180.483	21.34	30.18	1.01170	450
500.000	.90155	1.01389	.007816	4.2846	14873.6	19088.6	182.353	21.50	30.27	1.01287	464
550.000	.81889	1.01475	.007071	4.7188	15966.9	20607.3	185.248	21.80	30.49	1.01414	485
600.000	.75036	1.01515	.006457	5.1498	17074.2	22138.5	187.912	22.14	30.77	1.01483	505
650.000	.69257	1.01525	.005944	5.5784	18197.6	23684.5	190.387	22.50	31.08	1.01517	524
700.000	.64315	1.01517	.005507	6.0052	19338.2	25246.6	192.702	22.86	31.41	1.01527	542
750.000	.60038	1.01498	.005130	6.4306	20496.2	26825.5	194.881	23.23	31.75	1.01521	560
800.000	.56300	1.01472	.004802	6.8547	21671.8	28421.3	196.940	23.59	32.08	1.01506	576
850.000	.53004	1.01442	.004514	7.2780	22864.3	30033.6	198.895	23.94	32.41	1.01485	593
900.000	.50076	1.01410	.004259	7.7004	24073.4	31661.9	200.756	24.27	32.72	1.01459	608
950.000	.47456	1.01376	.004031	8.1221	25298.0	33305.5	202.534	24.58	33.02	1.01431	624
1000.000	.45098	1.01342	.003827	8.5433	26537.4	34963.5	204.235	24.87	33.30	1.01402	639

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
4.000000 MPa											
69.019	30.37969	.22944	2.204692	16.0540	11.8	143.4	74.646	36.30	58.95	.00557	964
70.000	30.24478	.22724	2.166419	15.7169	69.3	201.6	75.479	36.31	59.16	.00652	956
80.000	28.83465	.20855	1.805764	12.4765	662.2	801.0	83.492	35.59	60.74	.02484	871
90.000	27.33679	.19554	1.489389	9.5682	1265.9	1412.2	90.690	33.53	61.45	.06680	791
100.000	25.70016	.18719	1.205920	6.9677	1873.1	2028.8	97.172	30.15	61.75	.14136	713
110.000	23.83508	.18349	.945467	4.6597	2479.7	2647.5	103.076	25.61	62.75	.25133	638
120.000	21.54109	.18611	.696327	2.6290	3103.9	3289.6	108.673	20.42	68.12	.39338	559
130.000	18.06052	.20490	.430327	.8567	3857.0	4078.4	114.944	18.68	104.82	.55973	414
140.000	6.39509	.53734	.086405	.2342	6049.9	6675.4	134.110	33.45	142.58	.69481	188
150.000	4.59874	.69742	.054831	.5550	6707.5	7577.3	140.361	27.28	65.71	.76105	218
160.000	3.86819	.77731	.043015	.7789	7111.0	8145.1	144.031	24.94	50.35	.80765	236
170.000	3.41408	.82890	.036233	.9617	7439.4	8611.0	146.858	23.68	43.59	.84292	251
180.000	3.08849	.86538	.031691	1.1209	7731.3	9026.4	149.233	22.89	39.80	.87050	263
190.000	2.83700	.89251	.028379	1.2648	8001.7	9411.6	151.316	22.38	37.41	.89258	274
200.000	2.63360	.91336	.025826	1.3979	8258.2	9777.0	153.191	22.02	35.77	.91047	284
210.000	2.46387	.92979	.023780	1.5230	8505.2	10128.6	154.907	21.76	34.60	.92519	294
220.000	2.31899	.94298	.022094	1.6420	8745.2	10470.1	156.496	21.57	33.73	.93743	302
230.000	2.19319	.95372	.020671	1.7562	8980.1	10803.9	157.980	21.43	33.06	.94770	311
240.000	2.08248	.96257	.019450	1.8665	9211.0	11131.8	159.375	21.32	32.53	.95639	318
250.000	1.98397	.96995	.018387	1.9737	9438.7	11454.9	160.694	21.23	32.11	.96379	326
260.000	1.89555	.97615	.017450	2.0783	9664.0	11774.2	161.947	21.16	31.77	.97013	333
270.000	1.81558	.98140	.016616	2.1808	9887.3	12090.4	163.140	21.11	31.48	.97560	340
280.000	1.74279	.98587	.015868	2.2813	10108.9	12404.0	164.281	21.07	31.25	.98033	347
290.000	1.67617	.98971	.015192	2.3803	10329.1	12715.5	165.374	21.04	31.05	.98445	354
300.000	1.61490	.99302	.014577	2.4779	10548.2	13025.2	166.423	21.02	30.88	.98805	360
310.000	1.55831	.99588	.014015	2.5744	10766.4	13333.3	167.434	21.00	30.74	.99121	366
320.000	1.50585	.99837	.013498	2.6698	10983.8	13640.1	168.408	20.99	30.62	.99399	372
330.000	1.45705	1.00054	.013021	2.7642	11200.5	13945.8	169.349	20.99	30.52	.99643	378
340.000	1.41151	1.00244	.012580	2.8579	11416.8	14250.6	170.258	20.99	30.44	.99860	384
350.000	1.36891	1.00411	.012169	2.9508	11632.6	14554.6	171.140	20.99	30.37	1.00052	390
360.000	1.32895	1.00557	.011786	3.0431	11848.1	14858.0	171.994	21.00	30.31	1.00223	395
370.000	1.29137	1.00686	.011428	3.1348	12063.3	15160.8	172.824	21.02	30.26	1.00375	401
380.000	1.25597	1.00800	.011093	3.2260	12278.4	15463.2	173.630	21.03	30.22	1.00510	406
390.000	1.22254	1.00901	.010777	3.3167	12493.4	15765.2	174.415	21.05	30.19	1.00631	412
400.000	1.19093	1.00990	.010480	3.4070	12708.3	16067.1	175.179	21.08	30.17	1.00739	417
410.000	1.16097	1.01069	.010200	3.4969	12923.3	16368.7	175.924	21.11	30.16	1.00836	422
420.000	1.13254	1.01139	.009935	3.5864	13138.4	16670.2	176.651	21.14	30.15	1.00923	427
430.000	1.10553	1.01201	.009684	3.6756	13353.6	16971.7	177.360	21.17	30.15	1.01001	432
440.000	1.07982	1.01256	.009446	3.7645	13569.0	17273.3	178.053	21.21	30.16	1.01071	437
450.000	1.05531	1.01305	.009220	3.8531	13784.6	17574.9	178.731	21.25	30.17	1.01133	441
470.000	1.00960	1.01386	.008800	4.0296	14216.6	18178.6	180.044	21.34	30.21	1.01240	451
500.000	.94818	1.01476	.008239	4.2927	14867.4	19086.0	181.915	21.50	30.29	1.01362	464
550.000	.86123	1.01564	.007451	4.7277	15961.3	20605.8	184.812	21.80	30.51	1.01494	486
600.000	.78916	1.01604	.006804	5.1594	17069.1	22137.8	187.478	22.14	30.78	1.01565	506
650.000	.72839	1.01613	.006261	5.5886	18192.9	23684.5	189.954	22.50	31.09	1.01599	525
700.000	.67642	1.01604	.005800	6.0159	19333.8	25247.3	192.270	22.86	31.42	1.01608	543
750.000	.63146	1.01583	.005403	6.4417	20492.1	26826.7	194.449	23.23	31.76	1.01602	560
800.000	.59215	1.01554	.005058	6.8662	21667.9	28422.9	196.509	23.59	32.09	1.01586	577
850.000	.55750	1.01522	.004754	7.2898	22860.7	30035.6	198.465	23.94	32.42	1.01562	593
900.000	.52671	1.01487	.004485	7.7125	24069.9	31664.3	200.326	24.27	32.73	1.01535	609
950.000	.49916	1.01451	.004245	8.1345	25294.7	33308.2	202.104	24.58	33.03	1.01506	624
1000.000	.47437	1.01415	.004030	8.5559	26534.3	34966.5	203.805	24.87	33.31	1.01475	639

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					4.200000 MPa						
69.064	30.38602	.24071	2.206452	16.0955	12.4	150.6	74.654	36.30	58.93	.00541	965
70.000	30.25748	.23850	2.169910	15.7738	67.3	206.1	75.449	36.31	59.13	.00628	957
80.000	28.85064	.21886	1.809193	12.5342	659.5	805.1	83.457	35.60	60.70	.02391	873
90.000	27.35763	.20516	1.493012	9.6284	1262.3	1415.8	90.648	33.54	61.38	.06424	793
100.000	25.72873	.19633	1.210017	7.0320	1868.1	2031.3	97.120	30.16	61.61	.13589	716
110.000	23.87768	.19232	.950478	4.7302	2472.2	2648.1	103.005	25.62	62.47	.24156	641
120.000	21.61602	.19474	.703281	2.7096	3091.1	3285.4	108.560	20.43	67.31	.37814	564
130.000	18.28085	.21256	.444199	.9599	3821.8	4051.5	114.652	18.61	98.57	.53853	426
140.000	7.37793	.48905	.102797	.1768	5860.6	6429.9	132.148	35.01	188.76	.67855	184
150.000	4.97247	.67725	.060436	.5159	6633.4	7478.1	139.420	27.78	70.74	.74955	216
160.000	4.12989	.76446	.046622	.7498	7060.8	8077.7	143.297	25.22	52.42	.79869	235
170.000	3.62454	.81981	.038953	.9390	7400.5	8559.3	146.219	23.85	44.77	.83574	250
180.000	3.26837	.85864	.033902	1.1028	7699.2	8984.2	148.649	23.02	40.58	.86466	263
190.000	2.99604	.88738	.030256	1.2502	7974.2	9376.0	150.768	22.47	37.97	.88781	274
200.000	2.77728	.90942	.027467	1.3861	8234.1	9746.4	152.668	22.09	36.20	.90655	284
210.000	2.59560	.92674	.025245	1.5135	8483.6	10101.7	154.402	21.81	34.94	.92197	294
220.000	2.44108	.94061	.023420	1.6344	8725.7	10446.2	156.005	21.61	34.00	.93478	302
230.000	2.30727	.95189	.021887	1.7502	8962.2	10782.5	157.500	21.46	33.29	.94552	311
240.000	2.18976	.96118	.020574	1.8620	9194.5	11112.5	158.904	21.35	32.72	.95461	319
250.000	2.08539	.96892	.019434	1.9705	9423.4	11437.4	160.231	21.26	32.27	.96235	326
260.000	1.99183	.97541	.018432	2.0761	9649.6	11758.2	161.489	21.19	31.91	.96899	334
270.000	1.90732	.98090	.017541	2.1795	9873.7	12075.8	162.688	21.13	31.61	.97470	341
280.000	1.83046	.98559	.016744	2.2810	10096.1	12390.6	163.833	21.09	31.36	.97966	347
290.000	1.76018	.98960	.016023	2.3807	10317.0	12703.1	164.929	21.05	31.15	.98396	354
300.000	1.69559	.99305	.015369	2.4791	10536.7	13013.7	165.982	21.03	30.97	.98772	361
310.000	1.63597	.99604	.014772	2.5762	10755.4	13322.7	166.995	21.01	30.82	.99102	367
320.000	1.58073	.99863	.014223	2.6721	10973.2	13630.2	167.972	21.00	30.70	.99392	373
330.000	1.52936	1.00090	.013717	2.7671	11190.4	13936.7	168.915	21.00	30.59	.99647	379
340.000	1.48145	1.00287	.013249	2.8613	11407.0	14242.1	169.827	20.99	30.50	.99874	385
350.000	1.43664	1.00461	.012814	2.9547	11623.2	14546.7	170.710	21.00	30.42	1.00074	390
360.000	1.39462	1.00613	.012409	3.0474	11839.0	14850.6	171.566	21.01	30.36	1.00252	396
370.000	1.35512	1.00747	.012030	3.1395	12054.6	15153.9	172.397	21.02	30.31	1.00410	402
380.000	1.31791	1.00866	.011675	3.2311	12269.9	15456.8	173.205	21.04	30.27	1.00552	407
390.000	1.28279	1.00970	.011342	3.3222	12485.2	15759.3	173.990	21.06	30.23	1.00678	412
400.000	1.24958	1.01062	.011028	3.4128	12700.4	16061.5	174.755	21.08	30.21	1.00790	417
410.000	1.21811	1.01144	.010732	3.5030	12915.6	16363.5	175.501	21.11	30.20	1.00891	422
420.000	1.18826	1.01217	.010452	3.5928	13130.9	16665.4	176.229	21.14	30.19	1.00982	427
430.000	1.15989	1.01281	.010187	3.6822	13346.3	16967.3	176.939	21.18	30.18	1.01063	432
440.000	1.13290	1.01338	.009936	3.7714	13561.8	17269.2	177.633	21.21	30.19	1.01135	437
450.000	1.10717	1.01388	.009697	3.8603	13777.6	17571.1	178.311	21.26	30.20	1.01200	442
470.000	1.05918	1.01472	.009254	4.0372	14210.0	18175.4	179.625	21.35	30.23	1.01311	451
500.000	.99473	1.01564	.008662	4.3009	14861.3	19083.5	181.498	21.50	30.32	1.01438	465
550.000	.90350	1.01654	.007832	4.7367	15955.7	20604.3	184.397	21.80	30.53	1.01574	486
600.000	.82788	1.01693	.007150	5.1691	17064.0	22137.2	187.065	22.14	30.80	1.01647	506
650.000	.76414	1.01701	.006580	5.5989	18188.2	23684.6	189.542	22.50	31.10	1.01682	525
700.000	.70964	1.01690	.006094	6.0267	19329.4	25247.9	191.858	22.86	31.43	1.01690	543
750.000	.66248	1.01667	.005677	6.4529	20488.0	26827.9	194.038	23.23	31.77	1.01683	561
800.000	.62126	1.01637	.005313	6.8778	21664.1	28424.5	196.099	23.59	32.10	1.01665	578
850.000	.58491	1.01602	.004994	7.3016	22857.1	30037.6	198.055	23.94	32.42	1.01640	594
900.000	.55262	1.01565	.004711	7.7246	24066.5	31666.7	199.917	24.27	32.73	1.01611	609
950.000	.52373	1.01527	.004459	8.1469	25291.5	33310.9	201.695	24.58	33.03	1.01580	625
1000.000	.49773	1.01489	.004233	8.5686	26531.2	34969.5	203.397	24.87	33.31	1.01547	640

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					4.400000 MPa						
69.108	30.39233	.25195	2.208207	16.1370	13.0	157.8	74.662	36.31	58.91	.00526	966
70.000	30.27014	.24975	2.173396	15.8307	65.2	210.6	75.419	36.31	59.10	.00606	959
80.000	28.86656	.22916	1.812613	12.5918	656.9	809.3	83.422	35.60	60.65	.02306	875
90.000	27.37834	.21477	1.496621	9.6885	1258.7	1419.4	90.607	33.54	61.30	.06192	795
100.000	25.75705	.20546	1.214088	7.0961	1863.1	2033.9	97.068	30.17	61.48	.13093	718
110.000	23.91965	.20113	.955433	4.8002	2464.8	2648.7	102.935	25.63	62.19	.23270	644
120.000	21.68877	.20333	.710077	2.7891	3078.6	3281.5	108.451	20.44	66.55	.36431	569
130.000	18.47906	.22029	.456966	1.0592	3789.9	4028.0	114.388	18.56	93.62	.51925	436
140.000	8.68495	.43523	.125228	.1357	5624.7	6131.3	129.836	36.49	251.01	.66183	182
150.000	5.37549	.65631	.066603	.4773	6554.8	7373.3	138.464	28.29	76.54	.73804	214
160.000	4.40191	.75137	.050445	.7209	7009.0	8008.6	142.572	25.50	54.65	.78976	234
170.000	3.84014	.81063	.041791	.9164	7360.9	8506.7	145.594	24.03	46.00	.82859	250
180.000	3.45122	.85187	.036187	1.0848	7666.7	8941.6	148.081	23.15	41.39	.85887	263
190.000	3.15695	.88226	.032186	1.2357	7946.5	9340.2	150.237	22.56	38.54	.88307	274
200.000	2.92218	.90548	.029147	1.3744	8209.8	9715.5	152.163	22.16	36.64	.90266	284
210.000	2.72816	.92369	.026739	1.5041	8462.0	10074.8	153.916	21.87	35.28	.91877	294
220.000	2.56373	.93826	.024770	1.6269	8706.1	10422.3	155.533	21.66	34.28	.93215	303
230.000	2.42173	.95009	.023121	1.7444	8944.3	10761.2	157.039	21.50	33.52	.94338	311
240.000	2.29730	.95982	.021714	1.8576	9177.9	11093.2	158.453	21.38	32.92	.95287	319
250.000	2.18697	.96791	.020494	1.9672	9408.0	11419.9	159.786	21.28	32.44	.96095	327
260.000	2.08821	.97469	.019424	2.0740	9635.3	11742.3	161.051	21.21	32.05	.96787	334
270.000	1.99910	.98043	.018476	2.1784	9860.2	12061.2	162.254	21.15	31.73	.97383	341
280.000	1.91815	.98532	.017627	2.2807	10083.3	12377.2	163.404	21.10	31.47	.97900	348
290.000	1.84418	.98950	.016862	2.3813	10304.9	12690.8	164.504	21.07	31.25	.98349	355
300.000	1.77625	.99310	.016168	2.4803	10525.2	13002.3	165.560	21.04	31.06	.98741	361
310.000	1.71358	.99621	.015534	2.5780	10744.4	13312.1	166.576	21.02	30.90	.99084	367
320.000	1.65554	.99891	.014953	2.6746	10962.7	13620.5	167.555	21.01	30.77	.99387	373
330.000	1.60160	1.00126	.014418	2.7701	11180.3	13927.6	168.500	21.00	30.66	.99653	379
340.000	1.55131	1.00332	.013922	2.8648	11397.3	14233.7	169.414	21.00	30.56	.99888	385
350.000	1.50429	1.00512	.013463	2.9587	11613.9	14538.8	170.299	21.00	30.48	1.00097	391
360.000	1.46020	1.00670	.013035	3.0518	11830.0	14843.3	171.156	21.01	30.41	1.00282	397
370.000	1.41878	1.00809	.012635	3.1443	12045.9	15147.1	171.989	21.03	30.36	1.00447	402
380.000	1.37976	1.00932	.012260	3.2363	12261.5	15450.5	172.798	21.04	30.31	1.00594	407
390.000	1.34294	1.01040	.011908	3.3277	12477.0	15753.4	173.585	21.06	30.28	1.00725	413
400.000	1.30813	1.01136	.011577	3.4186	12692.5	16056.0	174.351	21.09	30.25	1.00842	418
410.000	1.27516	1.01220	.011265	3.5091	12907.9	16358.5	175.097	21.11	30.23	1.00947	423
420.000	1.24388	1.01295	.010970	3.5992	13123.4	16660.7	175.826	21.14	30.22	1.01041	428
430.000	1.21416	1.01361	.010691	3.6889	13339.0	16962.9	176.537	21.18	30.22	1.01125	433
440.000	1.18588	1.01420	.010427	3.7783	13554.8	17265.1	177.232	21.22	30.22	1.01200	438
450.000	1.15893	1.01472	.010175	3.8675	13770.7	17567.3	177.911	21.26	30.23	1.01268	443
470.000	1.10867	1.01558	.009709	4.0448	14203.5	18172.2	179.226	21.35	30.26	1.01383	452
500.000	1.04119	1.01653	.009086	4.3091	14855.1	19081.1	181.100	21.50	30.34	1.01514	465
550.000	.94568	1.01744	.008214	4.7458	15950.1	20602.9	184.001	21.80	30.55	1.01655	487
600.000	.86654	1.01783	.007497	5.1788	17058.9	22136.6	186.670	22.14	30.81	1.01730	507
650.000	.79983	1.01790	.006898	5.6092	18183.5	23684.7	189.148	22.50	31.12	1.01765	526
700.000	.74279	1.01777	.006389	6.0375	19325.1	25248.7	191.466	22.87	31.44	1.01773	544
750.000	.69344	1.01752	.005951	6.4641	20484.0	26829.1	193.647	23.23	31.78	1.01764	561
800.000	.65031	1.01719	.005569	6.8894	21660.3	28426.2	195.708	23.59	32.11	1.01745	578
850.000	.61228	1.01682	.005234	7.3136	22853.5	30039.7	197.664	23.94	32.43	1.01718	594
900.000	.57849	1.01643	.004938	7.7368	24063.1	31669.1	199.527	24.27	32.74	1.01688	610
950.000	.54826	1.01603	.004673	8.1594	25288.3	33313.6	201.305	24.58	33.04	1.01654	625
1000.000	.52106	1.01562	.004436	8.5813	26528.2	34972.5	203.007	24.87	33.32	1.01619	640

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					4.600000 MPa						
69.153	30.39862	.26318	2.209958	16.1785	13.6	165.0	74.671	36.31	58.90	.00513	967
70.000	30.28275	.26099	2.176877	15.8875	63.2	215.1	75.389	36.31	59.08	.00586	960
80.000	28.88241	.23944	1.816025	12.6493	654.2	813.5	83.388	35.61	60.61	.02229	876
90.000	27.39892	.22436	1.500215	9.7484	1255.1	1423.0	90.566	33.55	61.23	.05981	796
100.000	25.78511	.21456	1.218133	7.1599	1858.1	2036.5	97.017	30.18	61.35	.12641	720
110.000	23.96102	.20991	.960335	4.8698	2457.5	2649.5	102.866	25.64	61.93	.22463	647
120.000	21.75948	.21188	.716725	2.8678	3066.4	3277.8	108.344	20.45	65.85	.35170	574
130.000	18.65977	.22807	.468848	1.1552	3760.7	4007.3	114.145	18.53	89.57	.50165	446
140.000	10.21797	.38675	.153780	.1324	5367.5	5817.7	127.444	37.28	276.77	.64472	187
150.000	5.81198	.63461	.073417	.4399	6471.1	7262.6	137.487	28.80	83.21	.72652	213
160.000	4.68500	.73806	.054501	.6924	6955.6	7937.5	141.852	25.78	57.05	.78085	233
170.000	4.06110	.80136	.044751	.8940	7320.5	8453.2	144.981	24.21	47.30	.82148	249
180.000	3.63712	.84507	.038549	1.0669	7633.7	8898.5	147.528	23.27	42.22	.85311	262
190.000	3.31976	.87713	.034168	1.2213	7918.5	9304.1	149.722	22.65	39.13	.87837	274
200.000	3.06833	.90155	.030864	1.3627	8185.4	9684.6	151.674	22.23	37.08	.89881	284
210.000	2.86155	.92066	.028261	1.4947	8440.2	10047.7	153.446	21.93	35.63	.91560	294
220.000	2.68695	.93592	.026142	1.6195	8686.4	10398.4	155.078	21.70	34.56	.92955	303
230.000	2.53658	.94830	.024373	1.7386	8926.3	10739.8	156.595	21.53	33.75	.94125	311
240.000	2.40509	.95847	.022868	1.8532	9161.4	11074.0	158.018	21.40	33.11	.95114	319
250.000	2.28872	.96692	.021567	1.9641	9392.6	11402.5	159.359	21.30	32.61	.95956	327
260.000	2.18469	.97400	.020428	2.0720	9620.9	11726.4	160.630	21.23	32.20	.96677	334
270.000	2.09094	.97998	.019419	2.1773	9846.7	12046.7	161.838	21.17	31.86	.97298	342
280.000	2.00585	.98507	.018518	2.2805	10070.6	12363.9	162.992	21.12	31.58	.97836	348
290.000	1.92816	.98942	.017707	2.3819	10292.8	12678.5	164.096	21.08	31.35	.98303	355
300.000	1.85686	.99316	.016972	2.4816	10513.7	12991.0	165.155	21.05	31.15	.98711	362
310.000	1.79113	.99640	.016302	2.5800	10733.4	13301.6	166.174	21.03	30.99	.99069	368
320.000	1.73028	.99920	.015687	2.6771	10952.2	13610.8	167.155	21.02	30.84	.99383	374
330.000	1.67376	1.00165	.015122	2.7732	11170.3	13918.6	168.103	21.01	30.72	.99660	380
340.000	1.62108	1.00378	.014599	2.8684	11387.7	14225.3	169.018	21.01	30.62	.99904	386
350.000	1.57184	1.00565	.014115	2.9627	11604.6	14531.1	169.905	21.01	30.54	1.00121	392
360.000	1.52569	1.00729	.013663	3.0563	11821.0	14836.1	170.764	21.02	30.46	1.00314	397
370.000	1.48234	1.00873	.013242	3.1492	12037.2	15140.4	171.598	21.03	30.41	1.00485	403
380.000	1.44151	1.01000	.012847	3.2415	12253.1	15444.2	172.408	21.05	30.36	1.00638	408
390.000	1.40300	1.01112	.012477	3.3332	12468.9	15747.6	173.196	21.07	30.32	1.00774	413
400.000	1.36659	1.01210	.012129	3.4245	12684.6	16050.6	173.963	21.09	30.29	1.00895	419
410.000	1.33210	1.01298	.011801	3.5153	12900.3	16353.4	174.711	21.12	30.27	1.01004	424
420.000	1.29940	1.01375	.011491	3.6057	13116.0	16656.1	175.440	21.15	30.26	1.01101	429
430.000	1.26832	1.01443	.011197	3.6957	13331.8	16958.6	176.152	21.18	30.25	1.01188	434
440.000	1.23876	1.01504	.010919	3.7854	13547.7	17261.1	176.847	21.22	30.25	1.01267	438
450.000	1.21060	1.01557	.010655	3.8747	13763.9	17563.6	177.527	21.26	30.26	1.01337	443
470.000	1.15807	1.01645	.010165	4.0525	14196.9	18169.0	178.844	21.35	30.29	1.01455	453
500.000	1.08756	1.01742	.009512	4.3174	14849.0	19078.7	180.720	21.50	30.36	1.01591	466
550.000	.98778	1.01835	.008596	4.7549	15944.6	20601.5	183.622	21.80	30.56	1.01736	487
600.000	.90512	1.01874	.007845	5.1886	17053.9	22136.1	186.293	22.14	30.83	1.01813	507
650.000	.83545	1.01880	.007217	5.6196	18178.9	23684.9	188.772	22.50	31.13	1.01848	526
700.000	.77589	1.01865	.006684	6.0483	19320.7	25249.4	191.091	22.87	31.45	1.01856	545
750.000	.72436	1.01837	.006225	6.4753	20479.9	26830.4	193.272	23.23	31.79	1.01846	562
800.000	.67932	1.01802	.005825	6.9010	21656.5	28428.0	195.334	23.59	32.12	1.01825	579
850.000	.63961	1.01763	.005475	7.3255	22849.9	30041.9	197.291	23.94	32.44	1.01797	595
900.000	.60432	1.01721	.005164	7.7491	24059.7	31671.6	199.154	24.27	32.75	1.01764	611
950.000	.57275	1.01679	.004887	8.1719	25285.1	33316.4	200.932	24.58	33.04	1.01729	626
1000.000	.54435	1.01636	.004639	8.5940	26525.1	34975.6	202.634	24.87	33.32	1.01692	641

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					4.800000 MPa						
69.197	30.40490	.27439	2.211704	16.2200	14.3	172.1	74.679	36.31	58.88	.00500	969
70.000	30.29531	.27223	2.180352	15.9443	61.2	219.6	75.359	36.31	59.05	.00568	962
80.000	28.89819	.24971	1.819429	12.7068	651.5	817.6	83.353	35.61	60.57	.02158	878
90.000	27.41937	.23394	1.503797	9.8082	1251.5	1426.6	90.525	33.56	61.16	.05788	798
100.000	25.81292	.22365	1.222154	7.2235	1853.2	2039.2	96.966	30.19	61.22	.12228	723
110.000	24.00180	.21866	.965184	4.9390	2450.3	2650.3	102.797	25.65	61.67	.21724	651
120.000	21.82829	.22040	.723234	2.9456	3054.6	3274.5	108.240	20.46	65.18	.34016	578
130.000	18.82624	.23588	.480000	1.2484	3733.7	3988.7	113.921	18.50	86.19	.48552	455
140.000	11.61397	.35506	.183855	.1574	5146.4	5559.6	125.470	37.29	260.22	.62767	198
150.000	6.28609	.61226	.080973	.4047	6382.1	7145.6	136.486	29.31	90.80	.71499	211
160.000	4.97989	.72454	.058806	.6644	6900.5	7864.4	141.136	26.05	59.63	.77199	233
170.000	4.28762	.79203	.047840	.8719	7279.3	8398.8	144.380	24.39	48.66	.81441	249
180.000	3.82615	.83824	.040991	1.0492	7600.4	8854.9	146.988	23.40	43.09	.84738	262
190.000	3.48448	.87199	.036204	1.2070	7890.2	9267.8	149.221	22.75	39.74	.87370	274
200.000	3.21571	.89763	.032622	1.3512	8160.8	9653.4	151.200	22.30	37.53	.89498	284
210.000	2.99577	.91765	.029814	1.4855	8418.3	10020.6	152.992	21.98	35.98	.91246	294
220.000	2.81073	.93361	.027538	1.6121	8666.7	10374.4	154.638	21.75	34.84	.92698	303
230.000	2.65180	.94653	.025645	1.7329	8908.3	10718.4	156.167	21.57	33.98	.93915	312
240.000	2.51314	.95714	.024038	1.8489	9144.8	11054.7	157.599	21.43	33.31	.94944	320
250.000	2.39062	.96595	.022653	1.9611	9377.2	11385.1	158.947	21.33	32.78	.95819	328
260.000	2.28126	.97332	.021442	2.0700	9606.5	11710.6	160.224	21.25	32.34	.96569	335
270.000	2.18281	.97955	.020372	2.1764	9833.2	12032.2	161.438	21.18	31.99	.97215	342
280.000	2.09355	.98484	.019417	2.2804	10057.8	12350.6	162.596	21.13	31.70	.97773	349
290.000	2.01211	.98936	.018559	2.3825	10280.7	12666.3	163.704	21.09	31.45	.98259	356
300.000	1.93743	.99325	.017782	2.4830	10502.2	12979.7	164.766	21.06	31.24	.98683	362
310.000	1.86862	.99660	.017074	2.5820	10722.5	13291.2	165.788	21.04	31.07	.99054	368
320.000	1.80495	.99951	.016427	2.6797	10941.8	13601.1	166.772	21.03	30.92	.99380	375
330.000	1.74584	1.00205	.015831	2.7764	11160.2	13909.6	167.721	21.02	30.79	.99668	381
340.000	1.69076	1.00425	.015280	2.8720	11378.0	14217.0	168.639	21.02	30.68	.99922	386
350.000	1.63930	1.00619	.014770	2.9668	11595.3	14523.4	169.527	21.02	30.59	1.00147	392
360.000	1.59108	1.00788	.014295	3.0608	11812.1	14828.9	170.387	21.02	30.52	1.00346	398
370.000	1.54579	1.00937	.013852	3.1541	12028.6	15133.8	171.223	21.03	30.45	1.00524	403
380.000	1.50316	1.01068	.013437	3.2468	12244.8	15438.0	172.034	21.05	30.40	1.00682	409
390.000	1.46295	1.01184	.013048	3.3389	12460.8	15741.9	172.823	21.07	30.36	1.00823	414
400.000	1.42494	1.01286	.012683	3.4305	12676.7	16045.3	173.592	21.09	30.33	1.00949	419
410.000	1.38895	1.01376	.012338	3.5216	12892.6	16348.5	174.340	21.12	30.31	1.01062	424
420.000	1.35481	1.01456	.012013	3.6123	13108.6	16651.5	175.070	21.15	30.29	1.01162	429
430.000	1.32239	1.01526	.011705	3.7025	13324.6	16954.3	175.783	21.18	30.28	1.01253	434
440.000	1.29155	1.01588	.011413	3.7925	13540.7	17257.2	176.479	21.22	30.28	1.01333	439
450.000	1.26217	1.01643	.011136	3.8820	13757.0	17560.0	177.160	21.26	30.29	1.01406	444
470.000	1.20738	1.01734	.010623	4.0603	14190.4	18165.9	178.477	21.35	30.31	1.01529	453
500.000	1.13383	1.01832	.009938	4.3258	14842.9	19076.3	180.355	21.51	30.39	1.01669	467
550.000	1.02980	1.01927	.008980	4.7641	15939.1	20600.2	183.259	21.80	30.58	1.01818	488
600.000	.94363	1.01965	.008194	5.1985	17048.9	22135.6	185.931	22.14	30.84	1.01897	508
650.000	.87101	1.01969	.007537	5.6300	18174.2	23685.1	188.412	22.50	31.14	1.01932	527
700.000	.80893	1.01952	.006979	6.0592	19316.4	25250.2	190.731	22.87	31.46	1.01939	545
750.000	.75522	1.01923	.006499	6.4867	20475.9	26831.7	192.913	23.23	31.80	1.01928	562
800.000	.70828	1.01886	.006082	6.9127	21652.7	28429.7	194.976	23.59	32.12	1.01905	579
850.000	.66689	1.01844	.005715	7.3375	22846.4	30044.0	196.933	23.94	32.45	1.01875	595
900.000	.63011	1.01800	.005391	7.7614	24056.3	31674.1	198.796	24.27	32.75	1.01841	611
950.000	.59721	1.01755	.005102	8.1844	25281.9	33319.2	200.575	24.58	33.05	1.01803	626
1000.000	.56760	1.01710	.004842	8.6068	26522.0	34978.7	202.278	24.87	33.33	1.01765	641

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					5.000000 MPa						
69.242	30.41115	.28558	2.213445	16.2615	14.9	179.3	74.687	36.31	58.87	.00489	970
70.000	30.30783	.28345	2.183824	16.0010	59.2	224.1	75.329	36.31	59.02	.00552	963
80.000	28.91389	.25998	1.822825	12.7641	648.9	821.8	83.319	35.61	60.52	.02094	880
90.000	27.43970	.24351	1.507364	9.8679	1248.0	1430.2	90.484	33.56	61.09	.05611	800
100.000	25.84048	.23272	1.226149	7.2869	1848.4	2041.9	96.915	30.20	61.10	.11849	725
110.000	24.04201	.22739	.969983	5.0078	2443.2	2651.2	102.730	25.67	61.42	.21046	654
120.000	21.89531	.22888	.729611	3.0226	3043.1	3271.4	108.138	20.47	64.55	.32956	583
130.000	18.98086	.24371	.490536	1.3392	3708.6	3972.0	113.711	18.47	83.31	.47068	464
140.000	12.74418	.33705	.212462	.2021	4972.7	5365.0	123.963	36.97	229.53	.61113	211
150.000	6.80114	.58947	.089370	.3730	6287.4	7022.6	135.461	29.79	99.22	.70345	210
160.000	5.28728	.71086	.063380	.6373	6843.7	7789.4	140.424	26.33	62.40	.76315	232
170.000	4.51991	.78263	.051063	.8502	7237.3	8343.5	143.787	24.57	50.09	.80738	248
180.000	4.01838	.83140	.043514	1.0318	7566.6	8810.9	146.460	23.52	43.98	.84169	262
190.000	3.65116	.86686	.038295	1.1929	7861.7	9231.2	148.733	22.84	40.36	.86905	274
200.000	3.36436	.89372	.034419	1.3398	8136.0	9622.2	150.740	22.37	37.99	.89118	285
210.000	3.13083	.91465	.031397	1.4763	8396.4	9993.4	152.551	22.04	36.34	.90935	294
220.000	2.93506	.93131	.028957	1.6049	8646.9	10350.5	154.212	21.79	35.13	.92443	303
230.000	2.76740	.94479	.026935	1.7273	8890.3	10697.0	155.753	21.60	34.22	.93707	312
240.000	2.62143	.95584	.025224	1.8447	9128.2	11035.5	157.194	21.46	33.51	.94776	320
250.000	2.49269	.96500	.023751	1.9581	9361.8	11367.7	158.550	21.35	32.95	.95685	328
260.000	2.37792	.97266	.022467	2.0682	9592.1	11694.8	159.833	21.27	32.49	.96463	335
270.000	2.27473	.97913	.021333	2.1755	9819.7	12017.8	161.052	21.20	32.12	.97133	343
280.000	2.18125	.98462	.020324	2.2804	10045.1	12337.3	162.214	21.15	31.81	.97713	349
290.000	2.09605	.98932	.019418	2.3833	10268.6	12654.1	163.326	21.11	31.55	.98216	356
300.000	2.01796	.99335	.018598	2.4844	10490.7	12968.5	164.392	21.08	31.33	.98656	363
310.000	1.94605	.99683	.017853	2.5841	10711.5	13280.8	165.416	21.05	31.15	.99041	369
320.000	1.87955	.99984	.017170	2.6824	10931.3	13591.5	166.402	21.04	30.99	.99379	375
330.000	1.81783	1.00246	.016543	2.7796	11150.2	13900.8	167.354	21.03	30.86	.99677	381
340.000	1.76035	1.00474	.015965	2.8758	11368.4	14208.8	168.273	21.02	30.75	.99940	387
350.000	1.70666	1.00674	.015428	2.9710	11586.0	14515.7	169.163	21.02	30.65	1.00173	393
360.000	1.65637	1.00849	.014930	3.0654	11803.2	14821.8	170.026	21.03	30.57	1.00380	398
370.000	1.60915	1.01003	.014465	3.1591	12019.9	15127.2	170.862	21.04	30.50	1.00564	404
380.000	1.56471	1.01138	.014030	3.2522	12236.4	15431.9	171.675	21.05	30.45	1.00728	409
390.000	1.52280	1.01258	.013622	3.3446	12452.7	15736.2	172.465	21.07	30.40	1.00874	415
400.000	1.48319	1.01363	.013238	3.4365	12668.9	16040.0	173.234	21.10	30.37	1.01004	420
410.000	1.44569	1.01455	.012877	3.5279	12885.0	16343.6	173.984	21.12	30.34	1.01120	425
420.000	1.41013	1.01537	.012536	3.6189	13101.2	16646.9	174.715	21.15	30.33	1.01225	430
430.000	1.37636	1.01609	.012214	3.7094	13317.4	16950.1	175.428	21.19	30.32	1.01318	435
440.000	1.34423	1.01673	.011909	3.7996	13533.7	17253.3	176.125	21.22	30.31	1.01401	440
450.000	1.31364	1.01729	.011619	3.8894	13750.2	17556.4	176.807	21.26	30.32	1.01476	444
470.000	1.25659	1.01822	.011081	4.0682	14183.9	18162.9	178.125	21.35	30.34	1.01603	454
500.000	1.18002	1.01923	.010365	4.3342	14836.8	19074.0	180.004	21.51	30.41	1.01747	467
550.000	1.07174	1.02019	.009363	4.7734	15933.6	20598.9	182.911	21.81	30.60	1.01900	489
600.000	.98207	1.02057	.008542	5.2084	17043.9	22135.2	185.584	22.14	30.86	1.01980	509
650.000	.90650	1.02059	.007856	5.6405	18169.6	23685.4	188.066	22.50	31.16	1.02016	528
700.000	.84190	1.02041	.007274	6.0702	19312.2	25251.1	190.386	22.87	31.48	1.02022	546
750.000	.78602	1.02009	.006774	6.4980	20471.9	26833.1	192.569	23.23	31.80	1.02010	563
800.000	.73718	1.01969	.006338	6.9244	21648.9	28431.5	194.632	23.59	32.13	1.01986	580
850.000	.69412	1.01925	.005956	7.3495	22842.8	30046.2	196.590	23.94	32.45	1.01954	596
900.000	.65586	1.01878	.005618	7.7737	24053.0	31676.6	198.454	24.27	32.76	1.01917	612
950.000	.62163	1.01831	.005316	8.1970	25278.7	33322.1	200.233	24.58	33.05	1.01878	627
1000.000	.59082	1.01784	.005046	8.6196	26519.0	34981.8	201.935	24.87	33.33	1.01838	642

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					5.200000 MPa						
69.286	30.41739	.29675	2.215181	16.3029	15.5	186.5	74.696	36.31	58.85	.00479	971
70.000	30.32031	.29467	2.187290	16.0578	57.2	228.7	75.299	36.31	59.00	.00537	965
80.000	28.92952	.27023	1.826214	12.8214	646.2	826.0	83.285	35.62	60.48	.02034	881
90.000	27.45991	.25306	1.510918	9.9274	1244.5	1433.9	90.444	33.57	61.02	.05448	802
100.000	25.86781	.24177	1.230120	7.3501	1843.6	2044.6	96.865	30.21	60.97	.11500	727
110.000	24.08168	.23610	.974733	5.0762	2436.3	2652.2	102.663	25.68	61.18	.20421	657
120.000	21.96066	.23732	.735866	3.0987	3031.8	3268.6	108.038	20.48	63.96	.31980	587
130.000	19.12545	.25154	.500546	1.4279	3684.9	3956.8	113.513	18.45	80.81	.45699	472
140.000	13.61022	.32823	.237815	.2650	4841.1	5223.2	122.841	36.61	197.94	.59534	226
150.000	7.35799	.56665	.098689	.3467	6187.4	6894.1	134.417	30.25	108.09	.69192	210
160.000	5.60773	.69704	.068241	.6114	6785.1	7712.4	139.713	26.59	65.35	.75435	231
170.000	4.75814	.77318	.054427	.8290	7194.5	8287.4	143.203	24.74	51.57	.80038	248
180.000	4.21386	.82455	.046122	1.0146	7532.4	8766.4	145.943	23.64	44.90	.83604	262
190.000	3.81981	.86173	.040443	1.1790	7833.0	9194.3	148.258	22.93	40.99	.86445	274
200.000	3.51426	.88982	.036256	1.3286	8111.1	9590.8	150.292	22.44	38.46	.88741	285
210.000	3.26672	.91167	.033010	1.4673	8374.3	9966.1	152.123	22.09	36.70	.90626	295
220.000	3.05996	.92903	.030400	1.5978	8627.1	10326.4	153.800	21.83	35.42	.92190	304
230.000	2.88338	.94306	.028244	1.7218	8872.2	10675.6	155.352	21.64	34.46	.93502	312
240.000	2.72997	.95455	.026424	1.8406	9111.5	11016.3	156.802	21.49	33.71	.94609	321
250.000	2.59490	.96407	.024862	1.9552	9346.4	11350.3	158.166	21.38	33.12	.95552	328
260.000	2.47467	.97202	.023502	2.0664	9577.7	11679.0	159.455	21.29	32.64	.96359	336
270.000	2.36668	.97873	.022304	2.1746	9806.2	12003.4	160.679	21.22	32.25	.97053	343
280.000	2.26896	.98443	.021239	2.2804	10032.3	12324.1	161.846	21.16	31.92	.97654	350
290.000	2.17995	.98929	.020284	2.3841	10256.6	12642.0	162.961	21.12	31.65	.98176	357
300.000	2.09843	.99346	.019420	2.4860	10479.3	12957.3	164.030	21.09	31.42	.98631	363
310.000	2.02341	.99706	.018636	2.5863	10700.6	13270.5	165.058	21.06	31.23	.99029	370
320.000	1.95407	1.00018	.017919	2.6852	10920.9	13582.0	166.046	21.04	31.07	.99380	376
330.000	1.88974	1.00288	.017260	2.7829	11140.2	13891.9	167.000	21.03	30.93	.99688	382
340.000	1.82985	1.00524	.016653	2.8796	11358.8	14200.6	167.922	21.03	30.81	.99960	388
350.000	1.77393	1.00731	.016090	2.9753	11576.8	14508.1	168.813	21.03	30.71	1.00201	393
360.000	1.72157	1.00911	.015567	3.0701	11794.3	14814.8	169.677	21.03	30.62	1.00415	399
370.000	1.67241	1.01070	.015080	3.1642	12011.4	15120.6	170.515	21.04	30.55	1.00605	404
380.000	1.62616	1.01209	.014625	3.2576	12228.1	15425.9	171.329	21.06	30.49	1.00774	410
390.000	1.58254	1.01332	.014197	3.3504	12444.7	15730.5	172.120	21.08	30.45	1.00925	415
400.000	1.54133	1.01440	.013796	3.4426	12661.1	16034.8	172.891	21.10	30.41	1.01060	420
410.000	1.50233	1.01536	.013418	3.5343	12877.5	16338.8	173.641	21.13	30.38	1.01180	425
420.000	1.46535	1.01620	.013062	3.6256	13093.8	16642.5	174.373	21.16	30.36	1.01287	430
430.000	1.43022	1.01694	.012725	3.7164	13310.2	16946.0	175.087	21.19	30.35	1.01384	435
440.000	1.39682	1.01759	.012406	3.8068	13526.7	17249.5	175.785	21.23	30.34	1.01470	440
450.000	1.36501	1.01817	.012103	3.8969	13743.4	17552.9	176.467	21.27	30.34	1.01547	445
470.000	1.30570	1.01912	.011541	4.0761	14177.4	18160.0	177.787	21.36	30.36	1.01677	454
500.000	1.22612	1.02015	.010794	4.3427	14830.8	19071.8	179.667	21.51	30.43	1.01826	468
550.000	1.11360	1.02112	.009748	4.7827	15928.2	20597.7	182.576	21.81	30.62	1.01983	489
600.000	1.02043	1.02149	.008892	5.2184	17038.9	22134.8	185.251	22.14	30.87	1.02065	509
650.000	.94192	1.02150	.008177	5.6510	18165.0	23685.6	187.733	22.50	31.17	1.02100	528
700.000	.87482	1.02129	.007570	6.0812	19307.9	25251.9	190.055	22.87	31.49	1.02106	546
750.000	.81677	1.02095	.007048	6.5094	20467.9	26834.4	192.238	23.23	31.81	1.02092	564
800.000	.76604	1.02053	.006595	6.9362	21645.2	28433.3	194.302	23.59	32.14	1.02066	580
850.000	.72131	1.02006	.006197	7.3616	22839.3	30048.4	196.260	23.94	32.46	1.02033	596
900.000	.68157	1.01957	.005845	7.7860	24049.6	31679.1	198.124	24.27	32.77	1.01994	612
950.000	.64601	1.01907	.005531	8.2096	25275.5	33324.9	199.904	24.58	33.06	1.01953	627
1000.000	.61401	1.01858	.005249	8.6324	26516.0	34985.0	201.606	24.87	33.34	1.01911	642

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					5.500000 MPa						
69.353	30.42672	.31348	2.217776	16.3650	16.4	197.2	74.708	36.31	58.83	.00466	972
70.000	30.33894	.31148	2.192480	16.1428	54.2	235.4	75.255	36.31	58.96	.00516	967
80.000	28.95285	.28559	1.831282	12.9073	642.3	832.3	83.234	35.62	60.42	.01953	884
90.000	27.48999	.26737	1.516224	10.0165	1239.3	1439.4	90.383	33.58	60.92	.05227	805
100.000	25.90837	.25532	1.236033	7.4445	1836.4	2048.7	96.790	30.22	60.80	.11025	731
110.000	24.14019	.24911	.981771	5.1781	2426.0	2653.8	102.565	25.69	60.83	.19571	661
120.000	22.05575	.24993	.745031	3.2116	3015.4	3264.8	107.893	20.49	63.13	.30651	594
130.000	19.32651	.26329	.514721	1.5575	3652.0	3936.5	113.237	18.43	77.64	.43835	483
140.000	14.55873	.32455	.269780	.3762	4697.1	5074.8	121.629	36.19	163.97	.57325	246
150.000	8.26102	.53383	.114449	.3214	6030.2	6696.0	132.838	30.82	120.39	.67473	211
160.000	6.11368	.67624	.076110	.5756	6693.9	7593.5	138.649	26.98	70.06	.74123	231
170.000	5.12690	.75897	.059750	.7986	7128.8	8201.6	142.341	25.00	53.91	.78997	247
180.000	4.51327	.81426	.050197	.9896	7480.2	8698.9	145.186	23.82	46.32	.82763	262
190.000	4.07650	.85405	.043774	1.1586	7789.4	9138.6	147.564	23.06	41.97	.85759	274
200.000	3.74149	.88400	.039090	1.3121	8073.4	9543.4	149.641	22.54	39.18	.88181	285
210.000	3.47210	.90722	.035488	1.4541	8341.0	9925.0	151.504	22.17	37.26	.90167	295
220.000	3.24834	.92564	.032610	1.5873	8597.1	10290.3	153.203	21.90	35.87	.91816	304
230.000	3.05803	.94050	.030244	1.7137	8845.0	10643.5	154.773	21.69	34.82	.93198	313
240.000	2.89323	.95265	.028255	1.8346	9086.5	10987.5	156.238	21.54	34.01	.94364	321
250.000	2.74850	.96270	.026553	1.9511	9323.2	11324.3	157.613	21.41	33.37	.95357	329
260.000	2.61994	.97110	.025076	2.0638	9556.1	11655.4	158.911	21.32	32.86	.96206	336
270.000	2.50467	.97817	.023778	2.1735	9785.9	11981.8	160.143	21.24	32.44	.96936	344
280.000	2.40051	.98416	.022626	2.2806	10013.3	12304.4	161.317	21.19	32.09	.97568	351
290.000	2.30575	.98927	.021595	2.3855	10238.5	12623.9	162.438	21.14	31.80	.98117	357
300.000	2.21905	.99366	.020665	2.4884	10462.1	12940.7	163.512	21.10	31.56	.98596	364
310.000	2.13933	.99744	.019821	2.5896	10684.3	13255.2	164.543	21.08	31.35	.99015	370
320.000	2.06571	1.00071	.019050	2.6894	10905.3	13567.8	165.535	21.06	31.18	.99383	377
330.000	1.99744	1.00355	.018343	2.7880	11125.3	13878.8	166.492	21.04	31.03	.99707	383
340.000	1.93393	1.00602	.017692	2.8854	11344.5	14188.4	167.417	21.04	30.90	.99992	388
350.000	1.87465	1.00818	.017089	2.9818	11563.0	14496.9	168.311	21.04	30.79	1.00245	394
360.000	1.81917	1.01007	.016530	3.0772	11781.0	14804.3	169.177	21.04	30.70	1.00470	400
370.000	1.76711	1.01172	.016008	3.1719	11998.5	15110.9	170.017	21.05	30.62	1.00669	405
380.000	1.71813	1.01318	.015521	3.2659	12215.7	15416.9	170.833	21.07	30.56	1.00846	411
390.000	1.67197	1.01446	.015065	3.3592	12432.7	15722.2	171.626	21.08	30.51	1.01004	416
400.000	1.62836	1.01558	.014637	3.4519	12649.5	16027.1	172.398	21.11	30.47	1.01145	421
410.000	1.58709	1.01658	.014234	3.5441	12866.1	16331.6	173.150	21.13	30.44	1.01271	426
420.000	1.54798	1.01745	.013853	3.6357	13082.8	16635.8	173.883	21.16	30.41	1.01384	431
430.000	1.51083	1.01822	.013494	3.7270	13299.5	16939.9	174.599	21.19	30.40	1.01484	436
440.000	1.47551	1.01890	.013154	3.8178	13516.3	17243.8	175.297	21.23	30.39	1.01574	441
450.000	1.44188	1.01949	.012831	3.9082	13733.2	17547.7	175.980	21.27	30.39	1.01655	446
470.000	1.37920	1.02048	.012233	4.0880	14167.8	18155.6	177.302	21.36	30.40	1.01791	455
500.000	1.29510	1.02153	.011438	4.3555	14821.8	19068.5	179.185	21.51	30.47	1.01946	469
550.000	1.17624	1.02251	.010327	4.7967	15920.0	20596.0	182.096	21.81	30.65	1.02108	490
600.000	1.07784	1.02287	.009417	5.2335	17031.4	22134.2	184.773	22.14	30.89	1.02193	510
650.000	.99494	1.02286	.008658	5.6669	18158.2	23686.2	187.257	22.50	31.19	1.02228	529
700.000	.92409	1.02262	.008014	6.0977	19301.5	25253.3	189.580	22.87	31.50	1.02232	547
750.000	.86280	1.02224	.007461	6.5266	20462.0	26836.6	191.764	23.23	31.83	1.02217	564
800.000	.80924	1.02179	.006981	6.9539	21639.6	28436.1	193.829	23.59	32.15	1.02188	581
850.000	.76201	1.02128	.006559	7.3798	22834.0	30051.7	195.788	23.94	32.47	1.02152	597
900.000	.72005	1.02076	.006186	7.8046	24044.7	31683.0	197.652	24.27	32.78	1.02110	613
950.000	.68251	1.02022	.005853	8.2285	25270.8	33329.3	199.433	24.58	33.07	1.02066	628
1000.000	.64872	1.01969	.005555	8.6517	26511.5	34989.7	201.136	24.87	33.35	1.02021	643

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					6.000000 MPa						
69.464	30.44218	.34126	2.222079	16.4685	18.0	215.1	74.729	36.31	58.79	.00447	975
70.000	30.36978	.33945	2.201106	16.2844	49.2	246.8	75.181	36.32	58.90	.00487	971
80.000	28.99137	.31114	1.839690	13.0500	635.8	842.8	83.150	35.63	60.32	.01838	888
90.000	27.53955	.29115	1.525003	10.1644	1230.7	1448.6	90.284	33.60	60.75	.04909	810
100.000	25.97483	.27782	1.245774	7.6007	1824.7	2055.7	96.668	30.25	60.51	.10343	736
110.000	24.23522	.27069	.993276	5.3462	2409.3	2656.8	102.404	25.72	60.28	.18351	668
120.000	22.20710	.27080	.759780	3.3964	2989.3	3259.5	107.660	20.52	61.88	.28741	604
130.000	19.62770	.28281	.536515	1.7656	3602.3	3908.0	112.820	18.41	73.43	.41148	501
140.000	15.62699	.32985	.311865	.5748	4533.4	4917.4	120.268	35.76	132.77	.54063	276
150.000	9.82447	.48968	.144379	.3286	5770.1	6380.8	130.368	31.37	129.94	.64664	220
160.000	7.02235	.64226	.090877	.5287	6534.1	7388.5	136.891	27.56	78.25	.71960	231
170.000	5.77218	.73540	.069405	.7528	7015.5	8055.0	140.938	25.40	58.05	.77284	247
180.000	5.02892	.79720	.057445	.9506	7391.2	8584.3	143.966	24.11	48.82	.81380	262
190.000	4.51424	.84135	.049624	1.1264	7715.5	9044.6	146.456	23.28	43.66	.84635	274
200.000	4.12647	.87439	.044025	1.2858	8009.8	9463.8	148.607	22.71	40.41	.87262	285
210.000	3.81851	.89991	.039776	1.4329	8285.0	9856.3	150.522	22.30	38.20	.89418	296
220.000	3.56502	.92009	.036414	1.5706	8547.0	10230.0	152.261	22.00	36.62	.91205	305
230.000	3.35090	.93632	.033673	1.7009	8799.4	10590.0	153.861	21.78	35.43	.92703	314
240.000	3.16648	.94957	.031384	1.8252	9044.7	10939.6	155.350	21.61	34.53	.93967	322
250.000	3.00520	.96051	.029436	1.9446	9284.6	11281.1	156.744	21.47	33.81	.95041	330
260.000	2.86243	.96963	.027753	2.0601	9520.1	11616.2	158.058	21.37	33.23	.95961	338
270.000	2.73479	.97730	.026280	2.1721	9752.2	11946.2	159.304	21.29	32.77	.96751	345
280.000	2.61972	.98379	.024977	2.2813	9981.5	12271.8	160.488	21.22	32.38	.97435	352
290.000	2.51524	.98932	.023815	2.3881	10208.5	12594.0	161.619	21.17	32.06	.98029	359
300.000	2.41981	.99406	.022769	2.4928	10433.6	12913.2	162.701	21.13	31.79	.98546	365
310.000	2.33219	.99814	.021822	2.5956	10657.2	13229.8	163.739	21.10	31.56	.98998	372
320.000	2.25137	1.00166	.020959	2.6969	10879.4	13544.4	164.738	21.08	31.36	.99395	378
330.000	2.17651	1.00471	.020169	2.7967	11100.5	13857.2	165.700	21.06	31.20	.99745	384
340.000	2.10692	1.00737	.019442	2.8954	11320.7	14168.4	166.629	21.06	31.05	1.00053	390
350.000	2.04203	1.00968	.018771	2.9929	11540.1	14478.4	167.528	21.05	30.93	1.00326	396
360.000	1.98134	1.01171	.018148	3.0894	11758.9	14787.2	168.398	21.06	30.83	1.00568	401
370.000	1.92441	1.01348	.017569	3.1851	11977.2	15095.1	169.241	21.06	30.75	1.00782	407
380.000	1.87090	1.01503	.017029	3.2800	12195.1	15402.1	170.060	21.08	30.67	1.00973	412
390.000	1.82048	1.01640	.016523	3.3741	12412.8	15708.6	170.856	21.09	30.61	1.01143	418
400.000	1.77288	1.01760	.016048	3.4677	12630.1	16014.5	171.631	21.11	30.57	1.01294	423
410.000	1.72785	1.01865	.015602	3.5606	12847.4	16319.9	172.385	21.14	30.53	1.01429	428
420.000	1.68517	1.01958	.015181	3.6530	13064.6	16625.1	173.120	21.17	30.50	1.01550	433
430.000	1.64467	1.02039	.014784	3.7449	13281.8	16930.0	173.838	21.20	30.48	1.01657	438
440.000	1.60616	1.02111	.014408	3.8363	13499.1	17234.7	174.538	21.24	30.47	1.01754	443
450.000	1.56951	1.02174	.014052	3.9273	13716.5	17539.3	175.223	21.28	30.46	1.01840	448
470.000	1.50120	1.02277	.013393	4.1082	14151.8	18148.6	176.548	21.36	30.47	1.01985	457
500.000	1.40962	1.02387	.012517	4.3772	14806.8	19063.3	178.434	21.51	30.52	1.02150	470
550.000	1.28022	1.02487	.011294	4.8204	15906.6	20593.3	181.351	21.81	30.69	1.02321	492
600.000	1.17315	1.02521	.010295	5.2588	17019.1	22133.6	184.031	22.15	30.93	1.02409	512
650.000	1.08296	1.02515	.009462	5.6935	18146.9	23687.2	186.518	22.50	31.22	1.02444	531
700.000	1.00590	1.02485	.008757	6.1256	19291.0	25255.8	188.843	22.87	31.53	1.02446	549
750.000	.93924	1.02442	.008151	6.5554	20452.2	26840.3	191.029	23.23	31.85	1.02427	566
800.000	.88099	1.02389	.007624	6.9835	21630.4	28440.9	193.095	23.59	32.17	1.02394	583
850.000	.82963	1.02333	.007163	7.4102	22825.3	30057.5	195.055	23.94	32.49	1.02353	599
900.000	.78399	1.02274	.006754	7.8358	24036.4	31689.6	196.920	24.27	32.79	1.02306	614
950.000	.74316	1.02214	.006391	8.2603	25262.9	33336.6	198.701	24.58	33.08	1.02257	630
1000.000	.70641	1.02155	.006064	8.6840	26504.0	34997.7	200.405	24.87	33.36	1.02206	644

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					6.500000 MPa						
69.575	30.45753	.36892	2.226352	16.5718	19.6	233.0	74.750	36.32	58.75	.00432	978
70.000	30.40035	.36737	2.209702	16.4258	44.3	258.1	75.108	36.32	58.83	.00462	974
80.000	29.02948	.33663	1.848051	13.1922	629.5	853.4	83.066	35.64	60.22	.01741	892
90.000	27.58838	.31485	1.533704	10.3115	1222.3	1457.9	90.186	33.61	60.59	.04642	814
100.000	26.03995	.30022	1.255377	7.7558	1813.3	2062.9	96.547	30.27	60.23	.09771	742
110.000	24.32731	.29214	1.004519	5.5122	2393.1	2660.3	102.248	25.75	59.77	.17325	675
120.000	22.35052	.29148	.773938	3.5772	2964.5	3255.3	107.439	20.54	60.77	.27133	614
130.000	19.89587	.30225	.556493	1.9657	3557.8	3884.5	112.445	18.41	70.15	.38882	517
140.000	16.37389	.34103	.345499	.7733	4417.5	4814.5	119.311	35.52	116.12	.51261	300
150.000	11.24430	.46350	.175788	.3811	5543.7	6121.8	128.324	31.49	127.68	.62006	234
160.000	7.99440	.61118	.107715	.5048	6368.3	7181.4	135.179	28.03	85.58	.69843	234
170.000	6.45382	.71254	.080093	.7164	6898.0	7905.1	139.574	25.77	62.32	.75600	248
180.000	5.56483	.78046	.065291	.9165	7299.8	8467.9	142.794	24.39	51.42	.80020	262
190.000	4.96411	.82886	.055863	1.0972	7640.1	8949.5	145.399	23.49	45.42	.83528	275
200.000	4.51910	.86496	.049233	1.2616	7945.3	9383.6	147.627	22.87	41.69	.86360	286
210.000	4.16989	.89276	.044265	1.4133	8228.4	9787.2	149.596	22.43	39.17	.88681	296
220.000	3.88497	.91467	.040374	1.5551	8496.4	10169.5	151.375	22.11	37.39	.90607	306
230.000	3.64591	.93227	.037225	1.6890	8753.6	10536.4	153.007	21.86	36.06	.92219	315
240.000	3.44108	.94661	.034612	1.8166	9002.8	10891.7	154.519	21.68	35.05	.93579	323
250.000	3.26271	.95843	.032401	1.9389	9245.8	11238.1	155.933	21.53	34.25	.94736	331
260.000	3.10534	.96827	.030498	2.0569	9484.1	11577.3	157.263	21.42	33.61	.95725	339
270.000	2.96503	.97653	.028840	2.1713	9718.5	11910.7	158.522	21.33	33.10	.96575	346
280.000	2.83883	.98351	.027378	2.2825	9949.8	12239.5	159.718	21.26	32.67	.97310	353
290.000	2.72448	.98945	.026077	2.3912	10178.6	12564.3	160.858	21.20	32.31	.97947	360
300.000	2.62020	.99454	.024910	2.4976	10405.2	12885.9	161.948	21.16	32.02	.98503	367
310.000	2.52459	.99891	.023855	2.6020	10630.1	13204.8	162.994	21.13	31.76	.98989	373
320.000	2.43650	1.00268	.022897	2.7047	10853.6	13521.3	163.999	21.10	31.55	.99415	379
330.000	2.35500	1.00594	.022020	2.8059	11075.8	13835.9	164.967	21.08	31.37	.99789	386
340.000	2.27931	1.00878	.021215	2.9058	11297.0	14148.7	165.901	21.07	31.21	1.00120	391
350.000	2.20877	1.01125	.020473	3.0044	11517.3	14460.2	166.803	21.07	31.08	1.00412	397
360.000	2.14285	1.01340	.019785	3.1020	11737.0	14770.3	167.677	21.07	30.96	1.00671	403
370.000	2.08106	1.01529	.019146	3.1986	11956.1	15079.5	168.524	21.08	30.87	1.00900	408
380.000	2.02301	1.01694	.018551	3.2944	12174.7	15387.7	169.346	21.09	30.79	1.01104	414
390.000	1.96833	1.01839	.017994	3.3894	12393.0	15695.3	170.145	21.10	30.72	1.01285	419
400.000	1.91674	1.01966	.017472	3.4837	12611.0	16002.2	170.922	21.12	30.66	1.01447	424
410.000	1.86794	1.02077	.016982	3.5774	12828.8	16308.6	171.679	21.15	30.62	1.01591	430
420.000	1.82172	1.02175	.016520	3.6705	13046.5	16614.6	172.416	21.18	30.59	1.01720	435
430.000	1.77786	1.02261	.016084	3.7631	13264.2	16920.3	173.135	21.21	30.56	1.01834	439
440.000	1.73618	1.02336	.015672	3.8551	13482.0	17225.8	173.838	21.24	30.54	1.01937	444
450.000	1.69651	1.02402	.015282	3.9467	13699.8	17531.2	174.524	21.28	30.53	1.02028	449
470.000	1.62261	1.02510	.014560	4.1287	14135.9	18141.8	175.852	21.37	30.53	1.02183	458
500.000	1.52356	1.02624	.013601	4.3991	14792.1	19058.4	177.742	21.52	30.58	1.02356	472
550.000	1.38369	1.02725	.012266	4.8443	15893.2	20590.8	180.663	21.81	30.74	1.02537	493
600.000	1.26800	1.02756	.011176	5.2843	17007.0	22133.2	183.347	22.15	30.97	1.02627	513
650.000	1.17058	1.02746	.010269	5.7205	18135.6	23688.5	185.837	22.50	31.25	1.02662	532
700.000	1.08734	1.02710	.009501	6.1536	19280.6	25258.5	188.163	22.87	31.56	1.02661	550
750.000	1.01535	1.02660	.008842	6.5845	20442.4	26844.2	190.351	23.24	31.87	1.02638	567
800.000	.95243	1.02601	.008270	7.0134	21621.2	28445.9	192.419	23.59	32.19	1.02601	584
850.000	.89696	1.02538	.007768	7.4409	22816.7	30063.4	194.380	23.94	32.51	1.02554	600
900.000	.84767	1.02473	.007324	7.8671	24028.3	31696.3	196.246	24.27	32.81	1.02503	616
950.000	.80357	1.02407	.006929	8.2922	25255.2	33344.1	198.028	24.58	33.10	1.02448	631
1000.000	.76388	1.02342	.006575	8.7164	26496.6	35005.9	199.733	24.87	33.37	1.02392	646

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					7.000000 MPa						
69.685	30.47278	.39647	2.230596	16.6750	21.2	250.9	74.771	36.32	58.71	.00420	980
70.000	30.43066	.39523	2.218269	16.5670	39.4	269.5	75.036	36.32	58.77	.00441	978
80.000	29.06718	.36205	1.856366	13.3341	623.1	864.0	82.984	35.65	60.13	.01659	895
90.000	27.63653	.33848	1.542330	10.4579	1213.9	1467.2	90.089	33.63	60.43	.04416	819
100.000	26.10379	.32252	1.264850	7.9096	1802.1	2070.3	96.429	30.29	59.97	.09285	747
110.000	24.41670	.31346	1.015518	5.6762	2377.4	2664.1	102.096	25.78	59.30	.16452	682
120.000	22.48693	.31200	.787570	3.7546	2940.9	3252.2	107.227	20.57	59.77	.25765	624
130.000	20.13842	.32158	.575035	2.1591	3517.3	3864.9	112.102	18.41	67.50	.36949	531
140.000	16.95047	.35477	.373967	.9674	4327.0	4740.0	118.564	35.37	105.81	.48842	321
150.000	12.44667	.45094	.206688	.4574	5356.3	5918.7	126.689	31.40	121.83	.59559	251
160.000	8.98489	.58564	.126251	.5099	6204.3	6983.3	133.573	28.35	90.31	.67794	240
170.000	7.16481	.69121	.091824	.6927	6777.6	7754.6	138.256	26.09	66.40	.73952	250
180.000	6.11910	.76437	.073754	.8891	7206.4	8350.3	141.664	24.64	54.05	.78685	263
190.000	5.42531	.81674	.062502	1.0720	7563.4	8853.6	144.387	23.68	47.21	.82441	276
200.000	4.91893	.85578	.054720	1.2401	7880.0	9303.0	146.693	23.02	42.98	.85473	287
210.000	4.52595	.88579	.048960	1.3956	8171.2	9717.9	148.718	22.55	40.16	.87959	297
220.000	4.20798	.90942	.044491	1.5411	8445.5	10109.0	150.538	22.21	38.17	.90020	307
230.000	3.94290	.92836	.040901	1.6783	8707.6	10482.9	152.201	21.95	36.69	.91746	316
240.000	3.71692	.94377	.037941	1.8089	8960.7	10844.0	153.738	21.75	35.57	.93202	325
250.000	3.52092	.95646	.035447	1.9339	9207.0	11195.2	155.171	21.59	34.69	.94439	333
260.000	3.34858	.96700	.033312	2.0544	9448.0	11538.5	156.518	21.47	33.99	.95497	340
270.000	3.19533	.97585	.031458	2.1710	9684.8	11875.5	157.790	21.37	33.43	.96406	348
280.000	3.05781	.98332	.029828	2.2843	9918.1	12207.4	158.997	21.30	32.96	.97192	355
290.000	2.93343	.98967	.028382	2.3948	10148.7	12534.9	160.147	21.23	32.57	.97873	362
300.000	2.82019	.99509	.027088	2.5029	10376.9	12859.0	161.245	21.19	32.25	.98467	368
310.000	2.71650	.99975	.025922	2.6089	10603.2	13180.0	162.298	21.15	31.97	.98985	375
320.000	2.62108	1.00376	.024863	2.7130	10827.9	13498.5	163.309	21.12	31.74	.99440	381
330.000	2.53289	1.00724	.023897	2.8155	11051.2	13814.8	164.282	21.10	31.54	.99840	387
340.000	2.45106	1.01025	.023011	2.9165	11273.4	14129.3	165.221	21.09	31.36	1.00192	393
350.000	2.37487	1.01287	.022196	3.0163	11494.7	14442.2	166.128	21.08	31.22	1.00503	399
360.000	2.30370	1.01516	.021441	3.1149	11715.2	14753.8	167.006	21.08	31.09	1.00779	404
370.000	2.23704	1.01715	.020741	3.2125	11935.1	15064.2	167.856	21.09	30.99	1.01023	410
380.000	2.17444	1.01890	.020088	3.3092	12154.4	15373.6	168.682	21.10	30.90	1.01240	415
390.000	2.11551	1.02043	.019479	3.4051	12373.3	15682.2	169.483	21.11	30.82	1.01433	421
400.000	2.05992	1.02176	.018909	3.5001	12591.9	15990.1	170.263	21.13	30.76	1.01604	426
410.000	2.00738	1.02294	.018373	3.5946	12810.4	16297.5	171.022	21.16	30.71	1.01757	431
420.000	1.95762	1.02397	.017869	3.6883	13028.6	16604.4	171.761	21.18	30.67	1.01894	436
430.000	1.91041	1.02487	.017394	3.7815	13246.8	16911.0	172.483	21.21	30.64	1.02015	441
440.000	1.86556	1.02565	.016945	3.8742	13465.0	17217.2	173.187	21.25	30.62	1.02123	446
450.000	1.82288	1.02634	.016520	3.9664	13683.3	17523.4	173.875	21.29	30.61	1.02220	451
470.000	1.74341	1.02746	.015734	4.1495	14120.2	18135.4	175.205	21.37	30.60	1.02383	460
500.000	1.63693	1.02864	.014692	4.4214	14777.4	19053.7	177.099	21.52	30.63	1.02566	473
550.000	1.48664	1.02966	.013242	4.8685	15880.0	20588.6	180.025	21.82	30.78	1.02755	495
600.000	1.36238	1.02994	.012061	5.3101	16994.9	22133.0	182.713	22.15	31.00	1.02848	515
650.000	1.25778	1.02978	.011079	5.7476	18124.5	23689.9	185.205	22.51	31.28	1.02881	534
700.000	1.16841	1.02937	.010247	6.1819	19270.3	25261.3	187.534	22.87	31.58	1.02878	552
750.000	1.09112	1.02880	.009535	6.6137	20432.8	26848.2	189.723	23.24	31.90	1.02850	569
800.000	1.02357	1.02814	.008916	7.0435	21612.2	28451.0	191.792	23.59	32.21	1.02808	585
850.000	.96402	1.02744	.008374	7.4717	22808.2	30069.4	193.754	23.94	32.52	1.02757	601
900.000	.91110	1.02672	.007895	7.8985	24020.2	31703.2	195.622	24.27	32.82	1.02700	617
950.000	.86375	1.02600	.007468	8.3243	25247.5	33351.7	197.404	24.58	33.11	1.02640	632
1000.000	.82113	1.02530	.007086	8.7490	26489.3	35014.2	199.110	24.87	33.38	1.02579	647

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					7.500000 MPa						
69.796	30.48792	.42390	2.234810	16.7781	22.8	268.8	74.792	36.32	58.67	.00411	983
70.000	30.46072	.42305	2.226807	16.7080	34.6	280.9	74.964	36.32	58.71	.00424	981
80.000	29.10448	.38741	1.864636	13.4755	616.9	874.6	82.902	35.66	60.03	.01589	899
90.000	27.68401	.36204	1.550882	10.6036	1205.7	1476.7	89.993	33.65	60.28	.04223	823
100.000	26.16640	.34473	1.274198	8.0624	1791.1	2077.8	96.313	30.31	59.72	.08868	753
110.000	24.50355	.33466	1.026288	5.8385	2362.1	2668.2	101.948	25.80	58.85	.15702	689
120.000	22.61709	.33236	.800732	3.9289	2918.4	3250.0	107.024	20.60	58.88	.24587	633
130.000	20.36043	.34080	.592403	2.3470	3480.2	3848.6	111.786	18.41	65.31	.35282	545
140.000	17.42237	.36982	.398939	1.1565	4252.2	4682.7	117.947	35.27	98.75	.46739	339
150.000	13.43691	.44754	.235889	.5599	5203.2	5761.3	125.382	31.25	113.82	.57337	269
160.000	9.93892	.56724	.145754	.5427	6049.9	6804.5	132.124	28.54	91.94	.65842	249
170.000	7.89219	.67232	.104519	.6850	6656.7	7607.0	136.996	26.36	69.88	.72348	254
180.000	6.68806	.74929	.082831	.8702	7111.6	8233.0	140.578	24.87	56.59	.77378	265
190.000	5.89637	.80517	.069546	1.0519	7485.6	8757.6	143.416	23.86	48.99	.81375	277
200.000	5.32521	.84695	.060491	1.2220	7813.9	9222.3	145.801	23.17	44.29	.84603	288
210.000	4.88624	.87909	.053863	1.3804	8113.6	9648.6	147.882	22.67	41.16	.87250	299
220.000	4.53376	.90437	.048766	1.5289	8394.2	10048.5	149.743	22.30	38.95	.89445	308
230.000	4.24167	.92461	.044702	1.6691	8661.4	10429.5	151.437	22.03	37.33	.91283	317
240.000	3.99385	.94107	.041369	1.8024	8918.5	10796.4	152.999	21.81	36.10	.92834	326
250.000	3.77974	.95460	.038577	1.9300	9168.2	11152.5	154.452	21.65	35.14	.94151	334
260.000	3.59207	.96585	.036195	2.0527	9412.0	11499.9	155.815	21.52	34.38	.95277	342
270.000	3.42562	.97526	.034134	2.1715	9651.1	11840.5	157.101	21.41	33.76	.96245	349
280.000	3.27658	.98321	.032328	2.2867	9886.5	12175.5	158.319	21.33	33.25	.97081	356
290.000	3.14203	.98996	.030730	2.3990	10118.8	12505.8	159.478	21.27	32.83	.97806	363
300.000	3.01973	.99572	.029304	2.5087	10348.6	12832.3	160.585	21.21	32.48	.98437	370
310.000	2.90789	1.00066	.028020	2.6162	10576.3	13155.5	161.645	21.17	32.18	.98988	376
320.000	2.80509	1.00491	.026858	2.7217	10802.3	13476.0	162.662	21.14	31.92	.99471	383
330.000	2.71017	1.00859	.025799	2.8254	11026.7	13794.1	163.641	21.12	31.71	.99895	389
340.000	2.62217	1.01178	.024830	2.9276	11250.0	14110.2	164.585	21.11	31.52	1.00269	395
350.000	2.54030	1.01455	.023938	3.0285	11472.2	14424.6	165.496	21.10	31.36	1.00599	400
360.000	2.46388	1.01696	.023115	3.1282	11693.5	14737.5	166.378	21.10	31.23	1.00891	406
370.000	2.39234	1.01906	.022351	3.2267	11914.1	15049.2	167.232	21.10	31.11	1.01150	412
380.000	2.32519	1.02090	.021641	3.3243	12134.2	15359.7	168.060	21.11	31.01	1.01380	417
390.000	2.26201	1.02250	.020978	3.4210	12353.8	15669.4	168.864	21.12	30.93	1.01584	422
400.000	2.20244	1.02391	.020358	3.5168	12573.0	15978.4	169.647	21.14	30.86	1.01766	428
410.000	2.14614	1.02514	.019776	3.6120	12792.0	16286.7	170.408	21.16	30.80	1.01927	433
420.000	2.09285	1.02622	.019229	3.7065	13010.8	16594.5	171.150	21.19	30.76	1.02071	438
430.000	2.04231	1.02716	.018713	3.8003	13229.5	16901.8	171.873	21.22	30.72	1.02199	443
440.000	1.99430	1.02798	.018226	3.8936	13448.2	17208.9	172.579	21.26	30.69	1.02314	448
450.000	1.94862	1.02869	.017766	3.9864	13666.9	17515.8	173.268	21.29	30.68	1.02416	452
470.000	1.86360	1.02985	.016915	4.1706	14104.6	18129.1	174.602	21.38	30.66	1.02587	462
500.000	1.74973	1.03106	.015788	4.4438	14762.9	19049.2	176.500	21.53	30.69	1.02779	475
550.000	1.58909	1.03208	.014222	4.8930	15866.9	20586.6	179.430	21.82	30.82	1.02975	496
600.000	1.45631	1.03233	.012949	5.3361	16983.0	22132.9	182.121	22.15	31.04	1.03070	516
650.000	1.34456	1.03212	.011890	5.7749	18113.5	23691.5	184.616	22.51	31.31	1.03103	535
700.000	1.24910	1.03164	.010996	6.2103	19260.1	25264.4	186.947	22.87	31.61	1.03096	553
750.000	1.16655	1.03101	.010229	6.6431	20423.3	26852.5	189.138	23.24	31.92	1.03064	570
800.000	1.09441	1.03028	.009564	7.0737	21603.2	28456.2	191.208	23.60	32.23	1.03017	587
850.000	1.03080	1.02951	.008981	7.5027	22799.7	30075.6	193.172	23.94	32.54	1.02960	603
900.000	.97428	1.02873	.008467	7.9302	24012.2	31710.2	195.040	24.27	32.84	1.02898	618
950.000	.92370	1.02795	.008008	8.3565	25239.9	33359.4	196.823	24.58	33.13	1.02832	634
1000.000	.87817	1.02718	.007598	8.7818	26482.1	35022.5	198.529	24.87	33.40	1.02766	648

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					8.000000 MPa						
69.906	30.50296	.45123	2.238996	16.8811	24.5	286.7	74.814	36.33	58.64	.00403	986
70.000	30.49052	.45081	2.235316	16.8489	29.9	292.3	74.892	36.33	58.66	.00409	985
80.000	29.14139	.41272	1.872861	13.6166	610.7	885.2	82.820	35.67	59.94	.01528	903
90.000	27.73085	.38552	1.559362	10.7487	1197.7	1486.2	89.898	33.66	60.14	.04055	827
100.000	26.22784	.36685	1.283426	8.2141	1780.4	2085.4	96.198	30.33	59.49	.08506	758
110.000	24.58803	.35574	1.036844	5.9990	2347.3	2672.7	101.803	25.83	58.44	.15053	696
120.000	22.74165	.35257	.813469	4.1003	2896.8	3248.6	106.828	20.62	58.07	.23566	642
130.000	20.56554	.35989	.608791	2.5300	3445.7	3834.7	111.492	18.43	63.45	.33833	557
140.000	17.82344	.38560	.421372	1.3406	4188.1	4636.9	117.417	35.21	93.58	.44899	356
150.000	14.24647	.45025	.262773	.6820	5078.0	5639.6	124.330	31.11	105.94	.55332	287
160.000	10.82082	.55574	.165537	.5940	5909.7	6649.0	130.851	28.62	91.66	.64005	260
170.000	8.61843	.65671	.117997	.6949	6537.9	7466.1	135.810	26.56	72.41	.70799	260
180.000	7.26610	.73567	.092491	.8616	7016.3	8117.3	139.537	25.06	58.91	.76104	268
190.000	6.37506	.79436	.076990	1.0382	7407.3	8662.2	142.485	24.03	50.72	.80332	279
200.000	5.73686	.83859	.066544	1.2081	7747.3	9141.8	144.946	23.31	45.58	.83750	290
210.000	5.25014	.87270	.058975	1.3681	8055.6	9579.4	147.082	22.78	42.15	.86555	300
220.000	4.86191	.89955	.053201	1.5189	8342.8	9988.2	148.985	22.40	39.74	.88883	310
230.000	4.54195	.92105	.048628	1.6615	8615.0	10376.3	150.710	22.10	37.97	.90831	319
240.000	4.27168	.93852	.044899	1.7972	8876.3	10749.1	152.297	21.88	36.63	.92475	327
250.000	4.03902	.95288	.041789	1.9271	9129.3	11110.0	153.770	21.70	35.59	.93872	335
260.000	3.83570	.96480	.039146	2.0520	9375.9	11461.6	155.150	21.57	34.76	.95065	343
270.000	3.65582	.97478	.036867	2.1727	9617.5	11805.7	156.449	21.46	34.09	.96091	351
280.000	3.49509	.98319	.034877	2.2898	9854.9	12143.8	157.678	21.37	33.54	.96977	358
290.000	3.35025	.99033	.033121	2.4038	10089.1	12476.9	158.847	21.30	33.09	.97744	365
300.000	3.21878	.99642	.031556	2.5150	10320.4	12805.8	159.962	21.24	32.71	.98413	371
310.000	3.09873	1.00163	.030151	2.6240	10549.5	13131.3	161.029	21.20	32.38	.98996	378
320.000	2.98850	1.00612	.028882	2.7308	10776.7	13453.7	162.053	21.16	32.11	.99507	384
330.000	2.88681	1.01000	.027727	2.8358	11002.4	13773.6	163.037	21.14	31.88	.99956	390
340.000	2.79263	1.01336	.026671	2.9392	11226.6	14091.3	163.986	21.12	31.67	1.00352	396
350.000	2.70506	1.01627	.025701	3.0411	11449.7	14407.2	164.902	21.11	31.50	1.00700	402
360.000	2.62338	1.01880	.024807	3.1418	11671.9	14721.5	165.787	21.11	31.36	1.01009	408
370.000	2.54695	1.02101	.023978	3.2412	11893.4	15034.4	166.644	21.11	31.23	1.01282	413
380.000	2.47526	1.02294	.023208	3.3397	12114.1	15346.1	167.476	21.12	31.12	1.01524	419
390.000	2.40783	1.02462	.022490	3.4372	12334.4	15656.9	168.283	21.13	31.03	1.01740	424
400.000	2.34427	1.02609	.021819	3.5338	12554.2	15966.8	169.068	21.15	30.96	1.01931	429
410.000	2.28423	1.02738	.021190	3.6297	12773.8	16276.1	169.831	21.17	30.89	1.02101	434
420.000	2.22741	1.02850	.020599	3.7248	12993.1	16584.7	170.575	21.20	30.84	1.02252	439
430.000	2.17355	1.02948	.020042	3.8193	13212.3	16893.0	171.300	21.23	30.80	1.02387	444
440.000	2.12239	1.03033	.019517	3.9133	13431.5	17200.8	172.008	21.26	30.77	1.02507	449
450.000	2.07373	1.03107	.019020	4.0066	13650.6	17508.4	172.699	21.30	30.75	1.02614	454
470.000	1.98318	1.03227	.018103	4.1918	14089.2	18123.1	174.036	21.38	30.73	1.02794	463
500.000	1.86196	1.03351	.016890	4.4665	14748.4	19045.0	175.937	21.53	30.74	1.02994	477
550.000	1.69102	1.03453	.015207	4.9176	15853.9	20584.8	178.872	21.82	30.87	1.03197	498
600.000	1.54979	1.03474	.013840	5.3624	16971.1	22133.1	181.567	22.15	31.08	1.03294	518
650.000	1.43094	1.03447	.012705	5.8024	18102.6	23693.3	184.064	22.51	31.34	1.03325	537
700.000	1.32943	1.03393	.011746	6.2390	19249.9	25267.6	186.397	22.87	31.63	1.03315	555
750.000	1.24165	1.03322	.010925	6.6727	20413.8	26856.8	188.590	23.24	31.94	1.03279	572
800.000	1.16494	1.03243	.010213	7.1041	21594.4	28461.7	190.661	23.60	32.25	1.03226	588
850.000	1.09731	1.03159	.009590	7.5338	22791.3	30081.9	192.626	23.94	32.56	1.03164	604
900.000	1.03720	1.03074	.009039	7.9619	24004.3	31717.3	194.495	24.27	32.86	1.03096	620
950.000	.98342	1.02989	.008549	8.3888	25232.4	33367.3	196.279	24.58	33.14	1.03025	635
1000.000	.93500	1.02906	.008110	8.8146	26474.9	35031.0	197.986	24.87	33.41	1.02954	650

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					8.500000 MPa						
70.016	30.51790	.47844	2.243153	16.9840	26.1	304.6	74.835	36.33	58.60	.00397	988
80.000	29.17792	.43796	1.881044	13.7573	604.6	895.9	82.740	35.68	59.85	.01476	907
90.000	27.77705	.40893	1.567774	10.8931	1189.7	1495.7	89.804	33.68	60.00	.03910	832
100.000	26.28816	.38889	1.292540	8.3647	1769.8	2093.2	96.086	30.36	59.26	.08191	763
110.000	24.67029	.37672	1.047198	6.1579	2332.9	2677.4	101.662	25.86	58.04	.14485	702
120.000	22.86114	.37265	.825820	4.2691	2876.1	3247.9	106.640	20.65	57.33	.22672	650
130.000	20.75647	.37887	.624344	2.7088	3413.6	3823.1	111.216	18.44	61.86	.32564	569
140.000	18.17334	.40181	.441864	1.5204	4131.7	4599.4	116.951	35.17	89.60	.43278	371
150.000	14.91637	.45691	.287348	.8163	4974.1	5543.9	123.464	30.99	99.18	.53529	305
160.000	11.62324	.54971	.185260	.6548	5783.6	6514.9	129.734	28.65	90.73	.62292	272
170.000	9.32562	.64485	.132009	.7220	6423.8	7335.3	134.713	26.70	73.89	.69317	267
180.000	7.84608	.72387	.102670	.8646	6921.8	8005.2	138.546	25.23	60.88	.74869	272
190.000	6.85843	.78452	.084816	1.0319	7328.7	8568.1	141.592	24.18	52.34	.79314	282
200.000	6.15244	.83082	.072875	1.1991	7680.5	9062.0	144.127	23.43	46.83	.82916	292
210.000	5.61687	.86670	.064293	1.3594	7997.4	9510.7	146.317	22.89	43.13	.85875	302
220.000	5.19196	.89501	.057795	1.5115	8291.1	9928.2	148.260	22.48	40.52	.88332	311
230.000	4.84342	.91770	.052679	1.6559	8568.5	10323.4	150.017	22.18	38.61	.90389	320
240.000	4.55019	.93614	.048529	1.7936	8833.9	10702.0	151.628	21.94	37.16	.92125	329
250.000	4.29860	.95130	.045083	1.9255	9090.4	11067.7	153.121	21.76	36.04	.93600	337
260.000	4.07935	.96387	.042166	2.0523	9339.8	11423.5	154.517	21.61	35.15	.94861	345
270.000	3.88585	.97439	.039659	2.1749	9583.8	11771.2	155.829	21.49	34.43	.95944	352
280.000	3.71327	.98326	.037476	2.2937	9823.4	12112.5	157.070	21.40	33.84	.96879	359
290.000	3.55802	.99078	.035554	2.4092	10059.3	12448.3	158.249	21.33	33.35	.97689	366
300.000	3.41732	.99719	.033845	2.5220	10292.3	12779.7	159.372	21.27	32.94	.98394	373
310.000	3.28898	1.00267	.032315	2.6323	10522.9	13107.2	160.447	21.22	32.59	.99010	379
320.000	3.17128	1.00739	.030934	2.7404	10751.3	13431.6	161.477	21.19	32.30	.99549	386
330.000	3.06280	1.01146	.029680	2.8466	10978.1	13753.3	162.466	21.16	32.04	1.00022	392
340.000	2.96240	1.01499	.028535	2.9511	11203.4	14072.7	163.420	21.14	31.83	1.00439	398
350.000	2.86913	1.01804	.027484	3.0541	11427.4	14390.0	164.340	21.13	31.65	1.00806	404
360.000	2.78217	1.02070	.026517	3.1557	11650.5	14705.6	165.229	21.12	31.49	1.01131	409
370.000	2.70086	1.02301	.025621	3.2561	11872.7	15019.8	166.090	21.13	31.35	1.01418	415
380.000	2.62462	1.02502	.024790	3.3554	12094.2	15332.7	166.924	21.13	31.24	1.01673	420
390.000	2.55295	1.02678	.024016	3.4537	12315.1	15644.6	167.734	21.14	31.14	1.01899	426
400.000	2.48541	1.02831	.023293	3.5511	12535.6	15955.5	168.522	21.16	31.05	1.02100	431
410.000	2.42165	1.02965	.022615	3.6477	12755.7	16265.7	169.287	21.18	30.98	1.02278	436
420.000	2.36131	1.03081	.021979	3.7435	12975.6	16575.3	170.033	21.21	30.93	1.02437	441
430.000	2.30413	1.03183	.021380	3.8386	13195.3	16884.3	170.761	21.24	30.88	1.02579	446
440.000	2.24984	1.03271	.020816	3.9331	13414.9	17192.9	171.470	21.27	30.85	1.02704	451
450.000	2.19821	1.03348	.020282	4.0271	13634.4	17501.2	172.163	21.31	30.82	1.02816	456
470.000	2.10216	1.03471	.019298	4.2133	14073.8	18117.3	173.502	21.39	30.79	1.03003	465
500.000	1.97362	1.03597	.017998	4.4894	14734.1	19040.9	175.407	21.54	30.80	1.03212	478
550.000	1.79244	1.03699	.016196	4.9424	15841.0	20583.2	178.347	21.83	30.91	1.03422	499
600.000	1.64280	1.03716	.014734	5.3887	16959.4	22133.4	181.045	22.16	31.11	1.03520	519
650.000	1.51690	1.03684	.013522	5.8301	18091.8	23695.3	183.545	22.51	31.37	1.03550	538
700.000	1.40939	1.03623	.012498	6.2677	19239.9	25270.9	185.880	22.88	31.66	1.03536	556
750.000	1.31641	1.03545	.011622	6.7024	20404.4	26861.4	188.075	23.24	31.96	1.03495	573
800.000	1.23517	1.03458	.010863	7.1347	21585.6	28467.2	190.147	23.60	32.27	1.03437	590
850.000	1.16354	1.03368	.010199	7.5650	22783.0	30088.4	192.113	23.94	32.58	1.03369	606
900.000	1.09987	1.03275	.009613	7.9938	23996.4	31724.6	193.983	24.27	32.87	1.03296	621
950.000	1.04291	1.03184	.009091	8.4212	25224.9	33375.2	195.768	24.58	33.15	1.03219	636
1000.000	.99162	1.03095	.008623	8.8476	26467.8	35039.6	197.475	24.87	33.42	1.03142	651

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					9.000000 MPa						
70.126	30.53274	.50554	2.247282	17.0867	27.8	322.5	74.856	36.33	58.57	.00392	991
80.000	29.21408	.46315	1.889184	13.8976	598.6	906.7	82.660	35.69	59.77	.01430	911
90.000	27.82265	.43228	1.576119	11.0369	1181.9	1505.4	89.711	33.70	59.86	.03783	836
100.000	26.34740	.41084	1.301543	8.5144	1759.5	2101.1	95.975	30.38	59.04	.07915	768
110.000	24.75046	.39759	1.057363	6.3152	2318.8	2682.5	101.524	25.88	57.67	.13986	708
120.000	22.97603	.39260	.837818	4.4354	2856.2	3247.9	106.458	20.68	56.65	.21886	658
130.000	20.93532	.39773	.639175	2.8838	3383.4	3813.3	110.956	18.46	60.48	.31445	580
140.000	18.48449	.41828	.460818	1.6961	4081.3	4568.2	116.533	35.14	86.44	.41843	385
150.000	15.48154	.46612	.309878	.9577	4886.0	5467.3	122.733	30.90	93.65	.51906	321
160.000	12.34900	.54784	.204719	.7263	5670.3	6399.1	128.750	28.63	89.17	.60706	284
170.000	10.00003	.63673	.146302	.7632	6316.3	7216.3	133.708	26.80	74.48	.67908	275
180.000	8.42015	.71419	.113273	.8794	6829.2	7898.1	137.609	25.37	62.41	.73677	277
190.000	7.34288	.77587	.092993	1.0337	7250.6	8476.3	140.737	24.31	53.79	.78325	285
200.000	6.57017	.82376	.079472	1.1958	7613.6	8983.4	143.340	23.55	48.02	.82103	295
210.000	5.98543	.86118	.069814	1.3546	7939.1	9442.7	145.582	22.99	44.08	.85211	304
220.000	5.52331	.89081	.062545	1.5070	8239.3	9868.8	147.565	22.57	41.29	.87794	313
230.000	5.14570	.91461	.056854	1.6527	8521.9	10270.9	149.353	22.25	39.24	.89958	322
240.000	4.82912	.93396	.052259	1.7919	8791.5	10655.2	150.989	22.00	37.69	.91785	331
250.000	4.55830	.94987	.048459	1.9254	9051.4	11025.8	152.502	21.81	36.48	.93337	339
260.000	4.32290	.96307	.045254	2.0539	9303.8	11385.7	153.914	21.66	35.53	.94664	346
270.000	4.11559	.97412	.042508	2.1781	9550.2	11737.0	155.240	21.53	34.76	.95804	354
280.000	3.93105	.98342	.040123	2.2984	9791.9	12081.4	156.492	21.44	34.13	.96787	361
290.000	3.76530	.99131	.038028	2.4155	10029.7	12419.9	157.680	21.36	33.60	.97640	368
300.000	3.61528	.99803	.036171	2.5296	10264.3	12753.7	158.812	21.29	33.17	.98382	375
310.000	3.47861	1.00378	.034510	2.6412	10496.3	13083.5	159.893	21.24	32.80	.99029	381
320.000	3.35340	1.00872	.033014	2.7505	10726.0	13409.8	160.929	21.21	32.48	.99595	387
330.000	3.23810	1.01298	.031657	2.8579	10953.9	13733.3	161.925	21.18	32.21	1.00093	393
340.000	3.13148	1.01667	.030420	2.9635	11180.2	14054.3	162.883	21.16	31.98	1.00530	399
350.000	3.03248	1.01986	.029287	3.0675	11405.2	14373.1	163.807	21.14	31.79	1.00916	405
360.000	2.94026	1.02263	.028244	3.1700	11629.1	14690.1	164.700	21.14	31.62	1.01257	411
370.000	2.85406	1.02504	.027281	3.2713	11852.1	15005.5	165.564	21.14	31.47	1.01558	416
380.000	2.77328	1.02714	.026387	3.3714	12074.3	15319.6	166.402	21.14	31.35	1.01825	422
390.000	2.69737	1.02897	.025555	3.4705	12295.9	15632.5	167.215	21.15	31.24	1.02062	427
400.000	2.62587	1.03056	.024778	3.5687	12517.0	15944.4	168.005	21.17	31.15	1.02272	432
410.000	2.55838	1.03195	.024052	3.6659	12737.7	16255.6	168.773	21.19	31.07	1.02459	438
420.000	2.49454	1.03316	.023370	3.7624	12958.1	16566.0	169.521	21.21	31.01	1.02625	443
430.000	2.43405	1.03421	.022728	3.8582	13178.3	16875.8	170.250	21.24	30.96	1.02773	448
440.000	2.37664	1.03512	.022124	3.9533	13398.4	17185.2	170.961	21.28	30.92	1.02904	452
450.000	2.32205	1.03591	.021553	4.0478	13618.4	17494.3	171.656	21.31	30.89	1.03021	457
470.000	2.22052	1.03718	.020500	4.2351	14058.5	18111.6	172.998	21.39	30.85	1.03216	466
500.000	2.08471	1.03846	.019111	4.5125	14719.9	19037.1	174.907	21.54	30.85	1.03432	480
550.000	1.89335	1.03947	.017189	4.9674	15828.2	20581.7	177.851	21.83	30.95	1.03649	501
600.000	1.73536	1.03960	.015631	5.4153	16947.7	22133.9	180.552	22.16	31.15	1.03748	521
650.000	1.60246	1.03921	.014341	5.8580	18081.1	23697.4	183.055	22.51	31.40	1.03776	540
700.000	1.48898	1.03853	.013252	6.2966	19229.9	25274.4	185.392	22.88	31.68	1.03758	557
750.000	1.39085	1.03768	.012321	6.7322	20395.1	26866.0	187.588	23.24	31.98	1.03712	575
800.000	1.30510	1.03674	.011515	7.1653	21576.8	28472.8	189.662	23.60	32.29	1.03649	591
850.000	1.22949	1.03577	.010810	7.5964	22774.8	30094.9	191.629	23.94	32.59	1.03575	607
900.000	1.16230	1.03478	.010187	8.0258	23988.6	31731.9	193.500	24.27	32.89	1.03496	623
950.000	1.10217	1.03380	.009633	8.4538	25217.5	33383.2	195.286	24.58	33.17	1.03414	638
1000.000	1.04803	1.03284	.009137	8.8806	26460.7	35048.3	196.994	24.87	33.43	1.03331	652

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					10.000000 MPa						
70.346	30.56214	.55942	2.255454	17.2919	31.1	358.3	74.899	36.34	58.50	.00386	996
80.000	29.28532	.51336	1.905339	14.1772	586.8	928.2	82.502	35.71	59.60	.01355	919
90.000	27.91210	.47877	1.592614	11.3226	1166.6	1524.8	89.529	33.73	59.61	.03571	845
100.000	26.46285	.45449	1.319237	8.8109	1739.4	2117.2	95.758	30.42	58.63	.07456	778
110.000	24.90503	.43902	1.077165	6.6257	2291.8	2693.3	101.256	25.93	56.99	.13155	720
120.000	23.19355	.43213	.860868	4.7616	2818.4	3249.6	106.111	20.73	55.45	.20571	674
130.000	21.26299	.43511	.667016	3.2242	3327.9	3798.2	110.476	18.49	58.17	.29569	601
140.000	19.02142	.45164	.495165	2.0370	3993.7	4519.4	115.804	35.12	81.69	.39424	411
150.000	16.39337	.48911	.349983	1.2500	4742.6	5352.6	121.551	30.77	85.47	.49124	352
160.000	13.58685	.55325	.242050	.9027	5477.7	6213.7	127.109	28.56	84.82	.57895	309
170.000	11.22849	.63008	.175046	.8709	6122.6	7013.2	131.959	26.90	74.34	.65330	293
180.000	9.52249	.70168	.135308	.9425	6653.5	7703.6	135.909	25.56	64.12	.71441	290
190.000	8.29940	.76272	.110216	1.0631	7097.7	8302.7	139.150	24.53	56.05	.76442	294
200.000	7.40376	.81224	.093386	1.2078	7481.1	8831.7	141.865	23.75	50.09	.80548	301
210.000	6.72337	.85184	.081424	1.3589	7822.8	9310.2	144.200	23.17	45.83	.83937	309
220.000	6.18706	.88360	.072495	1.5086	8136.0	9752.3	146.258	22.72	42.74	.86761	318
230.000	5.75087	.90929	.065562	1.6541	8428.9	10167.7	148.105	22.38	40.45	.89132	326
240.000	5.38699	.93026	.060010	1.7947	8706.9	10563.2	149.788	22.12	38.71	.91135	334
250.000	5.07719	.94755	.055451	1.9303	8973.7	10943.3	151.340	21.91	37.36	.92838	342
260.000	4.80903	.96191	.051630	2.0612	9231.8	11311.3	152.784	21.74	36.28	.94295	350
270.000	4.57376	.97393	.048375	2.1879	9483.2	11669.6	154.136	21.61	35.41	.95546	357
280.000	4.36502	.98406	.045562	2.3109	9729.1	12020.1	155.411	21.50	34.70	.96626	364
290.000	4.17807	.99264	.043103	2.4305	9970.6	12364.1	156.618	21.42	34.11	.97562	371
300.000	4.00928	.99995	.040930	2.5471	10208.5	12702.7	157.766	21.35	33.62	.98375	378
310.000	3.85585	1.00620	.038995	2.6610	10443.3	13036.8	158.862	21.29	33.21	.99085	384
320.000	3.71554	1.01156	.037257	2.7726	10675.6	13367.0	159.910	21.25	32.85	.99706	391
330.000	3.58656	1.01618	.035686	2.8821	10905.8	13694.0	160.916	21.21	32.55	1.00250	397
340.000	3.46746	1.02017	.034257	2.9896	11134.2	14018.1	161.884	21.19	32.29	1.00729	403
350.000	3.35702	1.02363	.032952	3.0955	11361.1	14339.9	162.817	21.17	32.07	1.01151	409
360.000	3.25425	1.02662	.031753	3.1999	11586.7	14659.6	163.718	21.16	31.88	1.01524	414
370.000	3.15830	1.02922	.030647	3.3028	11811.3	14977.5	164.589	21.16	31.71	1.01853	420
380.000	3.06845	1.03148	.029623	3.4046	12034.9	15293.9	165.432	21.17	31.57	1.02144	425
390.000	2.98409	1.03344	.028672	3.5051	12257.8	15608.9	166.251	21.17	31.45	1.02402	431
400.000	2.90469	1.03515	.027786	3.6047	12480.2	15922.9	167.046	21.19	31.34	1.02631	436
410.000	2.82978	1.03664	.026957	3.7033	12702.0	16235.8	167.818	21.21	31.25	1.02834	441
420.000	2.75898	1.03793	.026181	3.8011	12923.5	16548.0	168.571	21.23	31.18	1.03014	446
430.000	2.69192	1.03904	.025451	3.8980	13144.7	16859.5	169.304	21.26	31.12	1.03174	451
440.000	2.62830	1.04001	.024765	3.9943	13365.7	17170.4	170.018	21.29	31.07	1.03316	456
450.000	2.56783	1.04084	.024117	4.0898	13586.6	17480.9	170.716	21.32	31.03	1.03442	460
470.000	2.45543	1.04217	.022924	4.2792	14028.3	18100.9	172.064	21.40	30.98	1.03652	470
500.000	2.30518	1.04349	.021354	4.5593	14691.8	19029.8	173.980	21.55	30.96	1.03884	483
550.000	2.09365	1.04447	.019186	5.0179	15802.9	20579.3	176.934	21.83	31.04	1.04112	504
600.000	1.91912	1.04451	.017434	5.4689	16924.7	22135.4	179.641	22.16	31.22	1.04213	524
650.000	1.77236	1.04400	.015986	5.9141	18059.9	23702.1	182.149	22.52	31.46	1.04235	543
700.000	1.64706	1.04317	.014766	6.3549	19210.3	25281.7	184.490	22.88	31.73	1.04209	560
750.000	1.53873	1.04217	.013724	6.7923	20376.8	26875.6	186.690	23.24	32.03	1.04153	578
800.000	1.44407	1.04109	.012822	7.2270	21559.6	28484.5	188.766	23.60	32.33	1.04079	594
850.000	1.36059	1.03996	.012034	7.6594	22758.6	30108.3	190.735	23.94	32.63	1.03993	610
900.000	1.28640	1.03883	.011338	8.0901	23973.2	31746.8	192.608	24.27	32.91	1.03902	625
950.000	1.22000	1.03772	.010720	8.5192	25202.9	33399.6	194.395	24.58	33.19	1.03808	640
1000.000	1.16022	1.03663	.010166	8.9470	26446.8	35065.9	196.105	24.88	33.46	1.03714	655

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					11.000000 MPa						
70.565	30.59115	.61287	2.263513	17.4966	34.5	394.1	74.942	36.35	58.43	.00383	1002
80.000	29.35517	.56335	1.921334	14.4555	575.2	949.9	82.346	35.73	59.44	.01297	926
90.000	27.99933	.52501	1.608862	11.6061	1151.7	1544.5	89.350	33.76	59.36	.03406	853
100.000	26.57450	.49784	1.336540	9.1039	1719.9	2133.9	95.547	30.46	58.25	.07092	788
110.000	25.05258	.48008	1.096323	6.9308	2266.0	2705.1	100.999	25.98	56.38	.12494	732
120.000	23.39682	.47121	.882809	5.0799	2783.2	3253.3	105.785	20.78	54.41	.19523	689
130.000	21.55823	.47206	.692851	3.5535	3277.7	3788.0	110.038	18.54	56.32	.28068	620
140.000	19.47632	.48520	.525914	2.3660	3918.8	4483.6	115.177	35.12	78.27	.37475	433
150.000	17.11149	.51544	.385058	1.5456	4628.5	5271.3	120.611	30.70	79.85	.46846	378
160.000	14.58484	.56694	.276568	1.1132	5322.1	6076.3	125.807	28.49	80.17	.55515	334
170.000	12.30106	.63265	.203485	1.0009	5955.0	6849.3	130.495	26.93	73.41	.63073	312
180.000	10.53491	.69767	.157794	1.0386	6494.0	7538.1	134.435	25.68	64.56	.69424	305
190.000	9.21561	.75558	.128229	1.1254	6952.9	8146.5	137.727	24.69	57.37	.74708	305
200.000	8.22027	.80471	.108080	1.2462	7352.3	8690.5	140.518	23.91	51.66	.79092	310
210.000	7.45365	.84522	.093702	1.3833	7708.5	9184.2	142.928	23.32	47.31	.82736	316
220.000	6.84680	.87831	.082994	1.5257	8033.7	9640.2	145.050	22.86	44.05	.85785	323
230.000	6.35332	.90537	.074721	1.6678	8336.4	10067.8	146.951	22.50	41.58	.88351	331
240.000	5.94252	.92763	.068132	1.8073	8622.6	10473.7	148.679	22.22	39.68	.90523	339
250.000	5.59372	.94605	.062751	1.9431	8896.3	10862.8	150.268	22.00	38.19	.92372	347
260.000	5.29269	.96141	.058265	2.0751	9160.2	11238.5	151.742	21.82	37.01	.93954	354
270.000	5.02931	.97428	.054462	2.2033	9416.5	11603.7	153.120	21.68	36.05	.95314	361
280.000	4.79624	.98514	.051189	2.3280	9666.7	11960.1	154.416	21.57	35.27	.96487	368
290.000	4.58797	.99435	.048339	2.4495	9911.9	12309.4	155.642	21.47	34.61	.97504	375
300.000	4.40033	1.00219	.045831	2.5680	10153.0	12652.8	156.806	21.40	34.07	.98388	382
310.000	4.23008	1.00890	.043603	2.6839	10390.7	12991.1	157.916	21.34	33.61	.99159	388
320.000	4.07464	1.01465	.041609	2.7973	10625.6	13325.2	158.977	21.29	33.22	.99833	394
330.000	3.93197	1.01961	.039811	2.9086	10858.1	13655.6	159.993	21.25	32.88	1.00424	400
340.000	3.80039	1.02388	.038180	3.0179	11088.5	13983.0	160.971	21.22	32.59	1.00944	406
350.000	3.67853	1.02758	.036693	3.1255	11317.3	14307.6	161.912	21.20	32.35	1.01401	412
360.000	3.56525	1.03078	.035330	3.2315	11544.7	14630.0	162.820	21.19	32.13	1.01804	418
370.000	3.45958	1.03355	.034076	3.3360	11770.8	14950.4	163.698	21.19	31.95	1.02161	423
380.000	3.36070	1.03596	.032916	3.4391	11995.9	15269.0	164.548	21.19	31.79	1.02476	429
390.000	3.26794	1.03805	.031841	3.5411	12220.2	15586.2	165.371	21.19	31.65	1.02754	434
400.000	3.18069	1.03986	.030840	3.6420	12443.7	15902.1	166.171	21.21	31.53	1.03001	439
410.000	3.09842	1.04143	.029906	3.7419	12666.7	16216.9	166.949	21.22	31.43	1.03220	444
420.000	3.02070	1.04280	.029031	3.8408	12889.2	16530.8	167.705	21.25	31.35	1.03414	449
430.000	2.94713	1.04397	.028211	3.9389	13111.4	16843.9	168.442	21.27	31.28	1.03586	454
440.000	2.87735	1.04499	.027439	4.0363	13333.4	17156.3	169.160	21.30	31.22	1.03738	459
450.000	2.81107	1.04586	.026712	4.1329	13555.1	17468.3	169.861	21.34	31.17	1.03873	464
470.000	2.68791	1.04724	.025375	4.3241	13998.5	18090.9	171.215	21.42	31.10	1.04097	473
500.000	2.52338	1.04859	.023618	4.6068	14664.0	19023.3	173.138	21.56	31.07	1.04343	486
550.000	2.29193	1.04953	.021199	5.0691	15778.0	20577.5	176.100	21.84	31.12	1.04583	507
600.000	2.10107	1.04946	.019250	5.5230	16902.0	22137.4	178.815	22.17	31.29	1.04684	527
650.000	1.94064	1.04881	.017640	5.9707	18039.0	23707.2	181.328	22.52	31.51	1.04700	546
700.000	1.80370	1.04784	.016287	6.4136	19190.9	25289.5	183.673	22.88	31.78	1.04665	563
750.000	1.68531	1.04669	.015132	6.8528	20358.7	26885.7	185.875	23.25	32.07	1.04598	580
800.000	1.58185	1.04545	.014134	7.2890	21542.6	28496.5	187.954	23.60	32.36	1.04512	597
850.000	1.49061	1.04417	.013262	7.7228	22742.6	30122.1	189.925	23.95	32.66	1.04414	613
900.000	1.40952	1.04290	.012493	8.1547	23958.1	31762.1	191.800	24.27	32.94	1.04311	628
950.000	1.33693	1.04165	.011810	8.5849	25188.5	33416.3	193.589	24.58	33.22	1.04205	643
1000.000	1.27157	1.04044	.011198	9.0137	26433.1	35083.8	195.299	24.88	33.48	1.04098	658

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol⁻¹K⁻¹	C_V J mol⁻¹K⁻¹	C_P J mol⁻¹K⁻¹	f/P	W m/s
12.000000 MPa											
70.784	30.61980	.66590	2.271460	17.7009	37.9	429.8	74.985	36.35	58.36	.00384	1007
80.000	29.42369	.61314	1.937174	14.7325	563.8	971.7	82.193	35.75	59.29	.01251	933
90.000	28.08447	.57100	1.624876	11.8875	1137.2	1564.4	89.175	33.79	59.13	.03274	861
100.000	26.68262	.54090	1.353478	9.3937	1701.2	2150.9	95.342	30.50	57.89	.06802	797
110.000	25.19381	.52079	1.114899	7.2312	2241.3	2717.7	100.752	26.03	55.82	.11962	744
120.000	23.58785	.50989	.903788	5.3914	2750.1	3258.8	105.475	20.84	53.51	.18677	703
130.000	21.82763	.50862	.717056	3.8736	3231.8	3781.6	109.634	18.58	54.80	.26850	638
140.000	19.87269	.51875	.553963	2.6849	3853.2	4457.0	114.624	35.14	75.66	.35885	454
150.000	17.70370	.54349	.416426	1.8396	4533.5	5211.3	119.828	30.67	75.78	.44966	402
160.000	15.40189	.58567	.308205	1.3445	5194.0	5973.1	124.745	28.44	76.09	.53504	358
170.000	13.23166	.64163	.231121	1.1560	5810.0	6716.9	129.256	26.93	71.80	.61111	331
180.000	11.44985	.70028	.180264	1.1513	6350.9	7399.0	133.157	25.75	64.50	.67628	320
190.000	10.07224	.75416	.146609	1.2140	6818.6	8010.0	136.462	24.80	57.95	.73131	318
200.000	9.00419	.80144	.123299	1.3095	7229.5	8562.2	139.296	24.04	52.68	.77749	320
210.000	8.16581	.84164	.106504	1.4287	7597.5	9067.0	141.760	23.44	48.45	.81618	324
220.000	7.49562	.87522	.093961	1.5598	7933.4	9534.3	143.934	22.98	45.14	.84872	330
230.000	6.94845	.90309	.084281	1.6952	8245.3	9972.3	145.882	22.61	42.57	.87619	337
240.000	6.49253	.92623	.076593	1.8310	8539.3	10387.6	147.650	22.32	40.56	.89951	344
250.000	6.10568	.94552	.070338	1.9651	8819.6	10785.0	149.272	22.09	38.97	.91939	351
260.000	5.77228	.96167	.065145	2.0966	9089.2	11168.1	150.775	21.90	37.70	.93642	358
270.000	5.48106	.97525	.060757	2.2251	9350.3	11539.7	152.177	21.75	36.66	.95107	365
280.000	5.22381	.98673	.056996	2.3506	9604.7	11901.9	153.495	21.63	35.81	.96371	372
290.000	4.99433	.99648	.053731	2.4731	9853.6	12256.3	154.739	21.53	35.10	.97467	379
300.000	4.78791	1.00480	.050867	2.5930	10097.9	12604.2	155.918	21.44	34.50	.98420	385
310.000	4.60090	1.01191	.048331	2.7102	10338.5	12946.7	157.041	21.38	34.00	.99251	392
320.000	4.43040	1.01801	.046066	2.8251	10575.9	13284.5	158.114	21.33	33.57	.99977	398
330.000	4.27409	1.02326	.044030	2.9379	10810.7	13618.3	159.141	21.29	33.21	1.00614	404
340.000	4.13009	1.02779	.042187	3.0487	11043.3	13948.8	160.128	21.25	32.89	1.01173	410
350.000	3.99687	1.03171	.040509	3.1577	11273.9	14276.3	161.077	21.23	32.62	1.01665	416
360.000	3.87313	1.03510	.038975	3.2650	11503.0	14601.3	161.993	21.22	32.38	1.02099	421
370.000	3.75780	1.03803	.037565	3.3709	11730.7	14924.1	162.877	21.21	32.18	1.02481	427
380.000	3.64997	1.04057	.036264	3.4754	11957.3	15245.0	163.733	21.21	32.00	1.02819	432
390.000	3.54886	1.04278	.035059	3.5786	12182.9	15564.2	164.562	21.22	31.85	1.03118	437
400.000	3.45382	1.04468	.033940	3.6807	12407.6	15882.1	165.367	21.23	31.72	1.03383	443
410.000	3.36427	1.04634	.032896	3.7817	12631.8	16198.7	166.149	21.24	31.61	1.03617	448
420.000	3.27969	1.04776	.031920	3.8818	12855.4	16514.3	166.909	21.26	31.51	1.03824	453
430.000	3.19967	1.04899	.031006	3.9809	13078.6	16829.0	167.650	21.29	31.43	1.04008	458
440.000	3.12380	1.05005	.030146	4.0793	13301.4	17142.9	168.371	21.32	31.36	1.04170	462
450.000	3.05176	1.05095	.029337	4.1769	13524.1	17456.2	169.076	21.35	31.31	1.04313	467
470.000	2.91795	1.05237	.027852	4.3700	13969.0	18081.5	170.435	21.43	31.23	1.04551	476
500.000	2.73932	1.05374	.025904	4.6551	14636.6	19017.3	172.365	21.57	31.17	1.04811	490
550.000	2.48820	1.05462	.023228	5.1209	15753.4	20576.1	175.337	21.85	31.21	1.05060	511
600.000	2.28124	1.05444	.021076	5.5777	16879.6	22139.8	178.058	22.17	31.35	1.05160	530
650.000	2.10734	1.05365	.019304	6.0277	18018.4	23712.8	180.576	22.52	31.57	1.05170	549
700.000	1.95891	1.05253	.017815	6.4727	19171.8	25297.7	182.925	22.89	31.83	1.05125	566
750.000	1.83059	1.05122	.016546	6.9137	20340.9	26896.1	185.130	23.25	32.11	1.05047	583
800.000	1.71846	1.04982	.015450	7.3514	21525.9	28508.9	187.212	23.60	32.40	1.04948	600
850.000	1.61957	1.04840	.014494	7.7866	22726.8	30136.2	189.185	23.95	32.69	1.04838	616
900.000	1.53166	1.04698	.013651	8.2196	23943.1	31777.8	191.061	24.28	32.97	1.04721	631
950.000	1.45297	1.04560	.012902	8.6509	25174.3	33433.2	192.851	24.59	33.24	1.04603	646
1000.000	1.38210	1.04425	.012233	9.0807	26419.6	35102.0	194.563	24.88	33.50	1.04485	660

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
13.000000 MPa											
71.002	30.64809	.71851	2.279298	17.9047	41.4	465.5	75.028	36.36	58.29	.00387	1012
80.000	29.49094	.66272	1.952864	15.0084	552.7	993.6	82.042	35.77	59.15	.01215	941
90.000	28.16761	.61676	1.640667	12.1668	1123.0	1584.5	89.003	33.82	58.92	.03170	869
100.000	26.78748	.58368	1.370077	9.6804	1683.0	2168.3	95.142	30.54	57.57	.06567	807
110.000	25.32934	.56117	1.132947	7.5272	2217.7	2731.0	100.513	26.08	55.31	.11530	754
120.000	23.76826	.54819	.923924	5.6968	2718.8	3265.7	105.181	20.89	52.72	.17985	716
130.000	22.07588	.54481	.739901	4.1856	3189.5	3778.4	109.259	18.63	53.52	.25851	655
140.000	20.22506	.55219	.579893	2.9954	3794.6	4437.3	114.127	35.17	73.59	.34575	473
150.000	18.20831	.57246	.444964	2.1303	4452.0	5166.0	119.155	30.66	72.71	.43402	424
160.000	16.08595	.60749	.337272	1.5874	5086.1	5894.2	123.855	28.40	72.71	.51803	380
170.000	14.03760	.65519	.257592	1.3330	5684.2	6610.3	128.197	26.93	69.87	.59414	351
180.000	12.27459	.70767	.202507	1.2786	6222.4	7281.5	132.036	25.79	64.11	.66043	336
190.000	10.86283	.75755	.165060	1.3190	6695.3	7892.1	135.338	24.88	58.13	.71715	331
200.000	9.74509	.80222	.138801	1.3938	7114.1	8448.1	138.191	24.14	53.25	.76525	331
210.000	8.85101	.84119	.119671	1.4937	7491.2	8960.0	140.690	23.55	49.25	.80589	333
220.000	8.12703	.87449	.105295	1.6108	7836.0	9435.6	142.903	23.08	46.01	.84026	338
230.000	7.53163	.90259	.094177	1.7368	8156.2	9882.3	144.889	22.71	43.41	.86941	344
240.000	7.03374	.92621	.085352	1.8665	8457.4	10305.6	146.692	22.41	41.34	.89423	350
250.000	6.61070	.94606	.078185	1.9970	8743.9	10710.4	148.344	22.17	39.68	.91542	357
260.000	6.24605	.96278	.072248	2.1264	9018.9	11100.2	149.874	21.97	38.33	.93361	363
270.000	5.92773	.97691	.067247	2.2539	9284.8	11477.9	151.299	21.81	37.23	.94926	370
280.000	5.64676	.98889	.062972	2.3792	9543.3	11845.5	152.636	21.68	36.32	.96279	377
290.000	5.39640	.99909	.059271	2.5020	9795.8	12204.8	153.897	21.58	35.56	.97451	383
300.000	5.17146	1.00780	.056033	2.6224	10043.3	12557.1	155.091	21.49	34.92	.98471	390
310.000	4.96787	1.01525	.053173	2.7405	10286.7	12903.5	156.228	21.42	34.38	.99360	396
320.000	4.78246	1.02166	.050625	2.8564	10526.7	13245.0	157.312	21.37	33.92	1.00138	402
330.000	4.61264	1.02717	.048339	2.9702	10763.8	13582.1	158.349	21.32	33.52	1.00819	408
340.000	4.45634	1.03193	.046274	3.0821	10998.4	13915.6	159.345	21.29	33.18	1.01417	414
350.000	4.31185	1.03604	.044398	3.1923	11231.0	14245.9	160.302	21.26	32.89	1.01942	419
360.000	4.17776	1.03959	.042685	3.3008	11461.7	14573.4	161.225	21.24	32.63	1.02406	425
370.000	4.05286	1.04266	.041114	3.4078	11691.0	14898.6	162.116	21.23	32.41	1.02814	430
380.000	3.93616	1.04532	.039666	3.5134	11919.0	15221.7	162.977	21.23	32.22	1.03175	436
390.000	3.82680	1.04763	.038327	3.6177	12145.9	15543.0	163.812	21.24	32.05	1.03494	441
400.000	3.72405	1.04962	.037084	3.7209	12371.9	15862.8	164.622	21.24	31.90	1.03775	446
410.000	3.62727	1.05134	.035927	3.8230	12597.2	16181.2	165.408	21.26	31.78	1.04024	451
420.000	3.53592	1.05282	.034847	3.9240	12821.9	16498.4	166.172	21.28	31.67	1.04244	456
430.000	3.44952	1.05410	.033835	4.0242	13046.0	16814.7	166.917	21.30	31.58	1.04439	461
440.000	3.36763	1.05519	.032885	4.1234	13269.8	17130.1	167.642	21.33	31.51	1.04611	466
450.000	3.28989	1.05612	.031992	4.2219	13493.4	17444.8	168.349	21.36	31.44	1.04763	471
470.000	3.14558	1.05757	.030354	4.4167	13939.9	18072.7	169.714	21.44	31.35	1.05014	480
500.000	2.95302	1.05894	.028209	4.7042	14609.5	19011.8	171.651	21.58	31.27	1.05286	493
550.000	2.68249	1.05976	.025271	5.1733	15729.1	20575.3	174.631	21.85	31.29	1.05543	514
600.000	2.45965	1.05946	.022914	5.6328	16857.5	22142.8	177.359	22.18	31.42	1.05642	533
650.000	2.27245	1.05852	.020976	6.0853	17998.1	23718.8	179.882	22.53	31.63	1.05645	552
700.000	2.11270	1.05724	.019350	6.5322	19153.0	25306.3	182.235	22.89	31.88	1.05590	569
750.000	1.97459	1.05577	.017966	6.9749	20323.3	26907.0	184.443	23.25	32.15	1.05499	586
800.000	1.85391	1.05421	.016771	7.4142	21509.4	28521.6	186.527	23.61	32.44	1.05388	603
850.000	1.74747	1.05264	.015729	7.8506	22711.3	30150.6	188.502	23.95	32.72	1.05264	618
900.000	1.65284	1.05107	.014812	8.2849	23928.4	31793.7	190.381	24.28	33.00	1.05135	634
950.000	1.56813	1.04955	.013997	8.7172	25160.3	33450.5	192.172	24.59	33.27	1.05004	648
1000.000	1.49182	1.04807	.013269	9.1479	26406.3	35120.4	193.885	24.88	33.53	1.04873	663

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					14.000000 MPa						
71.220	30.67603	.77071	2.287026	18.1081	44.9	501.3	75.071	36.37	58.23	.00392	1017
80.000	29.55697	.71210	1.968410	15.2831	541.9	1015.5	81.894	35.79	59.01	.01188	948
90.000	28.24888	.66229	1.656246	12.4442	1109.3	1604.8	88.835	33.85	58.71	.03086	877
100.000	26.88930	.62620	1.386359	9.9643	1665.5	2186.1	94.947	30.58	57.26	.06378	816
110.000	25.45967	.60124	1.150511	7.8192	2195.1	2745.0	100.283	26.12	54.85	.11178	765
120.000	23.93931	.58614	.943313	5.9968	2689.2	3274.0	104.901	20.94	52.01	.17417	729
130.000	22.30646	.58065	.761590	4.4908	3150.1	3777.7	108.908	18.68	52.42	.25027	670
140.000	20.54302	.58546	.604107	3.2984	3741.5	4423.0	113.675	35.20	71.91	.33487	490
150.000	18.64867	.60194	.471265	2.4168	4380.4	5131.1	118.561	30.67	70.30	.42094	444
160.000	16.67127	.63125	.364146	1.8363	4993.1	5832.9	123.091	28.39	69.96	.50361	401
170.000	14.73859	.67203	.282748	1.5268	5574.5	6524.4	127.283	26.92	67.90	.57950	370
180.000	13.01661	.71866	.224321	1.4219	6106.9	7182.5	131.046	25.82	63.42	.64653	353
190.000	11.59037	.76461	.183439	1.4332	6582.3	7790.2	134.333	24.93	58.14	.70456	345
200.000	10.43864	.80652	.154398	1.4930	7006.5	8347.7	137.194	24.22	53.52	.75423	343
210.000	9.50331	.84372	.133054	1.5756	7390.3	8863.5	139.711	23.64	49.76	.79653	344
220.000	8.73578	.87613	.116892	1.6776	7742.5	9345.1	141.952	23.17	46.65	.83253	347
230.000	8.09875	.90395	.104339	1.7924	8069.7	9798.3	143.968	22.79	44.09	.86321	351
240.000	7.56305	.92765	.094359	1.9142	8377.4	10228.5	145.799	22.49	42.00	.88940	357
250.000	7.10646	.94776	.086256	2.0392	8669.7	10639.7	147.478	22.24	40.30	.91184	363
260.000	6.71228	.96483	.079551	2.1650	8949.8	11035.5	149.031	22.04	38.91	.93111	369
270.000	6.36798	.97932	.073913	2.2903	9220.2	11418.7	150.477	21.87	37.76	.94773	375
280.000	6.06411	.99167	.069103	2.4143	9482.6	11791.3	151.832	21.74	36.80	.96210	381
290.000	5.79343	1.00221	.064949	2.5365	9738.6	12155.2	153.109	21.63	36.00	.97457	388
300.000	5.55036	1.01123	.061321	2.6568	9989.3	12511.6	154.318	21.54	35.32	.98541	394
310.000	5.33053	1.01897	.058123	2.7752	10235.5	12861.9	155.466	21.46	34.74	.99487	400
320.000	5.13045	1.02562	.055280	2.8915	10478.0	13206.8	156.561	21.40	34.25	1.00314	406
330.000	4.94734	1.03135	.052733	3.0060	10717.3	13547.1	157.609	21.35	33.83	1.01039	412
340.000	4.77891	1.03630	.050438	3.1186	10954.0	13883.5	158.613	21.32	33.46	1.01674	418
350.000	4.62332	1.04057	.048356	3.2296	11188.4	14216.5	159.578	21.29	33.14	1.02233	423
360.000	4.47899	1.04426	.046458	3.3390	11420.9	14546.6	160.508	21.27	32.87	1.02725	429
370.000	4.34465	1.04746	.044719	3.4469	11651.7	14874.0	161.405	21.26	32.63	1.03159	434
380.000	4.21918	1.05022	.043119	3.5534	11881.1	15199.3	162.273	21.25	32.42	1.03542	439
390.000	4.10167	1.05261	.041641	3.6587	12109.3	15522.6	163.113	21.26	32.24	1.03880	445
400.000	3.99131	1.05467	.040271	3.7628	12336.6	15844.2	163.927	21.26	32.09	1.04178	450
410.000	3.88741	1.05645	.038997	3.8657	12563.0	16164.4	164.717	21.28	31.95	1.04442	455
420.000	3.78936	1.05798	.037809	3.9677	12788.7	16483.3	165.486	21.29	31.83	1.04674	460
430.000	3.69666	1.05929	.036698	4.0687	13013.9	16801.1	166.234	21.32	31.73	1.04880	465
440.000	3.60883	1.06041	.035655	4.1688	13238.6	17118.0	166.962	21.34	31.65	1.05061	469
450.000	3.52547	1.06136	.034675	4.2681	13463.0	17434.1	167.673	21.38	31.58	1.05221	474
470.000	3.37078	1.06283	.032881	4.4644	13911.1	18064.4	169.043	21.45	31.47	1.05485	483
500.000	3.16448	1.06419	.030535	4.7541	14582.8	19006.9	170.987	21.58	31.38	1.05769	496
550.000	2.87481	1.06493	.027329	5.2263	15705.1	20575.0	173.976	21.86	31.37	1.06033	517
600.000	2.63631	1.06450	.024763	5.6885	16835.6	22146.1	176.710	22.18	31.49	1.06129	536
650.000	2.43600	1.06341	.022656	6.1432	17978.0	23725.1	179.238	22.53	31.68	1.06125	555
700.000	2.26509	1.06196	.020892	6.5921	19134.4	25315.2	181.594	22.89	31.92	1.06058	572
750.000	2.11734	1.06033	.019391	7.0365	20306.0	26918.1	183.806	23.25	32.19	1.05955	589
800.000	1.98822	1.05862	.018097	7.4772	21493.2	28534.7	185.893	23.61	32.47	1.05830	605
850.000	1.87433	1.05688	.016969	7.9150	22695.9	30165.3	187.870	23.95	32.75	1.05693	621
900.000	1.77307	1.05517	.015976	8.3503	23913.9	31809.8	189.750	24.28	33.03	1.05551	636
950.000	1.68241	1.05351	.015095	8.7837	25146.6	33468.0	191.542	24.59	33.29	1.05407	651
1000.000	1.60074	1.05189	.014308	9.2153	26393.1	35139.1	193.257	24.88	33.55	1.05264	666

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					16.000000 MPa						
71.654	30.73091	.87392	2.302159	18.5135	52.0	572.6	75.158	36.39	58.11	.00407	1027
80.000	29.68555	.81031	1.999083	15.8292	520.8	1059.8	81.603	35.83	58.75	.01150	962
90.000	28.40615	.75271	1.686807	12.9938	1082.7	1646.0	88.507	33.91	58.33	.02967	893
100.000	27.08456	.71050	1.418045	10.5243	1631.9	2222.6	94.571	30.66	56.71	.06101	833
110.000	25.70648	.68053	1.184338	8.3925	2152.3	2774.7	99.842	26.22	54.04	.10653	785
120.000	24.25746	.66109	.980152	6.5824	2634.2	3293.8	104.374	21.04	50.80	.16562	753
130.000	22.72463	.65139	.802102	5.0833	3078.7	3782.7	108.263	18.78	50.64	.23774	699
140.000	21.10076	.65141	.648478	3.8856	3648.0	4406.3	112.869	35.28	69.31	.31821	522
150.000	19.39250	.66154	.518730	2.9774	4258.6	5083.7	117.544	30.71	66.76	.40071	480
160.000	17.63377	.68205	.412622	2.3405	4839.1	5746.4	121.822	28.40	65.83	.48100	440
170.000	15.89777	.71203	.329188	1.9464	5392.0	6398.4	125.775	26.93	64.38	.55609	407
180.000	14.28525	.74838	.266084	1.7509	5909.1	7029.1	129.381	25.86	61.53	.62387	385
190.000	12.87561	.78662	.219605	1.6937	6382.8	7625.5	132.606	25.02	57.65	.68371	373
200.000	11.68906	.82314	.185488	1.7155	6813.2	8182.0	135.461	24.33	53.69	.73577	367
210.000	10.70087	.85634	.160016	1.7744	7205.9	8701.1	137.995	23.77	50.24	.78066	365
220.000	9.87295	.88596	.140496	1.8503	7568.2	9188.8	140.265	23.31	47.39	.81935	366
230.000	9.17291	.91211	.125177	1.9412	7906.2	9650.4	142.317	22.94	45.00	.85262	368
240.000	8.57589	.93496	.112914	2.0438	8224.4	10090.1	144.189	22.63	42.98	.88123	372
250.000	8.06208	.95477	.102922	2.1542	8526.6	10511.2	145.908	22.37	41.28	.90588	376
260.000	7.61570	.97185	.094648	2.2693	8815.7	10916.7	147.499	22.16	39.86	.92716	381
270.000	7.22428	.98656	.087693	2.3869	9094.3	11309.0	148.980	21.99	38.65	.94555	387
280.000	6.87803	.99922	.081771	2.5054	9364.1	11690.3	150.367	21.84	37.64	.96150	392
290.000	6.56925	1.01011	.076667	2.6239	9626.7	12062.3	151.672	21.72	36.78	.97536	398
300.000	6.29186	1.01949	.072223	2.7418	9883.3	12426.3	152.906	21.62	36.04	.98743	403
310.000	6.04099	1.02758	.068316	2.8587	10134.9	12783.4	154.077	21.54	35.41	.99796	409
320.000	5.81274	1.03455	.064853	2.9744	10382.2	13134.7	155.193	21.47	34.87	1.00717	415
330.000	5.60396	1.04058	.061761	3.0888	10625.9	13481.0	156.258	21.42	34.40	1.01524	420
340.000	5.41206	1.04579	.058980	3.2018	10866.5	13822.9	157.279	21.38	33.99	1.02233	426
350.000	5.23489	1.05029	.056466	3.3134	11104.6	14161.0	158.259	21.34	33.64	1.02855	431
360.000	5.07068	1.05418	.054179	3.4236	11340.3	14495.7	159.202	21.32	33.33	1.03409	437
370.000	4.91793	1.05755	.052090	3.5325	11574.2	14827.6	160.111	21.31	33.06	1.03891	442
380.000	4.77538	1.06046	.050172	3.6402	11806.5	15157.0	160.989	21.30	32.82	1.04316	447
390.000	4.64195	1.06297	.048404	3.7467	12037.3	15484.1	161.839	21.30	32.61	1.04690	452
400.000	4.51671	1.06513	.046769	3.8521	12266.9	15809.3	162.662	21.30	32.43	1.05021	457
410.000	4.39888	1.06698	.045251	3.9564	12495.6	16132.9	163.461	21.31	32.28	1.05312	462
420.000	4.28775	1.06858	.043838	4.0597	12723.4	16455.0	164.238	21.33	32.14	1.05569	467
430.000	4.18272	1.06993	.042519	4.1621	12950.5	16775.8	164.992	21.35	32.02	1.05795	472
440.000	4.08327	1.07108	.041283	4.2635	13177.0	17095.5	165.727	21.37	31.92	1.05994	476
450.000	3.98892	1.07205	.040124	4.3642	13403.1	17414.2	166.444	21.40	31.83	1.06169	481
470.000	3.81392	1.07353	.038005	4.5631	13854.3	18049.5	167.825	21.47	31.70	1.06456	490
500.000	3.58073	1.07484	.035245	4.8565	14530.1	18998.4	169.782	21.60	31.58	1.06762	503
550.000	3.25360	1.07537	.031487	5.3344	15657.9	20575.5	172.788	21.88	31.53	1.07038	523
600.000	2.98446	1.07465	.028492	5.8015	16792.7	22153.8	175.535	22.19	31.62	1.07127	543
650.000	2.75851	1.07324	.026041	6.2604	17938.6	23738.9	178.072	22.54	31.79	1.07104	561
700.000	2.56574	1.07145	.023994	6.7129	19098.0	25334.0	180.437	22.90	32.02	1.07008	578
750.000	2.39910	1.06948	.022256	7.1605	20272.0	26941.2	182.654	23.26	32.27	1.06878	595
800.000	2.25346	1.06744	.020760	7.6040	21461.3	28561.5	184.746	23.61	32.54	1.06726	611
850.000	2.12497	1.06540	.019458	8.0443	22665.9	30195.4	186.727	23.95	32.81	1.06561	627
900.000	2.01072	1.06338	.018313	8.4819	23885.5	31842.8	188.610	24.28	33.08	1.06391	642
950.000	1.90839	1.06143	.017298	8.9172	25119.5	33503.5	190.406	24.59	33.34	1.06220	657
1000.000	1.81619	1.05955	.016392	9.3506	26367.4	35177.0	192.122	24.88	33.59	1.06051	671

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					18.000000 MPa						
72.085	30.78451	.97557	2.316871	18.9173	59.2	644.0	75.246	36.40	57.98	.00429	1037
80.000	29.80978	.90779	2.029228	16.3716	500.6	1104.4	81.320	35.87	58.51	.01131	976
90.000	28.55693	.84233	1.716626	13.5369	1057.4	1687.7	88.191	33.97	57.99	.02897	908
100.000	27.26978	.79388	1.448672	11.0749	1600.2	2260.3	94.212	30.73	56.22	.05925	850
110.000	25.93714	.75879	1.216641	8.9529	2112.5	2806.5	99.427	26.30	53.34	.10306	805
120.000	24.54882	.73489	1.014798	7.1515	2583.9	3317.2	103.886	21.13	49.81	.15982	775
130.000	23.09735	.72099	.839513	5.6560	3015.0	3794.3	107.680	18.87	49.24	.22909	725
140.000	21.58108	.71653	.688662	4.4521	3567.2	4401.3	112.164	35.37	67.39	.30656	550
150.000	20.00912	.72130	.561048	3.5224	4157.0	5056.6	116.687	30.78	64.26	.38638	512
160.000	18.40762	.73505	.455683	2.8442	4714.1	5692.0	120.788	28.44	62.91	.46474	473
170.000	16.82423	.75692	.371090	2.3887	5245.0	6314.8	124.564	26.96	61.58	.53893	441
180.000	15.32306	.78491	.304993	2.1205	5746.5	6921.2	128.031	25.90	59.53	.60691	417
190.000	13.96397	.81597	.254426	1.9961	6213.8	7502.8	131.176	25.09	56.68	.66785	401
200.000	12.77815	.84711	.216085	1.9686	6645.0	8053.7	134.002	24.42	53.48	.72158	392
210.000	11.76354	.87635	.186856	1.9977	7042.7	8572.8	136.536	23.88	50.40	.76844	387
220.000	10.89879	.90289	.164214	2.0562	7411.5	9063.1	138.817	23.43	47.72	.80919	386
230.000	10.15770	.92664	.146310	2.1286	7756.6	9528.7	140.888	23.05	45.47	.84454	387
240.000	9.51744	.94777	.131872	2.2123	8082.4	9973.7	142.782	22.74	43.57	.87516	388
250.000	8.96032	.96643	.120041	2.3062	8392.1	10401.0	144.527	22.48	41.94	.90169	391
260.000	8.47217	.98281	.110206	2.4077	8688.6	10813.2	146.144	22.27	40.54	.92469	395
270.000	8.04141	.99710	.101923	2.5144	8974.0	11212.4	147.651	22.09	39.34	.94465	399
280.000	7.65862	1.00955	.094864	2.6244	9250.2	11600.5	149.062	21.93	38.30	.96201	404
290.000	7.31617	1.02036	.088782	2.7363	9518.7	11979.0	150.390	21.81	37.41	.97713	409
300.000	7.00785	1.02975	.083490	2.8493	9780.7	12349.2	151.646	21.70	36.65	.99031	414
310.000	6.72861	1.03789	.078844	2.9624	10037.2	12712.3	152.836	21.61	35.98	1.00184	419
320.000	6.47432	1.04494	.074732	3.0754	10289.0	13069.2	153.969	21.54	35.41	1.01193	424
330.000	6.24158	1.05106	.071067	3.1878	10536.8	13420.7	155.051	21.48	34.90	1.02077	430
340.000	6.02761	1.05636	.067778	3.2995	10781.2	13767.5	156.086	21.44	34.46	1.02852	435
350.000	5.83004	1.06095	.064809	3.4104	11022.7	14110.1	157.080	21.40	34.08	1.03534	440
360.000	5.64694	1.06493	.062114	3.5202	11261.7	14449.2	158.035	21.37	33.74	1.04140	445
370.000	5.47664	1.06837	.059655	3.6291	11498.5	14785.2	158.955	21.35	33.45	1.04668	450
380.000	5.31775	1.07133	.057403	3.7370	11733.4	15118.3	159.843	21.34	33.19	1.05132	455
390.000	5.16906	1.07389	.055331	3.8438	11966.8	15449.1	160.703	21.34	32.96	1.05541	460
400.000	5.02953	1.07609	.053417	3.9497	12198.8	15777.6	161.535	21.34	32.76	1.05902	465
410.000	4.89829	1.07797	.051644	4.0547	12429.6	16104.4	162.341	21.35	32.59	1.06219	470
420.000	4.77456	1.07958	.049996	4.1587	12659.4	16429.4	163.125	21.36	32.43	1.06498	474
430.000	4.65764	1.08094	.048459	4.2619	12888.5	16753.1	163.886	21.38	32.30	1.06743	479
440.000	4.54696	1.08209	.047022	4.3642	13116.8	17075.5	164.627	21.40	32.18	1.06958	484
450.000	4.44199	1.08304	.045675	4.4658	13344.5	17396.8	165.349	21.43	32.08	1.07147	488
470.000	4.24736	1.08447	.043219	4.6666	13798.8	18036.7	166.741	21.50	31.92	1.07455	497
500.000	3.98813	1.08567	.040026	4.9628	14478.5	18991.9	168.711	21.62	31.77	1.07780	510
550.000	3.62470	1.08593	.035698	5.4453	15611.7	20577.6	171.734	21.89	31.69	1.08063	530
600.000	3.32584	1.08489	.032261	5.9166	16750.8	22163.0	174.493	22.21	31.75	1.08142	549
650.000	3.07499	1.08313	.029457	6.3792	17900.2	23753.9	177.039	22.55	31.90	1.08100	567
700.000	2.86100	1.08099	.027121	6.8351	19062.4	25353.9	179.411	22.91	32.11	1.07978	584
750.000	2.67600	1.07867	.025141	7.2857	20238.8	26965.3	181.634	23.26	32.35	1.07820	601
800.000	2.51429	1.07629	.023440	7.7318	21430.2	28589.2	183.730	23.62	32.61	1.07638	617
850.000	2.37161	1.07393	.021960	8.1745	22636.5	30226.3	185.715	23.96	32.87	1.07444	632
900.000	2.24470	1.07161	.020661	8.6142	23857.7	31876.6	187.602	24.28	33.14	1.07245	647
950.000	2.13101	1.06937	.019511	9.0514	25093.2	33539.9	189.400	24.59	33.39	1.07046	662
1000.000	2.02854	1.06722	.018484	9.4866	26342.3	35215.6	191.119	24.88	33.64	1.06851	676

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
20.000000 MPa											
72.515	30.83691	1.07571	2.331171	19.3193	66.7	715.2	75.334	36.42	57.87	.00456	1046
80.000	29.92997	1.00461	2.058873	16.9104	481.1	1149.4	81.045	35.91	58.29	.01126	990
90.000	28.70181	.93120	1.745763	14.0743	1033.2	1730.0	87.885	34.03	57.68	.02863	922
100.000	27.44608	.87642	1.478350	11.6171	1570.2	2298.9	93.867	30.81	55.78	.05822	866
110.000	26.15392	.83611	1.247618	9.5022	2075.3	2840.0	99.033	26.39	52.73	.10088	823
120.000	24.81812	.80769	1.047610	7.7066	2537.6	3343.5	103.430	21.23	48.97	.15601	796
130.000	23.43456	.78958	.874442	6.2123	2957.4	3810.8	107.146	18.97	48.11	.22325	749
140.000	22.00456	.78082	.725638	5.0015	3495.9	4404.8	111.534	35.46	65.90	.29854	576
150.000	20.53784	.78081	.599536	4.0533	4069.5	5043.3	115.940	30.86	62.39	.37636	540
160.000	19.05547	.78896	.494675	3.3425	4608.8	5658.4	119.911	28.50	60.76	.45321	504
170.000	17.59125	.80436	.409286	2.8402	5122.4	6259.3	123.554	27.01	59.41	.52659	472
180.000	16.18871	.82549	.341113	2.5146	5610.1	6845.5	126.906	25.96	57.74	.59455	446
190.000	14.89117	.85018	.287539	2.3312	6069.2	7412.3	129.970	25.15	55.54	.65617	428
200.000	13.72822	.87609	.245816	2.2529	6498.2	7955.0	132.754	24.50	52.97	.71111	416
210.000	12.70835	.90133	.213320	2.2449	6897.7	8471.4	135.275	23.97	50.33	.75946	410
220.000	11.82281	.92481	.187787	2.2795	7270.6	8962.2	137.559	23.53	47.88	.80186	406
230.000	11.05440	.94609	.167437	2.3378	7620.7	9430.0	139.638	23.16	45.73	.83887	405
240.000	10.38431	.96517	.150944	2.4082	7951.9	9877.8	141.545	22.84	43.90	.87114	406
250.000	9.79588	.98222	.137360	2.4874	8267.2	10308.9	143.305	22.58	42.35	.89924	408
260.000	9.27595	.99738	.126017	2.5749	8569.3	10725.4	144.939	22.36	41.00	.92371	410
270.000	8.81390	1.01079	.116432	2.6695	8860.3	11129.4	146.464	22.18	39.83	.94504	413
280.000	8.40098	1.02260	.108244	2.7692	9141.8	11522.5	147.893	22.02	38.81	.96364	417
290.000	8.02993	1.03296	.101181	2.8727	9415.3	11906.0	149.239	21.89	37.92	.97988	421
300.000	7.69473	1.04203	.095031	2.9787	9682.0	12281.2	150.511	21.78	37.14	.99407	425
310.000	7.39035	1.04995	.089632	3.0864	9942.9	12649.1	151.718	21.69	36.46	1.00649	430
320.000	7.11263	1.05685	.084856	3.1949	10198.8	13010.7	152.866	21.61	35.86	1.01738	435
330.000	6.85809	1.06286	.080602	3.3038	10450.4	13366.7	153.961	21.54	35.34	1.02692	439
340.000	6.62381	1.06809	.076788	3.4128	10698.3	13717.7	155.009	21.49	34.88	1.03531	444
350.000	6.40734	1.07263	.073349	3.5215	10943.0	14064.5	156.015	21.45	34.48	1.04267	449
360.000	6.20660	1.07656	.070231	3.6297	11185.0	14407.4	156.980	21.42	34.12	1.04921	454
370.000	6.01982	1.07996	.067390	3.7375	11424.6	14747.0	157.911	21.40	33.80	1.05491	459
380.000	5.84551	1.08290	.064791	3.8445	11662.2	15083.6	158.808	21.38	33.53	1.05992	463
390.000	5.68237	1.08543	.062403	3.9509	11897.9	15417.6	159.676	21.38	33.28	1.06433	468
400.000	5.52927	1.08759	.060201	4.0565	12132.2	15749.3	160.516	21.37	33.06	1.06821	473
410.000	5.38526	1.08944	.058162	4.1614	12365.1	16078.9	161.330	21.38	32.87	1.07162	477
420.000	5.24948	1.09101	.056269	4.2655	12596.9	16406.8	162.120	21.39	32.70	1.07461	482
430.000	5.12119	1.09233	.054507	4.3689	12827.8	16733.1	162.888	21.41	32.56	1.07724	487
440.000	4.99975	1.09343	.052861	4.4716	13057.8	17058.0	163.635	21.43	32.43	1.07954	491
450.000	4.88458	1.09434	.051320	4.5735	13287.2	17381.7	164.362	21.45	32.32	1.08155	495
470.000	4.67106	1.09567	.048513	4.7754	13744.4	18026.1	165.763	21.52	32.14	1.08482	504
500.000	4.38673	1.09669	.044875	5.0734	14428.1	18987.3	167.746	21.64	31.96	1.08823	517
550.000	3.98821	1.09661	.039959	5.5593	15566.5	20581.3	170.784	21.90	31.84	1.09110	537
600.000	3.66057	1.09520	.036068	6.0340	16709.8	22173.4	173.555	22.22	31.87	1.09176	555
650.000	3.38559	1.09307	.032903	6.4999	17862.5	23769.9	176.111	22.56	32.00	1.09111	573
700.000	3.15099	1.09056	.030271	6.9588	19027.5	25374.7	178.489	22.91	32.20	1.08961	590
750.000	2.94816	1.08788	.028045	7.4120	20206.3	26990.2	180.718	23.27	32.43	1.08773	607
800.000	2.77084	1.08516	.026135	7.8606	21399.7	28617.8	182.819	23.62	32.68	1.08560	623
850.000	2.61434	1.08246	.024476	8.3055	22607.9	30258.0	184.808	23.96	32.93	1.08336	638
900.000	2.47510	1.07984	.023021	8.7471	23830.6	31911.1	186.697	24.29	33.19	1.08107	653
950.000	2.35034	1.07731	.021733	9.1862	25067.4	33576.8	188.499	24.60	33.44	1.07880	667
1000.000	2.23786	1.07488	.020585	9.6230	26317.7	35254.8	190.220	24.89	33.68	1.07657	681

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
22.000000 MPa											
72.942	30.88815	1.17440	2.345069	19.7197	74.2	786.4	75.423	36.44	57.76	.00488	1056
80.000	30.04640	1.10079	2.088043	17.4461	462.4	1194.6	80.777	35.95	58.09	.01131	1003
90.000	28.84129	1.01936	1.774268	14.6063	1010.1	1772.9	87.589	34.08	57.40	.02856	937
100.000	27.61438	.95819	1.507170	12.1519	1541.7	2338.4	93.536	30.88	55.39	.05776	882
110.000	26.35863	.91258	1.277431	10.0418	2040.3	2874.9	98.659	26.47	52.20	.09968	840
120.000	25.06887	.87957	1.078859	8.2497	2494.7	3372.2	103.002	21.32	48.26	.15369	816
130.000	23.74316	.85724	.907326	6.7549	2904.8	3831.4	106.652	19.07	47.17	.21951	772
140.000	22.38438	.84433	.760056	5.5366	3431.9	4414.7	110.961	35.55	64.71	.29324	599
150.000	21.00205	.83991	.635039	4.5719	3992.5	5040.0	115.276	30.94	60.94	.36960	566
160.000	19.61361	.84316	.530495	3.8341	4517.8	5639.4	119.146	28.57	59.10	.44531	532
170.000	18.24452	.85311	.444476	3.2942	5017.5	6223.4	122.686	27.07	57.70	.51805	500
180.000	16.92602	.86848	.374742	2.9224	5493.3	6793.1	125.944	26.02	56.21	.58592	474
190.000	15.68981	.88760	.318875	2.6889	5944.3	7346.4	128.935	25.22	54.40	.64800	455
200.000	14.56056	.90861	.274450	2.5634	6369.2	7880.1	131.673	24.58	52.30	.70382	441
210.000	13.55009	.92988	.239184	2.5162	6768.3	8391.9	134.171	24.05	50.06	.75335	432
220.000	12.65720	.95022	.211063	2.5218	7143.3	8881.5	136.449	23.61	47.87	.79707	427
230.000	11.87196	.96903	.188424	2.5606	7496.9	9350.0	138.532	23.25	45.87	.83547	424
240.000	11.18072	.98607	.169965	2.6190	7832.1	9799.8	140.447	22.94	44.11	.86910	424
250.000	10.56952	1.00136	.154705	2.6881	8151.7	10233.1	142.216	22.67	42.60	.89852	424
260.000	10.02588	1.01506	.141918	2.7641	8458.1	10652.4	143.861	22.45	41.30	.92425	426
270.000	9.53966	1.02728	.131077	2.8472	8753.5	11059.6	145.398	22.26	40.17	.94675	428
280.000	9.10266	1.03815	.121789	2.9364	9039.3	11456.2	146.840	22.10	39.17	.96643	431
290.000	8.70806	1.04777	.113760	3.0305	9317.1	11843.5	148.199	21.97	38.30	.98365	434
300.000	8.35016	1.05626	.106759	3.1285	9587.8	12222.5	149.484	21.85	37.52	.99874	437
310.000	8.02410	1.06372	.100607	3.2294	9852.5	12594.2	150.703	21.75	36.84	1.01196	441
320.000	7.72583	1.07027	.095163	3.3322	10112.0	12959.6	151.863	21.67	36.24	1.02356	446
330.000	7.45187	1.07599	.090313	3.4363	10367.0	13319.3	152.970	21.60	35.71	1.03375	450
340.000	7.19929	1.08098	.085966	3.5413	10618.1	13674.0	154.029	21.55	35.24	1.04269	454
350.000	6.96559	1.08533	.082048	3.6468	10865.8	14024.2	155.044	21.50	34.82	1.05056	459
360.000	6.74865	1.08910	.078498	3.7524	11110.6	14370.5	156.020	21.47	34.45	1.05753	463
370.000	6.54664	1.09236	.075267	3.8580	11352.8	14713.3	156.959	21.44	34.12	1.06361	468
380.000	6.35798	1.09518	.072312	3.9633	11592.8	15053.0	157.865	21.42	33.83	1.06896	472
390.000	6.18131	1.09759	.069600	4.0683	11830.8	15390.0	158.740	21.41	33.57	1.07366	477
400.000	6.01546	1.09966	.067100	4.1729	12067.2	15724.5	159.587	21.41	33.34	1.07780	481
410.000	5.85939	1.10141	.064789	4.2770	12302.1	16056.8	160.408	21.41	33.13	1.08142	486
420.000	5.71222	1.10289	.062645	4.3806	12535.8	16387.2	161.204	21.42	32.95	1.08460	490
430.000	5.57313	1.10413	.060651	4.4836	12768.5	16716.0	161.977	21.44	32.80	1.08739	494
440.000	5.44145	1.10514	.058790	4.5860	13000.2	17043.2	162.730	21.46	32.66	1.08982	499
450.000	5.31656	1.10597	.057049	4.6879	13231.1	17369.1	163.462	21.48	32.53	1.09194	503
470.000	5.08498	1.10713	.053882	4.8899	13691.3	18017.7	164.872	21.54	32.33	1.09537	511
500.000	4.77656	1.10790	.049786	5.1888	14378.6	18984.5	166.866	21.66	32.13	1.09891	524
550.000	4.34424	1.10741	.044266	5.6768	15522.2	20586.4	169.920	21.92	31.98	1.10178	543
600.000	3.98878	1.10559	.039910	6.1541	16669.6	22185.1	172.702	22.23	31.99	1.10228	562
650.000	3.69042	1.10305	.036376	6.6226	17825.7	23787.1	175.267	22.57	32.10	1.10137	579
700.000	3.43585	1.10016	.033443	7.0840	18993.5	25396.5	177.652	22.92	32.28	1.09958	596
750.000	3.21570	1.09711	.030967	7.5396	20174.6	27016.0	179.887	23.28	32.50	1.09738	613
800.000	3.02319	1.09403	.028844	7.9904	21370.0	28647.0	181.992	23.63	32.74	1.09493	628
850.000	2.85325	1.09101	.027003	8.4372	22579.8	30290.3	183.985	23.97	32.99	1.09237	643
900.000	2.70202	1.08807	.025390	8.8808	23804.1	31946.1	185.877	24.29	33.24	1.08978	658
950.000	2.56647	1.08524	.023963	9.3215	25042.2	33614.3	187.681	24.60	33.48	1.08721	673
1000.000	2.44424	1.08254	.022692	9.7599	26293.7	35294.5	189.405	24.89	33.72	1.08470	687

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					25.000000 MPa						
73.580	30.96300	1.31978	2.365182	20.3172	85.7	893.1	75.555	36.46	57.59	.00548	1070
80.000	30.21454	1.24394	2.130955	18.2444	435.5	1262.9	80.386	36.01	57.82	.01156	1022
90.000	29.04131	1.15039	1.815934	15.3956	977.1	1837.9	87.160	34.17	57.02	.02886	957
100.000	27.85355	1.07950	1.548956	12.9416	1501.5	2399.1	93.061	30.98	54.88	.05789	904
110.000	26.64612	1.02583	1.320243	10.8351	1991.4	2929.6	98.127	26.60	51.52	.09927	865
120.000	25.41597	.98586	1.123248	9.0450	2435.5	3419.1	102.402	21.46	47.37	.15235	844
130.000	24.16300	.95722	.953503	7.5468	2833.5	3868.1	105.972	19.21	46.03	.21690	803
140.000	22.89111	.93823	.807858	6.3169	3346.6	4438.7	110.186	35.69	63.30	.28916	632
150.000	21.60895	.92764	.683921	5.3299	3891.6	5048.6	114.395	31.07	59.27	.36411	602
160.000	20.33010	.92437	.579592	4.5582	4400.5	5630.2	118.150	28.69	57.22	.43870	569
170.000	19.07246	.92736	.492765	3.9731	4884.0	6194.8	121.573	27.18	55.74	.51078	539
180.000	17.85667	.93547	.421231	3.5463	5345.3	6745.4	124.721	26.12	54.36	.57857	513
190.000	16.70351	.94742	.362752	3.2518	5785.0	7281.7	127.620	25.32	52.88	.64114	492
200.000	15.63059	.96183	.315180	3.0648	6202.9	7802.3	130.291	24.69	51.22	.69795	476
210.000	14.64921	.97740	.276551	2.9616	6599.1	8305.7	132.748	24.17	49.44	.74883	465
220.000	13.76297	.99305	.245126	2.9208	6974.6	8791.1	135.006	23.74	47.63	.79413	457
230.000	12.96875	1.00804	.219424	2.9239	7330.9	9258.6	137.084	23.37	45.89	.83419	452
240.000	12.25908	1.02196	.198231	2.9566	7670.0	9709.3	139.003	23.06	44.29	.86949	450
250.000	11.62453	1.03464	.180580	3.0084	7994.3	10144.9	140.781	22.80	42.85	.90054	449
260.000	11.05545	1.04605	.165721	3.0722	8305.6	10567.0	142.437	22.57	41.59	.92782	449
270.000	10.54288	1.05628	.153077	3.1429	8606.0	10977.2	143.986	22.38	40.49	.95178	450
280.000	10.07897	1.06544	.142208	3.2187	8896.8	11377.2	145.440	22.21	39.53	.97282	452
290.000	9.65731	1.07362	.132780	3.2997	9179.5	11768.2	146.813	22.07	38.69	.99129	454
300.000	9.27255	1.08089	.124537	3.3854	9455.2	12151.3	148.111	21.95	37.94	1.00751	457
310.000	8.92020	1.08735	.117278	3.4751	9724.6	12527.2	149.344	21.85	37.27	1.02177	460
320.000	8.59641	1.09304	.110843	3.5681	9988.7	12896.9	150.518	21.76	36.67	1.03429	463
330.000	8.29787	1.09805	.105104	3.6636	10248.1	13260.9	151.638	21.69	36.14	1.04531	466
340.000	8.02175	1.10244	.099958	3.7612	10503.3	13619.9	152.710	21.63	35.66	1.05499	470
350.000	7.76559	1.10627	.095317	3.8602	10755.0	13974.3	153.737	21.58	35.24	1.06350	474
360.000	7.52725	1.10960	.091113	3.9603	11003.5	14324.8	154.724	21.54	34.86	1.07106	478
370.000	7.30488	1.11247	.087287	4.0612	11249.2	14671.6	155.674	21.51	34.52	1.07764	482
380.000	7.09689	1.11494	.083791	4.1626	11492.5	15015.2	156.591	21.49	34.21	1.08343	486
390.000	6.90185	1.11705	.080583	4.2642	11733.7	15355.9	157.476	21.47	33.94	1.08851	490
400.000	6.71855	1.11884	.077629	4.3659	11973.1	15694.1	158.332	21.47	33.70	1.09297	494
410.000	6.54590	1.12034	.074899	4.4677	12210.8	16030.0	159.161	21.47	33.48	1.09688	498
420.000	6.38296	1.12159	.072369	4.5693	12447.1	16363.8	159.966	21.47	33.29	1.10030	502
430.000	6.22887	1.12260	.070018	4.6707	12682.2	16695.8	160.747	21.48	33.12	1.10329	506
440.000	6.08291	1.12341	.067826	4.7718	12916.3	17026.2	161.506	21.50	32.96	1.10589	511
450.000	5.94439	1.12405	.065777	4.8726	13149.5	17355.1	162.246	21.52	32.83	1.10814	515
470.000	5.68741	1.12484	.062057	5.0732	13613.7	18009.4	163.668	21.58	32.61	1.11177	523
500.000	5.34491	1.12511	.057254	5.3713	14306.5	18983.9	165.678	21.69	32.37	1.11543	534
550.000	4.86443	1.12385	.050804	5.8600	15457.6	20596.9	168.753	21.94	32.18	1.11823	553
600.000	4.46911	1.12133	.045734	6.3394	16610.9	22204.9	171.551	22.25	32.16	1.11842	571
650.000	4.13714	1.11813	.041633	6.8106	17771.8	23814.7	174.128	22.58	32.25	1.11710	589
700.000	3.85375	1.11461	.038240	7.2749	18943.6	25430.8	176.524	22.93	32.41	1.11482	605
750.000	3.60859	1.11098	.035380	7.7334	20128.2	27056.1	178.767	23.29	32.61	1.11212	621
800.000	3.39411	1.10736	.032934	8.1870	21326.5	28692.2	180.878	23.64	32.84	1.10917	637
850.000	3.20469	1.10382	.030816	8.6365	22538.9	30339.9	182.876	23.97	33.07	1.10611	652
900.000	3.03605	1.10040	.028962	9.0825	23765.3	31999.7	184.773	24.30	33.32	1.10304	666
950.000	2.88484	1.09713	.027324	9.5256	25005.4	33671.4	186.581	24.61	33.55	1.10002	680
1000.000	2.74842	1.09401	.025867	9.9661	26258.6	35354.8	188.308	24.89	33.78	1.09707	694

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
				30.000000 MPa							
74.633	31.08276	1.55537	2.396827	21.3051	105.5	1070.7	75.777	36.51	57.34	.00677	1092
80.000	30.47913	1.47976	2.200381	19.5628	393.6	1377.9	79.764	36.11	57.42	.01235	1053
90.000	29.35310	1.36580	1.882759	16.6908	926.3	1948.3	86.484	34.31	56.49	.03024	990
100.000	28.22178	1.27850	1.615248	14.2295	1440.3	2503.3	92.320	31.16	54.18	.05979	939
110.000	27.08206	1.21119	1.387312	12.1213	1918.1	3025.8	97.309	26.79	50.61	.10139	904
120.000	25.93270	1.15946	1.191837	10.3279	2348.1	3505.0	101.495	21.67	46.21	.15432	886
130.000	24.77492	1.12029	1.023853	8.8196	2730.2	3941.1	104.962	19.44	44.61	.21836	850
140.000	23.61276	1.09147	.879741	7.5692	3225.6	4496.1	109.061	35.93	61.60	.28984	680
150.000	22.45314	1.07131	.756677	6.5492	3751.5	5087.7	113.143	31.30	57.31	.36396	654
160.000	21.30554	1.05846	.652246	5.7317	4240.6	5648.7	116.766	28.91	55.07	.43788	624
170.000	20.18117	1.05170	.564210	5.0886	4704.7	6191.2	120.054	27.39	53.50	.50964	595
180.000	19.09201	1.04993	.490410	4.5936	5148.1	6719.4	123.074	26.31	52.17	.57762	570
190.000	18.04968	1.05211	.428787	4.2230	5572.7	7234.8	125.860	25.51	50.90	.64091	548
200.000	17.06432	1.05722	.377439	3.9561	5979.3	7737.3	128.438	24.88	49.61	.69895	530
210.000	16.14358	1.06430	.334671	3.7744	6368.5	8226.8	130.827	24.36	48.27	.75147	516
220.000	15.29182	1.07251	.299003	3.6612	6740.9	8702.7	133.041	23.93	46.91	.79867	506
230.000	14.50998	1.08116	.269171	3.6016	7097.4	9164.9	135.096	23.57	45.55	.84079	498
240.000	13.79600	1.08973	.244105	3.5828	7439.2	9613.7	137.007	23.26	44.23	.87814	493
250.000	13.14568	1.09790	.222920	3.5942	7767.7	10049.8	138.787	22.99	42.99	.91124	489
260.000	12.55363	1.10546	.204890	3.6273	8084.2	10473.9	140.451	22.76	41.85	.94049	487
270.000	12.01401	1.11233	.189429	3.6757	8390.1	10887.2	142.010	22.56	40.82	.96629	487
280.000	11.52105	1.11850	.176067	3.7347	8686.8	11290.7	143.478	22.39	39.90	.98903	487
290.000	11.06942	1.12399	.164432	3.8008	8975.3	11685.5	144.864	22.24	39.08	1.00908	488
300.000	10.65429	1.12886	.154224	3.8715	9256.8	12072.5	146.176	22.11	38.35	1.02674	489
310.000	10.27141	1.13317	.145206	3.9456	9532.0	12452.7	147.422	22.00	37.70	1.04230	491
320.000	9.91715	1.13697	.137187	4.0231	9801.7	12826.8	148.610	21.90	37.13	1.05601	493
330.000	9.58847	1.14031	.130016	4.1040	10066.7	13195.4	149.744	21.82	36.61	1.06808	495
340.000	9.28273	1.14322	.123570	4.1878	10327.3	13559.1	150.830	21.76	36.14	1.07870	498
350.000	8.99762	1.14575	.117748	4.2744	10584.2	13918.4	151.872	21.70	35.72	1.08805	501
360.000	8.73115	1.14792	.112467	4.3632	10837.7	14273.7	152.872	21.65	35.34	1.09634	504
370.000	8.48154	1.14976	.107656	4.4539	11088.3	14625.4	153.836	21.62	35.00	1.10357	507
380.000	8.24723	1.15131	.103257	4.5461	11336.2	14973.8	154.765	21.59	34.69	1.10991	510
390.000	8.02684	1.15259	.099219	4.6397	11581.9	15319.3	155.662	21.57	34.41	1.11547	514
400.000	7.81915	1.15363	.095501	4.7343	11825.4	15662.2	156.531	21.56	34.16	1.12034	517
410.000	7.62305	1.15444	.092066	4.8296	12067.2	16002.6	157.371	21.55	33.93	1.12459	521
420.000	7.43759	1.15506	.088884	4.9257	12307.4	16340.9	158.186	21.55	33.73	1.12829	524
430.000	7.26188	1.15549	.085927	5.0221	12546.1	16677.3	158.978	21.56	33.55	1.13151	528
440.000	7.09515	1.15577	.083172	5.1190	12783.7	17011.9	159.747	21.57	33.38	1.13429	531
450.000	6.93670	1.15590	.080600	5.2160	13020.2	17345.0	160.496	21.59	33.24	1.13669	535
470.000	6.64219	1.15578	.075932	5.4105	13490.7	18007.2	161.936	21.64	32.99	1.14049	542
500.000	6.24870	1.15485	.069920	5.7022	14191.7	18992.7	163.968	21.75	32.72	1.14419	553
550.000	5.69511	1.15191	.061874	6.1855	15354.3	20622.0	167.074	21.99	32.48	1.14664	571
600.000	5.23852	1.14796	.055578	6.6636	16517.0	22243.8	169.896	22.28	32.42	1.14617	588
650.000	4.85443	1.14349	.050506	7.1358	17685.6	23865.5	172.493	22.61	32.47	1.14402	604
700.000	4.52612	1.13883	.046323	7.6023	18863.8	25492.0	174.904	22.95	32.60	1.14085	620
750.000	4.24178	1.13416	.042809	8.0636	20053.8	27126.3	177.159	23.31	32.78	1.13723	636
800.000	3.99277	1.12959	.039811	8.5204	21256.7	28770.3	179.281	23.65	32.99	1.13337	651
850.000	3.77267	1.12517	.037221	8.9731	22473.2	30425.1	181.287	23.99	33.21	1.12943	665
900.000	3.57653	1.12094	.034958	9.4224	23703.2	32091.2	183.191	24.31	33.43	1.12551	680
950.000	3.40053	1.11690	.032963	9.8686	24946.4	33768.6	185.005	24.61	33.66	1.12168	694
1000.000	3.24161	1.11307	.031189	10.3122	26202.5	35457.1	186.737	24.90	33.88	1.11797	707

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
				35.000000 MPa							
75.675	31.19694	1.78307	2.426254	22.2832	125.8	1247.7	76.000	36.55	57.09	.00848	1114
80.000	30.72653	1.71249	2.267392	20.8689	355.0	1494.0	79.174	36.22	57.09	.01353	1083
90.000	29.64176	1.57792	1.946688	17.9650	879.9	2060.6	85.848	34.45	56.05	.03251	1021
100.000	28.55844	1.47400	1.677971	15.4883	1385.1	2610.6	91.632	31.32	53.61	.06333	972
110.000	27.47457	1.39286	1.449981	13.3710	1852.9	3126.8	96.561	26.98	49.90	.10619	939
120.000	26.38976	1.32928	1.255079	11.5682	2271.8	3598.1	100.678	21.88	45.34	.16020	925
130.000	25.30554	1.27960	1.087872	10.0459	2641.5	4024.6	104.068	19.65	43.57	.22513	891
140.000	24.22548	1.24117	.944383	8.7742	3123.6	4568.4	108.084	36.15	60.40	.29730	723
150.000	23.15500	1.21198	.821498	7.7245	3635.6	5147.2	112.079	31.52	55.97	.37191	699
160.000	22.10097	1.19042	.716617	6.8689	4110.6	5694.2	115.611	29.13	53.62	.44626	671
170.000	21.07105	1.17516	.627429	6.1801	4560.8	6221.9	118.809	27.60	51.99	.51852	644
180.000	20.07303	1.16506	.551814	5.6331	4991.3	6735.0	121.743	26.52	50.67	.58715	619
190.000	19.11416	1.15911	.487825	5.2057	5404.5	7235.6	124.449	25.71	49.48	.65130	598
200.000	18.20072	1.15641	.433701	4.8787	5801.7	7724.7	126.958	25.07	48.35	.71042	579
210.000	17.33758	1.15618	.387890	4.6356	6183.9	8202.6	129.290	24.55	47.23	.76420	564
220.000	16.52797	1.15768	.349050	4.4622	6551.7	8669.3	131.462	24.12	46.11	.81282	551
230.000	15.77329	1.16033	.316034	4.3461	6905.9	9124.9	133.487	23.76	45.00	.85644	542
240.000	15.07326	1.16363	.287873	4.2762	7247.4	9569.4	135.379	23.44	43.91	.89531	534
250.000	14.42611	1.16719	.263753	4.2431	7577.1	10003.3	137.151	23.17	42.87	.92991	529
260.000	13.82897	1.17076	.242992	4.2387	7896.0	10427.0	138.812	22.94	41.88	.96059	525
270.000	13.27831	1.17415	.225025	4.2562	8205.2	10841.0	140.375	22.73	40.95	.98773	523
280.000	12.77027	1.17726	.209386	4.2904	8505.5	11246.2	141.849	22.55	40.10	1.01172	521
290.000	12.30095	1.18004	.195692	4.3370	8797.9	11643.3	143.242	22.40	39.32	1.03289	521
300.000	11.86662	1.18245	.183630	4.3928	9083.4	12032.9	144.563	22.26	38.62	1.05157	521
310.000	11.46379	1.18452	.172942	4.4553	9362.7	12415.8	145.819	22.14	37.98	1.06804	522
320.000	11.08927	1.18626	.163418	4.5225	9636.5	12792.7	147.015	22.04	37.41	1.08256	523
330.000	10.74020	1.18770	.154885	4.5931	9905.4	13164.2	148.158	21.95	36.90	1.09534	524
340.000	10.41405	1.18887	.147201	4.6662	10169.9	13530.8	149.253	21.88	36.44	1.10659	526
350.000	10.10859	1.18980	.140248	4.7416	10430.7	13893.1	150.303	21.82	36.03	1.11649	528
360.000	9.82190	1.19051	.133930	4.8196	10688.0	14251.4	151.312	21.76	35.65	1.12525	530
370.000	9.55229	1.19103	.128166	4.8998	10942.2	14606.3	152.284	21.72	35.32	1.13288	533
380.000	9.29829	1.19137	.122888	4.9822	11193.7	14957.9	153.222	21.69	35.01	1.13956	535
390.000	9.05857	1.19154	.118040	5.0665	11442.8	15306.6	154.128	21.66	34.74	1.14541	538
400.000	8.83196	1.19156	.113570	5.1525	11689.8	15652.7	155.004	21.65	34.48	1.15051	541
410.000	8.61740	1.19144	.109439	5.2400	11934.8	15996.3	155.853	21.64	34.26	1.15494	544
420.000	8.41395	1.19119	.105609	5.3288	12178.1	16337.9	156.676	21.63	34.05	1.15879	547
430.000	8.22076	1.19084	.102049	5.4186	12419.9	16677.4	157.475	21.64	33.87	1.16203	550
440.000	8.03704	1.19037	.098732	5.5094	12660.4	17015.2	158.252	21.65	33.70	1.16488	553
450.000	7.86212	1.18982	.095634	5.6009	12899.7	17351.5	159.007	21.66	33.55	1.16731	556
470.000	7.53616	1.18846	.090014	5.7858	13375.5	18019.8	160.461	21.70	33.29	1.17108	562
500.000	7.09909	1.18593	.082778	6.0663	14083.8	19014.0	162.511	21.80	33.01	1.17458	572
550.000	6.48157	1.18083	.073107	6.5373	15256.7	20656.6	165.642	22.03	32.73	1.17637	588
600.000	5.97029	1.17513	.065558	7.0085	16427.8	22290.2	168.485	22.32	32.64	1.17503	604
650.000	5.53901	1.16919	.059491	7.4772	17603.6	23922.4	171.098	22.64	32.67	1.17189	620
700.000	5.16962	1.16325	.054500	7.9425	18787.8	25558.1	173.523	22.98	32.77	1.16769	635
750.000	4.84918	1.15745	.050316	8.4040	19982.9	27200.6	175.789	23.32	32.93	1.16306	650
800.000	4.56820	1.15185	.046754	8.8618	21190.2	28851.9	177.921	23.67	33.12	1.15820	665
850.000	4.31953	1.14651	.043681	9.3162	22410.5	30513.3	179.935	24.00	33.33	1.15331	679
900.000	4.09772	1.14142	.041001	9.7674	23643.9	32185.2	181.846	24.32	33.55	1.14849	693
950.000	3.89850	1.13661	.038641	10.2157	24890.1	33868.0	183.666	24.63	33.76	1.14380	707
1000.000	3.71846	1.13206	.036546	10.6615	26148.8	35561.3	185.403	24.91	33.97	1.13929	720

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					40.000000 MPa						
76.705	31.30613	2.00341	2.453601	23.2519	146.8	1424.5	76.221	36.60	56.86	.01073	1135
80.000	30.95897	1.94244	2.332176	22.1652	319.2	1611.2	78.612	36.33	56.81	.01510	1112
90.000	29.91075	1.78712	2.008057	19.2221	837.3	2174.6	85.249	34.59	55.69	.03560	1051
100.000	28.86900	1.66645	1.737659	16.7232	1334.9	2720.4	90.989	31.49	53.15	.06833	1003
110.000	27.83237	1.57138	1.509038	14.5912	1794.3	3231.4	95.869	27.17	49.33	.11323	972
120.000	26.80081	1.49587	1.314075	12.7747	2204.0	3696.5	99.932	22.08	44.66	.16924	960
130.000	25.77580	1.43572	1.147013	11.2357	2563.8	4115.7	103.263	19.86	42.78	.23610	929
140.000	24.76031	1.38784	1.003586	9.9422	3035.5	4651.0	107.216	36.37	59.50	.30999	762
150.000	23.75856	1.34993	.880470	8.8648	3536.7	5220.4	111.146	31.74	54.98	.38606	740
160.000	22.77566	1.32018	.774932	7.9755	4000.9	5757.2	114.612	29.35	52.57	.46166	714
170.000	21.81712	1.29711	.684615	7.2481	4440.7	6274.1	117.746	27.81	50.90	.53505	688
180.000	20.88831	1.27952	.607425	6.6585	4861.4	6776.4	120.617	26.73	49.59	.60475	664
190.000	19.99413	1.26639	.541488	6.1854	5265.8	7266.4	123.266	25.91	48.44	.66997	642
200.000	19.13867	1.25685	.485137	5.8104	5655.4	7745.4	125.723	25.27	47.39	.73019	623
210.000	18.32514	1.25014	.436913	5.5182	6031.4	8214.2	128.011	24.75	46.38	.78511	607
220.000	17.55568	1.24561	.395557	5.2956	6394.7	8673.1	130.146	24.31	45.40	.83489	594
230.000	16.83142	1.24273	.359996	5.1314	6745.8	9122.3	132.143	23.94	44.45	.87968	583
240.000	16.15243	1.24101	.329323	5.0159	7085.7	9562.1	134.015	23.62	43.51	.91971	574
250.000	15.51789	1.24008	.302769	4.9407	7415.1	9992.7	135.773	23.35	42.61	.95543	567
260.000	14.92617	1.23966	.279692	4.8984	7734.6	10414.5	137.427	23.11	41.75	.98717	562
270.000	14.37510	1.23951	.259550	4.8826	8045.2	10827.8	138.987	22.90	40.93	1.01529	558
280.000	13.86211	1.23947	.241889	4.8881	8347.6	11233.2	140.461	22.71	40.16	1.04017	555
290.000	13.38446	1.23944	.226329	4.9104	8642.5	11631.1	141.858	22.55	39.44	1.06214	553
300.000	12.93934	1.23934	.212555	4.9458	8930.8	12022.1	143.184	22.41	38.78	1.08152	552
310.000	12.52403	1.23913	.200301	4.9915	9212.9	12406.8	144.445	22.28	38.17	1.09860	552
320.000	12.13594	1.23880	.189348	5.0452	9489.7	12785.7	145.648	22.18	37.62	1.11364	552
330.000	11.77265	1.23833	.179512	5.1049	9761.6	13159.3	146.798	22.08	37.11	1.12687	553
340.000	11.43195	1.23773	.170638	5.1693	10029.1	13528.1	147.899	22.00	36.66	1.13849	554
350.000	11.11182	1.23700	.162599	5.2372	10292.8	13892.6	148.955	21.93	36.24	1.14869	555
360.000	10.81044	1.23617	.155285	5.3077	10553.0	14253.1	149.970	21.88	35.87	1.15770	557
370.000	10.52617	1.23524	.148605	5.3800	10810.1	14610.1	150.948	21.83	35.54	1.16553	559
380.000	10.25755	1.23423	.142482	5.4542	11064.4	14963.9	151.892	21.79	35.23	1.17236	561
390.000	10.00329	1.23315	.136850	5.5302	11316.2	15314.8	152.803	21.76	34.96	1.17830	563
400.000	9.76227	1.23201	.131654	5.6081	11565.8	15663.2	153.685	21.74	34.71	1.18346	565
410.000	9.53346	1.23081	.126847	5.6877	11813.4	16009.1	154.540	21.72	34.49	1.18792	567
420.000	9.31594	1.22955	.122386	5.7689	12059.2	16352.9	155.368	21.72	34.28	1.19176	570
430.000	9.10890	1.22826	.118237	5.8517	12303.5	16694.8	156.173	21.72	34.10	1.19497	572
440.000	8.91159	1.22692	.114369	5.9357	12546.4	17034.9	156.955	21.72	33.93	1.19776	575
450.000	8.72333	1.22554	.110754	6.0210	12788.1	17373.5	157.716	21.73	33.78	1.20010	578
470.000	8.37154	1.22270	.104193	6.1945	13268.3	18046.4	159.179	21.77	33.52	1.20365	583
500.000	7.89793	1.21826	.095741	6.4607	13982.7	19047.4	161.243	21.86	33.23	1.20670	592
550.000	7.22539	1.21060	.084444	6.9144	15164.6	20700.6	164.395	22.07	32.94	1.20753	606
600.000	6.66589	1.20286	.075631	7.3741	16343.4	22344.1	167.255	22.35	32.83	1.20507	621
650.000	6.19230	1.19525	.068558	7.8356	17525.6	23985.3	169.882	22.67	32.84	1.20078	636
700.000	5.78561	1.18789	.062747	8.2965	18715.4	25629.1	172.319	23.00	32.93	1.19542	651
750.000	5.43209	1.18085	.057884	8.7556	19915.2	27278.9	174.595	23.35	33.07	1.18966	665
800.000	5.12159	1.17417	.053749	9.2123	21126.7	28936.8	176.735	23.69	33.25	1.18372	679
850.000	4.84642	1.16784	.050187	9.6666	22350.7	30604.2	178.757	24.02	33.45	1.17781	693
900.000	4.60068	1.16188	.047084	10.1183	23587.2	32281.6	180.674	24.33	33.65	1.17202	706
950.000	4.37972	1.15626	.044354	10.5676	24836.3	33969.3	182.499	24.64	33.86	1.16643	720
1000.000	4.17986	1.15097	.041933	11.0145	26097.5	35667.2	184.241	24.92	34.06	1.16106	733

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
45.000000 MPa											
77.725	31.41086	2.21685	2.479001	24.2114	168.2	1600.8	76.442	36.64	56.63	.01362	1155
80.000	31.17823	2.16988	2.394882	23.4537	285.9	1729.2	78.075	36.44	56.57	.01710	1140
90.000	30.16279	1.99371	2.067126	20.4651	797.9	2289.8	84.679	34.72	55.38	.03953	1079
100.000	29.15760	1.85620	1.794707	17.9385	1288.9	2832.2	90.383	31.65	52.77	.07472	1033
110.000	28.16168	1.74713	1.565045	15.7870	1741.1	3339.0	95.223	27.35	48.87	.12235	1003
120.000	27.17513	1.65968	1.369581	13.9534	2143.1	3799.0	99.242	22.27	44.12	.18113	993
130.000	26.19922	1.58908	1.202238	12.3958	2494.7	4212.3	102.527	20.07	42.15	.25075	964
140.000	25.23635	1.53187	1.058508	11.0802	2957.9	4741.0	106.431	36.58	58.80	.32720	797
150.000	24.28981	1.48546	.934899	9.9763	3450.5	5303.2	110.311	31.95	54.23	.40547	777
160.000	23.36345	1.44784	.828577	9.0564	3906.2	5832.2	113.727	29.56	51.78	.48296	752
170.000	22.46133	1.41740	.737147	8.2949	4337.7	6341.2	116.812	28.02	50.09	.55798	727
180.000	21.58733	1.39285	.658532	7.6685	4750.7	6835.3	119.637	26.93	48.77	.62910	704
190.000	20.74488	1.37313	.590906	7.1566	5148.1	7317.3	122.242	26.11	47.65	.69561	682
200.000	19.93679	1.35735	.532669	6.7415	5531.5	7788.6	124.660	25.46	46.64	.75701	663
210.000	19.16520	1.34476	.482426	6.4084	5902.3	8250.3	126.913	24.94	45.70	.81302	647
220.000	18.43153	1.33473	.438978	6.1446	6261.3	8702.8	129.018	24.50	44.81	.86384	633
230.000	17.73651	1.32672	.401301	5.9397	6609.4	9146.5	130.991	24.12	43.95	.90960	621
240.000	17.08020	1.32030	.368526	5.7846	6947.2	9581.8	132.844	23.80	43.12	.95054	611
250.000	16.46208	1.31508	.339920	5.6716	7275.4	10009.0	134.588	23.52	42.32	.98710	603
260.000	15.88111	1.31076	.314865	5.5940	7594.7	10428.2	136.232	23.28	41.55	1.01961	597
270.000	15.33580	1.30709	.292837	5.5458	7905.7	10840.0	137.786	23.06	40.81	1.04842	591
280.000	14.82440	1.30389	.273396	5.5221	8209.1	11244.6	139.258	22.87	40.12	1.07391	588
290.000	14.34493	1.30101	.256169	5.5184	8505.4	11642.4	140.654	22.70	39.46	1.09641	585
300.000	13.89528	1.29834	.240841	5.5311	8795.4	12033.9	141.981	22.55	38.85	1.11624	583
310.000	13.47336	1.29580	.227147	5.5571	9079.6	12419.5	143.245	22.42	38.28	1.13369	581
320.000	13.07710	1.29335	.214863	5.5938	9358.5	12799.7	144.452	22.31	37.75	1.14902	581
330.000	12.70450	1.29094	.203799	5.6392	9632.7	13174.7	145.606	22.21	37.27	1.16248	581
340.000	12.35370	1.28855	.193793	5.6914	9902.5	13545.1	146.712	22.12	36.82	1.17427	581
350.000	12.02295	1.28617	.184711	5.7492	10168.5	13911.3	147.774	22.05	36.42	1.18458	582
360.000	11.71062	1.28379	.176436	5.8113	10431.0	14273.6	148.794	21.99	36.05	1.19365	583
370.000	11.41526	1.28141	.168870	5.8768	10690.3	14632.4	149.777	21.93	35.71	1.20148	584
380.000	11.13549	1.27904	.161928	5.9450	10946.8	14987.9	150.725	21.89	35.41	1.20828	585
390.000	10.87011	1.27667	.155539	6.0153	11200.8	15340.6	151.641	21.85	35.13	1.21417	587
400.000	10.61800	1.27431	.149640	6.0872	11452.5	15690.6	152.527	21.83	34.88	1.21924	589
410.000	10.37814	1.27196	.144178	6.1605	11702.2	16038.3	153.385	21.81	34.66	1.22358	591
420.000	10.14964	1.26963	.139106	6.2353	11950.1	16383.8	154.218	21.80	34.45	1.22728	593
430.000	9.93169	1.26732	.134386	6.3115	12196.4	16727.4	155.027	21.79	34.27	1.23032	595
440.000	9.72357	1.26502	.129982	6.3892	12441.3	17069.2	155.813	21.80	34.10	1.23293	597
450.000	9.52461	1.26275	.125864	6.4683	12684.8	17409.4	156.577	21.80	33.95	1.23508	599
470.000	9.15182	1.25826	.118383	6.6302	13168.8	18085.8	158.048	21.83	33.69	1.23821	604
500.000	8.64792	1.25168	.108736	6.8811	13888.4	19092.0	160.123	21.91	33.40	1.24054	611
550.000	7.92856	1.24114	.095831	7.3144	15078.1	20753.8	163.291	22.12	33.10	1.24007	625
600.000	7.32695	1.23112	.085760	7.7594	16263.7	22405.4	166.165	22.39	32.98	1.23627	638
650.000	6.81572	1.22166	.077679	8.2106	17451.7	24054.1	168.805	22.70	32.98	1.23063	652
700.000	6.37538	1.21275	.071045	8.6643	18646.5	25704.9	171.252	23.03	33.06	1.22397	666
750.000	5.99170	1.20438	.065497	9.1187	19850.7	27361.1	173.537	23.37	33.20	1.21697	680
800.000	5.65405	1.19654	.060784	9.5724	21066.1	29025.0	175.685	23.70	33.36	1.20987	693
850.000	5.35435	1.18919	.056728	10.0248	22293.4	30697.8	177.713	24.03	33.55	1.20286	706
900.000	5.08633	1.18230	.053198	10.4756	23532.9	32380.2	179.636	24.35	33.75	1.19605	719
950.000	4.84506	1.17585	.050095	10.9247	24784.7	34072.5	181.466	24.65	33.95	1.18949	732
1000.000	4.62661	1.16981	.047345	11.3719	26048.3	35774.6	183.212	24.93	34.14	1.18323	745

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
50.000000 MPa											
78.734	31.51159	2.42383	2.502577	25.1619	190.0	1776.7	76.661	36.67	56.41	.01733	1175
80.000	31.38579	2.39503	2.455630	24.7359	254.8	1847.9	77.561	36.56	56.35	.01957	1166
90.000	30.40003	2.19795	2.124095	21.6963	761.4	2406.1	84.137	34.86	55.12	.04436	1106
100.000	29.42739	2.04354	1.849418	19.1372	1246.5	2945.6	89.810	31.81	52.45	.08258	1061
110.000	28.46713	1.92043	1.618421	16.9626	1692.5	3448.9	94.617	27.52	48.48	.13356	1032
120.000	27.51936	1.82102	1.422144	15.1090	2087.8	3904.7	98.600	22.46	43.67	.19580	1024
130.000	26.58511	1.74001	1.254221	13.5312	2432.6	4313.3	101.846	20.27	41.65	.26890	996
140.000	25.66629	1.67357	1.109939	12.1930	2888.7	4836.8	105.712	36.78	58.25	.34861	830
150.000	24.76543	1.61881	.985664	11.0636	3374.2	5393.1	109.552	32.16	53.64	.42972	811
160.000	23.88549	1.57355	.878477	10.1152	3822.8	5916.2	112.929	29.76	51.16	.50961	787
170.000	23.02950	1.53603	.785951	9.3227	4247.7	6418.8	115.976	28.22	49.46	.58667	763
180.000	22.20030	1.50488	.706015	8.6635	4654.4	6906.6	118.764	27.13	48.14	.65951	740
190.000	21.40037	1.47897	.636880	8.1175	5046.0	7382.4	121.337	26.31	47.04	.72749	719
200.000	20.63171	1.45737	.576988	7.6675	5424.3	7847.8	123.723	25.66	46.06	.79014	701
210.000	19.89575	1.43931	.524995	7.2991	5790.7	8303.8	125.949	25.13	45.16	.84724	684
220.000	19.19341	1.42416	.479745	7.0000	6146.1	8751.1	128.030	24.68	44.32	.89900	669
230.000	18.52511	1.41138	.440248	6.7600	6491.2	9190.2	129.982	24.30	43.52	.94559	657
240.000	17.89082	1.40053	.405667	6.5705	6826.9	9621.6	131.818	23.98	42.76	.98726	646
250.000	17.29008	1.39122	.375292	6.4241	7153.6	10045.5	133.549	23.69	42.03	1.02445	637
260.000	16.72211	1.38315	.348520	6.3145	7472.1	10462.2	135.183	23.44	41.33	1.05750	630
270.000	16.18580	1.37606	.324843	6.2362	7782.9	10872.1	136.730	23.22	40.66	1.08677	624
280.000	15.67984	1.36973	.303830	6.1845	8086.6	11275.4	138.197	23.02	40.02	1.11264	619
290.000	15.20273	1.36400	.285115	6.1551	8383.7	11672.6	139.591	22.85	39.42	1.13544	615
300.000	14.75287	1.35874	.268386	6.1446	8674.8	12064.0	140.918	22.70	38.85	1.15549	612
310.000	14.32860	1.35384	.253379	6.1497	8960.3	12449.8	142.183	22.56	38.32	1.17310	610
320.000	13.92828	1.34923	.239868	6.1679	9240.7	12830.5	143.392	22.44	37.83	1.18853	609
330.000	13.55028	1.34484	.227661	6.1969	9516.5	13206.4	144.548	22.33	37.37	1.20202	608
340.000	13.19302	1.34064	.216593	6.2348	9788.1	13577.9	145.657	22.24	36.94	1.21379	608
350.000	12.85501	1.33657	.206523	6.2801	10055.8	13945.4	146.722	22.16	36.55	1.22403	608
360.000	12.53486	1.33264	.197331	6.3315	10320.1	14309.0	147.746	22.09	36.19	1.23300	608
370.000	12.23126	1.32880	.188913	6.3877	10581.3	14669.2	148.733	22.04	35.85	1.24069	609
380.000	11.94299	1.32507	.181181	6.4481	10839.6	15026.2	149.685	21.99	35.55	1.24731	610
390.000	11.66893	1.32141	.174056	6.5117	11095.4	15380.3	150.605	21.95	35.28	1.25299	611
400.000	11.40806	1.31784	.167473	6.5779	11348.9	15731.8	151.495	21.92	35.02	1.25783	612
410.000	11.15943	1.31434	.161374	6.6464	11600.3	16080.8	152.357	21.90	34.80	1.26192	614
420.000	10.92219	1.31092	.155708	6.7166	11849.9	16427.8	153.193	21.88	34.59	1.26536	615
430.000	10.69553	1.30756	.150432	6.7881	12097.9	16772.7	154.005	21.87	34.40	1.26812	617
440.000	10.47873	1.30429	.145507	6.8608	12344.3	17115.9	154.794	21.87	34.24	1.27044	619
450.000	10.27115	1.30108	.140900	6.9347	12589.5	17457.5	155.562	21.88	34.09	1.27229	621
470.000	9.88129	1.29486	.132524	7.0862	13076.5	18136.6	157.038	21.90	33.83	1.27479	625
500.000	9.35236	1.28600	.121712	7.3221	13800.6	19146.8	159.122	21.97	33.54	1.27616	631
550.000	8.59338	1.27235	.107226	7.7340	14996.9	20815.4	162.302	22.17	33.24	1.27406	643
600.000	7.95526	1.25988	.095912	8.1625	16188.4	22473.6	165.188	22.43	33.11	1.26865	655
650.000	7.41074	1.24841	.086829	8.6011	17381.6	24128.6	167.837	22.73	33.10	1.26148	668
700.000	6.94019	1.23784	.079373	9.0456	18581.0	25785.4	170.293	23.06	33.18	1.25337	681
750.000	6.52911	1.22806	.073140	9.4932	19789.3	27447.3	172.586	23.39	33.30	1.24501	694
800.000	6.16659	1.21899	.067848	9.9421	21008.2	29116.4	174.741	23.72	33.46	1.23665	707
850.000	5.84424	1.21056	.063295	10.3912	22238.6	30794.1	176.775	24.05	33.64	1.22847	720
900.000	5.55554	1.20272	.059335	10.8398	23481.0	32481.0	178.703	24.36	33.83	1.22057	733
950.000	5.29533	1.19541	.055857	11.2875	24735.2	34177.5	180.538	24.66	34.03	1.21300	745
1000.000	5.05945	1.18859	.052776	11.7339	26001.1	35883.6	182.288	24.94	34.22	1.20580	758

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
60.000000 MPa											
80.722	31.70251	2.81987	2.544720	27.0372	234.7	2127.3	77.094	36.73	55.97	.02799	1212
90.000	30.83681	2.60018	2.232359	24.1308	695.6	2641.4	83.123	35.15	54.69	.05719	1157
100.000	29.92007	2.41186	1.952727	21.4948	1170.9	3176.2	88.747	32.12	51.94	.10320	1113
110.000	29.01980	2.26062	1.718491	19.2640	1606.4	3674.0	93.501	27.87	47.89	.16281	1087
120.000	28.13603	2.13733	1.519975	17.3639	1991.0	4123.5	97.429	22.83	42.99	.23389	1080
130.000	27.26936	2.03562	1.350318	15.7418	2324.7	4524.9	100.618	20.65	40.89	.31593	1055
140.000	26.42089	1.95092	1.204460	14.3577	2769.5	5040.5	104.425	37.17	57.43	.40400	889
150.000	25.59212	1.87983	1.078533	13.1791	3244.0	5588.4	108.207	32.56	52.77	.49233	873
160.000	24.78475	1.81975	.969482	12.1780	3681.8	6102.6	111.527	30.16	50.26	.57830	851
170.000	24.00049	1.76867	.874817	11.3297	4096.3	6596.3	114.519	28.62	48.55	.66041	828
180.000	23.24095	1.72500	.792466	10.6125	4493.3	7075.0	117.256	27.52	47.24	.73739	806
190.000	22.50743	1.68747	.720673	10.0074	4876.0	7541.8	119.780	26.69	46.15	.80872	786
200.000	21.80094	1.65505	.657940	9.4978	5246.3	7998.5	122.122	26.03	45.21	.87406	767
210.000	21.12214	1.62689	.602985	9.0698	5605.7	8446.3	124.307	25.49	44.36	.93331	750
220.000	20.47134	1.60231	.554710	8.7115	5955.0	8885.9	126.352	25.04	43.58	.98676	735
230.000	19.84859	1.58073	.512176	8.4130	6295.2	9318.1	128.273	24.65	42.85	1.03467	722
240.000	19.25364	1.56168	.474585	8.1659	6626.8	9743.1	130.083	24.31	42.17	1.07733	711
250.000	18.68604	1.54475	.441258	7.9632	6950.6	10161.6	131.791	24.02	41.52	1.11526	701
260.000	18.14516	1.52961	.411615	7.7991	7267.1	10573.7	133.408	23.76	40.91	1.14882	692
270.000	17.63021	1.51598	.385166	7.6683	7576.7	10979.9	134.941	23.53	40.33	1.17841	685
280.000	17.14028	1.50362	.361492	7.5666	7879.9	11380.4	136.397	23.32	39.78	1.20442	678
290.000	16.67437	1.49234	.340236	7.4900	8177.2	11775.6	137.784	23.14	39.26	1.22722	673
300.000	16.23140	1.48196	.321091	7.4352	8469.1	12165.6	139.106	22.97	38.76	1.24713	669
310.000	15.81029	1.47236	.303796	7.3993	8755.9	12550.9	140.369	22.82	38.29	1.26448	665
320.000	15.40988	1.46341	.288125	7.3798	9038.0	12931.6	141.578	22.69	37.85	1.27955	662
330.000	15.02906	1.45502	.273882	7.3743	9315.8	13308.0	142.736	22.58	37.44	1.29258	660
340.000	14.66671	1.44712	.260902	7.3809	9589.6	13680.5	143.848	22.48	37.05	1.30381	659
350.000	14.32174	1.43963	.249037	7.3979	9859.7	14049.2	144.917	22.39	36.69	1.31345	657
360.000	13.99311	1.43251	.238163	7.4238	10126.6	14414.4	145.945	22.31	36.36	1.32175	657
370.000	13.67980	1.42572	.228169	7.4574	10390.4	14776.4	146.937	22.24	36.05	1.32872	656
380.000	13.38087	1.41921	.218960	7.4974	10651.4	15135.4	147.894	22.19	35.76	1.33458	656
390.000	13.09542	1.41296	.210452	7.5431	10909.9	15491.6	148.820	22.14	35.49	1.33946	657
400.000	12.82260	1.40695	.202574	7.5935	11166.1	15845.3	149.715	22.10	35.25	1.34347	657
410.000	12.56161	1.40115	.195260	7.6479	11420.2	16196.6	150.582	22.07	35.02	1.34672	658
420.000	12.31173	1.39555	.188456	7.7058	11672.4	16545.8	151.424	22.05	34.82	1.34928	659
430.000	12.07227	1.39014	.182110	7.7666	11923.0	16893.0	152.241	22.03	34.63	1.35116	660
440.000	11.84257	1.38489	.176181	7.8299	12172.0	17238.5	153.036	22.02	34.46	1.35259	661
450.000	11.62205	1.37981	.170630	7.8954	12419.7	17582.3	153.809	22.02	34.31	1.35345	662
470.000	11.20639	1.37010	.160526	8.0314	12911.6	18265.7	155.295	22.03	34.04	1.35416	665
500.000	10.63921	1.35655	.147462	8.2446	13642.6	19282.1	157.391	22.09	33.74	1.35287	670
550.000	9.81829	1.33634	.129918	8.6180	14849.6	20960.7	160.591	22.26	33.44	1.34651	679
600.000	9.12130	1.31858	.116179	9.0121	16050.8	22628.8	163.494	22.51	33.31	1.33714	690
650.000	8.52167	1.30280	.105131	9.4225	17252.7	24293.5	166.159	22.80	33.30	1.32631	700
700.000	8.00001	1.28863	.096054	9.8444	18459.8	25959.8	168.629	23.11	33.36	1.31483	712
750.000	7.54175	1.27580	.088462	10.2744	19675.0	27630.8	170.934	23.44	33.48	1.30339	723
800.000	7.13576	1.26411	.082017	10.7096	20900.2	29308.5	173.100	23.77	33.63	1.29221	735
850.000	6.77338	1.25340	.076473	11.1483	22136.2	30994.4	175.144	24.09	33.80	1.28143	747
900.000	6.44777	1.24355	.071653	11.5890	23383.6	32689.2	177.081	24.39	33.99	1.27115	759
950.000	6.15346	1.23445	.067422	12.0308	24642.4	34393.0	178.923	24.69	34.17	1.26139	770
1000.000	5.88603	1.22601	.063677	12.4731	25912.4	36106.1	180.681	24.97	34.35	1.25216	782

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	$\partial P/\partial T$ MPa/K	$\partial P/\partial \rho$ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					70.000000 MPa						
82.672	31.88143	3.19421	2.580872	28.8794	280.6	2476.2	77.517	36.76	55.52	.04484	1247
90.000	31.23181	2.99518	2.333833	26.5367	638.0	2879.3	82.186	35.44	54.37	.07540	1205
100.000	30.36184	2.77290	2.048978	23.8108	1105.2	3410.7	87.774	32.44	51.56	.13183	1162
110.000	29.51067	2.59352	1.811079	21.5136	1532.4	3904.4	92.490	28.20	47.46	.20276	1136
120.000	28.67821	2.44641	1.609850	19.5594	1908.5	4349.3	96.378	23.18	42.51	.28528	1131
130.000	27.86470	2.32415	1.438011	17.8888	2233.6	4745.7	99.526	21.01	40.36	.37877	1107
140.000	27.07072	2.22144	1.290218	16.4577	2669.9	5255.7	103.292	37.54	56.86	.47742	943
150.000	26.29708	2.13434	1.162412	15.2314	3135.9	5797.8	107.034	32.93	52.17	.57477	928
160.000	25.54470	2.05988	1.051420	14.1812	3565.7	6306.0	110.315	30.54	49.65	.66819	907
170.000	24.81454	1.99575	.954695	13.2825	3972.6	6793.5	113.270	28.99	47.94	.75634	885
180.000	24.10744	1.94016	.870145	12.5141	4362.4	7266.1	115.972	27.89	46.63	.83807	864
190.000	23.42407	1.89167	.796028	11.8575	4738.5	7726.9	118.463	27.05	45.56	.91308	844
200.000	22.76490	1.84912	.730875	11.2968	5102.8	8177.7	120.775	26.39	44.64	.98119	825
210.000	22.13016	1.81158	.673437	10.8183	5456.8	8619.9	122.933	25.84	43.82	1.04242	809
220.000	21.51988	1.77828	.622653	10.4104	5801.5	9054.3	124.954	25.38	43.07	1.09723	794
230.000	20.93386	1.74858	.577615	10.0633	6137.7	9481.5	126.853	24.98	42.38	1.14597	780
240.000	20.37177	1.72196	.537550	9.7687	6466.0	9902.1	128.643	24.64	41.74	1.18904	768
250.000	19.83312	1.69797	.501799	9.5197	6787.0	10316.5	130.335	24.33	41.14	1.22704	758
260.000	19.31732	1.67626	.469799	9.3104	7101.4	10725.1	131.937	24.06	40.58	1.26039	748
270.000	18.82369	1.65651	.441068	9.1358	7409.5	11128.2	133.459	23.82	40.05	1.28955	740
280.000	18.35148	1.63845	.415196	8.9916	7711.7	11526.1	134.906	23.60	39.54	1.31493	733
290.000	17.89990	1.62186	.391829	8.8742	8008.5	11919.1	136.285	23.41	39.07	1.33695	727
300.000	17.46813	1.60655	.370664	8.7804	8300.3	12307.6	137.602	23.24	38.62	1.35597	721
310.000	17.05532	1.59236	.351441	8.7073	8587.3	12691.6	138.861	23.08	38.20	1.37233	717
320.000	16.66061	1.57914	.333933	8.6525	8870.1	13071.6	140.067	22.94	37.80	1.38632	713
330.000	16.28316	1.56678	.317946	8.6139	9148.8	13447.7	141.225	22.82	37.42	1.39822	710
340.000	15.92211	1.55519	.303310	8.5894	9423.7	13820.1	142.336	22.71	37.07	1.40826	707
350.000	15.57664	1.54426	.289877	8.5774	9695.2	14189.1	143.406	22.61	36.74	1.41667	705
360.000	15.24594	1.53393	.277517	8.5764	9963.6	14555.0	144.436	22.52	36.43	1.42372	703
370.000	14.92923	1.52413	.266119	8.5851	10229.0	14917.8	145.430	22.45	36.14	1.42940	702
380.000	14.62574	1.51482	.255583	8.6023	10491.7	15277.8	146.390	22.38	35.87	1.43397	701
390.000	14.33477	1.50594	.245823	8.6269	10752.0	15635.3	147.319	22.33	35.62	1.43754	700
400.000	14.05562	1.49745	.236760	8.6580	11010.1	15990.3	148.217	22.28	35.39	1.44025	700
410.000	13.78764	1.48932	.228328	8.6949	11266.1	16343.1	149.089	22.24	35.17	1.44218	700
420.000	13.53021	1.48152	.220468	8.7368	11520.2	16693.8	149.934	22.21	34.98	1.44345	700
430.000	13.28276	1.47403	.213125	8.7830	11772.6	17042.6	150.755	22.19	34.79	1.44402	701
440.000	13.04473	1.46681	.206252	8.8332	12023.6	17389.7	151.553	22.18	34.63	1.44417	701
450.000	12.81560	1.45986	.199808	8.8867	12273.1	17735.2	152.330	22.17	34.48	1.44376	702
470.000	12.38215	1.44667	.188061	9.0022	12768.7	18422.0	153.823	22.17	34.21	1.44199	704
500.000	11.78757	1.42846	.172839	9.1919	13505.1	19443.5	155.930	22.21	33.90	1.43710	707
550.000	10.92108	1.40163	.152357	9.5366	14720.3	21129.9	159.145	22.36	33.59	1.42520	715
600.000	10.17976	1.37839	.136285	9.9023	15928.9	22805.2	162.060	22.59	33.45	1.41084	723
650.000	9.53745	1.35805	.123337	10.2851	17137.5	24477.0	164.736	22.87	33.44	1.39553	732
700.000	8.97513	1.34006	.112683	10.6828	18350.9	26150.2	167.216	23.17	33.50	1.38005	742
750.000	8.47848	1.32398	.103762	11.0922	19571.8	27828.0	169.531	23.49	33.62	1.36502	752
800.000	8.03644	1.30951	.096181	11.5104	20802.1	29512.4	171.705	23.81	33.76	1.35059	763
850.000	7.64031	1.29638	.089660	11.9352	22042.8	31204.8	173.757	24.12	33.93	1.33688	774
900.000	7.28315	1.28440	.083988	12.3646	23294.5	32905.7	175.702	24.43	34.11	1.32393	785
950.000	6.95937	1.27341	.079008	12.7974	24557.2	34615.6	177.550	24.72	34.29	1.31175	796
1000.000	6.66440	1.26328	.074601	13.2325	25830.8	36334.4	179.314	24.99	34.46	1.30030	807

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa-L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_v J mol^{-1}K^{-1}	C_p J mol^{-1}K^{-1}	f/P	W m/s
					80.000000 MPa						
84.587	32.05029	3.54910	2.611766	30.6901	327.4	2823.5	77.929	36.77	55.07	.07096	1281
90.000	31.59265	3.38396	2.429212	28.9216	587.0	3119.3	81.316	35.73	54.13	.10095	1250
100.000	30.76284	3.12772	2.139114	26.0952	1047.4	3648.0	86.875	32.75	51.28	.17097	1207
110.000	29.95309	2.92025	1.897389	23.7231	1467.8	4138.7	91.562	28.53	47.14	.25626	1182
120.000	29.16320	2.74940	1.693226	21.7090	1837.0	4580.2	95.420	23.52	42.15	.35300	1178
130.000	28.39319	2.60673	1.518989	19.9863	2155.2	4972.8	98.539	21.36	39.98	.46048	1155
140.000	27.64326	2.48620	1.369090	18.5068	2584.8	5478.8	102.275	37.90	56.45	.57183	992
150.000	26.91377	2.38335	1.239309	17.2334	3044.3	6016.8	105.988	33.29	51.75	.67977	977
160.000	26.20515	2.29481	1.126370	16.1363	3467.8	6520.6	109.241	30.90	49.22	.78172	957
170.000	25.51784	2.21800	1.027667	15.1907	3868.7	7003.7	112.170	29.35	47.50	.87658	936
180.000	24.85224	2.15088	.941086	14.3754	4253.0	7472.0	114.847	28.25	46.20	.96339	916
190.000	24.20862	2.09185	.864881	13.6724	4623.9	7928.5	117.315	27.40	45.14	1.04212	896
200.000	23.58711	2.03962	.797595	13.0659	4983.6	8375.3	119.606	26.73	44.23	1.11280	878
210.000	22.98771	1.99315	.737999	12.5425	5333.4	8813.5	121.745	26.18	43.43	1.17564	861
220.000	22.41024	1.95157	.685052	12.0909	5674.4	9244.2	123.748	25.71	42.71	1.23129	846
230.000	21.85442	1.91420	.637867	11.7013	6007.3	9667.9	125.631	25.30	42.05	1.28026	833
240.000	21.31984	1.88044	.595688	11.3655	6332.9	10085.2	127.408	24.95	41.43	1.32304	820
250.000	20.80600	1.84980	.557869	11.0764	6651.6	10496.6	129.088	24.63	40.86	1.36037	809
260.000	20.31233	1.82188	.523858	10.8282	6964.0	10902.5	130.679	24.35	40.32	1.39273	800
270.000	19.83821	1.79634	.493180	10.6159	7270.6	11303.2	132.192	24.10	39.82	1.42065	791
280.000	19.38298	1.77286	.465429	10.4353	7571.7	11699.1	133.631	23.88	39.35	1.44461	783
290.000	18.94595	1.75122	.440254	10.2825	7867.8	12090.3	135.004	23.68	38.91	1.46506	776
300.000	18.52642	1.73118	.417356	10.1545	8159.1	12477.2	136.316	23.49	38.49	1.48241	770
310.000	18.12370	1.71256	.396471	10.0485	8446.0	12860.1	137.571	23.33	38.09	1.49702	765
320.000	17.73708	1.69520	.377375	9.9621	8728.8	13239.1	138.775	23.18	37.72	1.50920	760
330.000	17.36585	1.67897	.359871	9.8932	9007.8	13614.6	139.930	23.05	37.37	1.51926	756
340.000	17.00934	1.66375	.343788	9.8399	9283.3	13986.6	141.040	22.93	37.04	1.52744	753
350.000	16.66687	1.64942	.328976	9.8005	9555.6	14355.5	142.110	22.82	36.74	1.53398	750
360.000	16.33778	1.63591	.315304	9.7735	9824.8	14721.4	143.140	22.73	36.45	1.53917	748
370.000	16.02144	1.62312	.302657	9.7577	10091.2	15084.5	144.135	22.64	36.18	1.54300	746
380.000	15.71723	1.61100	.290933	9.7517	10355.0	15444.9	145.096	22.57	35.92	1.54572	744
390.000	15.42456	1.59947	.280043	9.7547	10616.5	15803.0	146.026	22.51	35.69	1.54747	743
400.000	15.14287	1.58849	.269908	9.7656	10875.7	16158.8	146.927	22.46	35.47	1.54837	742
410.000	14.87161	1.57802	.260457	9.7835	11133.0	16512.4	147.800	22.41	35.27	1.54853	741
420.000	14.61026	1.56800	.251628	9.8078	11388.5	16864.1	148.647	22.38	35.08	1.54805	740
430.000	14.35833	1.55841	.243365	9.8377	11642.3	17214.0	149.471	22.35	34.90	1.54691	740
440.000	14.11535	1.54921	.235618	9.8726	11894.7	17562.3	150.272	22.33	34.74	1.54538	740
450.000	13.88087	1.54037	.228343	9.9121	12145.6	17908.9	151.051	22.31	34.60	1.54332	740
470.000	13.43576	1.52368	.215053	10.0026	12644.0	18598.3	152.550	22.30	34.34	1.53836	741
500.000	12.82206	1.50081	.197786	10.1617	13384.5	19623.7	154.665	22.33	34.04	1.52897	743
550.000	11.92161	1.46743	.174482	10.4700	14606.2	21316.7	157.892	22.46	33.72	1.51024	749
600.000	11.14598	1.43875	.156155	10.8119	15820.7	22998.2	160.818	22.68	33.57	1.48986	755
650.000	10.47015	1.41380	.141370	11.1733	17034.8	24675.6	163.503	22.94	33.55	1.46926	763
700.000	9.87535	1.39188	.129188	11.5490	18253.1	26354.1	165.991	23.23	33.61	1.44911	772
750.000	9.34745	1.37246	.118974	11.9379	19478.6	28037.1	168.314	23.54	33.72	1.42994	781
800.000	8.87554	1.35509	.110287	12.3381	20713.1	29726.6	170.494	23.86	33.87	1.41183	790
850.000	8.45102	1.33945	.102807	12.7472	21957.8	31424.1	172.552	24.16	34.03	1.39483	800
900.000	8.06697	1.32526	.096297	13.1634	23213.0	33130.0	174.502	24.46	34.21	1.37891	810
950.000	7.71777	1.31232	.090580	13.5850	24479.1	34844.7	176.356	24.75	34.38	1.36405	820
1000.000	7.39880	1.30045	.085518	14.0107	25755.7	36568.3	178.124	25.02	34.56	1.35017	831

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol^{-1}K^{-1}	C_V J mol^{-1}K^{-1}	C_P J mol^{-1}K^{-1}	f/P	W m/s
					90.000000 MPa						
86.468	32.21061	3.88644	2.638038	32.4709	374.8	3168.9	78.329	36.74	54.60	.11072	1312
90.000	31.92496	3.76733	2.519012	31.2908	541.7	3360.8	80.501	36.02	53.93	.13668	1293
100.000	31.13033	3.47714	2.223809	28.3552	996.3	3887.4	86.038	33.06	51.06	.22415	1250
110.000	30.35634	3.24164	1.978258	25.9012	1411.0	4375.8	90.703	28.85	46.89	.32733	1225
120.000	29.60273	3.04715	1.771096	23.8219	1774.4	4814.7	94.538	23.85	41.88	.44132	1222
130.000	28.86935	2.88420	1.594381	22.0438	2087.0	5204.5	97.635	21.70	39.69	.56542	1199
140.000	28.15617	2.74603	1.442315	20.5145	2511.1	5707.6	101.349	38.24	56.15	.69156	1036
150.000	27.46324	2.62762	1.310539	19.1942	2965.3	6242.4	105.041	33.64	51.43	.81147	1023
160.000	26.79066	2.52524	1.195685	18.0517	3383.7	6743.1	108.273	31.24	48.90	.92275	1004
170.000	26.13854	2.43599	1.095093	17.0615	3779.8	7223.0	111.182	29.69	47.18	1.02466	983
180.000	25.50698	2.35763	1.006619	16.2023	4159.7	7688.1	113.841	28.59	45.89	1.11655	963
190.000	24.89597	2.28836	.928508	15.4562	4526.5	8141.6	116.293	27.74	44.84	1.19871	944
200.000	24.30546	2.22676	.859304	14.8076	4882.5	8585.3	118.568	27.06	43.94	1.27147	926
210.000	23.73527	2.17167	.797789	14.2432	5228.9	9020.7	120.693	26.50	43.15	1.33527	910
220.000	23.18512	2.12214	.742933	13.7519	5566.9	9448.7	122.684	26.02	42.45	1.39101	894
230.000	22.65465	2.07740	.693861	13.3238	5897.1	9869.8	124.556	25.61	41.80	1.43936	881
240.000	22.14343	2.03681	.649829	12.9509	6220.4	10284.8	126.323	25.24	41.20	1.48096	868
250.000	21.65095	1.99981	.610200	12.6260	6537.1	10694.0	127.993	24.92	40.65	1.51670	857
260.000	21.17666	1.96596	.574430	12.3432	6847.9	11097.9	129.577	24.63	40.13	1.54715	847
270.000	20.71998	1.93488	.542048	12.0974	7153.1	11496.8	131.083	24.38	39.65	1.57291	838
280.000	20.28032	1.90622	.512652	11.8844	7453.2	11891.0	132.516	24.14	39.20	1.59455	829
290.000	19.85705	1.87972	.485894	11.7003	7748.4	12280.8	133.884	23.93	38.77	1.61256	822
300.000	19.44955	1.85514	.461473	11.5421	8039.1	12666.5	135.192	23.74	38.37	1.62738	816
310.000	19.05720	1.83225	.439128	11.4068	8325.7	13048.3	136.444	23.57	38.00	1.63940	810
320.000	18.67940	1.81090	.418633	11.2921	8608.4	13426.5	137.644	23.41	37.64	1.64899	805
330.000	18.31554	1.79091	.399789	11.1959	8887.4	13801.3	138.797	23.27	37.31	1.65645	800
340.000	17.96504	1.77214	.382424	11.1164	9163.1	14172.8	139.907	23.14	37.00	1.66204	796
350.000	17.62732	1.75449	.366386	11.0517	9435.7	14541.4	140.975	23.03	36.71	1.66602	793
360.000	17.30182	1.73785	.351543	11.0006	9705.3	14907.1	142.005	22.93	36.44	1.66870	790
370.000	16.98801	1.72212	.337778	10.9616	9972.3	15270.2	142.999	22.84	36.18	1.67005	787
380.000	16.68536	1.70721	.324986	10.9337	10236.8	15630.8	143.961	22.76	35.94	1.67033	785
390.000	16.39337	1.69306	.313077	10.9156	10499.1	15989.1	144.892	22.69	35.72	1.66970	783
400.000	16.11157	1.67961	.301970	10.9065	10759.2	16345.2	145.793	22.63	35.51	1.66828	781
410.000	15.83948	1.66679	.291590	10.9056	11017.4	16699.4	146.668	22.58	35.32	1.66618	780
420.000	15.57667	1.65456	.281875	10.9120	11273.8	17051.7	147.517	22.54	35.14	1.66348	779
430.000	15.32271	1.64287	.272767	10.9250	11528.6	17402.3	148.342	22.50	34.98	1.66018	778
440.000	15.07719	1.63167	.264214	10.9440	11782.0	17751.2	149.144	22.48	34.82	1.65655	778
450.000	14.83974	1.62094	.256169	10.9685	12033.9	18098.7	149.926	22.46	34.68	1.65244	777
470.000	14.38755	1.60074	.241443	11.0318	12534.4	18789.8	151.428	22.44	34.44	1.64356	777
500.000	13.76111	1.57320	.222253	11.1562	13278.1	19818.3	153.549	22.45	34.14	1.62869	778
550.000	12.83595	1.53326	.196263	11.4204	14505.0	21516.6	156.787	22.56	33.82	1.60182	781
600.000	12.03372	1.49919	.175762	11.7318	15724.4	23203.4	159.722	22.76	33.67	1.57439	787
650.000	11.33100	1.46969	.159194	12.0723	16942.9	24885.7	162.415	23.01	33.64	1.54767	793
700.000	10.70981	1.44386	.145528	12.4311	18165.3	26568.8	164.910	23.30	33.69	1.52216	801
750.000	10.15625	1.42106	.134060	12.8024	19394.5	28256.0	167.238	23.60	33.80	1.49830	809
800.000	9.65950	1.40075	.124295	13.1855	20632.5	29949.7	169.424	23.90	33.95	1.47606	817
850.000	9.21105	1.38254	.115880	13.5789	21880.4	31651.2	171.487	24.21	34.11	1.45538	826
900.000	8.80407	1.36609	.108551	13.9810	23138.7	33361.2	173.441	24.50	34.29	1.43619	835
950.000	8.43295	1.35115	.102110	14.3904	24407.5	35079.9	175.300	24.78	34.46	1.41838	845
1000.000	8.09310	1.33749	.096404	14.8055	25686.8	36807.4	177.072	25.05	34.64	1.40184	854

TABLE 15. Properties of carbon monoxide along isobars — Continued

T/K	ρ mol/L	Z	∂P/∂T MPa/K	∂P/∂ρ MPa·L/mol	E J/mol	H J/mol	S J mol⁻¹K⁻¹	C_V J mol⁻¹K⁻¹	C_P J mol⁻¹K⁻¹	f/P	W m/s
100.000000 MPa											
88.317	32.36359	4.20787	2.660235	34.2231	422.7	3512.6	78.716	36.69	54.12	.17026	1342
90.000	32.23307	4.14591	2.603633	33.6479	501.1	3603.5	79.734	36.32	53.77	.18657	1333
100.000	31.46975	3.82182	2.303569	30.5959	950.8	4128.5	85.254	33.37	50.88	.29624	1290
110.000	30.72718	3.55835	2.054297	28.0540	1360.5	4615.0	89.901	29.17	46.70	.42140	1266
120.000	30.00512	3.34031	1.844170	25.9049	1719.2	5051.9	93.720	24.18	41.68	.55594	1262
130.000	29.30331	3.15721	1.664983	24.0686	2027.1	5439.6	96.799	22.03	39.47	.69943	1240
140.000	28.62154	3.00153	1.510760	22.4880	2446.6	5940.5	100.497	38.57	55.92	.84233	1078
150.000	27.95965	2.86775	1.377017	21.1206	2896.4	6473.0	104.172	33.97	51.20	.97536	1066
160.000	27.31754	2.75171	1.260305	19.9334	3310.6	6971.2	107.389	31.57	48.66	1.09643	1047
170.000	26.69510	2.65023	1.157913	18.9002	3702.8	7448.8	110.284	30.02	46.95	1.20536	1027
180.000	26.09220	2.56083	1.067667	17.9993	4079.0	7911.6	112.930	28.91	45.66	1.30191	1007
190.000	25.50869	2.48154	.987800	17.2125	4442.5	8362.7	115.369	28.06	44.61	1.38683	988
200.000	24.94435	2.41080	.916851	16.5244	4795.4	8804.3	117.633	27.37	43.73	1.46080	970
210.000	24.39889	2.34733	.853603	15.9219	5139.0	9237.6	119.748	26.80	42.95	1.52455	954
220.000	23.87199	2.29009	.797034	15.3937	5474.5	9663.5	121.729	26.32	42.25	1.57930	939
230.000	23.36322	2.23822	.746276	14.9301	5802.6	10082.8	123.593	25.90	41.62	1.62590	925
240.000	22.87213	2.19102	.700592	14.5229	6123.9	10496.0	125.352	25.53	41.03	1.66519	912
250.000	22.39823	2.14788	.659352	14.1651	6439.0	10903.6	127.016	25.20	40.49	1.69819	901
260.000	21.94100	2.10831	.622016	13.8507	6748.3	11306.0	128.594	24.90	39.99	1.72560	891
270.000	21.49988	2.07188	.588118	13.5745	7052.3	11703.5	130.094	24.64	39.52	1.74812	881
280.000	21.07431	2.03823	.557257	13.3321	7351.4	12096.5	131.523	24.40	39.08	1.76637	873
290.000	20.66372	2.00705	.529088	13.1197	7645.8	12485.2	132.887	24.18	38.67	1.78090	865
300.000	20.26756	1.97807	.503309	12.9340	7935.9	12869.9	134.192	23.98	38.28	1.79220	858
310.000	19.88527	1.95106	.479659	12.7723	8222.1	13250.9	135.441	23.80	37.92	1.80072	852
320.000	19.51629	1.92582	.457912	12.6321	8504.5	13628.4	136.639	23.63	37.58	1.80681	846
330.000	19.16009	1.90218	.437867	12.5112	8783.4	14002.6	137.791	23.49	37.26	1.81082	841
340.000	18.81615	1.87998	.419351	12.4077	9059.1	14373.7	138.898	23.35	36.96	1.81303	837
350.000	18.48397	1.85909	.402211	12.3200	9331.8	14741.9	139.966	23.23	36.68	1.81369	833
360.000	18.16305	1.83938	.386313	12.2466	9601.7	15107.4	140.995	23.12	36.42	1.81312	829
370.000	17.85293	1.82076	.371537	12.1862	9869.0	15470.4	141.989	23.03	36.18	1.81131	826
380.000	17.55314	1.80312	.357778	12.1376	10134.0	15831.0	142.951	22.94	35.95	1.80853	824
390.000	17.26325	1.78639	.344944	12.0997	10396.7	16189.4	143.882	22.87	35.73	1.80491	821
400.000	16.98283	1.77049	.332950	12.0717	10657.4	16545.7	144.784	22.80	35.54	1.80059	819
410.000	16.71149	1.75535	.321722	12.0525	10916.2	16900.1	145.659	22.74	35.35	1.79567	817
420.000	16.44884	1.74092	.311196	12.0415	11173.3	17252.7	146.509	22.70	35.18	1.79026	816
430.000	16.19450	1.72714	.301310	12.0379	11428.8	17603.7	147.335	22.66	35.02	1.78431	815
440.000	15.94812	1.71396	.292013	12.0411	11682.9	17953.2	148.138	22.62	34.88	1.77813	814
450.000	15.70936	1.70135	.283256	12.0506	11935.6	18301.2	148.921	22.60	34.74	1.77154	813
470.000	15.25343	1.67764	.267195	12.0860	12437.7	18993.6	150.426	22.57	34.50	1.75796	812
500.000	14.61905	1.64541	.246205	12.1737	13183.8	20024.2	152.552	22.57	34.22	1.73658	811
550.000	13.67652	1.59892	.217671	12.3894	14414.9	21726.7	155.797	22.67	33.91	1.70019	813
600.000	12.85398	1.55946	.195089	12.6648	15638.3	23417.9	158.740	22.85	33.76	1.66462	817
650.000	12.12975	1.52545	.176797	12.9792	16860.5	25104.7	161.440	23.09	33.73	1.63091	822
700.000	11.48683	1.49577	.161688	13.3193	18086.2	26791.9	163.941	23.36	33.77	1.59936	829
750.000	10.91187	1.46961	.148997	13.6765	19318.6	28482.9	166.275	23.65	33.88	1.57024	836
800.000	10.39425	1.44637	.138183	14.0453	20559.5	30180.2	168.465	23.95	34.02	1.54338	843
850.000	9.92552	1.42558	.128856	14.4244	21810.0	31885.1	170.532	24.25	34.18	1.51864	851
900.000	9.49890	1.40685	.120727	14.8130	23070.8	33598.4	172.491	24.54	34.35	1.49585	860
950.000	9.10884	1.38988	.113577	15.2099	24342.0	35320.4	174.352	24.82	34.53	1.47482	869
1000.000	8.75077	1.37441	.107240	15.6138	25623.5	37051.1	176.128	25.08	34.70	1.45539	878

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