



Standard Specification for Propane Thermophysical Property Tables¹

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1. Scope

1.1 The thermophysical property tables for propane are used in calculating the pressure-volume-temperature (PVT), thermodynamic, and transport properties of propane for process design and operations. Two tables provide properties at the conditions of liquid-vapor equilibrium (saturation properties), one for liquid and one for vapor, at temperatures between 90K and the critical point, 380K. A third table provides properties at selected T , p points for the equilibrium phase at temperatures between 90K and 600K at pressures to 20 MPa. The tables were developed by the National Institute of Standards and Technology from a Standard Reference Database product REFPROP, version 9.0.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

2. Applicability

2.1 These tables apply only to pure gaseous propane. They may also be used in mathematical models and tables for the thermophysical properties of mixtures containing propane.

3. Tables

3.1 These tables were produced by equations from a computer package, “NIST Standard Reference Database 23; Reference Fluid Thermodynamic and Transport Properties Database (REFPROP): Version 9.0.”² A wide selection of units (SI units, engineering units, chemical units) and additional properties are available with this program.

3.2 These thermophysical property tables are:

3.2.1 *Thermophysical Properties of Propane Liquid at Vapor-Liquid Equilibrium*, in SI units. See [Table 1](#).

3.2.2 *Thermophysical Properties of Propane Vapor at Vapor-Liquid Equilibrium*, in SI units. See [Table 2](#)

3.2.3 *Thermophysical Properties of Propane Along Isobars*, in SI units. See [Table 3](#).

3.3 The symbols are:

T , temperature (K)

ρ , molar density ($\text{mol}\cdot\text{L}^{-1}$)

H , molar enthalpy ($\text{J}\cdot\text{mol}^{-1}$)

S , molar entropy ($\text{J}\cdot\text{K}^{-1}\cdot\text{mol}^{-1}$)

C_v , constant volume molar heat capacity ($\text{J}\cdot\text{K}^{-1}\cdot\text{mol}^{-1}$)

C_p , constant pressure molar heat capacity ($\text{J}\cdot\text{K}^{-1}\cdot\text{mol}^{-1}$)

c , speed of sound ($\text{m}\cdot\text{s}^{-1}$)

η , viscosity ($\mu\text{Pa}\cdot\text{s}$)

λ , thermal conductivity ($\text{mW}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$)

3.4 The tabulated thermophysical properties are:

ρ , molar density ($\text{mol}\cdot\text{L}^{-1}$)

H , molar enthalpy ($\text{J}\cdot\text{mol}^{-1}$)

S , molar entropy ($\text{J}\cdot\text{K}^{-1}\cdot\text{mol}^{-1}$)

C_v , constant volume molar heat capacity ($\text{J}\cdot\text{K}^{-1}\cdot\text{mol}^{-1}$)

C_p , constant pressure molar heat capacity ($\text{J}\cdot\text{K}^{-1}\cdot\text{mol}^{-1}$)

c , speed of sound ($\text{m}\cdot\text{s}^{-1}$)

η , viscosity ($\mu\text{Pa}\cdot\text{s}$)

λ , thermal conductivity ($\text{mW}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$)

4. Additional Information

4.1 Reference state properties are required to calculate the thermodynamic properties enthalpy and entropy from an equation of state formulation. The reference state properties used are those specified by the International Institute of Refrigeration (IIR): enthalpy, $H = 200 \text{ J/g}$, and entropy, $S = 1 \text{ J/(g}\cdot\text{K)}$, for the saturated liquid at 273.15K (0°C).

4.2 The molar mass of propane is 44.096 g/mol.

5. Keywords

5.1 natural gas; propane gas tables; thermodynamic properties of propane; transport properties of propane

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² Available from Standard Reference Data, National Institute of Standards and Technology (NIST), 100 Bureau Drive, Stop 3460, Gaithersburg, MD 20899.

TABLE 1 Thermophysical Properties of Propane Liquid at Vapor-Liquid Equilibrium

<i>T</i> K	<i>p</i> MPa	ρ mol·L ⁻¹	<i>H</i> J·mol ⁻¹	<i>S</i> J·mol ⁻¹ ·K ⁻¹	<i>C_v</i> J·mol ⁻¹ ·K ⁻¹	<i>C_p</i> J·mol ⁻¹ ·K ⁻¹	<i>c</i> m·s ⁻¹	η μPa·s	λ mW·m ⁻¹ ·K ⁻¹
90	9.6910E-10	16.520	-8292.7	-57.241	59.512	84.645	2106.1	7394.7	206.63
92	1.9788E-09	16.473	-8123.3	-55.380	59.421	84.730	2092.4	6358.7	206.01
94	3.9100E-09	16.426	-7953.8	-53.557	59.340	84.820	2078.8	5517.7	205.35
96	7.4917E-09	16.379	-7784.1	-51.770	59.269	84.916	2065.1	4827.0	204.66
98	1.3947E-08	16.333	-7614.1	-50.018	59.206	85.016	2051.5	4253.9	203.94
100	2.5272E-08	16.286	-7444.0	-48.299	59.150	85.119	2037.8	3773.9	203.19
102	4.4646E-08	16.240	-7273.7	-46.613	59.100	85.226	2024.1	3368.8	202.42
104	7.7011E-08	16.193	-7103.1	-44.957	59.057	85.336	2010.4	3024.2	201.62
106	1.2989E-07	16.147	-6932.3	-43.330	59.018	85.448	1996.7	2729.2	200.80
108	2.1448E-07	16.101	-6761.3	-41.732	58.984	85.563	1983.0	2475.0	199.96
110	3.4717E-07	16.055	-6590.1	-40.161	58.955	85.680	1969.4	2254.7	199.09
112	5.5143E-07	16.008	-6418.6	-38.616	58.929	85.799	1955.7	2062.8	198.20
114	8.6039E-07	15.962	-6246.9	-37.096	58.907	85.920	1942.1	1894.8	197.29
116	1.3200E-06	15.916	-6074.9	-35.601	58.888	86.042	1928.5	1746.9	196.36
118	1.9930E-06	15.870	-5902.7	-34.129	58.873	86.167	1914.9	1616.3	195.41
120	2.9638E-06	15.825	-5730.2	-32.680	58.860	86.294	1901.3	1500.4	194.44
122	4.3445E-06	15.779	-5557.5	-31.252	58.850	86.422	1887.8	1397.1	193.46
124	6.2822E-06	15.733	-5384.5	-29.846	58.843	86.553	1874.2	1304.7	192.46
126	8.9669E-06	15.687	-5211.3	-28.460	58.838	86.685	1860.7	1221.7	191.44
128	1.2642E-05	15.641	-5037.8	-27.094	58.836	86.820	1847.2	1147.0	190.41
130	1.7614E-05	15.595	-4864.0	-25.747	58.836	86.957	1833.7	1079.4	189.36
132	2.4270E-05	15.550	-4690.0	-24.418	58.839	87.096	1820.3	1018.1	188.30
134	3.3085E-05	15.504	-4515.6	-23.107	58.844	87.237	1806.8	962.38	187.23
136	4.4645E-05	15.458	-4341.0	-21.814	58.852	87.381	1793.4	911.51	186.14
138	5.9662E-05	15.412	-4166.1	-20.537	58.863	87.527	1780.0	864.95	185.04
140	7.8993E-05	15.366	-3990.9	-19.277	58.875	87.675	1766.6	822.23	183.93
142	0.00010366	15.320	-3815.4	-18.032	58.891	87.826	1753.2	782.92	182.81
144	0.00013489	15.275	-3639.6	-16.802	58.909	87.980	1739.8	746.65	181.68
146	0.00017410	15.229	-3463.5	-15.588	58.929	88.136	1726.4	713.11	180.54
148	0.00022297	15.183	-3287.0	-14.388	58.953	88.295	1713.0	682.02	179.40
150	0.00028345	15.137	-3110.3	-13.201	58.979	88.457	1699.7	653.13	178.24
152	0.00035776	15.091	-2933.2	-12.029	59.008	88.621	1686.3	626.23	177.07
154	0.00044848	15.044	-2755.8	-10.869	59.041	88.789	1672.9	601.13	175.90
156	0.00055852	14.998	-2578.0	-9.7223	59.076	88.959	1659.6	577.66	174.72
158	0.00069119	14.952	-2399.9	-8.5880	59.115	89.133	1646.2	555.67	173.53
160	0.00085022	14.906	-2221.5	-7.4657	59.158	89.310	1632.9	535.03	172.34
162	0.0010398	14.859	-2042.7	-6.3552	59.204	89.490	1619.5	515.62	171.14
164	0.0012645	14.813	-1863.5	-5.2560	59.255	89.674	1606.1	497.34	169.94
166	0.0015296	14.766	-1684.0	-4.1679	59.309	89.862	1592.7	480.09	168.73
168	0.0018407	14.719	-1504.0	-3.0906	59.367	90.053	1579.4	463.79	167.51
170	0.0022041	14.673	-1323.7	-2.0238	59.430	90.249	1566.0	448.37	166.30
172	0.0026267	14.626	-1143.0	-0.96713	59.497	90.448	1552.6	433.75	165.08
174	0.0031159	14.579	-961.86	0.079648	59.569	90.652	1539.2	419.88	163.85
176	0.0036799	14.532	-780.32	1.1168	59.646	90.861	1525.9	406.70	162.63
178	0.0043274	14.485	-598.36	2.1446	59.727	91.074	1512.5	394.16	161.40
180	0.0050678	14.437	-415.96	3.1633	59.814	91.292	1499.1	382.22	160.17
182	0.0059115	14.390	-233.11	4.1732	59.905	91.515	1485.7	370.83	158.94
184	0.0068692	14.342	-49.80	5.1745	60.002	91.743	1472.3	359.95	157.70
186	0.0079526	14.295	133.97	6.1675	60.104	91.977	1459.0	349.56	156.47
188	0.0091741	14.247	318.22	7.1523	60.211	92.216	1445.6	339.62	155.23
190	0.010547	14.199	502.96	8.1293	60.324	92.462	1432.2	330.10	154.00
192	0.012085	14.151	688.21	9.0986	60.441	92.713	1418.9	320.97	152.77
194	0.013802	14.102	873.97	10.061	60.565	92.970	1405.5	312.22	151.53
196	0.015715	14.054	1060.3	11.015	60.693	93.234	1392.2	303.82	150.30
198	0.017839	14.005	1247.1	11.963	60.827	93.504	1378.8	295.75	149.07
200	0.020192	13.957	1434.5	12.904	60.966	93.780	1365.5	287.99	147.84
202	0.022791	13.908	1622.5	13.838	61.111	94.064	1352.2	280.52	146.61
204	0.025655	13.858	1811.0	14.766	61.261	94.354	1338.9	273.33	145.38
206	0.028803	13.809	2000.2	15.687	61.416	94.652	1325.7	266.41	144.16
208	0.032255	13.760	2189.9	16.603	61.576	94.957	1312.4	259.73	142.94
210	0.036032	13.710	2380.3	17.512	61.741	95.269	1299.2	253.29	141.72
212	0.040156	13.660	2571.4	18.416	61.912	95.589	1285.9	247.07	140.51
214	0.044649	13.610	2763.1	19.315	62.087	95.917	1272.7	241.07	139.29
216	0.049534	13.560	2955.4	20.208	62.268	96.252	1259.5	235.27	138.10
218	0.054834	13.509	3148.5	21.096	62.453	96.596	1246.4	229.66	136.90
220	0.060574	13.458	3342.3	21.979	62.643	96.948	1233.2	224.23	135.70
222	0.066780	13.407	3536.8	22.857	62.838	97.308	1220.1	218.98	134.51
224	0.073476	13.356	3732.1	23.730	63.037	97.676	1206.9	213.89	133.32
226	0.080689	13.304	3928.1	24.599	63.241	98.053	1193.8	208.97	132.14
228	0.088447	13.252	4125.0	25.464	63.449	98.438	1180.7	204.19	130.96
230	0.096776	13.200	4322.6	26.324	63.662	98.833	1167.6	199.56	129.79
232	0.10570	13.148	4521.0	27.180	63.879	99.236	1154.5	195.07	128.62
234	0.11526	13.095	4720.3	28.032	64.101	99.649	1141.5	190.71	127.46
236	0.12548	13.042	4920.4	28.880	64.327	100.07	1128.4	186.48	126.30

TABLE 1 *Continued*

<i>T</i> K	<i>p</i> MPa	ρ mol·L ⁻¹	<i>H</i> J·mol ⁻¹	<i>S</i> J·mol ⁻¹ ·K ⁻¹	<i>C_v</i> J·mol ⁻¹ ·K ⁻¹	<i>C_p</i> J·mol ⁻¹ ·K ⁻¹	<i>c</i> m·s ⁻¹	η μPa·s	λ mW·m ⁻¹ ·K ⁻¹
238	0.13638	12.989	5121.4	29.725	64.557	100.50	1115.3	182.38	125.15
240	0.14800	12.935	5323.3	30.566	64.792	100.94	1102.3	178.38	124.00
242	0.16037	12.881	5526.1	31.404	65.031	101.39	1089.2	174.51	122.86
244	0.17352	12.827	5729.8	32.238	65.274	101.86	1076.2	170.73	121.73
246	0.18748	12.772	5934.5	33.069	65.522	102.33	1063.1	167.06	120.60
248	0.20228	12.717	6140.2	33.897	65.774	102.81	1050.1	163.49	119.48
250	0.21796	12.662	6346.9	34.722	66.030	103.30	1037.1	160.02	118.37
252	0.23455	12.606	6554.6	35.544	66.290	103.81	1024.0	156.63	117.26
254	0.25209	12.550	6763.3	36.364	66.555	104.32	1010.9	153.34	116.16
256	0.27060	12.493	6973.1	37.180	66.824	104.85	997.87	150.12	115.06
258	0.29012	12.436	7183.9	37.995	67.098	105.39	984.80	146.99	113.97
260	0.31068	12.379	7395.9	38.807	67.375	105.94	971.73	143.94	112.89
262	0.33233	12.320	7609.0	39.617	67.658	106.51	958.64	140.96	111.82
264	0.35509	12.262	7823.3	40.424	67.944	107.09	945.54	138.05	110.76
266	0.37901	12.203	8038.8	41.230	68.235	107.69	932.43	135.21	109.70
268	0.40411	12.143	8255.4	42.034	68.530	108.30	919.32	132.44	108.65
270	0.43043	12.083	8473.3	42.836	68.830	108.92	906.18	129.73	107.60
272	0.45801	12.023	8692.5	43.636	69.134	109.56	893.04	127.08	106.56
274	0.48689	11.961	8913.0	44.435	69.442	110.22	879.88	124.50	105.54
276	0.51711	11.899	9134.8	45.232	69.755	110.89	866.70	121.96	104.51
278	0.54869	11.837	9357.9	46.028	70.072	111.59	853.50	119.49	103.50
280	0.58169	11.774	9582.5	46.823	70.393	112.30	840.29	117.06	102.50
282	0.61613	11.710	9808.4	47.617	70.719	113.04	827.06	114.69	101.50
284	0.65205	11.645	10036	48.410	71.049	113.79	813.81	112.36	100.51
286	0.68951	11.580	10265	49.201	71.384	114.57	800.53	110.08	99.524
288	0.72852	11.514	10495	49.993	71.723	115.38	787.23	107.85	98.549
290	0.76914	11.447	10727	50.783	72.066	116.21	773.90	105.66	97.581
292	0.81140	11.380	10961	51.573	72.414	117.06	760.55	103.51	96.622
294	0.85535	11.311	11196	52.363	72.766	117.95	747.16	101.40	95.669
296	0.90101	11.242	11433	53.153	73.122	118.87	733.75	99.321	94.725
298	0.94844	11.171	11672	53.943	73.484	119.82	720.30	97.283	93.788
300	0.99768	11.100	11913	54.733	73.850	120.80	706.81	95.279	92.858
302	1.0488	11.027	12155	55.523	74.221	121.83	693.28	93.307	91.936
304	1.1017	10.954	12399	56.313	74.596	122.90	679.71	91.367	91.021
306	1.1567	10.879	12646	57.105	74.977	124.01	666.09	89.456	90.113
308	1.2135	10.803	12894	57.897	75.363	125.18	652.42	87.574	89.212
310	1.2724	10.726	13145	58.690	75.754	126.40	638.70	85.717	88.318
312	1.3334	10.647	13398	59.484	76.151	127.68	624.91	83.886	87.431
314	1.3965	10.567	13653	60.280	76.554	129.02	611.07	82.078	86.550
316	1.4617	10.485	13910	61.078	76.964	130.44	597.16	80.293	85.675
318	1.5292	10.402	14170	61.877	77.379	131.93	583.18	78.528	84.807
320	1.5989	10.317	14432	62.679	77.802	133.52	569.12	76.781	83.945
322	1.6708	10.230	14698	63.483	78.232	135.20	554.97	75.052	83.088
324	1.7452	10.141	14966	64.291	78.670	137.00	540.74	73.339	82.236
326	1.8219	10.051	15237	65.102	79.116	138.93	526.40	71.640	81.390
328	1.9011	9.9574	15511	65.916	79.572	141.00	511.96	69.954	80.548
330	1.9828	9.8617	15789	66.735	80.038	143.24	497.40	68.278	79.710
332	2.0671	9.7634	16070	67.558	80.515	145.67	482.72	66.610	78.876
334	2.1540	9.6622	16355	68.387	81.004	148.33	467.90	64.949	78.046
336	2.2436	9.5578	16644	69.222	81.506	151.24	452.93	63.292	77.218
338	2.3359	9.4499	16937	70.064	82.024	154.47	437.79	61.638	76.393
340	2.4311	9.3382	17235	70.913	82.558	158.07	422.46	59.982	75.570
342	2.5291	9.2222	17539	71.772	83.112	162.12	406.93	58.322	74.749
344	2.6300	9.1014	17848	72.640	83.689	166.73	391.16	56.654	73.929
346	2.7340	8.9751	18163	73.521	84.294	172.03	375.11	54.975	73.110
348	2.8411	8.8427	18485	74.415	84.934	178.21	358.76	53.278	72.294
350	2.9514	8.7030	18815	75.325	85.617	185.54	342.06	51.559	71.481
352	3.0650	8.5550	19155	76.255	86.357	194.39	324.94	49.810	70.673
354	3.1820	8.3970	19505	77.208	87.170	205.36	307.36	48.021	69.877
356	3.3025	8.2269	19868	78.189	88.082	219.35	289.24	46.180	69.102
358	3.4266	8.0418	20246	79.206	89.127	237.92	270.49	44.270	68.370
360	3.5545	7.8371	20645	80.271	90.358	263.88	250.99	42.266	67.721
362	3.6864	7.6062	21069	81.400	91.863	303.00	230.58	40.130	67.251
364	3.8224	7.3371	21532	82.624	93.801	369.18	209.01	37.797	67.188
366	3.9629	7.0055	22056	84.005	96.517	506.34	185.86	35.131	68.192
368	4.1084	6.5428	22708	85.725	101.03	960.63	160.18	31.759	72.822

TABLE 2 Thermophysical Properties of Propane Vapor at Vapor-Liquid Equilibrium

T K	p MPa	ρ mol·L ⁻¹	H J·mol ⁻¹	S J·mol ⁻¹ ·K ⁻¹	C_v J·mol ⁻¹ ·K ⁻¹	C_p J·mol ⁻¹ ·K ⁻¹	c m·s ⁻¹	η μPa·s	λ mW·m ⁻¹ ·K ⁻¹
90	9.6910E-10	1.2951E-09	16326	216.30	31.236	39.550	146.59	2.7437	1.9194
92	1.9788E-09	2.5869E-09	16405	211.23	31.584	39.898	148.03	2.7903	2.0166
94	3.9100E-09	5.0028E-09	16485	206.43	31.931	40.246	149.46	2.8372	2.1150
96	7.4917E-09	9.3859E-09	16566	201.88	32.277	40.591	150.88	2.8843	2.2145
98	1.3947E-08	1.7117E-08	16648	197.55	32.621	40.935	152.28	2.9316	2.3152
100	2.5272E-08	3.0395E-08	16730	193.44	32.962	41.277	153.66	2.9792	2.4171
102	4.4646E-08	5.2643E-08	16813	189.53	33.301	41.615	155.03	3.0271	2.5201
104	7.7011E-08	8.9061E-08	16896	185.81	33.636	41.951	156.39	3.0751	2.6243
106	1.2989E-07	1.4738E-07	16980	182.26	33.969	42.284	157.73	3.1234	2.7296
108	2.1448E-07	2.3886E-07	17065	178.89	34.298	42.613	159.06	3.1719	2.8362
110	3.4717E-07	3.7959E-07	17151	175.67	34.624	42.939	160.38	3.2205	2.9439
112	5.5143E-07	5.9216E-07	17237	172.60	34.947	43.261	161.69	3.2205	3.0527
114	8.6039E-07	9.0773E-07	17324	169.66	35.266	43.580	162.98	3.3185	3.1627
116	1.3200E-06	1.3686E-06	17411	166.87	35.582	43.896	164.27	3.3677	3.2739
118	1.9930E-06	2.0313E-06	17499	164.19	35.894	44.209	165.54	3.4171	3.3863
120	2.9638E-06	2.9705E-06	17588	161.64	36.203	44.518	166.80	3.4667	3.4998
122	4.3445E-06	4.2831E-06	17678	159.20	36.509	44.824	168.05	3.5164	3.6145
124	6.2822E-06	6.0934E-06	17767	156.86	36.812	45.127	169.30	3.5663	3.7303
126	8.9669E-06	8.5594E-06	17858	154.63	37.112	45.427	170.53	3.6163	3.8474
128	1.2642E-05	1.1879E-05	17949	152.49	37.409	45.725	171.75	3.6664	3.9655
130	1.7614E-05	1.6297E-05	18041	150.44	37.704	46.020	172.96	3.7167	4.0849
132	2.4270E-05	2.2115E-05	18133	148.48	37.996	46.313	174.17	3.7672	4.2054
134	3.3085E-05	2.9698E-05	18226	146.61	38.286	46.603	175.36	3.8177	4.3270
136	4.4645E-05	3.9486E-05	18319	144.81	38.575	46.892	176.54	3.8684	4.4498
138	5.9662E-05	5.2003E-05	18413	143.08	38.861	47.179	177.72	3.9191	4.5738
140	7.8993E-05	6.7871E-05	18508	141.43	39.146	47.465	178.88	3.9700	4.6989
142	0.00010366	8.7817E-05	18603	139.84	39.429	47.750	180.04	4.0210	4.8252
144	0.00013489	0.00011269	18699	138.32	39.712	48.034	181.18	4.0721	4.9527
146	0.00017410	0.00014346	18795	136.87	39.993	48.317	182.32	4.1232	5.0812
148	0.00022297	0.00018126	18891	135.47	40.274	48.600	183.45	4.1745	5.2110
150	0.00028345	0.00022736	18988	134.12	40.554	48.882	184.57	4.2258	5.3418
152	0.00035776	0.00028322	19086	132.84	40.833	49.165	185.67	4.2771	5.4738
154	0.00044848	0.00035046	19184	131.60	41.112	49.448	186.77	4.3286	5.6070
156	0.00055852	0.00043091	19283	130.41	41.392	49.731	187.86	4.3801	5.7412
158	0.00069119	0.00052658	19382	129.27	41.671	50.016	188.94	4.4316	5.8766
160	0.00085022	0.00063974	19481	128.18	41.952	50.301	190.01	4.4832	6.0131
162	0.0010398	0.00077285	19581	127.13	42.232	50.589	191.06	4.5348	6.1508
164	0.0012645	0.00092862	19682	126.12	42.514	50.877	192.11	4.5348	6.2895
166	0.0015296	0.0011100	19783	125.15	42.796	51.168	193.14	4.6381	6.4293
168	0.0018407	0.0013202	19884	124.22	43.080	51.462	194.17	4.6898	6.5703
170	0.0022041	0.0015627	19986	123.32	43.366	51.758	195.18	4.7415	6.7123
172	0.0026267	0.0018412	20088	122.47	43.653	52.057	196.18	4.7932	6.8554
174	0.0031159	0.0021598	20190	121.64	43.942	52.359	197.17	4.8449	6.9996
176	0.0036799	0.0025227	20293	120.85	44.234	52.665	198.15	4.8966	7.1449
178	0.0043274	0.0029345	20396	120.09	44.527	52.975	199.11	4.9483	7.2913
180	0.0050678	0.0034000	20499	119.36	44.824	53.290	200.06	4.9999	7.4387
182	0.0059115	0.0039244	20603	118.66	45.123	53.609	200.99	5.0516	7.5872
184	0.0068692	0.0045132	20707	117.98	45.426	53.933	201.92	5.1032	7.7367
186	0.0079526	0.0051720	20811	117.33	45.731	54.263	202.82	5.1548	7.8873
188	0.0091741	0.0059068	20915	116.71	46.040	54.597	203.71	5.2063	8.0390
190	0.010547	0.0067240	21020	116.11	46.353	54.938	204.59	5.2578	8.1917
192	0.012085	0.0076301	21125	115.54	46.670	55.285	205.45	5.3093	8.3454
194	0.013802	0.0086319	21230	114.99	46.990	55.638	206.30	5.3607	8.5002
196	0.015715	0.0097366	21335	114.46	47.314	55.998	207.12	5.4121	8.6561
198	0.017839	0.010952	21441	113.95	47.643	56.364	207.93	5.4635	8.8130
200	0.020192	0.012285	21546	113.46	47.975	56.737	208.73	5.5148	8.9710
202	0.022791	0.013744	21652	112.99	48.312	57.118	209.50	5.5661	9.1300
204	0.025655	0.015337	21758	112.55	48.653	57.505	210.26	5.6173	9.2902
206	0.028803	0.017073	21864	112.11	48.998	57.900	210.99	5.6685	9.4514
208	0.032255	0.018961	21970	111.70	49.348	58.303	211.71	5.7196	9.6137
210	0.036032	0.021009	22076	111.30	49.702	58.713	212.41	5.7708	9.7771
212	0.040156	0.023227	22182	110.92	50.060	59.130	213.08	5.8219	9.9416
214	0.044649	0.025625	22289	110.56	50.442	59.556	213.74	5.8730	10.107
216	0.049534	0.028212	22395	110.21	50.789	59.990	214.37	5.9240	10.274
218	0.054834	0.030998	22501	109.87	51.160	60.431	214.98	5.9751	10.442
220	0.060574	0.033994	22607	109.55	51.535	60.881	215.57	6.0262	10.611
222	0.066780	0.037210	22713	109.24	51.914	61.339	216.14	6.0773	10.782
224	0.073476	0.040658	22819	108.94	52.297	61.805	216.68	6.1284	10.953
226	0.080689	0.044349	22926	108.66	52.684	62.281	217.20	6.1796	11.126
228	0.088447	0.048293	23031	108.39	53.075	62.764	217.69	6.2308	11.301
230	0.096776	0.052503	23137	108.13	53.470	63.257	218.16	6.2821	11.477
232	0.10570	0.056991	23243	107.88	53.868	63.759	218.61	6.3334	11.654
234	0.11526	0.061770	23348	107.64	54.271	64.270	219.03	6.3849	11.832
236	0.12548	0.066851	23454	107.41	54.677	64.790	219.42	6.4365	12.013

TABLE 2 *Continued*

<i>T</i> K	<i>p</i> MPa	ρ mol·L ⁻¹	<i>H</i> J·mol ⁻¹	<i>S</i> J·mol ⁻¹ ·K ⁻¹	<i>C_v</i> J·mol ⁻¹ ·K ⁻¹	<i>C_p</i> J·mol ⁻¹ ·K ⁻¹	<i>c</i> m·s ⁻¹	η μPa·s	λ mW·m ⁻¹ ·K ⁻¹
238	0.13638	0.072248	23559	107.19	55.087	65.320	219.79	6.4882	12.194
240	0.14800	0.077974	23664	106.98	55.501	65.860	220.12	6.5401	12.378
242	0.16037	0.084043	23768	106.79	55.919	66.411	220.43	6.5922	12.563
244	0.17352	0.090469	23873	106.59	56.341	66.972	220.72	6.6444	12.750
246	0.18748	0.097266	23977	106.41	56.766	67.544	220.97	6.6969	12.939
248	0.20228	0.10445	24081	106.24	57.195	68.127	221.20	6.7496	13.130
250	0.21796	0.11203	24184	106.07	57.628	68.722	221.39	6.8026	13.323
252	0.23455	0.12004	24287	105.91	58.065	69.330	221.56	6.8559	13.518
254	0.25209	0.12847	24390	105.76	58.506	69.950	221.69	6.9096	13.715
256	0.27060	0.13736	24493	105.62	58.950	70.583	221.79	6.9636	13.915
258	0.29012	0.14671	24594	105.48	59.399	71.231	221.86	7.0181	14.117
260	0.31068	0.15655	24696	105.35	59.852	71.893	221.90	7.0729	14.321
262	0.33233	0.16690	24797	105.22	60.310	72.571	221.90	7.1283	14.529
264	0.35509	0.17776	24897	105.10	60.771	73.264	221.88	7.1841	14.739
266	0.37901	0.18917	24997	104.98	61.237	73.975	221.81	7.2405	14.952
268	0.40411	0.20115	25096	104.87	61.708	74.704	221.71	7.2976	15.169
270	0.43043	0.21371	25195	104.77	62.184	75.451	221.58	7.3552	15.389
272	0.45801	0.22687	25293	104.67	62.664	76.219	221.41	7.4136	15.612
274	0.48689	0.24067	25390	104.57	63.150	77.008	221.20	7.4727	15.839
276	0.51711	0.25513	25487	104.48	63.641	77.819	220.96	7.5327	16.070
278	0.54869	0.27026	25583	104.39	64.137	78.655	220.68	7.5934	16.305
280	0.58169	0.28611	25678	104.31	64.639	79.516	220.36	7.6551	16.544
282	0.61613	0.30269	25772	104.22	65.147	80.404	220.00	7.7179	16.788
284	0.65205	0.32003	25865	104.15	65.660	81.322	219.59	7.7816	17.037
286	0.68951	0.33817	25957	104.07	66.181	82.270	219.15	7.8465	17.209
288	0.72852	0.35715	26049	104.00	66.707	83.252	218.67	7.9126	17.550
290	0.76914	0.37698	26139	103.93	67.240	84.269	218.14	7.9800	17.814
292	0.81140	0.39772	26228	103.86	67.781	85.324	217.57	8.0488	18.085
294	0.85535	0.41940	26316	103.79	68.328	86.420	216.95	8.1191	18.363
296	0.90101	0.44206	26403	103.73	68.883	87.561	216.29	8.1910	18.647
298	0.94844	0.46575	26488	103.66	69.446	88.749	215.58	8.2646	18.938
300	0.99768	0.49051	26572	103.60	70.016	89.989	214.82	8.3400	19.237
302	1.0488	0.51640	26655	103.53	70.595	91.285	214.02	8.4174	19.544
304	1.1017	0.54347	26736	103.47	71.183	92.642	213.16	8.4968	19.860
306	1.1567	0.57177	26815	103.41	71.779	94.065	212.26	8.5785	20.184
308	1.2135	0.60137	26893	103.35	72.385	95.560	211.30	8.6627	20.519
310	1.2724	0.63234	26969	103.28	73.000	97.136	210.28	8.7494	20.865
312	1.3334	0.66475	27043	103.22	73.625	98.799	209.21	8.8389	21.222
314	1.3965	0.69869	27114	103.15	74.261	100.56	208.09	8.9315	21.591
316	1.4617	0.73423	27184	103.08	74.908	102.43	206.91	9.0273	21.973
318	1.5292	0.77149	27251	103.01	75.566	104.41	205.66	9.1267	22.370
320	1.5989	0.81055	27316	102.94	76.237	106.53	204.35	9.2299	22.782
322	1.6708	0.85155	27378	102.86	76.920	108.80	202.98	9.3372	23.211
324	1.7452	0.89461	27437	102.78	77.616	111.24	201.55	9.4491	23.658
326	1.8219	0.93987	27493	102.70	78.324	113.87	200.04	9.5660	24.126
328	1.9011	0.98750	27546	102.61	79.044	116.71	198.47	9.6883	24.616
330	1.9828	1.0377	27595	102.51	79.776	119.81	196.82	9.8165	25.132
332	2.0671	1.0906	27640	102.41	80.521	123.20	195.10	9.9514	25.674
334	2.1540	1.1466	27681	102.30	81.280	126.93	193.30	10.094	26.248
336	2.2436	1.2058	27716	102.18	82.057	131.07	191.43	10.244	26.857
338	2.3359	1.2685	27747	102.04	82.857	135.72	189.47	10.403	27.507
340	2.4311	1.3353	27771	101.90	83.689	140.98	187.44	10.573	28.202
342	2.5291	1.4064	27790	101.75	84.562	147.00	185.31	10.754	28.952
344	2.6300	1.4824	27800	101.57	85.487	153.96	183.10	10.948	29.766
346	2.7340	1.5640	27803	101.38	86.476	162.11	180.78	11.158	30.655
348	2.8411	1.6518	27796	101.17	87.541	171.79	178.36	11.385	31.636
350	2.9514	1.7468	27778	100.93	88.693	183.45	175.83	11.633	32.729
352	3.0650	1.8503	27748	100.67	89.942	197.76	173.18	11.905	33.961
354	3.1820	1.9637	27703	100.37	91.301	215.70	170.39	12.207	35.370
356	3.3025	2.0892	27641	100.02	92.786	238.85	167.47	12.547	37.011
358	3.4266	2.2297	27556	99.625	94.421	269.86	164.38	12.934	38.965
360	3.5545	2.3896	27444	99.157	96.243	313.56	161.12	13.383	41.363
362	3.6864	2.5756	27293	98.593	98.318	379.78	157.65	13.919	44.432
364	3.8224	2.7995	27089	97.890	100.77	491.96	153.89	14.586	48.624
366	3.9629	3.0857	26796	96.958	103.87	722.87	149.70	15.474	55.039
368	4.1084	3.5029	26323	95.546	108.36	1463.7	144.54	16.853	67.843

TABLE 3 Thermophysical Properties of Propane Along Isobars

T K	ρ mol·L ⁻¹	H J·mol ⁻¹	S J·mol ⁻¹ ·K ⁻¹	C_V J·mol ⁻¹ ·K ⁻¹	C_P J·mol ⁻¹ ·K ⁻¹	c m·s ⁻¹	η μPa·s	λ mW·m ⁻¹ ·K ⁻¹
Pressure = 0.1 MPa								
90	16.521	-8287.4	-57.250	59.516	84.644	2106.4	7403.9	206.66
100	16.287	-7438.7	-48.308	59.154	85.118	2038.1	3778.1	203.22
110	16.055	-6584.8	-40.170	58.959	85.678	1969.7	2257.0	199.12
120	15.825	-5725.0	-32.689	58.864	86.291	1901.7	1501.8	194.47
130	15.596	-4858.8	-25.756	58.840	86.953	1834.1	1080.4	189.40
140	15.367	-3985.8	-19.286	58.880	87.671	1767.0	822.93	183.97
150	15.138	-3105.2	-13.211	58.983	88.451	1700.1	653.67	178.28
160	14.907	-2216.5	-7.4761	59.163	89.304	1633.4	535.46	172.38
170	14.674	-1318.8	-2.0344	59.435	90.241	1566.5	448.72	166.34
180	14.439	-411.32	3.1526	59.818	91.283	1499.7	382.51	160.22
190	14.200	507.24	8.1186	60.328	92.452	1432.8	330.34	154.05
200	13.958	1438.2	12.894	60.970	93.770	1366.1	288.19	147.88
210	13.711	2383.2	17.504	61.744	95.259	1299.7	253.44	141.76
220	13.459	3344.0	21.973	62.645	96.940	1233.5	224.31	135.73
230	13.200	4322.7	26.323	63.662	98.832	1167.7	199.57	129.79
230.74	13.181	4395.7	26.640	63.742	98.981	1162.8	197.89	129.36
230.74	0.054127	23176	108.03	53.616	63.441	218.33	6.3010	11.542
240	0.051792	23769	110.55	55.062	64.673	222.95	6.5587	12.396
250	0.049510	24423	113.22	56.692	66.117	227.74	6.8352	13.345
260	0.047439	25092	115.85	58.390	67.665	232.35	7.1101	14.322
270	0.045547	25777	118.43	60.149	69.302	236.81	7.3836	15.327
280	0.043811	26478	120.98	61.964	71.015	241.13	7.6557	16.361
290	0.042210	27197	123.50	63.823	72.790	245.33	7.9266	17.423
300	0.040729	27934	126.00	65.720	74.616	249.43	8.1962	18.513
310	0.039353	28690	128.48	67.647	76.482	253.42	8.4645	19.632
320	0.038070	29464	130.94	69.596	78.380	257.34	8.7315	20.780
330	0.036872	30258	133.38	71.563	80.301	261.17	8.9973	21.956
340	0.035750	31070	135.80	73.540	82.240	264.93	9.2618	23.161
350	0.034696	31902	138.22	75.524	84.190	268.62	9.5249	24.394
360	0.033704	32754	140.62	77.510	86.146	272.26	9.7866	25.657
370	0.032769	33625	143.00	79.493	88.104	275.83	10.047	26.948
380	0.031886	34516	145.38	81.471	90.058	279.35	10.306	28.268
390	0.031049	35426	147.74	83.439	92.006	282.82	10.563	29.617
400	0.030257	36356	150.10	85.395	93.944	286.25	10.819	30.995
410	0.029505	37305	152.44	87.336	95.869	289.63	11.074	32.401
420	0.028789	38274	154.77	89.261	97.779	292.97	11.326	33.837
430	0.028109	39261	157.10	91.167	99.672	296.26	11.578	35.301
440	0.027460	40267	159.41	93.053	101.55	299.52	11.827	36.794
450	0.026841	41292	161.71	94.917	103.40	302.74	12.075	38.317
460	0.026249	42335	164.01	96.759	105.23	305.93	12.322	39.868
470	0.025683	43396	166.29	98.578	107.04	309.08	12.566	41.448
480	0.025142	44476	168.56	100.37	108.83	312.20	12.809	43.057
490	0.024623	45573	170.82	102.14	110.59	315.29	13.050	44.696
500	0.024125	46687	173.07	103.89	112.33	318.35	13.290	46.363
510	0.023647	47819	175.32	105.61	114.05	321.37	13.527	48.059
520	0.023188	48968	177.55	107.31	115.74	324.37	13.763	49.784
530	0.022746	50134	179.77	108.98	117.41	327.34	13.997	51.539
540	0.022322	51316	181.98	110.63	119.05	330.29	14.230	53.322
550	0.021912	52515	184.18	112.25	120.67	333.21	14.460	55.134
560	0.021518	53730	186.36	113.85	122.27	336.10	14.689	56.976
570	0.021138	54960	188.54	115.43	123.84	338.97	14.916	58.846
580	0.020771	56206	190.71	116.98	125.39	341.81	15.141	60.746
590	0.020416	57468	192.87	118.51	126.91	344.63	15.364	62.674
600	0.020074	58745	195.01	120.02	128.42	347.43	15.585	64.632
Pressure = 1 MPa								
90	16.527	-8240.0	-57.327	59.550	84.633	2109.1	7486.9	206.86
100	16.294	-7391.4	-48.387	59.189	85.104	2041.1	3816.0	203.45
110	16.063	-6537.6	-40.250	58.995	85.659	1972.9	2277.9	199.38
120	15.834	-5678.0	-32.771	58.901	86.266	1905.1	1514.8	194.76
130	15.605	-4812.1	-25.841	58.878	86.922	1837.8	1089.2	189.71
140	15.377	-3939.4	-19.373	58.918	87.632	1771.0	829.30	184.32
150	15.148	-3059.3	-13.302	59.023	88.403	1704.4	658.54	178.65
160	14.918	-2171.1	-7.5697	59.204	89.245	1637.9	539.36	172.79
170	14.687	1274.1	2.1319	59.477	90.171	1571.5	451.98	166.78
180	14.452	-367.35	3.0507	59.862	91.199	1505.0	385.31	160.68
190	14.215	550.29	8.0119	60.371	92.352	1438.6	332.81	154.54
200	13.975	1480.2	12.781	61.013	93.651	1372.4	290.42	148.41
210	13.730	2423.9	17.385	61.786	95.116	1306.5	255.49	142.32
220	13.480	3383.1	21.847	62.685	96.767	1241.0	226.23	136.32
230	13.223	4359.9	26.189	63.700	98.620	1175.8	201.39	130.42
240	12.960	5356.3	30.429	64.825	100.70	1110.8	180.04	124.63
250	12.687	6374.6	34.586	66.057	103.02	1045.6	161.50	118.98
260	12.404	7417.6	38.676	67.395	105.63	980.08	145.23	113.47

TABLE 3 *Continued*

<i>T</i> K	ρ mol·L ⁻¹	<i>H</i> J·mol ⁻¹	<i>S</i> J·mol ⁻¹ ·K ⁻¹	<i>C_v</i> J·mol ⁻¹ ·K ⁻¹	<i>C_p</i> J·mol ⁻¹ ·K ⁻¹	<i>c</i> m·s ⁻¹	η μPa·s	λ mW·m ⁻¹ ·K ⁻¹
270	12.108	8488.3	42.717	68.841	108.58	913.91	130.80	108.11
280	11.795	9590.6	46.725	70.396	111.97	846.70	117.86	102.90
290	11.461	10730	50.722	72.062	115.96	777.96	106.11	97.824
300	11.100	11913	54.732	73.850	120.80	706.85	95.284	92.861
300.09	11.096	11924	54.769	73.867	120.85	706.18	95.187	92.815
300.09	0.49168	26576	103.59	70.043	90.048	214.79	8.3435	19.251
310	0.46299	27461	106.50	71.201	88.836	222.71	8.6079	20.341
320	0.43868	28348	109.31	72.579	88.574	229.86	8.8767	21.492
330	0.41776	29235	112.04	74.098	88.900	236.39	9.1458	22.683
340	0.39942	30127	114.70	75.716	89.610	242.44	9.4145	23.909
350	0.38310	31028	117.32	77.405	90.585	248.10	9.6821	25.168
360	0.36843	31939	119.88	79.142	91.749	253.46	9.9482	26.458
370	0.35512	32863	122.41	80.915	93.052	258.55	10.213	27.779
380	0.34296	33801	124.91	82.712	94.459	263.42	10.476	29.129
390	0.33178	34753	127.39	84.526	95.944	268.10	10.737	30.508
400	0.32144	35720	129.84	86.349	97.488	272.61	10.996	31.915
410	0.31183	36702	132.26	88.176	99.074	276.98	11.253	33.352
420	0.30288	37701	134.67	90.002	100.69	281.21	11.508	34.816
430	0.29450	38716	137.06	91.824	102.33	285.32	11.761	36.310
440	0.28664	39748	139.43	93.636	103.98	289.33	12.012	37.831
450	0.27923	40796	141.78	95.438	105.64	293.25	12.261	39.381
460	0.27225	41861	144.12	97.225	107.31	297.07	12.508	40.959
470	0.26565	42942	146.45	98.997	108.97	300.81	12.754	42.566
480	0.25939	44040	148.76	100.75	110.62	304.48	12.997	44.201
490	0.25345	45155	151.06	102.49	112.26	308.08	13.238	45.864
500	0.24780	46285	153.34	104.20	113.90	311.61	13.477	47.555
510	0.24242	47432	155.62	105.90	115.51	315.08	13.715	49.275
520	0.23728	48596	157.87	107.57	117.12	318.50	13.95	51.024
530	0.23238	49775	160.12	109.22	118.71	321.86	14.183	52.800
540	0.22769	50970	162.35	110.85	120.28	325.17	14.415	54.605
550	0.22319	52180	164.57	112.46	121.83	328.43	14.644	56.438
560	0.21889	53406	166.78	114.05	123.37	331.65	14.872	58.300
570	0.21476	54648	168.98	115.61	124.89	334.82	15.097	60.191
580	0.21078	55904	171.17	117.15	126.39	337.95	15.321	62.111
590	0.20697	57175	173.34	118.67	127.87	341.04	15.543	64.059
600	0.20329	58461	175.50	120.17	129.33	344.10	15.763	66.036
Pressure = 2 MPa								
90	16.535	-8187.2	-57.413	59.588	84.622	2112.1	7580.1	207.08
100	16.302	-7338.7	-48.474	59.228	85.088	2044.3	3858.5	203.71
110	16.071	-6485.2	-40.339	59.035	85.638	1976.4	2301.3	199.66
120	15.843	-5625.8	-32.862	58.942	86.239	1908.9	1529.3	195.08
130	15.615	-4760.2	-25.934	58.920	86.887	1841.9	1099.0	190.06
140	15.388	-3887.9	-19.470	58.961	87.589	1775.3	836.41	184.70
150	15.160	-3008.2	-13.401	59.068	88.351	1709.1	663.98	179.07
160	14.931	-2120.6	-7.6730	59.249	89.181	1643.0	543.72	173.23
170	14.700	-1224.3	-2.2395	59.524	90.095	1576.9	455.60	167.26
180	14.468	-318.41	2.9384	59.909	91.109	1510.9	388.43	161.19
190	14.232	598.25	7.8942	60.419	92.245	1445.0	335.56	155.09
200	13.993	1527.0	12.658	61.060	93.523	1379.3	292.90	148.99
210	13.750	2469.2	17.255	61.832	94.963	1314.1	257.77	142.94
220	13.502	3426.8	21.709	62.729	96.582	1249.2	228.36	136.97
230	13.249	4401.5	26.042	63.742	98.395	1184.7	203.41	131.11
240	12.988	5395.4	30.271	64.864	100.42	1120.5	181.98	125.37
250	12.719	6410.7	34.415	66.092	102.67	1056.3	163.38	119.76
260	12.441	7449.7	38.490	67.426	105.19	991.91	147.08	114.30
270	12.150	8515.5	42.512	68.863	108.02	927.10	132.65	109.00
280	11.844	9611.4	46.498	70.405	111.24	861.57	119.74	103.85
290	11.520	10742	50.464	72.050	114.95	794.95	108.05	98.852
300	11.172	11913	54.433	73.803	119.36	726.65	97.331	93.990
310	10.791	13133	58.433	75.681	124.84	655.73	87.327	89.232
320	10.364	14415	62.505	77.722	132.12	580.58	77.777	84.520
330	9.8645	15787	66.725	80.031	143.13	498.03	68.328	79.739
330.41	9.8417	15846	66.904	80.135	143.73	494.39	67.933	79.538
330.41	1.0484	27605	102.49	79.929	120.48	196.47	9.8438	25.241
340	0.9609	28704	105.77	79.824	110.30	208.77	9.9961	25.910
350	0.8934	29780	108.89	80.558	105.61	219.20	10.194	26.889
360	0.8398	30824	111.83	81.671	103.39	228.15	10.412	28.010
370	0.7954	31852	114.65	83.001	102.44	236.09	10.641	29.221
380	0.7575	32875	117.38	84.465	102.25	243.31	10.878	30.497
390	0.7244	33899	120.04	86.015	102.53	249.95	11.118	31.826
400	0.6951	34927	122.64	87.625	103.15	256.14	11.361	33.199
410	0.6689	35963	125.20	89.276	104.00	261.96	11.605	34.612
420	0.6452	37008	127.71	90.956	105.02	267.46	11.849	36.063
430	0.6236	38063	130.20	92.654	106.17	272.70	12.093	37.547

TABLE 3 *Continued*

<i>T</i> K	ρ mol·L ⁻¹	<i>H</i> J·mol ⁻¹	<i>S</i> J·mol ⁻¹ ·K ⁻¹	<i>C_v</i> J·mol ⁻¹ ·K ⁻¹	<i>C_p</i> J·mol ⁻¹ ·K ⁻¹	<i>c</i> m·s ⁻¹	η μPa·s	λ mW·m ⁻¹ ·K ⁻¹
440	0.6038	39131	132.65	94.363	107.42	277.72	12.336	39.065
450	0.5855	40212	135.08	96.077	108.73	282.53	12.578	40.615
460	0.5685	41306	137.49	97.791	110.11	287.17	12.818	42.196
470	0.5527	42414	139.87	99.499	111.52	291.65	13.058	43.808
480	0.5379	43537	142.23	101.20	112.95	295.99	13.296	45.450
490	0.5241	44673	144.58	102.89	114.41	300.21	13.532	47.122
500	0.5110	45825	146.90	104.56	115.88	304.31	13.767	48.823
510	0.4987	46991	149.21	106.23	117.36	308.31	14.000	50.553
520	0.4871	48172	151.51	107.87	118.83	312.21	14.231	52.313
530	0.4760	49368	153.78	109.50	120.31	316.03	14.460	54.101
540	0.4656	50578	156.05	111.10	121.78	319.76	14.688	55.918
550	0.4556	51803	158.29	112.69	123.24	323.41	14.913	57.762
560	0.4461	53043	160.53	114.26	124.70	327.00	15.137	59.635
570	0.4371	54297	162.75	115.81	126.14	330.51	15.359	61.541
580	0.4284	55566	164.95	117.34	127.57	333.97	15.579	63.476
590	0.4201	56849	167.15	118.85	128.99	337.37	15.797	65.439
600	0.4122	58146	169.33	120.34	130.40	340.71	16.014	67.431
Pressure = 3 MPa								
90	16.542	-8134.40	-57.499	59.626	84.611	2115.2	7674.3	207.31
100	16.310	-7286.10	-48.561	59.267	85.073	2047.6	3901.3	203.96
110	16.080	-6432.70	-40.428	59.075	85.618	1980.0	2324.8	199.95
120	15.852	-5573.60	-32.953	58.983	86.213	1912.7	1543.9	195.40
130	15.625	-4708.30	-26.027	58.962	86.854	1845.9	1108.9	190.41
140	15.398	-3836.30	-19.566	59.004	87.547	1779.6	843.55	185.08
150	15.172	-2957.20	-13.500	59.111	88.299	1713.7	669.45	179.48
160	14.944	-2070.10	-7.7757	59.295	89.119	1648.0	548.10	173.68
170	14.714	-1174.50	-2.3463	59.570	90.021	1582.3	459.24	167.73
180	14.483	-269.38	2.8270	59.957	91.021	1516.7	391.55	161.70
190	14.249	646.32	7.7777	60.467	92.141	1451.3	338.32	155.63
200	14.011	1573.9	12.535	61.108	93.399	1386.2	295.38	149.57
210	13.770	2514.8	17.126	61.878	94.815	1321.5	260.05	143.55
220	13.524	3470.8	21.573	62.773	96.404	1257.3	230.49	137.62
230	13.273	4443.5	25.896	63.783	98.179	1193.5	205.42	131.79
240	13.016	5435.0	30.116	64.903	100.15	1130.1	183.91	126.09
250	12.751	6447.3	34.248	66.128	102.35	1066.8	165.25	120.52
260	12.476	7482.8	38.309	67.457	104.78	1003.4	148.92	115.11
270	12.191	8544.0	42.313	68.887	107.50	939.86	134.48	109.86
280	11.892	9634.0	46.277	70.417	110.56	875.86	121.58	104.77
290	11.576	10757	50.216	72.045	114.05	811.12	109.94	99.848
300	11.239	11917	54.150	73.771	118.12	745.23	99.304	95.075
310	10.874	13122	58.100	75.603	123.01	677.53	89.443	90.432
320	10.472	14381	62.099	77.563	129.21	607.00	80.129	85.881
330	10.015	15714	66.197	79.708	137.77	531.82	71.099	81.351
340	9.466	17154	70.495	82.181	151.57	448.29	61.964	76.701
350	8.723	18800	75.265	85.531	183.70	345.54	51.813	71.610
350.86	8.640	18961	75.723	85.928	189.14	334.73	50.810	71.132
350.86	1.790	27767	100.82	89.218	189.24	174.70	11.747	33.241
360	1.554	29212	104.89	86.479	139.74	193.46	11.539	31.754
370	1.403	30519	108.47	86.219	124.18	207.90	11.552	31.992
380	1.297	31723	111.68	86.884	117.38	219.46	11.657	32.767
390	1.214	32878	114.68	87.938	113.92	229.30	11.807	33.790
400	1.146	34007	117.54	89.201	112.14	237.99	11.984	34.959
410	1.090	35124	120.30	90.592	111.33	245.82	12.178	36.229
420	1.040	36236	122.98	92.069	111.15	253.00	12.382	37.574
430	0.9973	37348	125.60	93.604	111.38	259.65	12.594	38.980
440	0.9589	38464	128.16	95.181	111.92	265.88	12.811	40.439
450	0.9244	39587	130.69	96.785	112.67	271.76	13.031	41.943
460	0.8931	40718	133.17	98.407	113.58	277.33	13.253	43.490
470	0.8644	41859	135.63	100.04	114.61	282.64	13.477	45.075
480	0.8381	43011	138.05	101.68	115.73	287.72	13.700	46.697
490	0.8137	44174	140.45	103.31	116.92	292.61	13.924	48.353
500	0.7910	45349	142.82	104.94	118.17	297.32	14.147	50.043
510	0.7699	46537	145.18	106.56	119.45	301.87	14.370	51.766
520	0.7501	47738	147.51	108.18	120.76	306.28	14.592	53.520
530	0.7315	48953	149.82	109.77	122.09	310.56	14.812	55.305
540	0.7140	50180	152.12	111.36	123.43	314.72	15.032	57.121
550	0.6975	51421	154.39	112.93	124.78	318.77	15.250	58.964
560	0.6818	52676	156.65	114.48	126.13	322.72	15.467	60.835
570	0.6670	53944	158.90	116.01	127.49	326.58	15.682	62.748
580	0.6529	55226	161.13	117.53	128.84	330.36	15.896	64.691
590	0.6394	56521	163.34	119.02	130.18	334.05	16.108	66.663
600	0.6266	57829	165.54	120.50	131.52	337.67	16.319	68.663
Pressure = 5 MPa								
90	16.556	-8028.9	-57.669	59.701	84.589	2121.2	7865.9	207.75

TABLE 3 *Continued*

<i>T</i> K	ρ mol·L ⁻¹	<i>H</i> J·mol ⁻¹	<i>S</i> J·mol ⁻¹ ·K ⁻¹	<i>C_V</i> J·mol ⁻¹ ·K ⁻¹	<i>C_P</i> J·mol ⁻¹ ·K ⁻¹	<i>c</i> m·s ⁻¹	η μPa·s	λ mW·m ⁻¹ ·K ⁻¹
100	16.325	-7180.8	-48.734	59.344	85.043	2054.1	3988.0	204.47
110	16.097	-6327.8	-40.604	59.154	85.578	1986.9	2372.5	200.52
120	15.870	-5469.1	-33.133	59.063	86.161	1920.2	1573.4	196.03
130	15.645	-4604.1	-26.212	59.045	86.789	1853.9	1128.8	191.11
140	15.420	-3733.2	-19.756	59.089	87.466	1788.2	857.97	185.84
150	15.194	-2854.9	-13.697	59.199	88.200	1722.9	680.47	180.30
160	14.969	-1968.9	-7.979	59.384	89.000	1657.9	556.91	174.56
170	14.741	-1074.6	-2.558	59.663	89.878	1593.0	466.56	168.68
180	14.512	-171.12	2.607	60.051	90.852	1528.3	397.83	162.71
190	14.281	742.81	7.548	60.561	91.941	1463.8	343.84	156.71
200	14.047	1668.2	12.294	61.201	93.163	1399.6	300.35	150.71
210	13.809	2606.6	16.872	61.969	94.534	1336.0	264.60	144.76
220	13.568	3559.4	21.304	62.861	96.068	1273.0	234.72	138.88
230	13.322	4528.5	25.612	63.867	97.775	1210.6	209.42	133.14
240	13.070	5515.5	29.812	64.982	99.664	1148.6	187.73	127.51
250	12.811	6522.4	33.922	66.201	101.75	1087.0	168.95	122.02
260	12.544	7551.2	37.957	67.522	104.04	1025.5	152.53	116.70
270	12.268	8604.1	41.930	68.940	106.58	964.24	138.05	111.54
280	11.981	9683.6	45.856	70.452	109.38	902.90	125.16	106.56
290	11.680	10793	49.748	72.052	112.51	841.37	113.58	101.76
300	11.363	11935	53.621	73.737	116.05	779.44	103.07	97.132
310	11.025	13116	57.491	75.506	120.13	716.78	93.409	92.673
320	10.659	14340	61.378	77.364	124.96	652.95	84.416	88.363
330	10.259	15619	65.311	79.329	130.93	587.29	75.906	84.170
340	9.8081	16965	69.331	81.436	138.83	518.75	67.680	80.044
350	9.2809	18407	73.510	83.771	150.44	445.59	59.480	75.895
360	8.6191	20003	78.004	86.565	171.15	364.42	50.871	71.555
370	7.6380	21939	83.304	90.690	228.74	267.20	40.692	66.788
380	4.7260	26048	94.230	100.84	674.49	157.16	21.936	63.254
390	3.0168	29593	103.460	94.931	218.35	179.39	15.972	45.379
400	2.5448	31443	108.150	93.815	163.28	197.41	14.948	42.439
410	2.2736	32966	111.910	94.051	143.87	211.57	14.556	41.899
420	2.0849	34352	115.250	94.820	134.39	223.42	14.400	42.216
430	1.9412	35667	118.350	95.861	129.11	233.74	14.365	42.960
440	1.8257	36942	121.280	97.068	126.03	242.93	14.401	43.959
450	1.7297	38192	124.090	98.383	124.25	251.27	14.482	45.130
460	1.6477	39429	126.810	99.775	123.31	258.94	14.594	46.424
470	1.5764	40660	129.450	101.22	122.92	266.05	14.728	47.815
480	1.5134	41889	132.040	102.70	122.94	272.71	14.877	49.284
490	1.4572	43120	134.580	104.21	123.25	278.98	15.038	50.819
500	1.4064	44355	137.070	105.73	123.78	284.92	15.208	52.411
510	1.3603	45596	139.530	107.27	124.47	290.58	15.384	54.055
520	1.3180	46845	141.960	108.80	125.29	295.99	15.564	55.744
530	1.2790	48102	144.350	110.34	126.20	301.17	15.749	57.475
540	1.2430	49369	146.720	111.87	127.19	306.16	15.936	59.244
550	1.2095	50646	149.060	113.39	128.23	310.97	16.124	61.045
560	1.1782	51934	151.380	114.90	129.32	315.62	16.315	62.877
570	1.1489	53233	153.680	116.40	130.44	320.13	16.505	64.781
580	1.1213	54543	155.960	117.89	131.59	324.50	16.697	66.718
590	1.0954	55865	158.220	119.36	132.76	328.75	16.888	68.688
600	1.0708	57198	160.460	120.81	133.93	332.89	17.079	70.689
Pressure = 7.5 MPa								
90	16.574	-7897.0	-57.880	59.794	84.563	2128.7	8111.3	208.30
100	16.344	-7049.2	-48.949	59.439	85.008	2062.2	4098.5	205.10
110	16.117	-6196.6	-40.822	59.251	85.531	1995.6	2433.0	201.23
120	15.892	-5338.5	-33.356	59.163	86.100	1929.4	1610.9	196.81
130	15.669	-4474.4	-26.441	59.147	86.711	1863.9	1154.1	191.96
140	15.446	-3604.1	-19.991	59.194	87.369	1798.9	876.22	186.77
150	15.223	-2726.9	-13.939	59.306	88.082	1734.3	694.39	181.31
160	14.999	-1842.2	-8.2298	59.495	88.858	1670.1	568.02	175.64
170	14.775	-949.45	-2.8177	59.776	89.710	1606.1	475.78	169.84
180	14.549	-47.712	2.3362	60.166	90.654	1542.4	405.71	163.95
190	14.321	864.00	7.2653	60.677	91.708	1479.0	350.77	158.03
200	14.090	1786.9	11.999	61.316	92.888	1416.0	306.57	152.11
210	13.857	2722.2	16.562	62.082	94.209	1353.7	270.28	146.24
220	13.620	3671.6	20.978	62.969	95.682	1292.1	240.00	140.44
230	13.380	4636.4	25.267	63.971	97.314	1231.1	214.38	134.78
240	13.134	5618.4	29.446	65.081	99.112	1170.8	192.45	129.24
250	12.883	6619.2	33.531	66.294	101.08	1111.0	173.50	123.85
260	12.625	7640.6	37.537	67.606	103.23	1051.7	156.96	118.62
270	12.359	8684.5	41.476	69.013	105.58	992.83	142.41	113.56
280	12.085	9752.9	45.361	70.508	108.14	934.27	129.49	108.69
290	11.800	10848	49.204	72.084	110.94	875.98	117.94	104.02
300	11.501	11973	53.017	73.734	114.03	817.88	107.50	99.536

TABLE 3 *Continued*

<i>T</i> K	ρ mol·L ⁻¹	<i>H</i> J·mol ⁻¹	<i>S</i> J·mol ⁻¹ ·K ⁻¹	<i>C_V</i> J·mol ⁻¹ ·K ⁻¹	<i>C_P</i> J·mol ⁻¹ ·K ⁻¹	<i>c</i> m·s ⁻¹	η μPa·s	λ mW·m ⁻¹ ·K ⁻¹
310	11.188	13130	56.811	75.454	117.46	759.84	97.993	95.247
320	10.856	14323	60.599	77.242	121.32	701.70	89.237	91.145
330	10.501	15558	64.399	79.098	125.74	643.26	81.084	87.217
340	10.117	16841	68.228	81.030	130.97	584.30	73.400	83.446
350	9.6939	18181	72.113	83.052	137.37	524.53	66.053	79.802
360	9.2192	19594	76.093	85.190	145.61	463.71	58.912	76.245
370	8.6705	21104	80.228	87.487	156.95	401.74	51.835	72.716
380	8.0106	22751	84.620	90.006	173.73	339.27	44.664	69.137
390	7.1806	24608	89.443	92.786	199.40	279.48	37.286	65.437
400	6.1366	26757	94.880	95.526	228.72	232.27	30.025	61.565
410	5.0540	29070	100.59	97.218	225.99	210.98	24.334	57.384
420	4.2428	31183	105.69	97.928	196.04	210.53	21.075	53.836
430	3.7031	33014	110.00	98.564	172.01	217.66	19.358	51.802
440	3.3283	34653	113.77	99.380	156.99	226.64	18.399	50.961
450	3.0510	36173	117.18	100.36	147.64	235.77	17.834	50.882
460	2.8351	37617	120.36	101.48	141.67	244.55	17.495	51.294
470	2.6604	39013	123.36	102.69	137.78	252.86	17.296	52.037
480	2.5149	40377	126.23	103.98	135.25	260.68	17.191	53.015
490	2.3909	41721	129.00	105.32	133.65	268.06	17.151	54.168
500	2.2834	43052	131.69	106.71	132.70	275.03	17.158	55.458
510	2.1889	44377	134.31	108.13	132.23	281.63	17.200	56.857
520	2.1048	45698	136.88	109.57	132.11	287.92	17.267	58.345
530	2.0292	47020	139.40	111.02	132.26	293.91	17.355	59.909
540	1.9607	48344	141.87	112.48	132.62	299.65	17.459	61.534
550	1.8982	49673	144.31	113.94	133.14	305.15	17.575	63.203
560	1.8408	51007	146.71	115.40	133.78	310.44	17.702	64.914
570	1.7878	52349	149.09	116.86	134.52	315.54	17.836	66.763
580	1.7387	53698	151.43	118.31	135.34	320.47	17.976	68.655
590	1.6930	55056	153.76	119.75	136.22	325.24	18.121	70.587
600	1.6502	56422	156.05	121.18	137.14	329.87	18.271	72.559
Pressure = 10 MPa								
90	16.592	-7765.1	-58.090	59.885	84.539	2136.1	8363.6	208.85
100	16.363	-6917.6	-49.161	59.533	84.975	2070.2	4211.5	205.72
110	16.138	-6065.4	-41.039	59.348	85.487	2004.2	2494.7	201.93
120	15.914	-5207.7	-33.577	59.262	86.043	1938.6	1648.9	197.59
130	15.692	-4344.4	-26.667	59.248	86.638	1873.7	1179.7	192.81
140	15.471	-3474.8	-20.223	59.297	87.278	1809.3	894.72	187.69
150	15.250	-2598.6	-14.178	59.412	87.971	1745.5	708.48	182.31
160	15.029	-1715.2	-8.4768	59.604	88.725	1682.1	579.26	176.72
170	14.807	-823.91	-3.0735	59.888	89.552	1619.0	485.08	170.99
180	14.584	76.109	2.0706	60.279	90.468	1556.2	413.66	165.18
190	14.359	985.81	6.9889	60.792	91.490	1493.8	357.73	159.33
200	14.133	1906.3	11.710	61.429	92.633	1432.0	312.80	153.49
210	13.903	2838.9	16.260	62.193	93.910	1370.8	275.97	147.69
220	13.671	3785.0	20.661	63.077	95.330	1310.5	245.26	141.98
230	13.435	4746.0	24.933	64.076	96.897	1250.9	219.31	136.38
240	13.196	5723.5	29.092	65.181	98.616	1192.1	197.13	130.92
250	12.951	6718.9	33.156	66.389	100.49	1134.0	177.98	125.61
260	12.701	7733.8	37.136	67.694	102.52	1076.5	161.30	120.47
270	12.445	8769.9	41.046	69.092	104.72	1019.7	146.65	115.50
280	12.181	9828.8	44.897	70.574	107.10	963.42	133.69	110.73
290	11.909	10912	48.699	72.132	109.66	907.76	122.12	106.16
300	11.626	12023	52.463	73.760	112.43	852.66	111.71	101.79
310	11.332	13162	56.198	75.450	115.44	798.09	102.28	97.633
320	11.025	14332	59.914	77.196	118.71	743.99	93.652	93.679
330	10.701	15537	63.621	78.995	122.31	690.34	85.697	89.927
340	10.358	16780	67.331	80.847	126.32	637.11	78.297	86.370
350	9.9916	18065	71.056	82.751	130.83	584.33	71.349	82.996
360	9.5970	19399	74.813	84.710	136.02	532.08	64.768	79.791
370	9.1674	20789	78.620	86.727	142.08	480.61	58.484	76.734
380	8.6947	22244	82.501	88.804	149.24	430.46	52.445	73.803
390	8.1697	23778	86.484	90.934	157.68	382.64	46.632	70.979
400	7.5855	25401	90.594	93.084	167.11	338.98	41.085	68.250
410	6.9455	27118	94.834	95.173	176.06	302.16	35.944	65.629
420	6.2772	28910	99.152	97.072	181.40	274.95	31.454	63.169
430	5.6339	30725	103.42	98.689	180.37	258.56	27.856	60.980
440	5.0672	32500	107.50	100.06	174.03	251.46	25.206	59.224
450	4.5968	34199	111.32	101.29	165.89	250.62	23.351	58.022
460	4.2149	35820	114.88	102.48	158.41	253.39	22.072	57.383
470	3.9040	37373	118.22	103.68	152.39	258.06	21.185	57.234
480	3.6476	38872	121.38	104.92	147.82	263.68	20.566	57.482
490	3.4328	40333	124.39	106.20	144.46	269.71	20.133	58.042
500	3.2498	41765	127.29	107.51	142.04	275.88	19.832	58.848
510	3.0918	43176	130.08	108.85	140.37	282.03	19.627	59.850

TABLE 3 *Continued*

T K	ρ mol·L ⁻¹	H J·mol ⁻¹	S J·mol ⁻¹ ·K ⁻¹	C_v J·mol ⁻¹ ·K ⁻¹	C_p J·mol ⁻¹ ·K ⁻¹	c m·s ⁻¹	η μPa·s	λ mW·m ⁻¹ ·K ⁻¹
520	2.9536	44574	132.79	110.22	139.26	288.07	19.494	61.009
530	2.8314	45963	135.44	111.61	138.58	293.98	19.415	62.295
540	2.7222	47347	138.03	113.02	138.25	299.73	19.379	63.681
550	2.6239	48729	140.56	114.43	138.20	305.30	19.376	65.131
560	2.5347	50111	143.05	115.85	138.35	310.72	19.399	66.641
570	2.4533	51496	145.51	117.27	138.67	315.97	19.443	68.384
580	2.3786	52885	147.92	118.68	139.14	321.06	19.505	70.186
590	2.3096	54279	150.30	120.10	139.71	326.01	19.581	72.043
600	2.2457	55680	152.66	121.50	140.37	330.81	19.669	73.950
250	12.951	-6335.9	177.9	66.39	100.49	1134.0	178.0	125.6
Pressure = 15 MPa								
90	16.626	-7501	-58.505	60.064	84.495	2150.9	8889.6	209.93
100	16.401	-6654	-49.581	59.717	84.914	2086.0	4444.9	206.95
110	16.178	-5803	-41.466	59.537	85.405	2021.1	2621.6	203.31
120	15.958	-4946	-34.012	59.456	85.936	1956.7	1727.0	199.12
130	15.739	-4084	-27.111	59.446	86.502	1892.9	1232.2	194.49
140	15.522	-3216	-20.679	59.500	87.109	1829.8	932.50	189.52
150	15.305	-2342	-14.647	59.620	87.766	1767.4	737.20	184.27
160	15.088	-1461	-8.9600	59.817	88.480	1705.4	602.09	178.83
170	14.871	-572	-3.5728	60.106	89.263	1643.9	503.93	173.25
180	14.653	325	1.5534	60.501	90.131	1582.9	429.71	167.58
190	14.434	1231	6.4520	61.015	91.097	1522.4	371.76	161.87
200	14.214	2147	11.152	61.651	92.176	1462.6	325.32	156.17
210	13.992	3075	15.677	62.411	93.378	1403.6	287.34	150.52
220	13.768	4015	20.052	63.290	94.709	1345.6	255.75	144.95
230	13.541	4970	24.293	64.282	96.171	1288.4	229.11	139.48
240	13.312	5939	28.420	65.381	97.765	1232.2	206.38	134.17
250	13.079	6925	32.445	66.581	99.490	1176.9	186.80	129.01
260	12.842	7929	36.383	67.876	101.34	1122.5	169.79	124.01
270	12.601	8953	40.244	69.261	103.33	1069.0	154.90	119.20
280	12.355	9996	44.040	70.725	105.44	1016.5	141.75	114.58
290	12.103	11062	47.779	72.262	107.68	964.87	130.07	110.17
300	11.845	12150	51.469	73.862	110.04	914.25	119.63	105.97
310	11.580	13263	55.117	75.517	112.54	864.62	110.22	102.00
320	11.307	14402	58.731	77.220	115.16	816.03	101.69	98.244
330	11.024	15567	62.317	78.964	117.92	768.50	93.898	94.713
340	10.732	16761	65.880	80.744	120.83	722.12	86.746	91.404
350	10.430	17984	69.426	82.556	123.88	676.97	80.138	88.315
360	10.114	19239	72.691	84.394	127.09	633.18	74.001	85.440
370	9.7862	20526	76.489	86.253	130.46	590.93	68.277	82.773
380	9.4437	21848	80.014	88.128	133.98	550.46	62.923	80.308
390	9.0862	23206	83.541	90.010	137.62	512.08	57.911	78.037
400	8.7137	24601	87.072	91.892	141.32	476.18	53.227	75.953
410	8.3270	26032	90.606	93.759	144.94	443.24	48.873	74.050
420	7.9288	27499	94.140	95.597	148.30	413.75	44.864	72.326
430	7.5236	28997	97.665	97.388	151.17	388.18	41.225	70.786
440	7.1180	30520	101.17	99.117	153.28	366.84	37.982	69.438
450	6.7201	32059	104.63	100.77	154.48	349.84	35.155	68.295
460	6.3380	33606	108.03	102.36	154.75	336.98	32.743	67.373
470	5.9787	35152	111.35	103.88	154.22	327.87	30.725	66.687
480	5.6465	36689	114.59	105.34	153.15	321.95	29.066	66.246
490	5.3433	38214	117.73	106.77	151.79	318.61	27.717	66.051
500	5.0689	39724	120.78	108.17	150.35	317.29	26.628	66.094
510	4.8215	41221	123.75	109.56	149.01	317.50	25.755	66.360
520	4.5989	42705	126.63	110.95	147.83	318.84	25.055	66.830
530	4.3983	44179	129.43	112.33	146.88	321.02	24.497	67.480
540	4.2171	45643	132.17	113.72	146.15	323.80	24.052	68.278
550	4.0529	47102	134.85	115.10	145.64	327.02	23.700	69.168
560	3.9035	48557	137.47	116.49	145.34	330.53	23.423	70.144
570	3.7671	50010	140.04	117.87	145.22	334.25	23.208	71.541
580	3.6421	51462	142.57	119.26	145.25	338.11	23.043	73.039
590	3.5270	52915	145.05	120.64	145.43	342.05	22.921	74.629
600	3.4207	54371	147.50	122.01	145.72	346.04	22.833	76.301
Pressure = 20 MPa								
90	16.661	-7237.7	-58.913	60.240	84.457	2165.4	9445.7	210.99
100	16.437	-6391.2	-49.995	59.898	84.860	2101.6	4688.6	208.16
110	16.217	-5540.3	-41.885	59.722	85.332	2037.7	2753.3	204.66
120	16.000	-4684.5	-34.438	59.646	85.840	1974.3	1807.8	200.62
130	15.784	-3823.4	-27.546	59.640	86.380	1911.7	1286.3	196.13
140	15.570	-2956.7	-21.124	59.698	86.958	1849.8	971.32	191.30
150	15.357	-2084.1	-15.104	59.823	87.582	1788.6	766.62	186.20
160	15.145	-1204.9	-9.4298	60.025	88.261	1728.0	625.42	180.89
170	14.932	-318.64	-4.0570	60.318	89.006	1668.0	523.13	175.45
180	14.719	575.48	1.0534	60.717	89.832	1608.6	446.00	169.91

TABLE 3 *Continued*

<i>T</i> K	ρ mol·L ⁻¹	<i>H</i> J·mol ⁻¹	<i>S</i> J·mol ⁻¹ ·K ⁻¹	<i>C_v</i> J·mol ⁻¹ ·K ⁻¹	<i>C_p</i> J·mol ⁻¹ ·K ⁻¹	<i>c</i> m·s ⁻¹	η μPa·s	λ mW·m ⁻¹ ·K ⁻¹
190	14.506	1478.3	5.9346	61.231	90.752	1549.8	385.94	164.34
200	14.291	2390.9	10.615	61.867	91.778	1491.8	337.93	158.78
210	14.076	3314.3	15.120	62.624	92.919	1434.7	298.75	153.26
220	13.859	4249.7	19.471	63.499	94.179	1378.6	266.22	147.81
230	13.640	5198.3	23.688	64.487	95.560	1323.5	238.84	142.47
240	13.420	6161.3	27.786	65.580	97.059	1269.5	215.52	137.28
250	13.197	7139.8	31.781	66.775	98.674	1216.5	195.47	132.24
260	12.971	8135.1	35.684	68.063	100.40	1164.6	178.08	127.37
270	12.742	9148.2	39.507	69.438	102.24	1113.8	162.88	122.68
280	12.510	10180	43.260	70.893	104.17	1064.1	149.50	118.18
290	12.274	11232	46.951	72.416	106.21	1015.5	137.65	113.90
300	12.034	12305	50.587	74.001	108.33	968.12	127.07	109.83
310	11.789	13399	54.174	75.637	110.53	921.94	117.59	105.98
320	11.540	14515	57.720	77.318	112.82	877.01	109.02	102.35
330	11.285	15655	61.227	79.037	115.17	833.38	101.25	98.954
340	11.025	16819	64.701	80.787	117.59	791.11	94.155	95.784
350	10.758	18007	68.145	82.563	120.07	750.28	87.645	92.840
360	10.485	19221	71.563	84.357	122.59	710.97	81.645	90.120
370	10.206	20459	74.957	86.165	125.16	673.29	76.095	87.618
380	9.9205	21724	78.329	87.981	127.75	637.36	70.945	85.331
390	9.6284	23014	81.681	89.798	130.34	603.31	66.159	83.250
400	9.3302	24331	85.013	91.610	132.91	571.29	61.708	81.368
410	9.0266	25672	88.326	93.411	135.42	541.46	57.573	79.679
420	8.7187	27039	91.618	95.193	137.82	513.98	53.742	78.174
430	8.4079	28428	94.888	96.949	140.05	489.00	50.210	76.847
440	8.0962	29839	98.131	98.673	142.06	466.64	46.974	75.694
450	7.7861	31268	101.34	100.36	143.78	446.97	44.033	74.709
460	7.4803	32713	104.52	102.01	145.18	430.00	41.385	73.890
470	7.1815	34171	107.65	103.62	146.25	415.66	39.023	73.237
480	6.8923	35637	110.74	105.18	147.00	403.80	36.937	72.749
490	6.6149	37110	113.78	106.72	147.47	394.25	35.11	72.425
500	6.3510	38586	116.76	108.22	147.72	386.76	33.527	72.263
510	6.1016	40064	119.69	109.69	147.82	381.09	32.161	72.260
520	5.8671	41542	122.56	111.15	147.81	376.98	30.991	72.410
530	5.6476	43020	125.37	112.58	147.77	374.21	29.992	72.703
540	5.4426	44497	128.13	114.01	147.73	372.55	29.143	73.119
550	5.2515	45975	130.84	115.42	147.71	371.83	28.424	73.605
560	5.0736	47452	133.51	116.82	147.75	371.88	27.816	74.157
570	4.9078	48930	136.12	118.21	147.85	372.56	27.303	75.188
580	4.7533	50409	138.69	119.60	148.03	373.75	26.873	76.342
590	4.6091	51891	141.23	120.98	148.27	375.35	26.512	77.610
600	4.4745	53375	143.72	122.35	148.59	377.30	26.211	78.984

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