



# **RS-50 (R442A)**

## **THERMODYNAMIC TABLES (°F)**

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Temperature (°F)	Liquid Phase	Vapor Phase	Liquid Phase	Vapor Phase	Liquid Phase	Vapor Phase	Liquid Phase	Vapor Phase
	Pressure (psia)	Pressure (psia)	Density (lbm/ft³)	Density (lbm/ft³)	Enthalpy (Btu/lbm)	Enthalpy (Btu/lbm)	Entropy (Btu/lbm-°R)	Entropy (Btu/lbm-°R)
-80	6.3575	4.1824	88.1170	0.08543	49.485	163.400	0.15525	0.46124
-78	6.7764	4.4864	87.9110	0.09124	50.112	163.690	0.15689	0.46032
-76	7.2172	4.8083	87.7050	0.09737	50.740	163.980	0.15853	0.45941
-74	7.6809	5.1486	87.4990	0.10381	51.368	164.260	0.16016	0.45853
-72	8.1682	5.5083	87.2920	0.11060	51.997	164.550	0.16178	0.45766
-70	8.6802	5.8881	87.0840	0.11774	52.627	164.840	0.16340	0.45681
-68	9.2176	6.2887	86.8760	0.12524	53.257	165.120	0.16501	0.45597
-66	9.7813	6.7112	86.6680	0.13311	53.888	165.400	0.16661	0.45515
-64	10.3720	7.1562	86.4590	0.14138	54.519	165.690	0.16821	0.45435
-62	10.9920	7.6248	86.2490	0.15005	55.151	165.970	0.16980	0.45356
-60	11.6400	8.1177	86.0390	0.15914	55.784	166.250	0.17138	0.45279
-58	12.3180	8.6359	85.8290	0.16866	56.417	166.530	0.17296	0.45203
-56	13.0280	9.1803	85.6180	0.17863	57.051	166.810	0.17453	0.45128
-54	13.7700	9.7519	85.4060	0.18906	57.686	167.090	0.17610	0.45055
-52	14.5440	10.3520	85.1930	0.19996	58.322	167.370	0.17766	0.44983
-50	15.3530	10.9800	84.9800	0.21136	58.959	167.650	0.17921	0.44913
-48	16.1980	11.6390	84.7670	0.22327	59.596	167.930	0.18076	0.44843
-46	17.0780	12.3300	84.5520	0.23570	60.234	168.200	0.18230	0.44775
-44	17.9960	13.0520	84.3370	0.24867	60.873	168.480	0.18384	0.44708
-42	18.9520	13.8070	84.1220	0.26220	61.513	168.750	0.18537	0.44643
-40	19.9480	14.5970	83.9050	0.27631	62.154	169.030	0.18689	0.44578
-38	20.9840	15.4220	83.6880	0.29101	62.796	169.300	0.18841	0.44515
-36	22.0620	16.2840	83.4700	0.30632	63.438	169.570	0.18993	0.44453
-34	23.1830	17.1830	83.2520	0.32226	64.082	169.840	0.19144	0.44391
-32	24.3480	18.1210	83.0330	0.33885	64.727	170.110	0.19294	0.44331
-30	25.5580	19.0990	82.8120	0.35610	65.373	170.380	0.19444	0.44272
-28	26.8150	20.1180	82.5910	0.37404	66.019	170.640	0.19594	0.44214
-26	28.1190	21.1790	82.3700	0.39268	66.667	170.910	0.19743	0.44157
-24	29.4730	22.2840	82.1470	0.41205	67.316	171.170	0.19891	0.44101



-22	30.8760	23.4330	81.9240	0.43217	67.966	171.440	0.20040	0.44046
Temperature (°F)	Liquid Phase Pressure (psia)	Vapor Phase Pressure (psia)	Liquid Phase Density (lbm/ft³)	Vapor Phase Density (lbm/ft³)	Liquid Phase Enthalpy (Btu/lbm)	Vapor Phase Enthalpy (Btu/lbm)	Liquid Phase Entropy (Btu/lbm-°R)	Vapor Phase Entropy (Btu/lbm-°R)
	-20	32.3310	24.6290	81.6990	0.45305	68.617	171.700	0.20187
-18	33.8380	25.8710	81.4740	0.47472	69.270	171.960	0.20335	0.43938
-16	35.3990	27.1620	81.2480	0.49720	69.923	172.220	0.20481	0.43885
-14	37.0150	28.5030	81.0200	0.52051	70.578	172.480	0.20628	0.43833
-12	38.6870	29.8950	80.7920	0.54468	71.234	172.730	0.20774	0.43782
-10	40.4170	31.3390	80.5630	0.56972	71.892	172.990	0.20919	0.43732
-8	42.2070	32.8370	80.3330	0.59567	72.550	173.240	0.21065	0.43683
-6	44.0560	34.3900	80.1020	0.62254	73.210	173.490	0.21210	0.43634
-4	45.9670	35.9990	79.8700	0.65037	73.872	173.740	0.21354	0.43586
-2	47.9410	37.6660	79.6360	0.67917	74.534	173.990	0.21498	0.43539
0	49.9790	39.3930	79.4020	0.70897	75.198	174.240	0.21642	0.43492
2	52.0840	41.1790	79.1660	0.73980	75.864	174.480	0.21785	0.43447
4	54.2550	43.0280	78.9290	0.77169	76.531	174.730	0.21928	0.43401
6	56.4940	44.9410	78.6910	0.80466	77.199	174.970	0.22071	0.43357
8	58.8040	46.9180	78.4520	0.83874	77.869	175.210	0.22214	0.43313
10	61.1850	48.9620	78.2120	0.87397	78.541	175.450	0.22356	0.43269
12	63.6380	51.0730	77.9700	0.91036	79.214	175.680	0.22497	0.43226
14	66.1650	53.2540	77.7270	0.94796	79.889	175.920	0.22639	0.43184
16	68.7680	55.5060	77.4820	0.98679	80.566	176.150	0.22780	0.43142
18	71.4480	57.8300	77.2360	1.02690	81.244	176.380	0.22921	0.43101
20	74.2070	60.2280	76.9890	1.06830	81.924	176.610	0.23062	0.43060
22	77.0450	62.7010	76.7400	1.11100	82.606	176.840	0.23202	0.43020
24	79.9650	65.2520	76.4900	1.15510	83.289	177.060	0.23342	0.42980
26	82.9670	67.8810	76.2380	1.20060	83.974	177.280	0.23482	0.42941
28	86.0540	70.5900	75.9850	1.24760	84.662	177.500	0.23622	0.42901
30	89.2270	73.3820	75.7300	1.29600	85.351	177.720	0.23761	0.42863
32	92.4870	76.2560	75.4730	1.34590	86.042	177.940	0.23901	0.42825
34	95.8360	79.2160	75.2150	1.39740	86.735	178.150	0.24040	0.42787



36	99.2750	82.2630	74.9550	1.45050	87.430	178.360	0.24178	0.42749
38	102.8100	85.3980	74.6930	1.50530	88.128	178.570	0.24317	0.42712
	<b>Liquid Phase</b>	<b>Vapor Phase</b>	<b>Liquid Phase</b>	<b>Vapor Phase</b>	<b>Liquid Phase</b>	<b>Vapor Phase</b>	<b>Liquid Phase</b>	<b>Vapor Phase</b>
<b>Temperature</b>	<b>Pressure</b>	<b>Pressure</b>	<b>Density</b>	<b>Density</b>	<b>Enthalpy</b>	<b>Enthalpy</b>	<b>Entropy</b>	<b>Entropy</b>
<b>(°F)</b>	<b>(psia)</b>	<b>(psia)</b>	<b>(lbm/ft³)</b>	<b>(lbm/ft³)</b>	<b>(Btu/lbm)</b>	<b>(Btu/lbm)</b>	<b>(Btu/lbm-°R)</b>	<b>(Btu/lbm-°R)</b>
40	106.4300	88.6240	74.4290	1.56170	88.827	178.770	0.24456	0.42675
42	110.1500	91.9410	74.1640	1.61990	89.529	178.980	0.24594	0.42638
44	113.9700	95.3520	73.8960	1.67980	90.233	179.180	0.24732	0.42602
46	117.8800	98.8590	73.6270	1.74160	90.939	179.380	0.24870	0.42566
48	121.9000	102.4600	73.3550	1.80530	91.648	179.570	0.25008	0.42530
50	126.0100	106.1700	73.0810	1.87090	92.359	179.760	0.25146	0.42494
52	130.2300	109.9700	72.8060	1.93850	93.072	179.950	0.25283	0.42459
54	134.5500	113.8700	72.5270	2.00820	93.788	180.130	0.25421	0.42423
56	138.9800	117.8800	72.2470	2.08000	94.506	180.320	0.25558	0.42388
58	143.5200	122.0000	71.9640	2.15390	95.228	180.500	0.25695	0.42353
60	148.1700	126.2300	71.6790	2.23010	95.951	180.670	0.25833	0.42318
62	152.9200	130.5600	71.3920	2.30850	96.678	180.840	0.25970	0.42283
64	157.7900	135.0100	71.1010	2.38940	97.407	181.010	0.26107	0.42248
66	162.7800	139.5700	70.8090	2.47270	98.140	181.180	0.26244	0.42214
68	167.8800	144.2500	70.5130	2.55850	98.875	181.340	0.26381	0.42179
70	173.1000	149.0400	70.2150	2.64690	99.613	181.490	0.26518	0.42144
72	178.4400	153.9500	69.9130	2.73800	100.350	181.650	0.26655	0.42109
74	183.8900	158.9900	69.6090	2.83180	101.100	181.800	0.26792	0.42074
76	189.4800	164.1500	69.3020	2.92850	101.850	181.940	0.26929	0.42039
78	195.1800	169.4400	68.9910	3.02820	102.600	182.080	0.27066	0.42004
80	201.0200	174.8500	68.6780	3.13090	103.350	182.220	0.27204	0.41969
82	206.9800	180.4000	68.3600	3.23670	104.110	182.350	0.27341	0.41933
84	213.0700	186.0800	68.0400	3.34580	104.870	182.470	0.27478	0.41898
86	219.2900	191.8900	67.7150	3.45830	105.640	182.600	0.27616	0.41862
88	225.6500	197.8400	67.3870	3.57430	106.410	182.710	0.27753	0.41826
90	232.1400	203.9300	67.0550	3.69390	107.180	182.820	0.27891	0.41789
92	238.7700	210.1600	66.7190	3.81730	107.960	182.930	0.28029	0.41753



94	245.5300	216.5400	66.3790	3.94460	108.740	183.030	0.28167	0.41716
96	252.4400	223.0600	66.0340	4.07590	109.530	183.120	0.28305	0.41678
98	259.4900	229.7300	65.6850	4.21150	110.320	183.210	0.28444	0.41640
100	266.6900	236.5500	65.3310	4.35140	111.110	183.290	0.28583	0.41602
102	274.0300	243.5300	64.9730	4.49590	111.910	183.360	0.28722	0.41563
104	281.5200	250.6600	64.6090	4.64520	112.720	183.430	0.28861	0.41524
106	289.1600	257.9500	64.2400	4.79940	113.530	183.490	0.29001	0.41484
108	296.9500	265.4000	63.8650	4.95880	114.350	183.540	0.29141	0.41443
110	304.8900	273.0200	63.4850	5.12360	115.170	183.590	0.29281	0.41402
112	312.9900	280.8100	63.0980	5.29410	115.990	183.630	0.29422	0.41360
114	321.2500	288.7600	62.7060	5.47060	116.830	183.650	0.29563	0.41317
116	329.6700	296.9000	62.3060	5.65330	117.670	183.670	0.29705	0.41274
118	338.2500	305.2000	61.9000	5.84250	118.510	183.680	0.29847	0.41229
120	347.0000	313.6900	61.4860	6.03870	119.370	183.690	0.29990	0.41183
122	355.9100	322.3600	61.0640	6.24210	120.230	183.680	0.30133	0.41137
124	364.9900	331.2200	60.6350	6.45330	121.090	183.660	0.30278	0.41089
126	374.2400	340.2600	60.1960	6.67250	121.970	183.630	0.30422	0.41040
128	383.6600	349.5000	59.7480	6.90040	122.850	183.580	0.30568	0.40990
130	393.2600	358.9400	59.2900	7.13750	123.750	183.530	0.30715	0.40938
132	403.0400	368.5800	58.8220	7.38430	124.650	183.460	0.30863	0.40884
134	412.9900	378.4300	58.3420	7.64150	125.560	183.370	0.31011	0.40829
136	423.1200	388.4900	57.8500	7.90990	126.490	183.270	0.31161	0.40773
138	433.4400	398.7600	57.3450	8.19030	127.420	183.160	0.31312	0.40714
140	443.9500	409.2500	56.8250	8.48360	128.370	183.030	0.31465	0.40653
142	454.6400	419.9700	56.2900	8.79080	129.330	182.880	0.31619	0.40589
144	465.5200	430.9200	55.7370	9.11320	130.310	182.700	0.31775	0.40523
146	476.6000	442.1100	55.1660	9.45220	131.300	182.510	0.31933	0.40454
148	487.8700	453.5300	54.5740	9.80920	132.310	182.290	0.32093	0.40382
150	499.3300	465.2100	53.9590	10.18600	133.340	182.050	0.32256	0.40306
152	511.0000	477.1500	53.3180	10.58500	134.390	181.770	0.32421	0.40227
154	522.8600	489.3600	52.6470	11.00900	135.460	181.470	0.32590	0.40143
156	534.9300	501.8400	51.9430	11.46100	136.560	181.130	0.32762	0.40053



158	547.2000	514.6100	51.2010	11.94400	137.700	180.740	0.32939	0.39958
160	559.6700	527.6800	50.4140	12.46400	138.870	180.310	0.33120	0.39857
162	572.3400	541.0600	49.5740	13.02600	140.080	179.830	0.33308	0.39747
164	585.2100	554.7800	48.6700	13.63800	141.340	179.280	0.33503	0.39628
	<b>Liquid Phase</b>	<b>Vapor Phase</b>	<b>Liquid Phase</b>	<b>Vapor Phase</b>	<b>Liquid Phase</b>	<b>Vapor Phase</b>	<b>Liquid Phase</b>	<b>Vapor Phase</b>
<b>Temperature</b>	<b>Pressure</b>	<b>Pressure</b>	<b>Density</b>	<b>Density</b>	<b>Enthalpy</b>	<b>Enthalpy</b>	<b>Entropy</b>	<b>Entropy</b>
<b>(°F)</b>	<b>(psia)</b>	<b>(psia)</b>	<b>(lbm/ft³)</b>	<b>(lbm/ft³)</b>	<b>(Btu/lbm)</b>	<b>(Btu/lbm)</b>	<b>(Btu/lbm-°R)</b>	<b>(Btu/lbm-°R)</b>
166	598.2700	568.8500	47.6890	14.31100	142.670	178.650	0.33708	0.39498
168	611.5200	583.3000	46.6090	15.05800	144.080	177.930	0.33924	0.39354
170	624.9500	598.1700	45.4010	15.90200	145.590	177.090	0.34155	0.39192
172	638.5100	613.5000	44.0150	16.87500	147.240	176.090	0.34408	0.39006
174	652.1500	629.3900	42.3610	18.03300	149.110	174.860	0.34695	0.38784
176	665.7400	645.9900	40.2440	19.49100	151.370	173.260	0.35041	0.38507
178	671.6700	675.5400	27.4590	34.09300	163.540	157.020	0.36948	0.35922



Temperature (°F)	Liquid Phase	Vapor Phase	Liquid Phase	Vapor Phase	Liquid Phase	Vapor Phase	Liquid Phase	Vapor Phase
	Pressure (psig)	Pressure (psig)	Density (lbm/ft³)	Density (lbm/ft³)	Enthalpy (Btu/lbm)	Enthalpy (Btu/lbm)	Entropy (Btu/lbm-°R)	Entropy (Btu/lbm-°R)
-80	-8.3384	-10.5140	88.1170	0.0854	49.485	163.40	0.15525	0.46124
-78	-7.9196	-10.2100	87.9110	0.0912	50.112	163.69	0.15689	0.46032
-76	-7.4788	-9.8877	87.7050	0.0974	50.740	163.98	0.15853	0.45941
-74	-7.0151	-9.5473	87.4990	0.1038	51.368	164.26	0.16016	0.45853
-72	-6.5277	-9.1877	87.2920	0.1106	51.997	164.55	0.16178	0.45766
-70	-6.0158	-8.8079	87.0840	0.1177	52.627	164.84	0.16340	0.45681
-68	-5.4784	-8.4072	86.8760	0.1252	53.257	165.12	0.16501	0.45597
-66	-4.9146	-7.9848	86.6680	0.1331	53.888	165.40	0.16661	0.45515
-64	-4.3236	-7.5397	86.4590	0.1414	54.519	165.69	0.16821	0.45435
-62	-3.7044	-7.0712	86.2490	0.1501	55.151	165.97	0.16980	0.45356
-60	-3.0561	-6.5782	86.0390	0.1591	55.784	166.25	0.17138	0.45279
-58	-2.3776	-6.0600	85.8290	0.1687	56.417	166.53	0.17296	0.45203
-56	-1.6680	-5.5156	85.6180	0.1786	57.051	166.81	0.17453	0.45128
-54	-0.9263	-4.9440	85.4060	0.1891	57.686	167.09	0.17610	0.45055
-52	-0.1515	-4.3443	85.1930	0.2000	58.322	167.37	0.17766	0.44983
-50	0.6575	-3.7155	84.9800	0.2114	58.959	167.65	0.17921	0.44913
-48	1.5017	-3.0565	84.7670	0.2233	59.596	167.93	0.18076	0.44843
-46	2.3821	-2.3664	84.5520	0.2357	60.234	168.20	0.18230	0.44775
-44	3.2998	-1.6442	84.3370	0.2487	60.873	168.48	0.18384	0.44708
-42	4.2559	-0.8887	84.1220	0.2622	61.513	168.75	0.18537	0.44643
-40	5.2516	-0.0990	83.9050	0.2763	62.154	169.03	0.18689	0.44578
-38	6.2879	0.7262	83.6880	0.2910	62.796	169.30	0.18841	0.44515
-36	7.3660	1.5878	83.4700	0.3063	63.438	169.57	0.18993	0.44453
-34	8.4870	2.4871	83.2520	0.3223	64.082	169.84	0.19144	0.44391

-32	9.6520	3.4251	83.0330	0.3389	64.727	170.11	0.19294	0.44331
-30	10.8620	4.4030	82.8120	0.3561	65.373	170.38	0.19444	0.44272
-28	12.1190	5.4219	82.5910	0.3740	66.019	170.64	0.19594	0.44214
-26	13.4230	6.4832	82.3700	0.3927	66.667	170.91	0.19743	0.44157
-24	14.7770	7.5879	82.1470	0.4121	67.316	171.17	0.19891	0.44101
-22	16.1800	8.7374	81.9240	0.4322	67.966	171.44	0.20040	0.44046

Temperature (°F)	Liquid Phase	Vapor Phase	Liquid Phase	Vapor Phase	Liquid Phase	Vapor Phase	Liquid Phase	Vapor Phase
	Pressure (psig)	Pressure (psig)	Density (lbm/ft³)	Density (lbm/ft³)	Enthalpy (Btu/lbm)	Enthalpy (Btu/lbm)	Entropy (Btu/lbm-°R)	Entropy (Btu/lbm-°R)
-20	17.6350	9.9327	81.6990	0.4531	68.617	171.70	0.20187	0.43991
-18	19.1420	11.1750	81.4740	0.4747	69.270	171.96	0.20335	0.43938
-16	20.7030	12.4660	81.2480	0.4972	69.923	172.22	0.20481	0.43885
-14	22.3190	13.8070	81.0200	0.5205	70.578	172.48	0.20628	0.43833
-12	23.9910	15.1990	80.7920	0.5447	71.234	172.73	0.20774	0.43782
-10	25.7210	16.6430	80.5630	0.5697	71.892	172.99	0.20919	0.43732
-8	27.5110	18.1410	80.3330	0.5957	72.550	173.24	0.21065	0.43683
-6	29.3600	19.6940	80.1020	0.6225	73.210	173.49	0.21210	0.43634
-4	31.2710	21.3030	79.8700	0.6504	73.872	173.74	0.21354	0.43586
-2	33.2450	22.9700	79.6360	0.6792	74.534	173.99	0.21498	0.43539
0	35.2840	24.6970	79.4020	0.7090	75.198	174.24	0.21642	0.43492
2	37.3880	26.4840	79.1660	0.7398	75.864	174.48	0.21785	0.43447
4	39.5590	28.3320	78.9290	0.7717	76.531	174.73	0.21928	0.43401
6	41.7980	30.2450	78.6910	0.8047	77.199	174.97	0.22071	0.43357
8	44.1080	32.2220	78.4520	0.8387	77.869	175.21	0.22214	0.43313
10	46.4890	34.2660	78.2120	0.8740	78.541	175.45	0.22356	0.43269
12	48.9420	36.3770	77.9700	0.9104	79.214	175.68	0.22497	0.43226
14	51.4690	38.5580	77.7270	0.9480	79.889	175.92	0.22639	0.43184
16	54.0720	40.8100	77.4820	0.9868	80.566	176.15	0.22780	0.43142
18	56.7520	43.1340	77.2360	1.0269	81.244	176.38	0.22921	0.43101
20	59.5110	45.5320	76.9890	1.0683	81.924	176.61	0.23062	0.43060
22	62.3490	48.0050	76.7400	1.1110	82.606	176.84	0.23202	0.43020
24	65.2690	50.5560	76.4900	1.1551	83.289	177.06	0.23342	0.42980
26	68.2710	53.1850	76.2380	1.2006	83.974	177.28	0.23482	0.42941



28	71.3580	55.8940	75.9850	1.2476	84.662	177.50	0.23622	0.42901
30	74.5310	58.6860	75.7300	1.2960	85.351	177.72	0.23761	0.42863
32	77.7910	61.5600	75.4730	1.3459	86.042	177.94	0.23901	0.42825
34	81.1400	64.5200	75.2150	1.3974	86.735	178.15	0.24040	0.42787
36	84.5790	67.5670	74.9550	1.4505	87.430	178.36	0.24178	0.42749
38	88.1100	70.7020	74.6930	1.5053	88.128	178.57	0.24317	0.42712
40	91.7350	73.9280	74.4290	1.5617	88.827	178.77	0.24456	0.42675
42	95.4550	77.2450	74.1640	1.6199	89.529	178.98	0.24594	0.42638
44	99.2710	80.6560	73.8960	1.6798	90.233	179.18	0.24732	0.42602
46	103.1900	84.1630	73.6270	1.7416	90.939	179.38	0.24870	0.42566
48	107.2000	87.7660	73.3550	1.8053	91.648	179.57	0.25008	0.42530
50	111.3200	91.4690	73.0810	1.8709	92.359	179.76	0.25146	0.42494
52	115.5300	95.2720	72.8060	1.9385	93.072	179.95	0.25283	0.42459
54	119.8600	99.1780	72.5270	2.0082	93.788	180.13	0.25421	0.42423
56	124.2900	103.1900	72.2470	2.0800	94.506	180.32	0.25558	0.42388
58	128.8200	107.3100	71.9640	2.1539	95.228	180.50	0.25695	0.42353
60	133.4700	111.5300	71.6790	2.2301	95.951	180.67	0.25833	0.42318
62	138.2300	115.8600	71.3920	2.3085	96.678	180.84	0.25970	0.42283
64	143.1000	120.3100	71.1010	2.3894	97.407	181.01	0.26107	0.42248
66	148.0800	124.8700	70.8090	2.4727	98.140	181.18	0.26244	0.42214
68	153.1800	129.5500	70.5130	2.5585	98.875	181.34	0.26381	0.42179
70	158.4000	134.3400	70.2150	2.6469	99.613	181.49	0.26518	0.42144
72	163.7400	139.2600	69.9130	2.7380	100.350	181.65	0.26655	0.42109
74	169.2000	144.3000	69.6090	2.8318	101.100	181.80	0.26792	0.42074
76	174.7800	149.4600	69.3020	2.9285	101.850	181.94	0.26929	0.42039
78	180.4900	154.7400	68.9910	3.0282	102.600	182.08	0.27066	0.42004
80	186.3200	160.1600	68.6780	3.1309	103.350	182.22	0.27204	0.41969
82	192.2800	165.7000	68.3600	3.2367	104.110	182.35	0.27341	0.41933
84	198.3700	171.3800	68.0400	3.3458	104.870	182.47	0.27478	0.41898
86	204.6000	177.1900	67.7150	3.4583	105.640	182.60	0.27616	0.41862
88	210.9500	183.1400	67.3870	3.5743	106.410	182.71	0.27753	0.41826
90	217.4400	189.2300	67.0550	3.6939	107.180	182.82	0.27891	0.41789
92	224.0700	195.4600	66.7190	3.8173	107.960	182.93	0.28029	0.41753

94	230.8400	201.8400	66.3790	3.9446	108.740	183.03	0.28167	0.41716
96	237.7500	208.3600	66.0340	4.0759	109.530	183.12	0.28305	0.41678
98	244.8000	215.0300	65.6850	4.2115	110.320	183.21	0.28444	0.41640
100	251.9900	221.8500	65.3310	4.3514	111.110	183.29	0.28583	0.41602
102	259.3300	228.8300	64.9730	4.4959	111.910	183.36	0.28722	0.41563
104	266.8200	235.9600	64.6090	4.6452	112.720	183.43	0.28861	0.41524
	<b>Liquid Phase</b>	<b>Vapor Phase</b>	<b>Liquid Phase</b>	<b>Vapor Phase</b>	<b>Liquid Phase</b>	<b>Vapor Phase</b>	<b>Liquid Phase</b>	<b>Vapor Phase</b>
<b>Temperature</b>	<b>Pressure</b>	<b>Pressure</b>	<b>Density</b>	<b>Density</b>	<b>Enthalpy</b>	<b>Enthalpy</b>	<b>Entropy</b>	<b>Entropy</b>
<b>(°F)</b>	<b>(psig)</b>	<b>(psig)</b>	<b>(lbm/ft³)</b>	<b>(lbm/ft³)</b>	<b>(Btu/lbm)</b>	<b>(Btu/lbm)</b>	<b>(Btu/lbm-°R)</b>	<b>(Btu/lbm-°R)</b>
106	274.4600	243.2500	64.2400	4.7994	113.530	183.49	0.29001	0.41484
108	282.2500	250.7100	63.8650	4.9588	114.350	183.54	0.29141	0.41443
110	290.2000	258.3300	63.4850	5.1236	115.170	183.59	0.29281	0.41402
112	298.3000	266.1100	63.0980	5.2941	115.990	183.63	0.29422	0.41360
114	306.5600	274.0700	62.7060	5.4706	116.830	183.65	0.29563	0.41317
116	314.9800	282.2000	62.3060	5.6533	117.670	183.67	0.29705	0.41274
118	323.5600	290.5100	61.9000	5.8425	118.510	183.68	0.29847	0.41229
120	332.3000	298.9900	61.4860	6.0387	119.370	183.69	0.29990	0.41183
122	341.2100	307.6600	61.0640	6.2421	120.230	183.68	0.30133	0.41137
124	350.2900	316.5200	60.6350	6.4533	121.090	183.66	0.30278	0.41089
126	359.5400	325.5700	60.1960	6.6725	121.970	183.63	0.30422	0.41040
128	368.9700	334.8100	59.7480	6.9004	122.850	183.58	0.30568	0.40990
130	378.5700	344.2500	59.2900	7.1375	123.750	183.53	0.30715	0.40938
132	388.3400	353.8900	58.8220	7.3843	124.650	183.46	0.30863	0.40884
134	398.2900	363.7300	58.3420	7.6415	125.560	183.37	0.31011	0.40829
136	408.4300	373.7900	57.8500	7.9099	126.490	183.27	0.31161	0.40773
138	418.7500	384.0600	57.3450	8.1903	127.420	183.16	0.31312	0.40714
140	429.2500	394.5600	56.8250	8.4836	128.370	183.03	0.31465	0.40653
142	439.9400	405.2700	56.2900	8.7908	129.330	182.88	0.31619	0.40589
144	450.8300	416.2200	55.7370	9.1132	130.310	182.70	0.31775	0.40523
146	461.9000	427.4100	55.1660	9.4522	131.300	182.51	0.31933	0.40454
148	473.1700	438.8400	54.5740	9.8092	132.310	182.29	0.32093	0.40382
150	484.6400	450.5200	53.9590	10.1860	133.340	182.05	0.32256	0.40306
152	496.3000	462.4600	53.3180	10.5850	134.390	181.77	0.32421	0.40227

154	508.1700	474.6600	52.6470	11.0090	135.460	181.47	0.32590	0.40143
156	520.2300	487.1500	51.9430	11.4610	136.560	181.13	0.32762	0.40053
158	532.5000	499.9100	51.2010	11.9440	137.700	180.74	0.32939	0.39958
160	544.9700	512.9800	50.4140	12.4640	138.870	180.31	0.33120	0.39857
162	557.6400	526.3700	49.5740	13.0260	140.080	179.83	0.33308	0.39747
164	570.5100	540.0800	48.6700	13.6380	141.340	179.28	0.33503	0.39628
	<b>Liquid Phase</b>	<b>Vapor Phase</b>	<b>Liquid Phase</b>	<b>Vapor Phase</b>	<b>Liquid Phase</b>	<b>Vapor Phase</b>	<b>Liquid Phase</b>	<b>Vapor Phase</b>
<b>Temperature</b>	<b>Pressure</b>	<b>Pressure</b>	<b>Density</b>	<b>Density</b>	<b>Enthalpy</b>	<b>Enthalpy</b>	<b>Entropy</b>	<b>Entropy</b>
<b>(°F)</b>	<b>(psig)</b>	<b>(psig)</b>	<b>(lbm/ft³)</b>	<b>(lbm/ft³)</b>	<b>(Btu/lbm)</b>	<b>(Btu/lbm)</b>	<b>(Btu/lbm-°R)</b>	<b>(Btu/lbm-°R)</b>
166	583.5800	554.1500	47.6890	14.3110	142.670	178.65	0.33708	0.39498
168	596.8300	568.6000	46.6090	15.0580	144.080	177.93	0.33924	0.39354
170	610.2500	583.4700	45.4010	15.9020	145.590	177.09	0.34155	0.39192
172	623.8100	598.8100	44.0150	16.8750	147.240	176.09	0.34408	0.39006
174	637.4600	614.7000	42.3610	18.0330	149.110	174.86	0.34695	0.38784
176	651.0400	631.2900	40.2440	19.4910	151.370	173.26	0.35041	0.38507
178	656.9700	660.8400	27.4590	34.0930	163.540	157.02	0.36948	0.35922



Sat -80 F [4.1824 psia]				Sat -60 F [8.1177 psia]				Sat -40 F [14.597 psia]			
Temp	Volume	Enthalpy	Entropy	Temp	Volume	Enthalpy	Entropy	Temp	Volume	Enthalpy	Entropy
[F]	[ft³/lbm]	[Btu/lbm]	[Btu/lbm-R]	[F]	[ft³/lbm]	[Btu/lbm]	[Btu/lbm-R]	[F]	[ft³/lbm]	[Btu/lbm]	[Btu/lbm-R]
-80	11.705	163.40	0.46124	-60	6.2838	166.25	0.45279	-40	3.6191	169.03	0.44578
-76	11.839	164.09	0.46302	-56	6.3547	166.97	0.45457	-36	3.6601	169.78	0.44757
-72	11.971	164.77	0.46479	-52	6.4251	167.68	0.45633	-32	3.7008	170.53	0.44934
-68	12.104	165.45	0.46655	-48	6.4953	168.40	0.45808	-28	3.7413	171.28	0.45109
-64	12.236	166.14	0.46829	-44	6.5651	169.12	0.45981	-24	3.7814	172.04	0.45282
-60	12.367	166.83	0.47002	-40	6.6346	169.83	0.46153	-20	3.8214	172.79	0.45453
-56	12.499	167.52	0.47174	-36	6.7039	170.55	0.46323	-16	3.8612	173.54	0.45623
-52	12.630	168.21	0.47344	-32	6.773	171.27	0.46493	-12	3.9007	174.29	0.45792
-48	12.760	168.90	0.47514	-28	6.8418	171.99	0.46661	-8	3.9402	175.04	0.45959
-44	12.891	169.60	0.47682	-24	6.9104	172.72	0.46827	-4	3.9794	175.79	0.46125
-40	13.021	170.30	0.47849	-20	6.9789	173.44	0.46993	0	4.0185	176.55	0.46290
-36	13.151	171.00	0.48015	-16	7.0471	174.17	0.47158	4	4.0575	177.31	0.46454
-32	13.281	171.70	0.48181	-12	7.1153	174.90	0.47321	8	4.0963	178.06	0.46617
-28	13.410	172.41	0.48345	-8	7.1832	175.63	0.47484	12	4.1350	178.82	0.46779
-24	13.540	173.12	0.48508	-4	7.251	176.36	0.47646	16	4.1736	179.58	0.46939
-20	13.669	173.83	0.48671	0	7.3187	177.10	0.47807	20	4.2121	180.35	0.47099
-16	13.798	174.54	0.48833	4	7.3863	177.84	0.47967	24	4.2505	181.11	0.47258
-12	13.927	175.26	0.48994	8	7.4538	178.58	0.48126	28	4.2888	181.88	0.47416
-8	14.055	175.98	0.49154	12	7.5211	179.32	0.48284	32	4.3271	182.65	0.47574
-4	14.184	176.70	0.49313	16	7.5883	180.07	0.48442	36	4.3652	183.42	0.47730
0	14.312	177.43	0.49472	20	7.6555	180.82	0.48599	40	4.4033	184.20	0.47886
4	14.441	178.16	0.49630	24	7.7225	181.57	0.48755	44	4.4412	184.98	0.48041
8	14.569	178.89	0.49787	28	7.7895	182.33	0.48911	48	4.4792	185.76	0.48195
12	14.697	179.62	0.49943	32	7.8564	183.09	0.49065	52	4.5170	186.54	0.48348
16	14.825	180.36	0.50099	36	7.9232	183.85	0.49219	56	4.5548	187.32	0.48501
20	14.953	181.10	0.50254	40	7.9899	184.61	0.49373	60	4.5925	188.11	0.48653
24	15.081	181.85	0.50409	44	8.0566	185.38	0.49526	64	4.6302	188.90	0.48805
28	15.209	182.60	0.50563	48	8.1231	186.15	0.49678	68	4.6678	189.69	0.48956
32	15.337	183.35	0.50716	52	8.1897	186.92	0.49829	72	4.7053	190.49	0.49106
36	15.464	184.10	0.50869	56	8.2561	187.69	0.49980	76	4.7429	191.29	0.49256
40	15.592	184.86	0.51021	60	8.3225	188.47	0.50131	80	4.7803	192.09	0.49405
44	15.719	185.62	0.51173	64	8.3889	189.26	0.50281	84	4.8177	192.89	0.49553
48	15.847	186.38	0.51324	68	8.4552	190.04	0.50430	88	4.8551	193.70	0.49701
52	15.974	187.15	0.51474	72	8.5214	190.83	0.50579	92	4.8924	194.51	0.49849
56	16.101	187.92	0.51624	76	8.5876	191.62	0.50727	96	4.9297	195.33	0.49996
60	16.229	188.69	0.51773	80	8.6537	192.41	0.50875	100	4.9670	196.14	0.50142
64	16.356	189.47	0.51922	84	8.7198	193.21	0.51022	104	5.0042	196.96	0.50288
68	16.483	190.25	0.52071	88	8.7859	194.01	0.51169	108	5.0414	197.78	0.50433

Sat -80 F [4.1824 psia]				Sat -60 F [8.1177 psia]				Sat -40 F [14.597 psia]			
Temp	Volume	Enthalpy	Entropy	Temp	Volume	Enthalpy	Entropy	Temp	Volume	Enthalpy	Entropy
[F]	[ft³/lbm]	[Btu/lbm]	[Btu/lbm-R]	[F]	[ft³/lbm]	[Btu/lbm]	[Btu/lbm-R]	[F]	[ft³/lbm]	[Btu/lbm]	[Btu/lbm-R]
72	16.610	191.03	0.52218	92	8.8519	194.81	0.51315	112	5.0785	198.61	0.50578
76	16.737	191.82	0.52366	96	8.9179	195.62	0.51460	116	5.1156	199.44	0.50722
80	16.864	192.61	0.52513	100	8.9838	196.43	0.51606	120	5.1527	200.27	0.50866
84	16.991	193.40	0.52659	104	9.0497	197.24	0.51751	124	5.1897	201.10	0.51010
88	17.118	194.20	0.52805	108	9.1156	198.06	0.51895	128	5.2268	201.94	0.51153
92	17.245	195.00	0.52951	112	9.1814	198.88	0.52039	132	5.2638	202.78	0.51295
96	17.372	195.80	0.53096	116	9.2472	199.70	0.52182	136	5.3007	203.63	0.51438
100	17.498	196.61	0.53240	120	9.313	200.53	0.52325	140	5.3377	204.47	0.51579
104	17.625	197.42	0.53384	124	9.3788	201.36	0.52468	144	5.3746	205.32	0.51721
108	17.752	198.23	0.53528	128	9.4445	202.19	0.52610	148	5.4115	206.18	0.51861
112	17.878	199.04	0.53671	132	9.5102	203.03	0.52752	152	5.4483	207.03	0.52002
116	18.005	199.86	0.53814	136	9.5758	203.87	0.52893	156	5.4852	207.89	0.52142
120	18.132	200.69	0.53957	140	9.6415	204.71	0.53034	160	5.5220	208.75	0.52282
124	18.258	201.51	0.54099	144	9.7071	205.56	0.53175	164	5.5588	209.62	0.52421
128	18.385	202.34	0.54241	148	9.7727	206.40	0.53315	168	5.5956	210.49	0.52560
132	18.511	203.18	0.54382	152	9.8383	207.26	0.53455	172	5.6324	211.36	0.52698
136	18.638	204.01	0.54523	156	9.9038	208.11	0.53594	176	5.6691	212.24	0.52836
140	18.764	204.85	0.54663	160	9.9693	208.97	0.53733	180	5.7059	213.11	0.52974
144	18.891	205.70	0.54803	164	10.035	209.83	0.53872	184	5.7426	214.00	0.53112
148	19.017	206.54	0.54943	168	10.1	210.70	0.54010	188	5.7793	214.88	0.53249
152	19.144	207.39	0.55083	172	10.166	211.57	0.54148	192	5.8160	215.77	0.53385
156	19.270	208.25	0.55222	176	10.231	212.44	0.54286	196	5.8526	216.66	0.53522
160	19.397	209.10	0.55360	180	10.297	213.31	0.54423	200	5.8893	217.55	0.53658
164	19.523	209.96	0.55499	184	10.362	214.19	0.54560	204	5.9259	218.45	0.53793
168	19.649	210.83	0.55636	188	10.428	215.07	0.54696	208	5.9625	219.35	0.53929
172	19.776	211.69	0.55774	192	10.493	215.96	0.54833	212	5.9991	220.26	0.54063
176	19.902	212.56	0.55911	196	10.558	216.85	0.54968	216	6.0357	221.16	0.54198
180	20.028	213.44	0.56048	200	10.624	217.74	0.55104	220	6.0723	222.07	0.54332
184	20.154	214.31	0.56185	204	10.689	218.63	0.55239	224	6.1089	222.99	0.54466
188	20.281	215.19	0.56321	208	10.754	219.53	0.55374	228	6.1455	223.90	0.54600
192	20.407	216.07	0.56457	212	10.82	220.43	0.55509	232	6.1820	224.82	0.54733
196	20.533	216.96	0.56593	216	10.885	221.34	0.55643	236	6.2185	225.75	0.54866
200	20.659	217.85	0.56728	220	10.95	222.24	0.55777	240	6.2551	226.67	0.54999
204	20.785	218.74	0.56863	224	11.015	223.16	0.55910	244	6.2916	227.60	0.55132
208	20.912	219.64	0.56998	228	11.081	224.07	0.56044	248	6.3281	228.53	0.55264
212	21.038	220.54	0.57132	232	11.146	224.99	0.56177	252	6.3646	229.47	0.55395
216	21.164	221.44	0.57266	236	11.211	225.91	0.56309	256	6.4011	230.41	0.55527
220	21.290	222.35	0.57400	240	11.276	226.83	0.56442	260	6.4375	231.35	0.55658
224	21.416	223.26	0.57533	244	11.342	227.76	0.56574	264	6.4740	232.29	0.55789
228	21.542	224.17	0.57666	248	11.407	228.69	0.56706	268	6.5105	233.24	0.55920
232	21.668	225.09	0.57799	252	11.472	229.62	0.56837	272	6.5469	234.19	0.56050
236	21.795	226.00	0.57931	256	11.537	230.56	0.56968	276	6.5833	235.15	0.56180
240	21.921	226.93	0.58064	260	11.602	231.50	0.57099	280	6.6198	236.10	0.56310

Sat -20 F [24.629 psia]				Sat 0 F [39.393 psia]				Sat 20 F [60.228 psia]			
Temp	Volume	Enthalpy	Entropy	Temp	Volume	Enthalpy	Entropy	Temp	Volume	Enthalpy	Entropy
[F]	[ft <sup>3</sup> /lbm]	[Btu/lbm]	[Btu/lbm-R]	[F]	[ft <sup>3</sup> /lbm]	[Btu/lbm]	[Btu/lbm-R]	[F]	[ft <sup>3</sup> /lbm]	[Btu/lbm]	[Btu/lbm-R]
-20	2.2072	171.70	0.43991	0	1.4105	174.24	0.43492	20	0.9361	176.61	0.43060
-16	2.2328	172.50	0.44172	4	1.4274	175.08	0.43676	24	0.9480	177.51	0.43247
-12	2.2581	173.29	0.44350	8	1.4441	175.93	0.43856	28	0.9597	178.41	0.43431
-8	2.2831	174.08	0.44526	12	1.4607	176.76	0.44034	32	0.9712	179.29	0.43612
-4	2.3080	174.87	0.44700	16	1.4770	177.59	0.44210	36	0.9826	180.17	0.43791
0	2.3327	175.66	0.44872	20	1.4933	178.42	0.44384	40	0.9938	181.05	0.43967
4	2.3572	176.45	0.45042	24	1.5093	179.25	0.44555	44	1.0050	181.92	0.44141
8	2.3815	177.23	0.45211	28	1.5253	180.08	0.44725	48	1.0160	182.79	0.44313
12	2.4058	178.02	0.45379	32	1.5411	180.90	0.44894	52	1.0269	183.66	0.44483
16	2.4298	178.81	0.45545	36	1.5569	181.72	0.45061	56	1.0377	184.53	0.44651
20	2.4538	179.59	0.45710	40	1.5725	182.55	0.45226	60	1.0485	185.39	0.44818
24	2.4777	180.38	0.45874	44	1.5880	183.37	0.45390	64	1.0592	186.25	0.44984
28	2.5014	181.17	0.46036	48	1.6035	184.20	0.45553	68	1.0697	187.11	0.45148
32	2.5251	181.96	0.46197	52	1.6188	185.02	0.45715	72	1.0803	187.98	0.45310
36	2.5487	182.75	0.46358	56	1.6341	185.85	0.45876	76	1.0907	188.84	0.45472
40	2.5722	183.55	0.46517	60	1.6493	186.67	0.46035	80	1.1011	189.70	0.45632
44	2.5956	184.34	0.46676	64	1.6645	187.50	0.46194	84	1.1114	190.56	0.45791
48	2.6189	185.14	0.46833	68	1.6796	188.33	0.46351	88	1.1217	191.42	0.45950
52	2.6422	185.94	0.46990	72	1.6946	189.16	0.46508	92	1.1319	192.29	0.46107
56	2.6653	186.74	0.47146	76	1.7096	189.99	0.46664	96	1.1421	193.15	0.46263
60	2.6885	187.54	0.47301	80	1.7245	190.82	0.46818	100	1.1522	194.02	0.46418
64	2.7115	188.34	0.47455	84	1.7393	191.65	0.46972	104	1.1623	194.88	0.46572
68	2.7345	189.15	0.47608	88	1.7541	192.49	0.47126	108	1.1724	195.75	0.46725
72	2.7575	189.96	0.47761	92	1.7689	193.33	0.47278	112	1.1824	196.62	0.46878
76	2.7804	190.77	0.47913	96	1.7836	194.17	0.47430	116	1.1923	197.49	0.47030
80	2.8032	191.58	0.48064	100	1.7983	195.01	0.47580	120	1.2022	198.36	0.47181
84	2.8260	192.40	0.48215	104	1.8129	195.85	0.47731	124	1.2121	199.24	0.47331
88	2.8488	193.22	0.48365	108	1.8275	196.70	0.47880	128	1.2220	200.11	0.47480
92	2.8715	194.04	0.48514	112	1.8421	197.55	0.48029	132	1.2318	200.99	0.47629
96	2.8941	194.86	0.48663	116	1.8566	198.40	0.48177	136	1.2416	201.87	0.47777
100	2.9168	195.69	0.48811	120	1.8711	199.25	0.48325	140	1.2513	202.75	0.47925
104	2.9393	196.52	0.48959	124	1.8855	200.10	0.48472	144	1.2611	203.63	0.48071
108	2.9619	197.35	0.49106	128	1.9000	200.96	0.48618	148	1.2708	204.52	0.48217
112	2.9844	198.18	0.49252	132	1.9144	201.82	0.48764	152	1.2805	205.40	0.48363
116	3.0069	199.02	0.49398	136	1.9287	202.68	0.48909	156	1.2901	206.29	0.48508
120	3.0293	199.86	0.49544	140	1.9431	203.55	0.49054	160	1.2997	207.18	0.48652
124	3.0518	200.70	0.49688	144	1.9574	204.41	0.49198	164	1.3093	208.08	0.48796
128	3.0741	201.55	0.49833	148	1.9717	205.28	0.49342	168	1.3189	208.97	0.48939

Sat -20 F [24.629 psia]				Sat 0 F [39.393 psia]				Sat 20 F [60.228 psia]			
Temp	Volume	Enthalpy	Entropy	Temp	Volume	Enthalpy	Entropy	Temp	Volume	Enthalpy	Entropy
[F]	[ft <sup>3</sup> /lbm]	[Btu/lbm]	[Btu/lbm-R]	[F]	[ft <sup>3</sup> /lbm]	[Btu/lbm]	[Btu/lbm-R]	[F]	[ft <sup>3</sup> /lbm]	[Btu/lbm]	[Btu/lbm-R]
132	3.0965	202.40	0.49977	152	1.9859	206.16	0.49485	172	1.3285	209.87	0.49082
136	3.1188	203.25	0.50120	156	2.0002	207.03	0.49628	176	1.3380	210.77	0.49224
140	3.1411	204.10	0.50263	160	2.0144	207.91	0.49770	180	1.3475	211.68	0.49366
144	3.1634	204.96	0.50405	164	2.0286	208.79	0.49911	184	1.3570	212.58	0.49507
148	3.1857	205.82	0.50547	168	2.0427	209.67	0.50052	188	1.3665	213.49	0.49648
152	3.2079	206.68	0.50689	172	2.0569	210.56	0.50193	192	1.3760	214.40	0.49788
156	3.2301	207.55	0.50830	176	2.0710	211.45	0.50333	196	1.3854	215.32	0.49927
160	3.2523	208.42	0.50970	180	2.0851	212.34	0.50473	200	1.3949	216.23	0.50067
164	3.2745	209.29	0.51111	184	2.0992	213.24	0.50613	204	1.4043	217.15	0.50206
168	3.2966	210.16	0.51250	188	2.1133	214.13	0.50752	208	1.4137	218.07	0.50344
172	3.3187	211.04	0.51390	192	2.1274	215.03	0.50890	212	1.4231	219.00	0.50482
176	3.3409	211.92	0.51529	196	2.1414	215.94	0.51028	216	1.4324	219.92	0.50619
180	3.3629	212.80	0.51667	200	2.1554	216.84	0.51166	220	1.4418	220.85	0.50756
184	3.3850	213.69	0.51806	204	2.1695	217.75	0.51303	224	1.4511	221.78	0.50893
188	3.4071	214.58	0.51943	208	2.1835	218.66	0.51440	228	1.4605	222.72	0.51029
192	3.4291	215.47	0.52081	212	2.1974	219.58	0.51577	232	1.4698	223.65	0.51165
196	3.4511	216.37	0.52218	216	2.2114	220.49	0.51713	236	1.4791	224.59	0.51301
200	3.4731	217.27	0.52355	220	2.2254	221.41	0.51849	240	1.4884	225.54	0.51436
204	3.4951	218.17	0.52491	224	2.2393	222.34	0.51984	244	1.4977	226.48	0.51571
208	3.5171	219.07	0.52627	228	2.2532	223.26	0.52119	248	1.5069	227.43	0.51705
212	3.5391	219.98	0.52762	232	2.2672	224.19	0.52254	252	1.5162	228.38	0.51839
216	3.5610	220.89	0.52898	236	2.2811	225.12	0.52388	256	1.5254	229.33	0.51973
220	3.5830	221.81	0.53033	240	2.2950	226.06	0.52522	260	1.5347	230.29	0.52106
224	3.6049	222.72	0.53167	244	2.3088	227.00	0.52656	264	1.5439	231.25	0.52239
228	3.6268	223.65	0.53301	248	2.3227	227.94	0.52789	268	1.5531	232.21	0.52371
232	3.6487	224.57	0.53435	252	2.3366	228.88	0.52922	272	1.5623	233.18	0.52504
236	3.6706	225.49	0.53569	256	2.3504	229.83	0.53055	276	1.5715	234.14	0.52635
240	3.6925	226.42	0.53702	260	2.3643	230.78	0.53187	280	1.5807	235.11	0.52767
244	3.7143	227.36	0.53835	264	2.3781	231.73	0.53319	284	1.5899	236.09	0.52898
248	3.7362	228.29	0.53968	268	2.3919	232.68	0.53451	288	1.5991	237.06	0.53029
252	3.7580	229.23	0.54100	272	2.4057	233.64	0.53582	292	1.6083	238.04	0.53160
256	3.7799	230.17	0.54232	276	2.4195	234.60	0.53713	296	1.6174	239.02	0.53290
260	3.8017	231.12	0.54363	280	2.4333	235.57	0.53844	300	1.6266	240.01	0.53420
264	3.8235	232.07	0.54495	284	2.4471	236.53	0.53974	304	1.6357	240.99	0.53549
268	3.8453	233.02	0.54626	288	2.4609	237.51	0.54104	308	1.6448	241.98	0.53679
272	3.8671	233.97	0.54756	292	2.4747	238.48	0.54234	312	1.6540	242.98	0.53808
276	3.8889	234.93	0.54887	296	2.4884	239.45	0.54364	316	1.6631	243.97	0.53936
280	3.9107	235.89	0.55017	300	2.5022	240.43	0.54493	320	1.6722	244.97	0.54065
284	3.9325	236.85	0.55147	304	2.5160	241.41	0.54622	324	1.6813	245.97	0.54193
288	3.9543	237.82	0.55276	308	2.5297	242.40	0.54750	328	1.6904	246.98	0.54321
292	3.9760	238.79	0.55406	312	2.5434	243.39	0.54879	332	1.6995	247.98	0.54448
296	3.9978	239.76	0.55535	316	2.5572	244.38	0.55007	336	1.7086	248.99	0.54575
300	4.0195	240.73	0.55663	320	2.5709	245.37	0.55134	340	1.7177	250.01	0.54702



Sat 40 F [88.624 psia]				Sat 60 F [126.23 psia]				Sat 80 F [174.85 psia]			
Temp	Volume	Enthalpy	Entropy	Temp	Volume	Enthalpy	Entropy	Temp	Volume	Enthalpy	Entropy
[F]	[ft <sup>3</sup> /lbm]	[Btu/lbm]	[Btu/lbm-R]	[F]	[ft <sup>3</sup> /lbm]	[Btu/lbm]	[Btu/lbm-R]	[F]	[ft <sup>3</sup> /lbm]	[Btu/lbm]	[Btu/lbm-R]
40	0.64032	178.77	0.42675	60	0.4484	180.67	0.42318	80	0.31941	182.22	0.41969
44	0.64909	179.74	0.42868	64	0.4552	181.71	0.42518	84	0.32492	183.36	0.42179
48	0.65769	180.69	0.43056	68	0.4618	182.74	0.42713	88	0.33027	184.47	0.42384
52	0.66614	181.64	0.43242	72	0.4683	183.75	0.42904	92	0.33548	185.57	0.42583
56	0.67446	182.58	0.43424	76	0.4747	184.75	0.43092	96	0.34057	186.65	0.42778
60	0.68267	183.51	0.43603	80	0.4809	185.75	0.43276	100	0.34555	187.72	0.42970
64	0.69076	184.43	0.43781	84	0.4871	186.73	0.43458	104	0.35043	188.77	0.43158
68	0.69876	185.35	0.43956	88	0.4931	187.71	0.43637	108	0.35522	189.82	0.43342
72	0.70667	186.26	0.44128	92	0.4991	188.68	0.43814	112	0.35993	190.85	0.43524
76	0.71450	187.18	0.44299	96	0.5050	189.64	0.43988	116	0.36456	191.88	0.43704
80	0.72224	188.09	0.44468	100	0.5109	190.60	0.44160	120	0.36913	192.90	0.43880
84	0.72992	188.99	0.44636	104	0.5166	191.56	0.44331	124	0.37363	193.92	0.44055
88	0.73753	189.90	0.44802	108	0.5223	192.51	0.44499	128	0.37806	194.93	0.44227
92	0.74508	190.80	0.44966	112	0.5280	193.46	0.44666	132	0.38245	195.93	0.44398
96	0.75256	191.70	0.45129	116	0.5336	194.41	0.44832	136	0.38678	196.93	0.44566
100	0.75999	192.61	0.45291	120	0.5391	195.36	0.44996	140	0.39106	197.93	0.44733
104	0.76737	193.51	0.45451	124	0.5446	196.30	0.45158	144	0.39530	198.93	0.44899
108	0.77470	194.41	0.45611	128	0.5500	197.25	0.45319	148	0.39949	199.92	0.45062
112	0.78198	195.31	0.45769	132	0.5554	198.19	0.45479	152	0.40365	200.91	0.45225
116	0.78922	196.21	0.45926	136	0.5608	199.13	0.45638	156	0.40776	201.89	0.45386
120	0.79642	197.11	0.46082	140	0.5661	200.07	0.45795	160	0.41184	202.88	0.45545
124	0.80357	198.01	0.46237	144	0.5714	201.01	0.45951	164	0.41589	203.86	0.45703
128	0.81069	198.91	0.46391	148	0.5767	201.96	0.46107	168	0.41990	204.85	0.45861
132	0.81777	199.82	0.46544	152	0.5819	202.90	0.46261	172	0.42388	205.83	0.46017
136	0.82482	200.72	0.46696	156	0.5871	203.84	0.46414	176	0.42784	206.81	0.46171
140	0.83183	201.63	0.46848	160	0.5922	204.78	0.46567	180	0.43176	207.79	0.46325
144	0.83882	202.53	0.46998	164	0.5973	205.72	0.46718	184	0.43566	208.77	0.46478
148	0.84577	203.44	0.47148	168	0.6024	206.66	0.46869	188	0.43954	209.75	0.46630
152	0.85269	204.35	0.47297	172	0.6075	207.60	0.47018	192	0.44338	210.73	0.46781
156	0.85959	205.26	0.47445	176	0.6126	208.55	0.47167	196	0.44721	211.72	0.46931
160	0.86646	206.17	0.47593	180	0.6176	209.49	0.47316	200	0.45102	212.70	0.47080
164	0.87330	207.08	0.47740	184	0.6226	210.44	0.47463	204	0.45480	213.68	0.47229
168	0.88012	208.00	0.47886	188	0.6276	211.39	0.47610	208	0.45856	214.66	0.47376
172	0.88692	208.92	0.48032	192	0.6325	212.34	0.47756	212	0.46231	215.64	0.47523
176	0.89370	209.83	0.48177	196	0.6375	213.29	0.47901	216	0.46603	216.63	0.47669
180	0.90045	210.75	0.48321	200	0.6424	214.24	0.48046	220	0.46974	217.61	0.47814
184	0.90718	211.68	0.48465	204	0.6473	215.19	0.48190	224	0.47343	218.60	0.47959
188	0.91390	212.60	0.48608	208	0.6522	216.14	0.48333	228	0.47710	219.59	0.48103

Sat 40 F [88.624 psia]				Sat 60 F [126.23 psia]				Sat 80 F [174.85 psia]			
Temp	Volume	Enthalpy	Entropy	Temp	Volume	Enthalpy	Entropy	Temp	Volume	Enthalpy	Entropy
[F]	[ft <sup>3</sup> /lbm]	[Btu/lbm]	[Btu/lbm-R]	[F]	[ft <sup>3</sup> /lbm]	[Btu/lbm]	[Btu/lbm-R]	[F]	[ft <sup>3</sup> /lbm]	[Btu/lbm]	[Btu/lbm-R]
192	0.92059	213.53	0.48750	212	0.6571	217.10	0.48476	232	0.48076	220.57	0.48246
196	0.92726	214.46	0.48892	216	0.6619	218.06	0.48618	236	0.48440	221.56	0.48389
200	0.93392	215.39	0.49034	220	0.6667	219.02	0.48760	240	0.48803	222.55	0.48531
204	0.94056	216.32	0.49175	224	0.6716	219.98	0.48901	244	0.49164	223.55	0.48672
208	0.94719	217.25	0.49315	228	0.6764	220.94	0.49041	248	0.49524	224.54	0.48813
212	0.95379	218.19	0.49455	232	0.6812	221.91	0.49181	252	0.49883	225.54	0.48953
216	0.96039	219.13	0.49595	236	0.6859	222.87	0.49321	256	0.50240	226.53	0.49093
220	0.96697	220.07	0.49734	240	0.6907	223.84	0.49459	260	0.50597	227.53	0.49232
224	0.97353	221.02	0.49872	244	0.6954	224.81	0.49598	264	0.50952	228.53	0.49371
228	0.98008	221.96	0.50010	248	0.7002	225.79	0.49736	268	0.51305	229.53	0.49509
232	0.98662	222.91	0.50148	252	0.7049	226.76	0.49873	272	0.51658	230.54	0.49646
236	0.99314	223.86	0.50285	256	0.7096	227.74	0.50010	276	0.52010	231.54	0.49783
240	0.99965	224.82	0.50422	260	0.7143	228.72	0.50147	280	0.52360	232.55	0.49920
244	1.00610	225.77	0.50558	264	0.7190	229.70	0.50283	284	0.52710	233.56	0.50056
248	1.01260	226.73	0.50694	268	0.7237	230.69	0.50418	288	0.53059	234.57	0.50192
252	1.01910	227.69	0.50829	272	0.7284	231.67	0.50553	292	0.53406	235.58	0.50327
256	1.02560	228.65	0.50964	276	0.7330	232.66	0.50688	296	0.53753	236.60	0.50461
260	1.03200	229.62	0.51099	280	0.7377	233.65	0.50823	300	0.54099	237.61	0.50596
264	1.03850	230.59	0.51233	284	0.7423	234.64	0.50956	304	0.54444	238.63	0.50729
268	1.04490	231.56	0.51367	288	0.7469	235.64	0.51090	308	0.54788	239.65	0.50863
272	1.05130	232.53	0.51500	292	0.7516	236.64	0.51223	312	0.55132	240.68	0.50996
276	1.05770	233.51	0.51633	296	0.7562	237.64	0.51356	316	0.55474	241.70	0.51128
280	1.06420	234.49	0.51766	300	0.7608	238.64	0.51488	320	0.55816	242.73	0.51260
284	1.07050	235.47	0.51898	304	0.7654	239.65	0.51620	324	0.56157	243.76	0.51392
288	1.07690	236.46	0.52030	308	0.7700	240.65	0.51752	328	0.56497	244.79	0.51524
292	1.08330	237.44	0.52162	312	0.7745	241.66	0.51883	332	0.56837	245.83	0.51655
296	1.08970	238.43	0.52293	316	0.7791	242.68	0.52014	336	0.57176	246.86	0.51785
300	1.09600	239.42	0.52424	320	0.7837	243.69	0.52144	340	0.57514	247.90	0.51915
304	1.10240	240.42	0.52555	324	0.7882	244.71	0.52274	344	0.57852	248.94	0.52045
308	1.10870	241.42	0.52685	328	0.7928	245.73	0.52404	348	0.58189	249.99	0.52175
312	1.11510	242.42	0.52815	332	0.7973	246.75	0.52534	352	0.58525	251.03	0.52304
316	1.12140	243.42	0.52944	336	0.8019	247.77	0.52663	356	0.58861	252.08	0.52433
320	1.12770	244.42	0.53074	340	0.8064	248.80	0.52791	360	0.59196	253.13	0.52561
324	1.13410	245.43	0.53203	344	0.8109	249.83	0.52920	364	0.59531	254.18	0.52689
328	1.14040	246.44	0.53331	348	0.8155	250.86	0.53048	368	0.59865	255.24	0.52817
332	1.14670	247.46	0.53460	352	0.8200	251.90	0.53176	372	0.60198	256.29	0.52944
336	1.15300	248.47	0.53588	356	0.8245	252.94	0.53303	376	0.60532	257.35	0.53071
340	1.15930	249.49	0.53715	360	0.8290	253.98	0.53430	380	0.60864	258.42	0.53198
344	1.16560	250.51	0.53843	364	0.8335	255.02	0.53557	384	0.61196	259.48	0.53324
348	1.17190	251.54	0.53970	368	0.8380	256.06	0.53684	388	0.61528	260.55	0.53451
352	1.17810	252.56	0.54097	372	0.8425	257.11	0.53810	392	0.61859	261.61	0.53576
356	1.18440	253.59	0.54223	376	0.8470	258.16	0.53936	396	0.62189	262.69	0.53702
360	1.19070	254.62	0.54349	380	0.8514	259.21	0.54062	400	0.62519	263.76	0.53827

Sat 100 F [236.55 psia]				Sat 120 F [313.69 psia]				Sat 140 F [409.25 psia]			
Temp	Volume	Enthalpy	Entropy	Temp	Volume	Enthalpy	Entropy	Temp	Volume	Enthalpy	Entropy
[F]	[ft <sup>3</sup> /lbm]	[Btu/lbm]	[Btu/lbm-R]	[F]	[ft <sup>3</sup> /lbm]	[Btu/lbm]	[Btu/lbm-R]	[F]	[ft <sup>3</sup> /lbm]	[Btu/lbm]	[Btu/lbm-R]
100	0.22981	183.29	0.41602	120	0.16560	183.69	0.41183	140	0.11788	183.03	0.40653
104	0.23453	184.56	0.41828	124	0.16989	185.15	0.41436	144	0.12215	184.85	0.40955
108	0.23906	185.79	0.42047	128	0.17396	186.57	0.41677	148	0.12606	186.54	0.41235
112	0.24345	187.00	0.42259	132	0.17784	187.93	0.41908	152	0.12971	188.14	0.41498
116	0.24770	188.18	0.42465	136	0.18156	189.25	0.42131	156	0.13314	189.67	0.41747
120	0.25184	189.35	0.42666	140	0.18514	190.54	0.42346	160	0.13640	191.14	0.41985
124	0.25586	190.49	0.42863	144	0.18861	191.80	0.42556	164	0.13951	192.57	0.42214
128	0.25980	191.62	0.43056	148	0.19197	193.04	0.42760	168	0.14249	193.95	0.42435
132	0.26365	192.74	0.43245	152	0.19524	194.26	0.42960	172	0.14537	195.30	0.42649
136	0.26742	193.84	0.43431	156	0.19842	195.45	0.43155	176	0.14815	196.62	0.42858
140	0.27113	194.93	0.43614	160	0.20153	196.64	0.43347	180	0.15085	197.92	0.43061
144	0.27476	196.02	0.43794	164	0.20457	197.80	0.43535	184	0.15348	199.19	0.43260
148	0.27834	197.09	0.43972	168	0.20756	198.96	0.43719	188	0.15604	200.45	0.43454
152	0.28187	198.16	0.44147	172	0.21048	200.10	0.43901	192	0.15853	201.68	0.43645
156	0.28534	199.23	0.44320	176	0.21335	201.24	0.44080	196	0.16098	202.91	0.43832
160	0.28876	200.28	0.44491	180	0.21617	202.37	0.44257	200	0.16337	204.12	0.44016
164	0.29214	201.33	0.44660	184	0.21895	203.48	0.44431	204	0.16571	205.32	0.44197
168	0.29548	202.38	0.44828	188	0.22169	204.59	0.44603	208	0.16802	206.50	0.44375
172	0.29878	203.42	0.44993	192	0.22439	205.70	0.44773	212	0.17028	207.68	0.44551
176	0.30204	204.46	0.45157	196	0.22705	206.80	0.44941	216	0.17251	208.85	0.44725
180	0.30527	205.50	0.45320	200	0.22967	207.89	0.45108	220	0.17470	210.01	0.44896
184	0.30847	206.53	0.45481	204	0.23227	208.98	0.45272	224	0.17686	211.17	0.45065
188	0.31163	207.56	0.45640	208	0.23483	210.07	0.45435	228	0.17899	212.31	0.45233
192	0.31477	208.59	0.45799	212	0.23737	211.15	0.45597	232	0.18109	213.46	0.45398
196	0.31787	209.62	0.45956	216	0.23988	212.23	0.45757	236	0.18317	214.59	0.45562
200	0.32095	210.64	0.46112	220	0.24236	213.30	0.45915	240	0.18522	215.73	0.45725
204	0.32401	211.67	0.46267	224	0.24482	214.37	0.46073	244	0.18724	216.85	0.45886
208	0.32704	212.69	0.46420	228	0.24726	215.45	0.46229	248	0.18925	217.98	0.46045
212	0.33005	213.71	0.46573	232	0.24968	216.51	0.46384	252	0.19123	219.10	0.46203
216	0.33304	214.74	0.46725	236	0.25207	217.58	0.46538	256	0.19319	220.22	0.46360
220	0.33600	215.76	0.46875	240	0.25445	218.65	0.46691	260	0.19514	221.33	0.46515
224	0.33895	216.78	0.47025	244	0.25680	219.71	0.46842	264	0.19706	222.45	0.46669
228	0.34188	217.80	0.47174	248	0.25914	220.77	0.46993	268	0.19897	223.56	0.46822
232	0.34479	218.82	0.47322	252	0.26146	221.84	0.47143	272	0.20086	224.67	0.46974
236	0.34768	219.84	0.47469	256	0.26376	222.90	0.47291	276	0.20274	225.77	0.47125
240	0.35056	220.86	0.47616	260	0.26605	223.96	0.47439	280	0.20460	226.88	0.47275
244	0.35342	221.88	0.47761	264	0.26833	225.02	0.47586	284	0.20644	227.98	0.47424
248	0.35626	222.91	0.47906	268	0.27058	226.08	0.47733	288	0.20828	229.09	0.47572

Sat 100 F [236.55 psia]				Sat 120 F [313.69 psia]				Sat 140 F [409.25 psia]			
Temp	Volume	Enthalpy	Entropy	Temp	Volume	Enthalpy	Entropy	Temp	Volume	Enthalpy	Entropy
[F]	[ft <sup>3</sup> /lbm]	[Btu/lbm]	[Btu/lbm-R]	[F]	[ft <sup>3</sup> /lbm]	[Btu/lbm]	[Btu/lbm-R]	[F]	[ft <sup>3</sup> /lbm]	[Btu/lbm]	[Btu/lbm-R]
252	0.35909	223.93	0.48050	272	0.27283	227.14	0.47878	292	0.21010	230.19	0.47719
256	0.36191	224.95	0.48194	276	0.27506	228.20	0.48023	296	0.21190	231.29	0.47865
260	0.36471	225.98	0.48336	280	0.27728	229.27	0.48166	300	0.21370	232.39	0.48011
264	0.36750	227.00	0.48479	284	0.27949	230.33	0.48310	304	0.21548	233.49	0.48155
268	0.37027	228.03	0.48620	288	0.28168	231.39	0.48452	308	0.21725	234.60	0.48299
272	0.37304	229.06	0.48761	292	0.28386	232.45	0.48594	312	0.21901	235.70	0.48442
276	0.37579	230.09	0.48901	296	0.28603	233.52	0.48735	316	0.22076	236.80	0.48584
280	0.37853	231.11	0.49041	300	0.28819	234.58	0.48875	320	0.22250	237.90	0.48726
284	0.38126	232.15	0.49180	304	0.29034	235.64	0.49015	324	0.22423	239.00	0.48867
288	0.38398	233.18	0.49318	308	0.29249	236.71	0.49154	328	0.22595	240.10	0.49007
292	0.38669	234.21	0.49456	312	0.29462	237.78	0.49293	332	0.22766	241.20	0.49146
296	0.38938	235.25	0.49593	316	0.29674	238.84	0.49431	336	0.22936	242.30	0.49285
300	0.39207	236.28	0.49730	320	0.29885	239.91	0.49568	340	0.23106	243.41	0.49423
304	0.39475	237.32	0.49867	324	0.30095	240.98	0.49705	344	0.23274	244.51	0.49561
308	0.39742	238.36	0.50002	328	0.30305	242.05	0.49841	348	0.23442	245.61	0.49698
312	0.40008	239.40	0.50138	332	0.30514	243.12	0.49977	352	0.23609	246.72	0.49835
316	0.40274	240.45	0.50273	336	0.30722	244.20	0.50112	356	0.23775	247.82	0.49971
320	0.40538	241.49	0.50407	340	0.30929	245.27	0.50247	360	0.23941	248.93	0.50106
324	0.40802	242.54	0.50541	344	0.31135	246.35	0.50381	364	0.24106	250.04	0.50241
328	0.41065	243.59	0.50674	348	0.31341	247.43	0.50515	368	0.24270	251.15	0.50375
332	0.41327	244.64	0.50807	352	0.31546	248.51	0.50648	372	0.24434	252.26	0.50509
336	0.41589	245.69	0.50940	356	0.31750	249.59	0.50781	376	0.24596	253.37	0.50642
340	0.41849	246.75	0.51072	360	0.31954	250.67	0.50913	380	0.24759	254.48	0.50775
344	0.42109	247.80	0.51204	364	0.32157	251.75	0.51045	384	0.24920	255.59	0.50907
348	0.42369	248.86	0.51335	368	0.32359	252.84	0.51177	388	0.25082	256.71	0.51039
352	0.42627	249.92	0.51466	372	0.32561	253.92	0.51308	392	0.25242	257.83	0.51170
356	0.42886	250.98	0.51597	376	0.32762	255.01	0.51439	396	0.25402	258.94	0.51301
360	0.43143	252.04	0.51727	380	0.32963	256.10	0.51569	400	0.25562	260.06	0.51432
364	0.43400	253.11	0.51856	384	0.33163	257.20	0.51698	404	0.25721	261.18	0.51562
368	0.43656	254.18	0.51986	388	0.33363	258.29	0.51828	408	0.25879	262.30	0.51691
372	0.43912	255.25	0.52115	392	0.33562	259.39	0.51957	412	0.26037	263.43	0.51820
376	0.44167	256.32	0.52243	396	0.33760	260.48	0.52085	416	0.26194	264.55	0.51949
380	0.44422	257.40	0.52372	400	0.33958	261.58	0.52214	420	0.26351	265.68	0.52078
384	0.44676	258.47	0.52499	404	0.34156	262.69	0.52341	424	0.26508	266.81	0.52205
388	0.44930	259.55	0.52627	408	0.34353	263.79	0.52469	428	0.26664	267.94	0.52333
392	0.45183	260.63	0.52754	412	0.34549	264.89	0.52596	432	0.26820	269.07	0.52460
396	0.45435	261.71	0.52881	416	0.34746	266.00	0.52723	436	0.26975	270.20	0.52587
400	0.45687	262.80	0.53007	420	0.34941	267.11	0.52849	440	0.27130	271.34	0.52713
404	0.45939	263.88	0.53133	424	0.35136	268.22	0.52975	444	0.27284	272.47	0.52839
408	0.46190	264.97	0.53259	428	0.35331	269.33	0.53101	448	0.27438	273.61	0.52965
412	0.46441	266.06	0.53385	432	0.35526	270.45	0.53226	452	0.27592	274.75	0.53090
416	0.46691	267.16	0.53510	436	0.35720	271.57	0.53351	456	0.27745	275.89	0.53215
420	0.46941	268.25	0.53635	440	0.35913	272.68	0.53476	460	0.27898	277.03	0.53340