Table 4 . . . . Properties of SATURATED STEAM: Pressure Table[a]

Abs. Press. Lb/Sq In. p	Temp. F t	Specific Volume		Enthalpy			Entropy			Abs. Press. Lb/Sq In. p
		Sat. Liquid v_f	Sat. Vapor v_g	Sat. Liquid h_f	Evap. h_{fg}	Sat. Vapor h_g	Sat. Liquid s_f	Evap. s_{fg}	Sat. Vapor s_g	
14.696	212.00	0.01672	26.80	180.07	970.3	1150.4	0.3120	1.4446	1.7566	14.696
16	216.32	0.01674	24.75	184.42	967.6	1152.0	0.3184	1.4313	1.7497	16
18	222.41	0.01679	22.17	190.56	963.6	1154.2	0.3275	1.4128	1.7403	18
20	227.96	0.01683	20.089	196.16	960.1	1156.3	0.3356	1.3962	1.7319	20
22	233.07	0.01687	18.375	201.33	956.8	1158.1	0.3431	1.3811	1.7242	22
24	237.82	0.01691	16.938	206.14	953.7	1159.8	0.3500	1.3672	1.7172	24
26	242.25	0.01694	15.715	210.62	950.7	1161.3	0.3564	1.3544	1.7108	26
28	246.41	0.01698	14.663	214.83	947.9	1162.7	0.3623	1.3425	1.7048	28
30	250.33	0.01701	13.746	218.82	945.3	1164.1	0.3680	1.3313	1.6993	30
32	254.05	0.01704	12.940	222.59	942.8	1165.4	0.3733	1.3209	1.6941	32
34	257.58	0.01707	12.226	226.18	940.3	1166.5	0.3783	1.3110	1.6893	34
36	260.95	0.01709	11.588	229.60	938.0	1167.6	0.3831	1.3017	1.6848	36
38	264.16	0.01712	11.015	232.89	935.8	1168.7	0.3876	1.2929	1.6805	38
40	267.25	0.01715	10.498	236.03	933.7	1169.7	0.3919	1.2844	1.6763	40
42	270.21	0.01717	10.029	239.04	931.6	1170.7	0.3960	1.2764	1.6724	42
44	273.05	0.01720	9.601	241.95	929.6	1171.6	0.4000	1.2687	1.6687	44
46	275.80	0.01722	9.209	244.75	927.7	1172.4	0.4038	1.2613	1.6652	46
48	278.45	0.01725	8.848	247.47	925.8	1173.3	0.4075	1.2542	1.6617	48
50	281.01	0.01727	8.515	250.09	924.0	1174.1	0.4110	1.2474	1.6585	50
52	283.49	0.01729	8.208	252.63	922.2	1174.8	0.4144	1.2409	1.6553	52
54	285.90	0.01731	7.922	255.09	920.5	1175.6	0.4177	1.2346	1.6523	54
56	288.23	0.01733	7.656	257.50	918.8	1176.3	0.4209	1.2285	1.6494	56
58	290.50	0.01736	7.407	259.82	917.1	1176.9	0.4240	1.2226	1.6466	58
60	292.71	0.01738	7.175	262.09	915.5	1177.6	0.4270	1.2168	1.6438	60
62	294.85	0.01740	6.957	264.30	913.9	1178.2	0.4300	1.2112	1.6412	62
64	296.94	0.01742	6.752	266.45	912.3	1178.8	0.4328	1.2059	1.6387	64
66	298.99	0.01744	6.560	268.55	910.8	1179.4	0.4356	1.2006	1.6362	66
68	300.98	0.01746	6.378	270.60	909.4	1180.0	0.4383	1.1955	1.6338	68
70	302.92	0.01748	6.206	272.61	907.9	1180.6	0.4409	1.1906	1.6315	70
72	304.83	0.01750	6.044	274.57	906.5	1181.1	0.4435	1.1857	1.6292	72
74	306.68	0.01752	5.890	276.49	905.1	1181.6	0.4460	1.1810	1.6270	74
76	308.50	0.01754	5.743	278.37	903.7	1182.1	0.4484	1.1764	1.6248	76
78	310.29	0.01755	5.604	280.21	902.4	1182.6	0.4508	1.1720	1.6228	78
80	312.03	0.01757	5.472	282.02	901.1	1183.1	0.4531	1.1676	1.6207	80
82	313.74	0.01759	5.346	283.79	899.7	1183.5	0.4554	1.1633	1.6187	82
84	315.42	0.01761	5.226	285.53	898.5	1184.0	0.4576	1.1592	1.6168	84
86	317.07	0.01762	5.111	287.24	897.2	1184.4	0.4598	1.1551	1.6149	86
88	318.68	0.01764	5.001	288.91	895.9	1184.8	0.4620	1.1510	1.6130	88
90	320.27	0.01766	4.896	290.56	894.7	1185.3	0.4641	1.1471	1.6112	90
92	321.83	0.01768	4.796	292.18	893.5	1185.7	0.4661	1.1433	1.6094	92
94	323.36	0.01769	4.699	293.78	892.3	1186.1	0.4682	1.1394	1.6076	94
96	324.87	0.01771	4.606	295.34	891.1	1186.4	0.4702	1.1358	1.6060	96
98	326.35	0.01772	4.517	296.89	889.9	1186.8	0.4721	1.1322	1.6043	98
100	327.81	0.01774	4.432	298.40	888.8	1187.2	0.4740	1.1286	1.6026	100
150	358.42	0.01809	3.015	330.51	863.6	1194.1	0.5138	1.0556	1.5694	150
200	381.79	0.01839	2.288	355.36	843.0	1198.4	0.5435	1.0018	1.5453	200
300	417.33	0.01890	1.5433	393.84	809.0	1202.8	0.5879	0.9225	1.5104	300
400	444.59	0.0193	1.1613	424.0	780.5	1204.5	0.6214	0.8630	1.4844	400
500	467.01	0.0197	0.9278	449.4	755.0	1204.4	0.6487	0.8147	1.4634	500

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liquid water has been assigned the value zero at 32 F, saturation pressure (0.088586 psia).

Note that h_w is greater than the steam-table enthalpy of saturated pure condensed phase by the amount of the enthalpy increase corresponding to the pressure increases from saturation pressure to 1 atmosphere, plus influences from the presence of air.

s_w = specific entropy of condensed water (liquid or solid) in equilibrium with saturated air, Btu per (pound water) (Fahrenheit degree absolute). s_w differs from the entropy of pure water at saturation pressure, similarly to h_w.

P_s = vapor pressure of water in saturated moist air, pounds per square inch or inches of mercury. This pressure, P_s, differs from the saturation pressure of pure water because of the presence of the air.

The data of Table 2 are used primarily in relating the different properties for a defined state, and in energy and mass balance calculations for 1 atmosphere pressure. For other pressures it is necessary to convert the Table 2 quantities by use of perfect-gas relationships, or some other real-gas approximation, until complete tabulations for other pressures can be made available.

The thermodynamic properties of pure water at saturation are given in Table 3 for temperatures from minus 160 F to plus 212 F, for which they are considered to be the most accurate available. Methods and data employed in the construction of Table 3 are summarized in a paper by Goff and Gratch.[5] The symbols used as column headings in Table 3 are the same as those officially adopted for the steam tables and have the same meanings.

Properties of water at saturation are given in Tables 4 and 5 for temperatures above 212 F, as taken directly from the steam tables of Keenan and Keyes.[6]

Table 5 . . . . Properties of SATURATED STEAM: Temperature Table[a]

Temp F t	Abs. Press. Lb/Sq In. p	Specific Volume		Enthalpy			Entropy			Temp. F t
		Sat. Liquid v_f	Sat. Vapor v_g	Sat. Liquid h_f	Evap. h_{fg}	Sat. Vapor h_g	Sat. Liquid s_f	Evap. s_{fg}	Sat. Vapor s_g	
212	14.696	0.01672	26.80	180.07	970.3	1150.4	0.3120	1.4446	1.7566	212
214	15.289	0.01673	25.83	182.08	969.0	1151.1	0.3149	1.4385	1.7534	214
216	15.901	0.01674	24.90	184.10	967.8	1151.9	0.3179	1.4323	1.7502	216
218	16.533	0.01676	24.01	186.11	966.5	1152.6	0.3209	1.4262	1.7471	218
220	17.186	0.01677	23.15	188.13	965.2	1153.4	0.3239	1.4201	1.7440	220
222	17.861	0.01679	22.33	190.15	963.9	1154.1	0.3268	1.4141	1.7409	222
224	18.557	0.01680	21.55	192.17	962.6	1154.8	0.3298	1.4080	1.7378	224
226	19.275	0.01682	20.79	194.18	961.3	1155.5	0.3328	1.4020	1.7348	226
228	20.016	0.01683	20.07	196.20	960.1	1156.3	0.3357	1.3961	1.7318	228
230	20.780	0.01684	19.382	198.23	958.8	1157.0	0.3387	1.3901	1.7288	230
232	21.567	0.01686	18.720	200.25	957.4	1157.7	0.3416	1.3842	1.7258	232
234	23.379	0.01688	18.084	202.27	956.1	1158.4	0.3444	1.3784	1.7228	234
236	23.217	0.01689	17.473	204.29	954.8	1159.1	0.3473	1.3725	1.7199	236
238	24.080	0.01691	16.886	206.32	953.5	1159.8	0.3502	1.3667	1.7169	238
240	24.969	0.01692	16.323	208.34	952.2	1160.5	0.3531	1.3609	1.7140	240
242	25.884	0.01694	15.782	210.37	950.8	1161.2	0.3560	1.3551	1.7111	242
244	26.827	0.01696	15.262	212.39	949.5	1161.9	0.3589	1.3494	1.7083	244
246	27.798	0.01697	14.762	214.42	948.2	1162.6	0.3618	1.3438	1.7054	246
248	28.797	0.01699	14.282	216.45	946.8	1163.3	0.3647	1.3379	1.7026	248
250	29.825	0.01700	13.821	218.48	945.5	1164.0	0.3675	1.3323	1.6998	250
252	30.884	0.01702	13.377	220.51	944.2	1164.7	0.3704	1.3266	1.6970	252
254	31.973	0.01704	12.950	222.54	942.8	1165.3	0.3732	1.3210	1.6942	254
256	33.093	0.01705	12.539	224.58	941.4	1166.0	0.3761	1.3154	1.6915	256
258	34.245	0.01707	12.144	226.61	940.1	1166.7	0.3789	1.3099	1.6888	258
260	35.429	0.01709	11.763	228.64	938.7	1167.3	0.3817	1.3043	1.6860	260
262	36.646	0.01710	11.396	230.68	937.3	1168.0	0.3845	1.2988	1.6833	262
264	37.897	0.01712	11.043	232.72	936.0	1168.7	0.3874	1.2933	1.6807	264
266	39.182	0.01714	10.704	234.76	934.5	1169.3	0.3902	1.2878	1.6780	266
268	40.502	0.01715	10.378	236.80	933.2	1170.0	0.3930	1.2824	1.6753	268
270	41.858	0.01717	10.061	238.84	931.8	1170.6	0.3958	1.2769	1.6727	270
272	43.252	0.01719	9.756	240.88	930.3	1171.2	0.3986	1.2715	1.6701	272
274	44.682	0.01721	9.463	242.92	929.0	1171.9	0.4014	1.2661	1.6675	274
276	46.150	0.01722	9.181	244.96	927.5	1172.5	0.4041	1.2608	1.6649	276
278	47.657	0.01724	8.908	247.01	926.1	1173.1	0.4069	1.2554	1.6623	278
280	49.203	0.01726	8.645	249.06	924.7	1173.8	0.4096	1.2501	1.6597	280
282	50.790	0.01728	8.391	251.10	923.3	1174.4	0.4124	1.2448	1.6572	282
284	52.418	0.01730	8.146	253.15	921.8	1175.0	0.4152	1.2395	1.6547	284
286	54.088	0.01732	7.910	255.20	920.4	1175.6	0.4179	1.2343	1.6522	286
288	55.800	0.01733	7.682	257.26	918.9	1176.2	0.4207	1.2290	1.6497	288
290	57.556	0.01735	7.461	259.31	917.5	1176.8	0.4234	1.2238	1.6472	290
292	59.356	0.01737	7.248	261.36	916.0	1177.4	0.4261	1.2186	1.6447	292
294	61.201	0.01739	7.043	263.42	914.6	1178.0	0.4288	1.2134	1.6422	294
296	63.091	0.01741	6.844	265.48	913.1	1178.6	0.4315	1.2083	1.6398	296
298	65.028	0.01743	6.652	267.53	911.6	1179.1	0.4343	1.2031	1.6374	298
300	67.013	0.01745	6.466	269.59	910.1	1179.7	0.4369	1.1980	1.6350	300
310	77.68	0.01755	5.628	279.92	902.6	1182.5	0.4504	1.1727	1.6231	310
320	89.66	0.01765	4.914	290.28	894.9	1185.2	0.4637	1.1478	1.6115	320
330	103.06	0.01776	4.307	300.68	887.0	1187.7	0.4769	1.1233	1.6002	330
340	118.01	0.01787	3.788	311.13	879.0	1190.1	0.4900	1.0992	1.5891	340
350	134.63	0.01799	3.342	321.63	870.7	1192.3	0.5029	1.0754	1.5783	350
360	153.04	0.01811	2.957	332.18	862.2	1194.4	0.5158	1.0519	1.5677	360
370	173.37	0.01823	2.625	342.79	853.5	1196.3	0.5286	1.0287	1.5573	370
380	195.77	0.01836	2.335	353.45	844.6	1198.1	0.5413	1.0059	1.5471	380
390	220.37	0.01850	2.0836	364.17	835.4	1199.6	0.5539	0.9832	1.5371	390
400	247.31	0.01864	1.8633	374.97	826.0	1201.0	0.5664	0.9608	1.5272	400
410	276.75	0.01878	1.6700	385.83	816.3	1202.1	0.5788	0.9386	1.5174	410
420	308.83	0.01894	1.5000	396.77	806.3	1203.1	0.5912	0.9166	1.5078	420
430	343.72	0.01910	1.3499	407.79	796.0	1203.8	0.6035	0.8947	1.4982	430
440	381.59	0.01926	1.2171	418.90	785.4	1204.3	0.6158	0.8730	1.4887	440
450	422.6	0.0194	1.0993	430.1	774.5	1204.6	0.6280	0.8513	1.4793	450
460	466.9	0.0196	0.9944	441.4	763.2	1204.6	0.6402	0.8298	1.4700	460
470	514.7	0.0198	0.9009	452.8	751.5	1204.3	0.6523	0.8083	1.4606	470
480	566.1	0.0200	0.8172	464.4	739.4	1203.7	0.6645	0.7868	1.4513	480
490	621.4	0.0202	0.7423	476.0	726.8	1202.8	0.6766	0.7653	1.4419	490
500	680.8	0.0204	0.6749	487.8	713.9	1201.7	0.6887	0.7438	1.4325	500

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