

TABLE 6. THERMODYNAMIC PROPERTIES OF MOIST AIR^a, 29.921 IN. HG

TEMP DEG F	SATURATION HUMIDITY RATIO W _s WEIGHT OF WATER PER LB OF DRY AIR		VOLUME CU FT PER LB DRY AIR			ENTHALPY BTU PER LB DRY AIR			SPECIFIC ENTHALPY OF SOLID WATER BTU PER LB h _w	SATURATION PRESSURE p _s × 10 ³		TEMP DEG F
	Pounds × 10 ³	Grains	Dry Air v _a	v _{as} (v _a - v _{as})	Saturated Mixture v _s	Dry Air h _a	h _{as} (h _a - h _{as})	Saturated Mixture h _s		In. of Hg	Lb per Sq In.	
-60	2.108	0.14756	10.07	0.00	10.07	-14.48	0.02	-14.46	-185.4	101.4	49.808	-60
-59	2.262	.15834	10.09	.00	10.09	-14.23	.02	-14.21	-185.0	108.8	53.443	-59
-58	2.418	.16926	10.12	.00	10.12	-13.99	.02	-13.97	-184.6	116.3	57.127	-58
-57	2.595	.18165	10.14	.00	10.14	-13.75	.03	-13.72	-184.2	124.8	61.302	-57
-56	2.773	.19411	10.17	.00	10.17	-13.50	.03	-13.47	-183.8	133.4	65.626	-56
-55	2.973	0.20811	10.19	0.00	10.19	-13.26	0.03	-13.23	-183.4	143.0	70.242	-55
-54	3.181	.22267	10.22	.00	10.22	-13.02	.03	-12.99	-182.9	153.0	75.154	-54
-53	3.399	.23793	10.24	.00	10.24	-12.78	.04	-12.74	-182.5	163.5	80.311	-53
-52	3.636	.25452	10.27	.00	10.27	-12.53	.04	-12.49	-182.1	174.9	85.911	-52
-51	3.888	.27216	10.29	.00	10.29	-12.29	.04	-12.25	-181.7	187.0	91.854	-51
-50	4.156	0.29092	10.32	0.00	10.32	-12.05	0.04	-12.01	-181.3	199.9	98.191	-50
-49	4.428	.30996	10.34	.00	10.34	-11.81	.05	-11.76	-180.9	213.0	104.63	-49
-48	4.738	.33166	10.37	.00	10.37	-11.57	.05	-11.52	-180.4	227.9	111.94	-48
-47	5.054	.35378	10.40	.00	10.40	-11.32	.05	-11.27	-180.0	243.1	119.41	-47
-46	5.395	.37765	10.42	.00	10.42	-11.08	.06	-11.02	-179.6	259.5	127.47	-46
-45	5.753	0.40271	10.45	0.00	10.45	-10.84	0.06	-10.78	-179.2	276.7	135.92	-45
-44	6.133	.42931	10.47	.00	10.47	-10.60	.06	-10.54	-178.7	295.0	144.90	-44
-43	6.543	.45801	10.50	.00	10.50	-10.35	.07	-10.28	-178.3	314.7	154.58	-43
-42	6.971	.48797	10.52	.00	10.52	-10.11	.07	-10.04	-177.9	335.3	164.70	-42
-41	7.435	.52045	10.55	.00	10.55	-9.872	.077	-9.795	-177.4	357.6	175.65	-41
-40	7.907	0.55349	10.57	0.00	10.57	-9.629	0.082	-9.547	-177.0	380.3	186.80	-40
-39	8.431	.59017	10.60	.00	10.60	-9.388	.088	-9.300	-176.6	405.5	199.18	-39
-38	8.965	.62755	10.62	.00	10.62	-9.146	.093	-9.053	-176.1	431.2	211.81	-38
-37	9.548	.66836	10.65	.00	10.65	-8.905	.100	-8.805	-175.7	459.2	225.56	-37
-36	10.16	.71120	10.67	.00	10.67	-8.663	.106	-8.557	-174.8	488.4	239.90	-36
-35	10.80	0.75800	10.69	0.00	10.69	-8.422	0.113	-8.309	-174.4	519.5	255.18	-35
-34	11.49	.80430	10.72	.00	10.72	-8.180	.120	-8.090	-174.0	552.4	271.34	-34
-33	12.20	.85400	10.75	.00	10.75	-7.939	.127	-7.812	-173.5	586.5	288.99	-33
-32	12.97	.90790	10.77	.00	10.77	-7.698	.136	-7.552	-173.1	622.7	308.36	-32
-31	13.76	.96320	10.80	.00	10.80	-7.457	.144	-7.313	-172.6	661.8	325.08	-31
-30	14.58	1.0206	10.82	0.00	10.82	-7.216	0.152	-7.064	-172.2	701.0	344.33	-30
-29	15.43	1.0801	10.85	.00	10.85	-6.975	.161	-6.814	-171.7	742.2	364.67	-29
-28	16.45	1.1515	10.87	.00	10.87	-6.734	.172	-6.562	-171.3	791.2	388.04	-28
-27	17.49	1.2243	10.90	.00	10.90	-6.493	.183	-6.310	-170.9	841.0	413.10	-27
-26	18.55	1.2985	10.92	.00	10.92	-6.251	.194	-6.057	-170.4	892.1	438.20	-26

^aCompiled by W. M. Sawdon and extended by John A. Goff.

HEATING, VENTILATING, AIR CONDITIONING GUIDE 1943

TABLE 6. THERMODYNAMIC PROPERTIES OF MOIST AIR^a, 29.921 IN. HG (CONTINUED)

TEMP DEG F	SATURATION HUMIDITY RATIO W _s WEIGHT OF WATER PER LB OF DRY AIR		VOLUME CU FT PER LB DRY AIR			ENTHALPY BTU PER LB DRY AIR			SPECIFIC ENTHALPY OF SOLID WATER BTU PER LB h _w	SATURATION PRESSURE p _s × 10 ³		TEMP DEG F
	Pounds × 10 ³	Grains	Dry Air v _a	v _{as} (v _a - v _{as})	Saturated Mixture v _s	Dry Air h _a	h _{as} (h _a - h _{as})	Saturated Mixture h _s		In. of Hg	Lb per Sq In.	
-25	19.68	1.3776	10.95	0.00	10.95	-6.011	0.206	-5.805	-170.4	946.4	464.87	-25
-24	20.86	1.4602	10.97	.00	10.97	-5.770	.219	-5.551	-170.0	1003.	492.67	-24
-23	22.13	1.5491	11.00	.00	11.00	-5.529	.232	-5.297	-169.5	1064.	522.04	-23
-22	23.42	1.6394	11.02	.00	11.02	-5.288	.246	-5.042	-169.0	1128.	553.09	-22
-21	24.79	1.7353	11.05	.00	11.05	-5.047	.260	-4.787	-168.6	1192.	585.51	-21
-20	26.25	1.8375	11.07	0.00	11.07	-4.807	0.276	-4.531	-168.2	1262.0	619.89	-20
-19	27.81	1.9467	11.10	.00	11.10	-4.566	.292	-4.274	-167.7	1337.	656.73	-19
-18	29.45	2.0615	11.13	.00	11.13	-4.325	.310	-4.015	-167.2	1416.	695.94	-18
-17	31.12	2.1784	11.15	.00	11.15	-4.085	.327	-3.758	-166.8	1496.	734.84	-17
-16	32.95	2.3065	11.18	.00	11.18	-3.844	.347	-3.497	-166.3	1584.	778.06	-16
-15	34.84	2.4388	11.20	0.01	11.21	-3.604	0.367	-3.237	-165.9	1675.0	822.76	-15
-14	36.86	2.5802	11.23	.01	11.24	-3.363	.388	-2.975	-165.4	1772.	870.41	-14
-13	38.98	2.7286	11.25	.01	11.26	-3.123	.411	-2.712	-165.0	1874.	920.51	-13
-12	41.19	2.8833	11.28	.01	11.29	-2.883	.434	-2.449	-164.5	1980.	972.58	-12
-11	43.54	3.0478	11.30	.01	11.31	-2.642	.459	-2.183	-164.0	2093.	1028.1	-11
-10	45.98	3.2186	11.33	0.01	11.34	-2.402	0.485	-1.917	-163.6	2210.0	1085.6	-10
-9	48.58	3.4006	11.35	.01	11.36	-2.162	.513	-1.649	-163.1	2335.	1147.0	-9
-8	51.25	3.5875	11.38	.01	11.39	-1.921	.541	-1.380	-162.7	2468.	1209.8	-8
-7	52.06	3.6442	11.40	.01	11.41	-1.681	.570	-1.111	-162.2	2502.	1229.0	-7
-6	57.12	3.9984	11.43	.01	11.44	-1.441	.603	-0.838	-161.7	2745.	1348.3	-6
-5	60.30	4.2210	11.45	0.01	11.46	-1.201	0.637	-0.564	-161.3	2898.0	1423.5	-5
-4	63.57	4.4499	11.48	.01	11.49	-0.960	.672	-0.288	-160.8	3055.	1500.6	-4
-3	67.05	4.6935	11.50	.01	11.51	-0.720	.709	-0.011	-160.3	3222.	1582.6	-3
-2	70.69	4.9483	11.53	.01	11.54	-0.480	.748	+0.268	-159.9	3397.	1668.6	-2
-1	74.50	5.2150	11.55	.01	11.57	-0.240	.789	+0.549	-159.4	3580.	1758.5	-1
0	78.52	5.5000	11.58	0.01	11.59	0	0.832	+0.832	-158.9	3773.0	1853.3	0

^aCompiled by W. M. Sawdon and extended by John A. Goff.

CHAPTER 1. THERMODYNAMICS OF AIR AND WATER MIXTURES