

Tables and Chart

TABLE A-5

Saturated water—Pressure table

Press., P kPa	Sat. temp., T _{sat} °C	Specific volume, m ³ /kg		Internal energy, kJ/kg			Enthalpy, kJ/kg		
		Sat. liquid, v _f	Sat. vapor, v _g	Sat. liquid, u _f	Evap., u _{fg}	Sat. vapor, u _g	Sat. liquid, h _f	Evap., h _{fg}	Sat. vapor, h _g
4.0	28.96	0.001004	34.791	121.39	2293.1	2414.5	121.39	2432.3	2553.7
5.0	32.87	0.001005	28.185	137.75	2282.1	2419.8	137.75	2423.0	2560.7
7.5	40.29	0.001008	19.233	168.74	2261.1	2429.8	168.75	2405.3	2574.0
10	45.81	0.001010	14.670	191.79	2245.4	2437.2	191.81	2392.1	2583.9
15	53.97	0.001014	10.020	225.93	2222.1	2448.0	225.94	2372.3	2598.3
20	60.06	0.001017	7.6481	251.40	2204.6	2456.0	251.42	2357.5	2608.9
25	64.96	0.001020	6.2034	271.93	2190.4	2462.4	271.96	2345.5	2617.5
30	69.09	0.001022	5.2287	289.24	2178.5	2467.7	289.27	2335.3	2624.6
40	75.86	0.001026	3.9933	317.58	2158.8	2476.3	317.62	2318.4	2636.1
50	81.32	0.001030	3.2403	340.49	2142.7	2483.2	340.54	2304.7	2645.2
75	91.76	0.001037	2.2172	384.36	2111.8	2496.1	384.44	2278.0	2662.4

TABLE A-6

Superheated water

T °C	v m ³ /kg	u kJ/kg	h kJ/kg	s kJ/kg·K
P = 0.50 MPa (151.83 °C)				
Sat.	0.37483	2560.7	2748.1	6.8207
300	0.52261	2803.3	3064.6	7.4614
350	0.57015	2883.0	3168.1	7.6346
400	0.61731	2963.7	3272.4	7.7956
500	0.71095	3129.0	3484.5	8.0893
600	0.80409	3300.4	3702.5	8.3544

TABLE A-13

Superheated refrigerant-134a (Concluded)

T °C	v m ³ /kg	u kJ/kg	h kJ/kg	s kJ/kg·K
P = 1.60 MPa (T _{sat} = 57.88°C)				
Sat.	0.012134	258.50	277.92	0.9080
70	0.013430	271.78	293.27	0.9536
80	0.014362	282.11	305.09	0.9875
90	0.015215	292.19	316.53	1.0195
100	0.016014	302.16	327.78	1.0501
110	0.016773	312.09	338.93	1.0795
120	0.017500	322.03	350.03	1.1081

TABLE A-1

Molar mass, gas constant, and critical-point properties

Substance	Formula	Molar mass, M kg/kmol	Gas constant, R kJ/kg·K*	Critical-point properties		
				Temperature, K	Pressure, MPa	Volume, m ³ /kmol
Air	—	28.97	0.2870	132.5	3.77	0.0883
Sulfur dioxide	SO ₂	64.063	0.1298	430.7	7.88	0.1217
Tetrafluoroethane (R-134a)	CF ₃ CH ₂ F	102.03	0.08149	374.2	4.059	0.1993
Trichlorofluoromethane (R-11)	CCl ₃ F	137.37	0.06052	471.2	4.38	0.2478

Generalized compressibility chart

(a) Low pressures, $0 < P_R < 1.0$

