

TABLA A.4

Agua saturada-Tabla de temperaturas

Temp., T °C	Pres. sat., P_{sat} kPa	Volumen específico, m^3/kg		Energía interna, kJ/kg			Entalpía kJ/kg			Entropía kJ/kg · K		
		Líqu. sat., v_f	Vap. sat., v_g	Líqu. sat., u_f	Evap., u_{fg}	Vap. sat., u_g	Líqu. sat., h_f	Evap., h_{fg}	Vap. sat., h_g	Líqu. sat., s_f	Evap., s_{fg}	Vap. sat., s_g
0.01	0.6113	0.001000	206.14	0.0	2 375.3	2 375.3	0.01	2 501.3	2 501.4	0.000	9.1562	9.1562
5	0.8721	0.001000	147.12	20.97	2 361.3	2 382.3	20.98	2 489.6	2 510.6	0.0761	8.9496	9.0257
10	1.2276	0.001000	106.38	42.00	2 347.2	2 389.2	42.01	2 477.7	2 519.8	0.1510	8.7498	8.9008
15	1.7051	0.001001	77.93	62.99	2 333.1	2 396.1	62.99	2 465.9	2 528.9	0.2245	8.5569	8.7814
20	2.339	0.001002	57.79	83.95	2 319.0	2 402.9	83.96	2 454.1	2 538.1	0.2966	8.3706	8.6672
25	3.169	0.001003	43.36	104.88	2 304.9	2 409.8	104.89	2 442.3	2 547.2	0.3674	8.1905	8.5580
30	4.246	0.001004	32.89	125.78	2 290.8	2 416.6	125.79	2 430.5	2 556.3	0.4369	8.0164	8.4533
35	5.628	0.001006	25.22	146.67	2 276.7	2 423.4	146.68	2 418.6	2 565.3	0.5053	7.8478	8.3531
40	7.384	0.001008	19.52	167.56	2 262.6	2 430.1	167.57	2 406.7	2 574.3	0.5725	7.6845	8.2570
45	9.593	0.001010	15.26	188.44	2 248.4	2 436.8	188.45	2 394.8	2 583.2	0.6387	7.5261	8.1648
50	12.349	0.001012	12.03	209.32	2 234.2	2 443.5	209.33	2 382.7	2 592.1	0.7038	7.3725	8.0763
55	15.758	0.001015	9.568	230.21	2 219.9	2 450.1	230.23	2 370.7	2 600.9	0.7679	7.2234	7.9913
60	19.940	0.001017	7.671	251.11	2 205.5	2 456.6	251.13	2 358.5	2 609.6	0.8312	7.0784	7.9096
65	25.03	0.001020	6.197	272.02	2 191.1	2 463.1	272.06	2 346.2	2 618.3	0.8935	6.9375	7.8310
70	31.19	0.001023	5.042	292.95	2 176.6	2 469.6	292.98	2 333.8	2 626.8	0.9549	6.8004	7.7553
75	38.58	0.001026	4.131	313.90	2 162.0	2 475.9	313.93	2 321.4	2 635.3	1.0155	6.6669	7.6824
80	47.39	0.001029	3.407	334.86	2 147.4	2 482.2	334.91	2 308.8	2 643.7	1.0753	6.5369	7.6122
85	57.83	0.001033	2.828	355.84	2 132.6	2 488.4	355.90	2 296.0	2 651.9	1.1343	6.4102	7.5445
90	70.14	0.001036	2.361	376.85	2 117.7	2 494.5	376.92	2 283.2	2 660.1	1.1925	6.2866	7.4791
95	84.55	0.001040	1.982	397.88	2 102.7	2 500.6	397.96	2 270.2	2 668.1	1.2500	6.1659	7.4159
Presión sat., MPa												
100	0.10135	0.001044	1.6729	418.94	2 087.6	2 506.5	419.04	2 257.0	2 676.1	1.3069	6.0480	7.3549
105	0.12082	0.001048	1.4194	440.02	2 072.3	2 512.4	440.15	2 243.7	2 683.8	1.3630	5.9328	7.2958
110	0.14327	0.001052	1.2102	461.14	2 057.0	2 518.1	461.30	2 230.2	2 691.5	1.4185	5.8202	7.2387
115	0.16906	0.001056	1.0366	482.30	2 041.4	2 523.7	482.48	2 216.5	2 699.0	1.4734	5.7100	7.1833
120	0.19853	0.001060	0.8919	503.50	2 025.8	2 529.3	503.71	2 202.6	2 706.3	1.5276	5.6020	7.1296
125	0.2321	0.001065	0.7706	524.74	2 009.9	2 534.6	524.99	2 188.5	2 713.5	1.5813	5.4962	7.0775
130	0.2701	0.001070	0.6685	546.02	1 993.9	2 539.9	546.31	2 174.2	2 720.5	1.6344	5.3925	7.0269
135	0.3130	0.001075	0.5822	567.35	1 977.7	2 545.0	567.69	2 159.6	2 727.3	1.6870	5.2907	6.9777
140	0.3613	0.001080	0.5089	588.74	1 961.3	2 550.0	589.13	2 144.7	2 733.9	1.7391	5.1908	6.9299
145	0.4154	0.001085	0.4463	610.18	1 944.7	2 554.9	610.63	2 129.6	2 740.3	1.7907	5.0926	6.8833
150	0.4758	0.001091	0.3928	631.68	1 927.9	2 559.5	632.20	2 114.3	2 746.5	1.8418	4.9960	6.8379
155	0.5431	0.001096	0.3468	653.24	1 910.8	2 564.1	653.84	2 098.6	2 752.4	1.8925	4.9010	6.7935
160	0.6178	0.001102	0.3071	674.87	1 893.5	2 568.4	675.55	2 082.6	2 758.1	1.9427	4.8075	6.7502
165	0.7005	0.001108	0.2727	696.56	1 876.0	2 572.5	697.34	2 066.2	2 763.5	1.9925	4.7153	6.7078
170	0.7917	0.001114	0.2428	718.33	1 858.1	2 576.5	719.21	2 049.5	2 768.7	2.0419	4.6244	6.6663
175	0.8920	0.001121	0.2168	740.17	1 840.0	2 580.2	741.17	2 032.4	2 773.6	2.0909	4.5347	6.6256
180	1.0021	0.001127	0.19405	762.09	1 821.6	2 583.7	763.22	2 015.0	2 778.2	2.1396	4.4461	6.5857
185	1.1227	0.001134	0.17409	784.10	1 802.9	2 587.0	785.37	1 997.1	2 782.4	2.1879	4.3586	6.5465
190	1.2544	0.001141	0.15654	806.19	1 783.8	2 590.0	807.62	1 978.8	2 786.4	2.2359	4.2720	6.5079
195	1.3978	0.001149	0.14105	828.37	1 764.4	2 592.8	829.98	1 960.0	2 790.0	2.2835	4.1863	6.4698

TABLA A.4

Agua saturada-Tabla de temperaturas (Conclusión)

Temp., T °C	Pres. sat., P_{sat} MPa	Volumen específico, m^3/kg		Energía interna, kJ/kg			Entalpía, kJ/kg			Entropía, $\text{kJ/kg} \cdot \text{K}$		
		Líqu. sat., v_f	Vap. sat., v_g	Líqu. sat., u_f	Evap., u_{fg}	Vap. sat., u_g	Líqu. sat., h_f	Evap., h_{fg}	Vap. sat., h_g	Líqu. sat., s_f	Evap., s_{fg}	Vap. sat., s_g
200	1.5538	0.001157	0.12736	850.65	1 744.7	2 595.3	852.45	1 940.7	2 793.2	2.3309	4.1014	6.4323
205	1.7230	0.001164	0.11521	873.04	1 724.5	2 597.5	875.04	1 921.0	2 796.0	2.3780	4.0172	6.3952
210	1.9062	0.001173	0.10441	895.53	1 703.9	2 599.5	897.76	1 900.7	2 798.5	2.4248	3.9337	6.3585
215	2.104	0.001181	0.09479	918.14	1 682.9	2 601.1	920.62	1 879.9	2 800.5	2.4714	3.8507	6.3221
220	2.318	0.001190	0.08619	940.87	1 661.5	2 602.4	943.62	1 858.5	2 802.1	2.5178	3.7683	6.2861
225	2.548	0.001199	0.07849	963.73	1 639.6	2 603.3	966.78	1 836.5	2 803.3	2.5639	3.6863	6.2503
230	2.795	0.001209	0.07158	986.74	1 617.2	2 603.9	990.12	1 813.8	2 804.0	2.6099	3.6047	6.2146
235	3.060	0.001219	0.06537	1 009.89	1 594.2	2 604.1	1 013.62	1 790.5	2 804.2	2.6558	3.5233	6.1791
240	3.344	0.001229	0.05976	1 033.21	1 570.8	2 604.0	1 037.32	1 766.5	2 803.8	2.7015	3.4422	6.1437
245	3.648	0.001240	0.05471	1 056.71	1 546.7	2 603.4	1 061.23	1 741.7	2 803.0	2.7472	3.3612	6.1083
250	3.973	0.001251	0.05013	1 080.39	1 522.0	2 602.4	1 085.36	1 716.2	2 801.5	2.7927	3.2802	6.0730
255	4.319	0.001263	0.04598	1 104.28	1 596.7	2 600.9	1 109.73	1 689.8	2 799.5	2.8383	3.1992	6.0375
260	4.688	0.001276	0.04221	1 128.39	1 470.6	2 599.0	1 134.37	1 662.5	2 796.9	2.8838	3.1181	6.0019
265	5.081	0.001289	0.03877	1 152.74	1 443.9	2 596.6	1 159.28	1 634.4	2 793.6	2.9294	3.0368	5.9662
270	5.499	0.001302	0.03564	1 177.36	1 416.3	2 593.7	1 184.51	1 605.2	2 789.7	2.9751	2.9551	5.9301
275	5.942	0.001317	0.03279	1 202.25	1 387.9	2 590.2	1 210.07	1 574.9	2 785.0	3.0208	2.8730	5.8938
280	6.412	0.001332	0.03017	1 227.46	1 358.7	2 586.1	1 235.99	1 543.6	2 779.6	3.0668	2.7903	5.8571
285	6.909	0.001348	0.02777	1 253.00	1 328.4	2 581.4	1 262.31	1 511.0	2 773.3	3.1130	2.7070	5.8199
290	7.436	0.001366	0.02557	1 278.92	1 297.1	2 576.0	1 289.07	1 477.1	2 766.2	3.1594	2.6227	5.7821
295	7.993	0.001384	0.02354	1 305.2	1 264.7	2 569.9	1 316.3	1 441.8	2 758.1	3.2062	2.5375	5.7437
300	8.581	0.001404	0.02167	1 332.0	1 231.0	2 563.0	1 344.0	1 404.9	2 749.0	3.2534	2.4511	5.7045
305	9.202	0.001425	0.01948	1 359.3	1 195.9	2 555.2	1 372.4	1 366.4	2 738.7	3.3010	2.3633	5.6643
310	9.856	0.001447	0.018350	1 387.1	1 159.4	2 546.4	1 401.3	1 326.0	2 727.3	3.3493	2.2737	5.6230
315	10.547	0.001472	0.016867	1 415.5	1 121.1	2 536.6	1 431.0	1 283.5	2 714.5	3.3982	2.1821	5.5804
320	11.274	0.001499	0.015488	1 444.6	1 080.9	2 525.5	1 461.5	1 238.6	2 700.1	3.4480	2.0882	5.5362
330	12.845	0.001561	0.012996	1 505.3	993.7	2 498.9	1 525.3	1 140.6	2 665.9	3.5507	1.8909	5.4417
340	14.586	0.001638	0.010797	1 570.3	894.3	2 464.6	1 594.2	1 027.9	2 622.0	3.6594	1.6763	5.3357
350	16.513	0.001740	0.008813	1 641.9	776.6	2 418.4	1 670.6	893.4	2 563.9	3.7777	1.4335	5.2112
360	18.651	0.001893	0.006945	1 725.2	626.3	2 351.5	1 760.5	720.3	2 481.0	3.9147	1.1379	5.0526
370	21.03	0.002213	0.004925	1 844.0	384.5	2 228.5	1 890.5	441.6	2 332.1	4.1106	0.6865	4.7971
374.14	22.09	0.003155	0.003155	2 029.6	0	2 029.6	2 099.3	0	2 099.3	4.4298	0	4.4298

Fuente: Las tablas A-4 a la A-8 se adaptaron de Gordon J. Van Wylen y Richard E. Sonntag, *Fundamentals of Classical Thermodynamics*, versión inglés/SI, 3a. ed. (Nueva York: John Wiley & Sons, 1986), pp. 635-651. Publicada originalmente en Joseph H. Keenan, Frederick G. Keyes, Philip G. Hill y Joan G. Moore, *Steam Tables*, Unidades SI (Nueva York: John Wiley & Sons, 1978).

TABLA A.5

Agua saturada-Tabla de presiones

Presión, P kPa	Temp. sat., $T_{\text{sat}}^{\circ}\text{C}$	Volumen específico, m^3/kg		Energía interna, kJ/kg			Entalpía, kJ/kg			Entropía, $\text{kJ/kg} \cdot \text{K}$		
		Líquido, sat., v_f	Vapor, sat., v_g	Líquido, sat., u_f	Evapor., u_{fg}	Vapor, sat., u_g	Líquido, sat., h_f	Evapor., h_{fg}	Vapor, sat., h_g	Líquido, sat., s_f	Evapor., s_{fg}	Vapor, sat., s_g
0.6113	0.01	0.001000	206.14	0.00	2 375.3	2 375.3	0.01	2 501.3	2 501.4	0.0000	9.1562	9.1562
1.0	6.98	0.001000	129.21	29.30	2 355.7	2 385.0	29.30	2 484.9	2 514.2	0.1059	8.8697	8.9756
1.5	13.03	0.001001	87.98	54.71	2 338.6	2 393.3	54.71	2 470.6	2 525.3	0.1957	8.6322	8.8279
2.0	17.50	0.001001	67.00	73.48	2 326.0	2 399.5	73.48	2 460.0	2 533.5	0.2607	8.4629	8.7237
2.5	21.08	0.001002	54.25	88.48	2 315.9	2 404.4	88.49	2 451.6	2 540.0	0.3120	8.3311	8.6432
3.0	24.08	0.001003	45.67	101.04	2 307.5	2 408.5	101.05	2 444.5	2 545.5	0.3545	8.2231	8.5776
4.0	28.96	0.001004	34.80	121.45	2 293.7	2 415.2	121.46	2 432.9	2 554.4	0.4226	8.0520	8.4746
5.0	32.88	0.001005	28.19	137.81	2 282.7	2 420.5	137.82	2 423.7	2 561.5	0.4764	7.9187	8.3951
7.5	40.29	0.001008	19.24	168.78	2 261.7	2 430.5	168.79	2 406.0	2 574.8	0.5764	7.6750	8.2515
10	45.81	0.001010	14.67	191.82	2 246.1	2 437.9	191.83	2 392.8	2 584.7	0.6493	7.5009	8.1502
15	53.97	0.001014	10.02	225.92	2 222.8	2 448.7	225.94	2 373.1	2 599.1	0.7549	7.2536	8.0085
20	60.06	0.001017	7.649	251.38	2 205.4	2 456.7	251.40	2 358.3	2 609.7	0.8320	7.0766	7.9085
25	64.97	0.001020	6.204	271.90	2 191.2	2 463.1	271.93	2 346.3	2 618.2	0.8931	6.9383	7.8314
30	69.10	0.001022	5.229	289.20	2 179.2	2 468.4	289.23	2 336.1	2 625.3	0.9439	6.8247	7.7686
40	75.87	0.001027	3.993	317.53	2 159.5	2 477.0	317.58	2 319.2	2 636.8	1.0259	6.6441	7.6700
50	81.33	0.001030	3.240	340.44	2 143.4	2 483.9	340.49	2 305.4	2 645.9	1.0910	6.5029	7.5939
75	91.78	0.001037	2.217	384.31	2 112.4	2 496.7	384.39	2 278.6	2 663.0	1.2130	6.2434	7.4564
Presión, MPa												
0.100	99.63	0.001043	1.6940	417.36	2 088.7	2 506.1	417.46	2 258.0	2 675.5	1.3026	6.0568	7.3594
0.125	105.99	0.001048	1.3749	444.19	2 069.3	2 513.5	444.32	2 241.0	2 685.4	1.3740	5.9104	7.2844
0.150	111.37	0.001053	1.1593	466.94	2 052.7	2 519.7	467.11	2 226.5	2 693.6	1.4336	5.7897	7.2233
0.175	116.06	0.001057	1.0036	486.80	2 038.1	2 524.9	486.99	2 213.6	2 700.6	1.4849	5.6868	7.1717
0.200	120.23	0.001061	0.8857	504.49	2 025.0	2 529.5	504.70	2 201.9	2 706.7	1.5301	5.5970	7.1271
0.225	124.00	0.001064	0.7933	520.47	2 013.1	2 533.6	520.72	2 191.3	2 712.1	1.5706	5.5173	7.0878
0.250	127.44	0.001067	0.7187	535.10	2 002.1	2 537.2	535.37	2 181.5	2 716.9	1.6072	5.4455	7.0527
0.275	130.60	0.001070	0.6573	548.59	1 991.9	2 540.5	548.89	2 172.4	2 721.3	1.6408	5.3801	7.0209
0.300	133.55	0.001073	0.6058	561.15	1 982.4	2 543.6	561.47	2 163.8	2 725.3	1.6718	5.3201	6.9919
0.325	136.30	0.001076	0.5620	572.90	1 973.5	2 546.4	573.25	2 155.8	2 729.0	1.7006	5.2646	6.9652
0.350	138.88	0.001079	0.5243	583.95	1 965.0	2 548.9	584.33	2 148.1	2 732.4	1.7275	5.2130	6.9405
0.375	141.32	0.001081	0.4914	594.40	1 956.9	2 551.3	594.81	2 140.8	2 735.6	1.7528	5.1647	6.9175
0.40	143.63	0.001084	0.4625	604.31	1 949.3	2 553.6	604.74	2 133.8	2 738.6	1.7766	5.1193	6.8959
0.45	147.93	0.001088	0.4140	622.77	1 934.9	2 557.6	623.25	2 120.7	2 743.9	1.8207	5.0359	6.8565
0.50	151.86	0.001093	0.3749	639.68	1 921.6	2 561.2	640.23	2 108.5	2 748.7	1.8607	4.9606	6.8213
0.55	155.48	0.001097	0.3427	655.32	1 909.2	2 564.5	665.93	2 097.0	2 753.0	1.8973	4.8920	6.7893
0.60	158.85	0.001101	0.3157	669.90	1 897.5	2 567.4	670.56	2 086.3	2 756.8	1.9312	4.8288	6.7600
0.65	162.01	0.001104	0.2927	683.56	1 886.5	2 570.1	684.28	2 076.0	2 760.3	1.9627	4.7703	6.7331
0.70	164.97	0.001108	0.2729	696.44	1 876.1	2 572.5	697.22	2 066.3	2 763.5	1.9922	4.7158	6.7080
0.75	167.78	0.001112	0.2556	708.64	1 866.1	2 574.7	709.47	2 057.0	2 766.4	2.0200	4.6647	6.6847
0.80	170.43	0.001115	0.2404	720.22	1 856.6	2 576.8	721.11	2 048.0	2 769.1	2.0462	4.6166	6.6628
0.85	172.96	0.001118	0.2270	731.27	1 847.4	2 578.7	732.22	2 039.4	2 771.6	2.0710	4.5711	6.6421
0.90	175.38	0.001121	0.2150	741.83	1 838.6	2 580.5	742.83	2 031.1	2 773.9	2.0946	4.5280	6.6226
0.95	177.69	0.001124	0.2042	751.95	1 830.2	2 582.1	753.02	2 023.1	2 776.1	2.1172	4.4869	6.6041
1.00	179.91	0.001127	0.19444	761.68	1 822.0	2 583.6	762.81	2 015.3	2 778.1	2.1387	4.4478	6.5865
1.10	184.09	0.001133	0.17753	780.09	1 806.3	2 586.4	781.34	2 000.4	2 871.7	2.1792	4.3744	6.5536
1.20	187.99	0.001139	0.16333	797.29	1 791.5	2 588.8	798.65	1 986.2	2 784.8	2.2166	4.3067	6.5233
1.30	191.64	0.001144	0.15125	813.44	1 777.5	2 591.0	814.93	1 972.7	2 787.6	2.2515	4.2438	6.4953

TABLA A.5

Agua saturada-Tabla de presiones (Conclusión)

Presión, P MPa	Temp. sat., T_{sat} °C	Volumen específico, m ³ /kg		Energía interna, kJ/kg			Entalpía, kJ/kg			Entropía, kJ/kg · K		
		Líqu. sat., v_f	Vap. sat., v_g	Líqu. sat., u_f	Evap., u_{fg}	Vap. sat., u_g	Líqu. sat., h_f	Evap., h_{fg}	Vap. sat., h_g	Líqu. sat., s_f	Evap., s_{fg}	Vap. sat., s_g
1.40	195.07	0.001149	0.14084	828.70	1 764.1	2 592.8	830.30	1 957.7	2 790.0	2.2842	4.1850	6.4693
1.50	198.32	0.001154	0.13177	843.16	1 751.3	2 594.5	844.89	1 947.3	2 792.2	2.3150	4.1298	6.4448
1.75	205.76	0.001166	0.11349	876.46	1 721.4	2 597.8	878.50	1 917.9	2 796.4	2.3851	4.0044	6.3896
2.00	212.42	0.001177	0.09963	906.44	1 693.8	2 600.3	908.79	1 890.7	2 799.5	2.4474	3.8935	6.3409
2.25	218.45	0.001187	0.08875	933.83	1 668.2	2 602.0	936.49	1 865.2	2 801.7	2.5035	3.7937	6.2972
2.5	223.99	0.001197	0.07998	959.11	1 644.0	2 603.1	962.11	1 841.0	2 803.1	2.5547	3.7028	6.2575
3.0	233.90	0.001217	0.06668	1 004.78	1 599.3	2 604.1	1 008.42	1 795.7	2 804.2	2.6457	3.5412	6.1869
3.5	242.60	0.001235	0.05707	1 045.43	1 558.3	2 603.7	1 049.75	1 753.7	2 803.4	2.7253	3.4000	6.1253
4	250.40	0.001252	0.04978	1 082.31	1 520.0	2 602.3	1 087.31	1 714.1	2 801.4	2.7964	3.2737	6.0701
5	263.99	0.001286	0.03944	1 147.81	1 449.3	2 597.1	1 154.23	1 640.1	2 794.3	2.9202	3.0532	5.9734
6	275.64	0.001319	0.03244	1 205.44	1 384.3	2 589.7	1 213.35	1 571.0	2 784.3	3.0267	2.8625	5.8892
7	285.88	0.001351	0.02737	1 257.55	1 323.0	2 580.5	1 267.00	1 505.1	2 772.1	3.1211	2.6922	5.8133
8	295.06	0.001384	0.02352	1 305.57	1 264.2	2 569.8	1 316.64	1 441.3	2 758.0	3.2068	2.5364	5.7432
9	303.40	0.001418	0.02048	1 350.51	1 207.3	2 557.8	1 363.26	1 378.9	2 742.1	3.2858	2.3915	5.6722
10	311.06	0.001452	0.018026	1 393.04	1 151.4	2 544.4	1 407.56	1 317.1	2 724.7	3.3596	2.2544	5.6141
11	318.15	0.001489	0.015987	1 433.7	1 096.0	2 529.8	1 450.1	1 255.5	2 705.6	3.4295	2.1233	5.5527
12	324.75	0.001527	0.014263	1 473.0	1 040.7	2 513.7	1 491.3	1 193.3	2 684.9	3.4962	1.9962	5.4924
13	330.93	0.001567	0.012780	1 511.1	985.0	2 496.1	1 531.5	1 130.7	2 662.2	3.5606	1.8718	5.4323
14	336.75	0.001611	0.011485	1 548.6	928.2	2 476.8	1 571.1	1 066.5	2 637.6	3.6232	1.7485	5.3717
15	342.24	0.001658	0.010337	1 585.6	869.8	2 455.5	1 610.5	1 000.0	2 610.5	3.6848	1.6249	5.3098
16	347.44	0.001711	0.009306	1 622.7	809.0	2 431.7	1 650.1	930.6	2 580.6	3.7461	1.4994	5.2455
17	352.37	0.001770	0.008364	1 660.2	744.8	2 405.0	1 690.3	856.9	2 547.2	3.8079	1.3698	5.1777
18	357.06	0.001840	0.007489	1 698.9	675.4	2 374.3	1 732.0	777.1	2 509.1	3.8715	1.2329	5.1044
19	361.54	0.001924	0.006657	1 739.9	598.1	2 338.1	1 776.5	688.0	2 464.5	3.9388	1.0839	5.0228
20	365.81	0.002036	0.005834	1 785.6	507.5	2 293.0	1 826.3	583.4	2 409.7	4.0139	0.9130	4.9269
21	369.89	0.002207	0.004952	1 842.1	388.5	2 230.6	1 888.4	446.2	2 334.6	4.1075	0.6938	4.8013
22	373.80	0.002742	0.003568	1 961.9	125.2	2 087.1	2 022.2	143.4	2 165.6	4.3110	0.2216	4.5327
22.09	374.14	0.003155	0.003155	2 029.6	0	2 029.6	2 099.3	0	2 099.3	4.4298	0	4.4298

TABLA A.6

Agua sobrecalentada

T °C	v m ³ /kg	u kJ/kg	h kJ/kg	s kJ/kg · K	v m ³ /kg	u kJ/kg	h kJ/kg	s kJ/kg · K	v m ³ /kg	u kJ/kg	h kJ/kg	s kJ/kg · K
$P = 0.01 \text{ MPa (45.81°C)}^*$					$P = 0.05 \text{ MPa (81.33°C)}$				$P = 0.10 \text{ MPa (99.63°C)}$			
Sat. [†]	14.674	2 437.9	2 584.7	8.1502	3.240	2 483.9	2 645.9	7.5939	1.6940	2 506.1	2 675.5	7.3594
50	14.869	2 443.9	2 592.6	8.1749								
100	17.196	2 515.5	2 687.5	8.4479	3.418	2 511.6	2 682.5	7.6947	1.6958	2 506.7	2 676.2	7.3614
150	19.512	2 587.9	2 783.0	8.6882	3.889	2 585.6	2 780.1	7.9401	1.9364	2 582.8	2 776.4	7.6134
200	21.825	2 661.3	2 879.5	8.9038	4.356	2 659.9	2 877.7	8.1580	2.172	2 658.1	2 875.3	7.8343
250	24.136	2 736.0	2 977.3	9.1002	4.820	2 735.0	2 976.0	8.3556	2.406	2 733.7	2 974.3	8.0333
300	26.445	2 812.1	3 076.5	9.2813	5.284	2 811.3	3 075.5	8.5373	2.639	2 810.4	3 074.3	8.2158
400	31.063	2 968.9	3 279.6	9.6077	6.209	2 968.5	3 278.9	8.8642	3.103	2 967.9	3 278.2	8.5435
500	35.679	3 132.3	3 489.1	9.8978	7.134	3 132.0	3 488.7	9.1546	3.565	3 131.6	3 488.1	8.8342
600	40.295	3 302.5	3 705.4	10.1608	8.057	3 302.2	3 705.1	9.4178	4.028	3 301.9	3 704.4	9.0976
700	44.911	3 479.6	3 928.7	10.4028	8.981	3 479.4	3 928.5	9.6599	4.490	3 479.2	3 928.2	9.3398
800	49.526	3 663.8	4 159.0	10.6281	9.904	3 663.6	4 158.9	9.8852	4.952	3 663.5	4 158.6	9.5652
900	54.141	3 855.0	4 396.4	10.8396	10.828	3 854.9	4 396.3	10.0967	5.414	3 854.8	4 396.1	9.7767
1 000	58.757	4 053.0	4 640.6	11.0393	11.751	4 052.9	4 640.5	10.2964	5.875	4 052.8	4 640.3	9.9764
1 100	63.372	4 257.5	4 891.2	11.2287	12.674	4 257.4	4 891.1	10.4859	6.337	4 257.3	4 891.0	10.1659
1 200	67.987	4 467.9	5 147.8	11.4091	13.597	4 467.8	5 147.7	10.6662	6.799	4 467.7	5 147.6	10.3463
1 300	72.602	4 683.7	5 409.7	11.5811	14.521	4 683.6	5 409.6	10.8382	7.260	4 683.5	5 409.5	10.5183
$P = 0.20 \text{ MPa (120.23°C)}$					$P = 0.30 \text{ MPa (133.55°C)}$				$P = 0.40 \text{ MPa (143.63°C)}$			
Sat.	0.8857	2 529.5	2 706.7	7.1272	0.6058	2 543.6	2 725.3	6.9919	0.4625	2 553.6	2 738.6	6.8959
150	0.9596	2 576.9	2 768.8	7.2795	0.6339	2 570.8	2 761.0	7.0778	0.4708	2 564.5	2 752.8	6.9299
200	1.0803	2 654.4	2 870.5	7.5066	0.7163	2 650.7	2 865.6	7.3115	0.5342	2 646.8	2 860.5	7.1706
250	1.1988	2 731.2	2 971.0	7.7086	0.7964	2 728.7	2 967.6	7.5166	0.5951	2 726.1	2 964.2	7.3789
300	1.3162	2 808.6	3 071.8	7.8926	0.8753	2 806.7	3 069.3	7.7022	0.6548	2 804.8	3 066.8	7.5662
400	1.5493	2 966.7	3 276.6	8.2218	1.0315	2 965.6	3 275.0	8.0330	0.7726	2 964.4	3 273.4	7.8985
500	1.7814	3 130.8	3 487.1	8.5133	1.1867	3 130.0	3 486.0	8.3251	0.8893	3 129.2	3 484.9	8.1913
600	2.013	3 301.4	3 704.0	8.7770	1.3414	3 300.8	3 703.2	8.5892	1.0055	3 300.2	3 702.4	8.4558
700	2.244	3 478.8	3 927.6	9.0194	1.4957	3 478.4	3 927.1	8.8319	1.1215	3 477.9	3 926.5	8.6987
800	2.475	3 663.1	4 158.2	9.2449	1.6499	3 662.9	4 157.8	9.0576	1.2372	3 662.4	4 157.3	8.9244
900	2.705	3 854.5	4 395.8	9.4566	1.8041	3 854.2	4 395.4	9.2692	1.3529	3 853.9	4 395.1	9.1362
1 000	2.937	4 052.5	4 640.0	9.6563	1.9581	4 052.3	4 639.7	9.4690	1.4685	4 052.0	4 639.4	9.3360
1 100	3.168	4 257.0	4 890.7	9.8458	2.1121	4 256.8	4 890.4	9.6585	1.5840	4 256.5	4 890.2	9.5256
1 200	3.399	4 467.5	5 147.5	10.0262	2.2661	4 467.2	5 147.1	9.8389	1.6996	4 467.0	5 146.8	9.7060
1 300	3.630	4 683.2	5 409.3	10.1982	2.4201	4 683.0	5 409.0	10.0110	1.8151	4 682.8	5 408.8	9.8780
$P = 0.50 \text{ MPa (151.86°C)}$					$P = 0.60 \text{ MPa (158.85°C)}$				$P = 0.80 \text{ MPa (170.43°C)}$			
Sat.	0.3749	2 561.2	2 748.7	6.8213	0.3157	2 567.4	2 756.8	6.7600	0.2404	2 576.8	2 769.1	6.6628
200	0.4249	2 642.9	2 855.4	7.0592	0.3520	2 638.9	2 850.1	6.9665	0.2608	2 630.6	2 839.3	6.8158
250	0.4744	2 723.5	2 960.7	7.2709	0.3938	2 720.9	2 957.2	7.1816	0.2931	2 715.5	2 950.0	7.0384
300	0.5226	2 802.9	3 064.2	7.4599	0.4344	2 801.0	3 061.6	7.3724	0.3241	2 797.2	3 056.5	7.2328
350	0.5701	2 882.6	3 167.7	7.6329	0.4742	2 881.2	3 165.7	7.5464	0.3544	2 878.2	3 161.7	7.4089
400	0.6173	2 963.2	3 271.9	7.7938	0.5137	2 962.1	3 270.3	7.7079	0.3843	2 959.7	3 267.1	7.5716
500	0.7109	3 128.4	3 483.9	8.0873	0.5920	3 127.6	3 482.8	8.0021	0.4433	3 126.0	3 480.6	7.8673
600	0.8041	3 299.6	3 701.7	8.3522	0.6697	3 299.1	3 700.9	8.2674	0.5018	3 297.9	3 699.4	8.1333
700	0.8969	3 477.5	3 925.9	8.5952	0.7472	3 477.0	3 925.3	8.5107	0.5601	3 476.2	3 924.2	8.3770
800	0.9896	3 662.1	4 156.9	8.8211	0.8245	3 661.8	4 156.5	8.7367	0.6181	3 661.1	4 155.6	8.6033
900	1.0822	3 853.6	4 394.7	9.0329	0.9017	3 853.4	4 394.4	8.9486	0.6761	3 852.8	4 393.7	8.8153
1 000	1.1747	4 051.8	4 639.1	9.2328	0.9788	4 051.5	4 638.8	9.1485	0.7340	4 051.0	4 638.2	9.0153
1 100	1.2672	4 256.3	4 889.9	9.4224	1.0559	4 256.1	4 889.6	9.3381	0.7919	4 255.6	4 889.1	9.2050
1 200	1.3596	4 466.8	5 146.6	9.6029	1.1330	4 466.5	5 146.3	9.5185	0.8497	4 466.1	5 145.9	9.3855
1 300	1.4521	4 682.5	5 408.6	9.7749	1.2101	4 682.3	5 408.3	9.6906	0.9076	4 681.8	5 407.9	9.5575

* La temperatura entre paréntesis es la temperatura de saturación a la presión especificada.

† Propiedades del vapor saturado a la presión especificada.

TABLA A.6

Agua sobrecalentada (Continuación)

T °C	v m³/kg	u kJ/kg	h kJ/kg	s kJ/kg · K	v m³/kg	u kJ/kg	h kJ/kg	s kJ/kg · K	v m³/kg	u kJ/kg	h kJ/kg	s kJ/kg · K		
P = 1.00 MPa (179.91°C)					P = 1.20 MPa (187.99°C)					P = 1.40 MPa (195.07°C)				
Sat.	0.19444	2 583.6	2 778.1	6.5865	0.16333	2 588.8	2 784.8	6.5233	0.14084	2 592.8	2 790.0	6.4693		
200	0.2060	2 621.9	2 827.9	6.6940	0.16930	2 612.8	2 815.9	6.5898	0.14302	2 603.1	2 803.3	6.4975		
250	0.2327	2 709.9	2 942.6	6.9247	0.19234	2 704.2	2 935.0	6.8294	0.16350	2 698.3	2 927.2	6.7467		
300	0.2579	2 793.2	3 051.2	7.1229	0.2138	2 789.2	3 045.8	7.0317	0.18228	2 785.2	3 040.4	6.9534		
350	0.2825	2 875.2	3 157.7	7.3011	0.2345	2 872.2	3 153.6	7.2121	0.2003	2 869.2	3 149.5	7.1360		
400	0.3066	2 957.3	3 263.9	7.4651	0.2548	2 954.9	3 260.7	7.3774	0.2178	2 952.5	3 257.5	7.3026		
500	0.3541	3 124.4	3 478.5	7.7622	0.2946	3 122.8	3 476.3	7.6759	0.2521	3 121.1	3 474.1	7.6027		
600	0.4011	3 296.8	3 697.9	8.0290	0.3339	3 295.6	3 696.3	7.9435	0.2860	3 294.4	3 694.8	7.8710		
700	0.4478	3 475.3	3 923.1	8.2731	0.3729	3 474.4	3 922.0	8.1881	0.3195	3 473.6	3 920.8	8.1160		
800	0.4943	3 660.4	4 154.7	8.4996	0.4118	3 659.7	4 153.8	8.4148	0.3528	3 659.0	4 153.0	8.3431		
900	0.5407	3 852.2	4 392.9	8.7118	0.4505	3 851.6	4 392.2	8.6272	0.3861	3 851.1	4 391.5	8.5556		
1 000	0.5871	4 050.5	4 637.6	8.9119	0.4892	4 050.0	4 637.0	8.8274	0.4192	4 049.5	4 636.4	8.7559		
1 100	0.6335	4 255.1	4 888.6	9.1017	0.5278	4 254.6	4 888.0	9.0172	0.4524	4 254.1	4 887.5	8.9457		
1 200	0.6798	4 465.6	5 145.4	9.2822	0.5665	4 465.1	5 144.9	9.1977	0.4855	4 464.7	5 144.4	9.1262		
1 300	0.7261	4 681.3	5 407.4	9.4543	0.6051	4 680.9	5 407.0	9.3698	0.5186	4 680.4	5 406.5	9.2984		
P = 1.60 MPa (201.41°C)					P = 1.80 MPa (207.15°C)					P = 2.00 MPa (212.42°C)				
Sat.	0.12380	2 596.0	2 794.0	6.4218	0.11042	2 598.4	2 797.1	6.3794	0.09963	2 600.3	2 799.5	6.3409		
225	0.13287	2 644.7	2 857.3	6.5518	0.11673	2 636.6	2 846.7	6.4808	0.10377	2 628.3	2 835.8	6.4147		
250	0.14184	2 692.3	2 919.2	6.6732	0.12497	2 686.0	2 911.0	6.6066	0.11144	2 679.6	2 902.5	6.5453		
300	0.15862	2 781.1	3 034.8	6.8844	0.14021	2 776.9	3 029.2	6.8226	0.12547	2 772.6	3 023.5	6.7664		
350	0.17456	2 866.1	3 145.4	7.0694	0.15457	2 863.0	3 141.2	7.0100	0.13857	2 859.8	3 137.0	6.9563		
400	0.19005	2 950.1	3 254.2	7.2374	0.16847	2 947.7	3 250.9	7.1794	0.15120	2 945.2	3 247.6	7.1271		
500	0.2203	3 119.5	3 472.0	7.5390	0.19550	3 117.9	3 469.8	7.4825	0.17568	3 116.2	3 467.6	7.4317		
600	0.2500	3 293.3	3 693.2	7.8080	0.2220	3 292.1	3 691.7	7.7523	0.19960	3 290.9	3 690.1	7.7024		
700	0.2794	3 472.7	3 919.7	8.0535	0.2482	3 471.8	3 918.5	7.9983	0.2232	3 470.9	3 917.4	7.9487		
800	0.3086	3 658.3	4 152.1	8.2808	0.2742	3 657.6	4 151.2	8.2258	0.2467	3 657.0	4 150.3	8.1765		
900	0.3377	3 850.5	4 390.8	8.4935	0.3001	3 849.9	4 390.1	8.4386	0.2700	3 849.3	4 389.4	8.3895		
1 000	0.3668	4 049.0	4 635.8	8.6938	0.3260	4 048.5	4 635.2	8.6391	0.2933	4 048.0	4 634.6	8.5901		
1 100	0.3958	4 253.7	4 887.0	8.8837	0.3518	4 253.2	4 886.4	8.8290	0.3166	4 252.7	4 885.9	8.7800		
1 200	0.4248	4 464.2	5 143.9	9.0643	0.3776	4 463.7	5 143.4	9.0096	0.3398	4 463.3	5 142.9	8.9607		
1 300	0.4538	4 679.9	5 406.0	9.2364	0.4034	4 679.5	5 405.6	9.1818	0.3631	4 679.0	5 405.1	9.1329		
P = 2.50 MPa (223.99°C)*					P = 3.00 MPa (233.90°C)					P = 3.50 MPa (242.60°C)				
Sat.	0.07998	2 603.1	2 803.1	6.2575	0.06668	2 604.1	2 804.2	6.1869	0.05707	2 603.7	2 803.4	6.1253		
225	0.08027	2 605.6	2 806.3	6.2639										
250	0.08700	2 662.6	2 880.1	6.4085	0.07058	2 644.0	2 855.8	6.2872	0.05872	2 623.7	2 829.2	6.1749		
300	0.09890	2 761.6	3 008.8	6.6438	0.08114	2 750.1	2 993.5	6.5390	0.06842	2 738.0	2 977.5	6.4461		
350	0.10976	2 851.9	3 126.3	6.8403	0.09053	2 843.7	3 115.3	6.7428	0.07678	2 835.3	3 104.0	6.6579		
400	0.12010	2 939.1	3 239.3	7.0148	0.09936	2 932.8	3 230.9	6.9212	0.08453	2 926.4	3 222.3	6.8405		
450	0.13014	3 025.5	3 350.8	7.1746	0.10787	3 020.4	3 344.0	7.0834	0.09196	3 015.3	3 337.2	7.0052		
500	0.13993	3 112.1	3 462.1	7.3234	0.11619	3 108.0	3 456.5	7.2338	0.09918	3 103.0	3 450.9	7.1572		
600	0.15930	3 288.0	3 686.3	7.5960	0.13243	3 285.0	3 682.3	7.5085	0.11324	3 282.1	3 678.4	7.4339		
700	0.17832	3 468.7	3 914.5	7.8435	0.14838	3 466.5	3 911.7	7.7571	0.12699	3 464.3	3 908.8	7.6837		
800	0.19716	3 655.3	4 148.2	8.0720	0.16414	3 653.5	4 145.9	7.9862	0.14056	3 651.8	4 143.7	7.9134		
900	0.21590	3 847.9	4 387.6	8.2853	0.17980	3 846.5	4 385.9	8.1999	0.15402	3 845.0	4 384.1	8.1276		
1 000	0.2346	4 046.7	4 633.1	8.4861	0.19541	4 045.4	4 631.6	8.4009	0.16743	4 044.1	4 630.1	8.3288		
1 100	0.2532	4 251.5	4 884.6	8.6762	0.21098	4 250.3	4 883.3	8.5912	0.18080	4 249.2	4 881.9	8.5192		
1 200	0.2718	4 462.1	5 141.7	8.8569	0.22652	4 460.9	5 140.5	8.7720	0.19415	4 459.8	5 139.3	8.7000		
1 300	0.2905	4 677.8	5 404.0	9.0291	0.24206	4 676.6	5 402.8	8.9442	0.20749	4 675.5	5 401.7	8.8723		

TABLA A.6

Agua sobrecalentada (Continuación)

T °C	v m³/kg	u kJ/kg	h kJ/kg	s kJ/kg · K	v m³/kg	u kJ/kg	h kJ/kg	s kJ/kg · K	v m³/kg	u kJ/kg	h kJ/kg	s kJ/kg · K		
P = 4.0 MPa (250.40°C)					P = 4.5 MPa (257.49°C)					P = 5.0 MPa (263.99°C)				
Sat.	0.04978	2 602.3	2 801.4	6.0701	0.04406	2 600.1	2 798.3	6.0198	0.03944	2 597.1	2 794.3	5.9734		
275	0.05457	2 667.9	2 886.2	6.2285	0.04730	2 650.3	2 863.2	6.1401	0.04141	2 631.3	2 838.3	6.0544		
300	0.05884	2 725.3	2 960.7	6.3615	0.05135	2 712.0	2 943.1	6.2828	0.04532	2 698.0	2 924.5	6.2084		
350	0.06645	2 826.7	3 092.5	6.5821	0.05840	2 817.8	3 080.6	6.5131	0.05194	2 808.7	3 068.4	6.4493		
400	0.07341	2 919.9	3 213.6	6.7690	0.06475	2 913.3	3 204.7	6.7047	0.05781	2 906.6	3 195.7	6.6459		
450	0.08002	3 010.2	3 330.3	6.9363	0.07074	3 005.0	3 323.3	6.8746	0.06330	2 999.7	3 316.2	6.8186		
500	0.08643	3 099.5	3 445.3	7.0901	0.07651	3 095.3	3 439.6	7.0301	0.06857	3 091.0	3 433.8	6.9759		
600	0.09885	3 279.1	3 674.4	7.3688	0.08765	3 276.0	3 670.5	7.3110	0.07869	3 273.0	3 666.5	7.2589		
700	0.11095	3 462.1	3 905.9	7.6198	0.09847	3 459.9	3 903.0	7.5631	0.08849	3 457.6	3 900.1	7.5122		
800	0.12287	3 650.0	4 141.5	7.8502	0.10911	3 648.3	4 139.3	7.7942	0.09811	3 646.6	4 137.1	7.7440		
900	0.13469	3 843.6	4 382.3	8.0647	0.11965	3 842.2	4 380.6	8.0091	0.10762	3 840.7	4 378.8	7.9593		
1 000	0.14645	4 042.9	4 628.7	8.2662	0.13013	4 041.6	4 627.2	8.2108	0.11707	4 040.4	4 625.7	8.1612		
1 100	0.15817	4 248.0	4 880.6	8.4567	0.14056	4 246.8	4 879.3	8.4015	0.12648	4 245.6	4 878.0	8.3520		
1 200	0.16987	4 458.6	5 138.1	8.6376	0.15098	4 457.5	5 136.9	8.5825	0.13587	4 456.3	5 135.7	8.5331		
1 300	0.18156	4 674.3	5 400.5	8.8100	0.16139	4 673.1	5 399.4	8.7549	0.14526	4 672.0	5 398.2	8.7055		
P = 6.0 MPa (275.64°C)					P = 7.0 MPa (285.88°C)					P = 8.0 MPa (295.06°C)				
Sat.	0.03244	2 589.7	2 784.3	5.8892	0.02737	2 580.5	2 772.1	5.8133	0.02352	2 569.8	2 758.0	5.7432		
300	0.03616	2 667.2	2 884.2	6.0674	0.02947	2 632.2	2 838.4	5.9305	0.02426	2 590.9	2 785.0	5.7906		
350	0.04223	2 789.6	3 043.0	6.3335	0.03524	2 769.4	3 016.0	6.2283	0.02995	2 747.7	2 987.3	6.1301		
400	0.04739	2 892.9	3 177.2	6.5408	0.03993	2 878.6	3 158.1	6.4478	0.03432	2 863.8	3 138.3	6.3634		
450	0.05214	2 988.9	3 301.8	6.7193	0.04416	2 978.0	3 287.1	6.6327	0.03817	2 966.7	3 272.0	6.5551		
500	0.05665	3 082.2	3 422.2	6.8803	0.04814	3 073.4	3 410.3	6.7975	0.04175	3 064.3	3 398.3	6.7240		
550	0.06101	3 174.6	3 540.6	7.0288	0.05195	3 167.2	3 530.9	6.9486	0.04516	3 159.8	3 521.0	6.8778		
600	0.06525	3 266.9	3 658.4	7.1677	0.05565	3 260.7	3 650.3	7.0894	0.04845	3 254.4	3 642.0	7.0206		
700	0.07352	3 453.1	3 894.2	7.4234	0.06283	3 448.5	3 888.3	7.3476	0.05481	3 443.9	3 882.4	7.2812		
800	0.08160	3 643.1	4 132.7	7.6566	0.06981	3 639.5	4 128.2	7.5822	0.06097	3 636.0	4 123.8	7.5173		
900	0.08958	3 837.8	4 375.3	7.8727	0.07669	3 835.0	4 371.8	7.7991	0.06702	3 832.1	4 368.3	7.7351		
1 000	0.09749	4 037.8	4 622.7	8.0751	0.08350	4 035.3	4 619.8	8.0020	0.07301	4 032.8	4 616.9	7.9384		
1 100	0.10536	4 243.3	4 875.4	8.2661	0.09027	4 240.9	4 872.8	8.1933	0.07896	4 238.6	4 870.3	8.1300		
1 200	0.11321	4 454.0	5 133.3	8.4474	0.09703	4 451.7	5 130.9	8.3747	0.08489	4 449.5	5 128.5	8.3115		
1 300	0.12106	4 669.6	5 396.0	8.6199	0.10377	4 667.3	5 393.7	8.5475	0.09080	4 665.0	5 391.5	8.4842		
P = 9.0 MPa (303.40°C)					P = 10.0 MPa (318.351.06°C) 311					P = 12.5 MPa (327.89°C)				
Sat.	0.02048	2 557.8	2 742.1	5.6772	0.018026	2 544.4	2 724.7	5.6141	0.013495	2 505.1	2 673.8	5.4624		
325	0.02327	2 646.6	2 856.0	5.8712	0.019861	2 610.4	2 809.1	5.7568						
350	0.02580	2 724.4	2 956.6	6.0361	0.02242	2 699.2	2 923.4	5.9443	0.016126	2 624.6	2 826.2	5.7118		
400	0.02993	2 848.4	3 117.8	6.2854	0.02641	2 832.4	3 096.5	6.2120	0.02000	2 789.3	3 039.3	6.0417		
450	0.03350	2 955.2	3 256.6	6.4844	0.02975	2 943.4	3 240.9	6.4190	0.02299	2 912.5	3 199.8	6.2719		
500	0.03677	3 055.2	3 386.1	6.6576	0.03279	3 045.8	3 373.7	6.5966	0.02560	3 021.7	3 341.8	6.4618		
550	0.03987	3 152.2	3 511.0	6.8142	0.03564	3 144.6	3 500.9	6.7561	0.02801	3 125.0	3 475.2	6.6290		
600	0.04285	3 248.1	3 633.7	6.9589	0.03837	3 241.7	3 625.3	6.9029	0.03029	3 225.4	3 604.0	6.7810		
→ 650	0.04574	3 343.6	3 755.3	7.0943	0.04101	3 338.2	3 748.2	7.0398	0.03248	3 324.4	3 730.4	6.9218		
700	0.04857	3 439.3	3 876.5	7.2221	0.04358	3 434.7	3 870.5	7.1687	0.03460	3 422.9	3 855.3	7.0536		
800	0.05409	3 632.5	4 119.3	7.4596	0.04859	3 628.9	4 114.8	7.4077	0.03869	3 620.0	4 103.6	7.2965		
900	0.05950	3 829.2	4 364.8	7.6783	0.05349	3 826.3	4 361.2	7.6272	0.04267	3 819.1	4 352.5	7.5182		
1 000	0.06485	4 030.3	4 614.0	7.8821	0.05832	4 027.8	4 611.0	7.8315	0.04658	4 021.6	4 603.8	7.7237		
1 100	0.07016	4 236.3	4 867.7	8.0740	0.06312	4 234.0	4 865.1	8.0237	0.05045	4 228.2	4 858.8	7.9165		
1 200	0.07544	4 447.2	5 126.2	8.2556	0.06789	4 444.9	5 123.8	8.2055	0.05430	4 439.3	5 118.0	8.0937		
1 300	0.08072	4 662.7	5 389.2	8.4284	0.07265	4 460.5	5 387.0	8.3783	0.05813	4 654.8	5 381.4	8.2717		

TABLA A.6

Agua sobrecalentada (Conclusión)

T °C	v m ³ /kg	u kJ/kg	h kJ/kg	s kJ/kg · K	v m ³ /kg	u kJ/kg	h kJ/kg	s kJ/kg · K	v m ³ /kg	u kJ/kg	h kJ/kg	s kJ/kg · K
P = 15.0 MPa (342.24°C)					P = 17.5 MPa (354.75°C)				P = 20.0 MPa (365.81°C)			
Sat.	0.010337	2 455.5	2 610.5	5.3098	0.007920	2 390.2	2 528.8	5.1419	0.005834	2 293.0	2 409.7	4.9269
350	0.011470	2 520.4	2 692.4	5.4421					0.009942	2 619.3	2 818.1	5.5540
400	0.015649	2 740.7	2 975.5	5.8811	0.012447	2 685.0	2 902.9	5.7213	0.012695	2 806.2	3 060.1	5.9017
450	0.018445	2 879.5	3 156.2	6.1404	0.015174	2 844.2	3 109.7	6.0184	0.014768	2 942.9	3 238.2	6.1401
500	0.02080	2 996.6	3 308.6	6.3443	0.017358	2 970.3	3 274.1	6.2383	0.016555	3 062.4	3 393.5	6.3348
550	0.02293	3 104.7	3 448.6	6.5199	0.019288	3 083.9	3 421.4	6.4230	0.018178	3 174.0	3 537.6	6.5048
600	0.02491	3 208.6	3 582.3	6.6776	0.02106	3 191.5	3 560.1	6.5866	0.019693	3 281.4	3 675.3	6.6582
650	0.02680	3 310.3	3 712.3	6.8224	0.02274	3 296.0	3 693.9	6.7357	0.02113	3 386.4	3 809.0	6.7993
700	0.02861	3 410.9	3 840.1	6.9572	0.02434	3 398.7	3 824.6	6.8736	0.02385	3 592.7	4 069.7	7.0544
800	0.03210	3 610.9	4 092.4	7.2040	0.02738	3 601.8	4 081.1	7.1244	0.02645	3 797.5	4 326.4	7.2830
900	0.03546	3 811.9	4 343.8	7.4279	0.03031	3 804.7	4 335.1	7.3507	0.02897	4 003.1	4 582.5	7.4925
1 000	0.03875	4 015.4	4 596.6	7.6348	0.03316	4 009.3	4 589.5	7.5589	0.03145	4 211.3	4 840.2	7.6874
1 100	0.04200	4 222.6	4 852.6	7.8283	0.03597	4 216.9	4 846.4	7.7531	0.03391	4 422.8	5 101.0	7.8707
1 200	0.04523	4 433.8	5 112.3	8.0108	0.03876	4 428.3	5 106.6	7.9360	0.03636	4 638.0	5 365.1	8.0442
1 300	0.04845	4 649.1	5 376.0	8.1840	0.04154	4 643.5	5 370.5	8.1093				
P = 25.0 MPa					P = 30.0 MPa				P = 35.0 MPa			
375	0.0019731	1 798.7	1 848.0	4.0320	0.0017892	1 737.8	1 791.5	3.9305	0.0017003	1 702.9	1 762.4	3.8722
400	0.006004	2 430.1	2 580.2	5.1418	0.002790	2 067.4	2 151.1	4.4728	0.002100	1 914.1	1 987.6	4.2126
425	0.007881	2 609.2	2 806.3	5.4723	0.005303	2 455.1	2 614.2	5.1504	0.003428	2 253.4	2 373.4	4.7747
450	0.009162	2 720.7	2 949.7	5.6744	0.006735	2 619.3	2 821.4	5.4424	0.004961	2 498.7	2 672.4	5.1962
500	0.011123	2 884.3	3 162.4	5.9592	0.008678	2 820.7	3 081.1	5.7905	0.006927	2 751.9	2 994.4	5.6282
550	0.012724	3 017.5	3 335.6	6.1765	0.010168	2 970.3	3 275.4	6.0342	0.008345	2 921.0	3 213.0	5.9026
600	0.014137	3 137.9	3 491.4	6.3602	0.011446	3 100.5	3 443.9	6.2331	0.009527	3 062.0	3 395.5	6.1179
650	0.015433	3 251.6	3 637.4	6.5229	0.012596	3 221.0	3 598.9	6.4058	0.010575	3 189.8	3 559.9	6.3010
700	0.016646	3 361.3	3 777.5	6.6707	0.013661	3 335.8	3 745.6	6.5606	0.011533	3 309.8	3 713.5	6.4631
800	0.018912	3 574.3	4 047.1	6.9345	0.015623	3 555.5	4 024.2	6.8332	0.013278	3 536.7	4 001.5	6.7450
900	0.021045	3 783.0	4 309.1	7.1680	0.017448	3 768.5	4 291.9	7.0718	0.014883	3 754.0	4 274.9	6.9386
1 000	0.02310	3 990.9	4 568.5	7.3802	0.019196	3 978.8	4 554.7	7.2867	0.016410	3 966.7	4 541.1	7.2064
1 100	0.02512	4 200.2	4 828.2	7.5765	0.020903	4 189.2	4 816.3	7.4845	0.017895	4 178.3	4 804.6	7.4037
1 200	0.02711	4 412.0	5 089.9	7.7605	0.022589	4 401.3	5 079.0	7.6692	0.019360	4 390.7	5 068.3	7.5910
1 300	0.02910	4 626.9	5 354.4	7.9342	0.024266	4 616.0	5 344.0	7.8432	0.020815	4 605.1	5 333.6	7.7653
P = 40.0 MPa					P = 50.0 MPa				P = 60.0 MPa			
375	0.0016407	1 677.1	1 742.8	3.8290	0.0015594	1 638.6	1 716.6	3.7639	0.0015028	1 609.4	1 699.5	3.7141
400	0.0019077	1 854.6	1 930.9	4.1135	0.0017309	1 788.1	1 874.6	4.0031	0.0016335	1 745.4	1 843.4	3.9318
425	0.002532	2 096.9	2 198.1	4.5029	0.002007	1 959.7	2 060.0	4.2734	0.0018165	1 892.7	2 001.7	4.1626
450	0.003693	2 365.1	2 512.8	4.9459	0.002486	2 159.6	2 284.0	4.5884	0.002085	2 053.9	2 179.0	4.4121
500	0.005622	2 678.4	2 903.3	5.4700	0.003892	2 525.5	2 720.1	5.1726	0.002956	2 390.6	2 567.9	4.9321
550	0.006984	2 869.7	3 149.1	5.7785	0.005118	2 763.6	3 019.5	5.5485	0.003956	2 658.8	2 896.2	5.3441
600	0.008094	3 022.6	3 346.4	6.0144	0.006112	2 942.0	3 247.6	5.8178	0.004834	2 861.1	3 151.2	5.6452
650	0.009063	3 158.0	3 520.6	6.2054	0.006966	3 093.5	3 441.8	6.0342	0.005595	3 028.8	3 364.5	5.8829
700	0.009941	3 283.6	3 681.2	6.3750	0.007727	3 230.5	3 616.8	6.2189	0.006272	3 177.2	3 553.5	6.0824
800	0.011523	3 517.8	3 978.7	6.6662	0.009076	3 479.8	3 933.6	6.5290	0.007459	3 441.5	3 889.1	6.4109
900	0.012962	3 739.4	4 257.9	6.9150	0.010283	3 710.3	4 224.4	6.7882	0.008508	3 681.0	4 191.5	6.6805
1 000	0.014324	3 954.6	4 527.6	7.1356	0.011411	3 930.5	4 501.1	7.0146	0.009480	3 906.4	4 475.2	6.9127
1 100	0.015642	4 167.4	4 797.1	7.3364	0.012496	4 145.7	4 770.5	7.2184	0.010409	4 124.1	4 748.6	7.1195
1 200	0.016940	4 380.1	5 057.7	7.5224	0.013561	4 359.1	5 037.2	7.4058	0.011317	4 338.2	5 017.2	7.3083
1 300	0.018229	4 594.3	5 323.5	7.6969	0.014616	4 572.8	5 303.6	7.5808	0.012215	4 551.4	5 284.3	7.4837

H₂O

TABLA A.7

Agua líquida comprimida

T	v	u	h	s	T	v	u	h	s			
°C	m ³ /kg	kJ/kg	kJ/kg	kJ/kg · K	°C	m ³ /kg	kJ/kg	kJ/kg	kJ/kg · K			
Sat.	0.0012859	1 147.8	1 154.2	2.9202	0.0014524	1 393.0	1 407.6	3.3596	0.0016581	1 585.6	1 610.5	3.554
0	0.0009977	0.04	88.65	0.2956	0.0009972	83.36	176.38	0.5668	0.0009950	83.06	97.99	0.000
20	0.0010095	166.95	171.97	0.5705	0.0010034	166.35	176.38	0.5668	0.0010013	165.76	180.78	0.560
40	0.0010056	250.23	255.30	0.8285	0.0010127	249.36	259.49	0.8258	0.0010105	248.51	263.67	0.820
60	0.0010149	417.52	422.72	1.3030	0.0010385	416.12	426.50	1.2992	0.0010361	414.74	430.28	1.290
80	0.0010268	333.72	338.85	1.0720	0.0010245	332.59	342.83	1.0688	0.0010222	331.48	346.81	1.060
100	0.0010410	501.80	507.09	1.5233	0.0010549	500.08	510.64	1.5189	0.0010522	498.40	514.19	1.510
120	0.0010576	672.62	678.12	1.9375	0.0010953	670.13	681.08	1.9317	0.0010918	667.71	684.09	1.920
140	0.0010768	848.1	853.9	2.3255	0.0011480	844.5	856.0	2.3178	0.0011433	841.0	858.2	2.300
160	0.0010988	938.4	944.4	2.5128	0.0011805	934.1	945.9	2.5039	0.0011748	929.9	947.5	2.490
180	0.0011240	1 031.4	1 037.5	2.6979	0.0012187	1 026.0	1 038.1	2.6872	0.0012114	1 020.8	1 039.0	2.670
200	0.0011530	1 127.9	1 134.3	2.8830	0.0012645	1 121.1	1 133.7	2.8699	0.0012550	1 114.6	1 133.4	2.850
220	0.0011866	1 220.2	1 226.4	3.0681	0.0013197	1 216.1	1 229.9	3.0548	0.0013084	1 212.5	1 231.1	3.030
240	0.0012264	1 316.6	1 322.8	3.2531	0.0013770	1 311.6	1 325.4	3.2469	0.0013724	1 307.0	1 325.8	3.210
260	0.0012749	1 413.1	1 419.3	3.4382	0.0014372	1 408.1	1 422.9	3.4311	0.0014324	1 403.6	1 422.4	3.390
280	0.0013230	1 510.5	1 516.7	3.6233	0.0014991	1 505.1	1 519.9	3.6162	0.0015000	1 500.6	1 519.4	3.570
300	0.0013711	1 607.0	1 613.2	3.8084	0.0015610	1 602.1	1 616.9	3.8013	0.0015619	1 597.6	1 616.4	3.750
320	0.0014192	1 703.5	1 709.7	3.9935	0.0016230	1 697.6	1 712.4	3.9862	0.0016239	1 693.1	1 711.9	3.930
340	0.0014673	1 800.0	1 806.2	4.1786	0.0016841	1 792.1	1 806.9	4.1713	0.0016850	1 788.6	1 807.4	4.110
360	0.0015154	1 896.5	1 902.7	4.3637	0.0017452	1 887.6	1 902.4	4.3640	0.0017461	1 884.1	1 902.9	4.290
380	0.0015635	1 993.0	1 999.2	4.5488	0.0018063	1 988.1	2 002.9	4.5491	0.0018072	1 984.6	2 003.4	4.470
Sat.	0.002036	1 785.6	1 826.3	4.0139	0.0009856	0.25	29.82	0.0001	0.0009766	0.20	49.03	0.000
0	0.0009904	0.19	20.01	0.0004	0.0009886	82.17	111.84	0.2899	0.0009804	81.00	130.02	0.280
20	0.0009928	82.77	102.62	0.2923	0.0009886	82.17	111.84	0.2899	0.0009804	81.00	130.02	0.280
40	0.0009992	165.17	185.16	0.5646	0.0009951	164.04	193.89	0.5607	0.0009872	161.86	211.21	0.550
60	0.0010084	247.68	267.85	0.8206	0.0010042	246.06	276.19	0.8154	0.0009962	242.98	292.79	0.820
80	0.0010199	330.40	350.80	1.0624	0.0010156	328.30	358.77	1.0561	0.0010073	324.34	374.70	1.040
100	0.0010337	413.39	434.06	1.2917	0.0010290	410.78	441.66	1.2844	0.0010201	405.88	456.89	1.270
120	0.0010496	496.76	517.76	1.5102	0.0010445	493.59	524.93	1.5018	0.0010348	487.65	539.39	1.480
140	0.0010678	580.69	602.04	1.7193	0.0010621	576.88	608.75	1.7098	0.0010515	569.77	622.35	1.680
160	0.0010885	665.35	687.12	1.9204	0.0010821	660.82	693.28	1.9096	0.0010703	652.41	705.92	1.880
180	0.0011120	750.95	773.20	2.1147	0.0011047	745.59	778.73	2.1024	0.0010912	735.69	790.25	2.080
200	0.0011388	837.7	860.5	2.3031	0.0011302	831.4	865.3	2.2893	0.0011146	819.7	875.5	2.280
220	0.0011695	925.9	949.3	2.4870	0.0011590	918.3	953.1	2.4711	0.0011408	904.7	961.7	2.470
240	0.0012046	1 016.0	1 040.0	2.6674	0.0011920	1 006.9	1 042.6	2.6490	0.0011702	990.7	1 049.2	2.660
260	0.0012462	1 108.6	1 133.5	2.8459	0.0012303	1 097.4	1 134.3	2.8243	0.0012034	1 078.1	1 138.2	2.760
280	0.0012965	1 204.7	1 230.6	3.0248	0.0012755	1 190.7	1 229.0	2.9986	0.0012415	1 167.2	1 229.3	2.960
300	0.0013596	1 306.1	1 333.3	3.2071	0.0013304	1 287.9	1 327.8	3.1741	0.0012860	1 258.7	1 323.0	3.160
320	0.0014437	1 415.7	1 444.6	3.3979	0.0013997	1 390.7	1 432.7	3.3539	0.0013388	1 353.3	1 420.2	3.360
340	0.0015684	1 539.7	1 571.0	3.6075	0.0014920	1 501.7	1 546.5	3.5426	0.0014302	1 452.0	1 522.1	3.560
360	0.0018226	1 702.8	1 739.3	3.8772	0.0016691	1 626.6	1 675.4	3.7494	0.0014838	1 556.0	1 630.2	3.860
380	0.002036	1 826.3	1 863.3	4.0139	0.0018691	1 781.4	1 837.5	4.0012	0.0015884	1 667.2	1 746.6	4.060

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