

TABLE B.1.4

Compressed Liquid Water

| Temp. (°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) |
|---------------------|-----------------------------|----------------|----------------|------------------|-----------------------------|----------------|----------------|------------------|
| 500 kPa (151.86°C) | | | | | 2000 kPa (212.42°C) | | | |
| Sat. | 0.001093 | 639.66 | 640.21 | 1.8606 | 0.001177 | 906.42 | 908.77 | 2.4473 |
| 0.01 | 0.000999 | 0.01 | 0.51 | 0.0000 | 0.000999 | 0.03 | 2.03 | 0.0001 |
| 20 | 0.001002 | 83.91 | 84.41 | 0.2965 | 0.001001 | 83.82 | 85.82 | .2962 |
| 40 | 0.001008 | 167.47 | 167.98 | 0.5722 | 0.001007 | 167.29 | 169.30 | .5716 |
| 60 | 0.001017 | 251.00 | 251.51 | 0.8308 | 0.001016 | 250.73 | 252.77 | .8300 |
| 80 | 0.001029 | 334.73 | 335.24 | 1.0749 | 0.001028 | 334.38 | 336.44 | 1.0739 |
| 100 | 0.001043 | 418.80 | 419.32 | 1.3065 | 0.001043 | 418.36 | 420.45 | 1.3053 |
| 120 | 0.001060 | 503.37 | 503.90 | 1.5273 | 0.001059 | 502.84 | 504.96 | 1.5259 |
| 140 | 0.001080 | 588.66 | 589.20 | 1.7389 | 0.001079 | 588.02 | 590.18 | 1.7373 |
| 160 | — | — | — | — | 0.001101 | 674.14 | 676.34 | 1.9410 |
| 180 | — | — | — | — | 0.001127 | 761.46 | 763.71 | 2.1382 |
| 200 | — | — | — | — | 0.001156 | 850.30 | 852.61 | 2.3301 |
| 5000 kPa (263.99°C) | | | | | 10000 kPa (311.06°C) | | | |
| Sat | 0.001286 | 1147.78 | 1154.21 | 2.9201 | 0.001452 | 1393.00 | 1407.53 | 3.3595 |
| 0 | 0.000998 | 0.03 | 5.02 | 0.0001 | 0.000995 | 0.10 | 10.05 | 0.0003 |
| 20 | 0.001000 | 83.64 | 88.64 | 0.2955 | 0.000997 | 83.35 | 93.32 | 0.2945 |
| 40 | 0.001006 | 166.93 | 171.95 | 0.5705 | 0.001003 | 166.33 | 176.36 | 0.5685 |
| 60 | 0.001015 | 250.21 | 255.28 | 0.8284 | 0.001013 | 249.34 | 259.47 | 0.8258 |
| 80 | 0.001027 | 333.69 | 338.83 | 1.0719 | 0.001025 | 332.56 | 342.81 | 1.0687 |
| 100 | 0.001041 | 417.50 | 422.71 | 1.3030 | 0.001039 | 416.09 | 426.48 | 1.2992 |
| 120 | 0.001058 | 501.79 | 507.07 | 1.5232 | 0.001055 | 500.07 | 510.61 | 1.5188 |
| 140 | 0.001077 | 586.74 | 592.13 | 1.7342 | 0.001074 | 584.67 | 595.40 | 1.7291 |
| 160 | 0.001099 | 672.61 | 678.10 | 1.9374 | 0.001195 | 670.11 | 681.07 | 1.9316 |
| 180 | 0.001124 | 759.62 | 765.24 | 2.1341 | 0.001120 | 756.63 | 767.83 | 2.1274 |
| 200 | 0.001153 | 848.08 | 853.85 | 2.3254 | 0.001148 | 844.49 | 855.97 | 2.3178 |
| 220 | 0.001187 | 938.43 | 944.36 | 2.5128 | 0.001181 | 934.07 | 945.88 | 2.5038 |
| 240 | 0.001226 | 1031.34 | 1037.47 | 2.6978 | 0.001219 | 1025.94 | 1038.13 | 2.6872 |
| 260 | 0.001275 | 1127.92 | 1134.30 | 2.8829 | 0.001265 | 1121.03 | 1133.68 | 2.8698 |
| 280 | | | | | 0.001322 | 1220.90 | 1234.11 | 3.0547 |
| 300 | | | | | 0.001397 | 1328.34 | 1342.31 | 3.2468 |

TABLE B.1.4 (continued)
Compressed Liquid Water

| Temp. (°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) |
|----------------------|-----------------------------|----------------|----------------|------------------|-----------------------------|----------------|----------------|------------------|
| 15000 kPa (342.24°C) | | | | | 20000 kPa (365.81°C) | | | |
| Sat. | 0.001658 | 1585.58 | 1610.45 | 3.6847 | 0.002035 | 1785.47 | 1826.18 | 4.0137 |
| 0 | 0.000993 | 0.15 | 15.04 | 0.0004 | 0.000990 | 0.20 | 20.00 | 0.0004 |
| 20 | 0.000995 | 83.05 | 97.97 | 0.2934 | 0.000993 | 82.75 | 102.61 | 0.2922 |
| 40 | 0.001001 | 165.73 | 180.75 | 0.5665 | 0.000999 | 165.15 | 185.14 | 0.5646 |
| 60 | 0.001011 | 248.49 | 263.65 | 0.8231 | 0.001008 | 247.66 | 267.82 | 0.8205 |
| 80 | 0.001022 | 331.46 | 346.79 | 1.0655 | 0.001020 | 330.38 | 350.78 | 1.0623 |
| 100 | 0.001036 | 414.72 | 430.26 | 1.2954 | 0.001034 | 413.37 | 434.04 | 1.2917 |
| 120 | 0.001052 | 498.39 | 514.17 | 1.5144 | 0.001050 | 496.75 | 517.74 | 1.5101 |
| 140 | 0.001071 | 582.64 | 598.70 | 1.7241 | 0.001068 | 580.67 | 602.03 | 1.7192 |
| 160 | 0.001092 | 667.69 | 684.07 | 1.9259 | 0.001089 | 665.34 | 687.11 | 1.9203 |
| 180 | 0.001116 | 753.74 | 770.48 | 2.1209 | 0.001112 | 750.94 | 773.18 | 2.1146 |
| 200 | 0.001143 | 841.04 | 858.18 | 2.3103 | 0.001139 | 837.70 | 860.47 | 2.3031 |
| 220 | 0.001175 | 929.89 | 947.52 | 2.4952 | 0.001169 | 925.89 | 949.27 | 2.4869 |
| 240 | 0.001211 | 1020.82 | 1038.99 | 2.6770 | 0.001205 | 1015.94 | 1040.04 | 2.6673 |
| 260 | 0.001255 | 1114.59 | 1133.41 | 2.8575 | 0.001246 | 1108.53 | 1133.45 | 2.8459 |
| 280 | 0.001308 | 1212.47 | 1232.09 | 3.0392 | 0.001297 | 1204.69 | 1230.62 | 3.0248 |
| 300 | 0.001377 | 1316.58 | 1337.23 | 3.2259 | 0.001360 | 1306.10 | 1333.29 | 3.2071 |
| 320 | 0.001472 | 1431.05 | 1453.13 | 3.4246 | 0.001444 | 1415.66 | 1444.53 | 3.3978 |
| 340 | 0.001631 | 1567.42 | 1591.88 | 3.6545 | 0.001568 | 1539.64 | 1571.01 | 3.6074 |
| 360 | | | | | 0.001823 | 1702.78 | 1739.23 | 3.8770 |
| 30000 kPa | | | | | 50000 kPa | | | |
| 0 | 0.000986 | 0.25 | 29.82 | 0.0001 | 0.000977 | 0.20 | 49.03 | −0.0014 |
| 20 | 0.000989 | 82.16 | 111.82 | 0.2898 | 0.000980 | 80.98 | 130.00 | 0.2847 |
| 40 | 0.000995 | 164.01 | 193.87 | 0.5606 | 0.000987 | 161.84 | 211.20 | 0.5526 |
| 60 | 0.001004 | 246.03 | 276.16 | 0.8153 | 0.000996 | 242.96 | 292.77 | 0.8051 |
| 80 | 0.001016 | 328.28 | 358.75 | 1.0561 | 0.001007 | 324.32 | 374.68 | 1.0439 |
| 100 | 0.001029 | 410.76 | 441.63 | 1.2844 | 0.001020 | 405.86 | 456.87 | 1.2703 |
| 120 | 0.001044 | 493.58 | 524.91 | 1.5017 | 0.001035 | 487.63 | 539.37 | 1.4857 |
| 140 | 0.001062 | 576.86 | 608.73 | 1.7097 | 0.001052 | 569.76 | 622.33 | 1.6915 |
| 160 | 0.001082 | 660.81 | 693.27 | 1.9095 | 0.001070 | 652.39 | 705.91 | 1.8890 |
| 180 | 0.001105 | 745.57 | 778.71 | 2.1024 | 0.001091 | 735.68 | 790.24 | 2.0793 |
| 200 | 0.001130 | 831.34 | 865.24 | 2.2892 | 0.001115 | 819.73 | 875.46 | 2.2634 |
| 220 | 0.001159 | 918.32 | 953.09 | 2.4710 | 0.001141 | 904.67 | 961.71 | 2.4419 |
| 240 | 0.001192 | 1006.84 | 1042.60 | 2.6489 | 0.001170 | 990.69 | 1049.20 | 2.6158 |
| 260 | 0.001230 | 1097.38 | 1134.29 | 2.8242 | 0.001203 | 1078.06 | 1138.23 | 2.7860 |
| 280 | 0.001275 | 1190.69 | 1228.96 | 2.9985 | 0.001242 | 1167.19 | 1229.26 | 2.9536 |
| 300 | 0.001330 | 1287.89 | 1327.80 | 3.1740 | 0.001286 | 1258.66 | 1322.95 | 3.1200 |
| 320 | 0.001400 | 1390.64 | 1432.63 | 3.3538 | 0.001339 | 1353.23 | 1420.17 | 3.2867 |
| 340 | 0.001492 | 1501.71 | 1546.47 | 3.5425 | 0.001403 | 1451.91 | 1522.07 | 3.4556 |
| 360 | 0.001627 | 1626.57 | 1675.36 | 3.7492 | 0.001484 | 1555.97 | 1630.16 | 3.6290 |
| 380 | 0.001869 | 1781.35 | 1837.43 | 4.0010 | 0.001588 | 1667.13 | 1746.54 | 3.8100 |

TABLE B.1.5

Saturated Solid-Saturated Vapor, Water

| Temp. (°C) | Press. (kPa) | Specific Volume, m ³ /kg | | | Internal Energy, kJ/kg | | |
|---------------|-----------------|-------------------------------------|-------------------|---------------------|------------------------|-------------------|---------------------|
| | | Sat. Solid v_i | Evap. v_{ig} | Sat. Vapor v_g | Sat. Solid u_i | Evap. u_{ig} | Sat. Vapor u_g |
| 0.01 | 0.6113 | 0.0010908 | 206.152 | 206.153 | −333.40 | 2708.7 | 2375.3 |
| 0 | 0.6108 | 0.0010908 | 206.314 | 206.315 | −333.42 | 2708.7 | 2375.3 |
| −2 | 0.5177 | 0.0010905 | 241.662 | 241.663 | −337.61 | 2710.2 | 2372.5 |
| −4 | 0.4376 | 0.0010901 | 283.798 | 283.799 | −341.78 | 2711.5 | 2369.8 |
| −6 | 0.3689 | 0.0010898 | 334.138 | 334.139 | −345.91 | 2712.9 | 2367.0 |
| −8 | 0.3102 | 0.0010894 | 394.413 | 394.414 | −350.02 | 2714.2 | 2364.2 |
| −10 | 0.2601 | 0.0010891 | 466.756 | 466.757 | −354.09 | 2715.5 | 2361.4 |
| −12 | 0.2176 | 0.0010888 | 553.802 | 553.803 | −358.14 | 2716.8 | 2358.7 |
| −14 | 0.1815 | 0.0010884 | 658.824 | 658.824 | −362.16 | 2718.0 | 2355.9 |
| −16 | 0.1510 | 0.0010881 | 785.906 | 785.907 | −366.14 | 2719.2 | 2353.1 |
| −18 | 0.1252 | 0.0010878 | 940.182 | 940.183 | −370.10 | 2720.4 | 2350.3 |
| −20 | 0.10355 | 0.0010874 | 1128.112 | 1128.113 | −374.03 | 2721.6 | 2347.5 |
| −22 | 0.08535 | 0.0010871 | 1357.863 | 1357.864 | −377.93 | 2722.7 | 2344.7 |
| −24 | 0.07012 | 0.0010868 | 1639.752 | 1639.753 | −381.80 | 2723.7 | 2342.0 |
| −26 | 0.05741 | 0.0010864 | 1986.775 | 1986.776 | −385.64 | 2724.8 | 2339.2 |
| −28 | 0.04684 | 0.0010861 | 2415.200 | 2415.201 | −389.45 | 2725.8 | 2336.4 |
| −30 | 0.03810 | 0.0010858 | 2945.227 | 2945.228 | −393.23 | 2726.8 | 2333.6 |
| −32 | 0.03090 | 0.0010854 | 3601.822 | 3601.823 | −396.98 | 2727.8 | 2330.8 |
| −34 | 0.02499 | 0.0010851 | 4416.252 | 4416.253 | −400.71 | 2728.7 | 2328.0 |
| −36 | 0.02016 | 0.0010848 | 5430.115 | 5430.116 | −404.40 | 2729.6 | 2325.2 |
| −38 | 0.01618 | 0.0010844 | 6707.021 | 6707.022 | −408.06 | 2730.5 | 2322.4 |
| −40 | 0.01286 | 0.0010841 | 8366.395 | 8366.396 | −411.70 | 2731.3 | 2319.6 |