

Steam property tables

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The following tables quantify the thermodynamic state of pure water across a large range of properties, as calculated according to the NIST-IAPWS 1995 model [1].

| Property | SI unit | unit in this document |
|--|-----------------------------------|---|
| h mass-specific enthalpy; $h = u + pv$ | J kg^{-1} | $1 \text{ kJ kg}^{-1} \equiv 1 \times 10^3 \text{ J kg}^{-1}$ |
| p pressure | Pa | $1 \text{ MPa} \equiv 1 \times 10^6 \text{ Pa} = 0.1 \text{ bar}$ |
| s mass-specific entropy | $\text{J K}^{-1} \text{ kg}^{-1}$ | $1 \text{ kJ K}^{-1} \text{ kg}^{-1} \equiv 1 \times 10^3 \text{ J K}^{-1} \text{ kg}^{-1}$ |
| T temperature | K | $T(^{\circ}\text{C}) \equiv T(\text{K}) - 273.15$ |
| u mass-specific internal energy | J kg^{-1} | $1 \text{ kJ kg}^{-1} \equiv 1 \times 10^3 \text{ J kg}^{-1}$ |
| v mass-specific volume | $\text{m}^3 \text{ kg}^{-1}$ | $\text{m}^3 \text{ kg}^{-1}$ |

Values for u and s are arbitrarily set to zero at the triple point^w of water, so that all values for u , h and s elsewhere are expressed relative to that point. The L and V subscripts denote values corresponding to saturated liquid^w and saturated steam^w respectively. T_{sat} is saturation temperature^w (the temperature for which both states will be present at the given pressure). Likewise, p_{sat} is saturation pressure (the pressure for which both states will be present at the given temperature). T_{cr} and p_{cr} correspond to critical values^w (the maximum values for which both states can be observed).

In this document, the decimal separator is a dot \square , and the thousand separator is a thin space \square , so that $1\ 234.5 \equiv 1.2345 \times 10^4$. Leading and trailing zeroes are not written. The PDF page is sized as A4 paper. Refer to freesteamtables.com to download the same data formatted differently.

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References:

- [1] W. Wagner and A. Pruß. “The IAPWS formulation 1995 for the thermodynamic properties of ordinary water substance for general and scientific use”. In: *Journal of Physical and Chemical Reference Data* 31.2 (2002), pp. 387–535. DOI: [10.1063/1.1461829](https://doi.org/10.1063/1.1461829).
- [2] O. Cleynen. *Thermodynamique de l'ingénieur*. French. 3rd ed. Olivier Cleynen / Thermodynamique.fr, 2021. ISBN: 9781794848207. URL: <https://thermodynamique.fr/>.

Table 1: Properties of pure water (compressed liquid and dry steam)

| $\frac{\text{m}^3}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{Kkg}}$ | $^{\circ}\text{C}$ | $\frac{\text{m}^3}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{Kkg}}$ | $^{\circ}\text{C}$ | $\frac{\text{m}^3}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{kg}}$ | $\frac{\text{kJ}}{\text{Kkg}}$ |
|---|-------------------------------|-------------------------------|--------------------------------|--------------------|---|-------------------------------|-------------------------------|--------------------------------|--------------------|---|-------------------------------|-------------------------------|--------------------------------|
| v | u | h | s | T | v | u | h | s | T | v | u | h | s |
| $p = 0.01 \text{ MPa}$ ($T_{\text{sat.}} = 45.806^{\circ}\text{C}$) | | | | | $p = 0.05 \text{ MPa}$ ($T_{\text{sat.}} = 81.317^{\circ}\text{C}$) | | | | | $p = 0.10 \text{ MPa}$ ($T_{\text{sat.}} = 99.606^{\circ}\text{C}$) | | | |
| 0.001 | 42 | 42 | 0.1511 | 10 | 0.001 | 42 | 42.1 | 0.1511 | 10 | 0.001 | 42 | 42.1 | 0.1511 |
| 0.001002 | 83.9 | 83.9 | 0.2965 | 20 | 0.001002 | 83.9 | 84 | 0.2965 | 20 | 0.001002 | 83.9 | 84 | 0.2965 |
| 14.867 | 2443.3 | 2592 | 8.1741 | 50 | 0.001012 | 209.3 | 209.4 | 0.7038 | 50 | 0.001012 | 209.3 | 209.4 | 0.7038 |
| 17.196 | 2515.5 | 2687.5 | 8.4489 | 100 | 3.4187 | 2511.5 | 2682.4 | 7.6953 | 100 | 1.6959 | 2506.2 | 2675.8 | 7.361 |
| 21.826 | 2661.3 | 2879.6 | 8.9049 | 200 | 4.3562 | 2660 | 2877.8 | 8.1592 | 200 | 2.1724 | 2658.3 | 2875.5 | 7.8356 |
| 26.446 | 2812.2 | 3076.7 | 9.2827 | 300 | 5.284 | 2811.6 | 3075.8 | 8.5386 | 300 | 2.6388 | 2810.6 | 3074.5 | 8.2172 |
| 35.68 | 3132.9 | 3489.7 | 9.8998 | 500 | 7.1338 | 3132.6 | 3489.3 | 9.1566 | 500 | 3.5655 | 3132.2 | 3488.7 | 8.8361 |
| 40.296 | 3303.3 | 3706.3 | 10.163 | 600 | 8.0576 | 3303.1 | 3706 | 9.4201 | 600 | 4.0279 | 3302.8 | 3705.6 | 9.0998 |
| 44.911 | 3480.8 | 3929.9 | 10.406 | 700 | 8.9812 | 3480.6 | 3929.7 | 9.6625 | 700 | 4.49 | 3480.4 | 3929.4 | 9.3424 |
| 49.527 | 3665.3 | 4160.6 | 10.631 | 800 | 9.9047 | 3665.2 | 4160.4 | 9.8882 | 800 | 4.9519 | 3665 | 4160.2 | 9.5681 |
| 54.142 | 3856.9 | 4398.3 | 10.843 | 900 | 10.828 | 3856.8 | 4398.2 | 10.1 | 900 | 5.4137 | 3856.6 | 4398 | 9.78 |
| 58.758 | 4055.2 | 4642.8 | 11.043 | 1000 | 11.751 | 4055.2 | 4642.7 | 10.3 | 1000 | 5.8754 | 4055.1 | 4642.6 | 9.98 |
| 63.373 | 4260 | 4893.7 | 11.233 | 1100 | 12.674 | 4260 | 4893.7 | 10.49 | 1100 | 6.3371 | 4259.8 | 4893.5 | 10.17 |
| 67.988 | 4470.8 | 5150.7 | 11.413 | 1200 | 13.598 | 4470.8 | 5150.7 | 10.67 | 1200 | 6.7988 | 4470.7 | 5150.6 | 10.35 |
| 81.834 | 5135.7 | 5954 | 11.909 | 1500 | 16.367 | 5135.6 | 5953.9 | 11.166 | 1500 | 8.1836 | 5135.5 | 5953.9 | 10.846 |
| 104.91 | 6327.9 | 7377 | 12.615 | 2000 | 20.982 | 6327.9 | 7377 | 11.872 | 2000 | 10.491 | 6327.9 | 7377 | 11.552 |
| $p = 0.20 \text{ MPa}$ ($T_{\text{sat.}} = 120.210^{\circ}\text{C}$) | | | | | $p = 0.40 \text{ MPa}$ ($T_{\text{sat.}} = 143.608^{\circ}\text{C}$) | | | | | $p = 0.60 \text{ MPa}$ ($T_{\text{sat.}} = 158.826^{\circ}\text{C}$) | | | |
| 0.001 | 42 | 42.2 | 0.1511 | 10 | 0.001 | 42 | 42.4 | 0.1511 | 10 | 0.001 | 42 | 42.6 | 0.151 |
| 0.001002 | 83.9 | 84.1 | 0.2964 | 20 | 0.001002 | 83.9 | 84.3 | 0.2964 | 20 | 0.001002 | 83.9 | 84.5 | 0.2964 |
| 0.001012 | 209.3 | 209.5 | 0.7037 | 50 | 0.001012 | 209.3 | 209.7 | 0.7036 | 50 | 0.001012 | 209.2 | 209.9 | 0.7035 |
| 0.001043 | 419 | 419.2 | 1.3071 | 100 | 0.001043 | 419 | 419.4 | 1.307 | 100 | 0.001043 | 418.9 | 419.5 | 1.3068 |
| 1.0805 | 2654.6 | 2870.7 | 7.5081 | 200 | 0.53433 | 2647.2 | 2860.9 | 7.1723 | 200 | 0.35212 | 2639.3 | 2850.6 | 6.9683 |
| 1.3162 | 2808.9 | 3072.1 | 7.8941 | 300 | 0.65489 | 2805.1 | 3067.1 | 7.5677 | 300 | 0.43442 | 2801.3 | 3062 | 7.374 |
| 1.7814 | 3131.4 | 3487.7 | 8.5152 | 500 | 0.88936 | 3129.8 | 3485.5 | 8.1933 | 500 | 0.592 | 3128.2 | 3483.4 | 8.0041 |
| 2.013 | 3302.2 | 3704.8 | 8.7792 | 600 | 1.0056 | 3301 | 3703.2 | 8.458 | 600 | 0.66976 | 3299.8 | 3701.7 | 8.2695 |
| 2.2443 | 3479.9 | 3928.8 | 9.022 | 700 | 1.1215 | 3479 | 3927.6 | 8.7012 | 700 | 0.74725 | 3478.1 | 3926.4 | 8.5131 |
| 2.4755 | 3664.7 | 4159.8 | 9.2479 | 800 | 1.2373 | 3663.9 | 4158.8 | 8.9273 | 800 | 0.82457 | 3663.2 | 4157.9 | 8.7395 |
| 2.7066 | 3856.3 | 4397.6 | 9.4598 | 900 | 1.353 | 3855.7 | 4396.9 | 9.1394 | 900 | 0.90178 | 3855.1 | 4396.2 | 8.9518 |
| 2.9375 | 4054.8 | 4642.3 | 9.6599 | 1000 | 1.4686 | 4054.3 | 4641.7 | 9.3396 | 1000 | 0.97893 | 4053.7 | 4641.1 | 9.1521 |
| 3.1685 | 4259.6 | 4893.3 | 9.8497 | 1100 | 1.5841 | 4259.2 | 4892.8 | 9.5295 | 1100 | 1.056 | 4258.8 | 4892.4 | 9.342 |
| 3.3994 | 4470.5 | 5150.4 | 10.03 | 1200 | 1.6997 | 4470.1 | 5150 | 9.7102 | 1200 | 1.1331 | 4469.7 | 5149.6 | 9.5228 |
| 4.0919 | 5135.4 | 5953.8 | 10.526 | 1500 | 2.0461 | 5135.2 | 5953.6 | 10.206 | 1500 | 1.3641 | 5134.9 | 5953.4 | 10.019 |
| 5.246 | 6327.7 | 7376.9 | 11.232 | 2000 | 2.6232 | 6327.6 | 7376.9 | 10.912 | 2000 | 1.749 | 6327.4 | 7376.8 | 10.725 |
| $p = 0.80 \text{ MPa}$ ($T_{\text{sat.}} = 170.406^{\circ}\text{C}$) | | | | | $p = 1.0 \text{ MPa}$ ($T_{\text{sat.}} = 179.878^{\circ}\text{C}$) | | | | | $p = 1.2 \text{ MPa}$ ($T_{\text{sat.}} = 187.957^{\circ}\text{C}$) | | | |
| 0.001 | 42 | 42.8 | 0.151 | 10 | 0.001 | 42 | 43 | 0.151 | 10 | 0.001 | 42 | 43.2 | 0.151 |
| 0.001001 | 83.9 | 84.7 | 0.2963 | 20 | 0.001001 | 83.8 | 84.9 | 0.2963 | 20 | 0.001001 | 83.8 | 85 | 0.2962 |
| 0.001012 | 209.2 | 210 | 0.7034 | 50 | 0.001012 | 209.2 | 210.2 | 0.7034 | 50 | 0.001012 | 209.2 | 210.4 | 0.7033 |
| 0.001043 | 418.9 | 419.7 | 1.3067 | 100 | 0.001043 | 418.8 | 419.8 | 1.3065 | 100 | 0.001043 | 418.7 | 420 | 1.3064 |
| 0.26088 | 2631 | 2839.7 | 6.8176 | 200 | 0.20602 | 2622.3 | 2828.3 | 6.6955 | 200 | 0.16934 | 2612.9 | 2816.1 | 6.5909 |
| 0.32416 | 2797.6 | 3056.9 | 7.2345 | 300 | 0.25799 | 2793.6 | 3051.6 | 7.1246 | 300 | 0.21386 | 2789.7 | 3046.3 | 7.0335 |
| 0.44332 | 3126.6 | 3481.3 | 7.8692 | 500 | 0.35411 | 3125 | 3479.1 | 7.7641 | 500 | 0.29464 | 3123.3 | 3476.9 | 7.6779 |
| 0.50185 | 3298.6 | 3700.1 | 8.1354 | 600 | 0.40111 | 3297.5 | 3698.6 | 8.031 | 600 | 0.33394 | 3296.3 | 3697 | 7.9455 |
| 0.56011 | 3477.2 | 3925.3 | 8.3794 | 700 | 0.44783 | 3476.3 | 3924.1 | 8.2755 | 700 | 0.37297 | 3475.3 | 3922.9 | 8.1904 |
| 0.6182 | 3662.4 | 4157 | 8.6061 | 800 | 0.49438 | 3661.7 | 4156.1 | 8.5024 | 800 | 0.41184 | 3661 | 4155.2 | 8.4176 |
| 0.67619 | 3854.5 | 4395.5 | 8.8185 | 900 | 0.54083 | 3854 | 4394.8 | 8.715 | 900 | 0.45059 | 3853.3 | 4394 | 8.6303 |
| 0.73411 | 4053.2 | 4640.5 | 9.0189 | 1000 | 0.58721 | 4052.7 | 4639.9 | 8.9155 | 1000 | 0.48928 | 4052.3 | 4639.4 | 8.831 |
| 0.79197 | 4258.3 | 4891.9 | 9.2089 | 1100 | 0.63354 | 4257.9 | 4891.4 | 9.1056 | 1100 | 0.52792 | 4257.5 | 4891 | 9.0212 |
| 0.8498 | 4469.4 | 5149.2 | 9.3898 | 1200 | 0.67983 | 4469.1 | 5148.9 | 9.2866 | 1200 | 0.56652 | 4468.7 | 5148.5 | 9.2022 |
| 1.0232 | 5134.6 | 5953.2 | 9.8861 | 1500 | 0.81857 | 5134.4 | 5953 | 9.783 | 1500 | 0.68218 | 5134.2 | 5952.8 | 9.6987 |
| 1.3118 | 6327.4 | 7376.8 | 10.592 | 2000 | 1.0496 | 6327.2 | 7376.8 | 10.489 | 2000 | 0.87471 | 6327 | 7376.7 | 10.405 |

Table 1 (continued)

| v | u | h | s | T | v | u | h | s | T | v | u | h | s | |
|---|---------|---------|--------|-------|---|---------|---------|--------|-------|---|---------|---------|--------|--|
| $p = 1.4 \text{ MPa}$ ($T_{\text{sat.}} = 195.039 \text{ }^\circ\text{C}$) | | | | | $p = 1.6 \text{ MPa}$ ($T_{\text{sat.}} = 201.370 \text{ }^\circ\text{C}$) | | | | | $p = 1.8 \text{ MPa}$ ($T_{\text{sat.}} = 207.112 \text{ }^\circ\text{C}$) | | | | |
| 0.001 | 42 | 43.4 | 0.151 | 10 | 0.001 | 42 | 43.6 | 0.1509 | 10 | 0.000999 | 42 | 43.8 | 0.1509 | |
| 0.001001 | 83.8 | 85.2 | 0.2962 | 20 | 0.001001 | 83.8 | 85.4 | 0.2962 | 20 | 0.001001 | 83.8 | 85.6 | 0.2961 | |
| 0.001012 | 209.1 | 210.5 | 0.7032 | 50 | 0.001011 | 209.1 | 210.7 | 0.7031 | 50 | 0.001011 | 209.1 | 210.9 | 0.703 | |
| 0.001043 | 418.7 | 420.1 | 1.3062 | 100 | 0.001043 | 418.6 | 420.3 | 1.306 | 100 | 0.001043 | 418.6 | 420.4 | 1.3059 | |
| 0.14303 | 2 602.8 | 2 803 | 6.4975 | 200 | 0.001156 | 850.4 | 852.3 | 2.3305 | 200 | 0.001156 | 850.3 | 852.4 | 2.3301 | |
| 0.18232 | 2 785.7 | 3 040.9 | 6.9552 | 300 | 0.15866 | 2 781.5 | 3 035.4 | 6.8863 | 300 | 0.14025 | 2 777.5 | 3 029.9 | 6.8246 | |
| 0.25216 | 3 121.8 | 3 474.8 | 7.6047 | 500 | 0.22029 | 3 120.1 | 3 472.6 | 7.5409 | 500 | 0.19551 | 3 118.5 | 3 470.4 | 7.4845 | |
| 0.28597 | 3 295 | 3 695.4 | 7.873 | 600 | 0.24999 | 3 293.9 | 3 693.9 | 7.81 | 600 | 0.222 | 3 292.7 | 3 692.3 | 7.7543 | |
| 0.31951 | 3 474.4 | 3 921.7 | 8.1183 | 700 | 0.2794 | 3 473.5 | 3 920.5 | 8.0557 | 700 | 0.24821 | 3 472.6 | 3 919.4 | 8.0004 | |
| 0.35287 | 3 660.3 | 4 154.3 | 8.3457 | 800 | 0.30865 | 3 659.5 | 4 153.3 | 8.2834 | 800 | 0.27426 | 3 658.7 | 4 152.4 | 8.2284 | |
| 0.38614 | 3 852.7 | 4 393.3 | 8.5587 | 900 | 0.3378 | 3 852.1 | 4 392.6 | 8.4965 | 900 | 0.3002 | 3 851.5 | 4 391.9 | 8.4416 | |
| 0.41933 | 4 051.7 | 4 638.8 | 8.7594 | 1 000 | 0.36687 | 4 051.2 | 4 638.2 | 8.6974 | 1 000 | 0.32606 | 4 050.7 | 4 637.6 | 8.6426 | |
| 0.45247 | 4 257 | 4 890.5 | 8.9497 | 1 100 | 0.39589 | 4 256.6 | 4 890 | 8.8878 | 1 100 | 0.35188 | 4 256.1 | 4 889.5 | 8.8331 | |
| 0.48558 | 4 468.3 | 5 148.1 | 9.1308 | 1 200 | 0.42487 | 4 467.9 | 5 147.7 | 9.0689 | 1 200 | 0.37766 | 4 467.5 | 5 147.3 | 9.0143 | |
| 0.58476 | 5 133.9 | 5 952.6 | 9.6274 | 1 500 | 0.51169 | 5 133.7 | 5 952.4 | 9.5656 | 1 500 | 0.45486 | 5 133.4 | 5 952.1 | 9.5111 | |
| 0.74982 | 6 327 | 7 376.7 | 10.334 | 2 000 | 0.65615 | 6 326.8 | 7 376.6 | 10.272 | 2 000 | 0.5833 | 6 326.7 | 7 376.6 | 10.218 | |
| $p = 2.0 \text{ MPa}$ ($T_{\text{sat.}} = 212.377 \text{ }^\circ\text{C}$) | | | | | $p = 2.5 \text{ MPa}$ ($T_{\text{sat.}} = 223.950 \text{ }^\circ\text{C}$) | | | | | $p = 3.0 \text{ MPa}$ ($T_{\text{sat.}} = 233.853 \text{ }^\circ\text{C}$) | | | | |
| 0.000999 | 42 | 44 | 0.1509 | 10 | 0.000999 | 42 | 44.5 | 0.1509 | 10 | 0.000999 | 41.9 | 44.9 | 0.1508 | |
| 0.001001 | 83.8 | 85.8 | 0.2961 | 20 | 0.001001 | 83.8 | 86.3 | 0.296 | 20 | 0.001 | 83.7 | 86.7 | 0.2959 | |
| 0.001011 | 209 | 211.1 | 0.7029 | 50 | 0.001011 | 209 | 211.5 | 0.7027 | 50 | 0.001011 | 208.9 | 211.9 | 0.7024 | |
| 0.001042 | 418.5 | 420.6 | 1.3057 | 100 | 0.001042 | 418.4 | 421 | 1.3053 | 100 | 0.001042 | 418.2 | 421.3 | 1.305 | |
| 0.001156 | 850.1 | 852.5 | 2.3298 | 200 | 0.001156 | 849.8 | 852.7 | 2.329 | 200 | 0.001155 | 849.4 | 852.9 | 2.3282 | |
| 0.12551 | 2 773.2 | 3 024.2 | 6.7684 | 300 | 0.098937 | 2 762.3 | 3 009.6 | 6.6459 | 300 | 0.081179 | 2 750.8 | 2 994.3 | 6.5412 | |
| 0.17568 | 3 116.8 | 3 468.2 | 7.4337 | 500 | 0.13999 | 3 112.7 | 3 462.7 | 7.3254 | 500 | 0.1162 | 3 108.6 | 3 457.2 | 7.2359 | |
| 0.19961 | 3 291.5 | 3 690.7 | 7.7043 | 600 | 0.15931 | 3 288.5 | 3 686.8 | 7.5979 | 600 | 0.13245 | 3 285.5 | 3 682.8 | 7.5103 | |
| 0.22326 | 3 471.7 | 3 918.2 | 7.9509 | 700 | 0.17835 | 3 469.3 | 3 915.2 | 7.8455 | 700 | 0.14841 | 3 467 | 3 912.2 | 7.759 | |
| 0.24674 | 3 658 | 4 151.5 | 8.179 | 800 | 0.19721 | 3 656.2 | 4 149.2 | 8.0743 | 800 | 0.1642 | 3 654.3 | 4 146.9 | 7.9885 | |
| 0.27012 | 3 850.9 | 4 391.1 | 8.3925 | 900 | 0.21597 | 3 849.4 | 4 389.3 | 8.2882 | 900 | 0.17988 | 3 847.9 | 4 387.5 | 8.2028 | |
| 0.29342 | 4 050.2 | 4 637 | 8.5936 | 1 000 | 0.23466 | 4 049 | 4 635.6 | 8.4896 | 1 000 | 0.19549 | 4 047.6 | 4 634.1 | 8.4045 | |
| 0.31667 | 4 255.8 | 4 889.1 | 8.7842 | 1 100 | 0.2533 | 4 254.7 | 4 887.9 | 8.6804 | 1 100 | 0.21105 | 4 253.6 | 4 886.7 | 8.5955 | |
| 0.33989 | 4 467.2 | 5 147 | 8.9654 | 1 200 | 0.2719 | 4 466.3 | 5 146 | 8.8618 | 1 200 | 0.22657 | 4 465.3 | 5 145 | 8.777 | |
| 0.4094 | 5 133.1 | 5 951.9 | 9.4624 | 1 500 | 0.32757 | 5 132.5 | 5 951.4 | 9.359 | 1 500 | 0.27301 | 5 131.9 | 5 950.9 | 9.2745 | |
| 0.52501 | 6 326.5 | 7 376.5 | 10.169 | 2 000 | 0.42011 | 6 326.1 | 7 376.4 | 10.066 | 2 000 | 0.35017 | 6 325.8 | 7 376.3 | 9.9818 | |
| $p = 3.5 \text{ MPa}$ ($T_{\text{sat.}} = 242.557 \text{ }^\circ\text{C}$) | | | | | $p = 4.0 \text{ MPa}$ ($T_{\text{sat.}} = 250.354 \text{ }^\circ\text{C}$) | | | | | $p = 4.5 \text{ MPa}$ ($T_{\text{sat.}} = 257.437 \text{ }^\circ\text{C}$) | | | | |
| 0.000999 | 41.9 | 45.4 | 0.1508 | 10 | 0.000998 | 41.9 | 45.9 | 0.1507 | 10 | 0.000998 | 41.9 | 46.4 | 0.1507 | |
| 0.001 | 83.7 | 87.2 | 0.2958 | 20 | 0.001 | 83.7 | 87.7 | 0.2956 | 20 | 0.001 | 83.6 | 88.1 | 0.2955 | |
| 0.001011 | 208.8 | 212.4 | 0.7022 | 50 | 0.00101 | 208.7 | 212.8 | 0.702 | 50 | 0.00101 | 208.7 | 213.2 | 0.7017 | |
| 0.001042 | 418.1 | 421.7 | 1.3046 | 100 | 0.001041 | 417.9 | 422.1 | 1.3042 | 100 | 0.001041 | 417.8 | 422.5 | 1.3038 | |
| 0.001155 | 849 | 853.1 | 2.3275 | 200 | 0.001154 | 848.7 | 853.3 | 2.3267 | 200 | 0.001154 | 848.3 | 853.5 | 2.3259 | |
| 0.068453 | 2 738.8 | 2 978.4 | 6.4484 | 300 | 0.05887 | 2 726.2 | 2 961.7 | 6.3639 | 300 | 0.051378 | 2 713 | 2 944.2 | 6.2854 | |
| 0.099195 | 3 104.4 | 3 451.6 | 7.1593 | 500 | 0.086442 | 3 100.2 | 3 446 | 7.0922 | 500 | 0.076521 | 3 096.1 | 3 440.4 | 7.0323 | |
| 0.11325 | 3 282.5 | 3 678.9 | 7.4356 | 600 | 0.098859 | 3 279.5 | 3 674.9 | 7.3705 | 600 | 0.087662 | 3 276.4 | 3 670.9 | 7.3127 | |
| 0.12702 | 3 464.7 | 3 909.3 | 7.6854 | 700 | 0.11098 | 3 462.4 | 3 906.3 | 7.6214 | 700 | 0.0985 | 3 460.1 | 3 903.3 | 7.5646 | |
| 0.14061 | 3 652.5 | 4 144.6 | 7.9156 | 800 | 0.12292 | 3 650.6 | 4 142.3 | 7.8523 | 800 | 0.10916 | 3 648.8 | 4 140 | 7.7962 | |
| 0.1541 | 3 846.4 | 4 385.7 | 8.1303 | 900 | 0.13476 | 3 844.9 | 4 383.9 | 8.0674 | 900 | 0.11972 | 3 843.4 | 4 382.1 | 8.0118 | |
| 0.16751 | 4 046.4 | 4 632.7 | 8.3324 | 1 000 | 0.14652 | 4 045.1 | 4 631.2 | 8.2697 | 1 000 | 0.1302 | 4 043.9 | 4 629.8 | 8.2144 | |
| 0.18087 | 4 252.6 | 4 885.6 | 8.5235 | 1 100 | 0.15824 | 4 251.4 | 4 884.4 | 8.4611 | 1 100 | 0.14064 | 4 250.3 | 4 883.2 | 8.406 | |
| 0.1942 | 4 464.4 | 5 144.1 | 8.7053 | 1 200 | 0.16992 | 4 463.4 | 5 143.1 | 8.643 | 1 200 | 0.15103 | 4 462.6 | 5 142.2 | 8.588 | |
| 0.23404 | 5 131.3 | 5 950.4 | 9.203 | 1 500 | 0.20481 | 5 130.7 | 5 949.9 | 9.1411 | 1 500 | 0.18208 | 5 130 | 5 949.4 | 9.0863 | |
| 0.30021 | 6 325.5 | 7 376.2 | 9.9105 | 2 000 | 0.26274 | 6 325 | 7 376 | 9.8487 | 2 000 | 0.2336 | 6 324.7 | 7 375.9 | 9.7942 | |

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Table 1 (continued)

| v | u | h | s | T | v | u | h | s | T | v | u | h | s | |
|---|---------|---------|--------|-------|---|---------|---------|--------|-------|---|---------|---------|--------|-------|
| $p = 5.0 \text{ MPa}$ ($T_{\text{sat.}} = 263.941 \text{ }^\circ\text{C}$) | | | | | $p = 5.5 \text{ MPa}$ ($T_{\text{sat.}} = 269.965 \text{ }^\circ\text{C}$) | | | | | $p = 6.0 \text{ MPa}$ ($T_{\text{sat.}} = 275.585 \text{ }^\circ\text{C}$) | | | | |
| 0.000998 | 41.9 | 46.9 | 0.1506 | 10 | 0.000998 | 41.9 | 47.4 | 0.1506 | 10 | 0.000998 | 41.9 | 47.9 | 0.1505 | 10 |
| 0.001 | 83.6 | 88.6 | 0.2954 | 20 | 0.000999 | 83.6 | 89.1 | 0.2953 | 20 | 0.000999 | 83.5 | 89.5 | 0.2952 | 20 |
| 0.00101 | 208.6 | 213.6 | 0.7015 | 50 | 0.00101 | 208.5 | 214.1 | 0.7013 | 50 | 0.00101 | 208.4 | 214.5 | 0.701 | 50 |
| 0.001041 | 417.6 | 422.9 | 1.3034 | 100 | 0.001041 | 417.5 | 423.2 | 1.303 | 100 | 0.00104 | 417.4 | 423.6 | 1.3026 | 100 |
| 0.001153 | 847.9 | 853.7 | 2.3251 | 200 | 0.001153 | 847.6 | 853.9 | 2.3243 | 200 | 0.001152 | 847.2 | 854.1 | 2.3235 | 200 |
| 0.045346 | 2 699 | 2 925.7 | 6.211 | 300 | 0.040373 | 2 684.1 | 2 906.2 | 6.1397 | 300 | 0.036189 | 2 668.4 | 2 885.5 | 6.0703 | 300 |
| 0.068583 | 3 091.8 | 3 434.7 | 6.9781 | 500 | 0.062086 | 3 087.4 | 3 428.9 | 6.9285 | 500 | 0.056671 | 3 083.1 | 3 423.1 | 6.8826 | 500 |
| 0.078704 | 3 273.3 | 3 666.8 | 7.2605 | 600 | 0.071374 | 3 270.2 | 3 662.8 | 7.213 | 600 | 0.065265 | 3 267.1 | 3 658.7 | 7.1693 | 600 |
| 0.088518 | 3 457.7 | 3 900.3 | 7.5136 | 700 | 0.080351 | 3 455.4 | 3 897.3 | 7.4672 | 700 | 0.073545 | 3 453 | 3 894.3 | 7.4246 | 700 |
| 0.098158 | 3 646.9 | 4 137.7 | 7.7458 | 800 | 0.089152 | 3 645.1 | 4 135.4 | 7.7001 | 800 | 0.081648 | 3 643.2 | 4 133.1 | 7.6582 | 800 |
| 0.10769 | 3 841.8 | 4 380.2 | 7.9618 | 900 | 0.097844 | 3 840.3 | 4 378.4 | 7.9166 | 900 | 0.089641 | 3 838.8 | 4 376.6 | 7.8751 | 900 |
| 0.11715 | 4 042.6 | 4 628.3 | 8.1648 | 1 000 | 0.10646 | 4 041.4 | 4 626.9 | 8.1198 | 1 000 | 0.09756 | 4 040 | 4 625.4 | 8.0786 | 1 000 |
| 0.12655 | 4 249.3 | 4 882 | 8.3566 | 1 100 | 0.11503 | 4 248.2 | 4 880.9 | 8.3118 | 1 100 | 0.10543 | 4 247.1 | 4 879.7 | 8.2709 | 1 100 |
| 0.13592 | 4 461.6 | 5 141.2 | 8.5388 | 1 200 | 0.12356 | 4 460.7 | 5 140.3 | 8.4941 | 1 200 | 0.11326 | 4 459.7 | 5 139.3 | 8.4534 | 1 200 |
| 0.1639 | 5 129.4 | 5 948.9 | 9.0374 | 1 500 | 0.14902 | 5 128.8 | 5 948.4 | 8.993 | 1 500 | 0.13662 | 5 128.2 | 5 947.9 | 8.9525 | 1 500 |
| 0.21029 | 6 324.4 | 7 375.8 | 9.7454 | 2 000 | 0.19121 | 6 324 | 7 375.7 | 9.7012 | 2 000 | 0.17532 | 6 323.7 | 7 375.6 | 9.6609 | 2 000 |
| $p = 6.5 \text{ MPa}$ ($T_{\text{sat.}} = 280.858 \text{ }^\circ\text{C}$) | | | | | $p = 7.0 \text{ MPa}$ ($T_{\text{sat.}} = 285.829 \text{ }^\circ\text{C}$) | | | | | $p = 7.5 \text{ MPa}$ ($T_{\text{sat.}} = 290.535 \text{ }^\circ\text{C}$) | | | | |
| 0.000997 | 41.9 | 48.3 | 0.1505 | 10 | 0.000997 | 41.8 | 48.8 | 0.1504 | 10 | 0.000997 | 41.8 | 49.3 | 0.1504 | 10 |
| 0.000999 | 83.5 | 90 | 0.2951 | 20 | 0.000999 | 83.5 | 90.5 | 0.295 | 20 | 0.000998 | 83.5 | 91 | 0.2949 | 20 |
| 0.001009 | 208.4 | 214.9 | 0.7008 | 50 | 0.001009 | 208.3 | 215.4 | 0.7006 | 50 | 0.001009 | 208.2 | 215.8 | 0.7004 | 50 |
| 0.00104 | 417.2 | 424 | 1.3022 | 100 | 0.00104 | 417.1 | 424.4 | 1.3019 | 100 | 0.00104 | 416.9 | 424.7 | 1.3015 | 100 |
| 0.001152 | 846.8 | 854.3 | 2.3228 | 200 | 0.001151 | 846.5 | 854.5 | 2.322 | 200 | 0.001151 | 846.1 | 854.7 | 2.3212 | 200 |
| 0.032607 | 2 651.6 | 2 863.5 | 6.0019 | 300 | 0.029492 | 2 633.5 | 2 839.9 | 5.9337 | 300 | 0.026742 | 2 613.8 | 2 814.4 | 5.8646 | 300 |
| 0.052087 | 3 078.7 | 3 417.3 | 6.8399 | 500 | 0.048157 | 3 074.3 | 3 411.4 | 6.8 | 500 | 0.04475 | 3 069.9 | 3 405.5 | 6.7623 | 500 |
| 0.060096 | 3 264.1 | 3 654.7 | 7.1288 | 600 | 0.055665 | 3 260.9 | 3 650.6 | 7.091 | 600 | 0.051824 | 3 257.8 | 3 646.5 | 7.0555 | 600 |
| 0.067786 | 3 450.7 | 3 891.3 | 7.3853 | 700 | 0.06285 | 3 448.3 | 3 888.2 | 7.3486 | 700 | 0.058572 | 3 445.9 | 3 885.2 | 7.3144 | 700 |
| 0.075298 | 3 641.4 | 4 130.8 | 7.6195 | 800 | 0.069855 | 3 639.4 | 4 128.4 | 7.5836 | 800 | 0.065138 | 3 637.6 | 4 126.1 | 7.55 | 800 |
| 0.082699 | 3 837.3 | 4 374.8 | 7.8369 | 900 | 0.07675 | 3 835.8 | 4 373 | 7.8014 | 900 | 0.071593 | 3 834.2 | 4 371.1 | 7.7682 | 900 |
| 0.090027 | 4 038.8 | 4 624 | 8.0407 | 1 000 | 0.083571 | 4 037.5 | 4 622.5 | 8.0055 | 1 000 | 0.077975 | 4 036.3 | 4 621.1 | 7.9726 | 1 000 |
| 0.097305 | 4 246 | 4 878.5 | 8.2331 | 1 100 | 0.090341 | 4 244.9 | 4 877.3 | 8.1981 | 1 100 | 0.084306 | 4 243.9 | 4 876.2 | 8.1655 | 1 100 |
| 0.10455 | 4 458.8 | 5 138.4 | 8.4158 | 1 200 | 0.097074 | 4 457.9 | 5 137.4 | 8.381 | 1 200 | 0.0906 | 4 457 | 5 136.5 | 8.3485 | 1 200 |
| 0.12613 | 5 127.6 | 5 947.4 | 8.9152 | 1 500 | 0.11714 | 5 126.9 | 5 946.9 | 8.8807 | 1 500 | 0.10934 | 5 126.4 | 5 946.4 | 8.8485 | 1 500 |
| 0.16187 | 6 323.2 | 7 375.4 | 9.6238 | 2 000 | 0.15034 | 6 322.9 | 7 375.3 | 9.5895 | 2 000 | 0.14035 | 6 322.6 | 7 375.2 | 9.5575 | 2 000 |
| $p = 8 \text{ MPa}$ ($T_{\text{sat.}} = 295.008 \text{ }^\circ\text{C}$) | | | | | $p = 9 \text{ MPa}$ ($T_{\text{sat.}} = 303.345 \text{ }^\circ\text{C}$) | | | | | $p = 10 \text{ MPa}$ ($T_{\text{sat.}} = 310.997 \text{ }^\circ\text{C}$) | | | | |
| 0.000997 | 41.8 | 49.8 | 0.1503 | 10 | 0.000996 | 41.8 | 50.8 | 0.1502 | 10 | 0.000996 | 41.8 | 51.7 | 0.1501 | 10 |
| 0.000998 | 83.4 | 91.4 | 0.2948 | 20 | 0.000998 | 83.4 | 92.4 | 0.2946 | 20 | 0.000997 | 83.3 | 93.3 | 0.2944 | 20 |
| 0.001009 | 208.2 | 216.2 | 0.7001 | 50 | 0.001008 | 208 | 217.1 | 0.6997 | 50 | 0.001008 | 207.9 | 217.9 | 0.6992 | 50 |
| 0.001039 | 416.8 | 425.1 | 1.3011 | 100 | 0.001039 | 416.5 | 425.9 | 1.3003 | 100 | 0.001038 | 416.2 | 426.6 | 1.2996 | 100 |
| 0.00115 | 845.7 | 854.9 | 2.3205 | 200 | 0.001149 | 845 | 855.4 | 2.3189 | 200 | 0.001148 | 844.3 | 855.8 | 2.3174 | 200 |
| 0.024279 | 2 592.3 | 2 786.5 | 5.7937 | 300 | 0.001402 | 1 331.9 | 1 344.5 | 3.2533 | 300 | 0.001398 | 1 329.3 | 1 343.3 | 3.2488 | 300 |
| 0.041767 | 3 065.4 | 3 399.5 | 6.7266 | 500 | 0.036793 | 3 056.3 | 3 387.4 | 6.6603 | 500 | 0.032811 | 3 047 | 3 375.1 | 6.5995 | 500 |
| 0.048463 | 3 254.7 | 3 642.4 | 7.0221 | 600 | 0.042861 | 3 248.4 | 3 634.1 | 6.9605 | 600 | 0.038378 | 3 242 | 3 625.8 | 6.9045 | 600 |
| 0.054828 | 3 443.6 | 3 882.2 | 7.2821 | 700 | 0.048589 | 3 438.8 | 3 876.1 | 7.2229 | 700 | 0.043597 | 3 434 | 3 870 | 7.1693 | 700 |
| 0.061011 | 3 635.7 | 4 123.8 | 7.5184 | 800 | 0.054132 | 3 631.9 | 4 119.1 | 7.4606 | 800 | 0.048629 | 3 628.2 | 4 114.5 | 7.4085 | 800 |
| 0.067082 | 3 832.6 | 4 369.3 | 7.7371 | 900 | 0.059562 | 3 829.6 | 4 365.7 | 7.6802 | 900 | 0.053547 | 3 826.5 | 4 362 | 7.629 | 900 |
| 0.073079 | 4 035 | 4 619.6 | 7.9419 | 1 000 | 0.064918 | 4 032.4 | 4 616.7 | 7.8855 | 1 000 | 0.05839 | 4 029.9 | 4 613.8 | 7.8349 | 1 000 |
| 0.079025 | 4 242.8 | 4 875 | 8.135 | 1 100 | 0.070224 | 4 240.7 | 4 872.7 | 8.079 | 1 100 | 0.063183 | 4 238.5 | 4 870.3 | 8.0288 | 1 100 |
| 0.084934 | 4 456 | 5 135.5 | 8.3181 | 1 200 | 0.075492 | 4 454.2 | 5 133.6 | 8.2625 | 1 200 | 0.067938 | 4 452.3 | 5 131.7 | 8.2126 | 1 200 |
| 0.10252 | 5 125.7 | 5 945.9 | 8.8184 | 1 500 | 0.091158 | 5 124.5 | 5 944.9 | 8.7633 | 1 500 | 0.082066 | 5 123.2 | 5 943.9 | 8.714 | 1 500 |
| 0.1316 | 6 322.3 | 7 375.1 | 9.5275 | 2 000 | 0.11703 | 6 321.6 | 7 374.9 | 9.4729 | 2 000 | 0.10538 | 6 320.8 | 7 374.6 | 9.4239 | 2 000 |

Table 1 (continued)

| v | u | h | s | T | v | u | h | s | T | v | u | h | s | |
|--|--------|--------|--------|------|--|--------|--------|--------|------|--|--------|--------|--------|--|
| $p = 12 \text{ MPa}$ ($T_{\text{sat.}} = 324.675 \text{ }^\circ\text{C}$) | | | | | $p = 14 \text{ MPa}$ ($T_{\text{sat.}} = 336.666 \text{ }^\circ\text{C}$) | | | | | $p = 16 \text{ MPa}$ ($T_{\text{sat.}} = 347.355 \text{ }^\circ\text{C}$) | | | | |
| 0.000995 | 41.7 | 53.6 | 0.1499 | 10 | 0.000994 | 41.7 | 55.6 | 0.1496 | 10 | 0.000993 | 41.6 | 57.5 | 0.1494 | |
| 0.000996 | 83.2 | 95.1 | 0.2939 | 20 | 0.000996 | 83.1 | 97 | 0.2935 | 20 | 0.000995 | 82.9 | 98.9 | 0.293 | |
| 0.001007 | 207.6 | 219.7 | 0.6983 | 50 | 0.001006 | 207.3 | 221.4 | 0.6974 | 50 | 0.001005 | 207 | 223.1 | 0.6964 | |
| 0.001038 | 415.7 | 428.1 | 1.298 | 100 | 0.001037 | 415.1 | 429.6 | 1.2965 | 100 | 0.001036 | 414.6 | 431.1 | 1.295 | |
| 0.001146 | 842.9 | 856.7 | 2.3144 | 200 | 0.001144 | 841.5 | 857.6 | 2.3114 | 200 | 0.001143 | 840.2 | 858.4 | 2.3085 | |
| 0.00139 | 1324.5 | 1341.2 | 3.2401 | 300 | 0.001382 | 1319.9 | 1339.2 | 3.2319 | 300 | 0.001375 | 1315.4 | 1337.4 | 3.224 | |
| 0.026828 | 3028.1 | 3350 | 6.4903 | 500 | 0.022544 | 3008.5 | 3324.1 | 6.3932 | 500 | 0.019323 | 2988.1 | 3297.3 | 6.3046 | |
| 0.031651 | 3229.1 | 3608.9 | 6.8054 | 600 | 0.026845 | 3216 | 3591.8 | 6.7191 | 600 | 0.023238 | 3202.6 | 3574.4 | 6.6421 | |
| 0.036109 | 3424.4 | 3857.7 | 7.0753 | 700 | 0.030761 | 3414.6 | 3845.3 | 6.9941 | 700 | 0.026749 | 3404.9 | 3832.9 | 6.9224 | |
| 0.040375 | 3620.6 | 4105.1 | 7.3173 | 800 | 0.034479 | 3613.1 | 4095.8 | 7.2391 | 800 | 0.030058 | 3605.4 | 4086.3 | 7.1703 | |
| 0.044524 | 3820.4 | 4354.7 | 7.5396 | 900 | 0.03808 | 3814.3 | 4347.4 | 7.4632 | 900 | 0.033247 | 3808 | 4340 | 7.3964 | |
| 0.048599 | 4024.8 | 4608 | 7.7467 | 1000 | 0.041605 | 4019.6 | 4602.1 | 7.6716 | 1000 | 0.036361 | 4014.5 | 4596.3 | 7.606 | |
| 0.052622 | 4234.1 | 4865.6 | 7.9416 | 1100 | 0.045079 | 4229.8 | 4860.9 | 7.8673 | 1100 | 0.039422 | 4225.5 | 4856.3 | 7.8025 | |
| 0.056608 | 4448.6 | 5127.9 | 8.1259 | 1200 | 0.048516 | 4445 | 5124.2 | 8.0523 | 1200 | 0.042447 | 4441.2 | 5120.4 | 7.9882 | |
| 0.068428 | 5120.8 | 5941.9 | 8.6284 | 1500 | 0.058687 | 5118.3 | 5939.9 | 8.5559 | 1500 | 0.051381 | 5115.8 | 5937.9 | 8.4929 | |
| 0.087892 | 6319.5 | 7374.2 | 9.3392 | 2000 | 0.075404 | 6318 | 7373.7 | 9.2674 | 2000 | 0.066037 | 6316.6 | 7373.2 | 9.2052 | |
| $p = 18 \text{ MPa}$ ($T_{\text{sat.}} = 356.992 \text{ }^\circ\text{C}$) | | | | | $p = 20 \text{ MPa}$ ($T_{\text{sat.}} = 365.749 \text{ }^\circ\text{C}$) | | | | | $p = 30 \text{ MPa}$ ($p > p_{cr.}$) | | | | |
| 0.000992 | 41.5 | 59.4 | 0.1491 | 10 | 0.000991 | 41.5 | 61.3 | 0.1489 | 10 | 0.000987 | 41.2 | 70.8 | 0.1475 | |
| 0.000994 | 82.8 | 100.7 | 0.2925 | 20 | 0.000993 | 82.7 | 102.6 | 0.2921 | 20 | 0.000989 | 82.1 | 111.8 | 0.2897 | |
| 0.001004 | 206.7 | 224.8 | 0.6955 | 50 | 0.001003 | 206.4 | 226.5 | 0.6946 | 50 | 0.000999 | 205.1 | 235.1 | 0.6901 | |
| 0.001035 | 414 | 432.7 | 1.2935 | 100 | 0.001034 | 413.5 | 434.2 | 1.292 | 100 | 0.001029 | 410.9 | 441.7 | 1.2847 | |
| 0.001141 | 838.8 | 859.4 | 2.3056 | 200 | 0.001139 | 837.5 | 860.3 | 2.3027 | 200 | 0.00113 | 831.1 | 865 | 2.2888 | |
| 0.001368 | 1311.2 | 1335.8 | 3.2164 | 300 | 0.001361 | 1307.2 | 1334.4 | 3.2091 | 300 | 0.001332 | 1288.9 | 1328.9 | 3.176 | |
| 0.01681 | 2967.1 | 3269.7 | 6.2223 | 500 | 0.014793 | 2945.3 | 3241.2 | 6.1446 | 500 | 0.00869 | 2824 | 3084.7 | 5.7956 | |
| 0.020431 | 3189 | 3556.8 | 6.572 | 600 | 0.018185 | 3175.3 | 3539 | 6.5075 | 600 | 0.011445 | 3103.4 | 3446.7 | 6.2373 | |
| 0.023629 | 3395.1 | 3820.4 | 6.8579 | 700 | 0.021133 | 3385.1 | 3807.8 | 6.799 | 700 | 0.013653 | 3334.3 | 3743.9 | 6.5598 | |
| 0.026619 | 3597.8 | 4076.9 | 7.1089 | 800 | 0.023869 | 3590.1 | 4067.5 | 7.0531 | 800 | 0.015628 | 3551.2 | 4020 | 6.83 | |
| 0.029489 | 3801.9 | 4332.7 | 7.3368 | 900 | 0.026483 | 3795.7 | 4325.4 | 7.2829 | 900 | 0.017473 | 3764.6 | 4288.8 | 7.0695 | |
| 0.032282 | 4009.4 | 4590.5 | 7.5476 | 1000 | 0.02902 | 4004.3 | 4584.7 | 7.495 | 1000 | 0.01924 | 3978.6 | 4555.8 | 7.288 | |
| 0.035023 | 4221.2 | 4851.6 | 7.745 | 1100 | 0.031504 | 4216.8 | 4846.9 | 7.6933 | 1100 | 0.020953 | 4195.2 | 4823.8 | 7.4906 | |
| 0.037727 | 4437.5 | 5116.6 | 7.9313 | 1200 | 0.033952 | 4433.8 | 5112.8 | 7.8802 | 1200 | 0.02263 | 4415.3 | 5094.2 | 7.6807 | |
| 0.045699 | 5113.3 | 5935.9 | 8.4372 | 1500 | 0.041154 | 5110.8 | 5933.9 | 8.3871 | 1500 | 0.027521 | 5098.6 | 5924.2 | 8.1932 | |
| 0.058753 | 6315.2 | 7372.8 | 9.1502 | 2000 | 0.052925 | 6313.8 | 7372.3 | 9.101 | 2000 | 0.035443 | 6306.8 | 7370.1 | 8.9108 | |
| $p = 40 \text{ MPa}$ ($p > p_{cr.}$) | | | | | $p = 50 \text{ MPa}$ ($p > p_{cr.}$) | | | | | $p = 100 \text{ MPa}$ ($p > p_{cr.}$) | | | | |
| 0.000982 | 40.9 | 80.2 | 0.1458 | 10 | 0.000978 | 40.6 | 89.5 | 0.144 | 10 | 0.000959 | 38.8 | 134.7 | 0.1326 | |
| 0.000985 | 81.5 | 120.9 | 0.2872 | 20 | 0.00098 | 80.9 | 130 | 0.2845 | 20 | 0.000962 | 78 | 174.2 | 0.2699 | |
| 0.000995 | 203.7 | 243.6 | 0.6855 | 50 | 0.000991 | 202.5 | 252 | 0.681 | 50 | 0.000973 | 196.6 | 293.9 | 0.6587 | |
| 0.001024 | 408.4 | 449.3 | 1.2775 | 100 | 0.00102 | 405.9 | 456.9 | 1.2705 | 100 | 0.001 | 395.1 | 495.1 | 1.2375 | |
| 0.001122 | 825.1 | 870 | 2.2755 | 200 | 0.001115 | 819.4 | 875.2 | 2.2628 | 200 | 0.001083 | 795.1 | 903.4 | 2.2064 | |
| 0.001308 | 1273.3 | 1325.6 | 3.1473 | 300 | 0.001288 | 1259.6 | 1324 | 3.1218 | 300 | 0.001215 | 1207.6 | 1329.1 | 3.0219 | |
| 0.005623 | 2681.6 | 2906.5 | 5.4744 | 500 | 0.00389 | 2528.1 | 2722.6 | 5.1762 | 500 | 0.001893 | 2126.9 | 2316.2 | 4.49 | |
| 0.008089 | 3026.8 | 3350.4 | 6.017 | 600 | 0.006108 | 2947.1 | 3252.5 | 5.8245 | 600 | 0.002672 | 2597.9 | 2865.1 | 5.1581 | |
| 0.00993 | 3281.9 | 3679.1 | 6.374 | 700 | 0.007717 | 3228.8 | 3614.6 | 6.2178 | 700 | 0.003546 | 2976.1 | 3330.7 | 5.6639 | |
| 0.011521 | 3511.8 | 3972.6 | 6.6612 | 800 | 0.009072 | 3472.2 | 3925.8 | 6.5225 | 800 | 0.004336 | 3281.7 | 3715.3 | 6.0406 | |
| 0.01298 | 3733.3 | 4252.5 | 6.9106 | 900 | 0.010296 | 3702 | 4216.8 | 6.7819 | 900 | 0.005042 | 3551.4 | 4055.6 | 6.344 | |
| 0.01436 | 3952.9 | 4527.3 | 7.1355 | 1000 | 0.011441 | 3927.4 | 4499.4 | 7.0131 | 1000 | 0.00569 | 3804 | 4373 | 6.6038 | |
| 0.015686 | 4173.7 | 4801.1 | 7.3425 | 1100 | 0.012534 | 4152.2 | 4778.9 | 7.2244 | 1100 | 0.006296 | 4048.8 | 4678.4 | 6.8347 | |
| 0.016976 | 4396.9 | 5075.9 | 7.5357 | 1200 | 0.01359 | 4378.6 | 5058.1 | 7.4207 | 1200 | 0.006873 | 4290.3 | 4977.6 | 7.045 | |
| 0.020709 | 5086.2 | 5914.6 | 8.0536 | 1500 | 0.016626 | 5074.1 | 5905.4 | 7.944 | 1500 | 0.008491 | 5015.3 | 5864.4 | 7.593 | |
| 0.026705 | 6299.9 | 7368.1 | 8.775 | 2000 | 0.021464 | 6293 | 7366.2 | 8.6691 | 2000 | 0.010998 | 6259.4 | 7359.2 | 8.3352 | |

Table 2: Properties of pure water at its saturation points, sorted by temperature

| °C | MPa | kJ kg ⁻¹ | | | kJ kg ⁻¹ | | | kJ K ⁻¹ kg ⁻¹ | | | m ³ kg ⁻¹ | | |
|------|----------|--------------------------|--------------------------|-----------------------|-----------------------|------------------|-----------------------|-------------------------------------|------------------|-----------------------|---------------------------------|------------------|-----------------------|
| | | <i>T</i> _{sat.} | <i>p</i> _{sat.} | <i>u</i> _L | <i>u</i> _V | Δu_{L-V} | <i>h</i> _L | <i>h</i> _V | Δh_{L-V} | <i>s</i> _L | <i>s</i> _V | Δs_{L-V} | <i>v</i> _L |
| 0.01 | 0.000612 | [0] | 2 374.9 | 2 374.9 | small | 2 500.9 | 2 500.9 | [0] | 9.1555 | 9.1555 | | 0.001 | 205.991 |
| 5 | 0.000873 | 21 | 2 381.8 | 2 360.8 | 21 | 2 510.1 | 2 489 | 0.0763 | 9.0248 | 8.9486 | | 0.001 | 147.011 |
| 10 | 0.001228 | 42 | 2 388.6 | 2 346.6 | 42 | 2 519.2 | 2 477.2 | 0.1511 | 8.8998 | 8.7487 | | 0.001 | 106.303 |
| 15 | 0.001706 | 63 | 2 395.5 | 2 332.5 | 63 | 2 528.3 | 2 465.4 | 0.2245 | 8.7803 | 8.5558 | | 0.001001 | 77.875 |
| 20 | 0.002339 | 83.9 | 2 402.3 | 2 318.4 | 83.9 | 2 537.4 | 2 453.5 | 0.2965 | 8.666 | 8.3695 | | 0.001002 | 57.757 |
| 25 | 0.00317 | 104.8 | 2 409.1 | 2 304.3 | 104.8 | 2 546.5 | 2 441.7 | 0.3672 | 8.5566 | 8.1894 | | 0.001003 | 43.337 |
| 30 | 0.004247 | 125.7 | 2 415.9 | 2 290.1 | 125.7 | 2 555.5 | 2 429.8 | 0.4368 | 8.452 | 8.0152 | | 0.001004 | 32.878 |
| 35 | 0.005629 | 146.6 | 2 422.6 | 2 276 | 146.6 | 2 564.5 | 2 417.9 | 0.5051 | 8.3517 | 7.8466 | | 0.001006 | 25.205 |
| 40 | 0.007385 | 167.5 | 2 429.4 | 2 261.9 | 167.5 | 2 573.5 | 2 406 | 0.5724 | 8.2555 | 7.6831 | | 0.001008 | 19.515 |
| 45 | 0.009595 | 188.4 | 2 436.1 | 2 247.6 | 188.4 | 2 582.4 | 2 394 | 0.6386 | 8.1633 | 7.5247 | | 0.00101 | 15.252 |
| 50 | 0.012352 | 209.3 | 2 442.7 | 2 233.4 | 209.3 | 2 591.3 | 2 381.9 | 0.7038 | 8.0748 | 7.371 | | 0.001012 | 12.027 |
| 55 | 0.015762 | 230.2 | 2 449.3 | 2 219.1 | 230.3 | 2 600.1 | 2 369.8 | 0.768 | 7.9898 | 7.2218 | | 0.001015 | 9.5643 |
| 60 | 0.019946 | 251.2 | 2 455.9 | 2 204.7 | 251.2 | 2 608.8 | 2 357.7 | 0.8313 | 7.9081 | 7.0769 | | 0.001017 | 7.6672 |
| 65 | 0.025042 | 272.1 | 2 462.4 | 2 190.3 | 272.1 | 2 617.5 | 2 345.4 | 0.8937 | 7.8296 | 6.9359 | | 0.00102 | 6.1935 |
| 70 | 0.031201 | 293 | 2 468.9 | 2 175.8 | 293.1 | 2 626.1 | 2 333 | 0.9551 | 7.754 | 6.7989 | | 0.001023 | 5.0395 |
| 75 | 0.038595 | 314 | 2 475.2 | 2 161.3 | 314 | 2 634.6 | 2 320.6 | 1.0158 | 7.6812 | 6.6654 | | 0.001026 | 4.1289 |
| 80 | 0.047414 | 335 | 2 481.5 | 2 146.6 | 335 | 2 643 | 2 308 | 1.0756 | 7.6111 | 6.5355 | | 0.001029 | 3.4052 |
| 85 | 0.057867 | 356 | 2 487.8 | 2 131.8 | 356 | 2 651.3 | 2 295.3 | 1.1346 | 7.5434 | 6.4088 | | 0.001032 | 2.8258 |
| 90 | 0.070182 | 377 | 2 493.9 | 2 117 | 377 | 2 659.5 | 2 282.5 | 1.1929 | 7.4781 | 6.2853 | | 0.001036 | 2.3591 |
| 95 | 0.084608 | 398 | 2 500 | 2 102 | 398.1 | 2 667.6 | 2 269.5 | 1.2504 | 7.4151 | 6.1647 | | 0.00104 | 1.9806 |
| 100 | 0.10142 | 419.1 | 2 506 | 2 087 | 419.2 | 2 675.6 | 2 256.4 | 1.3072 | 7.3541 | 6.0469 | | 0.001043 | 1.6718 |
| 105 | 0.1209 | 440.1 | 2 511.9 | 2 071.8 | 440.3 | 2 683.4 | 2 243.1 | 1.3633 | 7.2952 | 5.9318 | | 0.001047 | 1.4184 |
| 110 | 0.14338 | 461.3 | 2 517.7 | 2 056.4 | 461.4 | 2 691.1 | 2 229.6 | 1.4188 | 7.2381 | 5.8193 | | 0.001052 | 1.2093 |
| 115 | 0.16918 | 482.4 | 2 523.4 | 2 041 | 482.6 | 2 698.6 | 2 216 | 1.4737 | 7.1828 | 5.7091 | | 0.001056 | 1.0358 |
| 120 | 0.19867 | 503.6 | 2 528.8 | 2 025.2 | 503.8 | 2 705.9 | 2 202.1 | 1.5279 | 7.1291 | 5.6012 | | 0.00106 | 0.89121 |
| 125 | 0.23224 | 524.8 | 2 534.3 | 2 009.4 | 525.1 | 2 713.1 | 2 188 | 1.5816 | 7.077 | 5.4955 | | 0.001065 | 0.77003 |
| 130 | 0.27028 | 546.1 | 2 539.6 | 1 993.5 | 546.4 | 2 720.1 | 2 173.7 | 1.6346 | 7.0264 | 5.3918 | | 0.00107 | 0.668 |
| 135 | 0.31323 | 567.4 | 2 544.7 | 1 977.3 | 567.7 | 2 726.9 | 2 159.1 | 1.6872 | 6.9772 | 5.29 | | 0.001075 | 0.58173 |
| 140 | 0.36154 | 588.8 | 2 549.6 | 1 960.8 | 589.2 | 2 733.4 | 2 144.3 | 1.7392 | 6.9293 | 5.1901 | | 0.00108 | 0.50845 |
| 145 | 0.41568 | 610.2 | 2 554.4 | 1 944.2 | 610.6 | 2 739.8 | 2 129.2 | 1.7907 | 6.8826 | 5.0919 | | 0.001085 | 0.44596 |
| 150 | 0.47616 | 631.7 | 2 559 | 1 927.4 | 632.2 | 2 745.9 | 2 113.7 | 1.8418 | 6.8371 | 4.9953 | | 0.001091 | 0.39245 |
| 155 | 0.5435 | 653.2 | 2 563.5 | 1 910.3 | 653.8 | 2 751.8 | 2 098 | 1.8924 | 6.7926 | 4.9002 | | 0.001096 | 0.34646 |
| 160 | 0.61823 | 674.8 | 2 567.7 | 1 893 | 675.5 | 2 757.4 | 2 082 | 1.9426 | 6.7491 | 4.8066 | | 0.001102 | 0.30678 |
| 165 | 0.70093 | 696.5 | 2 571.8 | 1 875.4 | 697.2 | 2 762.8 | 2 065.6 | 1.9923 | 6.7066 | 4.7143 | | 0.001108 | 0.27243 |
| 170 | 0.79219 | 718.2 | 2 575.7 | 1 857.5 | 719.1 | 2 767.9 | 2 048.8 | 2.0417 | 6.665 | 4.6233 | | 0.001114 | 0.24259 |
| 175 | 0.8926 | 740 | 2 579.4 | 1 839.4 | 741 | 2 772.7 | 2 031.7 | 2.0906 | 6.6241 | 4.5335 | | 0.001121 | 0.21658 |
| 180 | 1.0028 | 761.9 | 2 582.8 | 1 820.9 | 763.1 | 2 777.2 | 2 014.2 | 2.1392 | 6.584 | 4.4448 | | 0.001127 | 0.19384 |
| 185 | 1.1235 | 783.9 | 2 586 | 1 802.1 | 785.2 | 2 781.4 | 1 996.2 | 2.1875 | 6.5447 | 4.3571 | | 0.001134 | 0.1739 |
| 190 | 1.2552 | 806 | 2 589 | 1 783 | 807.4 | 2 785.3 | 1 977.9 | 2.2355 | 6.5059 | 4.2704 | | 0.001141 | 0.15636 |
| 195 | 1.3988 | 828.2 | 2 591.7 | 1 763.5 | 829.8 | 2 788.8 | 1 959 | 2.2832 | 6.4678 | 4.1846 | | 0.001149 | 0.14089 |
| 200 | 1.5549 | 850.5 | 2 594.2 | 1 743.7 | 852.3 | 2 792 | 1 939.7 | 2.3305 | 6.4302 | 4.0996 | | 0.001157 | 0.12721 |
| 205 | 1.7243 | 872.9 | 2 596.4 | 1 723.5 | 874.9 | 2 794.8 | 1 919.9 | 2.3777 | 6.393 | 4.0154 | | 0.001164 | 0.11508 |
| 210 | 1.9077 | 895.4 | 2 598.3 | 1 703 | 897.6 | 2 797.3 | 1 899.6 | 2.4245 | 6.3563 | 3.9318 | | 0.001173 | 0.10429 |
| 215 | 2.1058 | 918 | 2 599.9 | 1 681.9 | 920.5 | 2 799.3 | 1 878.8 | 2.4712 | 6.32 | 3.8488 | | 0.001181 | 0.094679 |
| 220 | 2.3196 | 940.8 | 2 601.2 | 1 660.4 | 943.6 | 2 800.9 | 1 857.4 | 2.5177 | 6.284 | 3.7663 | | 0.00119 | 0.086092 |
| 225 | 2.5497 | 963.7 | 2 602.2 | 1 638.5 | 966.8 | 2 802.1 | 1 835.4 | 2.564 | 6.2483 | 3.6843 | | 0.001199 | 0.078403 |
| 230 | 2.7971 | 986.8 | 2 602.9 | 1 616.1 | 990.2 | 2 802.9 | 1 812.7 | 2.6101 | 6.2128 | 3.6027 | | 0.001209 | 0.071503 |
| 235 | 3.0625 | 1 010.1 | 2 603.2 | 1 593.2 | 1 013.8 | 2 803.2 | 1 789.4 | 2.6561 | 6.1775 | 3.5214 | | 0.001219 | 0.065298 |
| 240 | 3.3469 | 1 033.5 | 2 603.2 | 1 569.7 | 1 037.6 | 2 803 | 1 765.4 | 2.702 | 6.1423 | 3.4403 | | 0.001229 | 0.059705 |
| 245 | 3.6512 | 1 057 | 2 602.6 | 1 545.7 | 1 061.5 | 2 802.2 | 1 740.7 | 2.7478 | 6.1072 | 3.3594 | | 0.00124 | 0.054654 |
| 250 | 3.9762 | 1 080.8 | 2 601.8 | 1 520.9 | 1 085.8 | 2 800.9 | 1 715.2 | 2.7935 | 6.0721 | 3.2785 | | 0.001252 | 0.050083 |
| 255 | 4.3229 | 1 104.7 | 2 600.5 | 1 495.8 | 1 110.2 | 2 799.1 | 1 688.8 | 2.8392 | 6.0369 | 3.1977 | | 0.001264 | 0.045938 |
| 260 | 4.6923 | 1 129 | 2 598.7 | 1 469.7 | 1 135 | 2 796.6 | 1 661.6 | 2.8849 | 6.0016 | 3.1167 | | 0.001276 | 0.042173 |
| 265 | 5.0853 | 1 153.4 | 2 596.5 | 1 443 | 1 160 | 2 793.5 | 1 633.5 | 2.9307 | 5.9661 | 3.0354 | | 0.001289 | 0.038746 |
| 270 | 5.503 | 1 178.1 | 2 593.7 | 1 415.5 | 1 185.3 | 2 789.7 | 1 604.4 | 2.9765 | 5.9304 | 2.9539 | | 0.001303 | 0.035621 |

Table 2 (continued)

| $T_{\text{sat.}}$ | $p_{\text{sat.}}$ | u_L | u_V | $\Delta u_{L \rightarrow V}$ | h_L | h_V | $\Delta h_{L \rightarrow V}$ | s_L | s_V | $\Delta s_{L \rightarrow V}$ | v_L | v_V |
|-------------------|-------------------|---------|---------|------------------------------|---------|---------|------------------------------|--------|--------|------------------------------|----------|----------|
| 275 | 5.9464 | 1 203.1 | 2 590.4 | 1 387.3 | 1 210.9 | 2 785.2 | 1 574.3 | 3.0224 | 5.8944 | 2.872 | 0.001318 | 0.032766 |
| 280 | 6.4166 | 1 228.3 | 2 586.4 | 1 358.1 | 1 236.9 | 2 779.9 | 1 543 | 3.0685 | 5.8579 | 2.7894 | 0.001333 | 0.030153 |
| 285 | 6.9147 | 1 253.9 | 2 581.8 | 1 327.9 | 1 263.2 | 2 773.7 | 1 510.5 | 3.1147 | 5.8209 | 2.7062 | 0.001349 | 0.027756 |
| 290 | 7.4418 | 1 279.8 | 2 576.5 | 1 296.7 | 1 290 | 2 766.7 | 1 476.7 | 3.1612 | 5.7834 | 2.6222 | 0.001366 | 0.025555 |
| 295 | 7.9991 | 1 306.2 | 2 570.5 | 1 264.3 | 1 317.3 | 2 758.7 | 1 441.4 | 3.208 | 5.7451 | 2.5371 | 0.001385 | 0.023529 |
| 300 | 8.5879 | 1 332.9 | 2 563.6 | 1 230.6 | 1 345 | 2 749.6 | 1 404.6 | 3.2552 | 5.7059 | 2.4507 | 0.001404 | 0.02166 |
| 305 | 9.2094 | 1 360.2 | 2 555.8 | 1 195.7 | 1 373.3 | 2 739.4 | 1 366.1 | 3.3028 | 5.6657 | 2.3629 | 0.001425 | 0.019933 |
| 310 | 9.8651 | 1 387.9 | 2 547 | 1 159.1 | 1 402.2 | 2 727.9 | 1 325.7 | 3.351 | 5.6244 | 2.2734 | 0.001448 | 0.018335 |
| 315 | 10.556 | 1 416.3 | 2 537.2 | 1 121 | 1 431.8 | 2 715.1 | 1 283.2 | 3.3998 | 5.5816 | 2.1818 | 0.001472 | 0.016851 |
| 320 | 11.284 | 1 445.3 | 2 526 | 1 080.7 | 1 462.2 | 2 700.6 | 1 238.4 | 3.4494 | 5.5372 | 2.0878 | 0.001499 | 0.015471 |
| 325 | 12.051 | 1 475.1 | 2 513.4 | 1 038.3 | 1 493.5 | 2 684.3 | 1 190.8 | 3.5 | 5.4908 | 1.9908 | 0.001528 | 0.014183 |
| 330 | 12.858 | 1 505.8 | 2 499.1 | 993.3 | 1 525.9 | 2 666 | 1 140.2 | 3.5518 | 5.4422 | 1.8903 | 0.001561 | 0.012979 |
| 335 | 13.707 | 1 537.6 | 2 483 | 945.4 | 1 559.5 | 2 645.4 | 1 085.9 | 3.605 | 5.3906 | 1.7856 | 0.001597 | 0.011847 |
| 340 | 14.601 | 1 570.6 | 2 464.4 | 893.8 | 1 594.5 | 2 621.8 | 1 027.3 | 3.6601 | 5.3356 | 1.6755 | 0.001638 | 0.010781 |
| 345 | 15.541 | 1 605.3 | 2 443.1 | 837.8 | 1 631.5 | 2 594.9 | 963.4 | 3.7176 | 5.2762 | 1.5586 | 0.001685 | 0.009769 |
| 350 | 16.529 | 1 642.1 | 2 418.1 | 776 | 1 670.9 | 2 563.6 | 892.7 | 3.7784 | 5.211 | 1.4326 | 0.00174 | 0.008802 |
| 355 | 17.57 | 1 681.9 | 2 388.4 | 706.4 | 1 713.7 | 2 526.6 | 812.9 | 3.8439 | 5.138 | 1.2942 | 0.001808 | 0.007868 |
| 360 | 18.666 | 1 726.3 | 2 351.8 | 625.5 | 1 761.7 | 2 481.5 | 719.8 | 3.9167 | 5.0536 | 1.1369 | 0.001895 | 0.006949 |
| 365 | 19.821 | 1 777.8 | 2 303.7 | 525.9 | 1 817.8 | 2 422.9 | 605.2 | 4.0014 | 4.9497 | 0.9483 | 0.002017 | 0.006012 |
| 370 | 21.044 | 1 844.1 | 2 230.2 | 386.2 | 1 890.7 | 2 334.5 | 443.8 | 4.1112 | 4.8012 | 0.6901 | 0.002215 | 0.004954 |
| 373 | 21.814 | 1 915 | 2 141.6 | 226.6 | 1 969.7 | 2 229.8 | 260.1 | 4.2308 | 4.6334 | 0.4026 | 0.002508 | 0.004045 |
| $T_{\text{cr.}}$ | 22.064 | 2 015.8 | 2 015.8 | 0 | 2 084.3 | 2 084.3 | 0 | 4.407 | 4.407 | 0 | 0.003106 | 0.003106 |

Values in brackets are arbitrary references. $T_{\text{cr.}} = 373.946 \text{ }^\circ\text{C}$

Table 3: Properties of pure water at its saturation points, sorted by pressure

| MPa | °C | kJ kg ⁻¹ | | | kJ kg ⁻¹ | | | kJ K ⁻¹ kg ⁻¹ | | | m ³ kg ⁻¹ | | |
|------------|--------|---------------------|------------------|---------|---------------------|------------------------------|---------|-------------------------------------|------------------------------|--------|---------------------------------|------------------------------|---------|
| | | p_{sat} | T_{sat} | u_L | u_V | $\Delta u_{L \rightarrow V}$ | h_L | h_V | $\Delta h_{L \rightarrow V}$ | s_L | s_V | $\Delta s_{L \rightarrow V}$ | v_L |
| 611.657 Pa | 0.01 | [0] | | | small | 2 500.9 | 2 500.9 | | [0] | 9.1555 | 9.1555 | 0.001 | 205.991 |
| 0.001 | 6.97 | 29.3 | 2 384.5 | 2 355.2 | 29.3 | 2 513.7 | 2 484.4 | 0.1059 | 8.9749 | 8.869 | 0.001 | 129.178 | |
| 0.002 | 17.5 | 73.4 | 2 398.9 | 2 325.5 | 73.4 | 2 532.9 | 2 459.4 | 0.2606 | 8.7226 | 8.462 | 0.001001 | 66.987 | |
| 0.003 | 24.05 | 100.9 | 2 407.9 | 2 307.1 | 100.9 | 2 544.8 | 2 444 | 0.3539 | 8.5773 | 8.2234 | 0.001003 | 45.841 | |
| 0.004 | 28.96 | 121.4 | 2 414.5 | 2 293.2 | 121.4 | 2 553.7 | 2 432.3 | 0.4224 | 8.4734 | 8.051 | 0.001004 | 34.791 | |
| 0.005 | 32.87 | 137.7 | 2 419.8 | 2 282 | 137.8 | 2 560.7 | 2 423 | 0.4762 | 8.3938 | 7.9176 | 0.001005 | 28.185 | |
| 0.006 | 36.16 | 151.5 | 2 424.2 | 2 272.7 | 151.5 | 2 566.6 | 2 415.2 | 0.5208 | 8.329 | 7.8082 | 0.001006 | 23.733 | |
| 0.007 | 39 | 163.3 | 2 428 | 2 264.7 | 163.4 | 2 571.7 | 2 408.4 | 0.559 | 8.2745 | 7.7154 | 0.001008 | 20.524 | |
| 0.008 | 41.51 | 173.8 | 2 431.4 | 2 257.6 | 173.8 | 2 576.2 | 2 402.4 | 0.5925 | 8.2273 | 7.6348 | 0.001008 | 18.099 | |
| 0.009 | 43.76 | 183.2 | 2 434.4 | 2 251.2 | 183.3 | 2 580.2 | 2 397 | 0.6223 | 8.1858 | 7.5635 | 0.001009 | 16.199 | |
| 0.01 | 45.81 | 191.8 | 2 437.2 | 2 245.4 | 191.8 | 2 583.9 | 2 392.1 | 0.6492 | 8.1488 | 7.4996 | 0.00101 | 14.67 | |
| 0.012 | 49.42 | 206.9 | 2 442 | 2 235.1 | 206.9 | 2 590.3 | 2 383.4 | 0.6963 | 8.0849 | 7.3887 | 0.001012 | 12.358 | |
| 0.014 | 52.55 | 220 | 2 446.1 | 2 226.2 | 220 | 2 595.8 | 2 375.8 | 0.7366 | 8.0311 | 7.2945 | 0.001013 | 10.691 | |
| 0.016 | 55.31 | 231.6 | 2 449.7 | 2 218.2 | 231.6 | 2 600.6 | 2 369.1 | 0.772 | 7.9846 | 7.2126 | 0.001015 | 9.4306 | |
| 0.018 | 57.8 | 241.9 | 2 453 | 2 211.1 | 242 | 2 605 | 2 363 | 0.8036 | 7.9437 | 7.1402 | 0.001016 | 8.4431 | |
| 0.02 | 60.06 | 251.4 | 2 455.9 | 2 204.5 | 251.4 | 2 608.9 | 2 357.5 | 0.832 | 7.9072 | 7.0752 | 0.001017 | 7.648 | |
| 0.04 | 75.86 | 317.6 | 2 476.4 | 2 158.8 | 317.6 | 2 636.1 | 2 318.4 | 1.0261 | 7.669 | 6.6429 | 0.001026 | 3.993 | |
| 0.05 | 81.32 | 340.5 | 2 483.2 | 2 142.7 | 340.5 | 2 645.2 | 2 304.7 | 1.0912 | 7.593 | 6.5018 | 0.00103 | 3.24 | |
| 0.06 | 85.93 | 359.8 | 2 489 | 2 129.1 | 359.9 | 2 652.9 | 2 292.9 | 1.1454 | 7.5311 | 6.3857 | 0.001033 | 2.7317 | |
| 0.07 | 89.93 | 376.7 | 2 493.9 | 2 117.2 | 376.8 | 2 659.4 | 2 282.7 | 1.1921 | 7.479 | 6.2869 | 0.001036 | 2.3648 | |
| 0.08 | 93.49 | 391.6 | 2 498.2 | 2 106.6 | 391.7 | 2 665.2 | 2 273.5 | 1.233 | 7.4339 | 6.2009 | 0.001039 | 2.0871 | |
| 0.09 | 96.69 | 405.1 | 2 502.1 | 2 096.9 | 405.2 | 2 670.3 | 2 265.1 | 1.2696 | 7.3943 | 6.1246 | 0.001041 | 1.8694 | |
| 0.1 | 99.61 | 417.4 | 2 505.5 | 2 088.1 | 417.5 | 2 674.9 | 2 257.4 | 1.3028 | 7.3588 | 6.0561 | 0.001043 | 1.6939 | |
| 0.12 | 104.78 | 439.2 | 2 511.7 | 2 072.5 | 439.4 | 2 683.1 | 2 243.7 | 1.3609 | 7.2977 | 5.9367 | 0.001047 | 1.4284 | |
| 0.14 | 109.29 | 458.3 | 2 516.9 | 2 058.6 | 458.4 | 2 690 | 2 231.6 | 1.411 | 7.2461 | 5.8351 | 0.001051 | 1.2366 | |
| 0.16 | 113.3 | 475.2 | 2 521.4 | 2 046.2 | 475.4 | 2 696 | 2 220.7 | 1.4551 | 7.2014 | 5.7463 | 0.001054 | 1.0914 | |
| 0.18 | 116.91 | 490.5 | 2 525.5 | 2 034.9 | 490.7 | 2 701.4 | 2 210.7 | 1.4945 | 7.1621 | 5.6676 | 0.001058 | 0.97747 | |
| 0.2 | 120.21 | 504.5 | 2 529.1 | 2 024.6 | 504.7 | 2 706.2 | 2 201.5 | 1.5302 | 7.1269 | 5.5967 | 0.001061 | 0.88568 | |
| 0.25 | 127.41 | 535.1 | 2 536.8 | 2 001.8 | 535.3 | 2 716.5 | 2 181.1 | 1.6072 | 7.0524 | 5.4452 | 0.001067 | 0.71866 | |
| 0.3 | 133.52 | 561.1 | 2 543.2 | 1 982.1 | 561.4 | 2 724.9 | 2 163.5 | 1.6717 | 6.9916 | 5.3199 | 0.001073 | 0.60576 | |
| 0.35 | 138.86 | 583.9 | 2 548.5 | 1 964.7 | 584.3 | 2 732 | 2 147.7 | 1.7274 | 6.9401 | 5.2128 | 0.001079 | 0.52418 | |
| 0.4 | 143.61 | 604.2 | 2 553.1 | 1 948.9 | 604.7 | 2 738.1 | 2 133.4 | 1.7765 | 6.8955 | 5.119 | 0.001084 | 0.46238 | |
| 0.5 | 151.83 | 639.5 | 2 560.7 | 1 921.2 | 640.1 | 2 748.1 | 2 108 | 1.8604 | 6.8207 | 4.9603 | 0.001093 | 0.37481 | |
| 0.6 | 158.83 | 669.7 | 2 566.8 | 1 897 | 670.4 | 2 756.1 | 2 085.8 | 1.9308 | 6.7592 | 4.8284 | 0.001101 | 0.31558 | |
| 0.7 | 164.95 | 696.2 | 2 571.9 | 1 875.6 | 697 | 2 762.8 | 2 065.8 | 1.9918 | 6.7071 | 4.7153 | 0.001108 | 0.27277 | |
| 0.8 | 170.41 | 720 | 2 576 | 1 856.1 | 720.9 | 2 768.3 | 2 047.4 | 2.0457 | 6.6616 | 4.616 | 0.001115 | 0.24034 | |
| 0.9 | 175.35 | 741.6 | 2 579.6 | 1 838 | 742.6 | 2 773 | 2 030.5 | 2.094 | 6.6213 | 4.5272 | 0.001121 | 0.21489 | |
| 1 | 179.88 | 761.4 | 2 582.7 | 1 821.3 | 762.5 | 2 777.1 | 2 014.6 | 2.1381 | 6.585 | 4.447 | 0.001127 | 0.19436 | |
| 1.1 | 184.06 | 779.8 | 2 585.4 | 1 805.6 | 781 | 2 780.6 | 1 999.6 | 2.1785 | 6.552 | 4.3735 | 0.001133 | 0.17745 | |
| 1.2 | 187.96 | 797 | 2 587.8 | 1 790.8 | 798.3 | 2 783.7 | 1 985.4 | 2.2159 | 6.5217 | 4.3058 | 0.001139 | 0.16326 | |
| 1.3 | 191.61 | 813.1 | 2 590 | 1 776.8 | 814.6 | 2 786.5 | 1 971.9 | 2.2508 | 6.4936 | 4.2428 | 0.001144 | 0.15119 | |
| 1.4 | 195.04 | 828.4 | 2 591.7 | 1 763.3 | 830 | 2 788.8 | 1 958.9 | 2.2835 | 6.4675 | 4.1839 | 0.001149 | 0.14078 | |
| 1.5 | 198.29 | 842.8 | 2 593.4 | 1 750.6 | 844.6 | 2 791 | 1 946.4 | 2.3143 | 6.443 | 4.1286 | 0.001154 | 0.13171 | |
| 1.6 | 201.37 | 856.6 | 2 594.8 | 1 738.2 | 858.5 | 2 792.8 | 1 934.4 | 2.3435 | 6.4199 | 4.0765 | 0.001159 | 0.12374 | |
| 1.7 | 204.31 | 869.8 | 2 596.2 | 1 726.4 | 871.7 | 2 794.5 | 1 922.7 | 2.3711 | 6.3981 | 4.027 | 0.001163 | 0.11667 | |
| 1.8 | 207.11 | 882.4 | 2 597.2 | 1 714.9 | 884.5 | 2 795.9 | 1 911.4 | 2.3975 | 6.3775 | 3.98 | 0.001168 | 0.11037 | |
| 1.9 | 209.8 | 894.5 | 2 598.3 | 1 703.8 | 896.7 | 2 797.2 | 1 900.5 | 2.4227 | 6.3578 | 3.9351 | 0.001172 | 0.1047 | |
| 2 | 212.38 | 906.1 | 2 599.1 | 1 693 | 908.5 | 2 798.3 | 1 889.8 | 2.4468 | 6.339 | 3.8923 | 0.001177 | 0.099585 | |
| 2.2 | 217.25 | 928.3 | 2 600.6 | 1 672.3 | 930.9 | 2 800.1 | 1 869.2 | 2.4921 | 6.3038 | 3.8116 | 0.001185 | 0.090698 | |
| 2.4 | 221.79 | 949 | 2 601.6 | 1 652.6 | 951.9 | 2 801.4 | 1 849.6 | 2.5343 | 6.2712 | 3.7369 | 0.001193 | 0.083244 | |
| 2.6 | 226.05 | 968.5 | 2 602.4 | 1 633.8 | 971.7 | 2 802.3 | 1 830.7 | 2.5736 | 6.2409 | 3.6672 | 0.001201 | 0.076899 | |
| 2.8 | 230.06 | 987.1 | 2 602.9 | 1 615.8 | 990.5 | 2 802.9 | 1 812.4 | 2.6106 | 6.2124 | 3.6018 | 0.001209 | 0.071429 | |
| 3 | 233.85 | 1 004.6 | 2 603.2 | 1 598.6 | 1 008.3 | 2 803.2 | 1 794.8 | 2.6455 | 6.1856 | 3.54 | 0.001217 | 0.066664 | |
| 3.2 | 237.46 | 1 021.5 | 2 603.2 | 1 581.7 | 1 025.4 | 2 803.1 | 1 777.7 | 2.6787 | 6.1602 | 3.4815 | 0.001224 | 0.062475 | |
| 3.4 | 240.9 | 1 037.6 | 2 603.1 | 1 565.5 | 1 041.8 | 2 802.9 | 1 761 | 2.7102 | 6.136 | 3.4258 | 0.001231 | 0.058761 | |

Table 3 (continued)

| $p_{\text{sat.}}$ | $T_{\text{sat.}}$ | u_L | u_V | $\Delta u_{L \rightarrow V}$ | h_L | h_V | $\Delta h_{L \rightarrow V}$ | s_L | s_V | $\Delta s_{L \rightarrow V}$ | v_L | v_V |
|-------------------|-------------------|---------|---------|------------------------------|---------|---------|------------------------------|--------|--------|------------------------------|----------|----------|
| 3.6 | 244.18 | 1 053.1 | 2 602.8 | 1 549.7 | 1 057.6 | 2 802.4 | 1 744.8 | 2.7403 | 6.1129 | 3.3726 | 0.001239 | 0.055446 |
| 3.8 | 247.33 | 1 068.1 | 2 602.3 | 1 534.3 | 1 072.8 | 2 801.7 | 1 728.9 | 2.7691 | 6.0908 | 3.3217 | 0.001246 | 0.052467 |
| 4 | 250.35 | 1 082.5 | 2 601.7 | 1 519.2 | 1 087.5 | 2 800.8 | 1 713.3 | 2.7968 | 6.0696 | 3.2728 | 0.001253 | 0.049776 |
| 4.2 | 253.26 | 1 096.4 | 2 601 | 1 504.6 | 1 101.7 | 2 799.8 | 1 698.1 | 2.8234 | 6.0491 | 3.2257 | 0.001259 | 0.047332 |
| 4.4 | 256.07 | 1 109.9 | 2 600.2 | 1 490.2 | 1 115.5 | 2 798.6 | 1 683.1 | 2.849 | 6.0293 | 3.1803 | 0.001266 | 0.045102 |
| 4.6 | 258.78 | 1 123 | 2 599.2 | 1 476.2 | 1 128.9 | 2 797.3 | 1 668.4 | 2.8738 | 6.0102 | 3.1364 | 0.001273 | 0.043059 |
| 4.8 | 261.4 | 1 135.8 | 2 598.1 | 1 462.4 | 1 141.9 | 2 795.8 | 1 653.9 | 2.8978 | 5.9917 | 3.0939 | 0.00128 | 0.04118 |
| 5 | 263.94 | 1 148.2 | 2 597 | 1 448.8 | 1 154.6 | 2 794.2 | 1 639.6 | 2.921 | 5.9737 | 3.0527 | 0.001286 | 0.039446 |
| 5.5 | 269.97 | 1 177.9 | 2 593.7 | 1 415.7 | 1 185.1 | 2 789.7 | 1 604.6 | 2.9762 | 5.9307 | 2.9545 | 0.001303 | 0.035642 |
| 6 | 275.59 | 1 206 | 2 589.9 | 1 383.9 | 1 213.9 | 2 784.6 | 1 570.7 | 3.0278 | 5.8901 | 2.8623 | 0.001319 | 0.032448 |
| 6.5 | 280.86 | 1 232.7 | 2 585.7 | 1 353 | 1 241.4 | 2 778.9 | 1 537.5 | 3.0764 | 5.8516 | 2.7752 | 0.001336 | 0.029727 |
| 7 | 285.83 | 1 258.2 | 2 581 | 1 322.7 | 1 267.7 | 2 772.6 | 1 505 | 3.1224 | 5.8148 | 2.6924 | 0.001352 | 0.027378 |
| 7.5 | 290.54 | 1 282.6 | 2 575.9 | 1 293.3 | 1 292.9 | 2 765.9 | 1 473 | 3.1662 | 5.7793 | 2.6131 | 0.001368 | 0.02533 |
| 8 | 295.01 | 1 306.2 | 2 570.5 | 1 264.3 | 1 317.3 | 2 758.7 | 1 441.4 | 3.2081 | 5.745 | 2.5369 | 0.001385 | 0.023526 |
| 8.5 | 299.27 | 1 329 | 2 564.7 | 1 235.7 | 1 340.9 | 2 751 | 1 410.1 | 3.2483 | 5.7117 | 2.4634 | 0.001401 | 0.021923 |
| 9 | 303.35 | 1 351.1 | 2 558.5 | 1 207.4 | 1 363.9 | 2 742.9 | 1 379.1 | 3.287 | 5.6791 | 2.3922 | 0.001418 | 0.02049 |
| 9.5 | 307.25 | 1 372.6 | 2 552 | 1 179.4 | 1 386.2 | 2 734.4 | 1 348.2 | 3.3244 | 5.6473 | 2.3229 | 0.001435 | 0.019199 |
| 10 | 311 | 1 393.6 | 2 545.2 | 1 151.6 | 1 408.1 | 2 725.5 | 1 317.4 | 3.3606 | 5.616 | 2.2553 | 0.001453 | 0.01803 |
| 11 | 318.08 | 1 434 | 2 530.4 | 1 096.4 | 1 450.4 | 2 706.3 | 1 255.9 | 3.4303 | 5.5545 | 2.1242 | 0.001489 | 0.01599 |
| 12 | 324.68 | 1 473.2 | 2 514.2 | 1 041 | 1 491.5 | 2 685.4 | 1 194 | 3.4967 | 5.4939 | 1.9972 | 0.001526 | 0.014264 |
| 13 | 330.85 | 1 511.1 | 2 496.6 | 985.4 | 1 531.5 | 2 662.7 | 1 131.2 | 3.5608 | 5.4336 | 1.8728 | 0.001566 | 0.01278 |
| 14 | 336.67 | 1 548.5 | 2 477.1 | 928.6 | 1 571 | 2 637.9 | 1 066.9 | 3.6232 | 5.3727 | 1.7495 | 0.00161 | 0.011485 |
| 15 | 342.16 | 1 585.3 | 2 455.6 | 870.3 | 1 610.2 | 2 610.7 | 1 000.5 | 3.6846 | 5.3106 | 1.626 | 0.001657 | 0.010338 |
| 16 | 347.36 | 1 622.3 | 2 431.9 | 809.5 | 1 649.7 | 2 580.8 | 931.1 | 3.7457 | 5.2463 | 1.5006 | 0.001709 | 0.009309 |
| 17 | 352.29 | 1 659.9 | 2 405.2 | 745.3 | 1 690 | 2 547.5 | 857.5 | 3.8077 | 5.1787 | 1.371 | 0.001769 | 0.008371 |
| 18 | 356.99 | 1 699 | 2 374.8 | 675.8 | 1 732.1 | 2 509.8 | 777.7 | 3.8718 | 5.1061 | 1.2342 | 0.00184 | 0.007502 |
| 19 | 361.47 | 1 740.6 | 2 339.1 | 598.5 | 1 777.2 | 2 466 | 688.9 | 3.9401 | 5.0256 | 1.0855 | 0.001927 | 0.006677 |
| 20 | 365.75 | 1 786.4 | 2 295 | 508.6 | 1 827.2 | 2 412.3 | 585.1 | 4.0156 | 4.9314 | 0.9158 | 0.00204 | 0.005865 |
| 21 | 369.83 | 1 841.3 | 2 233.7 | 392.4 | 1 887.6 | 2 338.6 | 451 | 4.1064 | 4.8079 | 0.7015 | 0.002206 | 0.004996 |
| 22 | 373.71 | 1 951.8 | 2 092.9 | 141.1 | 2 011.3 | 2 173.1 | 161.7 | 4.2945 | 4.5446 | 0.2501 | 0.002704 | 0.003648 |
| $p_{\text{cr.}}$ | 373.95 | 2 015.8 | 2 015.8 | 0 | 2 084.3 | 2 084.3 | 0 | 4.407 | 4.407 | 0 | 0.003106 | 0.003106 |

Values in brackets are arbitrary references. $p_{\text{cr.}} = 22.064 \text{ MPa}$