TABLE 2. THERMODYNAMIC PROPERTIES OF WATER AT SATURATION[a] (Continued)

| FAHR. TEMP. $t$(F) | ABSOLUTE PRESSURE $p_s \times 10^3$ | | SPECIFIC VOLUME, CU FT PER LB | | | ENTHALPY, BTU PER LB | | | ENTROPY, BTU PER (LB) (°F) | | | FAHR. TEMP. $t$(F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Lb/Sq In. | In. Hg | Sat. Solid $v_i$ | Evap. $v_{ig} \times 10^{-6}$ | Sat. Vapor $v_g \times 10^{-6}$ | Sat. Solid $h_i$ | Evap. $h_{ig}$ | Sat. Vapor $h_g$ | Sat. Solid $s_i$ | Evap. $s_{ig}$ | Sat. Vapor $s_g$ | |
| −96 | 3.212 | 6.539 | 0.01729 | 6.745 | 6.745 | −199.78 | 1218.44 | 1018.66 | −0.4235 | 3.3502 | 2.9267 | −96 |
| −95 | 3.491 | 7.108 | 0.01729 | 6.223 | 6.223 | −199.40 | 1218.50 | 1019.10 | −0.4225 | 3.3412 | 2.9187 | −95 |
| −94 | 3.793 | 7.722 | 0.01729 | 5.743 | 5.743 | −199.02 | 1218.56 | 1019.54 | −0.4214 | 3.3322 | 2.9108 | −94 |
| −93 | 4.118 | 8.385 | 0.01730 | 5.303 | 5.303 | −198.64 | 1218.62 | 1019.98 | −0.4204 | 3.3233 | 2.9029 | −93 |
| −92 | 4.470 | 9.102 | 0.01730 | 4.899 | 4.899 | −198.25 | 1218.68 | 1020.43 | −0.4194 | 3.3145 | 2.8951 | −92 |
| −91 | 4.850 | 9.876 | 0.01730 | 4.528 | 4.528 | −197.87 | 1218.74 | 1020.87 | −0.4183 | 3.3056 | 2.8873 | −91 |
| −90 | 5.260 | 10.71 | 0.01730 | 4.186 | 4.186 | −197.49 | 1218.80 | 1021.31 | −0.4173 | 3.2969 | 2.8796 | −90 |
| −89 | 5.702 | 11.61 | 0.01730 | 3.872 | 3.872 | −197.10 | 1218.85 | 1021.75 | −0.4162 | 3.2880 | 2.8718 | −89 |
| −88 | 6.179 | 12.58 | 0.01730 | 3.583 | 3.583 | −196.72 | 1218.92 | 1022.20 | −0.4152 | 3.2794 | 2.8642 | −88 |
| −87 | 6.692 | 13.63 | 0.01730 | 3.317 | 3.317 | −196.33 | 1218.97 | 1022.64 | −0.4142 | 3.2708 | 2.8566 | −87 |
| −86 | 7.245 | 14.75 | 0.01730 | 3.072 | 3.072 | −195.94 | 1219.02 | 1023 08 | −0.4131 | 3.2621 | 2.8490 | −86 |
| −85 | 7.841 | 15.96 | 0.01730 | 2.846 | 2.846 | −195.56 | 1219.08 | 1023.52 | −0.4121 | 3.2530 | 2.8415 | −85 |
| −84 | 8.482 | 17.27 | 0 01731 | 2.638 | 2.638 | −195.16 | 1219.12 | 1023.96 | −0.4110 | 3.2450 | 2.8340 | −84 |
| −83 | 9.171 | 18.67 | 0.01731 | 2.446 | 2.446 | −194.78 | 1219.18 | 1024:40 | −0.4100 | 3.2366 | 2.8266 | −83 |
| −82 | 9 913 | 20.18 | 0.01731 | 2.270 | 2.270 | −194.38 | 1219.23 | 1024.85 | −0 4090 | 3.2282 | 2.8192 | −82 |
| −81 | 10.71 | 21.81 | 0.01731 | 2.106 | 2.106 | −193.99 | 1219.28 | 1025.29 | −0.4079 | 3.2197 | 2.8118 | −81 |
| −80 | 11.57 | 23.55 | 0.01731 | 1.955 | 1.955 | −193.60 | 1219.33 | 1025.73 | −0.4069 | 3.2114 | 2.8045 | −80 |
| −79 | 12.49 | 25.42 | 0.01731 | 1.816 | 1.816 | −193.20 | 1219.37 | 1026.17 | −0.4058 | 3.2030 | 2.7972 | −79 |
| −78 | 13.47 | 27.43 | 0.01731 | 1.687 | 1.687 | −192.81 | 1219.43 | 1026.62 | −0.4048 | 3.1948 | 2.7900 | −78 |
| −77 | 14.53 | 29.59 | 0.01732 | 1.568 | 1.568 | −192.41 | 1219.47 | 1027.06 | −0.4038 | 3.1866 | 2.7828 | −77 |
| −76 | 15.67 | 31.91 | 0.01732 | 1.458 | 1.458 | −192.01 | 1219.51 | 1027.50 | −0.4028 | 3.1784 | 2.7756 | −76 |
| −75 | 16.89 | 34.39 | 0.01732 | 1.356 | 1.356 | −191.62 | 1219.56 | 1027.94 | −0.4017 | 3.1702 | 2.7685 | −75 |
| −74 | 18.20 | 37 05 | 0.01732 | 1.262 | 1.262 | −191.22 | 1219.60 | 1028.38 | −0.4007 | 3.1622 | 2.7615 | −74 |
| −73 | 19.60 | 39.91 | 0.01732 | 1.175 | 1.175 | −190.82 | 1219.65 | 1028.83 | −0.3996 | 3.1540 | 2.7544 | −73 |
| −72 | 21.10 | 42.96 | 0.01732 | 1.094 | 1.094 | −190.41 | 1219.68 | 1029.27 | −0 3986 | 3.1460 | 2.7474 | −72 |
| −71 | 22.71 | 46.24 | 0.01732 | 1.020 | 1.020 | −190.01 | 1219.72 | 1029.71 | −0.3976 | 3.1381 | 2.7405 | −71 |
| −70 | 24.43 | 49.74 | 0.01732 | 0.9501 | 0.9501 | −189.61 | 1219.76 | 1030.15 | −0.3965 | 3.1301 | 2.7336 | −70 |
| −69 | 26.27 | 53.49 | 0.01732 | 0.8858 | 0.8858 | −189.20 | 1219.80 | 1030.60 | −0.3955 | 3.1222 | 2.7267 | −69 |
| −68 | 28.24 | 57.51 | 0.01733 | 0.8261 | 0.8261 | −188.80 | 1219.84 | 1031.04 | −0.3945 | 3.1143 | 2.7198 | −68 |
| −67 | 30.35 | 61.80 | 0.01733 | 0.7707 | 0.7707 | −188.39 | 1219.87 | 1031.48 | −0.3934 | 3.1064 | 2.7130 | −67 |
| −66 | 32.60 | 66.38 | 0.01733 | 0.7193 | 0.7193 | −187.98 | 1219 90 | 1031.92 | −0.3924 | 3.0987 | 2.7063 | −66 |
| −65 | 35.01 | 71.28 | 0.01733 | 0.6715 | 0.6715 | −187.58 | 1219.94 | 1032.36 | −0.3914 | 3.0910 | 2.6996 | −65 |

[a]Compiled by John A. Goff and S. Gratch.





TABLE 2. THERMODYNAMIC PROPERTIES OF WATER AT SATURATION[a] (Continued)

| FAHR. TEMP. $t$(F) | ABSOLUTE PRESSURE $p_s \times 10^3$ | | SPECIFIC VOLUME, CU FT PER LB | | | ENTHALPY, BTU PER LB | | | ENTROPY, BTU PER (LB) (°F) | | | FAHR. TEMP. $t$(F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Lb/Sq In. | In. Hg | Sat. Solid $v_i$ | Evap. $v_{ig} \times 10^{-6}$ | Sat. Vapor $v_g \times 10^{-6}$ | Sat. Solid $h_i$ | Evap. $h_{ig}$ | Sat. Vapor $h_g$ | Sat. Solid $s_i$ | Evap. $s_{ig}$ | Sat. Vapor $s_g$ | |
| −64 | 0.3758 | 0.7652 | 0.01733 | 6.272 | 6.272 | −187.17 | 1219.98 | 1032.81 | −0.3903 | 3.0832 | 2.6929 | −64 |
| −63 | 0.4033 | 0.8211 | 0.01733 | 5.859 | 5.859 | −186.76 | 1220.01 | 1033.25 | −0.3893 | 3.0755 | 2.6862 | −63 |
| −62 | 0.4328 | 0.8808 | 0.01734 | 5.476 | 5.476 | −186.35 | 1220.04 | 1033.69 | −0.3882 | 3.0678 | 2.6796 | −62 |
| −61 | 0.4639 | 0.9444 | 0.01734 | 5.120 | 5.120 | −185.93 | 1220.06 | 1034.13 | −0.3872 | 3.0602 | 2.6730 | −61 |
| −60 | 0.4972 | 1.012 | 0.01734 | 4.788 | 4.788 | −185.52 | 1220.10 | 1034.58 | −0.3862 | 3.0526 | 2.6664 | −60 |
| −59 | 0.5328 | 1.085 | 0.01734 | 4.479 | 4.479 | −185.11 | 1220.13 | 1035.02 | −0.3851 | 3.0450 | 2.6599 | −59 |
| −58 | 0.5708 | 1.162 | 0.01734 | 4.192 | 4.192 | −184.69 | 1220.15 | 1035.46 | −0.3841 | 3.0376 | 2.6535 | −58 |
| −57 | 0.6112 | 1.244 | 0.01734 | 3.925 | 3.925 | −184.28 | 1220.18 | 1035.90 | −0.3831 | 3.0301 | 2.6470 | −57 |
| −56 | 0.6543 | 1.332 | 0.01734 | 3.675 | 3.675 | −183.86 | 1220.20 | 1036.34 | −0.3820 | 3.0226 | 2.6406 | −56 |
| −55 | 0.7001 | 1.426 | 0.01734 | 3.443 | 3.443 | −183.44 | 1220.23 | 1036.79 | −0.3810 | 3.0152 | 2.6342 | −55 |
| −54 | 0.7489 | 1.525 | 0.01735 | 3.226 | 3.226 | −183.02 | 1220.25 | 1037.23 | −0.3800 | 3.0079 | 2.6279 | −54 |
| −53 | 0.8009 | 1.631 | 0.01735 | 3.024 | 3.024 | −182.60 | 1220.27 | 1037.67 | −0.3780 | 3.0005 | 2.6216 | −53 |
| −52 | 0.8562 | 1.743 | 0.01735 | 2.836 | 2.836 | −182.18 | 1220.29 | 1038.11 | −0.3779 | 2.9932 | 2.6153 | −52 |
| −51 | 0.9151 | 1.863 | 0 01735 | 2.660 | 2.660 | −181.76 | 1220.31 | 1038.55 | −0.3769 | 2.9860 | 2.6091 | −51 |
| −50 | 0.9776 | 1.990 | 0.01735 | 2.496 | 2.496 | −181.34 | 1220.34 | 1039.00 | −0.3758 | 2.9786 | 2.6028 | −50 |
| −49 | 1.044 | 2.126 | 0.01735 | 2.343 | 2.343 | −180.92 | 1220.36 | 1039.44 | −0.3748 | 2.9715 | 2.5967 | −49 |
| −48 | 1.115 | 2.270 | 0.01736 | 2.200 | 2.200 | −180.49 | 1220.37 | 1039.88 | −0.3738 | 2.9643 | 2.5905 | −48 |
| −47 | 1.190 | 2.422 | 0.01736 | 2.066 | 2.066 | −180.06 | 1220.38 | 1040.32 | −0.3727 | 2.9571 | 2.5844 | −47 |
| −46 | 1.270 | 2.585 | 0.01736 | 1.941 | 1.941 | −179.64 | 1220.40 | 1040.76 | −0.3717 | 2.9501 | 2.5784 | −46 |
| −45 | 1.354 | 2.757 | 0.01736 | 1.824 | 1.824 | −179.21 | 1220.42 | 1041.21 | −0.3707 | 2.9430 | 2.5723 | −45 |
| −44 | 1.444 | 2.940 | 0.01736 | 1.715 | 1.715 | −178.78 | 1220.43 | 1041.65 | −0.3696 | 2.9359 | 2.5663 | −44 |
| −43 | 1.539 | 3.134 | 0.01736 | 1.612 | 1.612 | −178.35 | 1220.44 | 1042.09 | −0.3686 | 2.9289 | 2.5603 | −43 |
| −42 | 1.641 | 3.340 | 0.01736 | 1.516 | 1.516 | −177.92 | 1220.45 | 1042.53 | −0.3676 | 2.9219 | 2.5543 | −42 |
| −41 | 1.748 | 3.559 | 0.01736 | 1.427 | 1.427 | −177.49 | 1220.47 | 1042.98 | −0.3665 | 2.9149 | 2.5484 | −41 |
| −40 | 1.861 | 3.790 | 0.01737 | 1.343 | 1.343 | −177.06 | 1220.48 | 1043.42 | −0.3655 | 2.9080 | 2.5425 | −40 |
| −39 | 1.982 | 4.035 | 0.01737 | 1.264 | 1.264 | −176.63 | 1220.49 | 1043.86 | −0.3645 | 2.9012 | 2.5367 | −39 |
| −38 | 2.110 | 4.295 | 0.01737 | 1.191 | 1.191 | −176.19 | 1220.49 | 1044.30 | −0.3634 | 2.8942 | 2.5308 | −38 |
| −37 | 2.245 | 4.570 | 0.01737 | 1.122 | 1.122 | −175.76 | 1220.50 | 1044.74 | −0.3624 | 2.8874 | 2.5250 | −37 |
| −36 | 2.388 | 4.862 | 0.01737 | 1.057 | 1.057 | −175.32 | 1220.51 | 1045.19 | −0.3614 | 2.8807 | 2.5193 | −36 |
| −35 | 2.540 | 5.170 | 0.01737 | 0.9961 | 0.9961 | −174.88 | 1220.51 | 1045.63 | −0.3604 | 2.8739 | 2.5135 | −35 |
| −34 | 2.700 | 5.497 | 0.01737 | 0.9391 | 0.9391 | −174.45 | 1220.52 | 1046.07 | −0.3593 | 2.8671 | 2.5078 | −34 |
| −33 | 2.870 | 5.843 | 0.01738 | 0.8857 | 0.8857 | −174.01 | 1220.52 | 1046.51 | −0.3583 | 2.8604 | 2.5021 | −33 |

[a]Compiled by John A. Goff and S. Gratch.