

Saturated Pressure Table

| temperature<br>[°C] | pressure<br>[bar] |        | density<br>[kg/m³] |        | enthalpy<br>[kJ/kg] |        | entropy<br>[J/kg*K] |        |
|---------------------|-------------------|--------|--------------------|--------|---------------------|--------|---------------------|--------|
|                     | liquid            | vapour | liquid             | vapour | liquid              | vapour | liquid              | vapour |
| -60,0               | 0,498             | 0,475  | 1348,0             | 2,690  | 122,21              | 331,40 | 0,6811              | 1,6651 |
| -59,0               | 0,526             | 0,502  | 1345,0             | 2,836  | 123,44              | 332,02 | 0,6868              | 1,6633 |
| -58,0               | 0,556             | 0,531  | 1342,0             | 2,987  | 124,68              | 332,63 | 0,6926              | 1,6616 |
| -57,0               | 0,586             | 0,561  | 1339,0             | 3,145  | 125,91              | 333,24 | 0,6983              | 1,6599 |
| -56,0               | 0,619             | 0,592  | 1336,0             | 3,309  | 127,15              | 333,85 | 0,7040              | 1,6582 |
| -55,0               | 0,652             | 0,625  | 1333,0             | 3,480  | 128,38              | 334,46 | 0,7096              | 1,6566 |
| -54,0               | 0,687             | 0,659  | 1330,0             | 3,658  | 129,62              | 335,07 | 0,7153              | 1,6550 |
| -53,0               | 0,724             | 0,694  | 1326,9             | 3,843  | 130,86              | 335,68 | 0,7209              | 1,6535 |
| -52,0               | 0,762             | 0,731  | 1323,9             | 4,035  | 132,10              | 336,29 | 0,7265              | 1,6520 |
| -51,0               | 0,801             | 0,770  | 1320,9             | 4,235  | 133,35              | 336,90 | 0,7321              | 1,6505 |
| -50,0               | 0,842             | 0,810  | 1317,8             | 4,442  | 134,59              | 337,51 | 0,7377              | 1,6491 |
| -49,0               | 0,885             | 0,852  | 1314,8             | 4,657  | 135,84              | 338,11 | 0,7433              | 1,6477 |
| -48,0               | 0,930             | 0,895  | 1311,7             | 4,880  | 137,09              | 338,72 | 0,7488              | 1,6463 |
| -47,0               | 0,976             | 0,941  | 1308,7             | 5,112  | 138,34              | 339,33 | 0,7543              | 1,6450 |
| -46,0               | 1,024             | 0,988  | 1305,6             | 5,352  | 139,59              | 339,93 | 0,7599              | 1,6437 |
| -45,0               | 1,074             | 1,037  | 1302,5             | 5,601  | 140,85              | 340,53 | 0,7654              | 1,6424 |
| -44,0               | 1,126             | 1,087  | 1299,4             | 5,859  | 142,10              | 341,14 | 0,7708              | 1,6412 |
| -43,0               | 1,180             | 1,140  | 1296,3             | 6,126  | 143,36              | 341,74 | 0,7763              | 1,6400 |
| -42,0               | 1,235             | 1,194  | 1293,2             | 6,402  | 144,62              | 342,34 | 0,7817              | 1,6388 |
| -41,0               | 1,293             | 1,251  | 1290,1             | 6,688  | 145,89              | 342,94 | 0,7872              | 1,6377 |
| -40,0               | 1,353             | 1,310  | 1286,9             | 6,984  | 147,15              | 343,53 | 0,7926              | 1,6365 |
| -39,0               | 1,415             | 1,371  | 1283,8             | 7,291  | 148,42              | 344,13 | 0,7980              | 1,6355 |
| -38,0               | 1,479             | 1,434  | 1280,6             | 7,607  | 149,69              | 344,73 | 0,8034              | 1,6344 |
| -37,0               | 1,546             | 1,499  | 1277,5             | 7,935  | 150,96              | 345,32 | 0,8088              | 1,6333 |
| -36,0               | 1,614             | 1,566  | 1274,3             | 8,273  | 152,23              | 345,91 | 0,8141              | 1,6323 |
| -35,0               | 1,685             | 1,636  | 1271,1             | 8,623  | 153,51              | 346,51 | 0,8195              | 1,6313 |
| -34,0               | 1,759             | 1,708  | 1267,9             | 8,984  | 154,79              | 347,10 | 0,8248              | 1,6304 |
| -33,0               | 1,835             | 1,783  | 1264,7             | 9,357  | 156,07              | 347,68 | 0,8301              | 1,6294 |
| -32,0               | 1,913             | 1,860  | 1261,5             | 9,741  | 157,35              | 348,27 | 0,8354              | 1,6285 |
| -31,0               | 1,994             | 1,940  | 1258,3             | 10,14  | 158,64              | 348,86 | 0,8407              | 1,6276 |
| -30,0               | 2,078             | 2,022  | 1255,0             | 10,55  | 159,93              | 349,44 | 0,8460              | 1,6267 |
| -29,0               | 2,164             | 2,107  | 1251,8             | 10,97  | 161,22              | 350,02 | 0,8513              | 1,6259 |
| -28,0               | 2,253             | 2,195  | 1248,5             | 11,41  | 162,52              | 350,60 | 0,8565              | 1,6250 |
| -27,0               | 2,345             | 2,286  | 1245,2             | 11,86  | 163,81              | 351,18 | 0,8618              | 1,6242 |
| -26,0               | 2,440             | 2,379  | 1241,9             | 12,32  | 165,11              | 351,75 | 0,8670              | 1,6234 |
| -25,0               | 2,537             | 2,475  | 1238,6             | 12,80  | 166,41              | 352,33 | 0,8723              | 1,6226 |
| -24,0               | 2,638             | 2,574  | 1235,3             | 13,29  | 167,72              | 352,90 | 0,8775              | 1,6219 |
| -23,0               | 2,742             | 2,677  | 1231,9             | 13,80  | 169,03              | 353,47 | 0,8827              | 1,6211 |
| -22,0               | 2,848             | 2,782  | 1228,6             | 14,32  | 170,34              | 354,04 | 0,8879              | 1,6204 |
| -21,0               | 2,958             | 2,890  | 1225,2             | 14,86  | 171,65              | 354,60 | 0,8931              | 1,6197 |
| -20,0               | 3,071             | 3,002  | 1221,8             | 15,41  | 172,97              | 355,16 | 0,8982              | 1,6190 |

| temperature<br>[°C] | pressure<br>[bar] |        | density<br>[kg/m³] |        | enthalpy<br>[kJ/kg] |        | entropy<br>[J/kg*K] |        |
|---------------------|-------------------|--------|--------------------|--------|---------------------|--------|---------------------|--------|
|                     | liquid            | vapour | liquid             | vapour | liquid              | vapour | liquid              | vapour |
| -19,0               | 3,187             | 3,117  | 1218,4             | 15,98  | 174,29              | 355,72 | 0,9034              | 1,6183 |
| -18,0               | 3,307             | 3,235  | 1215,0             | 16,57  | 175,61              | 356,28 | 0,9085              | 1,6177 |
| -17,0               | 3,430             | 3,357  | 1211,5             | 17,17  | 176,93              | 356,84 | 0,9137              | 1,6170 |
| -16,0               | 3,556             | 3,482  | 1208,1             | 17,79  | 178,26              | 357,39 | 0,9188              | 1,6164 |
| -15,0               | 3,686             | 3,610  | 1204,6             | 18,43  | 179,60              | 357,94 | 0,9240              | 1,6158 |
| -14,0               | 3,820             | 3,742  | 1201,1             | 19,09  | 180,93              | 358,49 | 0,9291              | 1,6152 |
| -13,0               | 3,957             | 3,878  | 1197,6             | 19,76  | 182,27              | 359,03 | 0,9342              | 1,6146 |
| -12,0               | 4,098             | 4,017  | 1194,1             | 20,46  | 183,61              | 359,58 | 0,9393              | 1,6140 |
| -11,0               | 4,243             | 4,161  | 1190,5             | 21,17  | 184,96              | 360,11 | 0,9444              | 1,6134 |
| -10,0               | 4,391             | 4,308  | 1186,9             | 21,91  | 186,31              | 360,65 | 0,9495              | 1,6129 |
| -9,0                | 4,544             | 4,459  | 1183,4             | 22,66  | 187,66              | 361,18 | 0,9546              | 1,6123 |
| -8,0                | 4,700             | 4,614  | 1179,7             | 23,44  | 189,01              | 361,71 | 0,9596              | 1,6118 |
| -7,0                | 4,861             | 4,772  | 1176,1             | 24,23  | 190,37              | 362,24 | 0,9647              | 1,6113 |
| -6,0                | 5,025             | 4,935  | 1172,5             | 25,05  | 191,74              | 362,76 | 0,9698              | 1,6107 |
| -5,0                | 5,194             | 5,103  | 1168,8             | 25,90  | 193,10              | 363,28 | 0,9748              | 1,6102 |
| -4,0                | 5,367             | 5,274  | 1165,1             | 26,76  | 194,48              | 363,80 | 0,9799              | 1,6097 |
| -3,0                | 5,544             | 5,450  | 1161,3             | 27,65  | 195,85              | 364,31 | 0,9849              | 1,6092 |
| -2,0                | 5,725             | 5,630  | 1157,6             | 28,56  | 197,23              | 364,82 | 0,9899              | 1,6087 |
| -1,0                | 5,911             | 5,814  | 1153,8             | 29,50  | 198,61              | 365,32 | 0,9950              | 1,6082 |
| 0,0                 | 6,102             | 6,003  | 1150,0             | 30,47  | 200,00              | 365,82 | 1,0000              | 1,6078 |
| 1,0                 | 6,297             | 6,197  | 1146,2             | 31,46  | 201,39              | 366,32 | 1,0050              | 1,6073 |
| 2,0                 | 6,497             | 6,395  | 1142,3             | 32,47  | 202,79              | 366,81 | 1,0100              | 1,6068 |
| 3,0                 | 6,701             | 6,598  | 1138,4             | 33,52  | 204,19              | 367,29 | 1,0151              | 1,6064 |
| 4,0                 | 6,911             | 6,806  | 1134,5             | 34,59  | 205,59              | 367,78 | 1,0201              | 1,6059 |
| 5,0                 | 7,125             | 7,019  | 1130,6             | 35,69  | 207,00              | 368,25 | 1,0251              | 1,6054 |
| 6,0                 | 7,344             | 7,236  | 1126,6             | 36,82  | 208,41              | 368,73 | 1,0301              | 1,6050 |
| 7,0                 | 7,568             | 7,459  | 1122,6             | 37,99  | 209,83              | 369,19 | 1,0351              | 1,6045 |
| 8,0                 | 7,797             | 7,687  | 1118,6             | 39,18  | 211,26              | 369,66 | 1,0401              | 1,6041 |
| 9,0                 | 8,031             | 7,919  | 1114,5             | 40,41  | 212,68              | 370,11 | 1,0451              | 1,6036 |
| 10,0                | 8,271             | 8,158  | 1110,4             | 41,66  | 214,12              | 370,57 | 1,0501              | 1,6032 |
| 11,0                | 8,516             | 8,401  | 1106,3             | 42,96  | 215,56              | 371,01 | 1,0551              | 1,6027 |
| 12,0                | 8,766             | 8,650  | 1102,1             | 44,29  | 217,00              | 371,45 | 1,0600              | 1,6022 |
| 13,0                | 9,022             | 8,904  | 1097,9             | 45,65  | 218,45              | 371,89 | 1,0650              | 1,6018 |
| 14,0                | 9,283             | 9,164  | 1093,6             | 47,05  | 219,90              | 372,32 | 1,0700              | 1,6013 |
| 15,0                | 9,550             | 9,429  | 1089,4             | 48,49  | 221,36              | 372,74 | 1,0750              | 1,6009 |
| 16,0                | 9,823             | 9,701  | 1085,0             | 49,97  | 222,83              | 373,15 | 1,0800              | 1,6004 |
| 17,0                | 10,10             | 9,978  | 1080,7             | 51,49  | 224,30              | 373,56 | 1,0850              | 1,5999 |
| 18,0                | 10,39             | 10,26  | 1076,3             | 53,05  | 225,78              | 373,96 | 1,0900              | 1,5994 |
| 19,0                | 10,68             | 10,55  | 1071,8             | 54,66  | 227,26              | 374,36 | 1,0950              | 1,5989 |
| 20,0                | 10,97             | 10,84  | 1067,3             | 56,31  | 228,75              | 374,74 | 1,1000              | 1,5984 |

| temperature<br>[°C] | pressure<br>[bar] |        | density<br>[kg/m³] |        | enthalpy<br>[kJ/kg] |        | entropy<br>[J/kg*K] |        |
|---------------------|-------------------|--------|--------------------|--------|---------------------|--------|---------------------|--------|
|                     | liquid            | vapour | liquid             | vapour | liquid              | vapour | liquid              | vapour |
| 21,0                | 11,27             | 11,15  | 1062,7             | 58,00  | 230,25              | 375,12 | 1,1050              | 1,5979 |
| 22,0                | 11,58             | 11,45  | 1058,2             | 59,74  | 231,75              | 375,49 | 1,1100              | 1,5974 |
| 23,0                | 11,90             | 11,77  | 1053,5             | 61,54  | 233,26              | 375,85 | 1,1150              | 1,5969 |
| 24,0                | 12,22             | 12,09  | 1048,8             | 63,38  | 234,77              | 376,21 | 1,1200              | 1,5964 |
| 25,0                | 12,55             | 12,41  | 1044,1             | 65,27  | 236,30              | 376,55 | 1,1250              | 1,5958 |
| 26,0                | 12,88             | 12,75  | 1039,2             | 67,22  | 237,83              | 376,89 | 1,1300              | 1,5953 |
| 27,0                | 13,22             | 13,08  | 1034,4             | 69,23  | 239,37              | 377,22 | 1,1351              | 1,5947 |
| 28,0                | 13,57             | 13,43  | 1029,5             | 71,29  | 240,91              | 377,53 | 1,1401              | 1,5941 |
| 29,0                | 13,92             | 13,78  | 1024,5             | 73,42  | 242,47              | 377,84 | 1,1451              | 1,5935 |
| 30,0                | 14,28             | 14,14  | 1019,4             | 75,61  | 244,03              | 378,14 | 1,1502              | 1,5929 |
| 31,0                | 14,65             | 14,51  | 1014,3             | 77,86  | 245,60              | 378,42 | 1,1552              | 1,5923 |
| 32,0                | 15,03             | 14,89  | 1009,1             | 80,18  | 247,18              | 378,70 | 1,1603              | 1,5916 |
| 33,0                | 15,41             | 15,27  | 1003,8             | 82,57  | 248,77              | 378,96 | 1,1654              | 1,5909 |
| 34,0                | 15,80             | 15,66  | 998,49             | 85,04  | 250,37              | 379,21 | 1,1704              | 1,5903 |
| 35,0                | 16,20             | 16,05  | 993,07             | 87,58  | 251,97              | 379,45 | 1,1755              | 1,5895 |
| 36,0                | 16,60             | 16,46  | 987,57             | 90,20  | 253,59              | 379,67 | 1,1806              | 1,5888 |
| 37,0                | 17,01             | 16,87  | 981,98             | 92,91  | 255,22              | 379,89 | 1,1858              | 1,5880 |
| 38,0                | 17,43             | 17,29  | 976,30             | 95,70  | 256,86              | 380,08 | 1,1909              | 1,5872 |
| 39,0                | 17,86             | 17,71  | 970,52             | 98,59  | 258,51              | 380,26 | 1,1961              | 1,5864 |
| 40,0                | 18,29             | 18,15  | 964,65             | 101,6  | 260,17              | 380,43 | 1,2012              | 1,5855 |
| 41,0                | 18,74             | 18,59  | 958,67             | 104,7  | 261,85              | 380,58 | 1,2064              | 1,5846 |
| 42,0                | 19,19             | 19,04  | 952,58             | 107,8  | 263,53              | 380,71 | 1,2116              | 1,5837 |
| 43,0                | 19,65             | 19,50  | 946,38             | 111,2  | 265,23              | 380,82 | 1,2169              | 1,5827 |
| 44,0                | 20,12             | 19,97  | 940,05             | 114,6  | 266,95              | 380,92 | 1,2221              | 1,5817 |
| 45,0                | 20,59             | 20,44  | 933,59             | 118,1  | 268,68              | 380,99 | 1,2274              | 1,5807 |
| 46,0                | 21,08             | 20,93  | 927,00             | 121,8  | 270,42              | 381,05 | 1,2327              | 1,5796 |
| 47,0                | 21,57             | 21,42  | 920,26             | 125,6  | 272,18              | 381,07 | 1,2381              | 1,5784 |
| 48,0                | 22,07             | 21,92  | 913,37             | 129,6  | 273,96              | 381,08 | 1,2434              | 1,5772 |
| 49,0                | 22,59             | 22,44  | 906,31             | 133,7  | 275,76              | 381,06 | 1,2488              | 1,5759 |
| 50,0                | 23,11             | 22,96  | 899,07             | 138,0  | 277,57              | 381,01 | 1,2543              | 1,5746 |
| 51,0                | 23,64             | 23,49  | 891,65             | 142,5  | 279,41              | 380,93 | 1,2598              | 1,5732 |
| 52,0                | 24,18             | 24,03  | 884,02             | 147,2  | 281,27              | 380,82 | 1,2653              | 1,5717 |
| 53,0                | 24,72             | 24,58  | 876,17             | 152,1  | 283,15              | 380,68 | 1,2709              | 1,5701 |
| 54,0                | 25,28             | 25,14  | 868,07             | 157,3  | 285,06              | 380,50 | 1,2766              | 1,5685 |
| 55,0                | 25,85             | 25,71  | 859,72             | 162,7  | 286,99              | 380,28 | 1,2823              | 1,5667 |
| 56,0                | 26,43             | 26,29  | 851,09             | 168,4  | 288,96              | 380,01 | 1,2880              | 1,5648 |
| 57,0                | 27,02             | 26,88  | 842,13             | 174,4  | 290,95              | 379,69 | 1,2939              | 1,5628 |
| 58,0                | 27,62             | 27,48  | 832,83             | 180,7  | 292,99              | 379,32 | 1,2998              | 1,5607 |
| 59,0                | 28,23             | 28,09  | 823,14             | 187,4  | 295,06              | 378,89 | 1,3059              | 1,5584 |
| 60,0                | 28,85             | 28,71  | 813,01             | 194,6  | 297,18              | 378,40 | 1,3120              | 1,5559 |

## Saturated Pressure Table

| temperature<br>[°C] | pressure<br>[bar] |        | density<br>[kg/m <sup>3</sup> ] |        | enthalpy<br>[kJ/kg] |        | entropy<br>[J/kg*K] |        |
|---------------------|-------------------|--------|---------------------------------|--------|---------------------|--------|---------------------|--------|
|                     | liquid            | vapour | liquid                          | vapour | liquid              | vapour | liquid              | vapour |
| 61,0                | 29,48             | 29,35  | 802,38                          | 202,2  | 299,35              | 377,82 | 1,3183              | 1,5532 |
| 62,0                | 30,12             | 29,99  | 791,18                          | 210,4  | 301,58              | 377,16 | 1,3247              | 1,5503 |
| 63,0                | 30,78             | 30,65  | 779,31                          | 219,3  | 303,87              | 376,40 | 1,3313              | 1,5471 |
| 64,0                | 31,45             | 31,32  | 766,64                          | 229,0  | 306,24              | 375,51 | 1,3380              | 1,5436 |
| 65,0                | 32,13             | 32,00  | 753,01                          | 239,6  | 308,71              | 374,48 | 1,3451              | 1,5397 |
| 66,0                | 32,82             | 32,70  | 738,18                          | 251,4  | 311,30              | 373,27 | 1,3525              | 1,5353 |
| 67,0                | 33,52             | 33,41  | 721,80                          | 264,8  | 314,04              | 371,84 | 1,3602              | 1,5302 |
| 68,0                | 34,24             | 34,14  | 703,33                          | 280,2  | 316,98              | 370,09 | 1,3686              | 1,5243 |
| 69,0                | 34,98             | 34,88  | 681,82                          | 298,6  | 320,22              | 367,91 | 1,3778              | 1,5172 |
| 70,0                | 35,73             | 35,64  | 655,33                          | 321,8  | 323,96              | 365,04 | 1,3883              | 1,5081 |
| 71,0                | 36,49             | 36,42  | 618,64                          | 354,8  | 328,72              | 360,81 | 1,4018              | 1,4951 |
| 72,0                | 37,26             | 37,24  | 535,98                          | 429,8  | 338,33              | 351,03 | 1,4293              | 1,4662 |

Calculated by Refprop version 10.0

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