

## Dampfdrucktabelle

Seite 1 von 4

| Temperatur<br>[°C] | Druck<br>[bar] |           | Dichte<br>[kg/m³] |           | Enthalpie<br>[kJ/kg] |           | Entropie<br>[kJ/kg*K] |           |
|--------------------|----------------|-----------|-------------------|-----------|----------------------|-----------|-----------------------|-----------|
|                    | flüssig        | gasförmig | flüssig           | gasförmig | flüssig              | gasförmig | flüssig               | gasförmig |
| -60,0              | 0,491          | 0,339     | 1391,1            | 1,684     | 119,56               | 366,91    | 0,6700                | 1,8507    |
| -59,0              | 0,519          | 0,360     | 1388,2            | 1,782     | 120,84               | 367,52    | 0,6760                | 1,8478    |
| -58,0              | 0,549          | 0,382     | 1385,2            | 1,885     | 122,13               | 368,13    | 0,6820                | 1,8450    |
| -57,0              | 0,579          | 0,406     | 1382,3            | 1,992     | 123,41               | 368,74    | 0,6879                | 1,8423    |
| -56,0              | 0,612          | 0,430     | 1379,4            | 2,105     | 124,70               | 369,35    | 0,6938                | 1,8396    |
| -55,0              | 0,645          | 0,456     | 1376,4            | 2,222     | 125,99               | 369,95    | 0,6998                | 1,8369    |
| -54,0              | 0,680          | 0,483     | 1373,5            | 2,344     | 127,28               | 370,56    | 0,7056                | 1,8343    |
| -53,0              | 0,717          | 0,511     | 1370,5            | 2,472     | 128,57               | 371,17    | 0,7115                | 1,8318    |
| -52,0              | 0,755          | 0,540     | 1367,5            | 2,605     | 129,86               | 371,77    | 0,7173                | 1,8293    |
| -51,0              | 0,795          | 0,571     | 1364,6            | 2,744     | 131,15               | 372,37    | 0,7232                | 1,8268    |
| -50,0              | 0,836          | 0,603     | 1361,6            | 2,888     | 132,45               | 372,98    | 0,7290                | 1,8244    |
| -49,0              | 0,879          | 0,636     | 1358,6            | 3,039     | 133,75               | 373,58    | 0,7348                | 1,8220    |
| -48,0              | 0,924          | 0,671     | 1355,6            | 3,195     | 135,05               | 374,18    | 0,7405                | 1,8197    |
| -47,0              | 0,971          | 0,708     | 1352,6            | 3,358     | 136,35               | 374,78    | 0,7463                | 1,8174    |
| -46,0              | 1,019          | 0,746     | 1349,6            | 3,528     | 137,65               | 375,38    | 0,7520                | 1,8152    |
| -45,0              | 1,069          | 0,786     | 1346,5            | 3,704     | 138,95               | 375,97    | 0,7577                | 1,8130    |
| -44,0              | 1,122          | 0,827     | 1343,5            | 3,887     | 140,26               | 376,57    | 0,7634                | 1,8108    |
| -43,0              | 1,176          | 0,870     | 1340,5            | 4,078     | 141,56               | 377,16    | 0,7691                | 1,8087    |
| -42,0              | 1,232          | 0,915     | 1337,4            | 4,275     | 142,87               | 377,76    | 0,7747                | 1,8066    |
| -41,0              | 1,291          | 0,962     | 1334,3            | 4,480     | 144,18               | 378,35    | 0,7804                | 1,8045    |
| -40,0              | 1,351          | 1,011     | 1331,3            | 4,693     | 145,49               | 378,94    | 0,7860                | 1,8025    |
| -39,0              | 1,414          | 1,061     | 1328,2            | 4,913     | 146,81               | 379,53    | 0,7916                | 1,8005    |
| -38,0              | 1,479          | 1,113     | 1325,1            | 5,142     | 148,12               | 380,11    | 0,7972                | 1,7986    |
| -37,0              | 1,546          | 1,168     | 1322,0            | 5,378     | 149,44               | 380,70    | 0,8028                | 1,7967    |
| -36,0              | 1,616          | 1,225     | 1318,9            | 5,624     | 150,76               | 381,28    | 0,8083                | 1,7948    |
| -35,0              | 1,688          | 1,283     | 1315,7            | 5,878     | 152,08               | 381,86    | 0,8138                | 1,7929    |
| -34,0              | 1,763          | 1,344     | 1312,6            | 6,141     | 153,41               | 382,44    | 0,8194                | 1,7911    |
| -33,0              | 1,840          | 1,407     | 1309,4            | 6,413     | 154,74               | 383,02    | 0,8249                | 1,7893    |
| -32,0              | 1,920          | 1,473     | 1306,3            | 6,695     | 156,06               | 383,60    | 0,8304                | 1,7876    |
| -31,0              | 2,002          | 1,541     | 1303,1            | 6,986     | 157,40               | 384,17    | 0,8359                | 1,7859    |
| -30,0              | 2,087          | 1,611     | 1299,9            | 7,287     | 158,73               | 384,74    | 0,8413                | 1,7842    |
| -29,0              | 2,175          | 1,683     | 1296,7            | 7,599     | 160,06               | 385,31    | 0,8468                | 1,7825    |
| -28,0              | 2,266          | 1,759     | 1293,5            | 7,921     | 161,40               | 385,88    | 0,8522                | 1,7808    |
| -27,0              | 2,360          | 1,837     | 1290,3            | 8,253     | 162,74               | 386,45    | 0,8577                | 1,7792    |
| -26,0              | 2,456          | 1,917     | 1287,1            | 8,596     | 164,09               | 387,01    | 0,8631                | 1,7776    |
| -25,0              | 2,556          | 2,000     | 1283,8            | 8,951     | 165,43               | 387,57    | 0,8685                | 1,7761    |
| -24,0              | 2,659          | 2,086     | 1280,6            | 9,316     | 166,78               | 388,13    | 0,8739                | 1,7745    |
| -23,0              | 2,765          | 2,175     | 1277,3            | 9,694     | 168,13               | 388,69    | 0,8792                | 1,7730    |
| -22,0              | 2,874          | 2,267     | 1274,0            | 10,08     | 169,48               | 389,25    | 0,8846                | 1,7715    |
| -21,0              | 2,986          | 2,362     | 1270,7            | 10,49     | 170,84               | 389,80    | 0,8899                | 1,7701    |
| -20,0              | 3,102          | 2,459     | 1267,4            | 10,90     | 172,20               | 390,35    | 0,8953                | 1,7686    |

| Temperatur<br>[°C] | Druck<br>[bar] |           | Dichte<br>[kg/m³] |           | Enthalpie<br>[kJ/kg] |           | Entropie<br>[kJ/kg*K] |           |
|--------------------|----------------|-----------|-------------------|-----------|----------------------|-----------|-----------------------|-----------|
|                    | flüssig        | gasförmig | flüssig           | gasförmig | flüssig              | gasförmig | flüssig               | gasförmig |
| -19,0              | 3,221          | 2,560     | 1264,1            | 11,33     | 173,56               | 390,89    | 0,9006                | 1,7672    |
| -18,0              | 3,343          | 2,664     | 1260,7            | 11,77     | 174,92               | 391,44    | 0,9059                | 1,7658    |
| -17,0              | 3,469          | 2,772     | 1257,4            | 12,22     | 176,29               | 391,98    | 0,9112                | 1,7644    |
| -16,0              | 3,599          | 2,882     | 1254,0            | 12,69     | 177,66               | 392,52    | 0,9165                | 1,7631    |
| -15,0              | 3,733          | 2,996     | 1250,6            | 13,17     | 179,03               | 393,06    | 0,9218                | 1,7617    |
| -14,0              | 3,870          | 3,113     | 1247,2            | 13,67     | 180,40               | 393,59    | 0,9271                | 1,7604    |
| -13,0              | 4,011          | 3,234     | 1243,8            | 14,18     | 181,78               | 394,12    | 0,9324                | 1,7591    |
| -12,0              | 4,155          | 3,359     | 1240,4            | 14,70     | 183,16               | 394,65    | 0,9376                | 1,7578    |
| -11,0              | 4,304          | 3,487     | 1236,9            | 15,24     | 184,55               | 395,17    | 0,9429                | 1,7566    |
| -10,0              | 4,457          | 3,619     | 1233,4            | 15,80     | 185,94               | 395,69    | 0,9481                | 1,7553    |
| -9,0               | 4,613          | 3,754     | 1229,9            | 16,38     | 187,33               | 396,21    | 0,9533                | 1,7541    |
| -8,0               | 4,774          | 3,894     | 1226,4            | 16,96     | 188,72               | 396,73    | 0,9585                | 1,7529    |
| -7,0               | 4,939          | 4,037     | 1222,9            | 17,57     | 190,12               | 397,24    | 0,9638                | 1,7517    |
| -6,0               | 5,109          | 4,185     | 1219,4            | 18,20     | 191,52               | 397,75    | 0,9690                | 1,7505    |
| -5,0               | 5,282          | 4,336     | 1215,8            | 18,84     | 192,92               | 398,25    | 0,9741                | 1,7493    |
| -4,0               | 5,461          | 4,492     | 1212,2            | 19,50     | 194,33               | 398,75    | 0,9793                | 1,7481    |
| -3,0               | 5,643          | 4,652     | 1208,6            | 20,18     | 195,74               | 399,25    | 0,9845                | 1,7470    |
| -2,0               | 5,830          | 4,816     | 1205,0            | 20,87     | 197,16               | 399,74    | 0,9897                | 1,7459    |
| -1,0               | 6,022          | 4,985     | 1201,3            | 21,59     | 198,58               | 400,23    | 0,9948                | 1,7447    |
| 0,0                | 6,219          | 5,158     | 1197,7            | 22,33     | 200,00               | 400,72    | 1,0000                | 1,7436    |
| 1,0                | 6,420          | 5,335     | 1194,0            | 23,08     | 201,43               | 401,20    | 1,0052                | 1,7425    |
| 2,0                | 6,626          | 5,518     | 1190,2            | 23,86     | 202,86               | 401,68    | 1,0103                | 1,7415    |
| 3,0                | 6,837          | 5,704     | 1186,5            | 24,66     | 204,29               | 402,15    | 1,0154                | 1,7404    |
| 4,0                | 7,053          | 5,896     | 1182,8            | 25,48     | 205,73               | 402,62    | 1,0206                | 1,7393    |
| 5,0                | 7,274          | 6,093     | 1179,0            | 26,33     | 207,17               | 403,09    | 1,0257                | 1,7383    |
| 6,0                | 7,501          | 6,294     | 1175,2            | 27,19     | 208,62               | 403,55    | 1,0308                | 1,7372    |
| 7,0                | 7,732          | 6,501     | 1171,3            | 28,08     | 210,07               | 404,00    | 1,0359                | 1,7362    |
| 8,0                | 7,969          | 6,712     | 1167,5            | 29,00     | 211,52               | 404,46    | 1,0410                | 1,7351    |
| 9,0                | 8,211          | 6,929     | 1163,6            | 29,94     | 212,98               | 404,90    | 1,0462                | 1,7341    |
| 10,0               | 8,458          | 7,151     | 1159,7            | 30,90     | 214,45               | 405,34    | 1,0513                | 1,7331    |
| 11,0               | 8,711          | 7,379     | 1155,7            | 31,89     | 215,92               | 405,78    | 1,0564                | 1,7321    |
| 12,0               | 8,970          | 7,612     | 1151,7            | 32,91     | 217,39               | 406,21    | 1,0615                | 1,7310    |
| 13,0               | 9,234          | 7,850     | 1147,7            | 33,95     | 218,87               | 406,63    | 1,0665                | 1,7300    |
| 14,0               | 9,505          | 8,094     | 1143,7            | 35,03     | 220,35               | 407,05    | 1,0716                | 1,7290    |
| 15,0               | 9,780          | 8,344     | 1139,7            | 36,13     | 221,84               | 407,47    | 1,0767                | 1,7280    |
| 16,0               | 10,06          | 8,599     | 1135,6            | 37,26     | 223,33               | 407,88    | 1,0818                | 1,7270    |
| 17,0               | 10,35          | 8,861     | 1131,4            | 38,42     | 224,83               | 408,28    | 1,0869                | 1,7260    |
| 18,0               | 10,64          | 9,128     | 1127,3            | 39,61     | 226,33               | 408,67    | 1,0920                | 1,7250    |
| 19,0               | 10,94          | 9,401     | 1123,1            | 40,83     | 227,84               | 409,06    | 1,0971                | 1,7240    |
| 20,0               | 11,25          | 9,681     | 1118,9            | 42,09     | 229,35               | 409,45    | 1,1021                | 1,7230    |

## Dampfdrucktabelle

Seite 3 von 4

| Temperatur<br>[°C] | Druck<br>[bar] |           | Dichte<br>[kg/m³] |           | Enthalpie<br>[kJ/kg] |           | Entropie<br>[kJ/kg*K] |           |
|--------------------|----------------|-----------|-------------------|-----------|----------------------|-----------|-----------------------|-----------|
|                    | flüssig        | gasförmig | flüssig           | gasförmig | flüssig              | gasförmig | flüssig               | gasförmig |
| 21,0               | 11,56          | 9,967     | 1114,6            | 43,38     | 230,87               | 409,82    | 1,1072                | 1,7221    |
| 22,0               | 11,88          | 10,26     | 1110,3            | 44,71     | 232,40               | 410,19    | 1,1123                | 1,7211    |
| 23,0               | 12,21          | 10,56     | 1106,0            | 46,07     | 233,93               | 410,56    | 1,1174                | 1,7201    |
| 24,0               | 12,54          | 10,86     | 1101,6            | 47,47     | 235,47               | 410,91    | 1,1225                | 1,7191    |
| 25,0               | 12,88          | 11,18     | 1097,2            | 48,90     | 237,01               | 411,26    | 1,1275                | 1,7180    |
| 26,0               | 13,22          | 11,49     | 1092,7            | 50,38     | 238,56               | 411,60    | 1,1326                | 1,7170    |
| 27,0               | 13,57          | 11,82     | 1088,2            | 51,89     | 240,11               | 411,93    | 1,1377                | 1,7160    |
| 28,0               | 13,93          | 12,15     | 1083,7            | 53,44     | 241,68               | 412,25    | 1,1428                | 1,7150    |
| 29,0               | 14,30          | 12,49     | 1079,1            | 55,04     | 243,25               | 412,57    | 1,1479                | 1,7140    |
| 30,0               | 14,67          | 12,84     | 1074,4            | 56,69     | 244,82               | 412,88    | 1,1530                | 1,7129    |
| 31,0               | 15,05          | 13,19     | 1069,7            | 58,37     | 246,40               | 413,17    | 1,1581                | 1,7119    |
| 32,0               | 15,44          | 13,55     | 1065,0            | 60,11     | 247,99               | 413,46    | 1,1632                | 1,7108    |
| 33,0               | 15,83          | 13,92     | 1060,2            | 61,89     | 249,59               | 413,74    | 1,1683                | 1,7098    |
| 34,0               | 16,23          | 14,30     | 1055,4            | 63,72     | 251,20               | 414,01    | 1,1734                | 1,7087    |
| 35,0               | 16,64          | 14,68     | 1050,5            | 65,61     | 252,81               | 414,27    | 1,1785                | 1,7076    |
| 36,0               | 17,06          | 15,07     | 1045,5            | 67,54     | 254,43               | 414,52    | 1,1836                | 1,7065    |
| 37,0               | 17,48          | 15,47     | 1040,5            | 69,54     | 256,06               | 414,76    | 1,1887                | 1,7054    |
| 38,0               | 17,91          | 15,88     | 1035,5            | 71,59     | 257,70               | 414,98    | 1,1939                | 1,7043    |
| 39,0               | 18,35          | 16,30     | 1030,3            | 73,69     | 259,34               | 415,20    | 1,1990                | 1,7031    |
| 40,0               | 18,80          | 16,72     | 1025,1            | 75,87     | 261,00               | 415,40    | 1,2042                | 1,7020    |
| 41,0               | 19,26          | 17,15     | 1019,9            | 78,10     | 262,66               | 415,60    | 1,2093                | 1,7008    |
| 42,0               | 19,72          | 17,59     | 1014,5            | 80,40     | 264,34               | 415,77    | 1,2145                | 1,6996    |
| 43,0               | 20,19          | 18,04     | 1009,1            | 82,77     | 266,02               | 415,94    | 1,2197                | 1,6983    |
| 44,0               | 20,67          | 18,50     | 1003,6            | 85,22     | 267,72               | 416,09    | 1,2249                | 1,6971    |
| 45,0               | 21,16          | 18,97     | 998,08            | 87,74     | 269,42               | 416,23    | 1,2301                | 1,6958    |
| 46,0               | 21,66          | 19,45     | 992,43            | 90,33     | 271,14               | 416,35    | 1,2354                | 1,6945    |
| 47,0               | 22,16          | 19,93     | 986,69            | 93,01     | 272,87               | 416,46    | 1,2406                | 1,6932    |
| 48,0               | 22,68          | 20,43     | 980,86            | 95,78     | 274,61               | 416,55    | 1,2459                | 1,6918    |
| 49,0               | 23,20          | 20,93     | 974,94            | 98,63     | 276,36               | 416,62    | 1,2512                | 1,6905    |
| 50,0               | 23,73          | 21,45     | 968,91            | 101,6     | 278,13               | 416,68    | 1,2565                | 1,6890    |
| 51,0               | 24,27          | 21,97     | 962,77            | 104,6     | 279,91               | 416,71    | 1,2618                | 1,6876    |
| 52,0               | 24,82          | 22,51     | 956,53            | 107,8     | 281,70               | 416,73    | 1,2671                | 1,6861    |
| 53,0               | 25,38          | 23,05     | 950,16            | 111,0     | 283,51               | 416,73    | 1,2725                | 1,6846    |
| 54,0               | 25,94          | 23,61     | 943,67            | 114,4     | 285,34               | 416,70    | 1,2779                | 1,6830    |
| 55,0               | 26,52          | 24,17     | 937,04            | 117,9     | 287,18               | 416,66    | 1,2834                | 1,6813    |
| 56,0               | 27,10          | 24,75     | 930,27            | 121,5     | 289,04               | 416,59    | 1,2888                | 1,6797    |
| 57,0               | 27,70          | 25,34     | 923,35            | 125,3     | 290,92               | 416,49    | 1,2943                | 1,6779    |
| 58,0               | 28,30          | 25,93     | 916,27            | 129,2     | 292,82               | 416,37    | 1,2999                | 1,6761    |
| 59,0               | 28,92          | 26,54     | 909,02            | 133,3     | 294,73               | 416,22    | 1,3055                | 1,6743    |
| 60,0               | 29,54          | 27,17     | 901,58            | 137,5     | 296,68               | 416,04    | 1,3111                | 1,6724    |

## Dampfdrucktabelle

Seite 4 von 4

| Temperatur<br>[°C] | Druck<br>[bar] |           | Dichte<br>[kg/m³] |           | Enthalpie<br>[kJ/kg] |           | Entropie<br>[kJ/kg*K] |           |
|--------------------|----------------|-----------|-------------------|-----------|----------------------|-----------|-----------------------|-----------|
|                    | flüssig        | gasförmig | flüssig           | gasförmig | flüssig              | gasförmig | flüssig               | gasförmig |
| 61,0               | 30,18          | 27,80     | 893,94            | 141,9     | 298,64               | 415,82    | 1,3168                | 1,6704    |
| 62,0               | 30,82          | 28,44     | 886,09            | 146,5     | 300,63               | 415,57    | 1,3225                | 1,6683    |
| 63,0               | 31,47          | 29,10     | 878,00            | 151,3     | 302,65               | 415,29    | 1,3283                | 1,6661    |
| 64,0               | 32,14          | 29,77     | 869,66            | 156,3     | 304,70               | 414,96    | 1,3342                | 1,6638    |
| 65,0               | 32,81          | 30,46     | 861,05            | 161,6     | 306,78               | 414,59    | 1,3401                | 1,6615    |
| 66,0               | 33,50          | 31,15     | 852,13            | 167,1     | 308,90               | 414,17    | 1,3461                | 1,6590    |
| 67,0               | 34,19          | 31,86     | 842,87            | 172,9     | 311,06               | 413,70    | 1,3522                | 1,6564    |
| 68,0               | 34,90          | 32,59     | 833,25            | 179,1     | 313,26               | 413,18    | 1,3584                | 1,6536    |
| 69,0               | 35,61          | 33,33     | 823,20            | 185,6     | 315,51               | 412,59    | 1,3648                | 1,6507    |
| 70,0               | 36,34          | 34,08     | 812,69            | 192,5     | 317,81               | 411,93    | 1,3712                | 1,6476    |
| 71,0               | 37,07          | 34,85     | 801,64            | 199,8     | 320,17               | 411,19    | 1,3778                | 1,6443    |
| 72,0               | 37,82          | 35,64     | 789,98            | 207,7     | 322,61               | 410,36    | 1,3846                | 1,6408    |
| 73,0               | 38,58          | 36,45     | 777,61            | 216,2     | 325,12               | 409,43    | 1,3916                | 1,6370    |
| 74,0               | 39,34          | 37,27     | 764,39            | 225,3     | 327,74               | 408,37    | 1,3989                | 1,6329    |
| 75,0               | 40,12          | 38,11     | 750,17            | 235,3     | 330,47               | 407,18    | 1,4064                | 1,6284    |
| 76,0               | 40,91          | 38,97     | 734,70            | 246,3     | 333,34               | 405,81    | 1,4144                | 1,6234    |
| 77,0               | 41,70          | 39,86     | 717,65            | 258,5     | 336,39               | 404,23    | 1,4228                | 1,6179    |
| 78,0               | 42,50          | 40,77     | 698,51            | 272,4     | 339,68               | 402,38    | 1,4319                | 1,6117    |
| 79,0               | 43,31          | 41,70     | 676,45            | 288,5     | 343,32               | 400,15    | 1,4419                | 1,6044    |
| 80,0               | 44,11          | 42,68     | 649,91            | 307,9     | 347,48               | 397,39    | 1,4533                | 1,5956    |
| 81,0               | 44,90          | 43,70     | 615,43            | 332,9     | 352,59               | 393,72    | 1,4674                | 1,5843    |
| 82,0               | 45,64          | 44,80     | 561,99            | 370,4     | 360,10               | 388,05    | 1,4882                | 1,5675    |

Berechnet mit Refprop Version 10.0

Eine Garantie, Gewährleistung oder Haftung für die Richtigkeit, Vollständigkeit und Aktualität der zur Verfügung gestellten Inhalte und Informationen kann nicht übernommen werden.

Überarbeitet 03.01.2020

TEGA – Technische Gase und Gasetechnik GmbH  
Werner-von-Siemens-Straße 18  
97076 Würzburg | Germany  
www.tega.de

Telefon +49 931 2093-0  
Telefax +49 931 2093-101  
Email: info@tega.de

Geschäftsführer: Dr. Jürgen Zöller  
Sitz: Würzburg - Registergericht: Würzburg, HRB 21  
USt-IdNr.: DE 811145437

Deutsche Bank Würzburg

IBAN: DE707907001600202804 00  
BIC: DEUTDEMM790

a **DCC** business