

| 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 |
| -20,0              | 0,452          | 621,73            | 1,278     | 154,60               | 556,98    | 0,8278                | 2,4173    |
| -19,0              | 0,473          | 620,70            | 1,333     | 156,83               | 558,39    | 0,8366                | 2,4166    |
| -18,0              | 0,494          | 619,67            | 1,389     | 159,06               | 559,79    | 0,8453                | 2,4159    |
| -17,0              | 0,517          | 618,64            | 1,447     | 161,30               | 561,20    | 0,8541                | 2,4153    |
| -16,0              | 0,540          | 617,61            | 1,507     | 163,54               | 562,61    | 0,8628                | 2,4147    |
| -15,0              | 0,563          | 616,57            | 1,568     | 165,79               | 564,02    | 0,8715                | 2,4141    |
| -14,0              | 0,588          | 615,53            | 1,632     | 168,04               | 565,43    | 0,8802                | 2,4136    |
| -13,0              | 0,614          | 614,49            | 1,698     | 170,29               | 566,84    | 0,8888                | 2,4131    |
| -12,0              | 0,640          | 613,45            | 1,766     | 172,55               | 568,25    | 0,8975                | 2,4127    |
| -11,0              | 0,667          | 612,40            | 1,836     | 174,81               | 569,66    | 0,9061                | 2,4123    |
| -10,0              | 0,696          | 611,35            | 1,908     | 177,08               | 571,08    | 0,9147                | 2,4120    |
| -9,0               | 0,725          | 610,30            | 1,982     | 179,35               | 572,49    | 0,9233                | 2,4117    |
| -8,0               | 0,755          | 609,25            | 2,059     | 181,63               | 573,91    | 0,9319                | 2,4114    |
| -7,0               | 0,786          | 608,19            | 2,137     | 183,91               | 575,33    | 0,9405                | 2,4111    |
| -6,0               | 0,818          | 607,14            | 2,219     | 186,19               | 576,75    | 0,9490                | 2,4109    |
| -5,0               | 0,851          | 606,08            | 2,302     | 188,48               | 578,17    | 0,9576                | 2,4108    |
| -4,0               | 0,885          | 605,01            | 2,388     | 190,78               | 579,59    | 0,9661                | 2,4107    |
| -3,0               | 0,920          | 603,95            | 2,476     | 193,08               | 581,01    | 0,9746                | 2,4106    |
| -2,0               | 0,956          | 602,88            | 2,567     | 195,38               | 582,43    | 0,9831                | 2,4105    |
| -1,0               | 0,994          | 601,81            | 2,661     | 197,69               | 583,85    | 0,9915                | 2,4105    |
| 0,0                | 1,032          | 600,73            | 2,757     | 200,00               | 585,27    | 1,0000                | 2,4105    |
| 1,0                | 1,072          | 599,65            | 2,856     | 202,32               | 586,70    | 1,0084                | 2,4105    |
| 2,0                | 1,113          | 598,57            | 2,957     | 204,64               | 588,12    | 1,0169                | 2,4106    |
| 3,0                | 1,155          | 597,49            | 3,061     | 206,97               | 589,54    | 1,0253                | 2,4107    |
| 4,0                | 1,198          | 596,41            | 3,168     | 209,30               | 590,97    | 1,0337                | 2,4108    |
| 5,0                | 1,243          | 595,32            | 3,278     | 211,64               | 592,39    | 1,0421                | 2,4110    |
| 6,0                | 1,288          | 594,22            | 3,391     | 213,98               | 593,82    | 1,0505                | 2,4112    |
| 7,0                | 1,335          | 593,13            | 3,507     | 216,32               | 595,25    | 1,0588                | 2,4114    |
| 8,0                | 1,384          | 592,03            | 3,626     | 218,68               | 596,67    | 1,0672                | 2,4116    |
| 9,0                | 1,433          | 590,93            | 3,748     | 221,03               | 598,10    | 1,0755                | 2,4119    |
| 10,0               | 1,485          | 589,83            | 3,873     | 223,40               | 599,53    | 1,0838                | 2,4122    |
| 11,0               | 1,537          | 588,72            | 4,002     | 225,76               | 600,95    | 1,0922                | 2,4126    |
| 12,0               | 1,591          | 587,61            | 4,134     | 228,13               | 602,38    | 1,1005                | 2,4129    |
| 13,0               | 1,646          | 586,49            | 4,269     | 230,51               | 603,81    | 1,1087                | 2,4133    |
| 14,0               | 1,703          | 585,37            | 4,407     | 232,89               | 605,24    | 1,1170                | 2,4137    |
| 15,0               | 1,762          | 584,25            | 4,549     | 235,28               | 606,66    | 1,1253                | 2,4141    |
| 16,0               | 1,821          | 583,13            | 4,694     | 237,68               | 608,09    | 1,1335                | 2,4146    |
| 17,0               | 1,883          | 582,00            | 4,843     | 240,07               | 609,52    | 1,1418                | 2,4151    |
| 18,0               | 1,946          | 580,87            | 4,996     | 242,48               | 610,95    | 1,1500                | 2,4156    |
| 19,0               | 2,010          | 579,73            | 5,152     | 244,89               | 612,38    | 1,1582                | 2,4161    |
| 20,0               | 2,077          | 578,59            | 5,313     | 247,30               | 613,80    | 1,1665                | 2,4167    |

| 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 |
| 21,0               | 2,144          | 577,45            | 5,477     | 249,72               | 615,23    | 1,1747                | 2,4173    |
| 22,0               | 2,214          | 576,30            | 5,644     | 252,15               | 616,66    | 1,1829                | 2,4179    |
| 23,0               | 2,285          | 575,15            | 5,816     | 254,58               | 618,08    | 1,1910                | 2,4185    |
| 24,0               | 2,358          | 573,99            | 5,992     | 257,02               | 619,51    | 1,1992                | 2,4191    |
| 25,0               | 2,433          | 572,83            | 6,172     | 259,46               | 620,94    | 1,2074                | 2,4198    |
| 26,0               | 2,510          | 571,67            | 6,357     | 261,91               | 622,36    | 1,2155                | 2,4205    |
| 27,0               | 2,588          | 570,50            | 6,545     | 264,36               | 623,79    | 1,2237                | 2,4212    |
| 28,0               | 2,668          | 569,33            | 6,738     | 266,82               | 625,21    | 1,2318                | 2,4219    |
| 29,0               | 2,750          | 568,16            | 6,935     | 269,29               | 626,64    | 1,2399                | 2,4226    |
| 30,0               | 2,834          | 566,98            | 7,137     | 271,76               | 628,06    | 1,2481                | 2,4234    |
| 31,0               | 2,920          | 565,79            | 7,343     | 274,24               | 629,49    | 1,2562                | 2,4242    |
| 32,0               | 3,008          | 564,60            | 7,554     | 276,72               | 630,91    | 1,2643                | 2,4250    |
| 33,0               | 3,098          | 563,41            | 7,769     | 279,21               | 632,33    | 1,2724                | 2,4258    |
| 34,0               | 3,190          | 562,21            | 7,990     | 281,71               | 633,75    | 1,2805                | 2,4266    |
| 35,0               | 3,284          | 561,01            | 8,215     | 284,21               | 635,17    | 1,2885                | 2,4274    |
| 36,0               | 3,380          | 559,80            | 8,445     | 286,72               | 636,59    | 1,2966                | 2,4283    |
| 37,0               | 3,478          | 558,59            | 8,681     | 289,24               | 638,01    | 1,3047                | 2,4292    |
| 38,0               | 3,578          | 557,37            | 8,921     | 291,76               | 639,42    | 1,3127                | 2,4301    |
| 39,0               | 3,680          | 556,15            | 9,167     | 294,28               | 640,84    | 1,3208                | 2,4310    |
| 40,0               | 3,785          | 554,92            | 9,418     | 296,82               | 642,25    | 1,3288                | 2,4319    |
| 41,0               | 3,892          | 553,68            | 9,674     | 299,36               | 643,67    | 1,3369                | 2,4329    |
| 42,0               | 4,001          | 552,45            | 9,936     | 301,90               | 645,08    | 1,3449                | 2,4338    |
| 43,0               | 4,112          | 551,20            | 10,20     | 304,46               | 646,49    | 1,3529                | 2,4348    |
| 44,0               | 4,226          | 549,95            | 10,48     | 307,02               | 647,90    | 1,3609                | 2,4358    |
| 45,0               | 4,342          | 548,70            | 10,76     | 309,58               | 649,31    | 1,3689                | 2,4367    |
| 46,0               | 4,460          | 547,44            | 11,04     | 312,15               | 650,71    | 1,3769                | 2,4378    |
| 47,0               | 4,581          | 546,17            | 11,33     | 314,73               | 652,12    | 1,3849                | 2,4388    |
| 48,0               | 4,704          | 544,90            | 11,63     | 317,32               | 653,52    | 1,3929                | 2,4398    |
| 49,0               | 4,829          | 543,62            | 11,93     | 319,91               | 654,92    | 1,4009                | 2,4408    |
| 50,0               | 4,958          | 542,34            | 12,24     | 322,51               | 656,32    | 1,4089                | 2,4419    |
| 51,0               | 5,088          | 541,05            | 12,56     | 325,12               | 657,72    | 1,4169                | 2,4429    |
| 52,0               | 5,221          | 539,75            | 12,88     | 327,74               | 659,11    | 1,4249                | 2,4440    |
| 53,0               | 5,357          | 538,45            | 13,21     | 330,36               | 660,50    | 1,4328                | 2,4451    |
| 54,0               | 5,496          | 537,14            | 13,54     | 332,98               | 661,89    | 1,4408                | 2,4462    |
| 55,0               | 5,637          | 535,83            | 13,89     | 335,62               | 663,28    | 1,4488                | 2,4473    |
| 56,0               | 5,780          | 534,50            | 14,24     | 338,26               | 664,67    | 1,4567                | 2,4484    |
| 57,0               | 5,927          | 533,18            | 14,59     | 340,91               | 666,05    | 1,4647                | 2,4495    |
| 58,0               | 6,076          | 531,84            | 14,96     | 343,57               | 667,43    | 1,4726                | 2,4506    |
| 59,0               | 6,228          | 530,50            | 15,33     | 346,24               | 668,81    | 1,4806                | 2,4518    |
| 60,0               | 6,382          | 529,15            | 15,71     | 348,91               | 670,19    | 1,4885                | 2,4529    |

| 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 |
| 61,0               | 6,540          | 527,79            | 16,10     | 351,59               | 671,56    | 1,4965                | 2,4540    |
| 62,0               | 6,700          | 526,42            | 16,49     | 354,28               | 672,93    | 1,5044                | 2,4552    |
| 63,0               | 6,864          | 525,05            | 16,89     | 356,97               | 674,30    | 1,5124                | 2,4564    |
| 64,0               | 7,030          | 523,67            | 17,31     | 359,67               | 675,66    | 1,5203                | 2,4575    |
| 65,0               | 7,199          | 522,28            | 17,72     | 362,39               | 677,02    | 1,5282                | 2,4587    |
| 66,0               | 7,371          | 520,89            | 18,15     | 365,11               | 678,38    | 1,5362                | 2,4599    |
| 67,0               | 7,547          | 519,48            | 18,59     | 367,83               | 679,73    | 1,5441                | 2,4610    |
| 68,0               | 7,725          | 518,07            | 19,03     | 370,57               | 681,08    | 1,5520                | 2,4622    |
| 69,0               | 7,906          | 516,65            | 19,49     | 373,31               | 682,43    | 1,5600                | 2,4634    |
| 70,0               | 8,091          | 515,22            | 19,95     | 376,06               | 683,77    | 1,5679                | 2,4646    |
| 71,0               | 8,279          | 513,78            | 20,42     | 378,82               | 685,11    | 1,5758                | 2,4658    |
| 72,0               | 8,469          | 512,33            | 20,91     | 381,59               | 686,44    | 1,5837                | 2,4670    |
| 73,0               | 8,664          | 510,88            | 21,40     | 384,37               | 687,77    | 1,5917                | 2,4682    |
| 74,0               | 8,861          | 509,41            | 21,90     | 387,16               | 689,09    | 1,5996                | 2,4693    |
| 75,0               | 9,062          | 507,93            | 22,41     | 389,95               | 690,41    | 1,6075                | 2,4705    |
| 76,0               | 9,266          | 506,45            | 22,94     | 392,75               | 691,73    | 1,6154                | 2,4717    |
| 77,0               | 9,473          | 504,95            | 23,47     | 395,57               | 693,04    | 1,6234                | 2,4729    |
| 78,0               | 9,684          | 503,45            | 24,01     | 398,39               | 694,35    | 1,6313                | 2,4741    |
| 79,0               | 9,898          | 501,93            | 24,57     | 401,22               | 695,65    | 1,6392                | 2,4753    |
| 80,0               | 10,12          | 500,40            | 25,14     | 404,06               | 696,94    | 1,6471                | 2,4765    |
| 81,0               | 10,34          | 498,86            | 25,72     | 406,91               | 698,23    | 1,6551                | 2,4777    |
| 82,0               | 10,56          | 497,31            | 26,31     | 409,77               | 699,51    | 1,6630                | 2,4788    |
| 83,0               | 10,79          | 495,75            | 26,91     | 412,64               | 700,79    | 1,6710                | 2,4800    |
| 84,0               | 11,02          | 494,18            | 27,52     | 415,52               | 702,06    | 1,6789                | 2,4812    |
| 85,0               | 11,26          | 492,59            | 28,15     | 418,40               | 703,32    | 1,6868                | 2,4824    |
| 86,0               | 11,50          | 490,99            | 28,79     | 421,30               | 704,58    | 1,6948                | 2,4835    |
| 87,0               | 11,74          | 489,38            | 29,45     | 424,21               | 705,83    | 1,7027                | 2,4847    |
| 88,0               | 11,99          | 487,76            | 30,12     | 427,13               | 707,07    | 1,7107                | 2,4858    |
| 89,0               | 12,24          | 486,12            | 30,80     | 430,06               | 708,30    | 1,7186                | 2,4869    |
| 90,0               | 12,49          | 484,47            | 31,49     | 433,00               | 709,53    | 1,7266                | 2,4881    |
| 91,0               | 12,75          | 482,81            | 32,21     | 435,95               | 710,75    | 1,7346                | 2,4892    |
| 92,0               | 13,01          | 481,13            | 32,93     | 438,91               | 711,96    | 1,7425                | 2,4903    |
| 93,0               | 13,28          | 479,43            | 33,68     | 441,89               | 713,16    | 1,7505                | 2,4914    |
| 94,0               | 13,55          | 477,72            | 34,43     | 444,87               | 714,35    | 1,7585                | 2,4925    |
| 95,0               | 13,83          | 476,00            | 35,21     | 447,87               | 715,53    | 1,7665                | 2,4936    |
| 96,0               | 14,10          | 474,26            | 36,00     | 450,88               | 716,70    | 1,7745                | 2,4946    |
| 97,0               | 14,39          | 472,50            | 36,81     | 453,89               | 717,87    | 1,7825                | 2,4957    |
| 98,0               | 14,67          | 470,72            | 37,64     | 456,93               | 719,02    | 1,7905                | 2,4967    |
| 99,0               | 14,96          | 468,93            | 38,49     | 459,97               | 720,16    | 1,7986                | 2,4977    |
| 100,0              | 15,26          | 467,12            | 39,35     | 463,03               | 721,29    | 1,8066                | 2,4987    |

| Temperatur<br>[°C] | Druck<br>[bar] | Dichte<br>[kg/m³] |           | Enthalpie<br>[kJ/kg] |           | Entropie<br>[J/kg*K] |           |
|--------------------|----------------|-------------------|-----------|----------------------|-----------|----------------------|-----------|
|                    |                | flüssig           | gasförmig | flüssig              | gasförmig | flüssig              | gasförmig |
| 101,0              | 15,56          | 465,29            | 40,24     | 466,10               | 722,41    | 1,8146               | 2,4997    |
| 102,0              | 15,86          | 463,44            | 41,14     | 469,18               | 723,51    | 1,8227               | 2,5006    |
| 103,0              | 16,17          | 461,57            | 42,07     | 472,28               | 724,61    | 1,8308               | 2,5016    |
| 104,0              | 16,48          | 459,68            | 43,02     | 475,39               | 725,69    | 1,8388               | 2,5025    |
| 105,0              | 16,80          | 457,77            | 43,99     | 478,51               | 726,75    | 1,8469               | 2,5034    |
| 106,0              | 17,12          | 455,84            | 44,99     | 481,65               | 727,81    | 1,8550               | 2,5042    |
| 107,0              | 17,45          | 453,88            | 46,01     | 484,80               | 728,84    | 1,8631               | 2,5051    |
| 108,0              | 17,78          | 451,90            | 47,05     | 487,97               | 729,87    | 1,8713               | 2,5059    |
| 109,0              | 18,12          | 449,89            | 48,12     | 491,16               | 730,87    | 1,8794               | 2,5067    |
| 110,0              | 18,46          | 447,86            | 49,22     | 494,36               | 731,86    | 1,8876               | 2,5075    |
| 111,0              | 18,80          | 445,81            | 50,34     | 497,57               | 732,84    | 1,8958               | 2,5082    |
| 112,0              | 19,15          | 443,72            | 51,50     | 500,81               | 733,79    | 1,9040               | 2,5089    |
| 113,0              | 19,51          | 441,61            | 52,68     | 504,06               | 734,73    | 1,9122               | 2,5096    |
| 114,0              | 19,87          | 439,46            | 53,90     | 507,32               | 735,65    | 1,9204               | 2,5102    |
| 115,0              | 20,23          | 437,29            | 55,14     | 510,61               | 736,54    | 1,9287               | 2,5108    |
| 116,0              | 20,60          | 435,08            | 56,43     | 513,92               | 737,42    | 1,9370               | 2,5113    |
| 117,0              | 20,98          | 432,83            | 57,75     | 517,24               | 738,27    | 1,9453               | 2,5118    |
| 118,0              | 21,36          | 430,55            | 59,10     | 520,59               | 739,10    | 1,9536               | 2,5123    |
| 119,0              | 21,74          | 428,24            | 60,50     | 523,95               | 739,91    | 1,9620               | 2,5127    |
| 120,0              | 22,13          | 425,88            | 61,94     | 527,34               | 740,69    | 1,9704               | 2,5130    |
| 121,0              | 22,53          | 423,48            | 63,42     | 530,75               | 741,44    | 1,9788               | 2,5134    |
| 122,0              | 22,93          | 421,04            | 64,94     | 534,19               | 742,16    | 1,9873               | 2,5136    |
| 123,0              | 23,34          | 418,55            | 66,52     | 537,65               | 742,86    | 1,9958               | 2,5138    |
| 124,0              | 23,75          | 416,01            | 68,14     | 541,13               | 743,52    | 2,0043               | 2,5139    |
| 125,0              | 24,17          | 413,42            | 69,82     | 544,65               | 744,15    | 2,0129               | 2,5140    |
| 126,0              | 24,59          | 410,78            | 71,55     | 548,19               | 744,74    | 2,0215               | 2,5139    |
| 127,0              | 25,02          | 408,07            | 73,35     | 551,76               | 745,29    | 2,0302               | 2,5138    |
| 128,0              | 25,46          | 405,30            | 75,21     | 555,37               | 745,80    | 2,0389               | 2,5137    |
| 129,0              | 25,90          | 402,47            | 77,14     | 559,00               | 746,27    | 2,0477               | 2,5134    |
| 130,0              | 26,34          | 399,56            | 79,14     | 562,68               | 746,70    | 2,0566               | 2,5130    |
| 131,0              | 26,80          | 396,57            | 81,23     | 566,39               | 747,07    | 2,0655               | 2,5125    |
| 132,0              | 27,26          | 393,50            | 83,39     | 570,15               | 747,39    | 2,0745               | 2,5119    |
| 133,0              | 27,72          | 390,34            | 85,65     | 573,94               | 747,64    | 2,0835               | 2,5112    |
| 134,0              | 28,20          | 387,07            | 88,01     | 577,79               | 747,84    | 2,0927               | 2,5104    |
| 135,0              | 28,67          | 383,70            | 90,48     | 581,69               | 747,97    | 2,1020               | 2,5094    |
| 136,0              | 29,16          | 380,20            | 93,07     | 585,65               | 748,02    | 2,1113               | 2,5082    |
| 137,0              | 29,65          | 376,57            | 95,79     | 589,66               | 747,99    | 2,1208               | 2,5068    |
| 138,0              | 30,15          | 372,80            | 98,65     | 593,75               | 747,86    | 2,1305               | 2,5053    |
| 139,0              | 30,66          | 368,85            | 101,7     | 597,92               | 747,64    | 2,1402               | 2,5035    |
| 140,0              | 31,17          | 364,71            | 104,9     | 602,17               | 747,29    | 2,1502               | 2,5015    |

## Dampfdrucktabelle

Seite 5 von 5

| 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 |
| 141,0              | 31,69          | 360,35            | 108,3     | 606,53               | 746,82    | 2,1604                | 2,4991    |
| 142,0              | 32,22          | 355,75            | 112,0     | 610,99               | 746,19    | 2,1708                | 2,4965    |
| 143,0              | 32,76          | 350,84            | 115,9     | 615,60               | 745,39    | 2,1815                | 2,4934    |
| 144,0              | 33,30          | 345,57            | 120,2     | 620,36               | 744,38    | 2,1926                | 2,4899    |
| 145,0              | 33,85          | 339,87            | 124,9     | 625,32               | 743,11    | 2,2041                | 2,4858    |
| 146,0              | 34,41          | 333,63            | 130,1     | 630,52               | 741,53    | 2,2161                | 2,4809    |
| 147,0              | 34,98          | 326,67            | 135,9     | 636,04               | 739,55    | 2,2288                | 2,4752    |
| 148,0              | 35,56          | 318,74            | 142,7     | 642,00               | 737,01    | 2,2426                | 2,4682    |
| 149,0              | 36,15          | 309,38            | 150,7     | 648,60               | 733,67    | 2,2578                | 2,4593    |
| 150,0              | 36,75          | 297,67            | 161,0     | 656,27               | 729,00    | 2,2755                | 2,4474    |
| 151,0              | 37,35          | 280,96            | 176,0     | 666,23               | 721,52    | 2,2985                | 2,4288    |

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.

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