**Лабораторная работа 2 по Цифровому моделированию физико-химических систем**

Задание 1. Разработать ML-модель для предсказания физико-химического свойства. Число параметров в модели определить из правила. Построить графики зависимости Свойства от Температуры [K] для различных значений P=const [бар], на графиках отметить точками экспериментальные значения из БД, линиями – результаты предсказания модели. Предсказать свойство для указанных значений давления и температуры и отметить на тех же графиках цветными точками. Модель сдается в виде кода и сохраняется в файле .keras.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Вариант | Вещество | Свойство | Tпредсказ, K | Pпредсказ, бар |
| 1 | Бутан (газ) | Плотность, кг/м3 | 230 | 1 |
| 2 | Бутан (газ) | Динамическая вязкость, мкПа\*с | 430 | 1 |
| 3 | Бутан (жидкость) | Динамическая вязкость, мкПа\*с | 230 | 1 |
| 4 | Бутан (газ) | Кинематическая вязкость, сантистокс | 430 | 1 |
| 5 | Бутан (жидкость) | Кинематическая вязкость, сантистокс | 230 | 1 |
| 6 | Бутан (газ) | Изобарная теплоемкость, кДж/моль/К | 430 | 1 |
| 7 | Бутан (жидкость) | Изобарная теплоемкость, кДж/моль/К | 230 | 1 |
| 8 | Бутан (газ) | Теплопроводность, мВт/м/К | 430 | 1 |
| 9 | Бутан (жидкость) | Теплопроводность, мВт/м/К | 230 | 1 |
| 10 | Бензол (газ) | Плотность, кг/м3 | 530 | 10 |
| 11 | Бензол (жидкость) | Плотность, кг/м3 | 430 | 10 |
| 12 | Ацетон (газ) | Плотность, кг/м3 | 475 | 1 |
| 13 | Ацетон (жидкость) | Плотность, кг/м3 | 190 | 1 |
| 14 | Воздух (газ) | Плотность, кг/м3 | 293 | 4 |
| 15 | Этанол (газ) | Динамическая вязкость, мкПа\*с | 560 | 10 |
| 16 | Этанол (жидкость) | Динамическая вязкость, мкПа\*с | 360 | 10 |
| 17 | Этанол (газ) | Кинематическая вязкость, сантистокс | 560 | 10 |
| 18 | Этанол (жидкость) | Кинематическая вязкость, сантистокс | 360 | 10 |
| 17 | Этанол (газ) | Плотность, кг/м3 | 560 | 10 |
| 18 | Этанол (жидкость) | Плотность, кг/м3 | 360 | 10 |
| 19 | Диоксид углерода (газ) | Плотность, кг/м3 | 330 | 10 |
| 20 | Этан (газ) | Плотность, кг/м3 | 250 | 1 |
| 21 | Этан (жидкость) | Плотность, кг/м3 | 150 | 1 |
| 22 | Этан (газ) | Динамическая вязкость, мкПа\*с | 250 | 1 |
| 23 | Этан (жидкость) | Динамическая вязкость, мкПа\*с | 150 | 1 |
| 24 | Этан (газ) | Кинематическая вязкость, сантистокс | 250 | 1 |
| 25 | Этан (жидкость) | Кинематическая вязкость, сантистокс | 150 | 1 |
| 26 | Метанол (газ) | Плотность, кг/м3 | 424 | 10 |
| 27 | Метанол (жидкость) | Плотность, кг/м3 | 312 | 10 |
| 28 | Бутан (газ) | Плотность, кг/м3 | 365 | 1 |
| 29 | Бутан (жидкость) | Плотность, кг/м3 | 273 | 1 |
| 30 | Этилен (газ) | Плотность, кг/м3 | 350 | 10 |
| 31 | Этилен (жидкость) | Плотность, кг/м3 | 200 | 10 |
| 32 | Этилен (газ) | Динамическая вязкость, мкПа\*с | 350 | 10 |
| 33 | Этилен (жидкость) | Динамическая вязкость, мкПа\*с | 200 | 10 |
| 34 | Этилен (газ) | Кинематическая вязкость, сантистокс | 350 | 10 |
| 35 | Этилен (жидкость) | Кинематическая вязкость, сантистокс | 200 | 10 |
| 36 | Этилен (газ) | Теплопроводность, мВт/м/К | 350 | 10 |
| 37 | Этилен (жидкость) | Теплопроводность, мВт/м/К | 200 | 10 |
| 38 | Аммиак (газ) | Изобарная теплоемкость, кДж/моль/К | 320 | 1 |
| 39 | Аммиак (жидкость) | Изобарная теплоемкость, кДж/моль/К | 220 | 1 |
| 40 | Аммиак (газ) | Теплопроводность, мВт/м/К | 320 | 1 |
| 41 | Аммиак (жидкость) | Теплопроводность, мВт/м/К | 220 | 1 |
| 42 | Кислород (газ) | Плотность, кг/м3 | 170 | 10 |
| 43 | Кислород (жидкость) | Плотность, кг/м3 | 70 | 10 |
| 44 | Кислород (газ) | Динамическая вязкость, мкПа\*с | 170 | 10 |
| 45 | Кислород (жидкость) | Динамическая вязкость, мкПа\*с | 70 | 10 |
| 46 | Кислород (газ) | Кинематическая вязкость, сантистокс | 170 | 10 |
| 47 | Кислород (жидкость) | Кинематическая вязкость, сантистокс | 70 | 10 |
| 48 | Азот (газ) | Плотность, кг/м3 | 450 | 30 |
| 49 | Пропан (газ) | Плотность, кг/м3 | 330 | 1 |
| 50 | Пропан (жидкость) | Плотность, кг/м3 | 190 | 1 |
| 51 | Пропан (газ) | Динамическая вязкость, мкПа\*с | 330 | 1 |
| 52 | Пропан (жидкость) | Динамическая вязкость, мкПа\*с | 190 | 1 |
| 53 | Пропан (газ) | Кинематическая вязкость, сантистокс | 330 | 1 |
| 54 | Пропан (жидкость) | Кинематическая вязкость, сантистокс | 190 | 1 |
| 55 | Пропан (газ) | Теплопроводность, мВт/м/К | 330 | 1 |
| 56 | Пропан (жидкость) | Теплопроводность, мВт/м/К | 190 | 1 |

Бутан - плотность

| **State** | **Temperature** | | | **Pressure** | | **Density** | | | | **Specific weight** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[bara]** | **[psia]** | **[mol/dm 3]** | **[g/l], [kg/m 3]** | **[lb m/ft 3]** | **[sl/ft 3]** | **[N/m 3]** | **[lb f/ft 3]** |
| Liquid at  equilibrium | 134.9 | -138.25 | -216.85 | 6.7E-06 | 9.7E-05 | 12.65 | 735.0 | 45.88 | 1.426 | 7208 | 45.88 |
| 150 | -123 | -190 | 8.6E-05 | 1.2E-03 | 12.40 | 720.9 | 45.00 | 1.399 | 7070 | 45.00 |
| 200 | -73 | -100 | 0.0194 | 0.281 | 11.60 | 674.0 | 42.08 | 1.308 | 6610 | 42.08 |
| 220 | -53 | -64 | 0.0781 | 1.13 | 11.27 | 654.8 | 40.88 | 1.271 | 6421 | 40.88 |
| 240 | -33.2 | -28 | 0.241 | 3.49 | 10.93 | 635.1 | 39.65 | 1.232 | 6228 | 39.65 |
| 260 | -13.2 | 8.3 | 0.610 | 8.84 | 10.57 | 614.6 | 38.37 | 1.193 | 6027 | 38.37 |
| 280 | 6.9 | 44.3 | 1.33 | 19.3 | 10.21 | 593.3 | 37.04 | 1.151 | 5818 | 37.04 |
| 300 | 26.9 | 80.3 | 2.58 | 37.4 | 9.819 | 570.7 | 35.63 | 1.107 | 5597 | 35.63 |
| 320 | 46.9 | 116 | 4.56 | 66.2 | 9.401 | 546.4 | 34.11 | 1.060 | 5358 | 34.11 |
| 340 | 66.9 | 152 | 7.52 | 109 | 8.942 | 519.7 | 32.44 | 1.008 | 5097 | 32.44 |
| 360 | 86.9 | 188 | 11.7 | 170 | 8.424 | 489.6 | 30.56 | 0.9500 | 4801 | 30.56 |
| 380 | 106.9 | 224 | 17.4 | 252 | 7.815 | 454.2 | 28.35 | 0.8813 | 4454 | 28.35 |
| 400 | 126.9 | 260 | 25.0 | 362 | 7.028 | 408.5 | 25.50 | 0.7926 | 4006 | 25.50 |
| 420 | 146.9 | 296 | 34.9 | 506 | 5.640 | 327.8 | 20.46 | 0.6360 | 3215 | 20.46 |
| 425.13 | 151.98 | 305.56 | 38.0 | 551 | 3.923 | 228.0 | 14.23 | 0.4424 | 2236 | 14.23 |
| Gas at  equilibrium | 134.9 | -138.25 | -216.85 | 6.7E-06 | 9.7E-05 | 5.94E-07 | 3.45E-05 | 2.15E-06 | 6.69E-08 | 3.4E-04 | 2.2E-06 |
| 150 | -123 | -190 | 8.6E-05 | 1.2E-03 | 6.87E-06 | 4.00E-04 | 2.49E-05 | 7.75E-07 | 3.9E-03 | 2.5E-05 |
| 200 | -73 | -100 | 0.0194 | 0.281 | 0.00117 | 0.06792 | 0.00424 | 1.32E-04 | 0.666 | 4.2E-03 |
| 220 | -53 | -64 | 0.0781 | 1.13 | 0.00429 | 0.2496 | 0.016 | 4.84E-04 | 2.448 | 0.0156 |
| 240 | -33.2 | -28 | 0.241 | 3.49 | 0.01225 | 0.7120 | 0.04445 | 1.38E-03 | 6.982 | 0.0444 |
| 260 | -13.2 | 8.3 | 0.610 | 8.84 | 0.02904 | 1.688 | 0.10538 | 0.00328 | 16.55 | 0.1054 |
| 280 | 6.9 | 44.3 | 1.33 | 19.3 | 0.06005 | 3.490 | 0.2179 | 0.00677 | 34.23 | 0.2179 |
| 300 | 26.9 | 80.3 | 2.58 | 37.4 | 0.1121 | 6.516 | 0.4068 | 0.01264 | 63.90 | 0.4068 |
| 320 | 46.9 | 116 | 4.56 | 66.2 | 0.1942 | 11.29 | 0.7048 | 0.02191 | 110.7 | 0.7048 |
| 340 | 66.9 | 152 | 7.52 | 109 | 0.3186 | 18.52 | 1.156 | 0.03593 | 181.6 | 1.156 |
| 360 | 86.9 | 188 | 11.7 | 170 | 0.5050 | 29.35 | 1.832 | 0.05695 | 287.8 | 1.832 |
| 380 | 107 | 224 | 17.4 | 252 | 0.7889 | 45.85 | 2.862 | 0.08896 | 449.6 | 2.862 |
| 400 | 127 | 260 | 25.0 | 362 | 1.257 | 73.08 | 4.562 | 0.1418 | 716.7 | 4.562 |
| 420 | 147 | 296 | 34.9 | 506 | 2.323 | 135.0 | 8.428 | 0.2619 | 1324 | 8.428 |
| 425.13 | 151.98 | 305.56 | 38.0 | 551 | 3.923 | 228.0 | 14.23 | 0.4424 | 2236 | 14.23 |
|  | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 1 | 14.5 | 12.40 | 720.9 | 45.01 | 1.399 | 7070 | 45.01 |
| 200 | -73.2 | -100 | 1 | 14.5 | 11.60 | 674.0 | 42.08 | 1.308 | 6610 | 42.08 |
| 250 | -23.2 | -9.7 | 1 | 14.5 | 10.75 | 625.0 | 39.02 | 1.213 | 6129 | 39.02 |
| 272.31 | -0.8 | 30.5 | 1 | 14.5 | 10.35 | 601.6 | 37.56 | 1.167 | 5900 | 37.56 |
| Gas | 272.31 | -0.8 | 30.5 | 1 | 14.5 | 0.04605 | 2.676 | 0.1671 | 0.00519 | 26.24 | 0.1671 |
| 300 | 26.9 | 80.3 | 1 | 14.5 | 0.04129 | 2.400 | 0.1498 | 0.00466 | 23.53 | 0.1498 |
| 350 | 76.9 | 170 | 1 | 14.5 | 0.03496 | 2.032 | 0.1269 | 0.00394 | 19.93 | 0.1269 |
| 400 | 127 | 260 | 1 | 14.5 | 0.03040 | 1.767 | 0.1103 | 0.00343 | 17.33 | 0.1103 |
| 450 | 177 | 350 | 1 | 14.5 | 0.02692 | 1.565 | 0.09769 | 0.00304 | 15.35 | 0.0977 |
| 500 | 227 | 440 | 1 | 14.5 | 0.02418 | 1.405 | 0.08772 | 0.00273 | 13.78 | 0.0877 |
| 550 | 277 | 530 | 1 | 14.5 | 0.02195 | 1.275 | 0.07963 | 0.00247 | 12.51 | 0.0796 |
|  | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 10 | 145 | 12.41 | 721.4 | 45.03 | 1.400 | 7074 | 45.03 |
| 200 | -73.2 | -100 | 10 | 145 | 11.61 | 674.7 | 42.12 | 1.309 | 6616 | 42.12 |
| 250 | -23.2 | -9.7 | 10 | 145 | 10.77 | 626.0 | 39.08 | 1.215 | 6139 | 39.08 |
| 300 | 26.9 | 80.3 | 10 | 145 | 9.841 | 572.0 | 35.71 | 1.110 | 5609 | 35.71 |
| 350 | 76.9 | 170 | 10 | 145 | 8.695 | 505.4 | 31.55 | 0.9806 | 4956 | 31.55 |
| 352.62 | 79.5 | 175 | 10 | 145 | 8.623 | 501.2 | 31.29 | 0.9725 | 4915 | 31.29 |
| Gas | 352.62 | 79.5 | 175 | 10 | 145 | 0.4273 | 24.83 | 1.550 | 0.04819 | 243.5 | 1.550 |
| 400 | 127 | 260 | 10 | 145 | 0.3418 | 19.87 | 1.240 | 0.03855 | 194.8 | 1.240 |
| 450 | 177 | 350 | 10 | 145 | 0.2896 | 16.83 | 1.051 | 0.03266 | 165.1 | 1.051 |
| 500 | 227 | 440 | 10 | 145 | 0.2537 | 14.75 | 0.9205 | 0.02861 | 144.6 | 0.9205 |
| 550 | 277 | 530 | 10 | 145 | 0.2268 | 13.18 | 0.8229 | 0.02558 | 129.3 | 0.8229 |
|  | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 50 | 725 | 12.44 | 723.2 | 45.15 | 1.403 | 7092 | 45.15 |
| 200 | -73.2 | -100 | 50 | 725 | 11.65 | 677.3 | 42.28 | 1.314 | 6642 | 42.28 |
| 250 | -23.2 | -9.7 | 50 | 725 | 10.84 | 629.9 | 39.33 | 1.222 | 6177 | 39.33 |
| 300 | 26.9 | 80.3 | 50 | 725 | 9.955 | 578.6 | 36.12 | 1.123 | 5674 | 36.12 |
| 350 | 76.9 | 170 | 50 | 725 | 8.924 | 518.7 | 32.38 | 1.006 | 5086 | 32.38 |
| 400 | 127 | 260 | 50 | 725 | 7.522 | 437.2 | 27.29 | 0.848 | 4287 | 27.29 |
| Supercritical phase | 450 | 177 | 350 | 50 | 725 | 3.121 | 181.4 | 11.32 | 0.352 | 1779 | 11.32 |
| 500 | 227 | 440 | 50 | 725 | 1.705 | 99.10 | 6.187 | 0.1923 | 971.9 | 6.187 |
| 550 | 277 | 530 | 50 | 725 | 1.344 | 78.13 | 4.878 | 0.1516 | 766.2 | 4.878 |
|  | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 100 | 1450 | 12.48 | 725.4 | 45.28 | 1.407 | 7113 | 45.28 |
| 200 | -73.2 | -100 | 100 | 1450 | 11.71 | 680.4 | 42.48 | 1.320 | 6673 | 42.48 |
| 250 | -23.2 | -9.7 | 100 | 1450 | 10.92 | 634.6 | 39.62 | 1.231 | 6224 | 39.62 |
| 300 | 26.9 | 80.3 | 100 | 1450 | 10.08 | 586.0 | 36.58 | 1.137 | 5747 | 36.58 |
| 350 | 76.9 | 170 | 100 | 1450 | 9.148 | 531.7 | 33.19 | 1.032 | 5214 | 33.19 |
| 400 | 127 | 260 | 100 | 1450 | 8.035 | 467.0 | 29.15 | 0.9061 | 4580 | 29.15 |
| 450 | 177 | 350 | 100 | 1450 | 6.568 | 381.7 | 23.83 | 0.7407 | 3744 | 23.83 |
| Supercritical phase | 500 | 227 | 440 | 100 | 1450 | 4.609 | 267.9 | 16.72 | 0.5198 | 2627 | 16.72 |
| 550 | 277 | 530 | 100 | 1450 | 3.234 | 188.0 | 11.73 | 0.3647 | 1843 | 11.73 |
|  | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 300 | 4351 | 12.62 | 733.6 | 45.80 | 1.423 | 7194 | 45.80 |
| 200 | -73.2 | -100 | 300 | 4351 | 11.91 | 691.9 | 43.20 | 1.343 | 6786 | 43.20 |
| 250 | -23.2 | -9.7 | 300 | 4351 | 11.20 | 650.8 | 40.63 | 1.263 | 6382 | 40.63 |
| 300 | 26.9 | 80.3 | 300 | 4351 | 10.48 | 609.3 | 38.04 | 1.182 | 5975 | 38.04 |
| 350 | 76.9 | 170 | 300 | 4351 | 9.755 | 567.0 | 35.39 | 1.100 | 5560 | 35.39 |
| 400 | 127 | 260 | 300 | 4351 | 9.004 | 523.3 | 32.67 | 1.015 | 5132 | 32.67 |
| 450 | 177 | 350 | 300 | 4351 | 8.232 | 478.5 | 29.87 | 0.9284 | 4692 | 29.87 |
| Supercritical phase | 500 | 227 | 440 | 300 | 4351 | 7.456 | 433.4 | 27.05 | 0.8409 | 4250 | 27.05 |
| 550 | 277 | 530 | 300 | 4351 | 6.704 | 389.6 | 24.32 | 0.7560 | 3821 | 24.32 |
|  | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 650 | 9427 | 12.84 | 746.5 | 46.60 | 1.449 | 7321 | 46.60 |
| 200 | -73.2 | -100 | 650 | 9427 | 12.20 | 708.9 | 44.25 | 1.375 | 6952 | 44.25 |
| 250 | -23.2 | -9.7 | 650 | 9427 | 11.58 | 672.8 | 42.00 | 1.306 | 6598 | 42.00 |
| 300 | 26.9 | 80.3 | 650 | 9427 | 10.98 | 638.1 | 39.84 | 1.238 | 6258 | 39.84 |
| 350 | 76.9 | 170 | 650 | 9427 | 10.40 | 604.4 | 37.73 | 1.173 | 5927 | 37.73 |
| 400 | 127 | 260 | 650 | 9427 | 9.837 | 571.8 | 35.69 | 1.109 | 5607 | 35.69 |
| 450 | 177 | 350 | 650 | 9427 | 9.294 | 540.2 | 33.72 | 1.048 | 5297 | 33.72 |
| Supercritical phase | 500 | 227 | 440 | 650 | 9427 | 8.771 | 509.8 | 31.83 | 0.9892 | 4999 | 31.83 |
| 550 | 277 | 530 | 650 | 9427 | 8.274 | 480.9 | 30.02 | 0.9331 | 4716 | 30.02 |

Бутан - вязкость

| **State** | **Temperature** | | | **Pressure** | | **Dynamic (Absolute) Viscosity** | | | | | **Kinematic Viscosity** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[bara]** | **[psia]** | **[μPa s]** | **[cP]** | **[x10 -6lb fs/ft 2]** | **[x10 -6lb m/ft s]** | **[lb m/ft h]** | **[cSt], [x10 -6m 2/s]** | **[x10 -6ft 2/s]** |
| Liquid at  equilibrium | 134.9 | -138.25 | -216.85 | 6.7E-06 | 9.7E-05 | 2304 | 2.304 | 48.12 | 1548 | 5.574 | 3.13 | 33.7 |
| 150 | -123 | -190 | 8.6E-05 | 1.2E-03 | 1370 | 1.370 | 28.61 | 920.6 | 3.314 | 1.90 | 20.5 |
| 200 | -73 | -100 | 0.0194 | 0.281 | 496.5 | 0.4965 | 10.37 | 333.6 | 1.201 | 0.737 | 7.93 |
| 220 | -53 | -64 | 0.0781 | 1.13 | 373.4 | 0.3734 | 7.799 | 250.9 | 0.9033 | 0.570 | 6.14 |
| 240 | -33.2 | -28 | 0.241 | 3.49 | 290.9 | 0.2909 | 6.076 | 195.5 | 0.7037 | 0.458 | 4.93 |
| 260 | -13.2 | 8.3 | 0.610 | 8.84 | 232.3 | 0.2323 | 4.852 | 156.1 | 0.5620 | 0.378 | 4.07 |
| 280 | 6.9 | 44.3 | 1.33 | 19.3 | 189.0 | 0.1890 | 3.947 | 127.0 | 0.4572 | 0.319 | 3.43 |
| 300 | 26.9 | 80.3 | 2.58 | 37.4 | 155.6 | 0.1556 | 3.250 | 104.6 | 0.3764 | 0.273 | 2.93 |
| 320 | 46.9 | 116 | 4.56 | 66.2 | 129.1 | 0.1291 | 2.696 | 86.75 | 0.3123 | 0.236 | 2.54 |
| 340 | 66.9 | 152 | 7.52 | 109 | 107.2 | 0.1072 | 2.239 | 72.04 | 0.2593 | 0.206 | 2.22 |
| 360 | 86.9 | 188 | 11.7 | 170 | 88.54 | 0.08854 | 1.849 | 59.50 | 0.2142 | 0.181 | 1.95 |
| 380 | 106.9 | 224 | 17.4 | 252 | 71.86 | 0.07186 | 1.501 | 48.29 | 0.1738 | 0.158 | 1.70 |
| 400 | 126.9 | 260 | 25.0 | 362 | 55.96 | 0.05596 | 1.169 | 37.60 | 0.1354 | 0.137 | 1.47 |
| 420 | 146.9 | 296 | 34.9 | 506 | 37.39 | 0.03739 | 0.7809 | 25.12 | 0.09045 | 0.114 | 1.23 |
| 425.13 | 151.98 | 305.56 | 38.0 | 551 | 23.90 | 0.02390 | 0.4992 | 16.06 | 0.05782 | 0.105 | 1.13 |
| Gas at  equilibrium | 134.9 | -138.25 | -216.85 | 6.7E-06 | 9.7E-05 | 3.321 | 0.00332 | 0.06936 | 2.232 | 0.00803 | 96261 | 1036142 |
| 150 | -123 | -190 | 8.6E-05 | 1.2E-03 | 3.709 | 0.00371 | 0.07746 | 2.492 | 0.00897 | 9284 | 99933 |
| 200 | -73 | -100 | 0.0194 | 0.281 | 4.979 | 0.00498 | 0.1040 | 3.346 | 0.01204 | 73.3 | 789 |
| 220 | -53 | -64 | 0.0781 | 1.13 | 5.477 | 0.00548 | 0.1144 | 3.680 | 0.01325 | 21.9 | 236 |
| 240 | -33.2 | -28 | 0.241 | 3.49 | 5.966 | 0.00597 | 0.1246 | 4.009 | 0.01443 | 8.38 | 90.2 |
| 260 | -13.2 | 8.3 | 0.610 | 8.84 | 6.450 | 0.00645 | 0.1347 | 4.334 | 0.01560 | 3.82 | 41.1 |
| 280 | 6.9 | 44.3 | 1.33 | 19.3 | 6.935 | 0.00694 | 0.1448 | 4.660 | 0.01678 | 1.99 | 21.4 |
| 300 | 26.9 | 80.3 | 2.58 | 37.4 | 7.436 | 0.00744 | 0.1553 | 4.997 | 0.01799 | 1.14 | 12.3 |
| 320 | 46.9 | 116 | 4.56 | 66.2 | 7.978 | 0.00798 | 0.1666 | 5.361 | 0.01930 | 0.707 | 7.61 |
| 340 | 66.9 | 152 | 7.52 | 109 | 8.601 | 0.00860 | 0.1796 | 5.780 | 0.02081 | 0.464 | 5.00 |
| 360 | 86.9 | 188 | 11.7 | 170 | 9.369 | 0.00937 | 0.1957 | 6.296 | 0.02266 | 0.319 | 3.44 |
| 380 | 107 | 224 | 17.4 | 252 | 10.41 | 0.01041 | 0.2174 | 6.995 | 0.02518 | 0.227 | 2.44 |
| 400 | 127 | 260 | 25.0 | 362 | 12.03 | 0.01203 | 0.2513 | 8.084 | 0.02910 | 0.165 | 1.77 |
| 420 | 147 | 296 | 34.9 | 506 | 15.96 | 0.01596 | 0.3333 | 10.72 | 0.03861 | 0.118 | 1.27 |
| 425.13 | 151.98 | 305.56 | 38.0 | 551 | 23.90 | 0.02390 | 0.4992 | 16.06 | 0.05782 | 0.105 | 1.13 |
|  | | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 1 | 14.5 | 1371 | 1.371 | 28.63 | 921.2 | 3.316 | 1.90 | 20.5 |
| 200 | -73.2 | -100 | 1 | 14.5 | 496.9 | 0.4969 | 10.38 | 333.9 | 1.202 | 0.737 | 7.94 |
| 250 | -23.2 | -9.7 | 1 | 14.5 | 259.4 | 0.2594 | 5.418 | 174.3 | 0.6276 | 0.415 | 4.47 |
| 272.31 | -0.8 | 30.5 | 1 | 14.5 | 204.2 | 0.2042 | 4.265 | 137.2 | 0.4940 | 0.339 | 3.65 |
| Gas | 272.31 | -0.8 | 30.5 | 1 | 14.5 | 6.748 | 0.00675 | 0.1409 | 4.534 | 0.01632 | 2.521 | 27.14 |
| 300 | 26.9 | 80.3 | 1 | 14.5 | 7.452 | 0.00745 | 0.1556 | 5.008 | 0.01803 | 3.11 | 33.43 |
| 350 | 76.9 | 170 | 1 | 14.5 | 8.691 | 0.00869 | 0.1815 | 5.840 | 0.02102 | 4.28 | 46.03 |
| 400 | 127 | 260 | 1 | 14.5 | 9.899 | 0.00990 | 0.2067 | 6.652 | 0.02395 | 5.60 | 60.30 |
| 450 | 177 | 350 | 1 | 14.5 | 11.08 | 0.01108 | 0.2315 | 7.447 | 0.02681 | 7.08 | 76.23 |
| 500 | 227 | 440 | 1 | 14.5 | 12.25 | 0.01225 | 0.2558 | 8.230 | 0.02963 | 8.72 | 93.82 |
| 550 | 277 | 530 | 1 | 14.5 | 13.40 | 0.01340 | 0.2798 | 9.001 | 0.03240 | 10.502 | 113.04 |
|  | | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 10 | 145 | 1381 | 1.381 | 28.85 | 928.2 | 3.341 | 1.91 | 20.6 |
| 200 | -73.2 | -100 | 10 | 145 | 500.6 | 0.5006 | 10.45 | 336.4 | 1.211 | 0.742 | 7.99 |
| 250 | -23.2 | -9.7 | 10 | 145 | 261.8 | 0.2618 | 5.468 | 175.9 | 0.6333 | 0.418 | 4.50 |
| 300 | 26.9 | 80.3 | 10 | 145 | 157.3 | 0.1573 | 3.285 | 105.7 | 0.3805 | 0.275 | 2.96 |
| 350 | 76.9 | 170 | 10 | 145 | 97.70 | 0.09770 | 2.040 | 65.65 | 0.2363 | 0.193 | 2.08 |
| 352.62 | 79.5 | 175 | 10 | 145 | 95.14 | 0.09514 | 1.987 | 63.93 | 0.2301 | 0.190 | 2.04 |
| Gas | 352.62 | 79.5 | 175 | 10 | 145 | 9.063 | 0.00906 | 0.1893 | 6.090 | 0.02192 | 0.365 | 3.93 |
| 400 | 127 | 260 | 10 | 145 | 10.16 | 0.01016 | 0.2121 | 6.825 | 0.02457 | 0.511 | 5.50 |
| 450 | 177 | 350 | 10 | 145 | 11.32 | 0.01132 | 0.2365 | 7.609 | 0.02739 | 0.673 | 7.24 |
| 500 | 227 | 440 | 10 | 145 | 12.48 | 0.01248 | 0.2605 | 8.383 | 0.03018 | 0.846 | 9.11 |
| 550 | 277 | 530 | 10 | 145 | 13.61 | 0.01361 | 0.2843 | 9.146 | 0.03293 | 1.03 | 11.11 |
|  | | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 50 | 725 | 1428 | 1.428 | 29.83 | 959.7 | 3.455 | 1.97 | 21.3 |
| 200 | -73.2 | -100 | 50 | 725 | 516.9 | 0.5169 | 10.80 | 347.3 | 1.250 | 0.763 | 8.21 |
| 250 | -23.2 | -9.7 | 50 | 725 | 272.3 | 0.2723 | 5.687 | 183.0 | 0.6587 | 0.432 | 4.65 |
| 300 | 26.9 | 80.3 | 50 | 725 | 166.0 | 0.1660 | 3.466 | 111.5 | 0.4015 | 0.287 | 3.09 |
| 350 | 76.9 | 170 | 50 | 725 | 106.8 | 0.1068 | 2.230 | 71.74 | 0.2583 | 0.206 | 2.22 |
| 400 | 127 | 260 | 50 | 725 | 65.43 | 0.06543 | 1.366 | 43.96 | 0.1583 | 0.150 | 1.61 |
| Supercritical phase | 450 | 177 | 350 | 50 | 725 | 19.32 | 0.01932 | 0.4035 | 12.98 | 0.04674 | 0.107 | 1.15 |
| 500 | 227 | 440 | 50 | 725 | 14.78 | 0.01478 | 0.3086 | 9.928 | 0.03574 | 0.149 | 1.60 |
| 550 | 277 | 530 | 50 | 725 | 14.93 | 0.01493 | 0.3118 | 10.03 | 0.03611 | 0.191 | 2.06 |
|  | | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 100 | 1450 | 1488 | 1.488 | 31.08 | 1000 | 3.600 | 2.05 | 22.1 |
| 200 | -73.2 | -100 | 100 | 1450 | 537.3 | 0.5373 | 11.22 | 361.0 | 1.300 | 0.790 | 8.50 |
| 250 | -23.2 | -9.7 | 100 | 1450 | 285.2 | 0.2852 | 5.956 | 191.6 | 0.6899 | 0.449 | 4.84 |
| 300 | 26.9 | 80.3 | 100 | 1450 | 176.3 | 0.1763 | 3.683 | 118.5 | 0.4266 | 0.301 | 3.24 |
| 350 | 76.9 | 170 | 100 | 1450 | 116.8 | 0.1168 | 2.439 | 78.48 | 0.2825 | 0.220 | 2.36 |
| 400 | 127 | 260 | 100 | 1450 | 77.78 | 0.07778 | 1.625 | 52.27 | 0.1882 | 0.167 | 1.79 |
| 450 | 177 | 350 | 100 | 1450 | 48.33 | 0.04833 | 1.009 | 32.47 | 0.1169 | 0.127 | 1.36 |
| Supercritical phase | 500 | 227 | 440 | 100 | 1450 | 27.08 | 0.02708 | 0.5655 | 18.19 | 0.06550 | 0.101 | 1.09 |
| 550 | 277 | 530 | 100 | 1450 | 19.39 | 0.01939 | 0.4049 | 13.03 | 0.04690 | 0.103 | 1.11 |
|  | | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 300 | 4351 | 1748 | 1.748 | 36.51 | 1175 | 4.229 | 2.38 | 25.6 |
| 200 | -73.2 | -100 | 300 | 4351 | 619.2 | 0.6192 | 12.93 | 416.1 | 1.498 | 0.895 | 9.63 |
| 250 | -23.2 | -9.7 | 300 | 4351 | 335.1 | 0.3351 | 6.998 | 225.1 | 0.8105 | 0.515 | 5.54 |
| 300 | 26.9 | 80.3 | 300 | 4351 | 214.5 | 0.2145 | 4.481 | 144.2 | 0.5190 | 0.352 | 3.79 |
| 350 | 76.9 | 170 | 300 | 4351 | 150.5 | 0.1505 | 3.142 | 101.1 | 0.3640 | 0.265 | 2.86 |
| 400 | 127 | 260 | 300 | 4351 | 110.9 | 0.1109 | 2.316 | 74.53 | 0.2683 | 0.212 | 2.28 |
| 450 | 177 | 350 | 300 | 4351 | 83.81 | 0.08381 | 1.750 | 56.32 | 0.2027 | 0.175 | 1.89 |
| Supercritical phase | 500 | 227 | 440 | 300 | 4351 | 64.10 | 0.06410 | 1.339 | 43.07 | 0.1551 | 0.148 | 1.59 |
| 550 | 277 | 530 | 300 | 4351 | 49.56 | 0.04956 | 1.035 | 33.30 | 0.1199 | 0.127 | 1.37 |
|  | | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 650 | 9427 | 2300 | 2.300 | 48.04 | 1546 | 5.565 | 3.08 | 33.2 |
| 200 | -73.2 | -100 | 650 | 9427 | 766.5 | 0.7665 | 16.01 | 515.0 | 1.854 | 1.08 | 11.6 |
| 250 | -23.2 | -9.7 | 650 | 9427 | 419.1 | 0.4191 | 8.754 | 281.6 | 1.014 | 0.623 | 6.71 |
| 300 | 26.9 | 80.3 | 650 | 9427 | 275.1 | 0.2751 | 5.746 | 184.9 | 0.6656 | 0.431 | 4.64 |
| 350 | 76.9 | 170 | 650 | 9427 | 199.8 | 0.1998 | 4.172 | 134.2 | 0.4833 | 0.331 | 3.56 |
| 400 | 127 | 260 | 650 | 9427 | 154.3 | 0.1543 | 3.222 | 103.7 | 0.3731 | 0.270 | 2.90 |
| 450 | 177 | 350 | 650 | 9427 | 123.8 | 0.1238 | 2.585 | 83.17 | 0.2994 | 0.229 | 2.47 |
| Supercritical phase | 500 | 227 | 440 | 650 | 9427 | 101.8 | 0.1018 | 2.126 | 68.39 | 0.2462 | 0.200 | 2.15 |
| 550 | 277 | 530 | 650 | 9427 | 85.08 | 0.08508 | 1.777 | 57.17 | 0.2058 | 0.177 | 1.90 |

Бутан – теплоемкость

| **State** | **Temperature** | | | **Pressure** | | **Specific heat at constant pressure, C P(isobaric)** | | | | | **Cp/Cv** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[bara]** | **[psia]** | **[kJ/mol K]** | **[kJ/kg K]** | **[Wh/(kg K)]** | **[kcal(IT)/(kg K)], [Btu(IT)/lb °F]** | **[Btu(IT)/(mol\*°R)]** | **[-]** |
| Liquid at  equilibrium | 134.9 | -138.25 | -216.85 | 6.7E-06 | 9.7E-05 | 0.1147 | 1.973 | 0.5481 | 0.4712 | 0.06038 | 1.37 |
| 150 | -123 | -190 | 8.6E-05 | 1.2E-03 | 0.1154 | 1.986 | 0.5517 | 0.4743 | 0.06078 | 1.38 |
| 200 | -73 | -100 | 0.0194 | 0.281 | 0.1198 | 2.062 | 0.5728 | 0.4925 | 0.06311 | 1.40 |
| 220 | -53 | -64 | 0.0781 | 1.13 | 0.1228 | 2.113 | 0.5869 | 0.5047 | 0.06467 | 1.40 |
| 240 | -33.2 | -28 | 0.241 | 3.49 | 0.1265 | 2.176 | 0.6044 | 0.5197 | 0.06660 | 1.41 |
| 260 | -13.2 | 8.3 | 0.610 | 8.84 | 0.1310 | 2.254 | 0.6261 | 0.5384 | 0.06898 | 1.41 |
| 280 | 6.9 | 44.3 | 1.33 | 19.3 | 0.1363 | 2.345 | 0.6514 | 0.5601 | 0.07177 | 1.41 |
| 300 | 26.9 | 80.3 | 2.58 | 37.4 | 0.1425 | 2.451 | 0.6808 | 0.5854 | 0.07501 | 1.42 |
| 320 | 46.9 | 116 | 4.56 | 66.2 | 0.1498 | 2.577 | 0.7158 | 0.6155 | 0.07887 | 1.43 |
| 340 | 66.9 | 152 | 7.52 | 109 | 0.1586 | 2.729 | 0.7581 | 0.6518 | 0.08352 | 1.45 |
| 360 | 86.9 | 188 | 11.7 | 170 | 0.1701 | 2.926 | 0.8128 | 0.6989 | 0.08955 | 1.49 |
| 380 | 106.9 | 224 | 17.4 | 252 | 0.1872 | 3.221 | 0.8947 | 0.7693 | 0.09858 | 1.56 |
| 400 | 126.9 | 260 | 25.0 | 362 | 0.2231 | 3.838 | 1.066 | 0.9167 | 0.1175 | 1.77 |
| 420 | 146.9 | 296 | 34.9 | 506 | 0.5145 | 8.852 | 2.459 | 2.114 | 0.2709 | 3.76 |
| Gas at  equilibrium | 134.9 | -138.25 | -216.85 | 6.7E-06 | 9.7E-05 | 0.06428 | 1.106 | 0.3072 | 0.2642 | 0.03385 | 1.15 |
| 150 | -123 | -190 | 8.6E-05 | 1.2E-03 | 0.06731 | 1.158 | 0.3217 | 0.2766 | 0.03544 | 1.14 |
| 200 | -73 | -100 | 0.0194 | 0.281 | 0.07666 | 1.319 | 0.3664 | 0.3150 | 0.04037 | 1.12 |
| 220 | -53 | -64 | 0.0781 | 1.13 | 0.08091 | 1.392 | 0.3867 | 0.3325 | 0.04260 | 1.12 |
| 240 | -33.2 | -28 | 0.241 | 3.49 | 0.08579 | 1.476 | 0.4100 | 0.3525 | 0.04517 | 1.12 |
| 260 | -13.2 | 8.3 | 0.610 | 8.84 | 0.09143 | 1.573 | 0.4369 | 0.3757 | 0.04814 | 1.12 |
| 280 | 6.9 | 44.3 | 1.33 | 19.3 | 0.09788 | 1.684 | 0.4678 | 0.4022 | 0.05154 | 1.12 |
| 300 | 26.9 | 80.3 | 2.58 | 37.4 | 0.1053 | 1.811 | 0.5031 | 0.4325 | 0.05543 | 1.13 |
| 320 | 46.9 | 116 | 4.56 | 66.2 | 0.1139 | 1.960 | 0.5444 | 0.4681 | 0.05999 | 1.15 |
| 340 | 66.9 | 152 | 7.52 | 109 | 0.1245 | 2.142 | 0.5950 | 0.5116 | 0.06556 | 1.18 |
| 360 | 86.9 | 188 | 11.7 | 170 | 0.1383 | 2.379 | 0.6608 | 0.5682 | 0.07281 | 1.23 |
| 380 | 107 | 224 | 17.4 | 252 | 0.1601 | 2.754 | 0.7650 | 0.6578 | 0.08429 | 1.34 |
| 400 | 127 | 260 | 25.0 | 362 | 0.2106 | 3.623 | 1.006 | 0.8653 | 0.1109 | 1.64 |
| 420 | 147 | 296 | 34.9 | 506 | 0.6231 | 10.72 | 2.978 | 2.56042 | 0.3281 | 4.39 |
|  | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 1 | 14.5 | 0.1154 | 1.986 | 0.5517 | 0.4744 | 0.06079 | 1.38 |
| 200 | -73.2 | -100 | 1 | 14.5 | 0.1199 | 2.062 | 0.5728 | 0.4925 | 0.06311 | 1.40 |
| 250 | -23.2 | -9.7 | 1 | 14.5 | 0.1286 | 2.213 | 0.6148 | 0.5286 | 0.06773 | 1.41 |
| 272.31 | -0.84 | 30.49 | 1 | 14.5 | 0.1342 | 2.308 | 0.6411 | 0.5513 | 0.07064 | 1.41 |
| Gas | 272.31 | -0.8 | 30.5 | 1 | 14.5 | 0.0953 | 1.639 | 0.4553 | 0.3915 | 0.05016 | 1.12 |
| 300 | 26.9 | 80.3 | 1 | 14.5 | 0.1010 | 1.738 | 0.4828 | 0.4152 | 0.05320 | 1.10 |
| 350 | 76.9 | 170 | 1 | 14.5 | 0.1130 | 1.944 | 0.5400 | 0.4643 | 0.05950 | 1.09 |
| 400 | 127 | 260 | 1 | 14.5 | 0.1255 | 2.158 | 0.5996 | 0.5155 | 0.06606 | 1.08 |
| 450 | 177 | 350 | 1 | 14.5 | 0.1376 | 2.367 | 0.6574 | 0.5652 | 0.07243 | 1.07 |
| 500 | 227 | 440 | 1 | 14.5 | 0.1490 | 2.563 | 0.7120 | 0.6122 | 0.07844 | 1.06 |
| 550 | 277 | 530 | 1 | 14.5 | 0.1596 | 2.746 | 0.7628 | 0.6559 | 0.08404 | 1.06 |
|  | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 10 | 145 | 0.1154 | 1.985 | 0.5515 | 0.4742 | 0.06076 | 1.38 |
| 200 | -73.2 | -100 | 10 | 145 | 0.1198 | 2.061 | 0.5724 | 0.4922 | 0.06307 | 1.40 |
| 250 | -23.2 | -9.7 | 10 | 145 | 0.1285 | 2.210 | 0.6139 | 0.5278 | 0.06764 | 1.40 |
| 300 | 26.9 | 80.3 | 10 | 145 | 0.1421 | 2.445 | 0.6791 | 0.5839 | 0.07482 | 1.41 |
| 350 | 76.9 | 170 | 10 | 145 | 0.1638 | 2.818 | 0.7827 | 0.6730 | 0.08624 | 1.47 |
| 352.62 | 79.47 | 175.05 | 10 | 145 | 0.1654 | 2.846 | 0.7905 | 0.6797 | 0.08709 | 1.47 |
| Gas | 352.62 | 79.47 | 175.05 | 10 | 145 | 0.1326 | 2.282 | 0.6338 | 0.5450 | 0.06983 | 1.21 |
| 400 | 127 | 260 | 10 | 145 | 0.1341 | 2.307 | 0.6409 | 0.5511 | 0.07061 | 1.12 |
| 450 | 177 | 350 | 10 | 145 | 0.1425 | 2.452 | 0.6810 | 0.5856 | 0.07503 | 1.09 |
| 500 | 227 | 440 | 10 | 145 | 0.1522 | 2.619 | 0.7274 | 0.6255 | 0.08015 | 1.08 |
| 550 | 277 | 530 | 10 | 145 | 0.1619 | 2.785 | 0.7737 | 0.6653 | 0.08524 | 1.07 |
|  | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 50 | 725 | 0.1153 | 1.983 | 0.5508 | 0.4736 | 0.06069 | 1.37 |
| 200 | -73.2 | -100 | 50 | 725 | 0.1194 | 2.055 | 0.5708 | 0.4908 | 0.06289 | 1.39 |
| 250 | -23.2 | -9.7 | 50 | 725 | 0.1277 | 2.198 | 0.6105 | 0.5249 | 0.06726 | 1.39 |
| 300 | 26.9 | 80.3 | 50 | 725 | 0.1403 | 2.415 | 0.6707 | 0.5767 | 0.07390 | 1.39 |
| 350 | 76.9 | 170 | 50 | 725 | 0.1580 | 2.718 | 0.7550 | 0.6492 | 0.08319 | 1.41 |
| 400 | 127 | 260 | 50 | 725 | 0.1892 | 3.255 | 0.9043 | 0.7775 | 0.09963 | 1.52 |
| Supercritical phase | 450 | 177 | 350 | 50 | 725 | 0.3508 | 6.036 | 1.677 | 1.4416 | 0.18472 | 2.46 |
| 500 | 227 | 440 | 50 | 725 | 0.1848 | 3.180 | 0.8833 | 0.7595 | 0.09732 | 1.27 |
| 550 | 277 | 530 | 50 | 725 | 0.1780 | 3.063 | 0.8509 | 0.7316 | 0.09375 | 1.15 |
|  | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 100 | 1450 | 0.1151 | 1.980 | 0.5500 | 0.4729 | 0.06060 | 1.36 |
| 200 | -73.2 | -100 | 100 | 1450 | 0.1191 | 2.048 | 0.5690 | 0.4893 | 0.06269 | 1.38 |
| 250 | -23.2 | -9.7 | 100 | 1450 | 0.1270 | 2.185 | 0.6068 | 0.5218 | 0.06686 | 1.38 |
| 300 | 26.9 | 80.3 | 100 | 1450 | 0.1387 | 2.386 | 0.6628 | 0.5699 | 0.07302 | 1.37 |
| 350 | 76.9 | 170 | 100 | 1450 | 0.1537 | 2.645 | 0.7348 | 0.6318 | 0.08095 | 1.37 |
| 400 | 127 | 260 | 100 | 1450 | 0.1729 | 2.975 | 0.8265 | 0.7106 | 0.09106 | 1.399 |
| Supercritical phase | 450 | 177 | 350 | 100 | 1450 | 0.2009 | 3.457 | 0.9603 | 0.8257 | 0.1058 | 1.477 |
| 500 | 227 | 440 | 100 | 1450 | 0.2234 | 3.844 | 1.068 | 0.9182 | 0.1176 | 1.511 |
| 550 | 277 | 530 | 100 | 1450 | 0.2049 | 3.525 | 0.9791 | 0.8418 | 0.1079 | 1.308 |
|  | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 300 | 4351 | 0.1145 | 1.971 | 0.5474 | 0.4706 | 0.06031 | 1.34 |
| 200 | -73.2 | -100 | 300 | 4351 | 0.1180 | 2.030 | 0.5638 | 0.4847 | 0.06211 | 1.36 |
| 250 | -23.2 | -9.7 | 300 | 4351 | 0.1249 | 2.149 | 0.5970 | 0.5133 | 0.06577 | 1.35 |
| 300 | 26.9 | 80.3 | 300 | 4351 | 0.1349 | 2.320 | 0.6445 | 0.5542 | 0.07101 | 1.32 |
| 350 | 76.9 | 170 | 300 | 4351 | 0.1465 | 2.521 | 0.7003 | 0.6022 | 0.07716 | 1.30 |
| 400 | 127 | 260 | 300 | 4351 | 0.1587 | 2.731 | 0.7586 | 0.6523 | 0.08358 | 1.28 |
| Supercritical phase | 450 | 177 | 350 | 300 | 4351 | 0.1705 | 2.934 | 0.8150 | 0.7008 | 0.08979 | 1.26 |
| 500 | 227 | 440 | 300 | 4351 | 0.1812 | 3.118 | 0.8662 | 0.7448 | 0.09543 | 1.24 |
| 550 | 277 | 530 | 300 | 4351 | 0.1904 | 3.276 | 0.9101 | 0.7825 | 0.1003 | 1.22 |
|  | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 650 | 9427 | 0.1139 | 1.960 | 0.5445 | 0.4681 | 0.05999 | 1.31 |
| 200 | -73.2 | -100 | 650 | 9427 | 0.1169 | 2.011 | 0.5587 | 0.4804 | 0.06155 | 1.32 |
| 250 | -23.2 | -9.7 | 650 | 9427 | 0.1232 | 2.119 | 0.5887 | 0.5062 | 0.06486 | 1.31 |
| 300 | 26.9 | 80.3 | 650 | 9427 | 0.1322 | 2.275 | 0.6318 | 0.5433 | 0.06961 | 1.28 |
| 350 | 76.9 | 170 | 650 | 9427 | 0.1427 | 2.455 | 0.6819 | 0.5863 | 0.07512 | 1.25 |
| 400 | 127 | 260 | 650 | 9427 | 0.1535 | 2.641 | 0.7337 | 0.6308 | 0.08083 | 1.22 |
| Supercritical phase | 450 | 177 | 350 | 650 | 9427 | 0.1640 | 2.822 | 0.7839 | 0.6740 | 0.08637 | 1.20 |
| 500 | 227 | 440 | 650 | 9427 | 0.1739 | 2.992 | 0.8311 | 0.7146 | 0.09156 | 1.18 |
| 550 | 277 | 530 | 650 | 9427 | 0.1830 | 3.148 | 0.8746 | 0.7520 | 0.09635 | 1.17 |

Бутан - теплопроводность

| **State** | **Temperature** | | | **Pressure** | | **Thermal conductivity** | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[bara]** | **[psia]** | **[mW/m K]** | **[kcal(IT)/(h m K)]** | **[Btu(IT)/(h ft °F)]** |
| Liquid at equilibrium | 134.9 | -138.25 | -216.85 | 6.7E-06 | 9.7E-05 | 176.6 | 0.1518 | 0.1020 |
| 150 | -123 | -190 | 8.6E-05 | 1.2E-03 | 171.2 | 0.1472 | 0.09892 |
| 200 | -73 | -100 | 0.0194 | 0.281 | 149.4 | 0.1285 | 0.08632 |
| 220 | -53 | -64 | 0.0781 | 1.13 | 139.9 | 0.1203 | 0.08083 |
| 240 | -33.2 | -28 | 0.241 | 3.49 | 130.4 | 0.1121 | 0.07534 |
| 260 | -13.2 | 8.3 | 0.610 | 8.84 | 121.2 | 0.1042 | 0.07003 |
| 280 | 6.9 | 44.3 | 1.33 | 19.3 | 112.3 | 0.09656 | 0.06489 |
| 300 | 26.9 | 80.3 | 2.58 | 37.4 | 103.9 | 0.08934 | 0.06003 |
| 320 | 46.9 | 116 | 4.56 | 66.2 | 96.10 | 0.08263 | 0.05553 |
| 340 | 66.9 | 152 | 7.52 | 109 | 88.88 | 0.07642 | 0.05135 |
| 360 | 86.9 | 188 | 11.7 | 170 | 82.27 | 0.07074 | 0.04753 |
| 380 | 106.9 | 224 | 17.4 | 252 | 76.22 | 0.06554 | 0.04404 |
| 400 | 126.9 | 260 | 25.0 | 362 | 70.60 | 0.06071 | 0.04079 |
| 420 | 146.9 | 296 | 34.9 | 506 | 67.19 | 0.05777 | 0.03882 |
| 134.9 | -138.25 | -216.85 | 6.7E-06 | 9.7E-05 | 4.855 | 0.00417 | 0.00281 |
| Gas at equilibrium | 150 | -123 | -190 | 8.6E-05 | 1.2E-03 | 5.579 | 0.00480 | 0.00322 |
| 200 | -73 | -100 | 0.0194 | 0.281 | 8.497 | 0.00731 | 0.00491 |
| 220 | -53 | -64 | 0.0781 | 1.13 | 9.884 | 0.00850 | 0.00571 |
| 240 | -33.2 | -28 | 0.241 | 3.49 | 11.39 | 0.00979 | 0.00658 |
| 260 | -13.2 | 8.3 | 0.610 | 8.84 | 13.03 | 0.01120 | 0.00753 |
| 280 | 6.9 | 44.3 | 1.33 | 19.3 | 14.82 | 0.01274 | 0.00856 |
| 300 | 26.9 | 80.3 | 2.58 | 37.4 | 16.78 | 0.01443 | 0.00970 |
| 320 | 46.9 | 116 | 4.56 | 66.2 | 19.00 | 0.01634 | 0.01098 |
| 340 | 66.9 | 152 | 7.52 | 109 | 21.58 | 0.01856 | 0.01247 |
| 360 | 86.9 | 188 | 11.7 | 170 | 24.72 | 0.02126 | 0.01428 |
| 380 | 107 | 224 | 17.4 | 252 | 28.81 | 0.02477 | 0.01665 |
| 400 | 127 | 260 | 25.0 | 362 | 35.03 | 0.03012 | 0.02024 |
| 420 | 147 | 296 | 34.9 | 506 | 53.10 | 0.04566 | 0.03068 |
|  | | | | | | | | |
| Liquid | 150 | -123 | -190 | 1 | 14.5 | 171.2 | 0.1472 | 0.09893 |
| 200 | -73.2 | -100 | 1 | 14.5 | 149.4 | 0.1285 | 0.08632 |
| 250 | -23.2 | -9.7 | 1 | 14.5 | 125.8 | 0.1082 | 0.07269 |
| 272.31 | -0.84 | 30.49 | 1 | 14.5 | 115.7 | 0.09947 | 0.06684 |
| Gas | 272.31 | -0.84 | 30.49 | 1 | 14.5 | 14.11 | 0.01213 | 0.00815 |
| 300 | 26.9 | 80.3 | 1 | 14.5 | 16.75 | 0.01440 | 0.00968 |
| 350 | 76.9 | 170 | 1 | 14.5 | 22.12 | 0.01902 | 0.01278 |
| 400 | 127 | 260 | 1 | 14.5 | 28.28 | 0.02431 | 0.01634 |
| 450 | 177 | 350 | 1 | 14.5 | 35.23 | 0.03029 | 0.02036 |
| 500 | 227 | 440 | 1 | 14.5 | 42.98 | 0.03696 | 0.02483 |
| 550 | 277 | 530 | 1 | 14.5 | 51.53 | 0.04431 | 0.02978 |
|  | | | | | | | | |
| Liquid | 150 | -123 | -190 | 10 | 145 | 171.5 | 0.1474 | 0.09908 |
| 200 | -73.2 | -100 | 10 | 145 | 149.8 | 0.1288 | 0.08655 |
| 250 | -23.2 | -9.7 | 10 | 145 | 126.3 | 0.1086 | 0.07300 |
| 300 | 26.9 | 80.3 | 10 | 145 | 104.5 | 0.08986 | 0.06038 |
| 350 | 76.9 | 170 | 10 | 145 | 85.56 | 0.07357 | 0.04944 |
| 352.62 | 79.47 | 175.05 | 10 | 145 | 84.64 | 0.07277 | 0.04890 |
| Gas | 352.62 | 79.47 | 175.05 | 10 | 145 | 23.47 | 0.02018 | 0.01356 |
| 400 | 127 | 260 | 10 | 145 | 29.23 | 0.02513 | 0.01689 |
| 450 | 177 | 350 | 10 | 145 | 36.24 | 0.03116 | 0.02094 |
| 500 | 227 | 440 | 10 | 145 | 44.07 | 0.03789 | 0.02546 |
| 550 | 277 | 530 | 10 | 145 | 52.70 | 0.04532 | 0.03045 |
|  | | | | | | | | |
| Liquid | 150 | -123 | -190 | 50 | 725 | 172.6 | 0.1484 | 0.09974 |
| 200 | -73.2 | -100 | 50 | 725 | 151.5 | 0.1303 | 0.08755 |
| 250 | -23.2 | -9.7 | 50 | 725 | 128.6 | 0.1106 | 0.07433 |
| 300 | 26.9 | 80.3 | 50 | 725 | 107.5 | 0.09243 | 0.06211 |
| 350 | 76.9 | 170 | 50 | 725 | 89.62 | 0.07706 | 0.05178 |
| 400 | 127 | 260 | 50 | 725 | 75.04 | 0.06452 | 0.04335 |
| Supercritical phase | 450 | 177 | 350 | 50 | 725 | 55.86 | 0.04803 | 0.03228 |
| 500 | 227 | 440 | 50 | 725 | 51.14 | 0.04397 | 0.02955 |
| 550 | 277 | 530 | 50 | 725 | 57.84 | 0.04973 | 0.03342 |
|  | | | | | | | | |
| Liquid | 150 | -123 | -190 | 100 | 1450 | 174.0 | 0.1496 | 0.1006 |
| 200 | -73.2 | -100 | 100 | 1450 | 153.6 | 0.1321 | 0.08875 |
| 250 | -23.2 | -9.7 | 100 | 1450 | 131.4 | 0.1130 | 0.07592 |
| 300 | 26.9 | 80.3 | 100 | 1450 | 111.0 | 0.09543 | 0.06413 |
| 350 | 76.9 | 170 | 100 | 1450 | 94.02 | 0.08084 | 0.05432 |
| 400 | 127 | 260 | 100 | 1450 | 81.08 | 0.06972 | 0.04685 |
| Supercritical phase | 450 | 177 | 350 | 100 | 1450 | 71.91 | 0.06183 | 0.04155 |
| 500 | 227 | 440 | 100 | 1450 | 65.91 | 0.05667 | 0.03808 |
| 550 | 277 | 530 | 100 | 1450 | 65.62 | 0.05642 | 0.03791 |
|  | | | | | | | | |
| Liquid | 150 | -123 | -190 | 300 | 4351 | 179.3 | 0.1542 | 0.1036 |
| 200 | -73.2 | -100 | 300 | 4351 | 161.4 | 0.1388 | 0.09324 |
| 250 | -23.2 | -9.7 | 300 | 4351 | 141.4 | 0.1216 | 0.08172 |
| 300 | 26.9 | 80.3 | 300 | 4351 | 123.1 | 0.1058 | 0.07112 |
| 350 | 76.9 | 170 | 300 | 4351 | 108.1 | 0.09292 | 0.06244 |
| 400 | 127 | 260 | 300 | 4351 | 97.05 | 0.08345 | 0.05608 |
| Supercritical phase | 450 | 177 | 350 | 300 | 4351 | 90.03 | 0.07741 | 0.05202 |
| 500 | 227 | 440 | 300 | 4351 | 86.54 | 0.07441 | 0.05000 |
| 550 | 277 | 530 | 300 | 4351 | 85.90 | 0.07386 | 0.04963 |
|  | | | | | | | | |
| Liquid | 150 | -123 | -190 | 650 | 9427 | 187.4 | 0.1612 | 0.1083 |
| 200 | -73.2 | -100 | 650 | 9427 | 173.2 | 0.1489 | 0.1001 |
| 250 | -23.2 | -9.7 | 650 | 9427 | 156.3 | 0.1344 | 0.09033 |
| 300 | 26.9 | 80.3 | 650 | 9427 | 140.3 | 0.1207 | 0.08109 |
| 350 | 76.9 | 170 | 650 | 9427 | 127.0 | 0.1092 | 0.07336 |
| 400 | 127 | 260 | 650 | 9427 | 116.9 | 0.1005 | 0.06754 |
| Supercritical phase | 450 | 177 | 350 | 650 | 9427 | 110.2 | 0.09474 | 0.06366 |
| 500 | 227 | 440 | 650 | 9427 | 106.6 | 0.09162 | 0.06156 |
| 550 | 277 | 530 | 650 | 9427 | 105.6 | 0.09079 | 0.06101 |

Бензол – плотность

| **State** | **Temperature** | | | **Pressure** | | | **Density** | | | | **Specific weight** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[MPa]** | **[bara]** | **[psia]** | **[mol/dm 3]** | **[g/l], [kg/m 3]** | **[lb/ft 3]** | **[sl/ft 3]** | **[N/m 3]** | **[lb f/ft 3]** |
| Liquid at  equilibrium | 278.70 | 5.55 | 41.99 | 0.0048 | 0.0480 | 0.696 | 11.44 | 893.7 | 55.79 | 1.734 | 8764 | 55.8 |
| 280 | 6.9 | 44.3 | 0.0051 | 0.0515 | 0.747 | 11.42 | 892.4 | 55.71 | 1.731 | 8751 | 55.7 |
| 295 | 21.9 | 71.3 | 0.0110 | 0.110 | 1.59 | 11.23 | 877.0 | 54.75 | 1.702 | 8600 | 54.7 |
| 310 | 36.9 | 98.3 | 0.0214 | 0.214 | 3.10 | 11.02 | 861.1 | 53.76 | 1.671 | 8445 | 53.8 |
| 325 | 51.9 | 125 | 0.0388 | 0.388 | 5.62 | 10.82 | 844.9 | 52.74 | 1.639 | 8285 | 52.7 |
| 340 | 66.9 | 152 | 0.0661 | 0.661 | 9.59 | 10.61 | 828.4 | 51.71 | 1.607 | 8124 | 51.7 |
| 370 | 96.9 | 206 | 0.165 | 1.6531 | 24.0 | 10.17 | 794.4 | 49.59 | 1.541 | 7790 | 49.6 |
| 400 | 127 | 260 | 0.353 | 3.528 | 51.2 | 9.712 | 758.6 | 47.36 | 1.472 | 7440 | 47.4 |
| 430 | 157 | 314 | 0.669 | 6.687 | 97.0 | 9.220 | 720.2 | 44.96 | 1.397 | 7063 | 45.0 |
| 460 | 187 | 368 | 1.158 | 11.58 | 168 | 8.675 | 677.6 | 42.30 | 1.315 | 6645 | 42.3 |
| 490 | 217 | 422 | 1.869 | 18.69 | 271 | 8.041 | 628.1 | 39.21 | 1.219 | 6159 | 39.2 |
| 520 | 247 | 476 | 2.861 | 28.61 | 415 | 7.242 | 565.7 | 35.31 | 1.098 | 5547 | 35.3 |
| 550 | 277 | 530 | 4.21 | 42.1 | 611 | 5.977 | 466.9 | 29.15 | 0.9059 | 4579 | 29.1 |
| 562.05 | 288.9 | 552.0 | 4.90 | 49.0 | 711 | 3.956 | 309.0 | 19.29 | 0.5996 | 3030 | 19.3 |
|  | | | | | | | | | | | | |
| Gas at  equilibrium | 278.7 | 5.55 | 41.99 | 0.0048 | 0.0480 | 0.696 | 0.00208 | 0.1623 | 0.01013 | 3.15E-04 | 1.59 | 0.0101 |
| 280 | 6.9 | 44.3 | 0.0051 | 0.0515 | 0.747 | 0.00222 | 0.1733 | 0.01082 | 3.36E-04 | 1.70 | 0.0108 |
| 310 | 36.9 | 98.3 | 0.0214 | 0.214 | 3.10 | 0.00838 | 0.6546 | 0.04086 | 0.00127 | 6.42 | 0.0409 |
| 340 | 66.9 | 152 | 0.0661 | 0.661 | 9.59 | 0.02397 | 1.872 | 0.1169 | 0.00363 | 18.4 | 0.117 |
| 370 | 96.9 | 206 | 0.165 | 1.6531 | 24.0 | 0.05636 | 4.402 | 0.2748 | 0.00854 | 43.2 | 0.275 |
| 400 | 127 | 260 | 0.353 | 3.528 | 51.2 | 0.1153 | 9.003 | 0.5621 | 0.01747 | 88.3 | 0.562 |
| 430 | 157 | 314 | 0.669 | 6.687 | 97.0 | 0.2136 | 16.69 | 1.042 | 0.03238 | 164 | 1.04 |
| 460 | 187 | 368 | 1.158 | 11.58 | 168 | 0.3706 | 28.95 | 1.807 | 0.05617 | 284 | 1.81 |
| 490 | 217 | 422 | 1.869 | 18.69 | 271 | 0.6193 | 48.38 | 3.020 | 0.09386 | 474 | 3.02 |
| 520 | 247 | 476 | 2.861 | 28.61 | 415 | 1.035 | 80.84 | 5.047 | 0.1569 | 793 | 5.05 |
| 550 | 277 | 530 | 4.21 | 42.1 | 611 | 1.924 | 150.3 | 9.383 | 0.2916 | 1474 | 9.38 |
| 562.05 | 288.9 | 552.0 | 4.90 | 49.0 | 711 | 3.956 | 309.0 | 19.29 | 0.5996 | 3030 | 19.3 |
|  | | | | | | | | | | | | |
| Liquid | 300 | 26.9 | 80.3 | 0.1 | 1 | 14.5 | 11.161 | 871.8 | 54.43 | 1.692 | 8550 | 54.4 |
| 350 | 76.9 | 170 | 0.1 | 1 | 14.5 | 10.462 | 817.2 | 51.02 | 1.586 | 8014 | 51.0 |
| 352.81 | 79.7 | 175.4 | 0.1 | 1 | 14.5 | 10.421 | 814.0 | 50.82 | 1.579 | 7983 | 50.8 |
| Gas | 352.81 | 79.7 | 175.4 | 0.1 | 1 | 14.5 | 0.03523 | 2.752 | 0.1718 | 0.005340 | 27.0 | 0.172 |
| 400 | 127 | 260 | 0.1 | 1 | 14.5 | 0.03071 | 2.399 | 0.1498 | 0.004655 | 23.5 | 0.150 |
| 450 | 177 | 350 | 0.1 | 1 | 14.5 | 0.02711 | 2.118 | 0.1322 | 0.004109 | 20.8 | 0.132 |
| 500 | 227 | 440 | 0.1 | 1 | 14.5 | 0.02430 | 1.898 | 0.1185 | 0.003683 | 18.6 | 0.118 |
| 550 | 277 | 530 | 0.1 | 1 | 14.5 | 0.02203 | 1.721 | 0.1074 | 0.003339 | 16.9 | 0.107 |
| 600 | 327 | 620 | 0.1 | 1 | 14.5 | 0.02016 | 1.575 | 0.0983 | 0.003056 | 15.4 | 0.0983 |
|  | | | | | | | | | | | | |
| Liquid | 300 | 26.9 | 80.3 | 1 | 10 | 145 | 11.17 | 872.5 | 54.47 | 1.693 | 8556 | 54.5 |
| 350 | 76.9 | 170 | 1 | 10 | 145 | 10.48 | 818.3 | 51.08 | 1.588 | 8025 | 51.1 |
| 400 | 127 | 260 | 1 | 10 | 145 | 9.728 | 759.9 | 47.44 | 1.474 | 7452 | 47.4 |
| 450 | 177 | 350 | 1 | 10 | 145 | 8.866 | 692.5 | 43.23 | 1.344 | 6791 | 43.2 |
| 451.58 | 178.4 | 353.2 | 1 | 10 | 145 | 8.835 | 690.1 | 43.08 | 1.339 | 6768 | 43.1 |
| Gas | 451.58 | 178.4 | 353.2 | 1 | 10 | 145 | 0.3191 | 24.9 | 1.556 | 0.04836 | 244 | 1.56 |
| 500 | 227 | 440 | 1 | 10 | 145 | 0.2703 | 21.1 | 1.318 | 0.04096 | 207 | 1.32 |
| 550 | 277 | 530 | 1 | 10 | 145 | 0.2373 | 18.5 | 1.157 | 0.03596 | 182 | 1.16 |
| 600 | 327 | 620 | 1 | 10 | 145 | 0.2130 | 16.6 | 1.039 | 0.03228 | 163 | 1.04 |
|  | | | | | | | | | | | | |
| Liquid | 300 | 26.9 | 80.3 | 5 | 50 | 725 | 11.21 | 875.9 | 54.68 | 1.699 | 8589 | 54.7 |
| 350 | 76.9 | 170 | 5 | 50 | 725 | 10.54 | 823.1 | 51.38 | 1.597 | 8072 | 51.4 |
| 400 | 127 | 260 | 5 | 50 | 725 | 9.821 | 767.1 | 47.89 | 1.488 | 7523 | 47.9 |
| 450 | 177 | 350 | 5 | 50 | 725 | 9.024 | 704.9 | 44.00 | 1.368 | 6913 | 44.0 |
| 500 | 227 | 440 | 5 | 50 | 725 | 8.042 | 628.2 | 39.21 | 1.219 | 6160 | 39.2 |
| 550 | 277 | 530 | 5 | 50 | 725 | 6.408 | 500.5 | 31.25 | 0.9711 | 4908 | 31.2 |
| Supercritical phase | 600 | 327 | 620 | 5 | 50 | 725 | 1.554 | 121.4 | 7.578 | 0.2355 | 1190 | 7.58 |
|  | | | | | | | | | | | | |
| Liquid | 300 | 26.9 | 80.3 | 10 | 100 | 1450 | 11.26 | 879.8 | 54.92 | 1.707 | 8628 | 54.9 |
| 350 | 76.9 | 170 | 10 | 100 | 1450 | 10.61 | 828.6 | 51.73 | 1.608 | 8126 | 51.7 |
| 400 | 127 | 260 | 10 | 100 | 1450 | 9.926 | 775.3 | 48.40 | 1.504 | 7603 | 48.4 |
| 450 | 177 | 350 | 10 | 100 | 1450 | 9.189 | 717.7 | 44.81 | 1.393 | 7039 | 44.8 |
| 500 | 227 | 440 | 10 | 100 | 1450 | 8.342 | 651.6 | 40.68 | 1.264 | 6390 | 40.7 |
| 550 | 277 | 530 | 10 | 100 | 1450 | 7.276 | 568.4 | 35.48 | 1.103 | 5574 | 35.5 |
| Supercritical phase | 600 | 327 | 620 | 10 | 100 | 1450 | 5.711 | 446.1 | 27.85 | 0.8656 | 4375 | 27.8 |

Ацетон – плотность

| **State** | **Temperature** | | | **Pressure** | | | **Density** | | | | **Specific weight** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[MPa]** | **[bara]** | **[psia]** | **[mol/dm 3]** | **[g/l], [kg/m 3]** | **[lb m/ft 3]** | **[sl/ft 3]** | **[N/m 3]** | **[lb f/ft 3]** |
| Liquid at  equilibrium | 178.5 | -94.7 | -138.4 | 2.326E-06 | 0.0000233 | 0.000337 | 15.72 | 913.2 | 57.01 | 1.772 | 8955 | 57.0 |
| 210 | -63.2 | -81.7 | 9.66E-05 | 0.000966 | 0.0140 | 15.14 | 879.4 | 54.90 | 1.706 | 8624 | 54.9 |
| 240 | -33.2 | -27.7 | 0.00120 | 0.0120 | 0.174 | 14.59 | 847.5 | 52.91 | 1.645 | 8312 | 52.9 |
| 270 | -3.1 | 26.3 | 0.00785 | 0.0785 | 1.139 | 14.04 | 815.5 | 50.91 | 1.582 | 7997 | 50.9 |
| 300 | 26.9 | 80.3 | 0.03326 | 0.3326 | 4.824 | 13.47 | 782.6 | 48.85 | 1.518 | 7674 | 48.9 |
| 330 | 56.9 | 134 | 0.1040 | 1.040 | 15.09 | 12.88 | 748.1 | 46.70 | 1.451 | 7336 | 46.7 |
| 360 | 86.9 | 188 | 0.2619 | 2.619 | 37.98 | 12.24 | 711.1 | 44.39 | 1.380 | 6973 | 44.4 |
| 390 | 117 | 242 | 0.5624 | 5.624 | 81.56 | 11.55 | 670.5 | 41.86 | 1.301 | 6576 | 41.9 |
| 420 | 147 | 296 | 1.073 | 10.73 | 155.7 | 10.75 | 624.5 | 38.99 | 1.212 | 6124 | 39.0 |
| 450 | 177 | 350 | 1.876 | 18.76 | 272.1 | 9.804 | 569.4 | 35.55 | 1.105 | 5584 | 35.5 |
| 480 | 207 | 404 | 3.073 | 30.73 | 445.6 | 8.542 | 496.1 | 30.97 | 0.9626 | 4865 | 31.0 |
| 508.1 | 235.0 | 454.9 | 4.692 | 46.92 | 680.6 | 4.700 | 273.0 | 17.04 | 0.5297 | 2677 | 17.0 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gas at  equilibrium | 178.5 | -94.7 | -138.4 | 2.33E-06 | 0.0000233 | 0.000337 | 1.57E-06 | 0.00 | 5.68E-06 | 1.77E-07 | 0.0009 | 5.68E-06 |
| 210 | -63.2 | -81.7 | 9.66E-05 | 0.000966 | 0.014 | 5.54E-05 | 0.00 | 0.00020 | 6.24E-06 | 0.0315 | 2.01E-04 |
| 240 | -33.2 | -27.7 | 0.00120 | 0.0120 | 0.174 | 0.000604 | 0.04 | 0.00219 | 6.80E-05 | 0.344 | 0.0022 |
| 270 | -3.1 | 26.3 | 0.00785 | 0.0785 | 1.139 | 0.003537 | 0.21 | 0.01282 | 0.000399 | 2.01 | 0.0128 |
| 300 | 26.9 | 80.3 | 0.03326 | 0.3326 | 4.824 | 0.0137 | 0.80 | 0.04967 | 0.00154 | 7.80 | 0.0497 |
| 330 | 56.9 | 134 | 0.1040 | 1.040 | 15.09 | 0.0400 | 2.325 | 0.1452 | 0.00451 | 22.8 | 0.145 |
| 360 | 86.9 | 188 | 0.2619 | 2.619 | 37.98 | 0.0964 | 5.597 | 0.3494 | 0.0109 | 54.9 | 0.349 |
| 390 | 117 | 242 | 0.5624 | 5.624 | 81.56 | 0.2033 | 11.81 | 0.7371 | 0.0229 | 116 | 0.737 |
| 420 | 147 | 296 | 1.073 | 10.73 | 155.7 | 0.3942 | 22.89 | 1.429 | 0.0444 | 225 | 1.43 |
| 450 | 177 | 350 | 1.876 | 18.76 | 272.1 | 0.7347 | 42.67 | 2.664 | 0.0828 | 418 | 2.66 |
| 480 | 207 | 404 | 3.073 | 30.73 | 445.6 | 1.405 | 81.61 | 5.095 | 0.1583 | 800 | 5.09 |
| 508.1 | 235 | 455 | 4.692 | 46.92 | 680.6 | 4.700 | 273.0 | 17.04 | 0.5297 | 2677 | 17.0 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Liquid | 200 | -73.2 | -99.7 | 0.1 | 1 | 14.5 | 15.33 | 890.1 | 55.56 | 1.727 | 8729 | 55.6 |
| 250 | -23.2 | -9.7 | 0.1 | 1 | 14.5 | 14.41 | 837.0 | 52.25 | 1.624 | 8208 | 52.3 |
| 300 | 26.9 | 80.3 | 0.1 | 1 | 14.5 | 13.48 | 782.6 | 48.86 | 1.519 | 7675 | 48.9 |
| 328.8 | 55.7 | 132.2 | 0.1 | 1 | 14.5 | 12.90 | 749.4 | 46.78 | 1.454 | 7349 | 46.8 |
| Gas | 328.8 | 55.7 | 132 | 0.1 | 1 | 14.5 | 0.0386 | 2.240 | 0.1398 | 0.00435 | 22.0 | 0.140 |
| 350 | 76.9 | 170 | 0.1 | 1 | 14.5 | 0.0357 | 2.074 | 0.1295 | 0.00402 | 20.3 | 0.129 |
| 400 | 127 | 260 | 0.1 | 1 | 14.5 | 0.0307 | 1.784 | 0.1113 | 0.00346 | 17.5 | 0.111 |
| 450 | 177 | 350 | 0.1 | 1 | 14.5 | 0.0271 | 1.573 | 0.0982 | 0.00305 | 15.4 | 0.0982 |
| 500 | 227 | 440 | 0.1 | 1 | 14.5 | 0.0243 | 1.410 | 0.0880 | 0.00274 | 13.8 | 0.0880 |
| 550 | 277 | 530 | 0.1 | 1 | 14.5 | 0.0220 | 1.278 | 0.0798 | 0.00248 | 12.5 | 0.0798 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Liquid | 200 | -73.2 | -99.7 | 1 | 10 | 145 | 15.33 | 890.5 | 55.59 | 1.728 | 8733 | 55.6 |
| 250 | -23.2 | -9.7 | 1 | 10 | 145 | 14.42 | 837.7 | 52.29 | 1.625 | 8215 | 52.3 |
| 300 | 26.9 | 80.3 | 1 | 10 | 145 | 13.49 | 783.5 | 48.92 | 1.520 | 7684 | 48.9 |
| 350 | 76.9 | 170 | 1 | 10 | 145 | 12.48 | 725.0 | 45.26 | 1.407 | 7110 | 45.3 |
| 400 | 127 | 260 | 1 | 10 | 145 | 11.31 | 656.8 | 41.00 | 1.274 | 6441 | 41.0 |
| 416.5 | 143 | 290 | 1 | 10 | 145 | 10.85 | 630.3 | 39.35 | 1.223 | 6181 | 39.3 |
| Gas | 416.5 | 143 | 290 | 1 | 10 | 145 | 0.3658 | 21.25 | 1.326 | 0.0412 | 208.4 | 1.33 |
| 450 | 177 | 350 | 1 | 10 | 145 | 0.3125 | 18.15 | 1.133 | 0.0352 | 178.0 | 1.13 |
| 500 | 227 | 440 | 1 | 10 | 145 | 0.2654 | 15.41 | 0.9622 | 0.0299 | 151.1 | 0.962 |
| 550 | 277 | 530 | 1 | 10 | 145 | 0.2339 | 13.59 | 0.8481 | 0.0264 | 133.2 | 0.848 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Liquid | 200 | -73.2 | -99.7 | 5 | 50 | 725 | 15.37 | 892.5 | 55.72 | 1.732 | 8752 | 55.7 |
| 250 | -23.2 | -9.7 | 5 | 50 | 725 | 14.47 | 840.5 | 52.47 | 1.631 | 8242 | 52.5 |
| 300 | 26.9 | 80.3 | 5 | 50 | 725 | 13.56 | 787.6 | 49.17 | 1.528 | 7723 | 49.2 |
| 350 | 76.9 | 170 | 5 | 50 | 725 | 12.59 | 731.1 | 45.64 | 1.419 | 7170 | 45.6 |
| 400 | 127 | 260 | 5 | 50 | 725 | 11.49 | 667.3 | 41.66 | 1.295 | 6544 | 41.7 |
| 450 | 177 | 350 | 5 | 50 | 725 | 10.12 | 587.9 | 36.70 | 1.141 | 5766 | 36.7 |
| 500 | 227 | 440 | 5 | 50 | 725 | 7.814 | 453.8 | 28.33 | 0.8806 | 4450 | 28.3 |
| supercritical phase | 550 | 277 | 530 | 5 | 50 | 725 | 1.734 | 100.7 | 6.289 | 0.1955 | 988 | 6.29 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Liquid | 200 | -73.2 | -99.7 | 10 | 100 | 1450 | 15.41 | 895.0 | 55.87 | 1.737 | 8777 | 55.9 |
| 250 | -23.2 | -9.7 | 10 | 100 | 1450 | 14.53 | 843.8 | 52.67 | 1.637 | 8275 | 52.7 |
| 300 | 26.9 | 80.3 | 10 | 100 | 1450 | 13.64 | 792.3 | 49.46 | 1.537 | 7769 | 49.5 |
| 350 | 76.9 | 170 | 10 | 100 | 1450 | 12.71 | 738.1 | 46.08 | 1.432 | 7239 | 46.1 |
| 400 | 127 | 260 | 10 | 100 | 1450 | 11.68 | 678.5 | 42.36 | 1.317 | 6654 | 42.4 |
| 450 | 177 | 350 | 10 | 100 | 1450 | 10.49 | 609.3 | 38.04 | 1.182 | 5975 | 38.0 |
| 500 | 227 | 440 | 10 | 100 | 1450 | 8.9733 | 521.2 | 32.53 | 1.011 | 5111 | 32.5 |
| supercritical phase | 550 | 277 | 530 | 10 | 100 | 1450 | 6.66 | 386.8 | 24.15 | 0.7505 | 3793 | 24.1 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| supercritical  phase | 250 | -23.2 | -9.7 | 100 | 1000 | 14504 | 15.32 | 889.8 | 55.55 | 1.726 | 8726 | 55.5 |
| 300 | 26.9 | 80.3 | 100 | 1000 | 14504 | 14.66 | 851.3 | 53.14 | 1.652 | 8348 | 53.1 |
| 350 | 76.9 | 170 | 100 | 1000 | 14504 | 14.02 | 814.4 | 50.84 | 1.580 | 7987 | 50.8 |
| 400 | 127 | 260 | 100 | 1000 | 14504 | 13.41 | 778.8 | 48.62 | 1.511 | 7637 | 48.6 |
| 450 | 177 | 350 | 100 | 1000 | 14504 | 12.81 | 744.2 | 46.46 | 1.444 | 7298 | 46.5 |
| 500 | 227 | 440 | 100 | 1000 | 14504 | 12.23 | 710.5 | 44.36 | 1.379 | 6968 | 44.4 |
| 550 | 277 | 530 | 100 | 1000 | 14504 | 11.67 | 678.0 | 42.33 | 1.316 | 6649 | 42.3 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| supercritical  phase | 450 | 177 | 350 | 500 | 5000 | 72519 | 15.62 | 907.0 | 56.62 | 1.760 | 8894 | 56.6 |
| 500 | 227 | 440 | 500 | 5000 | 72519 | 15.31 | 889.0 | 55.50 | 1.725 | 8718 | 55.5 |
| 550 | 277 | 530 | 500 | 5000 | 72519 | 15.01 | 871.9 | 54.43 | 1.692 | 8550 | 54.4 |

Воздух – плотность

| **Gauge** **pressure** | **Density of air [kg/m 3] at different temperatures [°C]** | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[bar]** | **-1.1** | **4.4** | **10.0** | **15.6** | **21.1** | **26.7** | **32.2** | **37.8** | **48.9** | **60.0** | **65.6** | **93.3** | **121.1** | **148.9** | **204.4** | **260.0** | **315.6** |
| **0.00** | 1.30 | 1.28 | 1.25 | 1.22 | 1.20 | 1.19 | 1.15 | 1.14 | 1.11 | 1.06 | 1.04 | 0.96 | 0.90 | 0.83 | 0.74 | 0.66 | 0.61 |
| **0.34** | 1.75 | 1.71 | 1.68 | 1.63 | 1.62 | 1.59 | 1.55 | 1.52 | 1.47 | 1.43 | 1.39 | 1.30 | 1.20 | 1.12 | 0.99 | 0.90 | 0.80 |
| **0.69** | 2.18 | 2.15 | 2.10 | 2.05 | 2.02 | 1.99 | 1.94 | 1.91 | 1.84 | 1.78 | 1.75 | 1.62 | 1.51 | 1.41 | 1.25 | 1.12 | 1.01 |
| **1.38** | 3.08 | 3.01 | 2.96 | 2.88 | 2.84 | 2.79 | 2.74 | 2.69 | 2.59 | 2.50 | 2.47 | 2.27 | 2.11 | 1.97 | 1.75 | 1.57 | 1.43 |
| **2.07** | 3.96 | 3.88 | 3.81 | 3.72 | 3.65 | 3.59 | 3.52 | 3.46 | 3.33 | 3.22 | 3.17 | 2.93 | 2.72 | 2.55 | 2.26 | 2.02 | 1.83 |
| **2.72** | 4.84 | 4.73 | 4.66 | 4.55 | 4.47 | 4.39 | 4.31 | 4.23 | 4.08 | 3.94 | 3.88 | 3.60 | 3.33 | 3.12 | 2.76 | 2.47 | 2.24 |
| **3.45** | 5.72 | 5.61 | 5.51 | 5.38 | 5.29 | 5.19 | 5.09 | 5.00 | 4.84 | 4.66 | 4.60 | 4.24 | 3.94 | 3.68 | 3.25 | 2.92 | 2.64 |
| **4.14** | 6.60 | 6.47 | 6.36 | 6.22 | 6.10 | 5.99 | 5.88 | 5.78 | 5.57 | 5.40 | 5.30 | 4.90 | 4.55 | 4.26 | 3.76 | 3.36 | 3.04 |
| **4.83** | 7.48 | 7.34 | 7.22 | 7.05 | 6.92 | 6.79 | 6.66 | 6.55 | 6.33 | 6.12 | 6.01 | 5.56 | 5.16 | 4.82 | 4.26 | 3.81 | 3.46 |
| **5.52** | 8.36 | 8.20 | 8.07 | 7.88 | 7.74 | 7.59 | 7.45 | 7.32 | 7.06 | 6.84 | 6.73 | 6.22 | 5.78 | 5.40 | 4.77 | 4.28 | 3.86 |
| **6.21** | 9.26 | 9.07 | 8.92 | 8.71 | 8.55 | 8.39 | 8.25 | 8.09 | 7.82 | 7.56 | 7.43 | 6.87 | 6.39 | 5.96 | 5.27 | 4.73 | 4.28 |
| **6.89** | 10.14 | 9.93 | 9.77 | 9.55 | 9.37 | 9.19 | 9.03 | 8.87 | 8.57 | 8.28 | 8.14 | 7.53 | 7.00 | 6.54 | 5.77 | 5.17 | 4.68 |
| **8.27** | 11.90 | 11.66 | 11.49 | 11.21 | 11.00 | 10.80 | 10.60 | 10.41 | 10.06 | 9.72 | 9.56 | 8.84 | 8.22 | 7.67 | 6.78 | 6.07 | 5.49 |
| **9.65** | 13.66 | 13.39 | 13.18 | 12.88 | 12.64 | 12.40 | 12.17 | 11.97 | 11.55 | 11.16 | 10.99 | 10.16 | 9.43 | 8.81 | 7.78 | 6.98 | 6.31 |
| **10.34** | 14.56 | 14.26 | 14.03 | 13.71 | 13.46 | 13.20 | 12.96 | 12.73 | 12.30 | 11.89 | 11.69 | 10.81 | 10.04 | 9.39 | 8.30 | 7.43 | 6.73 |
| **13.79** | 18.98 | 18.60 | 18.29 | 17.88 | 17.54 | 17.22 | 16.90 | 16.60 | 16.03 | 15.49 | 15.23 | 14.08 | 13.09 | 12.24 | 10.81 | 9.68 | 8.76 |
| **17.24** | 23.39 | 22.92 | 22.55 | 22.04 | 21.62 | 21.22 | 20.84 | 20.47 | 19.77 | 19.11 | 18.79 | 17.36 | 16.15 | 15.07 | 13.33 | 11.93 | 10.81 |
| **20.68** | 27.81 | 27.26 | 26.81 | 26.21 | 25.71 | 25.23 | 24.78 | 24.33 | 23.50 | 22.71 | 22.35 | 20.65 | 19.19 | 17.92 | 15.84 | 14.19 | 12.85 |
| **27.58** | 36.68 | 35.88 | 35.40 | 34.60 | 33.96 | 33.32 | 32.68 | 32.04 | 30.96 | 29.92 | 29.44 | 27.20 | 25.29 | 23.63 | 20.87 | 18.69 | 16.93 |
| **34.47** | 45.49 | 44.53 | 43.89 | 42.93 | 42.13 | 41.33 | 40.53 | 39.73 | 38.44 | 37.16 | 36.52 | 33.80 | 31.38 | 29.31 | 25.92 | 23.21 | 21.02 |
| **48.26** | 63.11 | 61.83 | 60.87 | 59.59 | 58.47 | 57.35 | 56.22 | 55.26 | 53.34 | 51.58 | 50.78 | 46.93 | 43.57 | 40.69 | 36.04 | 32.20 | 29.19 |
| **55.16** | 71.92 | 70.48 | 69.36 | 67.92 | 66.64 | 65.36 | 64.07 | 62.95 | 60.87 | 58.79 | 57.83 | 53.50 | 49.66 | 46.45 | 41.01 | 36.68 | 33.32 |
| **62.05** | 80.89 | 79.29 | 78.01 | 76.25 | 74.81 | 73.36 | 72.08 | 70.80 | 68.24 | 66.00 | 64.87 | 60.07 | 55.74 | 52.06 | 45.97 | 41.33 | 37.32 |
| **68.95** | 89.70 | 87.94 | 86.50 | 84.58 | 82.98 | 81.37 | 79.93 | 78.49 | 75.77 | 73.20 | 72.08 | 66.64 | 61.83 | 57.83 | 51.10 | 45.81 | 41.49 |

Этанол – вязкость

| **State** | **Temperature** | | | **Pressure** | | **Dynamic (Absolute) Viscosity** | | | | | **Kinematic Viscosity** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[bara]** | **[psia]** | **[μPa s]** | **[cP]** | **[lb fs/ft 2\*10 -6]** | **[lb m/ft s\*10 -6]** | **[lb m/ft h]** | **[cSt], [m 2/s\*10 -6]** | **[ft 2/s\*10 -6]** |
| Liquid at equilibrium | 250 | -23.2 | -9.7 | 0.00270 | 0.0392 | 3141 | 3.141 | 65.60 | 2111 | 7.598 | 3.806 | 40.97 |
| 260 | -13.2 | 8.3 | 0.00602 | 0.0874 | 2465 | 2.465 | 51.48 | 1656 | 5.963 | 3.015 | 32.46 |
| 265 | -8.1 | 17.3 | 0.00895 | 0.130 | 2182 | 2.182 | 45.57 | 1466 | 5.278 | 2.685 | 28.90 |
| 280 | 6.9 | 44.3 | 0.0258 | 0.375 | 1564 | 1.564 | 32.67 | 1051 | 3.784 | 1.954 | 21.04 |
| 295 | 21.9 | 71.3 | 0.0661 | 0.959 | 1153 | 1.153 | 24.07 | 774.4 | 2.788 | 1.462 | 15.74 |
| 300 | 26.9 | 80 | 0.0877 | 1.27 | 1044 | 1.044 | 21.80 | 701.5 | 2.526 | 1.332 | 14.34 |
| 310 | 36.9 | 98 | 0.153 | 2.22 | 869.4 | 0.8694 | 18.16 | 584.2 | 2.103 | 1.121 | 12.07 |
| 320 | 46.9 | 116 | 0.252 | 3.66 | 726.6 | 0.7266 | 15.18 | 488.3 | 1.758 | 0.9487 | 10.21 |
| 340 | 66.9 | 152 | 0.635 | 9.22 | 524.9 | 0.5249 | 10.96 | 352.7 | 1.270 | 0.7019 | 7.555 |
| 370 | 96.9 | 206 | 2.02 | 29.3 | 337.0 | 0.3370 | 7.039 | 226.5 | 0.8153 | 0.4703 | 5.062 |
| 400 | 127 | 260 | 5.24 | 76.1 | 225.9 | 0.2259 | 4.718 | 151.8 | 0.5465 | 0.3319 | 3.573 |
| 430 | 157 | 314 | 11.6 | 169 | 155.4 | 0.1554 | 3.245 | 104.4 | 0.3758 | 0.2436 | 2.622 |
| 460 | 187 | 368 | 22.9 | 332 | 107.6 | 0.1076 | 2.248 | 72.32 | 0.2603 | 0.1843 | 1.984 |
| 490 | 217 | 422 | 41.0 | 594 | 72.21 | 0.07221 | 1.508 | 48.52 | 0.1747 | 0.1424 | 1.533 |
| 501.4 | 228 | 443 | 50.0 | 725 | 59.51 | 0.05951 | 1.243 | 39.99 | 0.1440 | 0.1290 | 1.389 |
|  | | | | | | | | | | | | |
| Gas at equilibrium | 250 | -23.2 | -9.7 | 0.00270 | 0.0392 | 7.272 | 0.00727 | 0.1519 | 4.886 | 0.01759 | 1214 | 13071 |
| 260 | -13.2 | 8.3 | 0.00602 | 0.0874 | 7.586 | 0.00759 | 0.1584 | 5.098 | 0.01835 | 590.4 | 6354 |
| 265 | -8.1 | 17.3 | 0.00895 | 0.130 | 7.743 | 0.00774 | 0.1617 | 5.203 | 0.01873 | 413.3 | 4448 |
| 280 | 6.9 | 44.3 | 0.0258 | 0.375 | 8.211 | 0.00821 | 0.1715 | 5.518 | 0.01986 | 160.4 | 1726 |
| 295 | 21.9 | 71.3 | 0.0661 | 0.959 | 8.676 | 0.00868 | 0.1812 | 5.830 | 0.02099 | 69.54 | 748.5 |
| 300 | 26.0 | 78.8 | 0.0877 | 1.27 | 8.829 | 0.00883 | 0.1844 | 5.933 | 0.02136 | 54.20 | 583.4 |
| 310 | 36.9 | 98.3 | 0.153 | 2.22 | 9.135 | 0.00914 | 0.1908 | 6.139 | 0.02210 | 33.15 | 356.8 |
| 320 | 46.9 | 116 | 0.252 | 3.66 | 9.344 | 0.00934 | 0.1952 | 6.279 | 0.02260 | 21.11 | 227.2 |
| 340 | 66.9 | 152 | 0.635 | 9.22 | 10.04 | 0.01004 | 0.2097 | 6.747 | 0.02429 | 9.485 | 102.1 |
| 370 | 96.9 | 206 | 2.02 | 29.3 | 10.93 | 0.01093 | 0.2283 | 7.344 | 0.02644 | 3.436 | 36.99 |
| 400 | 127 | 260 | 5.24 | 76.1 | 11.82 | 0.01182 | 0.2469 | 7.943 | 0.02859 | 1.476 | 15.89 |
| 430 | 157 | 314 | 11.6 | 169 | 12.77 | 0.01277 | 0.2668 | 8.584 | 0.03090 | 0.7168 | 7.715 |
| 460 | 187 | 368 | 22.9 | 332 | 13.96 | 0.01396 | 0.2916 | 9.381 | 0.03377 | 0.3806 | 4.096 |
| 490 | 217 | 422 | 41.0 | 594 | 15.98 | 0.01598 | 0.3338 | 10.74 | 0.03866 | 0.2149 | 2.313 |
| 501.4 | 228 | 443 | 50.0 | 725 | 17.45 | 0.01745 | 0.3645 | 11.73 | 0.04222 | 0.1737 | 1.870 |
|  | | | | | | | | | | | | |
| Liquid | 248 | -25 | -13 | 1 | 14.5 | 3260 | 3.260 | 68.09 | 2191 | 7.886 | 3.945 | 42.47 |
| 273 | 0 | 32 | 1 | 14.5 | 1786 | 1.786 | 37.30 | 1200 | 4.320 | 2.214 | 23.83 |
| 298 | 25 | 77.0 | 1 | 14.5 | 1074 | 1.074 | 22.43 | 721.7 | 2.598 | 1.368 | 14.73 |
| 323 | 50 | 122 | 1 | 14.5 | 694.0 | 0.6940 | 14.49 | 466.3 | 1.679 | 0.9092 | 9.787 |
| 348 | 75 | 167 | 1 | 14.5 | 476.0 | 0.4760 | 9.941 | 319.9 | 1.151 | 0.6432 | 6.923 |
| 351.1 | 77.9 | 172.2 | 1 | 14.5 | 443.1 | 0.4431 | 9.255 | 297.8 | 1.072 | 0.6014 | 6.473 |
| Gas | 351.1 | 77.9 | 172.2 | 1 | 14.5 | 10.37 | 0.01037 | 0.2166 | 6.968 | 0.02508 | 6.373 | 68.60 |
| 400 | 127 | 260 | 1 | 14.5 | 11.85 | 0.01185 | 0.2476 | 7.965 | 0.02867 | 8.414 | 90.57 |
| 500 | 227 | 440 | 1 | 14.5 | 14.77 | 0.01477 | 0.3084 | 9.924 | 0.03573 | 13.25 | 142.6 |
| 600 | 327 | 620 | 1 | 14.5 | 17.54 | 0.01754 | 0.3664 | 11.79 | 0.04244 | 18.96 | 204.1 |
|  | | | | | | | | | | | | |
| Liquid | 300 | 27 | 80 | 10 | 145 | 1053 | 1.053 | 22.00 | 707.7 | 2.548 | 1.342 | 14.45 |
| 323 | 50 | 122 | 10 | 145 | 700.0 | 0.7000 | 14.62 | 470.4 | 1.693 |  |  |
| 348 | 75 | 167 | 10 | 145 | 483.0 | 0.4830 | 10.09 | 324.6 | 1.168 |  |  |
| 400 | 127 | 260 | 10 | 145 | 227.3 | 0.2273 | 4.748 | 152.8 | 0.5499 | 0.3335 | 3.590 |
| 423.9 | 151 | 303 | 10 | 145 | 167.5 | 0.1675 | 3.499 | 112.6 | 0.4052 | 0.2588 | 2.786 |
| Gas | 423.9 | 151 | 303 | 10 | 145 | 12.57 | 0.01257 | 0.2625 | 8.445 | 0.03040 | 0.8243 | 8.873 |
| 500 | 227 | 440 | 10 | 145 | 14.86 | 0.01486 | 0.3103 | 9.985 | 0.03595 | 1.262 | 13.58 |
| 600 | 327 | 620 | 10 | 145 | 17.68 | 0.01768 | 0.3692 | 11.88 | 0.04276 | 1.878 | 20.21 |
|  | | | | | | | | | | | | |
| Liquid | 300 | 27 | 80 | 50 | 725 | 1080 | 1.080 | 22.55 | 725.5 | 2.612 | 1.370 | 14.74 |
| 323 | 50 | 122 | 50 | 725 | 726.4 | 0.7264 | 15.17 | 488.1 | 1.757 |  |  |
| 348 | 75 | 167 | 50 | 725 | 498.0 | 0.4980 | 10.40 | 334.6 | 1.205 |  |  |
| 400 | 127 | 260 | 50 | 725 | 238.8 | 0.2388 | 4.988 | 160.5 | 0.5777 | 0.3465 | 3.730 |
| 501.4 | 228 | 443 | 50 | 725 | 59.51 | 0.05951 | 1.243 | 39.99 | 0.1440 | 0.1290 | 1.389 |
| Gas | 501.4 | 228 | 443 | 50 | 725 | 17.45 | 0.01745 | 0.3645 | 11.73 | 0.04222 | 0.1737 | 1.870 |
| 600 | 327 | 620 | 50 | 725 | 18.97 | 0.01897 | 0.3962 | 12.75 | 0.04589 | 0.3621 | 3.898 |
|  | | | | | | | | | | | | |
| Liquid | 300 | 27 | 80 | 100 | 1450 | 1112 | 1.112 | 23.22 | 747.1 | 2.690 | 1.403 | 15.10 |
| 323 | 50 | 122 | 100 | 1450 | 758.6 | 0.7586 | 15.84 | 509.8 | 1.835 |  |  |
| 348 | 75 | 167 | 100 | 1450 | 520.0 | 0.5200 | 10.86 | 349.4 | 1.258 |  |  |
| 400 | 127 | 260 | 100 | 1450 | 252.4 | 0.2524 | 5.271 | 169.6 | 0.6106 | 0.3617 | 3.893 |
| 500 | 227 | 440 | 100 | 1450 | 80.68 | 0.08068 | 1.685 | 54.21 | 0.1952 | 0.1520 | 1.636 |
| 600 | 327 | 620 | 100 | 1450 | 23.41 | 0.02341 | 0.4889 | 15.73 | 0.05663 | 0.1815 | 1.953 |

Этанол – плотность

| **State** | **Temperature** | | | **Pressure** | | | **Density** | | | | **Specific weight** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[MPa]** | **[bara]** | **[psia]** | **[mol/dm 3]** | **[g/l], [kg/m 3]** | **[lb m/ft 3]** | **[sl/ft 3]** | **[N/m 3]** | **[lb f/ft 3]** |
| Liquid at equilibrium | 250 | -23.2 | -9.7 | 0.000270 | 0.00270 | 0.0392 | 17.91 | 825.2 | 51.51 | 1.601 | 8092 | 51.5 |
| 280 | 6.9 | 44.3 | 0.00258 | 0.0258 | 0.375 | 17.38 | 800.5 | 49.97 | 1.553 | 7850 | 50.0 |
| 310 | 36.9 | 98.3 | 0.0153 | 0.153 | 2.22 | 16.83 | 775.3 | 48.40 | 1.504 | 7603 | 48.4 |
| 340 | 66.9 | 152 | 0.0635 | 0.635 | 9.22 | 16.23 | 747.8 | 46.68 | 1.451 | 7333 | 46.7 |
| 370 | 96.9 | 206 | 0.2021 | 2.021 | 29.30 | 15.56 | 716.7 | 44.74 | 1.391 | 7029 | 44.7 |
| 400 | 127 | 260 | 0.5245 | 5.245 | 76.07 | 14.77 | 680.6 | 42.49 | 1.321 | 6675 | 42.5 |
| 423.9 | 151 | 303 | 1.000 | 10.00 | 145.0 | 14.05 | 647.2 | 40.41 | 1.256 | 6347 | 40.4 |
| 430 | 157 | 314 | 1.165 | 11.65 | 169.0 | 13.84 | 637.7 | 39.81 | 1.237 | 6254 | 39.8 |
| 460 | 187 | 368 | 2.292 | 22.92 | 332.4 | 12.68 | 584.0 | 36.46 | 1.133 | 5727 | 36.5 |
| 490 | 217 | 422 | 4.095 | 40.95 | 594.0 | 11.01 | 507.1 | 31.66 | 0.9839 | 4973 | 31.7 |
| 501.4 | 228 | 443 | 5.000 | 50.00 | 725.2 | 10.01 | 461.3 | 28.80 | 0.8951 | 4524 | 28.8 |
| 513.9 | 241 | 465 | 6.148 | 61.48 | 891.7 | 5.991 | 276.0 | 17.23 | 0.5355 | 2707 | 17.2 |
|  | | | | | | | | | | | | |
| Gas at equilibrium | 250 | -23.2 | -9.7 | 0.000270 | 0.00270 | 0.039 | 0.00013 | 0.0060 | 0.00037 | 0.00001 | 0.059 | 0.00037 |
| 280 | 6.9 | 44.3 | 0.00258 | 0.0258 | 0.375 | 0.00111 | 0.0512 | 0.00320 | 0.00010 | 0.502 | 0.00320 |
| 298.2 | 25.0 | 77.0 | 0.0080 | 0.0800 | 1.16 | 0.00315 | 0.145 | 0.00905 | 0.00028 | 1.42 | 0.00905 |
| 310 | 36.9 | 98.3 | 0.0153 | 0.153 | 2.22 | 0.00598 | 0.276 | 0.0172 | 0.00053 | 2.70 | 0.0172 |
| 340 | 66.9 | 152 | 0.0635 | 0.635 | 9.22 | 0.02298 | 1.058 | 0.0661 | 0.0021 | 10.4 | 0.0661 |
| 370 | 96.9 | 206 | 0.2021 | 2.021 | 29.30 | 0.06904 | 3.181 | 0.1986 | 0.0062 | 31.2 | 0.1986 |
| 400 | 127 | 260 | 0.5245 | 5.245 | 76.07 | 0.1739 | 8.009 | 0.5000 | 0.0155 | 78.5 | 0.5000 |
| 423.9 | 151 | 303 | 1.000 | 10.00 | 145.0 | 0.3310 | 15.25 | 0.9518 | 0.0296 | 150 | 0.9518 |
| 430 | 157 | 314 | 1.165 | 11.65 | 169.0 | 0.3868 | 17.82 | 1.113 | 0.0346 | 175 | 1.113 |
| 460 | 187 | 368 | 2.292 | 22.92 | 332.4 | 0.7963 | 36.69 | 2.290 | 0.0712 | 360 | 2.290 |
| 490 | 217 | 422 | 4.095 | 40.95 | 594.0 | 1.614 | 74.37 | 4.643 | 0.1443 | 729 | 4.643 |
| 501.4 | 228 | 443 | 5.000 | 50.00 | 725.2 | 2.181 | 100.5 | 6.272 | 0.1950 | 985 | 6.272 |
| 513.9 | 241 | 465 | 6.148 | 61.48 | 891.7 | 5.991 | 276.0 | 17.23 | 0.5355 | 2707 | 17.23 |
|  | | | | | | | | | | | | |
| Liquid | 300 | 26.9 | 80.3 | 0.1 | 1 | 14.5 | 17.02 | 783.9 | 48.94 | 1.521 | 7688 | 48.94 |
| 351.1 | 77.9 | 172 | 0.1 | 1 | 14.5 | 15.99 | 736.8 | 46.00 | 1.430 | 7226 | 46.00 |
| Gas | 351.1 | 77.9 | 172 | 0.1 | 1 | 14.5 | 0.03531 | 1.627 | 0.1016 | 0.0032 | 16.0 | 0.102 |
| 400 | 127 | 260 | 0.1 | 1 | 14.5 | 0.03058 | 1.409 | 0.0879 | 0.0027 | 13.8 | 0.088 |
| 500 | 227 | 440 | 0.1 | 1 | 14.5 | 0.02419 | 1.114 | 0.0696 | 0.0022 | 10.9 | 0.070 |
| 600 | 327 | 620 | 0.1 | 1 | 14.5 | 0.02009 | 0.93 | 0.0578 | 0.0018 | 9.07 | 0.058 |
|  | | | | | | | | | | | | |
| Liquid | 300 | 26.9 | 80.3 | 1 | 10 | 145 | 17.03 | 784.8 | 48.99 | 1.523 | 7696 | 48.99 |
| 400 | 127 | 260 | 1 | 10 | 145 | 14.80 | 681.6 | 42.55 | 1.323 | 6684 | 42.55 |
| 423.9 | 151 | 303 | 1 | 10 | 145 | 14.05 | 647.2 | 40.41 | 1.256 | 6347 | 40.41 |
| Gas | 423.9 | 151 | 303 | 1 | 10 | 145 | 0.3310 | 15.25 | 0.9518 | 0.0296 | 150 | 0.952 |
| 500 | 227 | 440 | 1 | 10 | 145 | 0.2557 | 11.78 | 0.7353 | 0.0229 | 116 | 0.735 |
| 600 | 327 | 620 | 1 | 10 | 145 | 0.2044 | 9.415 | 0.5878 | 0.0183 | 92.3 | 0.588 |
|  | | | | | | | | | | | | |
| Liquid | 300 | 26.9 | 80.3 | 5 | 50 | 725 | 17.11 | 788.3 | 49.21 | 1.530 | 7731 | 49.21 |
| 400 | 127 | 260 | 5 | 50 | 725 | 14.96 | 689.3 | 43.03 | 1.337 | 6759 | 43.03 |
| 501.4 | 228 | 443 | 5 | 50 | 725 | 10.01 | 461.3 | 28.80 | 0.8951 | 4524 | 28.80 |
| Gas | 501.4 | 228 | 443 | 5 | 50 | 725 | 2.181 | 100.5 | 6.272 | 0.1950 | 985 | 6.272 |
| 600 | 327 | 620 | 5 | 50 | 725 | 1.137 | 52.39 | 3.271 | 0.1017 | 514 | 3.271 |
|  | | | | | | | | | | | | |
| Liquid | 300 | 26.9 | 80.3 | 10 | 100 | 1450 | 17.20 | 792.5 | 49.48 | 1.538 | 7772 | 49.48 |
| 400 | 127 | 260 | 10 | 100 | 1450 | 15.15 | 697.8 | 43.56 | 1.354 | 6843 | 43.56 |
| 500 | 227 | 440 | 10 | 100 | 1450 | 11.52 | 530.8 | 33.14 | 1.030 | 5205 | 33.14 |
| Supercritical phase | 600 | 327 | 620 | 10 | 100 | 1450 | 2.800 | 129.0 | 8.053 | 0.2503 | 1265 | 8.053 |
|  | | | | | | | | | | | | |
| Liquid | 300 | 26.9 | 80.3 | 100 | 1000 | 14500 | 18.39 | 847.2 | 52.89 | 1.644 | 8308 | 52.89 |
| 400 | 127 | 260 | 100 | 1000 | 14500 | 17.03 | 784.6 | 48.98 | 1.522 | 7694 | 48.98 |
| 500 | 227 | 440 | 100 | 1000 | 14500 | 15.41 | 709.8 | 44.31 | 1.377 | 6961 | 44.31 |
| Supercritical phase | 600 | 327 | 620 | 100 | 1000 | 14500 | 13.60 | 626.6 | 39.12 | 1.216 | 6145 | 39.12 |
|  | | | | | | | | | | | | |
| Liquid | 300 | 26.9 | 80.3 | 200 | 2000 | 29000 | 19.24 | 886.6 | 55.35 | 1.720 | 8694 | 55.35 |
| 400 | 127 | 260 | 200 | 2000 | 29000 | 18.14 | 835.6 | 52.17 | 1.621 | 8195 | 52.17 |
| 500 | 227 | 440 | 200 | 2000 | 29000 | 16.88 | 777.6 | 48.54 | 1.509 | 7625 | 48.54 |
| Supercritical phase | 600 | 327 | 620 | 200 | 2000 | 29000 | 15.51 | 714.3 | 44.59 | 1.386 | 7005 | 44.59 |

Диоксид углерода – плотность

| **State** | **Temperature** | | | **Pressure** | | | **Density** | | | | **Specific weight** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[MPa]** | **[bara]** | **[psia]** | **[mol/dm 3]** | **[g/l] = [kg/m 3]** | **[lb m/ft 3]** | **[sl/ft 3\*10 -3]** | **[N/m 3]** | **[lb f/ft 3]** |
| Gas | 220 | -53.2 | -63.7 | 0.1 | 1 | 14.5 | 0.05542 | 2.439 | 0.1523 | 4.732 | 23.9 | 0.152 |
| 240 | -33.2 | -27.7 | 0.1 | 1 | 14.5 | 0.05063 | 2.228 | 0.1391 | 4.323 | 21.8 | 0.139 |
| 250 | -23.2 | -9.7 | 0.1 | 1 | 14.5 | 0.04854 | 2.136 | 0.1334 | 4.145 | 21.0 | 0.133 |
| 260 | -13.2 | 8.3 | 0.1 | 1 | 14.5 | 0.04663 | 2.052 | 0.1281 | 3.982 | 20.1 | 0.128 |
| 280 | 6.9 | 44.3 | 0.1 | 1 | 14.5 | 0.04322 | 1.902 | 0.1187 | 3.690 | 18.7 | 0.119 |
| 300 | 26.9 | 80.3 | 0.1 | 1 | 14.5 | 0.04029 | 1.773 | 0.1107 | 3.440 | 17.4 | 0.111 |
| 320 | 47 | 116 | 0.1 | 1 | 14.5 | 0.03774 | 1.661 | 0.1037 | 3.223 | 16.3 | 0.104 |
| 340 | 67 | 152 | 0.1 | 1 | 14.5 | 0.03549 | 1.562 | 0.09751 | 3.031 | 15.3 | 0.0975 |
| 360 | 87 | 188 | 0.1 | 1 | 14.5 | 0.03349 | 1.474 | 0.09202 | 2.860 | 14.5 | 0.0920 |
| 400 | 127 | 260 | 0.1 | 1 | 14.5 | 0.03013 | 1.326 | 0.08278 | 2.573 | 13.0 | 0.0828 |
| 450 | 177 | 350 | 0.1 | 1 | 14.5 | 0.02658 | 1.170 | 0.07303 | 2.270 | 11.5 | 0.0730 |
| 500 | 227 | 440 | 0.1 | 1 | 14.5 | 0.02406 | 1.059 | 0.06611 | 2.055 | 10.4 | 0.0661 |
| 600 | 327 | 620 | 0.1 | 1 | 14.5 | 0.02005 | 0.8824 | 0.05509 | 1.712 | 8.65 | 0.0551 |
| 650 | 377 | 710 | 0.1 | 1 | 14.5 | 0.01851 | 0.8144 | 0.05084 | 1.580 | 7.99 | 0.0508 |
| 850 | 577 | 1070 | 0.1 | 1 | 14.5 | 0.01415 | 0.6226 | 0.03887 | 1.208 | 6.11 | 0.0389 |
| 1050 | 777 | 1430 | 0.1 | 1 | 14.5 | 0.01145 | 0.5040 | 0.03146 | 0.978 | 4.94 | 0.0315 |
|  | | | | | | | | | | | | |
| Gas | 233.03 | -40.1 | -40.2 | 1 | 10 | 145 | 0.5910 | 26.01 | 1.624 | 50.47 | 255 | 1.62 |
| 240 | -33.2 | -27.7 | 1 | 10 | 145 | 0.5649 | 24.86 | 1.552 | 48.24 | 244 | 1.55 |
| 250 | -23.2 | -9.7 | 1 | 10 | 145 | 0.5325 | 23.44 | 1.463 | 45.47 | 230 | 1.46 |
| 260 | -13.2 | 8.3 | 1 | 10 | 145 | 0.5047 | 22.21 | 1.387 | 43.09 | 218 | 1.39 |
| 280 | 6.9 | 44.3 | 1 | 10 | 145 | 0.4590 | 20.20 | 1.261 | 39.19 | 198 | 1.26 |
| 300 | 26.9 | 80.3 | 1 | 10 | 145 | 0.4222 | 18.58 | 1.160 | 36.05 | 182 | 1.16 |
| 320 | 47 | 116 | 1 | 10 | 145 | 0.3915 | 17.23 | 1.076 | 33.43 | 169 | 1.08 |
| 340 | 67 | 152 | 1 | 10 | 145 | 0.3656 | 16.09 | 1.004 | 31.22 | 158 | 1.00 |
| 360 | 87 | 188 | 1 | 10 | 145 | 0.3433 | 15.11 | 0.9433 | 29.32 | 148 | 0.943 |
| 400 | 127 | 260 | 1 | 10 | 145 | 0.3063 | 13.48 | 0.8415 | 26.16 | 132 | 0.842 |
| 450 | 177 | 350 | 1 | 10 | 145 | 0.2704 | 11.90 | 0.7428 | 23.09 | 117 | 0.743 |
| 500 | 227 | 440 | 1 | 10 | 145 | 0.2422 | 10.66 | 0.6655 | 20.68 | 105 | 0.665 |
| 600 | 327 | 620 | 1 | 10 | 145 | 0.2010 | 8.845 | 0.5522 | 17.16 | 86.7 | 0.552 |
| 650 | 377 | 710 | 1 | 10 | 145 | 0.1853 | 8.154 | 0.5090 | 15.82 | 80.0 | 0.509 |
| 850 | 577 | 1070 | 1 | 10 | 145 | 0.1413 | 6.219 | 0.3882 | 12.07 | 61.0 | 0.388 |
| 1050 | 777 | 1430 | 1 | 10 | 145 | 0.1143 | 5.030 | 0.3140 | 9.760 | 49.3 | 0.314 |
|  | | | | | | | | | | | | |
| Liquid | 250 | -23.2 | -9.7 | 5 | 50 | 725 | 24.06 | 1059 | 66.10 | 2055 | 10384 | 66.1 |
| 287.43 | 14.3 | 57.7 | 5 | 50 | 725 | 18.80 | 827.3 | 51.65 | 1605 | 8113 | 51.6 |
| Gas | 287.43 | 14.3 | 57.7 | 5 | 50 | 725 | 3.560 | 156.67 | 9.781 | 304.0 | 1536 | 9.78 |
| 450 | 177 | 350 | 5 | 50 | 725 | 1.416 | 62.30 | 3.889 | 120.9 | 611 | 3.89 |
| 650 | 377 | 710 | 5 | 50 | 725 | 0.9298 | 40.92 | 2.555 | 79.40 | 401 | 2.55 |
| 850 | 577 | 1070 | 5 | 50 | 725 | 0.7024 | 30.91 | 1.930 | 59.98 | 303 | 1.93 |
| 1050 | 777 | 1430 | 5 | 50 | 725 | 0.5666 | 24.93 | 1.557 | 48.38 | 245 | 1.56 |
|  | | | | | | | | | | | | |
| Liquid | 250 | -23.2 | -9.7 | 10 | 100 | 1450 | 24.46 | 1076 | 67.20 | 2089 | 10556 | 67.2 |
| Supercritical phase | 450 | 177 | 350 | 10 | 100 | 1450 | 2.991 | 131.6 | 8.218 | 255.4 | 1291 | 8.22 |
| 650 | 377 | 710 | 10 | 100 | 1450 | 1.863 | 82.00 | 5.119 | 159.1 | 804.1 | 5.12 |
| 850 | 577 | 1070 | 10 | 100 | 1450 | 1.393 | 61.31 | 3.827 | 119.0 | 601 | 3.83 |
| 1050 | 777 | 1430 | 10 | 100 | 1450 | 1.121 | 49.31 | 3.078 | 95.68 | 484 | 3.08 |
|  | | | | | | | | | | | | |
| Supercritical phase | 250 | -23.2 | -9.7 | 100 | 1000 | 14504 | 28.08 | 1236 | 77.13 | 2397 | 12117 | 77.1 |
| 450 | 177 | 350 | 100 | 1000 | 14504 | 19.25 | 847.0 | 52.88 | 1643 | 8306 | 52.9 |
| 650 | 377 | 710 | 100 | 1000 | 14504 | 13.68 | 601.9 | 37.58 | 1168 | 5903 | 37.6 |
| 850 | 577 | 1070 | 100 | 1000 | 14504 | 10.64 | 468.1 | 29.22 | 908.2 | 4590 | 29.2 |
| 1050 | 777 | 1430 | 100 | 1000 | 14504 | 8.793 | 387.0 | 24.16 | 750.8 | 3795 | 24.2 |

Этан – плотность

| **State** | **Temperature** | | | **Pressure** | | **Density** | | | | **Specific weight** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[bara]** | **[psia]** | **[mol/dm 3]** | **[g/l], [kg/m 3]** | **[lb/ft 3]** | **[sl/ft 3]** | **[N/m 3]** | **[lb f/ft 3]** |
| Liquid at  equilibrium | 90.368 | -182.78 | -297.01 | 1.14E-05 | 1.65E-04 | 21.67 | 651.6 | 40.68 | 1.264 | 6390 | 40.7 |
| 100 | -173 | -280 | 1.11E-04 | 0.00161 | 21.32 | 641.0 | 40.01 | 1.244 | 6286 | 40.0 |
| 120 | -153 | -244 | 0.00352 | 0.05110 | 20.58 | 619.0 | 38.64 | 1.201 | 6070 | 38.6 |
| 140 | -133 | -208 | 0.0381 | 0.553 | 19.84 | 596.6 | 37.24 | 1.158 | 5851 | 37.2 |
| 160 | -113 | -172 | 0.2141 | 3.105 | 19.07 | 573.6 | 35.81 | 1.113 | 5625 | 35.8 |
| 200 | -73.2 | -99.7 | 2.172 | 31.51 | 17.43 | 524.0 | 32.71 | 1.017 | 5139 | 32.7 |
| 220 | -53.2 | -63.7 | 4.921 | 71.37 | 16.50 | 496.3 | 30.98 | 0.9629 | 4867 | 31.0 |
| 250 | -23.2 | -9.7 | 13.01 | 188.7 | 14.90 | 448.1 | 27.97 | 0.8694 | 4394 | 28.0 |
| 270 | -3.1 | 26.3 | 22.10 | 320.5 | 13.56 | 407.7 | 25.45 | 0.7911 | 3998 | 25.5 |
| 290 | 16.9 | 62.3 | 35.16 | 509.9 | 11.68 | 351.3 | 21.93 | 0.6817 | 3445 | 21.9 |
| 305.32 | 32.17 | 89.91 | 48.72 | 706.6 | 6.857 | 206.2 | 12.87 | 0.4001 | 2022 | 12.9 |
| Gas at  equilibrium | 90.368 | -182.78 | -297.01 | 1.14E-05 | 1.65E-04 | 1.52E-06 | 4.57E-05 | 2.85E-06 | 8.87E-08 | 4.48E-04 | 2.85E-06 |
| 100 | -173 | -280 | 1.11E-04 | 0.00161 | 1.33E-05 | 4.01E-04 | 2.50E-05 | 7.78E-07 | 0.00393 | 2.50E-05 |
| 120 | -153 | -244 | 0.00352 | 0.05110 | 3.53E-04 | 0.01062 | 6.63E-04 | 2.06E-05 | 0.104 | 6.63E-04 |
| 140 | -133 | -208 | 0.0381 | 0.553 | 3.29E-03 | 0.2325 | 0.01451 | 4.51E-04 | 2.28 | 0.0145 |
| 160 | -113 | -172 | 0.2141 | 3.11 | 0.01626 | 0.9274 | 0.05790 | 0.00180 | 9.10 | 0.0579 |
| 200 | -73.2 | -99.7 | 2.172 | 31.51 | 0.1387 | 4.171 | 0.2604 | 0.00809 | 40.9 | 0.260 |
| 220 | -53.2 | -63.7 | 4.921 | 71.4 | 0.2999 | 9.018 | 0.5630 | 0.01750 | 88.4 | 0.563 |
| 250 | -23.2 | -9.7 | 13.01 | 188.7 | 0.7846 | 23.59 | 1.473 | 0.04578 | 231 | 1.47 |
| 270 | -3.1 | 26.3 | 22.10 | 320.5 | 1.400 | 42.09 | 2.628 | 0.08167 | 413 | 2.63 |
| 290 | 16.9 | 62.3 | 35.16 | 509.9 | 2.568 | 77.22 | 4.820 | 0.1498 | 757 | 4.82 |
| 305.32 | 32.17 | 89.91 | 48.72 | 706.6 | 6.857 | 206.2 | 12.87 | 0.4001 | 2022 | 12.9 |
|  | | | | | | | | | | | |
| Liquid | 90.38 | -182.77 | -296.99 | 1 | 14.5 | 21.67 | 651.5 | 40.67 | 1.264 | 6389 | 40.7 |
| 100 | -173 | -280 | 1 | 14.5 | 21.32 | 641.0 | 40.02 | 1.244 | 6286 | 40.0 |
| 120 | -153 | -244 | 1 | 14.5 | 20.59 | 619.0 | 38.64 | 1.201 | 6070 | 38.6 |
| 140 | -133 | -208 | 1 | 14.5 | 19.84 | 596.6 | 37.24 | 1.158 | 5851 | 37.2 |
| 160 | -113 | -172 | 1 | 14.5 | 19.08 | 573.6 | 35.81 | 1.113 | 5625 | 35.8 |
| 180 | -93.2 | -136 | 1 | 14.5 | 18.28 | 549.5 | 34.30 | 1.066 | 5389 | 34.3 |
| 184.33 | -88.82 | -127.88 | 1 | 14.5 | 18.10 | 544.1 | 33.97 | 1.056 | 5336 | 34.0 |
| Gas | 184.33 | -88.82 | -127.88 | 1 | 14.5 | 0.06751 | 2.030 | 0.1267 | 0.00394 | 19.9 | 0.127 |
| 200 | -73.2 | -99.7 | 1 | 14.5 | 0.06173 | 1.856 | 0.1159 | 0.00360 | 18.2 | 0.116 |
| 220 | -53.2 | -63.7 | 1 | 14.5 | 0.05574 | 1.676 | 0.1046 | 0.00325 | 16.4 | 0.105 |
| 240 | -33.2 | -27.7 | 1 | 14.5 | 0.05085 | 1.529 | 0.09545 | 0.00297 | 15.0 | 0.0955 |
| 260 | -13.2 | 8.3 | 1 | 14.5 | 0.04679 | 1.407 | 0.08784 | 0.00273 | 13.8 | 0.0878 |
| 280 | 6.9 | 44.3 | 1 | 14.5 | 0.04334 | 1.303 | 0.08134 | 0.00253 | 12.8 | 0.0813 |
| 300 | 26.9 | 80.3 | 1 | 14.5 | 0.04038 | 1.214 | 0.07579 | 0.00236 | 11.9 | 0.0758 |
| 320 | 46.9 | 116 | 1 | 14.5 | 0.03781 | 1.137 | 0.07098 | 0.00221 | 11.2 | 0.0710 |
| 340 | 66.9 | 152 | 1 | 14.5 | 0.03555 | 1.069 | 0.06674 | 0.00207 | 10.5 | 0.0667 |
| 360 | 86.9 | 188 | 1 | 14.5 | 0.03356 | 1.009 | 0.06299 | 0.00196 | 9.89 | 0.0630 |
| 400 | 127 | 260 | 1 | 14.5 | 0.03015 | 0.9067 | 0.05660 | 0.00176 | 8.89 | 0.0566 |
| 500 | 227 | 440 | 1 | 14.5 | 0.02409 | 0.7242 | 0.04521 | 0.00141 | 7.10 | 0.0452 |
| 600 | 327 | 620 | 1 | 14.5 | 0.02006 | 0.6031 | 0.03765 | 0.00117 | 5.91 | 0.0377 |
| 700 | 427 | 800 | 1 | 14.5 | 0.01718 | 0.5167 | 0.03226 | 0.00100 | 5.07 | 0.0323 |
| 800 | 527 | 980 | 1 | 14.5 | 0.01503 | 0.4520 | 0.02822 | 8.77E-04 | 4.43 | 0.0282 |
| 900 | 627 | 1160 | 1 | 14.5 | 0.01336 | 0.4018 | 0.02508 | 7.80E-04 | 3.94 | 0.0251 |
| 1000 | 727 | 1340 | 1 | 14.5 | 0.01203 | 0.3616 | 0.02257 | 7.02E-04 | 3.55 | 0.0226 |
|  | | | | | | | | | | | |
| Liquid | 90.53 | -182.62 | -296.72 | 10 | 145 | 21.67 | 651.7 | 40.68 | 1.265 | 6391 | 40.7 |
| 100 | -173 | -280 | 10 | 145 | 21.33 | 641.3 | 40.04 | 1.244 | 6289 | 40.0 |
| 120 | -153 | -244 | 10 | 145 | 20.60 | 619.4 | 38.67 | 1.202 | 6074 | 38.7 |
| 140 | -133 | -208 | 10 | 145 | 19.86 | 597.2 | 37.28 | 1.159 | 5857 | 37.3 |
| 160 | -113 | -172 | 10 | 145 | 19.10 | 574.3 | 35.85 | 1.114 | 5632 | 35.9 |
| 180 | -93.2 | -136 | 10 | 145 | 18.31 | 550.4 | 34.36 | 1.068 | 5398 | 34.4 |
| 200 | -73.2 | -99.7 | 10 | 145 | 17.46 | 524.9 | 32.77 | 1.018 | 5148 | 32.8 |
| 220 | -53.2 | -63.7 | 10 | 145 | 16.53 | 497.1 | 31.03 | 0.9645 | 4875 | 31.0 |
| 240 | -33.2 | -27.7 | 10 | 145 | 15.48 | 465.4 | 29.05 | 0.9030 | 4564 | 29.1 |
| 241.1 | -32.1 | -25.7 | 10 | 145 | 15.42 | 463.5 | 28.94 | 0.8993 | 4545 | 28.9 |
| Gas | 241.1 | -32.1 | -25.7 | 10 | 145 | 0.6000 | 18.04 | 1.126 | 0.03500 | 177 | 1.13 |
| 260 | -13.2 | 8.3 | 10 | 145 | 0.5298 | 15.93 | 0.9945 | 0.03091 | 156 | 0.994 |
| 280 | 6.9 | 44.3 | 10 | 145 | 0.4763 | 14.32 | 0.8940 | 0.02779 | 140 | 0.894 |
| 300 | 26.9 | 80.3 | 10 | 145 | 0.4347 | 13.07 | 0.8159 | 0.02536 | 128 | 0.816 |
| 320 | 46.9 | 116 | 10 | 145 | 0.4008 | 12.05 | 0.7523 | 0.02338 | 118 | 0.752 |
| 340 | 66.9 | 152 | 10 | 145 | 0.3728 | 11.21 | 0.6998 | 0.02175 | 110 | 0.700 |
| 360 | 86.9 | 188 | 10 | 145 | 0.3489 | 10.49 | 0.6549 | 0.02035 | 103 | 0.655 |
| 400 | 127 | 260 | 10 | 145 | 0.3097 | 9.312 | 0.5813 | 0.01807 | 91.3 | 0.581 |
| 500 | 227 | 440 | 10 | 145 | 0.2435 | 7.323 | 0.4572 | 0.01421 | 71.8 | 0.457 |
| 600 | 327 | 620 | 10 | 145 | 0.2015 | 6.058 | 0.3782 | 0.01175 | 59.4 | 0.378 |
| 700 | 427 | 800 | 10 | 145 | 0.1720 | 5.173 | 0.3229 | 0.01004 | 50.7 | 0.323 |
| 800 | 527 | 980 | 10 | 145 | 0.1503 | 4.518 | 0.2820 | 0.00877 | 44.3 | 0.282 |
| 900 | 627 | 1160 | 10 | 145 | 0.1334 | 4.011 | 0.2504 | 0.00778 | 39.3 | 0.250 |
| 1000 | 727 | 1340 | 10 | 145 | 0.1200 | 3.608 | 0.2252 | 0.00700 | 35.4 | 0.225 |
|  | | | | | | | | | | | |
| Liquid | 100 | -173 | -280 | 50 | 725 | 21.38 | 642.9 | 40.14 | 1.247 | 6305 | 40.1 |
| 200 | -73.2 | -99.7 | 50 | 725 | 17.61 | 529.5 | 33.06 | 1.027 | 5193 | 33.1 |
| 300 | 26.9 | 80.3 | 50 | 725 | 10.91 | 328.0 | 20.47 | 0.6364 | 3216 | 20.5 |
| Supercritical  phase | 400 | 127 | 260 | 50 | 725 | 1.765 | 53.08 | 3.314 | 0.1030 | 521 | 3.31 |
| 500 | 227 | 440 | 50 | 725 | 1.277 | 38.40 | 2.397 | 0.07450 | 377 | 2.40 |
| 600 | 327 | 620 | 50 | 725 | 1.025 | 30.81 | 1.923 | 0.05977 | 302 | 1.92 |
|  | | | | | | | | | | | |
| Liquid | 91.96 | -181.19 | -294.14 | 100 | 1450 | 21.73 | 653.3 | 40.78 | 1.268 | 6407 | 40.8 |
| 100 | -173 | -280 | 100 | 1450 | 21.44 | 644.8 | 40.25 | 1.251 | 6323 | 40.3 |
| 120 | -153 | -244 | 100 | 1450 | 20.74 | 623.6 | 38.93 | 1.210 | 6115 | 38.9 |
| 140 | -133 | -208 | 100 | 1450 | 20.03 | 602.2 | 37.59 | 1.168 | 5906 | 37.6 |
| 160 | -113 | -172 | 100 | 1450 | 19.30 | 580.4 | 36.23 | 1.126 | 5692 | 36.2 |
| 180 | -93.2 | -136 | 100 | 1450 | 18.56 | 558.1 | 34.84 | 1.083 | 5473 | 34.8 |
| 200 | -73.2 | -99.7 | 100 | 1450 | 17.79 | 534.8 | 33.39 | 1.038 | 5245 | 33.4 |
| 220 | -53.2 | -63.7 | 100 | 1450 | 16.97 | 510.2 | 31.85 | 0.9900 | 5003 | 31.9 |
| 240 | -33.2 | -27.7 | 100 | 1450 | 16.09 | 483.8 | 30.20 | 0.9387 | 4744 | 30.2 |
| 260 | -13.2 | 8.3 | 100 | 1450 | 15.12 | 454.6 | 28.38 | 0.8821 | 4458 | 28.4 |
| 280 | 6.9 | 44.3 | 100 | 1450 | 14.01 | 421.4 | 26.31 | 0.8177 | 4133 | 26.3 |
| 300 | 26.9 | 80.3 | 100 | 1450 | 12.68 | 381.3 | 23.80 | 0.7398 | 3739 | 23.8 |
| Supercritical  phase | 320 | 46.9 | 116 | 100 | 1450 | 10.94 | 328.8 | 20.53 | 0.6380 | 3224 | 20.5 |
| 340 | 66.9 | 152 | 100 | 1450 | 8.511 | 255.9 | 15.98 | 0.4965 | 2510 | 16.0 |
| 360 | 86.9 | 188 | 100 | 1450 | 6.219 | 187.0 | 11.67 | 0.3628 | 1834 | 11.7 |
| 400 | 127 | 260 | 100 | 1450 | 4.197 | 126.2 | 7.878 | 0.2449 | 1238 | 7.88 |
| 500 | 227 | 440 | 100 | 1450 | 2.680 | 80.57 | 5.030 | 0.1563 | 790 | 5.03 |
| 600 | 327 | 620 | 100 | 1450 | 2.076 | 62.41 | 3.896 | 0.1211 | 612 | 3.90 |
| 700 | 427 | 800 | 100 | 1450 | 1.722 | 51.79 | 3.233 | 0.1005 | 508 | 3.23 |
| 800 | 527 | 980 | 100 | 1450 | 1.483 | 44.59 | 2.784 | 0.08652 | 437 | 2.78 |
| 900 | 627 | 1160 | 100 | 1450 | 1.307 | 39.30 | 2.453 | 0.07625 | 385 | 2.45 |
| 1000 | 727 | 1340 | 100 | 1450 | 1.171 | 35.20 | 2.197 | 0.06830 | 345 | 2.20 |
|  | | | | | | | | | | | |
| Liquid | 100 | -173 | -280 | 300 | 4351 | 21.68 | 652.0 | 40.70 | 1.265 | 6394 | 40.7 |
| 200 | -73.2 | -99.7 | 300 | 4351 | 18.37 | 552.4 | 34.49 | 1.072 | 5417 | 34.5 |
| 300 | 26.9 | 80.3 | 300 | 4351 | 14.78 | 444.6 | 27.75 | 0.8626 | 4360 | 27.8 |
| Supercritical  phase | 400 | 127 | 260 | 300 | 4351 | 10.81 | 325.1 | 20.30 | 0.6308 | 3188 | 20.3 |
| 500 | 227 | 440 | 300 | 4351 | 7.678 | 230.9 | 14.41 | 0.4480 | 2264 | 14.4 |
| 600 | 327 | 620 | 300 | 4351 | 5.893 | 177.2 | 11.06 | 0.3438 | 1738 | 11.1 |

Этан – вязкость

| **State** | **Temperature** | | | **Pressure** | | **Dynamic (Absolute) Viscosity** | | | | | **Kinematic Viscosity** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[bara]** | **[psia]** | **[μPa s]** | **[cP]** | **[lb fs/ft 2\*10 -6]** | **[lb m/ft s\*10 -6]** | **[lb m/ft h]** | **[cSt], [m 2/s\*10 -6]** | **[ft 2/s\*10 -6]** |
| Liquid at  equilibrium | 90.368 | -182.78 | -297.01 | 1.14E-05 | 1.65E-04 | 1281 | 1.281 | 26.75 | 860.7 | 3.098 | 1.966 | 21.16 |
| 100 | -173 | -280 | 1.10E-04 | 0.00161 | 873.2 | 0.8732 | 18.24 | 586.8 | 2.112 | 1.362 | 14.66 |
| 120 | -153 | -244 | 0.00352 | 0.05110 | 485.8 | 0.4858 | 10.15 | 326.4 | 1.175 | 0.7848 | 8.448 |
| 140 | -133 | -208 | 0.03814 | 1.398 | 319.8 | 0.3198 | 6.679 | 214.9 | 0.7736 | 0.5360 | 5.770 |
| 160 | -113 | -172 | 0.2141 | 6.210 | 231.2 | 0.2312 | 4.828 | 155.3 | 0.5592 | 0.4030 | 4.338 |
| 200 | -73.2 | -99.7 | 2.172 | 31.51 | 138.3 | 0.1383 | 2.888 | 92.91 | 0.3345 | 0.2639 | 2.840 |
| 220 | -53.2 | -63.7 | 4.921 | 71.37 | 110.1 | 0.1101 | 2.298 | 73.95 | 0.2662 | 0.2218 | 2.387 |
| 250 | -23.2 | -9.7 | 13.01 | 188.7 | 78.19 | 0.07819 | 1.633 | 52.54 | 0.1891 | 0.1745 | 1.878 |
| 270 | -3.1 | 26.3 | 22.10 | 320.5 | 60.94 | 0.060936 | 1.273 | 40.95 | 0.1474 | 0.1495 | 1.609 |
| 290 | 16.9 | 62.3 | 35.16 | 509.9 | 44.60 | 0.044603 | 0.9316 | 29.97 | 0.1079 | 0.1270 | 1.366 |
| Gas at  equilibrium | 90.368 | -182.78 | -297.01 | 1.14E-05 | 1.65E-04 | 3.043 | 0.003043 | 0.0635 | 2.045 | 0.00736 | 66566 | 716512 |
| 100 | -173 | -280 | 1.10E-04 | 0.00161 | 3.316 | 0.003316 | 0.06925 | 2.228 | 0.00802 | 8274 | 89059 |
| 120 | -153 | -244 | 0.00352 | 0.05110 | 3.896 | 0.003896 | 0.08137 | 2.618 | 0.00943 | 366.8 | 3948 |
| 140 | -133 | -208 | 0.03814 | 1.398 | 4.496 | 0.004496 | 0.09389 | 3.021 | 0.01088 | 45.50 | 489.8 |
| 160 | -113 | -172 | 0.2141 | 6.21 | 5.110 | 0.005110 | 0.1067 | 3.434 | 0.01236 | 10.449 | 112.5 |
| 200 | -73.2 | -99.7 | 2.172 | 31.51 | 6.391 | 0.006391 | 0.1335 | 4.294 | 0.01546 | 1.532 | 16.49 |
| 220 | -53.2 | -63.7 | 4.921 | 71.4 | 7.089 | 0.007089 | 0.1481 | 4.764 | 0.01715 | 0.7861 | 8.462 |
| 250 | -23.2 | -9.7 | 13.01 | 188.7 | 8.342 | 0.008342 | 0.1742 | 5.606 | 0.02018 | 0.3536 | 3.806 |
| 270 | -3.1 | 26.3 | 22.10 | 320.5 | 9.526 | 0.009526 | 0.1989 | 6.401 | 0.02304 | 0.2263 | 2.436 |
| 290 | 16.9 | 62.3 | 35.16 | 509.9 | 11.62 | 0.01162 | 0.2426 | 7.806 | 0.02810 | 0.1504 | 1.619 |
|  | | | | | | | | | | | | |
| Liquid | 90.38 | -182.77 | -296.99 | 1 | 14.5 | 1281 | 1.281 | 26.75 | 860.8 | 3.099 | 1.966 | 21.16 |
| 100 | -173 | -280 | 1 | 14.5 | 873.9 | 0.8739 | 18.25 | 587.2 | 2.114 | 1.363 | 14.67 |
| 120 | -153 | -244 | 1 | 14.5 | 486.1 | 0.4861 | 10.15 | 326.6 | 1.176 | 0.7853 | 8.453 |
| 140 | -133 | -208 | 1 | 14.5 | 320.0 | 0.3200 | 6.683 | 215.0 | 0.7741 | 0.5364 | 5.773 |
| 160 | -113 | -172 | 1 | 14.5 | 231.3 | 0.2313 | 4.831 | 155.4 | 0.5595 | 0.4032 | 4.340 |
| 180 | -93.2 | -136 | 1 | 14.5 | 176.2 | 0.1762 | 3.680 | 118.4 | 0.4262 | 0.3207 | 3.451 |
| 184.33 | -88.82 | -127.88 | 1 | 14.5 | 166.9 | 0.1669 | 3.486 | 112.2 | 0.4037 | 0.3067 | 3.302 |
| Gas | 184.33 | -88.82 | -127.88 | 1 | 14.5 | 5.877 | 0.005877 | 0.1227 | 3.949 | 0.01422 | 2.895 | 31.16 |
| 200 | -73.2 | -99.7 | 1 | 14.5 | 6.368 | 0.006368 | 0.1330 | 4.279 | 0.01540 | 3.431 | 36.93 |
| 220 | -53.2 | -63.7 | 1 | 14.5 | 6.991 | 0.006991 | 0.1460 | 4.698 | 0.01691 | 4.171 | 44.90 |
| 240 | -33.2 | -27.7 | 1 | 14.5 | 7.608 | 0.007608 | 0.1589 | 5.112 | 0.01840 | 4.976 | 53.56 |
| 260 | -13.2 | 8.3 | 1 | 14.5 | 8.217 | 0.008217 | 0.1716 | 5.522 | 0.01988 | 5.840 | 62.86 |
| 280 | 6.9 | 44.3 | 1 | 14.5 | 8.817 | 0.008817 | 0.1841 | 5.925 | 0.02133 | 6.767 | 72.84 |
| 300 | 26.9 | 80.3 | 1 | 14.5 | 9.408 | 0.009408 | 0.1965 | 6.322 | 0.02276 | 7.750 | 83.42 |
| 320 | 46.9 | 116 | 1 | 14.5 | 9.989 | 0.009989 | 0.2086 | 6.712 | 0.02416 | 8.785 | 94.57 |
| 340 | 66.9 | 152 | 1 | 14.5 | 10.56 | 0.01056 | 0.2206 | 7.096 | 0.02555 | 9.878 | 106.330 |
| 360 | 86.9 | 188 | 1 | 14.5 | 11.12 | 0.01112 | 0.2322 | 7.472 | 0.02690 | 11.02 | 118.627 |
| 400 | 127 | 260 | 1 | 14.5 | 12.21 | 0.01221 | 0.2550 | 8.205 | 0.02954 | 13.47 | 144.951 |
| 500 | 227 | 440 | 1 | 14.5 | 14.78 | 0.01478 | 0.3087 | 9.932 | 0.03575 | 20.41 | 219.677 |
| 600 | 327 | 620 | 1 | 14.5 | 17.13 | 0.01713 | 0.3578 | 11.51 | 0.04144 | 28.40 | 305.730 |
| 700 | 427 | 800 | 1 | 14.5 | 19.32 | 0.01932 | 0.4035 | 12.98 | 0.04674 | 37.39 | 402.474 |
| 800 | 527 | 980 | 1 | 14.5 | 21.36 | 0.02136 | 0.4461 | 14.35 | 0.05167 | 47.26 | 508.666 |
| 900 | 627 | 1160 | 1 | 14.5 | 23.28 | 0.02328 | 0.4862 | 15.64 | 0.05632 | 57.94 | 623.653 |
| 1000 | 727 | 1340 | 1 | 14.5 | 25.10 | 0.02510 | 0.5242 | 16.87 | 0.06072 | 69.41 | 747.162 |
|  | | | | | | | | | | | | |
| Liquid | 90.53 | -182.62 | -296.72 | 10 | 145 | 1283 | 1.283 | 26.80 | 862.1 | 3.104 | 1.969 | 21.19 |
| 100 | -173 | -280 | 10 | 145 | 880.2 | 0.8802 | 18.38 | 591.5 | 2.129 | 1.373 | 14.77 |
| 120 | -153 | -244 | 10 | 145 | 489.1 | 0.4891 | 10.22 | 328.7 | 1.183 | 0.7896 | 8.500 |
| 140 | -133 | -208 | 10 | 145 | 322.0 | 0.3220 | 6.725 | 216.4 | 0.7789 | 0.5392 | 5.804 |
| 160 | -113 | -172 | 10 | 145 | 232.8 | 0.2328 | 4.862 | 156.4 | 0.5632 | 0.4054 | 4.363 |
| 180 | -93.2 | -136 | 10 | 145 | 177.5 | 0.1775 | 3.707 | 119.3 | 0.4294 | 0.3225 | 3.471 |
| 200 | -73.2 | -99.7 | 10 | 145 | 139.3 | 0.1393 | 2.909 | 93.61 | 0.3370 | 0.2654 | 2.857 |
| 220 | -53.2 | -63.7 | 10 | 145 | 110.7 | 0.1107 | 2.312 | 74.39 | 0.2678 | 0.2227 | 2.397 |
| 240 | -33.2 | -27.7 | 10 | 145 | 87.85 | 0.08785 | 1.835 | 59.03 | 0.2125 | 0.1888 | 2.032 |
| 241.1 | -32.1 | -25.7 | 10 | 145 | 86.70 | 0.0867 | 1.811 | 58.26 | 0.2097 | 0.1871 | 2.013 |
| Gas | 241.1 | -32.1 | -25.7 | 10 | 145 | 7.929 | 0.007929 | 0.1656 | 5.328 | 0.01918 | 0.4395 | 4.731 |
| 260 | -13.2 | 8.3 | 10 | 145 | 8.485 | 0.008485 | 0.1772 | 5.702 | 0.02053 | 0.5326 | 5.733 |
| 280 | 6.9 | 44.3 | 10 | 145 | 9.072 | 0.009072 | 0.1895 | 6.096 | 0.02195 | 0.6335 | 6.819 |
| 300 | 26.9 | 80.3 | 10 | 145 | 9.652 | 0.009652 | 0.2016 | 6.486 | 0.02335 | 0.7385 | 7.949 |
| 320 | 46.9 | 116 | 10 | 145 | 10.22 | 0.01022 | 0.2134 | 6.868 | 0.02472 | 0.8481 | 9.129 |
| 340 | 66.9 | 152 | 10 | 145 | 10.79 | 0.01079 | 0.2254 | 7.251 | 0.02610 | 0.9625 | 10.36 |
| 360 | 86.9 | 188 | 10 | 145 | 11.34 | 0.01134 | 0.2368 | 7.620 | 0.02743 | 1.081 | 11.64 |
| 400 | 127 | 260 | 10 | 145 | 12.42 | 0.01242 | 0.2594 | 8.346 | 0.03005 | 1.334 | 14.36 |
| 500 | 227 | 440 | 10 | 145 | 14.95 | 0.01495 | 0.3122 | 10.05 | 0.03617 | 2.042 | 21.97 |
| 600 | 327 | 620 | 10 | 145 | 17.29 | 0.01729 | 0.3611 | 11.62 | 0.04183 | 2.854 | 30.72 |
| 700 | 427 | 800 | 10 | 145 | 19.46 | 0.01946 | 0.4064 | 13.08 | 0.04708 | 3.762 | 40.49 |
| 800 | 527 | 980 | 10 | 145 | 21.48 | 0.02148 | 0.4486 | 14.43 | 0.05196 | 4.754 | 51.17 |
| 900 | 627 | 1160 | 10 | 145 | 23.39 | 0.02339 | 0.4885 | 15.72 | 0.05658 | 5.831 | 62.77 |
| 1000 | 727 | 1340 | 10 | 145 | 25.20 | 0.0252 | 0.5263 | 16.93 | 0.06096 | 6.984 | 75.18 |
|  | | | | | | | | | | | | |
| Liquid | 100 | -173 | -280 | 50 | 725 | 909.2 | 0.9092 | 18.99 | 610.9 | 2.199 | 1.414 | 15.22 |
| 200 | -73.2 | -99.7 | 50 | 725 | 144.7 | 0.1447 | 3.022 | 97.23 | 0.3500 | 0.2733 | 2.941 |
| 300 | 26.9 | 80.3 | 50 | 725 | 39.65 | 0.039648 | 0.8281 | 26.64 | 0.09591 | 0.1209 | 1.301 |
| Supercritical phase | 400 | 127 | 260 | 50 | 725 | 13.91 | 0.013905 | 0.2904 | 9.344 | 0.03364 | 0.2620 | 2.820 |
| 500 | 227 | 440 | 50 | 725 | 16.00 | 0.015995 | 0.3341 | 10.75 | 0.03869 | 0.4166 | 4.484 |
| 600 | 327 | 620 | 50 | 725 | 18.12 | 0.018124 | 0.3785 | 12.18 | 0.04384 | 0.5883 | 6.333 |
|  | | | | | | | | | | | | |
| Liquid | 91.96 | -181.19 | -294.14 | 100 | 1450 | 1310 | 1.310 | 27.36 | 880.3 | 3.169 | 2.005 | 21.58 |
| 100 | -173 | -280 | 100 | 1450 | 947.3 | 0.9473 | 19.78 | 636.6 | 2.292 | 1.469 | 15.81 |
| 120 | -153 | -244 | 100 | 1450 | 520.6 | 0.5206 | 10.87 | 349.8 | 1.259 | 0.8348 | 8.986 |
| 140 | -133 | -208 | 100 | 1450 | 342.0 | 0.3420 | 7.143 | 229.8 | 0.8273 | 0.5679 | 6.113 |
| 160 | -113 | -172 | 100 | 1450 | 248.1 | 0.2481 | 5.182 | 166.7 | 0.6002 | 0.4275 | 4.601 |
| 180 | -93.2 | -136 | 100 | 1450 | 190.5 | 0.1905 | 3.979 | 128.0 | 0.4608 | 0.3413 | 3.674 |
| 200 | -73.2 | -99.7 | 100 | 1450 | 151.3 | 0.1513 | 3.160 | 101.7 | 0.3660 | 0.2829 | 3.045 |
| 220 | -53.2 | -63.7 | 100 | 1450 | 122.4 | 0.1224 | 2.556 | 82.25 | 0.2961 | 0.2399 | 2.582 |
| 240 | -33.2 | -27.7 | 100 | 1450 | 99.96 | 0.09996 | 2.088 | 67.17 | 0.2418 | 0.2066 | 2.224 |
| 260 | -13.2 | 8.3 | 100 | 1450 | 81.74 | 0.08174 | 1.707 | 54.93 | 0.1977 | 0.1798 | 1.935 |
| 280 | 6.9 | 44.3 | 100 | 1450 | 66.38 | 0.06638 | 1.386 | 44.61 | 0.1606 | 0.1575 | 1.696 |
| 300 | 26.9 | 80.3 | 100 | 1450 | 52.87 | 0.05287 | 1.104 | 35.53 | 0.1279 | 0.1387 | 1.492 |
| Supercritical phase | 320 | 46.9 | 116 | 100 | 1450 | 40.36 | 0.04036 | 0.8429 | 27.12 | 0.09763 | 0.1227 | 1.321 |
| 340 | 66.9 | 152 | 100 | 1450 | 28.77 | 0.02877 | 0.6009 | 19.33 | 0.06960 | 0.1124 | 1.210 |
| 360 | 86.9 | 188 | 100 | 1450 | 21.62 | 0.02162 | 0.4515 | 14.53 | 0.05230 | 0.1156 | 1.244 |
| 400 | 127 | 260 | 100 | 1450 | 17.94 | 0.01794 | 0.3747 | 12.06 | 0.04340 | 0.1422 | 1.530 |
| 500 | 227 | 440 | 100 | 1450 | 17.95 | 0.01795 | 0.3749 | 12.06 | 0.04342 | 0.2228 | 2.398 |
| 600 | 327 | 620 | 100 | 1450 | 19.50 | 0.0195 | 0.4073 | 13.10 | 0.04717 | 0.3124 | 3.363 |
| 700 | 427 | 800 | 100 | 1450 | 21.26 | 0.02126 | 0.4440 | 14.29 | 0.05143 | 0.4105 | 4.419 |
| 800 | 527 | 980 | 100 | 1450 | 23.01 | 0.02301 | 0.4806 | 15.46 | 0.05566 | 0.5160 | 5.555 |
| 900 | 627 | 1160 | 100 | 1450 | 24.73 | 0.02473 | 0.5165 | 16.62 | 0.05982 | 0.6293 | 6.773 |
| 1000 | 727 | 1340 | 100 | 1450 | 26.40 | 0.0264 | 0.5514 | 17.74 | 0.06386 | 0.7500 | 8.073 |
|  | | | | | | | | | | | | |
| Liquid | 100 | -173 | -280 | 300 | 4351 | 1127 | 1.127 | 23.54 | 757.5 | 2.727 | 1.729 | 18.61 |
| 200 | -73.2 | -99.7 | 300 | 4351 | 177.0 | 0.17704 | 3.698 | 119.0 | 0.4283 | 0.3205 | 3.450 |
| 300 | 26.9 | 80.3 | 300 | 4351 | 77.61 | 0.07761 | 1.621 | 52.15 | 0.1877 | 0.1746 | 1.879 |
| Supercritical phase | 400 | 127 | 260 | 300 | 4351 | 42.22 | 0.042216 | 0.8817 | 28.37 | 0.1021 | 0.1298 | 1.398 |
| 500 | 227 | 440 | 300 | 4351 | 30.51 | 0.03051 | 0.6372 | 20.50 | 0.07381 | 0.1321 | 1.422 |
| 600 | 327 | 620 | 300 | 4351 | 27.54 | 0.027539 | 0.5752 | 18.51 | 0.06662 | 0.1554 | 1.673 |
|  | | | | | | | | | | | | |
| Liquid | 200 | -73.2 | -99.7 | 700 | 10153 | 230.7 | 0.2307 | 4.818 | 155.0 | 0.5581 | 0.3990 | 4.294 |
| 300 | 26.9 | 80.3 | 700 | 10153 | 113.5 | 0.11352 | 2.371 | 76.28 | 0.2746 | 0.2283 | 2.457 |
| Supercritical phase | 400 | 127 | 260 | 700 | 10153 | 71.77 | 0.071766 | 1.499 | 48.22 | 0.1736 | 0.1701 | 1.831 |
| 500 | 227 | 440 | 700 | 10153 | 52.33 | 0.052331 | 1.093 | 35.16 | 0.1266 | 0.1466 | 1.578 |
| 600 | 327 | 620 | 700 | 10153 | 44.74 | 0.044741 | 0.9344 | 30.06 | 0.1082 | 0.1467 | 1.579 |

Метанол – плотность

| **State** | **Temperature** | | | **Pressure** | | **Density** | | | | **Specific weight** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **[K]** | **[°C]** | **[°F]** | **[bara]** | **[psia]** | **[mol/dm 3]** | **[g/l], [kg/m 3]** | **[lb/ft 3]** | **[sl/ft 3]** | **[N/m 3]** | **[lb f/ft 3]** |
| Liquid at  equilibrium | 175.61 | -97.54 | -143.57 | 1.86E-06 | 2.70E-05 | 28.23 | 904.5 | 56.47 | 1.755 | 8870 | 56.47 |
| 210 | -63.2 | -81.7 | 1.98E-04 | 0.00288 | 27.16 | 870.3 | 54.33 | 1.689 | 8535 | 54.33 |
| 240 | -33.2 | -27.7 | 0.00363 | 0.0527 | 26.25 | 841.1 | 52.51 | 1.632 | 8248 | 52.51 |
| 270 | -3.1 | 26.3 | 0.0332 | 0.481 | 25.36 | 812.5 | 50.72 | 1.577 | 7968 | 50.72 |
| 300 | 26.9 | 80.3 | 0.187 | 2.71 | 24.48 | 784.5 | 48.97 | 1.522 | 7693 | 48.97 |
| 330 | 56.9 | 134 | 0.745 | 10.8 | 23.59 | 755.8 | 47.18 | 1.467 | 7412 | 47.18 |
| 360 | 86.9 | 188 | 2.30 | 33.3 | 22.64 | 725.3 | 45.28 | 1.407 | 7113 | 45.28 |
| 390 | 117 | 242 | 5.86 | 85.0 | 21.57 | 691.1 | 43.15 | 1.341 | 6778 | 43.15 |
| 420 | 147 | 296 | 12.9 | 187 | 20.32 | 650.9 | 40.63 | 1.263 | 6383 | 40.63 |
| 450 | 177 | 350 | 25.4 | 369 | 18.74 | 600.5 | 37.49 | 1.165 | 5889 | 37.49 |
| 480 | 207 | 404 | 45.7 | 663 | 16.55 | 530.4 | 33.11 | 1.029 | 5201 | 33.11 |
| 513.38 | 240.23 | 464.414 | 82.2 | 1191 | 8.785 | 281.5 | 17.57 | 0.5462 | 2760 | 17.57 |
| Gas at  equilibrium | 175.61 | -97.54 | -143.57 | 1.86E-06 | 2.70E-05 | 1.28E-07 | 4.09E-06 | 2.55E-07 | 7.94E-09 | 4.01E-05 | 2.55E-07 |
| 210 | -63.2 | -81.7 | 1.98E-04 | 0.00288 | 1.14E-05 | 3.65E-04 | 2.28E-05 | 7.07E-07 | 0.00358 | 2.28E-05 |
| 240 | -33.2 | -27.7 | 0.00363 | 0.05278 | 1.83E-04 | 0.00586 | 3.66E-04 | 1.14E-05 | 0.05751 | 3.66E-04 |
| 270 | -3.1 | 26.3 | 0.0332 | 0.4818 | 0.00150 | 0.04793 | 0.00299 | 9.30E-05 | 0.4700 | 0.00299 |
| 300 | 26.9 | 80.3 | 0.187 | 2.71 | 0.00768 | 0.2462 | 0.01537 | 4.78E-04 | 2.415 | 0.01537 |
| 330 | 56.9 | 134 | 0.745 | 10.8 | 0.02844 | 0.9112 | 0.05688 | 0.00177 | 8.935 | 0.05688 |
| 360 | 86.9 | 188 | 2.30 | 33.3 | 0.08327 | 2.668 | 0.1666 | 0.00518 | 26.16 | 0.1665 |
| 390 | 117 | 242 | 5.86 | 85.0 | 0.2067 | 6.624 | 0.4135 | 0.01285 | 64.96 | 0.4135 |
| 420 | 147 | 296 | 12.9 | 187 | 0.4607 | 14.76 | 0.9215 | 0.02864 | 144.8 | 0.9215 |
| 450 | 177 | 350 | 25.4 | 369 | 0.9622 | 30.83 | 1.925 | 0.05982 | 302.3 | 1.925 |
| 480 | 207 | 404 | 45.7 | 663 | 1.910 | 61.20 | 3.821 | 0.1188 | 600.2 | 3.821 |
| 513.38 | 240.23 | 464.414 | 82.2 | 1191 | 8.785 | 281.5 | 17.57 | 0.5462 | 2760 | 17.57 |
|  | | | | | | | | | | | |
| Liquid | 200 | -73.2 | -99.7 | 1 | 14.5 | 27.47 | 880.3 | 54.95 | 1.708 | 8632 | 54.95 |
| 300 | 26.9 | 80.3 | 1 | 14.5 | 24.49 | 784.5 | 48.98 | 1.522 | 7694 | 48.98 |
| 337.3 | 64.15 | 147.47 | 1 | 14.5 | 23.37 | 748.6 | 46.74 | 1.453 | 7342 | 46.74 |
| Gas | 337.3 | 64.15 | 147.47 | 1 | 14.5 | 0.03763 | 1.206 | 0.07526 | 0.002339 | 11.82 | 0.07526 |
| 400 | 127 | 260 | 1 | 14.5 | 0.03045 | 0.9757 | 0.06091 | 0.001893 | 9.568 | 0.06091 |
| 500 | 227 | 440 | 1 | 14.5 | 0.02416 | 0.7740 | 0.04832 | 0.001502 | 7.590 | 0.04832 |
| 600 | 327 | 620 | 1 | 14.5 | 0.02009 | 0.6437 | 0.04018 | 0.001249 | 6.312 | 0.04018 |
|  | | | | | | | | | | | |
| Liquid | 200 | -73.2 | -99.7 | 10 | 145 | 27.49 | 880.8 | 54.99 | 1.709 | 8638 | 54.99 |
| 300 | 26.9 | 80.3 | 10 | 145 | 24.51 | 785.4 | 49.03 | 1.524 | 7702 | 49.03 |
| 400 | 127 | 260 | 10 | 145 | 21.19 | 679.0 | 42.39 | 1.318 | 6659 | 42.39 |
| 409.75 | 136.60 | 277.88 | 10 | 145 | 20.77 | 665.5 | 41.55 | 1.291 | 6527 | 41.55 |
| Gas | 409.75 | 136.60 | 277.88 | 10 | 145 | 0.3535 | 11.33 | 0.7071 | 0.02198 | 111.1 | 0.7071 |
| 500 | 227 | 440 | 10 | 145 | 0.2520 | 8.075 | 0.5041 | 0.01567 | 79.19 | 0.5041 |
| 600 | 327 | 620 | 10 | 145 | 0.2050 | 6.569 | 0.4101 | 0.01275 | 64.42 | 0.4101 |
|  | | | | | | | | | | | |
| Liquid | 200 | -73.2 | -99.7 | 50 | 725 | 27.56 | 883.1 | 55.13 | 1.713 | 8660 | 55.13 |
| 300 | 26.9 | 80.3 | 50 | 725 | 24.64 | 789.3 | 49.27 | 1.532 | 7740 | 49.27 |
| 400 | 127 | 260 | 50 | 725 | 21.44 | 687.0 | 42.89 | 1.333 | 6737 | 42.89 |
| 484.95 | 211.80 | 413.24 | 50 | 725 | 16.08 | 515.1 | 32.16 | 0.9994 | 5051 | 32.16 |
| Gas | 484.95 | 211.80 | 413.24 | 50 | 725 | 2.171 | 69.56 | 4.343 | 0.1350 | 682.2 | 4.343 |
| 500 | 227 | 440 | 50 | 725 | 1.768 | 56.64 | 3.536 | 0.1099 | 555.5 | 3.536 |
| 600 | 327 | 620 | 50 | 725 | 1.139 | 36.49 | 2.278 | 0.07080 | 357.8 | 2.278 |
|  | | | | | | | | | | | |
| Liquid | 200 | -73.2 | -99.7 | 100 | 1450 | 27.65 | 885.8 | 55.30 | 1.719 | 8687 | 55.30 |
| 300 | 26.9 | 80.3 | 100 | 1450 | 24.78 | 793.9 | 49.56 | 1.540 | 7786 | 49.56 |
| 400 | 127 | 260 | 100 | 1450 | 21.72 | 695.8 | 43.44 | 1.350 | 6824 | 43.44 |
| 500 | 227 | 440 | 100 | 1450 | 15.93 | 510.5 | 31.87 | 0.9905 | 5006 | 31.87 |
| Supercritical phase | 600 | 327 | 620 | 100 | 1450 | 2.664 | 85.35 | 5.329 | 0.1656 | 837.0 | 5.329 |
|  | | | | | | | | | | | |
| Liquid | 200 | -73.2 | -99.7 | 1000 | 14504 | 28.91 | 926.3 | 57.83 | 1.797 | 9084 | 57.83 |
| 300 | 26.9 | 80.3 | 1000 | 14504 | 26.63 | 853.2 | 53.27 | 1.656 | 8367 | 53.27 |
| 400 | 127 | 260 | 1000 | 14504 | 24.49 | 784.8 | 48.99 | 1.523 | 7696 | 48.99 |
| 500 | 227 | 440 | 1000 | 14504 | 22.02 | 705.5 | 44.04 | 1.369 | 6919 | 44.04 |
| Supercritical phase | 600 | 327 | 620 | 1000 | 14504 | 19.14 | 613.2 | 38.28 | 1.190 | 6014 | 38.28 |

Пентан – плотность

| **State** | **Temperature** | | | **Pressure** | | | **Density** | | | | **Specific weight** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[MPa]** | **[bara]** | **[psia]** | **[mol/dm 3]** | **[g/l], [kg/m 3]** | **[lb/ft 3]** | **[sl/ft 3]** | **[N/m 3]** | **[lb f/ft 3]** |
| Liquid at  equilibrium  pressure | 143.47 | -129.7 | -201.4 | 7.63E-08 | 7.63E-07 | 1.10E-05 | 10.57 | 762.3 | 47.59 | 1.479 | 7476 | 47.6 |
| 150 | -123 | -190 | 2.68E-07 | 2.68E-06 | 3.89E-05 | 10.48 | 756.3 | 47.21 | 1.467 | 7416 | 47.2 |
| 180 | -93.2 | -136 | 0.000023 | 0.00023 | 0.0034 | 10.11 | 729.1 | 45.51 | 1.415 | 7150 | 45.5 |
| 210 | -63.2 | -81.7 | 0.00048 | 0.00482 | 0.0699 | 9.734 | 702.3 | 43.84 | 1.363 | 6887 | 43.8 |
| 240 | -33.2 | -27.7 | 0.00421 | 0.0421 | 0.611 | 9.361 | 675.4 | 42.16 | 1.311 | 6623 | 42.2 |
| 270 | -3.1 | 26.3 | 0.0211 | 0.211 | 3.07 | 8.979 | 647.8 | 40.44 | 1.257 | 6353 | 40.4 |
| 300 | 26.9 | 80.3 | 0.0732 | 0.732 | 10.6 | 8.579 | 619.0 | 38.64 | 1.201 | 6070 | 38.6 |
| 330 | 56.9 | 134 | 0.196 | 1.96 | 28.4 | 8.150 | 588.0 | 36.71 | 1.141 | 5766 | 36.7 |
| 360 | 86.9 | 188 | 0.436 | 4.36 | 63.2 | 7.677 | 553.9 | 34.58 | 1.075 | 5431 | 34.6 |
| 390 | 117 | 242 | 0.851 | 8.51 | 123 | 7.132 | 514.6 | 32.12 | 0.998 | 5046 | 32.1 |
| 420 | 147 | 296 | 1.51 | 15.1 | 218 | 6.460 | 466.0 | 29.09 | 0.904 | 4570 | 29.1 |
| 450 | 177 | 350 | 2.48 | 24.8 | 360 | 5.487 | 395.9 | 24.71 | 0.768 | 3882 | 24.7 |
| 469.70 | 196.6 | 385.8 | 3.37 | 33.7 | 489 | 3.216 | 232.0 | 14.48 | 0.450 | 2275 | 14.5 |
|  | | | | | | | | | | | | |
| Gas at  equilibrium  pressure | 143.47 | -129.7 | -201.4 | 7.63E-08 | 7.63E-07 | 1.11E-05 | 6.40E-08 | 4.62E-06 | 2.88E-07 | 8.96E-09 | 4.53E-05 | 2.88E-07 |
| 150 | -123 | -190 | 2.68E-07 | 2.68E-06 | 3.89E-05 | 2.15E-07 | 1.55E-05 | 9.68E-07 | 3.01E-08 | 1.52E-04 | 9.68E-07 |
| 180 | -93.2 | -136 | 2.33E-05 | 2.33E-04 | 0.0034 | 1.55E-05 | 0.00112 | 7.00E-05 | 2.18E-06 | 0.011 | 7.0E-05 |
| 210 | -63.2 | -81.7 | 4.82E-04 | 0.00482 | 0.0699 | 2.76E-04 | 0.0199 | 0.00124 | 3.87E-05 | 0.195 | 0.00124 |
| 240 | -33.2 | -27.7 | 0.00421 | 0.0421 | 0.611 | 0.002120 | 0.1529 | 0.00955 | 2.97E-04 | 1.50 | 0.00955 |
| 270 | -3.1 | 26.3 | 0.0211 | 0.211 | 3.07 | 0.009555 | 0.6894 | 0.04304 | 0.00134 | 6.76 | 0.0430 |
| 300 | 26.9 | 80.3 | 0.0732 | 0.732 | 10.6 | 0.03041 | 2.194 | 0.1369 | 0.00426 | 21.5 | 0.137 |
| 330 | 56.9 | 134 | 0.196 | 1.96 | 28.4 | 0.07673 | 5.536 | 0.3456 | 0.01074 | 54.3 | 0.346 |
| 360 | 86.9 | 188 | 0.436 | 4.36 | 63.2 | 0.1660 | 11.98 | 0.7477 | 0.02324 | 117 | 0.748 |
| 390 | 117 | 242 | 0.851 | 8.51 | 123 | 0.3262 | 23.54 | 1.469 | 0.04567 | 231 | 1.47 |
| 420 | 147 | 296 | 1.51 | 15.1 | 218 | 0.6143 | 44.32 | 2.767 | 0.08599 | 435 | 2.77 |
| 450 | 177 | 350 | 2.48 | 24.8 | 360 | 1.212 | 87.43 | 5.458 | 0.1696 | 857 | 5.46 |
| 469.70 | 196.6 | 385.8 | 3.37 | 33.7 | 489 | 3.216 | 232.0 | 14.48 | 0.4502 | 2275 | 14.5 |
|  | | | | | | | | | | | | |
| Liquid | 200 | -73.2 | -99.7 | 0.1 | 1 | 14.5 | 9.858 | 711.3 | 44.40 | 1.380 | 6975 | 44.4 |
| 293 | 20.0 | 68.0 | 0.1 | 1 | 14.5 | 8.679 | 626.2 | 39.09 | 1.215 | 6141 | 39.1 |
| 300 | 26.9 | 80.3 | 0.10 | 1 | 14.5 | 8.579 | 619.0 | 38.64 | 1.201 | 6070 | 38.6 |
| 308.83 | 35.7 | 96.2 | 0.10 | 1 | 14.5 | 8.456 | 610.1 | 38.09 | 1.184 | 5983 | 38.1 |
| Gas | 308.83 | 35.7 | 96.2 | 0.1 | 1 | 14.5 | 0.04073 | 2.939 | 0.1835 | 0.00570 | 28.8 | 0.183 |
| 400 | 127 | 260 | 0.1 | 1 | 14.5 | 0.03061 | 2.209 | 0.1379 | 0.00429 | 21.7 | 0.138 |
| 500 | 227 | 440 | 0.1 | 1 | 14.5 | 0.02426 | 1.750 | 0.1093 | 0.00340 | 17.2 | 0.109 |
| 200 | -73.2 | -99.7 | 0.1 | 1 | 14.5 | 0.02014 | 1.453 | 0.09069 | 0.00282 | 14.2 | 0.0907 |
|  | | | | | | | | | | | | |
| Liquid | 200 | -73.2 | -99.7 | 1 | 10 | 145 | 9.866 | 711.8 | 44.44 | 1.381 | 6980 | 44.4 |
| 300 | 26.9 | 80.3 | 1 | 10 | 145 | 8.596 | 620.2 | 38.72 | 1.203 | 6082 | 38.7 |
| 398.07 | 124.9 | 256.9 | 1 | 10 | 145 | 6.967 | 502.7 | 31.38 | 0.9753 | 4930 | 31.4 |
| Gas | 398.07 | 124.9 | 256.9 | 1 | 10 | 145 | 0.3875 | 27.95 | 1.745 | 0.05424 | 274 | 1.75 |
| 400 | 127 | 260 | 1 | 10 | 145 | 0.3832 | 27.65 | 1.726 | 0.05364 | 271 | 1.73 |
| 500 | 227 | 440 | 1 | 10 | 145 | 0.2638 | 19.03 | 1.188 | 0.03692 | 187 | 1.19 |
| 600 | 327 | 620 | 1 | 10 | 145 | 0.2098 | 15.14 | 0.9450 | 0.02937 | 148 | 0.945 |
|  | | | | | | | | | | | | |
| Liquid | 200 | -73.2 | -99.7 | 5 | 50 | 725 | 9.898 | 714.1 | 44.58 | 1.386 | 7003 | 44.6 |
| 300 | 26.9 | 80.3 | 5 | 50 | 725 | 8.665 | 625.2 | 39.03 | 1.213 | 6131 | 39.0 |
| 400 | 127 | 260 | 5 | 50 | 725 | 7.161 | 516.7 | 32.25 | 1.003 | 5067 | 32.3 |
| Supercritical  phase | 500 | 227 | 440 | 5 | 50 | 725 | 3.255 | 234.9 | 14.66 | 0.4557 | 2303 | 14.7 |
| 600 | 327 | 620 | 5 | 50 | 725 | 1.283 | 92.60 | 5.781 | 0.1797 | 908 | 5.78 |
|  | | | | | | | | | | | | |
| Liquid | 200 | -73.2 | -99.7 | 10 | 100 | 1450 | 9.937 | 717.0 | 44.76 | 1.391 | 7031 | 44.8 |
| 300 | 26.9 | 80.3 | 10 | 100 | 1450 | 8.745 | 631.0 | 39.39 | 1.224 | 6188 | 39.4 |
| 400 | 127 | 260 | 10 | 100 | 1450 | 7.379 | 532.4 | 33.24 | 1.033 | 5221 | 33.2 |
| Supercritical  phase | 500 | 227 | 440 | 10 | 100 | 1450 | 5.458 | 393.8 | 24.58 | 0.7641 | 3862 | 24.6 |
| 600 | 327 | 620 | 10 | 100 | 1450 | 3.077 | 222.0 | 13.86 | 0.4308 | 2177 | 13.9 |

Этилен – плотность

| **State** | **Temperature** | | | **Pressure** | | **Density** | | | | **Specific weight** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[bara]** | **[psia]** | **[mol/dm 3]** | **[g/l], [kg/m 3]** | **[lb/ft 3]** | **[sl/ft 3]** | **[N/m 3]** | **[lb f/ft 3]** |
| Liquid at equilibrium | 103.99 | -169.16 | -272.49 | 1.22E-03 | 0.0177 | 23.33 | 654.6 | 40.86 | 1.270 | 6419 | 40.86 |
| 105 | -168 | -271 | 1.46E-03 | 0.0211 | 23.29 | 653.3 | 40.78 | 1.268 | 6407 | 40.78 |
| 115 | -158 | -253 | 6.97E-03 | 0.101 | 22.83 | 640.6 | 39.99 | 1.243 | 6282 | 39.99 |
| 125 | -148 | -235 | 0.0253 | 0.366 | 22.38 | 627.7 | 39.19 | 1.218 | 6156 | 39.19 |
| 135 | -138 | -217 | 0.0739 | 1.07 | 21.91 | 614.6 | 38.37 | 1.193 | 6027 | 38.37 |
| 145 | -128 | -199 | 0.183 | 2.66 | 21.44 | 601.3 | 37.54 | 1.167 | 5897 | 37.54 |
| 155 | -118 | -181 | 0.398 | 5.77 | 20.95 | 587.8 | 36.69 | 1.140 | 5764 | 36.69 |
| 165 | -108 | -163 | 0.777 | 11.3 | 20.46 | 573.9 | 35.82 | 1.113 | 5628 | 35.82 |
| 175 | -98.2 | -145 | 1.39 | 20.2 | 19.95 | 559.5 | 34.93 | 1.086 | 5487 | 34.93 |
| 185 | -88.2 | -127 | 2.33 | 33.9 | 19.42 | 544.7 | 34.01 | 1.057 | 5342 | 34.01 |
| 195 | -78.2 | -109 | 3.69 | 53.5 | 18.87 | 529.2 | 33.04 | 1.027 | 5190 | 33.04 |
| 205 | -68.2 | -90.7 | 5.56 | 80.7 | 18.29 | 513.0 | 32.02 | 0.9953 | 5031 | 32.02 |
| 215 | -58.2 | -72.7 | 8.05 | 117 | 17.67 | 495.7 | 30.95 | 0.9619 | 4861 | 30.95 |
| 225 | -48.2 | -54.7 | 11.3 | 164 | 17.01 | 477.2 | 29.79 | 0.9259 | 4680 | 29.79 |
| 235 | -38.2 | -36.7 | 15.3 | 223 | 16.29 | 457.0 | 28.53 | 0.8868 | 4482 | 28.53 |
| 245 | -28.2 | -18.7 | 20.4 | 296 | 15.49 | 434.5 | 27.12 | 0.8430 | 4261 | 27.12 |
| 255 | -18.2 | -0.7 | 26.5 | 384 | 14.56 | 408.5 | 25.50 | 0.7925 | 4006 | 25.50 |
| 265 | -8.1 | 17.3 | 33.9 | 492 | 13.42 | 376.4 | 23.50 | 0.7304 | 3692 | 23.50 |
| 275 | 1.9 | 35.3 | 42.8 | 620 | 11.79 | 330.8 | 20.65 | 0.6419 | 3244 | 20.65 |
| 282.35 | 9.20 | 48.56 | 50.4 | 731 | 7.637 | 214.2 | 13.37 | 0.4157 | 2101 | 13.37 |
| Gas at equilibrium | 103.99 | -169.16 | -272.49 | 1.22E-03 | 0.0177 | 1.41E-04 | 3.96E-03 | 2.47E-04 | 7.68E-06 | 0.03881 | 2.47E-04 |
| 105 | -168 | -271 | 1.46E-03 | 0.0211 | 1.67E-04 | 4.68E-03 | 2.92E-04 | 9.08E-06 | 0.04592 | 2.92E-04 |
| 115 | -158 | -253 | 6.97E-03 | 0.101 | 7.30E-04 | 0.02048 | 1.28E-03 | 3.97E-05 | 0.20083 | 1.28E-03 |
| 125 | -148 | -235 | 0.0253 | 0.366 | 2.44E-03 | 0.06835 | 4.27E-03 | 1.33E-04 | 0.6702 | 4.27E-03 |
| 135 | -138 | -217 | 0.0739 | 1.07 | 6.62E-03 | 0.1857 | 0.01159 | 3.60E-04 | 1.821 | 0.01159 |
| 145 | -128 | -199 | 0.183 | 2.66 | 0.01533 | 0.4301 | 0.02685 | 8.35E-04 | 4.218 | 0.02685 |
| 155 | -118 | -181 | 0.398 | 5.77 | 0.03138 | 0.8803 | 0.05495 | 1.71E-03 | 8.633 | 0.05495 |
| 165 | -108 | -163 | 0.777 | 11.3 | 0.05823 | 1.634 | 0.1020 | 3.17E-03 | 16.02 | 0.1020 |
| 175 | -98.2 | -145 | 1.39 | 20.2 | 0.1000 | 2.805 | 0.1751 | 5.44E-03 | 27.51 | 0.1751 |
| 185 | -88.2 | -127 | 2.33 | 33.9 | 0.1614 | 4.528 | 0.2827 | 0.00879 | 44.41 | 0.2827 |
| 195 | -78.2 | -109 | 3.69 | 53.5 | 0.2480 | 6.958 | 0.4344 | 0.01350 | 68.23 | 0.4344 |
| 205 | -68.2 | -90.7 | 5.56 | 80.7 | 0.3664 | 10.28 | 0.6416 | 0.01994 | 100.8 | 0.6416 |
| 215 | -58.2 | -72.7 | 8.05 | 117 | 0.5247 | 14.72 | 0.9189 | 0.02856 | 144.3 | 0.9189 |
| 225 | -48.2 | -54.7 | 11.3 | 164 | 0.7339 | 20.59 | 1.285 | 0.03995 | 201.9 | 1.285 |
| 235 | -38.2 | -36.7 | 15.3 | 223 | 1.009 | 28.31 | 1.767 | 0.05493 | 277.6 | 1.767 |
| 245 | -28.2 | -18.7 | 20.4 | 296 | 1.375 | 38.56 | 2.408 | 0.07483 | 378.2 | 2.408 |
| 255 | -18.2 | -0.7 | 26.5 | 384 | 1.872 | 52.51 | 3.278 | 0.1019 | 515.0 | 3.278 |
| 265 | -8.1 | 17.3 | 33.9 | 492 | 2.589 | 72.62 | 4.533 | 0.1409 | 712.1 | 4.533 |
| 275 | 1.9 | 35.3 | 42.8 | 620 | 3.795 | 106.5 | 6.646 | 0.2066 | 1044 | 6.646 |
| 282.35 | 9.20 | 48.56 | 50.4 | 731 | 7.637 | 214.2 | 13.37 | 0.4157 | 2101 | 13.37 |
|  | | | | | | | | | | | |
| Liquid | 150 | -123.2 | -190 | 1 | 14.5 | 21.20 | 594.6 | 37.12 | 1.154 | 5831 | 37.12 |
| 169.16 | -103.99 | -155.18 | 1 | 14.5 | 20.55 | 576.4 | 35.98 | 1.118 | 5652 | 35.98 |
| Gas | 169.16 | -103.99 | -155.18 | 1 | 14.5 | 0.07352 | 2.062 | 0.1288 | 4.00E-03 | 20.23 | 0.1288 |
| 225 | -48.2 | -54.7 | 1 | 14.5 | 0.05418 | 1.520 | 0.09489 | 2.95E-03 | 14.91 | 0.09489 |
| 300 | 26.9 | 80.3 | 1 | 14.5 | 0.04031 | 1.131 | 0.07060 | 2.19E-03 | 11.09 | 0.07059 |
| 375 | 102 | 215 | 1 | 14.5 | 0.03216 | 0.9022 | 0.05632 | 1.75E-03 | 8.847 | 0.05632 |
| 450 | 176.9 | 350 | 1 | 14.5 | 0.02676 | 0.7507 | 0.04686 | 1.46E-03 | 7.362 | 0.04686 |
|  | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 10 | 145 | 21.22 | 595.3 | 37.16 | 1.155 | 5838 | 37.16 |
| 221.33 | -51.82 | -61.28 | 10 | 145 | 17.26 | 484.2 | 30.23 | 0.9395 | 4748 | 30.23 |
| Gas | 221.33 | -51.82 | -61.28 | 10 | 145 | 0.6503 | 18.24 | 1.139 | 0.03540 | 178.9 | 1.139 |
| 225 | -48.2 | -54.7 | 10 | 145 | 0.6321 | 17.73 | 1.107 | 0.03441 | 173.9 | 1.107 |
| 300 | 26.9 | 80.3 | 10 | 145 | 0.4254 | 11.93 | 0.7450 | 0.02316 | 117.0 | 0.7450 |
| 375 | 102 | 215 | 10 | 145 | 0.3296 | 9.246 | 0.5772 | 0.01794 | 90.68 | 0.5772 |
| 450 | 177 | 350 | 10 | 145 | 0.2710 | 7.602 | 0.4746 | 0.01475 | 74.55 | 0.4746 |
|  | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 50 | 725 | 21.33 | 598.4 | 37.36 | 1.161 | 5868 | 37.36 |
| 225 | -48.2 | -54.7 | 50 | 725 | 17.36 | 487.0 | 30.40 | 0.9449 | 4776 | 30.40 |
| 281.98 | 8.83 | 47.89 | 50 | 725 | 9.049 | 253.9 | 15.85 | 0.4926 | 2489 | 15.85 |
| Gas | 281.98 | 8.83 | 47.89 | 50 | 725 | 6.241 | 175.1 | 10.93 | 0.3397 | 1717 | 10.93 |
| 300 | 26.9 | 80.3 | 50 | 725 | 3.128 | 87.75 | 5.478 | 0.1703 | 860.5 | 5.478 |
| 375 | 102 | 215 | 50 | 725 | 1.859 | 52.15 | 3.256 | 0.1012 | 511.4 | 3.256 |
| 450 | 177 | 350 | 50 | 725 | 1.430 | 40.12 | 2.504 | 0.07784 | 393.4 | 2.504 |
|  | | | | | | | | | | | |
| Liquid | 150 | -123.2 | -189.7 | 100 | 1450 | 21.46 | 602.0 | 37.58 | 1.168 | 5904 | 37.58 |
| 225 | -48.2 | -55 | 100 | 1450 | 17.74 | 497.7 | 31.07 | 0.9656 | 4880 | 31.07 |
| Supercritical phase | 300 | 27 | 80 | 100 | 1450 | 11.51 | 322.9 | 20.16 | 0.6265 | 3166 | 20.16 |
| 375 | 102 | 215 | 100 | 1450 | 4.358 | 122.3 | 7.632 | 0.2372 | 1199 | 7.632 |
| 450 | 177 | 350 | 100 | 1450 | 3.029 | 84.97 | 5.305 | 0.1649 | 833.3 | 5.305 |

Этилен – вязкость

| **State** | **Temperature** | | | **Pressure** | | **Dynamic (Absolute) Viscosity** | | | | | **Kinematic viscosity** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[bara]** | **[psia]** | **[μPa s]** | **[cP], [mPa s]** | **[x10 -6lb fs/ft 2]** | **[x10 -6lb m/ft s]** | **[lb m/ft h]** | **[cSt], [x10 -6m 2/s]** | **[x10 -6ft 2/s]** |
| Liquid at  equilibrium | 103.99 | -169.16 | -272.49 | 1.22E-03 | 0.0177 | 685.7 | 0.6857 | 14.32 | 460.8 | 1.659 | 1.048 | 11.28 |
| 105 | -168 | -271 | 1.46E-03 | 0.0211 | 662.5 | 0.6625 | 13.84 | 445.2 | 1.603 | 1.014 | 10.92 |
| 115 | -158 | -253 | 6.97E-03 | 0.101 | 488.1 | 0.4881 | 10.19 | 328.0 | 1.181 | 0.7620 | 8.202 |
| 125 | -148 | -235 | 0.0253 | 0.366 | 378.7 | 0.3787 | 7.909 | 254.5 | 0.9161 | 0.6033 | 6.494 |
| 135 | -138 | -217 | 0.0739 | 1.07 | 305.5 | 0.3055 | 6.381 | 205.3 | 0.7390 | 0.4971 | 5.350 |
| 145 | -128 | -199 | 0.183 | 2.66 | 253.8 | 0.2538 | 5.301 | 170.5 | 0.6140 | 0.4221 | 4.543 |
| 155 | -118 | -181 | 0.398 | 5.77 | 215.7 | 0.2157 | 4.505 | 144.9 | 0.5218 | 0.3670 | 3.950 |
| 165 | -108 | -163 | 0.777 | 11.3 | 186.4 | 0.1864 | 3.893 | 125.3 | 0.4509 | 0.3248 | 3.496 |
| 175 | -98.2 | -145 | 1.39 | 20.2 | 163.0 | 0.1630 | 3.404 | 109.5 | 0.3943 | 0.2913 | 3.136 |
| 185 | -88.2 | -127 | 2.33 | 33.9 | 143.9 | 0.1439 | 3.005 | 96.70 | 0.3481 | 0.2642 | 2.844 |
| 195 | -78.2 | -109 | 3.69 | 53.5 | 127.7 | 0.1277 | 2.667 | 85.81 | 0.3089 | 0.2413 | 2.597 |
| 205 | -68.2 | -90.7 | 5.56 | 80.7 | 113.8 | 0.1138 | 2.377 | 76.47 | 0.2753 | 0.2218 | 2.388 |
| 215 | -58.2 | -72.7 | 8.05 | 117 | 101.4 | 0.1014 | 2.118 | 68.14 | 0.2453 | 0.2045 | 2.202 |
| 225 | -48.2 | -54.7 | 11.3 | 164 | 90.22 | 0.09022 | 1.884 | 60.63 | 0.2183 | 0.1891 | 2.035 |
| 235 | -38.2 | -36.7 | 15.3 | 223 | 79.89 | 0.07989 | 1.669 | 53.68 | 0.1933 | 0.1748 | 1.882 |
| 245 | -28.2 | -18.7 | 20.4 | 296 | 70.14 | 0.07014 | 1.465 | 47.13 | 0.1697 | 0.1614 | 1.738 |
| 255 | -18.2 | -0.7 | 26.5 | 384 | 60.69 | 0.06069 | 1.268 | 40.78 | 0.1468 | 0.1486 | 1.599 |
| 265 | -8.1 | 17.3 | 33.9 | 492 | 51.11 | 0.05111 | 1.067 | 34.34 | 0.1236 | 0.1358 | 1.461 |
| 275 | 1.9 | 35.3 | 42.8 | 620 | 40.40 | 0.04040 | 0.8438 | 27.15 | 0.09773 | 0.1221 | 1.314 |
| Gas at  equilibrium | 103.99 | -169.16 | -272.49 | 1.22E-03 | 0.0177 | 0.773 | 7.73E-04 | 0.01614 | 0.5192 | 1.87E-03 | 195.2 | 2101 |
| 105 | -168.2 | -271 | 1.46E-03 | 0.0211 | 1.001 | 1.00E-03 | 0.02091 | 0.6726 | 2.42E-03 | 213.8 | 2301 |
| 115 | -158.2 | -252.7 | 6.97E-03 | 0.101 | 2.734 | 2.73E-03 | 0.05710 | 1.837 | 6.61E-03 | 133.5 | 1437 |
| 125 | -148.2 | -234.7 | 0.0253 | 0.366 | 3.826 | 3.83E-03 | 0.07991 | 2.571 | 9.26E-03 | 55.98 | 602.6 |
| 135 | -138.2 | -216.7 | 0.0739 | 1.07 | 4.558 | 4.56E-03 | 0.09520 | 3.063 | 0.01103 | 24.55 | 264.3 |
| 145 | -128.2 | -198.7 | 0.183 | 2.66 | 5.089 | 5.09E-03 | 0.1063 | 3.420 | 0.01231 | 11.83 | 127.3 |
| 155 | -118.2 | -180.7 | 0.398 | 5.77 | 5.511 | 5.51E-03 | 0.1151 | 3.703 | 0.01333 | 6.261 | 67.39 |
| 165 | -108.2 | -162.7 | 0.777 | 11.3 | 5.880 | 5.88E-03 | 0.1228 | 3.951 | 0.01422 | 3.599 | 38.74 |
| 175 | -98.2 | -145 | 1.39 | 20.2 | 6.228 | 6.23E-03 | 0.1301 | 4.185 | 0.01507 | 2.220 | 23.90 |
| 185 | -88.2 | -127 | 2.33 | 33.9 | 6.577 | 6.58E-03 | 0.1374 | 4.420 | 0.01591 | 1.452 | 15.63 |
| 195 | -78.2 | -109 | 3.69 | 53.5 | 6.941 | 6.94E-03 | 0.1450 | 4.664 | 0.01679 | 0.9976 | 10.74 |
| 205 | -68.2 | -90.7 | 5.56 | 80.7 | 7.334 | 7.33E-03 | 0.1532 | 4.928 | 0.01774 | 0.7136 | 7.681 |
| 215 | -58.2 | -72.7 | 8.05 | 117 | 7.769 | 7.77E-03 | 0.1623 | 5.221 | 0.01879 | 0.5278 | 5.681 |
| 225 | -48.2 | -54.7 | 11.3 | 164 | 8.261 | 8.26E-03 | 0.1725 | 5.551 | 0.01998 | 0.4013 | 4.319 |
| 235 | -38.2 | -36.7 | 15.3 | 223 | 8.834 | 8.83E-03 | 0.1845 | 5.936 | 0.02137 | 0.3120 | 3.359 |
| 245 | -28.2 | -18.7 | 20.4 | 296 | 9.525 | 9.53E-03 | 0.1989 | 6.401 | 0.02304 | 0.2470 | 2.659 |
| 255 | -18.2 | -0.7 | 26.5 | 384 | 10.4 | 0.01040 | 0.2172 | 6.988 | 0.02516 | 0.1980 | 2.132 |
| 265 | -8.1 | 17.3 | 33.9 | 492 | 11.63 | 0.01163 | 0.2429 | 7.815 | 0.02813 | 0.1602 | 1.724 |
| 275 | 1.9 | 35.3 | 42.8 | 620 | 13.77 | 0.01377 | 0.2876 | 9.253 | 0.03331 | 0.1294 | 1.392 |
|  | | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 1 | 14.5 | 233.4 | 0.2334 | 4.875 | 156.8 | 0.5646 | 0.3925 | 4.225 |
| 169.16 | -103.99 | -155.18 | 1 | 14.5 | 176.1 | 0.1761 | 3.678 | 118.3 | 0.4260 | 0.3055 | 3.289 |
| Gas | 169.16 | -103.99 | -155.18 | 1 | 14.5 | 6.026 | 6.03E-03 | 0.1259 | 4.049 | 0.01458 | 2.922 | 31.45 |
| 225 | -48.2 | -54.7 | 1 | 14.5 | 7.838 | 7.84E-03 | 0.1637 | 5.267 | 0.01896 | 5.157 | 55.51 |
| 300 | 26.9 | 80.3 | 1 | 14.5 | 10.38 | 0.01038 | 0.2168 | 6.975 | 0.02511 | 9.179 | 98.80 |
| 375 | 102 | 215 | 1 | 14.5 | 12.83 | 0.01283 | 0.2680 | 8.621 | 0.03104 | 14.22 | 153.1 |
| 450 | 177 | 350 | 1 | 14.5 | 15.09 | 0.01509 | 0.3152 | 10.14 | 0.03650 | 20.10 | 216.4 |
|  | | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 10 | 145 | 233.0 | 0.2330 | 4.866 | 156.6 | 0.5636 | 0.3914 | 4.213 |
| 221.33 | -51.82 | -61.28 | 10 | 145 | 94.21 | 0.094 | 1.968 | 63.31 | 0.2279 | 0.1946 | 2.094 |
| Gas | 221.33 | -51.82 | -61.28 | 10 | 145 | 8.072 | 8.07E-03 | 0.1686 | 5.424 | 0.01953 | 0.4425 | 4.763 |
| 225 | -48.2 | -54.7 | 10 | 145 | 8.177 | 8.18E-03 | 0.1708 | 5.495 | 0.01978 | 0.4611 | 4.964 |
| 300 | 26.9 | 80.3 | 10 | 145 | 10.59 | 0.01059 | 0.2212 | 7.116 | 0.02562 | 0.8874 | 9.552 |
| 375 | 102 | 215 | 10 | 145 | 13.02 | 0.01302 | 0.2719 | 8.749 | 0.03150 | 1.408 | 15.16 |
| 450 | 177 | 350 | 10 | 145 | 15.28 | 0.01528 | 0.3191 | 10.27 | 0.03696 | 2.010 | 21.63 |
|  | | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 50 | 725 | 231.2 | 0.2312 | 4.829 | 155.4 | 0.5593 | 0.3864 | 4.159 |
| 225 | -48.2 | -54.7 | 50 | 725 | 93.29 | 0.09329 | 1.948 | 62.69 | 0.2257 | 0.1916 | 2.062 |
| 281.98 | 8.83 | 47.89 | 50 | 725 | 27.67 | 0.02767 | 0.5779 | 18.59 | 0.06694 | 0.1090 | 1.173 |
| Gas | 281.98 | 8.83 | 47.89 | 50 | 725 | 19.00 | 0.01900 | 0.3968 | 12.77 | 0.04596 | 0.1085 | 1.168 |
| 300 | 26.9 | 80.3 | 50 | 725 | 13.34 | 0.01334 | 0.2786 | 8.964 | 0.03227 | 0.1520 | 1.636 |
| 375 | 102 | 215 | 50 | 725 | 14.29 | 0.01429 | 0.2985 | 9.602 | 0.03457 | 0.2740 | 2.949 |
| 450 | 177 | 350 | 50 | 725 | 16.28 | 0.01628 | 0.3400 | 10.94 | 0.03938 | 0.4058 | 4.368 |
|  | | | | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 100 | 1450 | 229.0 | 0.2290 | 4.783 | 153.9 | 0.5540 | 0.3804 | 4.094 |
| 225 | -48.2 | -55 | 100 | 1450 | 96.61 | 0.09661 | 2.018 | 64.92 | 0.2337 | 0.1941 | 2.090 |
| Supercritical phase | 300 | 27 | 80 | 100 | 1450 | 37.62 | 0.03762 | 0.7857 | 25.28 | 0.09101 | 0.1165 | 1.254 |
| 375 | 102 | 215 | 100 | 1450 | 17.40 | 0.01740 | 0.3634 | 11.69 | 0.04209 | 0.1423 | 1.532 |
| 450 | 177 | 350 | 100 | 1450 | 18.01 | 0.01801 | 0.3761 | 12.10 | 0.04357 | 0.2119 | 2.281 |

Этилен – теплопроводность

| **State** | **Temperature** | | | **Pressure** | | **Thermal conductivity** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[bara]** | **[psia]** | **[mW/m K]** | **[kcal(IT)/(h m K)]** | **[Btu(IT)/(h ft °F)]** | **[(Btu(IT) in)/(h ft 2°F)]** |
| Liquid at  equilibrium | 103.99 | -169.16 | -272.49 | 1.22E-03 | 0.0177 | 270.7 | 0.2328 | 0.1564 | 1.877 |
| 105 | -168 | -271 | 1.46E-03 | 0.0211 | 269.3 | 0.2316 | 0.1556 | 1.867 |
| 115 | -158 | -253 | 6.97E-03 | 0.101 | 255.6 | 0.2198 | 0.1477 | 1.772 |
| 125 | -148 | -235 | 0.0253 | 0.366 | 242.1 | 0.2082 | 0.1399 | 1.679 |
| 135 | -138 | -217 | 0.0739 | 1.07 | 228.8 | 0.1967 | 0.1322 | 1.586 |
| 145 | -128 | -199 | 0.183 | 2.66 | 216.0 | 0.1857 | 0.1248 | 1.498 |
| 155 | -118 | -181 | 0.398 | 5.77 | 203.5 | 0.1750 | 0.1176 | 1.411 |
| 165 | -108 | -163 | 0.777 | 11.3 | 191.5 | 0.1647 | 0.1106 | 1.328 |
| 175 | -98.2 | -145 | 1.39 | 20.2 | 180.1 | 0.1549 | 0.1041 | 1.249 |
| 185 | -88.2 | -127 | 2.33 | 33.9 | 169.2 | 0.1455 | 0.09776 | 1.173 |
| 195 | -78.2 | -109 | 3.69 | 53.5 | 158.8 | 0.1365 | 0.09175 | 1.101 |
| 205 | -68.2 | -90.7 | 5.56 | 80.7 | 148.8 | 0.1279 | 0.08598 | 1.032 |
| 215 | -58.2 | -72.7 | 8.05 | 117 | 139.2 | 0.1197 | 0.08043 | 0.9651 |
| 225 | -48.2 | -54.7 | 11.3 | 164 | 129.8 | 0.1116 | 0.07500 | 0.9000 |
| 235 | -38.2 | -36.7 | 15.3 | 223 | 120.6 | 0.1037 | 0.06968 | 0.8362 |
| 245 | -28.2 | -18.7 | 20.4 | 296 | 111.5 | 0.09587 | 0.06442 | 0.7731 |
| 255 | -18.2 | -0.7 | 26.5 | 384 | 102.1 | 0.08779 | 0.05899 | 0.7079 |
| 265 | -8.1 | 17.3 | 33.9 | 492 | 92.17 | 0.07925 | 0.05325 | 0.6391 |
| 275 | 1.9 | 35.3 | 42.8 | 620 | 81.58 | 0.07015 | 0.04714 | 0.5656 |
| Gas at  equilibrium | 103.99 | -169.16 | -272.49 | 1.22E-03 | 0.0177 | 6.801 | 5.85E-03 | 3.93E-03 | 0.04715 |
| 105 | -168 | -271 | 1.46E-03 | 0.0211 | 6.739 | 5.79E-03 | 3.89E-03 | 0.04672 |
| 115 | -158 | -253 | 6.97E-03 | 0.101 | 6.622 | 5.69E-03 | 3.83E-03 | 0.04591 |
| 125 | -148 | -235 | 0.0253 | 0.366 | 7.012 | 6.03E-03 | 4.05E-03 | 0.04862 |
| 135 | -138 | -217 | 0.0739 | 1.07 | 7.585 | 6.52E-03 | 4.38E-03 | 0.05259 |
| 145 | -128 | -199 | 0.183 | 2.66 | 8.201 | 7.05E-03 | 4.74E-03 | 0.05686 |
| 155 | -118 | -181 | 0.398 | 5.77 | 8.813 | 7.58E-03 | 5.09E-03 | 0.06110 |
| 165 | -108 | -163 | 0.777 | 11.3 | 9.417 | 8.10E-03 | 5.44E-03 | 0.06529 |
| 175 | -98.2 | -145 | 1.39 | 20.2 | 10.04 | 8.63E-03 | 5.80E-03 | 0.06961 |
| 185 | -88.2 | -127 | 2.33 | 33.9 | 10.70 | 9.20E-03 | 6.18E-03 | 0.07419 |
| 195 | -78.2 | -109 | 3.69 | 53.5 | 11.45 | 9.85E-03 | 6.62E-03 | 0.07939 |
| 205 | -68.2 | -90.7 | 5.56 | 80.7 | 12.31 | 0.01058 | 7.11E-03 | 0.08535 |
| 215 | -58.2 | -72.7 | 8.05 | 117 | 13.35 | 0.01148 | 7.71E-03 | 0.09256 |
| 225 | -48.2 | -54.7 | 11.3 | 164 | 14.61 | 0.01256 | 8.44E-03 | 0.1013 |
| 235 | -38.2 | -36.7 | 15.3 | 223 | 16.19 | 0.01392 | 9.35E-03 | 0.1123 |
| 245 | -28.2 | -18.7 | 20.4 | 296 | 18.25 | 0.01569 | 0.01054 | 0.1265 |
| 255 | -18.2 | -0.7 | 26.5 | 384 | 21.17 | 0.01820 | 0.01223 | 0.1468 |
| 265 | -8.1 | 17.3 | 33.9 | 492 | 26.05 | 0.02240 | 0.01505 | 0.1806 |
| 275 | 1.9 | 35.3 | 42.8 | 620 | 39.17 | 0.03368 | 0.02263 | 0.2716 |
|  | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 1 | 14.5 | 209.7 | 0.1803 | 0.1212 | 1.454 |
| 169.16 | -103.99 | -155.18 | 1 | 14.5 | 186.7 | 0.1605 | 0.1079 | 1.294 |
| Gas | 169.16 | -103.99 | -155.18 | 1 | 14.5 | 9.671 | 8.32E-03 | 5.59E-03 | 0.06705 |
| 225 | -48.2 | -54.7 | 1 | 14.5 | 12.90 | 0.01109 | 7.45E-03 | 0.08944 |
| 300 | 26.9 | 80.3 | 1 | 14.5 | 20.56 | 0.01768 | 0.01188 | 0.1426 |
| 375 | 102 | 215 | 1 | 14.5 | 31.00 | 0.02666 | 0.01791 | 0.2149 |
| 450 | 177 | 350 | 1 | 14.5 | 42.20 | 0.03629 | 0.02438 | 0.2926 |
|  | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 10 | 145 | 210.7 | 0.1812 | 0.1217 | 1.461 |
| 221.33 | -51.82 | -61.28 | 10 | 145 | 133.2 | 0.1145 | 0.07696 | 0.9235 |
| Gas | 221.33 | -51.82 | -61.28 | 10 | 145 | 14.11 | 0.01213 | 0.00815 | 0.09783 |
| 225 | -48.2 | -54.7 | 10 | 145 | 14.32 | 0.01231 | 0.00827 | 0.09929 |
| 300 | 26.9 | 80.3 | 10 | 145 | 21.36 | 0.01837 | 0.01234 | 0.1481 |
| 375 | 102 | 215 | 10 | 145 | 31.53 | 0.02711 | 0.01822 | 0.2186 |
| 450 | 177 | 350 | 10 | 145 | 42.58 | 0.03661 | 0.02460 | 0.2952 |
|  | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 50 | 725 | 214.7 | 0.1846 | 0.1241 | 1.489 |
| 225 | -48.2 | -54.7 | 50 | 725 | 135.1 | 0.1162 | 0.07806 | 0.9367 |
| 281.98 | 8.83 | 47.89 | 50 | 725 | 145.7 | 0.1253 | 0.08418 | 1.010 |
| Gas | 281.98 | 8.83 | 47.89 | 50 | 725 | 182.6 | 0.1570 | 0.10550 | 1.266 |
| 300 | 26.9 | 80.3 | 50 | 725 | 30.86 | 0.02653 | 0.01783 | 0.2140 |
| 375 | 102 | 215 | 50 | 725 | 35.45 | 0.03048 | 0.02048 | 0.2458 |
| 450 | 177 | 350 | 50 | 725 | 45.11 | 0.03879 | 0.02606 | 0.3128 |
|  | | | | | | | | | |
| Liquid | 150 | -123 | -190 | 100 | 1450 | 219.6 | 0.1888 | 0.1269 | 1.523 |
| 225 | -48.2 | -55 | 100 | 1450 | 140.9 | 0.1212 | 0.08141 | 0.9769 |
| Supercritical phase | 300 | 27 | 80 | 100 | 1450 | 79.64 | 0.06848 | 0.04602 | 0.5522 |
| 375 | 102 | 215 | 100 | 1450 | 45.20 | 0.03887 | 0.02612 | 0.3134 |
| 450 | 177 | 350 | 100 | 1450 | 50.08 | 0.04306 | 0.02894 | 0.3472 |

Аммиак – теплоемкость

| **State** | **Temperature** | | | **Pressure** | | | **Specific Heat at constant pressure, C P(isobaric)** | | | | | **Cp/Cv** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[MPa]** | **[bara]** | **[psia]** | **[kJ/mol K]** | **[kJ/kg K]** | **[kWh/(kg K)]** | **[kcal(IT)/(kg K)], [Btu(IT)/lb °F]** | **[Btu(IT)/(mol °F)]** | **[-]** |
| Liquid |  | -73.2 | -99.7 | 0.1 | 1 | 15 | 0.071983 | 4.2266 | 0.001174 | 1.009 | 0.03790 | 1.44 |
| 239.56 | -33.6 | -28.5 | 0.1 | 1 | 15 | 0.075726 | 4.4464 | 0.001235 | 1.062 | 0.03987 | 1.56 |
| Gas | 239.56 | -33.6 | -28.5 | 0.1 | 1 | 15 | 0.039079 | 2.2946 | 0.0006374 | 0.5480 | 0.02058 | 1.35 |
| 300 | 26.9 | 80.3 | 0.1 | 1 | 15 | 0.036849 | 2.1636 | 0.0006010 | 0.5168 | 0.01940 | 1.32 |
| 400 | 127 | 260 | 0.1 | 1 | 15 | 0.038883 | 2.2831 | 0.0006342 | 0.5453 | 0.02047 | 1.28 |
| 500 | 227 | 440 | 0.1 | 1 | 15 | 0.04228 | 2.4825 | 0.0006896 | 0.5929 | 0.02226 | 1.25 |
| 600 | 327 | 620 | 0.1 | 1 | 15 | 0.046083 | 2.7058 | 0.0007516 | 0.6463 | 0.02426 | 1.22 |
| 700 | 427 | 800 | 0.1 | 1 | 15 | 0.050015 | 2.9367 | 0.0008158 | 0.7014 | 0.02633 | 1.20 |
| Liquid | 200 | -73.2 | -99.7 | 1 | 10 | 145 | 0.071938 | 4.2239 | 0.001173 | 1.009 | 0.03788 | 1.44 |
| 298.05 | 24.9 | 76.8 | 1 | 10 | 145 | 0.081465 | 4.7833 | 0.001329 | 1.142 | 0.04289 | 1.73 |
| Gas | 298.05 | 24.9 | 76.8 | 1 | 10 | 145 | 0.053356 | 3.1329 | 0.0008703 | 0.7483 | 0.02809 | 1.47 |
| 300 | 26.9 | 80.3 | 1 | 10 | 145 | 0.052493 | 3.0822 | 0.0008562 | 0.7362 | 0.02764 | 1.46 |
| 400 | 127 | 260 | 1 | 10 | 145 | 0.041627 | 2.4442 | 0.0006789 | 0.5838 | 0.02192 | 1.32 |
| 500 | 227 | 440 | 1 | 10 | 145 | 0.04334 | 2.545 | 0.0007069 | 0.6078 | 0.02282 | 1.26 |
| 600 | 327 | 620 | 1 | 10 | 145 | 0.04663 | 2.738 | 0.0007605 | 0.6539 | 0.02455 | 1.23 |
| 700 | 427 | 800 | 1 | 10 | 145 | 0.05034 | 2.956 | 0.0008211 | 0.7060 | 0.02651 | 1.20 |
| Liquid | 200 | -73.2 | -99.7 | 5 | 50 | 725 | 0.07174 | 4.212 | 0.001170 | 1.006 | 0.03777 | 1.43 |
| 300 | 26.9 | 80.3 | 5 | 50 | 725 | 0.08090 | 4.750 | 0.001319 | 1.135 | 0.04260 | 1.72 |
| 362.03 | 88.9 | 192 | 5 | 50 | 725 | 0.10538 | 6.188 | 0.001719 | 1.478 | 0.05549 | 2.23 |
| Gas | 362.03 | 88.9 | 192 | 5 | 50 | 725 | 0.10501 | 6.166 | 0.001713 | 1.473 | 0.05529 | 2.16 |
| 400 | 127 | 260 | 5 | 50 | 725 | 0.06158 | 3.616 | 0.001004 | 0.8636 | 0.03242 | 1.60 |
| 500 | 227 | 440 | 5 | 50 | 725 | 0.04878 | 2.864 | 0.0007956 | 0.6841 | 0.02568 | 1.35 |
| 600 | 327 | 620 | 5 | 50 | 725 | 0.04921 | 2.889 | 0.0008026 | 0.6901 | 0.02591 | 1.27 |
| 700 | 427 | 800 | 5 | 50 | 725 | 0.05184 | 3.044 | 0.0008455 | 0.7270 | 0.02729 | 1.23 |
| Liquid | 200 | -73.2 | -99.7 | 10 | 100 | 1450 | 0.07150 | 4.198 | 0.001166 | 1.003 | 0.03764 | 1.42 |
| 300 | 26.9 | 80.3 | 10 | 100 | 1450 | 0.07996 | 4.695 | 0.001304 | 1.121 | 0.04210 | 1.70 |
| 398.32 | 125 | 257 | 10 | 100 | 1450 | 0.30653 | 18.00 | 0.005000 | 4.299 | 0.16140 | 5.77 |
| Gas | 398.32 | 125 | 257 | 10 | 100 | 1450 | 0.46915 | 27.55 | 0.007652 | 6.579 | 0.24702 | 7.76 |
| 400 | 127 | 260 | 10 | 100 | 1450 | 0.30552 | 17.94 | 0.004983 | 4.285 | 0.16086 | 5.30 |
| 500 | 227 | 440 | 10 | 100 | 1450 | 0.05806 | 3.409 | 0.0009470 | 0.8142 | 0.03057 | 1.50 |
| 600 | 327 | 620 | 10 | 100 | 1450 | 0.05281 | 3.101 | 0.0008613 | 0.7406 | 0.02780 | 1.32 |
| 700 | 427 | 800 | 10 | 100 | 1450 | 0.05380 | 3.159 | 0.0008774 | 0.7544 | 0.02833 | 1.25 |
| Liquid | 300 | 26.9 | 80.3 | 100 | 1000 | 14500 | 0.07274 | 4.271 | 0.001186 | 1.020 | 0.03830 | 1.49 |
| 400 | 127 | 260 | 100 | 1000 | 14500 | 0.07557 | 4.437 | 0.001233 | 1.060 | 0.03979 | 1.62 |
| 500 | 227 | 440 | 100 | 1000 | 14500 | 0.07550 | 4.433 | 0.001231 | 1.059 | 0.03975 | 1.64 |
| 600 | 327 | 620 | 100 | 1000 | 14500 | 0.07519 | 4.415 | 0.001226 | 1.055 | 0.03959 | 1.61 |
| 700 | 427 | 800 | 100 | 1000 | 14500 | 0.07519 | 4.415 | 0.001226 | 1.055 | 0.03959 | 1.56 |

Аммиак – теплопроводность

| **State** | **Temperature** | | | **Pressure** | | | **Thermal conductivity** | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **[K]** | **[°C]** | **[°F]** | **[MPa]** | **[bara]** | **[psia]** | **[mW/m K]** | **[kcal(IT)/(h m K)]** | **[Btu(IT)/(h ft °F)]** |
| Liquid | 200 | -73.2 | -99.7 | 0.1 | 1 | 15 | 803.2 | 0.6907 | 0.4641 |
| 239.56 | -33.6 | -28.5 | 0.1 | 1 | 15 | 666.6 | 0.5731 | 0.3851 |
| Gas | 239.56 | -33.6 | -28.5 | 0.1 | 1 | 15 | 20.96 | 0.01802 | 0.01211 |
| 300 | 26.9 | 80.3 | 0.1 | 1 | 15 | 25.10 | 0.02158 | 0.01450 |
| 400 | 126.9 | 260.3 | 0.1 | 1 | 15 | 37.22 | 0.03200 | 0.02150 |
| 500 | 226.9 | 440.3 | 0.1 | 1 | 15 | 53.12 | 0.04567 | 0.03069 |
| 600 | 326.9 | 620.3 | 0.1 | 1 | 15 | 68.61 | 0.05899 | 0.03964 |
| 700 | 426.9 | 800.3 | 0.1 | 1 | 15 | 78.31 | 0.06734 | 0.04525 |
| Liquid | 200 | -73.2 | -99.7 | 1 | 10 | 145 | 804.2 | 0.6915 | 0.4647 |
| 298.05 | 24.9 | 76.8 | 1 | 10 | 145 | 485.8 | 0.4177 | 0.2807 |
| Gas | 298.05 | 24.9 | 76.8 | 1 | 10 | 145 | 26.15 | 0.02248 | 0.01511 |
| 300 | 26.9 | 80.3 | 1 | 10 | 145 | 26.31 | 0.02262 | 0.01520 |
| 400 | 126.9 | 260.3 | 1 | 10 | 145 | 38.09 | 0.03275 | 0.02201 |
| 500 | 226.9 | 440.3 | 1 | 10 | 145 | 53.75 | 0.04622 | 0.03106 |
| 600 | 326.9 | 620.3 | 1 | 10 | 145 | 69.12 | 0.05944 | 0.03994 |
| 700 | 426.9 | 800.3 | 1 | 10 | 145 | 78.75 | 0.06771 | 0.04550 |
| Liquid | 200 | -73.2 | -99.7 | 5 | 50 | 725 | 808.6 | 0.6953 | 0.4672 |
| 300 | 26.9 | 80.3 | 5 | 50 | 725 | 487.6 | 0.4192 | 0.2817 |
| 362.03 | 88.9 | 192.0 | 5 | 50 | 725 | 313.9 | 0.2699 | 0.1814 |
| Gas | 362.03 | 88.9 | 192.0 | 5 | 50 | 725 | 41.69 | 0.03585 | 0.02409 |
| 400 | 126.9 | 260.3 | 5 | 50 | 725 | 45.73 | 0.03932 | 0.02642 |
| 500 | 226.9 | 440.3 | 5 | 50 | 725 | 57.29 | 0.04926 | 0.03310 |
| 600 | 326.9 | 620.3 | 5 | 50 | 725 | 71.79 | 0.06173 | 0.04148 |
| 700 | 426.9 | 800.3 | 5 | 50 | 725 | 80.94 | 0.06960 | 0.04677 |
| Liquid | 200 | -73.2 | -99.7 | 10 | 100 | 1450 | 814.0 | 0.6999 | 0.4703 |
| 300 | 26.9 | 80.3 | 10 | 100 | 1450 | 496.5 | 0.4269 | 0.2869 |
| 398.32 | 125.2 | 257.3 | 10 | 100 | 1450 | 218.7 | 0.1881 | 0.1264 |
| Gas | 398.32 | 125.2 | 257.3 | 10 | 100 | 1450 | 101.0 | 0.08688 | 0.05838 |
| 400 | 126.9 | 260.3 | 10 | 100 | 1450 | 95.5 | 0.08208 | 0.05515 |
| 500 | 226.9 | 440.3 | 10 | 100 | 1450 | 63.9 | 0.05496 | 0.03693 |
| 600 | 326.9 | 620.3 | 10 | 100 | 1450 | 76.1 | 0.06539 | 0.04394 |
| 700 | 426.9 | 800.3 | 10 | 100 | 1450 | 84.2 | 0.07243 | 0.04867 |
| Liquid | 300 | 26.9 | 80.3 | 100 | 1000 | 14504 | 622.9 | 0.5356 | 0.3599 |
| 400 | 126.9 | 260.3 | 100 | 1000 | 14504 | 432.0 | 0.3714 | 0.2496 |
| 500 | 226.9 | 440.3 | 100 | 1000 | 14504 | 305.7 | 0.2628 | 0.1766 |
| 600 | 326.9 | 620.3 | 100 | 1000 | 14504 | 234.8 | 0.2019 | 0.1357 |
| 700 | 426.9 | 800.3 | 100 | 1000 | 14504 | 196.0 | 0.1686 | 0.1133 |
| 300 | 26.9 | 80.3 | 500 | 5000 | 72519 | 989.0 | 0.8504 | 0.5714 |
| 400 | 126.9 | 260.3 | 500 | 5000 | 72519 | 804.1 | 0.6914 | 0.4646 |
| 500 | 226.9 | 440.3 | 500 | 5000 | 72519 | 674.0 | 0.5795 | 0.3894 |
| 600 | 326.9 | 620.3 | 500 | 5000 | 72519 | 582.6 | 0.5010 | 0.3366 |
| 700 | 426.9 | 800.3 | 500 | 5000 | 72519 | 511.6 | 0.4399 | 0.2956 |
| 300 | 26.9 | 80.3 | 1000 | 10000 | 145038 | 1324 | 1.1384 | 0.7650 |
| 400 | 126.9 | 260.3 | 1000 | 10000 | 145038 | 1139 | 0.9793 | 0.6580 |
| 500 | 226.9 | 440.3 | 1000 | 10000 | 145038 | 996.5 | 0.8568 | 0.5758 |
| 600 | 326.9 | 620.3 | 1000 | 10000 | 145038 | 887.7 | 0.7633 | 0.5129 |
| 700 | 426.9 | 800.3 | 1000 | 10000 | 145038 | 797.3 | 0.6855 | 0.4606 |

Кислород – плотность

| **State** | **Temperature** | | | **Pressure** | | **Density** | | | | **Specific weight** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[bara]** | **[psia]** | **[mol/dm 3]** | **[g/l], [kg/m 3]** | **[lb m/ft 3]** | **[sl/ft 3]** | **[N/m 3]** | **[lb f/ft 3]** |
| Liquid at equilibrium | 54.361 | -218.79 | -361.82 | 0.0015 | 0.0212 | 40.82 | 1306 | 81.54 | 2.534 | 12809 | 81.54 |
| 70 | -203 | -334 | 0.0626 | 0.908 | 38.66 | 1237 | 77.22 | 2.400 | 12131 | 77.22 |
| 75 | -198 | -325 | 0.145 | 2.11 | 37.94 | 1214 | 75.78 | 2.355 | 11905 | 75.78 |
| 80 | -193 | -316 | 0.301 | 4.37 | 37.20 | 1190 | 74.32 | 2.310 | 11675 | 74.32 |
| 90 | -183 | -298 | 0.994 | 14.4 | 35.69 | 1142 | 71.30 | 2.216 | 11201 | 71.30 |
| 100 | -173 | -280 | 2.54 | 36.8 | 34.09 | 1091 | 68.11 | 2.117 | 10699 | 68.11 |
| 110 | -163 | -262 | 5.43 | 78.8 | 32.36 | 1036 | 64.65 | 2.009 | 10155 | 64.65 |
| 120 | -153 | -244 | 10.2 | 148.3 | 30.43 | 973.9 | 60.80 | 1.890 | 9551 | 60.80 |
| 130 | -143 | -226 | 17.5 | 253.7 | 28.20 | 902.5 | 56.34 | 1.751 | 8850 | 56.34 |
| 140 | -133 | -208 | 27.9 | 404.3 | 25.42 | 813.3 | 50.77 | 1.578 | 7976 | 50.77 |
| 145 | -128 | -199 | 34.5 | 500.0 | 23.60 | 755.2 | 47.14 | 1.465 | 7406 | 47.14 |
| 150 | -123 | -190 | 42.2 | 611.9 | 21.11 | 675.5 | 42.17 | 1.311 | 6625 | 42.17 |
| 154.58 | -118.57 | -181.43 | 50.4 | 731.4 | 13.63 | 436.2 | 27.23 | 0.846 | 4277 | 27.23 |
| Gas at equilibrium | 54.361 | -218.79 | -361.82 | 0.0015 | 0.0212 | 0.000324 | 0.01036 | 0.000647 | 0.000020 | 0.1016 | 0.000647 |
| 70 | -203 | -334 | 0.0626 | 0.908 | 0.01080 | 0.3457 | 0.02158 | 0.00067 | 3.390 | 0.02158 |
| 75 | -198 | -325 | 0.145 | 2.11 | 0.02351 | 0.7523 | 0.04696 | 0.00146 | 7.377 | 0.04696 |
| 80 | -193 | -316 | 0.301 | 4.37 | 0.04589 | 1.469 | 0.09168 | 0.00285 | 14.40 | 0.09168 |
| 90 | -183 | -298 | 0.994 | 14.4 | 0.1371 | 4.387 | 0.2739 | 0.00851 | 43.02 | 0.2739 |
| 100 | -173 | -280 | 2.54 | 36.8 | 0.3258 | 10.43 | 0.6508 | 0.02023 | 102.2 | 0.6508 |
| 110 | -163 | -262 | 5.43 | 78.8 | 0.6651 | 21.28 | 1.329 | 0.04129 | 208.7 | 1.329 |
| 120 | -153 | -244 | 10.2 | 148.3 | 1.228 | 39.31 | 2.454 | 0.07627 | 385.5 | 2.454 |
| 130 | -143 | -226 | 17.5 | 253.7 | 2.137 | 68.37 | 4.268 | 0.1327 | 670.5 | 4.268 |
| 140 | -133 | -208 | 27.9 | 404.3 | 3.649 | 116.8 | 7.289 | 0.2265 | 1145 | 7.289 |
| 145 | -128 | -199 | 34.5 | 500.0 | 4.841 | 154.9 | 9.671 | 0.3006 | 1519 | 9.671 |
| 150 | -123 | -190 | 42.2 | 611.9 | 6.717 | 214.9 | 13.42 | 0.4171 | 2108 | 13.42 |
| 154.58 | -118.57 | -181.43 | 50.4 | 731.4 | 13.63 | 436.2 | 27.23 | 0.8463 | 4277 | 27.23 |
|  | | | | | | | | | | | |
| Liquid | 54.37 | -218.8 | -361.8 | 1 | 14.5 | 40.81 | 1306 | 81.53 | 2.534 | 12807 | 81.53 |
| 60 | -213 | -352 | 1 | 14.5 | 40.06 | 1282 | 80.03 | 2.487 | 12572 | 80.03 |
| 80 | -193 | -316 | 1 | 14.5 | 37.22 | 1191 | 74.35 | 2.311 | 11680 | 74.35 |
| 90.06 | -183.09 | -297.56 | 1 | 14.5 | 35.69 | 1142 | 71.29 | 2.216 | 11199 | 71.29 |
| Gas | 90.06 | -183.09 | -297.56 | 1 | 14.5 | 0.1379 | 4.413 | 0.2755 | 0.00856 | 43.28 | 0.2755 |
| 100 | -173 | -280 | 1 | 14.5 | 0.1232 | 3.941 | 0.2460 | 0.00765 | 38.65 | 0.2460 |
| 120 | -153 | -244 | 1 | 14.5 | 0.1016 | 3.252 | 0.2030 | 0.00631 | 31.89 | 0.2030 |
| 140 | -133 | -208 | 1 | 14.5 | 0.08669 | 2.774 | 0.1732 | 0.00538 | 27.20 | 0.1732 |
| 160 | -113 | -172 | 1 | 14.5 | 0.07563 | 2.420 | 0.1511 | 0.00470 | 23.73 | 0.1511 |
| 180 | -93.2 | -136 | 1 | 14.5 | 0.06710 | 2.147 | 0.1340 | 0.00417 | 21.05 | 0.1340 |
| 200 | -73.2 | -99.7 | 1 | 14.5 | 0.06031 | 1.930 | 0.1205 | 0.00374 | 18.93 | 0.1205 |
| 220 | -53.2 | -63.7 | 1 | 14.5 | 0.05478 | 1.753 | 0.1094 | 0.00340 | 17.19 | 0.1094 |
| 240 | -33.2 | -27.7 | 1 | 14.5 | 0.05019 | 1.606 | 0.1003 | 0.00312 | 15.75 | 0.1003 |
| 260 | -13.2 | 8.3 | 1 | 14.5 | 0.04631 | 1.482 | 0.09252 | 0.00288 | 14.53 | 0.09252 |
| 280 | 6.9 | 44.3 | 1 | 14.5 | 0.04300 | 1.376 | 0.08590 | 0.00267 | 13.49 | 0.08590 |
| 300 | 26.9 | 80.3 | 1 | 14.5 | 0.04013 | 1.284 | 0.08016 | 0.00249 | 12.59 | 0.08016 |
| 320 | 46.9 | 116 | 1 | 14.5 | 0.03760 | 1.203 | 0.07510 | 0.00233 | 11.80 | 0.07510 |
| 340 | 66.9 | 152 | 1 | 14.5 | 0.03538 | 1.132 | 0.07067 | 0.00220 | 11.10 | 0.07067 |
| 360 | 86.9 | 188 | 1 | 14.5 | 0.03341 | 1.069 | 0.06674 | 0.00207 | 10.48 | 0.06674 |
| 400 | 127 | 260 | 1 | 14.5 | 0.03007 | 0.9622 | 0.06007 | 0.00187 | 9.436 | 0.06007 |
| 500 | 227 | 440 | 1 | 14.5 | 0.02405 | 0.7696 | 0.04804 | 0.00149 | 7.547 | 0.04804 |
| 600 | 327 | 620 | 1 | 14.5 | 0.02004 | 0.6413 | 0.04004 | 0.00124 | 6.289 | 0.04004 |
| 700 | 427 | 800 | 1 | 14.5 | 0.01718 | 0.5497 | 0.03432 | 0.00107 | 5.391 | 0.03432 |
| 800 | 527 | 980 | 1 | 14.5 | 0.01503 | 0.4809 | 0.03002 | 0.000933 | 4.716 | 0.03002 |
| 900 | 627 | 1160 | 1 | 14.5 | 0.01336 | 0.4275 | 0.02669 | 0.000829 | 4.192 | 0.02669 |
| 1000 | 727 | 1340 | 1 | 14.5 | 0.01203 | 0.3848 | 0.02402 | 0.000747 | 3.774 | 0.02402 |
|  | | | | | | | | | | | |
| Liquid | 54.47 | -218.68 | -361.62 | 10 | 145 | 40.85 | 1307 | 81.59 | 2.536 | 12817 | 81.59 |
| 60 | -213 | -352 | 10 | 145 | 40.10 | 1283 | 80.10 | 2.489 | 12582 | 80.10 |
| 80 | -193 | -316 | 10 | 145 | 37.25 | 1192 | 74.41 | 2.313 | 11690 | 74.41 |
| 100 | -173 | -280 | 10 | 145 | 34.16 | 1093 | 68.23 | 2.121 | 10719 | 68.23 |
| 119.62 | -153.53 | -244.35 | 10 | 145 | 30.51 | 976.3 | 60.95 | 1.894 | 9574 | 60.95 |
| Gas | 119.62 | -153.53 | -244.35 | 10 | 145 | 1.202 | 38.46 | 2.401 | 0.07462 | 377.2 | 2.401 |
| 120 | -153 | -244 | 10 | 145 | 1.195 | 38.25 | 2.388 | 0.07422 | 375.1 | 2.388 |
| 140 | -133 | -208 | 10 | 145 | 0.9497 | 30.39 | 1.897 | 0.05897 | 298.0 | 1.897 |
| 160 | -113 | -172 | 10 | 145 | 0.8016 | 25.65 | 1.601 | 0.04977 | 251.5 | 1.601 |
| 180 | -93.2 | -136 | 10 | 145 | 0.6978 | 22.33 | 1.394 | 0.04333 | 219.0 | 1.394 |
| 200 | -73.2 | -99.7 | 10 | 145 | 0.6200 | 19.84 | 1.239 | 0.03850 | 194.6 | 1.239 |
| 220 | -53.2 | -63.7 | 10 | 145 | 0.5588 | 17.88 | 1.116 | 0.03469 | 175.3 | 1.116 |
| 240 | -33.2 | -27.7 | 10 | 145 | 0.5094 | 16.30 | 1.018 | 0.03163 | 159.8 | 1.018 |
| 260 | -13.2 | 8.3 | 10 | 145 | 0.4681 | 14.98 | 0.9352 | 0.02907 | 146.9 | 0.9352 |
| 280 | 6.9 | 44.3 | 10 | 145 | 0.4331 | 13.86 | 0.8653 | 0.02689 | 135.9 | 0.8653 |
| 300 | 26.9 | 80.3 | 10 | 145 | 0.4035 | 12.91 | 0.8059 | 0.02505 | 126.6 | 0.8059 |
| 320 | 46.9 | 116 | 10 | 145 | 0.3775 | 12.08 | 0.7541 | 0.02344 | 118.5 | 0.7541 |
| 340 | 66.9 | 152 | 10 | 145 | 0.3547 | 11.35 | 0.7086 | 0.02202 | 111.3 | 0.7086 |
| 360 | 86.9 | 188 | 10 | 145 | 0.3347 | 10.71 | 0.6686 | 0.02078 | 105.0 | 0.6686 |
| 400 | 127 | 260 | 10 | 145 | 0.3007 | 9.623 | 0.6007 | 0.01867 | 94.37 | 0.6007 |
| 500 | 227 | 440 | 10 | 145 | 0.2401 | 7.683 | 0.4796 | 0.01491 | 75.34 | 0.4796 |
| 600 | 327 | 620 | 10 | 145 | 0.1999 | 6.398 | 0.3994 | 0.01241 | 62.74 | 0.3994 |
| 700 | 427 | 800 | 10 | 145 | 0.1714 | 5.483 | 0.3423 | 0.01064 | 53.77 | 0.3423 |
| 800 | 527 | 980 | 10 | 145 | 0.1499 | 4.798 | 0.2995 | 0.00931 | 47.05 | 0.2995 |
| 900 | 627 | 1160 | 10 | 145 | 0.1333 | 4.265 | 0.2663 | 0.00828 | 41.83 | 0.2663 |
| 1000 | 727 | 1340 | 10 | 145 | 0.1200 | 3.839 | 0.2397 | 0.00745 | 37.65 | 0.2397 |
|  | | | | | | | | | | | |
| Liquid | 100 | -173 | -280 | 50 | 725 | 34.50 | 1104 | 68.91 | 2.142 | 10826 | 68.91 |
| 154.36 | -118.79 | -181.82 | 50 | 725 | 16.01 | 512.4 | 31.99 | 0.994 | 5024 | 31.99 |
| Gas | 154.36 | -118.79 | -181.82 | 50 | 725 | 11.16 | 357.1 | 22.29 | 0.693 | 3502 | 22.29 |
| 300 | 26.9 | 80.3 | 50 | 725 | 2.062 | 65.97 | 4.12 | 0.128 | 647.0 | 4.118 |
| 500 | 227 | 440 | 50 | 725 | 1.191 | 38.11 | 2.379 | 0.07394 | 373.7 | 2.379 |
| 700 | 427 | 800 | 50 | 725 | 0.8473 | 27.11 | 1.693 | 0.05261 | 265.9 | 1.693 |
| 900 | 627 | 1160 | 50 | 725 | 0.6593 | 21.10 | 1.317 | 0.04094 | 206.9 | 1.317 |
|  | | | | | | | | | | | |
| Liquid | 55.5 | -217.65 | -359.77 | 100 | 1450 | 41.00 | 1312 | 81.91 | 2.546 | 12866 | 81.91 |
| 60 | -213 | -352 | 100 | 1450 | 40.44 | 1294 | 80.78 | 2.511 | 12690 | 80.78 |
| 80 | -193 | -316 | 100 | 1450 | 37.72 | 1207 | 75.35 | 2.342 | 11837 | 75.35 |
| 100 | -173 | -280 | 100 | 1450 | 34.88 | 1116 | 69.67 | 2.165 | 10944 | 69.67 |
| 120 | -153 | -244 | 100 | 1450 | 31.72 | 1015 | 63.36 | 1.969 | 9954 | 63.36 |
| 140 | -133 | -208 | 100 | 1450 | 27.89 | 892.5 | 55.72 | 1.732 | 8752 | 55.72 |
| 160 | -113 | -172 | 100 | 1450 | 22.38 | 716.0 | 44.70 | 1.389 | 7022 | 44.70 |
| Supercritical phase | 180 | -93.2 | -136 | 100 | 1450 | 13.23 | 423.3 | 26.43 | 0.8213 | 4151 | 26.43 |
| 200 | -73.2 | -99.7 | 100 | 1450 | 8.675 | 277.6 | 17.33 | 0.5386 | 2722 | 17.33 |
| 220 | -53.2 | -63.7 | 100 | 1450 | 6.872 | 219.9 | 13.73 | 0.4267 | 2156 | 13.73 |
| 240 | -33.2 | -27.7 | 100 | 1450 | 5.835 | 186.7 | 11.66 | 0.3623 | 1831 | 11.66 |
| 260 | -13.2 | 8.3 | 100 | 1450 | 5.131 | 164.2 | 10.25 | 0.3186 | 1610 | 10.25 |
| 280 | 6.9 | 44.3 | 100 | 1450 | 4.613 | 147.6 | 9.214 | 0.2864 | 1447 | 9.214 |
| 300 | 26.9 | 80.3 | 100 | 1450 | 4.206 | 134.6 | 8.403 | 0.2612 | 1320 | 8.403 |
| 320 | 46.9 | 116 | 100 | 1450 | 3.875 | 124.0 | 7.741 | 0.2406 | 1216 | 7.741 |
| 340 | 66.9 | 152 | 100 | 1450 | 3.600 | 115.2 | 7.192 | 0.2235 | 1130 | 7.192 |
| 360 | 86.9 | 188 | 100 | 1450 | 3.369 | 107.8 | 6.730 | 0.2092 | 1057 | 6.730 |
| 400 | 127 | 260 | 100 | 1450 | 2.990 | 95.67 | 5.972 | 0.1856 | 938.2 | 5.972 |
| 500 | 227 | 440 | 100 | 1450 | 2.354 | 75.32 | 4.702 | 0.1461 | 738.6 | 4.702 |
| 600 | 327 | 620 | 100 | 1450 | 1.951 | 62.44 | 3.898 | 0.1212 | 612.3 | 3.898 |
| 700 | 427 | 800 | 100 | 1450 | 1.671 | 53.46 | 3.337 | 0.1037 | 524.3 | 3.337 |
| 800 | 527 | 980 | 100 | 1450 | 1.462 | 46.79 | 2.921 | 0.09079 | 458.9 | 2.921 |
| 900 | 627 | 1160 | 100 | 1450 | 1.301 | 41.63 | 2.599 | 0.08078 | 408.3 | 2.599 |
| 1000 | 727 | 1340 | 100 | 1450 | 1.172 | 37.51 | 2.342 | 0.07278 | 367.8 | 2.342 |
|  | | | | | | | | | | | |
| Liquid | 100 | -173 | -280 | 250 | 3626 | 35.88 | 1148 | 71.69 | 2.228 | 11261 | 71.69 |
| Supercritical phase | 300 | 26.9 | 80.3 | 250 | 3626 | 10.39 | 332.6 | 20.76 | 0.6453 | 3261 | 20.76 |
| 500 | 227 | 440 | 250 | 3626 | 5.624 | 180.0 | 11.24 | 0.3492 | 1765 | 11.24 |
| 700 | 427 | 800 | 250 | 3626 | 3.992 | 127.8 | 7.975 | 0.2479 | 1253 | 7.975 |
| 900 | 627 | 1160 | 250 | 3626 | 3.122 | 99.91 | 6.237 | 0.1939 | 979.8 | 6.237 |
|  | | | | | | | | | | | |
| Liquid | 100 | -173 | -280 | 750 | 10878 | 38.26 | 1224 | 76.44 | 2.376 | 12007 | 76.44 |
| Supercritical phase | 300 | 26.9 | 80.3 | 750 | 10878 | 21.60 | 691.3 | 43.16 | 1.341 | 6779 | 43.16 |
| 500 | 227 | 440 | 750 | 10878 | 13.76 | 440.3 | 27.49 | 0.8544 | 4318 | 27.49 |
| 700 | 427 | 800 | 750 | 10878 | 10.20 | 326.4 | 20.38 | 0.6334 | 3201 | 20.38 |
| 900 | 627 | 1160 | 750 | 10878 | 8.175 | 261.6 | 16.33 | 0.5076 | 2565 | 16.33 |

Кислород – вязкость

| **State** | **Temperature** | | | **Pressure** | | **Dynamic (Absolute) Viscosity** | | | | | **Kinematic Viscosity** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[bara]** | **[psia]** | **[μPa s]** | **[cP]** | **[ x10 -6lb fs/ft 2]** | **[ x10 -6lb ms/ft s]** | **[lb m/ft h]** | **[cSt], [ x10 -6m 2/s]** | **[ x10 -6ft2/s]** |
| Liquid at  equilibrium | 54.361 | -218.79 | -361.82 | 0.0015 | 0.0212 | 773.62 | 0.7736 | 16.16 | 519.8 | 1.871 | 0.5923 | 6.376 |
| 70 | -203 | -334 | 0.0626 | 0.908 | 371.79 | 0.3718 | 7.765 | 249.8 | 0.8994 | 0.3006 | 3.235 |
| 75 | -198 | -325 | 0.145 | 2.11 | 308.66 | 0.3087 | 6.446 | 207.4 | 0.7467 | 0.2543 | 2.737 |
| 80 | -193 | -316 | 0.301 | 4.37 | 261.22 | 0.2612 | 5.456 | 175.5 | 0.6319 | 0.2194 | 2.362 |
| 90 | -183 | -298 | 0.994 | 14.4 | 195.64 | 0.1956 | 4.086 | 131.5 | 0.4733 | 0.1713 | 1.844 |
| 100 | -173 | -280 | 2.54 | 36.8 | 152.56 | 0.1526 | 3.186 | 102.5 | 0.3691 | 0.1398 | 1.505 |
| 110 | -163 | -262 | 5.43 | 78.8 | 121.52 | 0.1215 | 2.538 | 81.66 | 0.2940 | 0.1174 | 1.263 |
| 120 | -153 | -244 | 10.2 | 148.3 | 97.43 | 0.09743 | 2.035 | 65.47 | 0.2357 | 0.1000 | 1.077 |
| 130 | -143 | -226 | 17.5 | 253.7 | 77.57 | 0.07757 | 1.620 | 52.13 | 0.1877 | 0.08595 | 0.9252 |
| 140 | -133 | -208 | 27.9 | 404.3 | 60.22 | 0.06022 | 1.258 | 40.47 | 0.1457 | 0.07405 | 0.7971 |
| 145 | -128 | -199 | 34.5 | 500.0 | 51.87 | 0.05187 | 1.083 | 34.85 | 0.1255 | 0.06869 | 0.7393 |
| 150 | -123 | -190 | 42.2 | 611.9 | 42.90 | 0.04290 | 0.8960 | 28.83 | 0.1038 | 0.06351 | 0.6836 |
| Gas at  equilibrium | 54.361 | -218.79 | -361.82 | 0.0015 | 0.0212 | 4.096 | 0.00410 | 0.08555 | 2.753 | 0.00991 | 395.4 | 4257 |
| 70 | -203 | -334 | 0.0626 | 0.908 | 5.356 | 0.0053557 | 0.1119 | 3.599 | 0.01296 | 15.49 | 166.7 |
| 75 | -198 | -325 | 0.145 | 2.11 | 5.753 | 0.0057533 | 0.1202 | 3.866 | 0.01392 | 7.648 | 82.32 |
| 80 | -193 | -316 | 0.301 | 4.37 | 6.149 | 0.0061486 | 0.1284 | 4.132 | 0.01487 | 4.187 | 45.07 |
| 90 | -183 | -298 | 0.994 | 14.4 | 6.936 | 0.0069355 | 0.1449 | 4.660 | 0.01678 | 1.581 | 17.02 |
| 100 | -173 | -280 | 2.54 | 36.8 | 7.728 | 0.0077281 | 0.1614 | 5.193 | 0.01869 | 0.7413 | 7.979 |
| 110 | -163 | -262 | 5.43 | 78.8 | 8.547 | 0.0085467 | 0.1785 | 5.743 | 0.02068 | 0.4016 | 4.323 |
| 120 | -153 | -244 | 10.2 | 148.3 | 9.427 | 0.0094273 | 0.1969 | 6.335 | 0.02281 | 0.2398 | 2.581 |
| 130 | -143 | -226 | 17.5 | 253.7 | 10.45 | 0.01045 | 0.2181 | 7.019 | 0.02527 | 0.1528 | 1.644 |
| 140 | -133 | -208 | 27.9 | 404.3 | 11.82 | 0.01182 | 0.2469 | 7.945 | 0.02860 | 0.1013 | 1.090 |
| 145 | -128 | -199 | 34.5 | 500.0 | 12.88 | 0.01288 | 0.2690 | 8.656 | 0.03116 | 0.08315 | 0.8950 |
| 150 | -123 | -190 | 42.2 | 611.9 | 14.72 | 0.01472 | 0.3075 | 9.892 | 0.03561 | 0.06849 | 0.7372 |
|  | | | | | | | | | | | | |
| Liquid | 54.37 | -218.8 | -361.8 | 1 | 14.5 | 773.8 | 0.7738 | 16.16 | 520.0 | 1.872 | 0.5925 | 6.378 |
| 60 | -213 | -352 | 1 | 14.5 | 578.5 | 0.5785 | 12.08 | 388.7 | 1.399 | 0.4512 | 4.857 |
| 80 | -193 | -316 | 1 | 14.5 | 261.4 | 0.2614 | 5.459 | 175.7 | 0.6323 | 0.2195 | 2.362 |
| 90.06 | -183.09 | -297.56 | 1 | 14.5 | 195.3 | 0.1953 | 4.079 | 131.2 | 0.4724 | 0.1710 | 1.841 |
| Gas | 90.06 | -183.09 | -297.56 | 1 | 14.5 | 6.940 | 0.00694 | 0.1449 | 4.663 | 0.01679 | 1.573 | 16.93 |
| 100 | -173 | -280 | 1 | 14.5 | 7.712 | 0.007712 | 0.1611 | 5.182 | 0.01866 | 1.957 | 21.06 |
| 120 | -153 | -244 | 1 | 14.5 | 9.219 | 0.009219 | 0.1925 | 6.195 | 0.02230 | 2.835 | 30.51 |
| 140 | -133 | -208 | 1 | 14.5 | 10.67 | 0.01067 | 0.2228 | 7.170 | 0.02581 | 3.846 | 41.40 |
| 160 | -113 | -172 | 1 | 14.5 | 12.07 | 0.01207 | 0.2521 | 8.111 | 0.02920 | 4.988 | 53.69 |
| 180 | -93.2 | -136 | 1 | 14.5 | 13.41 | 0.01341 | 0.2801 | 9.011 | 0.03244 | 6.246 | 67.23 |
| 200 | -73.2 | -99.7 | 1 | 14.5 | 14.72 | 0.01472 | 0.3074 | 9.891 | 0.03561 | 7.627 | 82.10 |
| 220 | -53.2 | -63.7 | 1 | 14.5 | 15.98 | 0.01598 | 0.3337 | 10.74 | 0.03866 | 9.116 | 98.12 |
| 240 | -33.2 | -27.7 | 1 | 14.5 | 17.20 | 0.01720 | 0.3592 | 11.56 | 0.04161 | 10.71 | 115.3 |
| 260 | -13.2 | 8.3 | 1 | 14.5 | 18.38 | 0.01838 | 0.3839 | 12.35 | 0.04446 | 12.40 | 133.5 |
| 280 | 6.9 | 44.3 | 1 | 14.5 | 19.53 | 0.01953 | 0.4079 | 13.12 | 0.04724 | 14.19 | 152.8 |
| 300 | 26.9 | 80.3 | 1 | 14.5 | 20.65 | 0.02065 | 0.4313 | 13.88 | 0.04995 | 16.08 | 173.1 |
| 320 | 46.9 | 116 | 1 | 14.5 | 21.74 | 0.02174 | 0.4540 | 14.61 | 0.05259 | 18.07 | 194.5 |
| 340 | 66.9 | 152 | 1 | 14.5 | 22.80 | 0.02280 | 0.4762 | 15.32 | 0.05516 | 20.14 | 216.8 |
| 360 | 86.9 | 188 | 1 | 14.5 | 23.84 | 0.02384 | 0.4979 | 16.02 | 0.05767 | 22.30 | 240.0 |
| 400 | 127 | 260 | 1 | 14.5 | 25.84 | 0.02584 | 0.5397 | 17.36 | 0.06251 | 26.86 | 289.1 |
| 500 | 227 | 440 | 1 | 14.5 | 30.49 | 0.03049 | 0.6368 | 20.49 | 0.07376 | 39.62 | 426.4 |
| 600 | 327 | 620 | 1 | 14.5 | 34.73 | 0.03473 | 0.7254 | 23.34 | 0.08401 | 54.16 | 582.9 |
| 700 | 427 | 800 | 1 | 14.5 | 38.65 | 0.03865 | 0.8072 | 25.97 | 0.09350 | 70.31 | 756.8 |
| 800 | 527 | 980 | 1 | 14.5 | 42.33 | 0.04233 | 0.8841 | 28.44 | 0.1024 | 88.02 | 947.5 |
| 900 | 627 | 1160 | 1 | 14.5 | 45.81 | 0.04581 | 0.9568 | 30.78 | 0.1108 | 107.2 | 1153.4 |
| 1000 | 727 | 1340 | 1 | 14.5 | 49.12 | 0.04912 | 1.026 | 33.01 | 0.1188 | 127.7 | 1374.0 |
|  | | | | | | | | | | | | |
| Liquid | 54.47 | -218.68 | -361.62 | 10 | 145 | 775.0 | 0.7750 | 16.19 | 520.8 | 1.875 | 0.5930 | 6.383 |
| 60 | -213 | -352 | 10 | 145 | 582.7 | 0.5827 | 12.17 | 391.6 | 1.410 | 0.4542 | 4.889 |
| 80 | -193 | -316 | 10 | 145 | 263.6 | 0.2636 | 5.505 | 177.1 | 0.6377 | 0.2211 | 2.380 |
| 100 | -173 | -280 | 10 | 145 | 153.9 | 0.1539 | 3.214 | 103.4 | 0.3723 | 0.1408 | 1.516 |
| 119.62 | -153.53 | -244.35 | 10 | 145 | 98.25 | 0.09825 | 2.052 | 66.02 | 0.2377 | 0.1006 | 1.083 |
| Gas | 119.62 | -153.53 | -244.35 | 10 | 145 | 9.392 | 0.009392 | 0.1962 | 6.311 | 0.02272 | 0.2442 | 2.629 |
| 120 | -153 | -244 | 10 | 145 | 9.421 | 0.009421 | 0.1968 | 6.331 | 0.02279 | 0.2463 | 2.651 |
| 140 | -133 | -208 | 10 | 145 | 10.89 | 0.01089 | 0.2274 | 7.318 | 0.02634 | 0.3583 | 3.857 |
| 160 | -113 | -172 | 10 | 145 | 12.29 | 0.01229 | 0.2567 | 8.258 | 0.02973 | 0.4791 | 5.157 |
| 180 | -93.2 | -136 | 10 | 145 | 13.64 | 0.01364 | 0.2849 | 9.166 | 0.03300 | 0.6108 | 6.575 |
| 200 | -73.2 | -99.7 | 10 | 145 | 14.94 | 0.01494 | 0.3120 | 10.04 | 0.03614 | 0.7530 | 8.105 |
| 220 | -53.2 | -63.7 | 10 | 145 | 16.20 | 0.01620 | 0.3383 | 10.89 | 0.03919 | 0.9060 | 9.753 |
| 240 | -33.2 | -27.7 | 10 | 145 | 17.41 | 0.01741 | 0.3636 | 11.70 | 0.04212 | 1.068 | 11.50 |
| 260 | -13.2 | 8.3 | 10 | 145 | 18.59 | 0.01859 | 0.3883 | 12.49 | 0.04497 | 1.241 | 13.36 |
| 280 | 6.9 | 44.3 | 10 | 145 | 19.73 | 0.01973 | 0.4121 | 13.26 | 0.04773 | 1.424 | 15.32 |
| 300 | 26.9 | 80.3 | 10 | 145 | 20.85 | 0.02085 | 0.4355 | 14.01 | 0.05044 | 1.615 | 17.38 |
| 320 | 46.9 | 116 | 10 | 145 | 21.93 | 0.02193 | 0.4580 | 14.74 | 0.05305 | 1.815 | 19.54 |
| 340 | 66.9 | 152 | 10 | 145 | 22.99 | 0.02299 | 0.4802 | 15.45 | 0.05561 | 2.026 | 21.80 |
| 360 | 86.9 | 188 | 10 | 145 | 24.02 | 0.02402 | 0.5017 | 16.14 | 0.05811 | 2.243 | 24.14 |
| 400 | 127 | 260 | 10 | 145 | 26.01 | 0.02601 | 0.5432 | 17.48 | 0.06292 | 2.703 | 29.09 |
| 500 | 226.85 | 440.33 | 10 | 145 | 30.63 | 0.03063 | 0.6397 | 20.58 | 0.07410 | 3.987 | 42.91 |
| 600 | 327 | 620 | 10 | 145 | 34.80 | 0.03480 | 0.7268 | 23.38 | 0.08418 | 5.439 | 58.55 |
| 700 | 427 | 800 | 10 | 145 | 38.77 | 0.03877 | 0.8096 | 26.05 | 0.09378 | 7.070 | 76.10 |
| 800 | 527 | 980 | 10 | 145 | 42.43 | 0.04243 | 0.8862 | 28.51 | 0.1026 | 8.843 | 95.19 |
| 900 | 627 | 1160 | 10 | 145 | 45.90 | 0.04590 | 0.9586 | 30.84 | 0.1110 | 10.76 | 115.8 |
| 1000 | 727 | 1340 | 10 | 145 | 49.20 | 0.04920 | 1.028 | 33.06 | 0.1190 | 12.82 | 137.9 |
|  | | | | | | | | | | | | |
| Liquid | 100 | -173 | -280 | 50 | 725 | 160.9 | 0.1609 | 3.361 | 108.1 | 0.3893 | 0.1458 | 1.569 |
| 154.36 | -118.79 | -181.82 | 50 | 725 | 29.67 | 0.02967 | 0.6196 | 19.94 | 0.07177 | 0.05791 | 0.6233 |
| Gas | 154.36 | -118.79 | -181.82 | 50 | 725 | 20.57 | 0.02057 | 0.4297 | 13.83 | 0.04977 | 0.05761 | 0.6201 |
| 300 | 26.9 | 80.3 | 50 | 725 | 21.77 | 0.02177 | 0.4546 | 14.63 | 0.05265 | 0.3299 | 3.551 |
| 500 | 227 | 440 | 50 | 725 | 31.27 | 0.03127 | 0.6530 | 21.01 | 0.07564 | 0.8205 | 8.832 |
| 700 | 427 | 800 | 50 | 725 | 39.26 | 0.03926 | 0.8200 | 26.38 | 0.09498 | 1.448 | 15.59 |
| 900 | 627 | 1160 | 50 | 725 | 46.31 | 0.04631 | 0.9671 | 31.12 | 0.1120 | 2.195 | 23.62 |
|  | | | | | | | | | | | | |
| Liquid | 55.5 | -217.65 | -359.77 | 100 | 1450 | 786.0 | 0.7860 | 16.42 | 528.2 | 1.901 | 0.5991 | 6.448 |
| 60 | -213 | -352 | 100 | 1450 | 625.3 | 0.6253 | 13.06 | 420.2 | 1.513 | 0.4832 | 5.201 |
| 80 | -193 | -316 | 100 | 1450 | 285.2 | 0.2852 | 5.957 | 191.6 | 0.6899 | 0.2363 | 2.543 |
| 100 | -173 | -280 | 100 | 1450 | 169.5 | 0.1695 | 3.540 | 113.9 | 0.4100 | 0.1519 | 1.635 |
| 120 | -153 | -244 | 100 | 1450 | 112.4 | 0.1124 | 2.348 | 75.53 | 0.2719 | 0.1107 | 1.192 |
| 140 | -133 | -208 | 100 | 1450 | 75.70 | 0.07570 | 1.581 | 50.87 | 0.1831 | 0.08482 | 0.9130 |
| 160 | -113 | -172 | 100 | 1450 | 47.96 | 0.04796 | 1.002 | 32.23 | 0.1160 | 0.06698 | 0.7210 |
| Supercritical phase | 180 | -93.2 | -136 | 100 | 1450 | 26.07 | 0.02607 | 0.5445 | 17.52 | 0.06307 | 0.06159 | 0.6629 |
| 200 | -73.2 | -99.7 | 100 | 1450 | 20.74 | 0.02074 | 0.4332 | 13.94 | 0.05017 | 0.07471 | 0.8042 |
| 220 | -53.2 | -63.7 | 100 | 1450 | 20.24 | 0.02024 | 0.4227 | 13.60 | 0.04896 | 0.09204 | 0.991 |
| 240 | -33.2 | -27.7 | 100 | 1450 | 20.67 | 0.02067 | 0.4317 | 13.89 | 0.05000 | 0.1107 | 1.192 |
| 260 | -13.2 | 8.3 | 100 | 1450 | 21.40 | 0.02140 | 0.4469 | 14.38 | 0.05177 | 0.1303 | 1.403 |
| 280 | 6.9 | 44.3 | 100 | 1450 | 22.25 | 0.02225 | 0.4647 | 14.95 | 0.05382 | 0.1507 | 1.623 |
| 300 | 26.9 | 80.3 | 100 | 1450 | 23.15 | 0.02315 | 0.4835 | 15.56 | 0.05600 | 0.1720 | 1.851 |
| 320 | 46.9 | 116 | 100 | 1450 | 24.07 | 0.02407 | 0.5027 | 16.17 | 0.05823 | 0.1941 | 2.089 |
| 340 | 66.9 | 152 | 100 | 1450 | 25.00 | 0.02500 | 0.5221 | 16.80 | 0.06048 | 0.2170 | 2.336 |
| 360 | 86.9 | 188 | 100 | 1450 | 25.92 | 0.02592 | 0.5414 | 17.42 | 0.06270 | 0.2404 | 2.588 |
| 400 | 127 | 260 | 100 | 1450 | 27.74 | 0.02774 | 0.5794 | 18.64 | 0.06711 | 0.2900 | 3.121 |
| 500 | 227 | 440 | 100 | 1450 | 32.07 | 0.03207 | 0.6698 | 21.55 | 0.07758 | 0.4258 | 4.583 |
| 600 | 327 | 620 | 100 | 1450 | 36.10 | 0.03610 | 0.7540 | 24.26 | 0.08733 | 0.5782 | 6.223 |
| 700 | 427 | 800 | 100 | 1450 | 39.87 | 0.03987 | 0.8327 | 26.79 | 0.09645 | 0.7458 | 8.028 |
| 800 | 527 | 980 | 100 | 1450 | 43.43 | 0.04343 | 0.9071 | 29.18 | 0.1051 | 0.9282 | 9.991 |
| 900 | 627 | 1160 | 100 | 1450 | 46.80 | 0.04680 | 0.9774 | 31.45 | 0.1132 | 1.124 | 12.10 |
| 1000 | 727 | 1340 | 100 | 1450 | 50.03 | 0.05003 | 1.045 | 33.62 | 0.1210 | 1.334 | 14.36 |
|  | | | | | | | | | | | | |
| Liquid | 100 | -173 | -280 | 250 | 3626 | 194.4 | 0.1944 | 4.060 | 130.6 | 0.4702 | 0.1693 | 1.822 |
| Supercritical  phase | 300 | 26.9 | 80.3 | 250 | 3626 | 29.61 | 0.02961 | 0.6183 | 19.89 | 0.07162 | 0.08902 | 0.9582 |
| 500 | 227 | 440 | 250 | 3626 | 34.71 | 0.03471 | 0.7248 | 23.32 | 0.08395 | 0.1928 | 2.076 |
| 700 | 427 | 800 | 250 | 3626 | 41.71 | 0.04171 | 0.8712 | 28.03 | 0.1009 | 0.3265 | 3.515 |
| 900 | 627 | 1160 | 250 | 3626 | 48.27 | 0.04827 | 1.008 | 32.44 | 0.1168 | 0.4831 | 5.201 |
|  | | | | | | | | | | | | |
| Liquid | 100 | -173 | -280 | 750 | 10878 | 275.0 | 0.2750 | 5.743 | 184.8 | 0.6652 | 0.2246 | 2.417 |
| Supercritical  phase | 300 | 26.9 | 80.3 | 750 | 10878 | 53.38 | 0.05338 | 1.115 | 35.87 | 0.1291 | 0.07721 | 0.8311 |
| 500 | 227 | 440 | 750 | 10878 | 45.08 | 0.04508 | 0.9416 | 30.30 | 0.1091 | 0.1024 | 1.102 |
| 700 | 427 | 800 | 750 | 10878 | 48.27 | 0.04827 | 1.008 | 32.44 | 0.1168 | 0.1479 | 1.592 |
| 900 | 627 | 1160 | 750 | 10878 | 53.16 | 0.05316 | 1.110 | 35.72 | 0.1286 | 0.2032 | 2.187 |

Азот – плотность

| **State** | **Temperature** | | | **Pressure** | | | **Density** | | | | **Specific weight** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[MPa]** | **[bara]** | **[psia]** | **[mol/dm 3]** | **[g/l], [kg/m 3]** | **[lb m/ft 3]** | **[sl/ft 3\*10 -3]** | **[N/m 3]** | **[lb f/ft 3]** |
| Liquid at  equilibrium  pressure | 63.15 | -210.0 | -346.0 | 0.013 | 0.125 | 1.82 | 30.96 | 867.2 | 54.14 | 1683 | 8505 | 54.1 |
| 69 | -204 | -335 | 0.033 | 0.332 | 4.82 | 30.09 | 842.8 | 52.61 | 1635 | 8265 | 52.6 |
| 75 | -198 | -325 | 0.076 | 0.760 | 11.0 | 29.15 | 816.7 | 50.98 | 1585 | 8009 | 51.0 |
| 79 | -194 | -317 | 0.122 | 1.22 | 17.8 | 28.51 | 798.6 | 49.85 | 1549 | 7831 | 49.9 |
| 85 | -188 | -307 | 0.229 | 2.29 | 33.2 | 27.49 | 770.2 | 48.08 | 1494 | 7553 | 48.1 |
| 89 | -184 | -299 | 0.331 | 3.31 | 47.9 | 26.78 | 750.2 | 46.83 | 1456 | 7357 | 46.8 |
| 95 | -178 | -289 | 0.541 | 5.41 | 78.4 | 25.64 | 718.3 | 44.84 | 1394 | 7044 | 44.8 |
| 99 | -174 | -281 | 0.726 | 7.26 | 105 | 24.82 | 695.4 | 43.41 | 1349 | 6819 | 43.4 |
| 105 | -168 | -271 | 1.08 | 10.8 | 157 | 23.47 | 657.5 | 41.05 | 1276 | 6448 | 41.0 |
| 109 | -164 | -263 | 1.38 | 13.8 | 201 | 22.46 | 629.1 | 39.27 | 1221 | 6169 | 39.3 |
| 115 | -158 | -253 | 1.94 | 19.4 | 281 | 20.66 | 578.7 | 36.13 | 1123 | 5675 | 36.1 |
| 121 | -152 | -242 | 2.64 | 26.4 | 383 | 18.19 | 509.5 | 31.81 | 988.6 | 4996 | 31.8 |
| 126.2 | -147.0 | -232.5 | 3.40 | 34.0 | 493 | 11.18 | 313.3 | 19.56 | 607.9 | 3073 | 19.6 |
|  | | | | | | | | | | | | |
| Gas at  equlibrium  pressure | 63.15 | -210.0 | -346.0 | 0.013 | 0.125 | 1.82 | 0.02407 | 0.6743 | 0.04210 | 1.308 | 6.61 | 0.0421 |
| 69 | -204 | -335 | 0.033 | 0.332 | 4.82 | 0.05903 | 1.654 | 0.1032 | 3.209 | 16.2 | 0.103 |
| 75 | -198 | -325 | 0.076 | 0.760 | 11.0 | 0.1264 | 3.540 | 0.2210 | 6.870 | 34.7 | 0.221 |
| 79 | -194 | -317 | 0.122 | 1.22 | 17.8 | 0.1961 | 5.494 | 0.3430 | 10.66 | 53.9 | 0.343 |
| 85 | -188 | -307 | 0.229 | 2.29 | 33.2 | 0.3507 | 9.824 | 0.6133 | 19.06 | 96.3 | 0.613 |
| 89 | -184 | -299 | 0.331 | 3.31 | 47.9 | 0.4958 | 13.89 | 0.8670 | 26.95 | 136 | 0.867 |
| 95 | -178 | -289 | 0.541 | 5.41 | 78.4 | 0.7950 | 22.27 | 1.390 | 43.22 | 218 | 1.39 |
| 99 | -174 | -281 | 0.726 | 7.26 | 105 | 1.063 | 29.79 | 1.860 | 57.80 | 292 | 1.86 |
| 105 | -168 | -271 | 1.08 | 10.8 | 157 | 1.605 | 44.96 | 2.807 | 87.24 | 441 | 2.81 |
| 109 | -164 | -263 | 1.38 | 13.8 | 201 | 2.092 | 58.59 | 3.658 | 113.7 | 575 | 3.66 |
| 115 | -158 | -253 | 1.94 | 19.4 | 281 | 3.116 | 87.30 | 5.450 | 169.4 | 856 | 5.45 |
| 121 | -152 | -242 | 2.64 | 26.4 | 383 | 4.838 | 135.5 | 8.461 | 263.0 | 1329 | 8.46 |
| 126.2 | -147.0 | -232.5 | 3.40 | 34.0 | 493 | 11.18 | 313.3 | 19.56 | 607.9 | 3073 | 19.6 |
|  | | | | | | | | | | | | |
| Gas | 100 | -173 | -280 | 0.1 | 1 | 14.5 | 0.1227 | 3.437 | 0.2145 | 6.668 | 33.7 | 0.215 |
| 150 | -123 | -190 | 0.1 | 1 | 14.5 | 0.08040 | 2.252 | 0.1406 | 4.370 | 22.1 | 0.141 |
| 200 | -73.2 | -99.7 | 0.1 | 1 | 14.5 | 0.06030 | 1.689 | 0.1055 | 3.278 | 16.6 | 0.105 |
| 300 | 26.9 | 80.3 | 0.1 | 1 | 14.5 | 0.04020 | 1.126 | 0.07030 | 2.185 | 11.0 | 0.0703 |
| 400 | 127 | 260 | 0.1 | 1 | 14.5 | 0.03015 | 0.845 | 0.05273 | 1.639 | 8.28 | 0.0527 |
| 500 | 227 | 440 | 0.1 | 1 | 14.5 | 0.02412 | 0.676 | 0.04218 | 1.311 | 6.63 | 0.0422 |
| 600 | 327 | 620 | 0.1 | 1 | 14.5 | 0.02004 | 0.561 | 0.03504 | 1.089 | 5.50 | 0.0350 |
| 800 | 527 | 980 | 0.1 | 1 | 14.5 | 0.01507 | 0.422 | 0.02636 | 0.8194 | 4.14 | 0.0264 |
| 1100 | 827 | 1520 | 0.1 | 1 | 14.5 | 0.01093 | 0.306 | 0.01912 | 0.5941 | 3.00 | 0.0191 |
| 1600 | 1327 | 2420 | 0.1 | 1 | 14.5 | 0.00752 | 0.211 | 0.01314 | 0.4085 | 2.06 | 0.0131 |
|  | | | | | | | | | | | | |
| Liquid | 100 | -173 | -280 | 1 | 10 | 145 | 24.66 | 690.8 | 43.12 | 1340 | 6774 | 43.1 |
| 103.8 | -169.4 | -272.9 | 1 | 10 | 145 | 23.77 | 665.8 | 41.57 | 1292 | 6530 | 41.6 |
| Gas | 103.8 | -169.4 | -272.9 | 1 | 10 | 145 | 1.475 | 41.33 | 2.580 | 80.20 | 405 | 2.58 |
| 150 | -123 | -190 | 1 | 10 | 145 | 0.8015 | 22.45 | 1.402 | 43.57 | 220 | 1.40 |
| 200 | -73.2 | -99.7 | 1 | 10 | 145 | 0.6011 | 16.84 | 1.051 | 32.68 | 165 | 1.05 |
| 300 | 26.9 | 80.3 | 1 | 10 | 145 | 0.4008 | 11.23 | 0.7009 | 21.78 | 110 | 0.701 |
| 400 | 127 | 260 | 1 | 10 | 145 | 0.3006 | 8.420 | 0.5257 | 16.34 | 82.6 | 0.526 |
| 500 | 227 | 440 | 1 | 10 | 145 | 0.2405 | 6.736 | 0.4205 | 13.07 | 66.1 | 0.421 |
| 600 | 327 | 620 | 1 | 10 | 145 | 0.1996 | 5.592 | 0.3491 | 10.85 | 54.8 | 0.349 |
| 800 | 527 | 980 | 1 | 10 | 145 | 0.1503 | 4.210 | 0.2628 | 8.169 | 41.3 | 0.263 |
| 950 | 677 | 1250 | 1 | 10 | 145 | 0.1266 | 3.545 | 0.2213 | 6.879 | 34.8 | 0.221 |
| 1100 | 827 | 1520 | 1 | 10 | 145 | 0.1090 | 3.053 | 0.1906 | 5.924 | 29.9 | 0.191 |
| 1600 | 1327 | 2420 | 1 | 10 | 145 | 0.07499 | 2.101 | 0.1312 | 4.076 | 20.6 | 0.131 |
|  | | | | | | | | | | | | |
| Gas | 150 | -123 | -190 | 3 | 30 | 435 | 2.405 | 67.36 | 4.205 | 130.7 | 661 | 4.21 |
| 200 | -73.2 | -99.7 | 3 | 30 | 435 | 1.803 | 50.52 | 3.154 | 98.03 | 495 | 3.15 |
| 300 | 26.9 | 80.3 | 3 | 30 | 435 | 1.202 | 33.68 | 2.103 | 65.35 | 330 | 2.10 |
| 400 | 127 | 260 | 3 | 30 | 435 | 0.9017 | 25.26 | 1.577 | 49.01 | 248 | 1.58 |
| 500 | 227 | 440 | 3 | 30 | 435 | 0.7214 | 20.21 | 1.262 | 39.21 | 198 | 1.26 |
| 600 | 327 | 620 | 3 | 30 | 435 | 0.6011 | 16.84 | 1.051 | 32.68 | 165 | 1.05 |
| 700 | 427 | 800 | 3 | 30 | 435 | 0.5153 | 14.43 | 0.9011 | 28.01 | 142 | 0.901 |
| 800 | 527 | 980 | 3 | 30 | 435 | 0.4509 | 12.63 | 0.7885 | 24.51 | 124 | 0.788 |
| 950 | 677 | 1250 | 3 | 30 | 435 | 0.3797 | 10.64 | 0.6640 | 20.64 | 104 | 0.664 |
| 1100 | 827 | 1520 | 3 | 30 | 435 | 0.3279 | 9.186 | 0.5734 | 17.82 | 90.1 | 0.573 |
| 1600 | 1327 | 2420 | 3 | 30 | 435 | 0.2254 | 6.315 | 0.3942 | 12.25 | 61.9 | 0.394 |
|  | | | | | | | | | | | | |
| Liquid | 100 | -173 | -280 | 5 | 50 | 725 | 25.44 | 712.6 | 44.48 | 1383 | 6988 | 44.5 |
| Supercritical  phase | 150 | -123 | -190 | 5 | 50 | 725 | 4.008 | 112.3 | 7.009 | 217.8 | 1101 | 7.01 |
| 200 | -73.2 | -99.7 | 5 | 50 | 725 | 3.006 | 84.20 | 5.257 | 163.4 | 826 | 5.26 |
| 300 | 26.9 | 80.3 | 5 | 50 | 725 | 2.004 | 56.13 | 3.504 | 108.9 | 550 | 3.50 |
| 400 | 127 | 260 | 5 | 50 | 725 | 1.503 | 42.10 | 2.628 | 81.69 | 413 | 2.63 |
| 500 | 227 | 440 | 5 | 50 | 725 | 1.202 | 33.68 | 2.103 | 65.35 | 330 | 2.10 |
| 600 | 327 | 620 | 5 | 50 | 725 | 0.9808 | 27.48 | 1.715 | 53.31 | 269 | 1.72 |
| 1100 | 827 | 1520 | 5 | 50 | 725 | 0.5380 | 15.07 | 0.941 | 29.24 | 148 | 0.941 |
| 1600 | 1327 | 2420 | 5 | 50 | 725 | 0.3715 | 10.41 | 0.650 | 20.19 | 102 | 0.650 |
|  | | | | | | | | | | | | |
| Liquid | 100 | -173 | -280 | 10 | 100 | 1450 | 26.19 | 733.6 | 45.80 | 1423 | 7194 | 45.8 |
| Supercritical  phase | 150 | -123 | -190 | 10 | 100 | 1450 | 8.015 | 224.5 | 14.02 | 435.7 | 2202 | 14.0 |
| 200 | -73.2 | -99.7 | 10 | 100 | 1450 | 6.011 | 168.4 | 10.51 | 326.8 | 1651 | 10.5 |
| 300 | 26.9 | 80.3 | 10 | 100 | 1450 | 4.008 | 112.3 | 7.009 | 217.8 | 1101 | 7.01 |
| 400 | 127 | 260 | 10 | 100 | 1450 | 3.006 | 84.20 | 5.257 | 163.4 | 826 | 5.26 |
| 500 | 227 | 440 | 10 | 100 | 1450 | 2.405 | 67.36 | 4.205 | 130.7 | 661 | 4.21 |
| 600 | 327 | 620 | 10 | 100 | 1450 | 1.918 | 53.74 | 3.355 | 104.3 | 527 | 3.35 |
| 1100 | 827 | 1520 | 10 | 100 | 1450 | 1.059 | 29.67 | 1.852 | 57.56 | 291 | 1.85 |
| 1600 | 1327 | 2420 | 10 | 100 | 1450 | 0.7344 | 20.57 | 1.284 | 39.92 | 202 | 1.28 |

Пропан – плотность

| **State** | **Temperature** | | | **Pressure** | | | **Density** | | | | **Specific weight** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[MPa]** | **[bara]** | **[psia]** | **[mol/dm 3]** | **[g/l], [kg/m 3]** | **[lb m/ft 3]** | **[sl/ft 3]** | **[N/m 3]** | **[lb f/ft 3]** |
| Liquid | 85.53 | -187.68 | -305.82 | 1.7E-10 | 1.7E-09 | 2.5E-08 | 16.63 | 733.1 | 45.77 | 1.422 | 7189 | 45.8 |
| 100 | -173 | -280 | 2.5E-08 | 2.5E-07 | 3.7E-06 | 16.29 | 718.2 | 44.83 | 1.393 | 7043 | 44.8 |
| 130 | -143 | -226 | 1.8E-05 | 0.000176 | 0.00255 | 15.60 | 687.7 | 42.93 | 1.334 | 6744 | 42.9 |
| 160 | -113 | -172 | 0.000850 | 0.00850 | 0.1233 | 14.90 | 657.2 | 41.03 | 1.275 | 6445 | 41.0 |
| 190 | -83.2 | -118 | 0.01055 | 0.1055 | 1.530 | 14.20 | 626.0 | 39.08 | 1.215 | 6139 | 39.1 |
| 220 | -53.2 | -63.7 | 0.06058 | 0.6058 | 8.787 | 13.46 | 593.5 | 37.05 | 1.152 | 5820 | 37.0 |
| 250 | -23.2 | -9.7 | 0.2180 | 2.180 | 31.62 | 12.66 | 558.4 | 34.86 | 1.083 | 5476 | 34.9 |
| 280 | 6.9 | 44.3 | 0.5817 | 5.817 | 84.37 | 11.78 | 519.2 | 32.41 | 1.007 | 5092 | 32.4 |
| 310 | 36.9 | 98.3 | 1.273 | 12.73 | 184.6 | 10.73 | 473.0 | 29.53 | 0.9177 | 4638 | 29.5 |
| 320 | 46.9 | 116 | 1.599 | 15.99 | 231.9 | 10.32 | 454.9 | 28.40 | 0.8827 | 4461 | 28.4 |
| 340 | 66.9 | 152 | 2.432 | 24.32 | 352.7 | 9.340 | 411.9 | 25.71 | 0.7991 | 4039 | 25.7 |
| 355 | 81.9 | 179 | 3.243 | 32.43 | 470.4 | 8.316 | 366.7 | 22.89 | 0.7115 | 3596 | 22.9 |
| 360 | 86.9 | 188 | 3.555 | 35.55 | 515.6 | 7.838 | 345.6 | 21.58 | 0.6706 | 3389 | 21.6 |
| 369.83 | 96.68 | 206.02 | 4.248 | 42.48 | 616.1 | 5.000 | 220.5 | 13.76 | 0.4278 | 2162 | 13.8 |
| Gas, saturated | 85.53 | -187.68 | -305.82 | 1.7E-10 | 1.7E-09 | 2.5E-08 | 2.49E-10 | 1.10E-08 | 6.87E-10 | 2.13E-11 | 1.1E-07 | 6.9E-10 |
| 100 | -173 | -280 | 2.5E-08 | 2.5E-07 | 3.7E-06 | 3.05E-08 | 1.34E-06 | 8.39E-08 | 2.61E-09 | 1.3E-05 | 8.4E-08 |
| 130 | -143 | -226 | 1.8E-05 | 0.000176 | 0.00255 | 1.63E-05 | 7.18E-04 | 4.48E-05 | 1.39E-06 | 0.0070 | 4.5E-05 |
| 160 | -113 | -172 | 0.000850 | 0.00850 | 0.1233 | 0.00064 | 0.02819 | 0.002 | 5.47E-05 | 0.276 | 0.0018 |
| 190 | -83.2 | -118 | 0.01055 | 0.1055 | 1.530 | 0.00672 | 0.2964 | 0.01850 | 5.75E-04 | 2.91 | 0.0185 |
| 220 | -53.2 | -63.7 | 0.06058 | 0.6058 | 8.787 | 0.03397 | 1.498 | 0.09352 | 0.00291 | 14.7 | 0.094 |
| 250 | -23.2 | -9.7 | 0.2180 | 2.180 | 31.62 | 0.1120 | 4.936 | 0.3082 | 0.00958 | 48.4 | 0.308 |
| 280 | 6.9 | 44.3 | 0.5817 | 5.817 | 84.37 | 0.2850 | 12.57 | 0.7845 | 0.02438 | 123 | 0.784 |
| 310 | 36.9 | 98.3 | 1.273 | 12.73 | 184.6 | 0.6323 | 27.88 | 1.741 | 0.05410 | 273 | 1.74 |
| 320 | 46.9 | 116 | 1.599 | 15.99 | 231.9 | 0.8105 | 35.74 | 2.231 | 0.06935 | 350 | 2.23 |
| 340 | 66.9 | 152 | 2.432 | 24.32 | 352.7 | 1.336 | 58.92 | 3.678 | 0.1143 | 578 | 3.68 |
| 355 | 81.9 | 179 | 3.243 | 32.43 | 470.4 | 2.025 | 89.30 | 5.575 | 0.1733 | 876 | 5.58 |
| 360 | 86.9 | 188 | 3.555 | 35.55 | 515.6 | 2.390 | 105.4 | 6.580 | 0.2045 | 1034 | 6.58 |
| 369.83 | 96.68 | 206.02 | 4.248 | 42.48 | 616.1 | 5.000 | 220.5 | 13.76 | 0.4278 | 2162 | 13.8 |
|  | | | | | | | | | | | | |
| Liquid | 85.53 | -187.62 | -305.72 | 0.1 | 1 | 14.5 | 16.63 | 733.1 | 45.77 | 1.422 | 7189 | 45.8 |
| 100 | -173 | -280 | 0.1 | 1 | 14.5 | 16.29 | 718.2 | 44.84 | 1.394 | 7043 | 44.8 |
| 120 | -153 | -244 | 0.10 | 1 | 14.5 | 15.83 | 697.8 | 43.56 | 1.354 | 6843 | 43.6 |
| 140 | -133 | -208 | 0.10 | 1 | 14.5 | 15.37 | 677.6 | 42.30 | 1.315 | 6645 | 42.3 |
| 160 | -113 | -172 | 0.10 | 1 | 14.5 | 14.91 | 657.3 | 41.03 | 1.275 | 6446 | 41.0 |
| 180 | -93.2 | -136 | 0.10 | 1 | 14.5 | 14.44 | 636.7 | 39.75 | 1.235 | 6244 | 39.7 |
| 200 | -73.2 | -99.7 | 0.10 | 1 | 14.5 | 13.96 | 615.5 | 38.42 | 1.194 | 6036 | 38.4 |
| 220 | -53.2 | -63.7 | 0.10 | 1 | 14.5 | 13.46 | 593.5 | 37.05 | 1.152 | 5820 | 37.1 |
| 230.74 | -42.41 | -44.34 | 0.10 | 1 | 14.5 | 13.18 | 581.2 | 36.28 | 1.128 | 5700 | 36.3 |
| Gas | 230.74 | -42.41 | -44.34 | 0.1 | 1 | 14.5 | 0.05408 | 2.385 | 0.1489 | 0.00463 | 23.4 | 0.149 |
| 240 | -33.2 | -27.7 | 0.1 | 1 | 14.5 | 0.05180 | 2.284 | 0.1426 | 0.00443 | 22.4 | 0.143 |
| 260 | -13.2 | 8.3 | 0.1 | 1 | 14.5 | 0.04744 | 2.092 | 0.1306 | 0.00406 | 20.5 | 0.131 |
| 280 | 6.9 | 44.3 | 0.1 | 1 | 14.5 | 0.04382 | 1.932 | 0.1206 | 0.00375 | 18.9 | 0.121 |
| 300 | 26.9 | 80.3 | 0.1 | 1 | 14.5 | 0.04073 | 1.796 | 0.1121 | 0.00348 | 17.6 | 0.112 |
| 320 | 46.9 | 116 | 0.1 | 1 | 14.5 | 0.03808 | 1.679 | 0.1048 | 0.00326 | 16.5 | 0.105 |
| 340 | 66.9 | 152 | 0.1 | 1 | 14.5 | 0.03574 | 1.576 | 0.09839 | 0.00306 | 15.5 | 0.0984 |
| 360 | 86.9 | 188 | 0.1 | 1 | 14.5 | 0.03370 | 1.486 | 0.09277 | 0.00288 | 14.6 | 0.0928 |
| 400 | 127 | 260 | 0.1 | 1 | 14.5 | 0.03026 | 1.334 | 0.08328 | 0.00259 | 13.1 | 0.0833 |
| 500 | 227 | 440 | 0.1 | 1 | 14.5 | 0.02413 | 1.064 | 0.06642 | 0.00206 | 10.4 | 0.0664 |
| 600 | 327 | 620 | 0.1 | 1 | 14.5 | 0.02008 | 0.8852 | 0.05526 | 0.00172 | 8.68 | 0.0553 |
| 700 | 427 | 800 | 0.1 | 1 | 14.5 | 0.01719 | 0.7581 | 0.04733 | 0.00147 | 7.43 | 0.0473 |
| 800 | 527 | 980 | 0.1 | 1 | 14.5 | 0.01504 | 0.6631 | 0.04140 | 0.00129 | 6.50 | 0.0414 |
| 900 | 627 | 1160 | 0.1 | 1 | 14.5 | 0.01336 | 0.5892 | 0.03678 | 0.00114 | 5.78 | 0.0368 |
| 1000 | 727 | 1340 | 0.1 | 1 | 14.5 | 0.01202 | 0.5302 | 0.03310 | 0.00103 | 5.20 | 0.0331 |
|  | | | | | | | | | | | | |
| Liquid | 85.62 | -187.53 | -305.55 | 1 | 10 | 145 | 16.63 | 733.3 | 45.78 | 1.423 | 7191 | 45.8 |
| 100 | -173 | -280 | 1 | 10 | 145 | 16.30 | 718.5 | 44.86 | 1.394 | 7046 | 44.9 |
| 120 | -153 | -244 | 1 | 10 | 145 | 15.83 | 698.2 | 43.59 | 1.355 | 6847 | 43.6 |
| 140 | -133 | -208 | 1 | 10 | 145 | 15.38 | 678.1 | 42.33 | 1.316 | 6650 | 42.3 |
| 160 | -113 | -172 | 1 | 10 | 145 | 14.92 | 657.8 | 41.07 | 1.276 | 6451 | 41.1 |
| 180 | -93.2 | -136 | 1 | 10 | 145 | 14.45 | 637.3 | 39.79 | 1.237 | 6250 | 39.8 |
| 200 | -73.2 | -99.7 | 1 | 10 | 145 | 13.97 | 616.2 | 38.47 | 1.196 | 6043 | 38.5 |
| 220 | -53.2 | -63.7 | 1 | 10 | 145 | 13.48 | 594.4 | 37.11 | 1.153 | 5829 | 37.1 |
| 240 | -33.2 | -27.7 | 1 | 10 | 145 | 12.96 | 571.5 | 35.68 | 1.109 | 5605 | 35.7 |
| 260 | -13.2 | 8.3 | 1 | 10 | 145 | 12.41 | 547.0 | 34.15 | 1.061 | 5364 | 34.1 |
| 280 | 6.9 | 44.3 | 1 | 10 | 145 | 11.80 | 520.1 | 32.47 | 1.009 | 5100 | 32.5 |
| 300.09 | 26.94 | 80.49 | 1 | 10 | 145 | 11.10 | 489.3 | 30.55 | 0.9494 | 4799 | 30.5 |
| Gas | 300.09 | 26.94 | 80.49 | 1 | 10 | 145 | 0.4915 | 21.67 | 1.353 | 0.04205 | 213 | 1.35 |
| 320 | 46.9 | 116 | 1 | 10 | 145 | 0.4386 | 19.34 | 1.207 | 0.03753 | 190 | 1.21 |
| 340 | 66.9 | 152 | 1 | 10 | 145 | 0.3994 | 17.61 | 1.099 | 0.03417 | 173 | 1.10 |
| 360 | 86.9 | 188 | 1 | 10 | 145 | 0.3685 | 16.25 | 1.014 | 0.03153 | 159 | 1.01 |
| 400 | 127 | 260 | 1 | 10 | 145 | 0.3215 | 14.17 | 0.8849 | 0.02750 | 139 | 0.885 |
| 500 | 227 | 440 | 1 | 10 | 145 | 0.2478 | 10.92 | 0.6820 | 0.02120 | 107 | 0.682 |
| 600 | 327 | 620 | 1 | 10 | 145 | 0.2033 | 8.964 | 0.5596 | 0.01739 | 87.9 | 0.560 |
| 700 | 427 | 800 | 1 | 10 | 145 | 0.1729 | 7.623 | 0.4759 | 0.01479 | 74.8 | 0.476 |
| 800 | 527 | 980 | 1 | 10 | 145 | 0.1506 | 6.641 | 0.4146 | 0.01289 | 65.1 | 0.415 |
| 900 | 627 | 1160 | 1 | 10 | 145 | 0.1336 | 5.889 | 0.3676 | 0.01143 | 57.8 | 0.368 |
| 1000 | 727 | 1340 | 1 | 10 | 145 | 0.1200 | 5.292 | 0.3304 | 0.01027 | 51.9 | 0.330 |
|  | | | | | | | | | | | | |
| Liquid | 100 | -173 | -280 | 5 | 50 | 725 | 16.33 | 719.9 | 44.94 | 1.397 | 7060 | 44.9 |
| 200 | -73.2 | -99.7 | 5 | 50 | 725 | 14.05 | 619.4 | 38.67 | 1.202 | 6074 | 38.7 |
| 300 | 26.9 | 80.3 | 5 | 50 | 725 | 11.36 | 501.0 | 31.28 | 0.9722 | 4914 | 31.3 |
| 310 | 36.9 | 98.3 | 5 | 50 | 725 | 10.73 | 487.0 | 30.40 | 0.9449 | 4776 | 30.4 |
| 320 | 46.9 | 116 | 5 | 50 | 725 | 10.66 | 470.0 | 29.34 | 0.9120 | 4609 | 29.3 |
| 340 | 66.9 | 152 | 5 | 50 | 725 | 9.340 | 435.0 | 27.16 | 0.8440 | 4266 | 27.2 |
| 355 | 81.9 | 179 | 5 | 50 | 725 | 8.316 | 400.0 | 24.97 | 0.7761 | 3923 | 25.0 |
| 400 | 127 | 260 | 5 | 50 | 725 | 2.545 | 112.2 | 7.005 | 0.2177 | 1100 | 7.01 |
| 500 | 227 | 440 | 5 | 50 | 725 | 1.406 | 61.99 | 3.870 | 0.1203 | 608 | 3.87 |
|  | | | | | | | | | | | | |
| Liquid | 100 | -173 | -280 | 10 | 100 | 1450 | 16.37 | 721.6 | 45.05 | 1.400 | 7076 | 45.0 |
| 120 | -153 | -244 | 10 | 100 | 1450 | 15.92 | 701.8 | 43.81 | 1.362 | 6882 | 43.8 |
| 140 | -133 | -208 | 10 | 100 | 1450 | 15.47 | 682.2 | 42.59 | 1.324 | 6690 | 42.6 |
| 160 | -113 | -172 | 10 | 100 | 1450 | 15.03 | 662.7 | 41.37 | 1.286 | 6499 | 41.4 |
| 180 | -93.2 | -136 | 10 | 100 | 1450 | 14.58 | 643.1 | 40.15 | 1.248 | 6307 | 40.1 |
| 200 | -73.2 | -99.7 | 10 | 100 | 1450 | 14.13 | 623.2 | 38.91 | 1.209 | 6112 | 38.9 |
| 220 | -53.2 | -63.7 | 10 | 100 | 1450 | 13.67 | 602.8 | 37.63 | 1.170 | 5911 | 37.6 |
| 240 | -33.2 | -27.7 | 10 | 100 | 1450 | 13.20 | 581.9 | 36.33 | 1.129 | 5706 | 36.3 |
| 260 | -13.2 | 8.3 | 10 | 100 | 1450 | 12.70 | 560.1 | 34.97 | 1.087 | 5493 | 35.0 |
| 280 | 6.9 | 44.3 | 10 | 100 | 1450 | 12.18 | 537.1 | 33.53 | 1.042 | 5267 | 33.5 |
| 300 | 26.9 | 80.3 | 10 | 100 | 1450 | 11.63 | 512.7 | 32.01 | 0.9948 | 5028 | 32.0 |
| 320 | 46.9 | 116 | 10 | 100 | 1450 | 11.02 | 486.1 | 30.35 | 0.9432 | 4767 | 30.3 |
| 340 | 66.9 | 152 | 10 | 100 | 1450 | 10.36 | 456.7 | 28.51 | 0.8861 | 4479 | 28.5 |
| 360 | 86.9 | 188 | 10 | 100 | 1450 | 9.598 | 423.2 | 26.42 | 0.8211 | 4150 | 26.4 |
| Supercritical phase | 400 | 127 | 260 | 10 | 100 | 1450 | 7.586 | 334.5 | 20.88 | 0.6490 | 3280 | 20.9 |
| 500 | 227 | 440 | 10 | 100 | 1450 | 3.249 | 143.3 | 8.946 | 0.2780 | 1405 | 8.95 |
| 600 | 327 | 620 | 10 | 100 | 1450 | 2.246 | 99.02 | 6.182 | 0.1921 | 971 | 6.18 |
| 700 | 427 | 800 | 10 | 100 | 1450 | 1.788 | 78.82 | 4.921 | 0.1529 | 773 | 4.92 |
| 800 | 527 | 980 | 10 | 100 | 1450 | 1.507 | 66.46 | 4.149 | 0.1290 | 652 | 4.15 |
| 900 | 627 | 1160 | 10 | 100 | 1450 | 1.313 | 57.89 | 3.614 | 0.1123 | 568 | 3.61 |
| 1000 | 727 | 1340 | 10 | 100 | 1450 | 1.168 | 51.49 | 3.214 | 0.09991 | 505 | 3.21 |
|  | | | | | | | | | | | | |
| Liquid | 100 | -173 | -280 | 50 | 500 | 7250 | 16.64 | 733.9 | 45.82 | 1.424 | 7197 | 45.8 |
| 200 | -73.2 | -99.7 | 50 | 500 | 7250 | 14.70 | 648.0 | 40.45 | 1.257 | 6355 | 40.5 |
| 300 | 26.9 | 80.3 | 50 | 500 | 7250 | 12.85 | 566.6 | 35.37 | 1.099 | 5557 | 35.4 |
| Supercritical phase | 400 | 127 | 260 | 50 | 500 | 7250 | 11.04 | 486.9 | 30.40 | 0.9448 | 4775 | 30.4 |
| 500 | 227 | 440 | 50 | 500 | 7250 | 9.353 | 412.4 | 25.75 | 0.8002 | 4044 | 25.7 |
|  | | | | | | | | | | | | |
| Liquid | 100 | -173 | -280 | 100 | 1000 | 14500 | 16.95 | 747.2 | 46.65 | 1.450 | 7328 | 46.6 |
| 200 | -73.2 | -100 | 100 | 1000 | 14500 | 15.22 | 671.2 | 41.90 | 1.302 | 6582 | 41.9 |
| 300 | 26.9 | 80.3 | 100 | 1000 | 14500 | 13.70 | 604.1 | 37.71 | 1.172 | 5924 | 37.7 |
| Supercritical phase | 400 | 127 | 260 | 100 | 1000 | 14500 | 12.33 | 543.7 | 33.94 | 1.055 | 5332 | 33.9 |
| 500 | 227 | 440 | 100 | 1000 | 14500 | 11.11 | 490.1 | 30.59 | 0.9509 | 4806 | 30.6 |

Пропан – вязкость

| **State** | **Temperature** | | | **Pressure** | | **Dynamic (Absolute) Viscosity** | | | | **Kinematic Viscosity** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[bara]** | **[psia]** | **[μPa s]** | **[cP]** | **[lb fs/ft 2\*10 -6]** | **[lb m/ft s\*10 -6]** | **[cSt], [m 2/s\*10 -6]** | **[ft 2/s\*10 -6]** |
| Liquid at equilibrium | 85.53 | -187.68 | -305.82 | 1.7E-09 | 2.5E-08 | 10780 | 10.78 | 225.1 | 7244 | 14.70 | 158.3 |
| 100 | -173 | -280 | 2.5E-07 | 3.7E-06 | 3780.3 | 3.780 | 78.95 | 2540 | 5.264 | 56.66 |
| 130 | -143 | -226 | 0.000176 | 0.00255 | 1080.5 | 1.081 | 22.57 | 726.1 | 1.571 | 16.91 |
| 160 | -113 | -172 | 0.00850 | 0.1233 | 534.6 | 0.5346 | 11.17 | 359.2 | 0.8135 | 8.757 |
| 190 | -83.2 | -118 | 0.1055 | 1.530 | 329.9 | 0.3299 | 6.891 | 221.7 | 0.5270 | 5.673 |
| 220 | -53.2 | -63.7 | 0.6058 | 8.787 | 224.3 | 0.2243 | 4.684 | 150.7 | 0.3779 | 4.068 |
| 250 | -23.2 | -9.7 | 2.180 | 31.62 | 160.1 | 0.1601 | 3.344 | 107.6 | 0.2867 | 3.086 |
| 280 | 6.9 | 44.3 | 5.817 | 84.37 | 117.1 | 0.1171 | 2.446 | 78.69 | 0.2256 | 2.428 |
| 310 | 36.9 | 98.3 | 12.73 | 184.6 | 85.74 | 0.08574 | 1.791 | 57.61 | 0.1813 | 1.951 |
| 320 | 46.9 | 116 | 15.99 | 231.9 | 76.78 | 0.07678 | 1.604 | 51.59 | 0.1688 | 1.817 |
| 340 | 66.9 | 152 | 24.32 | 352.7 | 60.01 | 0.06001 | 1.253 | 40.33 | 0.1457 | 1.568 |
| 355 | 81.9 | 179 | 32.43 | 470.4 | 47.14 | 0.04714 | 0.9845 | 31.67 | 0.1285 | 1.384 |
| 360 | 86.9 | 188 | 35.55 | 515.6 | 42.27 | 0.04227 | 0.8828 | 28.40 | 0.1223 | 1.317 |
| 85.53 | -187.68 | -305.82 | 1.7E-09 | 2.5E-08 | 2.641 | 0.002641 | 0.05516 | 1.775 | 240090909 | 2584314536 |
| Gas at equilibrium | 100 | -173 | -280 | 2.5E-07 | 3.7E-06 | 2.979 | 0.002979 | 0.06222 | 2.002 | 2217783 | 23871991 |
| 130 | -143 | -226 | 0.000176 | 0.00255 | 3.717 | 0.003717 | 0.07762 | 2.498 | 5176 | 55717 |
| 160 | -113 | -172 | 0.00850 | 0.1233 | 4.483 | 0.004483 | 0.09363 | 3.013 | 159.0 | 1712 |
| 190 | -83.2 | -118 | 0.1055 | 1.530 | 5.258 | 0.005258 | 0.1098 | 3.533 | 17.74 | 190.9 |
| 220 | -53.2 | -63.7 | 0.6058 | 8.787 | 6.026 | 0.006026 | 0.1259 | 4.049 | 4.023 | 43.30 |
| 250 | -23.2 | -9.7 | 2.180 | 31.62 | 6.803 | 0.006803 | 0.1421 | 4.571 | 1.378 | 14.83 |
| 280 | 6.9 | 44.3 | 5.817 | 84.37 | 7.655 | 0.007655 | 0.1599 | 5.144 | 0.6092 | 6.557 |
| 310 | 36.9 | 98.3 | 12.73 | 184.6 | 8.794 | 0.008794 | 0.1837 | 5.909 | 0.3154 | 3.395 |
| 320 | 46.9 | 116 | 15.99 | 231.9 | 9.230 | 0.009230 | 0.1928 | 6.202 | 0.2583 | 2.780 |
| 340 | 66.9 | 152 | 24.32 | 352.7 | 10.57 | 0.01057 | 0.2208 | 7.105 | 0.1795 | 1.932 |
| 355 | 81.9 | 179 | 32.43 | 470.4 | 12.37 | 0.01237 | 0.2584 | 8.314 | 0.1385 | 1.491 |
| 360 | 86.9 | 188 | 35.55 | 515.6 | 13.38 | 0.01338 | 0.2794 | 8.991 | 0.1269 | 1.366 |
|  | | | | | | | | | | | |
| Liquid | 85.53 | -187.62 | -305.72 | 1 | 14.5 | 10790 | 10.79 | 225.4 | 7251 | 14.72 | 158.4 |
| 100 | -173 | -280 | 1 | 14.5 | 3778 | 3.778 | 78.91 | 2539 | 5.260 | 56.62 |
| 120 | -153 | -244 | 1 | 14.5 | 1502 | 1.502 | 31.37 | 1009 | 2.152 | 23.17 |
| 140 | -133 | -208 | 1 | 14.5 | 822.9 | 0.8229 | 17.19 | 553.0 | 1.214 | 13.07 |
| 160 | -113 | -172 | 1 | 14.5 | 535.5 | 0.5355 | 11.18 | 359.8 | 0.8147 | 8.769 |
| 180 | -93.2 | -136 | 1 | 14.5 | 382.5 | 0.3825 | 7.989 | 257.0 | 0.6008 | 6.466 |
| 200 | -73.2 | -99.7 | 1 | 14.5 | 288.2 | 0.2882 | 6.019 | 193.7 | 0.4683 | 5.040 |
| 220 | -53.2 | -63.7 | 1 | 14.5 | 224.3 | 0.2243 | 4.685 | 150.7 | 0.3779 | 4.068 |
| 230.74 | -42.41 | -44.34 | 1 | 14.5 | 197.9 | 0.1979 | 4.133 | 133.0 | 0.3405 | 3.665 |
| Gas | 230.74 | -42.41 | -44.34 | 1 | 14.5 | 6.301 | 0.006301 | 0.1316 | 4.234 | 2.642 | 28.44 |
| 240 | -33.2 | -27.7 | 1 | 14.5 | 6.559 | 0.006559 | 0.1370 | 4.407 | 2.872 | 30.91 |
| 260 | -13.2 | 8.3 | 1 | 14.5 | 7.110 | 0.007110 | 0.1485 | 4.778 | 3.399 | 36.58 |
| 280 | 6.9 | 44.3 | 1 | 14.5 | 7.656 | 0.007656 | 0.1599 | 5.145 | 3.963 | 42.65 |
| 300 | 26.9 | 80.3 | 1 | 14.5 | 8.196 | 0.008196 | 0.1712 | 5.507 | 4.563 | 49.12 |
| 320 | 46.9 | 116 | 1 | 14.5 | 8.732 | 0.008732 | 0.1824 | 5.868 | 5.201 | 55.98 |
| 340 | 66.9 | 152 | 1 | 14.5 | 9.262 | 0.009262 | 0.1934 | 6.224 | 5.877 | 63.26 |
| 360 | 86.9 | 188 | 1 | 14.5 | 9.787 | 0.009787 | 0.2044 | 6.577 | 6.586 | 70.89 |
| 400 | 127 | 260 | 1 | 14.5 | 10.82 | 0.01082 | 0.2260 | 7.271 | 8.111 | 87.31 |
| 500 | 227 | 440 | 1 | 14.5 | 13.29 | 0.01329 | 0.2776 | 8.930 | 12.49 | 134.4 |
| 600 | 327 | 620 | 1 | 14.5 | 15.59 | 0.01559 | 0.3256 | 10.48 | 17.61 | 189.6 |
| 700 | 427 | 800 | 1 | 14.5 | 17.70 | 0.01770 | 0.3697 | 11.89 | 23.35 | 251.3 |
| 800 | 527 | 980 | 1 | 14.5 | 19.62 | 0.01962 | 0.4098 | 13.18 | 29.59 | 318.5 |
| 900 | 627 | 1160 | 1 | 14.5 | 21.36 | 0.02136 | 0.4461 | 14.35 | 36.25 | 390.2 |
| 1000 | 727 | 1340 | 1 | 14.5 | 22.93 | 0.02293 | 0.4789 | 15.41 | 43.25 | 465.5 |
|  | | | | | | | | | | | |
|  | 85.62 | -187.53 | -305.55 | 10 | 145 | 10840 | 10.84 | 226.4 | 7284 | 14.78 | 159.1 |
| Liquid | 100 | -173 | -280 | 10 | 145 | 3816 | 3.816 | 79.70 | 2564 | 5.311 | 57.17 |
| 120 | -153 | -244 | 10 | 145 | 1515 | 1.515 | 31.64 | 1018 | 2.170 | 23.36 |
| 140 | -133 | -208 | 10 | 145 | 829.3 | 0.8293 | 17.32 | 557.3 | 1.223 | 13.16 |
| 160 | -113 | -172 | 10 | 145 | 539.4 | 0.5394 | 11.27 | 362.5 | 0.8200 | 8.826 |
| 180 | -93.2 | -136 | 10 | 145 | 385.3 | 0.3853 | 8.047 | 258.9 | 0.6046 | 6.508 |
| 200 | -73.2 | -99.7 | 10 | 145 | 290.4 | 0.2904 | 6.065 | 195.1 | 0.4713 | 5.073 |
| 220 | -53.2 | -63.7 | 10 | 145 | 226.2 | 0.2262 | 4.724 | 152.0 | 0.3806 | 4.096 |
| 240 | -33.2 | -27.7 | 10 | 145 | 180.0 | 0.1800 | 3.759 | 121.0 | 0.3150 | 3.390 |
| 260 | -13.2 | 8.3 | 10 | 145 | 145.2 | 0.1452 | 3.033 | 97.57 | 0.2654 | 2.857 |
| 280 | 6.9 | 44.3 | 10 | 145 | 117.9 | 0.1179 | 2.462 | 79.23 | 0.2267 | 2.440 |
| 300.09 | 26.94 | 80.49 | 10 | 145 | 95.19 | 0.09519 | 1.988 | 63.96 | 0.1945 | 2.094 |
| Gas | 300.09 | 26.94 | 80.49 | 10 | 145 | 8.344 | 0.008344 | 0.1743 | 5.607 | 0.3850 | 4.144 |
| 320 | 46.9 | 116 | 10 | 145 | 8.877 | 0.008877 | 0.1854 | 5.965 | 0.4590 | 4.941 |
| 340 | 66.9 | 152 | 10 | 145 | 9.414 | 0.009414 | 0.1966 | 6.326 | 0.5346 | 5.754 |
| 360 | 86.9 | 188 | 10 | 145 | 9.948 | 0.009948 | 0.2078 | 6.685 | 0.6122 | 6.589 |
| 400 | 127 | 260 | 10 | 145 | 11.00 | 0.01100 | 0.2297 | 7.392 | 0.7761 | 8.354 |
| 500 | 227 | 440 | 10 | 145 | 13.48 | 0.01348 | 0.2815 | 9.058 | 1.234 | 13.28 |
| 600 | 327 | 620 | 10 | 145 | 15.76 | 0.01576 | 0.3292 | 10.59 | 1.758 | 18.92 |
| 700 | 427 | 800 | 10 | 145 | 17.86 | 0.01786 | 0.3730 | 12.00 | 2.343 | 25.22 |
| 800 | 527 | 980 | 10 | 145 | 19.76 | 0.01976 | 0.4127 | 13.28 | 2.975 | 32.03 |
| 900 | 627 | 1160 | 10 | 145 | 21.49 | 0.02149 | 0.4488 | 14.44 | 3.649 | 39.28 |
| 1000 | 727 | 1340 | 10 | 145 | 23.04 | 0.02304 | 0.4812 | 15.48 | 4.354 | 46.86 |
|  | | | | | | | | | | | |
| Liquid | 100 | -173 | -280 | 50 | 725 | 3996 | 3.996 | 83.45 | 2685 | 5.550 | 59.74 |
| 200 | -73.2 | -99.7 | 50 | 725 | 300.3 | 0.3003 | 6.273 | 201.8 | 0.4849 | 5.219 |
| 300 | 26.9 | 80.3 | 50 | 725 | 103.1 | 0.1031 | 2.153 | 69.27 | 0.2057 | 2.214 |
| Supercritical phase | 400 | 127 | 260 | 50 | 725 | 14.95 | 0.01495 | 0.3122 | 10.04 | 0.1332 | 1.434 |
| 500 | 227 | 440 | 50 | 725 | 15.21 | 0.01521 | 0.3176 | 10.22 | 0.2453 | 2.640 |
|  | | | | | | | | | | | |
| Liquid | 86.45 | -187 | -304 | 100 | 1450 | 11310 | 11.31 | 236.2 | 7600 | 15.38 | 165.6 |
| 100 | -173 | -280 | 100 | 1450 | 4212 | 4.212 | 87.97 | 2830 | 5.837 | 62.83 |
| 120 | -153 | -244 | 100 | 1450 | 1649 | 1.649 | 34.44 | 1108 | 2.350 | 25.29 |
| 140 | -133 | -208 | 100 | 1450 | 894.7 | 0.8947 | 18.69 | 601.2 | 1.311 | 14.12 |
| 160 | -113 | -172 | 100 | 1450 | 579.3 | 0.5793 | 12.10 | 389.3 | 0.8742 | 9.409 |
| 180 | -93.2 | -136 | 100 | 1450 | 413.7 | 0.4137 | 8.640 | 278.0 | 0.6433 | 6.924 |
| 200 | -73.2 | -99.7 | 100 | 1450 | 312.8 | 0.3128 | 6.533 | 210.2 | 0.5019 | 5.403 |
| 220 | -53.2 | -63.7 | 100 | 1450 | 245.3 | 0.2453 | 5.123 | 164.8 | 0.4069 | 4.380 |
| 240 | -33.2 | -27.7 | 100 | 1450 | 197.1 | 0.1971 | 4.117 | 132.4 | 0.3387 | 3.646 |
| 260 | -13.2 | 8.3 | 100 | 1450 | 161.3 | 0.1613 | 3.369 | 108.4 | 0.2880 | 3.100 |
| 280 | 6.9 | 44.3 | 100 | 1450 | 133.7 | 0.1337 | 2.792 | 89.84 | 0.2489 | 2.679 |
| 300 | 26.9 | 80.3 | 100 | 1450 | 111.7 | 0.1117 | 2.333 | 75.06 | 0.2179 | 2.345 |
| 320 | 46.9 | 116 | 100 | 1450 | 93.65 | 0.09365 | 1.956 | 62.93 | 0.1927 | 2.074 |
| 340 | 66.9 | 152 | 100 | 1450 | 78.30 | 0.07830 | 1.635 | 52.62 | 0.1714 | 1.845 |
| 360 | 86.9 | 188 | 100 | 1450 | 64.77 | 0.06477 | 1.353 | 43.52 | 0.1530 | 1.647 |
| Supercritical phase | 400 | 127 | 260 | 100 | 1450 | 41.09 | 0.04109 | 0.8582 | 27.61 | 0.1228 | 1.322 |
| 500 | 227 | 440 | 100 | 1450 | 19.83 | 0.01983 | 0.4141 | 13.32 | 0.1384 | 1.489 |
| 600 | 327 | 620 | 100 | 1450 | 19.67 | 0.01967 | 0.4108 | 13.22 | 0.1986 | 2.138 |
| 700 | 427 | 800 | 100 | 1450 | 20.88 | 0.02088 | 0.4361 | 14.03 | 0.2649 | 2.851 |
| 800 | 527 | 980 | 100 | 1450 | 22.27 | 0.02227 | 0.4651 | 14.96 | 0.3351 | 3.607 |
| 900 | 627 | 1160 | 100 | 1450 | 23.62 | 0.02362 | 0.4933 | 15.87 | 0.4080 | 4.392 |
| 1000 | 727 | 1340 | 100 | 1450 | 24.89 | 0.02489 | 0.5198 | 16.73 | 0.4834 | 5.203 |

Пропан – теплопроводность

| **State** | **Temperature** | | | **Pressure** | | **Thermal conductivity** | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **[K]** | **[°C]** | **[°F]** | **[bara]** | **[psia]** | **[mW/m K]** | **[kcal(IT)/(h m K)]** | **[Btu(IT)/(h ft °F)]** |
| Liquid at  equilibrium | 85.53 | -187.68 | -305.82 | 1.7E-09 | 2.5E-08 | 207.9 | 0.1788 | 0.1201 |
| 100 | -173 | -280 | 2.5E-07 | 3.7E-06 | 203.2 | 0.1747 | 0.1174 |
| 130 | -143 | -226 | 0.000176 | 0.00255 | 189.4 | 0.1629 | 0.1094 |
| 160 | -113 | -172 | 0.00850 | 0.1233 | 172.3 | 0.1482 | 0.09955 |
| 190 | -83.2 | -118 | 0.1055 | 1.530 | 154.0 | 0.1324 | 0.08896 |
| 220 | -53.2 | -63.7 | 0.6058 | 8.787 | 135.7 | 0.1167 | 0.07842 |
| 250 | -23.2 | -9.7 | 2.180 | 31.62 | 118.4 | 0.1018 | 0.06841 |
| 280 | 6.9 | 44.3 | 5.817 | 84.37 | 102.5 | 0.08815 | 0.05923 |
| 310 | 36.9 | 98.3 | 12.73 | 184.6 | 88.32 | 0.07594 | 0.05103 |
| 320 | 46.9 | 116 | 15.99 | 231.9 | 83.94 | 0.07218 | 0.04850 |
| 340 | 66.9 | 152 | 24.32 | 352.7 | 75.58 | 0.06499 | 0.04367 |
| 355 | 81.9 | 179 | 32.43 | 470.4 | 69.49 | 0.05975 | 0.04015 |
| 360 | 86.9 | 188 | 35.55 | 515.6 | 67.72 | 0.05823 | 0.03913 |
| 85.53 | -187.68 | -305.82 | 1.7E-09 | 2.5E-08 | 1.706 | 0.001467 | 0.0009857 |
| Gas at  equilibrium | 100 | -173 | -280 | 2.5E-07 | 3.7E-06 | 2.417 | 0.002078 | 0.001397 |
| 130 | -143 | -226 | 0.000176 | 0.00255 | 4.085 | 0.003512 | 0.002360 |
| 160 | -113 | -172 | 0.00850 | 0.1233 | 6.013 | 0.005170 | 0.003474 |
| 190 | -83.2 | -118 | 0.1055 | 1.530 | 8.192 | 0.007044 | 0.004733 |
| 220 | -53.2 | -63.7 | 0.6058 | 8.787 | 10.61 | 0.009124 | 0.006131 |
| 250 | -23.2 | -9.7 | 2.180 | 31.62 | 13.32 | 0.01146 | 0.007698 |
| 280 | 6.9 | 44.3 | 5.817 | 84.37 | 16.54 | 0.01423 | 0.009559 |
| 310 | 36.9 | 98.3 | 12.73 | 184.6 | 20.86 | 0.01794 | 0.01205 |
| 320 | 46.9 | 116 | 15.99 | 231.9 | 22.78 | 0.01959 | 0.01316 |
| 340 | 66.9 | 152 | 24.32 | 352.7 | 28.19 | 0.02424 | 0.01629 |
| 355 | 81.9 | 179 | 32.43 | 470.4 | 36.06 | 0.03101 | 0.02084 |
| 360 | 86.9 | 188 | 35.55 | 515.6 | 41.36 | 0.03556 | 0.02390 |
|  | | | | | | | | |
| Liquid | 85.53 | -187.62 | -305.72 | 1 | 14.5 | 207.9 | 0.1788 | 0.1201 |
| 100 | -173 | -280 | 1 | 14.5 | 203.2 | 0.1747 | 0.1174 |
| 120 | -153 | -244 | 1 | 14.5 | 194.5 | 0.1672 | 0.1124 |
| 140 | -133 | -208 | 1 | 14.5 | 184.0 | 0.1582 | 0.1063 |
| 160 | -113 | -172 | 1 | 14.5 | 172.4 | 0.1482 | 0.09961 |
| 180 | -93.2 | -136 | 1 | 14.5 | 160.2 | 0.1377 | 0.09256 |
| 200 | -73.2 | -99.7 | 1 | 14.5 | 147.9 | 0.1272 | 0.08545 |
| 220 | -53.2 | -63.7 | 1 | 14.5 | 135.7 | 0.1167 | 0.07841 |
| 230.74 | -42.41 | -44.34 | 1 | 14.5 | 129.4 | 0.1113 | 0.07477 |
| Gas | 230.74 | -42.41 | -44.34 | 1 | 14.5 | 11.54 | 0.009923 | 0.006668 |
| 240 | -33.2 | -27.7 | 1 | 14.5 | 12.40 | 0.01066 | 0.007165 |
| 260 | -13.2 | 8.3 | 1 | 14.5 | 14.32 | 0.01231 | 0.008274 |
| 280 | 6.9 | 44.3 | 1 | 14.5 | 16.36 | 0.01407 | 0.009453 |
| 300 | 26.9 | 80.3 | 1 | 14.5 | 18.51 | 0.01592 | 0.01069 |
| 320 | 46.9 | 116 | 1 | 14.5 | 20.78 | 0.01787 | 0.01201 |
| 340 | 66.9 | 152 | 1 | 14.5 | 23.16 | 0.01991 | 0.01338 |
| 360 | 86.9 | 188 | 1 | 14.5 | 25.66 | 0.02206 | 0.01483 |
| 400 | 127 | 260 | 1 | 14.5 | 30.99 | 0.02665 | 0.01791 |
| 500 | 227 | 440 | 1 | 14.5 | 46.36 | 0.03986 | 0.02679 |
| 600 | 327 | 620 | 1 | 14.5 | 64.63 | 0.05557 | 0.03734 |
| 700 | 427 | 800 | 1 | 14.5 | 85.81 | 0.07378 | 0.04958 |
| 800 | 527 | 980 | 1 | 14.5 | 109.9 | 0.09450 | 0.06350 |
| 900 | 627 | 1160 | 1 | 14.5 | 136.9 | 0.1177 | 0.07910 |
| 1000 | 727 | 1340 | 1 | 14.5 | 166.8 | 0.1434 | 0.09638 |
|  | | | | | | | | |
| Liquid | 85.62 | -187.53 | -305.55 | 10 | 145 | 208.1 | 0.1789 | 0.1202 |
| 100 | -173 | -280 | 10 | 145 | 203.5 | 0.1750 | 0.1176 |
| 120 | -153 | -244 | 10 | 145 | 194.8 | 0.1675 | 0.1126 |
| 140 | -133 | -208 | 10 | 145 | 184.3 | 0.1585 | 0.1065 |
| 160 | -113 | -172 | 10 | 145 | 172.8 | 0.1486 | 0.09984 |
| 180 | -93.2 | -136 | 10 | 145 | 160.7 | 0.1382 | 0.09285 |
| 200 | -73.2 | -99.7 | 10 | 145 | 148.4 | 0.1276 | 0.08574 |
| 220 | -53.2 | -63.7 | 10 | 145 | 136.3 | 0.1172 | 0.07875 |
| 240 | -33.2 | -27.7 | 10 | 145 | 124.6 | 0.1071 | 0.07199 |
| 260 | -13.2 | 8.3 | 10 | 145 | 113.5 | 0.09759 | 0.06558 |
| 280 | 6.9 | 44.3 | 10 | 145 | 102.9 | 0.08848 | 0.05945 |
| 300.09 | 26.94 | 80.49 | 10 | 145 | 92.82 | 0.07981 | 0.05363 |
| Gas | 300.09 | 26.94 | 80.49 | 10 | 145 | 19.25 | 0.01655 | 0.01112 |
| 320 | 46.9 | 116 | 10 | 145 | 21.49 | 0.01848 | 0.01242 |
| 340 | 66.9 | 152 | 10 | 145 | 23.91 | 0.02056 | 0.01381 |
| 360 | 86.9 | 188 | 10 | 145 | 26.46 | 0.02275 | 0.01529 |
| 400 | 127 | 260 | 10 | 145 | 31.92 | 0.02745 | 0.01844 |
| 500 | 227 | 440 | 10 | 145 | 47.56 | 0.04089 | 0.02748 |
| 600 | 327 | 620 | 10 | 145 | 66.04 | 0.05678 | 0.03816 |
| 700 | 427 | 800 | 10 | 145 | 87.38 | 0.07513 | 0.05049 |
| 800 | 527 | 980 | 10 | 145 | 111.6 | 0.09596 | 0.06448 |
| 900 | 627 | 1160 | 10 | 145 | 138.7 | 0.1193 | 0.08014 |
| 1000 | 727 | 1340 | 10 | 145 | 168.7 | 0.1451 | 0.09747 |
|  | | | | | | | | |
| Liquid | 100 | -173 | -280 | 50 | 725 | 204.5 | 0.1758 | 0.1182 |
| 200 | -73.2 | -99.7 | 50 | 725 | 150.7 | 0.1296 | 0.08707 |
| 300 | 26.9 | 80.3 | 50 | 725 | 97.14 | 0.08352 | 0.05613 |
| Supercritical phase | 400 | 127 | 260 | 50 | 725 | 42.44 | 0.03649 | 0.02452 |
| 500 | 227 | 440 | 50 | 725 | 52.41 | 0.04507 | 0.03028 |
|  | | | | | | | | |
| Liquid | 86.45 | -187 | -304 | 100 | 1450 | 209.8 | 0.1804 | 0.1212 |
| 100 | -173 | -280 | 100 | 1450 | 205.7 | 0.1769 | 0.1189 |
| 120 | -153 | -244 | 100 | 1450 | 197.6 | 0.1699 | 0.1142 |
| 140 | -133 | -208 | 100 | 1450 | 187.7 | 0.1614 | 0.1085 |
| 160 | -113 | -172 | 100 | 1450 | 176.7 | 0.1519 | 0.1021 |
| 180 | -93.2 | -136 | 100 | 1450 | 165.2 | 0.1420 | 0.09545 |
| 200 | -73.2 | -99.7 | 100 | 1450 | 153.5 | 0.1320 | 0.08868 |
| 220 | -53.2 | -63.7 | 100 | 1450 | 142.0 | 0.1221 | 0.08205 |
| 240 | -33.2 | -27.7 | 100 | 1450 | 130.9 | 0.1126 | 0.07563 |
| 260 | -13.2 | 8.3 | 100 | 1450 | 120.5 | 0.1036 | 0.06962 |
| 280 | 6.9 | 44.3 | 100 | 1450 | 110.7 | 0.09518 | 0.06396 |
| 300 | 26.9 | 80.3 | 100 | 1450 | 101.8 | 0.08753 | 0.05882 |
| 320 | 46.9 | 116 | 100 | 1450 | 93.68 | 0.08055 | 0.05413 |
| 340 | 66.9 | 152 | 100 | 1450 | 86.37 | 0.07426 | 0.04990 |
| 360 | 86.9 | 188 | 100 | 1450 | 79.79 | 0.06861 | 0.04610 |
| Supercritical phase | 400 | 127 | 260 | 100 | 1450 | 68.25 | 0.05868 | 0.03943 |
| 500 | 227 | 440 | 100 | 1450 | 58.85 | 0.05060 | 0.03400 |
| 600 | 327 | 620 | 100 | 1450 | 73.95 | 0.06359 | 0.04273 |
| 700 | 427 | 800 | 100 | 1450 | 95.32 | 0.08196 | 0.05507 |
| 800 | 527 | 980 | 100 | 1450 | 120.1 | 0.1033 | 0.06939 |
| 900 | 627 | 1160 | 100 | 1450 | 148.0 | 0.1273 | 0.08551 |
| 1000 | 727 | 1340 | 100 | 1450 | 178.8 | 0.1537 | 0.1033 |