

Temperatur [°C]	Druck [bar]		Dichte [kg/m ³]		Enthalpie [kJ/kg]		Entropie [J/kg*K]	
	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig
-60,0	0,487	0,328	1414,7	1,547	118,05	381,79	0,6637	1,9236
-59,0	0,515	0,349	1411,7	1,639	119,36	382,39	0,6698	1,9203
-58,0	0,545	0,370	1408,7	1,735	120,68	382,98	0,6759	1,9170
-57,0	0,575	0,393	1405,7	1,836	121,99	383,58	0,6820	1,9138
-56,0	0,608	0,418	1402,7	1,942	123,31	384,17	0,6881	1,9107
-55,0	0,641	0,443	1399,7	2,052	124,63	384,76	0,6941	1,9076
-54,0	0,676	0,470	1396,7	2,167	125,95	385,35	0,7002	1,9045
-53,0	0,713	0,497	1393,7	2,288	127,27	385,94	0,7062	1,9015
-52,0	0,751	0,527	1390,6	2,413	128,59	386,53	0,7121	1,8985
-51,0	0,791	0,557	1387,6	2,544	129,91	387,12	0,7181	1,8956
-50,0	0,833	0,589	1384,5	2,681	131,24	387,71	0,7240	1,8928
-49,0	0,876	0,622	1381,5	2,824	132,56	388,29	0,7299	1,8900
-48,0	0,921	0,657	1378,4	2,972	133,89	388,87	0,7358	1,8872
-47,0	0,968	0,694	1375,3	3,127	135,22	389,46	0,7417	1,8845
-46,0	1,016	0,732	1372,3	3,287	136,55	390,04	0,7476	1,8818
-45,0	1,067	0,771	1369,2	3,455	137,88	390,62	0,7534	1,8792
-44,0	1,119	0,813	1366,1	3,629	139,21	391,19	0,7592	1,8766
-43,0	1,174	0,856	1363,0	3,810	140,54	391,77	0,7650	1,8740
-42,0	1,231	0,901	1359,9	3,998	141,88	392,34	0,7708	1,8715
-41,0	1,289	0,948	1356,7	4,193	143,22	392,91	0,7765	1,8691
-40,0	1,350	0,996	1353,6	4,396	144,56	393,48	0,7823	1,8666
-39,0	1,414	1,047	1350,5	4,606	145,90	394,05	0,7880	1,8643
-38,0	1,479	1,100	1347,3	4,824	147,24	394,62	0,7937	1,8619
-37,0	1,547	1,155	1344,2	5,050	148,59	395,18	0,7994	1,8596
-36,0	1,617	1,211	1341,0	5,285	149,93	395,74	0,8050	1,8573
-35,0	1,690	1,271	1337,8	5,528	151,28	396,30	0,8107	1,8551
-34,0	1,765	1,332	1334,6	5,780	152,63	396,86	0,8163	1,8529
-33,0	1,843	1,396	1331,4	6,041	153,98	397,42	0,8219	1,8507
-32,0	1,924	1,462	1328,2	6,311	155,34	397,97	0,8275	1,8485
-31,0	2,007	1,530	1325,0	6,591	156,70	398,52	0,8331	1,8464
-30,0	2,093	1,601	1321,8	6,880	158,05	399,07	0,8387	1,8443
-29,0	2,182	1,674	1318,5	7,179	159,41	399,61	0,8443	1,8423
-28,0	2,274	1,751	1315,3	7,489	160,78	400,16	0,8498	1,8403
-27,0	2,368	1,829	1312,0	7,808	162,14	400,70	0,8553	1,8383
-26,0	2,466	1,911	1308,7	8,139	163,51	401,24	0,8608	1,8363
-25,0	2,567	1,995	1305,4	8,480	164,88	401,77	0,8663	1,8344
-24,0	2,671	2,083	1302,1	8,833	166,25	402,31	0,8718	1,8325
-23,0	2,778	2,173	1298,8	9,197	167,62	402,84	0,8773	1,8306
-22,0	2,889	2,266	1295,5	9,573	169,00	403,37	0,8828	1,8287
-21,0	3,002	2,362	1292,1	9,961	170,38	403,89	0,8882	1,8269
-20,0	3,120	2,462	1288,8	10,36	171,76	404,41	0,8936	1,8251

Temperatur [°C]	Druck [bar]		Dichte [kg/m³]		Enthalpie [kJ/kg]		Entropie [J/kg*K]	
	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig
-19,0	3,240	2,564	1285,4	10,77	173,15	404,93	0,8991	1,8233
-18,0	3,365	2,670	1282,0	11,20	174,53	405,45	0,9045	1,8216
-17,0	3,493	2,779	1278,6	11,64	175,92	405,96	0,9099	1,8198
-16,0	3,624	2,892	1275,2	12,09	177,31	406,47	0,9152	1,8181
-15,0	3,760	3,008	1271,8	12,56	178,71	406,98	0,9206	1,8164
-14,0	3,899	3,128	1268,3	13,04	180,11	407,48	0,9260	1,8147
-13,0	4,042	3,252	1264,9	13,54	181,51	407,98	0,9313	1,8131
-12,0	4,189	3,379	1261,4	14,05	182,91	408,48	0,9367	1,8115
-11,0	4,340	3,510	1257,9	14,57	184,32	408,97	0,9420	1,8098
-10,0	4,496	3,644	1254,4	15,11	185,73	409,46	0,9473	1,8082
-9,0	4,655	3,783	1250,8	15,67	187,14	409,95	0,9526	1,8067
-8,0	4,819	3,926	1247,3	16,24	188,55	410,43	0,9579	1,8051
-7,0	4,987	4,073	1243,7	16,83	189,97	410,91	0,9632	1,8036
-6,0	5,159	4,224	1240,1	17,44	191,40	411,38	0,9685	1,8020
-5,0	5,336	4,379	1236,5	18,07	192,82	411,85	0,9738	1,8005
-4,0	5,518	4,539	1232,9	18,71	194,25	412,32	0,9790	1,7990
-3,0	5,704	4,703	1229,3	19,37	195,68	412,78	0,9843	1,7976
-2,0	5,895	4,871	1225,6	20,05	197,12	413,24	0,9895	1,7961
-1,0	6,090	5,044	1221,9	20,75	198,56	413,69	0,9948	1,7946
0,0	6,291	5,222	1218,2	21,47	200,00	414,14	1,0000	1,7932
1,0	6,496	5,405	1214,5	22,21	201,45	414,59	1,0052	1,7918
2,0	6,706	5,592	1210,7	22,97	202,90	415,03	1,0104	1,7903
3,0	6,922	5,784	1207,0	23,75	204,35	415,46	1,0157	1,7889
4,0	7,142	5,982	1203,2	24,55	205,81	415,89	1,0209	1,7875
5,0	7,368	6,184	1199,4	25,37	207,27	416,32	1,0261	1,7862
6,0	7,600	6,391	1195,5	26,22	208,74	416,74	1,0313	1,7848
7,0	7,836	6,604	1191,7	27,09	210,21	417,16	1,0364	1,7834
8,0	8,078	6,822	1187,8	27,99	211,68	417,57	1,0416	1,7821
9,0	8,326	7,046	1183,8	28,91	213,16	417,97	1,0468	1,7807
10,0	8,579	7,275	1179,9	29,85	214,65	418,37	1,0520	1,7794
11,0	8,838	7,509	1175,9	30,82	216,14	418,77	1,0571	1,7780
12,0	9,103	7,750	1171,9	31,82	217,63	419,16	1,0623	1,7767
13,0	9,373	7,996	1167,9	32,84	219,13	419,54	1,0675	1,7754
14,0	9,650	8,248	1163,8	33,89	220,63	419,92	1,0726	1,7741
15,0	9,933	8,506	1159,7	34,97	222,14	420,29	1,0778	1,7727
16,0	10,22	8,770	1155,6	36,08	223,65	420,65	1,0829	1,7714
17,0	10,52	9,040	1151,4	37,22	225,17	421,01	1,0881	1,7701
18,0	10,82	9,316	1147,3	38,39	226,69	421,36	1,0932	1,7688
19,0	11,13	9,599	1143,0	39,59	228,22	421,70	1,0984	1,7675
20,0	11,44	9,889	1138,8	40,83	229,75	422,04	1,1035	1,7662

Temperatur [°C]	Druck [bar]		Dichte [kg/m³]		Enthalpie [kJ/kg]		Entropie [J/kg*K]	
	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig
21,0	11,76	10,18	1134,5	42,09	231,29	422,37	1,1087	1,7649
22,0	12,09	10,49	1130,2	43,40	232,83	422,69	1,1138	1,7636
23,0	12,42	10,80	1125,8	44,73	234,38	423,01	1,1190	1,7623
24,0	12,76	11,11	1121,4	46,11	235,94	423,31	1,1241	1,7609
25,0	13,11	11,44	1116,9	47,52	237,50	423,61	1,1293	1,7596
26,0	13,47	11,77	1112,4	48,97	239,07	423,90	1,1344	1,7583
27,0	13,83	12,10	1107,9	50,46	240,65	424,18	1,1396	1,7570
28,0	14,20	12,45	1103,3	51,99	242,23	424,46	1,1447	1,7557
29,0	14,57	12,80	1098,7	53,56	243,82	424,72	1,1499	1,7543
30,0	14,96	13,16	1094,0	55,18	245,42	424,98	1,1550	1,7530
31,0	15,35	13,53	1089,3	56,84	247,02	425,22	1,1602	1,7516
32,0	15,75	13,90	1084,6	58,55	248,63	425,46	1,1654	1,7503
33,0	16,15	14,28	1079,7	60,30	250,25	425,68	1,1705	1,7489
34,0	16,57	14,68	1074,9	62,11	251,88	425,90	1,1757	1,7475
35,0	16,99	15,07	1070,0	63,97	253,51	426,10	1,1809	1,7461
36,0	17,42	15,48	1065,0	65,88	255,15	426,29	1,1861	1,7447
37,0	17,85	15,90	1059,9	67,84	256,80	426,47	1,1913	1,7433
38,0	18,30	16,32	1054,8	69,86	258,46	426,64	1,1965	1,7419
39,0	18,75	16,75	1049,7	71,95	260,13	426,80	1,2017	1,7404
40,0	19,21	17,19	1044,5	74,09	261,81	426,95	1,2069	1,7389
41,0	19,68	17,64	1039,2	76,29	263,49	427,08	1,2122	1,7374
42,0	20,16	18,10	1033,8	78,56	265,19	427,19	1,2174	1,7359
43,0	20,65	18,57	1028,4	80,91	266,90	427,30	1,2227	1,7344
44,0	21,15	19,05	1022,9	83,32	268,62	427,39	1,2279	1,7328
45,0	21,65	19,53	1017,3	85,80	270,34	427,46	1,2332	1,7313
46,0	22,17	20,03	1011,6	88,37	272,08	427,52	1,2385	1,7297
47,0	22,69	20,54	1005,8	91,02	273,83	427,56	1,2438	1,7280
48,0	23,22	21,05	999,98	93,75	275,60	427,58	1,2492	1,7264
49,0	23,76	21,58	994,04	96,57	277,37	427,59	1,2545	1,7247
50,0	24,31	22,11	988,00	99,48	279,16	427,57	1,2599	1,7229
51,0	24,87	22,66	981,85	102,5	280,97	427,54	1,2653	1,7211
52,0	25,44	23,22	975,59	105,6	282,79	427,49	1,2707	1,7193
53,0	26,02	23,78	969,22	108,8	284,62	427,41	1,2762	1,7175
54,0	26,61	24,36	962,73	112,2	286,47	427,31	1,2816	1,7156
55,0	27,20	24,95	956,10	115,6	288,33	427,19	1,2871	1,7136
56,0	27,81	25,55	949,34	119,2	290,22	427,04	1,2927	1,7116
57,0	28,43	26,16	942,43	122,9	292,12	426,87	1,2982	1,7096
58,0	29,06	26,79	935,37	126,8	294,04	426,67	1,3039	1,7074
59,0	29,70	27,42	928,14	130,8	295,99	426,44	1,3095	1,7052
60,0	30,35	28,07	920,72	135,0	297,95	426,17	1,3152	1,7030

Temperatur [°C]	Druck [bar]		Dichte [kg/m³]		Enthalpie [kJ/kg]		Entropie [J/kg*K]	
	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig
61,0	31,01	28,73	913,11	139,4	299,95	425,87	1,3210	1,7006
62,0	31,68	29,40	905,29	143,9	301,96	425,54	1,3268	1,6982
63,0	32,36	30,09	897,25	148,7	304,01	425,16	1,3326	1,6957
64,0	33,05	30,79	888,95	153,6	306,08	424,74	1,3386	1,6931
65,0	33,75	31,50	880,37	158,8	308,19	424,28	1,3446	1,6904
66,0	34,47	32,23	871,50	164,3	310,34	423,76	1,3507	1,6875
67,0	35,19	32,97	862,29	170,1	312,53	423,19	1,3569	1,6845
68,0	35,93	33,72	852,71	176,2	314,76	422,57	1,3632	1,6814
69,0	36,67	34,50	842,71	182,6	317,04	421,87	1,3696	1,6781
70,0	37,43	35,28	832,23	189,4	319,37	421,10	1,3761	1,6746
71,0	38,20	36,09	821,22	196,7	321,77	420,24	1,3829	1,6709
72,0	38,99	36,91	809,58	204,5	324,24	419,29	1,3897	1,6670
73,0	39,78	37,74	797,21	212,9	326,80	418,24	1,3969	1,6628
74,0	40,59	38,60	783,98	221,9	329,46	417,05	1,4042	1,6582
75,0	41,40	39,48	769,70	231,8	332,23	415,71	1,4119	1,6532
76,0	42,23	40,37	754,14	242,7	335,16	414,19	1,4200	1,6478
77,0	43,06	41,29	736,94	254,8	338,28	412,45	1,4286	1,6418
78,0	43,91	42,24	717,54	268,5	341,65	410,41	1,4379	1,6349
79,0	44,76	43,21	695,03	284,5	345,38	407,98	1,4481	1,6270
80,0	45,62	44,22	667,61	303,8	349,69	404,95	1,4600	1,6174
81,0	46,46	45,28	630,91	328,8	355,13	400,94	1,4750	1,6051
82,0	47,23	46,43	568,10	367,2	363,87	394,63	1,4993	1,5864

Berechnet mit Refprop Version 10.0

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

Überarbeitet 08.01.2020

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

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

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

Deutsche Bank Würzburg

IBAN: DE707907001600202804 00
 BIC: DEUTDEM790