

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	0,481	0,341	1390,8	1,715	119,91	364,94	0,6714	1,8389
-59,0	0,509	0,363	1387,9	1,815	121,19	365,55	0,6774	1,8361
-58,0	0,537	0,385	1385,0	1,919	122,47	366,16	0,6833	1,8334
-57,0	0,568	0,408	1382,1	2,028	123,75	366,77	0,6893	1,8307
-56,0	0,599	0,433	1379,2	2,141	125,03	367,37	0,6952	1,8281
-55,0	0,632	0,458	1376,2	2,260	126,31	367,98	0,7010	1,8255
-54,0	0,667	0,485	1373,3	2,384	127,59	368,58	0,7069	1,8230
-53,0	0,703	0,513	1370,3	2,513	128,87	369,19	0,7127	1,8205
-52,0	0,740	0,543	1367,4	2,648	130,16	369,79	0,7185	1,8181
-51,0	0,779	0,574	1364,4	2,788	131,45	370,39	0,7243	1,8157
-50,0	0,820	0,606	1361,4	2,935	132,73	370,99	0,7301	1,8133
-49,0	0,862	0,639	1358,4	3,087	134,02	371,59	0,7359	1,8110
-48,0	0,906	0,674	1355,4	3,246	135,32	372,19	0,7416	1,8088
-47,0	0,952	0,711	1352,4	3,410	136,61	372,79	0,7473	1,8065
-46,0	1,000	0,749	1349,4	3,582	137,90	373,38	0,7530	1,8044
-45,0	1,049	0,789	1346,4	3,760	139,20	373,98	0,7587	1,8022
-44,0	1,100	0,830	1343,3	3,945	140,50	374,57	0,7644	1,8001
-43,0	1,154	0,873	1340,3	4,138	141,80	375,16	0,7700	1,7980
-42,0	1,209	0,918	1337,3	4,337	143,10	375,75	0,7756	1,7960
-41,0	1,267	0,965	1334,2	4,544	144,41	376,34	0,7812	1,7940
-40,0	1,326	1,013	1331,1	4,759	145,71	376,93	0,7868	1,7921
-39,0	1,388	1,064	1328,0	4,982	147,02	377,52	0,7924	1,7902
-38,0	1,452	1,116	1324,9	5,213	148,33	378,10	0,7980	1,7883
-37,0	1,518	1,171	1321,8	5,452	149,64	378,69	0,8035	1,7864
-36,0	1,586	1,227	1318,7	5,700	150,96	379,27	0,8090	1,7846
-35,0	1,657	1,286	1315,6	5,956	152,27	379,85	0,8146	1,7828
-34,0	1,731	1,346	1312,5	6,222	153,59	380,43	0,8201	1,7810
-33,0	1,807	1,409	1309,3	6,497	154,91	381,01	0,8255	1,7793
-32,0	1,885	1,475	1306,2	6,781	156,23	381,58	0,8310	1,7776
-31,0	1,966	1,542	1303,0	7,075	157,56	382,15	0,8365	1,7759
-30,0	2,050	1,612	1299,8	7,379	158,89	382,72	0,8419	1,7743
-29,0	2,137	1,685	1296,6	7,694	160,22	383,29	0,8474	1,7727
-28,0	2,226	1,760	1293,4	8,018	161,55	383,86	0,8528	1,7711
-27,0	2,318	1,838	1290,2	8,354	162,88	384,43	0,8582	1,7695
-26,0	2,413	1,918	1287,0	8,700	164,22	384,99	0,8636	1,7680
-25,0	2,511	2,001	1283,7	9,058	165,56	385,55	0,8689	1,7665
-24,0	2,612	2,087	1280,5	9,427	166,90	386,11	0,8743	1,7650
-23,0	2,716	2,175	1277,2	9,808	168,25	386,66	0,8797	1,7635
-22,0	2,824	2,267	1273,9	10,20	169,59	387,22	0,8850	1,7621
-21,0	2,934	2,361	1270,6	10,61	170,94	387,77	0,8903	1,7607
-20,0	3,048	2,458	1267,3	11,02	172,30	388,32	0,8957	1,7593

Temperatur [°C]	Druck [bar]		Dichte [kg/m³]		Enthalpie [kJ/kg]		Entropie [J/kg*K]	
	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig
-19,0	3,166	2,559	1264,0	11,46	173,65	388,87	0,9010	1,7579
-18,0	3,286	2,663	1260,7	11,90	175,01	389,41	0,9063	1,7566
-17,0	3,410	2,769	1257,3	12,36	176,37	389,95	0,9115	1,7553
-16,0	3,538	2,880	1253,9	12,83	177,74	390,49	0,9168	1,7539
-15,0	3,669	2,993	1250,5	13,31	179,10	391,03	0,9221	1,7527
-14,0	3,804	3,110	1247,1	13,81	180,47	391,56	0,9273	1,7514
-13,0	3,943	3,230	1243,7	14,33	181,85	392,09	0,9326	1,7501
-12,0	4,086	3,354	1240,3	14,86	183,22	392,62	0,9378	1,7489
-11,0	4,232	3,482	1236,8	15,40	184,60	393,14	0,9431	1,7477
-10,0	4,383	3,613	1233,4	15,97	185,99	393,66	0,9483	1,7465
-9,0	4,537	3,748	1229,9	16,54	187,37	394,18	0,9535	1,7453
-8,0	4,695	3,887	1226,4	17,14	188,76	394,70	0,9587	1,7441
-7,0	4,858	4,030	1222,8	17,75	190,15	395,21	0,9639	1,7430
-6,0	5,025	4,176	1219,3	18,38	191,55	395,72	0,9691	1,7418
-5,0	5,196	4,327	1215,7	19,03	192,95	396,22	0,9742	1,7407
-4,0	5,372	4,482	1212,1	19,69	194,35	396,72	0,9794	1,7396
-3,0	5,552	4,641	1208,5	20,38	195,76	397,22	0,9846	1,7385
-2,0	5,736	4,805	1204,9	21,08	197,17	397,71	0,9897	1,7374
-1,0	5,925	4,972	1201,3	21,80	198,58	398,21	0,9949	1,7363
0,0	6,119	5,144	1197,6	22,54	200,00	398,69	1,0000	1,7353
1,0	6,317	5,321	1193,9	23,31	201,42	399,17	1,0051	1,7342
2,0	6,520	5,502	1190,2	24,09	202,85	399,65	1,0103	1,7332
3,0	6,728	5,688	1186,4	24,90	204,28	400,13	1,0154	1,7321
4,0	6,941	5,879	1182,7	25,72	205,71	400,60	1,0205	1,7311
5,0	7,159	6,074	1178,9	26,57	207,15	401,06	1,0256	1,7301
6,0	7,382	6,275	1175,1	27,45	208,59	401,52	1,0307	1,7291
7,0	7,610	6,480	1171,3	28,34	210,04	401,98	1,0358	1,7281
8,0	7,844	6,690	1167,4	29,27	211,49	402,43	1,0409	1,7271
9,0	8,082	6,906	1163,5	30,21	212,94	402,88	1,0460	1,7261
10,0	8,327	7,126	1159,6	31,18	214,40	403,32	1,0511	1,7251
11,0	8,576	7,352	1155,6	32,18	215,86	403,76	1,0562	1,7241
12,0	8,831	7,584	1151,7	33,21	217,33	404,19	1,0613	1,7232
13,0	9,092	7,821	1147,7	34,26	218,81	404,61	1,0663	1,7222
14,0	9,358	8,063	1143,6	35,34	220,28	405,03	1,0714	1,7212
15,0	9,630	8,311	1139,6	36,45	221,77	405,45	1,0765	1,7203
16,0	9,908	8,565	1135,5	37,59	223,25	405,86	1,0816	1,7193
17,0	10,19	8,825	1131,4	38,76	224,75	406,26	1,0866	1,7184
18,0	10,48	9,091	1127,2	39,96	226,25	406,66	1,0917	1,7174
19,0	10,78	9,362	1123,0	41,19	227,75	407,05	1,0968	1,7165
20,0	11,08	9,640	1118,8	42,46	229,26	407,43	1,1018	1,7155

Temperatur [°C]	Druck [bar]		Dichte [kg/m³]		Enthalpie [kJ/kg]		Entropie [J/kg*K]	
	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig
21,0	11,39	9,924	1114,5	43,76	230,77	407,81	1,1069	1,7145
22,0	11,70	10,21	1110,2	45,10	232,29	408,18	1,1120	1,7136
23,0	12,02	10,51	1105,9	46,47	233,82	408,54	1,1170	1,7126
24,0	12,35	10,81	1101,5	47,88	235,35	408,90	1,1221	1,7116
25,0	12,69	11,12	1097,1	49,33	236,89	409,24	1,1272	1,7107
26,0	13,03	11,44	1092,6	50,81	238,44	409,59	1,1322	1,7097
27,0	13,37	11,76	1088,1	52,34	239,99	409,92	1,1373	1,7087
28,0	13,73	12,09	1083,5	53,91	241,54	410,24	1,1424	1,7077
29,0	14,09	12,43	1079,0	55,52	243,11	410,56	1,1474	1,7067
30,0	14,46	12,77	1074,3	57,18	244,68	410,87	1,1525	1,7057
31,0	14,83	13,13	1069,6	58,88	246,26	411,16	1,1576	1,7047
32,0	15,21	13,48	1064,9	60,63	247,84	411,45	1,1627	1,7037
33,0	15,60	13,85	1060,1	62,43	249,43	411,73	1,1678	1,7027
34,0	16,00	14,22	1055,3	64,28	251,03	412,00	1,1729	1,7016
35,0	16,40	14,60	1050,4	66,18	252,64	412,26	1,1780	1,7006
36,0	16,81	14,99	1045,4	68,13	254,26	412,51	1,1831	1,6995
37,0	17,23	15,39	1040,4	70,15	255,88	412,75	1,1882	1,6984
38,0	17,66	15,79	1035,3	72,22	257,51	412,98	1,1933	1,6973
39,0	18,09	16,21	1030,2	74,35	259,15	413,19	1,1984	1,6962
40,0	18,54	16,63	1025,0	76,54	260,80	413,40	1,2036	1,6951
41,0	18,99	17,06	1019,7	78,80	262,46	413,59	1,2087	1,6939
42,0	19,44	17,50	1014,4	81,12	264,13	413,77	1,2139	1,6927
43,0	19,91	17,94	1009,0	83,52	265,81	413,93	1,2191	1,6915
44,0	20,39	18,40	1003,5	85,99	267,50	414,08	1,2243	1,6903
45,0	20,87	18,86	997,92	88,54	269,20	414,22	1,2295	1,6891
46,0	21,36	19,33	992,26	91,17	270,91	414,34	1,2347	1,6878
47,0	21,86	19,82	986,52	93,88	272,64	414,44	1,2399	1,6865
48,0	22,37	20,31	980,68	96,68	274,37	414,53	1,2452	1,6852
49,0	22,88	20,81	974,74	99,57	276,12	414,60	1,2504	1,6838
50,0	23,41	21,32	968,70	102,6	277,88	414,66	1,2557	1,6824
51,0	23,94	21,84	962,55	105,6	279,66	414,69	1,2610	1,6810
52,0	24,49	22,37	956,29	108,8	281,45	414,71	1,2664	1,6795
53,0	25,04	22,91	949,91	112,1	283,25	414,70	1,2717	1,6780
54,0	25,60	23,46	943,40	115,6	285,08	414,67	1,2771	1,6764
55,0	26,17	24,02	936,75	119,1	286,91	414,62	1,2826	1,6748
56,0	26,75	24,59	929,96	122,8	288,77	414,55	1,2880	1,6731
57,0	27,34	25,18	923,01	126,6	290,64	414,44	1,2935	1,6714
58,0	27,94	25,77	915,90	130,6	292,54	414,32	1,2990	1,6696
59,0	28,54	26,38	908,62	134,7	294,45	414,16	1,3046	1,6678
60,0	29,16	26,99	901,14	139,0	296,39	413,97	1,3102	1,6658

Temperatur [°C]	Druck [bar]		Dichte [kg/m³]		Enthalpie [kJ/kg]		Entropie [J/kg*K]	
	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig
61,0	29,79	27,62	893,46	143,5	298,35	413,74	1,3159	1,6638
62,0	30,43	28,26	885,56	148,2	300,34	413,48	1,3216	1,6617
63,0	31,08	28,91	877,43	153,1	302,36	413,19	1,3274	1,6596
64,0	31,73	29,58	869,03	158,3	304,40	412,85	1,3333	1,6573
65,0	32,40	30,26	860,35	163,7	306,48	412,46	1,3392	1,6549
66,0	33,08	30,95	851,35	169,3	308,60	412,03	1,3452	1,6524
67,0	33,77	31,65	842,01	175,3	310,76	411,54	1,3513	1,6497
68,0	34,47	32,37	832,28	181,6	312,96	410,99	1,3575	1,6469
69,0	35,18	33,11	822,12	188,3	315,21	410,37	1,3639	1,6440
70,0	35,90	33,86	811,47	195,5	317,51	409,68	1,3703	1,6408
71,0	36,63	34,62	800,26	203,1	319,88	408,90	1,3770	1,6374
72,0	37,37	35,40	788,40	211,2	322,32	408,03	1,3838	1,6338
73,0	38,13	36,20	775,78	220,1	324,85	407,04	1,3908	1,6299
74,0	38,89	37,02	762,26	229,6	327,48	405,92	1,3981	1,6256
75,0	39,66	37,86	747,63	240,2	330,23	404,65	1,4058	1,6209
76,0	40,44	38,72	731,63	251,8	333,14	403,18	1,4138	1,6157
77,0	41,24	39,60	713,84	264,9	336,26	401,46	1,4224	1,6098
78,0	42,03	40,50	693,60	280,0	339,64	399,42	1,4317	1,6030
79,0	42,84	41,44	669,75	297,9	343,44	396,91	1,4422	1,5950
80,0	43,64	42,42	639,88	320,3	347,94	393,67	1,4546	1,5849
81,0	44,41	43,46	597,22	351,5	353,96	389,03	1,4713	1,5709
82,0	45,01	44,68	500,40	418,8	367,02	378,84	1,5078	1,5413

Berechnet mit Refprop Version 10.0

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

Überarbeitet 03.01.2020

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

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

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

Deutsche Bank Würzburg

IBAN: DE707907001600202804 00
 BIC: DEUTDEMM790