

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	0,403	0,272	1445,2	1,547	123,83	346,90	0,7759	1,8395
-59,0	0,427	0,289	1442,1	1,640	125,06	347,53	0,7817	1,8373
-58,0	0,452	0,308	1439,1	1,737	126,30	348,15	0,7874	1,8351
-57,0	0,477	0,327	1436,1	1,840	127,54	348,77	0,7932	1,8330
-56,0	0,505	0,348	1433,1	1,946	128,78	349,39	0,7989	1,8309
-55,0	0,533	0,369	1430,0	2,058	130,02	350,01	0,8046	1,8288
-54,0	0,562	0,391	1427,0	2,175	131,27	350,63	0,8103	1,8268
-53,0	0,593	0,415	1424,0	2,297	132,51	351,25	0,8159	1,8248
-52,0	0,625	0,439	1420,9	2,425	133,76	351,86	0,8216	1,8229
-51,0	0,659	0,465	1417,8	2,558	135,00	352,48	0,8272	1,8210
-50,0	0,694	0,492	1414,8	2,697	136,25	353,10	0,8328	1,8192
-49,0	0,730	0,520	1411,7	2,841	137,50	353,72	0,8383	1,8174
-48,0	0,768	0,550	1408,6	2,992	138,75	354,34	0,8439	1,8157
-47,0	0,807	0,581	1405,5	3,150	140,00	354,95	0,8494	1,8139
-46,0	0,848	0,613	1402,5	3,313	141,26	355,57	0,8550	1,8123
-45,0	0,891	0,646	1399,4	3,484	142,51	356,18	0,8605	1,8106
-44,0	0,935	0,682	1396,2	3,661	143,77	356,80	0,8659	1,8090
-43,0	0,981	0,718	1393,1	3,845	145,03	357,41	0,8714	1,8074
-42,0	1,029	0,756	1390,0	4,037	146,29	358,02	0,8769	1,8059
-41,0	1,079	0,796	1386,9	4,236	147,55	358,63	0,8823	1,8044
-40,0	1,130	0,837	1383,7	4,442	148,81	359,24	0,8877	1,8029
-39,0	1,184	0,880	1380,6	4,657	150,08	359,85	0,8931	1,8015
-38,0	1,239	0,925	1377,4	4,880	151,35	360,46	0,8985	1,8001
-37,0	1,297	0,972	1374,2	5,111	152,62	361,07	0,9039	1,7987
-36,0	1,356	1,020	1371,1	5,350	153,89	361,68	0,9092	1,7973
-35,0	1,418	1,070	1367,9	5,599	155,16	362,28	0,9146	1,7960
-34,0	1,482	1,123	1364,7	5,856	156,44	362,89	0,9199	1,7947
-33,0	1,548	1,177	1361,5	6,122	157,71	363,49	0,9252	1,7935
-32,0	1,616	1,233	1358,3	6,399	158,99	364,09	0,9305	1,7922
-31,0	1,686	1,292	1355,0	6,684	160,27	364,69	0,9358	1,7910
-30,0	1,759	1,352	1351,8	6,980	161,55	365,29	0,9410	1,7898
-29,0	1,835	1,415	1348,5	7,286	162,84	365,89	0,9463	1,7887
-28,0	1,913	1,480	1345,3	7,602	164,13	366,48	0,9515	1,7875
-27,0	1,993	1,547	1342,0	7,929	165,42	367,08	0,9567	1,7864
-26,0	2,076	1,617	1338,7	8,268	166,71	367,67	0,9619	1,7854
-25,0	2,162	1,689	1335,4	8,617	168,00	368,26	0,9671	1,7843
-24,0	2,250	1,763	1332,1	8,978	169,30	368,85	0,9723	1,7833
-23,0	2,341	1,840	1328,8	9,351	170,59	369,44	0,9775	1,7822
-22,0	2,435	1,920	1325,4	9,735	171,89	370,02	0,9827	1,7812
-21,0	2,532	2,002	1322,1	10,13	173,20	370,61	0,9878	1,7803
-20,0	2,632	2,087	1318,7	10,54	174,50	371,19	0,9929	1,7793

Temperatur [°C]	Druck [bar]		Dichte [kg/m³]		Enthalpie [kJ/kg]		Entropie [J/kg*K]	
	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig
-19,0	2,734	2,175	1315,3	10,97	175,81	371,77	0,9981	1,7784
-18,0	2,840	2,266	1312,0	11,40	177,12	372,35	1,0032	1,7775
-17,0	2,949	2,359	1308,6	11,85	178,43	372,92	1,0083	1,7766
-16,0	3,061	2,456	1305,1	12,32	179,75	373,50	1,0134	1,7757
-15,0	3,177	2,555	1301,7	12,79	181,07	374,07	1,0185	1,7748
-14,0	3,295	2,658	1298,2	13,29	182,39	374,64	1,0235	1,7740
-13,0	3,417	2,764	1294,8	13,79	183,71	375,21	1,0286	1,7732
-12,0	3,542	2,873	1291,3	14,32	185,04	375,77	1,0336	1,7724
-11,0	3,671	2,985	1287,8	14,85	186,37	376,33	1,0387	1,7716
-10,0	3,804	3,101	1284,3	15,41	187,70	376,89	1,0437	1,7708
-9,0	3,940	3,220	1280,7	15,98	189,03	377,45	1,0487	1,7700
-8,0	4,079	3,342	1277,2	16,57	190,37	378,01	1,0537	1,7693
-7,0	4,223	3,468	1273,6	17,17	191,71	378,56	1,0587	1,7686
-6,0	4,370	3,598	1270,0	17,79	193,06	379,11	1,0637	1,7678
-5,0	4,521	3,731	1266,4	18,43	194,40	379,66	1,0687	1,7671
-4,0	4,675	3,868	1262,8	19,09	195,75	380,20	1,0737	1,7664
-3,0	4,834	4,009	1259,2	19,77	197,11	380,74	1,0787	1,7658
-2,0	4,997	4,154	1255,5	20,47	198,46	381,28	1,0836	1,7651
-1,0	5,164	4,303	1251,8	21,18	199,82	381,81	1,0886	1,7644
0,0	5,335	4,455	1248,1	21,92	201,19	382,35	1,0936	1,7638
1,0	5,511	4,612	1244,4	22,68	202,55	382,88	1,0985	1,7631
2,0	5,691	4,773	1240,6	23,45	203,92	383,40	1,1034	1,7625
3,0	5,875	4,938	1236,8	24,25	205,30	383,92	1,1084	1,7619
4,0	6,063	5,108	1233,0	25,08	206,67	384,44	1,1133	1,7613
5,0	6,256	5,282	1229,2	25,92	208,05	384,96	1,1182	1,7607
6,0	6,454	5,460	1225,4	26,79	209,44	385,47	1,1231	1,7601
7,0	6,656	5,643	1221,5	27,68	210,83	385,98	1,1280	1,7595
8,0	6,863	5,831	1217,6	28,59	212,22	386,48	1,1329	1,7589
9,0	7,075	6,023	1213,7	29,53	213,62	386,98	1,1378	1,7584
10,0	7,291	6,220	1209,7	30,50	215,02	387,48	1,1427	1,7578
11,0	7,513	6,422	1205,8	31,49	216,42	387,97	1,1476	1,7572
12,0	7,740	6,629	1201,8	32,51	217,83	388,46	1,1525	1,7567
13,0	7,971	6,840	1197,7	33,56	219,24	388,94	1,1573	1,7561
14,0	8,208	7,057	1193,7	34,63	220,66	389,42	1,1622	1,7556
15,0	8,450	7,279	1189,6	35,74	222,08	389,89	1,1671	1,7550
16,0	8,697	7,506	1185,5	36,87	223,51	390,36	1,1720	1,7545
17,0	8,949	7,739	1181,3	38,04	224,94	390,83	1,1768	1,7539
18,0	9,207	7,977	1177,1	39,23	226,37	391,28	1,1817	1,7534
19,0	9,471	8,220	1172,9	40,46	227,81	391,74	1,1865	1,7529
20,0	9,740	8,470	1168,6	41,72	229,26	392,19	1,1914	1,7523

Temperatur [°C]	Druck [bar]		Dichte [kg/m³]		Enthalpie [kJ/kg]		Entropie [J/kg*K]	
	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig
21,0	10,01	8,724	1164,3	43,01	230,70	392,63	1,1963	1,7518
22,0	10,30	8,985	1160,0	44,34	232,16	393,07	1,2011	1,7512
23,0	10,58	9,251	1155,6	45,71	233,62	393,50	1,2060	1,7507
24,0	10,87	9,523	1151,2	47,11	235,08	393,92	1,2108	1,7502
25,0	11,17	9,801	1146,8	48,55	236,56	394,34	1,2157	1,7496
26,0	11,48	10,09	1142,3	50,03	238,03	394,75	1,2205	1,7491
27,0	11,79	10,38	1137,8	51,55	239,51	395,16	1,2254	1,7485
28,0	12,10	10,67	1133,2	53,11	241,00	395,56	1,2302	1,7479
29,0	12,42	10,98	1128,6	54,71	242,49	395,95	1,2351	1,7474
30,0	12,75	11,29	1123,9	56,35	243,99	396,34	1,2400	1,7468
31,0	13,09	11,60	1119,2	58,05	245,50	396,71	1,2448	1,7462
32,0	13,43	11,92	1114,5	59,78	247,01	397,08	1,2497	1,7456
33,0	13,78	12,25	1109,7	61,57	248,53	397,45	1,2545	1,7451
34,0	14,13	12,59	1104,8	63,41	250,06	397,80	1,2594	1,7445
35,0	14,49	12,93	1099,9	65,29	251,59	398,15	1,2643	1,7438
36,0	14,86	13,28	1094,9	67,23	253,13	398,48	1,2692	1,7432
37,0	15,24	13,64	1089,9	69,23	254,67	398,81	1,2741	1,7426
38,0	15,62	14,01	1084,8	71,28	256,23	399,13	1,2789	1,7419
39,0	16,01	14,38	1079,7	73,39	257,79	399,44	1,2838	1,7413
40,0	16,40	14,76	1074,5	75,57	259,36	399,73	1,2887	1,7406
41,0	16,81	15,15	1069,2	77,80	260,94	400,02	1,2937	1,7399
42,0	17,22	15,54	1063,9	80,11	262,52	400,30	1,2986	1,7392
43,0	17,64	15,94	1058,4	82,48	264,12	400,57	1,3035	1,7385
44,0	18,06	16,35	1052,9	84,92	265,72	400,82	1,3084	1,7377
45,0	18,50	16,77	1047,4	87,43	267,34	401,06	1,3134	1,7370
46,0	18,94	17,20	1041,7	90,02	268,96	401,29	1,3183	1,7362
47,0	19,39	17,63	1036,0	92,70	270,59	401,51	1,3233	1,7354
48,0	19,84	18,08	1030,2	95,45	272,23	401,71	1,3283	1,7345
49,0	20,31	18,53	1024,3	98,30	273,89	401,90	1,3333	1,7337
50,0	20,78	18,99	1018,3	101,2	275,55	402,08	1,3383	1,7328
51,0	21,26	19,46	1012,1	104,3	277,23	402,24	1,3434	1,7319
52,0	21,75	19,94	1005,9	107,4	278,92	402,38	1,3484	1,7309
53,0	22,24	20,43	999,60	110,6	280,62	402,51	1,3535	1,7299
54,0	22,75	20,92	993,15	114,0	282,33	402,62	1,3586	1,7289
55,0	23,26	21,43	986,58	117,5	284,06	402,71	1,3637	1,7278
56,0	23,79	21,95	979,88	121,1	285,80	402,78	1,3688	1,7267
57,0	24,32	22,47	973,03	124,8	287,56	402,83	1,3740	1,7256
58,0	24,86	23,01	966,04	128,7	289,34	402,85	1,3792	1,7244
59,0	25,40	23,55	958,89	132,7	291,13	402,86	1,3844	1,7231
60,0	25,96	24,11	951,57	136,8	292,94	402,84	1,3897	1,7218

Temperatur [°C]	Druck [bar]		Dichte [kg/m³]		Enthalpie [kJ/kg]		Entropie [J/kg*K]	
	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig	flüssig	gasförmig
61,0	26,53	24,67	944,07	141,2	294,77	402,79	1,3950	1,7205
62,0	27,11	25,25	936,38	145,7	296,62	402,71	1,4003	1,7191
63,0	27,69	25,84	928,47	150,4	298,49	402,61	1,4057	1,7175
64,0	28,29	26,44	920,33	155,3	300,39	402,47	1,4112	1,7160
65,0	28,89	27,05	911,95	160,5	302,31	402,29	1,4167	1,7143
66,0	29,50	27,67	903,29	165,9	304,26	402,08	1,4222	1,7126
67,0	30,13	28,31	894,34	171,6	306,24	401,83	1,4279	1,7107
68,0	30,76	28,95	885,05	177,5	308,25	401,53	1,4336	1,7087
69,0	31,40	29,61	875,40	183,8	310,30	401,18	1,4393	1,7066
70,0	32,06	30,29	865,34	190,5	312,40	400,77	1,4452	1,7044
71,0	32,72	30,97	854,83	197,5	314,53	400,31	1,4512	1,7020
72,0	33,39	31,67	843,79	205,0	316,72	399,77	1,4574	1,6995
73,0	34,08	32,39	832,15	213,0	318,97	399,16	1,4636	1,6967
74,0	34,77	33,12	819,81	221,7	321,29	398,45	1,4701	1,6937
75,0	35,48	33,86	806,65	231,0	323,69	397,64	1,4767	1,6904
76,0	36,19	34,62	792,51	241,1	326,18	396,71	1,4836	1,6868
77,0	36,92	35,40	777,15	252,3	328,79	395,63	1,4908	1,6828
78,0	37,65	36,20	760,28	264,7	331,55	394,36	1,4984	1,6783
79,0	38,39	37,02	741,39	278,7	334,51	392,86	1,5065	1,6732
80,0	39,14	37,87	719,72	294,9	337,74	391,03	1,5154	1,6672
81,0	39,90	38,74	693,84	314,3	341,39	388,75	1,5254	1,6599
82,0	40,65	39,65	660,63	339,1	345,77	385,71	1,5375	1,6506
83,0	41,37	40,63	610,30	375,1	351,93	381,10	1,5545	1,6368

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