

temperature [°C]	pressure [bar]	density [kg/m ³]		enthalpy [kJ/kg]		entropy [J/kg*K]	
		liquid	vapour	liquid	vapour	liquid	vapour
-25,0	0,459	646,7	1,279	-39,89	369,45	-0,1546	1,4949
-24,0	0,480	645,5	1,335	-37,79	370,66	-0,1462	1,4932
-23,0	0,503	644,4	1,393	-35,68	371,87	-0,1378	1,4915
-22,0	0,526	643,3	1,452	-33,58	373,09	-0,1294	1,4898
-21,0	0,550	642,2	1,514	-31,46	374,30	-0,1210	1,4882
-20,0	0,575	641,1	1,577	-29,35	375,51	-0,1126	1,4867
-19,0	0,600	640,0	1,643	-27,23	376,73	-0,1043	1,4852
-18,0	0,627	638,9	1,711	-25,11	377,95	-0,0960	1,4837
-17,0	0,655	637,8	1,780	-22,98	379,16	-0,0877	1,4823
-16,0	0,683	636,6	1,853	-20,85	380,38	-0,0794	1,4809
-15,0	0,713	635,5	1,927	-18,72	381,60	-0,0711	1,4796
-14,0	0,743	634,4	2,004	-16,58	382,82	-0,0629	1,4783
-13,0	0,775	633,3	2,082	-14,44	384,04	-0,0546	1,4771
-12,0	0,807	632,1	2,164	-12,29	385,26	-0,0464	1,4759
-11,0	0,841	631,0	2,248	-10,14	386,48	-0,0382	1,4747
-10,0	0,875	629,9	2,334	-7,99	387,70	-0,0301	1,4736
-9,0	0,911	628,7	2,423	-5,83	388,93	-0,0219	1,4725
-8,0	0,948	627,6	2,514	-3,67	390,15	-0,0138	1,4715
-7,0	0,986	626,4	2,608	-1,51	391,37	-0,0056	1,4705
-6,0	1,025	625,3	2,705	0,66	392,60	0,0025	1,4696
-5,0	1,066	624,1	2,805	2,84	393,82	0,0106	1,4686
-4,0	1,108	623,0	2,907	5,01	395,04	0,0187	1,4678
-3,0	1,151	621,8	3,012	7,20	396,27	0,0267	1,4669
-2,0	1,195	620,7	3,120	9,38	397,49	0,0348	1,4661
-1,0	1,240	619,5	3,232	11,57	398,72	0,0428	1,4653
0,0	1,287	618,3	3,346	13,77	399,94	0,0508	1,4646
1,0	1,335	617,2	3,463	15,96	401,17	0,0588	1,4639
2,0	1,385	616,0	3,583	18,17	402,39	0,0668	1,4632
3,0	1,436	614,8	3,707	20,37	403,62	0,0748	1,4626
4,0	1,489	613,7	3,834	22,58	404,84	0,0828	1,4620
5,0	1,543	612,5	3,964	24,80	406,06	0,0907	1,4614
6,0	1,598	611,3	4,098	27,02	407,29	0,0986	1,4609
7,0	1,655	610,1	4,235	29,24	408,51	0,1066	1,4604
8,0	1,713	608,9	4,375	31,47	409,74	0,1145	1,4599
9,0	1,774	607,7	4,519	33,71	410,96	0,1224	1,4594
10,0	1,835	606,6	4,667	35,94	412,19	0,1302	1,4590
11,0	1,899	605,4	4,819	38,19	413,41	0,1381	1,4586
12,0	1,964	604,2	4,974	40,44	414,63	0,1460	1,4583
13,0	2,030	602,9	5,133	42,69	415,86	0,1538	1,4579
14,0	2,099	601,7	5,296	44,94	417,08	0,1617	1,4576
15,0	2,169	600,5	5,463	47,21	418,30	0,1695	1,4573

temperature [°C]	pressure [bar]	density [kg/m ³]		enthalpy [kJ/kg]		entropy [J/kg*K]	
		liquid	vapour	liquid	vapour	liquid	vapour
16,0	2,241	599,3	5,634	49,47	419,52	0,1773	1,4571
17,0	2,314	598,1	5,809	51,74	420,74	0,1851	1,4568
18,0	2,390	596,9	5,988	54,02	421,96	0,1929	1,4566
19,0	2,467	595,6	6,172	56,30	423,18	0,2007	1,4564
20,0	2,546	594,4	6,360	58,59	424,40	0,2084	1,4563
21,0	2,628	593,2	6,552	60,88	425,62	0,2162	1,4562
22,0	2,711	591,9	6,749	63,18	426,84	0,2239	1,4560
23,0	2,796	590,7	6,950	65,48	428,05	0,2317	1,4560
24,0	2,883	589,4	7,156	67,78	429,27	0,2394	1,4559
25,0	2,972	588,2	7,367	70,10	430,48	0,2471	1,4558
26,0	3,063	586,9	7,582	72,41	431,70	0,2548	1,4558
27,0	3,157	585,7	7,803	74,74	432,91	0,2625	1,4558
28,0	3,252	584,4	8,028	77,06	434,12	0,2702	1,4558
29,0	3,350	583,1	8,258	79,40	435,33	0,2779	1,4559
30,0	3,449	581,9	8,494	81,74	436,54	0,2855	1,4559
31,0	3,551	580,6	8,735	84,08	437,75	0,2932	1,4560
32,0	3,656	579,3	8,981	86,43	438,95	0,3009	1,4561
33,0	3,762	578,0	9,232	88,78	440,16	0,3085	1,4562
34,0	3,871	576,7	9,489	91,15	441,36	0,3161	1,4563
35,0	3,982	575,4	9,752	93,51	442,56	0,3238	1,4565
36,0	4,096	574,1	10,02	95,88	443,76	0,3314	1,4567
37,0	4,212	572,8	10,29	98,26	444,96	0,3390	1,4568
38,0	4,330	571,5	10,57	100,65	446,16	0,3466	1,4570
39,0	4,451	570,1	10,86	103,04	447,35	0,3542	1,4573
40,0	4,574	568,8	11,15	105,43	448,55	0,3618	1,4575
41,0	4,700	567,5	11,45	107,83	449,74	0,3694	1,4577
42,0	4,829	566,1	11,75	110,24	450,92	0,3770	1,4580
43,0	4,960	564,8	12,07	112,66	452,11	0,3846	1,4583
44,0	5,094	563,5	12,38	115,08	453,30	0,3921	1,4586
45,0	5,230	562,1	12,71	117,50	454,48	0,3997	1,4589
46,0	5,369	560,7	13,04	119,94	455,66	0,4072	1,4592
47,0	5,511	559,4	13,38	122,37	456,84	0,4148	1,4595
48,0	5,655	558,0	13,72	124,82	458,01	0,4223	1,4598
49,0	5,803	556,6	14,07	127,27	459,18	0,4299	1,4602
50,0	5,953	555,2	14,43	129,73	460,35	0,4374	1,4605
51,0	6,106	553,8	14,80	132,20	461,52	0,4449	1,4609
52,0	6,262	552,4	15,17	134,67	462,68	0,4525	1,4613
53,0	6,421	551,0	15,56	137,15	463,84	0,4600	1,4617
54,0	6,582	549,6	15,95	139,63	465,00	0,4675	1,4621
55,0	6,747	548,2	16,34	142,13	466,16	0,4750	1,4625

temperature [°C]	pressure [bar]	density [kg/m ³]		enthalpy [kJ/kg]		entropy [J/kg*K]	
		liquid	vapour	liquid	vapour	liquid	vapour
56,0	6,915	546,7	16,75	144,62	467,31	0,4825	1,4629
57,0	7,086	545,3	17,16	147,13	468,45	0,4901	1,4633
58,0	7,260	543,8	17,59	149,65	469,60	0,4976	1,4637
59,0	7,437	542,4	18,02	152,17	470,74	0,5051	1,4642
60,0	7,618	540,9	18,46	154,69	471,88	0,5126	1,4646
61,0	7,801	539,5	18,91	157,23	473,01	0,5201	1,4651
62,0	7,988	538,0	19,36	159,77	474,14	0,5276	1,4655
63,0	8,178	536,5	19,83	162,32	475,26	0,5351	1,4660
64,0	8,371	535,0	20,31	164,88	476,38	0,5425	1,4665
65,0	8,568	533,5	20,80	167,45	477,50	0,5500	1,4669
66,0	8,768	532,0	21,29	170,02	478,61	0,5575	1,4674
67,0	8,972	530,4	21,80	172,60	479,72	0,5650	1,4679
68,0	9,179	528,9	22,32	175,19	480,82	0,5725	1,4684
69,0	9,389	527,4	22,85	177,79	481,91	0,5800	1,4688
70,0	9,603	525,8	23,38	180,40	483,01	0,5875	1,4693
71,0	9,821	524,2	23,93	183,01	484,09	0,5950	1,4698
72,0	10,04	522,7	24,49	185,64	485,17	0,6025	1,4703
73,0	10,27	521,1	25,07	188,27	486,25	0,6099	1,4708
74,0	10,50	519,5	25,65	190,91	487,32	0,6174	1,4713
75,0	10,73	517,9	26,25	193,56	488,38	0,6249	1,4717
76,0	10,96	516,3	26,86	196,22	489,44	0,6324	1,4722
77,0	11,20	514,6	27,48	198,88	490,49	0,6399	1,4727
78,0	11,45	513,0	28,11	201,56	491,53	0,6474	1,4732
79,0	11,70	511,3	28,76	204,25	492,57	0,6549	1,4737
80,0	11,95	509,7	29,42	206,94	493,60	0,6624	1,4741
81,0	12,20	508,0	30,10	209,65	494,62	0,6699	1,4746
82,0	12,46	506,3	30,79	212,36	495,63	0,6774	1,4750
83,0	12,73	504,6	31,49	215,09	496,64	0,6850	1,4755
84,0	12,99	502,9	32,21	217,82	497,64	0,6925	1,4759
85,0	13,26	501,1	32,94	220,57	498,63	0,7000	1,4764
86,0	13,54	499,4	33,70	223,32	499,61	0,7075	1,4768
87,0	13,82	497,6	34,46	226,09	500,58	0,7151	1,4772
88,0	14,10	495,8	35,25	228,87	501,54	0,7226	1,4776
89,0	14,39	494,0	36,05	231,66	502,50	0,7302	1,4780
90,0	14,69	492,2	36,87	234,46	503,44	0,7377	1,4784
91,0	14,98	490,4	37,70	237,27	504,37	0,7453	1,4788
92,0	15,29	488,5	38,56	240,09	505,30	0,7528	1,4791
93,0	15,59	486,7	39,43	242,92	506,21	0,7604	1,4795
94,0	15,90	484,8	40,33	245,77	507,11	0,7680	1,4798
95,0	16,22	482,9	41,24	248,63	507,99	0,7756	1,4801

temperature [°C]	pressure [bar]	density [kg/m ³]		enthalpy [kJ/kg]		entropy [J/kg*K]	
		liquid	vapour	liquid	vapour	liquid	vapour
96,0	16,54	481,0	42,18	251,50	508,87	0,7832	1,4804
97,0	16,86	479,0	43,14	254,39	509,73	0,7909	1,4807
98,0	17,19	477,1	44,12	257,29	510,58	0,7985	1,4809
99,0	17,53	475,1	45,13	260,20	511,42	0,8061	1,4812
100,0	17,87	473,1	46,16	263,13	512,24	0,8138	1,4814
101,0	18,21	471,0	47,21	266,07	513,04	0,8215	1,4816
102,0	18,56	469,0	48,29	269,02	513,83	0,8292	1,4817
103,0	18,91	466,9	49,40	271,99	514,61	0,8369	1,4819
104,0	19,27	464,8	50,53	274,98	515,36	0,8446	1,4820
105,0	19,63	462,7	51,70	277,98	516,10	0,8523	1,4820
106,0	20,00	460,5	52,89	281,00	516,82	0,8601	1,4821
107,0	20,38	458,3	54,12	284,03	517,52	0,8679	1,4821
108,0	20,76	456,1	55,38	287,09	518,21	0,8757	1,4820
109,0	21,14	453,8	56,68	290,16	518,87	0,8835	1,4820
110,0	21,53	451,6	58,01	293,25	519,50	0,8913	1,4819
111,0	21,93	449,2	59,37	296,36	520,12	0,8992	1,4817
112,0	22,33	446,9	60,78	299,48	520,71	0,9071	1,4815
113,0	22,74	444,5	62,23	302,63	521,27	0,9151	1,4813
114,0	23,15	442,1	63,72	305,80	521,81	0,9230	1,4810
115,0	23,57	439,6	65,25	309,00	522,32	0,9310	1,4806
116,0	23,99	437,1	66,84	312,21	522,80	0,9390	1,4802
117,0	24,42	434,5	68,47	315,46	523,25	0,9471	1,4797
118,0	24,86	431,9	70,16	318,72	523,67	0,9552	1,4791
119,0	25,30	429,2	71,90	322,01	524,05	0,9633	1,4785
120,0	25,75	426,5	73,71	325,34	524,39	0,9715	1,4778
121,0	26,20	423,8	75,57	328,69	524,69	0,9798	1,4771
122,0	26,66	420,9	77,51	332,07	524,95	0,9881	1,4762
123,0	27,13	418,0	79,51	335,48	525,17	0,9964	1,4752
124,0	27,60	415,0	81,60	338,93	525,34	1,0048	1,4742
125,0	28,08	412,0	83,77	342,42	525,45	1,0133	1,4730
126,0	28,57	408,9	86,02	345,95	525,51	1,0219	1,4717
127,0	29,06	405,6	88,37	349,51	525,51	1,0305	1,4703
128,0	29,56	402,3	90,83	353,13	525,44	1,0392	1,4687
129,0	30,07	398,9	93,41	356,80	525,30	1,0480	1,4670
130,0	30,59	395,4	96,10	360,51	525,09	1,0569	1,4651
131,0	31,11	391,7	98,94	364,29	524,78	1,0660	1,4631
132,0	31,64	387,9	101,9	368,14	524,38	1,0751	1,4608
133,0	32,17	383,9	105,1	372,06	523,88	1,0844	1,4582
134,0	32,72	379,7	108,4	376,06	523,26	1,0939	1,4555
135,0	33,27	375,4	112,0	380,15	522,50	1,1036	1,4524

Saturated Pressure Table

temperature [°C]	pressure [bar]	density [kg/m³]		enthalpy [kJ/kg]		entropy [J/kg*K]	
		liquid	vapour	liquid	vapour	liquid	vapour
136,0	33,83	370,8	115,8	384,35	521,58	1,1135	1,4489
137,0	34,40	365,9	120,0	388,67	520,49	1,1237	1,4451
138,0	34,98	360,7	124,4	393,14	519,18	1,1342	1,4407
139,0	35,57	355,0	129,3	397,79	517,62	1,1451	1,4358
140,0	36,16	348,9	134,8	402,66	515,75	1,1565	1,4302
141,0	36,77	342,1	140,8	407,82	513,46	1,1685	1,4236
142,0	37,38	334,4	147,9	413,37	510,64	1,1815	1,4158
143,0	38,01	325,3	156,2	419,50	507,05	1,1957	1,4061
144,0	38,65	314,0	166,7	426,58	502,22	1,2123	1,3936
145,0	39,30	298,3	181,4	435,63	494,95	1,2334	1,3753
146,0	39,96	263,1	214,1	453,53	478,05	1,2756	1,3341

Calculated by Refprop version 10.0

A guarantee, warranty or liability for the accuracy, completeness and timeliness of the content and information provided cannot be assumed.

revised 15.01.2020

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