

# R 134a

1,1,1,2-Tetrafluoroethane



Saturated Pressure Table

temperature [°C]	pressure [bar]	density [kg/m³]		enthalpy [kJ/kg]		entropy [J/kg*K]	
		liquid	vapour	liquid	vapour	liquid	vapour
-40,0	0,512	1417,7	2,770	148,14	374,00	0,7956	1,7643
-39,0	0,540	1414,8	2,909	149,40	374,64	0,8010	1,7629
-38,0	0,568	1411,9	3,053	150,66	375,27	0,8063	1,7615
-37,0	0,598	1409,0	3,203	151,92	375,90	0,8117	1,7602
-36,0	0,629	1406,1	3,359	153,18	376,54	0,8170	1,7588
-35,0	0,661	1403,1	3,521	154,44	377,17	0,8223	1,7575
-34,0	0,695	1400,2	3,689	155,71	377,80	0,8276	1,7563
-33,0	0,730	1397,3	3,863	156,98	378,43	0,8329	1,7550
-32,0	0,767	1394,3	4,044	158,25	379,06	0,8381	1,7538
-31,0	0,804	1391,4	4,232	159,52	379,69	0,8434	1,7526
-30,0	0,844	1388,4	4,426	160,79	380,32	0,8486	1,7515
-29,0	0,885	1385,4	4,627	162,07	380,95	0,8539	1,7503
-28,0	0,927	1382,4	4,836	163,34	381,57	0,8591	1,7492
-27,0	0,971	1379,5	5,051	164,62	382,20	0,8643	1,7482
-26,0	1,017	1376,5	5,275	165,90	382,82	0,8694	1,7471
-25,0	1,064	1373,4	5,506	167,19	383,45	0,8746	1,7461
-24,0	1,113	1370,4	5,745	168,47	384,07	0,8798	1,7451
-23,0	1,164	1367,4	5,992	169,76	384,69	0,8849	1,7441
-22,0	1,217	1364,4	6,248	171,05	385,32	0,8900	1,7432
-21,0	1,271	1361,3	6,512	172,34	385,94	0,8951	1,7422
-20,0	1,327	1358,3	6,785	173,64	386,55	0,9003	1,7413
-19,0	1,386	1355,2	7,066	174,93	387,17	0,9053	1,7404
-18,0	1,446	1352,1	7,357	176,23	387,79	0,9104	1,7396
-17,0	1,508	1349,0	7,657	177,53	388,40	0,9155	1,7387
-16,0	1,573	1345,9	7,967	178,83	389,02	0,9205	1,7379
-15,0	1,639	1342,8	8,287	180,14	389,63	0,9256	1,7371
-14,0	1,708	1339,7	8,617	181,44	390,24	0,9306	1,7363
-13,0	1,779	1336,6	8,957	182,75	390,85	0,9357	1,7355
-12,0	1,852	1333,4	9,307	184,07	391,45	0,9407	1,7348
-11,0	1,928	1330,3	9,669	185,38	392,06	0,9457	1,7341
-10,0	2,006	1327,1	10,04	186,70	392,66	0,9507	1,7333
-9,0	2,086	1323,9	10,43	188,02	393,27	0,9556	1,7327
-8,0	2,169	1320,8	10,82	189,34	393,87	0,9606	1,7320
-7,0	2,255	1317,6	11,23	190,66	394,47	0,9656	1,7313
-6,0	2,343	1314,3	11,65	191,99	395,06	0,9705	1,7307
-5,0	2,433	1311,1	12,08	193,32	395,66	0,9754	1,7300
-4,0	2,527	1307,9	12,52	194,65	396,25	0,9804	1,7294
-3,0	2,623	1304,6	12,98	195,98	396,84	0,9853	1,7288
-2,0	2,722	1301,4	13,45	197,32	397,43	0,9902	1,7282
-1,0	2,823	1298,1	13,93	198,66	398,02	0,9951	1,7276
0,0	2,928	1294,8	14,43	200,00	398,60	1,0000	1,7271

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Saturated Pressure Table

temperature [°C]	pressure [bar]	density [kg/m <sup>3</sup> ]		enthalpy [kJ/kg]		entropy [J/kg*K]	
		liquid	vapour	liquid	vapour	liquid	vapour
1,0	3,036	1291,5	14,94	201,34	399,19	1,0049	1,7265
2,0	3,146	1288,1	15,47	202,69	399,77	1,0098	1,7260
3,0	3,260	1284,8	16,01	204,04	400,34	1,0146	1,7255
4,0	3,377	1281,4	16,56	205,40	400,92	1,0195	1,7250
5,0	3,497	1278,1	17,13	206,75	401,49	1,0243	1,7245
6,0	3,620	1274,7	17,72	208,11	402,06	1,0292	1,7240
7,0	3,746	1271,3	18,32	209,47	402,63	1,0340	1,7235
8,0	3,876	1267,9	18,94	210,84	403,20	1,0388	1,7230
9,0	4,009	1264,4	19,57	212,21	403,76	1,0437	1,7226
10,0	4,146	1261,0	20,23	213,58	404,32	1,0485	1,7221
11,0	4,286	1257,5	20,90	214,95	404,87	1,0533	1,7217
12,0	4,430	1254,0	21,58	216,33	405,43	1,0581	1,7212
13,0	4,578	1250,5	22,29	217,71	405,98	1,0629	1,7208
14,0	4,729	1246,9	23,02	219,09	406,53	1,0677	1,7204
15,0	4,884	1243,4	23,76	220,48	407,07	1,0724	1,7200
16,0	5,043	1239,8	24,52	221,87	407,61	1,0772	1,7196
17,0	5,205	1236,2	25,31	223,26	408,15	1,0820	1,7192
18,0	5,372	1232,6	26,11	224,66	408,69	1,0867	1,7188
19,0	5,542	1229,0	26,93	226,06	409,22	1,0915	1,7184
20,0	5,717	1225,3	27,78	227,47	409,75	1,0962	1,7180
21,0	5,896	1221,7	28,65	228,88	410,27	1,1010	1,7177
22,0	6,079	1218,0	29,54	230,29	410,79	1,1057	1,7173
23,0	6,266	1214,2	30,45	231,70	411,31	1,1105	1,7169
24,0	6,458	1210,5	31,39	233,12	411,82	1,1152	1,7166
25,0	6,654	1206,7	32,35	234,55	412,33	1,1199	1,7162
26,0	6,854	1202,9	33,34	235,97	412,84	1,1246	1,7159
27,0	7,059	1199,1	34,35	237,40	413,34	1,1294	1,7155
28,0	7,269	1195,2	35,38	238,84	413,84	1,1341	1,7152
29,0	7,483	1191,4	36,45	240,28	414,33	1,1388	1,7148
30,0	7,702	1187,5	37,54	241,72	414,82	1,1435	1,7145
31,0	7,926	1183,5	38,65	243,17	415,30	1,1482	1,7141
32,0	8,154	1179,6	39,80	244,62	415,78	1,1529	1,7138
33,0	8,388	1175,6	40,97	246,08	416,25	1,1576	1,7135
34,0	8,626	1171,6	42,18	247,54	416,72	1,1623	1,7131
35,0	8,870	1167,5	43,42	249,01	417,19	1,1670	1,7128
36,0	9,119	1163,4	44,68	250,48	417,65	1,1717	1,7124
37,0	9,372	1159,3	45,98	251,95	418,10	1,1764	1,7121
38,0	9,632	1155,1	47,32	253,43	418,55	1,1811	1,7118
39,0	9,896	1151,0	48,68	254,92	418,99	1,1858	1,7114
40,0	10,17	1146,7	50,09	256,41	419,43	1,1905	1,7111

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temperature [°C]	pressure [bar]	density [kg/m <sup>3</sup> ]		enthalpy [kJ/kg]		entropy [J/kg*K]	
		liquid	vapour	liquid	vapour	liquid	vapour
41,0	10,44	1142,5	51,52	257,90	419,86	1,1952	1,7107
42,0	10,72	1138,2	53,00	259,41	420,28	1,1999	1,7103
43,0	11,01	1133,8	54,51	260,91	420,70	1,2046	1,7100
44,0	11,30	1129,5	56,06	262,42	421,11	1,2092	1,7096
45,0	11,60	1125,1	57,66	263,94	421,52	1,2139	1,7092
46,0	11,90	1120,6	59,29	265,47	421,92	1,2186	1,7089
47,0	12,21	1116,1	60,97	267,00	422,31	1,2233	1,7085
48,0	12,53	1111,5	62,69	268,53	422,69	1,2280	1,7081
49,0	12,85	1106,9	64,46	270,07	423,07	1,2327	1,7077
50,0	13,18	1102,3	66,27	271,62	423,44	1,2375	1,7072
51,0	13,51	1097,6	68,13	273,18	423,80	1,2422	1,7068
52,0	13,85	1092,9	70,05	274,74	424,15	1,2469	1,7064
53,0	14,20	1088,1	72,01	276,31	424,49	1,2516	1,7059
54,0	14,56	1083,2	74,03	277,89	424,83	1,2563	1,7055
55,0	14,92	1078,3	76,10	279,47	425,15	1,2611	1,7050
56,0	15,28	1073,4	78,24	281,06	425,47	1,2658	1,7045
57,0	15,66	1068,3	80,43	282,66	425,77	1,2705	1,7040
58,0	16,04	1063,2	82,68	284,27	426,07	1,2753	1,7035
59,0	16,42	1058,1	85,00	285,88	426,36	1,2801	1,7030
60,0	16,82	1052,9	87,38	287,50	426,63	1,2848	1,7024
61,0	17,22	1047,6	89,83	289,14	426,89	1,2896	1,7019
62,0	17,63	1042,2	92,36	290,78	427,14	1,2944	1,7013
63,0	18,04	1036,8	94,96	292,43	427,38	1,2992	1,7006
64,0	18,47	1031,2	97,64	294,09	427,61	1,3040	1,7000
65,0	18,90	1025,6	100,4	295,76	427,82	1,3088	1,6993
66,0	19,34	1020,0	103,2	297,44	428,01	1,3137	1,6987
67,0	19,78	1014,2	106,2	299,14	428,20	1,3185	1,6979
68,0	20,24	1008,3	109,2	300,84	428,36	1,3234	1,6972
69,0	20,70	1002,3	112,3	302,55	428,52	1,3283	1,6964
70,0	21,17	996,25	115,6	304,28	428,65	1,3332	1,6956
71,0	21,65	990,06	118,9	306,02	428,77	1,3381	1,6948
72,0	22,13	983,76	122,4	307,78	428,86	1,3430	1,6939
73,0	22,63	977,33	126,0	309,55	428,94	1,3480	1,6929
74,0	23,13	970,78	129,7	311,33	429,00	1,3530	1,6920
75,0	23,64	964,09	133,5	313,13	429,03	1,3580	1,6909
76,0	24,16	957,25	137,5	314,94	429,04	1,3631	1,6899
77,0	24,69	950,26	141,6	316,78	429,03	1,3682	1,6887
78,0	25,23	943,10	145,9	318,63	428,98	1,3733	1,6876
79,0	25,78	935,77	150,4	320,50	428,91	1,3784	1,6863
80,0	26,33	928,24	155,1	322,39	428,81	1,3836	1,6850

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## Saturated Pressure Table

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temperature [°C]	pressure [bar]	density [kg/m <sup>3</sup> ]		enthalpy [kJ/kg]		entropy [J/kg*K]	
		liquid	vapour	liquid	vapour	liquid	vapour
81,0	26,90	920,51	160,0	324,30	428,68	1,3889	1,6836
82,0	27,47	912,56	165,1	326,24	428,51	1,3942	1,6821
83,0	28,06	904,37	170,4	328,21	428,30	1,3995	1,6806
84,0	28,65	895,91	176,0	330,20	428,05	1,4049	1,6789
85,0	29,26	887,16	181,9	332,22	427,76	1,4104	1,6771
86,0	29,87	878,10	188,1	334,28	427,42	1,4159	1,6752
87,0	30,50	868,68	194,6	336,38	427,02	1,4215	1,6732
88,0	31,14	858,86	201,5	338,51	426,55	1,4273	1,6710
89,0	31,78	848,60	208,9	340,69	426,02	1,4331	1,6687
90,0	32,44	837,83	216,8	342,93	425,42	1,4390	1,6662
91,0	33,11	826,47	225,2	345,22	424,72	1,4451	1,6634
92,0	33,79	814,43	234,3	347,59	423,92	1,4514	1,6604
93,0	34,49	801,58	244,2	350,03	422,99	1,4578	1,6571
94,0	35,19	787,75	255,1	352,58	421,92	1,4645	1,6534
95,0	35,91	772,70	267,1	355,25	420,67	1,4715	1,6492
96,0	36,65	756,09	280,7	358,07	419,18	1,4789	1,6445
97,0	37,39	737,34	296,4	361,12	417,39	1,4869	1,6389
98,0	38,15	715,51	315,1	364,47	415,14	1,4957	1,6322
99,0	38,93	688,60	338,9	368,34	412,16	1,5058	1,6235
100,0	39,72	651,18	373,0	373,30	407,68	1,5188	1,6109
101,0	40,54	557,31	465,3	384,35	395,43	1,5480	1,5776

Calculated by Refprop version 10.0

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