



Forane[®] 22

Thermodynamic Properties (Saturation) - SI

This data was generated using the NIST REFPROP Database

(Lemmon, E.W., Huber, M.L., McLinden, M.O. NIST Standard Reference Database 23: Reference Fluid Thermodynamic and Transport Properties-REFPROP, Version 9.0, National Institute of Standards and Technology, Standard Reference Data Program, Gaithersburg, 2010)



Thermodynamic Properties of R-22 - Saturation

Temperature (°C)	Pressure (kPA)	Volume (m ³ /kg)		Density (kg/m ³)		Enthalpy (kJ/kg)		Entropy (kJ/(kg K))		Temperature (°C)
		Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	
-100	2.0	0.0006	8.2660	1571.3	0.121	90.71	358.97	0.5050	2.0543	-100
-99	2.2	0.0006	7.5771	1568.7	0.132	91.77	359.45	0.5111	2.0482	-99
-98	2.4	0.0006	6.9540	1566.0	0.144	92.83	359.94	0.5172	2.0422	-98
-97	2.6	0.0006	6.3897	1563.4	0.157	93.89	360.43	0.5232	2.0364	-97
-96	2.9	0.0006	5.8779	1560.8	0.170	94.95	360.91	0.5293	2.0306	-96
-95	3.2	0.0006	5.4132	1558.1	0.185	96.01	361.40	0.5352	2.0249	-95
-94	3.4	0.0006	4.9908	1555.5	0.200	97.07	361.89	0.5412	2.0194	-94
-93	3.7	0.0006	4.6064	1552.8	0.217	98.13	362.38	0.5471	2.0139	-93
-92	4.1	0.0006	4.2561	1550.2	0.235	99.20	362.87	0.5529	2.0085	-92
-91	4.4	0.0006	3.9366	1547.5	0.254	100.26	363.36	0.5588	2.0032	-91
-90	4.8	0.0006	3.6448	1544.9	0.274	101.32	363.85	0.5646	1.9980	-90
-89	5.2	0.0006	3.3780	1542.2	0.296	102.38	364.34	0.5704	1.9929	-89
-88	5.7	0.0006	3.1338	1539.6	0.319	103.44	364.83	0.5761	1.9879	-88
-87	6.1	0.0007	2.9102	1536.9	0.344	104.50	365.33	0.5818	1.9830	-87
-86	6.6	0.0007	2.7050	1534.3	0.370	105.56	365.82	0.5875	1.9781	-86
-85	7.2	0.0007	2.5167	1531.6	0.397	106.63	366.31	0.5932	1.9734	-85
-84	7.7	0.0007	2.3436	1528.9	0.427	107.69	366.80	0.5988	1.9687	-84
-83	8.3	0.0007	2.1845	1526.2	0.458	108.75	367.30	0.6044	1.9641	-83
-82	9.0	0.0007	2.0379	1523.6	0.491	109.81	367.79	0.6100	1.9596	-82
-81	9.6	0.0007	1.9028	1520.9	0.526	110.87	368.28	0.6155	1.9551	-81
-80	10.4	0.0007	1.7782	1518.2	0.562	111.94	368.77	0.6210	1.9508	-80
-79	11.1	0.0007	1.6631	1515.5	0.601	113.00	369.27	0.6265	1.9465	-79
-78	12.0	0.0007	1.5567	1512.8	0.642	114.06	369.76	0.6320	1.9422	-78
-77	12.8	0.0007	1.4584	1510.1	0.686	115.13	370.25	0.6374	1.9381	-77
-76	13.7	0.0007	1.3673	1507.4	0.731	116.19	370.75	0.6428	1.9340	-76
-75	14.7	0.0007	1.2829	1504.7	0.779	117.25	371.24	0.6482	1.9300	-75
-74	15.7	0.0007	1.2046	1502.0	0.830	118.32	371.73	0.6535	1.9260	-74
-73	16.8	0.0007	1.1320	1499.3	0.883	119.38	372.22	0.6589	1.9221	-73
-72	18.0	0.0007	1.0645	1496.6	0.939	120.45	372.72	0.6642	1.9183	-72
-71	19.2	0.0007	1.0018	1493.9	0.998	121.51	373.21	0.6695	1.9145	-71
-70	20.5	0.0007	0.9434	1491.2	1.060	122.58	373.70	0.6747	1.9108	-70
-69	21.8	0.0007	0.8891	1488.4	1.125	123.64	374.19	0.6799	1.9072	-69
-68	23.2	0.0007	0.8384	1485.7	1.193	124.71	374.68	0.6852	1.9036	-68
-67	24.7	0.0007	0.7912	1483.0	1.264	125.78	375.17	0.6903	1.9001	-67
-66	26.3	0.0007	0.7471	1480.2	1.338	126.85	375.66	0.6955	1.8966	-66
-65	27.9	0.0007	0.7060	1477.5	1.417	127.91	376.15	0.7006	1.8932	-65
-64	29.7	0.0007	0.6675	1474.7	1.498	128.98	376.64	0.7058	1.8899	-64
-63	31.5	0.0007	0.6316	1472.0	1.583	130.05	377.13	0.7108	1.8866	-63
-62	33.4	0.0007	0.5979	1469.2	1.673	131.12	377.62	0.7159	1.8833	-62
-61	35.4	0.0007	0.5664	1466.4	1.766	132.19	378.11	0.7210	1.8801	-61
-60	37.5	0.0007	0.5368	1463.7	1.863	133.27	378.59	0.7260	1.8770	-60
-59	39.7	0.0007	0.5091	1460.9	1.964	134.34	379.08	0.7310	1.8739	-59
-58	42.0	0.0007	0.4831	1458.1	2.070	135.41	379.56	0.7360	1.8708	-58
-57	44.4	0.0007	0.4587	1455.3	2.180	136.48	380.05	0.7410	1.8678	-57
-56	46.9	0.0007	0.4357	1452.5	2.295	137.56	380.53	0.7459	1.8649	-56
-55	49.6	0.0007	0.4142	1449.7	2.415	138.63	381.02	0.7509	1.8619	-55
-54	52.3	0.0007	0.3939	1446.9	2.539	139.71	381.50	0.7558	1.8591	-54
-53	55.2	0.0007	0.3748	1444.1	2.668	140.79	381.98	0.7607	1.8562	-53
-52	58.2	0.0007	0.3568	1441.3	2.803	141.87	382.46	0.7656	1.8535	-52
-51	61.3	0.0007	0.3398	1438.4	2.943	142.95	382.94	0.7704	1.8507	-51
-50	64.5	0.0007	0.3239	1435.6	3.088	144.03	383.42	0.7753	1.8480	-50
-49	67.9	0.0007	0.3088	1432.8	3.239	145.11	383.89	0.7801	1.8454	-49
-48	71.4	0.0007	0.2945	1429.9	3.395	146.19	384.37	0.7849	1.8428	-48

Thermodynamic Properties of R-22 - Saturation

Temperature (°C)	Pressure (kPA)	Volume (m ³ /kg)		Density (kg/m ³)		Enthalpy (kJ/kg)		Entropy (kJ/(kg K))		Temperature (°C)
		Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	
-47	75.1	0.0007	0.2811	1427.0	3.558	147.27	384.84	0.7897	1.8402	-47
-46	78.9	0.0007	0.2684	1424.2	3.726	148.36	385.32	0.7944	1.8376	-46
-45	82.9	0.0007	0.2564	1421.3	3.901	149.44	385.79	0.7992	1.8351	-45
-44	87.0	0.0007	0.2450	1418.4	4.082	150.53	386.26	0.8039	1.8327	-44
-43	91.3	0.0007	0.2342	1415.5	4.270	151.62	386.73	0.8087	1.8302	-43
-42	95.8	0.0007	0.2240	1412.6	4.464	152.70	387.20	0.8134	1.8278	-42
-41	100.4	0.0007	0.2144	1409.7	4.665	153.80	387.66	0.8181	1.8255	-41
-40	105.2	0.0007	0.2052	1406.8	4.873	154.89	388.13	0.8227	1.8231	-40
-39	110.2	0.0007	0.1965	1403.9	5.088	155.98	388.59	0.8274	1.8208	-39
-38	115.4	0.0007	0.1883	1401.0	5.311	157.07	389.06	0.8321	1.8186	-38
-37	120.7	0.0007	0.1805	1398.0	5.541	158.17	389.52	0.8367	1.8163	-37
-36	126.3	0.0007	0.1730	1395.1	5.779	159.27	389.97	0.8413	1.8141	-36
-35	132.0	0.0007	0.1660	1392.1	6.025	160.37	390.43	0.8459	1.8120	-35
-34	138.0	0.0007	0.1593	1389.1	6.279	161.47	390.89	0.8505	1.8098	-34
-33	144.1	0.0007	0.1529	1386.2	6.541	162.57	391.34	0.8551	1.8077	-33
-32	150.5	0.0007	0.1468	1383.2	6.811	163.67	391.79	0.8596	1.8056	-32
-31	157.1	0.0007	0.1410	1380.2	7.091	164.78	392.24	0.8642	1.8036	-31
-30	163.9	0.0007	0.1355	1377.2	7.379	165.88	392.69	0.8687	1.8015	-30
-29	170.9	0.0007	0.1303	1374.2	7.676	166.99	393.14	0.8733	1.7995	-29
-28	178.2	0.0007	0.1253	1371.1	7.982	168.10	393.58	0.8778	1.7975	-28
-27	185.7	0.0007	0.1205	1368.1	8.298	169.21	394.03	0.8823	1.7956	-27
-26	193.4	0.0007	0.1160	1365.0	8.623	170.33	394.47	0.8868	1.7937	-26
-25	201.4	0.0007	0.1116	1362.0	8.958	171.44	394.90	0.8913	1.7918	-25
-24	209.7	0.0007	0.1075	1358.9	9.304	172.56	395.34	0.8957	1.7899	-24
-23	218.2	0.0007	0.1035	1355.8	9.659	173.68	395.77	0.9002	1.7880	-23
-22	227.0	0.0007	0.0997	1352.7	10.025	174.80	396.21	0.9046	1.7862	-22
-21	236.0	0.0007	0.0961	1349.6	10.402	175.92	396.64	0.9091	1.7844	-21
-20	245.3	0.0007	0.0927	1346.5	10.790	177.04	397.06	0.9135	1.7826	-20
-19	254.9	0.0007	0.0894	1343.4	11.189	178.17	397.49	0.9179	1.7808	-19
-18	264.8	0.0007	0.0862	1340.3	11.599	179.30	397.91	0.9223	1.7791	-18
-17	275.0	0.0007	0.0832	1337.1	12.021	180.43	398.33	0.9267	1.7774	-17
-16	285.4	0.0007	0.0803	1334.0	12.455	181.56	398.75	0.9311	1.7757	-16
-15	296.2	0.0008	0.0775	1330.8	12.901	182.70	399.16	0.9354	1.7740	-15
-14	307.3	0.0008	0.0749	1327.6	13.359	183.83	399.57	0.9398	1.7723	-14
-13	318.7	0.0008	0.0723	1324.4	13.830	184.97	399.98	0.9442	1.7706	-13
-12	330.4	0.0008	0.0699	1321.2	14.314	186.11	400.39	0.9485	1.7690	-12
-11	342.4	0.0008	0.0675	1318.0	14.811	187.26	400.80	0.9528	1.7674	-11
-10	354.8	0.0008	0.0653	1314.7	15.322	188.40	401.20	0.9572	1.7658	-10
-9	367.5	0.0008	0.0631	1311.5	15.846	189.55	401.60	0.9615	1.7642	-9
-8	380.5	0.0008	0.0610	1308.2	16.384	190.70	401.99	0.9658	1.7627	-8
-7	393.9	0.0008	0.0590	1304.9	16.937	191.86	402.38	0.9701	1.7611	-7
-6	407.7	0.0008	0.0571	1301.6	17.504	193.01	402.77	0.9744	1.7596	-6
-5	421.8	0.0008	0.0553	1298.3	18.086	194.17	403.16	0.9787	1.7581	-5
-4	436.3	0.0008	0.0535	1295.0	18.683	195.33	403.55	0.9830	1.7566	-4
-3	451.1	0.0008	0.0518	1291.6	19.296	196.49	403.93	0.9872	1.7551	-3
-2	466.4	0.0008	0.0502	1288.3	19.924	197.66	404.30	0.9915	1.7536	-2
-1	482.0	0.0008	0.0486	1284.9	20.569	198.83	404.68	0.9958	1.7521	-1
0	498.0	0.0008	0.0471	1281.5	21.229	200.00	405.05	1.0000	1.7507	0
1	514.4	0.0008	0.0456	1278.1	21.907	201.17	405.42	1.0042	1.7492	1
2	531.2	0.0008	0.0442	1274.7	22.602	202.35	405.78	1.0085	1.7478	2
3	548.4	0.0008	0.0429	1271.3	23.314	203.53	406.14	1.0127	1.7464	3
4	566.1	0.0008	0.0416	1267.8	24.044	204.71	406.50	1.0169	1.7450	4
5	584.1	0.0008	0.0403	1264.3	24.792	205.90	406.85	1.0212	1.7436	5

Thermodynamic Properties of R-22 - Saturation

Temperature (°C)	Pressure (kPA)	Volume (m ³ /kg)		Density (kg/m ³)		Enthalpy (kJ/kg)		Entropy (kJ/(kg K))		Temperature (°C)
		Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	
6	602.6	0.0008	0.0391	1260.8	25.559	207.09	407.20	1.0254	1.7422	6
7	621.5	0.0008	0.0380	1257.3	26.345	208.28	407.54	1.0296	1.7409	7
8	640.9	0.0008	0.0368	1253.8	27.150	209.47	407.89	1.0338	1.7395	8
9	660.7	0.0008	0.0357	1250.3	27.975	210.67	408.22	1.0380	1.7381	9
10	681.0	0.0008	0.0347	1246.7	28.820	211.87	408.56	1.0422	1.7368	10
11	701.7	0.0008	0.0337	1243.1	29.685	213.07	408.89	1.0463	1.7355	11
12	722.9	0.0008	0.0327	1239.5	30.572	214.28	409.21	1.0505	1.7341	12
13	744.5	0.0008	0.0318	1235.9	31.480	215.49	409.53	1.0547	1.7328	13
14	766.7	0.0008	0.0309	1232.2	32.410	216.70	409.85	1.0589	1.7315	14
15	789.3	0.0008	0.0300	1228.6	33.362	217.92	410.16	1.0630	1.7302	15
16	812.4	0.0008	0.0291	1224.9	34.337	219.14	410.47	1.0672	1.7289	16
17	836.1	0.0008	0.0283	1221.2	35.336	220.36	410.78	1.0714	1.7276	17
18	860.2	0.0008	0.0275	1217.4	36.358	221.59	411.07	1.0755	1.7263	18
19	884.9	0.0008	0.0267	1213.7	37.405	222.82	411.37	1.0797	1.7250	19
20	910.0	0.0008	0.0260	1209.9	38.477	224.06	411.66	1.0838	1.7238	20
21	935.7	0.0008	0.0253	1206.1	39.575	225.30	411.94	1.0880	1.7225	21
22	962.0	0.0008	0.0246	1202.3	40.698	226.54	412.22	1.0921	1.7212	22
23	988.7	0.0008	0.0239	1198.4	41.849	227.78	412.50	1.0962	1.7199	23
24	1016.0	0.0008	0.0232	1194.6	43.027	229.04	412.77	1.1004	1.7187	24
25	1043.9	0.0008	0.0226	1190.7	44.232	230.29	413.03	1.1045	1.7174	25
26	1072.4	0.0008	0.0220	1186.7	45.467	231.55	413.29	1.1086	1.7162	26
27	1101.4	0.0008	0.0214	1182.8	46.730	232.81	413.54	1.1128	1.7149	27
28	1130.9	0.0008	0.0208	1178.8	48.024	234.08	413.79	1.1169	1.7136	28
29	1161.1	0.0009	0.0203	1174.8	49.349	235.35	414.03	1.1210	1.7124	29
30	1191.9	0.0009	0.0197	1170.7	50.705	236.62	414.26	1.1252	1.7111	30
31	1223.2	0.0009	0.0192	1166.7	52.093	237.90	414.49	1.1293	1.7099	31
32	1255.2	0.0009	0.0187	1162.6	53.515	239.19	414.71	1.1334	1.7086	32
33	1287.8	0.0009	0.0182	1158.4	54.971	240.48	414.93	1.1375	1.7074	33
34	1321.0	0.0009	0.0177	1154.3	56.461	241.77	415.14	1.1417	1.7061	34
35	1354.8	0.0009	0.0172	1150.1	57.988	243.07	415.34	1.1458	1.7048	35
36	1389.2	0.0009	0.0168	1145.8	59.551	244.38	415.54	1.1499	1.7036	36
37	1424.3	0.0009	0.0164	1141.6	61.152	245.69	415.72	1.1541	1.7023	37
38	1460.1	0.0009	0.0159	1137.3	62.792	247.00	415.91	1.1582	1.7010	38
39	1496.5	0.0009	0.0155	1132.9	64.472	248.32	416.08	1.1623	1.6998	39
40	1533.6	0.0009	0.0151	1128.5	66.193	249.65	416.25	1.1665	1.6985	40
41	1571.3	0.0009	0.0147	1124.1	67.956	250.98	416.40	1.1706	1.6972	41
42	1609.8	0.0009	0.0143	1119.6	69.762	252.32	416.55	1.1747	1.6959	42
43	1648.9	0.0009	0.0140	1115.1	71.614	253.66	416.70	1.1789	1.6946	43
44	1688.7	0.0009	0.0136	1110.6	73.511	255.01	416.83	1.1830	1.6933	44
45	1729.2	0.0009	0.0133	1106.0	75.457	256.36	416.95	1.1872	1.6919	45
46	1770.4	0.0009	0.0129	1101.4	77.451	257.73	417.07	1.1913	1.6906	46
47	1812.4	0.0009	0.0126	1096.7	79.496	259.10	417.18	1.1955	1.6893	47
48	1855.1	0.0009	0.0123	1091.9	81.593	260.47	417.27	1.1997	1.6879	48
49	1898.5	0.0009	0.0119	1087.1	83.745	261.85	417.36	1.2038	1.6866	49
50	1942.7	0.0009	0.0116	1082.3	85.952	263.25	417.44	1.2080	1.6852	50
51	1987.6	0.0009	0.0113	1077.4	88.217	264.64	417.50	1.2122	1.6838	51
52	2033.3	0.0009	0.0110	1072.4	90.542	266.05	417.56	1.2164	1.6824	52
53	2079.8	0.0009	0.0108	1067.4	92.929	267.46	417.60	1.2206	1.6810	53
54	2127.0	0.0009	0.0105	1062.3	95.381	268.89	417.63	1.2248	1.6795	54
55	2175.1	0.0009	0.0102	1057.2	97.899	270.32	417.65	1.2291	1.6781	55
56	2223.9	0.0010	0.0100	1052.0	100.490	271.76	417.66	1.2333	1.6766	56
57	2273.6	0.0010	0.0097	1046.7	103.150	273.21	417.65	1.2376	1.6751	57
58	2324.0	0.0010	0.0094	1041.3	105.880	274.66	417.63	1.2418	1.6736	58

Thermodynamic Properties of R-22 - Saturation

Temperature (°C)	Pressure (kPA)	Volume (m ³ /kg)		Density (kg/m ³)		Enthalpy (kJ/kg)		Entropy (kJ/(kg K))		Temperature (°C)
		Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	
59	2375.3	0.0010	0.0092	1035.9	108.700	276.13	417.60	1.2461	1.6720	59
60	2427.5	0.0010	0.0090	1030.4	111.590	277.61	417.55	1.2504	1.6705	60
61	2480.5	0.0010	0.0087	1024.8	114.570	279.10	417.49	1.2547	1.6689	61
62	2534.3	0.0010	0.0085	1019.1	117.640	280.60	417.41	1.2591	1.6672	62
63	2589.1	0.0010	0.0083	1013.3	120.810	282.12	417.31	1.2634	1.6656	63
64	2644.7	0.0010	0.0081	1007.4	124.070	283.64	417.20	1.2678	1.6639	64
65	2701.2	0.0010	0.0078	1001.4	127.430	285.18	417.06	1.2722	1.6622	65
66	2758.6	0.0010	0.0076	995.3	130.900	286.74	416.91	1.2766	1.6604	66
67	2816.9	0.0010	0.0074	989.1	134.490	288.30	416.74	1.2810	1.6586	67
68	2876.1	0.0010	0.0072	982.8	138.190	289.88	416.55	1.2855	1.6568	68
69	2936.3	0.0010	0.0070	976.3	142.020	291.48	416.33	1.2900	1.6549	69
70	2997.4	0.0010	0.0068	969.7	145.990	293.10	416.09	1.2945	1.6529	70
71	3059.5	0.0010	0.0067	963.0	150.100	294.73	415.83	1.2991	1.6510	71
72	3122.5	0.0010	0.0065	956.1	154.360	296.38	415.54	1.3037	1.6489	72
73	3186.6	0.0011	0.0063	949.0	158.780	298.05	415.22	1.3083	1.6468	73
74	3251.6	0.0011	0.0061	941.8	163.380	299.74	414.87	1.3130	1.6446	74
75	3317.7	0.0011	0.0059	934.4	168.160	301.46	414.49	1.3177	1.6424	75
76	3384.8	0.0011	0.0058	926.7	173.140	303.20	414.08	1.3225	1.6401	76
77	3452.9	0.0011	0.0056	918.9	178.330	304.96	413.62	1.3273	1.6377	77
78	3522.2	0.0011	0.0054	910.8	183.760	306.76	413.13	1.3322	1.6352	78
79	3592.4	0.0011	0.0053	902.4	189.440	308.58	412.60	1.3372	1.6326	79
80	3663.8	0.0011	0.0051	893.7	195.400	310.44	412.01	1.3423	1.6299	80
81	3736.3	0.0011	0.0050	884.8	201.670	312.34	411.38	1.3474	1.6270	81
82	3809.9	0.0011	0.0048	875.4	208.280	314.27	410.68	1.3526	1.6241	82
83	3884.7	0.0012	0.0046	865.7	215.260	316.25	409.93	1.3579	1.6210	83
84	3960.6	0.0012	0.0045	855.5	222.670	318.29	409.10	1.3634	1.6177	84
85	4037.8	0.0012	0.0043	844.8	230.560	320.38	408.19	1.3690	1.6142	85
86	4116.1	0.0012	0.0042	833.6	239.000	322.54	407.18	1.3747	1.6104	86
87	4195.7	0.0012	0.0040	821.6	248.090	324.77	406.07	1.3807	1.6064	87
88	4276.6	0.0012	0.0039	808.8	257.940	327.09	404.83	1.3869	1.6021	88
89	4358.8	0.0013	0.0037	795.1	268.720	329.52	403.45	1.3933	1.5974	89
90	4442.3	0.0013	0.0036	780.1	280.630	332.09	401.87	1.4001	1.5922	90
91	4527.2	0.0013	0.0034	763.6	294.000	334.82	400.05	1.4073	1.5864	91
92	4613.6	0.0013	0.0032	745.1	309.330	337.77	397.92	1.4151	1.5798	92
93	4701.5	0.0014	0.0031	723.7	327.480	341.04	395.33	1.4237	1.5720	93
94	4791.1	0.0014	0.0029	697.8	350.190	344.80	392.02	1.4336	1.5622	94
95	4882.4	0.0015	0.0026	662.9	382.040	349.56	387.28	1.4462	1.5486	95
96	4976.1	0.0017	0.0022	590.2	453.650	358.66	376.60	1.4704	1.5191	96