



# Forane<sup>®</sup> 22

## Thermodynamic Properties (Saturation) - ENG

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 (°F)	Pressure (psia)	Volume (ft <sup>3</sup> /lb)		Density (lb/ft <sup>3</sup> )		Enthalpy (Btu/lb)		Entropy (Btu/(lb °R))		Temperature (°F)
		Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	
-150	0.263	0.01018	146.06	98.28	0.00685	38.52	154.20	0.11907	0.49264	-150
-149	0.277	0.01019	139.04	98.19	0.00719	38.77	154.32	0.11989	0.49181	-149
-148	0.292	0.01019	132.41	98.09	0.00755	39.02	154.43	0.12070	0.49099	-148
-147	0.307	0.01020	126.14	98.00	0.00793	39.28	154.55	0.12151	0.49018	-147
-146	0.323	0.01021	120.22	97.91	0.00832	39.53	154.66	0.12232	0.48938	-146
-145	0.340	0.01022	114.61	97.82	0.00873	39.78	154.78	0.12313	0.48858	-145
-144	0.358	0.01023	109.31	97.73	0.00915	40.04	154.90	0.12394	0.48780	-144
-143	0.376	0.01024	104.29	97.64	0.00959	40.29	155.01	0.12474	0.48701	-143
-142	0.395	0.01025	99.53	97.55	0.01005	40.54	155.13	0.12554	0.48624	-142
-141	0.415	0.01026	95.03	97.45	0.01052	40.80	155.25	0.12633	0.48548	-141
-140	0.436	0.01027	90.76	97.36	0.01102	41.05	155.36	0.12713	0.48472	-140
-139	0.458	0.01028	86.71	97.27	0.01153	41.31	155.48	0.12792	0.48397	-139
-138	0.480	0.01029	82.87	97.18	0.01207	41.56	155.60	0.12871	0.48323	-138
-137	0.504	0.01030	79.23	97.09	0.01262	41.81	155.71	0.12950	0.48249	-137
-136	0.528	0.01031	75.78	97.00	0.01320	42.07	155.83	0.13028	0.48176	-136
-135	0.554	0.01032	72.50	96.90	0.01379	42.32	155.95	0.13106	0.48104	-135
-134	0.581	0.01033	69.38	96.81	0.01441	42.57	156.06	0.13184	0.48033	-134
-133	0.608	0.01034	66.42	96.72	0.01506	42.83	156.18	0.13262	0.47962	-133
-132	0.637	0.01035	63.60	96.63	0.01572	43.08	156.30	0.13340	0.47892	-132
-131	0.667	0.01036	60.93	96.54	0.01641	43.33	156.42	0.13417	0.47823	-131
-130	0.698	0.01037	58.38	96.44	0.01713	43.59	156.53	0.13494	0.47754	-130
-129	0.730	0.01038	55.96	96.35	0.01787	43.84	156.65	0.13571	0.47686	-129
-128	0.764	0.01039	53.66	96.26	0.01864	44.10	156.77	0.13647	0.47619	-128
-127	0.799	0.01040	51.47	96.17	0.01943	44.35	156.88	0.13724	0.47552	-127
-126	0.835	0.01041	49.38	96.08	0.02025	44.60	157.00	0.13800	0.47486	-126
-125	0.873	0.01042	47.39	95.98	0.02110	44.86	157.12	0.13876	0.47420	-125
-124	0.911	0.01043	45.49	95.89	0.02198	45.11	157.24	0.13952	0.47356	-124
-123	0.952	0.01044	43.68	95.80	0.02289	45.36	157.36	0.14027	0.47291	-123
-122	0.994	0.01045	41.96	95.71	0.02383	45.62	157.47	0.14102	0.47228	-122
-121	1.037	0.01046	40.31	95.61	0.02481	45.87	157.59	0.14177	0.47165	-121
-120	1.082	0.01047	38.75	95.52	0.02581	46.13	157.71	0.14252	0.47102	-120
-119	1.129	0.01048	37.25	95.43	0.02685	46.38	157.83	0.14327	0.47041	-119
-118	1.177	0.01049	35.82	95.34	0.02792	46.63	157.94	0.14401	0.46979	-118
-117	1.227	0.01050	34.45	95.24	0.02903	46.89	158.06	0.14475	0.46919	-117
-116	1.279	0.01051	33.15	95.15	0.03017	47.14	158.18	0.14549	0.46859	-116
-115	1.332	0.01052	31.90	95.06	0.03135	47.39	158.30	0.14623	0.46799	-115
-114	1.388	0.01053	30.71	94.96	0.03256	47.65	158.41	0.14696	0.46740	-114
-113	1.445	0.01054	29.57	94.87	0.03382	47.90	158.53	0.14770	0.46682	-113
-112	1.504	0.01055	28.48	94.78	0.03511	48.16	158.65	0.14843	0.46624	-112
-111	1.566	0.01056	27.44	94.69	0.03644	48.41	158.77	0.14916	0.46567	-111
-110	1.629	0.01057	26.44	94.59	0.03782	48.66	158.89	0.14988	0.46510	-110
-109	1.695	0.01058	25.49	94.50	0.03923	48.92	159.00	0.15061	0.46454	-109
-108	1.762	0.01059	24.58	94.41	0.04069	49.17	159.12	0.15133	0.46398	-108
-107	1.832	0.01060	23.70	94.31	0.04219	49.43	159.24	0.15205	0.46343	-107
-106	1.904	0.01061	22.86	94.22	0.04374	49.68	159.36	0.15277	0.46288	-106
-105	1.979	0.01062	22.06	94.13	0.04533	49.94	159.48	0.15349	0.46234	-105
-104	2.055	0.01064	21.29	94.03	0.04697	50.19	159.59	0.15421	0.46180	-104
-103	2.135	0.01065	20.55	93.94	0.04866	50.44	159.71	0.15492	0.46127	-103
-102	2.217	0.01066	19.84	93.84	0.05040	50.70	159.83	0.15563	0.46075	-102
-101	2.301	0.01067	19.16	93.75	0.05219	50.95	159.95	0.15634	0.46022	-101
-100	2.388	0.01068	18.51	93.66	0.05402	51.21	160.06	0.15705	0.45971	-100
-99	2.478	0.01069	17.89	93.56	0.05591	51.46	160.18	0.15776	0.45920	-99
-98	2.570	0.01070	17.29	93.47	0.05785	51.72	160.30	0.15846	0.45869	-98

**Thermodynamic Properties of R-22 - Saturation**

Temperature (°F)	Pressure (psia)	Volume (ft <sup>3</sup> /lb)		Density (lb/ft <sup>3</sup> )		Enthalpy (Btu/lb)		Entropy (Btu/(lb °R))		Temperature (°F)
		Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	
-97	2.665	0.01071	16.71	93.37	0.05985	51.97	160.42	0.15916	0.45818	-97
-96	2.764	0.01072	16.16	93.28	0.06190	52.23	160.53	0.15986	0.45769	-96
-95	2.865	0.01073	15.62	93.19	0.06401	52.48	160.65	0.16056	0.45719	-95
-94	2.969	0.01074	15.11	93.09	0.06617	52.74	160.77	0.16126	0.45670	-94
-93	3.076	0.01075	14.62	93.00	0.06840	52.99	160.89	0.16195	0.45622	-93
-92	3.186	0.01076	14.15	92.90	0.07068	53.24	161.00	0.16265	0.45574	-92
-91	3.300	0.01078	13.70	92.81	0.07302	53.50	161.12	0.16334	0.45526	-91
-90	3.417	0.01079	13.26	92.71	0.07543	53.75	161.24	0.16403	0.45479	-90
-89	3.537	0.01080	12.84	92.62	0.07790	54.01	161.36	0.16472	0.45432	-89
-88	3.661	0.01081	12.43	92.52	0.08043	54.26	161.47	0.16540	0.45386	-88
-87	3.788	0.01082	12.04	92.43	0.08303	54.52	161.59	0.16609	0.45340	-87
-86	3.919	0.01083	11.67	92.33	0.08569	54.78	161.71	0.16677	0.45294	-86
-85	4.053	0.01084	11.31	92.24	0.08843	55.03	161.82	0.16745	0.45249	-85
-84	4.191	0.01085	10.96	92.14	0.09123	55.29	161.94	0.16814	0.45204	-84
-83	4.333	0.01086	10.63	92.05	0.09410	55.54	162.06	0.16881	0.45160	-83
-82	4.479	0.01088	10.30	91.95	0.09705	55.80	162.18	0.16949	0.45116	-82
-81	4.629	0.01089	9.994	91.85	0.10007	56.05	162.29	0.17017	0.45073	-81
-80	4.782	0.01090	9.694	91.76	0.10316	56.31	162.41	0.17084	0.45029	-80
-79	4.940	0.01091	9.405	91.66	0.10633	56.56	162.53	0.17151	0.44987	-79
-78	5.102	0.01092	9.127	91.57	0.10957	56.82	162.64	0.17218	0.44944	-78
-77	5.269	0.01093	8.858	91.47	0.11289	57.08	162.76	0.17285	0.44902	-77
-76	5.440	0.01094	8.599	91.37	0.11630	57.33	162.87	0.17352	0.44861	-76
-75	5.615	0.01096	8.349	91.28	0.11978	57.59	162.99	0.17418	0.44819	-75
-74	5.795	0.01097	8.107	91.18	0.12335	57.85	163.11	0.17485	0.44778	-74
-73	5.979	0.01098	7.874	91.09	0.12700	58.10	163.22	0.17551	0.44738	-73
-72	6.168	0.01099	7.649	90.99	0.13073	58.36	163.34	0.17617	0.44698	-72
-71	6.362	0.01100	7.432	90.89	0.13455	58.61	163.45	0.17683	0.44658	-71
-70	6.561	0.01101	7.222	90.79	0.13846	58.87	163.57	0.17749	0.44618	-70
-69	6.764	0.01103	7.020	90.70	0.14246	59.13	163.69	0.17815	0.44579	-69
-68	6.973	0.01104	6.824	90.60	0.14655	59.39	163.80	0.17881	0.44540	-68
-67	7.187	0.01105	6.634	90.50	0.15073	59.64	163.92	0.17946	0.44501	-67
-66	7.406	0.01106	6.451	90.41	0.15501	59.90	164.03	0.18011	0.44463	-66
-65	7.631	0.01107	6.274	90.31	0.15938	60.16	164.15	0.18077	0.44425	-65
-64	7.861	0.01109	6.103	90.21	0.16385	60.41	164.26	0.18142	0.44388	-64
-63	8.096	0.01110	5.938	90.11	0.16841	60.67	164.38	0.18206	0.44351	-63
-62	8.337	0.01111	5.778	90.01	0.17308	60.93	164.49	0.18271	0.44314	-62
-61	8.584	0.01112	5.623	89.92	0.17785	61.19	164.61	0.18336	0.44277	-61
-60	8.836	0.01113	5.473	89.82	0.18272	61.45	164.72	0.18400	0.44241	-60
-59	9.095	0.01115	5.328	89.72	0.18769	61.70	164.84	0.18465	0.44205	-59
-58	9.359	0.01116	5.188	89.62	0.19277	61.96	164.95	0.18529	0.44169	-58
-57	9.630	0.01117	5.052	89.52	0.19796	62.22	165.06	0.18593	0.44134	-57
-56	9.907	0.01118	4.920	89.42	0.20325	62.48	165.18	0.18657	0.44098	-56
-55	10.19	0.01120	4.792	89.33	0.20866	62.74	165.29	0.18721	0.44064	-55
-54	10.48	0.01121	4.669	89.23	0.21418	63.00	165.40	0.18784	0.44029	-54
-53	10.78	0.01122	4.549	89.13	0.21982	63.25	165.52	0.18848	0.43995	-53
-52	11.08	0.01123	4.433	89.03	0.22557	63.51	165.63	0.18912	0.43961	-52
-51	11.39	0.01125	4.321	88.93	0.23143	63.77	165.74	0.18975	0.43927	-51
-50	11.70	0.01126	4.212	88.83	0.23742	64.03	165.86	0.19038	0.43894	-50
-49	12.03	0.01127	4.106	88.73	0.24353	64.29	165.97	0.19101	0.43861	-49
-48	12.36	0.01128	4.004	88.63	0.24976	64.55	166.08	0.19164	0.43828	-48
-47	12.69	0.01130	3.905	88.53	0.25611	64.81	166.20	0.19227	0.43795	-47
-46	13.04	0.01131	3.808	88.43	0.26259	65.07	166.31	0.19290	0.43763	-46
-45	13.39	0.01132	3.715	88.33	0.26920	65.33	166.42	0.19352	0.43731	-45

**Thermodynamic Properties of R-22 - Saturation**

Temperature (°F)	Pressure (psia)	Volume (ft <sup>3</sup> /lb)		Density (lb/ft <sup>3</sup> )		Enthalpy (Btu/lb)		Entropy (Btu/(lb °R))		Temperature (°F)
		Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	
-44	13.75	0.01133	3.624	88.23	0.27593	65.59	166.53	0.19415	0.43699	-44
-43	14.12	0.01135	3.536	88.13	0.28280	65.85	166.64	0.19477	0.43667	-43
-42	14.49	0.01136	3.451	88.03	0.28980	66.11	166.75	0.19540	0.43636	-42
-41	14.87	0.01137	3.368	87.93	0.29694	66.37	166.87	0.19602	0.43605	-41
-40	15.26	0.01139	3.287	87.82	0.30421	66.63	166.98	0.19664	0.43574	-40
-39	15.66	0.01140	3.209	87.72	0.31162	66.90	167.09	0.19726	0.43543	-39
-38	16.07	0.01141	3.133	87.62	0.31917	67.16	167.20	0.19788	0.43513	-38
-37	16.48	0.01143	3.059	87.52	0.32686	67.42	167.31	0.19849	0.43483	-37
-36	16.91	0.01144	2.988	87.42	0.33470	67.68	167.42	0.19911	0.43453	-36
-35	17.34	0.01145	2.918	87.32	0.34268	67.94	167.53	0.19973	0.43423	-35
-34	17.78	0.01147	2.851	87.21	0.35081	68.20	167.64	0.20034	0.43394	-34
-33	18.23	0.01148	2.785	87.11	0.35909	68.47	167.75	0.20095	0.43365	-33
-32	18.68	0.01149	2.721	87.01	0.36753	68.73	167.86	0.20157	0.43336	-32
-31	19.15	0.01151	2.659	86.91	0.37611	68.99	167.97	0.20218	0.43307	-31
-30	19.62	0.01152	2.598	86.80	0.38485	69.25	168.08	0.20279	0.43278	-30
-29	20.11	0.01153	2.540	86.70	0.39375	69.52	168.19	0.20340	0.43250	-29
-28	20.60	0.01155	2.483	86.60	0.40281	69.78	168.29	0.20400	0.43222	-28
-27	21.11	0.01156	2.427	86.49	0.41203	70.04	168.40	0.20461	0.43194	-27
-26	21.62	0.01158	2.373	86.39	0.42141	70.31	168.51	0.20522	0.43166	-26
-25	22.14	0.01159	2.320	86.29	0.43096	70.57	168.62	0.20582	0.43139	-25
-24	22.68	0.01160	2.269	86.18	0.44068	70.84	168.73	0.20643	0.43112	-24
-23	23.22	0.01162	2.219	86.08	0.45057	71.10	168.83	0.20703	0.43084	-23
-22	23.77	0.01163	2.171	85.97	0.46063	71.36	168.94	0.20763	0.43058	-22
-21	24.33	0.01165	2.124	85.87	0.47086	71.63	169.05	0.20823	0.43031	-21
-20	24.91	0.01166	2.078	85.77	0.48127	71.89	169.15	0.20883	0.43004	-20
-19	25.49	0.01167	2.033	85.66	0.49185	72.16	169.26	0.20943	0.42978	-19
-18	26.08	0.01169	1.990	85.56	0.50262	72.43	169.37	0.21003	0.42952	-18
-17	26.69	0.01170	1.947	85.45	0.51357	72.69	169.47	0.21063	0.42926	-17
-16	27.30	0.01172	1.906	85.34	0.52471	72.96	169.58	0.21123	0.42900	-16
-15	27.93	0.01173	1.866	85.24	0.53603	73.22	169.68	0.21182	0.42875	-15
-14	28.57	0.01175	1.826	85.13	0.54754	73.49	169.79	0.21242	0.42849	-14
-13	29.22	0.01176	1.788	85.03	0.55925	73.76	169.89	0.21301	0.42824	-13
-12	29.88	0.01178	1.751	84.92	0.57114	74.02	170.00	0.21361	0.42799	-12
-11	30.55	0.01179	1.715	84.81	0.58324	74.29	170.10	0.21420	0.42774	-11
-10	31.23	0.01181	1.679	84.71	0.59553	74.56	170.20	0.21479	0.42750	-10
-9	31.93	0.01182	1.645	84.60	0.60802	74.82	170.31	0.21538	0.42725	-9
-8	32.63	0.01184	1.611	84.49	0.62072	75.09	170.41	0.21597	0.42701	-8
-7	33.35	0.01185	1.578	84.39	0.63362	75.36	170.51	0.21656	0.42677	-7
-6	34.08	0.01187	1.546	84.28	0.64673	75.63	170.62	0.21715	0.42653	-6
-5	34.82	0.01188	1.515	84.17	0.66005	75.90	170.72	0.21774	0.42629	-5
-4	35.58	0.01190	1.485	84.06	0.67358	76.17	170.82	0.21833	0.42605	-4
-3	36.35	0.01191	1.455	83.95	0.68733	76.44	170.92	0.21891	0.42582	-3
-2	37.13	0.01193	1.426	83.84	0.70130	76.71	171.02	0.21950	0.42558	-2
-1	37.92	0.01194	1.398	83.74	0.71548	76.97	171.12	0.22008	0.42535	-1
0	38.73	0.01196	1.370	83.63	0.72989	77.24	171.23	0.22067	0.42512	0
1	39.55	0.01197	1.343	83.52	0.74453	77.51	171.33	0.22125	0.42489	1
2	40.38	0.01199	1.317	83.41	0.75939	77.79	171.43	0.22183	0.42466	2
3	41.23	0.01201	1.291	83.30	0.77449	78.06	171.53	0.22241	0.42444	3
4	42.09	0.01202	1.266	83.19	0.78981	78.33	171.62	0.22299	0.42421	4
5	42.96	0.01204	1.242	83.08	0.80538	78.60	171.72	0.22358	0.42399	5
6	43.85	0.01205	1.218	82.97	0.82118	78.87	171.82	0.22415	0.42377	6
7	44.75	0.01207	1.194	82.86	0.83722	79.14	171.92	0.22473	0.42355	7
8	45.66	0.01209	1.172	82.75	0.85351	79.41	172.02	0.22531	0.42333	8

**Thermodynamic Properties of R-22 - Saturation**

Temperature (°F)	Pressure (psia)	Volume (ft <sup>3</sup> /lb)		Density (lb/ft <sup>3</sup> )		Enthalpy (Btu/lb)		Entropy (Btu/(lb °R))		Temperature (°F)
		Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	
9	46.59	0.01210	1.149	82.64	0.87004	79.69	172.12	0.22589	0.42311	9
10	47.54	0.01212	1.128	82.52	0.88683	79.96	172.21	0.22647	0.42289	10
11	48.49	0.01213	1.106	82.41	0.90387	80.23	172.31	0.22704	0.42268	11
12	49.47	0.01215	1.086	82.30	0.92116	80.51	172.41	0.22762	0.42246	12
13	50.46	0.01217	1.065	82.19	0.93871	80.78	172.50	0.22819	0.42225	13
14	51.46	0.01218	1.046	82.08	0.95652	81.05	172.60	0.22877	0.42204	14
15	52.48	0.01220	1.026	81.96	0.97460	81.33	172.69	0.22934	0.42183	15
16	53.51	0.01222	1.007	81.85	0.99294	81.60	172.79	0.22992	0.42162	16
17	54.56	0.01224	0.989	81.74	1.0116	81.88	172.88	0.23049	0.42141	17
18	55.62	0.01225	0.970	81.62	1.0304	82.15	172.98	0.23106	0.42120	18
19	56.70	0.01227	0.953	81.51	1.0496	82.43	173.07	0.23163	0.42100	19
20	57.80	0.01229	0.935	81.39	1.0690	82.70	173.17	0.23220	0.42079	20
21	58.91	0.01230	0.918	81.28	1.0888	82.98	173.26	0.23277	0.42059	21
22	60.03	0.01232	0.902	81.17	1.1088	83.26	173.35	0.23334	0.42039	22
23	61.18	0.01234	0.886	81.05	1.1291	83.53	173.44	0.23391	0.42019	23
24	62.34	0.01236	0.870	80.94	1.1497	83.81	173.54	0.23448	0.41999	24
25	63.51	0.01237	0.854	80.82	1.1706	84.09	173.63	0.23505	0.41979	25
26	64.71	0.01239	0.839	80.70	1.1917	84.37	173.72	0.23561	0.41959	26
27	65.92	0.01241	0.824	80.59	1.2132	84.65	173.81	0.23618	0.41939	27
28	67.15	0.01243	0.810	80.47	1.2350	84.92	173.90	0.23675	0.41920	28
29	68.39	0.01245	0.795	80.35	1.2571	85.20	173.99	0.23731	0.41900	29
30	69.65	0.01246	0.782	80.24	1.2795	85.48	174.08	0.23788	0.41881	30
31	70.93	0.01248	0.768	80.12	1.3023	85.76	174.17	0.23844	0.41861	31
32	72.23	0.01250	0.755	80.00	1.3253	86.04	174.26	0.23901	0.41842	32
33	73.54	0.01252	0.741	79.88	1.3487	86.32	174.34	0.23957	0.41823	33
34	74.87	0.01254	0.729	79.77	1.3724	86.60	174.43	0.24013	0.41804	34
35	76.23	0.01256	0.716	79.65	1.3964	86.88	174.52	0.24070	0.41785	35
36	77.59	0.01257	0.704	79.53	1.4208	87.17	174.60	0.24126	0.41766	36
37	78.98	0.01259	0.692	79.41	1.4455	87.45	174.69	0.24182	0.41748	37
38	80.39	0.01261	0.680	79.29	1.4705	87.73	174.78	0.24238	0.41729	38
39	81.81	0.01263	0.668	79.17	1.4959	88.01	174.86	0.24294	0.41710	39
40	83.26	0.01265	0.657	79.05	1.5216	88.30	174.95	0.24350	0.41692	40
41	84.72	0.01267	0.646	78.93	1.5477	88.58	175.03	0.24406	0.41673	41
42	86.20	0.01269	0.635	78.81	1.5742	88.86	175.11	0.24462	0.41655	42
43	87.70	0.01271	0.625	78.69	1.6010	89.15	175.20	0.24518	0.41637	43
44	89.22	0.01273	0.614	78.57	1.6282	89.43	175.28	0.24574	0.41618	44
45	90.76	0.01275	0.604	78.44	1.6557	89.72	175.36	0.24630	0.41600	45
46	92.32	0.01277	0.594	78.32	1.6836	90.00	175.44	0.24685	0.41582	46
47	93.90	0.01279	0.584	78.20	1.7119	90.29	175.53	0.24741	0.41564	47
48	95.50	0.01281	0.575	78.08	1.7406	90.58	175.61	0.24797	0.41546	48
49	97.12	0.01283	0.565	77.95	1.7697	90.86	175.69	0.24852	0.41528	49
50	98.76	0.01285	0.556	77.83	1.7991	91.15	175.77	0.24908	0.41510	50
51	100.4	0.01287	0.547	77.70	1.8290	91.44	175.84	0.24964	0.41493	51
52	102.1	0.01289	0.538	77.58	1.8593	91.72	175.92	0.25019	0.41475	52
53	103.8	0.01291	0.529	77.46	1.8899	92.01	176.00	0.25075	0.41457	53
54	105.5	0.01293	0.521	77.33	1.9210	92.30	176.08	0.25130	0.41440	54
55	107.3	0.01295	0.512	77.20	1.9525	92.59	176.16	0.25186	0.41422	55
56	109.1	0.01297	0.504	77.08	1.9844	92.88	176.23	0.25241	0.41405	56
57	110.8	0.01300	0.496	76.95	2.0167	93.17	176.31	0.25296	0.41387	57
58	112.7	0.01302	0.488	76.82	2.0495	93.46	176.38	0.25352	0.41370	58
59	114.5	0.01304	0.480	76.70	2.0827	93.75	176.46	0.25407	0.41353	59
60	116.3	0.01306	0.473	76.57	2.1164	94.04	176.53	0.25462	0.41335	60
61	118.2	0.01308	0.465	76.44	2.1505	94.34	176.60	0.25518	0.41318	61

**Thermodynamic Properties of R-22 - Saturation**

Temperature (°F)	Pressure (psia)	Volume (ft <sup>3</sup> /lb)		Density (lb/ft <sup>3</sup> )		Enthalpy (Btu/lb)		Entropy (Btu/(lb °R))		Temperature (°F)
		Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	
62	120.1	0.01310	0.458	76.31	2.1850	94.63	176.68	0.25573	0.41301	62
63	122.0	0.01313	0.450	76.18	2.2200	94.92	176.75	0.25628	0.41284	63
64	124.0	0.01315	0.443	76.05	2.2555	95.21	176.82	0.25683	0.41267	64
65	125.9	0.01317	0.436	75.92	2.2914	95.51	176.89	0.25738	0.41250	65
66	127.9	0.01319	0.430	75.79	2.3278	95.80	176.96	0.25793	0.41233	66
67	130.0	0.01322	0.423	75.66	2.3647	96.10	177.03	0.25849	0.41216	67
68	132.0	0.01324	0.416	75.53	2.4021	96.39	177.10	0.25904	0.41199	68
69	134.1	0.01326	0.410	75.40	2.4399	96.69	177.17	0.25959	0.41182	69
70	136.1	0.01329	0.404	75.27	2.4783	96.98	177.24	0.26014	0.41165	70
71	138.2	0.01331	0.397	75.14	2.5172	97.28	177.30	0.26069	0.41148	71
72	140.4	0.01333	0.391	75.00	2.5565	97.58	177.37	0.26124	0.41131	72
73	142.5	0.01336	0.385	74.87	2.5964	97.88	177.43	0.26179	0.41114	73
74	144.7	0.01338	0.379	74.74	2.6369	98.18	177.50	0.26234	0.41098	74
75	146.9	0.01341	0.373	74.60	2.6778	98.47	177.56	0.26289	0.41081	75
76	149.2	0.01343	0.368	74.47	2.7193	98.77	177.63	0.26343	0.41064	76
77	151.4	0.01345	0.362	74.33	2.7613	99.07	177.69	0.26398	0.41047	77
78	153.7	0.01348	0.357	74.19	2.8039	99.37	177.75	0.26453	0.41031	78
79	156.0	0.01350	0.351	74.06	2.8471	99.67	177.81	0.26508	0.41014	79
80	158.3	0.01353	0.346	73.92	2.8908	99.98	177.87	0.26563	0.40997	80
81	160.7	0.01355	0.341	73.78	2.9351	100.28	177.93	0.26618	0.40980	81
82	163.1	0.01358	0.336	73.65	2.9799	100.58	177.99	0.26673	0.40964	82
83	165.5	0.01360	0.331	73.51	3.0254	100.88	178.05	0.26727	0.40947	83
84	167.9	0.01363	0.326	73.37	3.0715	101.19	178.11	0.26782	0.40930	84
85	170.4	0.01366	0.321	73.23	3.1181	101.49	178.16	0.26837	0.40914	85
86	172.9	0.01368	0.316	73.09	3.1654	101.80	178.22	0.26892	0.40897	86
87	175.4	0.01371	0.311	72.95	3.2133	102.10	178.27	0.26947	0.40880	87
88	177.9	0.01374	0.307	72.80	3.2618	102.41	178.33	0.27002	0.40864	88
89	180.5	0.01376	0.302	72.66	3.3110	102.72	178.38	0.27056	0.40847	89
90	183.1	0.01379	0.298	72.52	3.3608	103.02	178.43	0.27111	0.40830	90
91	185.7	0.01382	0.293	72.38	3.4113	103.33	178.49	0.27166	0.40814	91
92	188.4	0.01384	0.289	72.23	3.4625	103.64	178.54	0.27221	0.40797	92
93	191.1	0.01387	0.285	72.09	3.5143	103.95	178.59	0.27276	0.40780	93
94	193.8	0.01390	0.280	71.94	3.5668	104.26	178.64	0.27330	0.40763	94
95	196.5	0.01393	0.276	71.80	3.6201	104.57	178.68	0.27385	0.40747	95
96	199.3	0.01396	0.272	71.65	3.6740	104.88	178.73	0.27440	0.40730	96
97	202.1	0.01399	0.268	71.50	3.7286	105.20	178.78	0.27495	0.40713	97
98	204.9	0.01402	0.264	71.35	3.7840	105.51	178.82	0.27550	0.40696	98
99	207.7	0.01404	0.260	71.21	3.8401	105.82	178.87	0.27604	0.40679	99
100	210.6	0.01407	0.257	71.06	3.8970	106.14	178.91	0.27659	0.40662	100
101	213.5	0.01410	0.253	70.91	3.9547	106.45	178.95	0.27714	0.40645	101
102	216.5	0.01413	0.249	70.76	4.0131	106.77	178.99	0.27769	0.40628	102
103	219.4	0.01416	0.246	70.60	4.0723	107.08	179.03	0.27824	0.40611	103
104	222.4	0.01419	0.242	70.45	4.1323	107.40	179.07	0.27879	0.40594	104
105	225.5	0.01423	0.238	70.30	4.1931	107.72	179.11	0.27934	0.40577	105
106	228.5	0.01426	0.235	70.15	4.2547	108.04	179.15	0.27989	0.40560	106
107	231.6	0.01429	0.232	69.99	4.3172	108.36	179.19	0.28044	0.40543	107
108	234.7	0.01432	0.228	69.84	4.3806	108.68	179.22	0.28099	0.40526	108
109	237.9	0.01435	0.225	69.68	4.4448	109.00	179.25	0.28154	0.40509	109
110	241.1	0.01438	0.222	69.52	4.5099	109.32	179.29	0.28209	0.40491	110
111	244.3	0.01442	0.219	69.36	4.5759	109.64	179.32	0.28264	0.40474	111
112	247.5	0.01445	0.215	69.21	4.6428	109.97	179.35	0.28319	0.40456	112
113	250.8	0.01448	0.212	69.05	4.7106	110.29	179.38	0.28374	0.40438	113
114	254.1	0.01452	0.209	68.89	4.7794	110.62	179.41	0.28430	0.40421	114

### Thermodynamic Properties of R-22 - Saturation

Temperature (°F)	Pressure (psia)	Volume (ft <sup>3</sup> /lb)		Density (lb/ft <sup>3</sup> )		Enthalpy (Btu/lb)		Entropy (Btu/(lb °R))		Temperature (°F)
		Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	
115	257.5	0.01455	0.206	68.72	4.8491	110.94	179.43	0.28485	0.40403	115
116	260.8	0.01459	0.203	68.56	4.9199	111.27	179.46	0.28540	0.40385	116
117	264.2	0.01462	0.200	68.40	4.9916	111.60	179.48	0.28595	0.40367	117
118	267.7	0.01466	0.197	68.23	5.0643	111.93	179.51	0.28651	0.40349	118
119	271.2	0.01469	0.195	68.07	5.1381	112.26	179.53	0.28706	0.40331	119
120	274.7	0.01473	0.192	67.90	5.2129	112.59	179.55	0.28762	0.40313	120
121	278.2	0.01476	0.189	67.73	5.2888	112.92	179.57	0.28817	0.40295	121
122	281.8	0.01480	0.186	67.57	5.3658	113.25	179.59	0.28873	0.40277	122
123	285.4	0.01484	0.184	67.40	5.4439	113.58	179.60	0.28928	0.40258	123
124	289.0	0.01488	0.181	67.23	5.5231	113.92	179.62	0.28984	0.40240	124
125	292.7	0.01491	0.178	67.05	5.6035	114.26	179.63	0.29040	0.40221	125
126	296.4	0.01495	0.176	66.88	5.6851	114.59	179.64	0.29096	0.40202	126
127	300.1	0.01499	0.173	66.71	5.7679	114.93	179.65	0.29151	0.40184	127
128	303.9	0.01503	0.171	66.53	5.8519	115.27	179.66	0.29207	0.40164	128
129	307.7	0.01507	0.168	66.36	5.9372	115.61	179.67	0.29263	0.40145	129
130	311.6	0.01511	0.166	66.18	6.0238	115.95	179.67	0.29319	0.40126	130
131	315.5	0.01515	0.164	66.00	6.1116	116.29	179.68	0.29376	0.40107	131
132	319.4	0.01519	0.161	65.82	6.2009	116.64	179.68	0.29432	0.40087	132
133	323.4	0.01524	0.159	65.64	6.2914	116.98	179.68	0.29488	0.40067	133
134	327.3	0.01528	0.157	65.45	6.3834	117.33	179.68	0.29545	0.40048	134
135	331.4	0.01532	0.154	65.27	6.4768	117.67	179.68	0.29601	0.40028	135
136	335.4	0.01537	0.152	65.08	6.5717	118.02	179.67	0.29658	0.40007	136
137	339.5	0.01541	0.150	64.90	6.6680	118.37	179.67	0.29715	0.39987	137
138	343.7	0.01545	0.148	64.71	6.7659	118.72	179.66	0.29772	0.39966	138
139	347.9	0.01550	0.146	64.52	6.8654	119.08	179.65	0.29829	0.39946	139
140	352.1	0.01555	0.144	64.33	6.9664	119.43	179.63	0.29886	0.39925	140
141	356.3	0.01559	0.141	64.13	7.0691	119.79	179.62	0.29943	0.39904	141
142	360.6	0.01564	0.139	63.94	7.1735	120.14	179.60	0.30000	0.39882	142
143	365.0	0.01569	0.137	63.74	7.2796	120.50	179.58	0.30058	0.39861	143
144	369.3	0.01574	0.135	63.54	7.3875	120.86	179.56	0.30115	0.39839	144
145	373.7	0.01579	0.133	63.34	7.4972	121.22	179.54	0.30173	0.39817	145
146	378.2	0.01584	0.131	63.14	7.6088	121.59	179.52	0.30231	0.39795	146
147	382.7	0.01589	0.130	62.93	7.7223	121.95	179.49	0.30289	0.39772	147
148	387.2	0.01594	0.128	62.73	7.8377	122.32	179.46	0.30347	0.39750	148
149	391.8	0.01600	0.126	62.52	7.9552	122.69	179.42	0.30405	0.39727	149
150	396.4	0.01605	0.124	62.31	8.0747	123.06	179.39	0.30464	0.39704	150
151	401.0	0.01611	0.122	62.09	8.1964	123.43	179.35	0.30523	0.39680	151
152	405.7	0.01616	0.120	61.88	8.3203	123.81	179.31	0.30582	0.39656	152
153	410.5	0.01622	0.118	61.66	8.4465	124.18	179.27	0.30641	0.39632	153
154	415.2	0.01628	0.117	61.44	8.5750	124.56	179.22	0.30700	0.39608	154
155	420.0	0.01633	0.115	61.22	8.7059	124.94	179.17	0.30760	0.39583	155
156	424.9	0.01640	0.113	61.00	8.8393	125.32	179.12	0.30819	0.39558	156
157	429.8	0.01646	0.111	60.77	8.9753	125.71	179.07	0.30879	0.39532	157
158	434.7	0.01652	0.110	60.54	9.1139	126.09	179.01	0.30940	0.39506	158
159	439.7	0.01658	0.108	60.31	9.2553	126.48	178.95	0.31000	0.39480	159
160	444.8	0.01665	0.106	60.07	9.3995	126.87	178.88	0.31061	0.39454	160
161	449.8	0.01671	0.105	59.83	9.5467	127.27	178.81	0.31122	0.39429	161
162	454.9	0.01678	0.103	59.59	9.6969	127.66	178.74	0.31183	0.39399	162
163	460.1	0.01685	0.102	59.35	9.8502	128.06	178.66	0.31245	0.39371	163
164	465.3	0.01692	0.100	59.10	10.007	128.47	178.58	0.31307	0.39343	164
165	470.6	0.01699	0.098	58.85	10.167	128.87	178.50	0.31369	0.39314	165
166	475.9	0.01707	0.097	58.59	10.330	129.28	178.41	0.31431	0.39284	166
167	481.2	0.01714	0.095	58.33	10.498	129.69	178.32	0.31494	0.39254	167

**Thermodynamic Properties of R-22 - Saturation**

Temperature (°F)	Pressure (psia)	Volume (ft <sup>3</sup> /lb)		Density (lb/ft <sup>3</sup> )		Enthalpy (Btu/lb)		Entropy (Btu/(lb °R))		Temperature (°F)
		Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	
168	486.6	0.01722	0.094	58.07	10.669	130.10	178.22	0.31558	0.39224	168
169	492.0	0.01730	0.092	57.80	10.844	130.52	178.12	0.31621	0.39193	169
170	497.5	0.01738	0.091	57.53	11.023	130.94	178.01	0.31686	0.39161	170
171	503.0	0.01747	0.089	57.25	11.207	131.37	177.90	0.31750	0.39128	171
172	508.6	0.01755	0.088	56.97	11.395	131.80	177.78	0.31815	0.39095	172
173	514.2	0.01764	0.086	56.69	11.588	132.23	177.66	0.31881	0.39061	173
174	519.9	0.01773	0.085	56.39	11.786	132.67	177.53	0.31947	0.39027	174
175	525.6	0.01783	0.083	56.10	11.990	133.11	177.39	0.32014	0.38991	175
176	531.4	0.01792	0.082	55.79	12.199	133.55	177.25	0.32081	0.38955	176
177	537.2	0.01802	0.081	55.49	12.414	134.01	177.10	0.32149	0.38918	177
178	543.1	0.01813	0.079	55.17	12.635	134.46	176.95	0.32217	0.38880	178
179	549.0	0.01823	0.078	54.85	12.862	134.92	176.78	0.32286	0.38841	179
180	555.0	0.01834	0.076	54.52	13.097	135.39	176.61	0.32356	0.38800	180
181	561.0	0.01846	0.075	54.18	13.339	135.86	176.43	0.32427	0.38759	181
182	567.1	0.01858	0.074	53.84	13.589	136.34	176.24	0.32499	0.38716	182
183	573.2	0.01870	0.072	53.48	13.848	136.83	176.04	0.32571	0.38672	183
184	579.4	0.01883	0.071	53.12	14.116	137.33	175.83	0.32645	0.38626	184
185	585.6	0.01896	0.069	52.74	14.393	137.83	175.61	0.32720	0.38579	185
186	591.9	0.01910	0.068	52.36	14.682	138.34	175.37	0.32796	0.38531	186
187	598.3	0.01925	0.067	51.96	14.982	138.86	175.12	0.32873	0.38480	187
188	604.7	0.01940	0.065	51.54	15.294	139.39	174.86	0.32951	0.38427	188
189	611.1	0.01956	0.064	51.12	15.620	139.94	174.58	0.33032	0.38373	189
190	617.7	0.01973	0.063	50.68	15.962	140.49	174.29	0.33113	0.38315	190
191	624.2	0.01992	0.061	50.21	16.320	141.06	173.97	0.33197	0.38255	191
192	630.9	0.02011	0.060	49.73	16.697	141.65	173.64	0.33283	0.38192	192
193	637.6	0.02031	0.058	49.23	17.096	142.25	173.28	0.33371	0.38126	193
194	644.3	0.02053	0.057	48.70	17.519	142.87	172.89	0.33463	0.38055	194
195	651.1	0.02077	0.056	48.14	17.970	143.51	172.47	0.33557	0.37980	195
196	658.0	0.02103	0.054	47.55	18.453	144.18	172.01	0.33655	0.37900	196
197	665.0	0.02131	0.053	46.92	18.975	144.88	171.51	0.33757	0.37813	197
198	672.0	0.02163	0.051	46.24	19.545	145.61	170.96	0.33864	0.37719	198
199	679.0	0.02198	0.050	45.50	20.173	146.39	170.34	0.33979	0.37615	199
200	686.2	0.02238	0.048	44.68	20.877	147.23	169.64	0.34101	0.37499	200
201	693.4	0.02285	0.046	43.76	21.684	148.14	168.83	0.34235	0.37367	201
202	700.7	0.02342	0.044	42.69	22.642	149.17	167.85	0.34386	0.37210	202
203	708.1	0.02416	0.042	41.38	23.850	150.38	166.61	0.34564	0.37013	203
204	715.6	0.02527	0.039	39.57	25.579	151.99	164.82	0.34801	0.36735	204
205	723.3	0.02855	0.033	35.02	30.249	155.83	160.12	0.35373	0.36019	205