

Opteon™ YF

Automotive Refrigerant

Transport Properties of Opteon™ YF SI Units



Opteon™ YF
Saturation Properties - Transport Properties Table

Rev 1, 10 Nov 2010

Temp °C	Heat Capacity, c _p [kJ/kg-K]		c _p /c _v Vapor	Viscosity [μPa-s]		Kinematic Viscosity [cm ² /s]		Thermal Conductivity [mW/m-K]		Vel. of Sound [m/s]		Surface Tension [mN/m]
	Liquid	Vapor		Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	
-50	1.1278	0.7463	1.1241	420.2	9.145	0.0032	0.0388	89.27	7.792	782.8	132.1	16.71
-49	1.1307	0.7494	1.1242	413.3	9.185	0.0031	0.0371	88.89	7.862	778.0	132.3	16.55
-48	1.1336	0.7525	1.1243	406.6	9.226	0.0031	0.0355	88.51	7.933	773.3	132.4	16.40
-47	1.1366	0.7556	1.1245	400.0	9.266	0.0031	0.0339	88.13	8.004	768.6	132.6	16.24
-46	1.1395	0.7587	1.1246	393.7	9.306	0.0030	0.0325	87.76	8.075	763.8	132.8	16.08
-45	1.1425	0.7618	1.1248	387.4	9.346	0.0030	0.0311	87.38	8.147	759.1	132.9	15.93
-44	1.1455	0.7650	1.1249	381.4	9.386	0.0029	0.0298	87.01	8.219	754.5	133.1	15.77
-43	1.1485	0.7681	1.1251	375.4	9.426	0.0029	0.0285	86.63	8.291	749.8	133.2	15.62
-42	1.1515	0.7713	1.1253	369.6	9.466	0.0028	0.0273	86.26	8.363	745.1	133.4	15.46
-41	1.1545	0.7745	1.1255	364.0	9.505	0.0028	0.0262	85.89	8.436	740.5	133.5	15.31
-40	1.1575	0.7777	1.1258	358.5	9.545	0.0028	0.0252	85.52	8.509	735.9	133.7	15.15
-39	1.1605	0.7810	1.1260	353.1	9.585	0.0027	0.0241	85.15	8.582	731.3	133.8	15.00
-38	1.1636	0.7842	1.1263	347.8	9.625	0.0027	0.0232	84.79	8.656	726.7	133.9	14.85
-37	1.1666	0.7875	1.1266	342.6	9.665	0.0027	0.0223	84.42	8.729	722.1	134.1	14.69
-36	1.1697	0.7908	1.1269	337.6	9.704	0.0026	0.0214	84.06	8.803	717.5	134.2	14.54
-35	1.1728	0.7942	1.1272	332.7	9.744	0.0026	0.0206	83.69	8.877	713.0	134.3	14.39
-34	1.1758	0.7975	1.1276	327.9	9.784	0.0026	0.0198	83.33	8.952	708.4	134.4	14.24
-33	1.1789	0.8009	1.1279	323.1	9.824	0.0025	0.0190	82.97	9.027	703.9	134.6	14.09
-32	1.1821	0.8042	1.1283	318.5	9.863	0.0025	0.0183	82.61	9.102	699.4	134.7	13.94
-31	1.1852	0.8077	1.1287	314.0	9.903	0.0025	0.0176	82.25	9.177	694.9	134.8	13.79
-30	1.1883	0.8111	1.1292	309.6	9.943	0.0024	0.0170	81.89	9.253	690.4	134.9	13.64
-29	1.1915	0.8145	1.1296	305.2	9.982	0.0024	0.0164	81.53	9.329	685.9	135.0	13.49
-28	1.1946	0.8180	1.1301	301.0	10.022	0.0024	0.0158	81.17	9.405	681.4	135.0	13.34
-27	1.1978	0.8215	1.1306	296.8	10.062	0.0024	0.0152	80.82	9.481	677.0	135.1	13.19
-26	1.2010	0.8250	1.1311	292.8	10.102	0.0023	0.0147	80.46	9.558	672.5	135.2	13.04
-25	1.2042	0.8286	1.1316	288.8	10.141	0.0023	0.0141	80.11	9.635	668.1	135.3	12.89
-24	1.2074	0.8321	1.1321	284.9	10.181	0.0023	0.0136	79.76	9.712	663.6	135.4	12.75
-23	1.2106	0.8357	1.1327	281.0	10.221	0.0023	0.0132	79.41	9.790	659.2	135.4	12.60
-22	1.2138	0.8393	1.1333	277.3	10.260	0.0022	0.0127	79.06	9.868	654.8	135.5	12.45
-21	1.2171	0.8430	1.1339	273.6	10.300	0.0022	0.0123	78.71	9.946	650.4	135.5	12.31
-20	1.2204	0.8466	1.1346	269.9	10.340	0.0022	0.0119	78.36	10.025	646.0	135.6	12.16
-19	1.2236	0.8503	1.1352	266.4	10.380	0.0022	0.0115	78.01	10.103	641.6	135.6	12.02
-18	1.2269	0.8540	1.1359	262.9	10.420	0.0021	0.0111	77.67	10.182	637.2	135.7	11.87
-17	1.2302	0.8578	1.1366	259.5	10.460	0.0021	0.0107	77.32	10.262	632.8	135.7	11.73
-16	1.2336	0.8616	1.1374	256.1	10.500	0.0021	0.0104	76.98	10.342	628.5	135.7	11.59
-15	1.2369	0.8654	1.1381	252.8	10.540	0.0021	0.0100	76.63	10.422	624.1	135.7	11.44
-14	1.2403	0.8692	1.1389	249.6	10.580	0.0020	0.0097	76.29	10.502	619.7	135.8	11.30
-13	1.2436	0.8730	1.1398	246.4	10.620	0.0020	0.0094	75.95	10.583	615.4	135.8	11.16
-12	1.2470	0.8769	1.1406	243.2	10.660	0.0020	0.0091	75.61	10.664	611.0	135.8	11.02
-11	1.2504	0.8808	1.1415	240.1	10.701	0.0020	0.0088	75.27	10.746	606.7	135.8	10.88
-10	1.2539	0.8848	1.1424	237.1	10.741	0.0020	0.0086	74.93	10.827	602.4	135.8	10.74
-9	1.2573	0.8888	1.1433	234.1	10.782	0.0019	0.0083	74.59	10.909	598.0	135.8	10.60
-8	1.2608	0.8928	1.1443	231.2	10.822	0.0019	0.0080	74.26	10.992	593.7	135.7	10.46
-7	1.2643	0.8968	1.1453	228.3	10.863	0.0019	0.0078	73.92	11.075	589.4	135.7	10.32
-6	1.2678	0.9009	1.1463	225.5	10.904	0.0019	0.0076	73.58	11.158	585.1	135.7	10.18
-5	1.2713	0.9050	1.1474	222.7	10.945	0.0019	0.0073	73.25	11.242	580.7	135.7	10.04
-4	1.2749	0.9092	1.1485	220.0	10.986	0.0019	0.0071	72.92	11.325	576.4	135.6	9.91
-3	1.2784	0.9134	1.1497	217.3	11.027	0.0018	0.0069	72.58	11.410	572.1	135.6	9.77
-2	1.2820	0.9176	1.1508	214.6	11.068	0.0018	0.0067	72.25	11.494	567.8	135.5	9.63
-1	1.2857	0.9219	1.1521	212.0	11.110	0.0018	0.0065	71.92	11.580	563.5	135.5	9.50
0	1.2893	0.9262	1.1533	209.4	11.152	0.0018	0.0063	71.59	11.665	559.2	135.4	9.36
1	1.2930	0.9305	1.1546	206.9	11.194	0.0018	0.0061	71.26	11.751	554.9	135.3	9.23
2	1.2967	0.9349	1.1560	204.4	11.236	0.0017	0.0060	70.93	11.837	550.6	135.2	9.09
3	1.3004	0.9393	1.1573	201.9	11.278	0.0017	0.0058	70.61	11.924	546.3	135.1	8.96
4	1.3042	0.9438	1.1588	199.5	11.321	0.0017	0.0056	70.28	12.011	542.0	135.1	8.82
5	1.3080	0.9484	1.1603	197.1	11.363	0.0017	0.0055	69.95	12.099	537.7	134.9	8.69
6	1.3118	0.9529	1.1618	194.7	11.406	0.0017	0.0053	69.63	12.187	533.4	134.8	8.56
7	1.3157	0.9576	1.1634	192.4	11.450	0.0017	0.0052	69.30	12.276	529.1	134.7	8.43
8	1.3196	0.9622	1.1650	190.1	11.493	0.0017	0.0050	68.98	12.365	524.8	134.6	8.30
9	1.3235	0.9670	1.1667	187.9	11.537	0.0016	0.0049	68.66	12.454	520.5	134.5	8.17
10	1.3274	0.9718	1.1685	185.6	11.581	0.0016	0.0048	68.33	12.544	516.2	134.3	8.04
11	1.3314	0.9766	1.1703	183.4	11.626	0.0016	0.0046	68.01	12.635	511.9	134.2	7.91
12	1.3355	0.9815	1.1721	181.3	11.670	0.0016	0.0045	67.69	12.726	507.5	134.1	7.78
13	1.3395	0.9865	1.1741	179.1	11.716	0.0016	0.0044	67.37	12.818	503.2	133.9	7.65
14	1.3437	0.9916	1.1761	177.0	11.761	0.0016	0.0043	67.05	12.910	498.9	133.7	7.52
15	1.3478	0.9967	1.1782	174.9	11.807	0.0016	0.0042	66.73	13.002	494.6	133.6	7.40
16	1.3520	1.0020	1.1803	172.9	11.853	0.0015	0.0041	66.42	13.096	490.3	133.4	7.27
17	1.3563	1.0073	1.1825	170.8	11.900	0.0015	0.0040	66.10	13.190	485.9	133.2	7.14
18	1.3606	1.0126	1.1848	168.8	11.947	0.0015	0.0039	65.78	13.284	481.6	133.0	7.02
19	1.3649	1.0181	1.1872	166.9	11.995	0.0015	0.0038	65.47	13.380	477.3	132.8	6.89
20	1.3693	1.0237	1.1897	164.9	12.043	0.0015	0.0037	65.15	13.475	472.9	132.6	6.77
21	1.3737	1.0294	1.1923	163.0	12.091	0.0015	0.0036	64.84	13.572	468.6	132.4	6.64
22	1.3783	1.0352	1.1949	161.1	12.141	0.0015	0.0035	64.52	13.669	464.2	132.1	6.52
23	1.3828	1.0411	1.1977	159.2	12.190	0.0014	0.0034	64.21	13.767	459.9	131.9	6.40
24	1.3874	1.0472	1.2005	157.3	12.241	0.0014	0.0033	63.90	13.866	455.5	131.7	6.28
25	1.3921	1.0533	1.2035	155.5	12.291	0.0014	0.0032	63.59	13.966	451.2	131.4	6.16
26	1.3969	1.0597	1.2066	153.6	12.343	0.0014	0.0032	63.27	14.066	446.8	131.1	6.04

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Temp °C	Heat Capacity, c _p [kJ/kg-K]		c _p /c _v Vapor	Viscosity [μPa-s]		Kinematic Viscosity [cm ² /s]		Thermal Conductivity [mW/m-K]		Vel. of Sound [m/s]		Surface Tension [mN/m]
	Liquid	Vapor		Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	
27	1.4017	1.0661	1.2098	151.8	12.395	0.0014	0.0031	62.96	14.168	442.4	130.9	5.92
28	1.4066	1.0727	1.2131	150.0	12.448	0.0014	0.0030	62.65	14.270	438.1	130.6	5.80
29	1.4116	1.0795	1.2165	148.3	12.502	0.0014	0.0029	62.34	14.373	433.7	130.3	5.68
30	1.4166	1.0864	1.2201	146.5	12.556	0.0014	0.0029	62.04	14.478	429.3	130.0	5.56
31	1.4218	1.0935	1.2238	144.8	12.612	0.0014	0.0028	61.73	14.583	424.9	129.7	5.44
32	1.4270	1.1008	1.2277	143.1	12.668	0.0013	0.0027	61.42	14.689	420.5	129.4	5.33
33	1.4324	1.1083	1.2317	141.4	12.725	0.0013	0.0027	61.12	14.797	416.1	129.1	5.21
34	1.4378	1.1160	1.2359	139.7	12.783	0.0013	0.0026	60.81	14.905	411.7	128.7	5.10
35	1.4434	1.1239	1.2402	138.1	12.841	0.0013	0.0026	60.50	15.015	407.3	128.4	4.98
36	1.4491	1.1320	1.2448	136.4	12.901	0.0013	0.0025	60.20	15.126	402.9	128.1	4.87
37	1.4549	1.1404	1.2495	134.8	12.962	0.0013	0.0024	59.90	15.239	398.5	127.7	4.76
38	1.4608	1.1490	1.2544	133.2	13.024	0.0013	0.0024	59.60	15.353	394.1	127.3	4.64
39	1.4670	1.1579	1.2595	131.6	13.088	0.0013	0.0023	59.29	15.468	389.7	126.9	4.53
40	1.4732	1.1670	1.2648	130.0	13.152	0.0013	0.0023	58.99	15.586	385.2	126.6	4.42
41	1.4797	1.1765	1.2704	128.4	13.218	0.0012	0.0022	58.69	15.704	380.8	126.2	4.31
42	1.4863	1.1862	1.2762	126.9	13.285	0.0012	0.0022	58.40	15.825	376.4	125.7	4.20
43	1.4931	1.1963	1.2822	125.3	13.353	0.0012	0.0021	58.10	15.947	371.9	125.3	4.09
44	1.5001	1.2067	1.2885	123.8	13.423	0.0012	0.0021	57.80	16.072	367.4	124.9	3.98
45	1.5074	1.2175	1.2951	122.3	13.495	0.0012	0.0020	57.51	16.199	363.0	124.4	3.88
46	1.5149	1.2286	1.3020	120.8	13.568	0.0012	0.0020	57.21	16.327	358.5	124.0	3.77
47	1.5226	1.2402	1.3093	119.3	13.642	0.0012	0.0020	56.92	16.459	354.0	123.5	3.67
48	1.5306	1.2521	1.3168	117.8	13.719	0.0012	0.0019	56.63	16.592	349.4	123.1	3.56
49	1.5390	1.2646	1.3248	116.3	13.797	0.0012	0.0019	56.34	16.729	344.9	122.6	3.46
50	1.5476	1.2775	1.3331	114.9	13.878	0.0012	0.0018	56.05	16.868	340.3	122.1	3.35
51	1.5565	1.2909	1.3419	113.4	13.960	0.0012	0.0018	55.77	17.011	335.7	121.6	3.25
52	1.5658	1.3049	1.3511	112.0	14.045	0.0011	0.0018	55.48	17.156	331.1	121.0	3.15
53	1.5755	1.3194	1.3607	110.6	14.132	0.0011	0.0017	55.20	17.306	326.4	120.5	3.05
54	1.5856	1.3346	1.3709	109.1	14.221	0.0011	0.0017	54.92	17.459	321.8	120.0	2.95
55	1.5962	1.3504	1.3817	107.7	14.313	0.0011	0.0016	54.64	17.616	317.0	119.4	2.85
56	1.6071	1.3670	1.3930	106.3	14.408	0.0011	0.0016	54.37	17.777	312.3	118.8	2.75
57	1.6186	1.3844	1.4050	104.9	14.505	0.0011	0.0016	54.10	17.943	307.4	118.2	2.66
58	1.6306	1.4025	1.4176	103.5	14.606	0.0011	0.0015	53.83	18.114	302.6	117.6	2.56
59	1.6432	1.4217	1.4310	102.1	14.710	0.0011	0.0015	53.56	18.290	297.7	117.0	2.47
60	1.6564	1.4417	1.4453	100.7	14.817	0.0011	0.0015	53.29	18.472	292.7	116.4	2.37
61	1.6703	1.4629	1.4604	99.4	14.927	0.0011	0.0015	53.03	18.661	287.7	115.7	2.28
62	1.6849	1.4853	1.4765	98.0	15.041	0.0011	0.0014	52.78	18.856	282.6	115.1	2.19
63	1.7003	1.5089	1.4937	96.6	15.160	0.0010	0.0014	52.52	19.058	277.5	114.4	2.10
64	1.7165	1.5339	1.5120	95.3	15.283	0.0010	0.0014	52.27	19.269	272.3	113.7	2.01
65	1.7337	1.5605	1.5317	93.9	15.410	0.0010	0.0013	52.03	19.489	267.1	113.0	1.92
66	1.7519	1.5889	1.5527	92.5	15.542	0.0010	0.0013	51.79	19.718	261.8	112.3	1.83
67	1.7712	1.6191	1.5753	91.2	15.679	0.0010	0.0013	51.56	19.958	256.4	111.6	1.74
68	1.7918	1.6514	1.5997	89.8	15.822	0.0010	0.0013	51.33	20.209	251.0	110.8	1.66
69	1.8138	1.6862	1.6260	88.4	15.971	0.0010	0.0012	51.12	20.473	245.5	110.1	1.57
70	1.8373	1.7235	1.6546	87.1	16.126	0.0010	0.0012	50.91	20.751	240.0	109.3	1.49
71	1.8626	1.7639	1.6855	85.7	16.289	0.0010	0.0012	50.71	21.044	234.4	108.5	1.41
72	1.8899	1.8076	1.7193	84.3	16.459	0.0010	0.0012	50.52	21.355	228.7	107.6	1.33
73	1.9194	1.8553	1.7563	82.9	16.637	0.0010	0.0012	50.34	21.685	223.0	106.8	1.25
74	1.9514	1.9073	1.7969	81.6	16.823	0.0010	0.0011	50.18	22.037	217.3	105.9	1.17
75	1.9864	1.9645	1.8417	80.2	17.020	0.0009	0.0011	50.04	22.413	211.5	105.1	1.09
76	2.0249	2.0276	1.8913	78.8	17.227	0.0009	0.0011	49.91	22.817	205.6	104.2	1.02
77	2.0673	2.0976	1.9466	77.3	17.446	0.0009	0.0011	49.81	23.252	199.7	103.2	0.95
78	2.1145	2.1758	2.0087	75.9	17.677	0.0009	0.0010	49.73	23.723	193.7	102.3	0.87
79	2.1673	2.2638	2.0787	74.5	17.923	0.0009	0.0010	49.69	24.235	187.7	101.3	0.80
80	2.2269	2.3636	2.1582	73.0	18.185	0.0009	0.0010	49.69	24.796	181.7	100.3	0.73
81	2.2948	2.4778	2.2495	71.5	18.465	0.0009	0.0010	49.73	25.412	175.6	99.3	0.67
82	2.3730	2.6097	2.3552	70.0	18.766	0.0009	0.0010	49.84	26.095	169.4	98.2	0.60
83	2.4642	2.7641	2.4789	68.5	19.090	0.0009	0.0010	50.02	26.858	163.2	97.1	0.54
84	2.5721	2.9471	2.6259	67.0	19.441	0.0009	0.0009	50.28	27.719	156.9	96.0	0.48
85	2.7018	3.1678	2.8031	65.4	19.823	0.0009	0.0009	50.67	28.699	150.5	94.9	0.42
86	2.8612	3.4392	3.0211	63.7	20.243	0.0009	0.0009	51.21	29.833	144.0	93.7	0.36
87	3.0620	3.7813	3.2957	62.0	20.709	0.0008	0.0009	51.95	31.164	137.4	92.5	0.30
88	3.3231	4.2259	3.6522	60.2	21.232	0.0008	0.0009	52.96	32.761	130.6	91.2	0.25
89	3.6774	4.8277	4.1336	58.3	21.827	0.0008	0.0009	54.33	34.729	123.6	89.8	0.20
90	4.1862	5.6880	4.8198	56.3	22.518	0.0008	0.0008	56.23	37.248	116.4	88.4	0.15
91	4.9806	7.0190	5.8774	54.2	23.344	0.0008	0.0008	58.88	40.654	109.0	87.0	0.11
92	6.3949	9.3524	7.7217	51.7	24.378	0.0008	0.0008	62.81	45.673	101.1	85.4	0.07
93	9.6041	14.4969	11.7591	48.8	25.779	0.0008	0.0008	69.45	54.351	92.7	83.5	0.04
94	23.2699	35.0206	27.7007	44.7	28.101	0.0008	0.0008	86.99	76.939	83.5	81.2	0.01

Opteon™ YF
Superheated Vapor - Viscosity Table

Rev 1, 10 Nov 2010

Viscosity in $\mu\text{Pa}\cdot\text{s}$

Saturation Properties in Light Green

Temp °C	ABSOLUTE PRESSURE, kPa												
	101.325	200	300	400	500	600	700	800	1000	1500	2000	2500	3000
	-29.5 °C	-12.8 °C	-1.5 °C	7.2 °C	14.3 °C	20.5 °C	25.9 °C	30.8 °C	39.3 °C	56.0 °C	69.0 °C	79.6 °C	88.7 °C
-25	10.166	-	-	-	-	-	-	-	-	-	-	-	-
-20	10.391	-	-	-	-	-	-	-	-	-	-	-	-
-15	10.615	-	-	-	-	-	-	-	-	-	-	-	-
-10	10.838	10.758	-	-	-	-	-	-	-	-	-	-	-
-5	11.060	10.989	-	-	-	-	-	-	-	-	-	-	-
0	11.281	11.218	11.160	-	-	-	-	-	-	-	-	-	-
5	11.501	11.446	11.396	-	-	-	-	-	-	-	-	-	-
10	11.720	11.672	11.629	11.593	-	-	-	-	-	-	-	-	-
15	11.938	11.896	11.860	11.830	11.809	-	-	-	-	-	-	-	-
20	12.156	12.120	12.089	12.065	12.049	-	-	-	-	-	-	-	-
25	12.372	12.342	12.316	12.297	12.286	12.284	-	-	-	-	-	-	-
30	12.588	12.562	12.542	12.528	12.521	12.523	12.536	-	-	-	-	-	-
35	12.803	12.782	12.766	12.756	12.754	12.759	12.775	12.802	-	-	-	-	-
40	13.016	13.000	12.988	12.983	12.984	12.993	13.011	13.040	13.139	-	-	-	-
45	13.229	13.217	13.209	13.208	13.212	13.224	13.245	13.275	13.372	-	-	-	-
50	13.442	13.433	13.429	13.431	13.438	13.453	13.476	13.507	13.604	-	-	-	-
55	13.653	13.648	13.647	13.652	13.663	13.680	13.705	13.738	13.835	-	-	-	-
60	13.863	13.861	13.864	13.872	13.886	13.905	13.932	13.967	14.063	14.557	-	-	-
65	14.073	14.074	14.080	14.091	14.107	14.129	14.157	14.193	14.290	14.751	-	-	-
70	14.281	14.286	14.294	14.308	14.326	14.350	14.380	14.417	14.515	14.951	15.970	-	-
75	14.489	14.496	14.507	14.523	14.544	14.570	14.602	14.640	14.738	15.166	16.032	-	-
80	14.696	14.706	14.719	14.738	14.760	14.788	14.822	14.861	14.960	15.362	16.144	18.043	-
85	14.902	14.914	14.930	14.951	14.975	15.005	15.040	15.080	15.180	15.570	16.283	17.741	-
90	15.107	15.122	15.140	15.162	15.189	15.220	15.256	15.298	15.398	15.779	16.438	17.657	20.911
95	15.312	15.328	15.348	15.373	15.401	15.434	15.471	15.514	15.615	15.988	16.605	17.667	19.839
100	15.515	15.534	15.556	15.582	15.612	15.646	15.685	15.728	15.831	16.196	16.780	17.730	19.435
105	15.718	15.738	15.762	15.790	15.822	15.857	15.897	15.941	16.045	16.405	16.961	17.826	19.254
110	15.919	15.942	15.967	15.997	16.030	16.067	16.108	16.153	16.257	16.612	17.145	17.944	19.186
115	16.120	16.144	16.172	16.203	16.237	16.275	16.317	16.363	16.468	16.819	17.332	18.078	19.185
120	16.320	16.346	16.375	16.407	16.443	16.482	16.525	16.572	16.678	17.026	17.522	18.223	19.228
125	16.519	16.546	16.577	16.611	16.648	16.688	16.732	16.780	16.886	17.231	17.713	18.377	19.301
130	16.717	16.746	16.778	16.813	16.851	16.893	16.938	16.986	17.094	17.436	17.904	18.538	19.396
135	16.914	16.944	16.978	17.014	17.054	17.096	17.142	17.191	17.299	17.639	18.097	18.704	19.508
140	17.110	17.142	17.177	17.214	17.255	17.298	17.345	17.395	17.504	17.842	18.290	18.873	19.632
145	17.306	17.339	17.375	17.414	17.455	17.500	17.547	17.597	17.707	18.044	18.483	19.046	19.766
150	17.500	17.535	17.572	17.612	17.654	17.700	17.748	17.799	17.910	18.245	18.676	19.221	19.908
155	17.694	17.730	17.768	17.809	17.852	17.898	17.947	17.999	18.111	18.445	18.868	19.398	20.056
160	17.887	17.923	17.963	18.005	18.049	18.096	18.146	18.198	18.310	18.644	19.061	19.577	20.210
165	18.079	18.117	18.157	18.200	18.245	18.293	18.343	18.396	18.509	18.842	19.253	19.757	20.367
170	18.270	18.309	18.350	18.394	18.440	18.489	18.540	18.593	18.707	19.039	19.445	19.937	20.527
175	18.460	18.500	18.543	18.588	18.634	18.684	18.735	18.789	18.903	19.235	19.637	20.118	20.691
180	18.649	18.691	18.734	18.780	18.827	18.877	18.929	18.984	19.099	19.430	19.828	20.300	20.857
185	18.838	18.880	18.925	18.971	19.020	19.070	19.123	19.177	19.294	19.624	20.018	20.482	21.024
190	19.026	19.069	19.114	19.161	19.211	19.262	19.315	19.370	19.487	19.818	20.208	20.664	21.193
195	19.213	19.257	19.303	19.351	19.401	19.453	19.506	19.562	19.680	20.010	20.397	20.846	21.364
200	19.399	19.444	19.491	19.539	19.590	19.643	19.697	19.753	19.871	20.202	20.586	21.029	21.535
205	19.584	19.630	19.678	19.727	19.778	19.831	19.886	19.943	20.062	20.392	20.774	21.211	21.707
210	19.769	19.815	19.864	19.914	19.966	20.020	20.075	20.132	20.251	20.582	20.961	21.393	21.880
215	19.952	19.999	20.049	20.100	20.152	20.207	20.263	20.320	20.440	20.771	21.148	21.575	22.054
220	20.135	20.183	20.233	20.285	20.338	20.393	20.449	20.507	20.628	20.959	21.334	21.756	22.228
225	20.317	20.366	20.417	20.469	20.523	20.578	20.635	20.693	20.815	21.146	21.520	21.937	22.402
230	20.499	20.548	20.600	20.653	20.707	20.763	20.820	20.879	21.001	21.333	21.705	22.118	22.576
235	20.679	20.729	20.782	20.835	20.890	20.947	21.004	21.063	21.186	21.518	21.889	22.299	22.751
240	20.859	20.910	20.963	21.017	21.073	21.129	21.188	21.247	21.370	21.703	22.072	22.479	22.926
245	21.038	21.090	21.143	21.198	21.254	21.311	21.370	21.430	21.554	21.887	22.255	22.659	23.101
250	21.216	21.269	21.323	21.378	21.435	21.493	21.552	21.612	21.737	22.071	22.437	22.839	23.275
255	21.394	21.447	21.502	21.558	21.615	21.673	21.733	21.793	21.919	22.253	22.619	23.018	23.450
260	21.571	21.624	21.680	21.736	21.794	21.853	21.913	21.974	22.100	22.435	22.800	23.196	23.625
265	21.747	21.801	21.857	21.914	21.972	22.032	22.092	22.154	22.280	22.616	22.980	23.375	23.799
270	21.922	21.977	22.034	22.091	22.150	22.210	22.271	22.333	22.460	22.796	23.160	23.552	23.973
275	22.097	22.152	22.210	22.268	22.327	22.387	22.449	22.511	22.638	22.976	23.339	23.730	24.147
280	22.271	22.327	22.385	22.444	22.503	22.564	22.626	22.688	22.817	23.155	23.518	23.907	24.321
285	22.444	22.501	22.559	22.619	22.679	22.740	22.802	22.865	22.994	23.333	23.696	24.083	24.495
290	22.617	22.674	22.733	22.793	22.854	22.915	22.978	23.041	23.171	23.510	23.873	24.259	24.668
295	22.789	22.847	22.906	22.966	23.028	23.090	23.153	23.216	23.346	23.687	24.050	24.435	24.842
300	22.960	23.018	23.078	23.139	23.201	23.263	23.327	23.391	23.522	23.863	24.226	24.610	25.015
305	23.131	23.190	23.250	23.312	23.374	23.437	23.500	23.565	23.696	24.039	24.402	24.784	25.187
310	23.301	23.360	23.421	23.483	23.546	23.609	23.673	23.738	23.870	24.214	24.577	24.959	25.360

Opteon™ YF
Superheated Vapor - Heat Capacity Table

Rev 1, 10 Nov 2010

Heat Capacity, Cp, in kJ/kg-K

Saturation Properties in Light Green

Temp °C	ABSOLUTE PRESSURE, kPa												
	101.325	200	300	400	500	600	700	800	1000	1500	2000	2500	3000
	-29.5 °C	-12.8 °C	-1.5 °C	7.2 °C	14.3 °C	20.5 °C	25.9 °C	30.8 °C	39.3 °C	56.0 °C	69.0 °C	79.6 °C	88.7 °C
-25	0.8201	-	-	-	-	-	-	-	-	-	-	-	-
-20	0.8283	-	-	-	-	-	-	-	-	-	-	-	-
-15	0.8367	-	-	-	-	-	-	-	-	-	-	-	-
-10	0.8451	0.8768	-	-	-	-	-	-	-	-	-	-	-
-5	0.8535	0.8823	-	-	-	-	-	-	-	-	-	-	-
0	0.8621	0.8883	0.9204	-	-	-	-	-	-	-	-	-	-
5	0.8707	0.8946	0.9234	-	-	-	-	-	-	-	-	-	-
10	0.8793	0.9011	0.9271	0.9583	-	-	-	-	-	-	-	-	-
15	0.8879	0.9079	0.9314	0.9592	0.9929	-	-	-	-	-	-	-	-
20	0.8966	0.9149	0.9363	0.9612	0.9908	-	-	-	-	-	-	-	-
25	0.9052	0.9221	0.9416	0.9640	0.9903	1.0218	-	-	-	-	-	-	-
30	0.9139	0.9294	0.9472	0.9675	0.9910	1.0187	1.0522	-	-	-	-	-	-
35	0.9225	0.9369	0.9532	0.9716	0.9927	1.0172	1.0463	1.0817	-	-	-	-	-
40	0.9311	0.9444	0.9593	0.9761	0.9951	1.0170	1.0424	1.0728	1.1569	-	-	-	-
45	0.9397	0.9520	0.9658	0.9811	0.9983	1.0178	1.0403	1.0665	1.1363	-	-	-	-
50	0.9482	0.9596	0.9723	0.9864	1.0020	1.0195	1.0395	1.0624	1.1212	-	-	-	-
55	0.9567	0.9673	0.9791	0.9920	1.0062	1.0221	1.0399	1.0601	1.1103	-	-	-	-
60	0.9652	0.9750	0.9859	0.9978	1.0108	1.0252	1.0412	1.0591	1.1027	1.3109	-	-	-
65	0.9735	0.9828	0.9929	1.0038	1.0158	1.0289	1.0433	1.0594	1.0975	1.2627	-	-	-
70	0.9819	0.9905	0.9999	1.0100	1.0211	1.0330	1.0462	1.0606	1.0944	1.2299	1.6357	-	-
75	0.9901	0.9982	1.0070	1.0164	1.0266	1.0376	1.0495	1.0626	1.0927	1.2069	1.4784	-	-
80	0.9983	1.0059	1.0141	1.0229	1.0323	1.0424	1.0534	1.0653	1.0924	1.1904	1.3910	2.2538	-
85	1.0064	1.0136	1.0212	1.0294	1.0382	1.0475	1.0576	1.0685	1.0930	1.1784	1.3357	1.7724	-
90	1.0145	1.0212	1.0284	1.0360	1.0442	1.0529	1.0622	1.0721	1.0945	1.1698	1.2979	1.5812	3.2569
95	1.0225	1.0288	1.0355	1.0427	1.0503	1.0584	1.0670	1.0762	1.0966	1.1636	1.2709	1.4762	2.0886
100	1.0303	1.0363	1.0427	1.0494	1.0565	1.0640	1.0720	1.0805	1.0993	1.1595	1.2510	1.4097	1.7654
105	1.0381	1.0438	1.0498	1.0561	1.0628	1.0698	1.0773	1.0851	1.1024	1.1568	1.2363	1.3640	1.6067
110	1.0459	1.0512	1.0569	1.0628	1.0691	1.0757	1.0826	1.0900	1.1059	1.1554	1.2252	1.3311	1.5113
115	1.0535	1.0586	1.0639	1.0695	1.0754	1.0816	1.0881	1.0950	1.1098	1.1550	1.2169	1.3066	1.4476
120	1.0611	1.0659	1.0709	1.0763	1.0818	1.0876	1.0937	1.1001	1.1139	1.1554	1.2108	1.2881	1.4025
125	1.0685	1.0731	1.0779	1.0829	1.0882	1.0937	1.0994	1.1054	1.1183	1.1565	1.2065	1.2739	1.3692
130	1.0759	1.0803	1.0848	1.0896	1.0946	1.0997	1.1051	1.1108	1.1228	1.1582	1.2035	1.2631	1.3440
135	1.0832	1.0874	1.0917	1.0962	1.1009	1.1058	1.1109	1.1162	1.1275	1.1604	1.2017	1.2547	1.3247
140	1.0904	1.0944	1.0985	1.1028	1.1073	1.1119	1.1167	1.1217	1.1323	1.1629	1.2008	1.2485	1.3096
145	1.0975	1.1013	1.1053	1.1094	1.1136	1.1180	1.1226	1.1273	1.1373	1.1658	1.2007	1.2438	1.2979
150	1.1046	1.1082	1.1120	1.1159	1.1199	1.1241	1.1284	1.1329	1.1423	1.1690	1.2012	1.2405	1.2887
155	1.1115	1.1150	1.1186	1.1223	1.1261	1.1301	1.1342	1.1385	1.1474	1.1725	1.2024	1.2382	1.2816
160	1.1184	1.1217	1.1251	1.1287	1.1324	1.1361	1.1400	1.1441	1.1525	1.1761	1.2039	1.2369	1.2762
165	1.1251	1.1283	1.1316	1.1350	1.1385	1.1421	1.1458	1.1497	1.1577	1.1799	1.2059	1.2363	1.2721
170	1.1318	1.1349	1.1380	1.1413	1.1446	1.1481	1.1516	1.1553	1.1629	1.1839	1.2082	1.2364	1.2691
175	1.1384	1.1413	1.1444	1.1475	1.1507	1.1540	1.1574	1.1609	1.1681	1.1880	1.2108	1.2370	1.2671
180	1.1449	1.1477	1.1506	1.1536	1.1567	1.1599	1.1631	1.1664	1.1733	1.1922	1.2136	1.2381	1.2659
185	1.1513	1.1540	1.1568	1.1597	1.1627	1.1657	1.1688	1.1720	1.1785	1.1965	1.2167	1.2395	1.2653
190	1.1577	1.1603	1.1630	1.1657	1.1686	1.1715	1.1744	1.1775	1.1838	1.2008	1.2199	1.2413	1.2653
195	1.1639	1.1664	1.1690	1.1717	1.1744	1.1772	1.1800	1.1830	1.1890	1.2052	1.2233	1.2434	1.2658
200	1.1701	1.1725	1.1750	1.1776	1.1802	1.1829	1.1856	1.1884	1.1942	1.2096	1.2268	1.2457	1.2667
205	1.1762	1.1785	1.1809	1.1834	1.1859	1.1885	1.1911	1.1938	1.1993	1.2141	1.2304	1.2483	1.2679
210	1.1821	1.1844	1.1868	1.1891	1.1916	1.1941	1.1966	1.1992	1.2044	1.2186	1.2341	1.2510	1.2695
215	1.1881	1.1903	1.1925	1.1948	1.1972	1.1996	1.2020	1.2045	1.2095	1.2231	1.2378	1.2539	1.2713
220	1.1939	1.1960	1.1982	1.2004	1.2027	1.2050	1.2073	1.2097	1.2146	1.2276	1.2417	1.2569	1.2734
225	1.1997	1.2017	1.2038	1.2060	1.2082	1.2104	1.2126	1.2149	1.2196	1.2321	1.2455	1.2600	1.2756
230	1.2053	1.2073	1.2094	1.2115	1.2136	1.2157	1.2179	1.2201	1.2246	1.2366	1.2495	1.2633	1.2781
235	1.2109	1.2129	1.2148	1.2169	1.2189	1.2210	1.2231	1.2252	1.2296	1.2411	1.2534	1.2666	1.2806
240	1.2165	1.2183	1.2203	1.2222	1.2242	1.2262	1.2282	1.2303	1.2345	1.2456	1.2574	1.2700	1.2833
245	1.2219	1.2237	1.2256	1.2275	1.2294	1.2313	1.2333	1.2353	1.2394	1.2500	1.2614	1.2734	1.2861
250	1.2273	1.2290	1.2309	1.2327	1.2345	1.2364	1.2383	1.2403	1.2442	1.2545	1.2653	1.2769	1.2890
255	1.2326	1.2343	1.2361	1.2378	1.2396	1.2415	1.2433	1.2452	1.2490	1.2589	1.2693	1.2804	1.2920
260	1.2378	1.2395	1.2412	1.2429	1.2447	1.2464	1.2482	1.2500	1.2537	1.2633	1.2733	1.2839	1.2951
265	1.2430	1.2446	1.2462	1.2479	1.2496	1.2513	1.2531	1.2548	1.2584	1.2676	1.2773	1.2875	1.2982
270	1.2481	1.2496	1.2512	1.2529	1.2545	1.2562	1.2579	1.2596	1.2630	1.2719	1.2813	1.2911	1.3013
275	1.2531	1.2546	1.2562	1.2577	1.2593	1.2610	1.2626	1.2642	1.2676	1.2762	1.2853	1.2947	1.3045
280	1.2580	1.2595	1.2610	1.2626	1.2641	1.2657	1.2673	1.2689	1.2721	1.2805	1.2892	1.2983	1.3078
285	1.2629	1.2643	1.2658	1.2673	1.2688	1.2704	1.2719	1.2735	1.2766	1.2847	1.2932	1.3019	1.3110
290	1.2677	1.2691	1.2706	1.2720	1.2735	1.2750	1.2765	1.2780	1.2811	1.2889	1.2971	1.3055	1.3143
295	1.2725	1.2738	1.2752	1.2767	1.2781	1.2795	1.2810	1.2825	1.2854	1.2931	1.3010	1.3091	1.3176
300	1.2771	1.2785	1.2799	1.2812	1.2826	1.2840	1.2855	1.2869	1.2898	1.2972	1.3048	1.3127	1.3209
305	1.2818	1.2831	1.2844	1.2858	1.2871	1.2885	1.2899	1.2913	1.2941	1.3013	1.3087	1.3163	1.3242
310	1.2863	1.2876	1.2889	1.2902	1.2916	1.2929	1.2942	1.2956	1.2983	1.3053	1.3125	1.3199	1.3275

Opteon™ M
Superheated Vapor - Heat Capacity Ratio Table

Rev 1, 10 Nov 2010

Heat Capacity Ratio, Cp/Cv

Saturation Properties in Light Green

Temp °C	ABSOLUTE PRESSURE, kPa													
	101.325	200	300	400	500	600	700	800	1000	1500	2000	2500	3000	
	-29.5 °C	-12.8 °C	-1.5 °C	7.2 °C	14.3 °C	20.5 °C	25.9 °C	30.8 °C	39.3 °C	56.0 °C	69.0 °C	79.6 °C	88.7 °C	
-25	1.1256	-	-	-	-	-	-	-	-	-	-	-	-	
-20	1.1217	-	-	-	-	-	-	-	-	-	-	-	-	
-15	1.1182	-	-	-	-	-	-	-	-	-	-	-	-	
-10	1.1150	1.1367	-	-	-	-	-	-	-	-	-	-	-	
-5	1.1121	1.1315	-	-	-	-	-	-	-	-	-	-	-	
0	1.1094	1.1268	1.1492	-	-	-	-	-	-	-	-	-	-	
5	1.1070	1.1226	1.1424	-	-	-	-	-	-	-	-	-	-	
10	1.1047	1.1188	1.1364	1.1585	-	-	-	-	-	-	-	-	-	
15	1.1025	1.1153	1.1311	1.1505	1.1752	-	-	-	-	-	-	-	-	
20	1.1005	1.1122	1.1263	1.1435	1.1649	-	-	-	-	-	-	-	-	
25	1.0987	1.1094	1.1221	1.1374	1.1560	1.1793	-	-	-	-	-	-	-	
30	1.0969	1.1067	1.1183	1.1320	1.1484	1.1684	1.1935	-	-	-	-	-	-	
35	1.0953	1.1043	1.1148	1.1271	1.1417	1.1591	1.1804	1.2072	-	-	-	-	-	
40	1.0937	1.1021	1.1117	1.1228	1.1358	1.1510	1.1694	1.1918	1.2568	-	-	-	-	
45	1.0923	1.1000	1.1088	1.1189	1.1305	1.1440	1.1600	1.1790	1.2316	-	-	-	-	
50	1.0909	1.0981	1.1062	1.1154	1.1259	1.1379	1.1519	1.1683	1.2118	-	-	-	-	
55	1.0896	1.0963	1.1038	1.1122	1.1217	1.1325	1.1449	1.1592	1.1959	-	-	-	-	
60	1.0884	1.0946	1.1015	1.1093	1.1179	1.1277	1.1387	1.1514	1.1828	1.3421	-	-	-	
65	1.0872	1.0930	1.0994	1.1066	1.1145	1.1234	1.1333	1.1445	1.1719	1.2969	-	-	-	
70	1.0861	1.0915	1.0975	1.1041	1.1114	1.1195	1.1285	1.1385	1.1626	1.2644	1.5846	-	-	
75	1.0850	1.0901	1.0957	1.1018	1.1086	1.1159	1.1241	1.1331	1.1545	1.2396	1.4532	-	-	
80	1.0840	1.0887	1.0940	1.0997	1.1059	1.1127	1.1202	1.1284	1.1475	1.2200	1.3771	2.0703	-	
85	1.0830	1.0875	1.0924	1.0977	1.1035	1.1098	1.1166	1.1241	1.1413	1.2040	1.3262	1.6787	-	
90	1.0820	1.0863	1.0909	1.0959	1.1013	1.1071	1.1134	1.1202	1.1358	1.1907	1.2894	1.5175	2.8798	
95	1.0811	1.0852	1.0895	1.0942	1.0992	1.1046	1.1104	1.1167	1.1309	1.1794	1.2613	1.4255	1.9288	
100	1.0803	1.0841	1.0882	1.0926	1.0973	1.1023	1.1077	1.1135	1.1264	1.1697	1.2390	1.3646	1.6563	
105	1.0795	1.0831	1.0869	1.0911	1.0955	1.1001	1.1052	1.1105	1.1224	1.1613	1.2209	1.3210	1.5183	
110	1.0787	1.0821	1.0857	1.0896	1.0938	1.0981	1.1028	1.1078	1.1188	1.1539	1.2058	1.2879	1.4329	
115	1.0779	1.0811	1.0846	1.0883	1.0922	1.0963	1.1007	1.1053	1.1154	1.1474	1.1931	1.2619	1.3740	
120	1.0771	1.0802	1.0835	1.0870	1.0907	1.0945	1.0986	1.1030	1.1124	1.1416	1.1821	1.2408	1.3308	
125	1.0764	1.0794	1.0825	1.0858	1.0893	1.0929	1.0967	1.1008	1.1096	1.1364	1.1727	1.2234	1.2975	
130	1.0758	1.0786	1.0815	1.0847	1.0879	1.0914	1.0950	1.0988	1.1070	1.1317	1.1644	1.2088	1.2711	
135	1.0751	1.0778	1.0806	1.0836	1.0867	1.0899	1.0933	1.0969	1.1046	1.1274	1.1571	1.1963	1.2496	
140	1.0744	1.0770	1.0797	1.0825	1.0855	1.0886	1.0918	1.0951	1.1023	1.1235	1.1506	1.1856	1.2317	
145	1.0738	1.0763	1.0789	1.0815	1.0843	1.0873	1.0903	1.0935	1.1002	1.1200	1.1447	1.1761	1.2166	
150	1.0732	1.0756	1.0780	1.0806	1.0833	1.0860	1.0889	1.0919	1.0983	1.1167	1.1395	1.1679	1.2037	
155	1.0727	1.0749	1.0773	1.0797	1.0822	1.0849	1.0876	1.0905	1.0965	1.1137	1.1347	1.1605	1.1924	
160	1.0721	1.0742	1.0765	1.0788	1.0813	1.0838	1.0864	1.0891	1.0947	1.1109	1.1304	1.1540	1.1827	
165	1.0716	1.0736	1.0758	1.0780	1.0803	1.0827	1.0852	1.0878	1.0931	1.1083	1.1264	1.1481	1.1740	
170	1.0710	1.0730	1.0751	1.0772	1.0794	1.0817	1.0841	1.0865	1.0916	1.1059	1.1228	1.1427	1.1663	
175	1.0705	1.0724	1.0744	1.0765	1.0786	1.0808	1.0830	1.0853	1.0902	1.1037	1.1195	1.1379	1.1595	
180	1.0700	1.0719	1.0738	1.0757	1.0778	1.0799	1.0820	1.0842	1.0888	1.1016	1.1164	1.1335	1.1533	
185	1.0695	1.0713	1.0731	1.0750	1.0770	1.0790	1.0810	1.0831	1.0875	1.0996	1.1135	1.1295	1.1477	
190	1.0691	1.0708	1.0725	1.0744	1.0762	1.0781	1.0801	1.0821	1.0863	1.0978	1.1109	1.1257	1.1426	
195	1.0686	1.0703	1.0720	1.0737	1.0755	1.0773	1.0792	1.0812	1.0852	1.0961	1.1084	1.1223	1.1380	
200	1.0682	1.0698	1.0714	1.0731	1.0748	1.0766	1.0784	1.0802	1.0841	1.0944	1.1061	1.1191	1.1338	
205	1.0678	1.0693	1.0709	1.0725	1.0741	1.0758	1.0776	1.0793	1.0830	1.0929	1.1039	1.1162	1.1298	
210	1.0673	1.0688	1.0703	1.0719	1.0735	1.0751	1.0768	1.0785	1.0820	1.0914	1.1019	1.1135	1.1262	
215	1.0669	1.0684	1.0698	1.0713	1.0729	1.0744	1.0760	1.0777	1.0810	1.0901	1.1000	1.1109	1.1229	
220	1.0665	1.0679	1.0694	1.0708	1.0723	1.0738	1.0753	1.0769	1.0801	1.0887	1.0982	1.1085	1.1198	
225	1.0662	1.0675	1.0689	1.0703	1.0717	1.0732	1.0746	1.0762	1.0793	1.0875	1.0965	1.1063	1.1169	
230	1.0658	1.0671	1.0684	1.0698	1.0712	1.0726	1.0740	1.0754	1.0784	1.0863	1.0949	1.1042	1.1142	
235	1.0654	1.0667	1.0680	1.0693	1.0706	1.0720	1.0733	1.0747	1.0776	1.0852	1.0934	1.1022	1.1117	
240	1.0651	1.0663	1.0675	1.0688	1.0701	1.0714	1.0727	1.0741	1.0768	1.0841	1.0920	1.1004	1.1094	
245	1.0647	1.0659	1.0671	1.0683	1.0696	1.0709	1.0721	1.0734	1.0761	1.0831	1.0906	1.0986	1.1072	
250	1.0644	1.0655	1.0667	1.0679	1.0691	1.0703	1.0716	1.0728	1.0754	1.0821	1.0893	1.0970	1.1051	
255	1.0641	1.0652	1.0663	1.0675	1.0686	1.0698	1.0710	1.0722	1.0747	1.0812	1.0881	1.0954	1.1031	
260	1.0638	1.0648	1.0659	1.0670	1.0682	1.0693	1.0705	1.0716	1.0740	1.0803	1.0869	1.0939	1.1013	
265	1.0635	1.0645	1.0656	1.0666	1.0677	1.0688	1.0700	1.0711	1.0734	1.0794	1.0858	1.0925	1.0995	
270	1.0631	1.0642	1.0652	1.0662	1.0673	1.0684	1.0695	1.0706	1.0728	1.0786	1.0847	1.0911	1.0979	
275	1.0629	1.0638	1.0648	1.0659	1.0669	1.0679	1.0690	1.0700	1.0722	1.0778	1.0837	1.0899	1.0963	
280	1.0626	1.0635	1.0645	1.0655	1.0665	1.0675	1.0685	1.0695	1.0716	1.0770	1.0827	1.0886	1.0948	
285	1.0623	1.0632	1.0642	1.0651	1.0661	1.0671	1.0681	1.0691	1.0711	1.0763	1.0818	1.0875	1.0934	
290	1.0620	1.0629	1.0638	1.0648	1.0657	1.0667	1.0676	1.0686	1.0705	1.0756	1.0809	1.0864	1.0920	
295	1.0617	1.0626	1.0635	1.0644	1.0653	1.0663	1.0672	1.0681	1.0700	1.0749	1.0800	1.0853	1.0908	
300	1.0615	1.0623	1.0632	1.0641	1.0650	1.0659	1.0668	1.0677	1.0695	1.0743	1.0792	1.0843	1.0895	
305	1.0612	1.0621	1.0629	1.0638	1.0646	1.0655	1.0664	1.0673	1.0690	1.0736	1.0784	1.0833	1.0884	
310	1.0610	1.0618	1.0626	1.0634	1.0643	1.0651	1.0660	1.0668	1.0686	1.0730	1.0776	1.0824	1.0872	

Opteon™ M
Superheated Vapor - Thermal Conductivity Table

Rev 1, 10 Nov 2010

Thermal Conductivity in mW/m-K

Saturation Properties in Light Green

Temp °C	ABSOLUTE PRESSURE, kPa												
	101.325	200	300	400	500	600	700	800	1000	1500	2000	2500	3000
	-29.5 °C	-12.8 °C	-1.5 °C	7.2 °C	14.3 °C	20.5 °C	25.9 °C	30.8 °C	39.3 °C	56.0 °C	69.0 °C	79.6 °C	88.7 °C
-25	9.625	-	-	-	-	-	-	-	-	-	-	-	-
-20	10.002	-	-	-	-	-	-	-	-	-	-	-	-
-15	10.385	-	-	-	-	-	-	-	-	-	-	-	-
-10	10.774	10.816	-	-	-	-	-	-	-	-	-	-	-
-5	11.168	11.206	-	-	-	-	-	-	-	-	-	-	-
0	11.567	11.603	11.655	-	-	-	-	-	-	-	-	-	-
5	11.973	12.006	12.053	-	-	-	-	-	-	-	-	-	-
10	12.383	12.415	12.458	12.516	-	-	-	-	-	-	-	-	-
15	12.799	12.829	12.869	12.921	12.994	-	-	-	-	-	-	-	-
20	13.221	13.250	13.286	13.333	13.397	-	-	-	-	-	-	-	-
25	13.648	13.676	13.709	13.753	13.809	13.884	-	-	-	-	-	-	-
30	14.081	14.107	14.139	14.178	14.229	14.294	14.381	-	-	-	-	-	-
35	14.519	14.544	14.574	14.611	14.656	14.713	14.788	14.887	-	-	-	-	-
40	14.963	14.987	15.015	15.049	15.090	15.142	15.207	15.291	15.552	-	-	-	-
45	15.412	15.435	15.462	15.494	15.532	15.578	15.635	15.707	15.922	-	-	-	-
50	15.866	15.889	15.915	15.945	15.980	16.021	16.072	16.135	16.315	-	-	-	-
55	16.326	16.348	16.373	16.401	16.434	16.472	16.518	16.573	16.726	-	-	-	-
60	16.792	16.813	16.837	16.864	16.894	16.930	16.971	17.020	17.153	17.937	-	-	-
65	17.263	17.284	17.307	17.332	17.361	17.394	17.431	17.476	17.592	18.215	-	-	-
70	17.739	17.760	17.782	17.806	17.833	17.864	17.899	17.939	18.042	18.552	20.368	-	-
75	18.221	18.241	18.262	18.286	18.312	18.340	18.373	18.410	18.502	18.929	20.191	-	-
80	18.709	18.728	18.749	18.771	18.796	18.823	18.853	18.887	18.971	19.336	20.281	24.348	-
85	19.201	19.220	19.241	19.262	19.286	19.312	19.340	19.372	19.448	19.764	20.505	22.819	-
90	19.700	19.718	19.738	19.759	19.782	19.806	19.833	19.863	19.932	20.210	20.810	22.380	30.114
95	20.203	20.221	20.241	20.261	20.283	20.306	20.332	20.360	20.424	20.672	21.169	22.324	25.879
100	20.712	20.730	20.749	20.769	20.790	20.813	20.837	20.863	20.923	21.145	21.566	22.458	24.692
105	21.227	21.244	21.263	21.282	21.303	21.324	21.348	21.373	21.429	21.630	21.992	22.704	24.275
110	21.747	21.764	21.782	21.801	21.821	21.842	21.864	21.888	21.941	22.126	22.440	23.024	24.200
115	22.272	22.289	22.307	22.326	22.345	22.365	22.387	22.409	22.460	22.630	22.907	23.396	24.314
120	22.803	22.820	22.837	22.856	22.874	22.894	22.915	22.937	22.985	23.142	23.390	23.806	24.544
125	23.340	23.356	23.373	23.391	23.409	23.428	23.448	23.470	23.516	23.663	23.886	24.246	24.854
130	23.882	23.898	23.915	23.932	23.950	23.968	23.988	24.008	24.052	24.191	24.394	24.709	25.220
135	24.429	24.445	24.461	24.478	24.496	24.514	24.533	24.553	24.595	24.726	24.912	25.192	25.628
140	24.982	24.997	25.014	25.030	25.047	25.065	25.084	25.103	25.144	25.268	25.440	25.691	26.069
145	25.540	25.555	25.571	25.588	25.605	25.622	25.640	25.659	25.698	25.817	25.977	26.204	26.536
150	26.103	26.119	26.134	26.151	26.167	26.184	26.202	26.220	26.259	26.372	26.522	26.729	27.024
155	26.672	26.687	26.703	26.719	26.735	26.752	26.769	26.787	26.825	26.933	27.075	27.265	27.530
160	27.247	27.262	27.277	27.293	27.309	27.325	27.342	27.360	27.396	27.501	27.635	27.812	28.052
165	27.827	27.842	27.857	27.872	27.888	27.904	27.921	27.938	27.973	28.075	28.202	28.367	28.587
170	28.412	28.427	28.442	28.457	28.473	28.488	28.505	28.521	28.556	28.655	28.776	28.931	29.134
175	29.003	29.017	29.032	29.047	29.063	29.078	29.094	29.111	29.145	29.241	29.357	29.503	29.691
180	29.599	29.613	29.628	29.643	29.658	29.674	29.689	29.705	29.739	29.832	29.944	30.083	30.258
185	30.201	30.215	30.229	30.244	30.259	30.274	30.290	30.306	30.339	30.430	30.538	30.670	30.835
190	30.808	30.822	30.836	30.851	30.866	30.881	30.896	30.912	30.944	31.033	31.138	31.264	31.420
195	31.421	31.434	31.449	31.463	31.477	31.492	31.507	31.523	31.555	31.642	31.743	31.865	32.013
200	32.039	32.052	32.066	32.081	32.095	32.110	32.124	32.140	32.171	32.256	32.355	32.472	32.613
205	32.662	32.676	32.690	32.704	32.718	32.732	32.747	32.762	32.793	32.877	32.973	33.086	33.221
210	33.291	33.304	33.318	33.332	33.346	33.360	33.375	33.390	33.420	33.503	33.597	33.706	33.836
215	33.925	33.939	33.952	33.966	33.980	33.994	34.008	34.023	34.053	34.134	34.226	34.333	34.457
220	34.565	34.578	34.592	34.605	34.619	34.633	34.647	34.662	34.691	34.771	34.862	34.965	35.085
225	35.211	35.223	35.237	35.250	35.264	35.278	35.292	35.306	35.335	35.414	35.502	35.603	35.720
230	35.861	35.874	35.887	35.901	35.914	35.928	35.942	35.956	35.985	36.062	36.149	36.248	36.361
235	36.517	36.530	36.543	36.556	36.570	36.583	36.597	36.611	36.640	36.716	36.801	36.898	37.007
240	37.179	37.192	37.204	37.217	37.231	37.244	37.258	37.272	37.300	37.375	37.459	37.553	37.660
245	37.846	37.858	37.871	37.884	37.897	37.910	37.924	37.938	37.966	38.040	38.123	38.215	38.319
250	38.518	38.531	38.543	38.556	38.569	38.582	38.596	38.609	38.637	38.710	38.792	38.882	38.983
255	39.196	39.209	39.221	39.234	39.247	39.260	39.273	39.286	39.314	39.386	39.466	39.554	39.653
260	39.880	39.892	39.904	39.917	39.929	39.942	39.955	39.969	39.996	40.067	40.146	40.232	40.329
265	40.568	40.580	40.593	40.605	40.618	40.630	40.643	40.656	40.683	40.754	40.831	40.916	41.010
270	41.263	41.275	41.287	41.299	41.311	41.324	41.337	41.350	41.376	41.446	41.521	41.604	41.695
275	41.962	41.974	41.986	41.998	42.011	42.023	42.036	42.048	42.074	42.142	42.216	42.296	42.383
280	42.667	42.679	42.691	42.703	42.715	42.727	42.739	42.752	42.777	42.843	42.913	42.988	43.070
285	43.378	43.390	43.401	43.413	43.425	43.437	43.450	43.462	43.487	43.553	43.623	43.699	43.781
290	44.094	44.105	44.117	44.129	44.141	44.153	44.165	44.178	44.203	44.269	44.339	44.415	44.498
295	44.815	44.827	44.838	44.850	44.862	44.874	44.886	44.899	44.924	44.990	45.060	45.137	45.220
300	45.542	45.554	45.565	45.577	45.589	45.601	45.613	45.625	45.650	45.716	45.787	45.864	45.948
305	46.275	46.286	46.297	46.309	46.321	46.333	46.345	46.357	46.382	46.448	46.519	46.597	46.681
310	47.012	47.023	47.035	47.046	47.058	47.070	47.082	47.094	47.119	47.185	47.257	47.334	47.419

For more information on the Opteon™ family of refrigerants, or other refrigerants products, visit opteon.com or call (800) 235-7882.

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