

Table 26 Refrigerant 764 (Sulfur Dioxide) Properties of Superheated Vapor

Temp F	Abs Pressure 10 psi Gage Pressure 9.6 in. Vac (Sat Temp -1.34 F)			Abs Pressure 15 psi Gage Pressure 0.3 psi (Sat Temp 14.43 F)			Abs Pressure 20 psi Gage Pressure 5.3 psi (Sat Temp 26.43 F)			Abs Pressure 25 psi Gage Pressure 10.3 psi (Sat Temp 36.33 F)		
	v	h	s	v	h	s	v	h	s	v	h	s
(At Sat)	(7.52)	(182.05)	(0.4000)	(8.110)	(183.17)	(0.39091)	(8.778)	(184.80)	(0.38229)	(9.123)	(185.28)	(0.37754)
20	7.939	186.7	0.40802	8.192	185.4	0.39270	8.878	187.8	0.38520	9.181	188.1	0.37927
30	8.030	188.4	0.41159	8.323	187.2	0.39673	9.035	189.8	0.38979	9.273	189.4	0.38372
40	8.316	190.1	0.41505	8.570	189.2	0.40054	9.273	191.8	0.39345	9.506	191.6	0.38735
50	8.500	191.8	0.41837	8.804	191.0	0.40434	9.506	194.2	0.39719	9.739	194.0	0.39108
60	8.681	193.5	0.42161	9.038	192.8	0.40813	9.739	196.6	0.40099	9.972	196.4	0.39498
70	8.860	195.2	0.42489	9.273	195.0	0.41188	9.972	199.0	0.40479	10.206	198.8	0.39897
80	9.038	196.9	0.42813	9.506	196.4	0.41557	10.206	201.4	0.40859	10.439	201.2	0.40296
90	9.214	198.6	0.43137	9.739	198.2	0.41926	10.439	203.8	0.41238	10.672	203.6	0.40695
100	9.389	200.3	0.43457	9.972	200.0	0.42295	10.672	206.2	0.41618	10.906	206.0	0.41094
110	9.563	202.0	0.43775	10.206	201.8	0.42652	10.906	208.6	0.41999	11.139	208.4	0.41493
120	9.736	203.7	0.44097	10.439	203.6	0.43008	11.139	211.0	0.42378	11.372	211.0	0.41892
130	9.908	205.4	0.44413	10.672	205.4	0.43365	11.372	213.4	0.42759	11.606	213.4	0.42291
140	10.08	207.1	0.44728	10.906	207.2	0.43722	11.606	215.8	0.43140	11.839	215.8	0.42690
150	10.25	208.8	0.45042	11.139	209.0	0.44079	11.839	218.2	0.43521	12.072	218.2	0.43089
160	10.42	210.5	0.45357	11.372	210.8	0.44436	12.072	220.6	0.43902	12.306	220.6	0.43488
170	10.59	212.2	0.45672	11.606	212.6	0.44793	12.306	223.0	0.44283	12.539	223.0	0.43887
180	10.76	213.9	0.45987	11.839	214.3	0.45150	12.539	225.4	0.44664	12.772	225.4	0.44286
190	10.93	215.6	0.46302	12.072	216.0	0.45507	12.772	227.8	0.45045	13.006	227.8	0.44685
200	11.10	217.3	0.46617	12.306	217.8	0.45864	13.006	230.2	0.45426	13.239	230.2	0.45084
210	11.27	219.0	0.46932	12.539	219.6	0.46221	13.239	232.6	0.45807	13.472	232.6	0.45483

Temp F	Abs Pressure 40 psi Gage Pressure 25.3 psi (Sat Temp 58.83 F)			Abs Pressure 50 psi Gage Pressure 35.3 psi (Sat Temp 70.49 F)			Abs Pressure 60 psi Gage Pressure 45.3 psi (Sat Temp 82.29 F)			Abs Pressure 70 psi Gage Pressure 55.3 psi (Sat Temp 93.97 F)		
	v	h	s	v	h	s	v	h	s	v	h	s
(At Sat)	(1.077)	(183.80)	(0.36470)	(1.077)	(183.80)	(0.36470)	(1.144)	(185.15)	(0.35277)	(1.151)	(184.77)	(0.34789)
110	2.248	196.1	0.38413	1.650	193.9	0.37369	1.445	191.4	0.36403	1.181	187.7	0.35443
120	2.304	198.3	0.38810	1.825	196.4	0.37815	1.500	194.3	0.36909	1.228	191.6	0.36020
130	2.360	200.4	0.39153	1.998	198.8	0.38234	1.548	197.0	0.37375	1.272	194.8	0.36545
140	2.413	202.5	0.39541	2.171	201.1	0.38627	1.590	199.6	0.37810	1.313	197.6	0.37028
150	2.465	204.6	0.39931	2.344	203.8	0.39019	1.632	202.1	0.38243	1.352	200.9	0.37507
160	2.515	206.5	0.40323	2.517	206.5	0.39413	1.674	204.6	0.38693	1.390	202.9	0.37987
170	2.564	208.5	0.40715	2.690	209.0	0.39808	1.716	207.1	0.39188	1.428	205.3	0.38467
180	2.614	210.4	0.41107	2.863	211.6	0.40203	1.758	209.6	0.39578	1.467	207.6	0.38947
190	2.663	212.3	0.41499	3.036	213.8	0.40598	1.800	212.1	0.39968	1.505	210.0	0.39427
200	2.712	214.2	0.41891	3.209	216.0	0.40993	1.842	214.6	0.40358	1.543	212.4	0.39907
210	2.760	216.0	0.42283	3.382	218.2	0.41388	1.884	217.1	0.40748	1.581	214.8	0.40387
220	2.809	217.9	0.42675	3.555	220.4	0.41783	1.926	219.6	0.41138	1.619	217.2	0.40867
230	2.857	219.7	0.43067	3.728	222.6	0.42178	1.968	222.1	0.41528	1.657	219.6	0.41347
240	2.905	221.5	0.43459	3.901	224.8	0.42573	2.010	224.6	0.41918	1.695	222.0	0.41827
250	2.953	223.3	0.43851	4.074	227.0	0.42968	2.052	227.1	0.42308	1.733	224.4	0.42307
260	3.001	225.1	0.44243	4.247	229.2	0.43363	2.094	229.6	0.42698	1.771	226.8	0.42787

Temp F	Abs Pressure 80 psi Gage Pressure 65.3 psi (Sat Temp 96.88 F)			Abs Pressure 100 psi Gage Pressure 85.3 psi (Sat Temp 110.15 F)			Abs Pressure 120 psi Gage Pressure 105.3 psi (Sat Temp 121.52 F)			Abs Pressure 140 psi Gage Pressure 125.3 psi (Sat Temp 131.64 F)		
	v	h	s	v	h	s	v	h	s	v	h	s
(At Sat)	(0.9099)	(184.33)	(0.34357)	(0.7788)	(183.30)	(0.33603)	(0.6430)	(182.19)	(0.32954)	(0.5451)	(181.04)	(0.32388)
140	1.163	198.6	0.36819	0.8928	194.6	0.35528	0.7085	190.1	0.34254	0.5794	185.1	0.33089
150	1.199	201.3	0.37270	0.9255	197.9	0.36061	0.7403	193.9	0.34904	0.6055	189.7	0.33777
160	1.232	203.9	0.37692	0.9581	200.9	0.36558	0.7720	197.4	0.35494	0.6315	192.6	0.34442
170	1.265	206.4	0.38103	0.9908	203.9	0.37055	0.8037	200.9	0.36084	0.6575	195.6	0.35117
180	1.298	208.7	0.38513	1.0234	206.9	0.37552	0.8354	203.9	0.36674	0.6835	198.6	0.35792
190	1.330	211.0	0.38923	1.0560	209.9	0.38049	0.8671	206.9	0.37264	0.7095	201.6	0.36467
200	1.362	213.3	0.39333	1.0886	212.9	0.38546	0.8988	209.9	0.37854	0.7355	204.6	0.37142
210	1.394	215.6	0.39743	1.1212	215.9	0.39043	0.9305	212.9	0.38444	0.7615	207.6	0.37817
220	1.426	217.9	0.40153	1.1538	218.9	0.39540	0.9622	215.9	0.39034	0.7875	210.6	0.38492
230	1.458	220.2	0.40563	1.1864	221.9	0.40037	0.9939	218.9	0.39624	0.8135	213.6	0.39167
240	1.491	222.5	0.40973	1.2190	224.9	0.40534	1.0256	221.9	0.40214	0.8395	216.6	0.39842

Table 27 Refrigerant 170 (Ethane) Properties of Liquid and Saturated Vapor

Temp F	Pressure			Volume			Density			Enthalpy**			Entropy**		
	psia	psig	psia	vapor	liquid	vapor	vapor	liquid	vapor	h _f	h _g	h _g	s _f	s _g	s _g
-148.0	7.62	14.40	14.1	35.00	1.9	219.7	0.000	0.703	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-144.4	8.60	15.42	15.1	34.85	1.9	219.7	0.000	0.697	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-140.8	9.57	16.44	16.1	34.70	1.9	219.7	0.000	0.691	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-137.2	10.55	17.46	17.1	34.55	1.9	219.7	0.000	0.685	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-133.6	11.52	18.48	18.1	34.40	1.9	219.7	0.000	0.679	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-130.0	12.50	19.50	19.1	34.25	1.9	219.7	0.000	0.673	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-126.4	13.48	20.52	20.1	34.10	1.9	219.7	0.000	0.667	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-122.8	14.46	21.54	21.1	33.95	1.9	219.7	0.000	0.661	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-119.2	15.44	22.56	22.1	33.80	1.9	219.7	0.000	0.655	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-115.6	16.42	23.58	23.1	33.65	1.9	219.7	0.000	0.649	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 27 Refrigerant 170 (Ethane) Properties of Liquid and Saturated Vapor (Concluded)

Temp F	Pressure		Volume	Density	Enthalpy**		Temp F	Pressure		Volume	Density	Enthalpy**		Temp F	Pressure		Volume	Density	Enthalpy**	
	psia	psig	vapor V _g	Liquid 1/v _l	Liquid h _l	Vapor h _g		psia	psig	vapor V _g	Liquid 1/v _l	Liquid h _l	Vapor h _g		psia	psig	vapor V _g	Liquid 1/v _l	Liquid h _l	Vapor h _g
-76.0	55.09	40.39	2.30	31.68	44.3	233.7	0.120	0.619	10.4	254.4	240.7	0.492	28.53	107.4	254.7	0.570	582	0.583		
-72.4	59.58	44.83	2.13	31.50	44.5	234.6	0.120	0.617	14.0	261.1	234.4	0.463	28.32	110.7	254.7	0.577	587	0.588		
-68.8	64.33	49.63	1.98	31.32	44.9	235.5	0.120	0.615	17.6	268.3	230.5	0.437	28.09	114.0	255.1	0.583	593	0.594		
-65.2	69.35	54.65	1.84	31.14	45.3	236.3	0.120	0.614	21.2	275.4	228.6	0.413	27.86	117.3	255.4	0.589	599	0.600		
-61.6	74.66	59.96	1.71	30.96	51.8	237.2	0.146	0.612	24.8	283.3	226.6	0.388	25.51	120.9	257.4	0.597	609	0.620		
-58.0	80.38	65.63	1.60	30.76	54.3	238.2	0.151	0.609	28.4	292.2	214.5	0.366	25.23	124.5	258.1	0.604	618	0.628		
-54.4	86.15	71.45	1.48	30.58	56.7	239.0	0.157	0.607	32.0	303.7	213.0	0.346	24.95	128.5	259.7	0.617	637	0.647		
-50.8	92.38	77.60	1.38	30.38	59.2	239.9	0.163	0.605	35.6	314.8	211.5	0.327	24.67	132.7	261.3	0.629	659	0.670		
-47.2	98.89	84.19	1.29	30.18	61.8	240.9	0.169	0.603	39.2	328.5	209.8	0.313	24.38	135.9	263.0	0.642	687	0.696		
-43.6	105.7	91.0	1.21	29.98	64.4	241.9	0.175	0.602	42.8	339.8	208.1	0.297	24.00	140.0	265.0	0.656	720	0.737		
-40.0	112.9	98.2	1.136	29.78	67.0	242.8	0.181	0.600	46.4	347.8	207.1	0.281	23.65	144.2	266.0	0.669	758	0.774		
-36.4	120.3	105.8	1.066	29.58	69.8	243.7	0.187	0.598	50.0	357.8	206.0	0.267	23.32	148.3	267.2	0.683	800	0.817		
-32.8	128.1	113.7	1.000	29.37	72.6	244.6	0.194	0.597	53.6	369.1	204.9	0.254	22.99	152.0	268.2	0.696	847	0.872		
-29.2	136.3	122.0	0.936	29.16	75.6	245.5	0.200	0.596	57.2	382.0	203.8	0.242	22.68	155.9	269.1	0.710	900	0.930		
-25.6	144.8	130.6	0.876	28.95	78.7	246.4	0.206	0.595	60.8	396.4	202.7	0.230	22.38	159.8	270.1	0.725	960	1.000		
-22.0	153.4	139.7	0.831	28.73	80.5	247.4	0.213	0.594	64.4	423.5	200.8	0.200	21.54	166.1	281.0	0.835	1050	1.066		
-18.4	162.3	149.1	0.792	28.52	82.0	248.3	0.219	0.593	68.0	460.9	202.3	0.185	21.00	170.260	289.3	0.933	1163	1.143		
-14.8	171.7	158.0	0.737	28.27	86.2	249.1	0.225	0.591	71.6	517.1	205.6	0.171	20.46	175.259	292.0	1.022	1260	1.220		
-11.2	181.6	169.3	0.694	28.04	89.1	249.9	0.231	0.590	75.2	588.0	210.1	0.158	19.96	180.377	294.7	1.125	1343	1.307		
-7.6	191.7	180.0	0.654	27.80	92.0	250.8	0.238	0.589	78.8	621.5	207.1	0.145	19.16	183.5	294.0	1.241	1449	1.401		
-4.0	205.9	191.2	0.617	27.57	95.0	251.6	0.244	0.588	82.4	646.4	203.7	0.132	18.36	190	290	1.360	1570	1.500		
+0.4	221.9	202.9	0.582	27.33	98.0	252.4	0.250	0.587	86.0	704.1	209.4	0.118	17.20	195	244	1.439	1599	1.599		
+6.8	239.7	218.7	0.549	26.98	101.0	253.2	0.256	0.586	90.0	770.7	215.9	0.109	16.03	200	240	1.527	1697	1.697		
+13.2	259.7	238.7	0.518	26.54	104.2	253.8	0.263	0.584	90.11	707.3	693.1	0.107	12.63	220	220	1.640	1850	1.850		