

표 ESStb-M5, 과열 및 준안정(Metastable) 증기 성질 - 1/3

온도 oC	0.1 kg/cm2 a (tsat = 45.43 oC)			0.2 kg/cm2 a (tsat = 59.64 oC)			0.4 kg/cm2 a (tsat = 75.39 oC)			0.6 kg/cm2 a (tsat = 85.43 oC)			온도 oC
	v	h	s	v	h	s	v	h	s	v	h	s	
<b>Sat. Vap.</b>	14.943	616.99	1.9480	7.7896	622.96	1.8902	4.0668	629.42	1.8333	2.7822	633.43	1.8004	<b>Sat. Vap.</b>
<b>90</b>	17.063	637.34	2.0078	8.5173	637.01	1.9306	4.2443	636.33	1.8527	2.8197	635.63	1.8065	<b>90</b>
<b>85</b>	16.826	635.06	2.0015	8.3979	634.71	1.9242	4.1837	633.98	1.8462	2.7787	633.23	1.7998	<b>85</b>
<b>80</b>	16.589	632.79	1.9951	8.2785	632.41	1.9178	4.1230	631.61	1.8395	2.7374	630.78	1.7929	<b>80</b>
<b>75</b>	16.351	630.51	1.9886	8.1588	630.10	1.9112	4.0620	629.24	1.8328	2.6959	628.31	1.7859	<b>75</b>
<b>70</b>	16.114	628.24	1.9820	8.0390	627.79	1.9045	4.0008	626.84	1.8258	2.6541	625.81	1.7786	<b>70</b>
<b>65</b>	15.876	625.96	1.9753	7.9188	625.47	1.8977	3.9392	624.41	1.8187	2.6119	623.26	1.7712	<b>65</b>
<b>60</b>	15.638	623.68	1.9685	7.7984	623.13	1.8907	3.8773	621.95	1.8114	2.5693	620.67	1.7634	<b>60</b>
<b>55</b>	15.400	621.39	1.9616	7.6774	620.78	1.8836	3.8149	619.46	1.8038	2.5261	618.00	1.7554	<b>55</b>
<b>50</b>	15.161	619.10	1.9545	7.5561	618.41	1.8763	3.7520	616.92	1.7960	2.4822	615.25	1.7469	<b>50</b>
<b>45</b>	14.922	616.79	1.9473	7.4342	616.02	1.8689	3.6884	614.32	1.7879	2.4375	612.38	1.7380	<b>45</b>
<b>40</b>	14.682	614.47	1.9400	7.3117	613.60	1.8612	3.6239	611.65	1.7795	2.3915	609.37	1.7284	<b>40</b>
<b>35</b>	14.441	612.14	1.9325	7.1883	611.14	1.8533	3.5582	608.87	1.7705	2.3441	606.16	1.7181	<b>35</b>
<b>30</b>	14.200	609.78	1.9248	7.0640	608.63	1.8451	3.4912	605.97	1.7610	2.2947	602.69	1.7067	<b>30</b>
<b>25</b>	13.957	607.40	1.9168	6.9383	606.06	1.8365	3.4222	602.89	1.7508				<b>25</b>
<b>20</b>	13.714	604.98	1.9087	6.8109	603.41	1.8276	3.3506	599.57	1.7396				<b>20</b>
<b>15</b>	13.468	602.53	1.9002	6.6813	600.65	1.8181							<b>15</b>
<b>10</b>	13.220	600.02	1.8914	6.5489	597.75	1.8079							<b>10</b>
<b>5</b>	12.969	597.43	1.8822	6.4126	594.67	1.7969							<b>5</b>
<b>0</b>	12.715	594.75	1.8725										<b>0</b>
<b>-5</b>	12.456	591.94	1.8621										<b>-5</b>
<b>-10</b>	12.190	588.95	1.8508										<b>-10</b>
<b>-15</b>	11.914	585.72	1.8385										<b>-15</b>

온도 oC	0.8 kg/cm2 a (tsat = 92.96 oC)			1.0 kg/cm2 a (tsat = 99.06 oC)			1.2 kg/cm2 a (tsat = 104.22 oC)			1.4 kg/cm2 a (tsat = 108.71 oC)			온도 oC
	v	h	s	v	h	s	v	h	s	v	h	s	
<b>Sat. Vap.</b>	2.1257	636.36	1.7771	1.7252	638.69	1.7592	1.4548	640.63	1.7446	1.2594	642.28	1.7322	<b>Sat. Vap.</b>
<b>110</b>	2.2307	644.61	1.7991	1.7797	644.06	1.7734	1.4790	643.50	1.7521	1.2641	642.93	1.7339	<b>110</b>
<b>105</b>	2.2000	642.20	1.7928	1.7549	641.62	1.7670	1.4580	641.02	1.7456	1.2458	640.38	1.7272	<b>105</b>
<b>100</b>	2.1692	639.79	1.7864	1.7299	639.16	1.7604	0.0010	638.49	1.7389	1.2274	637.80	1.7204	<b>100</b>
<b>95</b>	2.1383	637.36	1.7798	1.7047	636.67	1.7537	1.4156	635.93	1.7320	1.2089	635.17	1.7133	<b>95</b>
<b>90</b>	2.1071	634.91	1.7731	1.6794	634.14	1.7468	1.3940	633.33	1.7248	1.1900	632.48	1.7059	<b>90</b>
<b>85</b>	2.0758	632.42	1.7662	1.6538	631.57	1.7397	1.3723	630.67	1.7175	1.1710	629.72	1.6983	<b>85</b>
<b>80</b>	2.0442	629.89	1.7591	1.6280	628.95	1.7323	1.3502	627.95	1.7098	1.1515	626.88	1.6903	<b>80</b>
<b>75</b>	2.0124	627.32	1.7518	1.6018	626.27	1.7247	1.3278	625.14	1.7018	1.1317	623.93	1.6819	<b>75</b>
<b>70</b>	1.9802	624.71	1.7442	1.5753	623.52	1.7167	1.3049	622.23	1.6934	1.1113	620.84	1.6729	<b>70</b>
<b>65</b>	1.9475	622.02	1.7363	1.5482	620.66	1.7083	1.2814	619.18	1.6845	1.0902	617.56	1.6633	<b>65</b>
<b>60</b>	1.9143	619.25	1.7281	1.5205	617.69	1.6995	1.2571	615.96	1.6748	1.0682	614.04	1.6528	<b>60</b>
<b>55</b>	1.8805	616.37	1.7194	1.4920	614.55	1.6900	1.2319	612.50	1.6644				<b>55</b>
<b>50</b>	1.8458	613.35	1.7101	1.4624	611.19	1.6796							<b>50</b>
<b>45</b>	1.8099	610.14	1.7001										<b>45</b>
<b>40</b>	1.7726	606.69	1.6891										<b>40</b>

단위 : v (m3/kg) ; h (kcal/kg) ; s (kcal/kg-K)

주 : 기울임꼴 글자체로 표시된 상태는 준안정 증기 성질 값의 유효 범위한 5% 안정 상태 습도 범위를 벗어나는 상태입니다.

표 ESStb-M5, 과열 및 준안정(Metastable) 증기 성질 - 2/3

온도 oC	1.6 kg/cm2 a (tsat = 112.71 oC)			1.8 kg/cm2 a (tsat = 116.31 oC)			2.0 kg/cm2 a (tsat = 119.60 oC)			2.2 kg/cm2 a (tsat = 122.62 oC)			온도 oC
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	1.1115	643.73	1.7216	0.99556	645.01	1.7122	0.90207	646.16	1.7038	0.82507	647.21	1.6962	Sat. Vap.
125	1.1505	649.91	1.7374	1.0202	649.43	1.7234	0.91600	648.94	1.7108	0.83068	648.44	1.6993	125
120	1.1347	647.41	1.7310	1.0061	646.90	1.7170	0.90312	646.37	1.7043	0.81876	645.81	1.6927	120
115	1.1189	644.89	1.7246	0.99174	644.33	1.7104	0.00106	643.74	1.6976	0.80675	643.13	1.6858	115
110	1.1028	642.33	1.7179	0.97730	641.71	1.7036	0.87684	641.07	1.6906	0.79459	640.40	1.6787	110
105	1.0866	639.73	1.7111	0.96270	639.04	1.6966	0.86349	638.34	1.6835	0.78225	637.61	1.6714	105
100	1.0703	637.07	1.7040	0.94791	636.32	1.6894	0.84994	635.54	1.6760	0.76969	634.73	1.6637	100
95	1.0537	634.37	1.6967	0.93290	633.53	1.6819	0.83614	632.66	1.6683	0.75686	631.75	1.6557	95
90	1.0369	631.59	1.6891	0.91760	630.65	1.6740	0.82203	629.67	1.6601	0.74369	628.64	1.6472	90
85	1.0198	628.72	1.6812	0.90197	627.67	1.6657	0.80754	626.55	1.6514	0.73010	625.36	1.6381	85
80	1.0023	625.75	1.6728	0.88590	624.54	1.6569	0.79257	623.25	1.6421	0.71598	621.87	1.6283	80
75	0.98427	622.63	1.6639	0.86929	621.23	1.6475	0.77699	619.72	1.6321	0.70117	618.10	1.6175	75
70	0.96566	619.32	1.6544	0.85197	617.68	1.6372							70
65	0.94626	615.78	1.6440										65

온도 oC	2.5 kg/cm2 a (tsat = 126.77 oC)			3.0 kg/cm2 a (tsat = 132.86 oC)			3.5 kg/cm2 a (tsat = 138.18 oC)			4.0 kg/cm2 a (tsat = 142.91 oC)			온도 oC
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	0.73196	648.61	1.6860	0.61698	650.61	1.6715	0.53389	652.31	1.6592	0.47096	653.76	1.6485	Sat. Vap.
145	0.76966	658.02	1.7090	0.63826	657.03	1.6870	0.54433	655.99	1.6681	0.47380	654.92	1.6513	145
140	0.75943	655.48	1.7029	0.62956	654.41	1.6807	0.53670	653.30	1.6616	0.46693	652.11	1.6445	140
135	0.74912	652.91	1.6966	0.62077	651.76	1.6743	0.00107	650.53	1.6549	0.45997	649.24	1.6375	135
130	0.73873	650.31	1.6902	0.61182	649.05	1.6676	0.52107	647.71	1.6479	0.45289	646.30	1.6303	130
125	0.72817	647.66	1.6836	0.60280	646.28	1.6607	0.51309	644.82	1.6407	0.44566	643.27	1.6227	125
120	0.71753	644.95	1.6768	0.59363	643.45	1.6535	0.50495	641.84	1.6331	0.43826	640.12	1.6148	120
115	0.70674	642.19	1.6697	0.58431	640.54	1.6461	0.49662	638.75	1.6252	0.43064	636.83	1.6063	115
110	0.69579	639.37	1.6624	0.57478	637.53	1.6383	0.48806	635.53	1.6169	0.42275	633.36	1.5973	110
105	0.68463	636.46	1.6547	0.56502	634.40	1.6301	0.47922	632.14	1.6080	0.41453	629.67	1.5876	105
100	0.67323	633.44	1.6467	0.55495	631.12	1.6213	0.47003	628.54	1.5984	0.40590	625.68	1.5770	100
95	0.66152	630.30	1.6382	0.54452	627.64	1.6119	0.46038	624.66	1.5879				95
90	0.64943	626.98	1.6292	0.53361	623.91	1.6017							90
85	0.63685	623.45	1.6194										85
80	0.62365	619.63	1.6086										80

온도 oC	5 kg/cm2 a (tsat = 151.10 oC)			6 kg/cm2 a (tsat = 158.07 oC)			7 kg/cm2 a (tsat = 164.17 oC)			8 kg/cm2 a (tsat = 169.61 oC)			온도 oC
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	0.38176	656.17	1.6306	0.32145	658.09	1.6160	0.27785	659.67	1.6035	0.24482	661.01	1.5927	Sat. Vap.
175	0.40765	669.25	1.6606	0.33713	667.67	1.6378	0.28669	666.02	1.6178	0.24878	664.28	1.6000	175
170	0.40234	666.59	1.6547	0.33258	664.90	1.6316	0.28265	663.13	1.6114	0.24512	661.25	1.5932	170
165	0.39699	663.89	1.6486	0.32796	662.10	1.6252	0.27855	660.18	1.6047	0.24138	658.11	1.5861	165
160	0.39157	661.16	1.6423	0.32328	659.22	1.6186	0.27436	657.12	1.5976	0.23755	654.88	1.5787	160
155	0.38609	658.38	1.6358	0.31850	656.25	1.6117	0.27008	653.97	1.5903	0.23361	651.52	1.5709	155
150	0.38051	655.52	1.6291	0.31363	653.21	1.6045	0.26569	650.71	1.5827	0.22956	648.02	1.5627	150
145	0.37484	652.59	1.6221	0.30866	650.06	1.5971	0.26118	647.32	1.5746	0.22536	644.35	1.5539	145
140	0.36907	649.58	1.6149	0.30356	646.81	1.5892	0.25652	643.77	1.5661	0.22099	640.45	1.5446	140
135	0.36317	646.47	1.6073	0.29831	643.41	1.5810	0.25168	640.02	1.5570	0.21641	636.28	1.5344	135
130	0.35711	643.24	1.5994	0.29287	639.83	1.5721	0.24662	636.02	1.5471				130
125	0.35088	639.87	1.5910	0.28721	636.03	1.5627	0.24128	631.70	1.5363				125
120	0.34442	636.31	1.5820	0.28127	631.95	1.5524							120
115	0.33768	632.52	1.5723										115
110	0.33059	628.43	1.5617										110

단위 : v (m3/kg) ; h (kcal/kg) ; s (kcal/kg-K)

주 : 기울입플 글자체로 표시된 상태는 준안정 증기 성질 값의 유효 범위인 5% 안정 상태 습도 범위를 벗어나는 상태입니다.

표 ESStb-M5, 과열 및 준안정(Metastable) 증기 성질 - 3/3

온도 oC	10 kg/cm2 a (tsat = 179.04 oC)			12 kg/cm2 a (tsat = 187.08 oC)			14 kg/cm2 a (tsat = 194.14 oC)			16 kg/cm2 a (tsat = 200.44 oC)			온도 oC
	v	h	s	v	h	s	v	h	s	v	h	s	
<b>Sat. Vap.</b>	0.19800	663.13	1.5744	0.16633	664.73	1.5593	0.14344	665.97	1.5464	0.12609	666.94	1.5351	<b>Sat. Vap.</b>
<b>205</b>	0.21316	678.66	1.6078	0.17541	675.98	1.5833	0.14836	673.15	1.5616	0.12798	670.12	1.5418	<b>205</b>
<b>200</b>	0.21034	675.79	1.6018	0.17294	672.95	1.5769	0.14613	669.92	1.5548	0.12593	666.63	1.5344	<b>200</b>
<b>195</b>	0.20747	672.88	1.5956	0.17043	669.85	1.5703	0.14384	666.56	1.5477	0.12379	662.98	1.5267	<b>195</b>
<b>190</b>	0.20457	669.92	1.5892	0.16786	666.66	1.5635	0.14151	663.07	1.5402	0.12158	659.17	1.5185	<b>190</b>
<b>185</b>	0.20161	666.88	1.5827	0.16524	663.33	1.5563	0.13908	659.43	1.5323	0.11929	655.18	1.5098	<b>185</b>
<b>180</b>	0.19859	663.74	1.5758	0.16254	659.87	1.5487	0.13657	655.63	1.5239	0.11690	650.97	1.5006	<b>180</b>
<b>175</b>	0.19551	660.49	1.5685	0.15975	656.28	1.5407	0.13397	651.63	1.5151	0.11440	646.49	1.4906	<b>175</b>
<b>170</b>	0.19234	657.12	1.5610	0.15686	652.52	1.5323	0.13125	647.40	1.5056	0.11176	641.68	1.4798	<b>170</b>
<b>165</b>	0.18907	653.62	1.5530	0.15386	648.57	1.5233	0.12839	642.88	1.4953				<b>165</b>
<b>160</b>	0.18570	649.96	1.5446	0.15073	644.36	1.5136	0.12537	638.00	1.4841				<b>160</b>
<b>155</b>	0.18219	646.10	1.5357	0.14744	639.86	1.5032							<b>155</b>
<b>150</b>	0.17853	642.00	1.5260										<b>150</b>
<b>145</b>	0.17468	637.60	1.5156										<b>145</b>

온도 oC	20 kg/cm2 a (tsat = 211.40 oC)			25 kg/cm2 a (tsat = 222.92 oC)			30 kg/cm2 a (tsat = 232.78 oC)			40 kg/cm2 a (tsat = 249.20 oC)			온도 oC
	v	h	s	v	h	s	v	h	s	v	h	s	
<b>Sat. Vap.</b>	0.101 50	668.28	1.5158	0.081 51	669.20	1.4960	0.067 98	669.54	1.4793	0.050 79	669.07	1.4517	<b>Sat. Vap.</b>
<b>255</b>	0.115 37	696.84	1.5723	0.090 26	691.89	1.5403	0.073 41	686.55	1.5122	0.052 03	674.36	1.4617	<b>255</b>
<b>250</b>	0.113 89	693.82	1.5666	0.088 98	688.62	1.5341	0.072 25	682.98	1.5054	0.050 96	669.82	1.4531	<b>250</b>
<b>245</b>	0.112 38	690.76	1.5607	0.087 67	685.28	1.5277	0.071 06	679.28	1.4983	0.049 84	664.98	1.4438	<b>245</b>
<b>240</b>	0.110 85	687.65	1.5547	0.086 34	681.86	1.5211	0.069 84	675.45	1.4909	0.048 66	659.82	1.4338	<b>240</b>
<b>235</b>	0.109 30	684.48	1.5484	0.084 98	678.33	1.5142	0.068 57	671.41	1.4830	0.047 40	654.28	1.4229	<b>235</b>
<b>230</b>	0.107 72	681.24	1.5420	0.083 58	674.68	1.5070	0.067 24	667.13	1.4745	0.046 06	648.29	1.4111	<b>230</b>
<b>225</b>	0.106 10	677.92	1.5354	0.082 13	670.86	1.4993	0.065 85	662.63	1.4655				<b>225</b>
<b>220</b>	0.104 46	674.51	1.5285	0.080 63	666.82	1.4912	0.064 40	657.86	1.4559				<b>220</b>
<b>215</b>	0.102 76	670.95	1.5213	0.079 06	662.58	1.4825	0.062 87	652.76	1.4455				<b>215</b>
<b>210</b>	0.101 01	667.22	1.5136	0.077 42	658.12	1.4733	0.061 24	647.29	1.4342				<b>210</b>
<b>205</b>	0.099 20	663.32	1.5055	0.075 70	653.37	1.4635							<b>205</b>
<b>200</b>	0.097 31	659.23	1.4969	0.073 89	648.30	1.4528							<b>200</b>
<b>195</b>	0.095 35	654.92	1.4877	0.071 96	642.84	1.4412							<b>195</b>
<b>190</b>	0.093 29	650.35	1.4779										<b>190</b>
<b>185</b>	0.091 11	645.45	1.4673										<b>185</b>

온도 oC	50 kg/cm2 a (tsat = 262.73 oC)			60 kg/cm2 a (tsat = 274.32 oC)			80 kg/cm2 a (tsat = 293.65 oC)			100 kg/cm2 a (tsat = 309.57 oC)			온도 oC
	v	h	s	v	h	s	v	h	s	v	h	s	
<b>Sat. Vap.</b>	0.040 27	667.58	1.4289	0.033 14	665.38	1.4090	0.024 06	659.43	1.3746	0.018 47	651.80	1.3442	<b>Sat. Vap.</b>
<b>315</b>	0.048 55	710.49	1.5055	0.039 08	702.55	1.4747	0.026 97	684.12	1.4174	0.019 25	660.24	1.3586	<b>315</b>
<b>310</b>	0.047 85	706.96	1.4995	0.038 44	698.61	1.4679	0.026 36	678.96	1.4086	0.018 54	652.52	1.3454	<b>310</b>
<b>305</b>	0.047 14	703.34	1.4932	0.037 78	694.55	1.4609	0.025 71	673.50	1.3992	0.017 74	643.71	1.3303	<b>305</b>
<b>300</b>	0.046 42	699.65	1.4868	0.037 10	690.36	1.4537	0.025 02	667.65	1.3891	0.016 84	633.54	1.3126	<b>300</b>
<b>295</b>	0.045 68	695.86	1.4802	0.036 40	686.00	1.4460	0.024 27	661.27	1.3779				<b>295</b>
<b>290</b>	0.044 92	691.95	1.4733	0.035 67	681.46	1.4380	0.023 46	654.15	1.3653				<b>290</b>
<b>285</b>	0.044 14	687.93	1.4661	0.034 91	676.68	1.4295	0.022 56	646.17	1.3511				<b>285</b>
<b>280</b>	0.043 33	683.75	1.4586	0.034 11	671.61	1.4204	0.021 55	637.12	1.3348				<b>280</b>
<b>275</b>	0.042 49	679.39	1.4507	0.033 26	666.16	1.4105							<b>275</b>
<b>270</b>	0.041 62	674.80	1.4422	0.032 35	660.23	1.3996							<b>270</b>
<b>265</b>	0.040 70	669.92	1.4332	0.031 37	653.74	1.3876							<b>265</b>
<b>260</b>	0.039 73	664.67	1.4234	0.030 30	646.59	1.3742							<b>260</b>
<b>255</b>	0.038 69	659.02	1.4128	0.029 12	638.63	1.3592							<b>255</b>
<b>250</b>	0.037 58	652.89	1.4011										<b>250</b>
<b>245</b>	0.036 38	646.18	1.3882										<b>245</b>

단위 : v (m3/kg) ; h (kcal/kg) ; s (kcal/kg-K)

주 : 기울임꼴 글자체로 표시된 상태는 준안정 증기 성질 값의 유효 범위의 5% 안정 상태 습도 범위를 벗어나는 상태입니다.