

표 ESStb-S5, 과열 및 준안정(Metastable) 증기 성질 - 1/3

온도 oC	0.1 bar a (tsat = 45.81 oC)			0.2 bar a (tsat = 60.06 oC)			0.4 bar a (tsat = 75.86 oC)			0.6 bar a (tsat = 85.93 oC)			온도 oC
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	14.671	2583.9	8.1489	7.6482	2608.9	7.9072	3.9931	2636.1	7.6690	2.7318	2652.9	7.5311	Sat. Vap.
90	16.732	2668.4	8.3970	8.3520	2667.0	8.0740	4.1616	2664.1	7.7477	2.7646	2661.1	7.5539	90
85	16.500	2658.9	8.3706	8.2350	2657.3	8.0473	4.1022	2654.2	7.7203	2.7243	2651.0	7.5259	85
80	16.267	2649.3	8.3438	8.1178	2647.7	8.0202	4.0427	2644.3	7.6925	2.6838	2640.7	7.4971	80
75	16.035	2639.8	8.3167	8.0004	2638.0	7.9926	3.9828	2634.4	7.6641	2.6430	2630.4	7.4675	75
70	15.802	2630.3	8.2891	7.8828	2628.3	7.9646	3.9227	2624.3	7.6349	2.6020	2619.9	7.4371	70
65	15.569	2620.7	8.2611	7.7650	2618.6	7.9361	3.8623	2614.1	7.6051	2.5605	2609.2	7.4058	65
60	15.335	2611.2	8.2326	7.6467	2608.9	7.9069	3.8015	2603.8	7.5743	2.5187	2598.3	7.3732	60
55	15.102	2601.6	8.2037	7.5281	2599.0	7.8771	3.7402	2593.3	7.5427	2.4762	2587.1	7.3393	55
50	14.867	2592.0	8.1741	7.4090	2589.1	7.8466	3.6784	2582.7	7.5100	2.4331	2575.5	7.3037	50
45	14.632	2582.3	8.1440	7.2894	2579.0	7.8153	3.6159	2571.7	7.4759	2.3890	2563.4	7.2661	45
40	14.397	2572.6	8.1132	7.1692	2568.9	7.7831	3.5525	2560.5	7.4403	2.3438	2550.7	7.2258	40
35	14.161	2562.8	8.0816	7.0481	2558.5	7.7499	3.4879	2548.8	7.4027	2.2970	2537.1	7.1822	35
30	13.924	2552.9	8.0493	6.9259	2548.0	7.7154	3.4219	2536.6	7.3626				30
25	13.686	2543.0	8.0161	6.8025	2537.2	7.6795	3.3540	2523.6	7.3193				25
20	13.447	2532.8	7.9819	6.6773	2526.1	7.6419	3.2835	2509.6	7.2720				20
15	13.206	2522.5	7.9464	6.5500	2514.5	7.6020							15
10	12.962	2512.0	7.9095	6.4197	2502.3	7.5592							10
5	12.716	2501.1	7.8708	6.2855	2489.2	7.5128							5
0	12.466	2489.8	7.8299										0
-5	12.211	2478.0	7.7861										-5
-10	11.950	2465.4	7.7387										-10
-15	11.679	2451.8	7.6864										-15

온도 oC	0.8 bar a (tsat = 93.49 oC)			1.0 bar a (tsat = 99.61 oC)			1.2 bar a (tsat = 104.78 oC)			1.4 bar a (tsat = 109.29 oC)			온도 oC
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	2.0872	2665.2	7.4339	1.6940	2674.9	7.3588	1.4284	2683.1	7.2976	1.2366	2690.0	7.2460	Sat. Vap.
110	2.1871	2698.7	7.5232	1.7448	2696.3	7.4154	1.4499	2693.9	7.3262	1.2392	2691.5	7.2499	110
105	2.1570	2688.6	7.4968	1.7205	2686.1	7.3885	1.4293	2683.5	7.2988	1.2212	2680.8	7.2218	105
100	2.1268	2678.5	7.4698	1.6960	2675.8	7.3610	0.0010	2672.9	7.2706	1.2031	2669.9	7.1929	100
95	2.0964	2668.3	7.4423	1.6712	2665.3	7.3328	1.3876	2662.1	7.2416	1.1849	2658.9	7.1631	95
90	2.0658	2658.0	7.4142	1.6463	2654.7	7.3037	1.3664	2651.2	7.2116	1.1664	2647.6	7.1322	90
85	2.0350	2647.5	7.3852	1.6212	2643.9	7.2738	1.3451	2640.0	7.1807	1.1476	2636.0	7.1000	85
80	2.0040	2636.9	7.3554	1.5958	2632.9	7.2428	1.3234	2628.6	7.1485	1.1285	2624.0	7.0663	80
75	1.9727	2626.1	7.3246	1.5701	2621.6	7.2107	1.3013	2616.8	7.1148	1.1089	2611.5	7.0308	75
70	1.9410	2615.1	7.2928	1.5439	2610.0	7.1772	1.2787	2604.5	7.0792	1.0888	2598.5	6.9930	70
65	1.9089	2603.8	7.2596	1.5173	2598.0	7.1419	1.2556	2591.6	7.0415	1.0680	2584.6	6.9523	65
60	1.8763	2592.2	7.2249	1.4900	2585.5	7.1045	1.2316	2578.0	7.0008	1.0463	2569.7	6.9078	60
55	1.8430	2580.1	7.1882	1.4619	2572.2	7.0644	1.2067	2563.3	6.9565				55
50	1.8088	2567.3	7.1490	1.4326	2558.0	7.0207							50
45	1.7734	2553.7	7.1067										45
40	1.7365	2539.1	7.0604										40

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

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

표 ESStb-S5, 과열 및 준안정(Metastable) 증기 성질 - 2/3

온도 oC	1.6 bar a (tsat = 113.30 oC)			1.8 bar a (tsat = 116.91 oC)			2.0 bar a (tsat = 120.21 oC)			2.2 bar a (tsat = 123.25 oC)			온도 oC
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	1.0914	2696.0	7.2014	0.9775	2701.4	7.1620	0.8857	2706.2	7.1269	0.8101	2710.6	7.0951	Sat. Vap.
125	1.1278	2720.7	7.2643	1.0001	2718.7	7.2058	0.8979	2716.6	7.1530	0.8142	2714.4	7.1047	125
120	1.1123	2710.3	7.2378	0.9862	2708.0	7.1790	0.8851	2705.8	7.1256	0.8025	2703.4	7.0767	120
115	1.0968	2699.7	7.2107	0.9721	2697.2	7.1513	0.0011	2694.7	7.0974	0.7906	2692.1	7.0479	115
110	1.0810	2688.9	7.1828	0.9579	2686.2	7.1228	0.8594	2683.5	7.0682	0.7787	2680.6	7.0181	110
105	1.0651	2678.0	7.1541	0.9435	2675.0	7.0933	0.8462	2672.0	7.0381	0.7665	2668.8	6.9872	105
100	1.0490	2666.8	7.1244	0.9290	2663.6	7.0629	0.8329	2660.2	7.0067	0.7542	2656.7	6.9549	100
95	1.0327	2655.4	7.0937	0.9142	2651.8	7.0312	0.8193	2648.1	6.9740	0.7415	2644.1	6.9209	95
90	1.0161	2643.7	7.0617	0.8991	2639.7	6.9980	0.8054	2635.5	6.9395	0.7285	2631.0	6.8850	90
85	0.9993	2631.7	7.0282	0.8837	2627.1	6.9630	0.7911	2622.3	6.9029	0.7151	2617.1	6.8466	85
80	0.9820	2619.1	6.9929	0.8679	2613.9	6.9259	0.7763	2608.3	6.8636	0.7011	2602.3	6.8050	80
75	0.9643	2605.9	6.9553	0.8515	2599.9	6.8859	0.7609	2593.4	6.8210	0.6865	2586.3	6.7593	75
70	0.9459	2591.9	6.9149	0.8343	2584.8	6.8424							70
65	0.9267	2576.9	6.8707										65

온도 oC	2.5 bar a (tsat = 127.41 oC)			3.0 bar a (tsat = 133.53 oC)			3.5 bar a (tsat = 138.86 oC)			4.0 bar a (tsat = 143.61 oC)			온도 oC
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	0.7187	2716.5	7.0524	0.6058	2724.9	6.9916	0.5242	2732.0	6.9401	0.4624	2738.1	6.8954	Sat. Vap.
145	0.7544	2754.6	7.1455	0.6255	2750.3	7.0533	0.5334	2745.9	6.9737	0.4643	2741.3	6.9032	145
140	0.7444	2743.9	7.1198	0.6170	2739.4	7.0269	0.5259	2734.6	6.9464	0.4575	2729.5	6.8747	140
135	0.7342	2733.1	7.0935	0.6084	2728.2	6.9997	0.0011	2722.9	6.9181	0.4506	2717.4	6.8453	135
130	0.7240	2722.2	7.0666	0.5995	2716.8	6.9716	0.5105	2711.0	6.8888	0.4436	2705.0	6.8147	130
125	0.7136	2711.1	7.0388	0.5907	2705.1	6.9425	0.5027	2698.8	6.8583	0.4365	2692.2	6.7828	125
120	0.7032	2699.7	7.0101	0.5816	2693.2	6.9123	0.4946	2686.3	6.8266	0.4292	2678.9	6.7491	120
115	0.6926	2688.1	6.9803	0.5725	2680.9	6.8809	0.4864	2673.2	6.7932	0.4217	2664.9	6.7135	115
110	0.6818	2676.2	6.9495	0.5631	2668.3	6.8480	0.4780	2659.6	6.7579	0.4139	2650.2	6.6754	110
105	0.6708	2663.9	6.9172	0.5534	2655.0	6.8133	0.4692	2645.3	6.7202	0.4057	2634.6	6.6342	105
100	0.6595	2651.2	6.8834	0.5435	2641.1	6.7763	0.4601	2630.0	6.6795	0.3972	2617.6	6.5890	100
95	0.6480	2637.9	6.8475	0.5332	2626.4	6.7366	0.4506	2613.5	6.6350				95
90	0.6360	2623.8	6.8091	0.5224	2610.6	6.6933							90
85	0.6236	2608.9	6.7675										85
80	0.6105	2592.6	6.7219										80

온도 oC	5 bar a (tsat = 151.84 oC)			6 bar a (tsat = 158.83 oC)			7 bar a (tsat = 164.95 oC)			8 bar a (tsat = 170.41 oC)			온도 oC
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	0.3748	2748.1	6.8206	0.3156	2756.1	6.7592	0.2728	2762.7	6.7070	0.2403	2768.3	6.6615	Sat. Vap.
175	0.3995	2801.4	6.9427	0.3303	2794.6	6.8466	0.2808	2787.5	6.7628	0.2436	2780.0	6.6878	175
170	0.3943	2790.2	6.9176	0.3258	2783.0	6.8205	0.2769	2775.4	6.7356	0.2400	2767.2	6.6591	170
165	0.3890	2778.9	6.8919	0.3213	2771.1	6.7936	0.2728	2762.9	6.7073	0.2363	2754.0	6.6291	165
160	0.3837	2767.4	6.8655	0.3167	2759.0	6.7658	0.2687	2750.0	6.6776	0.2326	2740.3	6.5977	160
155	0.3783	2755.7	6.8383	0.3120	2746.5	6.7368	0.2644	2736.7	6.6468	0.2287	2726.1	6.5647	155
150	0.3728	2743.6	6.8100	0.3072	2733.6	6.7066	0.2601	2722.9	6.6144	0.2247	2711.3	6.5299	150
145	0.3672	2731.3	6.7806	0.3022	2720.4	6.6750	0.2557	2708.6	6.5803	0.2205	2695.7	6.4928	145
140	0.3615	2718.6	6.7501	0.2972	2706.6	6.6419	0.2510	2693.5	6.5441	0.2162	2679.1	6.4530	140
135	0.3557	2705.4	6.7181	0.2920	2692.2	6.6068	0.2462	2677.6	6.5053	0.2116	2661.4	6.4097	135
130	0.3497	2691.8	6.6845	0.2866	2677.0	6.5694	0.2412	2660.5	6.4633				130
125	0.3435	2677.5	6.6488	0.2810	2660.9	6.5292	0.2359	2642.1	6.4173				125
120	0.3371	2662.4	6.6107	0.2751	2643.5	6.4853							120
115	0.3304	2646.3	6.5695										115
110	0.3234	2628.9	6.5243										110

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

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

표 ESStb-S5, 과열 및 준안정(Metastable) 증기 성질 - 3/3

온도 oC	10 bar a (tsat = 179.89 oC)			12 bar a (tsat = 187.96 oC)			14 bar a (tsat = 195.05 oC)			16 bar a (tsat = 201.38 oC)			온도 oC
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	0.1943	2777.1	6.5850	0.1632	2783.8	6.5217	0.1408	2788.9	6.4675	0.1237	2792.9	6.4200	Sat. Vap.
205	0.2088	2840.3	6.7208	0.1718	2828.8	6.6177	0.1452	2816.6	6.5262	0.1252	2803.6	6.4425	205
200	0.2060	2828.3	6.6955	0.1693	2816.1	6.5908	0.1430	2803.0	6.4975	0.1232	2788.7	6.4113	200
195	0.2032	2816.0	6.6695	0.1668	2803.0	6.5630	0.0011	2788.8	6.4673	0.1211	2773.3	6.3784	195
190	0.2003	2803.5	6.6426	0.1643	2789.4	6.5340	0.1384	2774.0	6.4354	0.1189	2757.1	6.3437	190
185	0.1974	2790.7	6.6148	0.1617	2775.4	6.5034	0.1360	2758.5	6.4020	0.1166	2740.2	6.3069	185
180	0.1944	2777.4	6.5857	0.1590	2760.7	6.4713	0.1335	2742.4	6.3666	0.1142	2722.2	6.2675	180
175	0.1914	2763.7	6.5551	0.1563	2745.5	6.4375	0.1310	2725.4	6.3289	0.1117	2703.1	6.2251	175
170	0.1882	2749.4	6.5232	0.1534	2729.6	6.4018	0.1283	2707.4	6.2884	0.1091	2682.5	6.1790	170
165	0.1850	2734.6	6.4895	0.1504	2712.7	6.3636	0.1254	2688.1	6.2446				165
160	0.1817	2719.1	6.4539	0.1473	2694.9	6.3225							160
155	0.1782	2702.7	6.4158	0.1440	2675.6	6.2779							155
150	0.1746	2685.2	6.3748										150
145	0.1707	2666.5	6.3302										145

온도 oC	20 bar a (tsat = 212.38 oC)			25 bar a (tsat = 223.96 oC)			30 bar a (tsat = 233.86 oC)			40 bar a (tsat = 250.36 oC)			온도 oC
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	0.099 58	2798.4	6.3392	0.079 95	2802.0	6.2560	0.066 66	2803.3	6.1858	0.049 78	2800.9	6.0697	Sat. Vap.
255	0.1130	2915.9	6.5716	0.088 31	2894.7	6.4369	0.071 77	2871.7	6.3181	0.050 76	2818.9	6.1040	255
250	0.1115	2903.2	6.5474	0.087 04	2880.9	6.4106	0.070 62	2856.5	6.2893	0.049 70	2799.5	6.0669	250
245	0.1100	2890.3	6.5226	0.085 75	2866.8	6.3836	0.069 44	2840.9	6.2592	0.048 58	2778.7	6.0271	245
240	0.1085	2877.2	6.4972	0.084 44	2852.3	6.3555	0.068 23	2824.6	6.2275	0.047 39	2756.6	5.9842	240
235	0.1070	2863.8	6.4710	0.083 09	2837.4	6.3263	0.066 96	2807.4	6.1938	0.046 13	2732.7	5.9375	235
230	0.1054	2850.2	6.4440	0.081 70	2821.9	6.2956	0.065 64	2789.1	6.1578	0.044 77	2706.9	5.8863	230
225	0.1038	2836.1	6.4160	0.080 26	2805.6	6.2631	0.064 26	2769.9	6.1193				225
220	0.1022	2821.7	6.3868	0.078 76	2788.4	6.2284	0.062 81	2749.5	6.0782				220
215	0.1005	2806.6	6.3560	0.077 20	2770.3	6.1916	0.061 27	2727.6	6.0337				215
210	0.098 75	2790.7	6.3234	0.075 57	2751.3	6.1524	0.059 64	2704.1	5.9852				210
205	0.096 95	2774.2	6.2889	0.073 86	2731.0	6.1102							205
200	0.095 07	2756.8	6.2523	0.072 04	2709.3	6.0645							200
195	0.093 12	2738.4	6.2133										195
190	0.091 07	2718.9	6.1713										190
185	0.088 90	2697.9	6.1259										185

온도 oC	50 bar a (tsat = 263.94 oC)			60 bar a (tsat = 275.59 oC)			80 bar a (tsat = 295.01 oC)			100 bar a (tsat = 311.00 oC)			온도 oC
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	0.039 45	2794.2	5.9737	0.032 45	2784.6	5.8901	0.023 53	2758.6	5.7448	0.018 03	2725.5	5.6159	Sat. Vap.
315	0.047 45	2971.5	6.2900	0.038 16	2937.3	6.1595	0.026 25	2857.4	5.9159	0.018 61	2752.4	5.6619	315
310	0.046 77	2956.6	6.2645	0.037 52	2920.6	6.1309	0.025 63	2835.3	5.8781	0.017 88	2718.3	5.6036	310
305	0.046 06	2941.3	6.2381	0.036 87	2903.3	6.1012	0.024 98	2811.7	5.8375	0.017 06	2679.2	5.5362	305
300	0.045 35	2925.6	6.2109	0.036 19	2885.5	6.0702	0.024 28	2786.4	5.7935	0.016 11	2633.7	5.4572	300
295	0.044 61	2909.6	6.1828	0.035 49	2866.9	6.0377	0.023 53	2758.6	5.7447				295
290	0.043 86	2893.0	6.1535	0.034 76	2847.5	6.0033	0.022 70	2727.3	5.6896				290
285	0.043 08	2875.9	6.1229	0.034 00	2827.0	5.9668	0.021 77	2692.2	5.6268				285
280	0.042 27	2858.1	6.0909	0.033 20	2805.2	5.9276	0.020 73	2652.1	5.5547				280
275	0.041 44	2839.5	6.0571	0.032 34	2781.7	5.8849							275
270	0.040 57	2819.8	6.0211	0.031 42	2756.0	5.8377							270
265	0.039 65	2798.9	5.9823	0.030 43	2727.8	5.7855							265
260	0.038 67	2776.3	5.9401	0.029 34	2696.6	5.7273							260
255	0.037 63	2751.9	5.8942										255
250	0.036 50	2725.3	5.8437										250
245	0.035 28	2696.2	5.7878										245

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

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