

KLEA® 507



## Thermodynamic Property Data SI Units

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# **KLEA 507**

## **Saturated Liquid and Saturated Vapour Properties**

507 - Saturation Properties vs Pressure

Pressure (bara)	Saturated Temp		Density		Enthalpy		Entropy	
	°C		kg/m <sup>3</sup>		kJ/kg		kJ/kg.K	
	Vapour	Liquid	Liquid	Vapour	Liquid	Vapour	Liquid	Vapour
0.70	-54.93	-54.93	1337.4	3.915	29.9	230.609	0.716	1.636
0.75	-53.58	-53.59	1333.4	4.175	31.6	231.478	0.724	1.634
0.80	-52.30	-52.31	1329.7	4.434	33.2	232.302	0.731	1.633
0.85	-51.09	-51.09	1326.1	4.692	34.7	233.086	0.738	1.631
0.90	-49.93	-49.93	1322.6	4.949	36.1	233.835	0.744	1.630
0.95	-48.81	-48.82	1319.3	5.205	37.5	234.551	0.750	1.629
1.00	-47.75	-47.76	1316.1	5.461	38.8	235.239	0.756	1.628
1.05	-46.72	-46.73	1313.0	5.716	40.1	235.899	0.762	1.627
1.10	-45.73	-45.74	1310.0	5.970	41.3	236.535	0.767	1.626
1.15	-44.78	-44.79	1307.1	6.223	42.5	237.148	0.772	1.625
1.20	-43.86	-43.87	1304.3	6.476	43.6	237.741	0.777	1.624
1.25	-42.96	-42.97	1301.5	6.728	44.7	238.314	0.782	1.623
1.30	-42.10	-42.11	1298.9	6.980	45.8	238.869	0.787	1.622
1.35	-41.26	-41.27	1296.3	7.231	46.8	239.407	0.791	1.622
1.40	-40.44	-40.46	1293.7	7.482	47.8	239.929	0.795	1.621
1.45	-39.65	-39.66	1291.3	7.733	48.8	240.437	0.800	1.620
1.50	-38.88	-38.89	1288.8	7.983	49.8	240.931	0.804	1.620
1.55	-38.12	-38.14	1286.5	8.232	50.7	241.411	0.808	1.619
1.60	-37.39	-37.40	1284.2	8.482	51.6	241.880	0.812	1.619
1.65	-36.67	-36.69	1281.9	8.731	52.5	242.336	0.815	1.618
1.70	-35.97	-35.99	1279.7	8.980	53.4	242.782	0.819	1.617
1.75	-35.29	-35.30	1277.5	9.228	54.3	243.217	0.823	1.617
1.80	-34.62	-34.63	1275.3	9.476	55.1	243.642	0.826	1.617
1.85	-33.96	-33.98	1273.2	9.724	55.9	244.058	0.830	1.616
1.90	-33.32	-33.34	1271.2	9.972	56.7	244.464	0.833	1.616
1.95	-32.69	-32.71	1269.1	10.219	57.5	244.862	0.836	1.615
2.00	-32.08	-32.09	1267.1	10.467	58.3	245.252	0.839	1.615
2.10	-30.88	-30.90	1263.2	10.961	59.8	246.007	0.845	1.614
2.20	-29.73	-29.74	1259.5	11.454	61.2	246.734	0.851	1.613
2.30	-28.61	-28.63	1255.8	11.947	62.6	247.434	0.857	1.613
2.40	-27.53	-27.55	1252.2	12.439	64.0	248.109	0.863	1.612
2.50	-26.49	-26.51	1248.7	12.931	65.3	248.761	0.868	1.612
2.60	-25.48	-25.50	1245.3	13.422	66.6	249.391	0.873	1.611
2.70	-24.49	-24.51	1242.0	13.913	67.9	250.002	0.878	1.611
2.80	-23.54	-23.56	1238.8	14.404	69.1	250.593	0.883	1.610
2.90	-22.61	-22.63	1235.6	14.894	70.3	251.167	0.888	1.610
3.00	-21.70	-21.72	1232.5	15.385	71.4	251.725	0.892	1.609
3.10	-20.82	-20.84	1229.5	15.875	72.5	252.266	0.897	1.609
3.20	-19.96	-19.98	1226.5	16.365	73.6	252.793	0.901	1.609
3.30	-19.12	-19.14	1223.6	16.856	74.7	253.306	0.905	1.608
3.40	-18.30	-18.32	1220.7	17.346	75.8	253.806	0.909	1.608
3.50	-17.49	-17.52	1217.9	17.836	76.8	254.293	0.913	1.608
3.60	-16.71	-16.73	1215.1	18.327	77.8	254.768	0.917	1.607
3.70	-15.94	-15.96	1212.4	18.818	78.8	255.231	0.921	1.607
3.80	-15.18	-15.21	1209.7	19.308	79.8	255.684	0.925	1.607
3.90	-14.45	-14.47	1207.1	19.799	80.8	256.126	0.929	1.606
4.00	-13.72	-13.75	1204.5	20.290	81.7	256.558	0.932	1.606
4.10	-13.01	-13.04	1201.9	20.782	82.6	256.981	0.936	1.606
4.20	-12.31	-12.34	1199.4	21.273	83.5	257.394	0.939	1.606
4.30	-11.63	-11.66	1196.9	21.765	84.4	257.798	0.943	1.605
4.40	-10.96	-10.98	1194.4	22.258	85.3	258.195	0.946	1.605
4.50	-10.29	-10.32	1192.0	22.750	86.2	258.583	0.949	1.605
4.60	-9.64	-9.67	1189.6	23.243	87.0	258.963	0.952	1.605
4.70	-9.00	-9.03	1187.2	23.737	87.9	259.335	0.956	1.605
4.80	-8.37	-8.40	1184.9	24.231	88.7	259.701	0.959	1.604
4.90	-7.76	-7.78	1182.6	24.725	89.5	260.059	0.962	1.604
5.00	-7.15	-7.18	1180.3	25.219	90.3	260.410	0.965	1.604
5.10	-6.54	-6.57	1178.0	25.714	91.1	260.755	0.968	1.604
5.20	-5.95	-5.98	1175.8	26.210	91.9	261.094	0.971	1.604

Standard State: At °C, Liquid Enthalpy = 100 kJ/kg, Liquid Entropy = 1 kJ/kg k

**507 - Saturation Properties vs Pressure**

Pressure (bara)	Saturated Temp		Density		Enthalpy		Entropy	
	°C		kg/m <sup>3</sup>		kJ/kg		kJ/kg.K	
	Vapour	Liquid	Liquid	Vapour	Liquid	Vapour	Liquid	Vapour
5.30	-5.37	-5.40	1173.6	26.706	92.7	261.426	0.973	1.604
5.40	-4.80	-4.83	1171.4	27.203	93.5	261.753	0.976	1.603
5.50	-4.23	-4.26	1169.2	27.700	94.2	262.074	0.979	1.603
5.60	-3.67	-3.70	1167.1	28.198	95.0	262.389	0.982	1.603
5.70	-3.12	-3.15	1164.9	28.696	95.7	262.698	0.985	1.603
5.80	-2.57	-2.61	1162.8	29.195	96.5	263.003	0.987	1.603
5.90	-2.04	-2.07	1160.8	29.694	97.2	263.302	0.990	1.603
6.00	-1.51	-1.54	1158.7	30.194	97.9	263.596	0.992	1.602
6.50	1.05	1.02	1148.6	32.704	101.4	264.998	1.005	1.602
7.00	3.46	3.42	1138.9	35.230	104.7	266.293	1.017	1.601
7.50	5.74	5.71	1129.5	37.776	107.9	267.493	1.028	1.601
8.00	7.91	7.87	1120.5	40.341	110.9	268.609	1.039	1.600
8.50	9.98	9.94	1111.7	42.928	113.8	269.648	1.049	1.599
9.00	11.96	11.92	1103.1	45.538	116.7	270.618	1.059	1.599
9.50	13.86	13.82	1094.8	48.172	119.4	271.525	1.068	1.598
10.00	15.68	15.64	1086.6	50.831	122.1	272.373	1.077	1.598
10.50	17.43	17.39	1078.6	53.516	124.7	273.167	1.086	1.597
11.00	19.13	19.09	1070.8	56.229	127.2	273.910	1.094	1.597
11.50	20.76	20.72	1063.1	58.971	129.7	274.606	1.103	1.596
12.00	22.34	22.30	1055.5	61.743	132.1	275.257	1.111	1.595
12.50	23.88	23.84	1048.0	64.546	134.4	275.866	1.118	1.595
13.00	25.36	25.32	1040.6	67.382	136.7	276.436	1.126	1.594
13.50	26.81	26.77	1033.3	70.253	139.0	276.968	1.133	1.593
14.00	28.21	28.17	1026.0	73.158	141.2	277.463	1.141	1.593
14.50	29.58	29.54	1018.9	76.101	143.4	277.924	1.148	1.592
15.00	30.91	30.87	1011.8	79.082	145.6	278.351	1.155	1.591
15.50	32.20	32.16	1004.7	82.102	147.7	278.747	1.161	1.591
16.00	33.47	33.43	997.7	85.165	149.8	279.111	1.168	1.590
16.50	34.71	34.67	990.7	88.270	151.9	279.445	1.175	1.589
17.00	35.92	35.87	983.8	91.421	153.9	279.750	1.181	1.588
17.50	37.10	37.06	976.8	94.618	156.0	280.026	1.187	1.587
18.00	38.25	38.21	969.9	97.865	158.0	280.274	1.194	1.587
18.50	39.38	39.34	963.0	101.162	160.0	280.495	1.200	1.586
19.00	40.49	40.45	956.1	104.512	161.9	280.688	1.206	1.585
19.50	41.58	41.54	949.2	107.919	163.9	280.855	1.212	1.584
20.00	42.64	42.60	942.3	111.383	165.8	280.995	1.218	1.583
20.50	43.69	43.65	935.4	114.908	167.8	281.108	1.224	1.582
21.00	44.71	44.67	928.4	118.498	169.7	281.196	1.230	1.581
21.50	45.72	45.68	921.4	122.154	171.6	281.257	1.236	1.579
22.00	46.71	46.67	914.4	125.880	173.5	281.292	1.241	1.578
22.50	47.68	47.64	907.3	129.680	175.4	281.301	1.247	1.577
23.00	48.64	48.60	900.2	133.559	177.3	281.283	1.253	1.576
23.50	49.58	49.54	893.0	137.519	179.2	281.237	1.259	1.575
24.00	50.50	50.47	885.7	141.567	181.1	281.165	1.264	1.573
24.50	51.41	51.38	878.4	145.706	183.0	281.065	1.270	1.572
25.00	52.31	52.27	870.9	149.944	184.9	280.936	1.275	1.570
25.50	53.19	53.16	863.3	154.285	186.8	280.778	1.281	1.569
26.00	54.06	54.03	855.6	158.736	188.7	280.590	1.287	1.567
26.50	54.92	54.88	847.8	163.307	190.6	280.370	1.292	1.566
27.00	55.76	55.73	839.7	168.003	192.6	280.119	1.298	1.564
27.50	56.59	56.56	831.5	172.837	194.5	279.833	1.303	1.562
28.00	57.41	57.38	823.1	177.817	196.4	279.513	1.309	1.561
28.50	58.22	58.19	814.4	182.957	198.4	279.155	1.315	1.559
29.00	59.02	58.99	805.4	188.270	200.4	278.757	1.321	1.557

Standard State: At °C, Liquid Enthalpy = 100 kJ/kg, Liquid Entropy = 1 kJ/kg k

# **KLEA 507**

## **Superheated Vapour Properties**

507 Superheated Vapour Properties (D = Density in kg/m<sup>3</sup>, H = Enthalpy in kJ/kg, S = Entropy in kJ/kg K)

Table 4 Sheet 1

Temp (°C)	Absolute Pressure (Bara)																	
	0.7			0.8			0.9			1.01325			1.1			1.2		
	Satn Temp : -54.93			Satn Temp : -52.31			Satn Temp : -49.93			Satn Temp : -47.76			Satn Temp : -45.74			Satn Temp : -43.87		
	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S
-52	3.860	232.7	1.645															
-50	3.823	234.2	1.652	4.385	234.0	1.640												
-48	3.786	235.6	1.658	4.343	235.4	1.647	4.903	235.2	1.636									
-46	3.751	237.1	1.665	4.301	236.9	1.653	4.856	236.7	1.643	5.489	236.5	1.632						
-44	3.716	238.5	1.671	4.261	238.4	1.660	4.810	238.2	1.649	5.436	238.0	1.639	5.920	237.8	1.631			
-42	3.682	240.0	1.678	4.221	239.8	1.666	4.765	239.7	1.656	5.385	239.5	1.645	5.863	239.3	1.638	6.418	239.1	1.630
-40	3.648	241.5	1.684	4.183	241.3	1.672	4.721	241.1	1.662	5.334	240.9	1.651	5.808	240.8	1.644	6.357	240.6	1.636
-38	3.615	243.0	1.690	4.145	242.8	1.679	4.677	242.6	1.668	5.285	242.4	1.658	5.753	242.3	1.651	6.297	242.1	1.643
-36	3.583	244.5	1.697	4.107	244.3	1.685	4.635	244.1	1.675	5.236	243.9	1.664	5.700	243.8	1.657	6.238	243.6	1.649
-34	3.551	246.0	1.703	4.070	245.8	1.691	4.593	245.7	1.681	5.189	245.5	1.671	5.648	245.3	1.663	6.180	245.1	1.655
-32	3.520	247.5	1.709	4.034	247.3	1.698	4.552	247.2	1.687	5.142	247.0	1.677	5.597	246.8	1.670	6.124	246.7	1.662
-30	3.489	249.0	1.716	3.999	248.9	1.704	4.512	248.7	1.694	5.096	248.5	1.683	5.546	248.4	1.676	6.068	248.2	1.668
-28	3.459	250.5	1.722	3.964	250.4	1.710	4.472	250.2	1.700	5.051	250.1	1.690	5.497	249.9	1.682	6.014	249.7	1.674
-26	3.430	252.1	1.728	3.930	251.9	1.717	4.434	251.8	1.706	5.007	251.6	1.696	5.449	251.5	1.689	5.961	251.3	1.681
-24	3.401	253.6	1.734	3.897	253.5	1.723	4.396	253.3	1.712	4.964	253.1	1.702	5.401	253.0	1.695	5.908	252.9	1.687
-22	3.372	255.2	1.741	3.864	255.0	1.729	4.358	254.9	1.719	4.921	254.7	1.708	5.355	254.6	1.701	5.857	254.4	1.693
-20	3.344	256.7	1.747	3.832	256.6	1.735	4.322	256.4	1.725	4.879	256.3	1.715	5.309	256.1	1.707	5.806	256.0	1.700
-18	3.317	258.3	1.753	3.800	258.2	1.741	4.286	258.0	1.731	4.838	257.9	1.721	5.264	257.7	1.713	5.757	257.6	1.706
-16	3.290	259.9	1.759	3.769	259.7	1.748	4.250	259.6	1.737	4.798	259.4	1.727	5.220	259.3	1.720	5.708	259.2	1.712
-14	3.263	261.5	1.765	3.738	261.3	1.754	4.215	261.2	1.743	4.758	261.0	1.733	5.176	260.9	1.726	5.661	260.8	1.718
-12	3.237	263.1	1.771	3.708	262.9	1.760	4.181	262.8	1.750	4.719	262.6	1.739	5.134	262.5	1.732	5.614	262.4	1.724
-10	3.211	264.7	1.778	3.678	264.5	1.766	4.147	264.4	1.756	4.681	264.2	1.745	5.092	264.1	1.738	5.567	264.0	1.730
-8	3.186	266.3	1.784	3.649	266.1	1.772	4.114	266.0	1.762	4.644	265.8	1.751	5.051	265.7	1.744	5.522	265.6	1.737
-6	3.161	267.9	1.790	3.620	267.8	1.778	4.082	267.6	1.768	4.607	267.5	1.758	5.010	267.3	1.750	5.478	267.2	1.743
-4	3.137	269.5	1.796	3.592	269.4	1.784	4.050	269.2	1.774	4.570	269.1	1.764	4.970	269.0	1.756	5.434	268.8	1.749
-2	3.113	271.2	1.802	3.564	271.0	1.790	4.018	270.9	1.780	4.534	270.7	1.770	4.931	270.6	1.762	5.391	270.5	1.755
0	3.089	272.8	1.808	3.537	272.7	1.796	3.987	272.5	1.786	4.499	272.4	1.776	4.893	272.3	1.768	5.348	272.1	1.761
2	3.066	274.4	1.814	3.510	274.3	1.802	3.957	274.2	1.792	4.464	274.0	1.782	4.855	273.9	1.775	5.307	273.8	1.767
4	3.043	276.1	1.820	3.484	276.0	1.808	3.927	275.8	1.798	4.430	275.7	1.788	4.818	275.6	1.781	5.266	275.4	1.773
6	3.020	277.8	1.826	3.458	277.6	1.814	3.897	277.5	1.804	4.397	277.3	1.794	4.781	277.2	1.787	5.225	277.1	1.779
8	2.998	279.4	1.832	3.432	279.3	1.820	3.868	279.2	1.810	4.364	279.0	1.800	4.745	278.9	1.793	5.186	278.8	1.785
10	2.976	281.1	1.838	3.407	281.0	1.826	3.839	280.8	1.816	4.331	280.7	1.806	4.709	280.6	1.798	5.147	280.5	1.791
12	2.954	282.8	1.844	3.382	282.7	1.832	3.811	282.5	1.822	4.299	282.4	1.812	4.674	282.3	1.804	5.108	282.2	1.797
14	2.933	284.5	1.850	3.357	284.4	1.838	3.783	284.2	1.828	4.268	284.1	1.818	4.640	284.0	1.810	5.070	283.9	1.803
16	2.912	286.2	1.855	3.333	286.1	1.844	3.756	285.9	1.834	4.237	285.8	1.823	4.606	285.7	1.816	5.033	285.6	1.809
18	2.891	287.9	1.861	3.309	287.8	1.850	3.729	287.6	1.840	4.206	287.5	1.829	4.573	287.4	1.822	4.997	287.3	1.815
20	2.871	289.6	1.867	3.286	289.5	1.856	3.702	289.4	1.845	4.176	289.2	1.835	4.540	289.1	1.828	4.960	289.0	1.820
25	2.821	293.9	1.882	3.229	293.8	1.870	3.638	293.7	1.860	4.102	293.5	1.850	4.460	293.4	1.843	4.872	293.3	1.835
30	2.773	298.3	1.896	3.173	298.2	1.885	3.575	298.0	1.875	4.032	297.9	1.864	4.382	297.8	1.857	4.788	297.7	1.850
35	2.726	302.7	1.911	3.120	302.6	1.899	3.515	302.5	1.889	3.963	302.3	1.879	4.308	302.2	1.872	4.706	302.1	1.864
40	2.682	307.1	1.925	3.069	307.0	1.914	3.457	306.9	1.903	3.897	306.8	1.893	4.236	306.7	1.886	4.627	306.6	1.879
45	2.638	311.6	1.939	3.019	311.5	1.928	3.400	311.4	1.918	3.834	311.3	1.907	4.166	311.2	1.900	4.550	311.1	1.893
50	2.596	316.2	1.953	2.971	316.1	1.942	3.346	316.0	1.932	3.772	315.9	1.922	4.099	315.8	1.915	4.477	315.7	1.907

Standard state : at 0°C, Liquid Enthalpy = 100kJ/kg, Liquid Entropy = 1kJ/kg K

507 Superheated Vapour Properties (D = Density in kg/m<sup>3</sup>, H = Enthalpy in kJ/kg, S= Entropy in kJ/kg K)

Table 4 Sheet 2

Temp (°C)	Absolute Pressure (Bara)																	
	1.3			1.4			1.5			1.6			1.7			1.8		
	Satn Temp : -42.11			Satn Temp : -40.45			Satn Temp : -38.89			Satn Temp : -37.40			Satn Temp : -35.98			Satn Temp : -34.63		
	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S
-40	6.909	240.4	1.629															
-38	6.844	241.9	1.635	7.394	241.8	1.629												
-36	6.779	243.5	1.642	7.324	243.3	1.635	7.873	243.1	1.629	8.425	242.9	1.623						
-34	6.716	245.0	1.648	7.255	244.8	1.642	7.798	244.6	1.635	8.344	244.5	1.629	8.894	244.3	1.624			
-32	6.654	246.5	1.655	7.188	246.3	1.648	7.725	246.2	1.642	8.265	246.0	1.636	8.809	245.8	1.630	9.357	245.7	1.625
-30	6.593	248.0	1.661	7.121	247.9	1.654	7.653	247.7	1.648	8.188	247.5	1.642	8.726	247.4	1.637	9.267	247.2	1.631
-28	6.534	249.6	1.667	7.057	249.4	1.661	7.583	249.3	1.654	8.112	249.1	1.649	8.644	248.9	1.643	9.180	248.8	1.638
-26	6.475	251.1	1.674	6.993	251.0	1.667	7.514	250.8	1.661	8.038	250.7	1.655	8.564	250.5	1.649	9.095	250.3	1.644
-24	6.418	252.7	1.680	6.931	252.5	1.673	7.446	252.4	1.667	7.965	252.2	1.661	8.486	252.1	1.656	9.011	251.9	1.650
-22	6.362	254.3	1.686	6.869	254.1	1.680	7.380	253.9	1.673	7.893	253.8	1.667	8.410	253.6	1.662	8.929	253.5	1.657
-20	6.307	255.8	1.692	6.809	255.7	1.686	7.315	255.5	1.680	7.823	255.4	1.674	8.334	255.2	1.668	8.848	255.1	1.663
-18	6.252	257.4	1.699	6.750	257.3	1.692	7.251	257.1	1.686	7.755	257.0	1.680	8.261	256.8	1.674	8.769	256.6	1.669
-16	6.199	259.0	1.705	6.693	258.9	1.698	7.189	258.7	1.692	7.687	258.6	1.686	8.188	258.4	1.681	8.692	258.2	1.675
-14	6.147	260.6	1.711	6.636	260.5	1.704	7.127	260.3	1.698	7.621	260.2	1.692	8.117	260.0	1.687	8.616	259.9	1.682
-12	6.096	262.2	1.717	6.580	262.1	1.711	7.067	261.9	1.704	7.556	261.8	1.699	8.048	261.6	1.693	8.542	261.5	1.688
-10	6.045	263.8	1.723	6.525	263.7	1.717	7.008	263.5	1.711	7.492	263.4	1.705	7.979	263.2	1.699	8.469	263.1	1.694
-8	5.996	265.4	1.729	6.471	265.3	1.723	6.949	265.1	1.717	7.430	265.0	1.711	7.912	264.9	1.705	8.397	264.7	1.700
-6	5.947	267.1	1.736	6.419	266.9	1.729	6.892	266.8	1.723	7.368	266.6	1.717	7.846	266.5	1.712	8.326	266.4	1.706
-4	5.899	268.7	1.742	6.367	268.6	1.735	6.836	268.4	1.729	7.308	268.3	1.723	7.781	268.1	1.718	8.257	268.0	1.713
-2	5.852	270.3	1.748	6.316	270.2	1.741	6.781	270.1	1.735	7.248	269.9	1.729	7.718	269.8	1.724	8.189	269.6	1.719
0	5.806	272.0	1.754	6.265	271.8	1.747	6.727	271.7	1.741	7.190	271.6	1.735	7.655	271.4	1.730	8.122	271.3	1.725
2	5.760	273.6	1.760	6.216	273.5	1.753	6.673	273.4	1.747	7.133	273.2	1.741	7.594	273.1	1.736	8.057	273.0	1.731
4	5.716	275.3	1.766	6.167	275.2	1.759	6.621	275.0	1.753	7.076	274.9	1.747	7.533	274.8	1.742	7.992	274.6	1.737
6	5.672	277.0	1.772	6.120	276.8	1.765	6.569	276.7	1.759	7.021	276.6	1.753	7.474	276.4	1.748	7.929	276.3	1.743
8	5.628	278.7	1.778	6.073	278.5	1.771	6.519	278.4	1.765	6.966	278.3	1.759	7.416	278.1	1.754	7.867	278.0	1.749
10	5.586	280.3	1.784	6.026	280.2	1.777	6.469	280.1	1.771	6.913	280.0	1.765	7.358	279.8	1.760	7.806	279.7	1.755
12	5.544	282.0	1.790	5.981	281.9	1.783	6.420	281.8	1.777	6.860	281.6	1.771	7.302	281.5	1.766	7.745	281.4	1.761
14	5.503	283.7	1.796	5.936	283.6	1.789	6.371	283.5	1.783	6.808	283.4	1.777	7.246	283.2	1.772	7.686	283.1	1.767
16	5.462	285.4	1.802	5.892	285.3	1.795	6.324	285.2	1.789	6.757	285.1	1.783	7.192	284.9	1.778	7.628	284.8	1.773
18	5.422	287.2	1.808	5.849	287.0	1.801	6.277	286.9	1.795	6.707	286.8	1.789	7.138	286.7	1.784	7.570	286.5	1.779
20	5.382	288.9	1.813	5.806	288.8	1.807	6.231	288.6	1.801	6.657	288.5	1.795	7.085	288.4	1.790	7.514	288.3	1.785
25	5.286	293.2	1.828	5.702	293.1	1.822	6.119	293.0	1.816	6.537	292.9	1.810	6.956	292.7	1.804	7.377	292.6	1.799
30	5.194	297.6	1.843	5.602	297.5	1.836	6.011	297.4	1.830	6.421	297.2	1.824	6.832	297.1	1.819	7.245	297.0	1.814
35	5.105	302.0	1.857	5.505	301.9	1.851	5.907	301.8	1.845	6.309	301.7	1.839	6.713	301.6	1.834	7.117	301.5	1.829
40	5.019	306.5	1.872	5.412	306.4	1.865	5.806	306.3	1.859	6.201	306.2	1.853	6.598	306.0	1.848	6.995	305.9	1.843
45	4.936	311.0	1.886	5.322	310.9	1.879	5.709	310.8	1.873	6.097	310.7	1.868	6.487	310.6	1.862	6.877	310.5	1.857
50	4.856	315.6	1.900	5.235	315.5	1.894	5.616	315.4	1.888	5.997	315.2	1.882	6.379	315.1	1.877	6.763	315.0	1.872
55	4.778	320.2	1.914	5.151	320.1	1.908	5.525	320.0	1.902	5.900	319.9	1.896	6.276	319.8	1.891	6.653	319.6	1.886
60	4.703	324.8	1.928	5.070	324.7	1.922	5.438	324.6	1.916	5.806	324.5	1.910	6.176	324.4	1.905	6.546	324.3	1.900
65	4.630	329.5	1.942	4.991	329.4	1.936	5.353	329.3	1.930	5.716	329.2	1.924	6.079	329.1	1.919	6.443	329.0	1.914
70	4.560	334.2	1.956	4.915	334.1	1.950	5.271	334.0	1.944	5.628	333.9	1.938	5.985	333.8	1.933	6.344	333.7	1.928

Standard state : at 0°C, Liquid Enthalpy = 100kJ/kg, Liquid Entropy = 1kJ/kg K

507 Superheated Vapour Properties (D = Density in kg/m<sup>3</sup>, H = Enthalpy in kJ/kg, S= Entropy in kJ/kg K)

Table 4 Sheet 3

Temp (°C)	Absolute Pressure (Bara)																	
	1.9			2			2.1			2.2			2.3			2.4		
	Satn Temp : -33.33			Satn Temp : -32.09			Satn Temp : -30.89			Satn Temp : -29.74			Satn Temp : -28.62			Satn Temp : -27.54		
	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S
-32	9.908	245.5	1.620															
-30	9.813	247.0	1.626	10.361	246.9	1.622												
-28	9.719	248.6	1.633	10.262	248.4	1.628	10.808	248.3	1.623	11.358	248.1	1.619						
-26	9.628	250.2	1.639	10.165	250.0	1.634	10.705	249.8	1.630	11.248	249.7	1.625	11.795	249.5	1.621	12.345	249.3	1.617
-24	9.539	251.7	1.645	10.069	251.6	1.641	10.604	251.4	1.636	11.141	251.2	1.632	11.682	251.1	1.628	12.226	250.9	1.624
-22	9.451	253.3	1.652	9.976	253.1	1.647	10.505	253.0	1.642	11.036	252.8	1.638	11.571	252.7	1.634	12.109	252.5	1.630
-20	9.365	254.9	1.658	9.885	254.7	1.653	10.408	254.6	1.649	10.933	254.4	1.644	11.462	254.3	1.640	11.994	254.1	1.636
-18	9.281	256.5	1.664	9.795	256.3	1.660	10.313	256.2	1.655	10.833	256.0	1.651	11.356	255.9	1.647	11.882	255.7	1.643
-16	9.198	258.1	1.671	9.708	257.9	1.666	10.220	257.8	1.661	10.734	257.6	1.657	11.252	257.5	1.653	11.772	257.3	1.649
-14	9.118	259.7	1.677	9.622	259.5	1.672	10.128	259.4	1.668	10.638	259.2	1.663	11.150	259.1	1.659	11.665	258.9	1.655
-12	9.038	261.3	1.683	9.537	261.2	1.678	10.039	261.0	1.674	10.543	260.9	1.669	11.050	260.7	1.665	11.559	260.6	1.661
-10	8.960	262.9	1.689	9.454	262.8	1.684	9.951	262.6	1.680	10.450	262.5	1.676	10.952	262.3	1.672	11.456	262.2	1.668
-8	8.884	264.6	1.695	9.373	264.4	1.691	9.865	264.3	1.686	10.359	264.1	1.682	10.856	264.0	1.678	11.355	263.8	1.674
-6	8.809	266.2	1.701	9.294	266.1	1.697	9.781	265.9	1.692	10.270	265.8	1.688	10.762	265.6	1.684	11.256	265.5	1.680
-4	8.735	267.9	1.708	9.215	267.7	1.703	9.698	267.6	1.698	10.182	267.4	1.694	10.669	267.3	1.690	11.159	267.1	1.686
-2	8.663	269.5	1.714	9.139	269.4	1.709	9.616	269.2	1.705	10.096	269.1	1.700	10.579	268.9	1.696	11.063	268.8	1.692
0	8.592	271.2	1.720	9.063	271.0	1.715	9.537	270.9	1.711	10.012	270.7	1.706	10.490	270.6	1.702	10.969	270.5	1.698
2	8.522	272.8	1.726	8.989	272.7	1.721	9.458	272.6	1.717	9.929	272.4	1.713	10.402	272.3	1.708	10.877	272.1	1.705
4	8.453	274.5	1.732	8.916	274.4	1.727	9.381	274.2	1.723	9.848	274.1	1.719	10.316	274.0	1.715	10.787	273.8	1.711
6	8.386	276.2	1.738	8.845	276.0	1.733	9.305	275.9	1.729	9.768	275.8	1.725	10.232	275.6	1.721	10.699	275.5	1.717
8	8.320	277.9	1.744	8.774	277.7	1.739	9.231	277.6	1.735	9.689	277.5	1.731	10.149	277.3	1.727	10.611	277.2	1.723
10	8.255	279.6	1.750	8.705	279.4	1.745	9.158	279.3	1.741	9.612	279.2	1.737	10.068	279.0	1.733	10.526	278.9	1.729
12	8.191	281.3	1.756	8.637	281.1	1.751	9.086	281.0	1.747	9.536	280.9	1.743	9.988	280.7	1.739	10.442	280.6	1.735
14	8.128	283.0	1.762	8.571	282.8	1.757	9.015	282.7	1.753	9.462	282.6	1.749	9.910	282.5	1.745	10.359	282.3	1.741
16	8.066	284.7	1.768	8.505	284.6	1.763	8.946	284.4	1.759	9.388	284.3	1.755	9.832	284.2	1.751	10.278	284.1	1.747
18	8.005	286.4	1.774	8.440	286.3	1.769	8.877	286.2	1.765	9.316	286.0	1.761	9.757	285.9	1.757	10.198	285.8	1.753
20	7.945	288.1	1.780	8.377	288.0	1.775	8.810	287.9	1.771	9.245	287.8	1.767	9.682	287.6	1.763	10.120	287.5	1.759
25	7.799	292.5	1.795	8.222	292.4	1.790	8.647	292.3	1.786	9.073	292.1	1.781	9.501	292.0	1.777	9.930	291.9	1.774
30	7.658	296.9	1.809	8.074	296.8	1.805	8.490	296.7	1.800	8.907	296.5	1.796	9.326	296.4	1.792	9.747	296.3	1.788
35	7.523	301.3	1.824	7.931	301.2	1.819	8.339	301.1	1.815	8.748	301.0	1.811	9.159	300.9	1.807	9.571	300.8	1.803
40	7.393	305.8	1.838	7.793	305.7	1.834	8.193	305.6	1.829	8.595	305.5	1.825	8.998	305.4	1.821	9.402	305.3	1.817
45	7.268	310.4	1.853	7.660	310.3	1.848	8.053	310.1	1.844	8.447	310.0	1.839	8.843	309.9	1.835	9.239	309.8	1.832
50	7.147	314.9	1.867	7.532	314.8	1.862	7.918	314.7	1.858	8.305	314.6	1.854	8.693	314.5	1.850	9.082	314.4	1.846
55	7.030	319.5	1.881	7.408	319.4	1.876	7.788	319.3	1.872	8.168	319.2	1.868	8.549	319.1	1.864	8.931	319.0	1.860
60	6.917	324.2	1.895	7.289	324.1	1.891	7.662	324.0	1.886	8.035	323.9	1.882	8.409	323.8	1.878	8.785	323.7	1.874
65	6.808	328.9	1.909	7.174	328.8	1.905	7.540	328.7	1.900	7.907	328.6	1.896	8.275	328.5	1.892	8.644	328.4	1.888
70	6.702	333.6	1.923	7.062	333.6	1.918	7.422	333.5	1.914	7.783	333.4	1.910	8.145	333.3	1.906	8.507	333.2	1.902
75	6.600	338.4	1.937	6.954	338.3	1.932	7.308	338.2	1.928	7.663	338.2	1.924	8.019	338.1	1.920	8.375	338.0	1.916
80	6.501	343.3	1.951	6.849	343.2	1.946	7.198	343.1	1.942	7.547	343.0	1.938	7.897	342.9	1.934	8.248	342.8	1.930
85	6.405	348.1	1.964	6.748	348.0	1.960	7.091	348.0	1.956	7.435	347.9	1.951	7.779	347.8	1.947	8.124	347.7	1.944
90	6.312	353.0	1.978	6.650	353.0	1.973	6.988	352.9	1.969	7.326	352.8	1.965	7.665	352.7	1.961	8.005	352.6	1.957
95	6.222	358.0	1.991	6.554	357.9	1.987	6.887	357.8	1.983	7.220	357.7	1.979	7.554	357.7	1.975	7.889	357.6	1.971

Standard state : at 0°C, Liquid Enthalpy = 100kJ/kg, Liquid Entropy = 1kJ/kg K



507 Superheated Vapour Properties (D = Density in kg/m<sup>3</sup>, H = Enthalpy in kJ/kg, S= Entropy in kJ/kg K)

Table 4 Sheet 4

Temp (°C)	Absolute Pressure (Bara)																	
	2.5			2.6			2.7			2.8			2.9			3		
	Satn Temp : -26.5			Satn Temp : -25.49			Satn Temp : -24.5			Satn Temp : -23.55			Satn Temp : -22.62			Satn Temp : -21.71		
	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S
-24	12.773	250.7	1.620	13.324	250.6	1.616				14.294	251.8	1.615						
-22	12.650	252.3	1.626	13.195	252.2	1.622	13.743	252.0	1.619									
-20	12.529	253.9	1.632	13.068	253.8	1.629	13.609	253.6	1.625	14.154	253.4	1.622	14.703	253.3	1.618	15.255	253.1	1.615
-18	12.411	255.5	1.639	12.944	255.4	1.635	13.479	255.2	1.631	14.018	255.0	1.628	14.560	254.9	1.624	15.105	254.7	1.621
-16	12.296	257.2	1.645	12.822	257.0	1.641	13.352	256.8	1.638	13.884	256.7	1.634	14.420	256.5	1.631	14.958	256.3	1.628
-14	12.183	258.8	1.651	12.703	258.6	1.648	13.227	258.5	1.644	13.753	258.3	1.641	14.283	258.1	1.637	14.815	258.0	1.634
-12	12.072	260.4	1.658	12.587	260.2	1.654	13.105	260.1	1.650	13.625	259.9	1.647	14.149	259.8	1.643	14.675	259.6	1.640
-10	11.963	262.0	1.664	12.473	261.9	1.660	12.985	261.7	1.657	13.500	261.6	1.653	14.018	261.4	1.650	14.538	261.3	1.646
-8	11.857	263.7	1.670	12.361	263.5	1.666	12.868	263.4	1.663	13.377	263.2	1.659	13.889	263.1	1.656	14.404	262.9	1.653
-6	11.752	265.3	1.676	12.251	265.2	1.673	12.753	265.0	1.669	13.257	264.9	1.666	13.764	264.7	1.662	14.273	264.6	1.659
-4	11.650	267.0	1.682	12.144	266.8	1.679	12.640	266.7	1.675	13.139	266.5	1.672	13.640	266.4	1.668	14.144	266.2	1.665
-2	11.550	268.6	1.689	12.039	268.5	1.685	12.530	268.4	1.681	13.024	268.2	1.678	13.520	268.1	1.675	14.018	267.9	1.671
0	11.451	270.3	1.695	11.935	270.2	1.691	12.422	270.0	1.687	12.910	269.9	1.684	13.401	269.7	1.681	13.895	269.6	1.678
2	11.355	272.0	1.701	11.834	271.9	1.697	12.316	271.7	1.694	12.799	271.6	1.690	13.285	271.4	1.687	13.773	271.3	1.684
4	11.260	273.7	1.707	11.735	273.5	1.703	12.212	273.4	1.700	12.690	273.3	1.696	13.172	273.1	1.693	13.655	273.0	1.690
6	11.167	275.4	1.713	11.637	275.2	1.709	12.109	275.1	1.706	12.584	275.0	1.702	13.060	274.8	1.699	13.538	274.7	1.696
8	11.075	277.1	1.719	11.541	276.9	1.715	12.009	276.8	1.712	12.479	276.7	1.708	12.950	276.5	1.705	13.424	276.4	1.702
10	10.986	278.8	1.725	11.447	278.6	1.721	11.911	278.5	1.718	12.376	278.4	1.715	12.843	278.2	1.711	13.312	278.1	1.708
12	10.897	280.5	1.731	11.355	280.3	1.727	11.814	280.2	1.724	12.275	280.1	1.721	12.737	280.0	1.717	13.202	279.8	1.714
14	10.811	282.2	1.737	11.264	282.1	1.733	11.719	281.9	1.730	12.175	281.8	1.727	12.634	281.7	1.723	13.094	281.5	1.720
16	10.726	283.9	1.743	11.175	283.8	1.739	11.625	283.7	1.736	12.078	283.5	1.733	12.532	283.4	1.729	12.988	283.3	1.726
18	10.642	285.7	1.749	11.087	285.5	1.745	11.534	285.4	1.742	11.982	285.3	1.739	12.432	285.1	1.735	12.884	285.0	1.732
20	10.560	287.4	1.755	11.001	287.3	1.751	11.444	287.1	1.748	11.888	287.0	1.745	12.334	286.9	1.741	12.781	286.8	1.738
25	10.360	291.8	1.770	10.792	291.7	1.766	11.225	291.5	1.763	11.660	291.4	1.759	12.096	291.3	1.756	12.533	291.2	1.753
30	10.168	296.2	1.784	10.591	296.1	1.781	11.015	296.0	1.777	11.441	295.8	1.774	11.867	295.7	1.771	12.296	295.6	1.768
35	9.984	300.7	1.799	10.398	300.5	1.796	10.814	300.4	1.792	11.230	300.3	1.789	11.648	300.2	1.786	12.068	300.1	1.782
40	9.807	305.2	1.814	10.213	305.0	1.810	10.620	304.9	1.807	11.028	304.8	1.803	11.438	304.7	1.800	11.849	304.6	1.797
45	9.636	309.7	1.828	10.034	309.6	1.824	10.434	309.5	1.821	10.834	309.4	1.818	11.236	309.3	1.815	11.638	309.2	1.811
50	9.472	314.3	1.842	9.863	314.2	1.839	10.254	314.1	1.835	10.647	314.0	1.832	11.041	313.9	1.829	11.436	313.8	1.826
55	9.313	318.9	1.857	9.697	318.8	1.853	10.082	318.7	1.850	10.467	318.6	1.846	10.853	318.5	1.843	11.241	318.4	1.840
60	9.161	323.6	1.871	9.537	323.5	1.867	9.915	323.4	1.864	10.293	323.3	1.860	10.673	323.2	1.857	11.053	323.1	1.854
65	9.013	328.3	1.885	9.383	328.2	1.881	9.754	328.1	1.878	10.126	328.0	1.875	10.498	327.9	1.871	10.871	327.8	1.868
70	8.870	333.1	1.899	9.234	333.0	1.895	9.599	332.9	1.892	9.964	332.8	1.889	10.330	332.7	1.885	10.696	332.6	1.882
75	8.732	337.9	1.913	9.090	337.8	1.909	9.448	337.7	1.906	9.807	337.6	1.902	10.167	337.5	1.899	10.527	337.4	1.896
80	8.599	342.7	1.926	8.951	342.6	1.923	9.303	342.5	1.920	9.656	342.4	1.916	10.010	342.4	1.913	10.364	342.3	1.910
85	8.470	347.6	1.940	8.816	347.5	1.937	9.162	347.4	1.933	9.510	347.3	1.930	9.858	347.3	1.927	10.206	347.2	1.924
90	8.345	352.5	1.954	8.685	352.4	1.950	9.026	352.4	1.947	9.368	352.3	1.944	9.710	352.2	1.941	10.053	352.1	1.938
95	8.223	357.5	1.967	8.559	357.4	1.964	8.894	357.3	1.961	9.231	357.2	1.957	9.568	357.2	1.954	9.905	357.1	1.951
100	8.106	362.5	1.981	8.436	362.4	1.977	8.767	362.3	1.974	9.098	362.2	1.971	9.429	362.2	1.968	9.761	362.1	1.965
105	7.992	367.5	1.994	8.317	367.5	1.991	8.643	367.4	1.987	8.969	367.3	1.984	9.295	367.2	1.981	9.622	367.1	1.978
110	7.881	372.6	2.008	8.201	372.5	2.004	8.522	372.5	2.001	8.844	372.4	1.998	9.165	372.3	1.995	9.487	372.2	1.992
115	7.773	377.7	2.021	8.089	377.6	2.017	8.405	377.6	2.014	8.722	377.5	2.011	9.039	377.4	2.008	9.356	377.3	2.005

Standard state : at 0°C, Liquid Enthalpy = 100kJ/kg, Liquid Entropy = 1kJ/kg K

507 Superheated Vapour Properties (D = Density in kg/m<sup>3</sup>, H = Enthalpy in kJ/kg, S= Entropy in kJ/kg K)

Table 4 Sheet 5

Temp (°C)	Absolute Pressure (Bara)																	
	3.1			3.2			3.3			3.4			3.5			3.6		
	Satn Temp : -20.83			Satn Temp : -19.97			Satn Temp : -19.13			Satn Temp : -18.31			Satn Temp : -17.51			Satn Temp : -16.72		
	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S
-18	15.653	254.6	1.618	16.205	254.4	1.615												
-16	15.500	256.2	1.624	16.046	256.0	1.621	16.594	255.9	1.618	17.146	255.7	1.615	17.702	255.5	1.612			
-14	15.351	257.8	1.631	15.890	257.7	1.628	16.432	257.5	1.625	16.977	257.3	1.622	17.525	257.2	1.619	18.077	257.0	1.616
-12	15.205	259.5	1.637	15.737	259.3	1.634	16.273	259.1	1.631	16.811	259.0	1.628	17.353	258.8	1.625	17.898	258.7	1.622
-10	15.062	261.1	1.643	15.588	261.0	1.640	16.117	260.8	1.637	16.649	260.6	1.634	17.185	260.5	1.631	17.723	260.3	1.629
-8	14.922	262.8	1.650	15.442	262.6	1.646	15.965	262.5	1.644	16.491	262.3	1.641	17.020	262.1	1.638	17.552	262.0	1.635
-6	14.785	264.4	1.656	15.299	264.3	1.653	15.816	264.1	1.650	16.336	264.0	1.647	16.859	263.8	1.644	17.384	263.7	1.641
-4	14.650	266.1	1.662	15.159	265.9	1.659	15.671	265.8	1.656	16.185	265.6	1.653	16.701	265.5	1.650	17.221	265.3	1.648
-2	14.519	267.8	1.668	15.022	267.6	1.665	15.528	267.5	1.662	16.036	267.3	1.659	16.547	267.2	1.657	17.061	267.0	1.654
0	14.390	269.5	1.674	14.888	269.3	1.671	15.388	269.2	1.668	15.891	269.0	1.666	16.396	268.9	1.663	16.904	268.7	1.660
2	14.264	271.1	1.681	14.757	271.0	1.678	15.252	270.9	1.675	15.749	270.7	1.672	16.249	270.6	1.669	16.751	270.4	1.666
4	14.140	272.8	1.687	14.628	272.7	1.684	15.118	272.6	1.681	15.610	272.4	1.678	16.104	272.3	1.675	16.601	272.1	1.672
6	14.019	274.5	1.693	14.501	274.4	1.690	14.986	274.3	1.687	15.473	274.1	1.684	15.962	274.0	1.681	16.454	273.8	1.679
8	13.900	276.2	1.699	14.378	276.1	1.696	14.857	276.0	1.693	15.339	275.8	1.690	15.823	275.7	1.687	16.309	275.5	1.685
10	13.783	278.0	1.705	14.256	277.8	1.702	14.731	277.7	1.699	15.208	277.5	1.696	15.687	277.4	1.693	16.168	277.3	1.691
12	13.668	279.7	1.711	14.137	279.5	1.708	14.607	279.4	1.705	15.079	279.3	1.702	15.553	279.1	1.700	16.030	279.0	1.697
14	13.556	281.4	1.717	14.020	281.3	1.714	14.486	281.1	1.711	14.953	281.0	1.708	15.422	280.9	1.706	15.894	280.7	1.703
16	13.446	283.1	1.723	13.905	283.0	1.720	14.366	282.9	1.717	14.829	282.7	1.714	15.294	282.6	1.712	15.761	282.5	1.709
18	13.337	284.9	1.729	13.792	284.8	1.726	14.249	284.6	1.723	14.708	284.5	1.720	15.168	284.4	1.718	15.630	284.2	1.715
20	13.231	286.6	1.735	13.682	286.5	1.732	14.134	286.4	1.729	14.588	286.2	1.726	15.044	286.1	1.724	15.502	286.0	1.721
25	12.973	291.0	1.750	13.413	290.9	1.747	13.855	290.8	1.744	14.299	290.7	1.741	14.744	290.5	1.739	15.191	290.4	1.736
30	12.725	295.5	1.765	13.156	295.4	1.762	13.589	295.2	1.759	14.022	295.1	1.756	14.458	295.0	1.753	14.894	294.9	1.751
35	12.488	300.0	1.779	12.910	299.8	1.776	13.333	299.7	1.774	13.757	299.6	1.771	14.183	299.5	1.768	14.610	299.4	1.766
40	12.261	304.5	1.794	12.674	304.4	1.791	13.088	304.3	1.788	13.503	304.1	1.785	13.920	304.0	1.783	14.338	303.9	1.780
45	12.042	309.0	1.808	12.447	308.9	1.806	12.852	308.8	1.803	13.259	308.7	1.800	13.667	308.6	1.797	14.076	308.5	1.795
50	11.832	313.7	1.823	12.228	313.5	1.820	12.626	313.4	1.817	13.025	313.3	1.814	13.425	313.2	1.812	13.825	313.1	1.809
55	11.629	318.3	1.837	12.018	318.2	1.834	12.408	318.1	1.831	12.799	318.0	1.829	13.191	317.9	1.826	13.584	317.8	1.823
60	11.434	323.0	1.851	11.816	322.9	1.848	12.198	322.8	1.846	12.582	322.7	1.843	12.966	322.6	1.840	13.352	322.5	1.838
65	11.246	327.7	1.865	11.620	327.6	1.862	11.996	327.5	1.860	12.373	327.4	1.857	12.750	327.3	1.854	13.128	327.2	1.852
70	11.064	332.5	1.879	11.432	332.4	1.877	11.801	332.3	1.874	12.171	332.2	1.871	12.541	332.1	1.868	12.912	332.0	1.866
75	10.888	337.3	1.893	11.250	337.2	1.890	11.613	337.1	1.888	11.976	337.0	1.885	12.339	336.9	1.882	12.704	336.8	1.880
80	10.719	342.2	1.907	11.074	342.1	1.904	11.431	342.0	1.902	11.787	341.9	1.899	12.145	341.8	1.896	12.503	341.7	1.894
85	10.555	347.1	1.921	10.905	347.0	1.918	11.255	346.9	1.915	11.606	346.8	1.913	11.957	346.7	1.910	12.309	346.6	1.907
90	10.396	352.0	1.935	10.740	351.9	1.932	11.085	351.8	1.929	11.430	351.7	1.926	11.775	351.7	1.924	12.121	351.6	1.921
95	10.243	357.0	1.948	10.581	356.9	1.945	10.920	356.8	1.943	11.259	356.7	1.940	11.599	356.6	1.937	11.940	356.6	1.935
100	10.094	362.0	1.962	10.427	361.9	1.959	10.760	361.8	1.956	11.094	361.8	1.954	11.429	361.7	1.951	11.764	361.6	1.948
105	9.950	367.1	1.975	10.278	367.0	1.972	10.606	366.9	1.970	10.935	366.8	1.967	11.264	366.7	1.964	11.594	366.7	1.962
110	9.810	372.1	1.989	10.133	372.1	1.986	10.456	372.0	1.983	10.780	371.9	1.980	11.104	371.8	1.978	11.429	371.8	1.975
115	9.674	377.3	2.002	9.992	377.2	1.999	10.311	377.1	1.996	10.630	377.0	1.994	10.949	377.0	1.991	11.269	376.9	1.989
120	9.542	382.4	2.015	9.856	382.4	2.012	10.170	382.3	2.010	10.484	382.2	2.007	10.798	382.1	2.004	11.113	382.1	2.002
125	9.414	387.6	2.028	9.723	387.6	2.025	10.033	387.5	2.023	10.342	387.4	2.020	10.652	387.3	2.018	10.963	387.3	2.015
130	9.290	392.9	2.041	9.594	392.8	2.039	9.899	392.7	2.036	10.205	392.7	2.033	10.510	392.6	2.031	10.816	392.5	2.028

Standard state : at 0°C, Liquid Enthalpy = 100kJ/kg, Liquid Entropy = 1kJ/kg K

507 Superheated Vapour Properties (D = Density in kg/m<sup>3</sup>, H = Enthalpy in kJ/kg, S= Entropy in kJ/kg K)

Table 4 Sheet 6

Temp (°C)	Absolute Pressure (Bara)																	
	3.7			3.8			3.9			4			4.1			4.2		
	Satn Temp : -15.95			Satn Temp : -15.20			Satn Temp : -14.46			Satn Temp : -13.74			Satn Temp : -13.03			Satn Temp : -12.33		
	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S
-14	18.633	256.8	1.613															
-12	18.446	258.5	1.620	18.998	258.3	1.617	19.553	258.2	1.614	20.111	258.0	1.612						
-10	18.264	260.2	1.626	18.809	260.0	1.623	19.357	259.8	1.621	19.908	259.7	1.618	20.463	259.5	1.616	21.020	259.3	1.613
-8	18.087	261.8	1.632	18.624	261.7	1.630	19.165	261.5	1.627	19.710	261.3	1.624	20.257	261.2	1.622	20.808	261.0	1.619
-6	17.913	263.5	1.639	18.444	263.3	1.636	18.979	263.2	1.633	19.516	263.0	1.631	20.056	262.9	1.628	20.600	262.7	1.626
-4	17.743	265.2	1.645	18.268	265.0	1.642	18.796	264.9	1.640	19.327	264.7	1.637	19.860	264.6	1.635	20.397	264.4	1.632
-2	17.577	266.9	1.651	18.096	266.7	1.648	18.617	266.6	1.646	19.142	266.4	1.643	19.669	266.3	1.641	20.199	266.1	1.638
0	17.414	268.6	1.657	17.927	268.4	1.655	18.443	268.3	1.652	18.961	268.1	1.650	19.482	268.0	1.647	20.005	267.8	1.645
2	17.255	270.3	1.664	17.762	270.1	1.661	18.272	270.0	1.658	18.784	269.8	1.656	19.299	269.7	1.653	19.816	269.5	1.651
4	17.100	272.0	1.670	17.601	271.8	1.667	18.105	271.7	1.665	18.611	271.5	1.662	19.120	271.4	1.660	19.631	271.2	1.657
6	16.947	273.7	1.676	17.443	273.5	1.673	17.941	273.4	1.671	18.442	273.3	1.668	18.945	273.1	1.666	19.450	273.0	1.663
8	16.798	275.4	1.682	17.288	275.3	1.679	17.781	275.1	1.677	18.276	275.0	1.674	18.773	274.8	1.672	19.273	274.7	1.670
10	16.651	277.1	1.688	17.137	277.0	1.686	17.624	276.9	1.683	18.114	276.7	1.681	18.605	276.6	1.678	19.099	276.4	1.676
12	16.508	278.9	1.694	16.988	278.7	1.692	17.470	278.6	1.689	17.955	278.5	1.687	18.441	278.3	1.684	18.930	278.2	1.682
14	16.367	280.6	1.700	16.842	280.5	1.698	17.320	280.3	1.695	17.799	280.2	1.693	18.280	280.1	1.690	18.763	279.9	1.688
16	16.229	282.4	1.706	16.700	282.2	1.704	17.172	282.1	1.701	17.646	281.9	1.699	18.122	281.8	1.696	18.600	281.7	1.694
18	16.094	284.1	1.712	16.559	284.0	1.710	17.027	283.8	1.707	17.496	283.7	1.705	17.968	283.6	1.702	18.441	283.4	1.700
20	15.961	285.9	1.718	16.422	285.7	1.716	16.885	285.6	1.713	17.349	285.5	1.711	17.816	285.3	1.709	18.284	285.2	1.706
25	15.191	290.4	1.736	15.640	290.3	1.733	16.090	290.2	1.731	16.541	290.0	1.728	16.994	289.9	1.726	17.449	289.8	1.724
30	14.894	294.9	1.751	15.332	294.7	1.748	15.772	294.6	1.746	16.213	294.5	1.743	16.656	294.4	1.741	17.100	294.3	1.738
35	14.610	299.4	1.766	15.038	299.3	1.763	15.468	299.1	1.760	15.899	299.0	1.758	16.332	298.9	1.756	16.765	298.8	1.753
40	14.338	303.9	1.780	14.757	303.8	1.778	15.177	303.7	1.775	15.599	303.6	1.773	16.021	303.4	1.770	16.446	303.3	1.768
45	14.076	308.5	1.795	14.487	308.4	1.792	14.898	308.3	1.790	15.311	308.2	1.787	15.724	308.0	1.785	16.139	307.9	1.782
50	13.825	313.1	1.809	14.227	313.0	1.807	14.630	312.9	1.804	15.034	312.8	1.802	15.439	312.7	1.799	15.845	312.6	1.797
55	13.584	317.8	1.823	13.978	317.7	1.821	14.373	317.6	1.818	14.769	317.5	1.816	15.165	317.4	1.814	15.563	317.2	1.811
60	13.352	322.5	1.838	13.738	322.4	1.835	14.125	322.3	1.833	14.513	322.2	1.830	14.902	322.1	1.828	15.292	322.0	1.826
65	13.128	327.2	1.852	13.507	327.1	1.849	13.887	327.0	1.847	14.267	326.9	1.844	14.649	326.8	1.842	15.031	326.7	1.840
70	12.912	332.0	1.866	13.284	331.9	1.863	13.657	331.8	1.861	14.030	331.7	1.858	14.404	331.6	1.856	14.779	331.5	1.854
75	12.704	336.8	1.880	13.069	336.7	1.877	13.435	336.6	1.875	13.802	336.6	1.872	14.169	336.5	1.870	14.537	336.4	1.868
80	12.503	341.7	1.894	12.862	341.6	1.891	13.221	341.5	1.889	13.581	341.4	1.886	13.942	341.3	1.884	14.303	341.2	1.882
85	12.309	346.6	1.907	12.662	346.5	1.905	13.015	346.4	1.903	13.369	346.4	1.900	13.723	346.3	1.898	14.078	346.2	1.896
90	12.121	351.6	1.921	12.468	351.5	1.919	12.815	351.4	1.916	13.163	351.3	1.914	13.511	351.2	1.912	13.860	351.1	1.909
95	11.940	356.6	1.935	12.281	356.5	1.932	12.622	356.4	1.930	12.964	356.3	1.928	13.307	356.2	1.925	13.650	356.1	1.923
100	11.764	361.6	1.948	12.099	361.5	1.946	12.435	361.4	1.944	12.772	361.3	1.941	13.109	361.3	1.939	13.446	361.2	1.937
105	11.594	366.7	1.962	11.924	366.6	1.959	12.254	366.5	1.957	12.586	366.4	1.955	12.917	366.3	1.952	13.249	366.3	1.950
110	11.429	371.8	1.975	11.754	371.7	1.973	12.079	371.6	1.970	12.405	371.5	1.968	12.731	371.4	1.966	13.058	371.4	1.964
115	11.269	376.9	1.989	11.589	376.8	1.986	11.909	376.7	1.984	12.230	376.7	1.981	12.551	376.6	1.979	12.873	376.5	1.977
120	11.113	382.1	2.002	11.429	382.0	1.999	11.744	381.9	1.997	12.060	381.8	1.995	12.377	381.8	1.992	12.694	381.7	1.990
125	10.963	387.3	2.015	11.273	387.2	2.013	11.584	387.1	2.010	11.896	387.1	2.008	12.208	387.0	2.006	12.520	386.9	2.003
130	10.816	392.5	2.028	11.122	392.4	2.026	11.429	392.4	2.023	11.736	392.3	2.021	12.043	392.2	2.019	12.351	392.2	2.016
135	10.674	397.8	2.041	10.976	397.7	2.039	11.278	397.7	2.036	11.580	397.6	2.034	11.883	397.5	2.032	12.186	397.5	2.030
140	10.535	403.1	2.054	10.833	403.0	2.052	11.131	403.0	2.049	11.429	402.9	2.047	11.728	402.8	2.045	12.027	402.8	2.043

Standard state : at 0°C, Liquid Enthalpy = 100kJ/kg, Liquid Entropy = 1kJ/kg K

507 Superheated Vapour Properties (D = Density in kg/m<sup>3</sup>, H = Enthalpy in kJ/kg, S= Entropy in kJ/kg K)

Table 4 Sheet 7

Temp (°C)	Absolute Pressure (Bara)																	
	4.3			4.4			4.5			4.6			4.7			4.8		
	Satn Temp : -11.65			Satn Temp : -10.97			Satn Temp : -10.31			Satn Temp : -9.66			Satn Temp : -9.02			Satn Temp : -8.39		
	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S
-10	21.582	259.2	1.611															
-8	21.361	260.9	1.617	21.919	260.7	1.615	22.479	260.5	1.612	23.043	260.4	1.610						
-6	21.146	262.5	1.623	21.696	262.4	1.621	22.249	262.2	1.619	22.806	262.1	1.617	23.365	261.9	1.614	23.929	261.7	1.612
-4	20.936	264.2	1.630	21.479	264.1	1.627	22.025	263.9	1.625	22.574	263.8	1.623	23.126	263.6	1.621	23.681	263.4	1.618
-2	20.732	265.9	1.636	21.267	265.8	1.634	21.806	265.6	1.631	22.348	265.5	1.629	22.893	265.3	1.627	23.440	265.2	1.625
0	20.531	267.7	1.642	21.060	267.5	1.640	21.592	267.3	1.638	22.127	267.2	1.636	22.665	267.0	1.633	23.205	266.9	1.631
2	20.336	269.4	1.649	20.858	269.2	1.646	21.384	269.1	1.644	21.912	268.9	1.642	22.442	268.8	1.640	22.976	268.6	1.637
4	20.144	271.1	1.655	20.661	270.9	1.653	21.180	270.8	1.650	21.701	270.6	1.648	22.225	270.5	1.646	22.752	270.3	1.644
6	19.957	272.8	1.661	20.468	272.7	1.659	20.980	272.5	1.656	21.495	272.4	1.654	22.013	272.2	1.652	22.534	272.1	1.650
8	19.775	274.5	1.667	20.279	274.4	1.665	20.785	274.3	1.663	21.294	274.1	1.660	21.806	274.0	1.658	22.320	273.8	1.656
10	19.595	276.3	1.673	20.094	276.1	1.671	20.595	276.0	1.669	21.098	275.9	1.667	21.603	275.7	1.664	22.111	275.6	1.662
12	19.420	278.0	1.680	19.913	277.9	1.677	20.408	277.7	1.675	20.905	277.6	1.673	21.405	277.5	1.671	21.907	277.3	1.669
14	19.249	279.8	1.686	19.736	279.6	1.683	20.225	279.5	1.681	20.717	279.4	1.679	21.211	279.2	1.677	21.707	279.1	1.675
16	19.080	281.5	1.692	19.563	281.4	1.689	20.047	281.3	1.687	20.533	281.1	1.685	21.021	281.0	1.683	21.511	280.8	1.681
18	18.916	283.3	1.698	19.393	283.2	1.696	19.871	283.0	1.693	20.352	282.9	1.691	20.835	282.8	1.689	21.320	282.6	1.687
20	18.754	285.1	1.704	19.226	284.9	1.702	19.700	284.8	1.699	20.176	284.7	1.697	20.653	284.5	1.695	21.133	284.4	1.693
25	18.364	289.5	1.719	18.824	289.4	1.717	19.286	289.3	1.714	19.749	289.1	1.712	20.214	289.0	1.710	20.681	288.9	1.708
30	17.992	294.0	1.734	18.441	293.9	1.732	18.891	293.8	1.729	19.343	293.6	1.727	19.796	293.5	1.725	20.251	293.4	1.723
35	17.637	298.5	1.749	18.075	298.4	1.746	18.514	298.3	1.744	18.955	298.2	1.742	19.397	298.0	1.740	19.841	297.9	1.738
40	17.297	303.1	1.763	17.725	303.0	1.761	18.154	302.9	1.759	18.585	302.7	1.757	19.017	302.6	1.755	19.450	302.5	1.753
45	16.972	307.7	1.778	17.391	307.6	1.776	17.810	307.5	1.774	18.231	307.4	1.772	18.653	307.2	1.769	19.076	307.1	1.767
50	16.661	312.3	1.792	17.070	312.2	1.790	17.480	312.1	1.788	17.892	312.0	1.786	18.304	311.9	1.784	18.718	311.8	1.782
55	16.362	317.0	1.807	16.762	316.9	1.805	17.164	316.8	1.803	17.567	316.7	1.800	17.970	316.6	1.798	18.375	316.5	1.796
60	16.074	321.8	1.821	16.467	321.6	1.819	16.860	321.5	1.817	17.255	321.4	1.815	17.650	321.3	1.813	18.046	321.2	1.811
65	15.798	326.5	1.835	16.183	326.4	1.833	16.568	326.3	1.831	16.955	326.2	1.829	17.342	326.1	1.827	17.730	326.0	1.825
70	15.532	331.3	1.849	15.909	331.2	1.847	16.287	331.1	1.845	16.666	331.0	1.843	17.046	330.9	1.841	17.426	330.8	1.839
75	15.275	336.2	1.863	15.646	336.1	1.861	16.017	336.0	1.859	16.388	335.9	1.857	16.761	335.8	1.855	17.134	335.7	1.853
80	15.028	341.1	1.877	15.392	341.0	1.875	15.756	340.9	1.873	16.121	340.8	1.871	16.486	340.7	1.869	16.852	340.6	1.867
85	14.790	346.0	1.891	15.147	345.9	1.889	15.504	345.8	1.887	15.863	345.7	1.885	16.221	345.6	1.883	16.581	345.5	1.881
90	14.560	351.0	1.905	14.910	350.9	1.903	15.262	350.8	1.901	15.614	350.7	1.899	15.966	350.6	1.897	16.319	350.5	1.895
95	14.337	356.0	1.919	14.682	355.9	1.917	15.027	355.8	1.915	15.373	355.7	1.913	15.719	355.6	1.911	16.066	355.5	1.909
100	14.122	361.0	1.932	14.461	360.9	1.930	14.801	360.8	1.928	15.141	360.8	1.926	15.481	360.7	1.924	15.822	360.6	1.922
105	13.914	366.1	1.946	14.248	366.0	1.944	14.582	365.9	1.942	14.916	365.8	1.940	15.251	365.8	1.938	15.586	365.7	1.936
110	13.713	371.2	1.959	14.041	371.1	1.957	14.369	371.0	1.955	14.698	371.0	1.953	15.028	370.9	1.951	15.357	370.8	1.949
115	13.518	376.4	1.973	13.841	376.3	1.971	14.164	376.2	1.969	14.488	376.1	1.967	14.812	376.0	1.965	15.136	376.0	1.963
120	13.328	381.5	1.986	13.646	381.5	1.984	13.965	381.4	1.982	14.283	381.3	1.980	14.602	381.2	1.978	14.922	381.2	1.976
125	13.145	386.8	1.999	13.458	386.7	1.997	13.771	386.6	1.995	14.085	386.5	1.993	14.399	386.5	1.991	14.714	386.4	1.989
130	12.967	392.0	2.012	13.275	392.0	2.010	13.584	391.9	2.008	13.893	391.8	2.006	14.203	391.7	2.004	14.512	391.7	2.002
135	12.794	397.3	2.025	13.098	397.2	2.023	13.402	397.2	2.021	13.707	397.1	2.019	14.012	397.0	2.017	14.317	397.0	2.015
140	12.625	402.6	2.038	12.925	402.6	2.036	13.225	402.5	2.034	13.525	402.4	2.032	13.826	402.4	2.030	14.127	402.3	2.028
145	12.462	408.0	2.051	12.758	407.9	2.049	13.053	407.9	2.047	13.349	407.8	2.045	13.646	407.7	2.043	13.942	407.7	2.041

Standard state : at 0°C, Liquid Enthalpy = 100kJ/kg, Liquid Entropy = 1kJ/kg K

507 Superheated Vapour Properties (D = Density in kg/m<sup>3</sup>, H = Enthalpy in kJ/kg, S= Entropy in kJ/kg K)

Table 4 Sheet 8

Temp (°C)	Absolute Pressure (Bara)																	
	4.9			5			5.1			5.2			5.3			5.4		
	Satn Temp : -7.77			Satn Temp : -7.17			Satn Temp : -6.56			Satn Temp : -5.97			Satn Temp : -5.39			Satn Temp : -4.82		
	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S
-6	24.495	261.6	1.610															
-4	24.240	263.3	1.616	24.802	263.1	1.614	25.368	262.9	1.612	25.937	262.8	1.610	26.509	262.6	1.608			
-2	23.992	265.0	1.623	24.546	264.8	1.621	25.103	264.7	1.618	25.664	264.5	1.616	26.229	264.3	1.614	26.796	264.2	1.612
0	23.749	266.7	1.629	24.296	266.6	1.627	24.846	266.4	1.625	25.399	266.2	1.623	25.955	266.1	1.621	26.515	265.9	1.619
2	23.513	268.4	1.635	24.052	268.3	1.633	24.595	268.1	1.631	25.140	268.0	1.629	25.689	267.8	1.627	26.240	267.7	1.625
4	23.282	270.2	1.642	23.814	270.0	1.639	24.350	269.9	1.637	24.888	269.7	1.635	25.429	269.6	1.633	25.973	269.4	1.631
6	23.057	271.9	1.648	23.582	271.8	1.646	24.111	271.6	1.644	24.642	271.5	1.642	25.175	271.3	1.640	25.712	271.2	1.638
8	22.836	273.7	1.654	23.355	273.5	1.652	23.877	273.4	1.650	24.401	273.2	1.648	24.928	273.1	1.646	25.458	272.9	1.644
10	22.621	275.4	1.660	23.134	275.3	1.658	23.649	275.1	1.656	24.167	275.0	1.654	24.687	274.8	1.652	25.210	274.7	1.650
12	22.411	277.2	1.666	22.917	277.0	1.664	23.426	276.9	1.662	23.938	276.7	1.660	24.451	276.6	1.658	24.967	276.4	1.656
14	22.205	278.9	1.673	22.706	278.8	1.671	23.208	278.7	1.669	23.714	278.5	1.667	24.221	278.4	1.665	24.731	278.2	1.663
16	22.004	280.7	1.679	22.499	280.6	1.677	22.995	280.4	1.675	23.495	280.3	1.673	23.996	280.1	1.671	24.499	280.0	1.669
18	21.807	282.5	1.685	22.296	282.3	1.683	22.787	282.2	1.681	23.280	282.1	1.679	23.776	281.9	1.677	24.273	281.8	1.675
20	21.614	284.3	1.691	22.098	284.1	1.689	22.583	284.0	1.687	23.071	283.9	1.685	23.560	283.7	1.683	24.052	283.6	1.681
25	21.149	288.7	1.706	21.620	288.6	1.704	22.092	288.5	1.702	22.566	288.3	1.700	23.042	288.2	1.698	23.520	288.1	1.696
30	20.707	293.3	1.721	21.165	293.1	1.719	21.625	293.0	1.717	22.087	292.9	1.715	22.550	292.7	1.713	23.014	292.6	1.711
35	20.286	297.8	1.736	20.733	297.7	1.734	21.181	297.6	1.732	21.631	297.4	1.730	22.082	297.3	1.728	22.534	297.2	1.726
40	19.884	302.4	1.751	20.320	302.3	1.749	20.757	302.2	1.747	21.196	302.0	1.745	21.636	301.9	1.743	22.077	301.8	1.741
45	19.500	307.0	1.765	19.926	306.9	1.763	20.353	306.8	1.762	20.781	306.7	1.760	21.210	306.6	1.758	21.641	306.4	1.756
50	19.133	311.7	1.780	19.549	311.6	1.778	19.966	311.5	1.776	20.384	311.3	1.774	20.804	311.2	1.772	21.224	311.1	1.771
55	18.781	316.4	1.794	19.188	316.3	1.792	19.596	316.2	1.791	20.005	316.1	1.789	20.415	315.9	1.787	20.826	315.8	1.785
60	18.443	321.1	1.809	18.842	321.0	1.807	19.241	320.9	1.805	19.641	320.8	1.803	20.042	320.7	1.801	20.444	320.6	1.799
65	18.119	325.9	1.823	18.509	325.8	1.821	18.900	325.7	1.819	19.292	325.6	1.817	19.684	325.5	1.815	20.078	325.4	1.814
70	17.808	330.7	1.837	18.190	330.6	1.835	18.573	330.5	1.833	18.956	330.4	1.832	19.341	330.3	1.830	19.726	330.2	1.828
75	17.508	335.6	1.851	17.882	335.5	1.849	18.258	335.4	1.847	18.634	335.3	1.846	19.011	335.2	1.844	19.388	335.1	1.842
80	17.219	340.5	1.865	17.586	340.4	1.863	17.955	340.3	1.861	18.324	340.2	1.860	18.693	340.1	1.858	19.063	340.0	1.856
85	16.941	345.4	1.879	17.301	345.4	1.877	17.663	345.3	1.875	18.025	345.2	1.874	18.387	345.1	1.872	18.751	345.0	1.870
90	16.672	350.4	1.893	17.027	350.3	1.891	17.381	350.3	1.889	17.737	350.2	1.887	18.093	350.1	1.886	18.449	350.0	1.884
95	16.414	355.5	1.907	16.761	355.4	1.905	17.110	355.3	1.903	17.459	355.2	1.901	17.808	355.1	1.899	18.159	355.0	1.898
100	16.163	360.5	1.920	16.505	360.4	1.918	16.848	360.3	1.917	17.191	360.3	1.915	17.534	360.2	1.913	17.878	360.1	1.911
105	15.922	365.6	1.934	16.258	365.5	1.932	16.594	365.4	1.930	16.931	365.4	1.928	17.269	365.3	1.927	17.607	365.2	1.925
110	15.688	370.7	1.947	16.018	370.7	1.946	16.349	370.6	1.944	16.681	370.5	1.942	17.013	370.4	1.940	17.345	370.3	1.938
115	15.461	375.9	1.961	15.786	375.8	1.959	16.112	375.7	1.957	16.438	375.7	1.955	16.765	375.6	1.954	17.092	375.5	1.952
120	15.242	381.1	1.974	15.562	381.0	1.972	15.882	380.9	1.970	16.203	380.9	1.969	16.525	380.8	1.967	16.846	380.7	1.965
125	15.029	386.3	1.987	15.344	386.3	1.985	15.660	386.2	1.984	15.976	386.1	1.982	16.292	386.0	1.980	16.609	386.0	1.978
130	14.823	391.6	2.000	15.133	391.5	1.999	15.444	391.5	1.997	15.755	391.4	1.995	16.067	391.3	1.993	16.378	391.2	1.992
135	14.622	396.9	2.014	14.928	396.8	2.012	15.234	396.8	2.010	15.541	396.7	2.008	15.848	396.6	2.006	16.155	396.6	2.005
140	14.428	402.2	2.027	14.729	402.2	2.025	15.031	402.1	2.023	15.333	402.0	2.021	15.635	402.0	2.019	15.938	401.9	2.018
145	14.239	407.6	2.039	14.536	407.5	2.038	14.834	407.5	2.036	15.131	407.4	2.034	15.429	407.3	2.032	15.727	407.3	2.031
150	14.056	413.0	2.052	14.348	413.0	2.050	14.642	412.9	2.049	14.935	412.8	2.047	15.229	412.8	2.045	15.523	412.7	2.044

Standard state : at 0°C, Liquid Enthalpy = 100kJ/kg, Liquid Entropy = 1kJ/kg K

507 Superheated Vapour Properties (D = Density in kg/m<sup>3</sup>, H = Enthalpy in kJ/kg, S = Entropy in kJ/kg K)

Table 4 Sheet 9

Temp (°C)	Absolute Pressure (Bara)																	
	5.5			5.6			5.7			5.8			5.9			6		
	Satn Temp : -4.25			Satn Temp : -3.69			Satn Temp : -3.14			Satn Temp : -2.59			Satn Temp : -2.06			Satn Temp : -1.53		
	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S
-2	27.367	264.0	1.610	27.942	263.8	1.608												
0	27.077	265.8	1.617	27.644	265.6	1.615	28.213	265.4	1.613	28.786	265.3	1.611	29.363	265.1	1.609	29.943	264.9	1.607
2	26.795	267.5	1.623	27.353	267.3	1.621	27.914	267.2	1.619	28.479	267.0	1.617	29.047	266.8	1.616	29.618	266.7	1.614
4	26.520	269.2	1.629	27.070	269.1	1.628	27.623	268.9	1.626	28.179	268.8	1.624	28.739	268.6	1.622	29.302	268.4	1.620
6	26.252	271.0	1.636	26.794	270.8	1.634	27.340	270.7	1.632	27.888	270.5	1.630	28.439	270.4	1.628	28.994	270.2	1.626
8	25.990	272.8	1.642	26.525	272.6	1.640	27.063	272.5	1.638	27.604	272.3	1.636	28.148	272.1	1.635	28.694	272.0	1.633
10	25.735	274.5	1.648	26.263	274.4	1.646	26.794	274.2	1.645	27.327	274.1	1.643	27.863	273.9	1.641	28.402	273.8	1.639
12	25.486	276.3	1.655	26.007	276.2	1.653	26.531	276.0	1.651	27.057	275.9	1.649	27.586	275.7	1.647	28.118	275.6	1.645
14	25.243	278.1	1.661	25.757	277.9	1.659	26.274	277.8	1.657	26.794	277.6	1.655	27.316	277.5	1.653	27.840	277.3	1.652
16	25.005	279.9	1.667	25.513	279.7	1.665	26.024	279.6	1.663	26.536	279.4	1.661	27.052	279.3	1.660	27.569	279.1	1.658
18	24.773	281.6	1.673	25.275	281.5	1.671	25.779	281.4	1.669	26.285	281.2	1.668	26.794	281.1	1.666	27.305	280.9	1.664
20	24.546	283.4	1.679	25.042	283.3	1.677	25.540	283.2	1.676	26.040	283.0	1.674	26.542	282.9	1.672	27.047	282.7	1.670
25	23.999	287.9	1.695	24.481	287.8	1.693	24.964	287.7	1.691	25.450	287.5	1.689	25.937	287.4	1.687	26.426	287.3	1.686
30	23.481	292.5	1.710	23.949	292.4	1.708	24.419	292.2	1.706	24.891	292.1	1.704	25.364	292.0	1.702	25.840	291.8	1.701
35	22.989	297.1	1.725	23.444	296.9	1.723	23.902	296.8	1.721	24.361	296.7	1.719	24.821	296.6	1.718	25.284	296.4	1.716
40	22.520	301.7	1.739	22.964	301.5	1.738	23.410	301.4	1.736	23.857	301.3	1.734	24.305	301.2	1.732	24.755	301.1	1.731
45	22.073	306.3	1.754	22.506	306.2	1.752	22.941	306.1	1.751	23.377	306.0	1.749	23.814	305.8	1.747	24.252	305.7	1.746
50	21.646	311.0	1.769	22.069	310.9	1.767	22.493	310.8	1.765	22.919	310.7	1.764	23.345	310.5	1.762	23.773	310.4	1.760
55	21.238	315.7	1.783	21.651	315.6	1.782	22.066	315.5	1.780	22.481	315.4	1.778	22.897	315.3	1.776	23.315	315.2	1.775
60	20.847	320.5	1.798	21.251	320.4	1.796	21.656	320.3	1.794	22.062	320.2	1.792	22.469	320.1	1.791	22.877	319.9	1.789
65	20.472	325.3	1.812	20.868	325.2	1.810	21.264	325.1	1.808	21.661	325.0	1.807	22.059	324.9	1.805	22.458	324.8	1.803
70	20.112	330.1	1.826	20.499	330.0	1.824	20.887	329.9	1.823	21.276	329.8	1.821	21.666	329.7	1.819	22.056	329.6	1.818
75	19.767	335.0	1.840	20.146	334.9	1.839	20.526	334.8	1.837	20.907	334.7	1.835	21.288	334.6	1.834	21.670	334.5	1.832
80	19.434	339.9	1.854	19.806	339.8	1.853	20.178	339.7	1.851	20.552	339.6	1.849	20.925	339.5	1.848	21.300	339.5	1.846
85	19.115	344.9	1.868	19.479	344.8	1.867	19.844	344.7	1.865	20.210	344.6	1.863	20.577	344.5	1.862	20.944	344.4	1.860
90	18.806	349.9	1.882	19.164	349.8	1.880	19.522	349.7	1.879	19.881	349.6	1.877	20.241	349.5	1.876	20.601	349.4	1.874
95	18.509	354.9	1.896	18.861	354.8	1.894	19.212	354.8	1.893	19.565	354.7	1.891	19.918	354.6	1.889	20.271	354.5	1.888
100	18.223	360.0	1.910	18.568	359.9	1.908	18.913	359.8	1.906	19.259	359.7	1.905	19.606	359.7	1.903	19.953	359.6	1.901
105	17.946	365.1	1.923	18.285	365.0	1.922	18.624	364.9	1.920	18.964	364.9	1.918	19.305	364.8	1.917	19.646	364.7	1.915
110	17.678	370.3	1.937	18.011	370.2	1.935	18.345	370.1	1.933	18.679	370.0	1.932	19.014	369.9	1.930	19.349	369.9	1.929
115	17.419	375.4	1.950	17.747	375.4	1.948	18.075	375.3	1.947	18.404	375.2	1.945	18.733	375.1	1.944	19.062	375.0	1.942
120	17.168	380.6	1.963	17.491	380.6	1.962	17.814	380.5	1.960	18.137	380.4	1.959	18.461	380.3	1.957	18.785	380.3	1.955
125	16.926	385.9	1.977	17.243	385.8	1.975	17.561	385.7	1.973	17.879	385.7	1.972	18.197	385.6	1.970	18.516	385.5	1.969
130	16.690	391.2	1.990	17.003	391.1	1.988	17.316	391.0	1.987	17.629	391.0	1.985	17.942	390.9	1.983	18.256	390.8	1.982
135	16.462	396.5	2.003	16.770	396.4	2.001	17.078	396.3	2.000	17.386	396.3	1.998	17.695	396.2	1.997	18.004	396.1	1.995
140	16.241	401.8	2.016	16.544	401.8	2.014	16.847	401.7	2.013	17.151	401.6	2.011	17.455	401.6	2.010	17.759	401.5	2.008
145	16.026	407.2	2.029	16.325	407.2	2.027	16.624	407.1	2.026	16.923	407.0	2.024	17.222	407.0	2.023	17.522	406.9	2.021
150	15.817	412.6	2.042	16.111	412.6	2.040	16.406	412.5	2.039	16.701	412.4	2.037	16.996	412.4	2.036	17.292	412.3	2.034
155	15.614	418.1	2.055	15.904	418.0	2.053	16.195	418.0	2.051	16.486	417.9	2.050	16.777	417.8	2.048	17.068	417.8	2.047
160	15.417	423.6	2.067	15.703	423.5	2.066	15.989	423.4	2.064	16.276	423.4	2.063	16.563	423.3	2.061	16.850	423.3	2.060

Standard state : at 0°C, Liquid Enthalpy = 100kJ/kg, Liquid Entropy = 1kJ/kg K

507 Superheated Vapour Properties (D = Density in kg/m<sup>3</sup>, H = Enthalpy in kJ/kg, S= Entropy in kJ/kg K)

Table 4 Sheet 10

Temp (°C)	Absolute Pressure (Bara)																	
	6.5			7			7.5			8			8.5			9		
	Satn Temp : 1.04			Satn Temp : 3.44			Satn Temp : 5.73			Satn Temp : 7.89			Satn Temp : 9.96			Satn Temp : 11.94		
	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S
5	31.989	268.5	1.615	34.919	267.7	1.606												
10	31.141	273.0	1.630	33.955	272.2	1.622	36.852	271.4	1.614	39.839	270.5	1.607						
15	30.348	277.5	1.646	33.059	276.7	1.638	35.842	275.9	1.630	38.703	275.1	1.623	41.648	274.3	1.616	44.683	273.5	1.609
20	29.604	282.0	1.662	32.221	281.3	1.654	34.901	280.5	1.646	37.650	279.8	1.639	40.471	279.0	1.632	43.371	278.2	1.625
25	28.904	286.6	1.677	31.435	285.9	1.669	34.022	285.2	1.662	36.669	284.4	1.655	39.380	283.7	1.648	42.159	282.9	1.641
30	28.244	291.2	1.692	30.695	290.5	1.685	33.197	289.8	1.677	35.752	289.1	1.670	38.364	288.4	1.663	41.034	287.7	1.657
35	27.619	295.8	1.708	29.998	295.1	1.700	32.422	294.5	1.693	34.892	293.8	1.685	37.413	293.1	1.679	39.986	292.4	1.672
40	27.027	300.4	1.723	29.338	299.8	1.715	31.690	299.2	1.708	34.083	298.5	1.701	36.521	297.9	1.694	39.006	297.2	1.688
45	26.465	305.1	1.737	28.713	304.5	1.730	30.997	303.9	1.723	33.319	303.3	1.716	35.681	302.7	1.709	38.085	302.0	1.703
50	25.930	309.9	1.752	28.119	309.3	1.745	30.341	308.7	1.737	32.597	308.1	1.731	34.889	307.5	1.724	37.218	306.8	1.718
55	25.420	314.6	1.767	27.554	314.0	1.759	29.717	313.5	1.752	31.912	312.9	1.745	34.139	312.3	1.739	36.399	311.7	1.733
60	24.933	319.4	1.781	27.015	318.9	1.774	29.124	318.3	1.767	31.261	317.7	1.760	33.427	317.2	1.754	35.624	316.6	1.748
65	24.467	324.2	1.796	26.500	323.7	1.788	28.558	323.2	1.781	30.642	322.6	1.775	32.751	322.1	1.768	34.888	321.5	1.762
70	24.021	329.1	1.810	26.008	328.6	1.803	28.018	328.1	1.796	30.051	327.5	1.789	32.108	327.0	1.783	34.189	326.5	1.777
75	23.594	334.0	1.824	25.537	333.5	1.817	27.502	333.0	1.810	29.487	332.5	1.803	31.494	332.0	1.797	33.524	331.5	1.791
80	23.184	339.0	1.838	25.086	338.5	1.831	27.007	338.0	1.824	28.948	337.5	1.818	30.909	337.0	1.812	32.889	336.5	1.806
85	22.790	344.0	1.852	24.653	343.5	1.845	26.534	343.0	1.838	28.432	342.5	1.832	30.349	342.1	1.826	32.284	341.6	1.820
90	22.411	349.0	1.866	24.237	348.5	1.859	26.079	348.1	1.852	27.938	347.6	1.846	29.813	347.2	1.840	31.705	346.7	1.834
95	22.047	354.1	1.880	23.838	353.6	1.873	25.643	353.2	1.866	27.463	352.7	1.860	29.299	352.3	1.854	31.150	351.8	1.848
100	21.696	359.2	1.894	23.453	358.7	1.887	25.223	358.3	1.880	27.008	357.9	1.874	28.806	357.4	1.868	30.619	357.0	1.862
105	21.358	364.3	1.908	23.082	363.9	1.900	24.820	363.5	1.894	26.569	363.0	1.888	28.332	362.6	1.882	30.109	362.2	1.876
110	21.031	369.5	1.921	22.725	369.0	1.914	24.430	368.6	1.907	26.148	368.2	1.901	27.877	367.8	1.895	29.618	367.4	1.890
115	20.716	374.7	1.935	22.380	374.3	1.928	24.055	373.9	1.921	25.741	373.5	1.915	27.438	373.1	1.909	29.146	372.7	1.903
120	20.411	379.9	1.948	22.047	379.5	1.941	23.693	379.1	1.934	25.349	378.7	1.928	27.015	378.4	1.922	28.691	378.0	1.917
125	20.116	385.2	1.961	21.725	384.8	1.954	23.343	384.4	1.948	24.970	384.0	1.942	26.607	383.7	1.936	28.253	383.3	1.930
130	19.830	390.5	1.975	21.413	390.1	1.968	23.004	389.7	1.961	24.604	389.4	1.955	26.213	389.0	1.949	27.830	388.6	1.944
135	19.554	395.8	1.988	21.111	395.4	1.981	22.677	395.1	1.974	24.250	394.7	1.968	25.832	394.4	1.962	27.422	394.0	1.957
140	19.285	401.2	2.001	20.819	400.8	1.994	22.360	400.5	1.987	23.908	400.1	1.981	25.464	399.8	1.976	27.027	399.4	1.970
145	19.025	406.6	2.014	20.535	406.2	2.007	22.052	405.9	2.000	23.576	405.6	1.994	25.107	405.2	1.989	26.645	404.9	1.983
150	18.773	412.0	2.027	20.260	411.7	2.020	21.754	411.3	2.013	23.255	411.0	2.007	24.762	410.7	2.002	26.275	410.4	1.996
155	18.528	417.5	2.039	19.994	417.1	2.033	21.465	416.8	2.026	22.943	416.5	2.020	24.427	416.2	2.015	25.917	415.9	2.009
160	18.290	423.0	2.052	19.734	422.6	2.045	21.185	422.3	2.039	22.641	422.0	2.033	24.102	421.7	2.027	25.570	421.4	2.022
165	18.058	428.5	2.065	19.483	428.2	2.058	20.912	427.9	2.052	22.347	427.6	2.046	23.788	427.3	2.040	25.233	427.0	2.035
170	17.833	434.0	2.078	19.238	433.8	2.071	20.648	433.5	2.065	22.062	433.2	2.059	23.482	432.9	2.053	24.906	432.6	2.048
175	17.614	439.6	2.090	19.000	439.4	2.083	20.390	439.1	2.077	21.785	438.8	2.071	23.184	438.5	2.066	24.588	438.2	2.060
180	17.400	445.3	2.103	18.768	445.0	2.096	20.140	444.7	2.090	21.515	444.4	2.084	22.896	444.1	2.078	24.280	443.9	2.073

Standard state : at 0°C, Liquid Enthalpy = 100kJ/kg, Liquid Entropy = 1kJ/kg K

507 Superheated Vapour Properties (D = Density in kg/m<sup>3</sup>, H = Enthalpy in kJ/kg, S= Entropy in kJ/kg K)

Table 4 Sheet 11

Temp (°C)	Absolute Pressure (Bara)																	
	9.5			10			10.5			11			11.5			12		
	Satn Temp : 13.84			Satn Temp : 15.66			Satn Temp : 17.41			Satn Temp : 19.11			Satn Temp : 20.74			Satn Temp : 22.32		
	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S
20	46.355	277.4	1.618	49.430	276.5	1.612	52.606	275.7	1.606									
25	45.011	282.1	1.635	47.941	281.3	1.628	50.955	280.5	1.622	54.060	279.7	1.616	57.265	278.8	1.610	60.578	277.9	1.604
30	43.769	286.9	1.650	46.570	286.2	1.644	49.444	285.4	1.638	52.395	284.6	1.632	55.430	283.8	1.627	58.554	282.9	1.621
35	42.615	291.7	1.666	45.303	291.0	1.660	48.053	290.3	1.654	50.869	289.5	1.648	53.756	288.7	1.643	56.719	288.0	1.637
40	41.539	296.5	1.682	44.124	295.8	1.676	46.764	295.1	1.670	49.461	294.4	1.664	52.219	293.7	1.659	55.041	292.9	1.653
45	40.532	301.4	1.697	43.024	300.7	1.691	45.564	300.0	1.685	48.155	299.4	1.680	50.798	298.7	1.675	53.497	297.9	1.669
50	39.585	306.2	1.712	41.993	305.6	1.706	44.444	304.9	1.701	46.938	304.3	1.695	49.479	303.6	1.690	52.068	303.0	1.685
55	38.694	311.1	1.727	41.024	310.5	1.721	43.393	309.9	1.716	45.800	309.2	1.711	48.248	308.6	1.705	50.739	308.0	1.700
60	37.851	316.0	1.742	40.111	315.4	1.736	42.404	314.8	1.731	44.732	314.2	1.726	47.096	313.6	1.720	49.497	313.0	1.716
65	37.053	320.9	1.757	39.247	320.4	1.751	41.471	319.8	1.746	43.726	319.2	1.740	46.013	318.6	1.735	48.333	318.0	1.731
70	36.296	325.9	1.771	38.429	325.4	1.766	40.589	324.8	1.760	42.777	324.3	1.755	44.993	323.7	1.750	47.239	323.1	1.745
75	35.576	330.9	1.786	37.653	330.4	1.780	39.753	329.9	1.775	41.879	329.3	1.770	44.030	328.8	1.765	46.208	328.3	1.760
80	34.891	336.0	1.800	36.915	335.5	1.795	38.960	335.0	1.790	41.028	334.5	1.785	43.119	333.9	1.780	45.234	333.4	1.775
85	34.238	341.1	1.814	36.212	340.6	1.809	38.206	340.1	1.804	40.220	339.6	1.799	42.255	339.1	1.794	44.311	338.6	1.790
90	33.614	346.2	1.829	35.542	345.7	1.823	37.487	345.3	1.818	39.451	344.8	1.813	41.434	344.3	1.809	43.436	343.8	1.804
95	33.018	351.4	1.843	34.901	350.9	1.838	36.801	350.4	1.832	38.718	350.0	1.828	40.652	349.5	1.823	42.604	349.0	1.818
100	32.446	356.5	1.857	34.288	356.1	1.852	36.146	355.7	1.847	38.019	355.2	1.842	39.907	354.8	1.837	41.812	354.3	1.833
105	31.898	361.8	1.871	33.701	361.3	1.865	35.518	360.9	1.860	37.349	360.5	1.856	39.195	360.0	1.851	41.055	359.6	1.847
110	31.372	367.0	1.884	33.138	366.6	1.879	34.917	366.2	1.874	36.709	365.7	1.870	38.514	365.3	1.865	40.332	364.9	1.861
115	30.866	372.3	1.898	32.597	371.9	1.893	34.340	371.5	1.888	36.094	371.1	1.883	37.861	370.6	1.879	39.640	370.2	1.874
120	30.379	377.6	1.912	32.076	377.2	1.907	33.785	376.8	1.902	35.504	376.4	1.897	37.235	376.0	1.893	38.976	375.6	1.888
125	29.909	382.9	1.925	31.575	382.5	1.920	33.251	382.1	1.915	34.937	381.8	1.911	36.633	381.4	1.906	38.339	381.0	1.902
130	29.457	388.3	1.938	31.092	387.9	1.933	32.737	387.5	1.929	34.391	387.2	1.924	36.054	386.8	1.920	37.727	386.4	1.915
135	29.020	393.7	1.952	30.627	393.3	1.947	32.242	392.9	1.942	33.865	392.6	1.937	35.497	392.2	1.933	37.138	391.9	1.929
140	28.598	399.1	1.965	30.177	398.7	1.960	31.764	398.4	1.955	33.358	398.0	1.951	34.961	397.7	1.946	36.571	397.3	1.942
145	28.190	404.5	1.978	29.742	404.2	1.973	31.302	403.9	1.968	32.869	403.5	1.964	34.443	403.2	1.960	36.024	402.8	1.955
150	27.795	410.0	1.991	29.322	409.7	1.986	30.856	409.4	1.982	32.396	409.0	1.977	33.943	408.7	1.973	35.497	408.4	1.969
155	27.413	415.6	2.004	28.915	415.2	1.999	30.424	414.9	1.995	31.939	414.6	1.990	33.460	414.3	1.986	34.987	413.9	1.982
160	27.043	421.1	2.017	28.522	420.8	2.012	30.006	420.5	2.007	31.496	420.2	2.003	32.992	419.9	1.999	34.494	419.5	1.995
165	26.684	426.7	2.030	28.140	426.4	2.025	29.601	426.1	2.020	31.068	425.8	2.016	32.540	425.5	2.012	34.018	425.2	2.007
170	26.335	432.3	2.043	27.770	432.0	2.038	29.209	431.7	2.033	30.653	431.4	2.029	32.102	431.1	2.024	33.556	430.8	2.020
175	25.997	437.9	2.055	27.410	437.6	2.050	28.828	437.3	2.046	30.250	437.1	2.041	31.677	436.8	2.037	33.109	436.5	2.033
180	25.669	443.6	2.068	27.061	443.3	2.063	28.459	443.0	2.058	29.860	442.7	2.054	31.266	442.5	2.050	32.676	442.2	2.046

Standard state : at 0°C, Liquid Enthalpy = 100kJ/kg, Liquid Entropy = 1kJ/kg K



507 Superheated Vapour Properties (D = Density in kg/m<sup>3</sup>, H = Enthalpy in kJ/kg, S= Entropy in kJ/kg K)

Table 4 Sheet 12

Temp (°C)	Absolute Pressure (Bara)																	
	12.5			13			13.5			14			14.5			15		
	Satn Temp : 23.86			Satn Temp : 25.34			Satn Temp : 26.79			Satn Temp : 28.19			Satn Temp : 29.56			Satn Temp : 30.89		
	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S
30	61.776	282.1	1.615	65.104	281.2	1.610	68.548	280.3	1.604	72.120	279.4	1.599						
35	59.764	287.1	1.632	62.896	286.3	1.627	66.123	285.5	1.621	69.453	284.6	1.616	72.895	283.7	1.611	76.459	282.8	1.606
40	57.933	292.2	1.648	60.898	291.4	1.643	63.942	290.6	1.638	67.071	289.8	1.633	70.291	289.0	1.628	73.609	288.1	1.623
45	56.255	297.2	1.664	59.076	296.5	1.659	61.963	295.7	1.654	64.921	295.0	1.649	67.954	294.2	1.644	71.068	293.4	1.640
50	54.708	302.3	1.680	57.402	301.6	1.675	60.153	300.9	1.670	62.964	300.1	1.665	65.838	299.4	1.661	68.779	298.6	1.656
55	53.274	307.3	1.695	55.855	306.6	1.691	58.486	306.0	1.686	61.168	305.3	1.681	63.904	304.6	1.677	66.696	303.9	1.672
60	51.938	312.4	1.711	54.419	311.7	1.706	56.943	311.1	1.701	59.511	310.4	1.697	62.125	309.8	1.692	64.788	309.1	1.688
65	50.688	317.4	1.726	53.079	316.8	1.721	55.507	316.2	1.717	57.973	315.6	1.712	60.480	315.0	1.708	63.028	314.3	1.703
70	49.516	322.6	1.741	51.824	322.0	1.736	54.165	321.4	1.732	56.540	320.8	1.727	58.950	320.2	1.723	61.397	319.6	1.719
75	48.413	327.7	1.756	50.646	327.1	1.751	52.908	326.6	1.747	55.201	326.0	1.742	57.524	325.4	1.738	59.879	324.8	1.734
80	47.373	332.9	1.770	49.537	332.3	1.766	51.728	331.8	1.762	53.945	331.3	1.757	56.189	330.7	1.753	58.461	330.1	1.749
85	46.390	338.1	1.785	48.491	337.6	1.781	50.615	337.1	1.776	52.763	336.5	1.772	54.935	336.0	1.768	57.133	335.5	1.764
90	45.458	343.3	1.800	47.501	342.8	1.795	49.564	342.3	1.791	51.649	341.8	1.787	53.755	341.3	1.783	55.884	340.8	1.779
95	44.574	348.6	1.814	46.562	348.1	1.810	48.569	347.6	1.806	50.595	347.1	1.801	52.640	346.6	1.798	54.706	346.1	1.794
100	43.732	353.8	1.828	45.670	353.4	1.824	47.624	352.9	1.820	49.596	352.5	1.816	51.585	352.0	1.812	53.592	351.5	1.808
105	42.930	359.1	1.842	44.820	358.7	1.838	46.725	358.3	1.834	48.646	357.8	1.830	50.583	357.3	1.826	52.536	356.9	1.822
110	42.164	364.5	1.856	44.009	364.0	1.852	45.869	363.6	1.848	47.742	363.2	1.844	49.631	362.7	1.840	51.533	362.3	1.837
115	41.431	369.8	1.870	43.235	369.4	1.866	45.051	369.0	1.862	46.881	368.6	1.858	48.723	368.1	1.854	50.579	367.7	1.851
120	40.729	375.2	1.884	42.493	374.8	1.880	44.269	374.4	1.876	46.057	374.0	1.872	47.857	373.6	1.868	49.669	373.2	1.865
125	40.056	380.6	1.898	41.783	380.2	1.894	43.521	379.8	1.890	45.269	379.4	1.886	47.029	379.0	1.882	48.799	378.6	1.878
130	39.409	386.0	1.911	41.101	385.7	1.907	42.803	385.3	1.903	44.514	384.9	1.899	46.236	384.5	1.896	47.967	384.1	1.892
135	38.788	391.5	1.925	40.446	391.1	1.921	42.114	390.8	1.917	43.790	390.4	1.913	45.476	390.0	1.909	47.171	389.7	1.906
140	38.190	397.0	1.938	39.816	396.6	1.934	41.451	396.3	1.930	43.094	395.9	1.926	44.746	395.6	1.923	46.406	395.2	1.919
145	37.613	402.5	1.951	39.210	402.2	1.947	40.814	401.8	1.944	42.425	401.5	1.940	44.045	401.1	1.936	45.672	400.8	1.933
150	37.057	408.1	1.964	38.625	407.7	1.961	40.199	407.4	1.957	41.781	407.0	1.953	43.370	406.7	1.950	44.965	406.4	1.946
155	36.521	413.6	1.978	38.061	413.3	1.974	39.607	413.0	1.970	41.160	412.6	1.966	42.719	412.3	1.963	44.285	412.0	1.959
160	36.002	419.2	1.991	37.516	418.9	1.987	39.035	418.6	1.983	40.561	418.3	1.979	42.092	418.0	1.976	43.630	417.6	1.972
165	35.501	424.9	2.003	36.989	424.5	2.000	38.483	424.2	1.996	39.982	423.9	1.992	41.487	423.6	1.989	42.998	423.3	1.985
170	35.015	430.5	2.016	36.480	430.2	2.012	37.949	429.9	2.009	39.423	429.6	2.005	40.903	429.3	2.002	42.387	429.0	1.998
175	34.545	436.2	2.029	35.986	435.9	2.025	37.432	435.6	2.022	38.882	435.3	2.018	40.338	435.0	2.015	41.797	434.7	2.011
180	34.090	441.9	2.042	35.509	441.6	2.038	36.932	441.3	2.034	38.359	441.1	2.031	39.791	440.8	2.027	41.227	440.5	2.024

Standard state : at 0°C, Liquid Enthalpy = 100kJ/kg, Liquid Entropy = 1kJ/kg K

507 Superheated Vapour Properties (D = Density in kg/m<sup>3</sup>, H = Enthalpy in kJ/kg, S= Entropy in kJ/kg K)

Table 4 Sheet 13

Temp (°C)	Absolute Pressure (Bara)																	
	15.5			16			16.5			17			17.5			18		
	Satn Temp : 32.18			Satn Temp : 33.45			Satn Temp : 34.69			Satn Temp : 35.90			Satn Temp : 37.08			Satn Temp : 38.23		
	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S
35	80.160	281.8	1.601	84.011	280.8	1.595												
40	77.034	287.2	1.618	80.576	286.3	1.613	84.246	285.4	1.608	88.057	284.4	1.603	92.025	283.4	1.598	96.169	282.3	1.593
45	74.269	292.6	1.635	77.563	291.7	1.630	80.957	290.8	1.625	84.461	290.0	1.621	88.085	289.0	1.616	91.839	288.1	1.611
50	71.792	297.9	1.651	74.880	297.1	1.647	78.051	296.3	1.642	81.309	295.4	1.638	84.660	294.6	1.633	88.113	293.7	1.629
55	69.549	303.1	1.668	72.465	302.4	1.663	75.448	301.7	1.659	78.503	300.9	1.655	81.633	300.1	1.650	84.844	299.3	1.646
60	67.502	308.4	1.684	70.269	307.7	1.679	73.093	307.0	1.675	75.976	306.3	1.671	78.921	305.5	1.667	81.933	304.8	1.663
65	65.621	313.7	1.699	68.259	313.0	1.695	70.944	312.3	1.691	73.680	311.6	1.687	76.468	311.0	1.683	79.311	310.2	1.679
70	63.882	318.9	1.715	66.405	318.3	1.711	68.970	317.7	1.707	71.578	317.0	1.703	74.229	316.4	1.699	76.928	315.7	1.695
75	62.267	324.2	1.730	64.690	323.6	1.726	67.147	323.0	1.722	69.642	322.4	1.718	72.175	321.8	1.715	74.747	321.2	1.711
80	60.763	329.6	1.745	63.094	329.0	1.741	65.457	328.4	1.738	67.851	327.9	1.734	70.278	327.3	1.730	72.740	326.7	1.726
85	59.356	334.9	1.760	61.605	334.4	1.756	63.882	333.8	1.753	66.186	333.3	1.749	68.520	332.7	1.745	70.883	332.1	1.742
90	58.035	340.3	1.775	60.210	339.8	1.771	62.409	339.2	1.768	64.632	338.7	1.764	66.881	338.2	1.761	69.156	337.6	1.757
95	56.792	345.6	1.790	58.898	345.1	1.786	61.026	344.6	1.783	63.176	344.1	1.779	65.348	343.6	1.775	67.544	343.1	1.772
100	55.617	351.0	1.804	57.661	350.6	1.801	59.725	350.1	1.797	61.807	349.6	1.794	63.910	349.1	1.790	66.032	348.6	1.787
105	54.506	356.4	1.819	56.492	356.0	1.815	58.495	355.5	1.812	60.516	355.0	1.808	62.555	354.6	1.805	64.611	354.1	1.801
110	53.451	361.9	1.833	55.384	361.4	1.829	57.332	361.0	1.826	59.296	360.5	1.823	61.275	360.1	1.819	63.271	359.6	1.816
115	52.448	367.3	1.847	54.331	366.9	1.844	56.228	366.4	1.840	58.139	366.0	1.837	60.064	365.6	1.833	62.004	365.1	1.830
120	51.493	372.8	1.861	53.329	372.3	1.858	55.178	371.9	1.854	57.040	371.5	1.851	58.914	371.1	1.848	60.802	370.7	1.844
125	50.581	378.2	1.875	52.374	377.8	1.872	54.178	377.4	1.868	55.994	377.0	1.865	57.821	376.6	1.862	59.660	376.2	1.858
130	49.709	383.8	1.889	51.461	383.4	1.885	53.223	383.0	1.882	54.996	382.6	1.879	56.779	382.2	1.876	58.574	381.8	1.872
135	48.875	389.3	1.902	50.588	388.9	1.899	52.311	388.5	1.896	54.043	388.2	1.892	55.785	387.8	1.889	57.537	387.4	1.886
140	48.074	394.8	1.916	49.752	394.5	1.913	51.437	394.1	1.909	53.132	393.8	1.906	54.835	393.4	1.903	56.547	393.0	1.900
145	47.306	400.4	1.929	48.949	400.1	1.926	50.600	399.7	1.923	52.258	399.4	1.920	53.925	399.0	1.916	55.599	398.7	1.913
150	46.568	406.0	1.943	48.178	405.7	1.939	49.796	405.4	1.936	51.420	405.0	1.933	53.052	404.7	1.930	54.692	404.3	1.927
155	45.858	411.7	1.956	47.437	411.3	1.953	49.023	411.0	1.949	50.615	410.7	1.946	52.215	410.3	1.943	53.820	410.0	1.940
160	45.174	417.3	1.969	46.723	417.0	1.966	48.279	416.7	1.963	49.841	416.4	1.960	51.409	416.0	1.956	52.984	415.7	1.954
165	44.514	423.0	1.982	46.036	422.7	1.979	47.563	422.4	1.976	49.096	422.1	1.973	50.634	421.8	1.970	52.178	421.4	1.967
170	43.877	428.7	1.995	45.372	428.4	1.992	46.872	428.1	1.989	48.377	427.8	1.986	49.888	427.5	1.983	51.403	427.2	1.980
175	43.262	434.4	2.008	44.731	434.2	2.005	46.205	433.9	2.002	47.684	433.6	1.999	49.168	433.3	1.996	50.656	433.0	1.993
180	42.667	440.2	2.021	44.112	439.9	2.017	45.561	439.6	2.014	47.015	439.4	2.011	48.473	439.1	2.008	49.935	438.8	2.006

Standard state : at 0°C, Liquid Enthalpy = 100kJ/kg, Liquid Entropy = 1kJ/kg K

507 Superheated Vapour Properties (D = Density in kg/m<sup>3</sup>, H = Enthalpy in kJ/kg, S= Entropy in kJ/kg K)

Table 4 Sheet 14

Temp (°C)	Absolute Pressure (Bara)																	
	18.5			19			19.5			20			20.5			21		
	Satn Temp : 39.36			Satn Temp : 40.47			Satn Temp : 41.56			Satn Temp : 42.62			Satn Temp : 43.67			Satn Temp : 44.69		
	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S
45	95.737	287.1	1.607	99.796	286.1	1.602	104.033	285.0	1.597	108.473	283.9	1.592	113.142	282.8	1.587	111.540	287.9	1.602
50	91.676	292.8	1.624	95.359	291.9	1.620	99.172	291.0	1.615	103.130	290.0	1.611	107.246	289.0	1.606	106.184	294.0	1.620
55	88.142	298.5	1.642	91.533	297.6	1.637	95.024	296.8	1.633	98.623	295.9	1.629	102.339	295.0	1.625	101.641	299.9	1.638
60	85.015	304.0	1.659	88.170	303.2	1.654	91.406	302.4	1.650	94.725	301.6	1.646	98.135	300.8	1.642	97.698	305.7	1.655
65	82.211	309.5	1.675	85.173	308.8	1.671	88.198	308.1	1.667	91.292	307.3	1.663	94.457	306.5	1.659	94.215	311.5	1.672
70	79.674	315.0	1.691	82.471	314.3	1.687	85.321	313.6	1.684	88.227	312.9	1.680	91.190	312.2	1.676	91.102	317.2	1.689
75	77.360	320.5	1.707	80.016	319.9	1.703	82.716	319.2	1.700	85.462	318.6	1.696	88.257	317.9	1.693	88.293	322.9	1.705
80	75.236	326.1	1.723	77.769	325.5	1.719	80.340	324.8	1.716	82.950	324.2	1.712	85.600	323.6	1.709	85.735	328.6	1.721
85	73.276	331.6	1.738	75.701	331.0	1.735	78.158	330.4	1.731	80.649	329.8	1.728	83.174	329.2	1.725	83.390	334.3	1.737
90	71.457	337.1	1.754	73.786	336.5	1.750	76.143	336.0	1.747	78.528	335.4	1.743	80.944	334.8	1.740	81.226	339.9	1.752
95	69.762	342.6	1.769	72.005	342.1	1.765	74.272	341.5	1.762	76.564	341.0	1.759	78.882	340.5	1.756	79.220	345.6	1.768
100	68.176	348.1	1.783	70.340	347.6	1.780	72.527	347.1	1.777	74.735	346.6	1.774	76.966	346.1	1.771	77.350	351.2	1.783
105	66.686	353.6	1.798	68.780	353.1	1.795	70.893	352.7	1.792	73.025	352.2	1.789	75.177	351.7	1.786	75.601	356.8	1.797
110	65.283	359.1	1.813	67.312	358.7	1.810	69.358	358.2	1.806	71.421	357.8	1.803	73.502	357.3	1.800	73.959	362.5	1.812
115	63.958	364.7	1.827	65.927	364.2	1.824	67.912	363.8	1.821	69.912	363.4	1.818	71.927	362.9	1.815	72.413	368.1	1.826
120	62.703	370.2	1.841	64.617	369.8	1.838	66.545	369.4	1.835	68.487	369.0	1.832	70.443	368.5	1.829	70.952	373.8	1.841
125	61.512	375.8	1.855	63.375	375.4	1.852	65.251	375.0	1.849	67.138	374.6	1.846	69.039	374.2	1.844	69.570	379.4	1.855
130	60.379	381.4	1.869	62.194	381.0	1.866	64.021	380.6	1.863	65.859	380.2	1.860	67.709	379.8	1.858	68.257	385.1	1.869
135	59.299	387.0	1.883	61.070	386.6	1.880	62.852	386.3	1.877	64.643	385.9	1.874	66.445	385.5	1.872	67.009	390.8	1.883
140	58.268	392.7	1.897	59.998	392.3	1.894	61.737	391.9	1.891	63.485	391.5	1.888	65.243	391.2	1.885	65.820	396.5	1.896
145	57.282	398.3	1.910	58.973	398.0	1.908	60.672	397.6	1.905	62.380	397.2	1.902	64.096	396.9	1.899	64.685	402.2	1.910
150	56.338	404.0	1.924	57.993	403.6	1.921	59.654	403.3	1.918	61.324	402.9	1.915	63.001	402.6	1.913	63.600	408.0	1.924
155	55.433	409.7	1.937	57.053	409.3	1.935	58.679	409.0	1.932	60.312	408.7	1.929	61.953	408.3	1.926	62.561	413.8	1.937
160	54.564	415.4	1.951	56.151	415.1	1.948	57.744	414.7	1.945	59.343	414.4	1.942	60.949	414.1	1.940	61.564	419.6	1.950
165	53.728	421.1	1.964	55.284	420.8	1.961	56.845	420.5	1.958	58.413	420.2	1.956	59.985	419.9	1.953	60.607	425.4	1.963
170	52.924	426.9	1.977	54.450	426.6	1.974	55.982	426.3	1.971	57.518	426.0	1.969	59.060	425.7	1.966	59.687	431.2	1.977
175	52.149	432.7	1.990	53.647	432.4	1.987	55.150	432.1	1.984	56.658	431.8	1.982	58.170	431.5	1.979	58.802	437.1	1.990
180	51.402	438.5	2.003	52.873	438.2	2.000	54.349	437.9	1.997	55.829	437.6	1.995	57.313	437.3	1.992			

Standard state : at 0°C, Liquid Enthalpy = 100kJ.kg, Liquid Entropy = 1kJ/kg K

507 Superheated Vapour Properties (D = Density in kg/m<sup>3</sup>, H = Enthalpy in kJ/kg, S= Entropy in kJ/kg K)

Table 4 Sheet 15

Temp (°C)	Absolute Pressure (Bara)																	
	21.5			22			22.5			23			23.5			24		
	Satn Temp : 45.7			Satn Temp : 46.69			Satn Temp : 47.66			Satn Temp : 48.62			Satn Temp : 49.56			Satn Temp : 50.49		
	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S
50	116.034	286.8	1.597	120.753	285.7	1.592	125.732	284.5	1.587	131.013	283.2	1.582	127.835	288.8	1.598	132.796	287.6	1.593
55	110.168	293.0	1.616	114.307	292.0	1.611	118.617	291.0	1.607	123.118	289.9	1.602	120.926	295.3	1.617	125.211	294.3	1.613
60	105.252	299.1	1.634	108.976	298.2	1.630	112.822	297.2	1.626	116.801	296.3	1.622	115.230	301.5	1.636	119.048	300.6	1.632
65	101.019	304.9	1.652	104.427	304.1	1.648	107.927	303.3	1.644	111.525	302.4	1.640	110.382	307.6	1.654	113.854	306.8	1.650
70	97.305	310.7	1.669	100.462	310.0	1.665	103.691	309.2	1.661	106.997	308.4	1.658	106.168	313.6	1.671	109.369	312.9	1.668
75	94.000	316.5	1.685	96.953	315.8	1.682	99.963	315.1	1.678	103.034	314.4	1.675	102.447	319.6	1.688	105.430	318.9	1.685
80	91.029	322.3	1.702	93.810	321.6	1.698	96.639	321.0	1.695	99.517	320.3	1.692	99.119	325.5	1.705	101.921	324.8	1.702
85	88.333	328.0	1.718	90.969	327.4	1.715	93.644	326.8	1.711	96.360	326.1	1.708	96.111	331.3	1.721	98.761	330.7	1.718
90	85.867	333.7	1.734	88.377	333.1	1.730	90.920	332.5	1.727	93.498	331.9	1.724	93.370	337.1	1.737	95.888	336.5	1.734
95	83.598	339.4	1.749	85.997	338.8	1.746	88.425	338.3	1.743	90.883	337.7	1.740	90.854	342.9	1.753	93.258	342.4	1.750
100	81.497	345.0	1.764	83.799	344.5	1.761	86.125	344.0	1.758	88.476	343.4	1.755	88.530	348.7	1.768	90.833	348.1	1.765
105	79.543	350.7	1.780	81.757	350.2	1.777	83.993	349.7	1.774	86.250	349.2	1.771	86.374	354.4	1.783	88.587	353.9	1.780
110	77.718	356.3	1.794	79.853	355.9	1.791	82.007	355.4	1.789	84.181	354.9	1.786	84.363	360.2	1.798	86.496	359.7	1.795
115	76.007	362.0	1.809	78.071	361.5	1.806	80.151	361.1	1.803	82.249	360.6	1.801	82.482	365.9	1.813	84.541	365.4	1.810
120	74.397	367.7	1.824	76.396	367.2	1.821	78.409	366.8	1.818	80.438	366.3	1.815	80.714	371.6	1.827	82.707	371.2	1.824
125	72.878	373.3	1.838	74.817	372.9	1.835	76.770	372.5	1.832	78.735	372.1	1.830	79.049	377.4	1.841	80.981	377.0	1.839
130	71.442	379.0	1.852	73.326	378.6	1.849	75.222	378.2	1.847	77.129	377.8	1.844	77.475	383.1	1.856	79.351	382.8	1.853
135	70.080	384.7	1.866	71.913	384.3	1.863	73.756	383.9	1.861	75.610	383.5	1.858	75.985	388.9	1.870	77.809	388.5	1.867
140	68.786	390.4	1.880	70.571	390.1	1.877	72.366	389.7	1.875	74.171	389.3	1.872	74.570	394.7	1.884	76.346	394.3	1.881
145	67.553	396.2	1.894	69.294	395.8	1.891	71.044	395.4	1.889	72.803	395.1	1.886	73.224	400.5	1.897	74.956	400.1	1.895
150	66.377	401.9	1.907	68.078	401.5	1.905	69.785	401.2	1.902	71.501	400.8	1.900	71.942	406.3	1.911	73.631	406.0	1.909
155	65.254	407.7	1.921	66.915	407.3	1.918	68.584	407.0	1.916	70.259	406.6	1.913	70.717	412.1	1.925	72.367	411.8	1.922
160	64.179	413.4	1.934	65.804	413.1	1.932	67.435	412.8	1.929	69.073	412.5	1.927	69.545	418.0	1.938	71.159	417.7	1.936
165	63.149	419.2	1.948	64.739	418.9	1.945	66.335	418.6	1.943	67.937	418.3	1.940	68.423	423.8	1.951	70.003	423.5	1.949
170	62.160	425.1	1.961	63.718	424.8	1.958	65.281	424.5	1.956	66.849	424.1	1.954	67.347	429.7	1.964	68.894	429.4	1.962
175	61.210	430.9	1.974	62.737	430.6	1.972	64.269	430.3	1.969	65.805	430.0	1.967	66.314	435.6	1.978	67.829	435.3	1.975
180	60.295	436.8	1.987	61.793	436.5	1.985	63.296	436.2	1.982	64.802	435.9	1.980						

Standard state : at 0°C, Liquid Enthalpy = 100kJ.kg, Liquid Entropy = 1kJ/kg K

507 Superheated Vapour Properties (D = Density in kg/m<sup>3</sup>, H = Enthalpy in kJ/kg, S= Entropy in kJ/kg K)

Table 4 Sheet 16

Temp (°C)	Absolute Pressure (Bara)																	
	24.5			25			25.5			26			26.5			27		
	Satn Temp : 51.40			Satn Temp : 52.29			Satn Temp : 53.18			Satn Temp : 54.05			Satn Temp : 54.9			Satn Temp : 55.75		
	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S
55	138.039	286.4	1.588	143.611	285.0	1.583	149.574	283.6	1.578	144.359	289.7	1.595	149.788	288.5	1.590	155.557	287.1	1.585
60	129.674	293.2	1.609	134.336	292.1	1.604	139.221	290.9	1.600	135.674	296.7	1.616	140.236	295.6	1.612	144.995	294.5	1.607
65	122.990	299.7	1.628	127.067	298.7	1.624	131.290	297.7	1.620	128.720	303.3	1.635	132.718	302.4	1.631	136.847	301.4	1.628
70	117.417	305.9	1.647	121.077	305.1	1.643	124.842	304.2	1.639	122.918	309.7	1.654	126.514	308.9	1.650	130.203	308.0	1.647
75	112.641	312.1	1.664	115.986	311.3	1.661	119.411	310.5	1.657	117.948	316.0	1.672	121.238	315.2	1.668	124.600	314.5	1.665
80	108.469	318.2	1.682	111.566	317.5	1.678	114.725	316.7	1.675	113.604	322.1	1.689	116.653	321.4	1.686	119.757	320.7	1.683
85	104.769	324.2	1.698	107.664	323.5	1.695	110.609	322.8	1.692	109.750	328.2	1.706	112.602	327.5	1.703	115.498	326.9	1.700
90	101.448	330.1	1.715	104.175	329.5	1.712	106.942	328.8	1.709	106.289	334.2	1.722	108.975	333.6	1.719	111.699	333.0	1.716
95	98.438	336.0	1.731	101.021	335.4	1.728	103.638	334.8	1.725	103.151	340.1	1.738	105.697	339.6	1.735	108.274	339.0	1.733
100	95.689	341.8	1.747	98.147	341.3	1.744	100.634	340.7	1.741	100.283	346.0	1.754	102.708	345.5	1.751	105.158	345.0	1.749
105	93.159	347.6	1.762	95.509	347.1	1.759	97.884	346.6	1.757	97.645	351.9	1.769	99.963	351.4	1.767	102.303	350.9	1.764
110	90.820	353.4	1.777	93.074	352.9	1.775	95.349	352.4	1.772	95.204	357.8	1.785	97.428	357.3	1.782	99.671	356.8	1.779
115	88.646	359.2	1.792	90.813	358.7	1.790	93.000	358.3	1.787	92.935	363.6	1.800	95.075	363.2	1.797	97.231	362.7	1.795
120	86.615	365.0	1.807	88.706	364.5	1.805	90.813	364.1	1.802	90.817	369.5	1.814	92.880	369.0	1.812	94.958	368.6	1.809
125	84.713	370.8	1.822	86.734	370.3	1.819	88.768	369.9	1.817	88.832	375.3	1.829	90.826	374.9	1.826	92.833	374.5	1.824
130	82.925	376.6	1.836	84.881	376.1	1.834	86.850	375.7	1.831	86.965	381.2	1.843	88.897	380.7	1.841	90.840	380.3	1.839
135	81.238	382.4	1.851	83.136	382.0	1.848	85.045	381.6	1.846	85.205	387.0	1.858	87.078	386.6	1.855	88.963	386.2	1.853
140	79.643	388.2	1.865	81.487	387.8	1.862	83.341	387.4	1.860	83.540	392.9	1.872	85.361	392.5	1.869	87.190	392.1	1.867
145	78.131	394.0	1.879	79.925	393.6	1.876	81.728	393.2	1.874	81.962	398.7	1.886	83.733	398.4	1.883	85.513	398.0	1.881
150	76.695	399.8	1.893	78.443	399.4	1.890	80.198	399.1	1.888	80.462	404.6	1.899	82.188	404.2	1.897	83.922	403.9	1.895
155	75.328	405.6	1.906	77.032	405.3	1.904	78.744	404.9	1.902	79.035	410.5	1.913	80.718	410.1	1.911	82.408	409.8	1.909
160	74.024	411.5	1.920	75.688	411.1	1.918	77.358	410.8	1.915	77.674	416.4	1.927	79.317	416.0	1.924	80.967	415.7	1.922
165	72.779	417.3	1.933	74.405	417.0	1.931	76.036	416.7	1.929	76.373	422.3	1.940	77.979	422.0	1.938	79.591	421.7	1.936
170	71.587	423.2	1.947	73.177	422.9	1.944	74.773	422.6	1.942	75.129	428.2	1.953	76.700	427.9	1.951	78.276	427.6	1.949
175	70.445	429.1	1.960	72.001	428.8	1.958	73.563	428.5	1.955	73.936	434.2	1.966	75.474	433.9	1.964	77.017	433.6	1.962
180	69.349	435.0	1.973	70.874	434.7	1.971	72.403	434.4	1.969									

Standard state : at 0°C, Liquid Enthalpy = 100kJ/kg, Liquid Entropy = 1kJ/kg K

507 Superheated Vapour Properties (D = Density in kg/m<sup>3</sup>, H = Enthalpy in kJ/kg, S= Entropy in kJ/kg K)

Table 4 Sheet 17

Temp (°C)	Absolute Pressure (Bara)														
	27.5			28			28.5			29			29.5		
	Satn Temp : 56.58			Satn Temp : 57.40			Satn Temp : 58.21			Satn Temp : 59.01			Satn Temp : 59.80		
	D	H	S	D	H	S	D	H	S	D	H	S	D	H	S
60	161.726	285.7	1.580	168.380	284.2	1.575	175.634	282.6	1.569	166.556	289.6	1.589	172.779	288.2	1.584
65	149.974	293.4	1.603	155.203	292.2	1.598	160.716	290.9	1.594	154.924	297.3	1.611	159.916	296.1	1.607
70	141.118	300.4	1.624	145.544	299.4	1.620	150.141	298.4	1.616	146.035	304.4	1.632	150.302	303.4	1.628
75	133.993	307.1	1.643	137.889	306.3	1.639	141.900	305.3	1.636	138.832	311.2	1.652	142.611	310.4	1.648
80	128.035	313.7	1.662	131.550	312.9	1.658	135.147	312.0	1.655	132.779	317.8	1.670	136.200	317.0	1.667
85	122.920	320.0	1.679	126.142	319.3	1.676	129.428	318.5	1.673	127.562	324.2	1.688	130.707	323.5	1.685
90	118.440	326.2	1.697	121.430	325.6	1.694	124.470	324.9	1.691	122.981	330.5	1.705	125.906	329.8	1.702
95	114.460	332.4	1.713	117.260	331.7	1.711	120.100	331.1	1.708	118.903	336.6	1.722	121.645	336.0	1.719
100	110.882	338.4	1.730	113.522	337.8	1.727	116.195	337.2	1.724	115.231	342.8	1.738	117.819	342.2	1.735
105	107.635	344.4	1.746	110.139	343.9	1.743	112.671	343.3	1.740	111.894	348.8	1.754	114.352	348.3	1.751
110	104.666	350.4	1.761	107.052	349.9	1.759	109.461	349.3	1.756	108.840	354.8	1.769	111.183	354.3	1.767
115	101.933	356.3	1.777	104.215	355.8	1.774	106.517	355.3	1.772	106.026	360.8	1.785	108.269	360.4	1.782
120	99.404	362.2	1.792	101.594	361.8	1.790	103.801	361.3	1.787	103.420	366.8	1.800	105.574	366.3	1.797
125	97.051	368.1	1.807	99.159	367.7	1.805	101.282	367.3	1.802	100.994	372.8	1.815	103.068	372.3	1.812
130	94.854	374.0	1.822	96.887	373.6	1.819	98.934	373.2	1.817	98.728	378.7	1.829	100.730	378.3	1.827
135	92.794	379.9	1.836	94.760	379.5	1.834	96.738	379.1	1.832	96.602	384.7	1.844	98.538	384.3	1.842
140	90.857	385.8	1.851	92.762	385.4	1.848	94.677	385.0	1.846	94.602	390.6	1.858	96.478	390.2	1.856
145	89.029	391.7	1.865	90.878	391.4	1.863	92.735	391.0	1.860	92.715	396.5	1.872	94.536	396.2	1.870
150	87.301	397.6	1.879	89.097	397.3	1.877	90.902	396.9	1.874	90.929	402.5	1.886	92.699	402.1	1.884
155	85.662	403.5	1.893	87.410	403.2	1.891	89.166	402.8	1.888	89.235	408.5	1.900	90.958	408.1	1.898
160	84.105	409.5	1.906	85.808	409.1	1.904	87.518	408.8	1.902	87.625	414.4	1.914	89.305	414.1	1.912
165	82.622	415.4	1.920	84.284	415.1	1.918	85.951	414.8	1.916	86.092	420.4	1.927	87.730	420.1	1.925
170	81.208	421.3	1.934	82.831	421.0	1.931	84.458	420.7	1.929	84.629	426.4	1.941	86.229	426.1	1.939
175	79.857	427.3	1.947	81.443	427.0	1.945	83.033	426.7	1.943	83.231	432.4	1.954	84.796	432.1	1.952
180	78.564	433.3	1.960	80.115	433.0	1.958	81.671	432.7	1.956						

Standard state : at 0°C, Liquid Enthalpy = 100kJ/kg, Liquid Entropy = 1kJ/kg K

# KLEA® 507



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