Appendix C: Property Tables for R134a

Tables C-1 and C-2 present data for saturated liquid and saturated vapor. Table C-1 is presented information at regular intervals of temperature while Table C-2 is presented at regular intervals of pressure. Table C-3 presents data for superheated vapor over a matrix of temperatures and pressures. These tables were generated using EES with the substance R134a which implements the fundamental equation of state developed by R. Tillner-Roth and H.D. Baehr, An International Standard Formulation for the Thermodynamic Properties of 1,1,1,2-Tetrafluoroethane (HFC-134a) for Temperatures from 170 K to 455 K and Pressures up to 70 MPa, J. Phys. Chem, Ref. Data, Vol. 23, No. 5, 1994.

Table C-1: Properties of Saturated R134a, Presented at Regular Intervals of Temperature

Temp.	Pressure	Specif	ic volume		internal	Specific	enthalpy	Specific	entropy	
T	P		n ³ /kg)	energy	(kJ/kg)	(kJ	/kg)	(kJ/k	g-K)	T
(°C)	(kPa)	$10^{3} v_{f}$	v_g	u_f	u_g	h_f	h_g	S_f	S_g	(°C)
-40	51.25	0.7053	0.36064	-0.04	207.38	0.00	225.86	0.0000	0.9687	-40
-35	66.19	0.7126	0.28373	6.25	210.25	6.29	229.03	0.0267	0.9619	-35
-30	84.43	0.7201	0.22577	12.58	213.12	12.64	232.19	0.0530	0.9559	-30
-25	106.5	0.7280	0.18152	18.95	215.99	19.03	235.32	0.0789	0.9505	-25
-20	132.8	0.7361	0.14735	25.37	218.86	25.47	238.43	0.1046	0.9457	-20
-15	164.0	0.7445	0.12066	31.85	221.72	31.97	241.51	0.1299	0.9415	-15
-10	200.7	0.7533	0.09960	38.38	224.56	38.53	244.55	0.1550	0.9378	-10
-5	243.5	0.7625	0.08282	44.96	227.38	45.15	247.55	0.1798	0.9345	-5
0	293.0	0.7722	0.06934	51.61	230.18	51.83	250.50	0.2043	0.9316	0
5	349.9	0.7823	0.05840	58.31	232.96	58.59	253.39	0.2287	0.9290	5
10	414.9	0.7929	0.04947	65.09	235.69	65.42	256.22	0.2528	0.9266	10
15	488.7	0.8041	0.04211	71.93	238.39	72.32	258.97	0.2768	0.9245	15
20	572.1	0.8160	0.03601	78.85	241.04	79.32	261.64	0.3006	0.9225	20
25	665.8	0.8286	0.03092	85.85	243.64	86.40	264.23	0.3243	0.9207	25
30	770.6	0.8421	0.02665	92.93	246.17	93.58	266.71	0.3479	0.9190	30
35	887.5	0.8565	0.02304	100.11	248.63	100.87	269.08	0.3714	0.9173	35
40	1017	0.8720	0.01997	107.39	251.00	108.28	271.31	0.3949	0.9155	40
45	1161	0.8889	0.01734	114.79	253.27	115.82	273.40	0.4184	0.9137	45
50	1319	0.9072	0.01509	122.30	255.42	123.50	275.32	0.4419	0.9117	50
55	1492	0.9274	0.01314	129.96	257.43	131.35	277.03	0.4655	0.9095	55
60	1688	0.9498	0.01144	137.79	259.25	139.38	278.51	0.4893	0.9069	60
65	1891	0.9751	0.00996	145.80	260.86	147.64	279.69	0.5133	0.9038	65
70	2118	1.0038	0.00865	154.04	262.20	156.16	280.52	0.5377	0.9000	70
75	2366	1.0372	0.00749	162.54	263.17	165.00	280.88	0.5625	0.8953	75
80	2635	1.0774	0.00644	171.43	263.66	174.27	280.63	0.5881	0.8893	80
85	2928	1.1273	0.00548	180.81	263.45	184.11	279.51	0.6149	0.8812	85
90	3247	1.1938	0.00459	190.94	262.13	194.82	277.04	0.6435	0.8699	90
95	3594	1.2945	0.00371	202.49	258.73	207.14	272.08	0.6760	0.8524	95
100	3975	1.5269	0.00266	218.73	248.46	224.80	259.02	0.7222	0.8139	100
101.03	4059	1.9685	0.0019685	232.95	233.90	241.88	241.88	0.7678	0.7678	101.03

Table C-2: Properties of Saturated R134a, Presented at Regular Intervals of Pressure

Pressure	Temp.	Specif	ic volume		internal		enthalpy	Specific 6		
P	T	(n	n^3/kg)	energy	(kJ/kg)	(kJ	/kg)	(kJ/kg	(-K)	P
(kPa)	(°C)	$10^{3} v_{f}$	v_g	u_f	u_g	h_f	h_g	S_f	S_g	(kPa)
40	-44.61	0.699	0.45483	-5.79	204.74	-5.76	222.94	-0.0249	0.9757	40
60	-36.95	0.710	0.31108	3.79	209.13	3.84	227.80	0.0163	0.9644	60
80	-31.13	0.718	0.23749	11.14	212.48	11.20	231.47	0.0471	0.9572	80
100	-26.37	0.726	0.19255	17.19	215.21	17.27	234.46	0.0718	0.9519	100
200	-10.09	0.753	0.09995	38.26	224.51	38.41	244.50	0.1545	0.9379	200
300	0.65	0.773	0.06778	52.48	230.55	52.71	250.88	0.2075	0.9312	300
400	8.91	0.791	0.05127	63.61	235.10	63.92	255.61	0.2476	0.9271	400
500	15.71	0.806	0.04117	72.92	238.77	73.32	259.36	0.2802	0.9242	500
600	21.55	0.820	0.03433	81.01	241.86	81.50	262.46	0.3080	0.9220	600
700	26.69	0.833	0.02939	88.24	244.51	88.82	265.08	0.3323	0.9201	700
800	31.31	0.846	0.02565	94.80	246.82	95.48	267.34	0.3541	0.9185	800
900	35.51	0.858	0.02270	100.84	248.88	101.62	269.31	0.3738	0.9171	900
1000	39.37	0.870	0.02033	106.47	250.71	107.34	271.04	0.3920	0.9157	1000
1200	46.29	0.893	0.01673	116.72	253.84	117.79	273.92	0.4245	0.9132	1200
1400	52.40	0.917	0.01412	125.96	256.40	127.25	276.17	0.4532	0.9107	1400
1600	57.88	0.940	0.01213	134.45	258.50	135.96	277.92	0.4792	0.9080	1600
1800	62.87	0.964	0.01057	142.36	260.21	144.09	279.23	0.5030	0.9052	1800
2000	67.45	0.989	0.00930	149.81	261.56	151.78	280.15	0.5252	0.9020	2000
2200	71.70	1.015	0.00824	156.90	262.57	159.13	280.70	0.5460	0.8985	2200
2400	75.66	1.042	0.00734	163.70	263.27	166.20	280.89	0.5658	0.8946	2400
2600	79.37	1.072	0.00657	170.29	263.63	173.08	280.70	0.5848	0.8901	2600
2800	82.86	1.104	0.00588	176.73	263.64	179.82	280.11	0.6033	0.8849	2800
3000	86.16	1.141	0.00527	183.09	263.26	186.51	279.08	0.6213	0.8789	3000
3200	89.29	1.182	0.00472	189.41	262.41	193.19	277.50	0.6392	0.8718	3200
3400	92.26	1.233	0.00420	195.91	260.96	200.10	275.23	0.6575	0.8631	3400
3600	95.08	1.297	0.00370	202.66	258.65	207.32	271.97	0.6765	0.8521	3600
3800	97.76	1.387	0.00319	210.26	254.87	215.54	266.99	0.6980	0.8367	3800
4000	100.31	1.562	0.00256	220.43	246.82	226.68	257.05	0.7272	0.8085	4000
4059	101.03	1.9685	0.0019685	232.95	233.90	241.88	241.88	0.7678	0.7678	4059

Table C-3: Properties of Superheated R134a: Pressures from 80 kPa to 400 kPa

P				nes of Sup			erature, T					
(kPa)		-30	-20	-10	0	10	20	30	40	50	60	70
80	$v (m^3/kg)$	0.2388	0.2501	0.2611	0.2720	0.2828	0.2935	0.3041	0.3147	0.3252	0.3357	0.3462
	u (kJ/kg)	213.2	220.2	227.2	234.3	241.6	249.1	256.7	264.5	272.4	280.6	288.8
	h (kJ/kg)	232.4	240.2	248.1	256.1	264.3	272.6	281.0	289.7	298.5	307.4	316.5
	s (kJ/kg-K)	0.9608	0.9922	1.023	1.053	1.082	1.111	1.139	1.167	1.195	1.222	1.249
100	$v (m^3/kg)$		0.1984	0.2074	0.2163	0.2251	0.2337	0.2423	0.2509	0.2594	0.2678	0.2763
	u (kJ/kg)		219.7	226.8	234.0	241.3	248.8	256.5	264.3	272.2	280.4	288.7
	h (kJ/kg)		239.5	247.5	255.6	263.8	272.2	280.7	289.4	298.2	307.1	316.3
	s (kJ/kg-K)		0.9721	1.003	1.033	1.063	1.092	1.12	1.149	1.176	1.204	1.231
120	$v (m^3/kg)$		0.1639	0.1716	0.1792	0.1866	0.1939	0.2011	0.2083	0.2155	0.2226	0.2296
	u (kJ/kg)		219.2	226.4	233.6	241.0	248.5	256.2	264.0	272.0	280.2	288.5
	h (kJ/kg)		238.9	246.9	255.1	263.4	271.8	280.3	289.0	297.9	306.9	316.0
	s (kJ/kg-K)		0.9553	0.9866	1.017	1.047	1.076	1.105	1.133	1.161	1.188	1.215
140	$v (m^3/kg)$			0.1461	0.1526	0.1591	0.1654	0.1717	0.1779	0.1841	0.1903	0.1964
	u (kJ/kg)			225.9	233.2	240.7	248.2	255.9	263.8	271.8	280	288.3
	h (kJ/kg)			246.4	254.6	262.9	271.4	280	288.7	297.6	306.6	315.8
	s (kJ/kg-K)			0.9724	1.003	1.033	1.062	1.091	1.12	1.147	1.175	1.202
160	$v (m^3/kg)$			0.1268	0.1327	0.1385	0.1441	0.1496	0.1551	0.1606	0.1660	0.1714
	u (kJ/kg)			225.5	232.9	240.4	248.0	255.7	263.6	271.6	279.8	288.1
	h (kJ/kg)			245.8	254.1	262.5	271.0	279.6	288.4	297.3	306.3	315.5
	s (kJ/kg-K)			0.9599	0.9909	1.021	1.051	1.08	1.108	1.136	1.164	1.191
180	$v (m^3/kg)$			0.1119	0.1172	0.1224	0.1275	0.1325	0.1374	0.1423	0.1471	0.152
	u (kJ/kg)			225.0	232.5	240.0	247.7	255.4	263.3	271.4	279.6	287.9
	h (kJ/kg)			245.2	253.6	262.1	270.6	279.3	288.1	297.0	306.1	315.3
	s (kJ/kg-K)			0.9485	0.9799	1.010	1.040	1.069	1.098	1.126	1.153	1.181
200	$v (m^3/kg)$			0.09991	0.1048	0.1096	0.1142	0.1187	0.1232	0.1277	0.1321	0.1364
	u (kJ/kg)			224.6	232.1	239.7	247.4	255.2	263.1	271.2	279.4	287.7
	h (kJ/kg)			244.6	253.1	261.6	270.2	278.9	287.7	296.7	305.8	315.0
	s (kJ/kg-K)			0.9381	0.9699	1.001	1.030	1.060	1.088	1.116	1.144	1.171
300	$v (m^3/kg)$					0.0709	0.0742	0.0775	0.0806	0.0837	0.0868	0.0898
	u (kJ/kg)					237.9	245.8	253.8	261.9	270.1	278.4	286.8
	h (kJ/kg)					259.2	268.1	277.0	286.1	295.2	304.4	313.8
	s (kJ/kg-K)					0.9611	0.9920	1.022	1.051	1.080	1.108	1.136
400	$v (m^3/kg)$					0.0515	0.0542	0.0568	0.0593	0.0617	0.0641	0.0664
	u (kJ/kg)					236.0	244.2	252.4	260.6	268.9	277.3	285.9
	h (kJ/kg)					256.6	265.9	275.1	284.3	293.6	303.0	312.5
	s (kJ/kg-K)					0.9306	0.9628	0.9937	1.024	1.053	1.081	1.109
P		-30	-20	-10	0	10	20	30	40	50	60	70
(kPa)						Temp	erature, T	'(°C)				

Table C-3 (continued): Properties of Superheated Vapor: Pressures from 500 kPa to 1.3 MPa

P	Table	C-S (cont	mucu). I	Toperties	oi Supern T	emperatu			Ш 300 КІ	a to 1.5 1	v11 a	
(kPa)		20	30	40	50	60	70	80	900	100	110	120
500	$v (m^3/kg)$	0.0421	0.0443	0.0465	0.0485	0.0505	0.0524	0.0543	0.0562	0.0580	0.0599	0.0617
	u (kJ/kg)	242.4	250.9	259.3	267.7	276.3	284.9	293.7	302.5	311.5	320.6	329.9
	h (kJ/kg)	263.5	273.0	282.5	292.0	301.5	311.1	320.8	330.6	340.5	350.6	360.8
	s (kJ/kg-K)	0.9384	0.9704	1.001	1.031	1.06	1.088	1.116	1.144	1.171	1.197	1.223
600	$v (m^3/kg)$		0.0360	0.0379	0.0397	0.0414	0.0431	0.0447	0.0463	0.0479	0.0494	0.051
	u (kJ/kg)		249.2	257.9	266.5	275.2	283.9	292.7	301.7	310.7	319.9	329.2
	h (kJ/kg)		270.8	280.6	290.3	300.0	309.8	319.6	329.5	339.5	349.6	359.8
	s (kJ/kg-K)		0.95	0.9817	1.012	1.042	1.071	1.099	1.126	1.154	1.18	1.207
700	$v (m^3/kg)$		0.0300	0.0317	0.0333	0.0349	0.0364	0.0378	0.0393	0.0406	0.0420	0.0434
	u (kJ/kg)		247.5	256.4	265.2	274.0	282.9	291.8	300.8	310	319.2	328.6
	h (kJ/kg)		268.5	278.6	288.5	298.4	308.3	318.3	328.3	338.4	348.6	358.9
	s (kJ/kg-K)		0.9314	0.9642	0.9955	1.026	1.055	1.084	1.112	1.139	1.166	1.192
800	$v (m^3/kg)$		_	0.0270	0.0286	0.0300	0.0313	0.0327	0.0339	0.0352	0.0364	0.0376
	u (kJ/kg)			254.8	263.9	272.8	281.8	290.9	300.0	309.2	318.5	327.9
	h (kJ/kg)			276.5	286.7	296.8	306.9	317	327.1	337.3	347.6	358.0
	s (kJ/kg-K)			0.9481	0.9803	1.011	1.041	1.07	1.098	1.126	1.153	1.18
900	$v (m^3/kg)$			0.0234	0.02481	0.0262	0.0274	0.0286	0.0298	0.0310	0.0321	0.0332
	u (kJ/kg)			253.2	262.5	271.6	280.7	289.9	299.1	308.4	317.7	327.2
	h (kJ/kg)			274.2	284.8	295.1	305.4	315.6	325.9	336.2	346.6	357.0
	s (kJ/kg-K)			0.9328	0.9661	0.9977	1.028	1.057	1.086	1.114	1.141	1.168
1000	$v (m^3/kg)$			0.0204	0.0218	0.0231	0.0243	0.0254	0.0265	0.0276	0.0286	0.0296
	u (kJ/kg)			251.3	261.0	270.3	279.6	288.9	298.2	307.5	317.0	326.5
	h (kJ/kg)			271.7	282.8	293.4	303.9	314.3	324.7	335.1	345.5	356.1
	s (kJ/kg-K)			0.918	0.9526	0.9851	1.016	1.046	1.075	1.103	1.131	1.158
1100	$v (m^3/kg)$				0.0193	0.0205	0.0217	0.0228	0.0238	0.0248	0.0257	0.0267
	u (kJ/kg)				259.4	269.0	278.4	287.8	297.2	306.7	316.2	325.8
	h (kJ/kg)				280.6	291.6	302.3	312.9	323.4	333.9	344.5	355.1
	s (kJ/kg-K)				0.9396	0.973	1.005	1.035	1.065	1.093	1.121	1.148
1200	$v (m^3/kg)$				0.0172	0.0184	0.0195	0.0205	0.0215	0.0224	0.0234	0.0242
	u (kJ/kg)				257.6	267.6	277.2	286.8	296.3	305.8	315.4	325.1
	h (kJ/kg)				278.3	289.7	300.6	311.4	322.1	332.7	343.4	354.1
	s (kJ/kg-K)				0.9268	0.9615	0.9939	1.025	1.055	1.084	1.112	1.139
1300	$v (m^3/kg)$				0.0154	0.0166	0.0177	0.0187	0.0196	0.0205	0.0213	0.0222
	u (kJ/kg)				255.8	266.1	276.0	285.7	295.3	304.9	314.6	324.3
	h (kJ/kg)				275.8	287.6	298.9	309.9	320.8	331.5	342.3	353.1
	s (kJ/kg-K)				0.914	0.9501	0.9835	1.015	1.045	1.075	1.103	1.131
P		20	30	40	50	60	70	80	900	100	110	120
(kPa)						Temp	erature, T	(°C)				

Table C-3 (continued): Properties of Superheated Vapor: Pressures from 1.4 MPa to 3.0 MPa

	0.0226 0.0 353.4 36 385.1 39 1.204 1 0.0196 0.0 352.2 36 383.5 39 1.19 1. 0.0171 0.0 351 36 381.8 39 1.178 1. 0.0152 0.0 349.7 36	160 0.0234 363.5 396.2 1.22 0.0202 362.4 394.7 1.216 0.017 361.3 393.2 1.204 0.0158
1400	0.0226 0.0 353.4 36 385.1 39 1.204 1 0.0196 0.0 352.2 36 383.5 39 1.19 1. 0.0171 0.0 351 36 381.8 39 1.178 1. 0.0152 0.0 349.7 36	0.0234 363.5 396.7 1.23 0.0202 362.4 394.7 1.210 0.0177 361.3 393.2 1.204 0.0158
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	353.4 36 385.1 39 1.204 1 0.0196 0.0 352.2 36 383.5 39 1.19 1. 0.0171 0.0 351 36 381.8 39 1.178 1. 0.0152 0.0 349.7 36	363.5 396.2 1.22 0.0202 362.4 394.7 1.210 0.0177 361.3 393.2 1.204 0.0158
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	385.1 39 1.204 1 0.0196 0.0 352.2 36 383.5 39 1.19 1. 0.0171 0.0 351 36 381.8 39 1.178 1. 0.0152 0.0 349.7 36	396.2 1.23 0.0202 362.4 394.7 1.216 0.0177 361.3 393.2 1.204 0.0158
S (kJ/kg-K)	1.204 1 0.0196 0.0 352.2 36 383.5 39 1.19 1. 0.0171 0.0 351 36 381.8 39 1.178 1. 0.0152 0.0 349.7 36	1.23 0.0202 362.4 394.7 1.210 0.0177 361.3 393.2 1.204
1600	0.0196 0.0 352.2 36 383.5 39 1.19 1. 0.0171 0.0 351 36 381.8 39 1.178 1. 0.0152 0.0 349.7 36	0.0202 362.4 394.7 1.210 0.0177 361.3 393.2 1.204 0.0158
W (kJ/kg) 260.9 271.8 282.1 292.2 302.2 312.1 322 332 342.1	352.2 36 383.5 39 1.19 1. 0.0171 0.0 351 36 381.8 39 1.178 1. 0.0152 0.0 349.7 36	362.4 394.7 1.210 0.0177 361.3 393.2 1.204 0.0158
h (kJ/kg) 280.7 293.3 305.1 316.5 327.8 338.9 350 361.1 372.3 s (kJ/kg-K) 0.9164 0.9536 0.9875 1.019 1.05 1.08 1.108 1.136 1.163 1800	383.5 39 1.19 1. 0.0171 0.0 351 36 381.8 39 1.178 1. 0.0152 0.0 349.7 36	394.7 1.210 0.017 361.3 393.2 1.204 0.0158
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1.19 1. 0.0171 0.0 351 36 381.8 39 1.178 1. 0.0152 0.0 349.7 36	1.216 0.0177 361.3 393.2 1.204 0.0158
1800	0.0171 0.0 351 36 381.8 39 1.178 1. 0.0152 0.0 349.7 36	0.0177 361.3 393.2 1.204 0.0158
u (kJ/kg) 268.6 279.5 289.9 300.2 310.3 320.4 330.6 340.7 z (kJ/kg-K) 288.9 301.5 313.5 325.1 336.6 347.9 359.2 370.5 2000 v (m³/kg) 0.9338 0.97 1.003 1.035 1.065 1.094 1.123 1.15 2000 v (m³/kg) 0.0096 0.0105 0.0114 0.0121 0.0128 0.0134 0.0141 0.0146 0.0 u (kJ/kg) 264.8 276.6 287.5 298.1 308.5 318.8 329.1 339.4 2000 v (m³/kg) 283.9 297.6 310.3 322.3 334.1 345.7 357.2 368.6 2000 v (m³/kg) 0.09131 0.9525 0.9877 1.02 1.052 1.081 1.11 1.138 2200 v (m³/kg) 0.0091 0.0099 0.0107 0.0113 0.0120 0.0125 0.0131 0 2200 v (m³/kg)	351 36 381.8 39 1.178 1. 0.0152 0.0 349.7 36	361.3 393.2 1.204 0.0158
The boundary Color	381.8 39 1.178 1. 0.0152 0.0 349.7 36	393.2 1.204 0.0158
s (kJ/kg-K) 0.9338 0.97 1.003 1.035 1.065 1.094 1.123 1.15 2000 v (m³/kg) 0.0096 0.0105 0.0114 0.0121 0.0128 0.0134 0.0141 0.0146 0 u (kJ/kg) 264.8 276.6 287.5 298.1 308.5 318.8 329.1 339.4 k (kJ/kg) 283.9 297.6 310.3 322.3 334.1 345.7 357.2 368.6 v (m³/kg) 0.9131 0.9525 0.9877 1.02 1.052 1.081 1.11 1.138 2200 v (m³/kg) 0.0091 0.0099 0.0107 0.0113 0.0120 0.0125 0.0131 0 u (kJ/kg) 273.3 284.9 295.9 306.6 317.1 327.5 338 293.3 306.7 319.3 331.5 343.4 355.1 366.8 v (m³/kg) 0.9346 0.9722 1.006 1.039 1.069 1.099 1.127	1.178 1. 0.0152 0.0 349.7 36	1.20 ² 0.0158
2000 v (m³/kg) 0.0096 0.0105 0.0114 0.0121 0.0128 0.0134 0.0141 0.0146 0.0141 0.0146 0.0148 0.0148 0.0141 0.0148 0.0141 0.0148 0.0141 0.0148 0.0141 0.0148 0.0141 0.0148 0.0141 0.0148 0.0141 0.0148 0.0141 0.0148 0.0141 0.0148 0.0141 0.0148 0.0141	0.0152 0.0 349.7 36	0.0158
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	349.7 36	
h (kJ/kg) 283.9 297.6 310.3 322.3 334.1 345.7 357.2 368.6 2200 v (m³/kg) 0.9131 0.9525 0.9877 1.02 1.052 1.081 1.11 1.138 2200 v (m³/kg) 0.0091 0.0099 0.0107 0.0113 0.0120 0.0125 0.0131 0.001 u (kJ/kg) 273.3 284.9 295.9 306.6 317.1 327.5 338 s (kJ/kg-K) 0.9346 0.9722 1.006 1.039 1.069 1.099 1.127 2400 v (m³/kg) 0.0078 0.0087 0.0094 0.0101 0.0107 0.0113 0.0118 0 2400 v (m³/kg) 0.0078 0.0087 0.0094 0.0101 0.0107 0.0113 0.0118 0 2400 v (m³/kg) 269.4 282 293.5 304.5 315.3 325.9 336.5 4 (kJ/kg) 288.2 302.9 316.2 328.8 341		500.
s (kJ/kg-K) 0.9131 0.9525 0.9877 1.02 1.052 1.081 1.11 1.138 2200 v (m³/kg) 0.0091 0.0099 0.0107 0.0113 0.0120 0.0125 0.0131		391.6
2200 v (m³/kg) 0.0091 0.0099 0.0107 0.0113 0.0120 0.0125 0.0131 0.0120 u (kJ/kg) 273.3 284.9 295.9 306.6 317.1 327.5 338 b (kJ/kg) 293.3 306.7 319.3 331.5 343.4 355.1 366.8 c (kJ/kg-K) 0.9346 0.9722 1.006 1.039 1.069 1.099 1.127 c (kJ/kg) 0.0078 0.0087 0.0094 0.0101 0.0107 0.0113 0.0118 0.007 u (kJ/kg) 269.4 282 293.5 304.5 315.3 325.9 336.5 h (kJ/kg) 288.2 302.9 316.2 328.8 341 353 364.8 s (kJ/kg-K) 0.9154 0.9565 0.9926 1.026 1.057 1.087 1.117		1.193
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		0.0142
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		358.9
s (kJ/kg-K) 0.9346 0.9722 1.006 1.039 1.069 1.099 1.127 2400 v (m³/kg) 0.0078 0.0087 0.0094 0.0101 0.0107 0.0113 0.0118 0 u (kJ/kg) 269.4 282 293.5 304.5 315.3 325.9 336.5 h (kJ/kg) 288.2 302.9 316.2 328.8 341 353 364.8 s (kJ/kg-K) 0.9154 0.9565 0.9926 1.026 1.057 1.087 1.117		390
2400 v (m³/kg) 0.0078 0.0087 0.0094 0.0101 0.0107 0.0113 0.0118 0.018 u (kJ/kg) 269.4 282 293.5 304.5 315.3 325.9 336.5 h (kJ/kg) 288.2 302.9 316.2 328.8 341 353 364.8 s (kJ/kg-K) 0.9154 0.9565 0.9926 1.026 1.057 1.087 1.117		1.182
u (kJ/kg) 269.4 282 293.5 304.5 315.3 325.9 336.5 h (kJ/kg) 288.2 302.9 316.2 328.8 341 353 364.8 s (kJ/kg-K) 0.9154 0.9565 0.9926 1.026 1.057 1.087 1.117		0.0128
h (kJ/kg) 288.2 302.9 316.2 328.8 341 353 364.8 s (kJ/kg-K) 0.9154 0.9565 0.9926 1.026 1.057 1.087 1.117		357.
s (kJ/kg-K) 0.9154 0.9565 0.9926 1.026 1.057 1.087 1.117		388.4
` ` ` '		1.172
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$		0.0117
		356.4
		386.8
s (kJ/kg-K) 0.8935 0.9401 0.9787 1.013 1.046 1.077 1.106		1.163
		0.010
		355.2
h (kJ/kg) 293.6 309.1 322.9 335.9 348.5 360.8		385.
		1.154
		0.0098
		353.9
· · · ·		383.4
		1.145
P 60 70 80 90 100 110 120 130 140		160
(kPa) Temperature, T (°C)		