

Caractéristiques thermodynamiques du R513A à l'état saturé (liquide)

F. Benet d'après REFPROP <http://frederic.benet.free.fr>

Version du : 19/12/2018

θ bulle [°C]	P abs [bar]	θ rosée [°C]	h _L [kJ/kg]	h _V [kJ/kg]	v _L [dm³/kg]	v _V [dm³/kg]	μ _L [μPa.s]	μ _V [μPa.s]	S _V [kJ/kg.°C]
-75	0.069	-74.53	109.3	330.3	0.695	2199	772.2	7.632	1.728
-70	0.098	-69.58	114.9	333.5	0.701	1576	691.6	7.824	1.717
-65	0.137	-64.63	120.6	336.7	0.708	1151	623.9	8.016	1.707
-60	0.189	-59.68	126.3	339.9	0.715	855.5	566.3	8.209	1.698
-55	0.255	-54.72	132.1	343.1	0.721	646.0	516.7	8.401	1.690
-50	0.339	-49.75	138.0	346.3	0.729	494.9	473.7	8.594	1.684
-45	0.444	-44.79	143.9	349.6	0.736	384.3	435.9	8.786	1.678
-40	0.574	-39.82	149.8	352.9	0.743	302.1	402.6	8.979	1.673
-35	0.733	-34.84	155.9	356.1	0.751	240.2	373.1	9.172	1.669
-30	0.926	-29.87	162.0	359.4	0.759	193.0	346.6	9.364	1.665
-28	1.013	-27.88	164.4	360.7	0.763	177.3	336.8	9.441	1.664
-26	1.107	-25.89	166.9	362.0	0.766	163.1	327.3	9.518	1.662
-24	1.207	-23.89	169.4	363.3	0.769	150.3	318.3	9.595	1.661
-22	1.314	-21.90	171.9	364.6	0.773	138.7	309.6	9.672	1.660
-20	1.429	-19.91	174.4	365.8	0.776	128.1	301.2	9.749	1.659
-18	1.552	-17.92	176.9	367.1	0.780	118.5	293.2	9.826	1.658
-16	1.682	-15.92	179.4	368.4	0.784	109.8	285.4	9.903	1.658
-14	1.821	-13.93	181.9	369.7	0.787	101.8	277.9	9.979	1.657
-12	1.968	-11.93	184.5	371.0	0.791	94.55	270.7	10.06	1.656
-10	2.125	-9.940	187.0	372.2	0.795	87.89	263.7	10.13	1.656
-8	2.291	-7.946	189.6	373.5	0.799	81.79	257.0	10.21	1.655
-6	2.467	-5.951	192.2	374.8	0.803	76.19	250.5	10.29	1.655
-4	2.654	-3.955	194.8	376.0	0.807	71.04	244.2	10.36	1.654
-2	2.850	-1.960	197.4	377.3	0.811	66.31	238.1	10.44	1.654
0	3.058	0.036	200.0	378.5	0.815	61.95	232.2	10.52	1.653
2	3.278	2.032	202.6	379.7	0.820	57.93	226.4	10.59	1.653
4	3.509	4.028	205.3	381.0	0.824	54.22	220.9	10.67	1.653
6	3.752	6.025	207.9	382.2	0.828	50.79	215.5	10.75	1.653
8	4.008	8.022	210.6	383.4	0.833	47.62	210.2	10.82	1.653
10	4.277	10.02	213.3	384.6	0.838	44.68	205.1	10.90	1.652
12	4.560	12.02	216.0	385.8	0.843	41.95	200.1	10.97	1.652
14	4.856	14.01	218.7	387.0	0.847	39.41	195.3	11.05	1.652
16	5.167	16.01	221.5	388.1	0.853	37.06	190.6	11.13	1.652
18	5.493	18.01	224.2	389.3	0.858	34.87	186.0	11.20	1.652
20	5.834	20.01	227.0	390.4	0.863	32.83	181.5	11.28	1.652
22	6.190	22.01	229.7	391.6	0.868	30.92	177.2	11.36	1.652
24	6.563	24.01	232.5	392.7	0.874	29.14	172.9	11.43	1.652
26	6.953	26.00	235.3	393.8	0.880	27.48	168.8	11.51	1.652
28	7.359	28.00	238.2	394.9	0.885	25.93	164.7	11.58	1.652
30	7.784	30.00	241.0	395.9	0.891	24.48	160.7	11.66	1.652
32	8.226	32.00	243.9	397.0	0.898	23.11	156.8	11.73	1.652
34	8.687	34.00	246.8	398.0	0.904	21.84	153.0	11.81	1.652
36	9.167	36.00	249.7	399.0	0.911	20.64	149.3	11.89	1.652
38	9.667	38.00	252.6	400.0	0.917	19.51	145.6	11.97	1.652
40	10.19	40.00	255.5	401.0	0.924	18.45	142.1	12.05	1.652
45	11.58	45.00	263.0	403.3	0.943	16.06	133.4	12.34	1.652
50	13.11	50.00	270.6	405.4	0.964	14.00	125.0	12.67	1.651
55	14.78	55.00	278.4	407.4	0.986	12.21	117.0	13.03	1.650
60	16.61	60.00	286.4	409.1	1.011	10.64	109.2	13.44	1.649
65	18.61	65.01	294.6	410.4	1.040	9.257	101.6	13.93	1.647
70	20.79	70.01	303.1	411.4	1.073	8.032	94.15	14.52	1.645
75	23.15	75.01	312.0	411.9	1.113	6.936	86.67	15.24	1.641
80	25.73	80.01	321.3	411.7	1.162	5.942	79.08	16.16	1.636
85	28.52	85.01	331.3	410.5	1.225	5.022	71.15	17.41	1.628
90	31.56	90.01	342.5	407.5	1.316	4.135	62.39	19.29	1.616
95	34.88	95.01	356.8	400.0	1.488	3.167	51.08	22.99	1.592

Caractéristiques thermodynamiques du R513A à l'état saturé (vapeur)

F. Benet d'après REFPROP <http://frederic.benet.free.fr>

Version du : 19/12/2018

θ rosée [°C]	P abs [bar]	θ bulle [°C]	h _L [kJ/kg]	h _V [kJ/kg]	v _L [dm³/kg]	v _V [dm³/kg]	μ _L [μPa.s]	μ _V [μPa.s]	S _V [kJ/kg.°C]
-75	0.066	-75.48	108.8	330.0	0.695	2272	780.7	7.614	1.730
-70	0.095	-70.42	114.4	333.2	0.701	1620	697.9	7.808	1.718
-65	0.134	-65.37	120.2	336.4	0.707	1178	628.6	8.002	1.708
-60	0.185	-60.33	126.0	339.7	0.714	871.9	569.8	8.196	1.699
-55	0.251	-55.29	131.8	342.9	0.721	656.2	519.4	8.390	1.691
-50	0.334	-50.25	137.7	346.2	0.728	501.4	475.7	8.584	1.684
-45	0.439	-45.21	143.6	349.5	0.736	388.4	437.5	8.778	1.678
-40	0.569	-40.18	149.6	352.7	0.743	304.8	403.8	8.972	1.673
-35	0.728	-35.16	155.7	356.0	0.751	241.9	373.9	9.165	1.669
-30	0.920	-30.13	161.8	359.3	0.759	194.1	347.3	9.359	1.665
-28	1.007	-28.12	164.3	360.6	0.762	178.2	337.4	9.436	1.664
-26	1.101	-26.12	166.7	361.9	0.766	163.9	327.9	9.514	1.662
-24	1.202	-24.11	169.2	363.2	0.769	151.0	318.8	9.591	1.661
-22	1.309	-22.10	171.7	364.5	0.773	139.2	310.0	9.668	1.660
-20	1.424	-20.09	174.2	365.8	0.776	128.6	301.6	9.745	1.659
-18	1.546	-18.08	176.8	367.1	0.780	118.9	293.5	9.822	1.658
-16	1.677	-16.08	179.3	368.4	0.783	110.1	285.7	9.900	1.658
-14	1.816	-14.07	181.8	369.6	0.787	102.1	278.2	9.977	1.657
-12	1.963	-12.07	184.4	370.9	0.791	94.78	270.9	10.05	1.656
-10	2.120	-10.06	186.9	372.2	0.795	88.08	263.9	10.13	1.656
-8	2.287	-8.054	189.5	373.5	0.799	81.94	257.2	10.21	1.655
-6	2.463	-6.049	192.1	374.7	0.803	76.32	250.6	10.28	1.655
-4	2.649	-4.045	194.7	376.0	0.807	71.15	244.3	10.36	1.654
-2	2.846	-2.040	197.3	377.2	0.811	66.40	238.2	10.44	1.654
0	3.054	-0.036	200.0	378.5	0.815	62.03	232.3	10.51	1.653
2	3.274	1.968	202.6	379.7	0.820	58.00	226.5	10.59	1.653
4	3.505	3.972	205.2	380.9	0.824	54.27	220.9	10.67	1.653
6	3.749	5.975	207.9	382.2	0.828	50.83	215.5	10.74	1.653
8	4.005	7.978	210.6	383.4	0.833	47.65	210.3	10.82	1.653
10	4.274	9.981	213.3	384.6	0.838	44.70	205.2	10.90	1.652
12	4.557	11.98	216.0	385.8	0.843	41.97	200.2	10.97	1.652
14	4.854	13.99	218.7	386.9	0.847	39.43	195.3	11.05	1.652
16	5.165	15.99	221.4	388.1	0.852	37.07	190.6	11.13	1.652
18	5.491	17.99	224.2	389.3	0.858	34.88	186.0	11.20	1.652
20	5.832	19.99	227.0	390.4	0.863	32.83	181.6	11.28	1.652
22	6.189	21.99	229.7	391.5	0.868	30.93	177.2	11.36	1.652
24	6.562	23.99	232.5	392.7	0.874	29.15	172.9	11.43	1.652
26	6.952	26.00	235.3	393.8	0.880	27.49	168.8	11.51	1.652
28	7.359	28.00	238.2	394.9	0.885	25.93	164.7	11.58	1.652
30	7.783	30.00	241.0	395.9	0.891	24.48	160.7	11.66	1.652
32	8.226	32.00	243.9	397.0	0.898	23.11	156.8	11.73	1.652
34	8.687	34.00	246.8	398.0	0.904	21.84	153.0	11.81	1.652
36	9.167	36.00	249.7	399.0	0.911	20.64	149.3	11.89	1.652
38	9.667	38.00	252.6	400.0	0.917	19.51	145.6	11.97	1.652
40	10.19	40.00	255.5	401.0	0.924	18.45	142.1	12.05	1.652
45	11.58	45.00	263.0	403.3	0.943	16.06	133.4	12.34	1.652
50	13.11	50.00	270.6	405.4	0.964	14.00	125.0	12.67	1.651
55	14.78	55.00	278.4	407.4	0.986	12.21	117.0	13.03	1.650
60	16.61	60.00	286.4	409.1	1.011	10.64	109.2	13.44	1.649
65	18.61	64.99	294.6	410.4	1.040	9.258	101.6	13.93	1.647
70	20.78	69.99	303.1	411.4	1.073	8.034	94.16	14.52	1.645
75	23.15	74.99	311.9	411.9	1.113	6.938	86.69	15.23	1.641
80	25.72	79.99	321.3	411.7	1.162	5.944	79.10	16.16	1.636
85	28.51	84.99	331.3	410.5	1.225	5.024	71.16	17.40	1.628
90	31.55	89.99	342.5	407.5	1.316	4.137	62.41	19.28	1.616
95	34.88	94.99	356.8	400.0	1.487	3.169	51.10	22.98	1.592

ENTHALPIES du R513A à l'état surchauffé [kJ/kg]

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rosée		SURCHAUFFE [°C]																				
[°C]	[bar]	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
-75	0.066	330.0	333.4	336.8	340.2	343.7	347.2	350.8	354.5	358.2	362.0	365.9	369.7	373.7	377.6	381.6	385.7	389.8	394.0	398.2	402.5	406.8
-70	0.095	333.2	336.6	340.1	343.6	347.2	350.8	354.5	358.2	362.0	365.8	369.7	373.6	377.6	381.6	385.6	389.8	393.9	398.1	402.4	406.7	411.1
-65	0.134	336.4	339.9	343.4	347.0	350.6	354.3	358.1	361.8	365.7	369.6	373.5	377.5	381.5	385.6	389.7	393.9	398.1	402.3	406.7	411.0	415.4
-60	0.185	339.7	343.2	346.8	350.5	354.1	357.9	361.7	365.5	369.4	373.3	377.2	381.3	385.4	389.6	393.8	398.0	402.2	406.6	410.9	415.3	419.8
-55	0.251	342.9	346.5	350.2	353.9	357.7	361.5	365.3	369.2	373.2	377.2	381.2	385.3	389.4	393.6	397.9	402.1	406.5	410.8	415.2	419.7	424.2
-50	0.334	346.2	349.9	353.5	357.4	361.2	365.1	369.0	373.0	377.0	381.0	385.1	389.3	393.5	397.7	402.0	406.3	410.7	415.1	419.6	424.1	428.6
-45	0.439	349.5	353.2	357.0	360.9	364.8	368.7	372.7	376.7	380.8	384.9	389.1	393.3	397.5	401.8	406.1	410.5	414.9	419.4	423.9	428.5	433.1
-40	0.569	352.7	356.6	360.5	364.4	368.3	372.3	376.4	380.5	384.6	388.8	393.0	397.3	401.6	405.9	410.3	414.7	419.2	423.7	428.3	432.9	437.6
-35	0.728	356.0	359.9	363.9	367.9	371.9	376.0	380.1	384.2	388.4	392.7	397.0	401.3	405.6	410.0	414.5	419.0	423.5	428.1	432.7	437.4	442.1
-30	0.920	359.3	363.3	367.3	371.4	375.5	379.6	383.8	388.0	392.3	396.6	400.9	405.3	409.7	414.2	418.7	423.2	427.8	432.4	437.1	441.8	446.6
-25	1.150	362.5	366.6	370.8	374.9	379.1	383.3	387.5	391.8	396.1	400.5	404.9	409.3	413.8	418.3	422.9	427.5	432.1	436.8	441.5	446.3	451.1
-20	1.424	365.8	370.0	374.2	378.4	382.6	386.9	391.2	395.6	400.0	404.4	408.9	413.4	417.9	422.5	427.1	431.8	436.5	441.2	446.0	450.8	455.6
-15	1.745	369.0	373.3	377.6	381.9	386.2	390.6	394.9	399.4	403.8	408.3	412.8	417.4	422.0	426.7	431.3	436.0	440.8	445.6	450.4	455.3	460.2
-10	2.120	372.2	376.6	380.9	385.3	389.7	394.2	398.6	403.1	407.7	412.2	416.8	421.4	426.1	430.8	435.5	440.3	445.1	450.0	454.9	459.8	464.7
-5	2.555	375.4	379.8	384.3	388.8	393.3	397.8	402.3	406.9	411.5	416.1	420.8	425.5	430.2	435.0	439.8	444.6	449.5	454.4	459.3	464.3	469.3
0	3.054	378.5	383.1	387.6	392.2	396.8	401.4	406.0	410.6	415.3	420.0	424.7	429.5	434.3	439.1	444.0	448.9	453.8	458.8	463.7	468.8	473.8
5	3.626	381.6	386.2	390.9	395.6	400.2	404.9	409.6	414.4	419.1	423.9	428.7	433.5	438.4	443.3	448.2	453.1	458.1	463.1	468.2	473.3	478.4
10	4.274	384.6	389.4	394.1	398.9	403.7	408.5	413.2	418.1	422.9	427.7	432.6	437.5	442.4	447.4	452.4	457.4	462.4	467.5	472.6	477.8	482.9
15	5.008	387.5	392.5	397.3	402.2	407.1	411.9	416.8	421.7	426.6	431.5	436.5	441.5	446.5	451.5	456.5	461.6	466.7	471.9	477.0	482.2	487.5
20	5.832	390.4	395.5	400.5	405.5	410.4	415.4	420.4	425.3	430.3	435.3	440.4	445.4	450.5	455.6	460.7	465.8	471.0	476.2	481.4	486.7	492.0
25	6.755	393.2	398.4	403.6	408.7	413.7	418.8	423.9	428.9	434.0	439.1	444.2	449.3	454.5	459.6	464.8	470.0	475.3	480.5	485.8	491.2	496.5
30	7.783	395.9	401.3	406.6	411.8	417.0	422.2	427.3	432.5	437.7	442.8	448.0	453.2	458.4	463.7	468.9	474.2	479.5	484.9	490.2	495.6	501.0
35	8.924	398.5	404.0	409.5	414.8	420.2	425.5	430.7	436.0	441.3	446.5	451.8	457.1	462.4	467.7	473.0	478.4	483.8	489.1	494.6	500.0	505.5
40	10.19	401.0	406.7	412.3	417.8	423.3	428.7	434.1	439.4	444.8	450.2	455.6	460.9	466.3	471.7	477.1	482.5	487.9	493.4	498.9	504.4	509.9
45	11.58	403.3	409.2	415.0	420.7	426.3	431.8	437.4	442.8	448.3	453.8	459.2	464.7	470.1	475.6	481.1	486.6	492.1	497.6	503.2	508.8	514.4
50	13.11	405.4	411.6	417.6	423.5	429.2	434.9	440.6	446.2	451.7	457.3	462.9	468.4	474.0	479.5	485.1	490.7	496.2	501.9	507.5	513.1	518.8
55	14.78	407.4	413.9	420.1	426.2	432.1	437.9	443.7	449.4	455.1	460.8	466.4	472.1	477.7	483.4	489.0	494.7	500.3	506.0	511.7	517.4	523.2
60	16.61	409.1	415.9	422.4	428.7	434.8	440.8	446.7	452.6	458.4	464.2	470.0	475.7	481.4	487.2	492.9	498.7	504.4	510.2	515.9	521.7	527.5
65	18.61	410.4	417.2	424.6	431.1	437.4	443.6	449.7	455.7	461.6	467.5	473.4	479.3	485.1	491.0	496.8	502.6	508.4	514.3	520.1	526.0	531.8
70	20.78	411.4	419.3	426.5	433.3	439.9	446.3	452.5	458.7	464.8	470.8	476.8	482.8	488.7	494.7	500.6	506.5	512.4	518.3	524.3	530.2	536.1
75	23.15	411.9	420.5	428.2	435.4	442.2	448.8	455.3	461.6	467.8	474.0	480.1	486.2	492.3	498.3	504.3	510.3	516.3	522.3	528.3	534.4	540.4
80	25.72	411.7	421.4	429.6	437.2	444.3	451.2	457.9	464.4	470.8	477.1	483.4	489.6	495.7	501.9	508.0	514.1	520.2	526.3	532.4	538.5	544.6
85	28.51	410.5	421.8	430.8	438.8	446.3	453.4	460.3	467.1	473.6	480.1	486.5	492.9	499.2	505.4	511.6	517.8	524.0	530.2	536.4	542.6	548.8
90	31.55	407.5	421.6	431.5	440.1	448.0	455.5	462.7	469.6	476.4	483.0	489.6	496.0	502.5	508.8	515.2	521.5	527.8	534.1	540.3	546.6	552.9
95	34.88	400.0	420.6	431.8	441.2	449.5	457.3	464.8	472.0	478.9	485.8	492.5	499.1	505.7	512.2	518.6	525.1	531.5	537.9	544.2	550.6	556.9

VOLUMES SPECIFIQUES du R513A à l'état surchauffé [dm³/kg]

F. Benet d'après REFPROP <http://frederic.benet.free.fr>

Version du : 19/12/2018

θ rosée		P abs		SURCHAUFFE [°C]																			
[°C]	[bar]	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	
-75	0.066	2272	2331	2390	2448	2507	2565	2624	2682	2740	2798	2857	2915	2973	3031	3089	3147	3205	3263	3321	3379	3437	
-70	0.095	1620	1661	1702	1743	1784	1825	1866	1906	1947	1988	2028	2069	2110	2150	2191	2231	2272	2312	2352	2393	2433	
-65	0.134	1178	1207	1237	1266	1295	1324	1354	1383	1412	1441	1470	1499	1528	1556	1585	1614	1643	1672	1701	1729	1758	
-60	0.185	871.9	893.5	914.9	936.5	957.6	978.9	1000	1021	1042	1064	1085	1106	1127	1148	1169	1190	1211	1232	1253	1274	1294	
-55	0.251	656.2	672.2	688.2	704.1	720.0	735.7	751.5	767.2	782.9	798.5	814.2	829.8	845.3	860.9	876.4	892.0	907.5	923.0	938.5	953.9	969.4	
-50	0.334	501.4	513.5	525.6	537.6	549.6	561.5	573.4	585.3	597.1	608.9	620.7	632.4	644.2	655.9	667.6	679.3	691.0	702.6	714.3	725.9	737.5	
-45	0.439	388.4	397.8	407.1	416.3	425.5	434.7	443.8	452.9	462.0	471.0	480.0	489.0	498.0	506.9	515.9	524.8	533.7	542.6	551.5	560.4	569.3	
-40	0.569	304.8	312.1	319.3	326.6	333.7	340.9	348.0	355.0	362.1	369.1	376.1	383.1	390.1	397.0	404.0	410.9	417.8	424.7	431.6	438.5	445.4	
-35	0.728	241.9	247.7	253.5	259.2	264.9	270.5	276.1	281.7	287.3	292.8	298.3	303.8	309.3	314.8	320.2	325.7	331.1	336.5	342.0	347.4	352.8	
-30	0.920	194.1	198.8	203.4	208.0	212.5	217.1	221.5	226.0	230.4	234.9	239.3	243.6	248.0	252.4	256.7	261.1	265.4	269.7	274.0	278.3	282.6	
-25	1.150	157.3	161.1	164.9	168.6	172.3	175.9	179.6	183.2	186.8	190.3	193.9	197.4	201.0	204.5	208.0	211.5	215.0	218.4	221.9	225.4	228.8	
-20	1.424	128.6	131.7	134.8	137.9	140.9	143.9	146.9	149.9	152.8	155.7	158.6	161.5	164.4	167.3	170.1	173.0	175.8	178.6	181.5	184.3	187.1	
-15	1.745	106.0	108.6	111.2	113.8	116.3	118.8	121.2	123.7	126.1	128.5	130.9	133.3	135.7	138.0	140.4	142.7	145.1	147.4	149.7	152.0	154.3	
-10	2.120	88.08	90.29	92.46	94.60	96.71	98.79	100.9	102.9	104.9	106.9	108.9	110.9	112.9	114.9	116.8	118.8	120.7	122.6	124.6	126.5	128.4	
-5	2.555	73.68	75.65	77.41	79.22	81.01	82.78	84.52	86.25	87.96	89.65	91.33	93.01	94.67	96.32	97.96	99.60	101.2	102.8	104.5	106.1	107.7	
0	3.054	62.03	63.63	65.23	66.79	68.35	69.82	71.33	72.78	74.24	75.68	77.11	78.53	79.94	81.34	82.73	84.11	85.49	86.86	88.23	89.58	90.94	
5	3.626	52.52	53.93	55.30	56.65	57.97	59.27	60.55	61.81	63.06	64.30	65.52	66.74	67.94	69.14	70.33	71.51	72.68	73.85	75.01	76.17	77.32	
10	4.274	44.70	45.94	47.14	48.32	49.47	50.59	51.71	52.80	53.88	54.95	56.01	57.06	58.10	59.13	60.15	61.17	62.18	63.18	64.16	65.17	66.16	
15	5.008	38.23	39.33	40.39	41.42	42.43	43.42	44.39	45.35	46.29	47.22	48.14	49.05	49.96	50.85	51.74	52.62	53.49	54.36	55.23	56.09	56.94	
20	5.832	32.83	33.81	34.76	35.67	36.57	37.44	38.30	39.14	39.97	40.79	41.59	42.39	43.18	43.96	44.74	45.51	46.27	47.03	47.78	48.53	49.27	
25	6.755	28.30	29.19	30.03	30.85	31.65	32.43	33.19	33.94	34.67	35.39	36.11	36.81	37.51	38.20	38.88	39.55	40.22	40.89	41.54	42.20	42.85	
30	7.783	24.48	25.28	26.05	26.79	27.50	28.20	28.88	29.55	30.21	30.85	31.48	32.11	32.72	33.33	33.94	34.53	35.12	35.71	36.29	36.87	37.44	
35	8.924	21.23	21.96	22.66	23.34	23.99	24.62	25.23	25.83	26.42	26.99	27.56	28.12	28.67	29.21	29.75	30.28	30.81	31.33	31.84	32.35	32.86	
40	10.19	18.45	19.13	19.78	20.39	20.99	21.56	22.12	22.66	23.19	23.71	24.22	24.72	25.21	25.70	26.18	26.66	27.13	27.59	28.05	28.51	28.96	
45	11.58	16.06	16.70	17.30	17.87	18.42	18.94	19.45	19.94	20.42	20.89	21.36	21.81	22.25	22.69	23.13	23.56	23.97	24.39	24.81	25.21	25.62	
50	13.11	14.00	14.60	15.17	15.70	16.20	16.68	17.15	17.60	18.04	18.47	18.89	19.30	19.71	20.11	20.50	20.88	21.26	21.64	22.01	22.38	22.74	
55	14.78	12.21	12.78	13.32	13.81	14.28	14.73	15.16	15.58	15.98	16.38	16.76	17.14	17.51	17.87	18.22	18.57	18.92	19.26	19.60	19.93	20.26	
60	16.61	10.64	11.20	11.71	12.17	12.62	13.03	13.44	13.82	14.20	14.56	14.91	15.26	15.59	15.92	16.25	16.57	16.88	17.19	17.50	17.80	18.10	
65	18.61	9.258	9.808	10.30	10.74	11.16	11.55	11.93	12.29	12.64	12.97	13.30	13.62	13.93	14.23	14.53	14.82	15.11	15.39	15.67	15.95	16.22	
70	20.78	8.034	8.584	9.060	9.494	9.887	10.26	10.61	10.95	11.27	11.58	11.89	12.18	12.47	12.75	13.02	13.28	13.56	13.82	14.07	14.33	14.58	
75	23.15	6.938	7.500	7.970	8.386	8.766	9.120	9.453	9.769	10.07	10.36	10.65	10.92	11.19	11.44	11.70	11.95	12.19	12.43	12.67	12.90	13.13	
80	25.72	5.944	6.534	7.004	7.411	7.777	8.115	8.431	8.730	9.015	9.288	9.552	9.807	10.05	10.30	10.53	10.76	10.99	11.21	11.43	11.64	11.85	
85	28.51	5.024	5.688	6.145	6.546	6.901	7.226	7.527	7.810	8.079	8.336	8.583	8.822	9.053	9.278	9.497	9.710	9.920	10.12	10.33	10.52	10.72	
90	31.55	4.137	4.887	5.388	5.786	6.125	6.425	6.733	6.993	7.247	7.490	7.722	7.945	8.162	8.371	8.576	8.775	8.969	9.160	9.346	9.530	9.710	
95	34.88	3.169	4.176	4.678	5.076	5.422	5.727	6.003	6.260	6.501	6.730	6.949	7.159	7.362	7.558	7.749	7.934	8.115	8.292	8.466	8.636	8.801	

ENTHALPIES du R513A à l'état surchauffé [kJ/kg]

F. Benet d'après REFPROP <http://frederic.benet.free.fr>

Version du : 19/12/2018

θ rosée [°C]	P abs [bar]	SURCHAUFFE [°C]																				
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
-75	0.066	330.0	333.4	336.8	340.2	343.7	347.3	350.9	354.6	358.3	362.0	365.9	369.7	373.7	377.6	381.6	385.7	389.8	394.0	398.2	402.5	406.8
-70	0.095	333.2	336.6	340.1	343.6	347.2	350.8	354.5	358.2	362.0	365.8	369.7	373.6	377.6	381.6	385.6	389.8	393.9	398.1	402.4	406.7	411.1
-65	0.134	336.4	339.9	343.4	347.0	350.6	354.3	358.1	361.8	365.7	369.6	373.5	377.5	381.5	385.6	389.7	393.9	398.1	402.3	406.7	411.0	415.4
-60	0.185	339.7	343.2	346.8	350.5	354.1	357.9	361.7	365.5	369.4	373.3	377.3	381.4	385.5	389.6	393.8	398.0	402.2	406.6	410.9	415.3	419.8
-55	0.251	342.9	346.5	350.2	353.9	357.7	361.5	365.3	369.2	373.2	377.2	381.2	385.3	389.4	393.6	397.9	402.1	406.5	410.8	415.2	419.7	424.2
-50	0.334	346.2	349.9	353.6	357.4	361.2	365.1	369.0	373.0	377.0	381.0	385.1	389.3	393.5	397.7	402.0	406.3	410.7	415.1	419.6	424.1	428.6
-45	0.439	349.5	353.2	357.0	360.9	364.8	368.7	372.7	376.7	380.8	384.9	389.1	393.3	397.5	401.8	406.1	410.5	414.9	419.4	423.9	428.5	433.1
-40	0.569	352.7	356.6	360.5	364.4	368.3	372.3	376.4	380.5	384.6	388.8	393.0	397.3	401.6	405.9	410.3	414.7	419.2	423.7	428.3	432.9	437.6
-35	0.728	356.0	359.9	363.9	367.9	371.9	376.0	380.1	384.2	388.4	392.7	397.0	401.3	405.6	410.0	414.5	419.0	423.5	428.1	432.7	437.4	442.1
-30	0.920	359.3	363.3	367.3	371.4	375.5	379.6	383.8	388.0	392.3	396.6	400.9	405.3	409.7	414.2	418.7	423.2	427.8	432.4	437.1	441.8	446.6
-25	1.150	362.5	366.6	370.8	374.9	379.1	383.3	387.5	391.8	396.1	400.5	404.9	409.3	413.8	418.3	422.9	427.5	432.1	436.8	441.5	446.3	451.1
-20	1.424	365.8	370.0	374.2	378.4	382.6	386.9	391.2	395.6	400.0	404.4	408.9	413.4	417.9	422.5	427.1	431.8	436.5	441.2	446.0	450.8	455.6
-15	1.745	369.0	373.3	377.6	381.9	386.2	390.6	394.9	399.4	403.8	408.3	412.8	417.4	422.0	426.7	431.3	436.0	440.8	445.6	450.4	455.3	460.2
-10	2.120	372.2	376.6	380.9	385.3	389.7	394.2	398.6	403.1	407.7	412.2	416.8	421.4	426.1	430.8	435.5	440.3	445.1	450.0	454.9	459.8	464.7
-5	2.555	375.4	379.8	384.3	388.8	393.3	397.8	402.3	406.9	411.5	416.1	420.8	425.5	430.2	435.0	439.8	444.6	449.5	454.4	459.3	464.3	469.3
0	3.054	378.5	383.1	387.6	392.2	396.8	401.4	406.0	410.6	415.3	420.0	424.7	429.5	434.3	439.1	444.0	448.9	453.8	458.8	463.7	468.8	473.8
5	3.626	381.6	386.2	390.9	395.6	400.2	404.9	409.6	414.4	419.1	423.9	428.7	433.5	438.4	443.3	448.2	453.1	458.1	463.1	468.2	473.3	478.4
10	4.274	384.6	389.4	394.1	398.9	403.7	408.5	413.2	418.1	422.9	427.7	432.6	437.5	442.4	447.4	452.4	457.4	462.4	467.5	472.6	477.8	482.9
15	5.008	387.5	392.5	397.3	402.2	407.1	411.9	416.8	421.7	426.6	431.5	436.5	441.5	446.5	451.5	456.5	461.6	466.7	471.9	477.0	482.2	487.5
20	5.832	390.4	395.5	400.5	405.5	410.4	415.4	420.4	425.3	430.3	435.3	440.4	445.4	450.5	455.6	460.7	465.8	471.0	476.2	481.4	486.7	492.0
25	6.755	393.2	398.4	403.6	408.7	413.7	418.8	423.9	428.9	434.0	439.1	444.2	449.3	454.5	459.6	464.8	470.0	475.3	480.5	485.8	491.2	496.5
30	7.783	395.9	401.3	406.6	411.8	417.0	422.2	427.3	432.5	437.7	442.8	448.0	453.2	458.4	463.7	468.9	474.2	479.5	484.9	490.2	495.6	501.0
35	8.924	398.5	404.0	409.5	414.8	420.2	425.5	430.7	436.0	441.3	446.5	451.8	457.1	462.4	467.7	473.0	478.4	483.8	489.1	494.6	500.0	505.5
40	10.19	401.0	406.7	412.3	417.8	423.3	428.7	434.1	439.4	444.8	450.2	455.5	460.9	466.3	471.7	477.1	482.5	487.9	493.4	498.9	504.4	509.9
45	11.58	403.3	409.2	415.0	420.7	426.3	431.8	437.4	442.8	448.3	453.8	459.2	464.7	470.1	475.6	481.1	486.6	492.1	497.6	503.2	508.8	514.4
50	13.11	405.4	411.6	417.6	423.5	429.2	434.9	440.6	446.2	451.7	457.3	462.9	468.4	474.0	479.5	485.1	490.7	496.2	501.9	507.5	513.1	518.8
55	14.78	407.4	413.9	420.1	426.2	432.1	437.9	443.7	449.4	455.1	460.8	466.4	472.1	477.7	483.4	489.0	494.7	500.3	506.0	511.7	517.4	523.2
60	16.61	409.1	415.9	422.4	428.7	434.8	440.8	446.7	452.6	458.4	464.2	470.0	475.7	481.4	487.2	492.9	498.7	504.4	510.2	515.9	521.7	527.5
65	18.61	410.4	417.7	424.6	431.1	437.4	443.6	449.7	455.7	461.6	467.5	473.4	479.3	485.1	490.9	496.8	502.6	508.4	514.3	520.1	526.0	531.8
70	20.78	411.4	419.3	426.5	433.3	439.9	446.3	452.5	458.7	464.8	470.8	476.8	482.8	488.7	494.7	500.6	506.5	512.4	518.3	524.3	530.2	536.1
75	23.15	411.9	420.5	428.2	435.4	442.2	448.8	455.3	461.6	467.8	474.0	480.1	486.2	492.3	498.3	504.3	510.3	516.3	522.3	528.3	534.4	540.4
80	25.72	411.7	421.4	429.6	437.2	444.3	451.2	457.9	464.4	470.8	477.1	483.4	489.6	495.7	501.9	508.0	514.1	520.2	526.3	532.4	538.5	544.6
85	28.51	410.5	421.8	430.8	438.8	446.3	453.4	460.3	467.1	473.6	480.1	486.5	492.9	499.2	505.4	511.6	517.8	524.0	530.2	536.4	542.6	548.8
90	31.55	407.5	421.6	431.5	440.1	448.0	455.5	462.7	469.6	476.4	483.0	489.6	496.0	502.5	508.8	515.2	521.5	527.8	534.1	540.3	546.6	552.9
95	34.88	400.0	420.6	431.8	441.2	449.5	457.3	464.8	472.0	478.9	485.8	492.5	499.1	505.7	512.2	518.6	525.1	531.5	537.9	544.2	550.6	556.9

ENTROPIES du R513A à l'état surchauffé [kJ/kg.K]

F. Benet d'après REFPROP <http://frederic.benet.free.fr>

Version du : 19/12/2018

θ rosée [°C]	P abs [bar]	SURCHAUFFE [°C]																				
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
-75	0.066	1.730	1.746	1.763	1.779	1.796	1.812	1.828	1.844	1.859	1.875	1.891	1.906	1.921	1.937	1.952	1.967	1.982	1.996	2.011	2.026	2.040
-70	0.095	1.718	1.735	1.751	1.767	1.784	1.800	1.816	1.831	1.847	1.863	1.878	1.893	1.909	1.924	1.939	1.954	1.969	1.983	1.998	2.013	2.027
-65	0.134	1.708	1.724	1.741	1.757	1.773	1.789	1.805	1.821	1.836	1.852	1.867	1.882	1.897	1.912	1.927	1.942	1.957	1.972	1.986	2.001	2.015
-60	0.185	1.699	1.715	1.732	1.748	1.764	1.780	1.795	1.811	1.827	1.842	1.857	1.872	1.887	1.902	1.917	1.932	1.947	1.961	1.976	1.990	2.005
-55	0.251	1.691	1.707	1.724	1.740	1.756	1.771	1.787	1.803	1.818	1.833	1.849	1.864	1.879	1.894	1.908	1.923	1.938	1.952	1.967	1.981	1.995
-50	0.334	1.684	1.700	1.717	1.733	1.749	1.764	1.780	1.795	1.811	1.826	1.841	1.856	1.871	1.886	1.901	1.915	1.930	1.944	1.959	1.973	1.987
-45	0.439	1.678	1.694	1.711	1.727	1.742	1.758	1.774	1.789	1.804	1.820	1.835	1.850	1.865	1.879	1.894	1.909	1.923	1.937	1.952	1.966	1.980
-40	0.569	1.673	1.689	1.705	1.721	1.737	1.753	1.768	1.784	1.799	1.814	1.829	1.844	1.859	1.874	1.888	1.903	1.917	1.932	1.946	1.960	1.974
-35	0.728	1.669	1.685	1.701	1.717	1.733	1.748	1.764	1.779	1.794	1.809	1.824	1.839	1.854	1.869	1.883	1.898	1.912	1.926	1.941	1.955	1.969
-30	0.920	1.665	1.681	1.697	1.713	1.729	1.745	1.760	1.775	1.791	1.806	1.820	1.835	1.850	1.865	1.879	1.893	1.908	1.922	1.936	1.950	1.964
-25	1.150	1.662	1.678	1.694	1.710	1.726	1.741	1.757	1.772	1.787	1.802	1.817	1.832	1.847	1.861	1.876	1.890	1.904	1.918	1.932	1.946	1.960
-20	1.424	1.659	1.676	1.692	1.708	1.723	1.739	1.754	1.770	1.785	1.800	1.814	1.829	1.844	1.858	1.873	1.887	1.901	1.915	1.929	1.943	1.957
-15	1.745	1.657	1.674	1.690	1.706	1.721	1.737	1.752	1.768	1.783	1.798	1.812	1.827	1.842	1.856	1.870	1.885	1.899	1.913	1.927	1.941	1.955
-10	2.120	1.656	1.672	1.688	1.704	1.720	1.735	1.751	1.766	1.781	1.796	1.811	1.825	1.840	1.854	1.869	1.883	1.897	1.911	1.925	1.939	1.953
-5	2.555	1.654	1.671	1.687	1.703	1.719	1.734	1.750	1.765	1.780	1.795	1.810	1.824	1.839	1.853	1.867	1.882	1.896	1.910	1.924	1.937	1.951
0	3.054	1.653	1.670	1.686	1.702	1.718	1.734	1.749	1.764	1.779	1.794	1.809	1.824	1.838	1.852	1.867	1.881	1.895	1.909	1.923	1.936	1.950
5	3.626	1.653	1.669	1.686	1.702	1.718	1.733	1.749	1.764	1.779	1.794	1.809	1.823	1.838	1.852	1.866	1.880	1.894	1.908	1.922	1.936	1.949
10	4.274	1.652	1.669	1.686	1.702	1.718	1.733	1.749	1.764	1.779	1.794	1.809	1.823	1.838	1.852	1.866	1.880	1.894	1.908	1.922	1.936	1.949
15	5.008	1.652	1.669	1.686	1.702	1.718	1.733	1.749	1.764	1.779	1.794	1.809	1.823	1.838	1.852	1.866	1.880	1.894	1.908	1.922	1.936	1.949
20	5.832	1.652	1.669	1.686	1.702	1.718	1.734	1.749	1.765	1.780	1.795	1.809	1.824	1.838	1.853	1.867	1.881	1.895	1.909	1.923	1.936	1.950
25	6.755	1.652	1.669	1.686	1.702	1.719	1.734	1.750	1.765	1.780	1.795	1.810	1.825	1.839	1.854	1.868	1.882	1.896	1.910	1.923	1.937	1.950
30	7.783	1.652	1.669	1.686	1.703	1.719	1.735	1.751	1.766	1.781	1.796	1.811	1.826	1.840	1.855	1.869	1.883	1.897	1.911	1.924	1.938	1.951
35	8.924	1.652	1.670	1.687	1.704	1.720	1.736	1.752	1.767	1.782	1.797	1.812	1.827	1.841	1.856	1.870	1.884	1.898	1.912	1.925	1.939	1.953
40	10.19	1.652	1.670	1.687	1.704	1.721	1.737	1.753	1.768	1.784	1.799	1.814	1.828	1.843	1.857	1.871	1.885	1.899	1.913	1.927	1.940	1.954
45	11.58	1.652	1.670	1.688	1.705	1.722	1.738	1.754	1.770	1.785	1.800	1.815	1.830	1.844	1.859	1.873	1.887	1.901	1.915	1.928	1.942	1.955
50	13.11	1.651	1.670	1.688	1.706	1.723	1.739	1.755	1.771	1.786	1.802	1.817	1.831	1.846	1.860	1.875	1.889	1.903	1.916	1.930	1.944	1.957
55	14.78	1.650	1.670	1.689	1.706	1.723	1.740	1.756	1.772	1.788	1.803	1.818	1.833	1.848	1.862	1.876	1.890	1.904	1.918	1.932	1.946	1.959
60	16.61	1.649	1.670	1.689	1.707	1.724	1.741	1.758	1.774	1.789	1.805	1.820	1.835	1.849	1.864	1.878	1.892	1.906	1.920	1.934	1.948	1.961
65	18.61	1.647	1.669	1.689	1.707	1.725	1.742	1.759	1.775	1.791	1.806	1.822	1.836	1.851	1.866	1.880	1.894	1.908	1.922	1.936	1.950	1.963
70	20.78	1.645	1.668	1.688	1.707	1.725	1.743	1.760	1.776	1.792	1.808	1.823	1.838	1.853	1.868	1.882	1.896	1.910	1.924	1.938	1.952	1.965
75	23.15	1.641	1.666	1.687	1.707	1.726	1.744	1.761	1.777	1.794	1.809	1.825	1.840	1.855	1.870	1.884	1.898	1.913	1.926	1.940	1.954	1.967
80	25.72	1.636	1.663	1.686	1.707	1.726	1.744	1.762	1.778	1.795	1.811	1.826	1.842	1.857	1.872	1.886	1.900	1.915	1.929	1.942	1.956	1.970
85	28.51	1.628	1.659	1.684	1.706	1.726	1.744	1.762	1.779	1.796	1.812	1.828	1.843	1.859	1.873	1.888	1.903	1.917	1.931	1.945	1.958	1.972
90	31.55	1.616	1.654	1.681	1.704	1.725	1.744	1.763	1.780	1.797	1.813	1.829	1.845	1.860	1.875	1.890	1.904	1.919	1.933	1.947	1.961	1.974
95	34.88	1.592	1.648	1.678	1.702	1.724	1.744	1.763	1.781	1.798	1.814	1.831	1.846	1.862	1.877	1.892	1.906	1.921	1.935	1.949	1.963	1.974

VOLUMES SPECIFIQUES du R513A à l'état surchauffé [dm³/kg]

F. Benet d'après REFPROP <http://frederic.benet.free.fr>

Version du : 19/12/2018

θ rosée	P abs	SURCHAUFFE [°C]																				
[°C]	[bar]	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
-75	0.066	2272	2331	2390	2448	2507	2565	2624	2682	2740	2798	2857	2915	2973	3031	3089	3147	3205	3263	3321	3379	3437
-70	0.095	1620	1661	1702	1743	1784	1825	1866	1906	1947	1988	2028	2069	2110	2150	2191	2231	2272	2312	2352	2393	2433
-65	0.134	1178	1207	1237	1266	1295	1324	1354	1383	1412	1441	1470	1499	1528	1556	1585	1614	1643	1672	1701	1729	1758
-60	0.185	871.9	893.5	914.9	936.3	957.6	978.9	1000	1021	1042	1064	1085	1106	1127	1148	1169	1190	1211	1232	1253	1274	1294
-55	0.251	656.2	672.2	688.2	704.1	720.0	735.7	751.5	767.2	782.9	798.5	814.2	829.8	845.3	860.9	876.4	892.0	907.5	923.0	938.5	953.9	969.4
-50	0.334	501.4	513.5	525.6	537.6	549.6	561.5	573.4	585.3	597.1	608.9	620.7	632.4	644.2	655.9	667.6	679.3	691.0	702.6	714.3	725.9	737.5
-45	0.439	388.4	397.8	407.1	416.3	425.5	434.7	443.8	452.9	462.0	471.0	480.0	489.0	498.0	506.9	515.9	524.8	533.7	542.6	551.5	560.4	569.3
-40	0.569	304.8	312.1	319.3	326.6	333.7	340.9	348.0	355.0	362.1	369.1	376.1	383.1	390.1	397.0	404.0	410.9	417.8	424.7	431.6	438.5	445.4
-35	0.728	241.9	247.7	253.5	259.2	264.9	270.5	276.1	281.7	287.3	292.8	298.3	303.8	309.3	314.8	320.2	325.7	331.1	336.5	342.0	347.4	352.8
-30	0.920	194.1	198.8	203.4	208.0	212.5	217.1	221.5	226.0	230.4	234.9	239.3	243.6	248.0	252.4	256.7	261.1	265.4	269.7	274.0	278.3	282.6
-25	1.150	157.3	161.1	164.9	168.6	172.3	175.9	179.6	183.2	186.8	190.3	193.9	197.4	201.0	204.5	208.0	211.5	215.0	218.4	221.9	225.4	228.8
-20	1.424	128.6	131.7	134.8	137.9	140.9	143.9	146.9	149.9	152.8	155.7	158.6	161.5	164.4	167.3	170.1	173.0	175.8	178.6	181.5	184.3	187.1
-15	1.745	106.0	108.6	111.2	113.8	116.3	118.8	121.2	123.7	126.1	128.5	130.9	133.3	135.7	138.0	140.4	142.7	145.1	147.4	149.7	152.0	154.3
-10	2.120	88.08	90.29	92.46	94.60	96.71	98.79	100.9	102.9	104.9	106.9	108.9	110.9	112.9	114.9	116.8	118.8	120.7	122.6	124.6	126.5	128.4
-5	2.555	73.68	75.56	77.41	79.22	81.01	82.78	84.52	86.25	87.96	89.65	91.33	93.01	94.67	96.32	97.96	99.60	101.2	102.8	104.5	106.1	107.7
0	3.054	62.03	63.65	65.23	66.79	68.32	69.82	71.31	72.78	74.24	75.68	77.11	78.53	79.94	81.34	82.73	84.11	85.49	86.86	88.23	89.58	90.94
5	3.626	52.52	53.93	55.30	56.65	57.97	59.27	60.55	61.81	63.06	64.30	65.52	66.74	67.94	69.14	70.33	71.51	72.68	73.85	75.01	76.17	77.32
10	4.274	44.70	45.94	47.14	48.32	49.47	50.59	51.71	52.80	53.88	54.95	56.01	57.06	58.10	59.13	60.15	61.17	62.18	63.18	64.18	65.17	66.16
15	5.008	38.23	39.33	40.39	41.42	42.43	43.42	44.39	45.35	46.29	47.22	48.14	49.05	49.96	50.85	51.74	52.62	53.49	54.36	55.23	56.09	56.94
20	5.832	32.83	33.81	34.76	35.67	36.57	37.44	38.30	39.14	39.97	40.79	41.59	42.39	43.18	43.96	44.74	45.51	46.27	47.03	47.78	48.53	49.27
25	6.755	28.30	29.19	30.03	30.85	31.65	32.43	33.19	33.94	34.67	35.39	36.11	36.81	37.51	38.20	38.88	39.55	40.22	40.89	41.54	42.20	42.85
30	7.783	24.48	25.28	26.05	26.79	27.50	28.20	28.88	29.55	30.21	30.85	31.48	32.11	32.72	33.33	33.94	34.53	35.12	35.71	36.29	36.87	37.44
35	8.924	21.23	21.96	22.66	23.34	23.99	24.62	25.23	25.83	26.42	26.99	27.56	28.12	28.67	29.21	29.75	30.28	30.81	31.33	31.84	32.35	32.86
40	10.19	18.45	19.13	19.78	20.39	20.99	21.56	22.12	22.66	23.19	23.71	24.22	24.72	25.21	25.70	26.18	26.66	27.13	27.59	28.05	28.51	28.96
45	11.58	16.06	16.70	17.30	17.87	18.42	18.94	19.45	19.94	20.42	20.89	21.36	21.81	22.25	22.69	23.13	23.55	23.97	24.39	24.81	25.21	25.62
50	13.11	14.00	14.60	15.17	15.70	16.20	16.68	17.15	17.60	18.04	18.47	18.89	19.30	19.71	20.11	20.50	20.88	21.26	21.64	22.01	22.38	22.74
55	14.78	12.21	12.78	13.32	13.81	14.28	14.73	15.16	15.58	15.98	16.38	16.76	17.14	17.51	17.87	18.22	18.57	18.92	19.26	19.60	19.93	20.26
60	16.61	10.64	11.20	11.71	12.17	12.62	13.03	13.44	13.82	14.20	14.56	14.91	15.26	15.59	15.92	16.25	16.57	16.88	17.19	17.50	17.80	18.10
65	18.61	9.258	9.808	10.30	10.74	11.16	11.55	11.93	12.29	12.64	12.97	13.30	13.62	13.93	14.23	14.53	14.82	15.11	15.39	15.67	15.95	16.22
70	20.78	8.034	8.584	9.060	9.490	9.887	10.26	10.61	10.95	11.27	11.58	11.89	12.18	12.47	12.75	13.02	13.29	13.56	13.82	14.07	14.33	14.58
75	23.15	6.938	7.500	7.970	8.386	8.766	9.120	9.453	9.769	10.07	10.36	10.65	10.92	11.19	11.44	11.70	11.95	12.19	12.43	12.67	12.90	13.13
80	25.72	5.944	6.534	7.004	7.411	7.777	8.115	8.431	8.730	9.015	9.288	9.552	9.807	10.05	10.30	10.53	10.76	10.99	11.21	11.43	11.64	11.85
85	28.51	5.024	5.668	6.145	6.546	6.901	7.226	7.527	7.810	8.079	8.336	8.583	8.822	9.053	9.278	9.497	9.710	9.920	10.12	10.33	10.52	10.72
90	31.55	4.137	4.887	5.378	5.776	6.122	6.435	6.723	6.993	7.247	7.490	7.722	7.945	8.162	8.371	8.576	8.775	8.969	9.160	9.346	9.530	9.710
95	34.88	3.169	4.176	4.688	5.086	5.425	5.727	6.003	6.260	6.501	6.730	6.949	7.159	7.362	7.558	7.749	7.934	8.115	8.292	8.466	8.636	8.803

VISCOSITES du R513A à l'état surchauffé [μPa.s]

F. Benet d'après REFPROP <http://frederic.benet.free.fr>

Version du : 19/12/2018

θ rosée	P abs	SURCHAUFFE [°C]																				
[°C]	[bar]	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
-75	0.066	7.614	7.808	8.002	8.196	8.390	8.584	8.778	8.972	9.165	9.359	9.552	9.745	9.938	10.13	10.32	10.51	10.71	10.90	11.09	11.28	11.47
-70	0.095	7.808	8.002	8.196	8.390	8.584	8.778	8.972	9.165	9.359	9.552	9.745	9.938	10.13	10.32	10.51	10.71	10.90	11.09	11.28	11.47	11.66
-65	0.134	8.002	8.196	8.390	8.584	8.778	8.972	9.165	9.359	9.552	9.745	9.938	10.13	10.32	10.51	10.71	10.90	11.09	11.28	11.47	11.66	11.85
-60	0.185	8.196	8.390	8.584	8.778	8.972	9.165	9.359	9.552	9.745	9.938	10.13	10.32	10.51	10.71	10.90	11.09	11.28	11.47	11.66	11.85	12.04
-55	0.251	8.390	8.584	8.778	8.972	9.165	9.359	9.552	9.745	9.938	10.13	10.32	10.51	10.71	10.90	11.09	11.28	11.47	11.66	11.85	12.04	12.23
-50	0.334	8.584	8.778	8.972	9.165	9.359	9.552	9.745	9.938	10.13	10.32	10.51	10.71	10.90	11.09	11.28	11.47	11.66	11.85	12.04	12.23	12.41
-45	0.439	8.778	8.972	9.165	9.359	9.552	9.745	9.938	10.13	10.32	10.51	10.71	10.90	11.09	11.28	11.47	11.66	11.85	12.04	12.23	12.41	12.60
-40	0.569	8.972	9.165	9.359	9.552	9.745	9.938	10.13	10.32	10.51	10.71	10.90	11.09	11.28	11.47	11.66	11.85	12.04	12.23	12.41	12.60	12.79
-35	0.728	9.165	9.359	9.552	9.745	9.938	10.13	10.32	10.51	10.71	10.90	11.09	11.28	11.47	11.66	11.85	12.04	12.23	12.41	12.60	12.79	12.97
-30	0.920	9.359	9.552	9.745	9.938	10.13	10.32	10.51	10.71	10.90	11.09	11.28	11.47	11.66	11.85	12.04	12.23	12.41	12.60	12.79	12.97	13.16
-25	1.150	9.552	9.745	9.938	10.13	10.32	10.51	10.71	10.90	11.09	11.28	11.47	11.66	11.85	12.04	12.23	12.41	12.60	12.79	12.97	13.16	13.35
-20	1.424	9.745	9.938	10.13	10.32	10.51	10.71	10.90	11.09	11.28	11.47	11.66	11.85	12.04	12.23	12.41	12.60	12.79	12.97	13.16	13.35	13.54
-15	1.745	9.938	10.13	10.32	10.51	10.71	10.90	11.09	11.28	11.47	11.66	11.85	12.04	12.23	12.41	12.60	12.79	12.97	13.16	13.35	13.54	13.73
-10	2.120	10.13	10.32	10.51	10.71	10.90	11.09	11.28	11.47	11.66	11.85	12.04	12.23	12.41	12.60	12.79	12.97	13.16	13.35	13.54	13.73	13.92
-5	2.555	10.32	10.51	10.71	10.90	11.09	11.28	11.47	11.66	11.85	12.04	12.23	12.41	12.60	12.79	12.97	13.16	13.35	13.54	13.73	13.92	14.11
0	3.054	10.51	10.71	10.90	11.09	11.28	11.47	11.66	11.85	12.04	12.23	12.41	12.60	12.79	12.97	13.16	13.36	13.55	13.74	13.93	14.12	14.31
5	3.626	10.71	10.90	11.09	11.28	11.47	11.66	11.85	12.04	12.23	12.41	12.60	12.79	12.97	13.17	13.36	13.56	13.75	13.94	14.13	14.32	14.51
10	4.274	10.90	11.09	11.28	11.47	11.66	11.85	12.04	12.23	12.41	12.60	12.79	12.98	13.18	13.37	13.57	13.76	13.95	14.14	14.33	14.52	14.71
15	5.008	11.09	11.28	11.47	11.66	11.85	12.04	12.23	12.41	12.60	12.79	12.99	13.18	13.38	13.58	13.77	13.97	14.16	14.35	14.54	14.73	14.92
20	5.832	11.28	11.47	11.66	11.85	12.04	12.23	12.41	12.60	12.79	13.00	13.20	13.40	13.59	13.79	13.99	14.18	14.37	14.57	14.76	14.95	15.13
25	6.755	11.47	11.66	11.85	12.04	12.23	12.41	12.60	12.81	13.01	13.22	13.42	13.62	13.81	14.01	14.21	14.40	14.59	14.78	14.98	15.17	15.35
30	7.783	11.66	11.85	12.04	12.23	12.42	12.62	12.83	13.04	13.24	13.44	13.64	13.84	14.04	14.24	14.43	14.63	14.82	15.01	15.20	15.39	15.58
35	8.924	11.85	12.04	12.23	12.44	12.65	12.86	13.07	13.27	13.48	13.68	13.88	14.08	14.28	14.47	14.67	14.86	15.06	15.25	15.44	15.63	15.82
40	10.19	12.05	12.27	12.48	12.70	12.91	13.12	13.32	13.53	13.73	13.93	14.13	14.33	14.53	14.72	14.92	15.11	15.30	15.49	15.68	15.87	16.06
45	11.58	12.34	12.55	12.77	12.97	13.18	13.39	13.59	13.79	14.00	14.20	14.39	14.59	14.79	14.98	15.18	15.37	15.56	15.75	15.94	16.13	16.32
50	13.11	12.67	12.87	13.07	13.27	13.48	13.68	13.88	14.08	14.28	14.48	14.67	14.87	15.07	15.26	15.45	15.64	15.83	16.02	16.21	16.40	16.59
55	14.78	13.03	13.22	13.41	13.60	13.80	14.00	14.19	14.39	14.59	14.78	14.97	15.17	15.36	15.55	15.74	15.93	16.12	16.31	16.50	16.68	16.87
60	16.61	13.44	13.61	13.79	13.97	14.16	14.35	14.54	14.73	14.92	15.11	15.30	15.49	15.68	15.86	16.05	16.24	16.43	16.61	16.80	16.98	17.17
65	18.61	13.93	14.06	14.22	14.38	14.55	14.73	14.91	15.09	15.28	15.46	15.64	15.83	16.01	16.20	16.38	16.57	16.75	16.94	17.12	17.30	17.48
70	20.78	14.52	14.59	14.71	14.84	15.00	15.16	15.32	15.49	15.67	15.85	16.02	16.20	16.38	16.56	16.74	16.92	17.10	17.28	17.46	17.64	17.82
75	23.15	15.23	15.22	15.28	15.38	15.50	15.64	15.78	15.94	16.10	16.27	16.44	16.61	16.78	16.95	17.13	17.30	17.48	17.65	17.83	18.00	18.18
80	25.72	16.16	15.97	15.95	15.99	16.07	16.18	16.30	16.44	16.58	16.73	16.89	17.05	17.21	17.38	17.54	17.71	17.88	18.05	18.22	18.40	18.57
85	28.51	17.40	16.91	16.75	16.71	16.73	16.80	16.89	17.00	17.12	17.25	17.39	17.54	17.69	17.84	18.00	18.16	18.32	18.49	18.65	18.82	18.98
90	31.55	19.28	18.11	17.72	17.56	17.50	17.51	17.55	17.63	17.72	17.83	17.95	18.08	18.21	18.35	18.50	18.65	18.80	18.96	19.11	19.27	19.43
95	34.88	22.98	19.70	18.94	18.58	18.41	18.34	18.32	18.35	18.40	18.48	18.57	18.68	18.80	18.92	19.05	19.19	19.33	19.47	19.62	19.77	19.92