

Caractéristiques thermodynamiques du R507A 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]
-105	0.018	-104.9	68.28	301.0	0.670	7660	1067	6.752	1.780
-100	0.030	-99.95	74.41	303.9	0.677	4909	935.7	6.957	1.758
-95	0.046	-94.96	80.48	306.9	0.684	3244	825.6	7.164	1.738
-90	0.069	-89.97	86.51	309.8	0.691	2204	734.9	7.370	1.720
-85	0.102	-84.98	92.53	312.8	0.698	1535	659.2	7.577	1.704
-80	0.147	-79.99	98.54	315.9	0.706	1094	595.2	7.785	1.689
-75	0.206	-74.99	104.6	318.9	0.713	796.0	540.4	7.993	1.677
-70	0.284	-70.00	110.6	321.9	0.721	590.0	493.1	8.201	1.665
-65	0.384	-65.00	116.7	325.0	0.729	444.8	451.9	8.409	1.655
-60	0.511	-60.00	122.7	328.0	0.737	340.5	415.6	8.617	1.646
-55	0.669	-55.00	128.9	331.0	0.745	264.4	383.5	8.825	1.638
-50	0.864	-50.00	135.0	334.1	0.754	208.0	354.8	9.033	1.631
-45	1.101	-45.00	141.2	337.1	0.763	165.5	329.1	9.241	1.625
-40	1.387	-40.00	147.5	340.0	0.772	133.2	305.9	9.449	1.620
-35	1.727	-35.00	153.8	343.0	0.782	108.2	284.9	9.656	1.615
-30	2.129	-29.99	160.2	345.9	0.792	88.63	265.7	9.863	1.611
-28	2.308	-27.99	162.7	347.0	0.796	82.03	258.4	9.946	1.609
-26	2.499	-25.99	165.3	348.2	0.800	76.02	251.5	10.03	1.608
-24	2.702	-23.99	167.9	349.3	0.804	70.53	244.7	10.11	1.606
-22	2.917	-21.99	170.5	350.4	0.809	65.51	238.2	10.19	1.605
-20	3.145	-19.99	173.1	351.5	0.813	60.92	231.9	10.28	1.604
-18	3.387	-17.99	175.8	352.7	0.818	56.71	225.8	10.36	1.602
-16	3.642	-15.99	178.4	353.8	0.823	52.84	219.8	10.44	1.601
-14	3.911	-13.99	181.0	354.8	0.828	49.28	214.1	10.52	1.600
-12	4.196	-11.98	183.7	355.9	0.833	46.01	208.5	10.60	1.599
-10	4.495	-9.984	186.4	357.0	0.838	42.99	203.0	10.69	1.598
-8	4.811	-7.983	189.1	358.0	0.843	40.20	197.8	10.77	1.597
-6	5.143	-5.982	191.8	359.1	0.848	37.63	192.6	10.85	1.596
-4	5.492	-3.981	194.5	360.1	0.853	35.24	187.6	10.93	1.595
-2	5.859	-1.980	197.2	361.1	0.859	33.04	182.8	11.01	1.594
0	6.244	0.022	200.0	362.1	0.865	30.99	178.0	11.09	1.593
2	6.647	2.023	202.8	363.1	0.871	29.08	173.4	11.18	1.593
4	7.070	4.024	205.6	364.0	0.877	27.31	168.9	11.26	1.592
6	7.513	6.025	208.4	364.9	0.883	25.66	164.4	11.34	1.591
8	7.976	8.026	211.2	365.9	0.890	24.13	160.1	11.43	1.590
10	8.460	10.03	214.0	366.8	0.896	22.70	155.9	11.51	1.589
12	8.966	12.03	216.9	367.6	0.903	21.36	151.8	11.60	1.588
14	9.494	14.03	219.8	368.5	0.910	20.11	147.8	11.69	1.587
16	10.04	16.03	222.7	369.3	0.918	18.94	143.8	11.77	1.586
18	10.62	18.03	225.6	370.1	0.925	17.84	139.9	11.86	1.586
20	11.22	20.03	228.6	370.8	0.933	16.81	136.1	11.98	1.585
22	11.84	22.03	231.6	371.6	0.941	15.84	132.4	12.10	1.584
24	12.49	24.03	234.6	372.3	0.950	14.94	128.7	12.22	1.583
26	13.17	26.03	237.7	372.9	0.959	14.08	125.1	12.36	1.582
28	13.87	28.03	240.7	373.5	0.968	13.28	121.5	12.49	1.580
30	14.60	30.03	243.8	374.1	0.978	12.52	118.0	12.64	1.579
32	15.36	32.03	247.0	374.6	0.988	11.80	114.5	12.79	1.578
34	16.15	34.04	250.2	375.1	0.999	11.13	111.1	12.95	1.576
36	16.97	36.04	253.4	375.5	1.010	10.49	107.7	13.12	1.575
38	17.81	38.04	256.6	375.9	1.022	9.883	104.4	13.30	1.573
40	18.70	40.04	260.0	376.2	1.035	9.308	101.1	13.49	1.572
45	21.04	45.04	268.5	376.7	1.071	7.993	92.88	14.04	1.567
50	23.61	50.03	277.4	376.5	1.114	6.825	84.70	14.72	1.560
55	26.42	55.03	286.9	375.5	1.168	5.770	76.40	15.60	1.552
60	29.49	60.03	297.3	373.2	1.241	4.792	67.67	16.85	1.540
65	32.85	65.02	309.3	368.4	1.353	3.831	57.76	18.89	1.521

Caractéristiques thermodynamiques du R507A 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]
-105	0.018	-105.1	68.21	301.0	0.670	7704	1069	6.749	1.781
-100	0.029	-100.0	74.35	303.9	0.677	4929	936.8	6.955	1.758
-95	0.046	-95.04	80.43	306.9	0.684	3254	826.4	7.162	1.738
-90	0.069	-90.03	86.48	309.8	0.691	2209	735.3	7.369	1.720
-85	0.102	-85.02	92.51	312.8	0.698	1538	659.5	7.577	1.704
-80	0.146	-80.01	98.53	315.8	0.706	1095	595.3	7.784	1.689
-75	0.206	-75.01	104.6	318.9	0.713	796.4	540.5	7.992	1.677
-70	0.284	-70.00	110.6	321.9	0.721	590.1	493.2	8.201	1.665
-65	0.384	-65.00	116.7	325.0	0.729	444.8	451.9	8.409	1.655
-60	0.511	-60.00	122.7	328.0	0.737	340.6	415.6	8.617	1.646
-55	0.669	-55.00	128.9	331.0	0.745	264.4	383.5	8.825	1.638
-50	0.864	-50.00	135.0	334.1	0.754	208.0	354.8	9.033	1.631
-45	1.101	-45.00	141.2	337.1	0.763	165.5	329.1	9.241	1.625
-40	1.387	-40.00	147.5	340.0	0.772	133.2	305.9	9.449	1.620
-35	1.727	-35.00	153.8	343.0	0.782	108.2	284.9	9.656	1.615
-30	2.128	-30.01	160.2	345.9	0.792	88.65	265.7	9.863	1.611
-28	2.308	-28.01	162.7	347.0	0.796	82.05	258.5	9.945	1.609
-26	2.499	-26.01	165.3	348.2	0.800	76.04	251.5	10.03	1.608
-24	2.701	-24.01	167.9	349.3	0.804	70.55	244.8	10.11	1.606
-22	2.916	-22.01	170.5	350.4	0.809	65.54	238.2	10.19	1.605
-20	3.144	-20.01	173.1	351.5	0.813	60.94	231.9	10.28	1.604
-18	3.385	-18.01	175.7	352.7	0.818	56.73	225.8	10.36	1.602
-16	3.640	-16.01	178.4	353.7	0.823	52.86	219.9	10.44	1.601
-14	3.909	-14.01	181.0	354.8	0.828	49.31	214.1	10.52	1.600
-12	4.193	-12.02	183.7	355.9	0.832	46.03	208.5	10.60	1.599
-10	4.493	-10.02	186.4	357.0	0.838	43.01	203.1	10.69	1.598
-8	4.808	-8.017	189.1	358.0	0.843	40.23	197.8	10.77	1.597
-6	5.140	-6.018	191.8	359.1	0.848	37.65	192.7	10.85	1.596
-4	5.489	-4.019	194.5	360.1	0.853	35.27	187.7	10.93	1.595
-2	5.855	-2.020	197.2	361.1	0.859	33.06	182.8	11.01	1.594
0	6.240	-0.022	200.0	362.1	0.865	31.01	178.1	11.09	1.593
2	6.643	1.977	202.7	363.0	0.871	29.10	173.4	11.17	1.593
4	7.065	3.976	205.5	364.0	0.877	27.33	168.9	11.26	1.592
6	7.507	5.975	208.3	364.9	0.883	25.68	164.5	11.34	1.591
8	7.970	7.974	211.2	365.9	0.889	24.15	160.2	11.43	1.590
10	8.453	9.973	214.0	366.7	0.896	22.71	156.0	11.51	1.589
12	8.959	11.97	216.9	367.6	0.903	21.38	151.8	11.60	1.588
14	9.486	13.97	219.8	368.5	0.910	20.12	147.8	11.68	1.587
16	10.04	15.97	222.7	369.3	0.917	18.95	143.9	11.77	1.586
18	10.61	17.97	225.6	370.1	0.925	17.85	140.0	11.86	1.586
20	11.21	19.97	228.6	370.8	0.933	16.83	136.2	11.97	1.585
22	11.83	21.97	231.5	371.6	0.941	15.86	132.4	12.10	1.584
24	12.48	23.97	234.6	372.2	0.950	14.95	128.7	12.22	1.583
26	13.16	25.97	237.6	372.9	0.959	14.10	125.1	12.35	1.582
28	13.86	27.97	240.7	373.5	0.968	13.29	121.6	12.49	1.580
30	14.59	29.97	243.8	374.1	0.978	12.53	118.1	12.64	1.579
32	15.35	31.97	246.9	374.6	0.988	11.82	114.6	12.79	1.578
34	16.13	33.96	250.1	375.1	0.999	11.14	111.2	12.95	1.577
36	16.95	35.96	253.3	375.5	1.010	10.50	107.8	13.12	1.575
38	17.80	37.96	256.6	375.9	1.022	9.893	104.5	13.30	1.573
40	18.68	39.96	259.9	376.2	1.035	9.318	101.1	13.49	1.572
45	21.03	44.96	268.4	376.7	1.071	8.002	92.94	14.03	1.567
50	23.59	49.97	277.3	376.5	1.114	6.833	84.76	14.71	1.560
55	26.40	54.97	286.8	375.5	1.168	5.777	76.45	15.59	1.552
60	29.47	59.97	297.2	373.3	1.240	4.798	67.72	16.84	1.540
65	32.83	64.98	309.2	368.4	1.352	3.836	57.82	18.88	1.521

ENTHALPIES du R507A à l'état surchauffé [kJ/kg]

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P abs		SURCHAUFFE [°C]																						
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100		
[°C]	[bar]	-105	0.018	301.0	304.0	307.1	310.3	313.5	316.7	320.0	323.4	326.7	330.2	333.7	337.2	340.8	344.5	348.2	351.9	355.7	359.6	363.4	367.4	371.4
-100	0.029	303.9	307.0	310.2	313.4	316.6	319.9	323.3	326.6	330.1	333.6	337.1	340.7	344.4	348.1	351.8	355.6	359.5	363.4	367.3	371.3	375.4	379.4	
-95	0.046	306.9	310.0	313.3	316.5	319.8	323.2	326.6	330.0	333.5	337.0	340.7	344.4	348.1	351.8	355.6	359.5	363.4	367.3	371.3	375.4	379.4		
-90	0.069	309.8	313.1	316.4	319.7	323.1	326.5	330.0	333.5	337.0	340.7	344.3	348.0	351.8	355.6	359.4	363.3	367.3	371.3	375.3	379.4	383.5		
-85	0.102	312.8	316.1	319.5	322.9	326.3	329.8	333.3	336.9	340.5	344.2	347.9	351.7	355.5	359.4	363.3	367.2	371.2	375.3	379.3	383.5	387.7		
-80	0.146	315.8	319.2	322.6	326.1	329.6	333.2	336.8	340.4	344.1	347.8	351.6	355.4	359.2	363.2	367.1	371.1	375.2	379.3	383.4	387.6	391.8		
-75	0.206	318.9	322.3	325.8	329.3	332.9	336.5	340.2	343.9	347.6	351.4	355.2	359.1	363.0	367.0	371.0	375.1	379.2	383.3	387.5	391.7	396.0		
-70	0.284	321.9	325.4	329.0	332.6	336.2	339.9	343.6	347.4	351.2	355.0	358.9	362.9	366.8	370.8	374.9	379.0	383.2	387.4	391.6	395.9	400.2		
-65	0.384	325.0	328.6	332.2	335.9	339.6	343.3	347.1	350.9	354.8	358.7	362.6	366.6	370.6	374.7	378.8	383.0	387.2	391.5	395.8	400.1	404.5		
-60	0.511	328.0	331.7	335.4	339.1	342.9	346.7	350.6	354.4	358.4	362.3	366.3	370.4	374.5	378.6	382.8	387.0	391.3	395.6	399.9	404.3	408.7		
-55	0.669	331.0	334.8	338.6	342.4	346.2	350.1	354.0	358.0	362.0	366.0	370.1	374.2	378.3	382.5	386.8	391.0	395.3	399.7	404.1	408.5	413.0		
-50	0.864	334.1	337.9	341.8	345.6	349.4	353.5	357.5	361.5	365.6	369.7	373.8	378.0	382.2	386.4	390.7	395.1	399.4	403.8	408.3	412.8	417.3		
-45	1.101	337.1	341.0	344.9	348.9	352.9	356.9	361.0	365.1	369.2	373.4	377.5	381.8	386.1	390.4	394.7	399.1	403.5	408.0	412.5	417.0	421.6		
-40	1.387	340.0	344.0	348.1	352.1	356.2	360.3	364.4	368.6	372.8	377.0	381.3	385.6	389.9	394.3	398.7	403.1	407.6	412.1	416.7	421.3	425.9		
-35	1.727	343.0	347.1	351.2	355.3	359.5	363.7	367.9	372.1	376.4	380.7	385.0	389.4	393.8	398.2	402.7	407.2	411.7	416.3	420.9	425.6	430.3		
-30	2.128	345.9	350.1	354.3	358.5	362.8	367.0	371.3	375.6	380.0	384.3	388.7	393.2	397.6	402.1	406.6	411.2	415.8	420.4	425.1	429.8	434.6		
-25	2.598	348.7	353.1	357.4	361.7	366.0	370.4	374.7	379.1	383.5	388.0	392.4	396.9	401.5	406.0	410.6	415.2	419.9	424.6	429.3	434.1	438.9		
-20	3.144	351.5	356.0	360.4	364.8	369.2	373.7	378.1	382.6	387.1	391.6	396.1	400.7	405.3	409.9	414.6	419.3	424.0	428.7	433.5	438.3	443.2		
-15	3.753	354.3	358.8	363.3	367.9	372.4	376.9	381.5	386.0	390.6	395.2	399.8	404.4	409.1	413.8	418.5	423.3	428.0	432.9	437.7	442.6	447.5		
-10	4.493	357.0	361.6	366.3	370.9	375.5	380.2	384.8	389.4	394.1	398.7	403.4	408.1	412.9	417.6	422.4	427.3	432.1	437.0	441.9	446.8	451.8		
-5	5.312	359.6	364.4	369.1	373.9	378.6	383.3	388.1	392.8	397.5	402.3	407.0	411.8	416.6	421.5	426.3	431.2	436.1	441.1	446.0	451.0	456.1		
0	6.240	362.1	367.0	371.9	376.8	381.6	386.5	391.3	396.1	400.9	405.8	410.6	415.5	420.4	425.3	430.2	435.2	440.1	445.1	450.2	455.2	460.3		
5	7.284	365.4	369.6	374.6	379.6	384.6	389.5	394.4	399.4	404.3	409.2	414.2	419.1	424.1	429.0	434.1	439.1	444.1	449.2	454.3	459.4	464.6		
10	8.453	366.7	372.0	377.2	382.4	387.5	392.5	397.6	402.6	407.6	412.6	417.6	422.7	427.7	432.8	437.9	443.0	448.1	453.2	458.4	463.6	468.8		
15	9.758	368.9	374.4	379.7	385.0	390.3	395.4	400.6	405.7	410.8	416.0	421.1	426.2	431.3	436.5	441.6	446.8	452.0	457.2	462.4	467.7	473.0		
20	11.121	370.8	376.6	382.1	387.6	393.0	398.3	403.6	408.8	414.0	419.3	424.5	429.7	434.9	440.1	445.4	450.6	455.9	461.2	466.5	471.8	477.2		
25	12.81	372.6	378.6	384.4	390.0	395.6	401.0	406.4	411.8	417.2	422.5	427.8	433.1	438.4	443.7	449.1	454.4	459.7	465.1	470.4	475.9	481.4		
30	14.59	374.1	380.4	386.5	392.3	398.1	403.7	409.2	414.7	420.2	425.6	431.1	436.5	441.9	447.3	452.7	458.1	463.5	469.0	474.4	479.9	485.3		
35	16.54	375.3	382.0	388.4	394.5	400.4	406.2	411.9	417.5	423.2	428.7	434.3	439.8	445.3	450.8	456.3	461.8	467.3	472.8	478.3	483.9	489.4		
40	18.68	376.2	383.4	390.1	396.5	402.6	408.6	414.5	420.3	426.1	431.7	437.4	443.0	448.6	454.2	459.8	465.4	471.0	476.6	482.2	487.8	493.5		
45	21.03	376.7	384.5	391.6	398.3	404.7	410.9	417.0	423.0	428.8	434.7	440.4	446.2	451.9	457.6	463.3	469.0	474.7	480.3	486.0	491.7	497.4		
50	23.59	376.5	385.2	392.9	399.9	406.6	413.1	419.4	425.5	431.5	437.5	443.4	449.3	455.1	460.9	466.7	472.5	478.2	484.0	489.8	495.6	501.4		
55	26.40	375.5	385.5	393.8	401.3	408.3	415.1	421.6	427.9	434.1	440.2	446.3	452.3	458.2	464.1	470.0	475.9	481.8	487.6	493.5	499.4	505.2		
60	29.47	373.3	385.3	394.4	402.4	409.9	416.9	423.6	430.1	436.5	442.8	449.0	455.2	461.2	467.3	473.3	479.3	485.2	491.2	497.2	503.1	509.0		
65	32.83	368.4	384.3	394.6	403.3	411.1	418.5	425.5	432.2	438.8	445.3	451.7	457.9	464.2	470.3	476.4	482.5	488.6	494.7	500.7	506.8	512.9		

ENTROPIES du R507A à l'état surchauffé [kJ/kg.K]

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

Version du : 19/12/2018

rosée		P [bar]		SURCHAUFFE [°C]																				
				0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
[°C]	[°C]																							
-105	0.018	1.781	1.798	1.816	1.833	1.851	1.868	1.885	1.901	1.918	1.934	1.950	1.966	1.982	1.998	2.014	2.029	2.045	2.060	2.075	2.090	2.105		
-100	0.029	1.758	1.776	1.793	1.810	1.827	1.844	1.861	1.878	1.894	1.910	1.926	1.942	1.958	1.974	1.989	2.005	2.020	2.035	2.050	2.066	2.082		
-95	0.046	1.738	1.755	1.773	1.790	1.807	1.824	1.840	1.857	1.873	1.889	1.905	1.921	1.936	1.952	1.967	1.983	1.998	2.013	2.028	2.043	2.058		
-90	0.069	1.720	1.737	1.754	1.771	1.788	1.805	1.821	1.838	1.854	1.870	1.886	1.901	1.917	1.933	1.948	1.963	1.978	1.993	2.008	2.023	2.038		
-85	0.102	1.704	1.721	1.738	1.755	1.772	1.788	1.805	1.821	1.837	1.853	1.869	1.884	1.900	1.915	1.930	1.946	1.961	1.976	1.990	2.005	2.020		
-80	0.146	1.689	1.707	1.724	1.740	1.757	1.774	1.790	1.806	1.822	1.838	1.853	1.869	1.884	1.900	1.915	1.930	1.945	1.960	1.974	1.989	2.004		
-75	0.206	1.677	1.694	1.711	1.727	1.744	1.760	1.777	1.793	1.809	1.824	1.840	1.855	1.871	1.886	1.901	1.916	1.931	1.946	1.960	1.975	1.990		
-70	0.284	1.665	1.682	1.699	1.716	1.732	1.749	1.765	1.781	1.797	1.812	1.828	1.843	1.858	1.874	1.889	1.903	1.918	1.933	1.948	1.962	1.976		
-65	0.384	1.655	1.672	1.689	1.706	1.722	1.738	1.754	1.770	1.786	1.802	1.817	1.832	1.848	1.863	1.878	1.892	1.907	1.922	1.936	1.951	1.965		
-60	0.511	1.646	1.663	1.680	1.697	1.713	1.729	1.745	1.761	1.777	1.792	1.808	1.823	1.838	1.853	1.868	1.883	1.897	1.912	1.926	1.941	1.955		
-55	0.669	1.638	1.655	1.672	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	1.889	1.903	1.917	1.932	1.946		
-50	0.864	1.631	1.648	1.665	1.682	1.698	1.714	1.730	1.746	1.761	1.777	1.792	1.807	1.822	1.837	1.852	1.866	1.881	1.895	1.910	1.924	1.938		
-45	1.101	1.625	1.642	1.659	1.675	1.692	1.708	1.724	1.739	1.755	1.770	1.786	1.801	1.816	1.830	1.845	1.860	1.874	1.889	1.903	1.917	1.931		
-40	1.387	1.620	1.637	1.654	1.670	1.686	1.702	1.718	1.734	1.749	1.765	1.780	1.795	1.810	1.825	1.839	1.854	1.868	1.883	1.897	1.911	1.925		
-35	1.727	1.615	1.632	1.649	1.665	1.682	1.698	1.714	1.729	1.745	1.760	1.775	1.790	1.805	1.820	1.834	1.849	1.863	1.877	1.892	1.906	1.920		
-30	2.128	1.611	1.628	1.645	1.661	1.678	1.694	1.709	1.725	1.740	1.756	1.771	1.786	1.801	1.815	1.830	1.844	1.859	1.873	1.887	1.901	1.915		
-25	2.598	1.607	1.624	1.641	1.658	1.674	1.690	1.706	1.722	1.737	1.752	1.767	1.782	1.797	1.812	1.826	1.841	1.855	1.869	1.883	1.897	1.911		
-20	3.144	1.604	1.621	1.638	1.655	1.671	1.687	1.703	1.719	1.734	1.749	1.764	1.779	1.794	1.809	1.823	1.838	1.852	1.866	1.880	1.894	1.908		
-15	3.773	1.601	1.618	1.635	1.652	1.668	1.684	1.700	1.716	1.731	1.747	1.762	1.777	1.791	1.806	1.821	1.835	1.849	1.863	1.877	1.891	1.905		
-10	4.493	1.598	1.616	1.633	1.650	1.666	1.682	1.698	1.714	1.729	1.745	1.760	1.775	1.789	1.804	1.818	1.833	1.847	1.861	1.875	1.889	1.903		
-5	5.312	1.596	1.613	1.631	1.648	1.664	1.680	1.696	1.712	1.728	1.743	1.758	1.773	1.788	1.802	1.817	1.831	1.845	1.859	1.873	1.887	1.901		
0	6.240	1.593	1.611	1.629	1.646	1.662	1.679	1.695	1.711	1.726	1.741	1.757	1.772	1.786	1.801	1.815	1.830	1.844	1.858	1.872	1.886	1.900		
5	7.284	1.591	1.609	1.627	1.644	1.661	1.677	1.694	1.709	1.725	1.740	1.756	1.771	1.785	1.800	1.814	1.829	1.843	1.857	1.871	1.885	1.899		
10	8.453	1.589	1.608	1.626	1.643	1.660	1.676	1.693	1.708	1.724	1.740	1.755	1.770	1.785	1.799	1.814	1.828	1.842	1.856	1.870	1.884	1.898		
15	9.758	1.587	1.606	1.624	1.642	1.659	1.675	1.692	1.708	1.723	1.739	1.754	1.769	1.784	1.799	1.813	1.828	1.842	1.856	1.870	1.884	1.897		
20	11.21	1.585	1.604	1.623	1.640	1.658	1.675	1.691	1.707	1.723	1.739	1.754	1.769	1.784	1.798	1.813	1.827	1.842	1.856	1.870	1.883	1.897		
25	12.81	1.582	1.602	1.621	1.639	1.657	1.674	1.690	1.707	1.723	1.738	1.753	1.769	1.784	1.798	1.813	1.827	1.842	1.856	1.870	1.883	1.897		
30	14.59	1.579	1.600	1.619	1.638	1.656	1.673	1.690	1.706	1.722	1.738	1.753	1.769	1.784	1.798	1.813	1.827	1.842	1.856	1.870	1.884	1.897		
35	16.54	1.576	1.597	1.617	1.637	1.655	1.672	1.689	1.706	1.722	1.738	1.753	1.769	1.784	1.799	1.813	1.828	1.842	1.856	1.870	1.884	1.898		
40	18.68	1.572	1.595	1.615	1.635	1.654	1.671	1.689	1.706	1.722	1.738	1.753	1.769	1.784	1.799	1.814	1.828	1.842	1.856	1.871	1.884	1.898		
45	21.03	1.567	1.591	1.613	1.633	1.652	1.671	1.688	1.705	1.722	1.738	1.754	1.769	1.784	1.799	1.814	1.829	1.843	1.857	1.871	1.885	1.899		
50	23.59	1.560	1.587	1.610	1.631	1.651	1.670	1.687	1.705	1.721	1.738	1.754	1.769	1.785	1.800	1.815	1.829	1.844	1.858	1.872	1.886	1.899		
55	26.40	1.552	1.582	1.607	1.629	1.649	1.668	1.687	1.704	1.721	1.738	1.754	1.769	1.785	1.800	1.815	1.830	1.844	1.858	1.873	1.886	1.900		
60	29.47	1.540	1.576	1.603	1.626	1.647	1.667	1.686	1.703	1.721	1.737	1.754	1.770	1.785	1.800	1.815	1.830	1.845	1.859	1.873	1.887	1.901		
65	32.83	1.521	1.568	1.598	1.623	1.645	1.665	1.684	1.702	1.720	1.737	1.754	1.770	1.785	1.801	1.816	1.831	1.845	1.860	1.874	1.888	1.902		

VOLUMES SPECIFIQUES du R507A à l'état surchauffé [dm³/kg]

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

Version du : 19/12/2018

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
-105	0.018	7704	7936	8169	8401	8632	8864	9095	9326	9557	9788	10018	10249	10479	10710	10940	11170	11400	11631	11861	12091	12321
-100	0.029	4929	5075	5220	5365	5509	5654	5798	5942	6086	6229	6373	6517	6660	6804	6947	7091	7234	7377	7521	7664	7807
-95	0.046	3254	3347	3441	3535	3628	3721	3814	3906	3998	4092	4184	4277	4369	4461	4554	4646	4738	4830	4922	5014	5107
-90	0.069	2209	2271	2333	2395	2457	2519	2581	2642	2704	2765	2826	2888	2949	3010	3071	3132	3193	3255	3316	3377	3438
-85	0.102	1538	1580	1623	1665	1707	1750	1792	1834	1876	1917	1959	2001	2043	2084	2126	2167	2209	2251	2292	2334	2375
-80	0.146	1095	1125	1155	1185	1214	1244	1273	1302	1332	1361	1391	1421	1449	1477	1506	1535	1564	1593	1622	1651	1680
-75	0.206	796.4	817.9	839.3	860.5	881.7	902.9	923.3	944.3	965.8	986.7	1008	1028	1049	1070	1091	1111	1132	1153	1173	1194	1214
-70	0.284	590.1	605.9	621.6	637.1	652.6	668.1	683.4	698.8	714.0	729.3	744.5	759.6	774.8	789.9	805.0	820.0	835.1	850.1	865.1	880.1	895.1
-65	0.384	444.8	456.6	468.3	479.9	491.5	503.0	514.5	525.9	537.2	548.6	559.9	571.1	582.4	593.6	604.8	616.0	627.1	638.3	649.4	660.6	671.7
-60	0.511	340.6	349.5	358.4	367.3	376.1	384.8	393.5	402.1	410.7	419.3	427.9	436.4	445.1	453.4	461.8	470.3	478.7	487.1	495.5	503.9	512.3
-55	0.669	264.4	271.4	278.3	285.1	291.9	298.7	305.3	312.0	318.6	325.2	331.8	338.4	344.9	351.4	357.9	364.4	370.9	377.3	383.8	390.2	396.6
-50	0.864	208.0	213.5	218.9	224.3	229.6	234.9	240.1	245.3	250.5	255.7	260.8	265.9	271.0	276.1	281.2	286.2	291.3	296.3	301.3	306.3	311.3
-45	1.101	165.5	169.9	174.3	178.5	182.8	187.0	191.1	195.3	199.4	203.5	207.5	211.6	215.6	219.6	223.6	227.6	231.6	235.6	239.6	243.5	247.5
-40	1.387	133.2	136.7	140.2	143.7	147.1	150.5	153.8	157.2	160.5	163.8	167.0	170.3	173.5	176.7	179.9	183.1	186.3	189.5	192.7	195.8	199.0
-35	1.727	108.2	111.1	114.0	116.8	119.6	122.3	125.1	127.8	130.5	133.2	135.8	138.5	141.1	143.7	146.3	148.9	151.5	154.0	156.6	159.2	161.7
-30	2.128	88.65	91.07	93.46	95.80	98.12	100.4	102.7	104.9	107.1	109.3	111.5	113.7	115.8	118.0	120.1	122.2	124.3	126.4	128.5	130.6	132.7
-25	2.598	73.23	75.28	77.28	79.25	81.18	83.09	84.98	86.84	88.69	90.52	92.33	94.13	95.92	97.70	99.47	101.2	103.0	104.7	106.5	108.2	109.9
-20	3.144	60.94	62.68	64.38	66.05	67.69	69.30	70.89	72.46	74.02	75.55	77.08	78.59	80.09	81.58	83.06	84.53	86.00	87.45	88.90	90.35	91.79
-15	3.773	51.05	52.58	54.01	55.44	56.84	58.21	59.57	60.90	62.22	63.53	64.82	66.10	67.37	68.63	69.88	71.13	72.36	73.59	74.81	76.03	77.24
-10	4.493	43.01	44.32	45.59	46.82	48.03	49.22	50.38	51.53	52.66	53.78	54.89	55.98	57.06	58.14	59.21	60.26	61.32	62.36	63.40	64.44	65.47
-5	5.312	36.44	37.58	38.69	39.77	40.83	41.86	42.87	43.86	44.84	45.81	46.76	47.71	48.64	49.54	50.48	51.39	52.30	53.19	54.09	54.97	55.85
0	6.240	31.01	32.03	33.01	33.96	34.89	35.79	36.68	37.55	38.40	39.24	40.07	40.89	41.70	42.51	43.30	44.09	44.87	45.65	46.42	47.18	47.94
5	7.284	26.49	27.41	28.28	29.13	29.95	30.75	31.54	32.30	33.05	33.79	34.52	35.24	35.95	36.65	37.34	38.03	38.71	39.39	40.06	40.72	41.39
10	8.453	22.71	23.54	24.33	25.10	25.83	26.54	27.24	27.92	28.59	29.24	29.88	30.52	31.14	31.76	32.37	32.97	33.57	34.16	34.75	35.33	35.91
15	9.758	19.53	20.29	21.01	21.70	22.36	23.00	23.63	24.24	24.83	25.41	25.98	26.55	27.10	27.65	28.19	28.72	29.25	29.77	30.29	30.80	31.31
20	11.21	16.83	17.53	18.19	18.82	19.43	20.01	20.57	21.12	21.65	22.17	22.69	23.21	23.68	24.17	24.65	25.13	25.60	26.07	26.52	26.98	27.43
25	12.81	14.52	15.18	15.79	16.37	16.93	17.46	17.97	18.47	18.95	19.42	19.88	20.33	20.78	21.22	21.65	22.07	22.49	22.91	23.32	23.72	24.12
30	14.59	12.53	13.16	13.74	14.28	14.79	15.28	15.74	16.20	16.64	17.07	17.48	17.89	18.29	18.69	19.08	19.46	19.84	20.21	20.58	20.94	21.30
35	16.54	10.81	11.42	11.97	12.47	12.95	13.40	13.83	14.25	14.65	15.04	15.42	15.80	16.16	16.52	16.87	17.21	17.56	17.89	18.22	18.55	18.88
40	18.68	9.138	9.910	10.43	10.91	11.36	11.78	12.18	12.57	12.94	13.30	13.64	13.99	14.32	14.64	14.96	15.28	15.59	15.89	16.19	16.49	16.78
45	21.03	8.002	8.593	9.102	9.559	9.981	10.38	10.75	11.11	11.45	11.78	12.10	12.41	12.72	13.02	13.31	13.60	13.88	14.16	14.43	14.70	14.97
50	23.59	6.833	7.437	7.937	8.378	8.779	9.152	9.502	9.836	10.15	10.46	10.76	11.05	11.33	11.60	11.87	12.13	12.39	12.64	12.89	13.14	13.38
55	26.40	5.777	6.415	6.914	7.343	7.727	8.081	8.414	8.724	9.022	9.308	9.584	9.851	10.11	10.36	10.61	10.85	11.09	11.32	11.55	11.78	12.00
60	29.47	4.798	5.507	6.012	6.432	6.803	7.140	7.453	7.747	8.027	8.294	8.551	8.799	9.039	9.273	9.501	9.724	9.943	10.16	10.37	10.57	10.78
65	32.83	3.836	4.692	5.212	5.622	5.986	6.309	6.606	6.884	7.147	7.397	7.637	7.868	8.092	8.309	8.520	8.728	8.928	9.126	9.319	9.510	9.697

VISCOSITES du R507A à l'état surchauffé [$\mu\text{Pa.s}$]

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

Version du : 19/12/2018

P [°C]	P [bar]	SURCHAUFFE [°C]																				
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
-105	0.018	6.749	6.955	7.162	7.369	7.577	7.784	7.992	8.201	8.409	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89
-100	0.029	6.955	7.162	7.369	7.577	7.784	7.992	8.201	8.409	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09
-95	0.046	7.162	7.369	7.577	7.784	7.992	8.201	8.409	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30
-90	0.069	7.369	7.577	7.784	7.992	8.201	8.409	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50
-85	0.102	7.577	7.784	7.992	8.201	8.409	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70
-80	0.146	7.784	7.992	8.201	8.409	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90
-75	0.206	7.992	8.201	8.409	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10
-70	0.284	8.201	8.409	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30
-65	0.384	8.409	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50
-60	0.511	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50	12.70
-55	0.669	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50	12.70	12.89
-50	0.864	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50	12.70	12.89	13.09
-45	1.101	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50	12.70	12.89	13.09	13.29
-40	1.387	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50	12.70	12.90	13.09	13.29	13.49
-35	1.727	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50	12.70	12.90	13.10	13.29	13.49	13.69
-30	2.128	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50	12.70	12.90	13.10	13.30	13.50	13.69	13.89
-25	2.598	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50	12.70	12.90	13.10	13.30	13.50	13.70	13.90	14.09
-20	3.144	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50	12.70	12.90	13.10	13.31	13.51	13.71	13.90	14.10	14.30
-15	3.773	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.31	12.51	12.70	12.91	13.11	13.32	13.52	13.71	13.91	14.11	14.31	14.50
-10	4.493	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.11	12.31	12.51	12.71	12.91	13.12	13.32	13.53	13.73	13.93	14.13	14.32	14.52	14.71
-5	5.312	10.89	11.09	11.30	11.50	11.70	11.91	12.11	12.31	12.51	12.72	12.93	13.13	13.34	13.54	13.74	13.95	14.14	14.34	14.54	14.73	14.93
0	6.240	11.09	11.30	11.50	11.71	11.91	12.11	12.31	12.51	12.71	12.94	13.15	13.36	13.56	13.76	13.97	14.17	14.36	14.56	14.76	14.95	15.14
5	7.284	11.30	11.51	11.71	11.91	12.12	12.32	12.53	12.75	12.96	13.17	13.38	13.59	13.79	13.99	14.19	14.39	14.59	14.79	14.98	15.18	15.37
10	8.453	11.51	11.72	11.92	12.12	12.33	12.55	12.77	12.99	13.20	13.41	13.62	13.82	14.03	14.23	14.43	14.63	14.82	15.02	15.21	15.41	15.60
15	9.758	11.73	11.93	12.15	12.37	12.59	12.81	13.02	13.24	13.45	13.66	13.86	14.07	14.27	14.47	14.67	14.87	15.06	15.26	15.45	15.64	15.83
20	11.11	11.97	12.20	12.42	12.64	12.86	13.08	13.29	13.50	13.71	13.92	14.12	14.32	14.53	14.73	14.92	15.12	15.32	15.51	15.70	15.89	16.08
25	12.81	12.29	12.51	12.72	12.94	13.15	13.36	13.57	13.78	13.99	14.19	14.39	14.59	14.79	14.99	15.19	15.38	15.58	15.77	15.96	16.15	16.34
30	14.59	12.64	12.84	13.05	13.26	13.46	13.67	13.87	14.08	14.28	14.48	14.68	14.88	15.08	15.27	15.47	15.66	15.85	16.04	16.23	16.42	16.60
35	16.54	13.03	13.21	13.41	13.60	13.80	14.00	14.20	14.40	14.60	14.79	14.99	15.18	15.38	15.57	15.76	15.95	16.14	16.33	16.51	16.70	16.88
40	18.68	13.49	13.64	13.81	13.99	14.18	14.36	14.55	14.74	14.94	15.13	15.32	15.51	15.70	15.89	16.07	16.26	16.45	16.63	16.82	17.00	17.18
45	21.03	14.03	14.13	14.27	14.43	14.59	14.77	14.94	15.12	15.31	15.49	15.67	15.86	16.04	16.23	16.41	16.59	16.77	16.95	17.14	17.32	17.49
50	23.59	14.71	14.72	14.80	14.92	15.06	15.21	15.38	15.54	15.71	15.89	16.06	16.24	16.41	16.59	16.77	16.95	17.12	17.30	17.48	17.65	17.83
55	26.40	15.59	15.43	15.43	15.50	15.60	15.72	15.86	16.01	16.16	16.32	16.49	16.65	16.82	16.99	17.16	17.33	17.50	17.67	17.84	18.01	18.18
60	29.47	16.84	16.33	16.19	16.17	16.22	16.30	16.41	16.53	16.66	16.81	16.95	17.11	17.26	17.42	17.58	17.75	17.91	18.07	18.24	18.40	18.57
65	32.83	18.88	17.51	17.13	16.99	16.95	16.98	17.04	17.13	17.23	17.35	17.48	17.61	17.75	17.90	18.05	18.20	18.35	18.51	18.67	18.82	18.99

ENTHALPIES du R507A 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
-105	0.018	301.0	304.0	307.1	310.3	313.5	316.7	320.0	323.4	326.7	330.2	333.7	337.2	340.8	344.5	348.2	351.9	355.7	359.6	363.4	367.4	371.4
-100	0.029	303.9	307.0	310.2	313.4	316.6	319.9	323.3	326.7	330.1	333.6	337.2	340.8	344.4	348.1	351.9	355.7	359.5	363.4	367.4	371.4	375.4
-95	0.046	306.9	310.0	313.3	316.5	319.8	323.2	326.6	330.1	333.6	337.1	340.7	344.4	348.1	351.8	355.6	359.5	363.4	367.3	371.3	375.4	379.4
-90	0.069	309.8	313.1	316.4	319.7	323.1	326.5	330.0	333.5	337.0	340.7	344.3	348.0	351.8	355.6	359.4	363.3	367.3	371.3	375.3	379.4	383.5
-85	0.102	312.8	316.1	319.5	322.9	326.3	329.8	333.3	336.9	340.5	344.2	347.9	351.7	355.5	359.4	363.3	367.2	371.2	375.3	379.3	383.5	387.7
-80	0.146	315.8	319.2	322.6	326.1	329.6	333.2	336.8	340.4	344.1	347.8	351.6	355.4	359.2	363.2	367.1	371.1	375.2	379.3	383.4	387.6	391.8
-75	0.206	318.9	322.3	325.8	329.3	332.9	336.5	340.2	343.9	347.6	351.4	355.2	359.1	363.0	367.0	371.0	375.1	379.2	383.3	387.5	391.7	396.0
-70	0.284	321.9	325.4	329.0	332.6	336.2	339.9	343.6	347.4	351.2	355.0	358.9	362.9	366.8	370.8	374.9	379.0	383.2	387.4	391.6	395.9	400.2
-65	0.384	325.0	328.6	332.2	335.9	339.6	343.3	347.1	350.9	354.8	358.7	362.6	366.6	370.6	374.7	378.8	383.0	387.2	391.5	395.8	400.1	404.5
-60	0.511	328.0	331.7	335.4	339.1	342.9	346.7	350.6	354.4	358.4	362.3	366.3	370.4	374.5	378.6	382.8	387.0	391.3	395.6	399.9	404.3	408.7
-55	0.669	331.0	334.8	338.6	342.4	346.2	350.1	354.0	358.0	362.0	366.0	370.1	374.2	378.3	382.5	386.8	391.0	395.3	399.7	404.1	408.5	413.0
-50	0.864	334.1	337.9	341.8	345.6	349.6	353.5	357.5	361.5	365.6	369.7	373.8	378.0	382.2	386.4	390.7	395.1	399.4	403.8	408.3	412.8	417.3
-45	1.101	337.1	341.0	344.9	348.9	352.9	356.9	361.0	365.1	369.2	373.4	377.5	381.8	386.1	390.4	394.7	399.1	403.5	408.0	412.5	417.0	421.6
-40	1.387	340.0	344.0	348.1	352.1	356.2	360.3	364.4	368.6	372.8	377.0	381.3	385.6	389.9	394.3	398.7	403.1	407.6	412.1	416.7	421.3	425.9
-35	1.727	343.0	347.1	351.2	355.3	359.5	363.7	367.9	372.1	376.4	380.7	385.0	389.4	393.8	398.2	402.7	407.2	411.7	416.3	420.9	425.6	430.3
-30	2.128	345.9	350.1	354.3	358.5	362.8	367.0	371.3	375.6	380.0	384.3	388.7	393.2	397.6	402.1	406.6	411.2	415.8	420.4	425.1	429.8	434.6
-25	2.598	348.7	353.1	357.4	361.7	366.0	370.4	374.7	379.1	383.5	388.0	392.4	396.9	401.5	406.0	410.6	415.2	419.9	424.6	429.3	434.1	438.9
-20	3.144	351.5	356.0	360.4	364.8	369.2	373.7	378.1	382.6	387.1	391.6	396.1	400.7	405.3	409.9	414.6	419.3	424.0	428.7	433.5	438.3	443.2
-15	3.773	354.3	358.8	363.4	367.9	372.4	376.9	381.5	386.0	390.6	395.2	399.8	404.4	409.1	413.8	418.5	423.3	428.0	432.9	437.7	442.6	447.5
-10	4.493	357.0	361.6	366.3	370.9	375.5	380.2	384.8	389.4	394.1	398.7	403.4	408.1	412.9	417.6	422.4	427.3	432.1	437.0	441.9	446.8	451.8
-5	5.312	359.6	364.4	369.1	373.9	378.6	383.3	388.1	392.8	397.5	402.3	407.0	411.8	416.6	421.5	426.3	431.2	436.1	441.1	446.0	451.0	456.1
0	6.240	362.1	367.0	371.9	376.8	381.6	386.5	391.3	396.1	400.9	405.8	410.6	415.5	420.4	425.3	430.2	435.2	440.1	445.1	450.2	455.2	460.3
5	7.284	364.5	369.6	374.6	379.6	384.6	389.5	394.4	399.4	404.3	409.2	414.2	419.1	424.1	429.0	434.1	439.1	444.1	449.2	454.3	459.4	464.6
10	8.453	366.7	372.0	377.2	382.4	387.5	392.5	397.6	402.6	407.6	412.6	417.6	422.7	427.7	432.8	437.9	443.0	448.1	453.2	458.4	463.6	468.8
15	9.758	368.9	374.4	379.7	385.0	390.3	395.4	400.6	405.7	410.8	416.0	421.1	426.2	431.3	436.5	441.6	446.8	452.0	457.2	462.4	467.7	473.0
20	11.21	370.8	376.6	382.1	387.6	393.0	398.3	403.6	408.8	414.0	419.3	424.5	429.7	434.9	440.1	445.4	450.6	455.9	461.2	466.5	471.8	477.2
25	12.81	372.6	378.6	384.4	390.0	395.6	401.0	406.4	411.8	417.2	422.5	427.8	433.1	438.4	443.7	449.1	454.4	459.7	465.1	470.5	475.9	481.3
30	14.59	374.1	380.4	386.5	392.3	398.1	403.7	409.2	414.7	420.2	425.6	431.1	436.5	441.9	447.3	452.7	458.1	463.5	469.0	474.4	479.9	485.4
35	16.54	375.3	382.0	388.4	394.5	400.4	406.2	411.9	417.6	423.2	428.7	434.3	439.8	445.3	450.8	456.3	461.8	467.3	472.8	478.3	483.9	489.4
40	18.68	376.2	383.4	390.1	396.5	402.6	408.6	414.5	420.3	426.1	431.7	437.4	443.0	448.6	454.2	459.8	465.4	471.0	476.6	482.2	487.8	493.5
45	21.03	376.7	384.5	391.6	398.3	404.7	410.9	417.0	423.0	428.8	434.7	440.4	446.2	451.9	457.6	463.3	469.0	474.7	480.3	486.0	491.7	497.4
50	23.59	376.5	385.2	392.9	399.9	406.6	413.1	419.4	425.5	431.5	437.5	443.4	449.3	455.1	460.9	466.7	472.5	478.2	484.0	489.8	495.6	501.4
55	26.40	375.5	385.5	393.8	401.3	408.3	415.1	421.6	427.9	434.1	440.2	446.3	452.3	458.2	464.1	470.0	475.9	481.8	487.6	493.5	499.4	505.2
60	29.47	373.3	385.3	394.4	402.4	409.9	416.9	423.6	430.1	436.5	442.8	449.0	455.2	461.2	467.3	473.3	479.3	485.2	491.2	497.2	503.1	509.0
65	32.83	368.4	384.3	394.6	403.3	411.1	418.5	425.5	432.2	438.8	445.3	451.7	457.9	464.2	470.3	476.4	482.5	488.6	494.7	500.7	506.8	512.8

ENTROPIES du R507A 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
-105	0.018	1.781	1.798	1.816	1.833	1.851	1.868	1.885	1.901	1.918	1.934	1.950	1.966	1.982	1.998	2.014	2.029	2.045	2.060	2.075	2.090	2.105
-100	0.029	1.758	1.776	1.793	1.810	1.827	1.844	1.861	1.878	1.894	1.910	1.926	1.942	1.958	1.974	1.989	2.005	2.020	2.035	2.050	2.066	2.080
-95	0.046	1.738	1.755	1.773	1.790	1.807	1.824	1.840	1.857	1.873	1.889	1.905	1.921	1.936	1.952	1.967	1.983	1.998	2.013	2.028	2.043	2.058
-90	0.069	1.720	1.737	1.754	1.771	1.788	1.805	1.821	1.838	1.854	1.870	1.886	1.901	1.917	1.933	1.948	1.963	1.978	1.993	2.008	2.023	2.038
-85	0.102	1.704	1.721	1.738	1.755	1.772	1.788	1.805	1.821	1.837	1.853	1.869	1.884	1.900	1.915	1.930	1.946	1.961	1.976	1.990	2.005	2.020
-80	0.146	1.689	1.707	1.724	1.740	1.757	1.774	1.790	1.806	1.822	1.838	1.853	1.869	1.884	1.900	1.915	1.930	1.945	1.960	1.974	1.989	2.004
-75	0.206	1.677	1.694	1.711	1.727	1.744	1.760	1.777	1.793	1.809	1.824	1.840	1.855	1.871	1.886	1.901	1.916	1.931	1.946	1.960	1.975	1.989
-70	0.284	1.665	1.682	1.699	1.716	1.732	1.749	1.765	1.781	1.797	1.812	1.828	1.843	1.858	1.874	1.889	1.903	1.918	1.933	1.948	1.962	1.976
-65	0.384	1.655	1.672	1.689	1.706	1.722	1.738	1.754	1.770	1.786	1.802	1.817	1.832	1.848	1.863	1.878	1.892	1.907	1.922	1.936	1.951	1.965
-60	0.511	1.646	1.663	1.680	1.697	1.713	1.729	1.745	1.761	1.777	1.792	1.808	1.823	1.838	1.853	1.868	1.883	1.897	1.912	1.926	1.941	1.955
-55	0.669	1.638	1.655	1.672	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	1.889	1.903	1.917	1.932	1.946
-50	0.864	1.631	1.648	1.665	1.682	1.698	1.714	1.730	1.746	1.761	1.777	1.792	1.807	1.822	1.837	1.852	1.866	1.881	1.895	1.910	1.924	1.938
-45	1.101	1.625	1.642	1.659	1.675	1.692	1.708	1.724	1.739	1.755	1.770	1.786	1.801	1.816	1.830	1.845	1.860	1.874	1.889	1.903	1.917	1.931
-40	1.387	1.620	1.637	1.654	1.670	1.686	1.702	1.718	1.734	1.749	1.765	1.780	1.795	1.810	1.825	1.839	1.854	1.868	1.883	1.897	1.911	1.925
-35	1.727	1.615	1.632	1.649	1.665	1.682	1.698	1.714	1.729	1.745	1.760	1.775	1.790	1.805	1.820	1.834	1.849	1.863	1.877	1.892	1.906	1.920
-30	2.128	1.611	1.628	1.645	1.661	1.678	1.694	1.709	1.725	1.740	1.756	1.771	1.786	1.801	1.815	1.830	1.844	1.859	1.873	1.887	1.901	1.915
-25	2.598	1.607	1.624	1.641	1.658	1.674	1.690	1.706	1.722	1.737	1.752	1.767	1.782	1.797	1.812	1.826	1.841	1.855	1.869	1.883	1.897	1.911
-20	3.144	1.604	1.621	1.638	1.655	1.671	1.687	1.703	1.719	1.734	1.749	1.764	1.779	1.794	1.809	1.823	1.838	1.852	1.866	1.880	1.894	1.908
-15	3.773	1.601	1.618	1.635	1.652	1.668	1.684	1.700	1.716	1.731	1.747	1.762	1.777	1.791	1.806	1.821	1.835	1.849	1.863	1.877	1.891	1.905
-10	4.493	1.598	1.616	1.633	1.650	1.666	1.682	1.698	1.714	1.729	1.745	1.760	1.775	1.789	1.804	1.818	1.833	1.847	1.861	1.875	1.889	1.903
-5	5.312	1.596	1.613	1.631	1.648	1.664	1.680	1.696	1.712	1.728	1.743	1.758	1.773	1.788	1.802	1.817	1.831	1.845	1.859	1.873	1.887	1.901
0	6.240	1.593	1.611	1.629	1.646	1.662	1.679	1.695	1.711	1.726	1.741	1.757	1.772	1.786	1.801	1.815	1.830	1.844	1.858	1.872	1.886	1.900
5	7.284	1.591	1.609	1.627	1.644	1.661	1.677	1.694	1.709	1.725	1.740	1.756	1.771	1.785	1.800	1.814	1.829	1.843	1.857	1.871	1.885	1.899
10	8.453	1.589	1.608	1.626	1.643	1.660	1.676	1.693	1.708	1.724	1.740	1.755	1.770	1.785	1.799	1.814	1.828	1.842	1.856	1.870	1.884	1.898
15	9.758	1.587	1.606	1.624	1.642	1.659	1.675	1.692	1.708	1.723	1.739	1.754	1.769	1.784	1.799	1.813	1.828	1.842	1.856	1.870	1.884	1.897
20	11.21	1.585	1.604	1.623	1.640	1.658	1.675	1.691	1.707	1.723	1.739	1.754	1.769	1.784	1.798	1.813	1.827	1.842	1.856	1.870	1.883	1.897
25	12.81	1.582	1.602	1.621	1.639	1.657	1.674	1.690	1.707	1.723	1.738	1.754	1.769	1.784	1.798	1.813	1.827	1.842	1.856	1.870	1.883	1.897
30	14.59	1.579	1.600	1.619	1.638	1.656	1.673	1.690	1.706	1.722	1.738	1.753	1.769	1.784	1.798	1.813	1.827	1.842	1.856	1.870	1.884	1.897
35	16.54	1.576	1.597	1.617	1.637	1.655	1.672	1.689	1.706	1.722	1.738	1.753	1.769	1.784	1.799	1.813	1.828	1.842	1.856	1.870	1.884	1.898
40	18.68	1.572	1.595	1.615	1.635	1.654	1.671	1.689	1.706	1.722	1.738	1.754	1.769	1.784	1.799	1.814	1.828	1.842	1.857	1.871	1.884	1.898
45	21.03	1.567	1.591	1.613	1.633	1.652	1.671	1.688	1.705	1.722	1.738	1.754	1.769	1.784	1.799	1.814	1.829	1.843	1.857	1.871	1.885	1.899
50	23.59	1.560	1.587	1.610	1.631	1.651	1.670	1.687	1.705	1.721	1.738	1.754	1.769	1.785	1.800	1.815	1.829	1.844	1.858	1.872	1.886	1.899
55	26.40	1.552	1.582	1.607	1.629	1.649	1.668	1.687	1.704	1.721	1.738	1.754	1.769	1.785	1.800	1.815	1.830	1.844	1.858	1.873	1.886	1.900
60	29.47	1.540	1.576	1.603	1.626	1.647	1.667	1.686	1.703	1.721	1.737	1.754	1.770	1.785	1.800	1.815	1.830	1.845	1.859	1.873	1.887	1.901
65	32.83	1.521	1.568	1.598	1.623	1.645	1.665	1.684	1.702	1.720	1.737	1.754	1.770	1.785	1.801	1.816	1.831	1.845	1.860	1.874	1.888	1.902

VOLUMES SPECIFIQUES du R507A à l'état surchauffé [dm³/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
-105	0.018	7704	7936	8169	8401	8632	8864	9095	9326	9557	9788	10018	10249	10479	10710	10940	11170	11400	11631	11861	12091	12321
-100	0.029	4929	5075	5220	5365	5509	5654	5798	5942	6086	6229	6373	6517	6660	6804	6947	7091	7234	7377	7521	7664	7807
-95	0.046	3254	3347	3441	3535	3628	3721	3814	3906	3999	4092	4184	4277	4369	4461	4554	4646	4738	4830	4922	5014	5107
-90	0.069	2209	2271	2333	2395	2457	2519	2581	2642	2704	2765	2826	2888	2949	3010	3071	3132	3193	3255	3316	3377	3438
-85	0.102	1538	1580	1623	1665	1707	1750	1792	1834	1876	1917	1959	2001	2043	2084	2126	2167	2209	2251	2292	2334	2375
-80	0.146	1095	1125	1155	1185	1214	1244	1273	1302	1332	1361	1390	1419	1448	1477	1506	1535	1564	1593	1622	1651	1680
-75	0.206	796.4	817.9	839.3	860.5	881.7	902.9	923.9	944.9	965.8	986.7	1008	1028	1049	1070	1091	1111	1132	1153	1173	1194	1214
-70	0.284	590.1	605.9	621.6	637.1	652.6	668.1	683.4	698.8	714.0	729.3	744.5	759.6	774.8	789.9	805.0	820.0	835.1	850.1	865.1	880.1	895.1
-65	0.384	444.8	456.6	468.3	479.9	491.5	503.0	514.5	525.9	537.2	548.6	559.9	571.1	582.4	593.6	604.8	616.0	627.1	638.3	649.4	660.6	671.7
-60	0.511	340.6	349.5	358.4	367.3	376.1	384.8	393.5	402.1	410.7	419.3	427.9	436.4	444.9	453.4	461.8	470.3	478.7	487.1	495.5	503.9	512.3
-55	0.669	264.4	271.4	278.3	285.1	291.9	298.7	305.3	312.0	318.6	325.2	331.8	338.4	344.9	351.4	357.9	364.4	370.9	377.3	383.8	390.2	396.6
-50	0.864	208.0	213.5	218.9	224.3	229.6	234.9	240.1	245.3	250.5	255.7	260.8	265.9	271.0	276.1	281.2	286.2	291.3	296.3	301.3	306.3	311.3
-45	1.101	165.5	169.9	174.3	178.5	182.8	187.0	191.1	195.3	199.4	203.5	207.5	211.6	215.6	219.6	223.6	227.6	231.6	235.6	239.6	243.5	247.5
-40	1.387	133.2	136.7	140.2	143.7	147.1	150.5	153.8	157.2	160.5	163.8	167.0	170.3	173.5	176.7	179.9	183.1	186.3	189.5	192.7	195.8	199.0
-35	1.727	108.2	111.1	114.0	116.8	119.6	122.3	125.1	127.8	130.5	133.2	135.8	138.5	141.1	143.7	146.3	148.9	151.5	154.0	156.6	159.2	161.7
-30	2.128	88.65	91.07	93.46	95.80	98.12	100.4	102.7	104.9	107.1	109.3	111.5	113.7	115.8	118.0	120.1	122.2	124.3	126.4	128.5	130.6	132.7
-25	2.598	73.23	75.28	77.28	79.25	81.18	83.09	84.98	86.84	88.69	90.52	92.33	94.13	95.92	97.70	99.47	101.2	103.0	104.7	106.5	108.2	109.9
-20	3.144	60.94	62.68	64.38	66.05	67.69	69.30	70.89	72.46	74.02	75.55	77.08	78.59	80.09	81.58	83.06	84.53	86.00	87.45	88.90	90.35	91.79
-15	3.773	51.05	52.55	54.01	55.44	56.84	58.21	59.57	60.90	62.22	63.53	64.82	66.10	67.37	68.63	69.88	71.13	72.36	73.59	74.81	76.03	77.24
-10	4.493	43.01	44.32	45.59	46.82	48.03	49.22	50.38	51.53	52.66	53.78	54.89	55.98	57.06	58.14	59.21	60.26	61.32	62.36	63.40	64.44	65.47
-5	5.312	36.44	37.58	38.69	39.77	40.83	41.86	42.87	43.86	44.84	45.81	46.76	47.71	48.64	49.57	50.48	51.39	52.30	53.19	54.09	54.97	55.85
0	6.240	31.01	32.03	33.01	33.96	34.89	35.79	36.68	37.55	38.40	39.24	40.07	40.89	41.70	42.51	43.30	44.09	44.87	45.65	46.42	47.18	47.94
5	7.284	26.49	27.41	28.28	29.13	29.95	30.75	31.54	32.30	33.05	33.79	34.52	35.24	35.95	36.65	37.34	38.03	38.71	39.39	40.06	40.72	41.39
10	8.453	22.71	23.54	24.33	25.10	25.83	26.54	27.24	27.92	28.59	29.24	29.88	30.52	31.14	31.76	32.37	32.97	33.57	34.16	34.75	35.33	35.91
15	9.758	19.53	20.29	21.01	21.70	22.36	23.00	23.63	24.24	24.83	25.41	25.98	26.55	27.10	27.65	28.19	28.72	29.25	29.77	30.29	30.80	31.31
20	11.21	16.83	17.53	18.19	18.82	19.43	20.01	20.57	21.12	21.65	22.17	22.69	23.19	23.68	24.17	24.65	25.13	25.60	26.06	26.52	26.98	27.43
25	12.81	14.52	15.18	15.79	16.37	16.93	17.46	17.97	18.47	18.95	19.42	19.88	20.33	20.78	21.22	21.65	22.07	22.49	22.91	23.32	23.72	24.12
30	14.59	12.53	13.16	13.74	14.28	14.79	15.28	15.74	16.20	16.64	17.07	17.48	17.89	18.29	18.69	19.08	19.46	19.84	20.21	20.58	20.94	21.30
35	16.54	10.81	11.42	11.97	12.47	12.95	13.40	13.83	14.25	14.65	15.04	15.42	15.80	16.16	16.52	16.87	17.21	17.56	17.89	18.22	18.55	18.88
40	18.68	9.318	9.910	10.43	10.91	11.36	11.78	12.18	12.57	12.94	13.30	13.64	13.99	14.32	14.64	14.96	15.28	15.59	15.89	16.19	16.49	16.78
45	21.03	8.002	8.593	9.102	9.559	9.981	10.38	10.75	11.11	11.45	11.78	12.10	12.41	12.72	13.02	13.31	13.60	13.88	14.16	14.43	14.70	14.97
50	23.59	6.833	7.437	7.937	8.378	8.779	9.152	9.502	9.836	10.15	10.46	10.76	11.05	11.33	11.60	11.87	12.13	12.39	12.64	12.89	13.14	13.38
55	26.40	5.777	6.415	6.914	7.343	7.727	8.081	8.411	8.724	9.022	9.308	9.584	9.851	10.11	10.36	10.61	10.85	11.09	11.32	11.55	11.78	12.00
60	29.47	4.798	5.507	6.012	6.432	6.803	7.140	7.453	7.747	8.027	8.294	8.551	8.799	9.039	9.273	9.501	9.724	9.943	10.16	10.37	10.57	10.78
65	32.83	3.836	4.692	5.212	5.627	5.986	6.309	6.606	6.884	7.147	7.397	7.637	7.868	8.092	8.309	8.520	8.726	8.928	9.126	9.319	9.510	9.697

VISCOSITES du R507A à l'état surchauffé [μPa.s]

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
-105	0.018	6.749	6.955	7.162	7.369	7.577	7.784	7.992	8.201	8.409	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89
-100	0.029	6.955	7.162	7.369	7.577	7.784	7.992	8.201	8.409	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09
-95	0.046	7.162	7.369	7.577	7.784	7.992	8.201	8.409	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30
-90	0.069	7.369	7.577	7.784	7.992	8.201	8.409	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50
-85	0.102	7.577	7.784	7.992	8.201	8.409	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70
-80	0.146	7.784	7.992	8.201	8.409	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90
-75	0.206	7.992	8.201	8.409	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10
-70	0.284	8.201	8.409	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30
-65	0.384	8.409	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50
-60	0.511	8.617	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50	12.70
-55	0.669	8.825	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50	12.70	12.89
-50	0.864	9.033	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50	12.70	12.89	13.09
-45	1.101	9.241	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50	12.70	12.89	13.09	13.29
-40	1.387	9.449	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50	12.70	12.90	13.09	13.29	13.49
-35	1.727	9.656	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50	12.70	12.90	13.10	13.29	13.49	13.69
-30	2.128	9.863	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50	12.70	12.90	13.10	13.30	13.50	13.69	13.89
-25	2.598	10.07	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50	12.70	12.90	13.10	13.30	13.50	13.70	13.90	14.09
-20	3.144	10.28	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.30	12.50	12.70	12.90	13.11	13.31	13.51	13.71	13.90	14.10	14.30
-15	3.773	10.48	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.10	12.31	12.51	12.70	12.91	13.11	13.32	13.52	13.72	13.91	14.11	14.31	14.50
-10	4.493	10.69	10.89	11.09	11.30	11.50	11.70	11.90	12.11	12.31	12.51	12.71	12.91	13.12	13.33	13.53	13.73	13.93	14.13	14.32	14.52	14.71
-5	5.312	10.89	11.09	11.30	11.50	11.70	11.91	12.11	12.31	12.51	12.72	12.93	13.13	13.34	13.54	13.74	13.95	14.14	14.34	14.54	14.73	14.93
0	6.240	11.09	11.30	11.50	11.71	11.91	12.11	12.31	12.51	12.73	12.94	13.15	13.36	13.56	13.76	13.97	14.17	14.36	14.56	14.76	14.95	15.14
5	7.284	11.30	11.51	11.71	11.91	12.12	12.32	12.53	12.75	12.96	13.17	13.38	13.59	13.79	13.99	14.19	14.39	14.59	14.79	14.98	15.18	15.37
10	8.453	11.51	11.72	11.92	12.12	12.33	12.55	12.77	12.99	13.20	13.41	13.62	13.82	14.03	14.23	14.43	14.63	14.82	15.02	15.21	15.41	15.60
15	9.758	11.73	11.93	12.15	12.37	12.59	12.81	13.02	13.24	13.45	13.66	13.86	14.07	14.27	14.47	14.67	14.87	15.06	15.26	15.45	15.64	15.83
20	11.21	11.97	12.20	12.42	12.64	12.86	13.08	13.29	13.50	13.71	13.92	14.12	14.32	14.53	14.73	14.92	15.12	15.32	15.51	15.70	15.89	16.08
25	12.81	12.29	12.51	12.72	12.94	13.15	13.36	13.57	13.78	13.99	14.19	14.39	14.59	14.79	14.99	15.19	15.38	15.58	15.77	15.96	16.15	16.34
30	14.59	12.64	12.84	13.05	13.26	13.46	13.67	13.87	14.08	14.28	14.48	14.68	14.88	15.08	15.27	15.47	15.66	15.85	16.04	16.23	16.42	16.60
35	16.54	13.03	13.21	13.41	13.60	13.80	14.00	14.20	14.40	14.60	14.79	14.99	15.18	15.38	15.57	15.76	15.95	16.14	16.33	16.51	16.70	16.88
40	18.68	13.49	13.64	13.81	13.99	14.18	14.36	14.55	14.74	14.94	15.13	15.32	15.51	15.70	15.89	16.07	16.26	16.45	16.63	16.82	17.00	17.18
45	21.03	14.03	14.13	14.27	14.43	14.59	14.77	14.94	15.12	15.31	15.49	15.67	15.86	16.04	16.23	16.41	16.59	16.77	16.95	17.14	17.32	17.49
50	23.59	14.71	14.72	14.80	14.92	15.06	15.21	15.38	15.54	15.71	15.89	16.06	16.24	16.41	16.59	16.77	16.95	17.12	17.30	17.48	17.65	17.83
55	26.40	15.59	15.43	15.43	15.50	15.60	15.72	15.86	16.01	16.16	16.32	16.49	16.65	16.82	16.99	17.16	17.33	17.50	17.67	17.84	18.01	18.18
60	29.47	16.84	16.33	16.19	16.17	16.22	16.30	16.41	16.53	16.66	16.81	16.95	17.11	17.26	17.42	17.58	17.75	17.91	18.07	18.24	18.40	18.57
65	32.83	18.88	17.51	17.13	16.99	16.95	16.98	17.04	17.13	17.23	17.35	17.48	17.61	17.75	17.90	18.05	18.20	18.35	18.51	18.67	18.82	18.98