Forane® 407A

(20.0% R-32, 40.0% R-125, 40.0% R-134a by weight)

Thermodynamic Properties (Saturation) - SI

This data was generated using the NIST REFPROP Database

(Lemmon, E.W., Huber, M.L., McLinden, M.O. NIST Standard Reference Database 23: Reference Fluid Thermodynamic and Transport Properties-REFPROP, Version 9.0, National Institute of Standards and Technology, Standard Reference Data Program, Gaithersburg, 2010)

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Thermodynamic Properties of R-407A - Saturation

Temperature (℃)	Pressure (kPa)		Volume (m^3/kg)		Density (kg/m^3)		Enthalpy (kJ/kg)		Entropy (kJ/(kg K))		Temperature (℃)
	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	
-100	2.5	1.2	0.0006	13.0150	1570.1	0.077	70.38	338.93	0.4130	2.0021	-100
-99	2.8	1.4	0.0006	11.8020	1567.1	0.085	71.66	339.52	0.4204	1.9960	-99
-98	3.0	1.5	0.0006	10.7180	1564.1	0.093	72.93	340.11	0.4276	1.9900	-98
-97	3.3	1.7	0.0006	9.7465	1561.1	0.103	74.20	340.70	0.4349	1.9841	-97
-96	3.6	1.8	0.0006	8.8752	1558.1	0.113	75.46	341.29	0.4420	1.9783	-96
-95	4.0	2.0	0.0006	8.0927	1555.1	0.124	76.73	341.88	0.4492	1.9727	-95
-94	4.3	2.2	0.0006	7.3888	1552.1	0.135	77.99	342.48	0.4562	1.9671	-94
-93	4.7	2.5	0.0006	6.7548	1549.1	0.148	79.26	343.07	0.4633	1.9617	-93
-92	5.1	2.7	0.0006	6.1829	1546.2	0.162	80.52	343.66	0.4703	1.9563	-92
-91	5.5	3.0	0.0006	5.6664	1543.2	0.176	81.78	344.26	0.4772	1.9511	-91
-90	6.0	3.2	0.0006	5.1994	1540.2	0.192	83.04	344.86	0.4841	1.9460	-90
-89	6.5	3.5	0.0007	4.7765	1537.2	0.209	84.30	345.45	0.4910	1.9410	-89
-88	7.1	3.9	0.0007	4.3931	1534.2	0.228	85.56	346.05	0.4978	1.9360	-88
-87	7.6	4.2	0.0007	4.0451	1531.2	0.247	86.82	346.65	0.5046	1.9312	-87
-86	8.2	4.6	0.0007	3.7288	1528.2	0.268	88.08	347.25	0.5113	1.9265	-86
-85	8.9	5.0	0.0007	3.4410	1525.3	0.291	89.34	347.85	0.5180	1.9218	-85
-84	9.6	5.5	0.0007	3.1788	1522.3	0.315	90.60	348.45	0.5247	1.9173	-84
-83	10.3	5.9	0.0007	2.9397	1519.3	0.340	91.86	349.05	0.5313	1.9128	-83
-82	11.1	6.4	0.0007	2.7214	1516.3	0.367	93.11	349.65	0.5379	1.9085	-82
-81	12.0	7.0	0.0007	2.5219	1513.3	0.397	94.37	350.25	0.5445	1.9042	-81
-80	12.9	7.6	0.0007	2.3393	1510.3	0.427	95.63	350.86	0.5510	1.9000	-80
-79	13.8	8.2	0.0007	2.1721	1507.3	0.460	96.89	351.46	0.5575	1.8958	-79
-78	14.8	8.9	0.0007	2.0187	1504.3	0.495	98.14	352.06	0.5639	1.8918	-78
-77	15.9	9.6	0.0007	1.8780	1501.4	0.532	99.40	352.66	0.5704	1.8878	-77
-76	17.0	10.3	0.0007	1.7486	1498.4	0.572	100.66	353.27	0.5768	1.8840	-76
-75	18.2	11.1	0.0007	1.6297	1495.4	0.614	101.92	353.87	0.5831	1.8801	-75
-74	19.5	12.0	0.0007	1.5202	1492.4	0.658	103.17	354.47	0.5894	1.8764	-74
-73	20.8	12.9	0.0007	1.4192	1489.4	0.705	104.43	355.08	0.5957	1.8727	-73
-72	22.2	13.8	0.0007	1.3261	1486.3	0.754	105.69	355.68	0.6020	1.8691	-72
-71	23.7	14.9	0.0007	1.2402	1483.3	0.806	106.95	356.28	0.6083	1.8656	-71
-70	25.3	16.0	0.0007	1.1608	1480.3	0.861	108.21	356.89	0.6145	1.8622	-70
-69	26.9	17.1	0.0007	1.0873	1477.3	0.920	109.47	357.49	0.6206	1.8588	-69
-68	28.7	18.3	0.0007	1.0193	1474.3	0.981	110.73	358.09	0.6268	1.8554	-68
-67	30.5	19.6	0.0007	0.9563	1471.3	1.046	111.99	358.70	0.6329	1.8522	-67
-66	32.4	21.0	0.0007	0.8979	1468.2	1.114	113.26	359.30	0.6390	1.8490	-66
-65	34.4	22.4	0.0007	0.8437	1465.2	1.185	114.52	359.90	0.6451	1.8458	-65
-64	36.6	24.0	0.0007	0.7933	1462.2	1.261	115.78	360.51	0.6512	1.8428	-64
-63	38.8	25.6	0.0007	0.7465	1459.1	1.340	117.05	361.11	0.6572	1.8397	-63
-62	41.1	27.3	0.0007	0.7029	1456.1	1.423	118.31	361.71	0.6632	1.8368	-62
-61	43.6	29.0	0.0007	0.6624	1453.0	1.510	119.58	362.31	0.6692	1.8339	-61
-60	46.1	30.9	0.0007	0.6246	1450.0	1.601	120.84	362.91	0.6751	1.8310	-60
-59	48.8	32.9	0.0007	0.5893	1446.9	1.697	122.11	363.51	0.6810	1.8282	-59
-58	51.6	35.0	0.0007	0.5564	1443.8	1.797	123.38	364.11	0.6869	1.8254	-58
-57	54.5	37.1	0.0007	0.5257	1440.7	1.902	124.65	364.71	0.6928	1.8227	-57
-56	57.6	39.4	0.0007	0.4970	1437.7	2.012	125.92	365.30	0.6987	1.8201	-56
-55	60.8	41.8	0.0007	0.4702	1434.6	2.127	127.20	365.90	0.7045	1.8175	-55
-54	64.2	44.4	0.0007	0.4451	1431.5	2.247	128.47	366.50	0.7103	1.8150	-54
-53	67.6	47.0	0.0007	0.4216	1428.4	2.372	129.74	367.09	0.7161	1.8125	-53
-52	71.3	49.8	0.0007	0.3995	1425.3	2.503	131.02	367.69	0.7219	1.8100	-52
-51	75.1	52.7	0.0007	0.3788	1422.2	2.640	132.30	368.28	0.7276	1.8076	-51
-50	79.0	55.7	0.0007	0.3594	1419.0	2.782	133.58	368.87	0.7334	1.8052	-50
-49	83.2	58.9	0.0007	0.3412	1415.9	2.931	134.86	369.46	0.7391	1.8029	-49
-48	87.4	62.2	0.0007	0.3241	1412.8	3.085	136.14	370.05	0.7448	1.8006	-48

Thermodynamic Properties of R-407A - Saturation

Temperature (℃)	Pressure (kPa)		Volume (m^3/kg)		Density (kg/m^3)		Enthalpy (kJ/kg)		Entropy (kJ/(kg K))		Temperature (℃)
	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	
-47	91.9	65.7	0.0007	0.3080	1409.6	3.247	137.42	370.64	0.7504	1.7984	-47
-46	96.5	69.3	0.0007	0.2929	1406.5	3.414	138.70	371.23	0.7561	1.7962	-46
-45	101.4	73.1	0.0007	0.2786	1403.3	3.589	139.99	371.82	0.7617	1.7940	-45
-44	106.4	77.0	0.0007	0.2652	1400.2	3.771	141.28	372.40	0.7673	1.7919	-44
-43	111.6	81.1	0.0007	0.2526	1397.0	3.959	142.56	372.99	0.7729	1.7898	-43
-42	117.0	85.4	0.0007	0.2406	1393.8	4.156	143.85	373.57	0.7785	1.7878	-42
-41	122.6	89.8	0.0007	0.2294	1390.6	4.359	145.15	374.15	0.7841	1.7858	-41
-40	128.4	94.5	0.0007	0.2188	1387.4	4.571	146.44	374.73	0.7896	1.7838	-40
-39	134.4	99.3	0.0007	0.2087	1384.2	4.791	147.73	375.31	0.7951	1.7818	-39
-38	140.7	104.3	0.0007	0.1993	1381.0	5.019	149.03	375.89	0.8006	1.7799	-38
-37	147.2	109.6	0.0007	0.1903	1377.7	5.255	150.33	376.46	0.8061	1.7781	-37
-36	153.9	115.0	0.0007	0.1818	1374.5	5.500	151.63	377.04	0.8116	1.7762	-36
-35	160.8	120.6	0.0007	0.1738	1371.2	5.754	152.93	377.61	0.8171	1.7744	-35
-34	168.0	126.5	0.0007	0.1662	1368.0	6.018	154.24	378.18	0.8225	1.7726	-34
-33	175.5	132.5	0.0007	0.1590	1364.7	6.290	155.54	378.75	0.8279	1.7709	-33
-32	183.2	138.8	0.0007	0.1521	1361.4	6.573	156.85	379.31	0.8333	1.7692	-32
-31	191.1	145.4	0.0007	0.1457	1358.1	6.865	158.16	379.88	0.8387	1.7675	-31
-30	199.3	152.1	0.0007	0.1395	1354.8	7.168	159.47	380.44	0.8441	1.7658	-30
-29	207.8	159.1	0.0007	0.1337	1351.5	7.480	160.79	381.00	0.8495	1.7642	-29
-28	216.6	166.4	0.0007	0.1281	1348.2	7.804	162.10	381.56	0.8548	1.7626	-28
-27	225.6	173.9	0.0007	0.1229	1344.8	8.138	163.42	382.12	0.8602	1.7610	-27
-26	235.0	181.7	0.0007	0.1179	1341.5	8.484	164.74	382.67	0.8655	1.7595	-26
-25	244.6	189.8	0.0007	0.1131	1338.1	8.841	166.07	383.22	0.8708	1.7580	-25
-24	254.5	198.1	0.0007	0.1086	1334.7	9.210	167.39	383.77	0.8761	1.7565	-24
-23	264.8	206.7	0.0008	0.1043	1331.4	9.591	168.72	384.32	0.8814	1.7550	-23
-22	275.3	215.6	0.0008	0.1002	1327.9	9.985	170.05	384.87	0.8867	1.7535	-22
-21	286.2	224.8	0.0008	0.0962	1324.5	10.391	171.38	385.41	0.8919	1.7521	-21
-20	297.4	234.3	0.0008	0.0925	1321.1	10.810	172.72	385.95	0.8972	1.7507	-20
-19	309.0	244.1	0.0008	0.0890	1317.6	11.242	174.05	386.49	0.9024	1.7493	-19
-18	320.9	254.2	0.0008	0.0856	1314.2	11.688	175.39	387.02	0.9077	1.7479	-18
-17	333.1	264.7	0.0008	0.0823	1310.7	12.147	176.74	387.56	0.9129	1.7466	-17
-16	345.7	275.4	0.0008	0.0792	1307.2	12.621	178.08	388.09	0.9181	1.7453	-16
-15	358.6	286.6	0.0008	0.0763	1303.7	13.110	179.43	388.61	0.9233	1.7440	-15
-14	371.9	298.0	0.0008	0.0735	1300.2	13.613	180.78	389.14	0.9285	1.7427	-14
-13	385.6	309.8	0.0008	0.0708	1296.6	14.132	182.13	389.66	0.9336	1.7414	-13
-12	399.7	322.0	0.0008	0.0682	1293.1	14.667	183.49	390.18	0.9388	1.7402	-12
-11	414.1	334.5	0.0008	0.0657	1289.5	15.217	184.85	390.69	0.9439	1.7389	-11
-10	429.0	347.4	0.0008	0.0634	1285.9	15.784	186.21	391.21	0.9491	1.7377	-10
-9	444.2	360.6	0.0008	0.0611	1282.3	16.367	187.57	391.72	0.9542	1.7365	-9
-8	459.9	374.3	0.0008	0.0589	1278.7	16.968	188.94	392.22	0.9593	1.7353	-8
-7	476.0	388.4	0.0008	0.0569	1275.0	17.586	190.31	392.72	0.9644	1.7342	-7
-6	492.5	402.8	0.0008	0.0549	1271.4	18.222	191.69	393.22	0.9695	1.7330	-6
-5	509.4	417.7	0.0008	0.0530	1267.7	18.877	193.06	393.72	0.9746	1.7319	-5
-4	526.7	432.9	0.0008	0.0512	1264.0	19.550	194.44	394.21	0.9797	1.7307	-4
-3	544.5	448.6	0.0008	0.0494	1260.2	20.243	195.83	394.70	0.9848	1.7296	-3
-2	562.8	464.8	0.0008	0.0477	1256.5	20.955	197.22	395.19	0.9899	1.7285	-2
-1	581.5	481.3	0.0008	0.0461	1252.7	21.688	198.61	395.67	0.9949	1.7274	-1
0	600.7	498.3	0.0008	0.0446	1248.9	22.441	200.00	396.15	1.0000	1.7264	0
1	620.3	515.8	0.0008	0.0431	1245.1	23.215	201.40	396.62	1.0051	1.7253	1
2	640.4	533.7	0.0008	0.0416	1241.3	24.011	202.80	397.09	1.0101	1.7242	2
3	661.1	552.2	0.0008	0.0403	1237.4	24.829	204.20	397.56	1.0151	1.7232	3
4	682.2	571.0	0.0008	0.0390	1233.5	25.670	205.61	398.02	1.0202	1.7222	4
5	703.8	590.4	0.0008	0.0377	1229.6	26.535	207.03	398.47	1.0252	1.7211	5

Thermodynamic Properties of R-407A - Saturation

Temperature (℃)	Pressure (kPa)		Volume (m^3/kg)		Density (kg/m^3)		Enthalpy (kJ/kg)		Entropy (kJ/(kg K))		Temperature (℃)
	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	
6	725.9	610.3	0.0008	0.0365	1225.7	27.423	208.44	398.93	1.0302	1.7201	6
7	748.5	630.6	0.0008	0.0353	1221.7	28.335	209.86	399.37	1.0352	1.7191	7
8	771.7	651.5	0.0008	0.0342	1217.7	29.273	211.29	399.82	1.0402	1.7181	8
9	795.4	672.9	0.0008	0.0331	1213.7	30.237	212.72	400.26	1.0452	1.7171	9
10	819.6	694.9	0.0008	0.0320	1209.7	31.226	214.15	400.69	1.0502	1.7161	10
11	844.4	717.3	0.0008	0.0310	1205.6	32.243	215.59	401.12	1.0552	1.7151	11
12	869.7	740.3	0.0008	0.0300	1201.5	33.287	217.03	401.54	1.0602	1.7142	12
13	895.6	763.9	0.0008	0.0291	1197.4	34.360	218.48	401.96	1.0652	1.7132	13
14	922.0	788.0	0.0008	0.0282	1193.2	35.462	219.93	402.37	1.0702	1.7122	14
15	949.1	812.8	0.0008	0.0273	1189.0	36.594	221.38	402.78	1.0752	1.7112	15
16	976.7	838.0	0.0008	0.0265	1184.8	37.757	222.85	403.18	1.0802	1.7103	16
17	1004.9	863.9	0.0008	0.0257	1180.5	38.951	224.31	403.58	1.0851	1.7093	17
18	1033.8	890.4	0.0009	0.0249	1176.2	40.177	225.78	403.97	1.0901	1.7083	18
19	1063.2	917.5	0.0009	0.0241	1171.9	41.437	227.26	404.35	1.0951	1.7074	19
20	1093.2	945.2	0.0009	0.0234	1167.5	42.731	228.74	404.73	1.1001	1.7064	20
21	1123.9	973.6	0.0009	0.0227	1163.1	44.060	230.22	405.10	1.1050	1.7055	21
22	1155.2	1002.5	0.0009	0.0220	1158.7	45.425	231.72	405.46	1.1100	1.7045	22
23	1187.2	1032.2	0.0009	0.0214	1154.2	46.828	233.21	405.82	1.1150	1.7035	23
24	1219.8	1062.5	0.0009	0.0207	1149.7	48.269	234.72	406.17	1.1199	1.7026	24
25	1253.1	1093.4	0.0009	0.0201	1145.1	49.749	236.23	406.51	1.1249	1.7016	25
26	1287.0	1125.0	0.0009	0.0195	1140.5	51.269	237.74	406.85	1.1299	1.7006	26
27	1321.6	1157.4	0.0009	0.0189	1135.8	52.832	239.26	407.17	1.1349	1.6996	27
28	1356.9	1190.4	0.0009	0.0184	1131.2	54.437	240.79	407.49	1.1398	1.6986	28
29	1392.9	1224.1	0.0009	0.0178	1126.4	56.087	242.32	407.80	1.1448	1.6976	29
30	1429.6	1258.6	0.0009	0.0173	1121.6	57.782	243.86	408.11	1.1498	1.6966	30
31	1467.0	1293.8	0.0009	0.0168	1116.8	59.525	245.41	408.40	1.1548	1.6956	31
32	1505.1	1329.7	0.0009	0.0163	1111.9	61.317	246.97	408.68	1.1598	1.6946	32
33	1543.9	1366.3	0.0009	0.0158	1106.9	63.159	248.53	408.96	1.1648	1.6936	33
34	1583.5	1403.8	0.0009	0.0154	1101.9	65.053	250.10	409.22	1.1698	1.6926	34
35	1623.8	1442.0	0.0009	0.0149	1096.9	67.001	251.67	409.48	1.1748	1.6915	35
36	1664.9	1481.0	0.0009	0.0145	1091.8	69.005	253.26	409.72	1.1798	1.6904	36
37	1706.8	1520.8	0.0009	0.0141	1086.6	71.067	254.85	409.96	1.1848	1.6894	37
38	1749.4	1561.4	0.0009	0.0137	1081.3	73.188	256.45	410.18	1.1898	1.6883	38
39	1792.8	1602.8	0.0009	0.0133	1076.0	75.372	258.06	410.40	1.1949	1.6872	39
40	1837.0	1645.1	0.0009	0.0129	1070.7	77.620	259.68	410.60	1.1999	1.6860	40
41	1881.9	1688.2	0.0009	0.0125	1065.2	79.935	261.30	410.78	1.2050	1.6849	41
42	1927.7	1732.1	0.0009	0.0121	1059.7	82.320	262.94	410.96	1.2100	1.6837	42
43	1974.4	1777.0	0.0009	0.0118	1054.1	84.777	264.58	411.12	1.2151	1.6825	43
44	2021.8	1822.7	0.0010	0.0115	1048.4	87.309	266.24	411.27	1.2202	1.6813	44
45	2070.1	1869.3	0.0010	0.0111	1042.7	89.921	267.90	411.41	1.2253	1.6801	45
46	2119.2	1916.9	0.0010	0.0108	1036.8	92.614	269.58	411.53	1.2304	1.6788	46
47	2169.2	1965.3	0.0010	0.0105	1030.9	95.393	271.27	411.63	1.2355	1.6776	47
48	2220.0	2014.8	0.0010	0.0102	1024.9	98.261	272.97	411.72	1.2407	1.6762	48
49	2271.8	2065.1	0.0010	0.0099	1018.8	101.220	274.68	411.79	1.2458	1.6749	49
50	2324.4	2116.5	0.0010	0.0096	1012.5	104.290	276.40	411.85	1.2510	1.6735	50
51	2377.9	2168.8	0.0010	0.0093	1006.2	107.450	278.14	411.88	1.2562	1.6721	51
52	2432.3	2222.1	0.0010	0.0090	999.7	110.720	279.89	411.90	1.2614	1.6707	52
53	2487.7	2276.5	0.0010	0.0088	993.2	114.110	281.66	411.90	1.2667	1.6692	53
54	2543.9	2331.9	0.0010	0.0085	986.5	117.620	283.44	411.87	1.2720	1.6676	54
55	2601.1	2388.4	0.0010	0.0082	979.6	121.260	285.23	411.83	1.2773	1.6660	55
56	2659.3	2445.9	0.0010	0.0080	972.6	125.030	287.05	411.76	1.2826	1.6644	56
57	2718.4	2504.5	0.0010	0.0078	965.5	128.950	288.88	411.66	1.2880	1.6627	57
58	2778.5	2564.3	0.0010	0.0075	958.2	133.020	290.73	411.54	1.2934	1.6610	58

Thermodynamic Properties of R-407A - Saturation

Temperature (℃)	Pressure (kPa)		Volume (m^3/kg)		Density (kg/m^3)		Enthalpy (kJ/kg)		Entropy (kJ/(kg K))		Temperature (℃)
	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	
59	2839.6	2625.2	0.0011	0.0073	950.7	137.250	292.60	411.39	1.2988	1.6591	59
60	2901.7	2687.3	0.0011	0.0071	943.0	141.660	294.49	411.21	1.3043	1.6573	60
61	2964.8	2750.5	0.0011	0.0068	935.2	146.250	296.41	411.00	1.3099	1.6553	61
62	3028.9	2815.0	0.0011	0.0066	927.1	151.050	298.35	410.75	1.3155	1.6533	62
63	3094.0	2880.7	0.0011	0.0064	918.7	156.060	300.31	410.47	1.3211	1.6512	63
64	3160.2	2947.7	0.0011	0.0062	910.1	161.310	302.31	410.14	1.3268	1.6489	64
65	3227.4	3016.0	0.0011	0.0060	901.2	166.820	304.34	409.77	1.3326	1.6466	65
66	3295.7	3085.7	0.0011	0.0058	892.0	172.610	306.40	409.36	1.3385	1.6442	66
67	3365.0	3156.7	0.0011	0.0056	882.4	178.710	308.51	408.89	1.3444	1.6416	67
68	3435.5	3229.1	0.0011	0.0054	872.4	185.160	310.65	408.36	1.3505	1.6389	68
69	3507.0	3303.0	0.0012	0.0052	862.0	191.980	312.84	407.77	1.3567	1.6360	69
70	3579.6	3378.4	0.0012	0.0050	851.0	199.240	315.09	407.11	1.3630	1.6329	70
71	3653.3	3455.4	0.0012	0.0048	839.5	206.980	317.40	406.36	1.3695	1.6297	71
72	3728.1	3534.0	0.0012	0.0046	827.2	215.280	319.78	405.53	1.3761	1.6262	72
73	3804.0	3614.4	0.0012	0.0045	814.2	224.230	322.25	404.58	1.3830	1.6224	73
74	3881.0	3696.5	0.0012	0.0043	800.2	233.950	324.81	403.52	1.3901	1.6183	74
75	3959.0	3780.6	0.0013	0.0041	785.1	244.580	327.49	402.30	1.3975	1.6138	75
76	4038.0	3866.8	0.0013	0.0039	768.5	256.330	330.33	400.90	1.4054	1.6088	76
77	4117.9	3955.2	0.0013	0.0037	750.1	269.520	333.36	399.27	1.4137	1.6031	77
78	4198.6	4046.1	0.0014	0.0035	729.1	284.610	336.65	397.33	1.4228	1.5967	78
79	4279.8	4140.0	0.0014	0.0033	704.4	302.370	340.33	394.98	1.4330	1.5891	79
80	4360.9	4237.7	0.0015	0.0031	673.6	324.420	344.68	391.96	1.4450	1.5797	80
81	4401.9	4340.5	0.0020	0.0028	508.2	353.880	364.18	387.80	1.4999	1.5670	81
82	4507.6	4455.6	0.0018	0.0025	547.1	407.270	360.88	380.07	1.4900	1.5444	82