



R-407A

Technical Guidelines

Physical Properties of Refrigerants	R-407A
Environmental Classification	HFC
Molecular Weight	90.1
Boiling Point (1 atm, °F)	-49.9
Critical Pressure (psia)	658.6
Critical Temperature (°F)	181
Critical Density, (lb./ft ³)	31.4
Liquid Density (70 °F, lb./ft ³)	72.6
Vapor Density (bp, lb./ft ³)	0.291
Heat of Vaporization (bp, BTU/lb.)	100.8
Specific Heat Liquid (70 °F, BTU/lb. °F)	0.3554
Specific Heat Vapor (1 atm, 70 °F, BTU/lb. °F)	0.1967
Ozone Depletion Potential (CFC 11 = 1.0)	0
Global Warming Potential (CO ₂ = 1.0)	2110
ASHRAE Standard 34 Safety Rating	A1
Temperature Glide (°F) (see section 2)	10

Available in the following sizes

- R-407A
- 25 LB. CYLINDER
- 100 LB. CYLINDER
- 925 LB. CYLINDER
- 1550 LB. CYLINDER

R-407A

(R-32 /125 /134a)
(20 / 40 / 40 wt%)

Replaces: R-22

Applications: Medium and low temperature commercial and industrial direct expansion refrigeration

Performance:

- Slightly lower discharge temperature
- Closest capacity match
- Similar PT and flow properties = no component changes

Lubricant

Recommendation: Compatible with polyolester lubricant

Retrofitting to: R-407A in R-22 Refrigeration page 94

Pressure-Temp Chart

Temp (°F)	R-407A	
	Liquid (psig)	Vapor (psig)
-40	3.9	1.0"
-35	6.4	1.0
-30	9.2	3.3
-25	12.2	5.8
-20	15.6	8.5
-15	19.2	11.5
-10	23.2	14.9
-5	27.5	18.5
0	32.2	22.5
5	37.3	26.9
10	42.8	31.6
15	48.7	36.7
20	55.1	42.3
25	62.0	48.3
30	69.3	54.8
35	77.2	61.8
40	85.6	69.4
45	94.6	77.4
50	104	86.1
55	114	95.3
60	125	105
65	137	116
70	149	127
75	162	139
80	175	152
85	190	165
90	205	179
95	221	194
100	238	210
105	255	227
110	274	245
115	293	264
120	314	284
125	335	305
130	358	327
135	382	350
140	406	375



THERMODYNAMIC PROPERTIES OF R-407A

Temp [°F]	Pressure Liquid [psia]	Pressure Vapor [psia]	Density Liquid [lb/ft ³]	Density Vapor [lb/ft ³]	Enthalpy Liquid [Btu/lb]	Enthalpy Vapor [Btu/lb]	Entropy Liquid [Btu/R-lb]	Entropy Vapor [Btu/R-lb]
-60	10.8	7.6	88.81	0.164	-6.1454	95.41	-0.01496	0.2434
-55	12.5	8.9	88.26	0.189	-4.6163	96.12	-0.01117	0.2418
-50	14.3	10.3	87.72	0.218	-3.0826	96.82	-0.00741	0.2404
-45	16.4	11.9	87.17	0.250	-1.5440	97.52	0.00369	0.2390
-40	18.6	13.7	86.61	0.285	0.000	98.21	0.00000	0.2376
-35	21.1	15.7	86.05	0.325	1.5496	98.90	0.00366	0.2364
-30	23.9	18.0	85.49	0.368	3.1052	99.59	0.00729	0.2351
-25	26.9	20.4	84.92	0.416	4.6672	100.3	0.01088	0.2340
-20	30.3	23.2	84.35	0.469	6.2358	100.9	0.01446	0.2329
-15	33.9	26.2	83.77	0.527	7.8114	101.6	0.01800	0.2319
-10	37.9	29.6	83.18	0.591	9.3945	102.3	0.02152	0.2309
-5	42.2	33.2	82.59	0.660	10.99	102.9	0.02502	0.2299
0	46.9	37.2	81.99	0.736	12.58	103.6	0.02849	0.2290
5	52.0	41.6	81.39	0.818	14.19	104.2	0.03195	0.2281
10	57.5	46.3	80.77	0.908	15.81	104.8	0.03538	0.2273
15	63.4	51.4	80.15	1.005	17.44	105.4	0.03880	0.2264
20	69.8	57.0	79.52	1.111	19.07	106.0	0.04219	0.2257
25	76.7	63.0	78.88	1.225	20.72	106.6	0.04558	0.2249
30	84.0	69.5	78.23	1.349	22.38	107.2	0.04894	0.2242
35	91.9	76.5	77.57	1.482	24.05	107.8	0.05230	0.2235
40	100	84.1	76.90	1.626	25.73	108.3	0.05564	0.2228
45	109	92.1	76.21	1.782	27.42	108.9	0.05897	0.2221
50	119	101	75.52	1.949	29.13	109.4	0.06229	0.2214
55	129	110	74.81	2.130	30.85	109.9	0.06561	0.2208
60	140	120	74.08	2.325	32.59	110.4	0.06892	0.2202
65	151	130	73.34	2.534	34.35	110.9	0.07222	0.2195
70	164	142	72.58	2.760	36.12	111.3	0.07552	0.2189
75	176	154	71.80	3.003	37.91	111.7	0.07882	0.2182
80	190	166	71.01	3.265	39.72	112.1	0.08213	0.2176
85	204	180	70.19	3.548	41.55	112.5	0.08543	0.2169
90	220	194	69.34	3.853	43.40	112.9	0.08874	0.2163
95	236	209	68.48	4.183	45.27	113.2	0.09206	0.2156
100	252	225	67.58	4.539	47.17	113.4	0.09539	0.2148
105	270	242	66.65	4.925	49.10	113.7	0.09874	0.2141
110	289	260	65.69	5.345	51.06	113.9	0.1021	0.2133
115	308	279	64.69	5.801	53.06	114.1	0.1055	0.2125
120	329	299	63.64	6.298	55.09	114.2	0.1089	0.2116
125	350	320	62.55	6.843	57.16	114.2	0.1124	0.2107
130	373	342	61.39	7.443	59.28	114.2	0.1159	0.2097
135	396	365	60.17	8.106	61.45	114.1	0.1194	0.2086
140	421	390	58.87	8.843	63.69	113.9	0.1230	0.2074