



R-408A

R-408A

Composition: (R-125 / 143a / 22) • (7 / 46 / 47 wt%)

Replaces: R-502

Application:

Medium and low temperature commercial and industrial refrigeration

Performance:

- Similar PT properties across the whole operating range of temperatures
- Slightly higher discharge temperature

Lubricant:

Mineral oil, alkylbenzene, and polyolester lubricant

Retrofitting:

- Consult the comments on Pages 9 and 10
- See Section II, pages 92-98 for detailed discussion

[PRESSURE-TEMP CHART]

TEMP. (°F)	R-408A psig
-40	2.8
-35	5.1
-30	7.6
-25	10.4
-20	13.5
-15	16.8
-10	20.4
-5	24.4
0	28.7
5	33.3
10	38.3
15	43.7
20	49.5
25	55.8
30	62.5
35	69.7
40	77.4
45	85.6
50	94.3
55	104
60	114
65	124
70	135
75	147
80	159
85	173
90	186
95	201
100	217
105	233
110	250
115	268
120	287
125	307
130	327
135	349
140	372

[PHYSICAL PROPERTIES OF REFRIGERANTS]

	National R-408A
Environmental Classification	HCFC
Molecular Weight	87
Boiling Point (1atm, °F)	-49.8
Critical Pressure (psia)	641.6
Critical Temperature (°F)	182
Critical Density (lb./ft ³)	30
Liquid Density (70 °F, lb./ft ³)	66.9
Vapor Density (bp, lb./ft ³)	0.303
Heat of Vaporization (bp, BTU/lb.)	96.74
Specific Heat Liquid (70 °F, BTU/lb. °F)	0.3416
Specific Heat Vapor (1atm, 70 °F, BTU/lb. °F)	0.1901
Ozone Depletion Potential (CFC 11 = 1.0)	0.024
Global Warming Potential (CO ₂ = 1.0)	3152
ASHRAE Standard 34 Safety Rating	A1
Temperature Glide (°F) (see section 2)	1

[AVAILABLE IN SIZES]

REFRIGERANT	Type	Size
R-408A	Cylinder	24 lb.
		100 lb.



Thermodynamic Properties of R-408A

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	11.2	10.9	81.70	0.2288	-5.734	92.47	-0.01396	0.2320
-55	12.8	12.5	81.21	0.2604	-4.311	93.14	-0.01043	0.2306
-50	14.6	14.3	80.72	0.2954	-2.881	93.79	-0.00692	0.2293
-45	16.7	16.3	80.22	0.3339	-1.444	94.45	-0.00345	0.2280
-40	18.9	18.5	79.72	0.3763	0.000	95.10	0.00000	0.2268
-35	21.4	21.0	79.21	0.4228	1.451	95.74	0.00342	0.2257
-30	24.1	23.7	78.70	0.4736	2.910	96.38	0.00682	0.2246
-25	27.1	26.6	78.18	0.5291	4.376	97.01	0.01020	0.2235
-20	30.3	29.8	77.65	0.5896	5.851	97.64	0.01356	0.2225
-15	33.9	33.3	77.13	0.6554	7.334	98.26	0.01689	0.2215
-10	37.7	37.1	76.59	0.7268	8.826	98.87	0.02021	0.2206
-5	41.9	41.3	76.05	0.8042	10.33	99.47	0.02350	0.2197
0	46.4	45.8	75.50	0.8879	11.84	100.1	0.02678	0.2189
5	51.3	50.7	74.95	0.9784	13.36	100.7	0.03005	0.2181
10	56.6	55.9	74.39	1.076	14.89	101.2	0.03329	0.2173
15	62.3	61.5	73.82	1.181	16.43	101.8	0.03653	0.2165
20	68.4	67.6	73.24	1.295	17.98	102.4	0.03975	0.2158
25	74.9	74.1	72.65	1.416	19.54	102.9	0.04295	0.2150
30	81.9	81.1	72.06	1.547	21.12	103.4	0.04615	0.2143
35	89.4	88.5	71.45	1.688	22.71	103.9	0.04934	0.2137
40	97.4	96.5	70.84	1.839	24.31	104.4	0.05251	0.2130
45	105.9	104.9	70.21	2.001	25.92	104.9	0.05568	0.2124
50	115.0	113.9	69.58	2.175	27.55	105.4	0.05885	0.2117
55	124.6	123.5	68.93	2.361	29.19	105.9	0.06200	0.2111
60	134.8	133.7	68.26	2.561	30.85	106.3	0.06516	0.2105
65	145.6	144.5	67.59	2.775	32.52	106.7	0.06831	0.2098
70	157.1	155.9	66.90	3.005	34.22	107.1	0.07146	0.2092
75	169.2	167.9	66.19	3.251	35.93	107.5	0.07461	0.2086
80	181.9	180.7	65.46	3.515	37.66	107.9	0.07776	0.2079
85	195.4	194.1	64.72	3.799	39.41	108.2	0.08092	0.2073
90	209.6	208.3	63.95	4.104	41.18	108.5	0.08409	0.2066
95	224.6	223.2	63.16	4.433	42.98	108.8	0.08726	0.2060
100	240.3	238.9	62.34	4.787	44.80	109.0	0.09045	0.2052
105	256.9	255.5	61.50	5.169	46.65	109.2	0.09365	0.2045
110	274.3	272.8	60.62	5.583	48.53	109.4	0.09688	0.2037
115	292.6	291.1	59.71	6.031	50.45	109.5	0.10001	0.2029
120	311.7	310.2	58.76	6.520	52.40	109.6	0.1034	0.2021
125	331.8	330.3	57.76	7.053	54.40	109.6	0.1067	0.2012
130	352.8	351.3	56.71	7.638	56.44	109.5	0.1101	0.2002
135	374.9	373.3	55.60	8.284	58.54	109.4	0.1135	0.1991
140	398.0	396.4	54.41	9.002	60.71	109.2	0.1170	0.1979