

Refrigerant R-407C

A non-flammable, non-ozone depleting replacement for R-22 in HVAC applications.

Overview

Daikin R-407C is characterized by low toxicity, highest efficiency amongst alternatives, and excellent thermal stability. Mainly used as a refrigerant for domestic and commercial air conditioning and heat pump applications. It can also be used for low and medium temperature refrigeration applications.

R-407C is the recommended refrigerant for retrofit of R22 in domestic and commercial HVAC, providing the closest match in capacity and efficiency. Successful R-407C retrofit requires the replacement of oil and elastomers. Contact the OEM manufacturer or Daikin America for retrofit guidelines.

R-407C falls under US EPA SNAP and is currently scheduled as no longer acceptable for certain end uses in the U.S. for new and retrofit equipment; such as domestic refrigeration. R-407C use is unrestricted for service and maintenance purposes. Please refer to US EPA SNAP for most up to date rulings and decisions (<https://www.epa.gov/snap>).

	R-407C	R-22
Composition	R-32/R-125/R-134a (23/25/52 mass%)	R-22 (100 mass%)
Liquid Density (at 77°F)	71.0 lbm/ft ³	74.3 lbm/ft ³
Vapor Density (at 77°F)	2.7 lbm/ft ³	2.8 lbm/ft ³
Boiling Point (at 1atm)	-43.6°F	-41.5°F
Critical Temperature	187.1°F	205.1°F
Critical Pressure	672.9 psi	723.7 psi
Saturated Vapor Pressure (at 77°F)	147.9 psi	151.4 psi
Ozone Depletion Potential (ODP)*	0	0.055
Global Warming Potential (GWP)**	1770 / 1530	1810 / 1760
Temperature Glide (Evaporation)***	11.1°F	0°F
COP (% vs R22)	97.0%	100%
Capacity (% vs R22)***	97.5%	100%
ASHRAE Classification Refrigerant Type	Class A1 Zeotropic Blend	Class A1
Appearance	Colorless	Colorless
Flammability	Nonflammable	Nonflammable

* Montreal Protocol reporting values

** IPCC Fourth Assessment Report / Fifth Assessment Report

*** 105F Ambient; 25F Evaporating; 10F SH and SC; Compressor Eff 70%

Pressure Temperature Chart

Temp °F	R-407C			R-22
	Bubble Pressure (psig)	Dew Pressure (psig)	Average Pressure (psig)	Bubble/Dew Pressure (psig)
-40	2.7	-2.3	0.24	0.6
-35	5.1	-0.4	2.34	2.6
-30	7.7	1.6	4.68	4.9
-25	10.6	3.9	7.26	7.4
-20	13.7	6.5	10.10	10.2
-15	17.2	9.3	13.22	13.2
-10	20.9	12.3	16.65	16.5
-5	25.0	15.7	20.39	20.1
0	29.5	19.4	24.46	24.0
5	34.3	23.5	28.90	28.3
10	39.5	27.9	33.71	32.8
15	45.2	32.7	38.92	37.8
20	51.2	37.9	44.54	43.1
25	57.7	43.5	50.61	48.8
30	64.7	49.6	57.15	55.0
35	72.2	56.1	64.17	61.5
40	80.2	63.2	71.70	68.6
45	88.8	70.7	79.76	76.1
50	97.9	78.8	88.37	84.1
55	107.6	87.5	97.57	92.6
60	117.9	96.8	107.38	101.6
65	128.9	106.7	117.82	111.2
70	140.5	117.3	128.91	121.4
75	152.8	128.5	140.69	132.2
80	165.8	140.5	153.18	143.6
85	179.6	153.2	166.41	155.7
90	194.1	166.7	180.40	168.4
95	209.4	181.0	195.19	181.8
100	225.5	196.1	210.81	195.9
105	242.4	212.1	227.29	210.8
110	260.3	229.0	244.65	226.4
115	279.0	246.9	262.94	242.8
120	298.6	265.8	282.18	260.0
125	319.2	285.7	302.42	278.0
130	340.7	306.6	323.70	296.9
135	363.3	328.8	346.04	316.7
140	387.0	352.1	369.51	337.4

Handling Method and Safety Information

R-407C is a liquefied high-pressure gas. Please refer to the Safety Data Sheet (SDS) before use.

Packaging Specifications

R-407C is available in 25lb disposable and 115lb returnable containers.

Compatibility Information

R-407C is compatible with most existing HFC system components. Specifically, existing polyol ester lubricants (POE), filter dryers, gaskets, elastomers, and plastics. Please contact the component manufacturers for specific recommendations.

Additional Information

Additional field trial, retrofit guides and technical data are available upon request and at www.daikin-america.com