

# FORANE®

## REFRIGERANTS

CAS No. 754-12-1 (HFO-1234yf) / 811-97-2 (HFC-134a)

# Forane® 513A

2,3,3,3 Tetrafluoropropene (HFO-1234yf) / 1,1,1,2-Tetrafluoroethane (HFC-134a)

### GENERAL DESCRIPTION

Forane® 513A is a low GWP, zeotropic, A1 (non-flammable) HFO refrigerant blend with properties very closely matching R-134a. It can be used in applications including centrifugal chillers, medium temperature refrigeration, and air conditioning and heat pumps. Forane® 513A's efficiency and performance is similar to R-134a's and is compatible with materials of construction and oils normally used with R-134a.

### PROPERTIES

Appearance	Colorless liquefied gas
Odor	Faint, ether-like odor
Molecular Mass (g/mole of blend)	108.4
ANSI/ASHRAE Standard 34 Safety Group Classification	A1
Ozone Depletion Potential (ODP) (CFC-11 = 1.0)	0
Global Warming Potential (GWP <sup>(1)</sup> ) (CO <sub>2</sub> = 1.0)	630

(1) GWP according to IPCC AR4. Values for 100-year time horizon.

### TEMPERATURE

	50°F	70°F	105°F	115°F	130°F
Vapor Pressure, psia <sup>(2)</sup>	65.7	92.4	157.8	181.6	222.2
Liquid Density, lb./ft <sup>3</sup> (2)	74.2	71.7	66.9	65.3	62.8

(2) Generated using NIST REFPROP Version 10.0.

### SPECIFICATIONS

(Meets AHRI 700 - 2019 Specifications)

	Maximum (unless otherwise indicated)
2,3,3,3 Tetrafluoropropene (HFO-1234yf), wt %	56.0 (55.0-57.0)
1,1,1,2-Tetrafluoroethane (HFC-134a), wt %	44.0 (43.0-45.0)
Air and Other Non-condensable Gases, vol %	1.5
Volatile Impurities, wt %	0.5
High Boiling Residue, vol %	0.01
Moisture (H <sub>2</sub> O), ppm by wt	10
Acidity, ppm by wt (as HCl)	1.0
Chloride, no visible turbidity (indicates about 3 ppm)	Pass
Particulates/solids (visually clean to pass)	Pass

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BEFORE HANDLING THIS MATERIAL, READ AND UNDERSTAND THE SDS (SAFETY DATA SHEET) FOR ADDITIONAL INFORMATION ON PERSONAL PROTECTIVE EQUIPMENT AND FOR SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION.

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