



Opteon™ XP40

Refrigerant

Product Information

Opteon™ XP40 (R-449A) is a non-ozone depleting low global warming potential (GWP), hydrofluoro-olefin (HFO)-based refrigerant with an optimal balance of properties to replace R-404A/R-507, R-22, or R-407 series refrigerants in a positive displacement, direct expansion, low- and medium-temperature commercial and industrial applications.

Opteon™ XP40 is suitable for new installations, as well as for the retrofit of existing systems, offering improved energy efficiency and environmental properties.

Applications

Low- and medium-temperature commercial and industrial DX refrigeration systems and applications.

- New equipment/retrofit of existing systems
- Supermarkets
 - Centralized rack systems
 - Distributed systems
 - Walk-in coolers/freezers, prep rooms, etc.
- Food service (e.g., condensing units)
- Cold storage
- Self-contained systems

Benefits

- Low GWP: 67% reduction compared to R-404A/R-507⁽¹⁾
- Up to 12% lower energy consumption compared to R-404A/R-507
- Safe and nonflammable (ASHRAE⁽²⁾ A1)
- Approved by major equipment and component manufacturers
- Can be topped off after leaks
- Extensively field tested and proven
 - No lubricant or seal changes required when retrofitting from R-404A/R-507. Superheat adjustments likely.
 - Compatible with existing R-22/R-407 series equipment. For R-22 retrofits, oil change and seal replacements are recommended.
 - Alternative to R-407 series low- and medium-temperature refrigerants (equivalent capacity)

⁽¹⁾According to Assessment Report 5 (AR5)

⁽²⁾American Society of Heating, Refrigerating, and Air Conditioning Engineers



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Opteon™ XP40 Properties

ASHRAE Number	R-449A
Composition	R-32/R-125/R-1234yf/R-134a
Weight %	24.3/24.7/25.3/25.7
Molecular Weight	87.2 g/mol
Normal Boiling Point (1 atm)	-45.7 °C (-50.3 °F)
Critical Pressure	4499.7 kPa (652.6 psia)
Critical Temperature	82.1 °C (179.8 °F)
Liquid Density at 21.1 °C (70 °F)	1114.1 kg/m ³ (69.5 lb/ft ³)
Ozone Depletion Potential (CFC-11 = 1.0)	0
AR4 (AR5) GWP (CO ₂ = 1.0)	1397 (1282)
ASHRAE Safety Classification	A1
Temperature Glide	-4.0 K (-7.2 R)

What to expect after retrofitting

The data below was obtained from a display case/condensing unit converted to Opteon™ XP40 from R-404A with only adjustments to the EEV (updated for R-449A PT curve) during low- and medium- temperature operation at indoor conditions specified by AHRI Standard 1200. Test setup was in accordance with ASHRAE Standard 72-2005.⁽⁴⁾

	Medium Temperature		Low Temperature	
Ambient Temperature	28 °C (82 °F)	35 °C (95 °F)	28 °C (82 °F)	35 °C (95 °F)
Energy Consumption	-8%	-12%	-3%	-4%
Relative Mass Flow	-16%	-17%	-19%	-21%
Suction Pressure	-27.5 kPa (-4.0 psi)	-31.0 kPa (-4.5 psi)	-8.0 kPa (-1.2 psi)	-11.7 kPa (-1.7 psi)
Discharge Pressure	-48.2 kPa (-7 psi)	-34.5 kPa (-5 psi)	-31 kPa (-4.5 psi)	-37.2 kPa (-5.4 psi)
Discharge Temperature	+3 K (+5.4 °R)	+2 K (+3.6 °R)	+5 K (+9 °R)	+5 K (+9 °R)

+ is an increase, - is a decrease relative to R-404A

⁽⁴⁾Actual performance for a specific system depends on a number of factors, including equipment conditions and operating environment.

For more information on the Opteon™ family of refrigerants, or other refrigerants products, visit opteon.com or call (800) 235-7882.

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