

# **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 in positive displacement, direct expansion, low- and medium-temperature commercial and industrial applications.

Opteon  $^{\text{TM}}$  XP40 is suitable for new installations, as well as for retrofit of existing systems, offering improved energy efficiency and environmental properties.

### **Applications**

Low- and medium-temperature commercial and industrial DX refrigeration

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

#### **Benefits**

- Low GWP: 65% reduction compared to R-404A/R-507<sup>(1)</sup>
- 8-12% lower energy consumption compared to R-404A/R-507
- Safe and nonflammable (ASHRAE<sup>(2)</sup> A1)
- Approved by major equipment and component manufacturers
- Extensively field tested with no equipment/lubricant/ seal changes (superheat adjustment may be required)
- Alternative to R-407 series low- and mediumtemperature refrigerants (equivalent capacity)
- Compatible with existing equipment design/lubricants
- Can be topped off after leaks

(1)According to Assessment Report 4 (AR4)

<sup>(2)</sup>American Society of Heating, Refrigerating, and Air-Conditioning Engineers





Opteon™ XP40 Refrigerant

#### Opteon™ XP40 Properties

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ASHRAE Number	R-449A			
Composition	R-32/R-125/HFO-1234yf/R-134a			
Weight %	24.3/24.7/25.3/25.7			
Molecular Weight	87.2 g/mole (87.2 lb/lb mole)			
Boiling Point at 101.3 kPa (1 atm)	-46.0 °C (-50.7 °F)			
Critical Pressure	4447 kPa [abs] (655.0 psia)			
Critical Temperature	81.5 °C (178.7 °F)			
Liquid Density at 21.1 °C (70 °F)	1113.3 kg/m³ (69.5 lb/ft³)			
Ozone Depletion Potential (CFC-11 = 1.0)	0			
AR4 Global Warming Potential (CO <sub>2</sub> = 1.0)	1397			
ASHRAE Safety Classification	A1			
Temperature Glide	-4 K (-7 °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 TXV (1.5 turns closed) during low- and medium-temperature operation at two ambient conditions per ASHRAE Standard 72-2005.<sup>[3]</sup>

	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	+0 kPa (+0 psi)	+35 kPa (+5 psi)	-8 kPa (-1 psi)	-12 kPa (-2 psi)
Discharge Pressure	-48 kPa (-7 psi)	-35 kPa (-5 psi)	-31 kPa (-4.5 psi)	-37 kPa (-5.4 psi)
Discharge Temperature	+3 K (+5.4 °R)	+2 K (+3.6 °R)	+5 K (+9 °R)	+5 K (+9 °R)

<sup>+</sup> is an increase, - is a decrease relative to R-404A

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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<sup>(3)</sup> Actual performance for a specific system depends on a number of factors, including equipment conditions and operating environment.