



Opteon™ XP44

Refrigerant (R-452A)

Product Information

Opteon™ XP44 (R-452A) is a non-ozone depleting, low Global Warming Potential (GWP) hydrofluoro-olefin based refrigerant developed to replace R-404A/R-507A in positive displacement, direct expansion low and medium temperature refrigeration applications where low discharge temperatures are required. Opteon™ XP44 is suitable in new equipment as well as for retrofit of existing systems, offering comparable energy efficiency with improved environmental properties but without increased compressor discharge temperatures.

Applications

- Low and medium temperature transport DX refrigeration
 - Refrigerated trucks
 - Refrigerated vans
 - Reefer containers
- Low and medium temperature commercial and industrial DX refrigeration
- New equipment/retrofit of existing systems
- Ideal for low temperature hermetic compressor systems

Benefits

- Non-ozone depleting and lower GWP (approx. 50 % reduction vs. R-404A/R-507A) ¹⁾
- No increase in compressor discharge temperature compared to R-404A
- Comparable energy efficiency vs. R-404A/R-507A
- Provides quick, easy and low cost retrofit from R-404A/R-507A

- Safe and non-flammable (ASHRAE ²⁾ A1)
- Approved and adopted by major equipment manufacturers
- Alternative to R-407 series low and medium temperature refrigerants
- Miscible with POE lubricants
- Can be topped off after leaks

Opteon™ XP44 properties

ASHRAE Number	R-452A
Composition Wt %	R-32/R-125/R-1234yf 11.0/59.0/30.0
Molecular Weight	103.5 g/mol
Boiling Point @ 1 atm (101.3 kPa)	-47.0 °C
Critical Pressure	4002 kPa
Critical Temperature	74.9 °C
Liquid Density @ 21.1 °C	1148.8 kg/m ³
Ozone Depletion Potential (CFC-11 = 1.0)	0
AR4 Global Warming Potential (CO ₂ = 1.0)	2141
ASHRAE Safety Classification	A1
Temperature Glide	~3 K

1) According to Assessment Report 4 (AR4) which is the basis for the F-Gas regulation (EU) No. 517/2014.

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



What to expect after retrofitting

The data below was obtained from theoretical cycle calculations for medium temperature (-8 °C mean evaporating temperature) and low temperature (-35 °C mean evaporating temperature) refrigeration scenarios. For both the medium and low temperature scenarios the following parameters were used; evaporator superheat = 8 K, Suction line Superheat = 12 K, Liquid subcooling = 2 K and compressor isentropic efficiency = 70%. ³⁾

	Medium Temperature		Low Temperature	
	30 °C	45 °C	30 °C	45 °C
Mean Condensing Temperature	30 °C	45 °C	30 °C	45 °C
Cooling Capacity	+1%	+2%	-1%	-1%
C.O.P.	+1%	+2%	+1%	+2%
Relative Mass Flow	+2%	+1%	-1%	-1%
Suction Pressure	-13 kPa	-16 kPa	-9 kPa	-10 kPa
Discharge Pressure	+5 kPa	+15 kPa	+5 kPa	+15 kPa
Discharge Temperature	+2.2 K	+2.3 K	+2.5 K	+2.7 K

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

³⁾ 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 Chemours Refrigerants products visit [opteon.com](https://www.opteon.com)

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