



Opteon™ XP41

Refrigerant (R-463A)

Product Information

Opteon™ XP41 (R-463A) is a non-ozone depleting, low global warming potential (GWP), hydrofluoroolefin (HFO)-based refrigerant with an optimal balance of properties to replace R-410A in positive displacement, direct expansion, low- and medium-temperature commercial and industrial refrigeration applications.

Applications

Low- and medium-temperature commercial and industrial DX refrigeration

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

Benefits

- ASHRAE Class A1 nonflammable refrigerant
- GWP <1500 replacement for R-410A
- Close design match to R-410A-sized equipment
- Similar miscibility to R-410A with POE and PVE oils

Opteon™ XP41 Properties

ASHRAE Number	R-463A
Composition	R-125/R-134a/R-32/R-1234yf/CO ₂
Weight %	30/14/36/14/6
Molecular Weight	74.7 g/mol
Boiling Point at 101.3 kPa (1 atm)	59.1 °C (-74.4 °F)
Critical Pressure	5191 kPa [abs] (752.9 psia)
Critical Temperature	75.2 °C (167.4 °F)
Liquid Density at 21.1 °C (70 °F)	1071.2 kg/m ³
Ozone Depletion Potential (CFC-11 = 1.0)	0
AR5 Global Warming Potential	1397
ASHRAE Safety Classification	A1
Temperature Glide	~6.5 K (~11.7 °R)

Opteon™ XP41 Cycle Calculations

Depending on operating conditions, the capacity of Opteon™ XP41 will be within 4–8% of the capacity of R-410A with equivalent energy performance. Adjustments to mechanical expansion valves might be required to reach equivalent superheat. Due to similar discharge temperatures of R-410A and Opteon™ XP41, any discharge temperature recommendation for R-410A should apply to Opteon™ XP41.

Conditions: 40 °C Condenser, -35 °C Evaporator, -15 °C Suction Temperature, 0 K Subcool

Refrigerant	Relative Capacity	Relative COP	Relative Mass Flow Rate	Suction Pressure (kPa)	Discharge Pressure (kPa)	Discharge Temperature (°C)
R-410A	1.00	1.00	1.00	218.4	2422.2	123.8
Opteon™ XP41 (R-463A)	0.92	0.99	1.00	197.8	2409.6	122.7

Conditions: 40 °C Condenser, -10 °C Evaporator, 10 °C Suction Temperature, 0 K Subcool

Refrigerant	Relative Capacity	Relative COP	Relative Mass Flow Rate	Suction Pressure (kPa)	Discharge Pressure (kPa)	Discharge Temperature (°C)
R-410A	1.00	1.00	1.00	218.4	2422.2	96.1
Opteon™ XP41 (R-463A)	0.96	0.99	1.00	197.8	2409.6	95.8

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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