Chemours R449A (Opteon TM XP40) refrigerant is a HFO mixture. Used as a replacement for R404A and R507 in low and medium temperature refrigeration applications. R449A (Opteon TM XP40) is suitable for new installations and renovation of existing equipment. Its Global Warming Potential (GWP) of 1397 provides improved energy efficiency and environmental attributes | Chemours R449A Features and Benefits:

●	R449A refrigerant is a HFO refrigerant and is mainly used to replace R22, R404A, R507 and R407 series refrigerants.
●	Non-azeotropic refrigerant mixture containing R32, R125, R1234yf and R134a. Refrigerant must be added from the liquid phase to ensure accurate composition.
●	Type A gas refrigerant cylinders have dual-port valves to make liquid draining easier. Non-flammable and has safety rating A1.
●	Low GWP 1397, 64% less than R404A. Performance is very close to that of R404A.
●	The compressor must be filled with polyol oil, please contact the compressor manufacturer for more information.

R449A refrigerant is used in volumetric, direct expansion, medium temperature commercial and industrial refrigeration systems, such as supermarkets (parallel units, decentralized systems, small refrigerators, freezers, meal preparation rooms, etc.), food industry (condensing units, etc.), cold chain warehousing, independent built-in systems, etc.	R449A Refrigerant Application
R449A refrigerant cylinders are pressurized containers. They should be stored away from fire, heat sources, and direct sunlight. They are usually stored in a cool, dry and ventilated warehouse. They should be loaded and unloaded lightly during transportation to prevent damage to cylinders, valves and other accessories.	Storage and Transportation
R449A has zero ozone depletion potential and low global warming potential. It is suitable for new equipment installation and existing equipment modification, and can improve energy efficiency and environmental characteristics.	R449A Refrigerant Advantages
Without making any changes to the original unit, and using the midpoint of the suction side as the evaporation temperature benchmark, the compression condensing unit using R449A refrigerant has slightly better operating status than original R404A unit, and has greater substitution potential.	

Opteon™(欧特昂™)XP40性能

ASHRAE编号	R-449A
组成	R-32/R-125/HFO-1234yf/R-134a
重量占比%	24.3/24.7/25.3/25.7
分子量	87.2 g/mole (87.2 lb/lb mole)
101.3 kPa(一个标准大气压)下的沸点	-46.0 °C (-50.7 °F)
临界压力	4447 kPa [绝对值] (655.0 磅/平方英寸)
临界温度	81.5 °C (178.7 °F)
21.1°C (70°F) 下的液体密度	1113.3 kg/m³ (69.5 lb/ft³)
破坏臭氧潜值(CFC-11 = 1.0)	0
全球气候变化专项委员会(IPCC)第四次评估报告(AR4)全球变暖潜值 (CO2 = 1.0)	1397
ASHRAE安全分类	A1
温度滑移	-4 K (-7 °R)

改造后的变化

根据ASHRAE标准72-2005，在两个环境温度下的低温和中温运行，仅通过调节热力膨胀阀(调节1.5圈)，将展示柜或冷凝机组中的R-404A转换为Opteon™(欧特昂™)XP40，从而获得以下数据。[3]

	中温		低温	
环境温度	28 °C (82 °F)	35 °C (95 °F)	28 °C (82 °F)	35 °C (95 °F)
能耗	-8%	-12%	-3%	-4%
相对质量流量	-16%	-17%	-19%	-21%
吸气压力	+0 kPa (+0 磅/平方英寸)	+35 kPa (+5 磅/平方英寸)	-8 kPa (-1 磅/平方英寸)	-12 kPa (-2 磅/平方英寸)
排气压力	-48 kPa (-7 磅/平方英寸)	-35 kPa (-5 磅/平方英寸)	-31 kPa (-4.5 磅/平方英寸)	-37 kPa (-5.4 磅/平方英寸)
排气温度	+3 K (+5.4 °R)	+2 K (+3.6 °R)	+5 K (+9 °R)	+5 K (+9 °R)

+ 表示相对于R-404A的增加，-表示相对于R-404A的减少。

[3]特定系统的实际性能取决于许多因素，包括设备状态和操作环境。