



Opteon™ XP40 (R-449A)

Refrigerant

The Market Leading Solution for Retail Refrigeration

Opteon™ XP40 (R-449A) was commercially launched in October 2014 by Chemours (formerly DuPont) and quickly became the market leading low GWP R-404A replacement. Since the product launched many supermarket chains in the United States, Canada, Germany, Spain, Italy, Belgium, Austria, UK, France, Greece and the Netherlands have installed Opteon™ XP40 in both low temperature and medium temperature applications. The results from trials were consistently positive with energy savings ranging from 2-3% in low temperature applications and 8-11% in the medium temperature applications when compared to R-404A.

You may be asking, how does Opteon™ XP40 compare with R-448A?

The composition differences between Opteon™ XP40 and R-448A is minor with R-448A containing an additional component, R-1234ZE.

As can be seen in Tables 2 and 3, the cooling capacity and energy efficiency of both products are very similar, but Table 3 shows Opteon™ XP40 has a more favorable compressor discharge temperature, smaller temperature glide, slightly lower condensing pressure, and a slightly improved pressure ratio compared to R-448A.

Taking into account the excellent performance, large amount of practical experience, the widespread availability, and the improved properties, it's no wonder Opteon™ XP40 has become the leading nonflammable low GWP alternative for retailers across the globe.

Table 1. Composition comparison

Product	R-32	R-125	R-134a	R-1234ZE	R-1234YF
Opteon™ XP40 (R-449A)	24.3%	24.7%	25.7%	NA	25.3%
R-448A	26%	26%	21%	7%	20%

Table 2. Low temperature (-35°C mean evaporating temperature) performance comparison

Product	Cooling Capacity ¹			C.O.P. ¹		
	Data Source			Data Source		
	Refprop ²	Bitzer ³	Emerson ⁴	Refprop ²	Bitzer ³	Emerson ⁴
Opteon™ XP40 (R-449A)	100	100	100	100	100	100
R-448A	101	101	98	100	101	98

Table 3. Medium temperature (-15°C mean evaporating temperature) performance comparison

Product	Cooling Capacity ¹			C.O.P. ¹		
	Data Source			Data Source		
	Refprop ²	Bitzer ³	Emerson ⁴	Refprop ²	Bitzer ³	Emerson ⁴
Opteon™ XP40 (R-449A)	100	100	100	100	100	100
R-448A	101	101	100	100	100	100

¹Expressed as a percentage of the Opteon™ XP40 value.

²NIST Standard Reference Database 23, Beta version 9.11 (April 24, 2014), DLL version number 9.1104 with updated fluid files available on request from www.opteon.com, Liquid subcooling=5K, total suction superheat=20K, useful superheat=5K, condensing temp=40°C, isentropic efficiency 0.7.

³Bitzer Software v6.4.3rev1302, Compressor model 6HE-28Y, Liquid subcooling=0K, total suction superheat=20K, useful superheat=5K, condensing temp=40°C.

⁴Emerson Software version 1.0.46(2), Database Version: April 10, 2015, compressor model ZS19KAE-TF5, Liquid subcooling=5K, total suction superheat=20K, useful superheat=5K, condensing temp=40°C.

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

