

DuPont™ ISCEON® 9 Series

REFRIGERANTS

Product Information Bulletin

DuPont™ ISCEON® MO29

ISCEON® MO29 (R-422D) is a non-ozone depleting HFC refrigerant for replacing R-22 in medium and low temperature direct expansion (DX) refrigeration applications including commercial supermarket systems, and in stationary DX air conditioning applications, including DX water chillers. ISCEON® MO29 is compatible with traditional and new lubricants. In most cases, no change of lubricant type during retrofit is required.

ASHRAE #: R-422D

Applications

- Medium and low temperature commercial and industrial DX refrigeration:
 - Food service
 - Supermarket display cases
 - Food storage and processing
 - Ice machines
- Residential and commercial AC
 - Best choice for DX water chillers

Benefits

- Provides easy, quick, cost-effective retrofits — easier retrofit than R-404A, R-507, and R-407C
- Non-ozone-depleting HFC
- Compatible with AB, MO and POE lubricants
 - In most cases, no change of lubricant type is needed
- Extensive field testing has been successful in many systems with no TXV change — superheat adjustment may be required
- Enables continued use of existing equipment
- Non-flammable. ASHRAE safety classification: A1
- Lower discharge temperature than R-22
 - Likely to prolong compressor life
- Low toxicity (similar to R-22)
- 30% lower Global Warming Potential (GWP) vs. R-404A and R-507
- After retrofit, can be topped off during service without removing the entire refrigerant charge

Expected Performance After Retrofit

Extensive field experience has shown that ISCEON® MO29 provides similar cooling capacity and energy efficiency to R-22 in most systems, while operating at lower compressor discharge temperature. Actual performance depends on system design and operating conditions.



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ISCEON® MO29 Performance Compared to R-22 in Refrigeration Systems

Performance with subcooling based on thermocycle calculations from calorimeter data and do not include heat transfer effects

	Low Temperature -32°C evaporator 41°C condenser 18°C return gas 6K subcooling	Med Temperature -7°C evaporator 49°C condenser 18°C return gas 6K subcooling
Discharge Temperature [K]	-18	-36
Discharge Pressure [kPa]	+70	+90
Refrigeration Cooling Capacity, %		-5
Energy Efficiency, %		Same

+ is increase and — is decrease for ISCEON® MO29 vs. R-22
 R-22 assumes demand cooling with discharge temperature of 135°C

Retrofit Considerations

ISCEON® MO29 is compatible with traditional and new lubricants — mineral oil, alkylbenzene and polyol ester — in most cases no change of lubricant type during retrofit is needed. Oil return is determined by a number of operating and design conditions — in some systems with complex piping configurations, POE may need to be added. Minor equipment modifications (e.g., seal replacement) or expansion device adjustments may be required in some applications. Refer to the ISCEON® MO29 Retrofit Guidelines for details.

Product Composition

Component	Weight %
HFC-134a	
HFC-125	
Isobutane	

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