

# DuPont™ ISCEON® 9 Series

## REFRIGERANTS

### Product Information Bulletin

## DuPont™ ISCEON® MO29

ISCEON® MO29 (R-422D) is an easy-to-use, non-ozone depleting HFC refrigerant for replacing R-22 in medium temperature direct expansion (DX) refrigeration applications (can also be used for low temperature), 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 temperature commercial and industrial DX refrigeration (can also be used for low temperature):
  - 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
  - Not subject to phase-out under the Montreal Protocol
- Compatible with AB, MO and POE lubricants
  - In most cases, no change of lubricant type is needed
- Field testing has been successful in many systems with no TXV change – superheat adjustment may be required
  - An assessment of TXV loading is required to determine if TXV change is required
- Enables continued use of existing equipment
- Non-flammable. ASHRAE safety classification: A1
- Significantly 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

*(Based on field experience, calorimeter testing and thermodynamic property data. Actual results may vary due to system design and operating conditions.)*

Broad field experience has shown that ISCEON® MO29 provides similar cooling capacity and energy efficiency to R-22 in most systems, while operating at significantly 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

	<b>Low Temperature</b> -25°F (-32°C) evaporator 105°F ( 41°C) condenser 65°F ( 18°C) return gas with 10°F (6°C) subcooling	<b>Med Temperature</b> 20°F (-7°C) evaporator 120°F (49°C) condenser 65°F (18°C) return gas with 10°F (6°C) subcooling
Discharge Temperature, °F (°C)	-33 (-18)	-64 (-36)
Discharge Pressure, psi (kPa)	+10 (+69)	+10 (+69)
Refrigeration Cooling Capacity, %	+8	-5
Energy Efficiency, %	+14	Same

+ is increase and – is decrease for ISCEON® MO29 vs. R-22  
 R-22 assumes demand cooling with discharge temperature of 275°F (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	31.5
HFC-125	65.1
Isobutane	3.4

**For Further Information: (800) 235-7882**

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