

DuPont™ ISCEON®

REFRIGERANTS

Product Information Bulletin

DuPont™ ISCEON® MO49Plus™

ISCEON® MO49Plus™ is an HFC retrofit refrigerant for R-12 in automotive air conditioning and stationary refrigeration systems and for replacing HCFC-containing refrigerant blends (e.g., MP39, MP66, and R-409A) in stationary refrigeration systems. ISCEON® MO49Plus™ also replaces ISCEON® MO49 (R-413A). ISCEON® MO49Plus™ is compatible with traditional and new lubricants; in most cases no change of lubricant type during retrofit is required.

ISCEON® MO49Plus™ is not recommended for use in centrifugal compressor systems or for chillers with flooded evaporators or low pressure receivers.

Note: ISCEON® MO49Plus™ is not available for automotive air-conditioning in the U.S.

ASHRAE #: R-437A *Pending

Applications

- Automotive AC systems designed for R-12
- Refrigeration systems designed for R-12
 - Food service
 - Supermarket display cases
 - Food storage and processing
 - Domestic refrigerators/freezers

Benefits

- Provides cost-effective retrofits
 - Replaces R-12, and HCFC-containing blends such as MP39, MP66, R-409A
 - Replaces ISCEON® MO49 (R-413A)
- Non-ozone-depleting HFC retrofit refrigerant
 - Not subject to phase-out under the Montreal Protocol
- Compatible with traditional lubricants
 - In most cases, no change of lubricant type is needed
- Enables continued use of existing equipment
- Up to 11% higher capacity compared to R-12
- Lower discharge temperature compared to R-12



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Expected Performance After Retrofit of R-12 Systems

(Based on thermodynamic property data. Actual results may vary due to system design and operating conditions).

ISCEON® MO49Plus™ provides up to 11% higher cooling capacity and similar to slightly lower energy efficiency in R-12 systems. ISCEON® MO49Plus™ operates at lower discharge temperatures vs. R-12.

ISCEON® MO49Plus™ Performance Comparison in Automotive Air-Conditioning System

	<p>41°F (5°C) Evaporator T 129°F (54°C) Condenser T 59°F (15°C) Return Gas T 70% Compressor Efficiency with 7°F (4 K) sub-cool</p>
Performance Relative to R-12:	MO49Plus™ R-437A*
Compressor Discharge Temperature, °F (°C)	-11 (-6)
Compressor Discharge Pressure, psia (kPa abs)	+45 (+312)
Cooling Capacity, %	+11
Energy Efficiency, %	-6
Temperature Glide, °F (K)	+3 (+1.7)

+ is increase and – is decrease in performance vs. R-12

ISCEON® MO49Plus™ Performance Comparison in Medium Temperature Refrigeration System

	<p>22°F (-5.6°C) Evaporator T 120°F (48.9°C) Condenser T 59°F (15°C) Return Gas T 70% Comp Efficiency with 10°F (5.6 K) sub-cool</p>			
Performance Relative to R-12	MO49Plus™ R-437A*	MP39 R-401A	MP66 R-401B	R-409A
Compressor Discharge Temperature °F (°C)	-14 (-8.1)	+18 (+10)	+22 (+12)	+18 (+10)
Compressor Discharge Pressure, psia (kPa abs)	+38 (+267)	+24 (+162)	+35 (+244)	+28 (+193)
Cooling Capacity, %	+11	+ 10	+17	+12
Energy Efficiency, %	-4	-1	-2	-2
Temperature Glide, °F (K)	+3 (+1.8)	+8 (+4.6)	+8 (+4.3)	+11 (+6.3)

+ is increase and – is decrease in performance vs. R-12

ISCEON® MO49Plus™ Performance Comparison in Low Temperature Refrigeration System

	-13°F (-25°C) Evaporator T 113°F (45°C) Condenser T 59°F (15°C) Return Gas T 70% Comp Efficiency with 10°F (5.6 K) sub-cool			
Performance Relative to R-12	MO49Plus™ R-437A*	MP39 R-401A	MP66 R-401B	R-409A
Compressor Discharge Temperature °F (°C)	-23 (-13)	+23 (+13)	+29 (+16)	+25 (+14)
Compressor Discharge Pressure, psia (kPa abs)	+34 (+237)	+21 (+142)	+32 (+218)	+25 (+172)
Cooling Capacity, %	+5	+4	+11	+6
Energy Efficiency, %	-3	-2	-2	-3
Temperature Glide, °F (K)	+3 (+1.8)	+8 (+4.6)	+8 (+4.3)	+11 (+6.3)

+ is increase and – is decrease in performance vs. R-12

Retrofit Considerations

In automotive air-conditioning and stationary refrigeration systems, ISCEON® MO49Plus™ is compatible with traditional and new lubricants. In most cases, no change of lubricant type during retrofit is needed. Refer to the ISCEON® MO49Plus™ Retrofit Guidelines for details.

For retrofit of existing R-12 automotive AC systems, minimal modifications are required and a change of lubricant type is usually not required. In some cases, the addition of a small amount of suitable PAG or POE may aid in oil return. Refer to ISCEON® MO49Plus™ Automotive Air-Conditioning Conversion Guidelines for details.

Safety

ISCEON® MO49Plus™ has ASHRAE safety classification of A1 and is non-flammable as formulated and under leakage scenarios as specified in ASHRAE standard 34-2007. See the Safety of DuPont Refrigerants (AS-1) bulletin and the MSDS for details.

Product Composition

Component	Weight %
HFC-134a (R-134a)	78.5
HFC-125 (R-125)	19.5
n-butane (R-600)	1.4
n-pentane (R-601)	0.6

For Further Information: (800) 235-2882

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