

Comparison of “No Oil Change” R-22 Replacement Products for Air Conditioning

	R-438A	R-422D	R-422B	R-421A*	R-424A
Brand Name	Freon™ M099	Genetron® 422D Freon™ M029	NU-22B®	Choice™	RS-44 Cool50
Capacity (%)	-7	-8	-12	-12	-15
COP (%)	-2	-4	-3	-5	-1
Suction Pressure (psi)	-3	+1	-6	-7	-11
Discharge Pressure (psi)	+5	+12	-5	-7	-17
Discharge Temperature (°F)	-30	-39	-37	-36	-38
Temperature Glide (°F)	+7	+5	+6	+6	+5.5
Mass Flow (%)	+12	+32	+20	+21	+12

Performance relative to R-22; (+) is increase, (-) is decrease

Calorimeter Data at AHRI Standard 540 air conditioning conditions

45°F Average Evaporator Temp/115°F Average Condenser Temp/65°F Return Gas Temp/15°F Subcool from Average Condenser Temp

*POE Oil Change typically recommended for “HFC Only” Blends

Freon™ M099

- Closest capacity to R-22 with comparable energy efficiency
- Best match to R-22 operating pressures
- Closest mass flow; best compatibility with existing A/C cap tubes and fixed metering devices



Criteria for Selecting a “No Oil Change” R-22 Replacement Product for Air Conditioning

Match Performance

All HFC blends designed to replace R-22 have a lower capacity than R-22, translating to longer compressor run-time, but typically comparable energy efficiency (COP). Many air conditioning systems are installed with some excess capacity, but the amount of excess will vary between systems. In order to provide the highest likelihood of success, the refrigerant with the closest match to overall capacity and energy efficiency should be selected.

Freon™ MO99 provides the closest performance match to R-22 relative to other “no-oil change” replacements.

Minimize Component Changes

Component changes during retrofits of R-22 systems cost HVAC contractors and end users time and money. Selecting a retrofit blend with a close match to operating pressures and mass flow rates of R-22 will minimize the overall cost of conversion. Refrigerants with 20-30% higher mass flow rate than R-22 are more likely to require a change in expansion devices (cap tubes, fixed orifices, etc.), which are commonly found in air conditioning applications. Replacement of filter driers and critical elastomeric seals is recommended during the conversion to any HFC blend.

Freon™ MO99 is the closest match to R-22 operating pressures and mass flow rates when compared to other “no-oil change” replacements. The use of MO99 will minimize system component changes.

For more information on Freon™ refrigerants, visit freon.com

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Replaces: K-26516
C-10259 (4/16)