

GENERAL REPLACEMENT GUIDE



R-22 REPLACEMENTS

<p>ISCEON® MO79 R-422A</p> <p>HFC Retrofit New Equipment</p> <p>Lubricant MO AB POE</p> <p>Evaporator Temp Medium Low</p> <p>Applications Refrigeration: Commercial Industrial</p>	<p>ISCEON® MO59 R-417A</p> <p>HFC Retrofit</p> <p>Lubricant MO AB POE</p> <p>Evaporator Temp High Medium</p> <p>Applications AC: Commercial Residential Refrigeration: Commercial</p>	<p>ISCEON® MO29 R-422D</p> <p>HFC Retrofit</p> <p>Lubricant MO AB POE</p> <p>Evaporator Temp High Medium Low</p> <p>Applications AC: DX Water chillers Commercial Residential Refrigeration: Commercial Industrial</p>	<p>Suva® 410A R-410A</p> <p>HFC New Equipment Only Designed for R-410A</p> <p>Lubricant POE</p> <p>Evaporator Temp High Medium</p> <p>Applications AC: Commercial Heat Pumps Residential</p>	<p>Suva® 407C R-407C</p> <p>HFC New Equipment</p> <p>Lubricant POE</p> <p>Evaporator Temp High Medium</p> <p>Applications AC: Commercial Lt Commercial Residential Refrigeration: Commercial</p>
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R-12 REPLACEMENTS

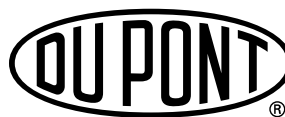
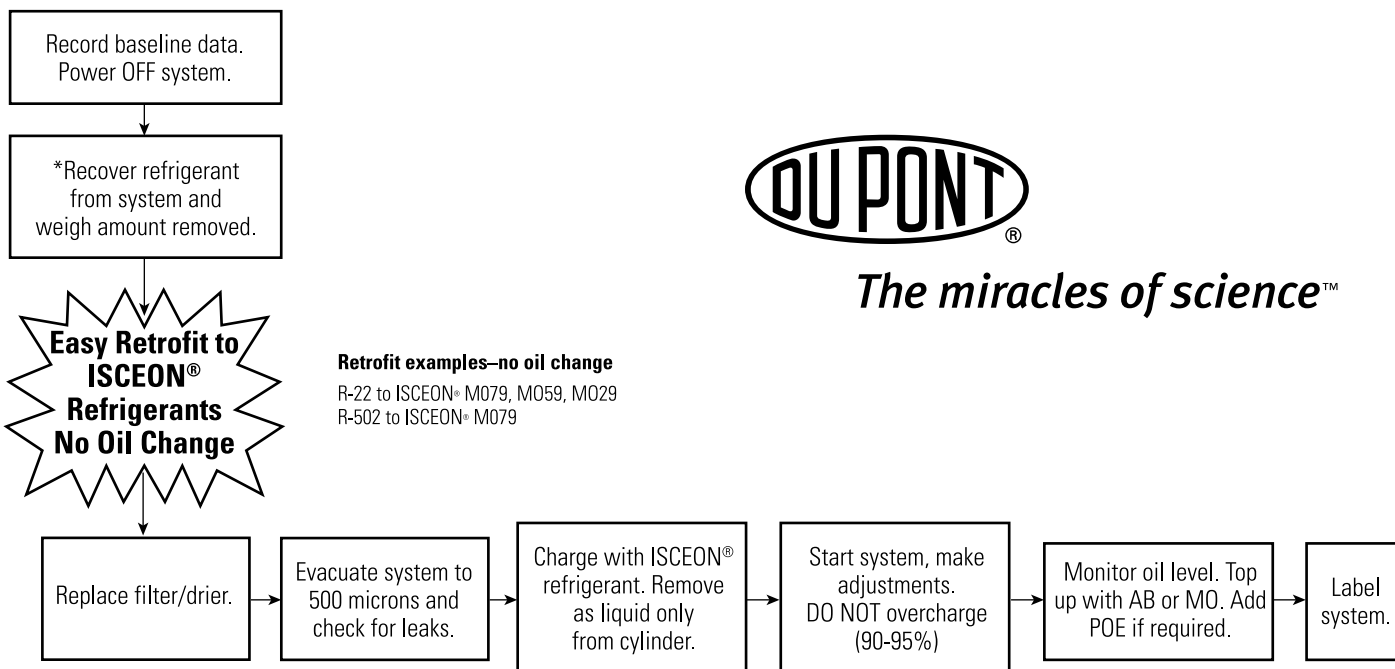
<p>ISCEON® 39TC® R-423A</p> <p>HFC Retrofit</p> <p>Lubricant POE single lubricant change</p> <p>Evaporator Temp High Medium</p> <p>Applications Centrifugal Chillers</p>	<p>Suva® 134a R-134a</p> <p>HFC New Equipment Retrofit</p> <p>Lubricant POE PAG (auto ac)</p> <p>Evaporator Temp High Medium (Above +20°F /-7°C)</p> <p>Applications Commercial Refrigeration: Appliances Chillers Automotive AC</p>	<p>Suva® MP39 R-401A</p> <p>HCFC Retrofit</p> <p>Lubricant AB MO</p> <p>Evaporator Temp Medium Low (Above -15°F /-26°C)</p> <p>Applications Refrigeration: Supermarket systems (medium temp) Walk-in coolers</p>	<p>Suva® MP66 R-401B</p> <p>HCFC Retrofit Also replaces R-500</p> <p>Lubricant AB MO</p> <p>Evaporator Temp Medium Low (Below -15°F /-26°C)</p> <p>Applications Refrigeration: Freezers Transport</p>	<p>Suva® 409A R-409A</p> <p>HCFC Retrofit</p> <p>Lubricant AB MO</p> <p>Evaporator Temp Medium Low (Above -15°F /-26°C)</p> <p>Applications Refrigeration: Supermarket systems (medium temp) Walk-in coolers</p>
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GENERAL REPLACEMENT GUIDE

R-502 REPLACEMENTS				
ISCEON® M079 R-422A HFC Retrofit New Equipment Lubricant MO AB POE Evaporator Temp Medium Low Applications Refrigeration: Commercial Industrial	Suva® 404A R-404A HFC New Equipment Lubricant POE Evaporator Temp Medium Low Applications Refrigeration: Commercial Industrial	Suva® 408A R-408A HCFC Service Refrigerant Lubricant AB MO Evaporator Temp Medium Low Applications Refrigeration: Commercial Industrial	Suva® 507 R-507 HFC New Equipment Lubricant POE Evaporator Temp Medium Low Applications Refrigeration: Commercial Industrial	Suva® HP80 R-402A HCFC Service Refrigerant Lubricant AB MO Evaporator Temp Medium Low Applications Refrigeration: Commercial Industrial

GENERAL RETROFIT GUIDE

For detailed information, please see our retrofit guidelines.



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Retrofit examples—no oil change
 R-22 to ISCEON® M079, M059, M029
 R-502 to ISCEON® M079

* For retrofit to HFC multiple oil changes, DO NOT remove CFC refrigerants until AFTER oil flushing is complete.

GENERAL REPLACEMENT GUIDE

SUGGESTED OIL GUIDE

ISCEON® Refrigerant	Recommended Lubricant	Alternate Lubricant
ISCEON® M029 (R-422D)	MO	AB - POE
ISCEON® 39TC® (R-423A)	POE (single lubricant change)	
ISCEON® M059 (R-417A)	MO	AB - POE
ISCEON® M079 (R-422A)	MO	AB - POE

ISCEON® 9 Series Refrigerants - Oil Change Guidelines

- ISCEON® 9 Series Refrigerants are 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.
- Field experience has shown that ISCEON® M079, M059 and M029 will work successfully with the existing mineral oil in most systems. In systems where oil return is a potential concern such as flooded evaporators or in systems where the suction line accumulator acts as a low pressure receiver, replacement of all, or part (~25%) of the compressor oil charge with an OEM approved polyol ester is recommended.
- ISCEON® 39TC® requires one lubricant change to POE during retrofit. ISCEON® 39TC® tolerates high residual levels of mineral oil; therefore no system flushing is required after changing the original lubricant to POE.

Suva® Refrigerant	Recommended Lubricant	Alternate Lubricant
Suva® 134a	POE/PAG (Auto AC)	
Suva® MP39 (R-401A)	AB	MO
Suva® 409A	AB	MO
Suva® MP66 (R-401B)	AB	MO
Suva® 95 (R-508B)	POE	
Suva® 404A	POE	
Suva® 507	POE	
Suva® HP80 (R-402A)	AB	MO
Suva® 408A	AB	MO
Suva® HP81 (R-402B)	AB	MO
Suva® 407C	POE	
Suva® 410A	POE	
Suva® 123	MO	AB

Suva® Refrigerants - Oil Change Guidelines

- Where possible, use OEM-recommended oil type, charge size, and viscosity.
- When converting many CFC systems to an HCFC service refrigerant (Suva® MP39, 409A, MP66, HP80, 408A, or HP81), AB is the recommended lubricant for optimum oil return. One compressor oil change to AB will typically remove between 50 and 80% of the existing MO which satisfies the recommendations/requirements of most compressor manufacturers.
- When converting a CFC or HCFC system to an HFC refrigerant such as Suva® 134a or 95, POE is the recommended lubricant. At least 95% of the MO or AB should be replaced with POE of similar viscosity. This typically requires multiple oil changes.

MO = Mineral Oil AB = Alkylbenzene POE = Polyol Ester

PERFORMANCE COMPARISON OF REPLACEMENT REFRIGERANTS

Refrigerant	Compared to	Discharge Pressure (psi)		Discharge Temp (°F)		Est. Cooling Capacity (%)		Est EER (%)		
		LT*	MT**	LT*	MT**	LT*	MT**	LT*	MT**	
R-22 HFC Replacements										
ISCEON® M029	R-22	+10	+12	-31	-66	+8	-5	+14	Same	
ISCEON® M079	R-22	+45	+53	-40	-70	+29	Same	+13	-8	
ISCEON® M059	R-22	-19	-23	-25	-62	-5	-13	+12	-1	
R-502 HFC Replacements										
ISCEON® M079	R-502	+3	+30	-13	-19	-1	Same	-4	Same	
Suva® 404A	R-502	+1	+27	Same	-10	+1	+1	-2	-3	

*Low Temperature: -25°F (-32°C) evaporator, 105°F (41°C) condenser, 65°F (18°C) return gas, 10°F (6°C) subcooling

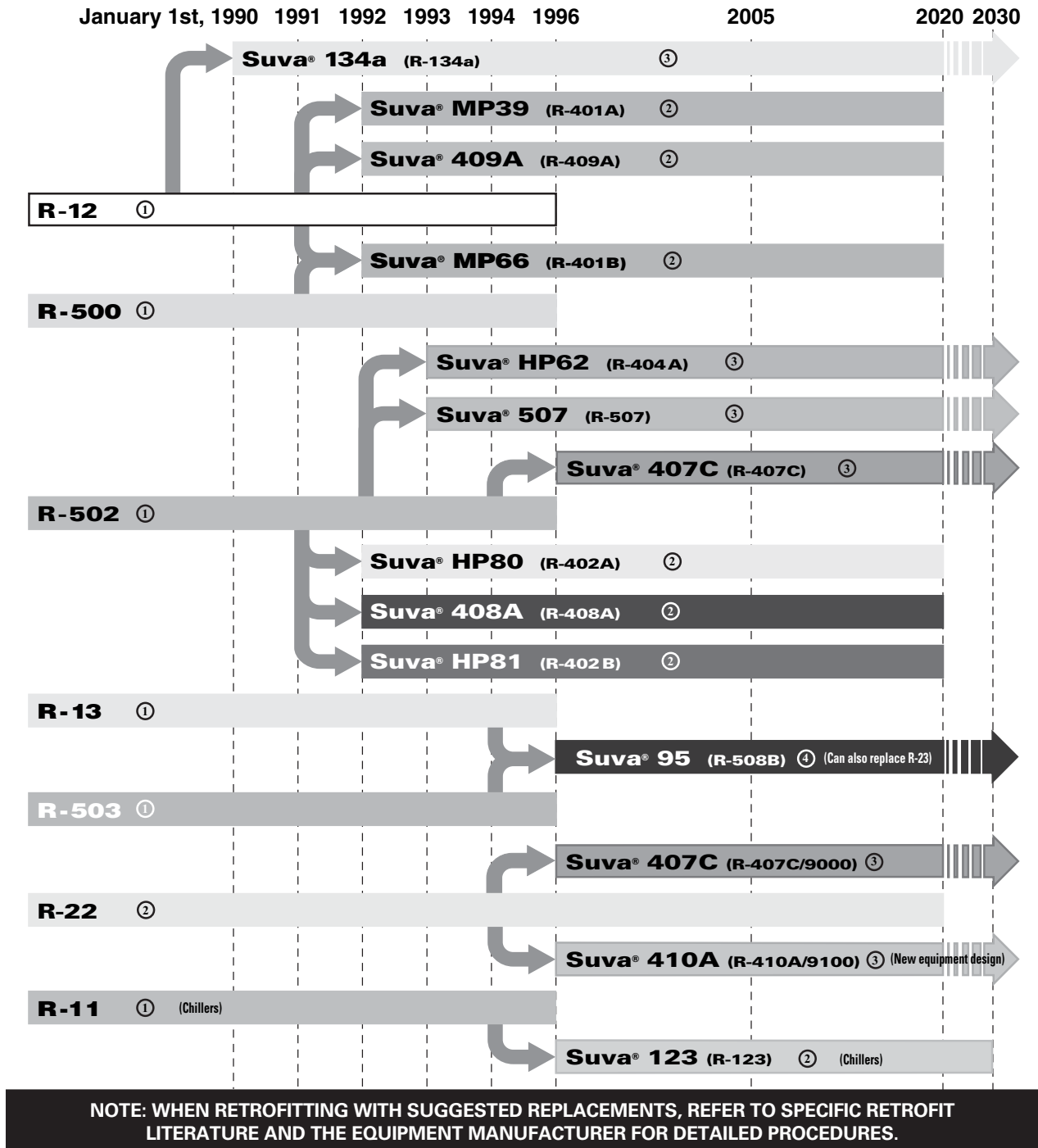
**Medium Temperature: 20°F (-7°C) evaporator, 120°F (49 °C) condenser, 65 °F (18 °C) return gas, 10°F (6°C) subcooling
R-22 assumes demand cooling with discharge temp of 275°F (135°C)

Refrigerant	Compared to	Discharge Pressure (psi)		Discharge Temp (°F)		Est. Cooling Capacity (%)	
		LT*	MT**	LT*	MT**	LT*	MT**
R-12 HFC Replacements							
ISCEON® 39TC®	R-12	+30		-20		0 to -5	
Suva® 134a	R-12	+10		-10		-10	
R-13, R-23, R-503 PFC Replacements							
Suva® 95	R-503	+2		-40		-2	
Service Refrigerants*							
Suva® MP39	R-12	+20		+25		+10	
Suva® MP66	R-12	+30		+30		+15	
Suva® 409A	R-12	+25		+30		+10	

Performance data based on normal application conditions and is intended to serve as a guide; actual performance will vary depending on system design and conditions.
+ is increase - is decrease

*HCFCs are subject to phase-out under the Montreal Protocol

General Replacement Guide: CFC to an HCFC; CFC or HCFC to an HFC



① CFC refrigerant ② HCFC refrigerant ③ HFC refrigerant ④ PFC refrigerant

Suva® is a DuPont registered trademark.



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