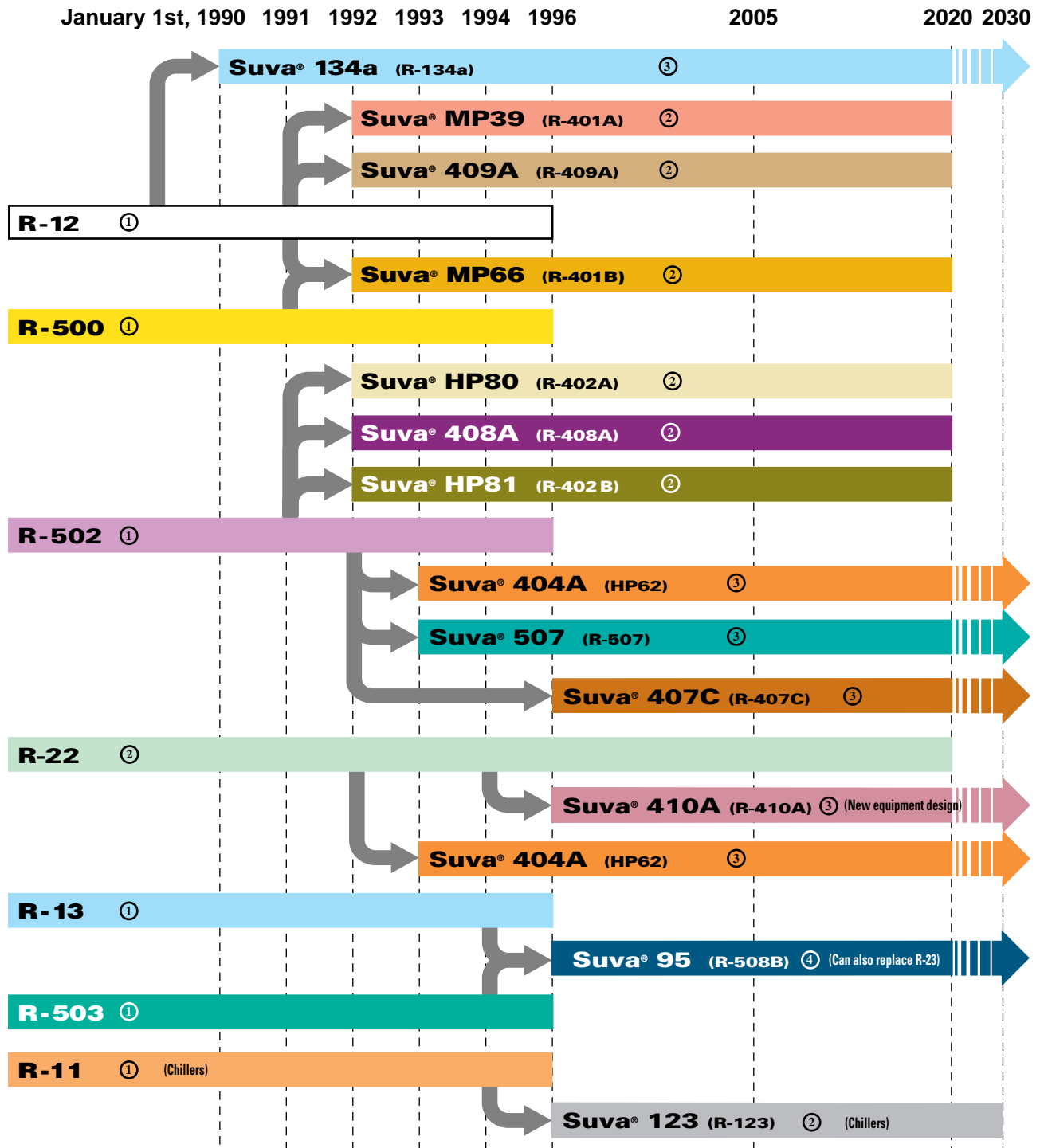


DuPont Refrigerants

General Replacement Guide



NOTE: WHEN RETROFITTING WITH SUGGESTED REPLACEMENTS, REFER TO SPECIFIC RETROFIT LITERATURE AND THE EQUIPMENT MANUFACTURER FOR DETAILED PROCEDURES.

① CFC refrigerant

② HCFC refrigerant

③ HFC refrigerant

④ PFC refrigerant

DuPont Refrigerants

Suggested Oil Guide

Stationary Refrigeration Applications

Direct Expansion Applications

Refrigerant	Lubricant*
R-12 ①	MO or AB
• 134a (R-134a) ③	POE
• MP39 (R-401A) ②	MO or AB
• 409A (R-409A) ②	MO or AB
R-500 ①	MO or AB
• MP66 (R-401B) ②	MO or AB
R-13 ①	MO or AB
R-503 ①	MO or AB
R-23 ③	POE
• 95 (R-508B) ④	POE

Refrigerant	Lubricant*
R-502 ①	MO or AB
• 404A (HP62) ③	POE
• 507 (R-507) ③	POE
• HP80 (R-402A) ②	AB
• 408A (R-408A) ②	AB
• HP81 (R-402B) ②	MO or AB
R-22 ②	MO or AB
• 407C (R-407C) ③	POE
• 410A (R-410A) ③ <small>NEW EQUIPMENT DESIGN</small>	POE

MO = Mineral Oil AB = Alkybenzene POE = Polyol Ester
 • Suva® Refrigerants ① CFC Refrigerant ② HCFC Refrigerant
 ③ HFC Refrigerant ④ PFC Refrigerant

* HCFC refrigerants are also compatible with POE lubricants. Some fractional horsepower replacement compressors are shipped with POE.

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.

Note: Many compressors already contain AB lubricant, therefore no oil change is required when converting to an HCFC.

- Field experience has shown that Suva® MP39, 409A, MP66, and HP81 work successfully with the existing MO in many unitary and other close-coupled systems.
- When converting a CFC system to an HFC refrigerant [Suva® 134a, 404A (HP62), 507, 407C, 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.

What to Expect After Retrofit

Refrigerant	Compared to	Discharge Pressure (psi)	Suction Pressure (psi)	Discharge Temperature (F)	Refrigeration Capacity (%)	Expected Superheat (F)
R-12 replacements						
134a	R-12	+10	-2	-10	-10	-4
MP39	R-12	+20	Same	+25	+10	-3
MP66	R-12	+30	+2	+30	+15	-1
409A	R-12	+25	Same	+30	+10	-4
R-502 replacements						
HP80	R-502	+40	+5	-5	+15	+4
HP81	R-502	+30	+5	+15	+15	Same
408A	R-502	+5	Same	+20	+5	-3
404A (HP62)	R-502	+20	Same	-10	Same	+2
507		+30	Same	-15	Same	+4
R-22 replacements						
407C	R-22	+15	Same	-15	Same	+1
407C	R-502	-5	-8	+30	-5	-4
R-13, R-23, R-503 replacements						
95	R-503	+2	Same	-40	-2	Same

+ is increase
 - is decrease

This information is intended to serve as a guide; the actual performance may vary.

DuPont Refrigerants

General Retrofitting Guide

Retrofit to HCFC

No Oil Change

For systems containing AB or close-coupled systems not requiring an oil change from MO.

Record baseline data.
Power OFF system.

Recover refrigerant from system and weigh amount removed.

If compressor is precharged with AB, no oil change is needed.

Field experience has shown that Suva[®] MP39, 409A, MP66, and HP81 work successfully with mineral oil in many unitary and other close-coupled systems.

Replace filter/drier.

Evacuate system to 500 microns and check for leaks.

Charge with Suva[®] refrigerant (start with 75% of original CFC charge weight). Remove as liquid only from cylinder.

Start system, adjust charge (up to 90% of CFC charge). DO NOT OVERCHARGE. Label system.

Retrofit to HCFC Single Oil Change

For systems requiring a single oil change from MO.

Record baseline data.
Power OFF system.

Recover refrigerant from system and weigh amount removed.

Drain MO and measure volume removed.

Charge system with equal volume of AB oil.

Retrofit examples using AB oil
R-12 to Suva[®] MP39, 409A, MP66
R-500 to Suva[®] MP66
R-502 to Suva[®] HP80, 408A, HP81

Replace filter/drier.

Evacuate system to 500 microns and check for leaks.

Charge with Suva[®] refrigerant (start with 75% of original CFC charge weight). Remove as liquid only from cylinder.

Start system, adjust charge (up to 90% of CFC charge). DO NOT OVERCHARGE. Label system.

Retrofit to HFC Multiple Oil Changes

Record baseline data.
Power OFF system.

Do not remove CFC refrigerant until after oil flushing is completed

Drain MO and measure volume removed.

MO Mineral Oil
AB Alkylbenzene Oil
POE Polyol Ester Oil

Run unit a minimum of 48 hours and repeat as needed to achieve <5% MO in POE.

Charge system with equal volume of POE oil.

>5% MO, repeat oil change and flush.

<5% MO in POE.

Retrofit examples using POE oil
R-12 to Suva[®] 134a
R-13 or R503 to Suva[®] 95
R-502 to Suva[®] 404A (HP62), 507
R-22 to Suva[®] 407C

Replace filter/drier.

When MO <5%, recover CFC refrigerant from system and weigh amount removed.

Evacuate system to 500 microns and check for leaks.

Charge with Suva[®] refrigerant (start with 75% of original CFC charge weight). Remove as liquid only from cylinder.

Start system, adjust charge (up to 90% of CFC charge). DO NOT OVERCHARGE. Label system.

*For detailed information, please see our retrofit guidelines.

DuPont Refrigerants

Cross Reference Guide

ASHRAE#	Tradenames	Manufacturers	Type	DuPont Cylinder Sizes	Lubricant	Evaporator Temperature			Applications
						High	Med	Low	
R-12 Replacements									
R-134a	Suva® 134a	DuPont	HFC	30 lb. DAC 125 lb. Cyl 1/2 Ton Tank (1025 lbs) Ton Tank (1750 lbs)	POE	X	X		Commercial refrigeration Appliances Chillers Automotive A/C: new & retrofit
	Genetron® 134a Forane® 134a Klea® 134a	Honeywell Arkema INEOS							
R-401A	Suva® MP39	DuPont	HCFC	30 lb. DAC 125 lb. Cyl 1/2 Ton Tank (1000 lbs) Ton Tank (1700 lbs)	MO or AB	X	X		Positive displacement refrigeration equipment Supermarket systems: medium temp Walk-in coolers
	Genetron® MP39	Honeywell							
R-409A	Suva® 409A	DuPont	HCFC	30 lb. DAC 125 lb. Cyl Ton Tank (1750 lbs)	MO or AB	X	X		Positive displacement refrigeration equipment Supermarket systems: medium temp Walk-in coolers
	Genetron® 409A Forane® 409A	Honeywell Arkema							
R-500 Replacements									
R-401B	Suva® MP66	DuPont	HCFC	30 lb. DAC 125 lb. Cyl Ton Tank (1700 lbs)	MO or AB		X	X	Closest performance match to R-500 Best retrofit choice for R-12 freezers R-12 transport refrigeration equipment
	Genetron® MP66	Honeywell							
R-502 Replacements									
R-404A	Suva® 404A	DuPont	HFC	24 lb. Cyl 100 lb. Cyl 1/2 Ton Tank (800 lbs) Ton Tank (1300 lbs)	POE	X	X	X	New equipment & retrofit for commercial refrigeration R-502 transport refrigeration
	Genetron® 404A Forane® 404A	Honeywell Arkema							
R-507	Suva® 507	DuPont	HFC	25 lb. DAC 100 lb. Cyl Ton Tank (1400 lbs)	POE	X	X	X	New equipment & retrofit for commercial refrigeration R-502 transport refrigeration
	Genetron® AZ50 Forane® 507	Honeywell Arkema							
R-408A	Suva® 408A	DuPont	HCFC	24 lb. DAC 100 lb. Cyl Ton Tank (1500 lbs)	MO or AB	X	X	X	Existing commercial refrigeration equipment
	Genetron® 408A Forane® 408A	Honeywell Arkema							
R-402A	Suva® HP80	DuPont	HCFC	27 lb. DAC 110 lb. Cyl Ton Tank (1400 lbs)	MO or AB	X	X	X	Existing commercial refrigeration equipment
	Genetron® HP80	Honeywell							
R-402B	Suva® HP81	DuPont	HCFC	13 lb. DAC Ton Tank (1500 lbs)	MO or AB		X	X	Ice machines and other selected applications
	Genetron® HP81	Honeywell							
R-22 Replacements									
R-407C	Suva® 407C	DuPont	HFC	25 lb. DAC 115 lb. Cyl Ton Tank (1550 lbs)	POE	X			Positive displacement A/C equipment New commercial and light commercial A/C. Existing residential and commercial/ light commercial A/C - always consult the OEM for guidance.
	Genetron® 407C Forane® 407C Klea 407C	Honeywell Arkema INEOS							
R-410A	Suva® 410A	DuPont	HFC	25 lb. DAC 110 lb. Cyl Ton Tank (1350 lbs)	POE	X			Positive displacement A/C - NEW residential & commercial A/C & heat pumps designed for R-410A. May be used in some existing R-22 A/C systems, but extensive changes required - always consult the OEM.
	Puron® Genetron® 410A Forane® 410A	Carrier Honeywell Arkema							
R-404A	Suva® 404A	DuPont	HFC	24 lb. Cyl 100 lb. Cyl 1/2 Ton Tank (800 lbs) Ton Tank (1300 lbs)	POE	X	X	X	New equipment & retrofit for commercial refrigeration
	Genetron® 404A Forane® 404A	Honeywell Arkema							
R-507	Suva® 507	DuPont	HFC	25 lb. DAC 100 lb. Cyl Ton Tank (1400 lbs)	POE	X	X	X	New equipment & retrofit for commercial refrigeration
	Genetron® AZ50 Forane® 507	Honeywell Arkema							
R-13, R-23, R-503 Replacements									
R-508B	Suva® 95	DuPont	PFC	10 lb. Cyl 20 lb. Cyl 70 lb. Cyl Ton Tank (1100 lbs)	POE		Below -40°F		New & existing VLT (below -40°F) applications Cascade refrigeration systems
	Genetron® 508B	Honeywell							
R-11 Replacements									
R-123	Suva® 123	DuPont	HCFC	100 lb. Drum 200 lb. Drum 625 lb. Drum	MO	X	X		New and existing centrifugal chillers (consult OEM)
	Genetron® 123 Forane® 123	Honeywell Arkema							
R-114 Replacements									
R-124	Suva® 124	DuPont	HCFC	30 lb. DAC 145 lb. Cyl Ton Tank (2000 lbs)	AB	X	X		Industrial refrigeration & A/C High ambient A/C
	Genetron® 124 Forane® 124	Honeywell Arkema							

Footnotes: • Suva® HFC refrigerants: (1) long-term replacements, (2) zero ozone depletion, (3) no phase-out date
• ALL Suva® refrigerants are UL classified
• ALL Suva® refrigerants have A1 ASHRAE Safety Classification, except Suva® 123 which has a B1 ASHRAE Safety Classification.

AB = Alkybenzene
MO = Mineral Oil
POE = Polyol Ester

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