



ALTERNATIVE REFRIGERANTS

Low- and Medium-Temperature Commercial Refrigeration Long-Term Replacements

ASHRAE #	Trade Name	Manufacturer	Replaces	Type	Lubricant ^(a)	Applications	Comments
R-507 (125/143a)	AZ-50	Honeywell	R-502 & HCFC-22	Azeotrope	Polyol Ester	New Equipment & Retrofits	Close match to R-502; higher efficiency than 404A; higher efficiency than R-22 at low temperature.
	507	DuPont					
R-404A (125/143a/134a)	404A	Honeywell Elf Atochem	R-502 & HCFC-22	Blend (small glide)	Polyol Ester	New Equipment & Retrofits	Close match to R-502; higher efficiency than R-22 at low temperature.
	HP62	DuPont					
R-407D (32/125/134a)	407D	ICI	R-500	Blend (moderate glide)	Polyol Ester	New Equipment & Retrofits	Slightly higher capacity.
			R-12 Low-Temp.				Higher capacity.

Low- and Medium-Temperature Commercial Refrigeration Interim Replacements ^(b)

ASHRAE #	Trade Name	Manufacturer	Replaces	Type	Lubricant ^(a)	Applications	Comments
R-402A (22/125/290)	HP80	Honeywell DuPont	R-502	Blend (small glide)	Alkylbenzene or Polyol Ester	Retrofits	Higher discharge pressure than R-502.
R-402B (22/125/290)	HP81	Honeywell DuPont	R-502	Blend (small glide)	Alkylbenzene or Polyol Ester	Ice Machines	Higher discharge temperature than R-502.
R-408A (125/143a/22)	408A	Honeywell DuPont Elf Atochem	R-502	Blend (small glide)	Alkylbenzene or Polyol Ester	Retrofits	Higher discharge temperature than R-502.

Very Low- Temperature Commercial Refrigeration Long- Term Replacements

ASHRAE #	Trade Name	Manufacturer	Replaces	Type	Lubricant ^(a)	Applications	Comments
R-23	HFC-23	Honeywell DuPont ICI	R-13	Pure Fluid	Polyol Ester	New Equipment & Retrofits	Higher discharge temperature than R-13.
R-508B (23/116)	508B	Honeywell	R-13 & R-503	Azeotrope	Polyol Ester	New Equipment & Retrofits	
	95	DuPont					
R-508A (23/116)	508A	ICI	R-13 & R-503	Azeotrope	Polyol Ester	New Equipment & Retrofits	

Medium-Temperature Commercial Refrigeration Long-Term Replacements

ASHRAE #	Trade Name	Manufacturer	Replaces	Type	Lubricant ^(a)	Applications	Comments
R-134a	HFC-134a	Honeywell DuPont Elf Atochem ICI	CFC-12	Pure Fluid	Polyol Ester	New Equipment & Retrofits	Close match to CFC-12

Medium-Temperature Commercial Refrigeration Interim Replacements ^(b)

ASHRAE #	Trade Name	Manufacturer	Replaces	Type	Lubricant ^(a)	Applications	Comments
R-401A (22/152a/124)	MP39	Honeywell DuPont	CFC-12	Blend (moderate glide)	Alkylbenzene or Polyol Ester or in some cases Mineral Oil ^(d)	Retrofits ^(c)	Close to CFC-12. Use where evaporater temperature -10° F or higher.
R-401B (22/152a/124)	MP66	Honeywell DuPont	CFC-12	Blend (moderate glide)	Alkylbenzene or Polyol Ester	Transport ^(c) Refrigeration Retrofits	Close to CFC-12. Use where evap. temperature below -10° F.
			R-500			Retrofits including Air Conditioners & Dehumidifiers	
B-406A (22/142b/600a)	GHG	Peoples Welding Supply	CFC-12	Blend (high glide)	Mineral Oil or Alkylbenzene	Retrofits	Can segregate to flammable composition.
R-409A (22/124/142b)	R-409A	Honeywell DuPont Elf Atochem	CFC-12	Blend (high glide)	Alkylbenzene or Polyol Ester or in some cases Mineral Oil ^(d)	Retrofits ^(c)	Higher capacity than CFC-12. Similar to MP66.
R-414A (pending) (22/124/142b/ 600a)	Autofrost	Peoples Welding Supply	CFC-12	Blend (high glide)	Alkylbenzene or Polyol Ester or in some cases Mineral Oil ^(d)	Retrofits	Similar to 409A.
R-414B (pending) (22/124/142b/ 600a)	Hot Shot	ICOR International	CFC-12	Blend (high glide)	Alkylbenzene or Polyol Ester or in some cases Mineral Oil ^(d)	Retrofits	Similar to 409A.
R-416A (pending) (124/134a/600)	FRIGC FR-12	Intercool Energy	CFC-12	Blend (small glide)	Polyol Ester	Retrofits	Lower pressure than 134a at high ambient conditions.

Commercial and Residential Air-Conditioning Long-Term Replacements

ASHRAE #	Trade Name	Manufacturer	Replaces	Type	Lubricant ^(a)	Applications	Comments
R-123	HCFC-123	Honeywell DuPont Elf Atochem	CFC-11	Pure Fluid	Alkylbenzene or Mineral Oil	Centrifugal Chillers	Lower capacity than R-11. With modifications, equivalent performance to CFC-11.
R-134a	HFC-134a	Honeywell DuPont Elf Atochem ICI	CFC-12	Pure Fluid	Polyol Ester	New Equipment & Retrofits	Close match to CFC-12.
			HCFC-22	Pure Fluid	Polyol Ester	New Equipment	Lower capacity than HCFC-22; larger equipment needed.
R-410A (32/125)	AZ-20 9100	Honeywell DuPont	HCFC-22	Azeotropic Mixture	Polyol Ester	New Equipment	Higher efficiency than HCFC-22. Requires equip ment redesign.
	410A	Elf Atochem					
R-407C (32/125/134a)	407C	Honeywell Elf Atochem ICI	HCFC-22	Blend (high glide)	Polyol Ester	New Equipment & Retrofits	Lower efficiency than HCFC-22; close capacity to HCFC-22.
	9000	DuPont					

(a) Check with the compressor manufacturer for their recommended lubricant.

(b) Interim replacements contain HCFCs, which are scheduled for phaseout under the Montreal Protocol.

(c) Not recommended for automotive air-conditioning.

(d) For more information on when to use mineral oil, see Applications Bulletin GENAP1, "Are Oil Changes Needed for HCFC Blends".

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