Refrigerants and lubricants approved for use in Copeland™ compressors

	Refrigerants	Class*	Similar to	Application		Lubricant choices			Comments
				Retrofit	New	Preferred	Alternate #1	Alternate #2	
Ozone depleting	CFC R-12	A1		L,M		MIN	AB & MIN		Phased out in 1996
	CFC R-502			L,M		MIN	AB & MIN	POE-32	Phased out in 1996
	HCFC R-22			L,M,H		MIN	AB & MIN	POE-32	No new equipment 2010**
	HCFC R-401A		R-12	M,H		AB & MIN	POE-32 & MIN	POE-32	For service applications only, trade name: Suva™ MP39
	HCFC R-401B		R-12	L,M		AB & MIN	POE-32 & MIN	POE-32	For service applications only, trade name: Suva MP66
	HCFC R-402A		R-502	L,M		AB & MIN	POE-32 & MIN	POE-32	For service applications only, trade name: Suva HP80
	HCFC R-402B		R-502	L,M		AB & MIN	POE-32 & MIN	POE-32	For service applications only, trade name: Suva HP81
	HCFC R-408A		R-502	L,M		AB & MIN	POE-32 & MIN	POE-32	For service applications only, trade name: FX10
	HCFC R-409A		R-12	L,M		AB & MIN	POE-32 & MIN	POE-32	For service applications only, trade name: FX56
Non-ozone depleting	HFC R-134a		R-12	M,H	M,H	POE-32			
	HFC R-404A		R-502	L,M	L,M	POE-32			Suva HP62, Forane™ FX70
	HFC R-507		R-502	L,M	L,M	POE-32			Genetron™ AZ50
	HFC R-407A		R-22	L,M	L,M	POE-32			
	HFC R-407C		R-22	L,M,H	L,M,H	POE-32			Suva 9000/KLEA 66
	HFC R-407F		R-22	L,M	L,M	POE-32			Discus™ and select refrigeration scroll models (ZF/ZB)
	R-448A		R-22/R-404A	L,M	L,M	POE-32			Solstice™ N40
	R-449A		R-22/R-404A	L,M	L,M	POE-32			Opteon™ XP40
	R-450A		R-12/R-134a	M,H	M,H	POE-32			Solstice N13
	R-513A		R-12/R-134A	M,H	M,H	POE-32			Opteon XP10
	HFC R-410A				Discus = L,M Scroll = M,H	POE-32			ZP & ZB KCP Copeland Scroll™ models and certain Discus models only
	HFC R-422A/D		R-22	L,M		POE-32	MIN	AB	Discus supermarket racks only
	HFC-R427A		R-22	L,M		POE-32			Discus supermarket racks only
	HFC R-438A		R-22	L,M		POE-32	MIN	AB	Discus supermarket racks only; ISCEON™ MO99
	R-704 helium				Cryogenic	PAG			ZC Copeland Scroll models only
	R-744 CO_2				Sub-critical	POE-68			4MTLS Discus and ZO Copeland Scroll models for CO_2
					Trans-critical	POE-68			4MTLS semi-hermetic compressors for medium temp trans-critical applications
	R-290 propane	A3			L,M	POE-22			For use with specific Copeland compressors designed for R-290, excluding models manufactured in India
						POE-32			For use with specific Copeland compressors manufactured in India for R-290

See legend on reverse ➡

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Legend:

MIN:	Mineral Oil (Copeland 46BWMO, Calumet RO15, Chevron/Texaco Capella WF32, Sonneborn Suniso 3GS) Mineral oils are interchangeable for 'top off' purposes
AB:	Alkyl Benzene Oil (Copeland Ultra 200, Shrieve Zerol 200 TD, Sonneborn Suniso AKB200A, Shell 2212)
POE 32:	Polyolester Oil (Copeland Ultra 32-3MAF,Lubrizol Emkarate RL32-3MAF, Parker EMKARATE RL32-3MAF/ (Virginia) LE323MAF, Nu Calgon 4314-66 (EMKARATE RL32-3MAF) Hatcol 22 CC, Copeland Ultra 22 CC & Mobil Arctic 22 CC (last three are approved for 'top off' only, 32-3MAF preferred)
POE 22:	RL22H, RL22HB
PAG:	Polyalkylene Glycol Oil (Lubrizol RPAG 62, UCON LB300X)
POE-32 & MIN:	Minimum 50% POE
AB & MIN:	Minimum 50% Alkyl Benzene
POE-68:	Emkarate RL68HB oil for use with R-744 CO_2 applications
L:	Low Temperature Application (Refrigeration) for R-407A, R-407C, R-407F, R-422A/D, R-427A, R-438A, R-448A, R-449A Demand Cooling™ or auxiliary cooling may be required for low temperature application - See AE guidelines for details
M:	Medium Temperature Application (Refrigeration)
H:	High Temperature Application (Air-Conditioning, Heat Pump, Refrigeration)

* ASHRAE Std. 34 Refrigerant Classification: A1=Non-Flammable/Non-Toxic; A2L=Mildly Flammable/Non-Toxic; A3 = Flammable/Non-Toxic; B2L = Mildly Flammable/Toxic.
** A & R product lines with R-22 are only approved for use with AB oil.

Spectronics AR-GLO 4/E Fluorescent Leak Detection Dye is approved for HFC/POE and HCFC/Mineral Oil usage at the manufacturer's recommended concentrations.

CAUTION: POE must be handled carefully and the proper protective equipment (gloves, eye protection, etc.) must be used when handling POE lubricant. POE must not come into contact with any surface or material that might be harmed by POE, including without limitation, certain polymers (e.g. PVC/CPVC and polycarbonate).

For specific product availability and performance data refer to Emerson Climate Technologies, Inc. sales literature.
Refer to Application Engineering bulletins, change-over guidelines and MSDS sheets for additional information at EmersonClimate.com

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