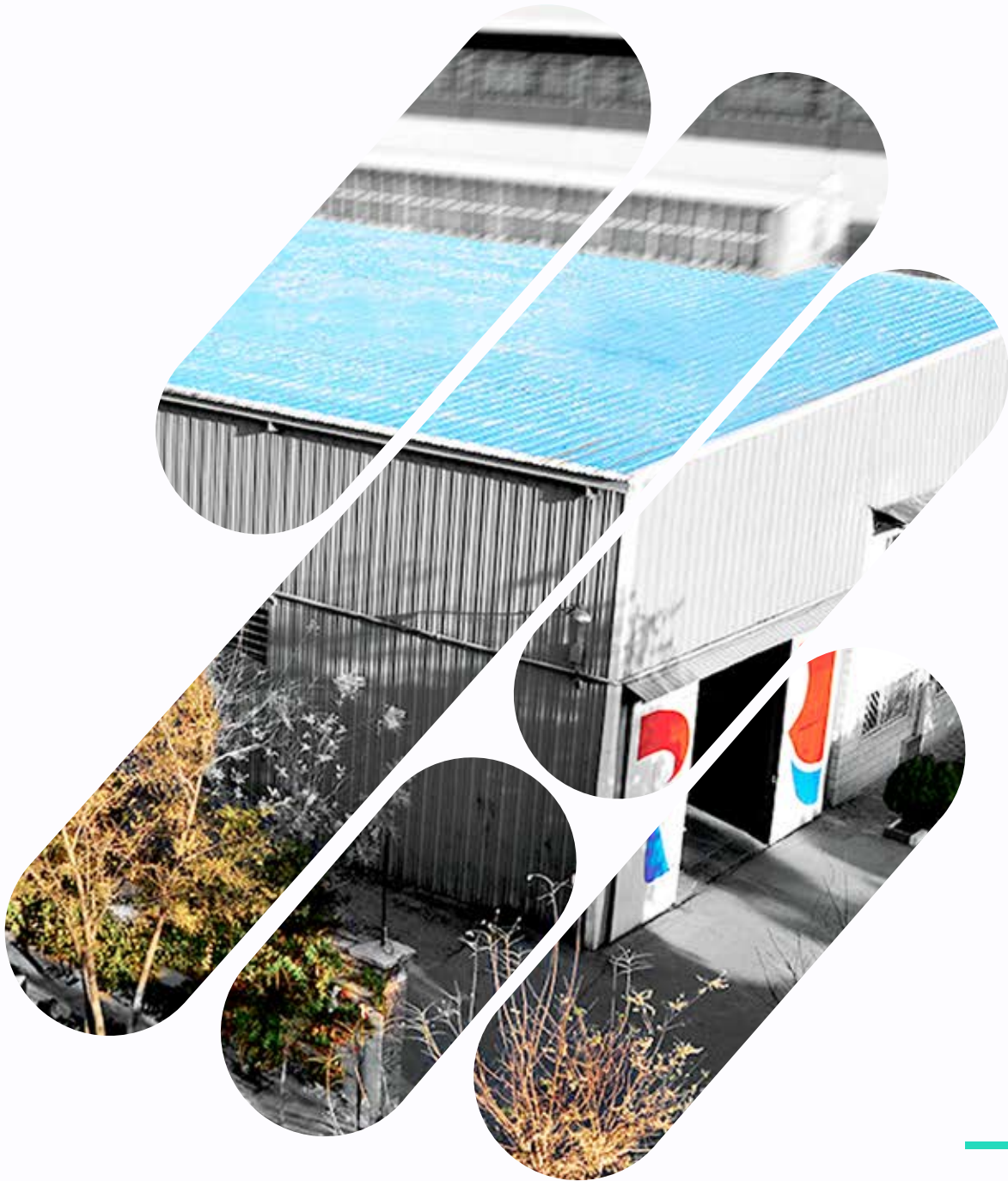




Radiran

Manufacturing Company



Refrigerants/Lubricants Approved for Use in Copeland® Compressors

	Refrigerants	Similar To	Application		Lubricant Choices			Comments
			Retrofit	New	Preferred	Alternate #1	Alternate #2	
Ozone Depleting	CFC R-12		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
Interims	HCFC R401A	R-12	M,H		AB & MIN	POE-32 & MIN	POE-32	Service Only Suva® MP39
	HCFC R-401B	R-12	L,M		AB & MIN	POE-32 & MIN	POE-32	Service Only Suva® MP66
	HCFC R-402A	R-502	L,M		AB & MIN	POE-32 & MIN	POE-32	Service Only Suva® HP80
	HCFC R-402B	R-502	L,M		AB & MIN	POE-32 & MIN	POE-32	Service Only Suva® HP81
	HCFC R-408A	R-502	L,M		AB & MIN	POE-32 & MIN	POE-32	Service Only FX10
	HCFC R-409A	R-12	L,M		AB & MIN	POE-32 & MIN	POE-32	Service Only 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		POE			Discus® Only Performax LT
	HFC R-410A			M,H	POE-32			ZP & ZB KCP Copeland Scroll® Models Only
	HFC R-422A/D	R-22	L,M		MIN	POE-32	AB	Discus® Supermarket Racks Only
	HFC R-438A	R-22	L,M		MIN	POE-32	AB	Discus® Supermarket Racks Only; ISCEON® MO99
	R-704 Helium			Cryogenic	PAG			ZC Copeland Scroll® Models Only
R-744 CO ₂			Sub-Critical	POE*			ZO Copeland Scroll® Models Only	

Legend:

- MIN: Mineral Oil (Copeland® 46BWMO, Sonneborn Suniso 3GS), Chevron/Texaco Capella WF32) 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 for 'top off' only)
- POE* : Contact Application Engineer for oil details
- PAG: Polyalkylene Glycol Oil (Lubrizol RPAG 62, UCON LB300X)
- POE-32 & MIN: Minimum 50% POE
- AB & MIN: Minimum 50% Alkyl Benzene
- L: Low Temperature Application (Refrigeration) For R-407A, R-407C, R-422A/D, R-438A, Demand Cooling® is required for low temperature application - See AE guidelines for details
- M: Medium Temperature Application (Refrigeration)
- H: High Temperature Application (Air-Conditioning, Heat Pump, Refrigeration)

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.

For specific product availability and performance data refer to Emerson Climate Technologies, Inc. sales literature
Refer To Application Bulletins, Change-Over Guidelines And MSDS Sheets for additional information at EmersonClimate.com



Contractor Service Tips

Tip Card
1

R-12 and Polyol Ester Oil

There seems to be a misunderstanding about using R-12 and POE oil. Many contractors and end users believe it is OK to use them together, but in truth, they may be setting themselves up for some real problems.

Through numerous laboratory and field tests, Emerson Climate Technologies, Inc. has discovered that when moisture is induced into a system using R-12 refrigerant and POE oil, the refrigerant becomes acidic and may plug cap tubes and orifices. For this reason, Emerson Climate Technologies, Inc. does not recommend using R-12 and POE oil together.

For more information, go to www.EmersonClimate.com/refrigerantschart to view the "Refrigerants/Lubricants Approved For Use In Copeland® Compressors" chart, Form No. 93-11.