

# Refrigerants & lubricants

Approved for use with Copeland compressors

	ODP	GWP	Refrigerant	Replaces	Application	Lubricant		
						Preferred	Alternative	
<b>CFC</b>	1	2400	R12		LM	Phased out	MO, AB	
	0.283	4100	R502		LM		MO, AB	
<b>HCFC</b>	0.05	1810	R22		LMH	Service only	MO, AB	
	0.03	1100	R401A (MP39)	R12	MH		AB & MO or POE-32 & MO	
	0.04	1200	R401B (MP66)	R12	LM			
	0.02	2700	R402A (HP80)	R502	LM			
	0.03	2300	R402B (HP81)	R502	LM			
	0.016	3000	R408A (FX10)	R502	LM			
	0.05	1500	R409A (FX56)	R12	LM			
<b>HFC / HFO</b>	0	3140	R422A (MO79)	R22/R502	LM	Retrofit	MO	AB, POE-32
	0	2730	R422D (MO29)	R22	MH			
	0	2350	R417A (MO59)	R22	MH	New and retrofit	POE-32	
	0	1430	R134a	R12	MH			
	0	3922	R404A	R502	LM			
	0	3980	R507	R502	LM			
	0	2107	R407A	R22/R502	LM			
	0	1770	R407C	R22	MH			
	0	1824	R407F	R22/R404A	LM			
	0	1387	R448A (N40)	R22/R404A	LM			
	0	1397	R449A (XP40)	R22/R404A	LM			
	0	601	R450A (N13)	R134a	MH			
	0	631	R513A (XP10)	R134a	MH			
	0	2090	R410A		MH			
<b>A2L</b>	0	675	R32	R410A	MH	New	NXG 5020	
	0	239	R454A	R22/R404A	LM			
	0	460	R454B	R410A	MH			
	0	148	R454C	R22/R404A	ML			
	0	148	R455A	R404A	MH			
	0	4	R1234YF	R134a	MH			
<b>Natural</b>	0	1	R744, CO <sub>2</sub>			Subcritical / Transcritical	POE-68	PAG-68
	0	3	R290, Propane			MH	Hatcol 4467 or PAG-68	

**Legend:**

**ODP:** .....Ozone Depleting Potential

**GWP:** ..... Global Warming Potential

**MO:** .....Mineral oil = Suniso 3GS, Texaco Capella WF32, FUCHS Reniso KM32, Copeland White oil

**AB:** .....Alkyl benzene oil = Shell 22-12, Zerol 200TD

**AB & MO, POE & MO:** Minimum 50 % POE or AB

**POE-32:** Polyolester oil = Emkarate RL32-3MAF, MOBIL Arctic 22CC (only for "top off")

**POE-68:** Polyolester oil for CO<sub>2</sub> = Emkarate RL 68 HB

**PAG-68:** Zerol RFL 68-EP

**L:** .....Low temperature application (refrigeration)

**M:** ..... Medium temp. application (refrigeration)

**H:**.....High temp. application (air-conditioning, heat pump, refrigeration)

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



**CAUTION:** POE lubricants must be handled carefully and the proper protective equipment (gloves, eye protection, etc.) must be used at all times. POE must not come into contact with any surface or material that it might damage, including without limitation, certain polymers.

For approved compressor / refrigerant combinations, please refer to Copeland Select software at [www.copeland.com/en-gb/tools-resources](http://www.copeland.com/en-gb/tools-resources).

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