

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 | | | 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 | A1 | 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 R-427A | | 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 |
| | | | | | | | | | | | | For use with specific Copeland compressors designed for R-290, excluding models manufactured in India |
| | R-290 propane | | A3 | | | L,M | | | | | | |
| | | | | | | | | | | | | |

See legend on reverse ➡

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 CO₂ 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