

SynCold[®] PAO Series

Refrigeration Compressor Lubricant

Introduction

SynCold[®]PAO series lubricants are synthetic polyalphaolefin (PAO) refrigerant lubricants specifically developed for commercial and industrial refrigeration and air conditioning compressors. SynCold[®]PAO series are specifically designed for compressor applications using ammonia as a refrigerant, and have lower evaporation losses, longer service life, and excellent low-temperature fluidity compared to mineral-based lubricants. It is also suitable for applications with hydrocarbon refrigerants (such as propane or propylene), and can also be used in CO2 systems (with a certain degree of miscibility with CO2).

SynCold[®]PAO lubricants are used as standard factory fills for industrial refrigeration equipment and for OEM retrofit operations. SynCold[®] PAO is recommended as a replacement for mineral and alkylbenzene refrigeration oil, especially in ammonia applications and at deep cold evaporation temperatures. SynCold[®]PAO has better high and low temperature performance and safety performance than traditional mineral oils, as shown by indicators such as viscosity index, flash point, fire point and pour point.

Test results for ammonia resistance (DIN51538) show that SynCold[®]PAO has good stability when used with R717 refrigerant. The refrigerant lubricant has no adverse effect on materials such as metals and rubber.

Applications and Compressor Types

- R717 (ammonia), hydrocarbon refrigerants (e.g., R290), R744 (CO2)
- Reciprocating and Screw-type compressors

Features

Features	Benefits
Film Thickness in the presence of Refrigerant	Improves compressor wear resistance and extends compressor lifespan. Reduces bearing fatigue and unplanned downtime
Excellent Thermal Oxidation and Chemical Stability	Extends lubricant life and reduces daily maintenance. It minimizes varnish and deposit formation, leading to longer filter life.
High Viscosity Index and Wax-Free Formula	Exceptional low-temperature fluidity and a wax-free formulation, while also improving evaporator efficiency
Wide Viscosity Range	Cover a wide range of viscosity requirements for various equipment and applications
Seal Compatibility	Long seal life, reducing shaft seal leakage
Food Safety Grade	NSF (H2) certified



Specifications

Compliance standards: Q/GH1005

Meet the following standards:

- (DIN) DIN51503-1, German Society of Standardization
- (JISC) JIS K2211, Japanese Industrial Standards Survey (JISC)
- BS 2626, The British Standards Institute (BS)

Properties

Product Name	PAO46	PAO68	PAO100	Test Method
ISO viscosity grade	46	68	100	GB/T 3142
Viscosity @40° C, mm ² /s	45.2	66.4	98.5	GB/T 265
Color	<0.5	<0.5	<0.5	GB/T 6540
Density @20° C, kg/m ³	843	845	851	SH/T 0604
Viscosity Index	126	135	132	GB/T 1995
Flash point, ° C	245	265	275	GB/T 3536
Pour point, ° C	-60	-52	-54	SH/T0886
Acid value, mg KOH/g	<0.02	<0.02	<0.02	GB/T 4945
Extreme pressure (Falex) Failure load, N	2750	3020	3450	SH/T 0187

SynCold® PAO Series is available in various viscosities to meet user specific needs. Additional information is available upon request.

Health and Safety

Refer to the Material Safety Data Sheet (MSDS) on the official website for health and safety information.

Package size

200L drums, 20L pails, 10L pails, 4L containers, 1L bottles



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