

SYNTHETIC COMPRESSOR LUBRICANTS



Operating Temperature

70°C to 80°C
 80°C to 90°C
 90°C to 100°C
 100°C to 110°C
 110°C to 120°C

Mineral Oil

3,000 hours
 2,000 hours
 1,000 hours
 500 hours

Synthetic (long/life)

8,000 hours
 7,000 hours
 6,000 hours
 5,000 hours
 4,000 hours

Misability of Oils

Base Oil	Mineral Oil	Polyalpha-olefin	Ester Oil	Polyglycol Oil (methyl)	Silicone Oil (phenyl)	Silicone Oil Ether Oil	Polyphenyl Oil	Alkoxy-Fluorinated Oil
Mineral Oil	+	+	+	2)	-	o	o	-
Polyalphaolefin	1)	+	+	2)	-	o	o	-
Ester Oil	1)	+	o	+	-	o	+	-
Polyglycol Oil	2)	2)	o	+	-	-	-	-
Silicone Oil (methyl)	-	-	-	-	+	+	-	-
Silicone Oil (phenyl)	o	o	o	2)	+	+	+	-
Polyphenylether Oil	1)	1)	1)	2)	-	1)	+	-
Alkoxyfluorinated Oil	-	-	-	-	-	-	-	-

- + may be mixed
 - o usually compatible, must be checked for specific application
 - must not be mixed
- 1) Miscible; however, bearings shall not be re-lubricated with a lubricant of an inferior capacity than the original lubricant
 - 2) Generally not compatible, must be checked for specific application

Caution:

Oils of different base oils, grades or from different manufacturers should not be mixed *
 If fresh oils are mixed with used oils, sludge can deposit.

Should one wish to change from one to another compressor oil brand, always request the correct flushing oil which is compatible with the new oil brand a

Note:

Mineral based oils are commonly used with the misconception that they are cheaper than superior synthetic compressor oils. Yes, they may be cheaper per liter, but as a result of its poor thermal and oxidative stability there are "hidden" costs associated with the use of un-balanced Mineral oils.

Oil injected rotary screws compressors operate between 80°-95°C depending on make and model, at these operating temperatures mineral oil will have high oil carry over from the oil vapour produced by these temperatures and will only keep its lubricating properties for 1500 hours of operation. If the oil is not changed at this point, the oil will breakdown further and form lacquers, which collect in:

Oil Coolers - Reducing their efficiency and making the unit run even hotter. In the worst cases this can "write off" the cooler because it cannot be adequately cleaned.

Oil Filter - Blocking the filter and reducing oil flow to bearings, or even worse, causing the oil filter bypass to open, resulting in unfiltered oil going directly to the bearings.

Separator Element - Increasing pressure differential; resulting in higher oil carry over and higher power consumption.

Other Components - Collecting in other components such as; thermal valves, solenoid valves, minimum pressure valves etc, causing them to malfunction.

PSI Kal-Superlube synthetic compressor lubricants are premium products equal to/or exceeding the 'critical performance criteria' of the major compressor lubricants available in the market place without the inflated and frequently exorbitant pricing.



Literature Sited:

A Study of Compressor Oils
 AMSOIL Industrial Division-G-1592

Miscibility of Oils
 FAG Publ.No. WI81 115/4EA

