

Base Fluids for Lubricant Applications *COMPRESSOR FLUIDS*

Durasyn® Polyalphaolefins

Durasyn Polyalphaolefins (PAO) are the synthetic hydrocarbons fluids of choice for many rotary screw compressor applications and can operate successfully for 8,000 to 10,000 hours under normal conditions before requiring an oil change.

In rotary screw compressors, compression results from the intermeshing of two screws, or from the intermeshing of a single screw with one or two gates. Gas is trapped in the area between the screws and then squeezed into a smaller volume until the desired pressure or limiting temperature is reached.

The lubricant is injected into the compression area to seal the clearances between the intermeshing screws, and to remove the heat of compression. Oil separators are used to remove the oil from the discharge gas.

Rotary screw compressors are used extensively in nearly all 100-150 psig industrial compressed air applications above 30 horsepower. Rotary screw compressors are compact in size, and do not require a permanent foundation due to their low vibration levels. Typically, rotary screw compressors require less periodic maintenance than reciprocating compressors.

Durasyn® Polyalphaolefin has NSF H1 and HX1 approvals and can be used to formulate food-grade compressor lubricants. Food grade polyalphaolefin-based lubricants are frequently used in the food industry to lubricate rotary-screw carbon dioxide (CO₂) compressors for applications where the carbon dioxide gas is used in a food product (e.g. beverage carbonation).

Polyalphaolefin-based synthetic compressor lubricants can last up to eight times longer than conventional mineral-based lubricants— allowing the higher initial cost of the PAO synthetic lubricant to be more than recovered over the life of the product. As a general rule, mineral-based compressor lubricants require oil changes after 500-1,000 hours of service while synthetic lubricants can be used in continuous operation in excess of 8,000 – 10,000 hours without an oil change.

The primary advantages of Polyalphaolefin synthetic compressor fluids are:

- 1) Longer life because of high oxidation resistance
- 2) Lower rate of deposit formation
- 3) Wider operating temperature range
- 4) Improved chemical resistance
- 5) Excellent Viscosity Index properties
- 6) Improved cost/performance ratio (longer drain intervals)
- 7) Higher flash and fire point (higher auto-ignition temperature)



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