

Choosing Between Conventional Vacuum Pump Oils and Synthetic Lubricants

Many factors differentiate mineral oils from synthetic lubricants in vacuum applications such as; what they can accomplish, their requirements for efficient functionality, composition, ultimate pressure, lubrication and sealing properties.

MINERAL OILS

Naturally occurring crude is a cocktail of hydrocarbons. Even after aggressive solvent-based refining, thousands of hydrocarbon compounds - as well as organic compounds of oxygen, sulfur and nitrogen remain. These three compounds in particular are problematic because they enable oxidation and acid development, as well as facilitate the formation of sludge, particularly in high-temperature applications. These types of oils are readily available but can cause problems in a vacuum pump or vacuum processing application with out further processing, CVP further processes these types of fluids to yield a product that minimizes oxidation, acid development, formation of sludge, particularly in high-temperature applications. This offers our clients extend pump life and the ultimate pressure required in vacuum applications.

SYNTHETIC & SEMI-SYNTHETIC LUBRICANTS

CVP Synthetic & Semi-Synthetic type lubricants are engineered products created by chemical reactions through the precise application of pressure and temperature to a specific recipe of components. All of the components are high in purity with strong molecular bonds. As a result, the end product is a pure compound, less vulnerable to oxidation, highly resistant to breakdown, are uniform in molecular size. This molecular size uniformity keeps synthetics from jellifying when it's cold (they do not contain waxes), and its specific molecular structure keeps it from thinning-out under heat; therefore, the lubricant's protective characteristics are more predictable. The saturated molecules created from the synthetic process are also non-hydrophilic and won't emulsify or produce undesirable by-products in high temperature environments.

SUMMARY

Synthetic & Semi-Synthetic type lubricants are clearly superior in the extreme zone where temperatures, high loads or contamination are overriding factors. These type oils perform well in applications where needs are specific to a given process. Although more expensive in cost the paybacks can be substantial in longevity, power consumption, maintenance and pump service intervals.