

Why synthetic?

Because synthetic lubricants are superior to conventional petroleum lubricants. Petroleum lubricants are refined from crude oil, a natural substance pumped from the earth and containing diverse chemicals. Some of the chemicals in petroleum oil are detrimental to the lubrication process and to the lubricated components. For example, some petroleum oil chemicals invite oxidation in high temperature operations. Oxidation quickly destroys lubricant integrity.

Synthetic lubes, on the other hand, are not refined from crude oil, but constructed from pure chemicals selected for their ability to lubricate. The purity of synthetic lubricant base-stocks significantly reduces lubricant oxidation, which promotes the ability of synthetics to be used in higher temperature applications than conventional lubes may be and promotes their ability to be used for extended drain intervals. In fact, Ultrachem synthetic lubricants are specifically formulated for extended drain intervals.

The molecular uniformity of carefully selected synthetic lubes promotes superior lubrication and friction reduction, which in turn promotes superior heat control, wear control and energy efficiency. Molecular uniformity also helps synthetics maintain their protective viscosity in high temperature operations, which also promotes superior wear control.

High Performance Ultrachem Chemlube Compressor Oils are able to outperform commonly used mineral-oil-based compressor fluids not only in terms of long service life but also in energy saving. As we are facing rising energy consumption, increasing costs and a limitation of



resources, it makes sense to have a closer look at air compression, which is one of the most important means of energy transport used in industry and trade. According to a study by the US Department of Energy, approximately 8.6 % of overall industrial energy consumption is to be attributed to air compression. If we assume a reduction potential of 30%, which is not unrealistic, we find that at present approximately Euro 500 million worth energy in Germany – for instance, is blown into the air for nothing.

Ultrachem Chemlube Synthetic Compressor Oils

The tasks to be fulfilled by compressor oils are manifold.

- Fewer oil changes
- Lower waste lube disposal costs
- Fewer filters
- Lower labor costs
- Power and energy savings
- Lower operating temperatures
- Fewer replacement parts
- Fewer scheduled maintenance interruptions
- Fewer breakdowns/unscheduled interruptions
- Wider operating temperature

They are expected to protect against wear, reduce friction, dissipate heat, seal parts, protect against corrosion, reduce noise, separate off air and water etc. As synthetic compressor oils have better viscosity temperature behavior, better low-temperature characteristics, a lower tendency to residue formation, lower evaporation rates and lower friction coefficients than mineral oils, they can meet these requirements considerably better. Synthetic compressor oil specifically formulated for its job reduce friction in the compressor and improve the sealing of gaps, hence increasing the compressor's volumetric efficiency as well as reducing its energy consumption. The pertinent literature and several publications by various companies speak of an energy reduction potential of 2 to 7%. A differentiation is made between piston and screw-type compressors: since there is higher percentage of frictional forces in piston compressors, their energy reduction potential is generally regarded as higher than that of screw-type compressors.

Inside Compressors

To understand the advantages of this premium fluid, consideration should be given to special demands of the application. In a rotary screw compressor, the lubricant performs several difficult functions:

- Lubricating the shaft seals, bearings and rotating screws
- Removing the heat of compression
- Providing a seal between screws and housing so gas can be compressed without blow-by
- Removing contaminants from the system; i.e., ingested dust and dirt materials
- Protecting against corrosion

In a compressor, the fluid is re-circulated in a closed system, and it flows from the compressor to the



separator. From there it is pumped to a cooler, through a filter, and back again

to the compressor. Breakdown of the lubricant or its capabilities causes compressor problems. Many fluids have difficulty surviving the combined attack of mixing air oxygen and elevated temperatures (typically, up to 210°F). Oxidation occurs rapidly because of reactions between oxidant impurities in the lubricant (especially in mineral oil) and the compressed oxygen. Oxidation is accelerated by heat, causing a sudden increase in viscosity and lubricant failure.

Advantage Chemlube:

Designed to fight the degradative processes found in compressor applications, Ultrachem Compressor Oils provide optimum compressor lubrication and protection. They extend compressor life and reduce maintenance costs

Heat Control

Low coefficient of friction, low internal fluid friction and good thermal conductivity of these oils help reduce the temperature of hot running equipment by as much as 40°F.

Sludge, Varnish, Lacquer and Carbon Control

Ultrachem unique Synthetic compressor oils are resistant to thermal and oxidative breakdown. These oils, combined with premium antioxidants, result in oils that eliminate or greatly minimize the formation of sludge, varnish, lacquer and carbon. Also, the good solvency characteristics clean systems as well as provide keep-clean performance.

Corrosion, Emulsion and Foam Control

Ultrachem Synthetic Compressor Oils repel water and they readily separate. This prevents unwanted oil/water emulsions that inhibit oil's ability to lubricate. It allows for longer lubricant life, and it means water can easily be drained from the sump. The top-quality rust preventatives offer complete and dependable protection to components in the presence of water or process contaminants. And an uninterrupted film of protection is ensured by antifoam agents that keep the fluid foam-free even in high-speed, high-pressure operations.

Wear Protection

Ultrachem Compressor Oils use proprietary additive system that protects against wear. As a result, wear & maintenance decreases and the component life is increased.

Greater Safety

Ultrachem Synthetic Compressor Oils make your plant a safer place to work by minimizing fire and explosion hazard. Ultrachem Compressor Oils' flash, fire and auto-ignition points are higher. Plus, their resistance to carbon deposit formation combined with the ash-less additive system minimizes the incidence of ignition-promoting hot spots.

Enhanced Efficiency

Because of Ultrachem Compressor Oils' low frictional characteristics, losses due to drag are minimized, and energy used for gas compression is maximized. Also, little or no carbon forming on valves limits the detrimental effect of recompression, which is the result of hot air continually being recompressed due to deposits not allowing the exhaust valves to completely close during the intake stroke. Increase in efficiency can significantly reduce power consumption and save money.

Reduced Lubricant Consumption

Ultrachem Synthetic Compressor Oils reduce fluid loss by readily separating oil from air in the separator, increasing the separator's efficiency and reducing the likelihood of oil ending up downstream. Also, their low volatility and excellent stability in the face of shearing forces and high temperatures leave more lube in the system, less lost to operations.

Lower Maintenance Costs

Ultrachem Synthetic Compressor Oils may be used up to 8000+ hours when used with a conscientiously applied oil sampling and preventative maintenance program. Extended drain intervals cut the downtime, labor and disposal costs associated with lube changes to an eighth of that required by conventional fluids.