TECHNI/TIPS

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MULTILEC® INDUSTRIAL OILS

Four years of laboratory and field evaluation has resulted in a truly unique, multi-functional product line ... **MULTILEC® INDUSTRIAL OILS.**

MULTILEC® fills a need in industry today to provide one product line for air compressors, hydraulics, circulating oil systems and gearboxes.

The technology for **MULTILEC®** was first developed to address the difficult and harsh operating conditions found in today's air compressors. Modern compressors run faster, are more heavily loaded and operate at higher temperatures than their predecessors. This makes the lubrication requirement even more important.

In rotary screw compressors the oil and air are intimately mixed during the compression process. This exposes the oil to heat, dirt, moisture and many other types of contaminates that can be sucked into the air intake. These conditions are very conducive to acid hydrolysis and oil degradation that can lead to sludging and deposits in the compressors.

MULTILEC® INDUSTRIAL OILS are formulated to resist acid hydrolysis in screw compressors. Acid hydrolysis is an oil degradation mechanism that causes deposits and varnish to occur in the hot, moist contaminated environment of the screw compressor. This degradation and its resulting deposits can shorten the effective useful service life of the air compressor oil, the filters and air/oil separator, not to mention the life of the unit itself. **MULTILEC®** contains special acid neutralizers and detergents to fight acids formed by hydrolysis and to keep deposits from building in compressors.

Air Compressor Oil Requirements

Not only must an air compressor oil reduce friction and prevent wear, but it must perform the following functions:

- Remove heat by cooling and efficient heat transfer.
- Suspend dirt and wear debris until the filter can remove it.
- Seal to allow efficient compression without leakage.
- Coat the internal surfaces of the compressor to prevent rust and corrosion.
- Minimize deposit and varnish formation.

The life of an air compressor lubricant is dictated to a large extent by the quality of the oil and its additive system. Oil life is also affected by:

- Makeup oil addition rate.
- Operating conditions.
- Cleanliness of the oil system.
- Maintenance practices.

Makeup oil helps to "sweeten" the oil and give it additional life. The operating conditions such as time at full load versus unloaded, environment around the air intake and air/oil temperature all affect oil life.

Condition of the Oil System-Flushing

Oxidation is a process that takes place when oil is exposed to oxygen (air) and heat over a period of time, just as it is in rotary air compressors. This process causes a breakdown of the oil and reduces its effective service life. The oxidation life of an oil is greatly affected by the cleanliness of the oil system. If old, oxidized oil is not removed from the compressor, then the oxidation life and hence the performance of the new oil is diminished. Other undesirable results such as foaming may also occur due to contamination with old oil and possible incompatibility between the new oil and the old oil.

To prevent reduced performance of the new oil, a thorough flushing of the compressor should be performed to remove any contaminants, deposits and oxidized oil. When a compressor is drained it may still have up to 10% of the old oil trapped, and this can only be removed by flushing. The 10% can cause shortened oil life by acting as a catalyst to accelerate the oxidation process.

The flushing procedures should be as follows:

- Drain the oil while the unit is hot.
- Fill the unit with the proper grade of **MULTILEC® INDUSTRIAL OIL or MONOLEC® AIR COMPRESSOR OIL.**
- Run the compressor for two to four hours (longer if the unit is older with high hours and deposit buildup is suspected).
- Again drain the oil while hot. Break lines at low points and remove any drain plugs on cooler or other auxiliary components.
- Change the oil filter and air/oil separator.
- Fill with proper grade of **MULTILEC® INDUSTRIAL OIL.**
- Use oil analysis to establish a safe drain interval.
- Check air/oil separator pressure differential frequently to see if any restriction is occurring due to cleaning of deposits from the unit.

For more information on flushing procedures for air compressors, consult **Techni/Tip #106.**

It is normal to expect a small amount of bubbles to be visible in the sight glass with MULTILEC® in service. If foaming occurs, it is likely caused by residues from previous lubricants. Zinc or other additives may cause foaming. Our recommendation is to completely drain the unit and fill with fresh LE lubricant to further reduce residues or contaminants and stop the foaming caused by these elements.

Hydraulic System Applications

MULTILEC® is also an excellent product line for hydraulic system applications. It is a true non-zinc anti-wear hydraulic oil that is recognized by the major hydraulic Original Equipment Manufacturers (OEMs).

Wear prevention and lubricating ability are primary considerations for hydraulic oil. Oxidation resistance and deposit and sludge control are also very important to achieve proper operation of hydraulic systems. **MULTILEC® INDUSTRIAL OILS** provide the needed balance of wear prevention and oxidation stability to provide excellent performance and protection. **MULTILEC®** is approved by Denison, Cincinnati-Milacron and Vickers hydraulic system manufacturers.

Industrial and Gear Oil Applications

The low deposit forming tendencies and excellent oxidation life of **MULTILEC®** makes it a natural product for use in industrial applications calling for a Rust and Oxidation (R&O) industrial oil. **MULTILEC® INDUSTRIAL OILS** also meet the AGMA (American Gear Manufacturers Association) requirement for R&O gear oils, which allows them to be used in numerous gearbox applications.

MULTILEC® INDUSTRIAL OILS are the most versatile, truly multi-purpose products on the market. They provide excellent lubrication and protection for compressors, hydraulic systems, turbines, R&O industrial and R&O gearbox applications. **MULTILEC®** allows for product consolidation for all of these types of applications to help reduce inventories and simplify lubricant decisions.

MULTILEC® INDUSTRIAL OILS are truly multi-functional and represent revolutionary technology in lubricating oils.

MULTILEC® INDUSTRIAL OILS are available in the following ISO grades:

6801	**ISO 32**	
6802	**ISO 46**	
6803	**ISO 68**	**SAE 20**
6804	**ISO 100**	**SAE 30**
6805	**ISO 150**	**SAE 40**
6806	**ISO 220**	**SAE 50**
6807	**ISO 320**	**SAE 60**

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