Lubricants Testing Services

AGAT Laboratories

Hydraulic System

Equipment Reliability and Lubricants Testing Services

In order to ensure that hydraulic systems remain in top operating condition, the lubricant used must be of the highest quality and able to withstand the harsh operating conditions often expected of these systems in Canadian climates. The lubricant used in hydraulic machinery is the life blood of the operation and the oil must be considered a primary component of the system; without the lubricant, hydraulic pressure and flow would not exist.

Hydraulic oil must be kept clean, cool and dry. Every hydraulic system, whether it is used on heavy mobile equipment, or in a manufacturing plant application, will generate contaminants such as wear metals, absorb dust and dirt, create heat and generate condensation. The oil must be able to withstand oxidation, the development of carbon deposits and viscosity breakdown known as shearing.

Generally, a hydraulic system with a pressure range of 3500 – 4500 psi should maintain a cleanliness level of 16/13/11 based on ISO standard 4406, maintain oil operating temperatures at the reservoir of about 160 degrees Fo (71 degrees Co), and water content should NEVER be permitted to exceed 1000 ppm.

A lubricant testing program that should be part of a regularly scheduled condition based monitoring program should include the following oil analysis:

- Kinematic Viscosity
- Spectrographic Analysis (including wear metals, additives and contaminants)
- ISO Particle Count
- Acid Number
- Physical Properties
- Water by Karl Fischer (Add when water contamination is a serious concern)
- Oxidation by FTIR
- Recommended Lubricant Testing Package 30 - 403