REMAINING USEFUL LIFE EVALUATION ROUTINE (RULER®)

Testing an oil's condition means understanding the state of that oil's physical/chemical properties. Whether you are looking at extend your oil drain intervals or determine causes of component wear, understanding your oil's condition is critical.

The lubricating oil in turbine systems is subject to the effects of oxidation which can lead to viscosity increase, acid formation, lubricant degradation and formation of varnish. Antioxidants such as hindered phenolics and aromatic amines are added to turbine oils to reduce lubricant oxidation. The levels of these additives are monitored to determine the remaining useful life of the lubricant.

The Remaining Useful Life Evaluation Routine (RULER®) test monitors the remaining antioxidant concentration in the lubricant. By monitoring the antioxidant level, the oxidation process of the turbine oil can be better understood and predicted.

The RULER® instrument measures the oxidative resistance levels of mineral and synthetic hydrocarbon oils, ester-based, and biodegradable oils. This patented electrochemistry technique can evaluate a wide range of antioxidants without any interference from water, fuel, soot, dirt, metal, silt, or other contaminants.

Many conventional testing techniques (kinematic viscosity, total acid number (TAN), infrared (IR) data, and wear metal analysis) are used from measuring the extent of oil degradation and only begin to show significant changes in the physical and chemical properties of the oils when the majority of the antioxidants have been depleted and the oil has begun to substantially degrade.

With the addition of the RULER® test, you will be able to proactively:

- Quantify the relative concentrations of antioxidants in new and used oils in order to monitor the depletion rates of the antioxidant protection package in the oil.
- Quantify antioxidant levels of incoming and stored oil supplies.
- Identify abnormal operating conditions prior to equipment failure following the detection of abrupt antioxidant depletion rates.
- Determine proper oil change intervals and extend oil change intervals through timely antioxidant additive replenishments.

To ensure that a lubricant is not used past the end of its useful life, periodic oil changes are inherently conservative, which often results in the discarding of lubricants that are still suitable for use. Understanding and forecasting the oxidation process of turbine oils will provide added value to you Oil Analysis Program.

The RULER® identifies the type of antioxidants in the oil by comparing the sample results to a new oil reference sample. A new oil reference is required for analyses.

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EQUIPMENT RELIABILITY SERVICES

EDMONTON, AB | BRANTFORD, ON | BLOOMINGTON, MN | IRVING, TX TOLL FREE 877.962.2400 www.fluidlife.com