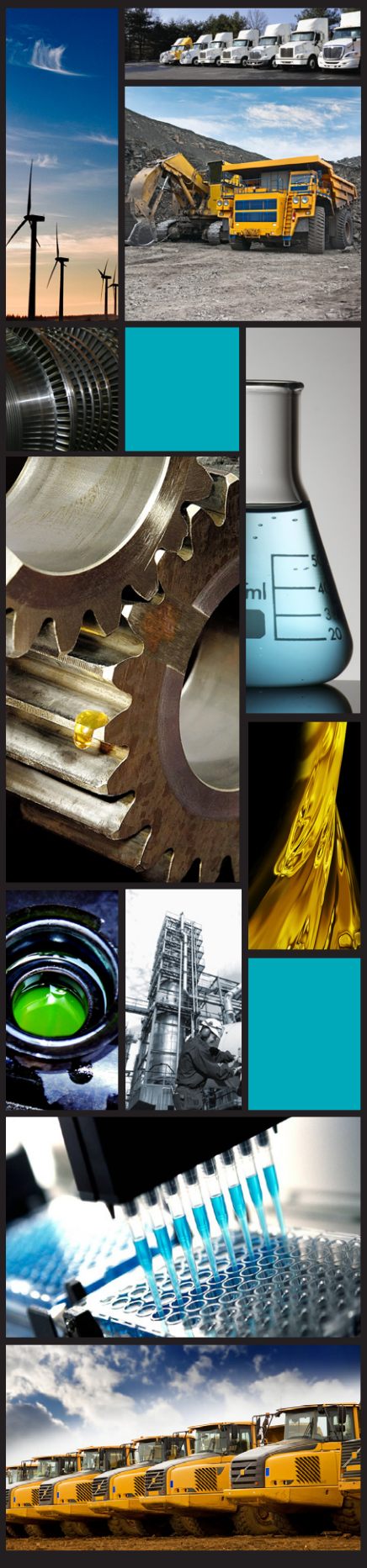
FLUID LIFE
The Science Behind Equipment Reliability

Acid Number



Lubricants may undergo oxidation and produce acidic products. The rate at which oxidation occurs increases with temperature and pressure. For example, high temperature and pressure may be present inside an engine or at contact points between sliding surfaces.

Used petroleum products may contain acidic constituents that are present as additives or as degradation products formed during service, such as oxidation products. The relative amounts of these materials can be determined by titrating with bases. The acid number is a measurement of the amount of acidic substance in the oil and it is used as a measure of lubricant degradation in service.

The acid number test method determines acidic constituents in lubricating oils. The result is reported in milligrams of potassium hydroxide per gram (mg KOH / g).

Changes in acid concentration of an oil can originate from several sources:

- Oxidation by-products
- Acidic contaminants
- Incorrect oil or additives

Acid Number is an excellent diagnostic and predictive test for:

- Hydraulics
- Gearboxes
- Compressors
- Natural Gas Engines

How is the Acid Number determined?

The Acid Number (AN) is the quantity of base, expressed in milligrams of potassium hydroxide per gram of sample required to titrate a sample in a specified solvent to a specified endpoint.

Carefully and systematically monitoring the acid number is an advanced and effective method of oil analysis when properly applied. Knowledge of how the acid number is calculated and what variances exist will help in interpreting the results. AN tests are typically conducted to obtain an accurate indication of additive depletion or acidic infiltration.

Trending and comparison to new oil value is the best way to monitor an abnormal increase in the acid number. A new oil reference can be used to establish a baseline, monitor fresh oil batches and help establish condemning limits. Regular testing will provide the necessary data to identify trends occurring within the lubricating system.

An elevated acid number can result in:

- Component corrosion, more severe if water is present.
- Deposits of tars and lacquers on metal surfaces.
- Increased viscosity resulting in pumping losses.
- A gradual increase in the rate of AN elevation.
- Greater potential for varnish formation.

The quality and integrity of the lab used by the customer is very important when testing for Acid Number. Fluid Life uses the best equipment and technicians available to ensure results are accurate and consistent.

Maintenance Solutions

Knowing the acid number for a lubricant, the maintenance technician can take a course of action, such as:

- Adjusting or optimizing oil change intervals.
- Modifying their maintenance schedule to reduce the chance of varnish formation based on the run time of the specific component.

fluidlife.com | 1.877.962.2400
Edmonton, AB • Brantford, ON • Minneapolis, MN
© 2011 The Fluid Life Corporation, All Rights Reserved