

# **TRIBOLOGIK<sup>®</sup> NEWSLETTER**

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March 2011

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## **Why Measure ASH Residue in Lubricating Oils?**

The Sulfated ash test is meant to measure the purity of the lubricant. Pure basic oils contain no ash.

In most cases, oils are very similar: same colour, same texture, same odour. With additives however, their performances can be dramatically improved. Many of them promise to prolong your engines' useful life and improve their operational effectiveness.

When burned to ashes, an oil sample containing additives with organometallic salts leave out residues such as: calcium, magnesium, zinc, potassium, sodium, tin or a combination of sulphur, phosphorous and chlorine. Sulphated ash is the name given to the ash residue treated with sulphuric acid, then heated at 775 C to total evaporation.

Ash content is the percentage in mass of non-combustible residue that remains after complete incineration of the sample, and determined in accordance with ASTM D 874 standard. In motor oils, this value is expressed in sulphated ash content, which determines the quantity of detergent and anti-wear additives contained in the lubricant.

### **Effects of Ash in Oil**

Sulphated ash should not be present in high quantities in oil. The quantity of additives must be balanced to their limit of effectiveness. If not, they will obstruct the particle filters, causing short regeneration cycles, overconsumption of fuel and loss of engine performance.

In certain situations there is a need to measure the ash content of your lubricating oils. Before testing however, it is recommended to contact the laboratory and verify if the test is relevant under the circumstances.

**[info@tribologik.com](mailto:info@tribologik.com)**

## **Why Provide Normal or Marginal Test Reports...**

Some customers have been reporting that their former lab was only providing them with Critical reports. No « Normal » or « Marginal » reports ever came to their attention. In ancient times, when fax machines

were still the greatest technological leap ahead, this could always justify by saving on paper and long distance calls.

Nowadays however, this argument doesn't stand anymore. A lab providing paper reports should be questioned for its technological capabilities.

More important however, one should question this laboratory's efficiency, its customer service and most of all its ability to establish trends and limits. How can a customer prevent and predict the criticality of his equipment or oil if he only knows it's critical after the fact? How can he establish an effective maintenance program if he didn't know that this piece of equipment was marginal only a few reports before? How can he be sure that its actual condition is really critical if he doesn't even know what « Normal » or « Marginal » means for that oil or equipment, what their limits are considering their specific operating conditions? How can you improve productivity if you never knew that your equipment has been operating in marginal condition?

The main objective of oil analysis consists in monitoring the health condition of the lubricant and equipment in order to predict and prevent criticality, therefore maintaining an optimal operational mode. Doesn't a doctor provide his patients' blood test results even when normal? How could he determine that your last results were marginal or critical if not by comparing them with previous normal results?

A competent doctor will not wait till your cholesterol reaches a critical level before taking action. To the opposite, his recommendations will focus on maintaining a normal health condition in order to predict and prevent the surge of marginal or critical symptoms. You can recover from a heart attack, of course, but what will be the price to pay? What about a machine breakdown? In both cases, you'd better play it safe and know before the fact. Why then provide critical only reports?

At the end of the day, there will be no benefit to anyone.

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**[info@tribologik.com](mailto:info@tribologik.com)**