

TRIBOLOGIK® **NEWSLETTER**

Your Equipment's Best friend!

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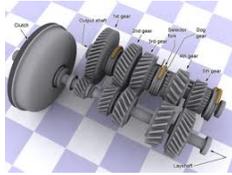
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What Tests are recommended for your Equipment?

The jargon used by chemists and technicians is not always crystal clear. Punctuated with their lot of mysterious abbreviations, codes and acronyms, their language remains most of the time an enigma for the average mortal human being, Themselves and only a handful of insiders seem to understand.



What does spectro mean? FTIR? Who is Karl Fischer? And why should I pay for a Karl Fischer test today while yesterday, my rep recommended the more simple and cheaper water crackle test in order to detect water contamination in my oil? Why does he recommend a DROTP instead of a DROT as previously? And in fact, what is a DROT, and what is a DROTP?

In following issues of this newsletter, we will try to clarify this hermetic jargon. We will explain why specific tests are prescribed for specific pieces of equipment and why the same tests are useless for others. We will also explain why a certain number of tests are always recommended while others are only recommended once a year or under specific or exceptional circumstances.

Different Equipment = Different Tests

As a rule of thumb, there are three generic groups of mechanical equipment, both mobile or stationary :

- **Engines** - Diesel and gas
- **Gearboxes**, including transmissions, differentials and compressors
- **Hydraulics**, turbines and pumps

Other pieces of equipment, such as transformers, are also subject to fluid analysis. Special tests are also performed on filters, greases, fuel and coolants. However, the vast majority of tests are made on the three aforementioned groups of equipment.

Prescribing a single test for a given piece of equipment is quite unusual. The reason for this is that laboratory instruments have a specialty of their own. Spectroscopy for instance will provide results on wear metal particles, but do not reflect viscosity and the condition of the additives.



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In order to obtain a reliable diagnostic and a complete picture of the condition of the oil and the equipment, your laboratory should include a group of tests or test packages where individual tests are complementary with one another.

At PMC/Tribologik®, each test package has been given a specific a code name depending on the type of equipment to be tested :

- **ENGC** is the code name for the test package specific to diesel and gas engines;
- **PQROT** is for gearboxes, transmissions and differentials;
- **PRAN** for hydraulics, pumps and turbines.

From time to time, additionnal tests may be required or recommended by our chemist. A letter is then added to the code, e.g. : **PRANP**. We will describe each of these codes in the subsequent issues of this newsletter and explain why each specific test package is applied to specific pieces of equipment.

3 Basic Tests

Each testing package includes the three following basic tests, which means that these tests are performed on each oil sample, whether extracted from an engine, a gearbox or a hydraulic system :

- **ICP (Inductively Coupled Plasma) Spectrometric Analysis** : detects up to 23 elements that can be present in used oil due to mechanical wear, lubricant contamination or additive depletion.
- **Fourier Transform Infrared Analysis (FTIR)**: detects the presence of chemical degradation products due to oxidation, nitration, sulfate formation, lube breakdown, additive depletion, and contaminants such as soot, water, ethylene glycol and unburned fuel.
- **Viscosity**: examines the thickness or thinness of the oil sample, therefore its ability to thoroughly lubricate the pieces of equipment it has to protect.

These basic tests compare the quality of your machines' lubricants to the quality of new oil. It is very important to specify the type of oil you are using (manufacturer, brand name and specs) and to send us a **sample of new, virgin (unused) oil** with each new piece of equipment to be tested as reference oil.

In the next issue, we will detail the test packages and codes prescribed for **diesel engines** and explain the specific function of each test within the package.

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