



PAL
PORTABLE ANALYZER FOR LUBE



A2 Technologies PAL Series™ FTIR Analyzers for Proactive Maintenance of High Value Machinery in the Power Industry

Overview

The Power Industry and associated businesses employ high value equipment that is subject to high load and demand. In order for these assets to function at optimum performance levels and to ensure a long useful operating life, it is essential that they are maintained as efficiently as possible. The new “philosophy” in protecting this equipment is described as proactive maintenance. Proactive maintenance enables personnel responsible for maintaining these assets to have access to near real-time information so that the condition of the machinery is well known and necessary action to optimize performance can be taken when needed. This is in contrast to preventive maintenance which calls for pre-set time intervals for maintenance based on a combination of manufacturer’s recommendation and/or historical information.

One of the key aspects of proactive maintenance is to know the condition of the lubricants that keep this equipment performing in optimum condition.

The Role of Analytical Instrumentation in Lubrication Condition Monitoring

Lubricating fluids for turbines, compressors and engines are complex and as important to the health of the equipment as blood is to our body. Lubricants degrade over time depending on a wide variety of external and internal influences including load on equipment, ambient temperature, type and age of the equipment etc. The historical approach for ascertaining the condition of these vitals lubricants is typically one of two methods – take a sample of the lubricant from the equipment and send it off to a commercial testing lab, or just change the lubricant without testing, following the equipment machinery manufacturer’s general guidelines.

As the move from preventive maintenance to proactive maintenance is made, more companies with high demand equipment are investing in on-site testing technology. This testing equipment is similar to the analytical instrumentation used in off-site commercial laboratories, but with important differences – on-site analytical instrumentation must be just as analytically precise and accurate, but at the same time be rugged and highly intuitive to use because the personnel employing this technology may not be chemists or scientists.

More and more equipment is becoming available for on-site testing in the power industry and now, A2 Technologies has made one of the most powerful analytical methods for lube testing – Fourier transform infrared spectroscopy (FTIR) available for the on-site lab.

The Value and Importance of A2 Technologies PAL Series FTIR Analyzers for Power Industry Lubricants

The PAL series FTIR instruments are designed for use in on-site testing facilities and are an important addition to traditional on site instrumentation such as vibration and particle size meters. Whereas most on-site analytical instruments measure physical properties of the oil or machinery, FTIR provides molecular level information about the condition of the lubricant – it provides clear insight into the status of the oil chemistry in an easy to understand format.



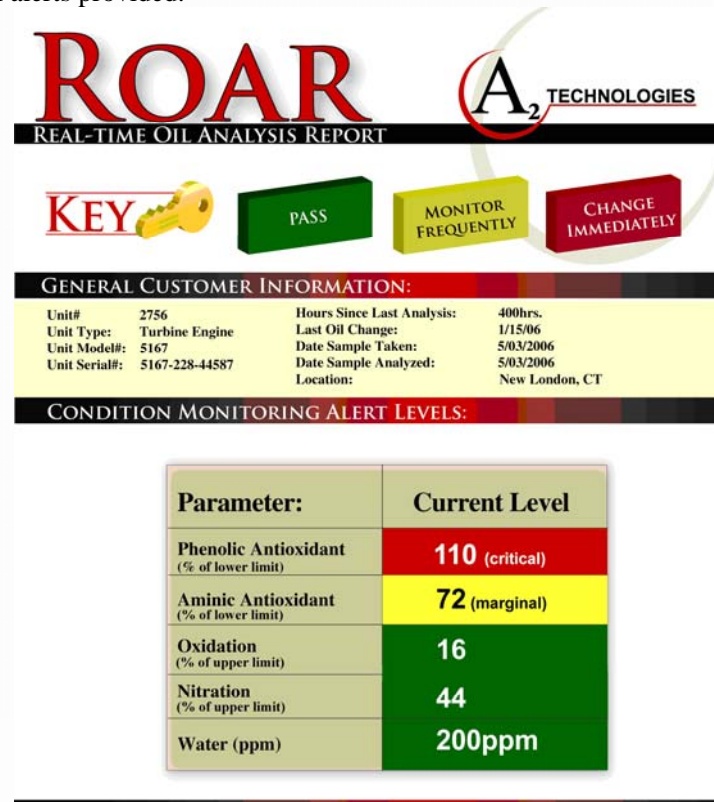
The PAL series instruments provide the user with a nearly instantaneous snapshot of the parameters that define the health of the lubricant. A one minute PAL analysis yields:

- The level of water present in the lubricant
- The amount of deleterious oxidation and nitration by-products that have formed in the lubricant
- The amount of anti-wear, anti-oxidation and extreme pressure additives that remain in the lubricant

These critical parameters are among the most important and useful in understanding how much useful lubricant life remains. They are also key indicators in the formation of varnish and related physico-chemical decomposition by-products.

What makes the PAL on site FTIR systems unique among all on-site instrumentation is that the system provides all this information in less than one minute and requires one drop of the lubricant without any sample preparation required. The PAL system requires no special reagents and is completely maintenance free.

The water, oxidation, nitration, and additive level information is displayed in the ROAR report (see below) with both numerical and visual alerts provided.



The Bottom Line

A2 technologies PAL series FTIR spectrometers are a great advance in the ability to proactively maintain high value equipment, enabling the lubrication specialist and/or maintenance personnel to be confident of the operating condition of these critical lubricants.