SpectroT²FM Q⁵⁰⁰
Ferrography Laboratory

Application

In today's modern power generation, manufacturing, refining, transportation, mining and military operations, the cost of equipment maintenance, service, and lubricants are ever increasing. Parts, labor, equipment downtime, lubricant prices and disposal costs are a primary concern in a well run maintenance management program.

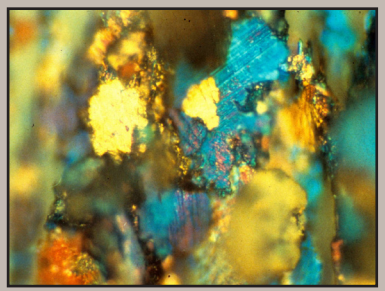
Machine condition monitoring based on oil analysis has become a prerequisite in comprehensive maintenance programs. The Ferrography Laboratory plays a key role in such programs. It separates and concentrates wear and contaminant particles for microscopic examination. Particle size, surface characteristics and composition are then used to determine wear modes inside a machine so that maintenance recommendations can be made.

"A Ferrography Laboratory for fast efficient, low cost separation and interpretation of wear and contaminant particles from used lubrication oils, hydraulic fluids, greases, coolants and fuels."

The Thistle Tube Concept:

T²FM stands for Thistle Tube Ferrogram Maker. The heart of the new T²FM is the glass thistle tube. The name comes from its unique shape resembling the thistle plant. The glass thistle tube provides a constant and efficient flow of sample into the substrate. The sample, after dilution, is poured directly into the top of the thistle tube. In seconds, the sample begins flowing across the ferrogram. The diameter and length of the capillary section of the thistle tube control the flow rate onto the ferrogram.

A rinse cycle is initiated as soon as the last of the sample has left the thistle tube. Solvent is dripped onto the lip of the thistle tube as it is slowly rotated, thoroughly rinsing the walls and cleaning it for the next sample.



Particles & contaminants indicate the wear mode inside a machine

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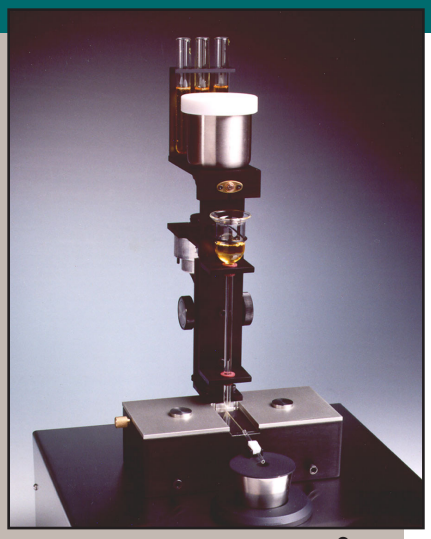

The heart of the SpectroT²FM Q⁵⁰⁰ is the thistle tube and the magnet

Main Components of the Ferrography Laboratory

- Model T²FM Analytical Ferrograph
- Bichromatic microscope
- Video camera
- Video capture card
- Image capture software
- Optional industrial standard PC

Key Features of the SpectroT²FM Q⁵⁰⁰

- Efficient separation of wear and contaminant particles from fluid samples.
- Rapid preparation of ferrogram.
- No deformation of particles.
- Separates particles up to 800 µm in size.
- Lower cost per sample.
- Uses fewer consumables.
- Achieves cleaner rinses.
- Easy to operate.

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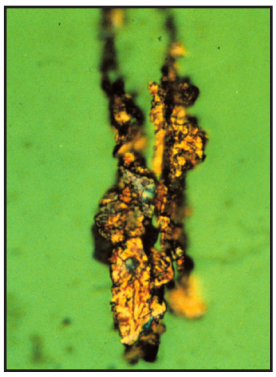
The SpectroT²FM Q⁵⁰⁰ prepares a ferrogram more quickly than ever before. There is no delay time as sample in pumped through plastic tubing before reaching the ferrogram surface. Furthermore, the rinse may begin as soon as the sample leaves the thistle tube. The T2FM delivers the entire sample and all the particles contained therein onto the ferrogram sur-face. There is also no distor-tion of particles since the thistle tube con-cept eliminates the need for a pump.

A crystal clear rinse is obtained without fail for every ferrogram. There are no last minute drips of oil sample onto the ferrogram leaving distracting halos around the particles when viewed under the microscope.

Bichromatic Microscope

A bichromatic microscope is used to view and examine fer-rograms made with the SpectroT²FM Q⁵⁰⁰. The bichromatic microscope is equipped with both reflected and transmitted light sources so that the ferrogram may be illuminated from both above and below the microscope stage. A green filter is used in the transmitted light path and a red filter is used in the reflected light path, this is referred to as bichromatic illumination in the practice of ferrography. With bichromatic illumination, metal particles, which reflect light, appear bright red, whereas non-metallic particles appear green because light transmits through them.



Video Camera and Software

A video camera connected to a computer displays, prints, stores and re-trieves ferrographic images. Comparison of old ferrograms with ferrograms from recent lubricating oil samples allows determination of evolving wear modes inside a machine or engine.

Your local representative for sales and service is:

Spectro Incorporated is the only company dedicated exclusively to provide instrumentation, software and applications support for machine condition monitoring through oil analysis. Contact us for your instrumentation needs and complete turnkey systems for oil analysis.

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