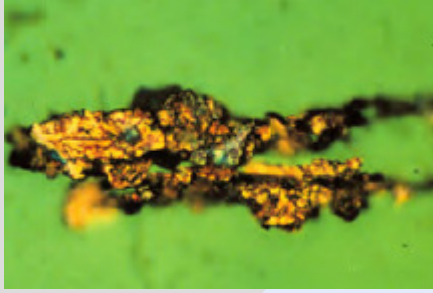


FERROGRAPHY

Ferrography – What is it all about ?

It provides Microscopic Examination and Analysis of Debris (particles) separated from lubricating oils. This is a technique in use since 1970,



What type of debris do we expect which are harmful to Lubrication System and the Machine ?

There are six basic wear particle types generated through the wear process. These include metallic particles that comprise of Normal Rubbing Wear, Cutting Wear Particles, Spherical Particles, Severe Sliding particles, Bearing Wear Particle (Fatigue Spall Particles, Laminar Particles) and Gear Wear (Pitch Line Fatigue Particles, Scuffing or Scoring Particles). There do also exist sand and dirt particles responsible to generate wear particles in the system.

How to take Advantage of this Technique?

Ferrography (Oil analysis) is a series of laboratory tests to determine the condition of used Lubricants and equipment components, over a period. A trend of Wear Particle Concentration typically presents the opportunity for Maintenance programs from breakdown to be proactive.

Benefits of Ferrography ?

- Reduction in unscheduled downtime due to wear of rotary components like bearings and gears
- Effective maintenance scheduling
- Improved equipment reliability and safety
- Reduction in maintenance costs
- Maximization of oil change-out intervals that indirectly conserves environmental cleanliness aspect
- Reduction in machine power consumption over a period

What is offered ?

- REPORT - Ferrography results are delivered by post & emails, reporting about condition of the oil and the machine that is been lubricated by that oil. Report also recommends actions to take & next due date of test.
- TRENDING – The continual programme on ferrography makes a comparison of test results with results from previous ones of same machine. Increases in any wear metal particles triggers abnormal condition.
- CRITICAL ALERT NOTIFICATION - When Ferrography result indicates a critical machine/oil problem, it is conveyed on telephone for the maintenance group to plan an immediate action.



How the test is conducted ?

Oil samples are examined under a microscope that combines the features of a biological and metallurgical microscope. Such equipment utilizes reflected and/or transmitted light sources. Different optical filters are deployed to classify sizing, composition, shape and texture of the particles.

What is wear particle concentration WPC ?

Count of particles in unit volume of oil sample is considered as WPC. We also offer weight of particles in unit volume of oil samples for trending.

How much sample is required from where the Oil samples are to be drawn ?

Typically two oil samples are to be taken from a lubrication path, first, after filter and second before entering to oil tank / reservoir. Generally 100 ml of oil samples are sufficient.

Is there any standard for Ferrography ? - Yes, an ISO 4406 is a well known and accepted standard for new oils, that also suggests level of degradation by means of wear particle contamination in the lubrication system.



Experts In Metallography and Failure investigations

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