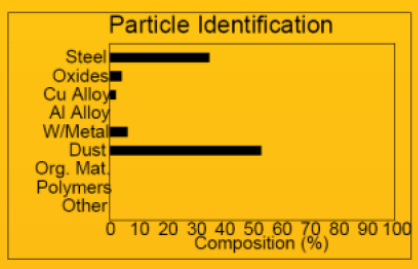
Filtergram Analysis

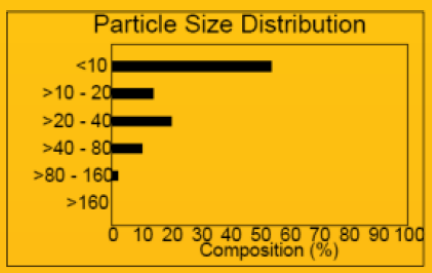
Filtergram Analysis is the microscopic inspection of contaminants and wear debris in a fluid sample or filter medium. This analysis will positively clarify if chemical leaching is occurring or a mechanical wear issue is present.

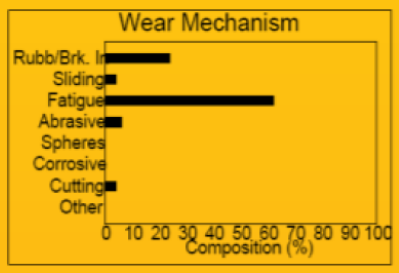
Elemental analysis of a fluid sample by Inductively Coupled Plasma Spectrometer (ICP) is limited to very small particles, usually less than 5µm (microns) in size; the Filtergram analysis is suitable for identifying particles from 3µm to over 1,000µm.

The Filtergram report will include a breakdown of the percentage of particulate matter under the classifications of size, metallurgy and wear factor.

Part number SOS4







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Filtergram Analysis

Preparation

Samples submitted for analysis must be supplied in a Filtergram kit (part number SOS4).

- Collect oil sample as per recommended method into the sample bottle with yellow lid supplied in the SOS4 kit.
- Ensure work bench is free from contamination. Using a 175-7546 filter cutter, remove filter cartridge from canister.
- Collect approximately 10cm^2 of filter pleat and place into the supplied re-sealable plastic bag.
- Ensure sample registration card is supplied with both the oil sample and filter medium.
- Place into SOS4 box and send to laboratory in the pre-paid mailing satchel.

Analysis

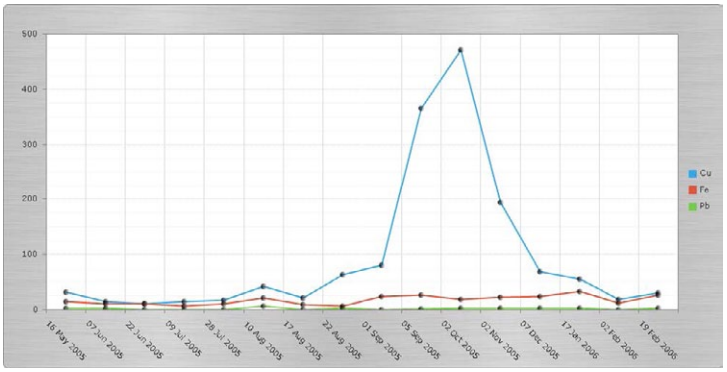
The sample is washed in a solvent and filtered through a fine filter membrane to capture any particulate matter for examination under a high powered microscope. Particle size, wear factor and identification are reported in graphs and include two scaled photographs highlighting critical points in a sample.

CASE STUDIES

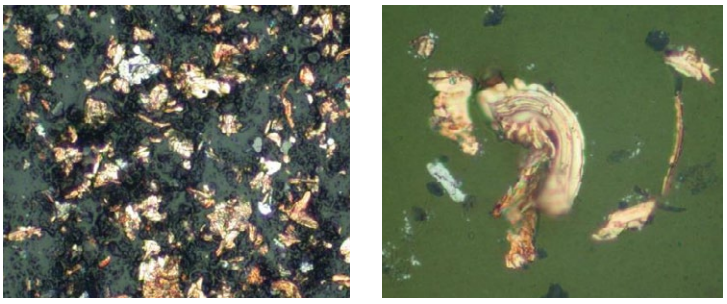
Case Study 1

Abnormal Engine Wear

The graph shows copper elevated to 471ppm in an engine sample; further investigation by microscopic analysis confirms the copper is a result of abnormal wear occurring in the compartment.



Elevated Copper by Elemental Analysis.



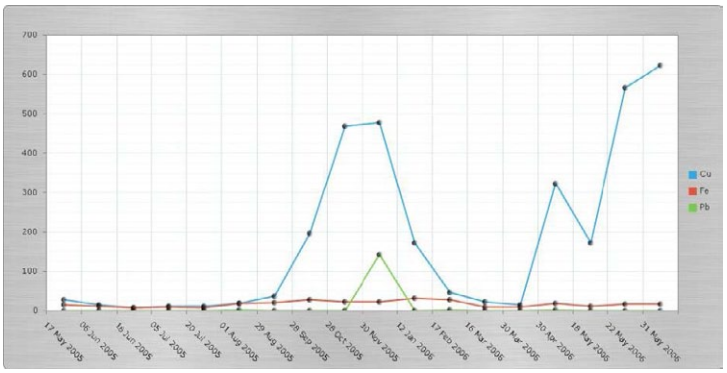
Critical abnormal copper wear as seen through the microscope.

Filtergram Analysis

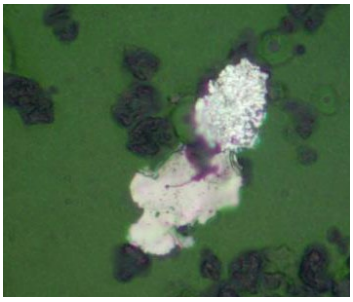
Case Study 2

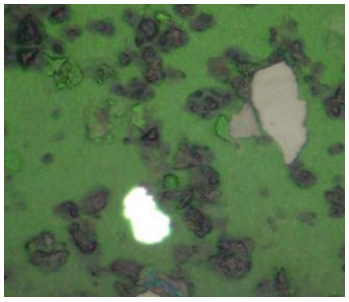
Engine Wear

Elemental analysis for this engine shows copper elevated to 622ppm; further investigation by microscopic analysis confirmed the high copper reading was a result of chemical leaching.

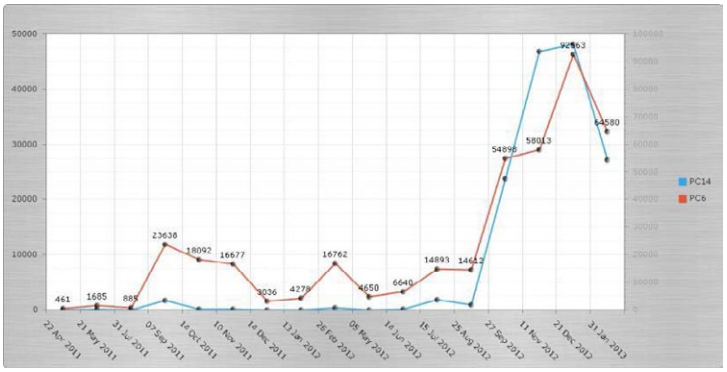


Elevated copper by elemental analysis.





Filtergram analysis confirms the high copper is the result of chemical leaching.

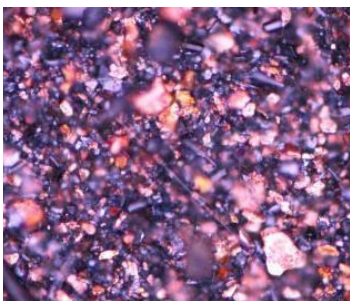


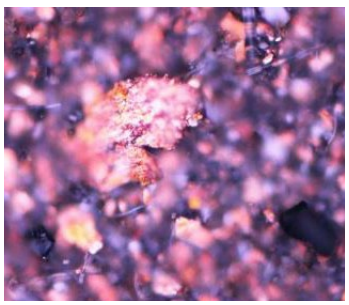
Particle count channels for 6 and 14 microns increasing.

Case Study 3

Wheel Loader Differential

The particle counts for the front differential in this wheel loader were increasing yet the elemental analysis results appeared acceptable. Further investigation by microscopic analysis confirms abnormal wear is occurring in the thrust washers.





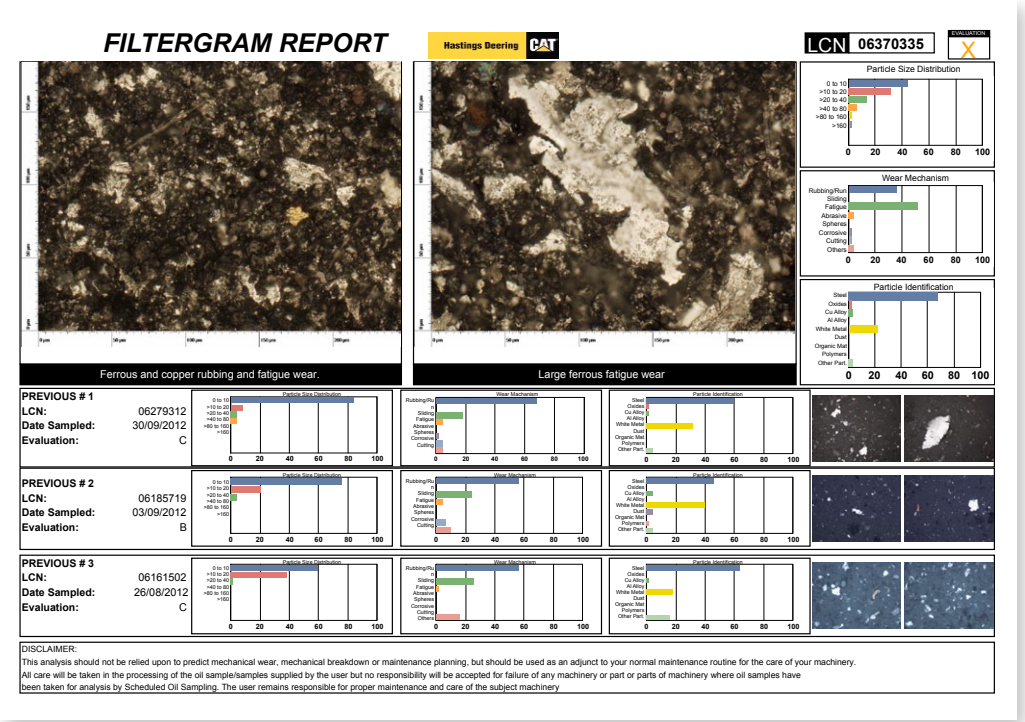
Abnormal copper alloy wear occurring.

Filtergram Analysis

Filtergram analysis of processed fluid samples

Filtergram analysis (part number SOS4) may be performed on a fluid sample that has already been processed by our laboratory for an alternative SOS service. Requests for filtergram analysis must be submitted within two weeks of analysis on the original sample.

- Order number (charge to Hastings Deering trading account); or
- Credit card details (MasterCard or Visa)



Please contact the Condition Monitoring Centre on 131 228 for further information about this service.

CALL **131 228**
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