



YOUR FILTERS MAY BE HOLDING EVIDENCE

Filter manufacturers spend time and effort on research and development to produce more efficient filters. However, the importance of filter inspection and analysis is now more critical. As part of routine maintenance procedures, oil filters must be opened and examined for wear particles present. Cavpower offers you the same level of importance to your maintenance procedures.

Cavpower's S•O•S Analytical Services Laboratory conducts Filter Debris Analysis (FDA). This entails you sending us a section of filter to us for analysis. Analysis of the debris in the filter provides a clear understanding of what has happened since the last filter change. Normal wear generates particles up to 15 microns in size and abnormal wear generates particles larger than 15 microns in size. These large particles will be captured by high efficiency filters and can then be examined using Filter Debris Analysis, something that normal oil analysis may not detect.

FILTER INSPECTION PROCESS

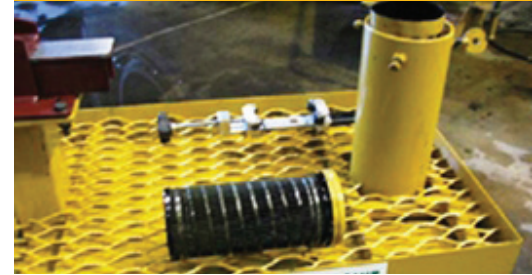
1 Remove oil filter and drain oil out.



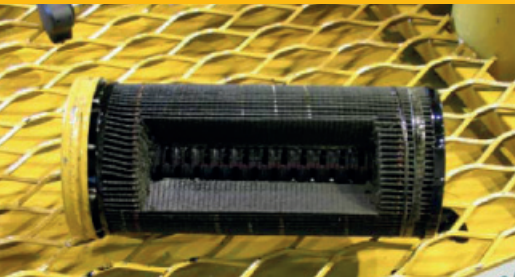
2 Remove filter cap using filter-cutting tool (P/N 175-7546).



3 Place filter on bench in preparation for cutting out a section of paper to be inspected.



4 Remove a section of filter paper from the filter.



5 Place the filter paper in the vice and remove the oil from the filter paper.



6 Place filter paper in plastic bag provided. Fill in registration card and place both in mailing canister.



Filter Debris Analysis fills an important gap left by atomic emission spectroscopy and analytical ferrography/patch microscopy techniques by recovering the data formerly lost by the use of fine filtration while retaining the extended machine life offered by the fine filters. By adding an objective component to the normally subjective analysis of particle size and morphology, analysis of debris from filters yields long lead times prior to the onset of failure which can result in substantial savings to the end user.

The analysis of debris from filters includes the following:

X-RAY FLUORESCENCE ANALYSIS (XRF) –

Identifies and quantifies elemental constituents

- ◆ Iron
- ◆ Nickel
- ◆ Chromium
- ◆ Manganese
- ◆ Molybdenum
- ◆ Lead
- ◆ Copper
- ◆ Aluminium
- ◆ Zinc
- ◆ Magnesium
- ◆ Tin
- ◆ Other

MICROSCOPE EXAMINATION

- ◆ Identifies sizing
- ◆ Identifies type of wear profile

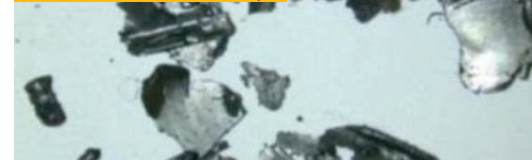
PARTICLE MASS

- ◆ Weigh the particles collected on the filter
- ◆ Expressed as grams per square inch (g/in²)

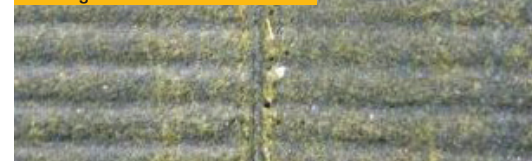
Debris under a microscope



Debris under a microscope



An engine oil filter with debris



BENEFITS OF FILTER DEBRIS ANALYSIS:

- ✓ Determines particle size
- ✓ Detects early stages of abnormal wear
- ✓ Detects contaminants
- ✓ Determines the wear mechanism present

For further information on Filter Debris Analysis or to discuss any of our other services, please contact our laboratory on (08) 8343 1426 or by email analyticalservices@cavpower.com