

# WEAR DEBRIS ANALYSIS

Condition monitoring for Aviation, Land,  
Marine and Industrial applications

We are a Total Quality Assurance provider. Through our global network of state-of-the-art facilities and industry-leading technical expertise we provide innovative and bespoke Assurance, Testing, Inspection and Certification services to customers.



## Our Expertise

Intertek Farnborough Fuels and Lubricants Centre have extensive experience and expertise in providing wear debris analysis to our clients, having operated the service for over 40 years.

We have served a wide range of customers including:

- Defence sector
- Major airline fleets
- Train and bus operators
- Marine fleets including major cruise operators and bulk carriers
- Wind farms
- Plant operators and power stations

## Wear Debris Analysis

Off-line Condition Monitoring is a technique whereby equipment operators can assess the condition of their fleet.

This enables informed decisions to be taken about servicing frequency and whether repairs can be undertaken as part of planned maintenance actions

Wear debris is generated within any rotating components especially when specific parts come into contact with each other. Undertaking sampling and analysis of wear debris from an oil system can give a good indication of the health of assets with composition, size and shape of the

wear debris all being used to provide an assessment on condition of systems.

By gaining a valuable picture on the condition of systems it allows any potential concerns to be addressed before they develop into costly problems.

Typical examples of equipment that is assessed includes:

- Gear boxes
- Bearings
- Pumps
- Hydraulic power systems
- Internal combustion engines
- Diesel engines
- Turbines

## SEM/EDS Analysis

Wear debris analysis can be undertaken using Scanning Electron Microscopy/Energy Dispersive Energy (SEM/EDS) techniques.

SEM/EDS is a very powerful analytical tool and well suited for wear debris analysis as part of an OCM programme.

The technique provides both morphology (shape) and compositional information on debris with the current generation of SEM systems capable of reaching magnifications of 300,000 x magnification and resolutions of 2-5 nano-metres thus allowing extensive analysis of submitted samples and highly accurate conclusions

on the health of assets to be made.

SEM sample analysis can be automated meaning samples can be analysed quickly as well as accurately to provide semi-quantitative results.


The SEM technique can be used to quantify and characterise a wide range of samples including:

- Oil, fuel and hydraulic fluids
- Magnetic plug debris
- Grease analysis
- Patch test analysis
- Fuel/oil filter debris analysis

Dirty/wet samples can be analysed using variable pressure settings.

Our experts regularly process over 2000 debris samples annually for clients on a global basis and are able to utilise multiple analysis techniques on a 24/7 basis in order to meet the most demanding customer requirements.

## FOR MORE INFORMATION

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