

# OIL ANALYSIS



# Oil Analysis

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Oil analysis is a predictive maintenance tool in that it can reduce the severity of machine failures and allows maintenance activities to be scheduled. It is also a proactive maintenance technique which permits the reduction of component failure rates and operating costs.

The concept of analysing an oil sample from a machine or component is similar to that of taking a blood sample from a human body – the results determine the health status of the unit. WearCheck's experienced diagnostic team then recommends how to rectify any abnormal findings.

WearCheck's programme analyses for wear, contamination levels and oil condition in any oil-wetted component or oil filter found in equipment used in a wide spectrum of industries.

## The programme is simple

The customer purchases a WearCheck oil sampling kit, takes the oil sample and returns it to the nearest WearCheck depot.

WearCheck laboratory staff analyse the sample, the results are interpreted and a report is generated for the customer.

## The process

A representative sample of oil from a lubricated component undergoes scientific tests – both chemical and physical – in a laboratory, and the results are interpreted by a team of experienced diagnosticians.

The diagnosis of the used oil analysis serves three purposes:

1. To monitor the health of the oil
2. To monitor the health of the machinery being lubricated by the oil
3. To measure levels of contamination

## Laboratory Tests

The exact tests carried out on a sample are determined by the type of machine, the component and the type of oil.

The tests are designed to measure applicable combinations of the following:

- Wear metals
- Contaminants: dirt, water, fuel, soot, coolant
- Additives
- Cleanliness rating
- Viscosity at 40° and 100°C
- Acid level
- Water, in parts per million, by Karl Fisher titration
- Total base number (TBN)
- Total acid number (TAN)
- Analytical ferrography
- Oil filter analysis

## Reports

Reports contain the analytical results, an interpretation of the results, recommendations on machine and oil conditions, and various checklists from our highly-qualified and experienced diagnostics team. Reports are available in a range of formats, including print, fax, SMS, email as well as via WearCheck's Mobile App and WearCheck Online – a web-based system which enables customers to create charts and graphs to track the test results.





### **Automotive**

For use on mobile equipment such as earthmoving machines, trucks, buses, light vehicles and generators.



### **Mining**

For use on all components of mining equipment, including drills, roof bolters, continuous miners and shuttle cars. WearCheck offers a specialised underground sampling service, where trained technicians take samples from mining machinery on-site, which they access using a specially-modified vehicle.



### **Electrical**

Analysis is performed on oil samples from components used in the generation, storage and transportation of electricity, such as transformers, tap changers and switch gears.

### **Industrial**

For use on industrial gearboxes, hydraulics, compressors, pumps, turbines, heat transfer fluids, bearing compartments, air conditioning, recirculation and refrigeration systems.



### **Marine**

For use on engines, generators, hydraulics, gearboxes and other on-board equipment.



### **Aircraft**

Various kits are available for piston and turbine engines as well as hydraulic systems and helicopter rotor gearboxes.

**The ultimate goal of oil analysis is to reduce operating costs and to save money.**

So, how does it do this?

- Detection of abnormal wear
- Detection of oil degradation
- Detection of oil contamination
- Detection of impending failures
- Verification of the oil in use
- Optimising service intervals
- Avoiding unnecessary overhauls
- Avoiding loss of production
- Reliable extension of oil drain intervals

By reducing unscheduled downtime, oil analysis increases the availability of machinery, improving productivity.



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