



## OUR GUIDE TO YOUR OIL SAMPLE REPORT

Thank you for using our service, we are confident you will find the attached report useful. By analysing oil on a regular basis you can achieve a long trouble free life from your vehicle or machine and optimum life from your oil.

For your guidance we give below an explanation of the spectrochemical details that are shown on our reports. ( ppm = parts per million)

**Total Insoluble Matter (TIM)** Principally carbon / soot generated by combustion 2.5% max.

**Iron** Generally results from ring, bore, cam, tappet or crankshaft wear. If the concentration quickly reaches 50 ppm inspect to determine the cause. Permissible maximum is about 100 ppm.

**Chromium** Usually from piston rings or plated bores, 30 ppm is the normal working maximum.

**Aluminium** Caused by piston or bearing wear, we would warn you at a level of 20 ppm or above.

**Copper** May originate from copper/lead bearings, oil coolers and pipework erosion or sychromesh's in gearboxes, we don't like to see above 50 ppm .

**Lead** Usually derived from lead/tin bearings (white metal) or copper/lead main and big end bearings. Is also used as an octane boosting additive in petrol. If the lead originates from bearing wear, then over 50 ppm indicates a problem. Petrol engines running on leaded fuel can show levels of several thousand ppm.

**Tin** From lead / tin or aluminium / tin bearings. Levels over 25 ppm need investigation.

**Nickel** Used as an alloy in steel components and will rise as a function of iron wear.

**Silicon** Normally derived from sand/clay i.e. Dust, over 20 ppm indicates need for attention to air intake filter/ trunking or excessive wear will result. Other possible sources are antifoam additives, silicon sealant or coolant leaks.

**Sodium** Indicates water ingress most commonly due to coolant leaking in to oil. Usually caused by faulty head gasket, liner seals or perforated liner. We would expect to see levels of 100 ppm and above if there is a problem

**Boron** Used either as an additive in antifreeze or as an extreme pressure additive in some oil blends. Levels over 50 ppm if they come from antifreeze indicate a problem.

**Vanadium** Contained in surface coatings, turbine impeller blades, valves. Also a trace element derived from base oil or fuel - not of concern in normal applications.

**Calcium, Phosphorus, Zinc, Magnesium and Barium** are additives used by oil companies in the manufacture of their lubricants.

**Oil Analysis is such a useful maintenance tool for everyone, whether in industry or at home. Our aim is to make it affordable, accessible and easy to understand. We hope that we have achieved our objective and that we can continue to be of service**