

STAR

Fluid Care



Laboratory Services



Star Hydraulics Limited
Severn Drive
Tewkesbury Business Park
Tewkesbury
Gloucestershire
GL20 8SF
England (UK)

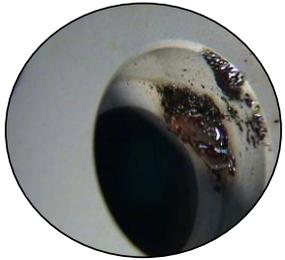
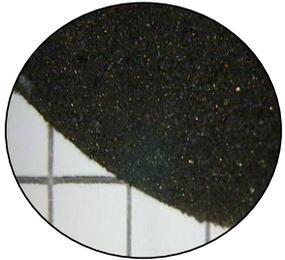
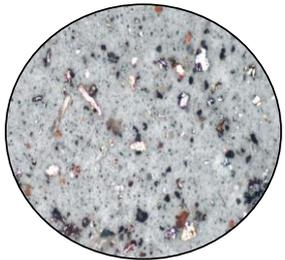
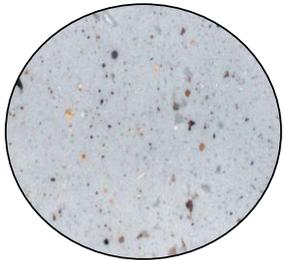
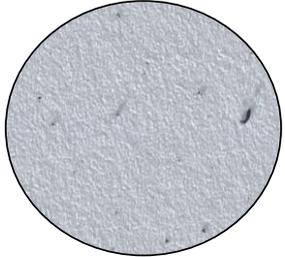
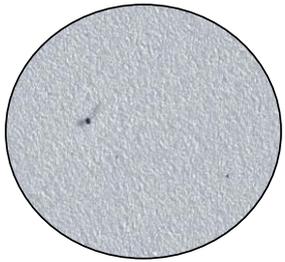
www.star-hydraulics.co.uk

ST-Labserv-2017.1-En

Oil Analysis Standard Packages

Package	Description
Basic oil analysis	Microscopic contamination analysis Particle distribution measurement Water content Conductivity
Enhanced oil analysis	Microscopic contamination analysis Particle distribution measurement Viscosity at 40°C and 100°C ICP Analysis Water content Conductivity
Premium oil analysis	Microscopic contamination analysis Particle distribution measurement Viscosity at 40°C and 100°C ICP Analysis TAN/MPC Water content Conductivity

The above packages have been produced to accommodate the more popular tests. However, we also offer tailored packages, please feel free to contact us with your requirements.



Basic Oil Analysis

(With 250ml plastic sample bottle)

Analysis includes a patch test, water content analysis, and a Particle Distribution Measurement. Once the order is placed, we will send as many sample bottles as are required with prepaid labels for you to complete, as well as sampling records for each sample in order for us to get the most precise analyses we can.

Water Analysis

A high water content in oil can be very damaging to hydraulic machinery and often causes costly shut downs. We offer an oil analysis service in which we will take the details of your oil and work out what is a healthy range of water, then analyse the sample to ensure that it is within this range. This analysis provides the water content, in ppm, of the solution being tested. This is important as, if the water content is too high, free water may occur in solution. This is a problem as it can adversely affect additives and potentially freeze inside the system during downtimes.

Gravimetric Analysis

This analysis involves measuring a defined amount of oil and filtering it through a filter membrane of known weight using suction. The membrane is then rinsed with solvent, dried out and re-weighed. The total weight of solid particles (contamination) in mg/l is calculated from the difference between the starting weight of the membrane, and the weight after the oil has been filtered through it. This provides us with the mass of the contamination found within 100ml of the sample. From here we can calculate approximate values for larger quantities of fluid. Overall, this mass can provide a representation of the contamination found within a system, making it another unique tool for analysing dirt load.

Particle Distribution Measurement

An optical particle counter with laser diode sensor is used to determine the size and quantity of particles in your sample of oil. The size, composition and quantity of such particles can have a considerable effect on the wear and tear of the hydraulic components within your systems.

Microscopic Contaminant Analysis

We use the solid particles within your fluid sample, or separate residue (if taken from a used filter etc.) and analyse these under the microscope according to the size and type of the particle. If need be, these solid particles or residues can be further analysed using SEM-EDX to determine their element composition.

TAN - Total Acid Number

An automatic Potentiometric Titrator is used to find the levels of acidity in your oil sample. Acids found in oil are an indication of oil ageing as a result of oxidation; this can lead to corrosion and damaging deposits in the system. This procedure can be used to determine relative changes in the acid levels in your machinery.

MPC Analysis

MPC stands for membrane patch colorimetry, and this tracks the amount of insoluble particles present in the oil so you can act before harmful varnish and sludge build-up occurs on critical components.

Conductivity Analysis

This test allows us to measure the solution's ability to conduct an electric current, and therefore predict the likelihood of electrostatic discharge, which could cause serious system damage if left untreated.

Oil Analysis of One Filter Element

A filter analysis allows us to look at the various layers within an element. From here, we can establish if there is any damage to the element as well as measuring the dirt load to ensure it is filtering efficiently.

Chlorine Testing

High chlorine content is usually found in systems where the fluid has high thermal and oxidation stress. This is caused by chlorinated materials such as cleaning material in the system being degraded into ionic form. The tests we conduct will show if there are any cleaning materials or cooling water getting into the system.

ICP Analysis

ICP stands for Inductively Coupled Plasma, and this analysis allows us to identify the quantity, in ppm, of individual elements within a fluid. This is a helpful way of determining contamination causes, whether it's from wear metals or from another source of contaminant. This also allows the identification of additive levels in the fluid, recognised depletion of which can indicate aging of the oil.

SEM Analysis

SEM stands for Scanning Electron Microscope; this analysis produces images of a sample by scanning it with a focused beam of electrons. This identifies the contamination under analysis, allowing us to determine what the particle consists of.

Ruler Test

The Ruler test measures the levels of antioxidant additives present in the oil, which is an indication of the level of oil degradation. It can be partnered with the MPC analysis for increased reliability.

Viscosity Analysis at 40°C & 100°C

It is very important to keep track of the viscosity of your oil as it's one of the most fundamentally important properties of lubricants. If the viscosity of a fluid is found to have changed then further investigation into the reasons for this change will be required as the oil may not be performing to its required standard.