FLUID ANALYSIS IN THE MANUFACTURING INDUSTRY.

The benefits of moving to a condition based maintenance programme.

Discover how taking a proactive approach to maintenance can save critical costs, while ensuring systems run safely and reliably.
The challenges for the manufacturing sector

Even with the facts and figures in front of you, it can be hard to comprehend the sheer scale and diversity of the UK’s manufacturing sector.

In 2016 alone, plants and factories across the country produced goods worth almost £365 billion, ranging from raw materials to finely crafted sports cars and electronics. More than that, the sector makes up 10% of the UK’s GVA and 45% of its exports, directly employing 2.7 million people.

All this demands a diverse range of machinery and equipment, all of which have their own needs and requirements if they are to operate at peak efficiency. One thing that many of these machines have in common, however, is their reliance on the fluids they use, whether this be gearbox oil, transformer fluid or hydraulic fluid. Therefore, it is essential that the condition of these fluids be monitored, to ensure all components are operating as expected. Failure to do this could potentially result in systems falling victim to mechanical problems, or breaking down completely.

Many manufacturers try to prevent this by implementing a scheduled maintenance programme. However, this rigid approach to servicing fails to offer a predictive approach to potential maintenance issues, anticipating any problems that could reveal themselves in the future.

However, effective fluid analysis means any issues can be remedied before failure. Fluid analysis can help operators achieve considerable cost savings by taking a condition-based approach to maintenance, while reducing downtime and improving the overall efficiency and reliability of equipment.
**Common manufacturing equipment issues**

**Oil Contamination**
Dirt or water can make their way into a machine through air intake ports. Once oil is contaminated, it can have a significant impact on the engine, potentially causing damage to bearing surfaces or accelerating the wear of critical components.

**Use of Unspecified Oil**
Often due to poor depot practices and the temptation to only consider cost per litre, the use of unspecified oil can have serious consequences for overall efficiency levels.

**Exhaust Contamination**
Many manufacturers rely on high levels of cleanliness in the production environment, such as the food and pharmaceuticals sectors. Leaks and contamination within engines can result in oil or other fluids being emitted along with exhaust air, potentially contaminating the products.
The benefits of fluid analysis

Fluid analysis provides visibility of vital asset performance and component health. Not only does this improve reliability, but it also helps realise a range of efficiency and cost benefits that can make a big impact on your business.

These include:

- **Reducing maintenance costs**
  Servicing equipment when necessary, rather than adhering to a rigid maintenance schedule, considerably reduces total cost of ownership.

- **Minimising unscheduled downtime**
  Identifying potential faults early reduces the risk of vital component failure significantly, which could lead to extended periods of unscheduled downtime and incur massive costs.

- **Optimising equipment life**
  Protects vital components from unnecessary wear and tear, prolonging equipment life.

- **Scheduling repair and maintenance**
  Keep a close eye on the condition of vital equipment and schedule repairs and maintenance at a time convenient to the business.

- **Limiting waste and its environmental impact**
  Only changing fluids when they need replacing maximises efficiency and reduces the cost of waste, as well as the site’s overall environmental impact.

- **Extending oil life**
  Replacing oil based on its condition guarantees maximum value for every litre used and minimises the cost of disposal.
**Fluid monitoring**

There are three key fluids that are essential to monitor in the manufacturing sector.

1. **Oil**
   Oil sampling should test for metal and water contamination, abrasive wear, viscosity, acidity and cleanliness. This enables the oil drain interval to be optimised and highlights any changes in component condition.

2. **Transformer Oil**
   Transformer oil condition monitoring is vital for the efficient operation of electrical equipment. Testing enables issues such as a reduction in dielectric strength to guide diagnostic work.

3. **Hydraulic Fluid**
   Hydraulic fluid cleanliness is critical to optimal hydraulic system performance. Particle counting is essential to determining the cleanliness level of hydraulic fluids and provides the clearest indication of solid particle contaminants.
What does implementing a fluid analysis programme with Finning involve?

- **Samples need to be taken on a regular basis**
  Taking a regular sample ensures an accurate picture of performance history and trends can be established. Many modern technologies allow operators to take a ‘live’ sample, to provide an even more accurate insight as it is taken directly from an operational working part.

- **Results are reported within 48 hours**
  Results and recommendations for oil and coolant testing are sent to customers within 48 hours of the sample arriving at our laboratory. If there is an urgent need to feedback on a fluid sample more quickly, Finning can accommodate for this requirement too.

- **Findings are reported via Infotrak**
  Sample data can be viewed in real-time with our Infotrak system, an online portal that can be accessed at any time. It provides live, up-to-date analysis of all fluid samples, and features a range of practical recommendations that will help you to take preventative action before any issues arise. Results are also sent out via email.

- **A clear, practical recommendation will be made**
  Finning’s specialists will be able to identify wear patterns for components, forecast long-term equipment requirements, predict the frequency of problems and optimise the oil drain interval, ensuring valuable recommendations can be made.

Connecting with customers
It’s important that you be able to access our fluid analysis services no matter where you are. For this reason, we now offer the ability to order fluid analysis equipment and access services through our specialised online system - parts.cat.com.

Expertise
Finning works closely with companies based across the UK in order to determine their individual needs and requirements. The team will advise on which fluids can and should be analysed and make practical, cost-effective and helpful recommendations based on findings.
About Finning:

Every year, we test fluid samples for customers worldwide at our state-of-the-art laboratory in West Yorkshire, delivering the most advanced fluid analysis techniques available on the market.

With nearly 40 years of experience and a team of sector-specific and regional support specialists available, Finning is well positioned to expertly analyse equipment and make recommendations.

For more information, visit [www.fluid-analysis.com](http://www.fluid-analysis.com).