

Used Oil Analysis: What you need to know

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We sat with Inken Reuser, Industrial Marketing Advisor at ExxonMobil, to discuss the role of used oil analysis and how it can help overcome the operational pressures associated with gas engines and improve productivity.

What is Used Oil Analysis?

Used oil analysis can be best described as a blood test for your machinery. Similar to a blood test at a doctor's surgery which can be used to detect existing or potential ailments, used oil analysis can provide insights into the condition of lubricants. This can help operators to detect problems and contamination before they result in excessive equipment wear and failure.

Why Is Used Oil Analysis so important for gas engines?

Gas engines typically operate under very harsh conditions, including high temperatures and high output targets. These conditions can be particularly harsh for gas engines running on aggressive biogases which may have high levels of contaminants such as halides, siloxanes and sulphides.

Due to these operational pressures, some engine components – such as cylinder liners, valves and piston heads – are more susceptible to failure. It is therefore not uncommon for operators to change oil before the Original Equipment Manufacturer (OEM) recommendation to avoid unscheduled downtime – often up to an average of ten times in one year. These short intervals between oil changes can pose an unnecessary risk to employees and increase environmental impact through additional oil wastage, both increasing operational costs over time.

While lubrication can partially contribute to improving output, it's not the full solution. Oil analysis can be the missing piece of the puzzle. Combined with the use of high quality lubricants, gas engine operators that conduct regular used oil analysis have the potential to reduce the number of oil changes per year, leading to significant long-term savings.

What are the tools operators can use?

Used oil analysis can help inform where the root of the problem is and whether more advanced tests are required.

The Mobil ServSM Lubricant Analysis (MSLA) programme provides customers access to used oil analysis results and customised equipment recommendations on mobile or tablet devices using a cloud-based app.

It is particularly valuable to gas engine operations due to the variety and inconsistency of gases used and the high operating temperatures the engines endure. Remote access ensures that engineers have full access to what is going on inside their equipment without needing to be in contact with the machinery.

MSLA draws upon a bank of data samples to provide expert analysis and comparative insights that can help track productivity trends and spot anomalies. Recently we reached 1 million samples in our database – a milestone which demonstrates the value of the service to operators around the world.

How has this service helped customers?

Greenlake Systems BV, part of the Heyde Hoeve Group, has already seen the benefits of monitoring used oil. The company operates a large biogas plant in Lierop, The Netherlands, which digest up to 90 tons of pig manure a day.

Using MSLA and high performance lubricant Mobil Pegasus™ 605 Ultra 40, Greenlake was able to successfully double oil drain intervals, from 1,000 hours to 2,000 hours, when compared to previous oils. The company also significantly reduced oil consumption and is exploring further ODI extension. All of this was achieved without compromising engine protection. In fact, trial results show extremely low levels of deposits or engine wear.

By safely extending oil drain intervals Greenlake has been able to reduce maintenance costs and improve power output.

Another company to benefit is an oil and natural gas company based in Poland. The company powered Series VHP L7042GL Waukesha pumping units at two natural gas mines, but observed increased carbon deposits on the pistons, cylinder heads and combustion chamber surfaces. Despite using high quality mineral oils, the increased carbon deposits caused pistons to touch valves, increasing the rate of necessary servicing.

Following an oil analysis, the company implemented a change to Mobil Pegasus™ 1 synthetic oil, and utilised MSLA. This led to an oil change interval three times longer; from 1500 hours to 4500 hours and estimated savings for the pumping department of approximately \$150,000 over a three year period¹.

To find out more about Mobil Serv Lubricant Analysis or to join the programme, please visit <https://mobilserv.mobil.com/en/>

¹This proof of performance is based on the experience of a single customer. Actual results can vary depending upon the type of equipment used and its maintenance, operating conditions and environment, and any prior lubricant used.