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Press Release

Analysing and treating contaminant problems in lubricants

Techenomics diagnoses engine 'health' issues

Along with wear metals, the presence of contaminants in oil and other lubricants is detrimental to the performance of engines and equipment and can lead to component failure if left untreated.

Chris Adsett, CEO of Techenomics International

Techenomics oil analysis detects these contaminants and the data gathered from analysis can determine what causes this accumulation. When the data is trended and interpreted, Techenomics predicts issues caused by contamination before they lead to costly maintenance.

CEO Chris Adsett says detecting, analysing and interpreting contaminants is part of the company's diagnosis of oil and lubricant 'health' issues.

Among the contaminants that impact on the health of engines and equipment are silicon, sodium and potassium. The presence of silicon, when associated with aluminium, may indicate dirt contamination in the oil sample or ingestion of dirt/dust in the engine inlet system. Another source can be from the excessive use of sealants containing silicon to seal certain parts of the engine or gearbox.
High levels of silicon can result in oil foaming and the loss of lubricating quality and heat transfer capabilities.

Chris Adsett says a foam test on used oil may be needed if silicon contamination is suspected.

Its presence in new engines indicates that liquid silicon sealant has been used in the assembly process, which usually gets washed away with the first oil change.

The presence of sodium associated with boron and potassium confirms glycol contamination. It is usually found as a coolant or chemical inhibitor.

Potassium is usually found in coolant formulations but is no longer an additive for engine oils. Its presence with sodium indicates coolant contamination.

Some metals in the correct quantities in additives can boost the effectiveness of lubricants but if the balance is not right, performance can be impacted.

Engine oil is designed to perform a number of key functions such as lubricating moving parts, transferring heat and reducing friction. To enhance the oil's performance and even add extra properties, additives are used.
Sulphur is an extreme pressure additive found along with phosphorous. Extreme pressure agents bond to metal surfaces, keeping them from touching, even at high pressure.

Boron is an extreme pressure additive usually found in coolants while phosphorus and zinc are usually found in anti-wear oils for gears and hydraulics. They are also found in diesel and gasoline motor oils as an anti-wear/anti-oxidant additive which acts as a film to surround metal parts, helping to keep them separated.

Magnesium, calcium and barium are found in a detergent-type additive which provides some alkalinity to help neutralise acids formed in diesel fuel combustion.

Chris Adsett says the spectroscopy carried out by Techenomics identifies the amount and type of wear metals, contamination and additives in new and used lubricating oil.
“By determining these elements we are able to alert operators to the severity and type of problem occurring in the equipment compartment.”

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