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Press Release

Techenomics solving the engine issues caused by soot

Soot is harmful to engines and if left to accumulate impacts on productivity, which makes Techenomics' oil analysis and fluid management expertise an important tool in overcoming the problem.

At excess levels soot causes abrasion and high wear in engines and mechanical components, and if it forms clumps, can result in valve train, ring and liner wear. It can also thicken the oil and increase viscosity, which inhibits oil flow.

Techenomics' oil analysis ascertains how much soot is present and trending the analysis results over time can point to the cause of the soot build-up and the problem can be remedied.

Soot is most commonly formed from the incomplete combustion of a hydrocarbon and is a particular problem with many diesel engines.

The company's CEO Chris Adsett says there are some aspects about the impacts of soot that need further investigation and, subsequently Techenomics is developing improved analysis and treatment techniques.

Techenomics' technology and product development manager Eka Karmila says it appears the adsorption of soot on metal surfaces prevents the adsorption of anti-wear additives and their subsequent decomposition to form anti-wear films.

"Soot can also adsorb anti-wear additives in the oil phase reducing the concentration of the additives in the lubricant. Consequently, less anti-wear additive is adsorbed at the contact interface.

"In some studies, it has been suggested that soot in the oil can accumulate at the contact inlet, restricting oil supply to the contact.

The absence of a lubricant film at the contact results in high wear due to the metal-on-metal contact."



Samples from soot build-up being analysed by Techenomics staff

She says, "It is believed that soot increases wear through directly abrading the metallic parts of the engine or by abrasion of anti-wear tribofilms formed on surfaces.



Chris Adsett, CEO of
Techenomics International

“Removal of the anti-wear tribofilm exposes the underlying metallic surface to wear.”



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Chris Adsett says these are the types of issues that the company’s research and development work is striving to address.

“Solving these soot issues will give clients better life from their oil, thereby improving fuel consumption and preventing costly equipment maintenance or even breakdowns.”

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