

4 July 2018
Press Release

Total Acid Number important in Techenomics' condition-based monitoring

Determining the Total Acid Number (TAN) of oil is an important part of the maintenance process that Techenomics offers in its condition-based monitoring service.

The TAN refers to the amount of acid and acid-like substances in the oil. A high TAN means an accumulation of acid, which presents the potential for corrosion, rust and oxidation.

It is beneficial to track the TAN within oil over time so that trends can be determined and effective oil changing procedures can be established.



Chris Adsett, CEO of
Techenomics International

Techenomics CEO Chris Adsett says that as with other condition-based monitoring procedures, the TAN data can help ensure equipment has higher reliability and availability, thereby reducing failure rates and utilisation of spares.

He says Techenomics collects the data to establish trends, predict failure and calculate the remaining life of an asset. "This process is used to schedule maintenance activities ahead of time."

Oil oxidation is one of the main reasons for acid accumulation, says Techenomics Australia laboratory supervisor Sahar Nazari.

She says two negative impacts of acid build up are sludge and corrosion.



Techenomics Australia laboratory supervisor Sahar Nazari

“A combination of rust, oil and contaminants create sludge that settles and is then dispersed onto engine surfaces. If this occurs there is actually less oil available in the system to do what it’s supposed to.

“Sludge is sticky and coats all of the engine parts it comes in contact with. This puts more mechanical strain on engine parts, including the radiator and cooling system,” she says.

The oil is supposed to function partly as a coolant but sludgy oil does the opposite by retaining heat, Sahar Nazari says. “As a result, it acts like a sponge, absorbing and trapping fuel and making combustion less efficient, causing poor fuel mileage and rough acceleration.”

She says moisture and acid contaminants cause corrosion in the system that can make its way into a vehicle’s fuel tank, impacting on the fuel pump, lines and injectors.

“Formation of particles from corrosive processes, such as the rusting of metal surfaces, can contribute to the blockage of fuel filters, affecting the overall operation of the vehicle.

“Oxidation of base oil generates weak acids that would show up as TAN if not neutralised. In addition, some acids generated by combustion blow-by are similarly weak and not neutralised by some detergents. “Engines additionally have sulphur in fuel and nitrogen in air, both of which are burnt during combustion, creating strong acids.”



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Chris Adsett says it is important to protect engines against sludge and corrosion.

“As a bare minimum, TAN measurements should be included in any analysis along with wear metals content, oxidation, soot content and viscosity.

“The ability to control TAN and oxidation also need to be evaluated because of the potential impact on bearing corrosion,” he adds.

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