

20 March 2018
Press Release

TBN tests a measure for maintaining engine oil performance

Techenomics performs a range of tests during its specialised oil analysis procedures and we are often asked what the term TBN refers to and why it is important. TBN is the Total Base Number of the oil and the higher the TBN, the more acid that the oil can neutralise.

TBN depletion results in the oil not performing as it should which can lead to engine wear and lost production.

Techenomics CEO Chris Adsett says an effective predictive maintenance program needs to keep a close watch on TBN levels, among other performance measures.

New engine oils typically possess TBNs from 5.0 to 15.5, depending on manufacturer and intended service.



Chris Adsett, CEO of
Techenomics International

He says one cause of TBN depletion is the use of low-quality, high sulphur fuel. “During the combustion process, this sulphur turns to sulphuric acid and in turn, accelerates TBN depletion.

“Other causes are overheating and over-extended drain intervals, which can cause oil oxidation, the products of which are acidic.”

Techenomics Technology and Product Development manager Eka Karmila says there are several test methods for TBN.

Product data sheets generally recommend ASTM D 2896, which uses perchloric acid to neutralise alkalinity in the oil and yields slightly higher numbers than the test method generally used by oil analysis labs.

“These labs generally use the ASTM D 4739 test, which utilises hydrochloric acid.

“Oil manufacturers have typically used ASTM D 2896 and their labs are set up to deal with perchloric acid, which is toxic and hard to handle.

“In addition, this test can measure both the ‘hard base’ from metallic detergent as well as the ‘soft base’ from organic, non-metallic ingredients.”

She says this is a more accurate measure of TBN but more difficult to manage, which means most production oil labs prefer to use the safer, faster, easier to handle and more cost effective hydrochloric acid tests.

Eka Karmila says the old rule was to change the engine oil when 50% of the new oil TBN had been consumed. “Because of the virtual absence of high sulphur fuels today, this is no longer the case, but it is important to carry out regular tests to check for TBN owing to the many variables which can lead to acid build-up.”



Techenomics technology and
product development manager
Eka Karmila

“These days,” she says, “other parameters are important to maintain engine durability and extended service protection, such as oxidation stability, wear control and effective soot dispersal.



Win a free 3 month trial of WS2 additives

Take this quick quiz and go in our draw to win a three month free trial of WS2 nano additives - for improved fuel consumption, minimised maintenance and reduced emissions! Click here for more...

“A balanced oil has multiple performance abilities and TBN is just one of the performance measures that are important in today’s high-performance engine oils.”

For more information about Techenomics contact: Chris Adsett, c.adsett@techenomics.com; in Indonesia [Teguh, teguh@techenomics.com](mailto:teguh@techenomics.com); in Singapore Siti, siti@techenomics.com; in Mongolia Tumees, tumees@techenomics.com; or in Australia Taylor O’Mahony, taylor@techenomics.com.