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Press Release

Stay on track with oil analysis for rail

Fuel and coolant leaks can cause major problems for diesel locomotives but can be addressed by the innovative, reliable and accurate oil analysis services of Techenomics International. An oil analysis program should be an important component of any preventative maintenance program as it helps improve equipment life and reliability.

As well as using its fluid management expertise and state-of-the-art technology, Techenomics has developed knowledge specific to the rail industry by building relationships with industry participants and by providing unique solutions for each client's individual needs.

The consequences of fuel leaks for diesel locomotives can be severe, according to Techenomics Australia operations manager Sam Kurup. "If the concentration of fuel in the sump gets too high, the engine can explode."

He says many rail operators and OEMs rely solely on changes in viscosity to determine if there are fuel leaks. However, using viscosity as the sole measure is not reliable because the oil's age can impact readings. "Standard tables of fuel dilution versus viscosity are established for virgin or new oil but the ratios are different for used oil.
"Fleet operators and maintenance teams need to thoroughly understand the results that levels of changes in viscosity can generate. Techenomics has experience in this area and can help provide solutions to enable efficient operating of diesel locos."

Similarly, oil analysis can determine the severity of coolant leaks into the internal workings of engines. Sam Kurup says rate of change and absolute values need to be considered to determine severity. "Actions need to be equipment or class specific as different engines respond differently to leaks and repair methods."
The life of compressors is directly related to oil cleanliness and Techenomics says compressor oil should be measured to ISO-standard cleanliness grades. Readings can then be used as the basis of an oil cleanliness program designed to extend compressor life. Based on oil analysis results specific inspections can be identified to improve the inspection process.

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The only hydraulic component on some older locomotives is the hydraulic governor and Techenomics says it is critical governor oil is very clean as debris can block valve ports and spindles. "Cleanliness can be measured but the cause of problems is often incorrect top-up," Sam Kurup says, "Techenomics has in place governor oil cleanliness programs."

He says another issue for engines can be the presence of wear metals and it is important to understand the impacts of these deleterious elements. "Techenomics can develop specific actions or inspections based on the wear metals identified where they are above alarm levels."

"When measuring oil life, modern 2-stroke engines (Tier 3) require sweetening/oil changes that previous classes of engines did not. Total Base Number (TBN) is the best measure for determining oil life and the best measure of 4-stroke engine oil life.

"TBN alarm levels depend on the oil additive pack used. Some operators experience problems with fire face and turbo charger build-up, and one of the most likely causes is that the additive pack for the oil is not aligned with the sulphur content. The advent of Ultra Low Sulphur Fuels means the additive pack needs to be adjusted to lower TBN levels. Techenomics works with customers to help resolve these issues."

Once an oil sampling program is in place, virgin oil sampling is also an important best practice step in maintaining diesel locomotives. Bulk oil facilities should be regularly sampled to ensure the oil being put into locomotives is up to spec.

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