



Overcoming Oxidation in Next-Generation Diesel Engines

Oxidation of engine lubricants occurs when the oil reacts with oxygen. It causes a chemical change that often results in oil thickening, formation of sludge and deposits, depletion of additives, and accelerated degradation. Oxidation occurs more rapidly in high temperatures and in the presence of water, acids, or catalysts such as copper.

To improve fuel economy and reduce emissions, modern diesel engine hardware now runs at higher temperatures, putting more stress on engine lubricants. A primary contributing factor to the most recent transition to API CK-4 was the requirement for a more robust oil formulation to protect against oxidation. A new engine test was added, the Volvo T-13, designed to monitor an oil's ability to push the boundaries of oxidative stability in a turbocharged, intercooled diesel engine running on ultra-low-sulfur diesel fuel to allow for extended drain intervals and improved bearing wear protection.

A lubricant's resistance to oxidation can be improved by formulating with more robust base oils with higher viscosity indices as well as with antioxidant oil additives. Antioxidant additives also help suppress acid buildup that can lead to excessive engine wear.

Suprex Gold ESP is formulated with high quality base oils and state-of-the-art additives. Through industry testing conducted as part of the transition to API CK-4, FS Suprex Gold[®] ESP exhibited a 45% improvement in oxidative stability over the specification limit and 700% better protection against increased viscosity as set forth in the Volvo T-13 test.

So how can you know if oxidation of your diesel engine oil is occurring? Ask about our Used Oil Analysis Program. A representative sample of the engine oil will be obtained and sent to our laboratory in Council Bluffs, Iowa or to a partner laboratory for a complete analysis. Oxidation levels will be reported as well as additive levels. Changes in oil viscosity will be noted, too. Anything marked as "abnormal" or "needs attention" is reported immediately so a workable solution can be implemented right away.

If you are interested in seeing how your oil is performing or determining if you can safely extend drain intervals, see your local FS Energy Specialist today.

