LUBE TECHNI-GRAM

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ENGINE OIL – NOT JUST AN EXPENDABLE FLUID

EPA Clean Air Regulations, ultra-low sulfur diesel fuels, alternative fuel mandates, stricter fuel economy or CAFÉ requirements and procurement processes are making it difficult for maintenance managers to perform the basic objectives and functions of vehicle maintenance.

These legislative advancements are leading to technological changes in engine designs and operating characteristics to burn cleaner and operate on alternative fuels. Engine oils and diesel fuels have been re-formulated to meet engine manufacturers requirements to comply with Clean Air Legislation.

As the nation continues to move towards compliance with these clean air, fuel economy and alternative fuel mandates set by decree, legislative and technological advancements are presenting new challenges for maintenance mangers and engine oils to contend with.

Engine oil should not be thought of in terms of just another expendable fluid. It should be thought of as an integral engine component that is very important to the operation of the engine. The life expectancy of the engine in terms of parts, costs and labor, fuel consumption, and clean air emissions, not to mention vehicle down time and revenue loss because the unit is not available for use due to unnecessary repairs, all depends on using a quality engine oil of the right specification. Thought of as an important integral component, engine oil will only perform to the levels for which it was designed to perform and only the standards for which particular engine oil has been formulated. Basically, the type of base stocks, the additives, the quantity and quality of the additives, and the process methodology of the manufacture to blend it, store it, and deliver it. The bottom line is – an oil must be blended for precise engine specifications.

According to Detroit Diesel, engine oils have three main functions. These are: lubricating quality, high heat resistance, and control of contaminants. With lubrication quality, an engine oil reduces friction, whereby maintaining a layer of oil between moving parts. The thickness of the oil film and its ability to prevent metal-to-metal contact between moving parts is important and relates to viscosity and proper additives. Next, thermal stability at elevated temperatures produced by both friction and the combustion of fuel must be controlled. This is important for the prevention and formulation of harmful carbonaceous and/or other deposits.

The third function concerns the control of the contaminants. Oxidation and carbonization of oil occurs at the upper piston crown areas during engine operation. Soot, acids, and water are by-products produced from fuel combustion. Engine oils are blended with detergents and dispersants that aid in keeping sludge and varnish from depositing on engine parts. Two specific examples of contamination control problems are: (1) ash formation on exhaust valve seats, which causes early engine failure; and (2) sludge, varnish and lacquer build-up on piston crown areas can lead to stuck rings, resulting in loss of compression, blow by into the crankcase, increased oil consumption, and the production of toxic particulate emissions emitted into the atmosphere. According to Cummins Engine Company, soot also causes abnormal valve train and injectors wear.

The Widening Gap Between Diesel & Gasoline Engine Oil Specifications

For many years, SWEPCO has successfully blended a premium quality engine oil which has provided superior protection for engines in both segments of the engine oil market … Heavy Duty Diesel Engine Oil (HDDEO) and Passenger Car Motor Oil (PCMO). This was possible because what was good for heavy duty diesel engine oils was also basically good for smaller gasoline engine oils. Now new dynamics are changing the way engine oils must be formulated.

SWEPCO 308 Premium Plus Engine Oil – Formulated primarily to exceed the more stringent Mack EO-N Premium Plus and EGR diesel engine specifications – also exceeds CI-4 diesel engine specifications and can also be used as an API SL (gasoline) engine oil in mixed fleets.

SWEPCO 306 Supreme Formula Engine Oil – Our #1 selling oil for most customers. Exceeds CI-4 specification and SL (except in 5W-30), as well as Cummins CES 20078.

SWEPCO 305 Supreme Formula Engine Oil – All the benefits of SWEPCO 306 chemistry, but in "straight weight" viscosities. Primarily for Detroit Diesel 2-cycle or stationary engines calling for straight weights.

SWEPCO 304 Heavy Duty Low-Ash Gas Engine Oil – Specifically formulated for *natural gas* fueled engines.

SWEPCO 303 Premium Multi-Grade Automotive Engine Oil – Top-of-the-line engine oil for automobiles requiring lower zinc/phosphorous levels to lengthen catalytic converter life and lower viscosity oils to improve fuel economy. Exceeds API SL and ILSAC GF-3 specifications.