



LUBRICANTS

Guardol FE[®] Diesel Engine Oil with Liquid Titanium[®]

Phillips 66[®] Guardol FE (Fuel Economy) Diesel Engine Oil with Liquid Titanium protection additive is a premium quality, part-synthetic API FA-4 engine oil developed for fuel economy benefits in 2017 and newer engines where FA-4 is specified.

Guardol FE with Liquid Titanium is formulated with a blend of synthetic and high-quality Group II base stocks and a proprietary low-SAPS additive package to provide outstanding engine protection in diesel engines specifying FA-4. It is fortified with our exclusive Liquid Titanium protection additive for enhanced oxidation resistance and protection against wear. This additive enhancement provides increased engine protection from a strongly bonded titanium shield formed on the surface of critical engine parts, despite lower HTHS requirements of FA-4.

Guardol FE with Liquid Titanium has excellent soot dispersancy to protect against abrasive wear and soot-induced oil thickening, and to ensure good low-temperature pumpability even with highly soot-laden oil. It provides excellent bearing corrosion protection and protects against sludge and varnish formation. The synthetic blend formulation provides enhanced thermal stability at high temperatures and improved low-temperature properties compared with conventional diesel engine oils.

Guardol FE with Liquid Titanium meets or exceeds the performance requirements of API Service Category FA-4, and is approved under the latest OEM specifications for use in low-emission diesel engines. It is formulated for use in diesel engines operating on diesel fuels with sulfur content up to 500 ppm.

Applications

- On-highway diesel trucks recommending FA-4 to meet 2017 emissions standards

Guardol FE with Liquid Titanium is licensed or OEM-certified for:

- API Service FA-4
- Cummins CES 20087
- Detroit Diesel DFS 93K223

**Premium
Synthetic Blend
API FA-4 Diesel
Engine Oil;
Formulated for
Fuel Economy**

KEEPING THE
WORLD
RUNNING
SMOOTHLY. 



Features/Benefits

- Excellent protection for newer low-emission diesel engines
- Specially formulated to protect exhaust aftertreatment systems
- Exclusive Liquid Titanium protection additive provides enhanced oxidation resistance and protection against engine wear
- Outstanding soot control for protection against abrasive wear and soot-induced oil thickening
- Outstanding resistance to viscosity and thermal breakdown at high temperatures
- Protects against sludge and varnish formation
- Protects against rust and bearing corrosion
- Excellent low-temperature pumpability with soot-laden oil
- High shear stability
- Good resistance to foaming and aeration

Guardol FE® Diesel Engine Oil with Liquid Titanium®

Typical Properties	
SAE Grade	10W-30
Specific Gravity @ 60°F	0.870
Density, lbs/gal @ 60°F	7.24
Color, ASTM D1500	4.1
Flash Point (COC), °C (°F)	226 (439)
Pour Point, °C (°F)	-40 (-40)
Viscosity, Kinematic	
cSt @ 40°C	66
cSt @ 100°C	9.9
Viscosity Index	133
Cold Cranking Viscosity, cP @ (°C)	5500 (-25)
High-Temp/High-Shear Viscosity, cP @ 150°C	3.13
Sulfated Ash, ASTM D874, wt %	1.00
Total Base Number (TBN), ASTM D2896	10.5
Titanium, wt%	0.010
Zinc, wt %	0.122

Health & Safety Information

For recommendations on safe handling and use of this product, please refer to the Safety Data Sheet via <http://www.phillips66.com/EN/products/Pages/MSDS.aspx>.

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