



# Superlube TMS®



## Heavy Duty Diesel Engine Oil, CK-4/SN

### General Description

Superlube TMS® heavy duty diesel engine oils combine select para-synthetic base stocks with proprietary additive chemistry, including an enhanced anti-oxidant package and a unique VI improver. This advanced formulation provides premium protection that has been proven in many engine types and extensive field service.

Superlube TMS diesel engine oils are engineered for Tier IV and newer diesel engines with advanced emission control systems. These systems use exhaust gas recirculation, diesel particulate filters and SCR catalysts, all of which are sensitive to the wrong oil. High TBN and outstanding TBN retention give Superlube TMS reserve quality that provides excellent, backward-compatible engine protection in the most severe service conditions for both new and older diesel engines.

Superlube TMS is proven to shield diesel particle filters (DPF) against ash buildup. In addition, this synthetic blend diesel engine oil provides improved engine protection from soot, deposits, varnish, wear, acid accumulation, viscosity shear loss and oil consumption, as well as excellent operability in extreme temperature environments.

### Expect excellent performance in these applications:

- Four-stroke naturally aspirated and turbocharged diesel engines.
- Tier IV and newer low emission engines with exhaust after-treatment devices.
- Pre-2007 engines specifying older API or OEM oil performance categories.
- When using ultra low sulfur diesel fuel and biodiesel fuel blends.
- OEM listed by Volvo, Mack, Detroit Diesel, and Cummins.

### Features and Benefits

- **Oil Durability:** Hydro-cracked base oils provide additional oxidation control and reduced sulfur. This translates to longer oil life at higher operating temperatures.
- **Emission and Catalyst Protection:** Specifically designed to protect catalyst, particulate filters and other emission components, providing less engine downtime.
- **TBN Control:** A high Total Base Number (TBN) and excellent TBN retention means that more combustion contaminants (deposits, soot, acids) can be neutralized during the course of a drain interval.
- **Exceptional Soot Control:** Proven soot control that exceeds the requirements of both new and older engines. Controlling and dispersing soot is critical for reducing engine wear and extending engine life.
- **Deposit and Consumption Control:** Engine and field testing confirms an excellent reduction of deposits and oil consumption leading to longer engine life, emission and DPF system life.
- **Reserve Protection:** Superlube TMS features extra reserve built into the oil. This reserve capacity suspends additional soot, neutralizes additional acids and reduces wear for longer engine life.
- **Extended Drain:** Superlube TMS is capable of extended drain service with new and older engines using today's fuels. These extensions should be determined by using the LubeScan® used oil analysis.
- **Enhanced Extreme Temperature Performance:** Para-synthetic base stocks provide excellent cold flow properties and thermal resistance.

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### Typical Applications

Superlube TMS® is designed to meet or exceed the performance requirements of API and OEM service categories:

**Cummins** CES20086, 20081, (and all prior specifications), **Caterpillar** ECF-3/2, **Detroit Diesel** DFS 93K222, 93K218, **Mack** EOS-4.5, EO-O Premium Plus, EO-N Premium Plus, **Volvo** VDS-4.5 4/3/2, **Mercedes Benz** 228.3\*, **Global** DHD-1\*, **Renault** RLD-3\*, **ACEA** E9-2012, **JASO** DH-2, **MIL-L-2104E/F**, **Allison** C-4/3\*, **Ford** WSS-M2C171-F1

\*SAE 15W-40 Viscosity Grade.

SAE 10W-30 and Official OEM claims are formulation specific.

### Typical Customers

Operators of:

- Agricultural heavy duty diesel engines operating in severe conditions or extreme temperature environments
- Truck fleets with new low emission compliant engines or older engines
- Construction diesel engines operating under heavily loaded conditions
- Diesel stationary engines, irrigation and standby generators
- Ag OEMs including John Deere, Case-IH, AGCO and Mahindra

### Typical Properties

SAE Viscosity Grade	15W-40	10W-30
API Service	CK-4, CJ-4, CI-4+, CI-4 CH-4/ SN	CK-4,CJ-4,CI-4+, CI-4, CH-4
API Gravity/Density lbs/gal	29.4/7.32	30.8/7.26
Viscosity, cSt @ 40°C	122.1	82.9
Viscosity, cSt @ 100°C	16.0	12.2
Viscosity Index	136	144
Pour Point, °F (°C)	-30 (-33)	-44 (-42)
MRV-TP1, Viscosity, cP @ °C	23100@ -25	21800@ -30
CCS Viscosity, cP @ °C,	6,070 @ -20	6,200 @ -25
Sulfated Ash, % wt.	0.99	0.99
TBN	10	10
HTHS Viscosity, mPa-s	4.2	3.5

The typical properties listed reflect the general characteristics of the product, and are not manufacturing specifications. Normal batch-to-batch variations should be expected.

### Health & Safety

A complete safety data sheet is available by calling 1-651-355-8438 or visit [cenex.com/sds-library](http://cenex.com/sds-library).