



# Product Data Sheet

## OPTIMA D9

### Product Description:

Optima D9 are Advanced Heavy-Duty CK-4 & FA-4 Diesel Engine Oils that are specially designed to meet new Proposed Category 11 (PC-11) specifications for heavy-duty-vehicle. A new category be split into two separate and distinct subcategories: one that preserves historical heavy-duty oil criteria and one that provides additional fuel efficiency and economy benefits for modern diesel engine technology while maintaining durability. Optima D9 improve engine performance that are being addressed include oxidation stability, shear stability and aeration.

Optima D9 not only meets API credentials, but also is also designed to meet the latest original equipment manufacturers (OEMs) performance specifications in appropriate grades and base stocks - including Caterpillar, Cummins, Detroit Diesel, Mack, Renault, Volvo, Mercedes-Benz, MAN, and Ford. Optima D9 also meets the self-certifying requirements of ACEA E9.

### Applications / Benefits:

- ▣ Better protect engines, minimizes oil consumption.
- ▣ Satisfying most diesel engine OEM oil demands.
- ▣ Hydro-treated base, inherent thermal-stability and anti-oxidation property.
- ▣ Particular suitable for the modern diesel engine.
- ▣ Provide better fuel economy, and reduce GHG emissions.

### Typical Characteristics:

Test Description	Method	10W-30	10W-30	15W-40
SAE Viscosity Grade	SAE J 300	10W-30	10W-30	15W-40
API	-	FA-4	CK-4	CK-4/SN
Specific Gravity @ 15 °C	ASTM D 4052	0.879	0.881	0.883
Flash Point, °C	ASTM D 92	220	224	228
Pour Point, °C	ASTM D 97	-27	-27	-24
Kinematic Viscosity, cSt @ 40°C	ASTM D 445	65.8	82.7	111
cSt @ 100°C	ASTM D 445	9.82	11.8	14.7
Viscosity Index	ASTM D 2270	132	135	136
TBN, mgKOH/g	ASTM D 2896	9.8	9.8	9.8
Color	ASTM D 1500	≤ 4.0	≤ 4.0	≤ 4.0

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## Specifications, Approvals & Recommendations:

- API CK-4/SN in SAE 15W40
- API CK-4 & FA-4 in SAE 10W30
- API CJ-4, CI-4+, CI-4, CH-4
- ACEA E9-12, E7-12
- Caterpillar ECF-3
- Cummins 20081, 20086, 20087
- Daimler MB 228.31
- Deutz DQC III-10 LA
- DDC 93K222, DDC 93K223, DDC 93K218
- Ford WSS-W2C171-E, WSS-W2C171-F
- Mack EOS-4.5, EO-O Premium Plus
- MAN M3575, M3275
- MTU CATEGORY 2.1
- Renault RLD-4, RLD-3
- Volvo VDS-4.5, VDS-4

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