



Mobil Delvac Modern™ 15W-40 Super Defense

Mobil Commercial Vehicle Lube , Kuwait

Extra High Performance Diesel Engine Oil

Product Description

Mobil Delvac Modern™ 15W-40 Super Defense is an extra high performance diesel engine oil that provides excellent lubrication of today's diesel engines promoting extended engine life. This product meets or exceeds the specifications of virtually all major European and American engine manufacturers. This extra high performance has been proven in the field in a wide variety of industries, applications and mixed fleets. The advanced chemistry of this product provides outstanding performance in both modern, demanding low-emission diesel engines and older diesel engines operating on low or high sulphur fuel. Mobil Delvac Modern 15W-40 Super Defense combines a blend of synthetic technology base stocks with a progressive additive system to provide superior control of oil thickening due to soot build-up and high temperatures as well as outstanding resistance to oxidation, corrosion and high temperature deposits.

Features and Benefits

High output, low emission diesel engines significantly increase the demands on engine lubricants. Tighter engine designs reduce oil consumption, resulting in less fresh oil make-up to replenish depleted additives. Top piston fire rings are located higher on the piston bringing the oil film closer to the combustion chamber where higher temperatures increase thermal stress on the lubricant. Increased fuel injector pressure and retarded timing improve fuel burn efficiency, but also increase engine temperatures and increase soot loads. Mobil Delvac Modern 15W-40 Super Defense is formulated from synthetic technology base oils and a superior balanced additive system to provide optimum engine performance in modern diesel and gasoline engines as well as older models. The key benefits include:

| Features | Advantages and Potential Benefits |
|--|--|
| High thermal and oxidation stability | Reduced sludge build-up, deposits and viscosity increase |
| TBN reserves | Deposit control and acid neutralisation |
| Stay-in-grade shear stability | Wear protection and viscosity control |
| Advanced detergency/dispersancy | Cleaner engines and longer component life |
| Improved soot handling | Improved viscosity control and used oil pumpability |
| Excellent low temperature properties | Start-up wear protection |
| Component compatibility | Longer gasket and seal life |
| Meets demanding specifications of key OEMs | One engine oil for mixed fleet operations |

Applications

Recommended by ExxonMobil for use in:

- Naturally aspirated and turbo-charged diesel powered equipment from leading Japanese, European, and American manufacturers
- On-highway light and heavy-duty trucking
- Off-highway industries including: construction, mining, quarrying and agriculture
- Mixed fleet applications

Specifications and Approvals

This product has the following approvals:

Mack EO-M Plus

Mack EO-N

MB-Approval 228.3

RENAULT TRUCKS RLD-2

VOLVO VDS-3

Detroit Fluids Specification 93K215

MTU Oil Category 2

KAMAZ V-8 Euro-3, Euro-4 and Euro-5 engines

Cummins CES 20077

Cummins CES 20078

This product is recommended for use in applications requiring:

ACEA B2

ACEA E3

API CF

API CF-4

API CG-4

Cummins CES 20071

Cummins CES 20072

Mack EO-M

MAN M 3275-1

RENAULT TRUCKS RD

RENAULT TRUCKS RD-2

RENAULT TRUCKS RLD

VOLVO VDS-2

This product meets or exceeds the requirements of:

API CH-4

API CI-4

This product meets or exceeds the requirements of:

API SJ

API SL

JASO DH-1

ACEA E7

Caterpillar ECF-2

Ford WSS-M2C171-D

ISUZU DEO (w/o DPD Equipped Vehicles)

Cummins CES 20076

ISUZU Small Manual Transmission Oil (except MUA and MUX) and Transfer Case Oil

Properties and Specifications

| Property | |
|--|------------|
| Grade | SAE 15W-40 |
| Kinematic Viscosity @ 100 C, mm ² /s, ASTM D445 | 14.3 |
| Density @ 15 C, kg/m ³ , ASTM D4052 | 0.87 |
| Total Base Number, mgKOH/g, ASTM D2896 | 11 |
| Viscosity Index, ASTM D2270 | 133 |
| Cold-Cranking Simulator, Apparent Viscosity @ -20 C, mPa.s, ASTM D5293 | 5700 |
| Ash, Sulfated, mass%, ASTM D874 | 1.3 |
| Flash Point, Cleveland Open Cup, °C, ASTM D92 | 223 |
| Pour Point, °C, ASTM D97 | -33 |

Health and safety

Health and Safety recommendations for this product can be found on the Material Safety Data Sheet (MSDS) @ <http://www.msds.exxonmobil.com/psims/psims.aspx>

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