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# MAG 1<sup>®</sup> PREMIUM CONVENTIONAL 15W-40 CK-4 HEAVY DUTY DIESEL ENGINE OIL

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**Featuring MAG 1<sup>®</sup> with FMX<sup>®</sup> Technology – Friction Management for Xtreme protection<sup>™</sup>. Delivers unsurpassed protection when thicker oil is preferred or recommended by the OEM.**

MAG 1<sup>®</sup> Premium Conventional 15W-40 CK-4 is technologically advanced heavy duty diesel engine oil that provides outstanding performance, including the following benefits:

- Recommended for use in a wide range of heavy-duty applications and operating environments found on and off highway, including engines operating under heavy loads.
- Meets or exceeds the requirements of OEMs.
- Backward compatible with diesel engines in which the API CJ-4, CI-4, CI-4 Plus and CH-4 service categories are recommended.

## ENGINEERING AND INNOVATION FOR EXTRA PROTECTION

MAG 1<sup>®</sup> with FMX<sup>®</sup> Technology provides unsurpassed protection in every viscosity. FMX Technology creates a strong, durable and high-performing level of protection that controls friction and reduces metal-to-metal contact.

Our advanced oil technology actually improves oil properties over time, retaining viscosity, friction and anti-wear benefits, even in today's hotter engines. This is exactly the kind of protection called for in today's engines that deliver greater horsepower and better fuel economy.

## PREMIUM CONVENTIONAL HEAVY DUTY DIESEL ENGINE OIL FEATURING FMX<sup>®</sup> TECHNOLOGY AND **EVOLUTIONARY PERFORMANCE<sup>™</sup>**

The latest MAG 1 Heavy Duty Diesel Engine Oils are specially engineered and formulated to provide:

### PERFORMANCE

Unsurpassed protection.

- **FMX Technology.** Provides unsurpassed protection and performance.

### STRENGTH

Up to 53% better wear protection.<sup>1</sup>

- **Enhanced friction reduction.** MAG 1 provides a very strong oil film to prevent metal-to-metal contact between rotating parts, delivering up to 53% better wear protection.<sup>2</sup>
- **Unsurpassed wear protection.** The latest generation API CK-4 MAG 1 engine oils provide increased protection against harmful engine and bearing wear due to cavitation, because they improve oil aeration.

### DURABILITY

Up to 83% better oxidation control.<sup>1</sup>

Up to 63% better deposit control.<sup>1</sup>

- **Better oxidation and deposit control.** FMX Technology stands up to high heat and stress to protect as well on the last day as it does on the first day. Up to 83% better oxidation control and 63% better deposit control.<sup>3</sup>
- **Formulated with higher starting TBN (10).** Provides added oxidation control and protection against acid buildup that can cause rust and corrosion.

<sup>1</sup> Compared to new limits of API CK-4 requirements.

<sup>2</sup> To measure friction reduction benefits, engineers used the ball-on-disk traction test.

<sup>3</sup> Compared to new limits of API CK-4 requirements.

## APPLICATIONS

- For naturally aspirated and turbocharged four-stroke diesel engines in which the API CK-4 service category is recommended.
- It is backward compatible for CJ-4 and older API service categories.
- Approved by or meets requirements of major OEMs such as Cummins, Detroit Diesel, Mack/Volvo, Paccar, Navistar, Caterpillar, and others.

## INDUSTRY/OEM SPECIFICATIONS

API CK-4	Approved
API SN	Approved
Cummins 20086	Approved
Detroit Diesel 93K222	Approved
Ford WSS-M2C171-F1	Approved
Mack EOS-4.5	Approved
Renault RLD-4	Approved
Volvo VDS-4.5	Approved
ACEA E9, E7, E4, E2	Meets Requirements
API CI-4 Plus, CI-4, CH-4, CG-4, CF-2, CF	Meets Requirements
API CJ-4	Meets Requirements
API SJ, SH, SG, SF	Meets Requirements
API SL	Meets Requirements
API SM	Meets Requirements
CAT ECF-3, ECF-2, ECF-1-a	Meets Requirements
Chrysler/Fiat MS-10902	Meets Requirements
CID A-A-52306, MIL-PRF-2104G	Meets Requirements
Cummins CES 20081, 20077, 20076	Meets Requirements
Detroit Diesel 93K218, 93K215, 93K214	Meets Requirements
Ford WSS-M2C171-E	Meets Requirements
Global DHD-1	Meets Requirements
JASO DH-2	Meets Requirements
Mack EO-O Premium Plus, EO-N Premium Plus 03, EO-M Plus, and prior	Meets Requirements
MAN 3275, 270	Meets Requirements
MAN 3575	Meets Requirements
MB 228.3, 228.31	Meets Requirements
MTU 2.1	Meets Requirements
MTU Type I, Type II	Meets Requirements
Volvo VDS-4, 3, 2	Meets Requirements
CAT TO-2	Suitable for use
Allison C-4	Suitable for Use

## TYPICAL PROPERTIES

Calcium, wt. %	ASTM D5185	0.105
Cold Cranking Simulator at (°C), cP	ASTM D5293	5832 (-20)
Color	ASTM D1500	3
Flash Point °C	ASTM D92	224
Flash Point °F	ASTM D92	435
Gravity, °API	ASTM D287	30.10
High Temperature / High Shear Vis at 150°C, cP	ASTM D5481	4.2
Magnesium, wt. %	ASTM D5185	0.1
Molybdenum, wt. %	ASTM D5185	0.0066
Nitrogen, wt. %	ASTM D4629	0.105
Noack Volatility, % loss	ASTM D6375	10
Phosphorus, wt. %	ASTM D5185	0.115
Pour Point °C (°F)	ASTM D5950	-36°C (-33°F)
Pumping Viscosity at (°C), cP	ASTM D4684	20,000 (-25)
Specific Gravity @ 60°F (15.6°C)	ASTM D4052	0.8756
Sulfated Ash, wt. %	ASTM D874	0.99
Sulfur, wt. %	ASTM D4951	0.32
TBN, mgKOH/g	ASTM D2896	10
Total Acid Number, mgKOH/g	ASTM D664	2.9
Viscosity @ 100°C cSt	ASTM D445	15.56
Viscosity @ 40°C cSt	ASTM D445	116.2
Viscosity Index	ASTM D2270	141
Zinc, wt. %	ASTM D5185	0.127

#### CONTAINER/BULK AVAILABILITY

6/1 Quart	Product Number - 61658
3/1 Gallon	Product Number - 62631
2/2.5 Gallon	Product Number - 61170
5 Gallon Pail	Product Number - 67980
6 Gallon Enviro Box®	Product Number - 69280
55 Gallon Drum	Product Number - 67983
330 Gallon Tote	Product Number - 67985
3/1 Gallon - Not for sale in US	Product Number - 64255
5 Gallon Pail -Not for sale in US	Product Number - 64257

#### Available in Bulk

Information accurate as of October 10, 2024