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PREMIUM CONVENTIONAL HEAVY DUTY DIESEL ENGINE OIL

HEAVY DUTY ENGINE OIL

PROTECTION FOR TODAY'S ENGINE DESIGNS AND FLEETS

As today's engines are evolving and heavy duty engine manufacturers are recommending thinner, lighter oils, MAG 1® has evolved right along with them. Plus, we have outstanding technology for our heavier viscosities. Only the most advanced engine oils meet the difficult challenges of effectively balancing durability, extending drain intervals and protecting emissions control devices in modern and older engines.

UNSURPASSED PROTECTION

MAG 1® with FMX® Technology provides unsurpassed protection in every viscosity. Even our lowest viscosity oils protect better than thick oils of the past. 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, in spite of severe engine temperatures. MAG 1 can often improve fuel economy in the 10W-30 grade.

PREMIUM CONVENTIONAL HEAVY DUTY DIESEL ENGINE OIL FEATURING FMX® TECHNOLOGY AND **EVOLUTIONARY PERFORMANCE™**

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

PERFORMANCE

Unsurpassed protection for extended drain intervals.

Up to 1.6% improved fuel mileage in the HD 10W-30 grade.¹

STRENGTH

Up to 53% better wear protection.²

DURABILITY

Up to 83% better oxidation control.²

Up to 63% better deposit control.²

¹ Using HD 10W-30 CK-4, compared to Conventional HD 15W-40 CK-4 during on-highway long-haul service. Savings will vary on idle time and other driving conditions of your fleet or vehicle.

² Compared to new limits of API CK-4 requirements.

TYPICAL PROPERTIES

Viscosity Grade		Prem Conv 15W-40 CK-4	Prem Conv 10W-30 CK-4	Prem Conv 15W-40 CI-4+
Calcium, wt. %	ASTM D5185	0.105	0.105	0.19
Cold Cranking Simulator at (°C), cP	ASTM D5293	5832 (-20)	6270 (-25)	-20
Color	ASTM D1500	3	2.5	3.5
Flash Point °C	ASTM D92	224	220	220
Flash Point °F	ASTM D92	435	428	428
Gravity, °API	ASTM D287	30.10	31.39	29.97

High Temperature / High Shear Vis at 150°C, cP	ASTM D5481	4.2	3.5	4.3
Magnesium, wt. %	ASTM D5185	0.1	0.1	0.043
Molybdenum, wt. %	ASTM D5185	0.0066	0.0066	0.006
Nitrogen, wt. %	ASTM D4629	0.105	0.105	0.046
Noack Volatility, % loss	ASTM D6375	10	13	12
Phosphorus, wt. %	ASTM D5185	0.115	0.115	0.12
Pour Point °C (°F)	ASTM D5950	-36°C (-33°F)	-39°C (-38°F)	-36°C (-33°F)
Pumping Viscosity at (°C), cP	ASTM D4684	20,000 (-25)	23,000 (-30)	23,000 (-25)
Specific Gravity @ 60°F (15.6°C)	ASTM D4052	0.8756	0.8687	0.8763
Sulfated Ash, wt. %	ASTM D874	0.99	0.99	1.05
Sulfur, wt. %	ASTM D4951	0.32	0.32	0.321
TBN, mgKOH/g	ASTM D2896	10	10	12
Total Acid Number, mgKOH/g	ASTM D664	2.9	-	-
Viscosity @ 100°C cSt	ASTM D445	15.56	12.21	15.52
Viscosity @ 40°C cSt	ASTM D445	116.2	82.06	118.2
Viscosity Index	ASTM D2270	141	149	138
Zinc, wt. %	ASTM D5185	0.127	0.127	0.132

INDUSTRY/OEM APPROVALS

Title	Prem Conv 15W-40 CK-4	Prem Conv 10W-30 CK-4	Prem Conv 15W-40 CI-4+
ACEA E9, E7, E4, E2	Meets Requirements	Meets Requirements	-
Allison C-4	Suitable for Use	Suitable for Use	-
API CI-4 Plus, CI-4, CH-4, CG-4, CF-2, CF	Meets Requirements	Meets Requirements	-
API CJ-4	Meets Requirements	Meets Requirements	-
API CK-4	Approved	Approved	-
API SJ, SH, SG, SF	Meets Requirements	-	-
API SL	Meets Requirements	-	Approved
API SM	Meets Requirements	-	-
API SN	Approved	-	-
CAT ECF-3, ECF-2, ECF-1-a	Meets Requirements	Meets Requirements	-
CAT TO-2	Suitable for use	Suitable for use	-
Chrysler/Fiat MS-10902	Meets Requirements	-	-
CID A-A-52306, MIL-PRF-2104G	Meets Requirements	Meets Requirements	Meets Requirements
Cummins 20086	Approved	Meets Requirements	-
Cummins CES 20081, 20077, 20076	Meets Requirements	Meets Requirements	-
Detroit Diesel 93K218, 93K215, 93K214	Meets Requirements	Meets Requirements	-
Detroit Diesel 93K222	Approved	Meets Requirements	-
Ford WSS-M2C171-E	Meets Requirements	Meets Requirements	-
Ford WSS-M2C171-F1	Approved	Approved	-
Global DHD-1	Meets Requirements	Meets Requirements	Meets Requirements
JASO DH-2	Meets Requirements	Meets Requirements	-
Mack EO-O Premium Plus,			

EO-N Premium Plus 03, EO-M Plus, and prior	Meets Requirements	Meets Requirements	-
Mack EOS-4.5	Approved	Meets Requirements	-
MAN 3275, 270	Meets Requirements	Meets Requirements	Meets Requirements
MAN 3575	Meets Requirements	Meets Requirements	-
MB 228.3, 228.31	Meets Requirements	Meets Requirements	-
MTU 2.1	Meets Requirements	Meets Requirements	-
MTU Type I, Type II	Meets Requirements	Meets Requirements	-
Renault RLD-4	Approved	Meets Requirements	-
Volvo VDS-4, 3, 2	Meets Requirements	Meets Requirements	-
Volvo VDS-4.5	Approved	Meets Requirements	-
ACEA C4	-	-	Meets Requirements
ACEA E7, E2, E3	-	-	Meets Requirements
API CF	-	-	Meets Requirements
API CG-4	-	-	Meets Requirements
API CH-4	-	-	Meets Requirements
API CI-4	-	-	Meets Requirements
API CI-4 Plus	-	-	Approved
CAT ECF-2, ECF-1-a	-	-	Meets Requirements
Cummins 20078	-	-	Meets Requirements
Cummins CES 20078, 20076, 20071	-	-	Meets Requirements
Detroit Diesel Series 50/6013, Power Guard 93K215, N214	-	-	Meets Requirements
Ford M2C171D	-	-	Meets Requirements
Mack EO-N, EO-M, EO-M Plus	-	-	Meets Requirements
MB p228.3	-	-	Meets Requirements
Navistar International MTU Type I & II (Meets Engine Tests)	-	-	Meets Requirements
Volvo VDS-3, 2,	-	-	Meets Requirements

Information accurate as of April 4, 2024