



KAPPA PREMIUM SYNTHETIC

(Heavy Duty Diesel Oil, Premium Plus Quality, CJ-4/SM)

SYNTHETIC HD DIESEL OILS are specially formulated motor oils that utilize the latest engine oil technology in synthetic hydrocarbon base stocks to provide outstanding performance.

SYNTHETIC HD DIESEL OILS are blended with low volatility synthetic fluids and the finest additives. These advanced oils have significantly improved thermal and oxidation stability, shear stability and detergency as compared to mineral oil based heavy-duty diesel engine oils.

SYNTHETIC HD DIESEL OILS are high TBN oils, which offer outstanding high temperature engine protection and performance. The outstanding heat-transfer capabilities helps keep engines operating in their optimal temperature range.

The outstanding thermal and oxidative stability of **SYNTHETIC HD DIESEL OILS** ensure the long-term integrity of the oils after exposure to engine operating temperatures. Poor thermal and oxidative stability are the top reasons conventional oils require frequent changing.

Low volatility makes **SYNTHETIC HD DIESEL OILS** highly resistant to oil consumption. This allows the total volume of oil to protect and lubricate the engine.

Outstanding shear stability ensures that **SYNTHETIC HD DIESEL OILS** maintains its protective viscosity throughout their extended service life and protect engine components from wear, especially at high temperatures.

Wax-free synthetic stocks with extremely low pour points ensure the rapid flow of motor oil throughout the engine after startup, protecting engines when cold-thickened mineral oils allow significant wear. This enhances fuel economy and performance. The low coefficients of friction ensure the maximum delivery of engine power with minimal friction losses.

BENEFITS:

- DESIGNED FOR EXTREME TEMPERATURE OPERATIONS
- EXTENDS DRAIN INTERVALS
- CONSERVES FUEL
- KEEPS ENGINES CLEAN
- EXTENDS OIL DRAIN INTERVALS

APPLICATIONS:

SYNTHETIC HD DIESEL OILS are recommended for all diesel engines. This product line is not licensed with API and the quality claims shown below are based on the claims these quality additives would meet in mineral oil base stocks. These oils meet or exceed the following requirements:

- API SM quality (all grades)
- API CJ-4 quality (15W-40, 5W-40)

SYNTHETIC HD DIESEL OILS are fully compatible with mineral-based or conventional motor oils. They are also compatible with all other synthetic motor oils.

SYNTHETIC HD DIESEL SAE 40 multigrade oils also meet or exceed the specifications of the following manufacturers: Caterpillar ECF-3, Cummins CES 20081, Detroit Diesel 93K218, Mack EO-O Premium Plus 07 and Volvo VDS-4.



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TYPICAL CHARACTERISTICS

| | | |
|---------------------------------|-----------|-----------|
| ISO Viscosity Grade | 5W-40 | 15W-40 |
| Product Code | - | 40857 |
| API Gravity (ASTM D-1298) | 32.9 | 32.1 |
| Density, lbs/gal | 7.17 | 7.20 |
| Viscosity (ASTM D-445): | | |
| cSt @ 40°C | 92 | 110 |
| cSt @ 100°C | 14.5 | 15.3 |
| Brookfield Viscosity (D-5293) | | |
| 60,000 cPs max @ -35°C, max. | pass | - |
| 60,000 cPs max @ -25°C, max. | - | pass |
| Cold Crank Simulator | | |
| 6,600 cPs max @ -30°C | pass | - |
| 7,000 cPs max @ -20°C | - | pass |
| Viscosity Index (ASTM D-2270) | 162 | 145 |
| Pour Point (ASTM D-97) °F (°C) | -48 (-54) | -39 (-39) |
| Flash Point (ASTM D-92) °F (°C) | 435 (224) | 464 (240) |
| Ash content, wt% | 1.0 | 1.0 |
| TBN (ASTM D-2896) | 10 | 10 |

The above data is subject to usual manufacturing variation. For more information and availability, call 1-800-442 LUBE.

8/2/07