



RAILROAD ENGINE OIL 413

Product Description:

RAILROAD ENGINE OIL 413 is a high performance, zinc-free and chlorine-free multigrade oil specially designed to provide excellent engine cleanliness and oil filter life in the modern railroad diesel locomotive engines. **RAILROAD ENGINE OIL 413** is recommended for railroad diesel locomotive engines specifying LMOA Generation 5 quality oils & for medium speed two-cycle and four-cycle railroad engines, including newer diesel locomotive engines of GE and EMD of General Motors.

RAILROAD ENGINE OIL 413 is also suited for marine and stationary engines for power generation or off-shore drilling requiring zinc-free oils and for Detroit Diesel 149 series engines operating under severe conditions and stationary engines requiring API CF and CF-2 quality oils.

RAILROAD ENGINE OIL 413 is based on high quality virgin mineral base oil in combination with an unique additive package to ensure the following properties:

- Exceptional detergency and dispersancy provides excellent engine cleanliness, especially engine top decks.
- Excellent retention of TBN facilitates extended drain intervals.
- High thermo-oxidative.
- Zinc-free formulation protects silver bearings against corrosion.
- Non-chlorinated additive package helps in reducing used oil disposal costs.

RAILROAD ENGINE OIL 413 meets the following performance criteria:

Approved Electro-Motive Diesel (EMD)

Meets API CF / CF-2 LMOA Generation 7 GE Generation 4 Long Life



| Property | Unit | Test Method | Typical Value |
|-----------------------|--------------------|-------------|---------------|
| SAE Grade | | SAE J300 | 40 |
| Density @15°C | kg/m ³ | ASTM D4052 | 898 |
| Kin. Viscosity @40°C | mm ² /s | ASTM D7042 | 154 |
| Kin. Viscosity @100°C | mm ² /s | ASTM D7042 | 15.5 |
| Viscosity Index | | ASTM D2270 | 102 |
| Flash Point COC | °C | ASTM D92 | >201 |
| Pour Point | °C | ASTM D7346 | -27 |
| Total Base Number | mgKOH/g | ASTM D2896 | 13.9 |
| Sulphated Ash | %Wt | ASTM D874 | 1.5 |

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