



PRODUCT DATA SHEET



MARINE DIESEL ENGINE OIL

Marine Diesel Engine Oil is a high performance engine oil for heavy-duty marine diesel and gasoline engine use. It is specially formulated to prevent acidic corrosion often seen in diesel engines, and provides superior soot handling and acid neutralization capabilities, making it suitable for modern diesel engines fitted with EGR systems. **Marine Diesel Engine Oil** is formulated to meet or exceed the standards of many of today's marine engine manufacturers.

Applications

Bel-Ray Marine Diesel Engine Oil is suitable for use in equipment specifying engine oils meeting the following specifications:

API SL/CI-4	CAT ECF-1-a	Mack EO-M Plus
ACEA E7-04 Issue 2 (2007)	Global DHD-1	Mack EO-N
ACEA A3/B3-04	Cummins CES 20078	MB Approval 228.1
ACEA E7-04 (2004)	Detroit Diesel DDC 93K215	MB Approval 228.3
ACEA E5-02 (2002)	Volvo VDS-3	MB Approval 229.1
CAT ECF-2	Volvo VDS-2	

Features and Benefits

- ◆ Total Base Number of 14 Neutralizes the acids formed during combustion allowing for extended drain intervals.
- ◆ Non-linear VI Improver Extremely shear stable. Does not lose viscosity during normal operation providing improved long term wear protection.
- ◆ Superior dispersant and detergent chemistries Reduce deposit formation. Improved soot handling characteristics, necessary in modern EGR equipped engines.

General Description

Marine Diesel Engine Oil is a modern engine oil based on paraffinic oils, shear stable VI improvers and a suitable chemical system for use in heavy-duty diesel engines.

Marine Diesel Engine Oil is available in three (3) SAE grades (10W-30, 15W-40 and 20W-50) to meet most marine engine lubrication requirements.

Product No. 99760, 99761, 99762

MARINE DIESEL ENGINE OIL

TYPICAL PROPERTIES

<u>Product No.</u>	<u>99760</u>	<u>99761</u>	<u>99762</u>
SAE Engine Oil Grade	10W-30	15W-40	20W-50
Viscosity, ASTM D445			
@ 40°C, cSt	72.0	115	140
@ 100°C, cSt	11.0	15.9	18.3
Viscosity Index, ASTM D2270	143	147	146
Total Base Number, ASTM D974, mg KOH/g	14	14	14
Falex EP Test, ASTM D3233 Method A or B Non-seizure Load, lbf	3500	2500	2750
Cold Crank Simulator, ASTM D5293, cP (°C)	6960 (-25)	5225 (-20)	3342 (-15)
MRV Viscosity, ASTM 4684			
cP at Temperature (°C)	23102 (-30)	20538 (-25)	26142 (-20)
MRV Yield Stress, ASTM 4684			
Pa at Temperature (°C)	≤ 35 (-30)	≤ 35 (-25)	≤ 35 (-20)
Noack Volatility, TGA Method, ASTM D6375			
% Loss	<15	<15	<15
Flash Point, ASTM D93			
°C	184	181	182
(°F)	363	358	360
Specific Gravity, ASTM D1298, 60/60°F	0.886	0.890	0.887
Color	Amber	Amber	Amber