



## Mobilgard HSD CI-4 Series

ExxonMobil Marine , Palestine

High Performance Diesel Engine Oils

### Product Description

Mobilgard HSD CI-4 series by Mobil are extra high performance, multi-grade engine oils specifically formulated for severe service high-speed diesel engines in marine applications. The advanced chemistry of these products provides outstanding performance in both modern, demanding low-emission diesel engines and older diesel engines operating on low or high sulphur distillate fuel. Mobilgard HSD CI-4 series is approved or recommended by the major marine high-speed diesel engine builders.

### Features and Benefits

Mobilgard HSD CI-4 series combines a blend of high quality base stocks with a superior balanced additive system to provide exceptional control of oil thickening due to soot build-up and high temperatures, as well as outstanding resistance to oxidation, corrosion, and high temperature varnish deposits.

When used as recommended, Mobilgard HSD CI-4 series diesel engine oils provide the following features and potential benefits:

Features	Advantages and Potential Benefits
High thermal and oxidation stability	Reduces formation of deposits and sludge build-up Keeps engines clean and operating smoothly
Excellent wear protection	Extended life of critical engine components
High Viscosity Index	Stable oil film at all operating temperatures Reduced oil consumption
Increased high temp/high shear performance	Reduced engine scuffing, bore polishing and ring sticking
Outstanding TBN retention	Protects engine parts from corrosive wear and deposits
Excellent water tolerance and separation capability	Maintains effective lubrication and film-strength in the presence of water
Excellent low temperature properties	Improved oil pumpability/circulation at start-up Start-up wear protection especially for valve train area

### Applications

Mobilgard HSD CI-4 series is designed to provide outstanding performance in the most severe service marine applications of modern high-speed diesel engines (such as Caterpillar 3500 Series and smaller bore, Cummins, Volvo, Daihatsu, Yanmar, and others) as well as of older diesel engines operating on low or high sulphur distillate fuel.

### Specifications and Approvals

This product has the following approvals:	MOBILGARD HSD 15W-40 CI-4	MOBILGARD HSD 20W-50 CI-4
Cummins CES 20077	X	

<b>This product has the following approvals:</b>	<b>MOBILGARD HSD 15W-40 CI-4</b>	<b>MOBILGARD HSD 20W-50 CI-4</b>
MTU Oil Category 2	X	
VOLVO VDS-3	X	

<b>This product is recommended for use in applications requiring:</b>		
API CF	X	
API CF-4	X	
API CG-4	X	
CUMMINS CES 20071	X	
CUMMINS CES 20072	X	
MAN M 3275-1	X	

<b>This product meets or exceeds the requirements of:</b>		
API CH-4	X	
API CI-4	X	X
API SJ	X	
ACEA E7-16	X	
CUMMINS CES 20076	X	
Caterpillar ECF-2	X	

#### Properties and Specifications

<b>Property</b>	<b>MOBILGARD HSD 15W-40 CI-4</b>	<b>MOBILGARD HSD 20W-50 CI-4</b>
Grade	SAE 15W-40	SAE 20W-50
Ash, Sulfated, mass%, ASTM D874	1.3	1.1
Density @ 15 C, kg/l, ASTM D4052	0.869	0.88
Flash Point, Cleveland Open Cup, °C, ASTM D92	223	227
Kinematic Viscosity @ 100 C, mm <sup>2</sup> /s, ASTM D445	14.2	19
Kinematic Viscosity @ 40 C, mm <sup>2</sup> /s, ASTM D445	109	169
Pour Point, °C, ASTM D97	-33	-30
Total Base Number, mgKOH/g, ASTM D2896	10	9

Property	MOBILGARD HSD 15W-40 CI-4	MOBILGARD HSD 20W-50 CI-4
Viscosity Index, ASTM D2270	133	130

### Health and Safety

Health and Safety recommendations for this product can be found on the Material Safety Data Sheet (MSDS) @ <http://www.msds.exxonmobil.com/psims/psims.aspx>

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