



## Mobilgard™ ADL Series

ExxonMobil Marine , Djibouti

Diesel Engine Oils

### Product Description

Mobilgard™ ADL Series oils have been designed for high Brake Mean Effective Pressure (BMEP) medium- and high-speed diesel engines operating on distillate fuels.

Mobilgard™ ADL 30 and Mobilgard™ ADL 40 oils each have a balanced formulation which combats lacquer formation and deposits in severe service applications. Superior load carrying properties help to minimise piston ring and liner wear, and also make the lubricants suitable for marine gearing applications.

Potential benefits of using Mobilgard ADL Series lubricants include helping:

- Extend component and critical wear surface life
- Improve overall engine cleanliness
- Reduce oil consumption
- Increase time between engine overhauls

### Features and Benefits

Mobilgard ADL Series oils have demonstrated superior performance in the latest model diesel engines, including engines of MAN Energy Solutions Augsburg, Caterpillar (3600 and C280 Series), Deutz, and Wärtsilä. In extensive field testing on these engines, Mobilgard ADL Series oils corrected many problems normally associated with severe service engines operating on lower quality fuels. Results included dramatically reduced oil consumption, significantly reduced liner lacquering and extended periods between overhauls. These advanced diesel lubricants possess excellent water separation, rust and corrosion resistance properties.

Key features and potential benefits include:

| Features                                   | Advantages and Potential Benefits  |
|--|--|
| Increased thermal and oxidation stability  | Improved engine cleanliness, reduced liner lacquering, reduced top deck sludge, reduced piston ring groove deposits and bore polishing |
| Superior wear protection                   | Extends the life of critical wear surfaces   |
| Enhanced detergency/dispersancy capability | Reduced deposits especially in the ring belt area which leads to extended cylinder overhauls and reduced oil consumption               |
| Stay-in-grade shear stability              | Reduced oil consumption and improved bearing protection  |
| High TBN levels                            | Prevents corrosive wear due to higher sulphur fuels  |
| Broad range of engine applications         | One severe service engine lubricant for all shipboard applications   |

### Applications

Mobilgard ADL Series lubricants are intended for use in high BMEP engines and in severe duty engine applications where the nature of the fuel and

service requires a greater level of detergency/dispersancy and liner lacquer control than is offered by most diesel engine lubricants.

### Specifications and Approvals

| <b>This product has the following approvals:</b>  | <b>ADL 30</b> | <b>ADL 40</b> |
|---|---------------|---------------|
| Anglo Belgian Corporation 12V-DZ, 16V-DZ (Dual Fuel – gas mode)   |               | X             |
| Anglo Belgian Corporation 12V-DZ, 16V-DZ (with distillate fuel up to 1,5% Sulfur)   |               | X             |
| Anglo Belgian Corporation 6DZ, 8DZ (Dual Fuel – gas mode)   | X             |               |
| Anglo Belgian Corporation 6DZ, 8DZ (with distillate fuel up to 1,5% Sulfur)   | X             |               |
| Caterpillar / MaK 4-Stroke Medium Speed Diesel Engine (Distillate Operation)  |               | X             |
| GE Transportation GE16V250 Fundamental Approval (letter on file)  |               | X             |
| MAN Energy Solutions Augsburg (Heritage MAN B&W) 28/33D engines   |               | X             |
| MAN Energy Solutions Augsburg (Heritage MAN B&W) 4 Stroke medium speed engines for Alternating Distillate / LNG operation | X             | X             |
| MTU Oil Category 2  | X             | X             |
| Ortlinghaus-Werke GmbH ON 9.2.10  | X             |               |
| Wartsila 4-Stroke Medium Speed Engines for Distillate- and Dual-Fuel operations   |               | X             |
| Wartsila Medium Speed Diesel Engine   | X             | X             |
| ZF TE-ML 04B  | X             | X             |

| <b>This product is recommended for use in applications requiring:</b> | <b>ADL 30</b> | <b>ADL 40</b> |
|---|---------------|---------------|
| ACEA E2   | X             | X             |
| Allison C-4   | X             |               |
| API CF  | X             | X             |
| API SF  | X             | X             |
| MAN 270   | X             | X             |

### Properties and Specifications

| <b>Property</b>                               | <b>ADL 30</b> | <b>ADL 40</b> |
|---|---------------|---------------|
| Grade   | SAE 30        | SAE 40        |
| Ash, Sulfated, mass%, ASTM D874               | 1.4           | 1.4           |
| Flash Point, Cleveland Open Cup, °C, ASTM D92 | 230           | 239           |

| Property   | ADL 30 | ADL 40 |
|--|--------|--------|
| Kinematic Viscosity @ 100 C, mm <sup>2</sup> /s, ASTM D445 | 11.5   | 14.7   |
| Kinematic Viscosity @ 40 C, mm <sup>2</sup> /s, ASTM D445  | 90     | 132    |
| Pour Point, °C, ASTM D97                                   | -30    | -21    |
| Total Base Number, mgKOH/g, ASTM D2896                     | 12     | 12     |
| Viscosity Index, ASTM D2270                                | 117    | 112    |

### 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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