ExxonMobil

# Mobil SHC Aware™ Gear Series

ExxonMobil Marine , Thailand

U.S. EPA 2013 Vessel General Permit Compliant Gear Oil

## Product Description

Mobil SHC Aware™ Gear Series are a range of high performance, anti-wear gear oils for use in marine applications and meet the U.S. Environmental Protection Agency (EPA) 2013 Vessel General Permit (VGP) guidelines for "environmentally acceptable lubricants". They provide excellent wear protection for gears and bearings and safeguard equipment from rust and corrosion. They also possess outstanding oxidation properties, which help to extend oil life, and offer a wide operating temperature range and excellent low temperature start-up. Mobil SHC Aware Gear Series demonstrate excellent air release properties versus typical mineral gear oils, resulting in less air entrainment and protection from cavitation. Furthermore, their excellent seal compatibility helps to minimize leaks.

## Features and Benefits

- Meets US EPA 2013 Vessel General Permit requirements for environmentally acceptable lubricants
- Outstanding load-carrying and anti-wear properties which protects system components against micropitting and scuffing and helps provide long equipment life
- Shear stable high viscosity index help sustain component protection over a wide temperature
- Excellent resistance to high temperatures degradation
- Very good demulsibility and resistance to rust and corrosion

## Applications

- Marine controllable pitch propeller and thruster applications
- Suitable for enclosed gear drives including steel-on-steel spur, helical and bevel designs
- In systems where readily biodegradable and minimally toxic fluids may be required
- Marine and mobile equipment operating in environmentally sensitive areas
- Can be used in select Stern Tube applications

Mobil SHC Aware Gear Series have the following Thruster builder approvals:

Nakashima

HHI Hyundai

KTE Nakashima Korea

KHI

## Specifications and Approvals

| This product has the following approvals: | 68 | 100 | 150 |
|---|---|---|---|
| SKF Marine Environmental Acceptable Lubricant (EAL) for SIMPLEX Stern Tube Bushes and Seals. | X | X | X |
| Wartsila Norway AS - Marine Solutions Propulsion CPP Hydraulic System Oil - Environmentally Acceptable Lubrication - EAL | X | | |

| This product has the following approvals: | 68 | 100 | 150 |
|---|---|---|---|
| Wartsila Norway AS - Marine Solutions Propulsion Sterntube / Seals lubrication Oil - Environmentally Acceptable Lubrication - EAL | | | X |

| This product meets or exceeds the following industry / Government requirements: | 68 | 100 | 150 |
|---|---|---|---|
| AGMA 9005-E02-EP | X | X | X |
| ISO L-CKC (ISO 12925-1:1996) | X | X | X |
| ISO L-CKD (ISO 12925-1:1996) | X | X | X |
| US EPA VGP:2013 | X | X | X |

Properties and Specifications

| Property | 68 | 100 | 150 |
|---|---|---|---|
| Grade | ISO 68 | ISO 100 | ISO 150 |
| Acute Algae Toxicity, EC50, 72 h, mg/l, OECD 201 | >1000 | >1000 | >1000 |
| Acute Daphnia Toxicity, EC50/48h, mg/l, OECD 202 | >1000 | >1000 | >1000 |
| Acute Fish Toxicity, LC50/96h, mg/l, OECD 203 | >1000 | >1000 | >1000 |
| Air Release Time, 50 C, min, ASTM D3427 | 12 | | |
| Air Release, 50 C, min, ASTM D3427 | | 21 | 31 |
| B-10 Oxidation Test, 80 h, 127 C, KV Increase @ 100 C, %, M 334 | 3 | 4 | 4 |
| Bioaccumulation, Partition Coefficient, Log Pow, OECD 117 | <3 | <3 | <3 |
| Biodegradability after 28 days, %, OECD 301B | | | 84 |
| Density @ 15 C, kg/m3, DIN 51757 | 915.8 | 921.5 | 929.4 |
| FE8 D7.5/80-80 Cage Wear, mg, DIN 51819-3 | 34 | 34 | |
| FZG Micropitting, Load Stage GFT, Rating, FVA No. 54 | 10 | 10 | 10 |
| FZG Scuffing, Fail Load Stage, A/8.3/90, ISO 14635-1 | 14 | 14 | 14 |
| Flash Point, Cleveland Open Cup, °C, ASTM D92 | 273 | 287 | 281 |
| Kinematic Viscosity @ 100 C, mm2/s, ASTM D445 | 10.7 | 13.3 | 17.8 |
| Kinematic Viscosity @ 40 C, mm2/s, ASTM D445 | 68 | 100 | 150 |
| Pour Point, °C, ASTM D97 | -36 | -36 | -30 |
| Rust Characteristics, Procedure B, ASTM D665 | | | PASS |
| Rust Characteristics, Procedure B, 24 h, ASTM D665 | | PASS | |

| Property | 68 | 100 | 150 |
|---|---|---|---|
| Rust Test, Synthetic Sea Water, 24 h @ 60 C, ASTM D665-PROB | PASS | | |
| Shake-Flask Test, CO2 Evolution (Mod. Sturm), %, OECD 301B | 84 | 84 | |
| Viscosity Index, ASTM D2270 | 141 | 137 | 135 |

**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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ExxonMobil Marine Limited
Ermyn Way
Leatherhead, Surrey
United Kingdom KT22 8UX

http://www.exxonmobil.com

Due to continual product research and development, the information contained herein is subject to change without notification. Typical Properties may vary slightly.

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