ExxonMobil

# MOBIL SHC™ AWARE™ HYDRAULIC SERIES

ExxonMobil Marine , Czech Republic

Supreme Performance Environmentally Acceptable Hydraulic Oil

FR / 027 / 013

EU Ecolabel www.ecolabel.eu

energy efficiency Performance as described below*

## Product Description

Mobil SHC ™ Aware™ Hydraulic Series lubricants are high performance, anti-wear hydraulic oils which are designed to meet the demand for environmentally acceptable hydraulic lubricants. Mobil SHC Aware Hydraulic Series lubricants meet the requirements set out by the U.S. Environmental Protection Agency (EPA) 2013 Vessel General Permit (VGP) and EU EcoLabel regulations. Biodegradable, minimally toxic and non-bio accumulative, Mobil SHC Aware Hydraulic Series lubricants can be used in hydraulic applications where spills or leakage could result in adverse environmental impact.

In addition, Mobil SHC Aware Hydraulic Series oils are specifically formulated to provide exceptional anti-wear and film thickness attributes required for the most strenuous hydraulic systems. Mobil SHC Aware Hydraulic Series lubricants also have the potential to improve hydraulic efficiency* compared to ExxonMobil's standard hydraulic fluids.

*Hydraulic efficiency relates solely to the fluid performance when compared to ExxonMobil's standard hydraulic fluids. The technology used provides up to 3.6 % efficiency compared to ExxonMobil's standard hydraulic fluids when tested in a Eaton 25VMQ vane pump under controlled conditions in accordance with applicable industry standards and protocols. Efficiency improvements will vary based on lubricants previously used, operating conditions and application.

## Features and Benefits

Mobil SHC Aware Hydraulic Series Oils can help:

- Enable compliance with US Vessel General Permit requirements
- Provide long equipment life through outstanding load carrying and excellent anti-wear properties
- Reduce maintenance downtime and costs and enable long equipment, oil and filter life through excellent thermal and oxidation stability properties
- Sustain equipment protection over a wide temperature range through shear stable high viscosity index formulation
- Maximise time between dry dock and overhaul intervals, reducing operating and maintenance costs
- Lower potential remediation and cleanup costs caused by spills or leakage

As a range of oils complying to the US EPA 2013 Vessel General Permit, and EU EcoLabel certification, Mobil SHC Aware Hydraulic Series Oils offer:

- Excellent demulsibility, easing water removal in critical applications
- Excellent cleanliness and deposit control
- An all-round balanced formulation for performance, enabling protection at a wide variety of operating temperatures

| Features | Advantages and Potential Benefits |
|---|---|
| Ready Biodegradability and Non-Toxicity | Reduces potential for environmental damage<br>Lowers potential remediation and clean-up costs caused by spills or leakage<br>Becomes an integral part of plant environmental programs |

| Features | Advantages and Potential Benefits |
|---|---|
| Outstanding Load-Carrying and Anti-Wear Properties | Protects system components against wear and scuffing<br>Provides long equipment life |
| High Oxidation Stability | Long oil life<br>Reduced deposit and sludge formation<br>Extended filter life |
| Excellent Wide-Temperature Range Performance | Assures high level system lubrication at high and low temperatures |
| Outstanding demulsibility | Eases water removal in critical applications and below-waterline applications |

## Applications

Mobil SHC Aware Hydraulic Series oils help provide optimal performance under environmentally sensitive conditions, with recommended applications including:

- Hydraulic deck equipment, marine, forestry and mobile equipment operating in environmentally sensitive areas
- Cranes, winches, ramps, hatches or other systems in which readily biodegradeable and minimally toxic fluids are required
- Circulation systems operating under mild to moderate service conditions
- Industrial hydraulic systems where leaked or spilled fluids could get into plant effluent

## Specifications and Approvals

| This product has the following approvals: | HYDRAULIC 32 | HYDRAULIC 46 | HYDRAULIC 68 |
|---|---|---|---|
| Blue Angel DE-UZ 178 | X | X | X |
| Denison HF-1 | X | X | X |
| Denison HF-2 | X | X | X |
| Denison HF-6 | X | X | X |
| Eaton E-FDGN-TB002-E | X | X | X |
| FINCANTIERI HEES Oil for Stabilizer | | X | X |
| FINCANTIERI HEES Oil for Thrusters | | X | X |
| HOCNF Norway-NEMS, Black | X | X | X |
| USDA Certified BioBased Product | X | X | X |

| This product meets or exceeds the requirements of: | HYDRAULIC 32 | HYDRAULIC 46 | HYDRAULIC 68 |
|---|---|---|---|
| AFNOR EU Ecolabel | X | X | X |
| ISO L-HEES (ISO 15380:2016) | X | X | X |

| This product meets or exceeds the requirements of: | HYDRAULIC 32 | HYDRAULIC 46 | HYDRAULIC 68 |
|---|---|---|---|
| JCMAS HKB VG32 (JCMAS P 042:2004) | X | | |
| JCMAS HKB VG46L | | X | |
| Swedish Standard 15 54 34 AAV 32 Environmentally Acceptable (2015) | X | | |
| Swedish Standard 15 54 34 AAV 46 Environmentally Acceptable (2015) | | X | |
| Swedish Standard 15 54 34 AAV 68 Environmentally Acceptable (2015) | | | X |
| US EPA VGP:2013 | X | X | X |

## Properties and Specifications

| Property | HYDRAULIC 32 | HYDRAULIC 46 | HYDRAULIC 68 |
|---|---|---|---|
| Grade | ISO VG 32 | ISO VG 46 | ISO VG 68 |
| Density @ 15 C, kg/l, ASTM D4052 | 0.936 | 0.93 | 0.923 |
| FZG Scuffing, Fail Load Stage, A/8.3/90, ISO 14635-1 | 10 | 11 | 11 |
| Flash Point, Cleveland Open Cup, °C, ASTM D92 | 282 | 298 | 292 |
| Kinematic Viscosity @ 100 C, mm2/s, ASTM D445 | 6.2 | 7.7 | 11 |
| Kinematic Viscosity @ 40 C, mm2/s, ASTM D445 | 31.1 | 43.3 | 71 |
| Pour Point, °C, ASTM D97 | -33 | -33 | -27 |
| Viscosity Index, ASTM D2270 | 152 | 149 | 144 |

## 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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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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