ExxonMobil

MOBIL SHC™ AWARE™ HYDRAULIC SERIES

ExxonMobil Marine , Mozambique

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 Lowers potential remediation and clean-up costs caused by spills or leakage 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 Provides long equipment life
High Oxidation Stability	Long oil life Reduced deposit and sludge formation 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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