

BIOFLO STL

Overview: BioFlo STL is a high performance, readily biodegradable product formulated from high quality synthetic ester technologies. This product is formulated to meet the US EPA 2013 Vessel General Permit (VGP) guidelines as an Environmentally Acceptable Lubricant (EAL). BioFlo STL's lubricating film resists water, which keeps stern tube systems protected for extended periods of time and under severe operating conditions. In addition, this product is miscible with petroleum products commonly used for stern tube lubrication. Available in ISO grades 68, 100 and 150.

Specifications, Approvals, Recommendations:

- SKF Blohm-Voss Seal Approval
- Classified as Environmentally Acceptable Lubricants (EAL's) per the EPA's 2013 U.S. Vessel General Permit (VGP)

Physical Properties	STL 68	STL 100	STL 150
ISO Grade	68	100	150
Specific Gravity, ASTM D1298	0.92	0.92	0.92
Viscosity, ASTM D445 @40°C, cSt	68	100	150
Viscosity, ASTM D445 @100°C, cSt	10.6	13.8	18.6
Viscosity Index (VI), ASTM D2270	>140	>140	>140
Pour Point, ASTM D97, °F (°C)	-30 (-34)	-27 (-33)	-27 (-33)
Flash Point, ASTM D92, °F (°C)	>608 (320)	>608 (320)	>608 (320)
Environmental Stewardship: Meets EPA requirements to be classified as an EAL per the 2013 VGP			
Readily Biodegradable (meaning>60%) OECD 301B, %	PASS >73	PASS >73	PASS >73
Minimally Toxic OECD 201 - Algae (EC 50), 72 hr, mg/L OECD 202 - Daphnia (EC 50), 48 hr, mg/L OECD 203 - Fish (LC 50), 96 hr, mg/L	PASS >27,000 mg/L >16,000 mg/L >48,000 mg/L	PASS >27,000 mg/L >16,000 mg/L >48,000 mg/L	PASS >27,000 mg/L >16,000 mg/L >48,000 mg/L
Not Bioaccumulative* (*Calculated value as per EPA standard)	PASS	PASS	PASS

Applications & Industries: Designed for use in the marine industry. The propulsion system in ships is a complex design including: the engine, propeller shaft, seals, bearings, lubricating oil, and the stern tube. Inside the stern tube is the propeller shaft, seals, bearings, and of course the lubricating oil that keeps the friction down and dissipates the heat generated during operation. The seals keep the seawater out of the engine room and also keep the oil from escaping into the environment. Unfortunately, during the course of operation, there are many opportunities for oil to release into the environment. In late 2013, the U.S. EPA revised the Vessel General Permit to mandate the use of Environmentally Acceptable Lubricants in all oil-to-sea interfaces, including stern tubes. BioBlend's STL has been approved by SKF Blohm-Voss as one of the lubricants recommended for use with their seals.

Utilizing BioBlend's BioFlo STL as well as BioBlend's other EAL's for the marine industry will ensure smooth sailing for many years to come. The complete lineup for the marine industry can be found at bioblend.com.

Distributed by:
Bio-Industrial Solutions, LLC
800.581.4850
www.BioIndustrialSolutions.com

