



Gulf Oil Marine

Environmentally
Acceptable Lubricants (EALs)

always at the ship's side





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Introduction

Published in March 2013, the US Environmental Protection Agency (EPA) issued the final version of the 2013 Vessel General Permit (VGP) which applies to all vessels entering US waters from 19th December 2013.

The VGP requires that “All vessels must use an Environmentally Acceptable Lubricants (EAL) in all oil-to-sea interfaces, unless technically infeasible”.

The VGP is regulated by the US Environmental Protection Agency (EPA). The regulation applies to Oil-to-Sea interfaces, including, but not restricted to

- Stern tubes
- Thrusters and Propulsion Pods
- Controlled Pitch Propellers
- Stabilisers
- Rudder Bearings
- Wire Ropes - when used for mooring

The Gulf Marine BD Lubricant Ranges of Environmentally Acceptable Lubricants (EALs) meet the detailed ecological definitions and requirements laid down in the 2013 Vessel General Permit (VGP). Stocks of these products are carried in ports around the world.

GulfSea BD Sterntube Oil Series

GulfSea BD Sterntube Oil 68

SAE/ISO	68
Density (kg/l) 15°C	0.92
Viscosity (mm ² /s) 40°C	68
Pour Point (°C)	<-24
Flash Point SETA (°C)	>170
Application	GulfSea BD Sterntube Oils are VGP compliant, biodegradable lubricants developed for use in sterntube applications.

GulfSea BD Sterntube Oil 100

SAE/ISO	100
Density (kg/l) 15°C	0.92
Viscosity (mm ² /s) 40°C	100
Pour Point (°C)	<-24
Flash Point SETA (°C)	>170
Application	GulfSea BD Sterntube Oils are VGP compliant, biodegradable lubricants developed for use in sterntube applications.

GulfSea BD Sterntube Oil 220

SAE/ISO	220
Density (kg/l) 15°C	0.93
Viscosity (mm ² /s) 40°C	220
Pour Point (°C)	<-12
Flash Point SETA (°C)	>170
Application	GulfSea BD Sterntube Oils are VGP compliant, biodegradable lubricants developed for use in sterntube applications.

GulfSea BD EP2 Grease

GulfSea BD EP2 Grease

NLGI Grade	2
Thickener	Lithium/Calcium
Temperature Range (°C)	-25 to +125
Drop Point (°C)	178
Worked penetration at 25°C	265-295
Application	GulfSea BD EP2 Grease is VGP compliant, biodegradable EP2 Lithium/Calcium grease. It exhibits high load carrying properties and can be used wherever an NLGI 2 grease is required.

GulfSea BD Hydraulic Oil Series

GulfSea BD Hydraulic Oil 32

SAE/ISO	32
Density (kg/l) 15°C	0.92
Viscosity (mm ² /s) 40°C	32
Pour Point (°C)	<-48
Flash Point SETA (°C)	>180
Application	GulfSea BD Hydraulic Oils are a range of VGP compliant, biodegradable, high performance hydraulic fluids. Ester based, these fluids are zinc free and exhibit high antiwear performance.

GulfSea BD Hydraulic Oil 46

SAE/ISO	46
Density (kg/l) 15°C	0.89
Viscosity (mm ² /s) 40°C	46
Pour Point (°C)	<-35
Flash Point SETA (°C)	>180
Application	GulfSea BD Hydraulic Oils are a range of VGP compliant, biodegradable, high performance hydraulic fluids. Ester based, these fluids are zinc free and exhibit high antiwear performance.

GulfSea BD Hydraulic Oil 68

SAE/ISO	68
Density (kg/l) 15°C	0.9
Viscosity (mm ² /s) 40°C	68
Pour Point (°C)	<-35
Flash Point SETA (°C)	>180
Application	GulfSea BD Hydraulic Oils are a range of VGP compliant, biodegradable, high performance hydraulic fluids. Ester based, these fluids are zinc free and exhibit high anti-wear performance.

GulfSea BD Hydraulic Oil 100

SAE/ISO	100
Density (kg/l) 15°C	0.91
Viscosity (mm ² /s) 40°C	100
Pour Point (°C)	<-35
Flash Point SETA (°C)	>180
Application	GulfSea BD Hydraulic Oils are a range of VGP compliant, biodegradable, high performance hydraulic fluids. Ester based, these fluids are zinc free and exhibit high anti-wear performance.

GulfSea BD Gear Oil Series

GulfSea BD Gear Oil 68

SAE/ISO	68
Density (kg/l) 15°C	0.91
Viscosity (mm ² /s) 40°C	68
Pour Point (°C)	<-28
Flash Point SETA (°C)	>180
FZG Load Test	> Load Stage 14
Application	GulfSea BD Gear Oils are high performance EP biodegradable gear oils. They exhibit high anti-wear and micro-pitting properties.

GulfSea BD Gear Oil 100

SAE/ISO	100
Density (kg/l) 15°C	0.92
Viscosity (mm ² /s) 40°C	100
Pour Point (°C)	<-28
Flash Point SETA (°C)	>180
FZG Load Test	> Load Stage 14
Application	GulfSea BD Gear Oils are high performance EP biodegradable gear oils. They exhibit high anti-wear and micro-pitting properties.

GulfSea BD Gear Oil 150

SAE/ISO	150
Density (kg/l) 15°C	0.92
Viscosity (mm ² /s) 40°C	150
Pour Point (°C)	<-28
Flash Point SETA (°C)	>180
FZG Load Test	> Load Stage 14
Application	GulfSea BD Gear Oils are high performance EP biodegradable gear oils. They exhibit high anti-wear and micro-pitting properties.

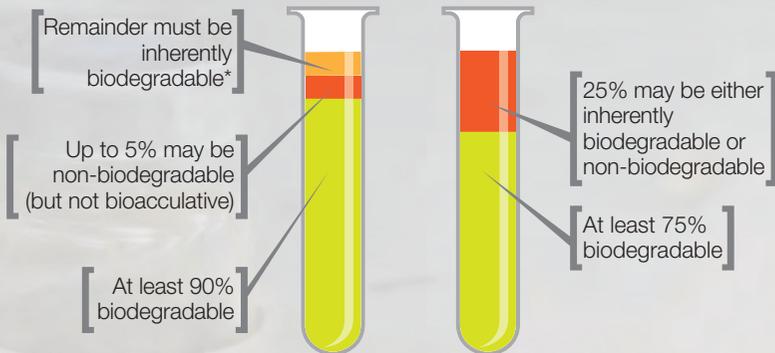


1. What is EAL?

“Environmentally Acceptable Lubricants” means lubricants that are “**biodegradable**” and “**minimally toxic**” and are “**not bioaccumulative**” as defined in VGP 2013 Appendix A [VGP 2.2.9, p47].



BIODEGRADABLE & NON BIOACCUMULATIVE



* *Inherently biodegradable: as long as it shows evidence of biodegradation in any test for biodegradability, not necessary to be ultimately biodegradable (i.e. will be converted to CO₂, water & mineral salts) within specific timeframe.*

MINIMALLY TOXIC

- EAL to demonstrate minimal toxicity through specified test methods (such as OECD tests)
- “Minimally-toxic” fluids include achieving acute toxicity results of at least 100 mg/L according to OECD 201, 202 and 203 (algae, daphnia and fish)

2. Who will be affected?

The VGP applies to all vessels greater than 79 feet (excluding recreational vessels and certain floating facilities covered by other legislation) entering US waters from 19th December 2013. The VGP requires that "All vessels must use an Environmentally Acceptable Lubricant (EAL) in all oil-to-sea interfaces, unless technically infeasible".

3. What does “technically infeasible” mean?

“For purposes of requirements related to EALs, technically infeasible means that:

- no EAL products are approved for use in a given application that meet manufacturer specifications for that equipment;
- products which come pre-lubricated (e.g., wire ropes) have no available alternatives manufactured with EALs;
- products meeting a manufacturers specifications are not available within any port in which the vessel calls; *[see also Response p1016]*
- change over and use of an EAL must wait until the vessel's next drydocking.” *[VGP 2.2.9 p47]*

4. What documentation is required to confirm that a lubricant meets the EAL definition?

When assessing compliance with use of EALs, EPA would “look for documentation that lubricants used by the vessel either meet the approved labeling requirements or have undergone and met the requirements of independent testing.” *[Response p222]*



5. When is the changeover?

	Date Constructed	Vessel's Compliance Date
New vessels	After 19 Dec, 2013	On delivery
Existing vessels	Before 19 Dec, 2013	1st scheduled dry-docking

Scenario*	Operate in US Waters	Next dry-docking schedule	Change over
A	Yes	On/after 19 Dec 13	<ul style="list-style-type: none"> Change over on the next dry-docking schedule
B	Yes	1st : Before 19 Dec 13 2nd: After 19 Dec 13	<ul style="list-style-type: none"> Change over on 2nd dry-docking schedule
C	No	Any Date	<ul style="list-style-type: none"> No Change VGP is not applicable

* Refers to existing vessels above 79 feet in length



6. Where EALs are to be used?

All vessels must use an EAL in all oil-to-sea interfaces, unless technically infeasible.

On Deck:

- Open gears
- Deck hydraulic systems
- General greasing points
- Wire ropes



EALs:

- GulfSea BD Hydraulic Oils
- GulfSea BD Gear Oils
- GulfSea BD EP2 Grease

At this time, EPA has “not mandated that vessels “must” use EALs for their deck applications; however, the Agency has provided strong encouragement to do so.” *[Response p1041]*



Below the water line:

- Stern tube
- Controllable Pitch Propellers
- Bow / stern thruster
- Propulsion thruster
- Rudder Bearings
- Stabilisers



EALs:

- GulfSea BD Sterntube Oils
- GulfSea BD Hydraulic Oils
- GulfSea BD Gear Oils
- GulfSea BD EP2 Grease



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