

ROCOL®



**Simplifying
the VGP
& EALs**

BIOGEN WIRE SHIELD[®]



NO COMPROMISE
ENVIRONMENT • OPERATOR • CABLES

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WHAT IS THE 2013 VGP?

The Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels (VGP) is a US licence which works alongside the Clean Water Act. It serves to protect the US Coastline and inland waters by **regulating discharge** from vessels entering these areas.

The first VGP was issued in December 2008; however as of December 19th 2013, a second more demanding version has become effective. It is important that all vessel operators are familiar with this document as the consequences of failing to follow the regulations are **finest and imprisonment**. One of the most significant updates between the two versions of the VGP is the requirement of vessel operators to use Environmentally Acceptable Lubricants (EALs) in all oil-to-sea interfaces.

WHO DOES THE VGP APPLY TO?

Vessels which are subject to the requirements of the VGP and therefore are required to use Environmentally Acceptable Lubricants are:

- > All commercial vessels which are 79 feet (24.08 metres) or greater in length.
- > Vessels operating in a capacity as a means of transportation.
- > Vessels that have discharges incidental to their normal operations.
- > Vessels which enter within three nautical miles of US coastlines and inland waters.

Vessel types which could match the criteria

- Commercial Fishing Vessels • Cruise Ships • Barges • Mobile Offshore Drilling Units
- Oil Tankers • Petroleum Tankers • Bulk Carriers • Cargo Ships • Container Ships
- Other Cargo Freighters • Refrigerant Ships • Research Vessels
- Emergency Response Vessels • ROV Operation Vessels

Vessel types which are not subject to the VGP requirements

Recreational vessels and Armed Forces vessels.

N.B. Certain states in the USA have additional / modified regulations, it is advisable to check States' Certifications in order to ensure your compliance, however they do not generally effect lubrication.



DID YOU KNOW?

The usage of Environmentally Acceptable Lubricants are enforced by law

Punishment for breaches of the VGP can include significant fines and imprisonment

WHAT IS THE IMPACT OF THE VGP ON LUBRICANT USAGE?

Effective 19th December 2013, all vessels which are subject to the requirements of the VGP are required to use Environmentally Acceptable Lubricants in all oil-to-sea interfaces, including:

- Wire Ropes • ROV Umbilicals • Submersible Eqmt • Pitch Propellers
- Hydraulic Fluids • Paddle Wheel Prop. • Stern Tubes • Thruster Bearings
- Stabilisers • Rudder Bearings • Azimuth Thrusters • Prop. Pods

When must the switch to EALs be completed?

All vessels must switch to EALs for use in oil-to-sea interfaces during their next dry dock.

How is compliance checked and enforced?

Prior to February 2011, the roll of the **US Coast Guard (USCG)** was primarily educational. However a Memorandum of Understanding was signed with the US Environment Protection Agency (EPA), which facilitates the USCG in reporting VGP non-conformances to the EPA.

- > The USCG will check for compliance with the VGP during **routine inspections** of US-flagged vessels and during Port State Control exams of non-US vessels.
- > Evidence of **non-compliance** may lead to more detailed examinations.
- > Detected deficiencies will be reported to the EPA for enforcement.
- > The EPA is directly responsible for **legal action**, which may include administrative orders, administrative penalties or judicial action.
 - > First-time violations may lead to \$10,000 fines (per violation) or imprisonment for up to two years.
 - > Further violations may lead to \$20,000 fines (per violation) or imprisonment for up to four years.
 - > Falsification of documentation can lead to **more severe punishment**.
 - > Please review section "1.4 Permit Compliance" of the VGP for more details.



DID YOU KNOW?

- The US Coast Guard will report all non-conformances to the EPA

EALs - Required Documentation

In order to comply with the VGP, a number of documents must be completed, many of which make reference to lubricants; these include:

- > **The Notice of Intent (NoI)** – Section D refers to Discharge. If lubricants are used on your vessel in oil-to-sea interfaces, it must be marked in this section.
- > **VGP Annual Report** – Question 5 refers directly to Environmentally Acceptable Lubricants and requests information on lubricants used.
 - > If EALs have not been used, an explanation is required.
 - > Under certain circumstances, a non-conformance can be excused for certain reasons. This might be that it is **technically infeasible** or that the vessel has not dry docked since 19th December 2013.

How do you prove that you are using an Environmentally Acceptable Lubricant?

It is the responsibility of the lubricant manufacturer to ensure that VGP compliant lubricants meet the definition of an Environmentally Acceptable Lubricant (EAL). An EAL must meet stringent biodegradability, eco-toxicity and bioaccumulation standards. A lubricant manufacturer's statement of "meets the requirements of the VGP" is **not sufficient evidence** that the lubricant meets the strict definition of an EAL. If this is the case, operators are urged to seek **further clarification** to ensure full compliance.

The testing required to prove that a lubricant is Environmentally Acceptable is rigorous and expensive. For that reason, a lubricant which is fully compliant with the guidelines will be **clearly marked** as being VGP compliant.

- > Independent test data for the EAL will be available from the manufacturer, ensure that this includes **test data on the components too**.
- > Technical and Safety Data Sheets are likely to carry a statement which clearly states that the product is VGP and EAL compliant.
- > It is likely to state on the product label that the lubricant is VGP and EAL compliant.
- > The VGP states that a number of labelling programs are acceptable in determining whether or not a product is an EAL. The standards include European Eco-Label, Nordic Swan, Swedish Standards, Design for the Environment and Blue Angel.

Using a lubricant with all or most of the information provided above should be adequate evidence for inspecting authorities, ensuring that they will be happy with your compliance to the VGP's EAL requirements.

WHAT ARE ENVIRONMENTALLY ACCEPTABLE LUBRICANTS (EALs)?

In simple terms, all EALs have been formulated to ensure that their impact on the environment is **significantly reduced** when compared to that of a traditional lubricant. The VGP states that lubricants must meet stringent testing specifications against three main criteria in order to be classified an EAL; these are biodegradability, eco-toxicity and bioaccumulation.

Biodegradability

With regards to the VGP, this is a measure of how quickly a lubricant would break down in to its harmless constituents if released into the sea. In the instance of accidental discharge, a biodegradable lubricant will not remain in the environment for long periods of time which limits the damage it can cause.

Eco-toxicity

This is a measure of how poisonous a lubricant would be if released into the sea. As described by the VGP, minimally toxic lubricants have little to no impact on marine life.

Lubricant manufacturers must ensure that all EALs are tested to and pass internationally standardised eco-toxicity tests. Ideally these tests should be performed by an external accredited laboratory to ensure compliance.

Bioaccumulation

Even low eco-toxicity chemicals can be dangerous when consumed by animals; this is due to a process called bio-accumulation.

When a bio-accumulative chemical is eaten, it will begin to build up in living tissues and cannot be excreted. At the bottom of the food chain this does not generally cause a problem, since the chemical has low eco-toxicity. However, as the chemical moves up the food chain, it increases in concentration to dangerous levels and can cause significant damage.

Lubricant manufacturers must ensure that all EALs are tested to and pass internationally standardised bio-accumulation tests. Ideally these tests should be performed by an external accredited laboratory to ensure compliance.

All components MUST be tested

The VGP is the one of the most stringent environmental regulations for lubricants ever published and is driving forward the requirement for new cleaner lubricant technologies. Not only does the VGP state that all EALs must be tested to the standards described above but all components and additives must pass these standards too. This ensures that when the EAL biodegrades, the components are also safe for the environment.

Vessel operators should review the “How do you prove that you are using an EAL?” section for further clarification on EAL requirements.



DID YOU KNOW?

Lubricant use must be reported  in the VGP annual report

VGP and European Eco-Label Compliant Lubricant for Wire Ropes and Umbilicals

Evolution of Lubrication Technology

As a direct oil-to-sea interface, wire ropes and ROV umbilicals are required under the new VGP requirements to be Environmentally Acceptable Lubricants (EALs). Biogen WIRESHIELD carries the European Eco-Label (pending) and is therefore fully VGP compliant.

"Wire ropes are like complex machines requiring dedicated lubricants to perform"

○ Pseudo-plastic Rheology

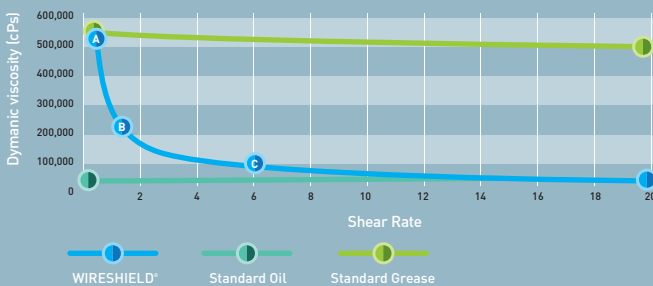
Shear or agitation causes a reduction in the dynamic viscosity of Biogen WIRESHIELD:

- > Allowing maximum penetration into the core of wire ropes and umbilicals.
- > Increasing pumpability during automatic application, minimising blockages.
- > Lubricant returns to grease consistency when shear is removed.

Whilst at rest the lubricant behaves like highly tenacious grease:

- > Optimising wash-off and fling-off resistance.

Pseudoplastic Rheology

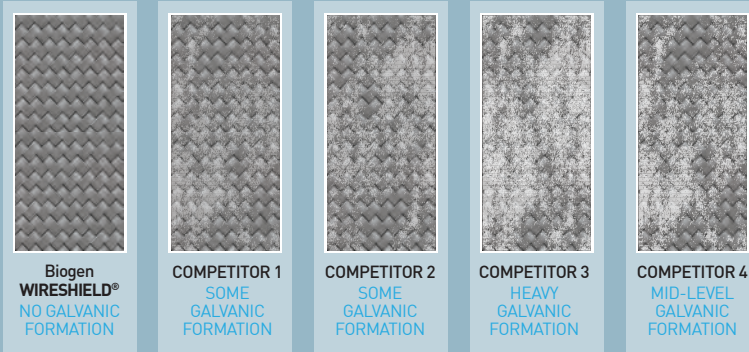


- A** WIRESHIELD* viscosity is initially similar to that of grease.
- B** Shear induces the "collapse" of the thickener system.
- C** Viscosity quickly approaches that of an oil.

Corrosion Resistance

Corrosion is a primary cause of premature wire rope and umbilical failure. Biogen WIRESHIELD is proven to excel in the most corrosive of atmospheres.

Identical sections of wire ropes and armoured umbilicals were exposed to a salt spray fog for 1000 hours. The samples were galvanised, providing limited protection from corrosion through the formation of white zinc oxides and carbonates on their surfaces. If a lubricant can prevent this galvanic formation, it shows excellent anti-corrosion protection.



Test: ASTM B117

Result: Zero galvanic reaction after 1000 hours

Salt Water and Shear Stability

Wire Ropes and umbilicals are subjected to some of the most physically demanding conditions for lubricants. A modified ASTM D-1831 tests how lubricants handle these environments.

A vessel containing Biogen WIRESHIELD, salt water and a rolling weight was rotated at 165 RPM for several hours. These conditions cause high levels of degradation in non-resistant lubricants; however Biogen WIRESHIELD passed the test with excellent results, showing little sign of degradation.



Test: Modified ASTM D-1831

Result: Shear stable in the presence of salt water

DID YOU KNOW?

Lubricants bearing the European Eco-Label logo are fully VGP compliant

Lubricants bearing the European Eco-Label are all tested to be fit for purpose



OVER THREE YEARS OF RESEARCH BY INDUSTRY LEADING CHEMISTS AT ROCOL HAS LED TO THE DEVELOPMENT OF



○ NO COMPROMISE

Biogen WIRESHIELD® outperforms mineral oil competitors

Environmentally Acceptable Lubricants are often quoted as having reduced performance capabilities when compared to traditional mineral oil lubricants. Biogen WIRESHIELD® has been developed to either equal or outperform mineral oil lubricants.

Operators no longer need to compromise the protection of their wire ropes and umbilicals in order to meet environmental regulations and legislation. In-house laboratory tests and extensive field trials with some of the largest wire rope and umbilical users and manufacturers in the world have repeatedly proven the quality of Biogen WIRESHIELD.

• Maximum penetration	Ensuring protection at the cable core
• Excellent corrosion protection	Preventing premature failure
• Extreme wash-off resistance	Guaranteeing protection when wet
• High fling-off resistance	Minimising slip hazards whilst providing long term protection
• Friction reduction	Reducing abrasion and wear
• Simple & safe application	Non-hazardous to operator
• Biodegradable and low eco-toxicity	Minimising environmental impact
• High level of pumpability	Easy application with automatic lubricators
• High temperature stability	Ensuring protection at high temperatures
• Stable in the presence of salt water	Protection does not fail when exposed to sea water
• Low temperature capabilities	Suitable for Arctic & Antarctic conditions

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APPLICATION

Methods of cable lubrication range from traditional techniques such as brushing and swabbing to the use of performance equipment.

Biogen WIRESHIELD can be applied using whichever method is most convenient, but in order to maximise efficiency, **ROCOL** recommends the use of automatic delivery systems.

The use of Biogen WIRESHIELD with an automatic delivery system:

- Optimised pseudoplastic penetration into the wires and strands of the cable
- Prevents build up of excess lubricant
- Offers cost savings due to increased lubrication speed
- Is suitable for use on a range of umbilical and wire rope diameters
- Utilises pseudoplastic rheology ensuring that Biogen WIRESHIELD is easy to pump, minimising blockages



HEALTH & SAFETY

Biogen WIRESHIELD is not classed as hazardous, giving peace of mind to operators during its application and use. The pseudoplastic rheology significantly reduces fling-off and drip-off ensuring decks and floors are as clean and slip-free as possible.

Buy WIRESHIELD Biogen ROV now

Pail		Drum	
Part Code:	20064	Part Code:	20069
Size:	18kg	Size:	160kg

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