

Environmentally Acceptable (EAL) & Biodegradable Lubricants



LUBRICANTS.
TECHNOLOGY.
PEOPLE.



Glossary of Terminology



Environmentally responsible companies looking to fulfill regulatory requirements while promoting environmental stewardship, sustainability and “greener” applications are partnering with FUCHS to address the rising demand for safer, high performance lubricants. FUCHS’ EAL and Biodegradable Lubricants have been developed to meet regulatory requirements for applications in sensitive ecological environments such as waterways or forests.

EU Ecolabel (EEL)

The goal of the EU Ecolabel is to highlight products that, compared to convention products, provide reduced impact on the environment and contribute to improved environmental protection and sustainable development. Products awarded the EEL are a lesser burden on air, water, ground and human health than conventional mineral-oil based products in the market. EEL is a simple and reliable way to inform consumers of good environmentally friendly quality of the product.

Environmentally Acceptable Lubricants (EAL)

Complies with requirements of Environmentally Acceptable Lubricants as defined under 2013 Vessel General Permit (VGP) and

extends to 2016 Small Vessel General Permit (sVGP). EAL in North America means meeting the same requirements as EU Ecolabel (EEL).

VGP/sVGP

US Vessel General Permit (VGP): 2013 is required all vessels, greater than 79 feet operating within 3 miles of US coasts and in the Great Lakes, to use Environmentally Acceptable Lubricants (EAL) in all applications with an oil-to-water interface, e.g., stern tubes, propellers, rudders, stabilizers, thrusters, and submersible mechanical equipment like dredges.

US Small Vessel General Permit (sVGP): 2016 extends VGP requirements to all vessels, regardless of size, and all inland waterways. Recreational and military vessels are exempt. The most

significant effect of sVGP is within fishing, oil service, and related industries.

Readily Biodegradable

Biodegradability of $\geq 60\%$ according to OECD 301 B after 28 days.

Environmentally Acceptable Fluid Designations

According to DIN ISO 15380 environmentally acceptable fluids are divided into the following product groups:

- **HETG: Triglycerides (vegetable oils)**
- **HEES: Synthetic esters (unsaturated, partially saturated and saturated)**
- **HEPG: Polyalkylene glycols (PAG)**
- **HEPR: Polyalphaolefins (PAO)**

Environmentally Acceptable (EAL) & Biodegradable Lubricants

Product Type	EU Ecolabel	FUCHS Specialty Lubricants	General Characteristics and Environmentally Relevant Information	Applications
Hydraulic Oil		PLANTOSYN 32 HVI PLANTOSYN 46 HVI PLANTOSYN 68 HVI	<ul style="list-style-type: none"> ■ ISO VG 32 / 46 / 68 ■ Alternative to conventional mineral oil HLP/HVLP hydraulic oils per DIN 51524-2 & -3 ■ ISO 15380: HEES (synthetic saturated esters) ■ Readily Biodegradable (≥ 60% per OECD 301 B) ■ European Ecolabel (EEL) ■ EAL (Environmentally Acceptable Lubricant) ■ VGP & sVGP Compliant 	<ul style="list-style-type: none"> ■ Hydraulic Pumps ■ Hydraulic Motors ■ Marine ■ Forestry ■ General Industrial & Mobile applications where water or ground contamination is of concern
Hydraulic Oil		PLANTOHYD N 32 NA* PLANTOHYD N 40 NA*	<ul style="list-style-type: none"> ■ ISO VG 32 / 46 ■ Alternative to conventional mineral oil HLP/HVLP hydraulic oils per DIN 51524-2 & -3 ■ ISO 15380: HETG (triglyceride esters) ■ Readily Biodegradable (≥ 60% per OECD 301 B) ■ Based on renewable natural substances, e.g., vegetable oil (triglycerides) 	<ul style="list-style-type: none"> ■ Hydraulic Pumps ■ Hydraulic Motors ■ Forestry ■ General Industrial & Mobile applications where water or ground contamination is of concern
Gear Oil		PLANTOGear 68 S* PLANTOGear 100 S PLANTOGear 150 S PLANTOGear 220 S PLANTOGear 320 S PLANTOGear 460 S PLANTOGear 680 S	<ul style="list-style-type: none"> ■ ISO VG 68 / 100 / 150 / 220 / 320 / 460 / 680 ■ DIN 51517-3: CLP ■ AGMA 9005/E02: EP ■ Readily Biodegradability (≥ 60% per OECD 301 B) ■ Based on special saturated esters ■ European Ecolabel (EEL) ■ EAL (Environmentally Acceptable Lubricant) ■ VGP & sVGP Compliant 	<ul style="list-style-type: none"> ■ Gears ■ Bearings ■ Marine ■ Forestry ■ General Industrial & Mobile applications where water or ground contamination is of concern
Open Gear Grease		CEPLATTYN ECO 300	<ul style="list-style-type: none"> ■ NLGI 1 ■ Biodegradability > 95% 	<ul style="list-style-type: none"> ■ Open gears ■ Rack & Pinions ■ Wire ropes ■ Connector chains
Wire Rope Lubricant		CEPLATTYN R-VGP	<ul style="list-style-type: none"> ■ NLGI 1 ■ Biodegradability > 80% ■ European Ecolabel (EEL) ■ EAL (Environmentally Acceptable Lubricant) ■ VGP & sVGP Compliant 	<ul style="list-style-type: none"> ■ Wire ropes
Multipurpose Grease		PLANTOGEL ECO 2 S PLANTOGEL ECO 2 N	<ul style="list-style-type: none"> ■ NLGI 2 ■ Readily Biodegradable ≥ 60% ■ European Ecolabel (EEL) ■ EAL (Environmentally Acceptable Lubricant) ■ VGP & sVGP Compliant 	<ul style="list-style-type: none"> ■ General grease lubrication where water or ground contamination is of concern, e.g., lock gates, water turbines, sewage plants or in agriculture and forestry equipment.
Rail and Wheel Flange Lubricant		LOCOLUB ECO	<ul style="list-style-type: none"> ■ NLGI 000 ■ Biodegradability > 60% 	<p>Railroad vehicles:</p> <ul style="list-style-type: none"> ■ Wheel flange lubrication <p>Machinery and equipment, e.g., on crane systems, mobile platforms, etc.:</p> <ul style="list-style-type: none"> ■ Wheel flange lubrication systems ■ Open gears ■ Coupling and pin joints
Grease Paste for Various Applications		MEISSELPASTE BIO	<ul style="list-style-type: none"> ■ NLGI 1-2 ■ Biodegradability ≥ 79% 	<ul style="list-style-type: none"> ■ Plug-in tools and bushings of hydraulic and pneumatic hammers ■ Underwater and high-temperature applications ■ Suitable as release paste for highly stressed threads, e.g. in drilling equipment
Biodegradable Grease for Marine Applications		STABYL LG 2 BIO	<ul style="list-style-type: none"> ■ NLGI 2 ■ Biodegradability > 70% ■ Very low water wash-out 	<p>A wide range of maritime applications:</p> <ul style="list-style-type: none"> ■ Jack-up legs ■ Spud barges ■ Davit cranes ■ Rudder posts ■ Winches ■ Chains and wire ropes

* Formulated to meet the requirement of EAL, VGP/sVGP & EEL but does not carry EEL label.

FUCHS Lubricants

Innovative lubricants need experienced application engineers

Every lubricant change should be preceded by expert consultation on the application in question. Only then the best lubricant system can be selected. Experienced FUCHS sales and technical personnel will be glad to advise on products and process optimization for the application in question.

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