

**PANOLIN<sup>®</sup> +**  
Swiss Oil Technology



High Performance  
**E**nvironmentally **A**ceptable **L**ubricants  
for your dredging application



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Swiss Oil Technology

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# The concept

## Economy



### Save money

- Preventative maintenance
- Extended oil change intervals
- Less equipment downtime
- Reduction of life-cycle cost

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## Technology

### Increase performance

- Advanced technology
- More reliability
- Higher efficiency
- Improved availability



## Environment

### Protect the environment

- Environmentally acceptable
- Biodegradable
- Meets global regulations
- CO<sub>2</sub> reduction

Only economically viable, technically mature and environmentally friendly concepts are truly sustainable.

# High Performance Bio-Lubricants

## Using the right lubricant in the right place can improve productivity by minimizing standstill times maintenance and production costs

Lubricants today are an important design element to consider. The correct choice of lubricant is increasingly a criterion for optimal performance and economy.

PANOLIN biodegradable lubricants provide high performance lubrication whilst being readily biodegradable and reducing CO<sub>2</sub> emissions.

### Benefits of a high performing biodegradable lubricant

- High performance of equipment
- Longevity of fill
- Minimal downtime
- Low environmental footprint
- Availability of product
- Compliance with the required country/project regulations

## Compliance with EPA VIDA/VGP 2013

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Assessment in accordance with requirements of Vessel General Permit 2013

### Definitions

- A** The Lubricant meets the requirements of environmental labelling program European Ecolabel (EU Ecolabel) listed in the 2013 VGP and therefore fully complies with the 2013 VGP Definition of EAL.
- B** The Lubricant meets the requirements of environmental labelling program OSPAR listed in the 2013 VGP and therefore fully complies with the 2013 VGP Definition of EAL.
- C** The Lubricant meets requirements for EAL as defined in 2013 VGP and therefore fully complies with the 2013 VGP Definition of EAL.

### Product type

		PANOLIN
Hydraulic fluid	●	<b>A</b> HLP SYNTH E 15/22/32/46/68
Hydraulic fluid	●	<b>A</b> SPRINT 32/46/68
Hydraulic fluid	●	<b>B</b> ATLANTIS 22/N 32
Industrial gear oil	●	<b>A</b> MARGEAR 68/100/150/220/320
Stern tube lubricant	●	<b>A</b> STELLA MARIS 68/100/150/220
Cable/chain lubricant	●	<b>C</b> BIOTRACK E 68/320/700
Control line fluid	○	<b>B</b> ATLANTIS 5/15
EP universal grease	●	<b>A</b> BIOGREASE LL-EP 2
EP fluid grease	●	<b>A</b> MARGREASE W EP 0



# References and dredging types



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Robust lubricants:  
When 24/7 is demanded



Trailing suction hopper dredge



Trailing suction hopper dredge

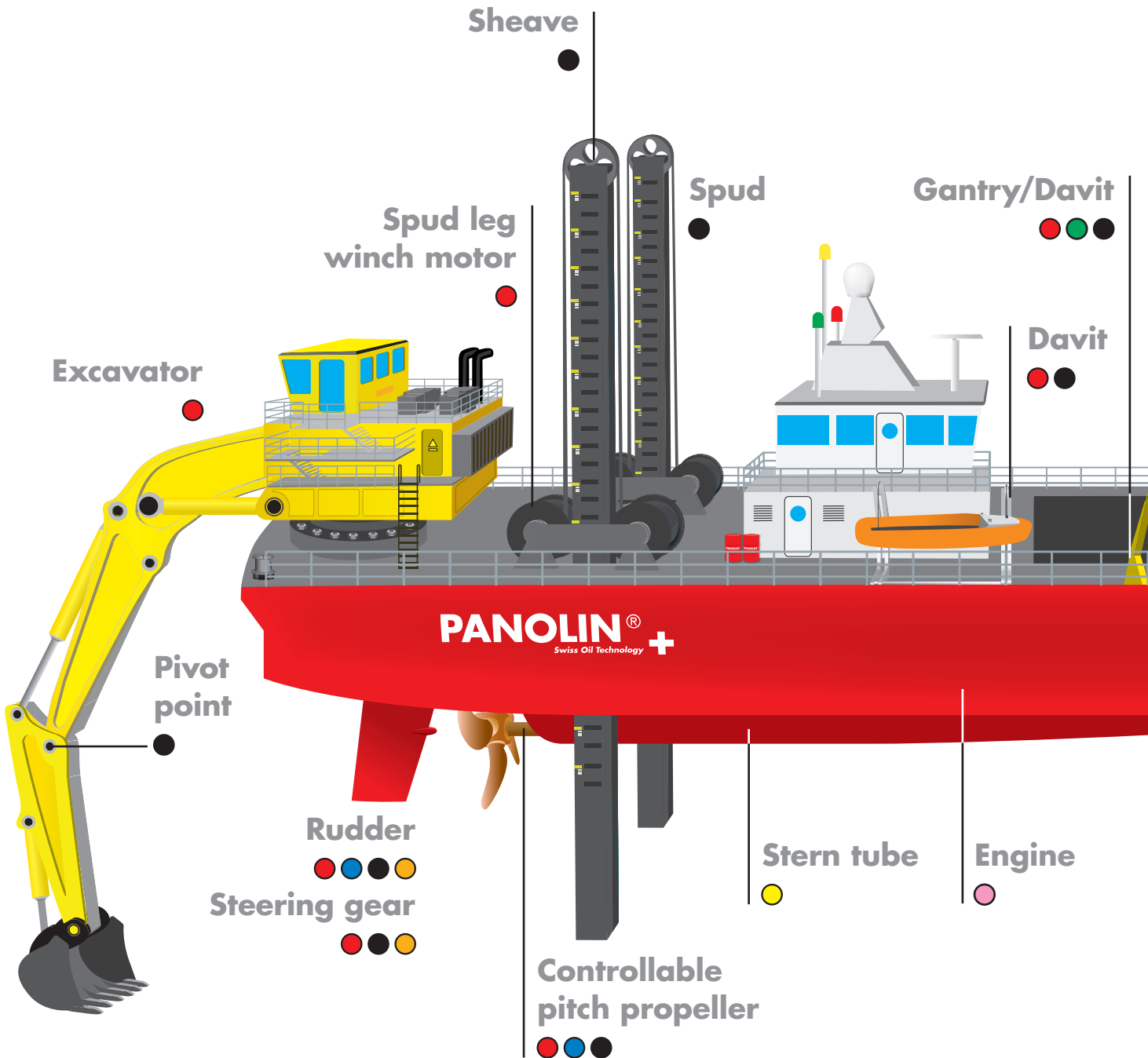
Low maintenance lubricants:  
When downtime is not an option

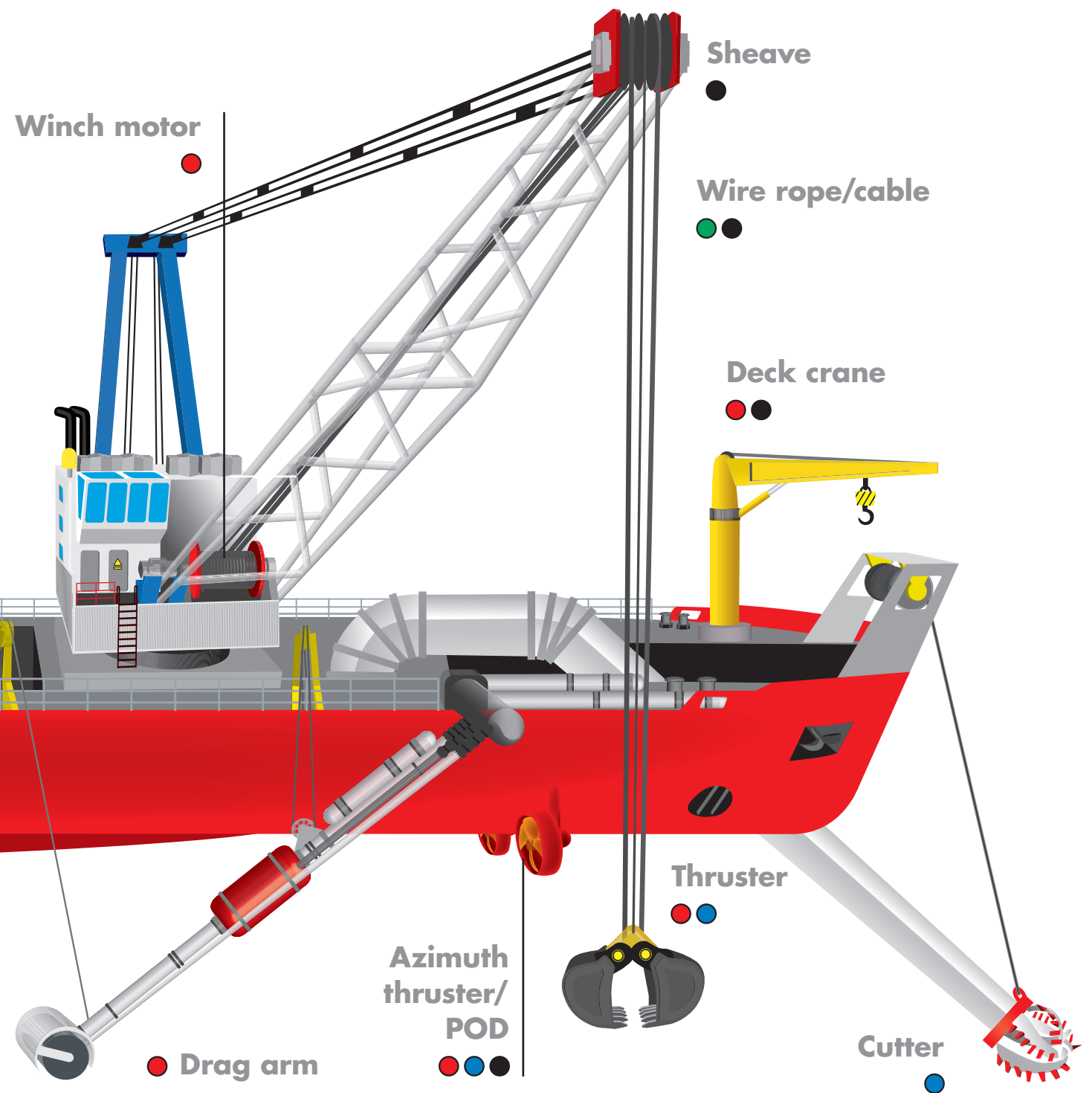
# PANOLIN Biodegradable Lubricants

## Application Guide

Product type	PANOLIN	Page
Hydraulic fluid	● HLP SYNTH, HLP SYNTH E, HLP SYNTH ECO, SPRINT, ATLANTIS	8/9
Industrial gear oil	● MARGEAR	9
Stern tube lubricant	● STELLA MARIS	10
Cable/chain lubricant	● BIOTRACK E	10
LowSAPS diesel engine oil	● BIOMOT LX, BIOMOT LE-X	11
EP universal grease	● BIOGREASE LL-EP 2	11
EP fluid grease	● MARGREASE W EP 0	11

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# PANOLIN HLP SYNTH

Hydraulic fluid – readily biodegradable, saturated synthetic esters

## Features and benefits

- Fully synthetic, high-performance, readily biodegradable, zinc-free and environmentally friendly hydraulic fluid, based on saturated synthetic esters with special additive technology
- Minimally toxic (according to OECD 201/202/203)
- CO<sub>2</sub> reduction due to extremely long oil-change intervals «lifetime filling» – enables higher machine efficiency
- Increases availability and reliability of your equipment due to greater power reserves
- Outstanding extreme-pressure characteristics
- Excellent cold flow characteristics (extremely low pour point)
- Prevents gumming and deposits of ageing products even under high thermal load
- Excellent oxidation resistance at high temperatures
- Great dielectric strength
- Do not mix with other readily biodegradable hydraulic fluids – please refer to our «PANOLIN Conversion and Operating Guidelines» regarding mineral oils, synthetic fluids and PANOLIN ECLs/EALs



## Environmental compatibility

It is decomposed by micro-organisms in water and/or soil almost without any residues.

- ASTM D-6046-98a: P<sub>w</sub>1, T<sub>w</sub>1, T<sub>s</sub>1
- Biodegradability acc. to OECD 301 B: > 60%
- Japan Eco Label
- Water hazard classifications acc. to AwSV: WGK 1

# PANOLIN HLP SYNTH E

Hydraulic fluid – readily biodegradable, saturated synthetic esters

## Features and benefits

- Fully synthetic, high-performance, readily biodegradable, zinc-free and environmentally friendly hydraulic fluid, based on saturated synthetic esters with special additive technology
- Minimally toxic (according to OECD 201/202/203)
- CO<sub>2</sub> reduction due to extended oil-change intervals – enables higher machine efficiency
- Prevents gumming and deposits of ageing products even under high thermal load
- Excellent cold flow characteristics (extremely low pour point)
- Do not mix with other readily biodegradable hydraulic fluids – please refer to our «PANOLIN Conversion and Operating Guidelines» regarding mineral oils, synthetic fluids and PANOLIN ECLs/EALs



## Environmental compatibility

It is decomposed by micro-organisms in water and/or soil almost without any residues.

- Biodegradability acc. to OECD 301 B: > 60%
- EU Ecolabel – DE/027/289
- Swedish Standard SS 15 54 34 (35625, 35630, 35635, 35640); (35645 – pending)
- US EPA VIDA (Vessel Incidental Discharge Act), VGP 2013 (Vessel General Permit) –
- Water hazard classifications acc. to AwSV: WGK 1

# PANOLIN HLP SYNTH ECO

Hydraulic fluid – readily biodegradable, saturated synthetic esters

## Features and benefits

- Fully synthetic, high-performance, readily biodegradable, zinc-free and environmentally friendly hydraulic fluid, based on saturated synthetic esters with special additive technology
- Minimally toxic (according to OECD 201/202/203)
- CO<sub>2</sub> reduction due to extended oil-change and service intervals
- Far greater reserve capacities than conventional hydraulic oils
- Outstanding high-pressure characteristics
- Excellent cold flow characteristics (extremely low pour point)
- Prevents gumming and deposits of ageing products, even at high temperatures
- Oxidation-resistant at high temperatures
- Do not mix with other readily biodegradable hydraulic fluids – please refer to our «PANOLIN Conversion and Operating Guidelines» regarding mineral oils, synthetic fluids and PANOLIN ECLs/EALs



## Environmental compatibility

It is decomposed by micro-organisms in water and/or soil almost without any residues.

- Biodegradability acc. to OECD 301 B: > 60%
- Water hazard classifications acc. to AwSV: WGK 1



# PANOLIN SPRINT

**Hydraulic fluid – readily biodegradable, synthetic esters**

## Features and benefits

- Fully synthetic, environmentally friendly and readily biodegradable hydraulic fluid
- Based on proven PANOLIN technology
- Ester blend with modified, saturated and unsaturated esters
- Minimally toxic (according to OECD 201/202/203)
- CO<sub>2</sub> reduction due to extended oil-change and service intervals
- Outstanding anti-wear and anti-corrosion properties
- Prevents deposits in the hydraulic system
- Excellent cold flow characteristics
- Outstanding extreme-pressure characteristics
- Do not mix with other readily biodegradable hydraulic fluids – please refer to our «PANOLIN Conversion and Operating Guidelines» regarding mineral oils, synthetic fluids and PANOLIN ECLs/EALs

## Environmental compatibility

It is decomposed by micro-organisms in water and/or soil almost without any residues.

- Biodegradability acc. to OECD 301 B: > 60%
- EN 16807
- EU Ecolabel – DE/027/289
- Japan Eco Label
- US EPA VIDA (Vessel Incidental Discharge Act), VGP 2013 (Vessel General Permit)
- Water hazard classifications acc. to AwSV: WGK 1



301 B 201/202/203



# PANOLIN ATLANTIS 22, N 32

**Hydraulic fluid – readily biodegradable, saturated synthetic esters**

## Features and benefits

- Specially formulated from saturated synthetic esters and selected additives to protect hydraulic equipment operating in the offshore environment against corrosion and wear
- Fully complies to the low ecotox profile required by the OSPAR commission in order to protect the marine environment
- Contains no substitutable components according to the Cefas classification procedure
- Minimally toxic
- CO<sub>2</sub> reduction due to extended oil-change and service intervals
- Excellent cold flow characteristics
- Improved oxidation resistance to offer a wide operating temperature range
- Prevents gumming and deposits even under high thermal load

## Environmental compatibility

It is decomposed by micro-organisms in water and/or soil almost without any residues.

- Biodegradability acc. to OECD 301 B: > 60%
- Cefas, UK: OCNS Group C
- Miljødirektoratet – Norway: Environmental Category Yellow
- OSPAR Recommendation 2010/3 on HOCNF (Harmonised Offshore Chemical Notification Format)
- Staatstoelicht op de Mijnen – SodM, NL: HMCS Category R
- US EPA VIDA (Vessel Incidental Discharge Act), VGP 2013 (Vessel General Permit)



Staatstoelicht op de Mijnen  
Ministerie van Economische Zaken  
en Klimaat



# PANOLIN MARGEAR

**Industrial gear oil – readily biodegradable, saturated synthetic esters**

## Features and benefits

- Fully synthetic and environmentally friendly gear oil, based on renewable saturated synthetic esters
- Minimally toxic
- CO<sub>2</sub> reduction due to extended oil-change and service intervals
- Reduces micro-wear of surface roughness on friction surfaces in aggregates
- Outstanding extreme-pressure characteristics
- Excellent oxidation resistance at high temperatures
- Prevents gumming even under high thermal load
- Better adhesion to metal surfaces than mineral-oil based gear oils
- Outstanding anti-wear and anti-corrosion properties
- Extreme shear-resistant multigrade gear oil with a wider thermal operating range than mineral oil

## Environmental compatibility

It is decomposed by micro-organisms in water and/or soil almost without any residues.

- Biodegradability acc. to OECD 301 B: > 60%
- EN 16807
- EU Ecolabel – DE/027/289
- US EPA VIDA (Vessel Incidental Discharge Act), VGP 2013 (Vessel General Permit)



# ○ PANOLIN ATLANTIS 5, 15

**Control line fluid – readily biodegradable, saturated synthetic esters**

## Features and benefits

- Specially formulated from saturated synthetic esters and selected additives to protect subsea and topside production control systems against corrosion and wear
- Fully complies to the low ecotox profile required by the OSPAR commission in order to protect the marine environment
- Contains no substitutable components according to the Cefas classification procedure
- Minimally toxic
- CO<sub>2</sub> reduction due to extended oil-change and service intervals
- Excellent cold flow characteristics combined with oxidation resistance to offer a wide operating temperature range
- Prevents gumming and deposits even under high thermal load

## Environmental compatibility

It is decomposed by micro-organisms in water and/or soil almost without any residues.

- Biodegradability acc. to OECD 301 B: > 60%
- Cefas, UK: OCNS Group C
- Miljødirektoratet – Norway: Environmental Category Yellow
- Miljøstyrelsen – Danish Environmental Protection Agency: PR-No. 2318929 (36060)
- OSPAR Recommendation 2010/3 on HOCNF (Harmonised Offshore Chemical Notification Format)
- Staatstoelzich op de Mijnen – SodM, NL: HMCS Category R
- US EPA VIDA (Vessel Incidental Discharge Act), VGP 2013 (Vessel General Permit)



# ● PANOLIN STELLA MARIS

**Stern tube lubricant – readily biodegradable, saturated synthetic esters**

## Features and benefits

- Fully synthetic and environmentally friendly stern tube lubricant, based on renewable saturated synthetic esters
- Minimally toxic
- CO<sub>2</sub> reduction due to extended oil-change and service intervals
- Excellent lubricity
- Does not contain emulsifiers
- High polarity that protects metal surfaces
- No varnish due to thermal oxidation
- Great hydrolytic stability
- Outstanding anti-wear and anti-corrosion properties

## Environmental compatibility

It is decomposed by micro-organisms in water and/or soil almost without any residues.

- Biodegradability acc. to OECD 301 B: > 60%
- EN 16807 (28445, 28450, 28455, 28460)
- EU Ecolabel – DE/027/289 (28445, 28450, 28455, 28460)
- RINA Green Plus – Italy (28445, 28450, 28455, 28460)
- US EPA VIDA (Vessel Incidental Discharge Act), VGP 2013 (Vessel General Permit) – (28445, 28450, 28455, 28460) –



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# ● PANOLIN BIOTRACK E

**Cable/chain lubricant – readily biodegradable, synthetic esters**

## Features and benefits

- Fully synthetic and environmentally friendly cable/chain lubricant, based on renewable synthetic esters
- Minimally toxic
- Excellent oxidation resistance at high temperatures
- Reduces friction
- Very good adhesion

## Environmental compatibility

It is decomposed by micro-organisms in water and/or soil almost without any residues.

- Biodegradability acc. to OECD 301 B: > 60%
- US EPA VIDA (Vessel Incidental Discharge Act), VGP 2013 (Vessel General Permit)
- Water hazard classifications acc. to AwSV: WGK 1

# PANOLIN BIOMOT LX 10W-40

## LowSAPS diesel engine oil – saturated synthetic esters

### Features and benefits

- Fully synthetic engine oil, based on saturated synthetic esters for the latest diesel engines
- Diesel engine oil with extremely low sulphate ash, phosphor and sulphur content
- The combination of synthetic base oils with special additive technology ensures extremely low oil consumption
- Sustainably prevents blockage of exhaust particle filters and corrosion of oxidation catalyzers
- Ensures excellent engine lubrication both at high operating temperatures and at extremely low ambient temperatures
- Prevents gumming and deposits of ageing products even under high thermal load
- Minimally toxic

### Environmental compatibility

It is decomposed by micro-organisms in water and/or soil almost without any residues.

- Inherently biodegradable acc. to OECD 301 B
- Water hazard classifications acc. to AwSV: WGK 1

# PANOLIN BIOMOT LE-X 5W-30

## LowSAPS diesel engine oil – readily biodegradable, saturated synthetic esters

### Features and benefits

- Fully synthetic, readily biodegradable and long-life engine oil, based on saturated synthetic esters for the latest diesel engines
- Diesel engine oil with extremely low sulphate ash, phosphor and sulphur content
- The combination of synthetic base oils with special additive technology ensures extremely low oil consumption
- Reduces friction and wear
- CO<sub>2</sub> reduction due to extended oil-change and service intervals
- Excellent oxidation resistance at high temperatures
- Outstanding anti-wear and anti-corrosion properties
- Good lubricating film stability
- Minimally toxic

### Environmental compatibility

It is decomposed by micro-organisms in water and/or soil almost without any residues.

- Biodegradability acc. to OECD 301 B: > 60%
- Water hazard classifications acc. to AwSV: WGK 1

# PANOLIN BIOGREASE LL-EP 2

## EP universal grease – readily biodegradable, synthetic esters

### Features and benefits

- Fully synthetic, readily biodegradable EP universal lubricating grease for exposed applications based on natural resources
- Minimally toxic
- Good mechanical stability
- Outstanding anti-wear and anti-corrosion properties
- Good water resistance
- Wide temperature range
- Excellent load-bearing capacity due to special additive technology

### Environmental compatibility

- Ecolabel «Der blaue Engel»
- EU Ecolabel – DE/027/255
- KWF Label
- Swedish Standard SS 15 54 70
- US EPA VIDA (Vessel Incidental Discharge Act), VGP 2013 (Vessel General Permit)



# PANOLIN MARGREASE W EP 0

## EP fluid grease – readily biodegradable, synthetic esters

### Features and benefits

- Fully synthetic, readily biodegradable EP fluid grease for automatic injection systems
- Good water wash-out resistance
- Minimally toxic
- Good mechanical stability
- Outstanding anti-wear and anti-corrosion properties
- Wide temperature range

### Environmental compatibility

- EU Ecolabel – SE/027/012
- Swedish Standard SS 15 54 70
- US EPA VIDA (Vessel Incidental Discharge Act), VGP 2013 (Vessel General Permit)



# PANOLIN is a statement for

- Advanced Technology
- Environmental Responsibility
- Security



PANOLIN offers a wide range of high performance biodegradable lubricants for diverse applications.  
For further information please contact PANOLIN.

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