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# Dredging

# INTERFLON



MicPol® Lubrication Technology



## INTERFLON MAKES LUBRICANTS

With which companies solve problems and cut costs. Interflon is globally active in the domain of reducing maintenance costs and energy consumption with lubricants which reduce friction more than normal petrochemical lubricants. Hereby, Interflon has a large-scale and in-depth specialisation in the realm of lubrication and can lower maintenance costs, realise energy savings and offer solutions for just about all lubrication issues in just about every industry sector.

## This is why our clients use Interflon

Fewer malfunctions caused by insufficient lubrication.  
Lower maintenance costs due to less frequent lubrication and lower consumption of lubricants.  
Lower operating temperatures, especially in gearboxes.  
Less wearing of parts.  
Lowering of energy consumption.  
Less used lubricants.  
Interflon lubricants are developed and produced at Roosendaal in the Netherlands. We have about 300 technical advisors working in 46 countries.

**A step above the rest**  
That's how our clients reduce their overall maintenance costs by as much as 20%, 30%, sometimes even 50% or more whilst resolving their most awkward issues at the same time.



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## Application; Backhoe Dredger horizontal guides spud carriage



### Problem

Lower guides under water.  
Upper guides - splash water.  
Lubricant is constantly rinsed out.  
Very high grease dosing, up to 30 L/day  
(continuous lubrication while the pontoon is in service).

Extreme wear of the bronze skids (30 mm). Worn away completely after 5 years!  
The mounting bolts tear the horizontal guides to pieces. Especially the lower guide tracks and skids are subject to wear. Lubricating channels are literally worn away.

### Existing product

Mobil HXP 222

### Solution

**Interflon Grease LS2**

### Big Boss

#### Result after 5 years

- Grease consumption reduced 20-fold
- Grease seawater resistant (no rinsing)
- Wear on skids 2 to 3 mm
- Mounting bolts intact
- Lubrication grooves in new condition
- Cost saving balance: €620,000.00

## Application; Backhoe Dredger vertical guides spuds



### Big Boss

#### Problem

The grease is rinsed out by the seawater. After 8 weeks, the lubricating film has disappeared completely. Sometimes, the grease is already gone after just a few spud movements.

A high greasing frequency cannot be maintained; when the pontoon is in service, lubrication is not possible.

The maintenance is a very dangerous task because the location where the lubrication needs to take place is very difficult to reach.

Very high costs of repair of wear:

€31,500.00 (1999).

#### Existing product

Mobil XHP 222

#### Solution

**Interflon Grease OG Aerosol**

#### Result:

- The grease is no longer rinsed out by water
- The grease withstands the very high friction forces
- After lubricating once a week for a few weeks, the interval has been established at once a month.
- The gigantic noise problem is solved forever / People on board are enthusiastic
- Strongly reduced product consumption
- Huge cost reduction!!!



## Application; Backhoe Dredger bucket manual lubrication



### Big Boss

#### Problem

Lubrication interval 2 hours. Each lubricating service takes about 15 minutes. Despite being lubricated so much, there is extreme wear on the shaft bushes of the linker and rocker.

High costs of revision.

In service, the grease disappears quickly because the bucket works underwater (a lot of silt).

#### Existing product

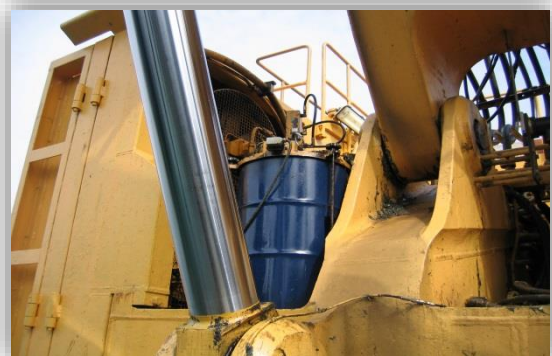
Mobil XHP 222

#### Solution **Interflon Grease LS2**

#### Result:

- Lubrication interval extended from 2 hours to 8 hours
- Costs reduction of €1,250 per working day
- After working in a sandy floor (Beernem - B), the shaft bushings were disassembled and the tolerances were the same as those in a new condition
- There was a clearly present grease seal which prevented silt and water entering

## Application; Backhoe Dredger crown gear



### Zenne

#### Problem

Central lubrication of mono cylinder and crown gear bearing.

Excess grease consumption: 200 L / 2 weeks / lubrication interval 20 minutes.

Considerable environmental pollution.

A lot of storage space needed on board.

#### Existing product

Mobil HPP 222

#### Solution

**Interflon Grease LS2**



#### Result:

- Lubrication interval extended from 20 to 180 minutes
- The grease from the shaft bushings is still in perfect condition
- Much less grease on board
- Much less environmental impact
- Substantial reduction of shaft bushing wear
- Much less work filling the lubricating systems

Application; Trailing suction hopper dredger quadrant couplings dredger pump

## Nile River

### Problem

Extreme wear of the quadrant couplings due to friction in the longitudinal direction of the teeth. Serious damage after 2 years of service. Expensive repairs.

### Existing product

Mobiltac 81

### Solution

**Interflon Grease LS2**

### Other applications

Pneumatic tools

**Interflon Lube PN32**

Pump bearings / Ventilator bearings

**Interflon Grease MP2/3**



### Result:

- Since Interflon Grease LS2 has been used, the damage has been halted and a clear improvement can be seen (after visual inspection)



**Application; Trailing suction hopper dredger cables suction pipe mobb, life-boat**



### **Problem**

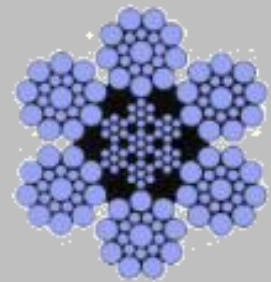
Salty seawater penetrates the cables.  
Cables begin to rust internally and strands break.  
The existing grease provides insufficient protection and disappears quickly.

### **Existing product**

Mobil CHP 222

### **Solution**

**Interflon Grease LS2**



### **Result:**

- Core lubrication takes place with Interflon Lube TF. This product easily penetrates to the core of the cables and lubricates each individual cable strand
- Interflon Grease LS2 provides an excellent protection of the exterior cable. The grease is no longer rinsed out by water
- No more internal rusting and much less strand breakage

Application; Trailing suction hopper dredger Deck crane rack and pinion



## Nile River

### Problem

Lubricating film disappears after 1 month.  
Creaking and squealing noises.  
Rusting.  
Frequent re-greasing.  
Environmental impact.

**Existing product**  
Mobil XHP 222

### Solution

**Interflon Grease LS2**

Recommendation: apply with the Lube-Jet eco grease spray pump: much less grease consumption / works much faster.



### Result:

- The lubricating film is still visible after 3 months
- No more creaking and squealing noises
- Clean, dry and transparent lubricating film: surface can be inspected

## Application; Trailing suction hopper dredger Pneumatic tools

### Nile River

#### Problem

Ingersoll Rand impact tool 2932.

There is not always a freeze drier on board so there is a lot of moisture in the compressed air.

Compressed air hoses are often on deck and seawater therefore enters them.

Oil atomisers are not always used / filled.

Extreme wear of pneumatic tools causing unnecessarily high expenses.

#### Existing product

hydraulic oil (little lubricating capacity)

#### Solution

##### **Interflon Lube PN32**

Emergency mode properties of Interflon Lube PN32 due to the use of MicPol<sup>®</sup> technology, provides greater reliability even when lubrication is neglected.

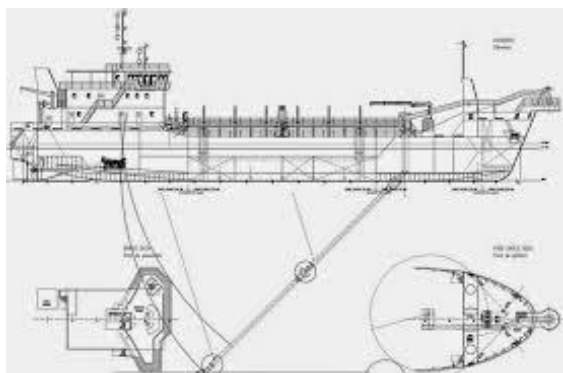
#### Result:

- Interflon Lube PN32 repels the water present
- For more than two years, there have been no repairs to pneumatic tools. This was previously unimaginable
- Can also be used for starter motors, hoists, ...
- Oil atomisers can be set at their minimum dosage





Application; Trailing suction hopper dredger Suction head winch / suction pipe



## Antigoon

### Problem

Configuration: extended configuration suction pipe / extra load on the winch and thus also on the gearbox.

Interrupted lubricating film due to heavy and fluctuating load.

Excessive wear of the tooth flank due to high friction.

A lot of noise during operation.

Risk of fracture and unexpected downtime.

### Present product

Mobilgear SHC 680

### Solution

Mobilgear SHC 680 +

**5 % Interflon Finnoly Additive T251**

### Result:

- Additive mixed with a static mixing pump = homogeneous emulsion
- The wear process (pitting) is stopped after adding additive (visual inspection - identical working conditions)
- The noise produced is greatly reduced
- Objective: reliability has been achieved!!!

## Application; Trailing suction hopper dredger total lubrication



**Artevelde**



### **Interflon Bio Grease MP2**

Suction pipe guides.

### **Interflon Grease LS2**

Suction pipe cables, shaft bushings, derricks, runner wheels and bearings.

### **Interflon Paste HT1200**

All-round mounting paste.

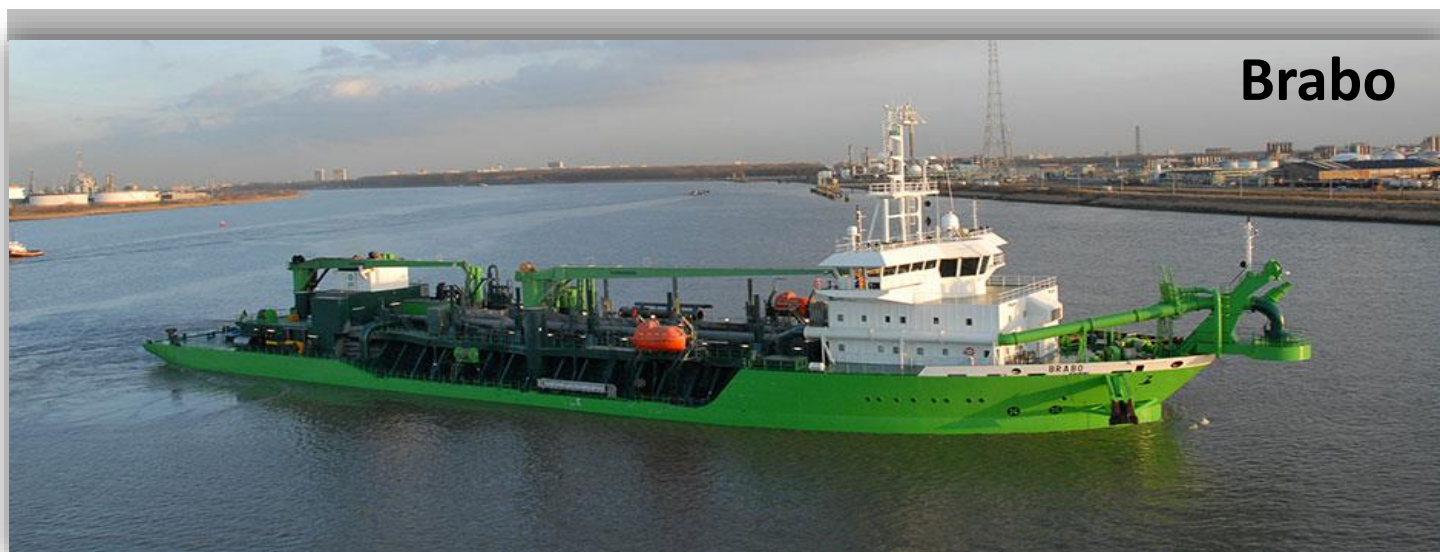
### **Interflon Grease OG**



### **Result:**

- Less environmental impact
- Reliable lubricants
- Fewer maintenance hours

## Application; Trailing suction hopper dredger total lubrication



**Brabo**



**Interflon Grease MP2/3**  
Bearings.

**Interflon Grease LS1/2**  
Suction pipe cables, shaft bushings, derricks,  
runner wheels.

**Interflon Lube TF**  
All-round lubrication.

**Interflon Grease OG**  
**Interflon Grease HTG**



### Result:

- Less environmental impact
- Reliable lubricants
- Fewer maintenance hours



## Application; Trailing suction hopper dredger total lubrication



**DP/DT Breydel**

### **Interflon Grease MP2/3**

Bearings.

### **Interflon Grease LS 1/2 + LS2**

Suction pipe cables, shaft bushings, derricks, runner wheels.

### **Interflon Lube TF**

All-round lubrication.

### **Interflon Grease MP00**

Gearboxes.

### **Interflon Grease HTG**

### **Result:**

- Less environmental impact
- Reliable lubricants
- Fewer maintenance hours



## Application; Trailing suction hopper dredger total lubrication



### Charlemagne

**Interflon Grease LS2**

**Interflon Lube Shuttle Grease LS2**

Skids, suction pipe, grab construction unloading machine, runner wheels, open gears - sieve tower + screen tower and conveyor belts.

Processing by means of  
Lube-Shuttle Eco Grease Gun  
Lube-Shuttle Grease Gun

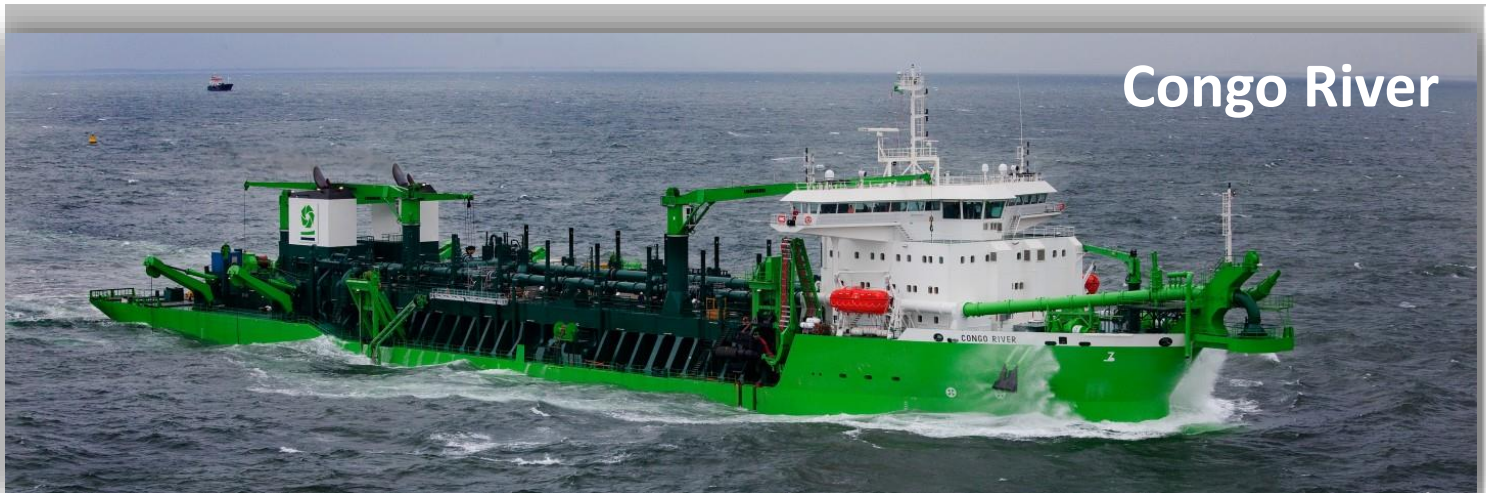


#### Result:

- Less environmental impact
- Reliable lubricants
- Fewer maintenance hours



## Application; Trailing suction hopper dredger total lubrication



Congo River



### Interflon Grease LS2

Shaft bushing blocks, runner wheels, bearings and the skid guides.

### Interflon Grease LS1/2

Automatic lubricating system.



### Result:

- Less environmental impact
- Reliable lubricants
- Fewer maintenance hours



## Application; Trailing suction hopper dredger quadrant clutch



### Lange Wapper

#### Interflon Grease LS2

Quadrant clutches.

#### Interflon Degreaser EM56+

#### Physical properties

Length (OA): 129.8 m

Length (BP): 122.1 m

Width: 26.82 m

Depth: 10.8 m

Draft (loaded): 9.45 m

Number of engines: 2

Engine specs: MAN - - 4Str - 12 cyl - 32.00 x 40.00 - 750 rpm

Speed (loaded): 14.2 knots

Total power: 14978 kW

Hopper volume: 13700 m<sup>3</sup>

Dredging depth: 28 m

Dredging depth (extended): 50 m

Suction pipe diameter: 1.2 m



#### Result:

- Less environmental impact
- Reliable lubricants
- Fewer maintenance hours

## Application; Trailing suction hopper dredger quadrant clutches



### Lange Wapper

#### Interflon Grease LS2

Quadrant clutches.

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Total power: 14978 kW

Hopper volume: 13700 m<sup>3</sup>

Dredging depth: 28 m

Dredging depth (extended): 50 m

Suction pipe diameter: 1.2 m



#### Result:

- Less environmental impact
- Reliable lubricants
- Fewer maintenance hours

## Application; Spray pontoon Runner wheels



### Bayard II

#### Problem

Frequent manual lubrication / every 2 to 4 hours.  
At night this is not possible / a lot of noise nuisance due to creaking bearings.

Extreme wear of the new runner wheels (especially the lower). Bearings become dislodged.

The runner wheels go into the sand.

Expensive repairs up to €35,000 per spud.

#### Existing product

Mobil XHP 222

#### Solution

**Interflon Grease LS2**

#### Result:

- Lubrication interval stretched to 24 hours
- No more creaking bearings, even after 2 days of not lubricating
- Visual inspection after 3 months of working with Interflon Grease LS2: almost no more wear
- The creaking noise ceased after the first lubricating service, and has never returned
- Crew on board: from sceptical to enthusiastic



## Application; Cutter suction dredger lubrication general



**Used since construction Al Jarraf**

**Solution Top deck applications**

**Interflon Grease LS2**



**Solution central lubrication spud carriers**

**Interflon Food Grease EP**

### **Physical properties**

Length (OA): 101.5 m

Length (BP): 97 m

Width: 20 m

Cutter power: 2500 kW

Total power: 12860 kW

Dredging depth: 30 m



### **Result:**

- Used since construction
- The crew does not want to use anything else
- Other applications: deck crane rack

## Application; Cutter suction dredger lubrication general



**D' Artagnan**



### Reference

### Products in use

**Interflon Food Grease EP** spud carriers

**Interflon Grease LS1/2** runner wheels

**Interflon Food Lube PN32** pneumatic tools

Simalube with **Interflon Food grease EP**

**Interflon Grease OG 500 ml aerosol**

**Interflon Grease MP2/3** bearings

Pulsarlube M 250 **Interflon Grease MP2/3**

**Interflon Grease HTG**

**Interflon Fin Grease**

**Interflon Degreaser EM56+**

### Result:

- Less environmental impact
- Reliable lubricants
- Fewer maintenance hours

## Application; Cutter suction dredger lubrication general



### Used since construction **Ambiorix**

#### **Solution Deck applications**

**Interflon Grease LS1/2** for runner wheels, cables and cutter ladder.

#### **Interflon Lube PN**

For compressed air lubrication.

#### **Interflon Grease OG**

#### **Solution central lubrication spud carriers**

**Interflon Food Grease EP**

#### **Physical properties**

Length (OA): 123.8 m

Length (BP): 104 m

Width: 25.2 m

Depth: 8.2 m

Total power: 28000 kW

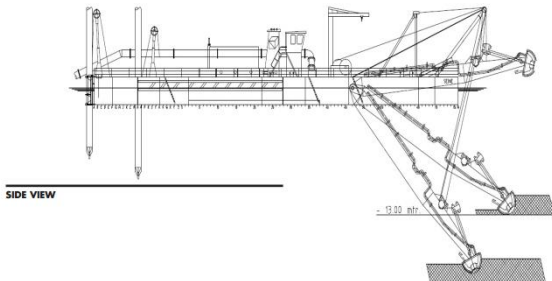
Dredging depth: 35 m

#### **Result:**

- Used since construction
- Excellent results: no wear, low grease consumption



## Application; Cutter suction dredger lubrication general



### Problem

High grease consumption and many maintenance hours.

Environmental impact.

### Environment

### Existing product

Shell Valvate 460

Shell Rodina EP2

### Solution

**Interflon Grease LS2**

| Operating costs 12 weeks / 355 hrs    |         |     | Costs      | Hourly |
|---------------------------------------|---------|-----|------------|--------|
| Shell Valvate 460                     | 240 Ltr |     | € 720,00   |        |
| Shell Rodina EP2                      | 170 Kg  |     | € 1.122,00 |        |
| Perma Grease Canisters                | 20 Pc.  |     | € 426,00   |        |
|                                       |         |     | € 2.268,00 | € 6,39 |
| Operating costs 12 weeks / 411 hrs    |         |     | Costs      | Hourly |
| Interflon Grease LS2                  | 30 Kg   |     | € 824,00   |        |
| Re-usable grease cartridges           | 20 St   | 15% | € 69,00    |        |
| Activating cartridges                 | 20 St   |     | € 227,00   |        |
| Grease cartridges LS2                 | 8 Pc.   |     | € 147,00   |        |
|                                       |         |     | € 1.267,00 | € 3,08 |
| Cost saving with Interflon lubricants |         |     |            | 52%    |

## Application; Cutter suction dredger lubrication general



### Used since construction **Amazon**

#### Solution Top deck applications

**Interflon Grease LS2**

**Interflon Lube TF**

**Simalube Grease LS1/2**

**Interflon Grease MP2/3**

**Lube-Shuttle Grease Spray pump - Grease LS1/2**

**Interflon Grease HTG**

#### Solution central lubrication spud carriers

**Interflon Food Grease EP**

#### Physical properties

Length (OA): 93 m

Length (BP): 76.3 m

Width: 19.04 m

Depth: 6 m

Draft (loaded): 4.7 m

Cutter power: 2070 kW

Total power: 9900 kW

Dredging depth: 30 m

Suction pipe diameter: 0.85 m

#### Result:

- Used since construction
- Excellent results: no wear, low grease consumption

## Application; Cutter suction dredger automatic lubrication



**EDAX**



Lubricate the spuds and via long pipes on the ladder to the cutter.

### Solution

#### Interflon BIO Grease MP2

Proven that our Interflon Bio Grease MP2 can handle - 35°C, better than the present XHP222.

Due to the low temperature, - 15°C, the pressure in the pump has risen (normally 180 bar, now above 200 bar), but it functions well.



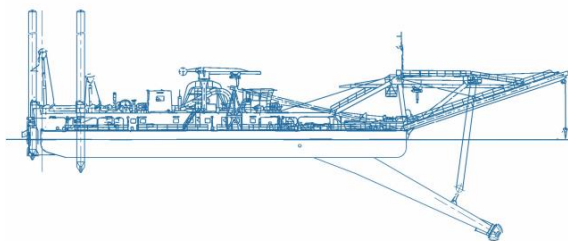
Result:

Environmentally friendly grease

Meets the requirements of certain working areas / countries



## Application; Cutter suction dredger automatic lubrication



### Jokra

#### Problem

High consumption of grease in the automatic lubrication systems.

Environmental pollution.

A lot of grease in stock (200 L drums).

During warm weather the grease flows out of the bearings, causing contamination and malfunctions.

#### Existing product

Mobil XHP 222

#### Solution

**Interflon Grease LS2**



#### Result:

- Less consumption
- No malfunctions
- Less stock
- More environmentally friendly

## Application; Gearbox of the suction head winch



### Problem

Wear on the teeth flanks. The extreme and fluctuating loads cause an interrupted oil film. Many oil changes.

### Existing product

Mobilgear 630

### Solution

**+ 4% Interflon Finnoly Additive T251**



### Result:

- The wear almost imperceptible
- Gearbox noise is reduced
- Oil temperature has dropped at least 10%.

## Application; Transport pipe with rotary device



### Problem

The currently used greases are rinsed away by seawater and are often unable to withstand the forces.

Regular lubrication is labour-intensive.  
Environmentally harmful.

### Environment

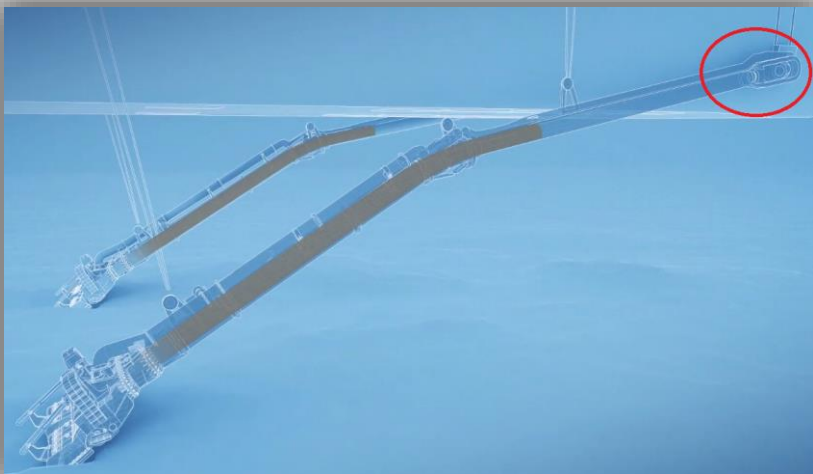
Seawater

### Existing product

Various products

### Solution

**Interflon Grease LS2**



### Result:

- Grease consumption has dropped by 75%
- Water resistant
- Environmental pollution is kept to a minimum



## Application; Suction pipe guide



### Problem

High environmental impact due to saponification of conventional grease.

Despite a high consumption of grease, a lot of rusting occurred.



### Existing product

Mobil XHP 222

### Solution

**Interflon Grease LS2**

Use Interflon Grease LS2 (sea) water resistant grease on the guide-ways. Only apply to 2 to 3 meters, the grease is taken further to/below sea level.

### Result:

- Rinsing away is a thing of the past
- Less grease consumption
- Less environmental impact
- Less labour (in bad weather)
- Much less frequent lubrication
- Time savings

## Application; Fall pipe ship Excavator Liebherr



**Flintstone**



### Reference

### Products in use

#### **Interflon Grease LS1/2**

manual and central lubrication of the shaft bushings of the two excavators / crown bearings.

### Result:

- Less environmental impact
- Reliable lubricants
- Fewer maintenance hours

## Application; Jack-up-system



## Innovation

### Problem

The currently used greases are rinsed away by seawater and are often unable to withstand the forces.

Regular lubrication is labour-intensive.

Environmentally harmful.

### Environment

Seawater

### Existing product

Various products

### Solution

**Interflon Grease HD2**



Jack-up-system

### Result:

- Water resistant
- Does not rinse away
- Much less lubrication



## Application; Pontoon and Split Hopper



**Pontoon De Bever**

### Problem

The currently used greases are rinsed away by water and are often unable to withstand the forces.

Regular lubrication is labour-intensive.  
Environmentally harmful.

### Existing product

Mobil HXP 222

### Solution

**Interflon Grease LS1/2**



**Split Hopper Krankeloon**



### Result:

- Water resistant
- Applicable all-round
- Does not rinse away
- Much less lubrication

## Application; Clutch and ball joint clutch



### Problem

Corrosion occurs during storage.

### Environment

Damp and salty.

### Existing product

None

### Solution

**Interflon Grease HD2 Aerosol**



### Result:

- Easy to apply with a spray can
- Corrosion resistant
- Damp-proof

## Application; SB-Winch (recovery winch) open gears

### Problem

Hardening or bleeding of the grease, considerable contamination and blackening can be seen. Unclear visual inspection.

### Existing product

Molub-Alloy

### Solution

**Interflon Grease LS2**



### Result:

- From weekly to bi-weekly lubrication
- Transparent lubrication
- Visual inspection is much clearer



## Application; Spuds

### Problem

The presently used grease does not adhere to a wet surface and will slide off with the very first movement. This causes environmental pollution and high grease consumption.

### Existing product

Tribol

### Solution

**Interflon Grease LS2**



### Result:

- Can be applied on a wet surface and has a very strong adhesion.
- Much less lubrication
- Less impact on the environment

## Application; Equipment - shaft bushings, cardans and bearings



### Bulldozers, cranes, dumpers, low-loaders and cable cranes

#### Problem

Machines: bulldozers, cranes, dumpers, low-loaders, cable cranes, etc.

Application: shaft bushings, cardans, bearings, ...

Lubrication frequency: 3 times a day by operators / was not always carried out (bad weather).

Frequently damaged shaft bushings / very difficult to disassemble (up to two days work).

High equipment and repair costs.

#### Existing product

Mobil XHP 222

#### Solution

**Interflon Grease LS2**



#### Result:

- Lubrication interval extended to weekly
- Maintenance carried out by technicians and no longer by operators
- No longer any damaged shaft bushings
- Substantial reduction in the wear process
- No more expensive repairs
- Much higher reliability of the machinery

## Application; Equipment – Central lubrication systems



### Bulldozers, cranes, dumpers, low-loaders and cable cranes

#### Problem

Application: shaft bushings, gear rings, bearings,  
lubrication frequency: ST 4 min. / WT 1 h.

Grease consumption: 6,500 L / year / the yard  
had to be visited often to refill the lubrication  
systems.

Grease often hardened in the lubricating pipes /  
expensive repairs by mobile service technicians  
(Euroquip).

Often damaged shaft bushings / very difficult to  
disassemble (up to two days work).

Expensive equipment costs and repairs

#### Existing product

Mobil XHP 222

#### Solution

**Interflon Grease LS1/2**



#### Result:

- Lubrication frequency: ST 2 min. / WT 4 h  
(reduced by a factor 8)
- Grease consumption: approximately 800 L /  
fewer stops at the workshop to fill the  
lubrication systems
- The grease is stable and does not harden /  
Euroquip interventions are a thing of the past
- Savings only in working hours: €40,000
- Substantially lower repair costs



## Application; Open gears , tracks and gear rings



### Problem

Lubrication often and with black grease that drips in the summer and crumbles in the winter. We often see rust under these greases and the teeth cannot be inspected. Rust occurs when the lubrication is insufficient.

### Existing product

Various greases

### Solution

**Interflon Grease LS2**



### Result:

- Transparent lubricating film
- Damp-proof
- The teeth are easy to inspect.
- Temperature range from -20 to + 150°C

## Application; Turntable Aquadigger H255S



### Problem

High grease consumption due to displacement and rinsing away by (sea)water.  
Consumption about 200 L every 14 days.

### Existing product

Mobil Grease XHP222

### Solution

**Interflon Grease LS2**



### Result:

- Grease consumption is reduced by 75%
- The rinsing away and displacing of the grease is a thing of the past.

## Application; Pin-bush connection Bucket



### Problem

High grease consumption because conventional grease was displaced and rinsed away by the seawater.

Wear and grease consumption pin-bush connections.

### Existing product

Mobil XHP 222

### Solution

**Interflon Grease LS2**

Interflon Grease LS2 is (sea)water resistant grease for difficult applications with heavy shock loads

### Result:

- Grease consumption is reduced by 25%
- wear of the pin-bush connection has been reduced by a factor 6



## Application; Spud carrier guides



### Problem

Conventional grease is rinsed away by (sea)water. Regular re-lubricating is a must. The wear of the guide strip was 30 mm in 6 years.

### Existing product

Mobil XHP 222

### Solution

**Interflon Grease LS2**



### Result:

- The grease consumption has decreased from about 8,000 L Mobil to 300 L Interflon Grease LS2.
- The wear of the guide strip has been reduced in 6 years to 3 mm. (10%)

## Application; Cutter shaft bearings



### Problem

Grease quickly disappears (rinsed away) and frequent lubrication is required (the grease saponifies).

High grease consumption of 8 L in 11 hours. Bearing wear, and the replacement of three cutter shaft bearings costs €14,000. Environmental pollution.

### Existing product

### Solution

**Interflon Grease LS2**



### Result:

- Consumption to 8 L a week; 80% less.
- Grease does not saponify.
- No, or almost no bearing wear
- Less environmental impact

## Application; Gland sand pump



### Reference

Lubricating the sand pump gland with Interflon Grease LS2 has had a positive effect. Upon inspection for wear of the walls, the impeller still appeared greased. On disassembly of the protective plate, the chrome rings still appeared to be properly greased. On disassembling the ring, it appeared that there was also almost no wear and the same ring was reinstalled.

### Existing product

Mobil XHP 222

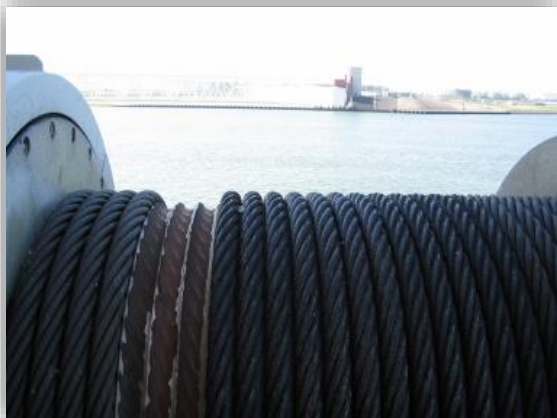
### Solution

**Interflon Grease LS2**

Grease was still intact behind the impeller. There is normally no grease here because it has been washed or rinsed away. Due to the water resistance of Interflon Grease LS2, it remained in place.



## Application; Cable lubrication



The option to lubricate with a cable greasing system.

### **Problem**

Broken cables, corrosion on cables and hardened grease. Average service life of the cables was just 2 years. Conventional grease was discharged in the water, weekly lubrication was needed resulting in high environmental impact.

### **Existing product**

Various greases and conserving oils

### **Solution**

**Interflon Grease LS2**

### **Result:**

No more rusting since Interflon Grease LS2 is being used. The cables now only have to be lubricated once every six weeks instead of weekly.

The service life of the cables has been extended from 2 to 6 years.

## Application; Polyp or bucket grab



### Problem

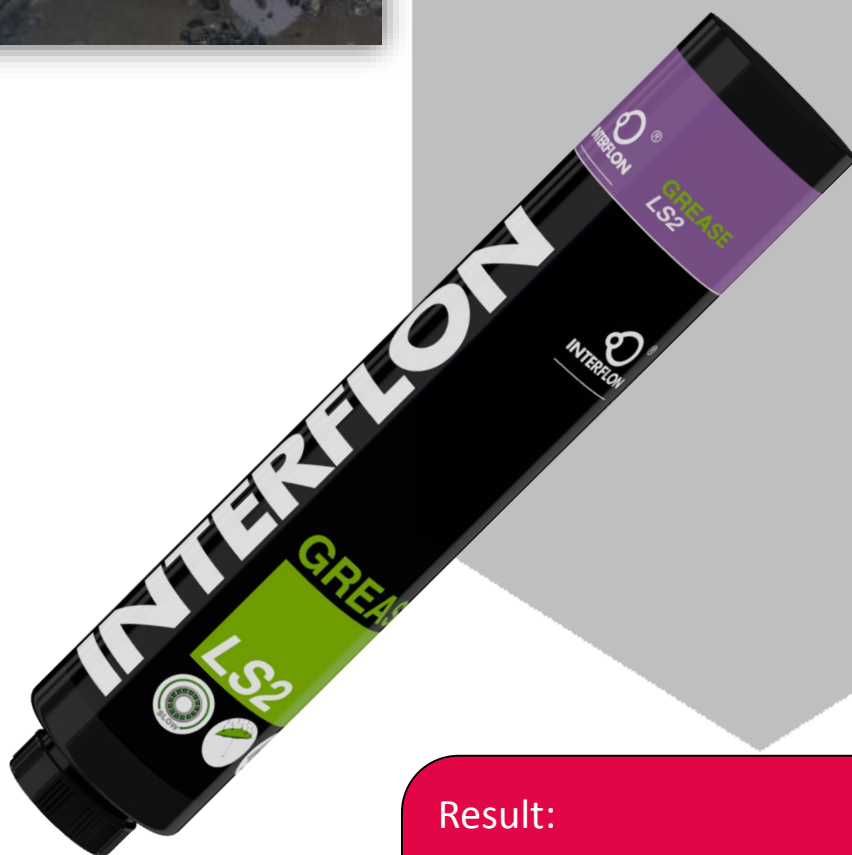
- Grease saponifies
- High grease consumption
- Wear
- Environmental pollution

### Existing product

Mobil Grease XHP222

### Solution

**Interflon Grease LS2**



### Result:

- Less consumption = 75% less.
- Grease does not saponify.
- No, or almost no bearing wear
- Much less environmental impact

## Application; Releases Polyp or bucket grabs

### Interflon Grease LS2 of LS1/2



**VERSTEGEN**  
The Grab Specialist



Greasing grabs is an essential component of proper maintenance and contributes to a reduction of maintenance costs. As such, we can inform you that the application of Interflon Grease LS2 and Interflon Grease LS1/2 is permitted for our grabs.

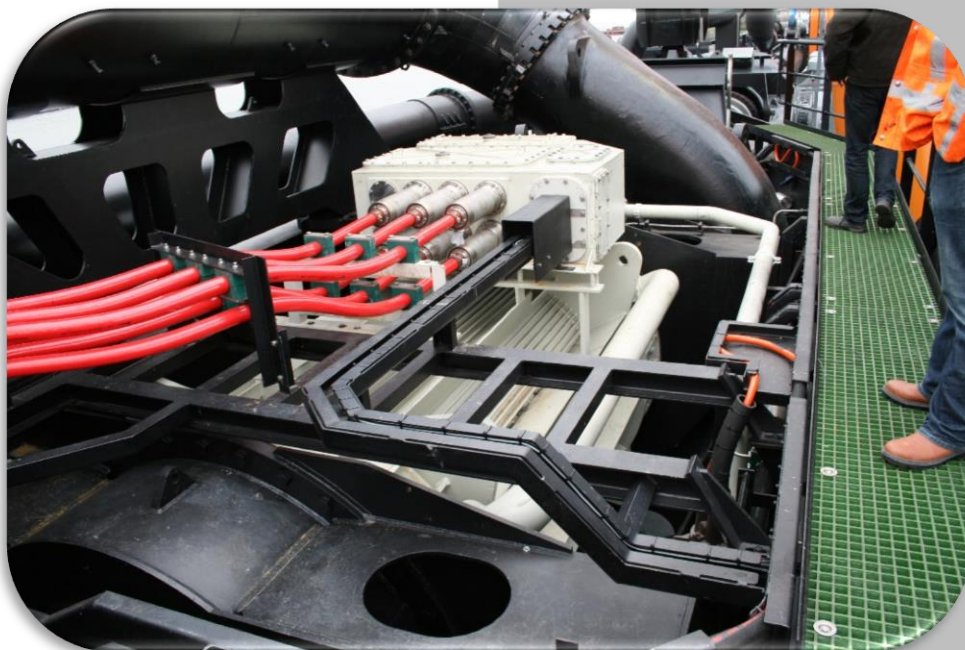


**Application; Indar Bakker oil filled submerged motor****1-5****Problem**

Mandatory to use bio-degradable oil which performs less well than mineral oil. The existing oil absorbs too much water, causing malfunctions. These malfunctions are very expensive because the motor needs to be exchanged.

**Existing product**

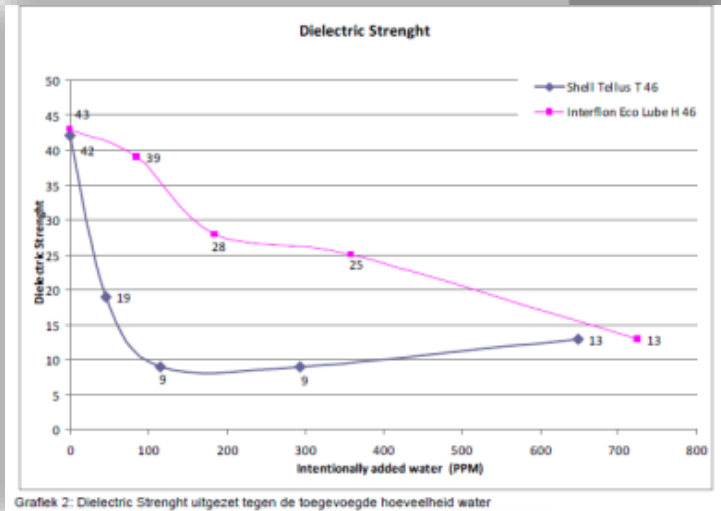
Shell Tellus T 46

**Solution****Interflon Eco Lube H46**

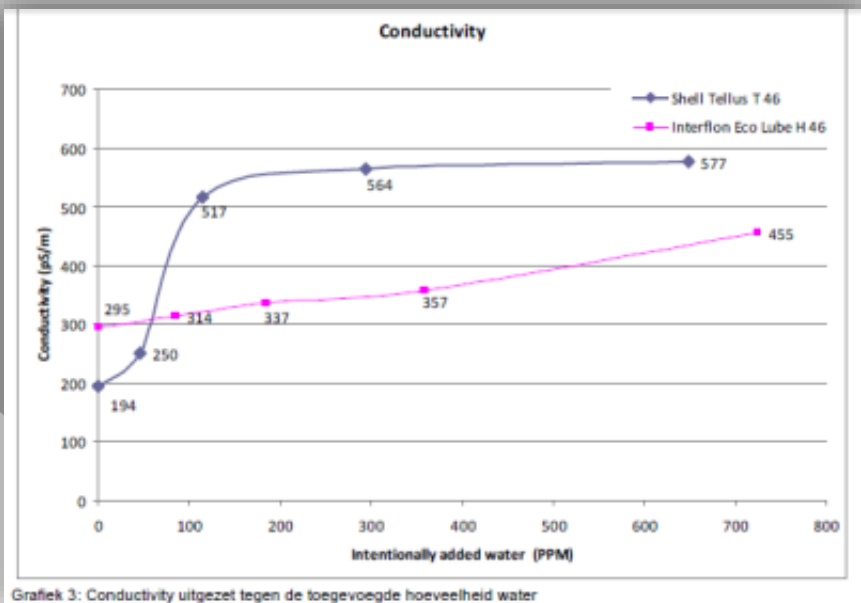
The effect of the addition of water to the Interflon Eco Lube H46 is a slight increase in the conductivity. *The measure of the conductivity of electricity.*

## Application; Indar Bakker oil filled submerged motor

2-5



From this graph we can conclude that a small amount of water substantially decreases the Dielectric Strength of the Shell Tellus T46. The effect of the addition of water to the Interflon Eco Lube H46 is a much smaller decrease of the Dielectric Strength.



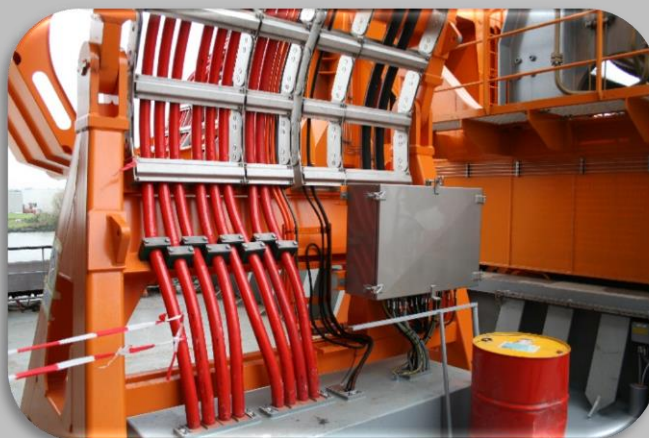
From this graph we can conclude that a small amount of water strongly increases the conductivity of the Shell Tellus T46. The effect of the addition of water to the Interflon Eco Lube H46 is a slight increase in the conductivity. *The measure of the conductivity of electricity.*

## Application; Indar Bakker oil filled submerged motor

3-5



Side view



Cabling

### LABORATORIUM RAPPORT



#### Metingen

Hieronder zijn de meetwaarden weergegeven van de hiervoor getoonde grafieken.

| Test                      | Shell Tellus T 46 |     |     |     |     | Unit               |
|---------------------------|-------------------|-----|-----|-----|-----|--------------------|
| Dielectric Strength       | 42                | 19  | 9   | 9   | 13  | kV                 |
| Conductivity              | 194               | 250 | 517 | 564 | 577 | pS/m               |
| Intentionally added water | 0                 | 46  | 115 | 294 | 649 |                    |
| Water content             | 63                | 109 | 178 | 357 | 712 | ppm                |
| Viscosity @ 40°C          | 47                | 46  | 47  | 47  | 48  | mm <sup>2</sup> /s |
| TAN ASTM D 664            | 0,5               | 0,5 | 0,5 | 0,5 | 0,6 | mgKOH/g            |

Tabel 2: Resultaten meting Dielectric Strenght en Conductivity van de Shell Tellus T 46

| Test                      | Interflon Eco Lube H 46 |     |      |      |      | Unit               |
|---------------------------|-------------------------|-----|------|------|------|--------------------|
| Dielectric Strength       | 43                      | 39  | 28   | 25   | 13   | kV                 |
| Conductivity              | 295                     | 314 | 337  | 357  | 455  | pS/m               |
| Intentionally added water | 0                       | 85  | 185  | 359  | 725  | ppm                |
| Water content             | 836                     | 921 | 1021 | 1195 | 1561 | ppm                |
| Viscosity @ 40°C          | 49                      | 49  | 49   | 49   | 49   | mm <sup>2</sup> /s |
| TAN ASTM D 664            | 1,9                     | 1,9 | 1,9  | 1,9  | 1,9  | mgKOH/g            |

Tabel 3: Resultaten meting Dielectric Strenght en Conductivity van de Interflon Eco Lube H 46



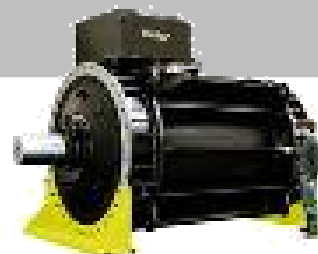
## Application; Indar Bakker oil filled submerged motor

4-5

### Press release Schip en Milieu [Ship and Environment]

The use of sustainable lubricants reduces environmental risks and, even with minimum quantities of lubricants, applications can perform to the maximum. Bakker Sliedrecht started work on this. Bram Redelijkheid, responsible for the machine department, and Arie Boer, business development manager, explain how they prepare for the future and seek maximum reliability for dredging businesses.

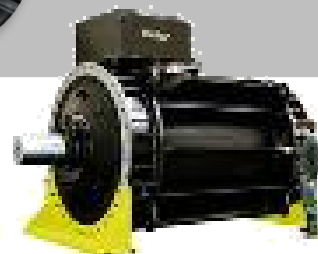
Care for the environment is becoming ever more important. Redelijkheid: "We entered into discussions with Interflon. An environmentally friendly hydraulic oil Eco Lube H46 was a possible solution. This biodegradable hydraulic oil (HEES, Hydraulic Environmental Ester Synthetic) with an extremely long service life exceeds the requirements of the ISO 15380 standard. The product provides good lubricating properties in hydraulic systems, high oxidation stability and good compatibility with just about all types of gaskets and metals. Jan de Nul was prepared to carry out a test and, together with Indar, the supplier of the submersible motors, we started. There were three identical submersible motors, so we were able to make a comparison and see whether there were any differences between conventional oil and Interflon oil. The following values were compared and evaluated: viscosity profile, dielectric strength - after the addition of water, conductivity, elastomers, water content, pour point, demulsibility (the capacity to separate oil mixed with a volume of water), compatibility and cleaning effect. Reliability is of the utmost importance for dredging businesses. Continuity in their production is a must. Stagnation has major consequences and all risks must be excluded. Extensive risk analyses are thus also part of our procedures. For dredging businesses, safety and economic interests, as well as the environment, weigh heavily in the decision making process. It is a fact that the environment is playing an increasingly important role.



**Application; Indar Bakker oil filled submerged motor****5-5****Press release Schip en Milieu [Ship and Environment]**

Boer: "My experience is that the introduction of new developments always goes in stages; also with environmentally friendly lubricants. In this respect, I am thinking of environmentally friendly bearing lubrication and the lubrication of the hydraulic systems. Interflon Eco Lube H46, made from vegetable oils, is safer to work with. This product does not contain hazardous substances and is thus less harmful for the environment. Hydraulic systems can have a volume of anywhere up to 3,000 to 5,000 L. Imagine if there is a problem with conventional oil, this could be very harmful to the environment. According to the supplier, the high-quality lubricating properties which Interflon guarantees remain secured.

"I can only say that all the tests can be evaluated positively and we support the use of this hydraulic oil in new motors. The supplier of the submersible motors also shares this opinion." Furthermore, according to Interflon the service life of the oil is five times longer and it reduces energy consumption and oil temperature. This oil is compatible with just about every type of hose. Boer: "As far as we are concerned, transitioning is not a problem. We are eager to do that together. Our Confidence in this has been confirmed. In practice, it will be proven that efficiency and respect for the environment can go hand in hand."



## Application; Interflon G-COUPLER



### Advantage:

- Hands free use during lubrication
- Does not leak, even when used at an angle
- Prevents unnecessary waste of grease
- Integrated non-return valve
- Withstands high pressure
- Easy to connect
- Can be used up to 690 bar





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# INTERFLON

## Dredging

MicPol® Lubrication Technology