

your global specialist

Contributing to environmental protection



Making our seas cleaner



The effect of marine pollution has reached dramatic proportions, particularly in coastal regions with high industrial density and along much-frequented shipping routes. It may be just a small quantity of oil entering the sea every day as it is washed off by rain and spray or escapes through leaking propeller shafts or burst hydraulic pipes. However, considering that there are thousands of ships on the seas, these small quantities cumulatively pollute the water, our most valuable resource. Despite all efforts, this cannot always be avoided.

Most lubricants used in the marine industry are based on mineral oils. Once they enter the sea, their biological degradation takes a very long time. In many docks and busy shipping routes, an oil film on the water's surface is visible proof of marine pollution. Chemical residues of lubricating oils and greases, invisible to the human eye, can enter the human food chain via fish and other seafood.



Most ships are propeller-driven, and almost all propeller shafts – whether a stern tube or a thruster – share one characteristic: they are lubricated with oil. The propeller shaft seal is in place to prevent oil from leaking into the sea and sea water from entering the stern tube or thruster gear. However, leakages at the sealing lip caused by wear or external influences can never be fully excluded.

Would the lubrication solution for propeller shafts therefore be a readily biodegradable lubricant with a non-toxic effect? Yes and no! Yes, because a readily biodegradable lubricant has less environmental impact as it degrades quicker than mineral oil into non-toxic by-products. No, because there are still no readily biodegradable lubricants which can attain the normal service life of propeller shaft seals.

Readily biodegradable oils are based on natural or synthetic ester or polyglycol oils instead of mineral oils and can harm the elastomers of propeller shaft seals if the oils themselves, or their additives, are unsuitable for the elastomer material. In addition to compatibility problems, the biodegradable oils currently available offer limited lubricating capacities, particularly when mixed with water. A readily biodegradable propeller shaft lubricant is therefore only one part of the solution.

We have the solution!

Matching the right lubricant ...

Klüber Lubrication have developed a readily biodegradable gear oil for propellers and thrusters fulfilling all requirements for environmental protection, functionality and seal compatibility:

- readily biodegradable oil according to the OECD-301-F standard
- non-toxic according to OECD 201, 202 and 203, i.e. not harmful to aquatic organisms such as algae, shellfish and fish
- high level of wear protection for rolling and plain bearings
- high level of protection against fretting damage
- offers the possibility to extend oil change intervals
- worldwide availability with consistent high quality level



... with the right elastomer seal!

Being part of the Freudenberg Technology Group, Klüber is affiliated with one of the world's leading manufacturers of elastomer seals.

Merkel Freudenberg provides, among other products, propeller shaft seals for leading OEMs. In cooperation with our sister company, we have succeeded in matching environmentally friendly gear oil with a compatible elastomer sealing material to achieve the required performance.

As the elastomer seal materials from Merkel Freudenberg are compatible with the new gear oil Klüberbio EG 2-150, propeller shaft seal lifetime does not have to be compromised.

LUBE  **seal**

Benefits of Klüberbio EG 2-150

- high-performance gear oil with excellent load-carrying capacity and wear protection for long lifetime of bearings and gear teeth
- synthetic base oil can extend the oil lifetime up to 3-4 fold compared to mineral oil, reducing operating costs and waste disposal
- tested compatibility with propeller shaft seals
- worldwide availability
- contributes to protecting the environment as it is an environmentally friendly lubricant which degrades into harmless by-products



All over the world

We are where you are

It is our aim to provide you with high-quality speciality lubricants and service with consistent high quality around the globe at any time while keeping up our high technological competence. We're achieving this aim thanks to our global network of production and sales companies as well as competent distribution partners and thanks to our highly specialised experts who are at your service when it comes to dealing with your individual enquiries.

Thinking toward the future

Beside top-quality mineral oil-based lubricants for the marine industry, we offer a comprehensive range of synthetic high-performance speciality lubricants which contribute to increased efficiency of marine equipment. Our special lubricants help to extend maintenance intervals and decrease the lubricant quantities required. For eco-friendly operators we have non-toxic, rapidly biodegradable lubricants to offer, which contribute to the sustainable protection of the seas. We generally recommend consulting our lubrication experts prior to selecting a lubricant.

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Klüber Lubrication – your global specialist

Innovative tribological solutions are our passion. Through personal contact and consultation, we help our customers to be successful worldwide, in all industries and markets. With our ambitious technical concepts and experienced, competent staff we have been fulfilling increasingly demanding requirements by manufacturing efficient high-performance lubricants for more than 80 years.



A company of the Freudenberg Group

