

Klüberbio RM 2-100, 2-150

Environmentally compatible, synthetic stern tube oils



Your benefits at a glance

- Comply with the requirements for Environmentally Acceptable Lubricants as defined in Appendix A of the EPA 2013 VGP (Vessel General Permit)
- Ultimately biodegradable and not toxic to marine organisms reducing environmental impact in the event of leakage
- FKM elastomers available from leading propeller shaft seal manufacturers are compatible and approved for use with Klüberbio RM 2 oils to prevent leakage and contamination

Your requirements - our solution

Klüberbio RM 2 oils are ultimately biodegradable oils for stern tubes based on synthetic ester oil showing good ageing and oxidation stability.

As the lubricants are biodegradable and contain carefully selected raw materials, oil loss or leakage are less dangerous to the environment.

Klüberbio RM 2 oils contain > 90 % of renewable raw materials and bear the European Ecolabel.



The EU Ecolabel is a label of environmental excellence that is awarded to products and services meeting high environmental standards throughout their life-cycle: from raw material extraction, to production, distribution and disposal.

Attaining EU Ecolabel certification provides ship owners and/or operators with independent assurance that the product achieves the U.S. EPA's requirements for classification as an Environmentally Acceptable Lubricant (EAL). Therefore, these high-performance lubricants meet the biodegradability, minimally toxic, and non-bioaccumulating standards set in Appendix A of the U.S. EPA's VGP.

Klüberbio RM 2 oils show a high shear stability and form a strong hydrodynamic oil film even when subject to high loads.

Application

Klüberbio RM 2 oils were developed for the lubrication of propeller bushes made of white metal and propeller shaft seals.

Klüberbio RM 2 oils are tested and approved by all leading propeller shaft seal manufacturers.

Please contact Klüber Lubrication or the seal manufacturer for technical consultation on your specific seal-lubricant combination.

Application notes

In general, Klüberbio RM 2 oils are miscible with mineral oil based stern tube lubricants. However, a miscibility test should be performed in order to totally rule out the possibility of an incompatibility between different additives. Prior to changeover, we recommend flushing the stern tube with the Klüberbio RM 2 oil.

Klüberbio RM 2 oils need to be approved by the OEMs of your propeller shaft seal or bearing. In case the oil has not yet been approved or the specification of the seal or bearing has been changed - e.g. type, design or material - we recommend consulting the OEM prior to the oil change.

Owing to the many different elastomer compositions of seals we recommend - prior to series application - checking the compatibility and other influencing factors that are relevant for the application with the component under conditions similar to practice.

Material safety data sheets

Material safety data sheets can be requested via our website www.klueber.com. You may also obtain them through your contact person at Klüber Lubrication.

Pack sizes	Klüberbio RM 2-100	Klüberbio RM 2-150
Canister 20 l	+	+
Drum 200 l	+	+



Klüberbio RM 2-100, 2-150

Environmentally compatible, synthetic stern tube oils

Product data	Klüberbio RM 2-100	Klüberbio RM 2-150
Article number	009031	009025
EU Ecolabel registration number	DE/027/110	DE/027/111
Lower service temperature	-10 °C / 14 °F	-10 °C / 14 °F
Upper service temperature	100 °C / 212 °F	100 °C / 212 °F
Density, DIN 51757, 20 °C	approx. 0.94 g/cm ³	approx. 0.92 g/cm ³
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus	>= 230 °C	>= 250 °C
Biodegradability according to OECD 301 F, (within 28 days)	>= 60 %	>= 60 %
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C	approx. 100 mm ² /s	approx. 150 mm ² /s
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C	approx. 14 mm ² /s	approx. 18 mm ² /s
ISO viscosity grade, DIN ISO 3448	100	150
Viscosity index, DIN ISO 2909	approx. 137	approx. 135
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust corrosion degree	no rust corrosion degree
Copper corrosion, DIN EN ISO 2160, 24 h/100°C	1 - 100 corrosion degree	1 - 100 corrosion degree
Pour point, DIN ISO 3016	<= -30 °C	<= -30 °C
Minimum shelf life from the date of manufacture - in a dry, frost-free place and in the unopened original container, approx.	36 months	36 months

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.

Klüber Lubrication München SE & Co. KG / Geisenhausenerstraße 7 / 81379 München / Germany / phone +49 89 7876-0 / fax +49 89 7876-333.

The data in this document is based on our general experience and knowledge at the time of publication and is intended to give information of possible applications to a reader with technical experience. It constitutes neither an assurance of product properties nor does it release the user from the obligation of performing preliminary field tests with the product selected for a specific application. All data are guide values which depend on the lubricant's composition, the intended use and the application method. The technical values of lubricants change depending on the mechanical, dynamical, chemical and thermal loads, time and pressure. These changes may affect the function of a component. We recommend contacting us to discuss your specific application. If possible we will be pleased to provide a sample for testing on request. Klüber products are continually improved. Therefore, Klüber Lubrication reserves the right to change all the technical data in this document at any time without notice.

Publisher and Copyright: Klüber Lubrication München SE & Co. KG. Reprints, total or in part, are permitted only prior consultation with Klüber Lubrication München SE & Co. KG and if source is indicated and voucher copy is forwarded.