

Product group: **682**      Product number: **210078**

KLÜBERBIO AG 39-602 N is an Environmentally Acceptable Lubricant (EAL) designed to protect your open gears and steel cables. Strongly adhesive, water-resistant, and anti-corrosive.



## Product information

Open gears and steel ropes operating in a maritime environment are subject to extreme loads and requirements. Saline and humid air, strong temperature fluctuations and splash water or constant contact with seawater take their toll on the equipment used.

Klüberbio 39-602 N was developed for the lubrication of open pinion gears on winches and jack-up platforms, as well as steel cables in contact with water. The product can also be used in other maritime applications that require lubricants to have good water washout resistance, very good anti-corrosion resistance and/or good load-carrying capacity e.g. in low-speed plain bearings, guide rails and open winch gears.

## Features

• Good adhesion to surfaces and excellent anticorrosive effect. • Designed with a highly effective anti-wear additive, which contributes to long component life, less lubricant consumption and labour costs. • In addition to the EU Ecolabel, Klüberbio AG 39-602 complies with the requirements for classification as an Environmentally Acceptable Lubricant (EAL) in terms of biodegradability, toxicity and bioaccumulation, as defined by the US Environmental Protection Agency for the "2013 Vessel General Permit".

## Benefits

- Meets the requirements for Environmentally Acceptable Lubricants (EAL) as defined in Appendix A of the 2013 Vessel General Permit
- Long relubrication intervals due to good adhesion and water resistance.
- Corrosion protection also under influence of seawater due to specially selected anti-corrosion additives
- Contributes to the achievement of your sustainability goals:
- Less impact on the environment due to high content of renewable raw materials
- Extended component life due to reduced wear for less strain on resources and material consumption

## Specification

General

|  |      |
|--|------|
| Invent Hazard Material (IMO/EU) classification | C-30 |
|--|------|

Dimensions/Weight

|              |        |
|--------------|--------|
| Packing Size | 180 KG |
|--------------|--------|

Performance data

|  |                          |
|--|--------------------------|
| "Copper corrosion, DIN EN ISO 2160, 24 h/100°C"  | 1 - 100 corrosion degree |
| Corrosion inhibiting properties of lubricating greases, DIN 51802, (SKF-EMCOR), test duration: 1 week, distilled water | <= 1 corrosion degree    |
| Drop point, DIN ISO 2176, IP 396 [°C]  | >= 130                   |
| FZG scuffing test, based on DIN ISO 14635, A/2,76/50, scuffing load stage  | >= 12                    |
| Lower service temperature  | -20 °C / -4 °F           |
| Oil separation, DIN 51817 N, after 7 d/40 °C   | <= 5 % by weight         |
| Upper service temperature  | 120 °C / 248 °F          |
| Water resistance, DIN 51807 pt. 01, 3 h/90 °C, rating  | 0 - 90                   |
| Worked penetration, DIN ISO 2137, 25 °C, lower limit value [mm]  | 290 x 0.1 mm             |
| Worked penetration, DIN ISO 2137, 25 °C, upper limit value [mm]  | 330 x 0.1 mm             |

Documents

[SDoC and MD for IHM](#)

Directions for use

Klüberbio AG 39-602 N can be applied continuously through transfer lubrication with pinion or by brush. Compressed-air lubrication equipment can be used for the lubrication of steel cables. The required lubricant quantity depends on the operating conditions in each individual case. Our sales engineers will be pleased to assist you in determining lubricating quantities.

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Physical properties

|  |              |
|--|--------------|
| Biodegradability of the base oil, acc. to OECD 301 F, (within 28 days) [%]                   | >= 60        |
| Colour   | Beige        |
| Density at 20°C [g/cm³]  | approx. 0.95 |
| Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s] | approx. 65   |
| Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]  | approx. 600  |
| Texture  | Homogeneous  |

Technical data

|  |              |
|--|--------------|
| Chemical composition, thickener  | Calcium soap |
| Chemical composition, type of oil  | Ester oil    |
| Flow pressure of lubricating greases, DIN 51805, test temperature: -20 °C [mbar] | ≤1400        |
| Shelf life [months]  | 36           |