

Description:

Klüberplex BE 31-102...-222...-502 are lubricating greases with a mineral base oil and a special calcium soap thickener. They offer good wear protection and a high resistance to mechano-dynamical loads.

These greases are resistant to oxidation and ageing, offer good adhesion properties and protection against tribocorrosion.

Klüberplex BE 31-102...-222...-502 offer a high resistance to water, water vapour up to 130 °C (Klüberplex BE 31-502), and to many diluted bases and acids, for example to 10% potassium lye up to 90 °C, to 10% sulphuric acid up to 70 °C, to 10% nitric acid up to 40 °C and to 1% hydrochloric acid up to 40 °C. (Tests carried out with V2A stainless steel strips based on DIN 51 807 Pt 1.)

Water resistance test in an autoclave

Water vapour 130 °C / 220 h

Klüberplex BE 31-502 shows very good resistance; loss in weight approx. – 0.1%; texture unchanged.

As compared to this positive result a mineral oil base grease with a lithium soap thickener (V_{40} approx. 520 mm²/s) shows a loss in weight of approx. 75% and a severe modification of texture after 24 h.

Notes on application:

Klüberplex BE 31-102...-222...-502 are particularly suitable for the lubrication of rolling and sliding bearings, for pivoting bearings, small gears or as sealing greases of labyrinths and industrial valves and fittings.

Application examples:

Long-term or lifetime lubrication of rolling bearings, e.g. in automotive components (water pump bearings, universal joint bushings), wet processing machines in the textile industry (festoon steamers, washing machines), spinning machines (top and bottom rollers of drafting frames), conveyor systems (load rollers in wet areas), paper machines (especially in wet sections), agricultural and construction machinery, machines in the food processing industry, as well as rolling bearings in electric motors, fans, and pumps.

Other applications:

Lubricating and sealing greases for labyrinths and industrial valves and fittings (vapour valves, spindles and thrust bearings).

Minimum shelf life:

The minimum shelf life is approx. 36 months if the product is stored in the original closed container in a dry place.

Behaviour towards synthetic materials and elastomers:

As a rule, synthetic materials and elastomers which are resistant to mineral oil or mineral oil greases show a good resistance to Klüberplex BE 31-102...-222...-502. In the interest of safety, however, we recommend checking the materials' resistance before series application.

Compatibility test with elastomer 72 NBR 902 100 °C / 168 h	Change in volume %, approx.	Change in hardness, Shore A, approx.
Klüberplex BE 31-102	– 1.6	2
Klüberplex BE 31-222	– 2.7	2
Klüberplex BE 31-502	– 2.7	2

Klüberplex BE 31-102...-222...-502

- high mechano-dynamical resistance of the lubricant film
- high wear protection
- good resistance to media
- good sealing properties
- good corrosion protection
- high resistance to oxidation and ageing
- strong adhesion to materials
- good protection against tribocorrosion
- USDA H2 authorization

Pack size:

25 kg bucket
1 kg tin

Klüberplex® BE 31-102...-222...-502

Lubricating greases for extreme requirements

Characteristic data	Klüberplex BE 31-102	Klüberplex BE 31-222	Klüberplex BE 31-502
Service temperature range*, DIN 51 825 / 51 821 (2), °C, approx.	- 20 to 120	- 15 to 140	- 10 to 140
FAG-FE 9 test, DIN 51 821 (2), n = 6000 min ⁻¹ , F _a = 1500 N, L ₅₀ basic rating life, h/°C	160/120	120/140	220/140
Flow pressure, DIN 51 805 ≤ 1400 mbar, °C, approx.	- 20	- 15	- 10
Colour	beige, brownish	beige, brownish	beige, brownish
Texture	homogeneous, fibrous	homogeneous, fibrous	homogeneous, fibrous
Density, DIN 51 757 at 20 °C, g/cm ³ , approx.	0.86	0.86	0.86
Base oil viscosity, DIN 51 561 at 40 °C, mm ² /s, approx. at 100 °C, mm ² /s, approx.	100 12	220 19	500 31
Drop point, DIN ISO 2176, °C	> 190	> 190	> 190
Speed factor** (n x d _m), mm x min ⁻¹ , approx.	500 000	400 000	50 000
Worked penetration, DIN ISO 2137, at 25 °C; 0.1 mm	265 – 295	265 – 295	245 – 275
Consistency class, DIN 51 818	2	2	2/3
Corrosion protection (Emcor-Test), DIN 51 802, 1 week, distilled water, corrosion rating	2/1	0/1	0/1

The **upper** service temperature of Klüberplex BE 31-102...-222...-502 was determined acc. to DIN 51 825 and DIN 51 821 Pt 2, the **lower** temperature was fixed acc. to DIN 51 825 und 51 805 (flow pressure 1400 mbar).

* Service temperatures are guide values which depend on the lubricant's composition, the intended use and the application method. Lubricants change their consistency, apparent dynamic viscosity or viscosity depending on the mechano-dynamical loads, time, pressure and temperature. These changes in product characteristics may affect the function of a component.

** Speed factors are guide values which depend on the type and size of the rolling bearing type and the local operating conditions, which is why they have to be confirmed in tests carried out by the user in each individual case.

Wear protection

Tests on the FAG-FE 8 rolling bearing grease tester

Angular contact ball bearing 7312 B.TP, F _a = 80 kN, P/C = 0.54 n = 7.5 min ⁻¹ , test duration: 500 h	Klüberplex BE 31-102	Klüberplex BE 31-222
Steady-state temperature, °C	40	37
Frictional torque, Nm	22.5	21
Rolling element wear, mg	0	0
Taper roller bearing 31312 A, F _a = 50 kN, P/C = 0.24 n = 75 min ⁻¹ , test duration: 500 h	Klüberplex BE 31-502	
Steady-state temperature, °C	40	...
Frictional torque, Nm	14	...
Rolling element wear, mg	13 – 37	...

The excellent wear protection characteristics of these special greases manifest themselves especially when used for the lubrication of **ball bearings** exposed to heavy loads.

In the case of **roller bearings** P/C should be smaller than < 0.15.

Klüberplex® BE 31-102...-222...-502

Safety Data Sheet

<p>1.1 Product name: Klüberplex BE 31 a) -102, b) -222, c) -502 Code-No.: a) 017 135, b) 017 132, c) 017 126 01.06.2001</p>	<p>9. Physical and chemical properties</p> <table> <tr><td>Form</td><td>paste</td></tr> <tr><td>Colour</td><td>light brown</td></tr> <tr><td>Odour</td><td>characteristic</td></tr> <tr><td>Drop point</td><td>> 190 °C, DIN ISO 2176</td></tr> <tr><td>Flash point</td><td>a), b) > 200, c) 300 °C (base oil)</td></tr> <tr><td>Ignition temperature</td><td>not applicable</td></tr> <tr><td>Lower explosion limit</td><td>not applicable</td></tr> <tr><td>Upper explosion limit</td><td>not applicable</td></tr> <tr><td>Vapour pressure-first</td><td>not applicable</td></tr> <tr><td>Density</td><td>approx. 0.96 g/cm³, 20 °C</td></tr> <tr><td>Water solubility</td><td>insoluble</td></tr> <tr><td>pH value</td><td>not applicable</td></tr> <tr><td>Kinematic viscosity</td><td>not applicable</td></tr> <tr><td>Further information</td><td>none</td></tr> </table>	Form	paste	Colour	light brown	Odour	characteristic	Drop point	> 190 °C, DIN ISO 2176	Flash point	a), b) > 200, c) 300 °C (base oil)	Ignition temperature	not applicable	Lower explosion limit	not applicable	Upper explosion limit	not applicable	Vapour pressure-first	not applicable	Density	approx. 0.96 g/cm ³ , 20 °C	Water solubility	insoluble	pH value	not applicable	Kinematic viscosity	not applicable	Further information	none
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<p>1.2 Klüber Lubrication München KG Emergency telephone no.: Geisenhausenerstraße 7 ++49 - 89 7876 - 0 D-81379 München Tel. ++49 - 89 78 76 - 0 telephone exchange Fax: ++49 - 89 78 76 - 333</p>																													
<p>2. Composition / information on ingredients Chemical characterization (preparation): Mineral oil, special calcium soap</p>																													
<p>3. Hazards identification No particular hazards known</p>																													
<p>4. First aid measures After inhalation: Not applicable After contact with skin: Wash off with soap and plenty of water After contact with eyes: Rinse with plenty of water After ingestion: Do not induce vomiting. Obtain medical attention Advice to doctor: Treat symptomatically</p>																													
<p>5. Fire-fighting measures Suitable extinguishing media: Water spray, foam, dry powder, carbon dioxide (CO₂) Unsuitable extinguishing media: High volume water jet Special Hazards: In case of fire the following can be released: Carbon monoxide, hydrocarbons Special protective equipment for firefighters: Standard procedure for chemical fires Additional information: Water mist may be used to cool closed containers. In the event of fire and/or explosion do not breathe fumes</p>																													
<p>6. Accidental release measures Personal precautions: Not required Environmental precautions: Do not flush into surface water or sanitary sewer system Methods for cleaning up / taking up: Use mechanical handling equipment. Dispose of absorbed material in accordance with the regulations Additional information: None</p>																													
<p>7. Handling and storage Advice on safe handling: No special handling advice required Advice on protection against fire and explosion: No special precautions required Requirements on storage rooms and vessels: Store at room temperature in the original container Incompatible materials: Incompatible with oxidizing agents. Do not store together with food Further information on storage conditions: None</p>																													
<p>8. Exposure controls / personal protection Additional advice on system design: Not applicable Ingredients and specific control parameters: None Respiratory protection: No special protective equipment required Hand protection: No special protective equipment required Eye protection: No special protective equipment required Body protection: No special protective equipment required Other protection measures: No special protective equipment required General protection and hygiene measures: Avoid prolonged and/or repeated contact with skin. Remove soiled or soaked clothing immediately. Clean skin thoroughly after work; apply skin cream</p>																													
	<p>10. Stability and reactivity Conditions to avoid: None Materials to avoid: Strong oxidizing agents Hazardous decomposition products: None under normal use Additional information: None</p>																												
	<p>11. Toxicological information The toxicological data has been taken from products of similar composition Acute toxicity: LD₅₀/oral/rat = > 2 g/kg (literature data) Chronic toxicity: None Human experience: Prolonged skin contact may cause skin irritation and/or dermatitis</p>																												
	<p>12. Ecological information Information on elimination (persistence and degradability): Product is insoluble in water. May be separated out mechanically in purification plants Behaviour in environmental compartments: Ecological injuries are not known or expected under normal use Ecotoxic effects: Aquatic toxicity is unlikely due to low solubility Additional information: Should not be released into the environment</p>																												
	<p>13. Advice on Disposal Code of waste: 120 112, Wastes from shaping and surface treatment of metals and plastics; wastes from shaping (including forging, welding, pressing, drawing, turning, cutting and filling); spent waxes and fats Disposal: Can be incinerated when in compliance with local, state and federal regulations. The code of waste has to correspond to the Council Directive 75/442/EEC and be specific as far as the related sector and process are concerned Dispose of contaminated packaging and recommended cleaning: Offer rinsed packaging material to local recycling facilities</p>																												
	<p>14. Transport information</p> <table> <tr><td>GGVS / GGVE:</td><td>not applicable</td></tr> <tr><td>ADN / ADN:</td><td>not applicable</td></tr> <tr><td>IMDG-Code:</td><td>not applicable</td></tr> <tr><td>ICAO / IATA-DGR:</td><td>not applicable</td></tr> </table> <p>Further information: Not classified as dangerous in the meaning of transport regulations</p>	GGVS / GGVE:	not applicable	ADN / ADN:	not applicable	IMDG-Code:	not applicable	ICAO / IATA-DGR:	not applicable																				
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	<p>15. Regulatory information Labelling according to EU-guidelines: The product does not require a hazard warning label in accordance with EC-directives/German regulations on dangerous substances National regulations</p>																												
	<p>16. Other information Issue-department of Safety Data Sheet: Chemical Documentation, Tel.: ++49 - 89 7876 - 564</p>																												

The data in this product information is based on our general experience and knowledge at the time of printing 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 tests with the selected product. We recommend contacting our Technical Consulting Staff to discuss your specific application. If required and possible we will be pleased to provide a sample for testing. Klüber products are continually improved. Therefore, Klüber Lubrication reserves the right to change all the technical data in this product information at any time without notice.



Klüber Lubrication München KG, a member of the Freudenberg group