

# Klüberpaste® 46 MR 401

## White multi-purpose lubricating paste



### Description:

Klüberpaste 46 MR 401 is a white to ivory lubricating paste with a synthetic base oil, lithium soap and special solid lubricant additives.

The raw materials contain no lead, cadmium, nickel, sulphur or halogens.

This paste is suitable for long-term and lifetime lubrication, as an assembly lubricant and for lubrication points subject to fretting corrosion.

It has a wide service temperature range\* from approx. – 40 to 150 °C, shows neutral behaviour towards non-ferrous metals, many plastic materials and rubber, and has a good load-carrying capacity.

### Application:

Klüberpaste 46 MR 401 is especially suitable as an assembly lubricant in press-on processes and as a thin-film lubricant for all friction points subject to very high pressure, low sliding speed, increased wear, stick-slip, oscillating movements, vibrations and tribo-corrosion.

The paste's application ranges includes: pressing in of pins and bolts, mounting of rolling bearings, wheels and flanges, lubrication of rolling and plain bearings operating at very low speeds, for threaded spindles, spline shafts and adjusting screws to prevent running-in damage and stick-slip, for ball-and-socket joints, pin suspensions, screw connections made of CrNi steel, rotary shaft seals (O-ring seals, V-ring gaskets, collars) made of rubber materials to extend the service life.

### Application notes:

Before applying Klüberpaste 46 MR 401 it is important to clean the contact surfaces and remove any solvent residues with a clean, dry cloth.

Klüberpaste 46 MR 401 can be easily applied to the entire surface in a thin layer with a spatula. It is important to avoid over-lubrication.

Before applying the paste to a plastic material we recommend carrying out a compatibility test.

### Minimum shelf life:

The minimum shelf life is approx. 24 months if the product is stored in the original closed container in a dry place.

### Pack sizes:

60 g tube  
600 g cartridge  
0.75 kg can  
30 kg drum

### Klüberpaste 46 MR 401

- White high-performance lubricating paste
- Facilitates assembly and disassembly
- Protects from running-in damage and prevents seizure
- Has a very high load-carrying capacity
- Improves lubrication in case of oscillating movements or vibrations – provides protection against tribo-corrosion
- Is resistant to water and is not washed out
- Provides good corrosion protection
- Free of metal

### Product data:

Colour, appearance	white, ivory
Service temperature range*, °C, approx.	– 40 – 150
Base oil viscosity, DIN 51 561, at 40 °C, mm <sup>2</sup> /s	350 – 375
Drop point, DIN ISO 2176, °C	> 185
Worked penetration at 25 °C, DIN ISO 2137, (ASTM D 217); 0.1 mm	300 – 340
Corrosion protection SKF-Emcor test, DIN 51 802, 1 week, distilled water, corrosion rating	0/1
Copper corrosion, DIN 51 811, after 24 h / 100 °C, corrosion rating	< 2 / 100
Four-ball test, welding force, DIN 51 350 Pt 4, N	> 5000
Friction coefficient in screw connections Screw M 10-8.8, black, final-quenched Nut M 10-8, bright	$\mu_{\text{head}} = 0.15$ $\mu_{\text{thread}} = 0.14$

\* 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 mechanical loads, time, pressure and temperature. These changes in product characteristics may affect the function of a component.

# Klüberpaste® 46 MR 401

## Safety Data Sheet

<b>1.1 Product name: Klüberpaste 46 MR 401</b> <b>Code-No.: 005 108</b> <b>16.01.2001</b>	<b>9. Physical and chemical properties</b> Form: paste Colour: off-white Odour: characteristic Drop point: > 185 °C, DIN ISO 2176 Flash point: > 200 °C (base oil) Ignition temperature: not applicable Lower explosion limit: not applicable Upper explosion limit: not applicable Vapour pressure-first: not applicable Density: approx. 1.23 g/cm <sup>3</sup> , 20 °C Water solubility: insoluble pH value: not applicable Kinematic viscosity: not applicable Further information: none
<b>1.2 Klüber Lubrication München KG</b> Geisenhausenerstraße 7 D-81379 München Tel. ++49 - 89 78 76 - 0 telephone exchange Fax: ++49 - 89 78 76 - 333 <b>Emergency telephone no.: ++49 - 89 7876 - 0</b>	<b>10. Stability and reactivity</b> Conditions to avoid: None Materials to avoid: Strong oxidizing agents Hazardous decomposition products: None under normal use Additional information: None
<b>2. Composition / information on ingredients</b> Chemical characterization (preparation): Polyalkylene glycol oil, lithium soap, solid lubricants (e.g. phosphates)	<b>11. Toxicological information</b> The toxicological data has been taken from products of similar composition Acute toxicity: LD <sub>50</sub> /oral/rat = > 2 g/kg (literature data) Chronic toxicity: None Human experience: Prolonged skin contact may cause skin irritation and/or dermatitis
<b>3. Hazards identification</b> No particular hazards known	<b>12. Ecological information</b> 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
<b>4. First aid measures</b> 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	<b>13. Advice on Disposal</b> Disposal: Can be incinerated when in compliance with local, state and federal regulations Dispose of contaminated packaging and recommended cleaning: Offer rinsed packaging material to local recycling facilities
<b>5. Fire-fighting measures</b> Suitable extinguishing media: Water spray, foam, dry powder, carbon dioxide (CO <sub>2</sub> ) 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	<b>14. Transport information</b> GGVS / GGVE: not applicable ADN / ADN: not applicable IMDG-Code: not applicable ICAO / IATA-DGR: not applicable Further information: Not classified as dangerous in the meaning of transport regulations
<b>6. Accidental release measures</b> 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	<b>15. Regulatory information</b> 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
<b>7. Handling and storage</b> 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	<b>16. Other information</b> Issue-department of Safety Data Sheet: Chemical Documentation, Tel.: ++49 - 89 7876 - 564
<b>8. Exposure controls / personal protection</b> 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	

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