

UNIMOLY® CP

Thermosetting dry lubricant for tribo systems



Description:

UNIMOLY CP is a thermosetting, reddish brown dry lubricant for tribo systems with an MoS₂ (molybdenum disulfide) base and an organic binding agent.

UNIMOLY CP is a fluid, ready-to-use product containing a mixture of solvents classified into the A II group according to the relevant statutory order on combustible liquids.

Once applied and hardened, this dry lubricant for tribo systems is very resistant to wear, chemicals and oils, has a wide temperature range and ensures that there is not stick-slip at low speeds.

Owing to the MoS₂ solid lubricant content, UNIMOLY CP has a very good load-carrying capacity.

Application:

UNIMOLY CP reduces friction and wear in metal/metal sliding contacts. It is especially suitable as an inexpensive coating for small mass items, e.g. straight pins, studs, safety belt components, nuts, bolts and similarly shaped items.

It is also suitable for components used in electrical engineering, precision engineering and in textile machines, where PTFE-containing products are not suitable due to the high pressures.

Application notes:

Stir or shake well before use. UNIMOLY CP can be applied by immersion, spraying or by brush. Other types of application are indicated upon request.

The surfaces to be coated must be cleaned/degreased and be completely free from oil, grease, water, corrosion and scale.

Roughening of the surface by means of sand blasting is recommended to increase adhesion. Chemical pretreatment, as e.g. phosphatizing, also results in very good adhesion, which is especially important in cases where increased anticorrosive properties are called for.

When applying UNIMOLY CP by spraying, use a lacquer spray gun.

Other application conditions:

Feed pressure: 2 bar
Spraying distance: approx. 20 cm
Nozzle diameter: 0.8 mm

Ensure that only pressurized air is used which is free from oil and water.

In the case of spraying by hand, it is recommended to apply the product in a zig-zag pattern. When spraying systems are used, an agitator should be installed in the container to prevent the solid particles from settling.

When applying the product by immersion, use containers which are resistant to solvents.

The recommended film thickness for tribological loads is between 5 and 20 µm.

For cleaning the spray gun and, if required, diluting UNIMOLY CP, the Solutin C 8 diluting and cleaning agent can be used.

UNIMOLY CP is ready to handle after approx. 30 min at 25 °C. The thermosetting process requires the component to be heated to 180 °C for 60 min.

UNIMOLY CP

- Dry lubricant for tribo systems with metal/metal sliding contact
- Very good load-carrying capacity
- Good resistance to wear
- Prevents stick-slip
- Good resistance to chemicals and oil

Minimum shelf life:

The minimum shelf life is approx. 12 months if the product is stored in the original closed container in a dry place at 20 °C.

Package sizes:

1 l can
20 l drum

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Product data:

Colour	red-brown
Service temperature [°C]*	– 40 to 220
Service life in continuous operation* (pin/disk, 20 °C, v = 10 m/min, F = 10 N) Sliding distance [m]	132
Elasticity in acc. with bending test, tested with a coating thickness of 7 µm, DIN 53 152 (ISO 1519) 2 mm mandrel (steel DIN 1544), a) 20 °C, b) – 40 °C 10 mm mandrel, – 40 °C	a) passed b) failed passed
Cross-cut adhesion test, DIN 53 151	cross cut 0
Stick-slip in acc. with Tannert, 20 °C, V _{max} = 0.243 mm/s, F = 300 N	none
Ready to handle at ... [°C] / after ... [min]	25 / 30
Burning-in temperature [°C] / hardening time [min]	180 / 60
Resistance to wear (in acc. with Reichert), 20 °C, v = 1.8 m/s, F = 100 N, sliding distance [m]	22
Friction coefficient in acc. with Tannert, 20 °C, V _{max} = 0.243 mm/s, F = 300 N	0.12
Friction coefficient measured with pin/disk, 20 °C, v = 10 m/min, F = 10 N	0.16
Resistance to distilled water, tested with a coating thickness of 15 µm, DIN EN 3026, St 1303, DIN 1623, a) steel St 1303, DIN 1623 b) hot galvanized steel, c) aluminium (DIN EN 2091), [h]	a), b), c) > 500
Anti-corrosion, tested with a coating thickness of 15 µm, DIN 50 021, ISO 3768, test sheet a) bright steel, b) zinc-phosphated steel, c) sandblasted steel, [h]	a) < 50 b) < 70 c) < 50
Resistance to chemicals, tested with a coating thickness of 15 µm, DIN 53 168, test sheet of steel St 37 and steel St 1303 in acc. with DIN 1623, a) bright steel, b) zinc-phosphated steel, [h] 0.1 n hydrochloric acid 0.1 n caustic soda blended mineral oil diester oil	a) < 150, b) < 250 a), b) 400 a), b) 500 a), b) 500
Yield at 10 µm coating thickness, [m ² /l], approx.	16

¹⁾ The indicated temperature refers to the component.

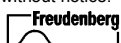
* Service temperatures are guide values which depend on the lubricant's composition, the intended use and the application method. Lubricants change their consistency, apparent dynamic viscosity or viscosity depending on the mechano-dynamical loads, time, pressure and temperature. These changes in product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

UNIMOLY® CP

Safety Data Sheet

<p>1.1 Product name: UNIMOLY CP Code-No.: 099 098 03.07.2000</p>	<p>General protection and hygiene measures: Clean skin thoroughly after work; apply skin cream. Remove soiled or soaked clothing immediately. Do not breath vapours or spray mist</p>																									
<p>1.2 Klüber Lubrication München KG Geisenhausenerstraße 7 D-81379 München Tel. ++49 - 89 78 76 - 0 telephone exchange Fax: ++49 - 89 78 76 - 333</p> <p>Emergency telephone no.: ++49 - 89 7876 - 0</p>	<p>9. Physical and chemical properties</p> <p>Form liquid Colour red brown Odour ester-like Boiling point > 140 °C methoxypropylacetate Flash point approx. 30 °C, DIN ISO 1516 Ignition temperature approx. 270 °C methoxypropylacetate Lower explosion limit approx. 1.5 Vol.% methoxypropylacetate Upper explosion limit approx. 10.0 Vol.% Vapour pressure-first approx. 3.8 hPa, 25 °C methoxypropylacetate Density approx. 1.08 g/cm³, 20 °C, DIN 51 757 Water solubility insoluble pH value not applicable Outdoor time approx. 48 s, DIN EN ISO 2431 Further information Run-out time (DIN-cup) determined with nozzle: 3 mm</p>																									
<p>2. Composition / information on ingredients Chemical characterization (preparation): Solid lubricants (MoS₂), organic binding agent, solvent (ester, alcohol) Hazardous ingredients</p> <table border="1"> <thead> <tr> <th>CAS-No.</th> <th>Components</th> <th>Value</th> <th>Symbols</th> <th>R-phrases</th> </tr> </thead> <tbody> <tr> <td>123-86-4</td> <td>n-butyl acetate</td> <td>~ 10%</td> <td></td> <td>10-66-67</td> </tr> <tr> <td>71-36-3</td> <td>1-butanol</td> <td>5 – 10%</td> <td>Xn</td> <td>10-22-37/38-41-67</td> </tr> <tr> <td>108-65-6</td> <td>methoxypropylacetate</td> <td>~ 35%</td> <td>Xi</td> <td>10-36</td> </tr> <tr> <td>64742-95-6</td> <td>mineral oil distillate</td> <td>5 – 10%</td> <td>Xn, N</td> <td>10-51/53-65</td> </tr> </tbody> </table>	CAS-No.	Components	Value	Symbols	R-phrases	123-86-4	n-butyl acetate	~ 10%		10-66-67	71-36-3	1-butanol	5 – 10%	Xn	10-22-37/38-41-67	108-65-6	methoxypropylacetate	~ 35%	Xi	10-36	64742-95-6	mineral oil distillate	5 – 10%	Xn, N	10-51/53-65	<p>10. Stability and reactivity Conditions to avoid: Do not heat above flash point Materials to avoid: Strong oxidizing agents Hazardous decomposition products: None under normal use Additional information: None</p>
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123-86-4	n-butyl acetate	~ 10%		10-66-67																						
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64742-95-6	mineral oil distillate	5 – 10%	Xn, N	10-51/53-65																						
<p>3. Hazards identification Xn – Harmful. R phrases: 10-21/22-36/38. Flammable. Harmful in contact with skin and if swallowed. Irritating to eyes and skin. Vapours may form explosive mixture with air</p>	<p>11. Toxicological information Prolonged skin contact may cause skin irritation and/or dermatitis. Solvents may degrease the skin</p>																									
<p>4. First aid measures After inhalation: Move to fresh air. If symptoms persist, call a physician 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. If swallowed or in the event of vomiting, risk of product entering the lungs</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>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>13. Advice on Disposal 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</p>																									
<p>6. Accidental release measures Personal precautions: Ensure adequate ventilation. Remove all sources of ignition Environmental precautions: Do not flush into surface water or sanitary sewer system Methods for cleaning up / taking up: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Dispose of absorbed material in accordance with the regulations Additional information: None</p>	<p>14. Transport information GGVS / GGVE: Cl. 3, no. 31 c Name: Esters, n.o.s. (Butylacetate, Methoxypropylacetate) ADN / ADN: not classified IMDG-Code: Class 3.3 UN number: 3272 UN packaging group: III EMS: 3-07 MFAG: MFAG 4.2 No Marine-pollutant Name: Esters, n.o.s. (Butylacetate, Methoxypropylacetate) ICAO / IATA-DGR: Class 3 UN / ID number: 3272 ICAO-packaging group: III Name: Esters, n.o.s. (Butylacetate, Methoxypropylacetate) Further information: None</p>																									
<p>7. Handling and storage Advice on safe handling: Use only in well-ventilated areas Advice on protection against fire and explosion: Keep away from sources of ignition – No smoking. Take precautionary measures against static discharges. Vapours may form explosive mixture with air Requirements on storage rooms and vessels: No special storage conditions required Incompatible materials: Incompatible with oxidizing agents. Do not store together with food Further information on storage conditions: Keep in a well-ventilated place. Keep away from heat</p>	<p>15. Regulatory information Labelling according to EU-guidelines: The product is classified and labelled in accordance with EC-directives/German regulations on dangerous substances Hazards: Xn – Harmful Hazardous component(s) to be indicated on label: Cresol (o,m,p) R phrases: 10-21/22-36/38. Flammable. Harmful in contact with skin and if swallowed. Irritating to eyes and skin S phrases: 23-39-45-51-62-36/37. Do not breathe vapours. Wear eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Use only in well-ventilated areas. If swallowed, do not induce vomiting: Seek medical advice immediately and show this container or label. Wear suitable protective clothing and gloves National regulations</p>																									
<p>8. Exposure controls / personal protection Additional advice on system design: Provide appropriate exhaust ventilation at machinery Ingredients and specific control parameters: TLV value of n-butyl acetate: 200 ml/m³ (Germany). TLV value of 1-butanol: 100 ml/m³ (Germany). TLV value of methoxypropylacetate: 50 ml/m³ (Germany) Observe your national control parameters Respiratory protection: No special protective equipment required Hand protection: Protective gloves Eye protection: Safety glasses Body protection: Protective suit Other protection measures: No special protective equipment required</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