

# Klüberdur KM 02-854

## Two-component tribo-system material



### Description:

Klüberdur KM 02-854 is a dark grey tribo-system material. Its basis is a two-component system with a solid lubricant combination consisting mainly of graphite and incorporated lubricating oil.

The two-component system is pasty before use.

Upon mixing, component A (resin) and component B (hardener) become solid. Klüberdur KM 02-854, the hardened product, stands out for its strength.

Klüberdur KM 02-854 has several advantages: Adhesion is excellent, and the product is resistant to temperatures between – 40 and 200 °C. It is very resistant to wear, has good emergency running and sliding properties and counteracts stick slip.

### Fields of application:

Klüberdur KM 02-854 is a very efficient tribo-system material for

- *plain bearings*  
to fill lubricating holes, recesses and grooves; it can make a plain bearing a maintenance-free dry-running bearing
- *slide and guide rails*  
for priming, pre-start lubrication or repair of surface damage
- *dry-running bearings*  
for mechanically producing liners, disks and strips from the hardened product.

### Application notes:

The metallic surfaces should be free from dust, grease and oxides prior to application.

The mixing ratio of component A and component B is 1:1.

The component B should be stirred into component A slowly and carefully by means of an agitator (worm, agitating disk, dissolver disk). Temperature increases to > 60 °C due to faulty mixing may result in gelling of the product.

Prior to hardening, the preferred tool cleaning agent is butyl acetate. Afterwards, the tools can only be cleaned mechanically.

The product is usually applied and spread with a spatula. Alternative methods of application should be discussed with our Technical Service.

After application the product has to be hardened for 2 hours at a component temperature of 100 °C. It will then harden completely at 200 °C within approx. 2 hours.

### Klüberdur KM 02-854

- lubricant and material
- reduces friction
- reduces wear
- lubricant with emergency-running properties
- material with dry-running properties
- sandwich-lubrication possible
- friction components can be manufactured mechanically
- resistant to oil and grease
- resistant to water

### 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.

### Package sizes:

Klüberdur KM 02-854-A and Klüberdur KM 02-854-B in 7 kg buckets

### Product data:

Colour	component A: dark grey component B: dark grey
Density	component A: approx. 1,36 g/cm <sup>3</sup> component B: approx. 1,34 g/cm <sup>3</sup>
Potlife, DIN 16 921, after mixing A and B	approx. 4 days
Service temperature range*	– 40 to 200 °C
Friction coefficient in accordance with Tannert, line contact with steel, 30 N/mm, $v_{max} = 0.243$ mm/s at approx. 20 °C at 120 °C	0.05 (no stick slip) 0.18 (no stick slip)

\* 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.

# Klüberdur KM 02-854 Komponente A

## Safety Data Sheet

1.1	<b>Product name: Klüberdur KM 02-854 Komponente A</b> <b>Code-No.: 856 619</b> <b>27.8.1999</b>														
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		<b>Emergency telephone no.: ++49 - 89 7876 - 0</b>												
2.	<b>Composition / information on ingredients</b> Chemical characterization (preparation): Epoxide resin, solid lubricants (e.g. graphite), ester oil Hazardous ingredients <table><tr><td>CAS-No.</td><td>Components</td><td>Value</td><td>Symbols</td><td>R-phrases</td></tr><tr><td>25068-38-6</td><td>epoxide resin</td><td>~ 40%</td><td>Xi,N</td><td>43-36/38-51/53</td></tr></table>					CAS-No.	Components	Value	Symbols	R-phrases	25068-38-6	epoxide resin	~ 40%	Xi,N	43-36/38-51/53
CAS-No.	Components	Value	Symbols	R-phrases											
25068-38-6	epoxide resin	~ 40%	Xi,N	43-36/38-51/53											
3.	<b>Hazards identification</b> Xi – Irritant. R phrases: 43-36/38. May cause sensitization by skin contact. Irritating to eyes and skin. Contains epoxy constituents. See information supplied by the manufacturer														
4.	<b>First aid measures</b> After inhalation: Not applicable After contact with skin: Wash off with soap and plenty of water. If symptoms persist, call a physician After contact with eyes: Rinse with plenty of water. If symptoms persist, call a physician After ingestion: Rinse mouth. Obtain medical attention Advice to doctor: Treat symptomatically														
5.	<b>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, traces of HCl 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														
6.	<b>Accidental release measures</b> Personal precautions: Wear personal protective equipment 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														
7.	<b>Handling and storage</b> Advice on safe handling: Avoid contact with skin, eyes and clothing Advice on protection against fire and explosion: No special precautions required Requirements on storage rooms and vessels: No special storage conditions required Incompatible materials: Do not store together with food Further information on storage conditions: Store at room temperature in the original container														
8.	<b>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: Protective gloves (PVC or rubber) Eye protection: Safety glasses Body protection: Protective suit Other protection measures: No special protective equipment required General protection and hygiene measures: Remove soiled or soaked clothing immediately. Clean skin thoroughly after work; apply skin cream.														

<b>9. Physical and chemical properties</b> Form: paste Colour: grey-black Odour: mild Flash point: not applicable °C Flammability: not applicable °C Ignition temperature: not applicable °C Autoflammability: not applicable Lower explosion limit: not applicable Upper explosion limit: not applicable Vapour pressure-first: not applicable Density: approx. 1.36 g/cm <sup>3</sup> , 20 °C Water solubility: insoluble, g/l pH value: not applicable Kinematic viscosity: not applicable Further information: None
<b>10. Stability and reactivity</b> Conditions to avoid: None Materials to avoid: Bases, alcohols, amines Hazardous decomposition products: None under normal use Additional information: None
<b>11. Toxicological information</b> Human experience: May cause eye/skin irritation. May cause sensitisation by skin contact
<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: R51/53 – Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment (epoxide resin) Additional information: Should not be released into the environment
<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>14. Transport information</b> GGVS / GGVE: Cl.9, no.12c Name: Environmentally hazardous substances, solid, n.o.s. (epoxide resin) ADN / ADN: not classified IMDG-Code: 9 UN number: 3077 UN packaging group: III EMS: – MFAG: –, No Marine-pollutant Name: Environmentally hazardous substances, solid, n.o.s. (Epoxide resin) ICAO / IATA-DGR: 9 UN / ID number: 3077 ICAO-packaging group: III Name: Environmentally hazardous substances, solid, n.o.s. (Epoxide resin) Further information: None
<b>15. Regulatory information</b> Labelling according to EU-guidelines: The product is classified and labelled in accordance with EC-directives/German regulations on dangerous substances Hazards: Xi – Irritant Hazardous component(s) to be indicated on label: Epoxide resin R phrases: 43-36/38. May cause sensitization by skin contact. Irritating to eyes and skin S phrases: 28-37/39. After contact with skin, wash immediately with plenty water and soap. Wear suitable protective gloves and eye/face protection National regulations: Contains epoxy constituents. See information supplied by the manufacturer
<b>16. Other information</b> Issue-department of Safety Data Sheet: Chemical Documentation, Tel.: ++49 - 89 7876 - 564

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.



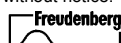
Klüber Lubrication, a member of the Freudenberg group

# Klüberdur KM 02-854 Komponente B

## Safety Data Sheet

<div>1.1</div> <div>Product name: Klüberdur KM 02-854 Komponente B</div> <div>Code-No.: 856 620</div> <div>27.8.1999</div>	<div>Hand protection: Protective gloves (PVC or rubber)</div> <div>Eye protection: Safety glasses</div> <div>Body protection: Protective suit</div> <div>Other protection measures: No special protective equipment required</div> <div>General protection and hygiene measures: Remove soiled or soaked clothing immediately. Clean skin thoroughly after work; apply skin cream. Do not inhale aerosol</div>										
<div>1.2</div> <div>Klüber Lubrication München KG</div> <div>Geisenhausenerstraße 7</div> <div>D-81379 München</div> <div>Tel. ++49 - 89 78 76 - 0 telephone exchange</div> <div>Fax: ++49 - 89 78 76 - 333</div> <div>Emergency telephone no.: ++49 - 89 7876 - 0</div>											
<div>2.</div> <div>Composition / information on ingredients</div> <div>Chemical characterization (preparation): Special hardener, solid lubricants (e.g. graphite), ester oil</div> <div>Hazardous ingredients</div> <table><tr><th>CAS-No.</th><th>Components</th><th>Value</th><th>Symbols</th><th>R-phrases</th></tr><tr><td>123748-85-6</td><td>1-Methyl-5-norbornene-2,3-dicarboxylic acid anhydride</td><td>~ 45%</td><td>Xn</td><td>22-36/37/38-42</td></tr></table>	CAS-No.	Components	Value	Symbols	R-phrases	123748-85-6	1-Methyl-5-norbornene-2,3-dicarboxylic acid anhydride	~ 45%	Xn	22-36/37/38-42	<div>9.</div> <div>Physical and chemical properties</div> <div>Form</div> <div>paste</div> <div>Colour</div> <div>grey-black</div> <div>Odour</div> <div>characteristic</div> <div>Flash point</div> <div>not applicable °C</div> <div>Flammability</div> <div>not applicable °C</div> <div>Ignition temperature</div> <div>not applicable °C</div> <div>Autoflammability</div> <div>not applicable</div> <div>Lower explosion limit</div> <div>not applicable</div> <div>Upper explosion limit</div> <div>not applicable</div> <div>Vapour pressure-first</div> <div>not applicable</div> <div>Density</div> <div>approx. 1.34 g/cm³, 20 °C</div> <div>Water solubility</div> <div>insoluble, g/l</div> <div>pH value</div> <div>not applicable</div> <div>Kinematic viscosity</div> <div>not applicable</div> <div>Further information</div> <div>None</div>
CAS-No.	Components	Value	Symbols	R-phrases							
123748-85-6	1-Methyl-5-norbornene-2,3-dicarboxylic acid anhydride	~ 45%	Xn	22-36/37/38-42							
<div>3.</div> <div>Hazards identification</div> <div>Xn – Harmful. R phrases: 22-42-36/37/38. Harmful if swallowed. May cause sensitization by skin inhalation. Irritating to eyes, respiratory system and skin</div>	<div>10.</div> <div>Stability and reactivity</div> <div>Conditions to avoid: None</div> <div>Materials to avoid: Amines, strong bases</div> <div>Hazardous decomposition products: None under normal use</div> <div>Additional information: None</div>										
<div>4.</div> <div>First aid measures</div> <div>After inhalation: Move to fresh air. If symptoms persist, call a physician</div> <div>After contact with skin: Wash off with soap and plenty of water. If symptoms persist, call a physician</div> <div>After contact with eyes: Rinse with plenty of water. If symptoms persist, call a physician</div> <div>After ingestion: Rinse mouth. Obtain medical attention</div> <div>Advice to doctor: Treat symptomatically</div>	<div>11.</div> <div>Toxicological information</div> <div>Human experience: May cause eye/skin irritation. May cause sensitisation by inhalation</div>										
<div>5.</div> <div>Fire-fighting measures</div> <div>Suitable extinguishing media: Water spray, foam, dry powder, carbon dioxide (CO₂)</div> <div>Unsuitable extinguishing media: High volume water jet</div> <div>Special hazards: In case of fire the following can be released: Carbon monoxide, Hydrocarbons</div> <div>Special protective equipment for firefighters: Standard procedure for chemical fires</div> <div>Additional information: Water mist may be used to cool closed containers. In the event of fire and/or explosion do not breathe fumes</div>	<div>12.</div> <div>Ecological information</div> <div>Information on elimination (persistence and degradability): Product is insoluble in water. May be separated out mechanically in purification plants</div> <div>Behaviour in environmental compartments: Ecological injuries are not known or expected under normal use</div> <div>Ecotoxic effects: Aquatic toxicity is unlikely due to low solubility</div> <div>Additional information: Should not be released into the environment</div>										
<div>6.</div> <div>Accidental release measures</div> <div>Personal precautions: Wear personal protective equipment</div> <div>Environmental precautions: Do not flush into surface water or sanitary sewer system</div> <div>Methods for cleaning up / taking up: Use mechanical handling equipment. Dispose of absorbed material in accordance with the regulations</div> <div>Additional information: None</div>	<div>13.</div> <div>Advice on Disposal</div> <div>Disposal: Can be incinerated when in compliance with local, state and federal regulations</div> <div>Dispose of contaminated packaging and recommended cleaning: Offer rinsed packaging material to local recycling facilities</div>										
<div>7.</div> <div>Handling and storage</div> <div>Advice on safe handling: Avoid contact with skin, eyes and clothing. Use only in well-ventilated areas</div> <div>Advice on protection against fire and explosion: No special precautions required</div> <div>Requirements on storage rooms and vessels: Keep containers dry and tightly closed to avoid moisture absorption and contamination</div> <div>Incompatible materials: Do not store together with food</div> <div>Further information on storage conditions: Store at room temperature in the original container</div>	<div>14.</div> <div>Transport information</div> <div>GGVS / GGVE:</div> <div>not applicable</div> <div>ADN / ADNRR:</div> <div>not classified</div> <div>IMDG-Code:</div> <div>not applicable</div> <div>ICAO / IATA-DGR</div> <div>not applicable</div> <div>Further information:</div> <div>None</div>										
<div>8.</div> <div>Exposure controls / personal protection</div> <div>Additional advice on system design: Not applicable</div> <div>Ingredients and specific control parameters: None</div> <div>Respiratory protection: No personal respiratory protective equipment normally required. Provide adequate ventilation</div>	<div>15.</div> <div>Regulatory information</div> <div>Labelling according to EU-guidelines: The product is classified and labelled in accordance with EC-directives/German regulations on dangerous substances</div> <div>Hazards: Xn – Harmful</div> <div>Hazardous component(s) to be indicated on label: 1-Methyl-5-norbornene-2,3-dicarboxylic acid anhydride</div> <div>R phrases: 22-42-36/37/38. Harmful if swallowed. May cause sensitization by inhalation. Irritating to eyes, respiratory system and skin</div> <div>S phrases: 39. Wear eye/face protection</div> <div>National regulations</div>										
	<div>16.</div> <div>Other information</div> <div>Issue-department of Safety Data Sheet: Chemical Documentation, Tel.: ++49 - 89 7876 - 564</div>										

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