

Description:

STABUTHERM GH 461 is a high-temperature lubricating grease based on mineral oil/polyurea. It has a wide service temperature range and can be applied in rolling bearings up to an operating temperature of 180 °C. In the case of total loss lubrication in central lubrication systems, operating temperatures up to 200 °C are possible.

STABUTHERM GH 461 features highly effective anti-wear properties and has a good load-carrying capability due to special EP additives.

The grease is very adhesive and is resistant to water both under static and dynamic load.

STABUTHERM GH 461 is resistant to oxidation, extremely resistant to ageing and provides reliable protection against corrosion.

Application:

STABUTHERM GH 461 is suitable for applications in smelting works and rolling mills, especially for high-temperature lubrication points supplied through a central lubrication system, e. g.

- drive rollers in continuous casting plants (slabs and billets)
- conveyor rollers in continuous furnaces.

A lubricant for such applications must meet the extremely high requirements set forth by the operating temperature, scaling, water and ensuing corrosion.

STABUTHERM GH 461 is also suitable for other high-temperature applications, such as:

- annealing furnaces, drying stoves
- sliding bearings in foundry cranes
- hot rolls in cardboard manufacturing plants
- machines and equipment in the glass and ceramics industries

- shut-off gates in bulk material installations
- cooling beds, conveyor systems
- rotary kilns.

Application notes:

STABUTHERM GH 461 can be pumped through all common types of lubrication systems.

Pipe friction values were determined in order to assess the pumpability in central lubrication systems. The results obtained at different temperatures are illustrated in diagrams 1 and 2 on the next page.

Diagram 1 shows the resistance to pumping per meter of pipe with a diameter of 7 mm; diagram 2 shows the values of a pipe with a diameter of 16 mm.

The pipe friction values were measured with the Shell DELIMON rheometer system.

Pack sizes:

- 25 kg bucket
- 180 kg drum

Product data:

Color	brown, transparent
Service temperature range*, °C	– 20 to 180/200
Drop point, DIN ISO 2176, °C	> 240
Worked penetration, DIN ISO 2137 at 25 °C	310 to 340 x 0.1 mm
Apparent viscosity, Klüber viscosity grade**	M
Flow pressure at – 20 °C, DIN 51 805	< 1 400 mbar
Resistance to water, DIN 51 807 3 hours at 90 °C 24 hours at 90 °C	0/1 – 90 0/1 – 90
Corrosion protection behavior, DIN 51 802 (Emcor test)	0/1

* 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.

** Klüber viscosity grades: EL = extra light lubricating grease; L = light lubricating grease; M = medium lubricating grease; S = heavy lubricating grease; ES = extra heavy lubricating grease

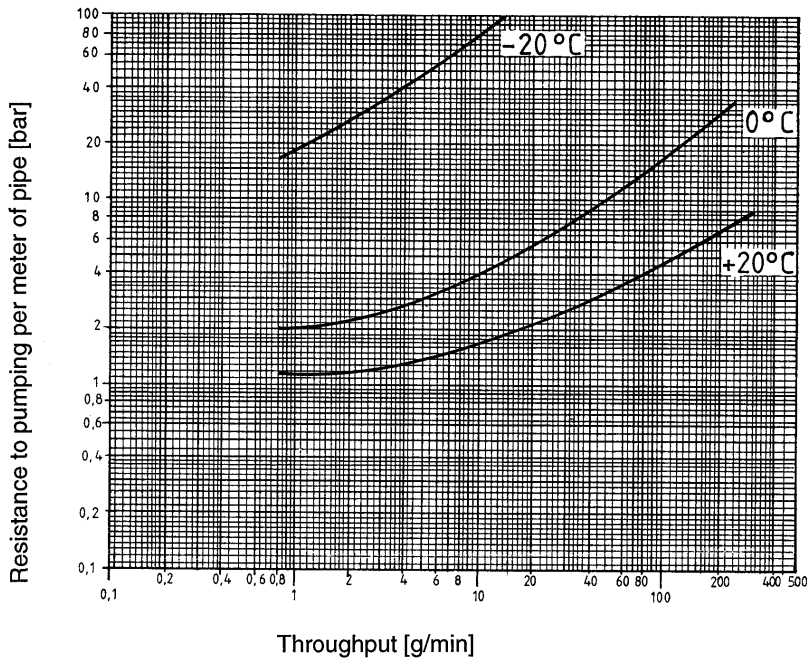
STABUTHERM GH 461

- High-temperature lubricating grease for rolling bearings
- High upper service temperature up to 180 °C in central lubrication systems up to 200 °C
- Good pumpability in all common central lubrication systems
- Not miscible with water, thus having only little impact on the cooling water circulation
- Good anti-wear properties
- High load-carrying capability
- Very good anti-corrosion properties
- Resistant to aggressive media
- Good sealing effect

STABUTHERM[®] GH 461

High-temperature lubricating grease

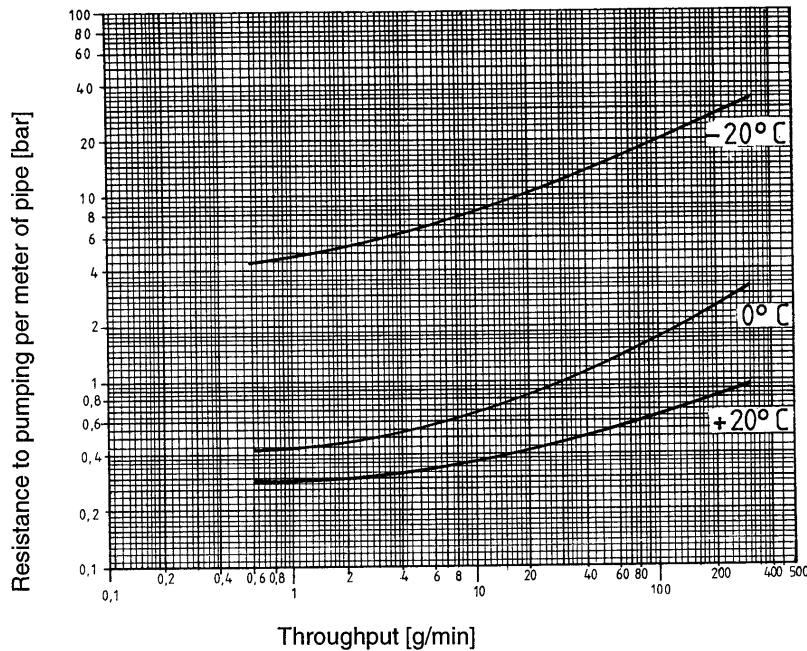
Diagram 1



Pipe friction values
measured with the Shell
DELIMON rheometer system

Test pipe	Resistance to pumping [bar/m]		
	1 g/min	10 g/min	100 g/min
DN 7 mm			
+ 20 °C	1.1	1.7	4.5
0 °C	2.0	4.0	17.0
- 20 °C	19.0	80	>100

Diagram 2



Pipe friction values
measured with the Shell
DELIMON rheometer system

Test pipe	Resistance to pumping [bar/m]		
	1 g/min	10 g/min	100 g/min
DN 16 mm			
+ 20 °C	0.28	0.36	0.65
0 °C	0.45	0.68	1.7
- 20 °C	4.7	8.2	20.0

STABUTHERM® GH 461

Safety Data Sheet

1.1 Product name: STABUTHERM GH 461 Code-No.: 020 500 08.03.2000	9. Physical and chemical properties Form: paste Colour: brown Odour: characteristic Drop point: > 240 °C, DIN ISO 2176 Flash point: > 300 °C (base oil) Flammability: not applicable Ignition temperature: not applicable Autoflammability: not applicable Lower explosion limit: not applicable Upper explosion limit: not applicable Vapour pressure-first: not applicable Density: approx. 0.9 g/cm ³ , 20 °C Water solubility: insoluble pH value: not applicable Kinematic viscosity: not applicable Further information: none
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	Emergency telephone no.: ++49 - 89 - 78 76 - 0
2. Composition / information on ingredients Chemical characterization (preparation): Mineral oil, polyurea	10. Stability and reactivity Conditions to avoid: None Materials to avoid: Strong oxidizing agents Hazardous decomposition products: None under normal use Additional information: None
3. Hazards identification No particular hazards known	11. Toxicological information The toxicological data has been taken from products of similar composition Acute toxicity: LD ₅₀ /oral/rat = > 2 g/kg (literature data) Chronic toxicity: None Human experience: Prolonged skin contact may cause skin irritation and/or dermatitis
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	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
5. Fire-fighting measures Suitable extinguishing media: Water spray, foam, dry powder, carbon dioxide (CO ₂) 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	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
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	14. Transport information 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
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: No special storage conditions required Incompatible materials: Incompatible with oxidizing agents. Do not store together with food Further information on storage conditions: Store at room temperature in the original container	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
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	16. Other information Issue-department of Safety Data Sheet: Chemical Documentation, Tel.: ++49 - 89 - 78 76 - 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