

Klüberoil® 4 UH 1- 15... 680

Lubricating oils for the Food Processing and Pharmaceutical Industry



Description

Klüberoil 4 UH 1- 15 ...680 oils are lubricants for the food processing and pharmaceutical industry. They meet the requirements of the German law on food products and ancillaries (LMBG, sec. 5, para 1, sentence 1) and the requirements set forth in the "guidelines of sec. 21 CFR 178.3570 of FDA regulations". They have been authorized by the USDA for use in federally inspected meat and poultry plants (USDA-H1).

Especially formulated for use in the food processing and pharmaceutical industry, these lubricating oils exhibit good antiwear and EP properties as well as excellent low-temperature characteristics.

Klüberoil 4 UH 1- 15...680 oils show very good corrosion protection properties as well as a high ageing and oxidation stability. They are stable under shear stress and do not foam.

Klüberoil 4 UH 1- 46...680 oils meet the CLP requirements. When tested on the FZG gear rig IAW DIN 51 354 Pt 2, A/8.3/90, the oils have a scuffing load stage of 12 and a specific loss of weight of < 0.2 mg/kWh. The oils having a viscosity ISO VG 32 ... 100 meet the HLP requirements, the ISO VG 32 ... 150 types fulfill even the VDL requirements.

Application

Klüberoil 4 UH 1 oils are used for the lubrication of friction points in food processing and pharmaceutical machinery. They are especially suitable for the lubrication of spur, bevel and worm gears, bearings, spindles and joints, as well as for the lubrication of lift, drive and conveyor chains at low temperatures.

The ISO VG 32 ... 68 types are particularly suitable for pneumatic

maintenance equipment wherever lubricants with a USDA-H1 registration are required.

Klüberoil 4 UH1-15 is especially suitable as a barrier medium in mechanical face seals.

Application notes

Gears:

Oil bath lubrication, oil bath circulating lubrication and injection lubrication

Chains:

Lubrication by means of brush, oil can, oil bath, drip feed or oil pump

The low-viscosity types can also be applied by oil-mist lubrication.

When applied via *automatic systems*, the manufacturer's instructions on oil temperature and viscosity have to be observed.

Service temperature range

The values indicated are approximate values depending on the lubricant's composition, the intended use and the application technique.

- Oil bath chain and gear lubrication
ISO VG 32 to 220:
approx. from -25 °C to 110 °C
ISO VG 460 and 680:
approx. from -20 °C to 110 °C
- Relubrication of chains at low temperatures
ISO VG 15:
approx. from -50 °C
- Thermal resistance of the lubricating film in case of total loss lubrication, depending on relubrication intervals
approx. up to 130 °C

Klüberoil 4 UH 1- 15... 680 oils

- USDA-H1 registration
- Wide service temperature range
- Good protection against wear
- High load carrying capacity
- Good protection against corrosion
- Almost neutral to sealing materials and paints
- Depending on the product's viscosity, CLP, HLP and VDL requirements are met

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.

Pack sizes

20 l canister
200 l drum

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and Pharmaceutical Industry

Product data

Data Product	ISO VG DIN 51 519	Density DIN 51 757 (g/ml) at 20 °C approx.	Kinematic viscosity DIN 51 561 (mm ² /s) at °C, approx.			Viscosity index DIN ISO 2909	Flash point DIN ISO 2592 °C	Pour point DIN ISO 3016 °C
			20	40	100			
Klüberoil 4 UH 1-15	15	0.82	32	15	4	> 120	> 185	≤ -50
Klüberoil 4 UH1- 32	32	0.84	80	32	7	> 140	> 185	≤ -30
Klüberoil 4 UH1- 46	46	0.84	115	46	9	> 140	> 185	≤ -30
Klüberoil 4 UH1- 68	68	0.84	175	68	12	> 140	> 185	≤ -30
Klüberoil 4 UH1- 100	100	0.85	250	100	15	> 140	> 200	≤ -30
Klüberoil 4 UH1- 150	150	0.85	425	150	22	> 150	> 200	≤ -30
Klüberoil 4 UH1- 220	220	0.85	670	220	33	> 150	> 200	≤ -30
Klüberoil 4 UH1- 460	460	0.85	1370	460	52	> 150	> 200	≤ -25
Klüberoil 4 UH 1-680	680	0.85	2300	680	69	> 150	> 220	≤ -25

Compatibility with elastomers

Klüberoil 4 UH 1 ...	15	32	46	68	100	150	220	460	680
SRE NBR 1 at 100 °C / 168 h Change in volume % Change in hardness (Shore A) approx.	—	< +10	< +10	< +10	< +10	—	—	—	—
	—	-6	-6	-6	-4	—	—	—	—
72 NBR 902 at 100 °C / 168 h Change in volume % Change in hardness (Shore A) approx.	< +2	< +2	< +2	< +4	< +3	< +3	< +3	< +3	< +1
	±1	±1	±1	±1	±1	±1	±1	±1	±1

Klüberoil® 4 UH 1- 15... 680

Safety Data Sheet

1.1 Product name: Klüberoil 4 UH1 a) -15 b) -32 c) -46 d) -68 e) -100 f) -150 g) -220 h) -460 i) -680 Code-No.: a) 029 029 b) 029 027 c) 029 028 d) 029 021 e) 029 022 f) 029 023 g) 029 024 h) 029 025 i) 029 030	<table> <tr><td>Pour point</td><td>see product data °C</td></tr> <tr><td>Flash point</td><td>see product data °C</td></tr> <tr><td>Flammability</td><td>not applicable</td></tr> <tr><td>Ignition temperature</td><td>not applicable</td></tr> <tr><td>Autoflammability</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 (20 °C)</td><td>see product data g/cm³</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>see product data</td></tr> <tr><td>Further information</td><td>None</td></tr> </table>	Pour point	see product data °C	Flash point	see product data °C	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 (20 °C)	see product data g/cm ³	Water solubility	insoluble	pH value	not applicable	Kinematic viscosity	see product data	Further information	None
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Further information	None																										
Klüber Lubrication München KG, Geisenhausenerstr. 7 D-81379 Munich; Tel. (089) 7876-0, Fax (089) 7876-333 Emergency no.: (089) 7876-0	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																										
2. Composition/information on ingredients Chemical characterization: Synthetic hydrocarbon oil, ester oil, Additional information: None	11. Toxicological information The toxicological data have been taken from products of similar composition. Acute toxicity: LD ₅₀ oral/rat = > 2g/kg (literature data) Chronic toxicity: None Human experience: Health injuries are not known or expected under normal use.																										
3. Hazards identification No particular hazards known.	12. Ecological information Information on elimination: 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: The product has not been tested. Additional information: Should not be released into the environment.																										
4. First aid measures Contact with skin: Wash off with soap and plenty of water. Contact with eyes: Rinse with plenty of water. Ingestion: Do not induce vomiting. Obtain medical attention. Advice to doctor: Treat symptomatically.	13. Advice on disposal Dispose of in acc. with your local, state and federal regulations as used oil for reconditioning. Dispose of contaminated packaging and recommended cleaning: Offer rinsed packaging material to local recycling facilities.																										
5. Fire-fighting measures Suitable extinguishing media: Water spray, foam, dry powder, CO ₂ Unsuitable extinguishing media: High volume water jet Special hazards: In case of fire can be released: CO, hydrocarbons Special protecting equipment: Standard procedure for chemical fires. Additional information: Cool closed containers with water mist. Do not breathe fumes.	14. Transport information GGVS / GGVE: not applicable ADN / ADN: not applicable IMDG / GGVsee: not applicable ICAO / IATA: not applicable Further information: Not classified as dangerous in the meaning of transport regulations.																										
6. Accidental release measures Personal precautions: Risk of slipping due to leakage/spillage of product. Environmental precautions: Do not flush into surface water or sanitary sewer system. Methods for cleaning up/taking up: Soak up with inert absorbent material. Dispose of absorbed material in acc. with the regulations. Additional information: None	15. Regulatory information Labelling: The product does not require a hazard warning label.																										
7. Handling and storage Safe handling: Avoid formation of aerosol. Protection against fire and explosion: No special precautions required. Requirements on storage rooms and vessels: — Incompatible materials: Oxidizing agents Further information: Store at room temperature in the original container.	16. Other information USDA H1 authorization																										
8. Exposure controls / personal protection Additional advice on system design: Not applicable Ingredients and specific control parameters: None Personal protective equipment Respiratory/hand/eye/body protection: No special protective equipment required. General protection and hygiene measures: Clean skin thoroughly after work; apply skin cream. Do not inhale aerosol.																											
9. Physical and chemical properties <table> <tr><td>Form</td><td>liquid</td></tr> <tr><td>Colour</td><td>light yellow</td></tr> <tr><td>Odour</td><td>characteristic</td></tr> </table>	Form	liquid	Colour	light yellow	Odour	characteristic																					
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The data in this brochure 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 without, however, constituting an assurance of properties for specific cases. We recommend contacting our Technical Consulting Staff for information regarding specific applications. If required and possible we will be pleased to provide a sample for testing.

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