

Klüberoil 4 UH1 N

Synthetic gear and multi-purpose oils for the food-processing and pharmaceutical industries



Benefits for your application

- **Requirements set forth in DIN 51517-3,CLP are met by viscosity variants ISO VG 68 to 680. Klüberoil 4 UH1 N oils can be used in gearboxes requiring these standards without prior consent by the gearbox OEM if the application notes are observed.**
- **Registered as NSF H1 for use in the food-processing and pharmaceutical industries, comply with FDA 21 CFR Sec 178.3570.**
- **NSF ISO 21469 certified - supports the compliance with the hygienic requirements in your production plant. You will find further information on ISO Standard 21469 on our website www.klueber.com.**
- **Having a synthetic polyalphaolefin base oil, Klüberoil 4 UH1 N oils have a significantly prolonged service life compared to mineral and white oil due to the base oil's excellent ageing resistance and oxidation stability. Service intervals can be extended and in some cases even lifetime lubrication can be achieved.**
- **Due to the wide service temperature range, it is often sufficient to use just one viscosity grade for both high and low temperatures.**
- **The good viscosity-temperature behaviour supports the formation of a sufficient lubricating film, also under elevated or high temperatures.**
- **Due to the oils' good wear protection for both the gear teeth and the rolling bearings, the lubricated components attain their calculated lifetime.**

Description

Klüberoil 4 UH 1 N oils are lubricating oils based on polyalphaolefin. Klüberoil 4 UH 1 N oils meet the CLP requirements according to DIN 51517-3.

These lubricating oils exhibit a good scuffing load capacity and good antiwear protection for rolling bearings according to FAG FE8. The corrosion protection properties of these oils are very good as is their ageing and oxidation stability. They also have a high resistance to shear and do not foam.

Klüberoil 4 UH 1 N oils are NSF H1 registered and therefore comply with FDA 21 CFR § 178.3570. The lubricants were developed for incidental contact with products and packaging materials in the food-processing, cosmetics, pharmaceutical or animal feed industries. The use of Klüberoil 4 UH 1 N oils can contribute to increase reliability of your production processes. We nevertheless recommend conducting an additional risk analysis, e.g. HACCP.

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 of lift, drive and conveyor chains at low temperatures.

Application notes

When used in gears, Klüberoil 4 UH 1 oils may be applied by immersion, immersion circulation or injection. Drip-feed lubrication and application by brush or oil can is also possible. Klüberoil 4 UH 1 oils are miscible with mineral oils and polyalphaolefin oils. However, we recommend cleaning the oil circulation system or flushing it with the new oil prior to using Klüberoil 4 UH 1 for the first time. Especially with a view to the H1 requirements in the food-processing industry, any mixing of Klüberoil 4 UH 1 oils with non-food-grade lubricants should be avoided.

For permanent temperatures at the seal edge up to 80 °C, NBR seals (acrylonitrile-butadiene rubber) may be used. For higher temperatures, it is safer to use FKM seals instead. It should be noted that elastomers from one or several manufacturers can behave differently. This lubricant is registered as H1, which means that it has been designed for incidental, technically unavoidable food contact.

Viscosity selection for rolling bearings and gears

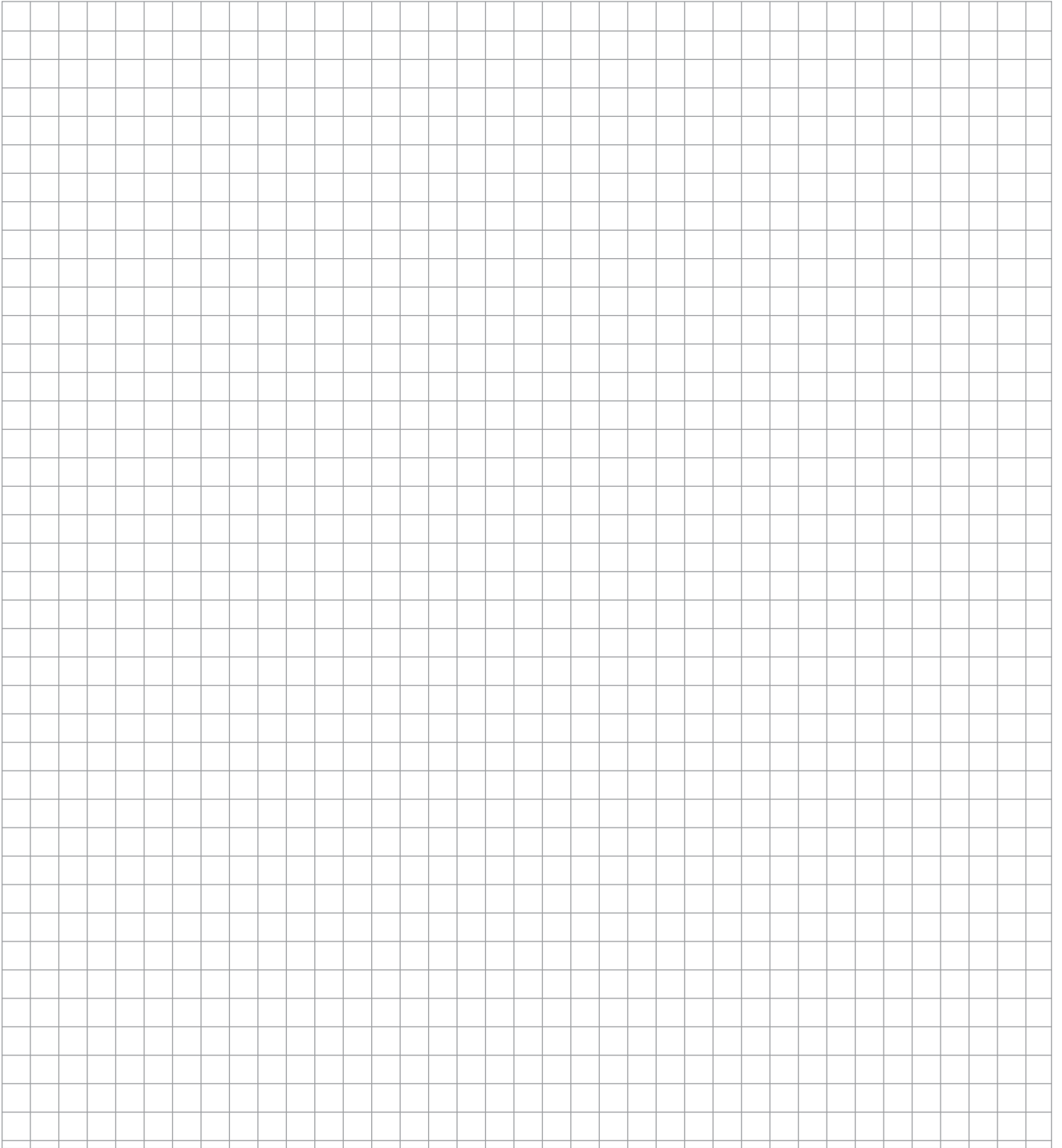
To select the correct oil viscosity, observe the bearing manufacturer's instructions. Only in cases where there are no gear manufacturer's instructions, the viscosity can be selected in accordance with the worksheet "Klüberoil 4 UH 1 oils – selection of oil viscosity for gears". For determining the correct viscosity for gears, the manufacturer's instructions take priority

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Material safety data sheets

Material safety data sheets can be requested via our website www.klueber.com. You may also obtain them through your contact person at Klüber Lubrication.



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Pack sizes	Klüberoil 4 UH1-32 N	Klüberoil 4 UH1-46 N	Klüberoil 4 UH1-68 N	Klüberoil 4 UH1-100 N
Canister 1 l	+	+	+	+
Canister 5 l	+	-	-	+
Canister 20 l	+	-	-	+
Drum 200 l	+	+	+	+
Aerosol can 400 ml	-	-	-	-

Product data	Klüberoil 4 UH1-32 N	Klüberoil 4 UH1-46 N	Klüberoil 4 UH1-68 N	Klüberoil 4 UH1-100 N
Article number	029037	029038	029039	029040
NSF-H1 registration	121 152	121 175	121 174	121 173
Lower service temperature	-35 °C / -31 °F	-35 °C / -31 °F	-35 °C / -31 °F	-35 °C / -31 °F
Upper service temperature	120 °C / 248 °F	120 °C / 248 °F	120 °C / 248 °F	120 °C / 248 °F
Density, based on DIN 51757) at 15 °C	approx. 844 kg/m ³	approx. 847 kg/m ³	approx. 851 kg/m ³	approx. 855 kg/m ³
Foam test, ASTM-D 892, ISO 6247, sequence I/24 °C	<= 100/10 ml	<= 100/10 ml	<= 100/10 ml	<= 100/10 ml
Foam test, ASTM-D 892, ISO 6247, sequence II/ 93.5 °C	<= 100/10 ml	<= 100/10 ml	<= 100/10 ml	<= 100/10 ml
Foam test, ASTM D 892, ISO 6247, sequence III/24°C	<= 100/10 ml	<= 100/10 ml	<= 100/10 ml	<= 100/10 ml
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus	>= 200 °C	>= 200 °C	>= 200 °C	>= 200 °C
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C	approx. 32 mm ² /s	approx. 46 mm ² /s	approx. 68 mm ² /s	approx. 100 mm ² /s
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C	approx. 6 mm ² /s	approx. 8 mm ² /s	approx. 11 mm ² /s	approx. 14 mm ² /s
ISO viscosity grade, DIN ISO 3448	32	46	68	100
Viscosity index, DIN ISO 2909	>= 135	>= 135	>= 140	>= 140
Pour point, DIN ISO 3016	<= -39 °C	<= -39 °C	<= -36 °C	<= -36 °C
Ageing properties, ASTM D 2893, increase in viscosity	<= 6 %	<= 6 %	<= 6 %	<= 6 %
Copper corrosion, DIN EN ISO 2160, 24 h/100°C	1 - 100 corrosion degree	1 - 100 corrosion degree	1 - 100 corrosion degree	1 - 100 corrosion degree

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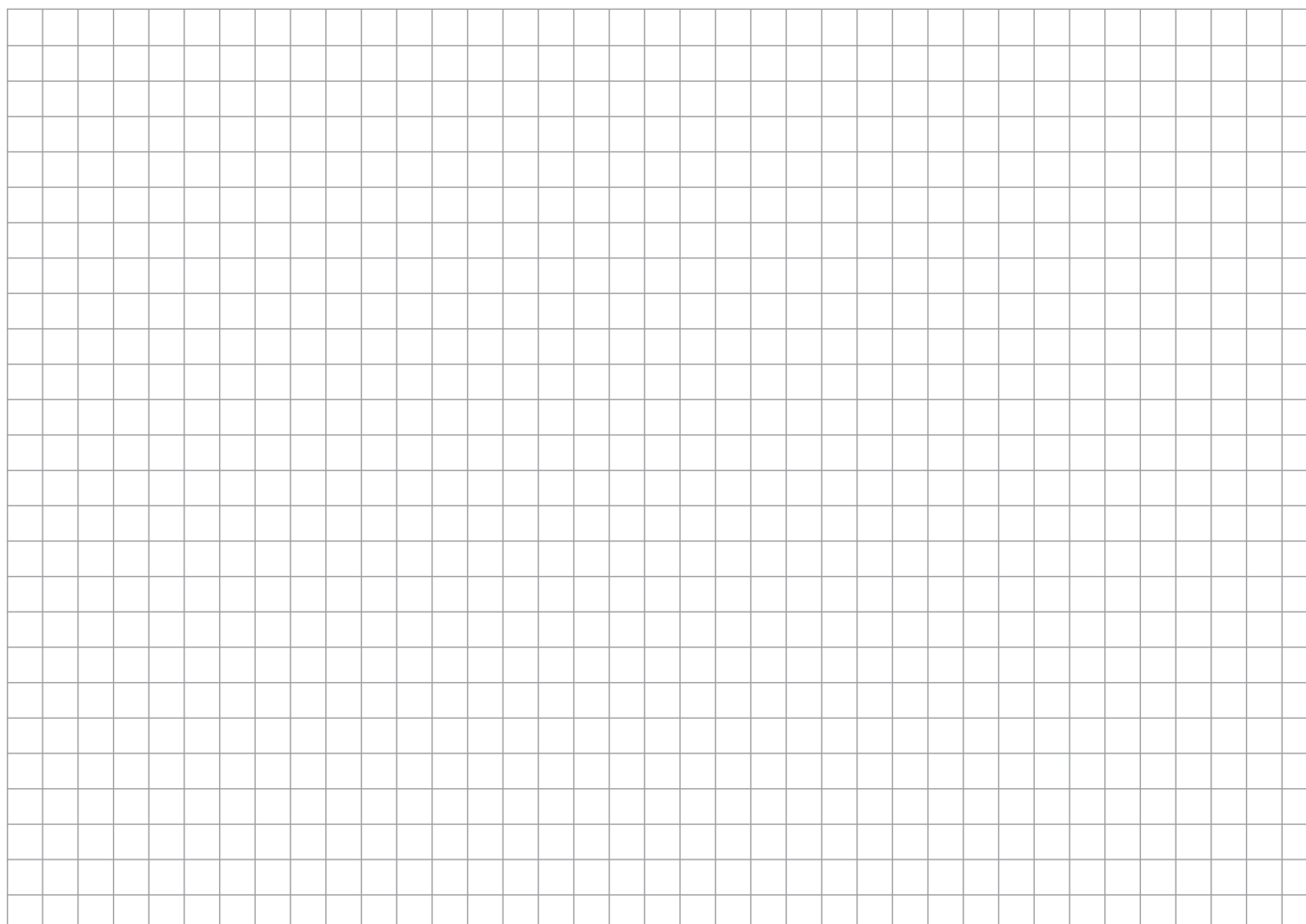
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Product data	Klüberoil 4 UH1-32 N	Klüberoil 4 UH1-46 N	Klüberoil 4 UH1-68 N	Klüberoil 4 UH1-100 N
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust	no rust	no rust	no rust
FZG scuffing test, DIN ISO 14635-1, A/8.3/90, scuffing load stage	>= 12	>= 12	>= 12	>= 12
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of rolling element	<= 30 mg	<= 30 mg	<= 30 mg	<= 30 mg
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of cage	<= 200 mg	<= 200 mg	<= 200 mg	<= 200 mg
Minimum shelf life from the date of manufacture - in a dry, frost-free place and in the unopened original container, approx.	24 months	24 months	24 months	24 months



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Klüber Lubrication – your global specialist

Innovative tribological solutions are our passion. Through personal contact and consultation, we help our customers to be successful worldwide, in all industries and markets. With our ambitious technical concepts and experienced, competent staff we have been fulfilling increasingly demanding requirements by manufacturing efficient high-performance lubricants for more than 80 years.

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The data in this document is based on our general experience and knowledge at the time of publication 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 field tests with the product selected for a specific application. All data are guide values which depend on the lubricant's composition, the intended use and the application method. The technical values of lubricants change depending on the mechanical, dynamical, chemical and thermal loads, time and pressure. These changes may affect the function of a component. We recommend contacting us to discuss your specific application. If possible we will be pleased to provide a sample for testing on request. Klüber products are continually improved. Therefore, Klüber Lubrication reserves the right to change all the technical data in this document at any time without notice.

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