Product information

Klüberoil 4 UH1-32 N … 1500 N

Synthetic lubricating oils for the food-processing and pharmaceutical industries

Benefits for your application

- **Requirements set forth in DIN 51 517 are met by viscosity variants ISO VG 68 to 680. Klüberoil 4 UH1 5 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**
- **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 has 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 1-32…1500 N oils are lubricating oils based on polyalphaolefin. They are registered as NSF H1 and comply with FDA 21 CFR § 178.3570.
Klüberoil 4 UH 1-68…680 N oils meet the CLP requirements according to DIN 51 517 – 03.

These lubricating oils exhibit a good scuffing load capacity and good antiwear protection for rolling bearings according to FAG FE 8.
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.

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.

Klüberoil 4 UH1-32 N … 1500 N

Synthetic lubricating oils for the food-processing and pharmaceutical industries

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.

Experience shows that it can be used for equivalent applications in the cosmetic and pharmaceutical industry under the conditions described in the product information leaflet.

Specific test results as e.g. biocompatibility, which could be an additional requirement for applications in the pharmaceutical industry, are not available for this product. Therefore, before using the lubricant adequate risk analyses have to be performed and, if necessary, suitable measures be taken by the manufacturer and user of installations in order to exclude the risk of health hazards and personal injuries.

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 enclosed 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.

Minimum shelf life

The minimum shelf life is approximately 24 months if the product is stored in its unopened original container in a dry, frost-free place.

Pack sizes

400 ml spray can (ISO VG 1500)
5 l canister
20 l canister
200 l drum

Material Safety Data Sheets

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

Klüberoil 4 UH1-32 N … 1500 N

Synthetic lubricating oils for the food-processing and pharmaceutical industries

Produktkenndaten

Klüberoil 4 UH 1- …	32 N	46 N	68 N	100 N	150 N	220 N	320 N	460 N	680 N	1500 N
ISO VG DIN 51519	32	46	68	100	150	220	320	460	680	1500
Density, DIN 51757, at 15 °C, [kg/m^3], approx.	840	840	840	850	850	850	850	860	860	890
Kinematic viscosity, DIN 51562 pt.01 at 40 °C, [mm^2/s], approx. at 100 °C, [mm^2/s], approx.	 32 6	 46 8	 68 11	 100 14	 150 19	 220 26	 320 35	 460 47	 680 65	 1500 125
Viscosity index, DIN ISO 2909, approx.	≥135	≥135	≥140	≥140	≥140	≥140	≥150	≥150	≥150	≥180
Flash point, COC, DIN ISO 2592, [°C]	≥ 200	≥ 200	≥ 200	≥ 200	≥ 200	≥ 200	≥ 200	≥ 200	≥ 200	≥ 200
Pour point, DIN ISO 3016, [°C], approx.	≤ -39	≤ -39	≤-36	≤-36	≤-36	≤-30	≤-30	≤-30	≤ -27	≤-25
Service temperature range*, [°C]	-35 to 120					-30 to120			-25 to 120	
FZG fretting test, A/8.3/90, DIN ISO 14635-01, scuffing load stage	≥ 10		≥ 12							
Foaming characteristics, ASTM D 892, sequence I, II and III [ml]	≤ 100/10									-
Copper corrosion test, 24 h, DIN EN 2160, degree of corrosion	1-100									
Rust-preventing properties on steel, DIN ISO 7120	0 – A									
Ageing characteristics, ASTM D 2893, increase in viscosity [%]	≤ 6									
Rolling bearing tester FE 8, D 7, 5/80-80, DIN 51 819-3, wear of rolling elements, [mg], wear of cage, [mg]	< 30 < 200									

* 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.

Klüberoil 4 UH1-32 N … 1500 N

Synthetic lubricating oils for the food-processing and pharmaceutical industries

Miscibility of base oils

	Mineral oil	Synth. hydro-carbon	Ester oil	Poly-glycol	Silicone oil (methyl)	Perfluoro-alkyl ether	Silicone oil (phenyl)	Poly-phenyl ether oil
Mineral oil	+	+	+	–	–	–	+/–	+
Synthetic hydrocarbon	+	+	+	–	–	–	–	+
Ester oil	+	+	+	+	–	–	+	+
Polyglycol	–	–	+	+	–	–	–	–
Silicone oil (methyl)	–	–	–	–	+	–	+/–	–
Perfluoro-alkyl ether	–	–	–	–	–	+	–	–
Silicone oil (phenyl)	+/–	–	+	–	+/–	–	+	+
Poly-phenyl ether oil	+	+	+	–	–	–	+	+

Legend: + miscible +/– partially miscible – not miscible

For further information on the use of our lubricants, click www.klueber.com/Service or contact your Klüber specialist.

Lubrication is our world

With more than 2000 products available around the world, you can be sure that Klüber has the right product for your application. Please contact Klüber Lubrication specialists worldwide to assist you in all matters regarding lubrication.

www.klueber.com

Klüber Lubrication München KG, Geisenhausenerstraße 7, 81379 München, Germany, phone +49 89 7876-0, fax +49 89 7876-333.