

Klüberfood 4 NH1- 15...100

Synthetic hydraulic oils for the food and pharmaceutical industries



Benefits for your application

- Fully synthetic base oil to support extended oil change intervals and reduced operating cost in hydraulic systems
- Reduced contaminant build up and valve blockages compared to mineral hydraulic oils as a result of the improved oil stability
- NSF H1 registered supporting process reliability

Description

Klüberfood 4 NH 1-15...100 oils are hydraulic oils based on synthetic hydrocarbons. Klüberfood NH 1 oils offer good oxidation stability due to the synthetic base oil, also good stability at low temperatures and protection against friction and wear. They meet HLP requirements acc. to DIN 51524 part 2.

Apart from their excellent corrosion stability, Klüberfood 4 NH 1 oils have a good water separation ability.

Klüberfood 4 NH 1-15...100 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 Klüberfood 4 NH 1-15...100 oils can contribute to increase reliability of your production processes. We nevertheless recommend conducting an additional risk analysis, e.g. HACCP.

Application

Klüberfood 4 NH 1 hydraulic oils are used especially in the food-processing and pharmaceutical industries.

Application notes

Klüberfood 4 NH 1 oils are miscible with mineral-oil based hydraulic fluids, however we recommend flushing the system with a suitable Klüberfood 4 NH 1 oil prior to initial application in order to comply with food regulations.

Flushing at 50 to 60°C removes residues in the hydraulic installation and used oil in the system. Then we recommend changing the filters before putting the hydraulic oil into operation again with the Klüberfood 4 NH 1 oil.

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.

Compatibility with materials

According to our current status of knowledge Klüberfood 4 NH 1 oils are compatible with all materials, which are resistant to mineral oil, e.g. neoprene, NBR, FPM, PTFE, paints based on acrylic and epoxy resin, nylon (polyamide) and PVC.

Pack sizes	Klüberfood 4 NH1-15	Klüberfood 4 NH1-32	Klüberfood 4 NH1-46	Klüberfood 4 NH1-68	Klüberfood 4 NH1-100
Canister 20 l	+	+	+	+	+
Drum 200 l	+	+	+	+	+

Product data	Klüberfood 4 NH1-15	Klüberfood 4 NH1-32	Klüberfood 4 NH1-46	Klüberfood 4 NH1-68	Klüberfood 4 NH1-100
Article number	050163	050067	050068	050069	050070
Marking acc. to DIN 51502		HLP HC 32	HLP HC 46	HLP HC 68	HLP HC 100
NSF-H1 registration	154 666	137 442	137 443	137 444	137 441
Lower service temperature	-45 °C / -49 °F	-45 °C / -49 °F	-40 °C / -40 °F	-40 °C / -40 °F	-35 °C / -31 °F

Klüberfood 4 NH1- 15...100

Synthetic hydraulic oils for the food and pharmaceutical industries

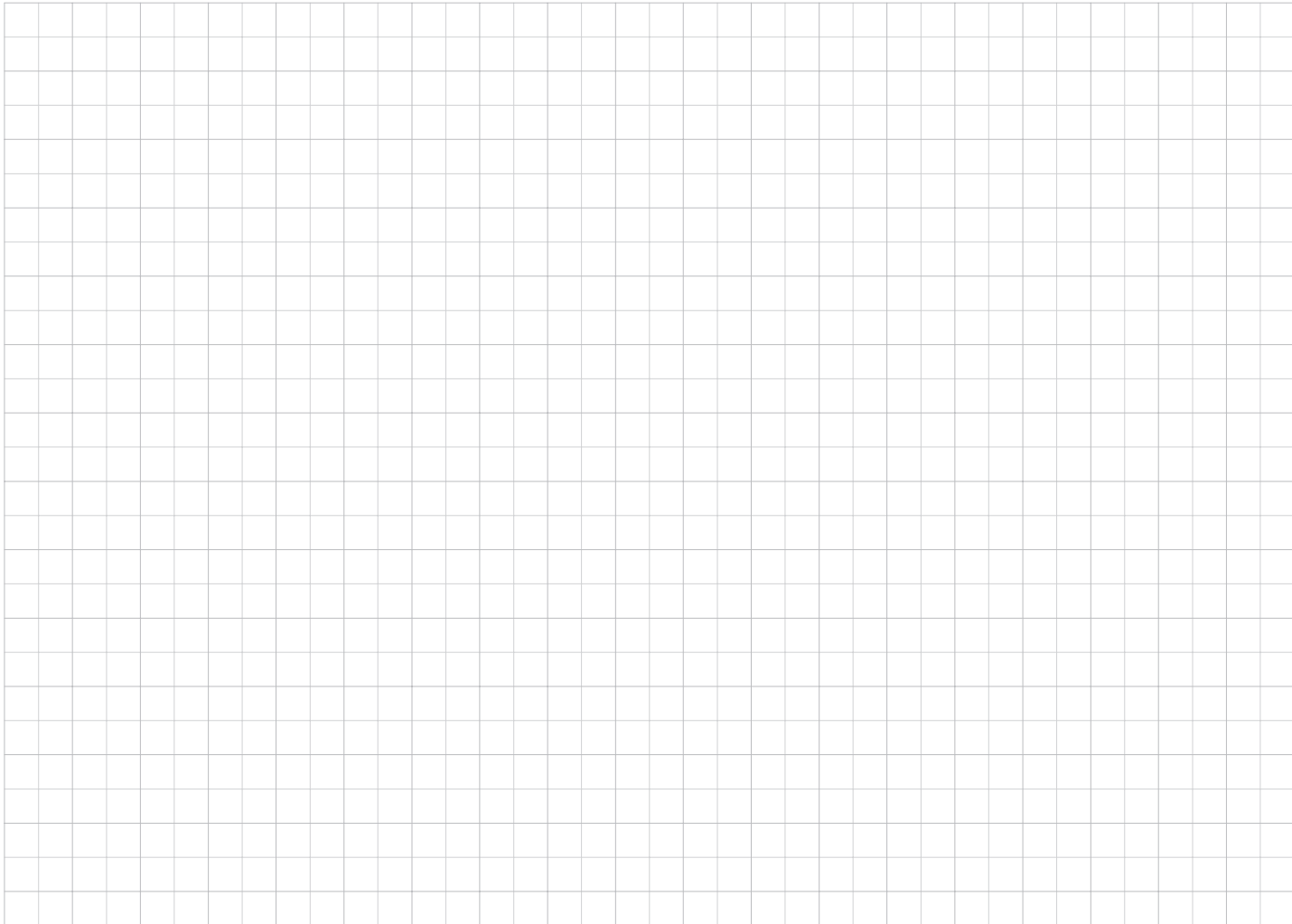
Product data	Klüberfood 4 NH1-15	Klüberfood 4 NH1-32	Klüberfood 4 NH1-46	Klüberfood 4 NH1-68	Klüberfood 4 NH1-100
Upper service temperature	100 °C / 212 °F	135 °C / 275 °F	135 °C / 275 °F	135 °C / 275 °F	135 °C / 275 °F
Colour space	colourless	yellow	yellow	yellow	yellow
Appearance	clear	clear	clear	clear	clear
Density, DIN 51757, 20 °C	approx. 0.82 g/cm ³	approx. 0.83 g/cm ³	approx. 0.83 g/cm ³	approx. 0.83 g/cm ³	approx. 0.84 g/cm ³
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C	approx. 15 mm ² /s	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. 3.5 mm ² /s	approx. 5.8 mm ² /s	approx. 7.7 mm ² /s	approx. 10.4 mm ² /s	approx. 13.8 mm ² /s
Viscosity index, DIN ISO 2909	>= 105	>= 120	>= 120	>= 120	>= 120
Demulsifying capacity, DIN 51599, ASTM D 1401, at 54 °C	40/37/3 ml	40/37/3 ml	40/37/3 ml	40/37/3 ml	
Demulsifying capacity, DIN ISO 6614, ASTM D 1401 at 82 °C					40/37/3 ml
Foam test, ASTM-D 892, ISO 6247, sequence I/24 °C	<= 150/0 ml	<= 150/0 ml	<= 150/0 ml	<= 150/0 ml	<= 150/0 ml
Foam test, ASTM-D 892, ISO 6247, sequence II/ 93.5 °C	<= 75/0 ml	<= 75/0 ml	<= 75/0 ml	<= 75/0 ml	<= 75/0 ml
Foam test, ASTM D 892, ISO 6247, sequence III/24 °C	<= 150/0 ml	<= 150/0 ml	<= 150/0 ml	<= 150/0 ml	<= 150/0 ml
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus	>= 180 °C	>= 230 °C	>= 240 °C	>= 240 °C	>= 240 °C
Pour point, DIN ISO 3016	<= -65 °C	<= -50 °C	<= -45 °C	<= -45 °C	<= -40 °C
Minimum shelf life from the date of manufacture - in a dry, frost-free place and in the unopened original container, approx.	60 months	60 months	60 months	60 months	60 months





Klüberfood 4 NH1- 15...100

Synthetic hydraulic oils for the food and pharmaceutical industries



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.

**Klüber Lubrication München SE & Co. KG /
Geisenhausenerstraße 7 / 81379 München / Germany /
phone +49 89 7876-0 / fax +49 89 7876-333.**

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.

Publisher and Copyright: Klüber Lubrication München SE & Co. KG. Reprints, total or in part, are permitted only prior consultation with Klüber Lubrication München SE & Co. KG and if source is indicated and voucher copy is forwarded.