



Keeping machines well lubricated
Speciality lubricants for the beverage industry

Lubrication is our world



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NSF H1 lubricants across the line

There are three aspects which are of particular importance for beverage production: consumer protection, reliable manufacturing processes and energy efficiency.

Klüber's synthetic high-performance lubricants with NSF H1 registration help you obtain these objectives, as they are capable of a lot more than friction reduction, lowering operating temperatures and increasing components' service life. Depending on the application conditions, lubricants meeting a wide range of requirements from hygienic filling in aseptic areas to high resistance to water washdown can be selected from this brochure.

The lubricants we developed especially for the production of beverages are the result of our long-standing and close cooperation with both machine manufacturers and end-users in the beverage industry. Designers of machines and installations can build on this experience right from the very start of machine development. Beverage manufacturers can trust in our experience on every step of the beverage production process. The combination of consultation and a comprehensive lubricant range is Klüber's particular strength.

Optimising manufacturing processes: KlüberAssetSupport

Klüber is more than just a manufacturer of speciality lubricants. It is important for us to offer our customers the best advice regarding the proper lubrication of their application, whether machine manufacturers or operators. We take a holistic view of all processes in your plant and offer help and advice regarding optimum lubricant application. We even suggest measures to improve your manufacturing processes. We offer services combined with the right lubricants and show you ways to cut costs. In short: we work in close cooperation with you to improve lubrication processes in your plant systematically, allowing you to benefit from your machines and your staff's know-how to the maximum. Production volumes can be increased while simultaneously reducing operating costs.

Please contact our KlüberAssetSupport specialists, who will introduce you to interesting and often surprising solutions to save costs.

Protecting the consumer: NSF H1 lubricants across the line

To prevent the misuse of non-NSF H1 lubricants in the wrong point on your production line, we recommend using H1 lubricants exclusively in your plant. Many of our customers already do this and benefit from streamlined plant lubrication management. Some customers were even able to reduce the number of lubricants to be used by one third. We offer you a comprehensive range of NSF H1-registered speciality lubricants for all lubrication points in your plant, across the entire production line. These H1 lubricants are designed for incidental, technically unavoidable contact with the food product.

Additionally, most of our production sites producing H1 lubricants have already been certified according to ISO 21469, a standard which defines hygiene requirements for the formulation, manufacture and use of lubricants that could have unintentional product contact. To obtain the certification, lubricant manufacturers must develop a hygiene strategy taking all chemical, physical and biological hazards of lubricant application into account. We also offer more than 100 different lubricants with Halal and Kosher certification that are H1-registered, enabling Klüber to support compliance with these requirements across the complete production line.

Hence, our lubricants are a valuable contribution towards food safety.

Application	Application points/ machine components	Klüber speciality lubricant	NLGI grade	Base oil	Thickener
Conveyor systems	Palletisers, drives and conveyor chains	Klüberoil 4 UH1 1500 N Spray	Not applicable	Synthetic hydrocarbon oil/ester ²⁾	None
	Dry lifetime lubrication of chains	Klüberplus SK 02-295/ Klüberoil 4 UH1 1500 N Dispersion	Not applicable	Wax	None
	Conveyor bearings	Klübersynth UH1 14-222 ³⁾	2	Synthetic hydrocarbon oil	Aluminium complex soap
	Steel/plastic slatted conveyors	Klübertop TP 38-901	Not applicable	Not applicable	PTFE
Enclosed gears (spur-, bevel- and worm gears)	High-performance gear oils	Klüberoil 4 UH1 100 N...1500 N-series ⁶⁾ Available in ISO VG 32, 46, 68, 100, 220, 320, 460, 680, 1500 viscosity grades The selection of the viscosity grade depends on the gear type and the application	Not applicable	Synthetic hydrocarbon oil/ester	
	High-performance gear oils for extended life	Klübersynth UH1 6-100...680 ⁶⁾ Available in ISO VG 100, 150, 220, 320, 460, 680 viscosity grades The selection of the viscosity grade depends on the gear type and the application	Not applicable	Polyglycol	

1) Service temperatures are guide values which depend on the lubricant's composition, the intended use and the application method. Lubricants change their consistency, shear viscosity or viscosity depending on the mechanical-dynamic loads, time, pressure and temperature. These changes in product characteristics may affect the function of a component. The upper service temperatures indicated do not necessarily refer to DIN 51825.

2) of the active component



Upper service temperature ¹⁾ approx.	Lower service temperature ¹⁾ approx.	Application notes and benefits
120 ²⁾ [°C] 248 [°F]	-20 [°C] -4 [°F]	<ul style="list-style-type: none"> • Drive and conveyor chain lubrication where maximum adhesion is required in for example high speed applications • Good wear protection to optimise chain life • Low foaming of spray to ensure maximum penetration to main friction points of the chain
60 [°C] 140 [°F]	-30 [°C] -22 [°F]	<ul style="list-style-type: none"> • Typically 60 % of Klüberplus SK 02-295 dispersed by 40 weight % of Klüberoil 4 UH 1 1500 N • Applied by hot bath dip to provide lubrication for life of slow to medium speed chains⁵⁾
120 [°C] 248 [°F]	-25 [°C] -13 [°F]	<ul style="list-style-type: none"> • Good wear protection • Good resistance against hot and cold water • High corrosion protection • ISO 21469 certified
200 [°C] 392 [°F]	-40 [°C] -40 [°F]	<ul style="list-style-type: none"> • For steel/plastic filling conveyor system • To reduce risk of bottles toppling over and to remove floor slip hazard • Not to be used in areas where there is open food product
120 [°C] 248 [°F] or lower (depending on viscosity)	-35 [°C] -31 [°F] or higher (depending on viscosity)	<ul style="list-style-type: none"> • Improved wear protection and load-carrying capacity to maximise component life • Oil series complies with CLP requirements DIN 51 517 part 3 • Scuffing load stage ≥ 12 in the FZG test, DIN ISO 14635-1 A/8.3/90 • Good ageing and oxidation stability for increased oil life in comparison with industrial mineral oils • Good corrosion protection • Neutral towards sealing materials and paints⁴⁾ • ISO 21469 certified
160 [°C] 320 [°F] or lower (depending on viscosity)	-35 [°C] -31 [°F] or higher (depending on viscosity)	<ul style="list-style-type: none"> • Improved wear protection and load-carrying capacity to maximise component life in comparison with industrial mineral oils and synthetic hydrocarbon oils • Oil series complies with CLP requirements DIN 51 517 part 3 • Scuffing load stage ≥ 12 in the FZG test, DIN ISO 14635-1 A/8.3/90 • Good ageing and oxidation stability for increased oil life • The low friction behaviour of the polyglycol base oil reduces power losses and improves efficiency • Good corrosion protection • ISO 21469 certified

3) The product is normally suitable for central lubricating systems. Please note, however, that due to different system configurations and application conditions the pumpability of the product should be confirmed for each individual application. We will be pleased to assist in this matter.

4) Due to the many different elastomer and plastics compositions we recommend checking compatibility prior to series application.

5) Please contact your local Klüber representative for information on applications for chains lubricated with Klüberplus SK 02-295/Klüberoil 4 UH1 1500 N dispersion.

6) On oil viscosity selection please refer to the equipment manufacturer's manual or ask for advice.

Application	Application points/ machine components	Klüber speciality lubricant	NLGI grade	Base oil	Thickener
Filling, capping and labelling machines	Lifting rods and guides in filling machines	PARALIQ P40 Spray	Not applicable	Paraffinic mineral oil ²⁾	None
		Klüberfood NH1 6-10	Not applicable	Polyglycol	None
	Open drive gears in filling machines	Klüberfood NH1 14-222 Spray	2	Synthetic hydrocarbon oil ²⁾	Aluminium complex soap ²⁾
	Can seamers	Klüberfood NH1 14-261	1	Paraffinic mineral oil	Aluminium complex soap ²⁾
	Centralised grease systems in filling machines	Klübersynth UH1 14-151 ³⁾	1	Synthetic hydrocarbon oil	Aluminium complex soap
	Capper bearings and sliding shafts	PARALIQ GA 343 ³⁾	2	Paraffinic mineral oil/ synthetic hydrocarbon oil	Aluminium complex soap
	High-temperature bearings in labelling machines	BARRIERTA L55/2 ³⁾	2	PFPE	PTFE
Seals	Seals and filling taps (EPDM)	PARALIQ GTE 703 ³⁾	3	Silicone oil	PTFE
	Seals and filling taps (EPDM) for aseptic cold filling	Klüberfood NH1 87-703 Hygienic ³⁾	3	Silicone oil	PTFE
	Seals and filling taps (non EPDM)	Klübersynth UH1 64-2403 ³⁾	3	Synthetic hydrocarbon oil	Silicate

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Upper service temperature ¹⁾ approx.	Lower service temperature ¹⁾ approx.	Application notes and benefits
60 ²⁾ [°C] 140 [°F]	-10 [°C] 14 [°F]	<ul style="list-style-type: none"> • Light oil to reduce friction and optimise sliding actions, e.g. in capping heads
60 [°C] 140 [°F]	0 [°C] 32 [°F]	<ul style="list-style-type: none"> • Good wear and corrosion protection • Particular suitable for friction points subject to sugar, such as rocking levers, chain links, sensors, to reduce sugar adhesion • ISO 21469 certified
120 ²⁾ [°C] 248 [°F]	-25 [°C] -13 [°F]	<ul style="list-style-type: none"> • Sprayable grease for ease of application on open gears & slideways • Good wear and corrosion protection. • Good hot and cold water resistance
120 ²⁾ [°C] 248 [°F]	-30 [°C] -2 [°F]	<ul style="list-style-type: none"> • Applicable through central lubrication systems³⁾ • Good water resistance • Good wear and corrosion protection
120 [°C] 248 [°F]	-45 [°C] -49 [°F]	<ul style="list-style-type: none"> • Applicable through central lubrication systems³⁾ • Suitable for the lubrication of gears, lifting cylinders, guide bars, cam plates • Good water resistance • Good wear and corrosion protection • ISO 21469 certified
120 [°C] 248 [°F]	-30 [°C] -22 [°F]	<ul style="list-style-type: none"> • Good resistance against hot and cold water. • Good corrosion protection • Recommended by leading capper manufacturers
260 [°C] 500 [°F]	-40 [°C] -40 [°F]	<ul style="list-style-type: none"> • Good wear protection and thermal stability for extended relubrication intervals • Please note that friction points should be cleaned before initial lubrication • ISO 21469 certified
150 [°C] 302 [°F]	-50 [°C] -58 [°F]	<ul style="list-style-type: none"> • For use in low-loaded bearings and EPDM⁴⁾ seals in filling machines without aseptic cold filling. • ISO 21469 certified
150 [°C] 302 [°F]	-45 [°C] -49 [°F]	<ul style="list-style-type: none"> • For use in low-loaded bearings and EPDM⁴⁾ seals in aseptic cold filling machines to improve hygiene levels • ISO 21469 certified
140 [°C] 284 [°F]	-10 [°C] 14 [°F]	<ul style="list-style-type: none"> • Sealing grease suitable for beer taps, barrel fillers, filters, stuffing boxes, rubber diaphragms and seals⁴⁾ • ISO 21469 certified

2) of the active component

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Application	Application points/machine components	Klüber speciality lubricant	Base oil	Thickener	Upper service temperature ¹⁾ approx.	Lower service temperature ¹⁾ approx.
Shrink wrap tunnels	Transport and drive chains	Klüberfood NH1 CH2-220	Ester	None	250 [°C] 482 [°F]	0 [°C] 32 [°F]
Screw threads	Screw threads	Klüberoil 4 UH1-15 Spray	Synthetic hydrocarbon oil/ester oil ⁵⁾	None	110 ⁵⁾ [°C] 230 [°F]	-45 [°C] -49 [°F]
	Screw threads and slides	Klüberpaste UH1 84-201 ⁴⁾	Synthetic hydrocarbon oil	Solid lubricant/PTFE	120 [°C] 248 [°F]	-45 [°C] -49 [°F]
Compressors	Air screw compressors, pneumatics and hydraulics	Klüber Summit Hysyn FG 32 ³⁾	Synthetic hydrocarbon oil	None	135 [°C] 275 [°F]	-45 [°C] -49 [°F]
	Air screw compressors and hydraulics	Klüber Summit Hysyn FG 46 ³⁾	Synthetic hydrocarbon oil	None	135 [°C] 275 [°F]	-40 [°C] -40 [°F]
	Air reciprocating compressors	Klüber Summit Hysyn FG 68 or 100 ³⁾	Synthetic hydrocarbon oil	None	135 [°C] 275 [°F]	-40 [°C] -40 [°F]
	Air rotary vane compressors vacuum pumps/can seamers	Klüber Summit Hysyn FG100 ³⁾	Synthetic hydrocarbon oil	None	135 [°C] 275 [°F]	-35 [°C] -31 [°F]
	Refrigeration compressors	Klüber Summit R200 ³⁾	Synthetic hydrocarbon oil	None	Not applicable	Not applicable

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Application notes and benefits	
	<ul style="list-style-type: none"> • Low oil evaporation rate resulting in low residue formation and reduced oil consumption • ISO 21469 certified
	<ul style="list-style-type: none"> • Light penetrating oil to aid disassembly and reduce downtime
	<ul style="list-style-type: none"> • Universal white assembly and thread paste • Excellent low-temperature behaviour; good load-carrying capacity, good corrosion protection • Neutral towards alloyed steels • Also suitable for low-speed plain bearings, for guide rails, hinges, rollers etc.
	<ul style="list-style-type: none"> • Synthetic base oil with low volatility ensuring minimum carry-over, minimising contamination risks and consumption, providing typically increased oil life and operating cost reduction • KlüberMonitor analysis scheme recommended to determine the optimum duration of oil use • Alternative lubricant according to application/specification: Klüberfood 4 NH 1-32 • Please ask your Klüber consultant for advice • ISO 21469 certified
	<ul style="list-style-type: none"> • Synthetic base oil with low volatility ensuring minimum carry-over, minimising contamination risks and consumption, providing typically increased oil life and operating cost reduction • KlüberMonitor analysis scheme recommended to determine the optimum duration of oil use • Alternative lubricant according to application/specification: Klüberfood 4 NH1-46 • Please ask your Klüber consultant for advice • ISO 21469 certified
	<ul style="list-style-type: none"> • Synthetic oil with low volatility ensuring minimum carry-over, minimising contamination risks • Low residue formation reducing contamination of valves to reduce the risk of sticking and loss of compression, resulting in increased efficiency and reduced energy consumption. • ISO 21469 certified
	<ul style="list-style-type: none"> • Synthetic base oil with low volatility ensuring minimum carry-over, minimising contamination risks • Increased efficiency resulting from low residue formation to reduce contamination of vanes to prevent sticking and loss of compression • KlüberMonitor analysis scheme recommended to determine optimum duration of oil use • ISO 21469 certified
	<ul style="list-style-type: none"> • Synthetic compressor oil for refrigerating compressors operating with ammonia (R717), CO₂ (R744), propane (R290), propylene (R1270) or butane (R600) as refrigerant to minimise carry-over and sludge build up, supporting a reduction in oil consumption and operating costs • Pourpoint ≤ -45 [°C] (-49 [°F]) • ISO 21469 certified

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5) of the active component

On the intention of this lubricant selection brochure

The intention of this lubricant selection is to provide a logical guide through the Klüber Lubrication specialised product range. The structure of the brochure considers firstly the various application requirements and then leads you toward selection of the appropriate lubricant solution.

Whenever products appear to have similar properties, we highlight the differences in grey in the respective fields to assist with the final product selection. Should you not find a lubricant “tailored” exactly to your requirements we recommend contact with your local Klüber Lubrication representative, who will be able to offer additional assistance with product selection from our extensive lubricant portfolio.

We generally recommend to consult our lubrication experts prior to selecting a lubricant.



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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. 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 brochure at any time without notice.

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**We are where you are:
Klüber Lubrication – the world market leader
in speciality lubricants**

- subsidiaries in over 30 countries
- more than 1 700 staff
- products available worldwide

Klüber Lubrication offers expert tribological solutions. Through our worldwide presence, we meet customers' needs reliably and on time. We supply tailor-made speciality lubricants to customers from nearly all branches of industry and around the world – oils, greases, bonded coatings, pastes and many more. Over 80 years of experience, industry-specific know-how, and exceptional test facilities all help to optimise our solutions.



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