



Meeting GMP guidelines worldwide

Specialty lubricants for the Pharmaceutical industry

KLÜBER
LUBRICATION
your global specialist

Manufacturing according to GMP standards

In the Pharmaceutical industry, manufacturing according to GMP standards (Good Manufacturing Practice) is mandatory. To prove compliance with GMP guidelines, you need to have certified products.

To support you in complying with the stringent GMP guidelines, **Klüber Lubrication offers lubrication solutions, which are NSF H1 certified, ISO 21469 certified and FDA compliant lubricants.**

The control of contamination risks is a major issue in the GMP guidelines. Contamination means the intrusion of any undesirable materials into a product. To make manufacturing processes more reliable, H1 lubricants should be used exclusively.

The H1 registered lubricant standard lays down hygiene requirements for the formulation, manufacture and use of lubricants that could have unintentional contact with the pharmaceutical product.

In close cooperation with the machine makers, we develop lubricants that are closely tuned to the specified friction and lubrication points. Due to their excellent performance, the quantity of our lubricants that has to be applied can often be reduced. Exact dosage also supports compliance with the guidelines.

High-performance H1 lubricants

High-performance H1 lubricants help to increase productivity, reliability and economical operation of your machinery.

Each of the H1 lubricants was developed to make it optimally suited for specific application requirements. Depending on the application, the following characteristics were emphasised:

- High resistance to ageing and oxidation
- Optimised wear protection
- Good corrosion protection
- Good water resistance for protection against wash-out during cleaning and additional anticorrosive effect
- Good load-carrying capacity

The result is a significant extension of the component life and much longer maintenance intervals, and depending on the application reduced energy consumption.

In combination with **KlüberEfficiencySupport** the contamination risks in the pharmaceutical production can be minimised. The KlüberEfficiencySupport solutions was developed to improve the energy efficiency of your machinery or the efficiency of your maintenance and production processes, machines or components, going well beyond a simple lubricant recommendation.

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Pharmaceutical applications – optimally equipped with our specialty H1 lubricants

| Machine | Machine Components | Products | Product Characteristics |
|----------------------------------|---|------------------------------|--|
| Tablet press | Tablet punches and guides made of other materials than bronze | Klüberoil 4 UH1-100 N | – For the lubrication of punches made of e.g. POM or special steel |
| | Main shaft bearing/rotor bearing | Klübersynth UH1 14-151 | – Neutral towards many NBR elastomer types |
| | | Klübersynth UH1 14-222 | – For universal lubrication of rolling and plain bearings |
| | Hydraulic unit | Klüberfood 4 NH1 series | – Improves the ageing resistance and very low foaming tendency – Compatible with NBR and FPM elastomer types |
| | Gears | Klübersynth UH1 6 series | – For steel-bronze worm gears, spur and bevel gears at elevated temperatures – The excellent friction behaviour provides energy savings and improves efficiency |
| | Tool assembly and tablet punch preservation | Klüberoil 4 UH1-1500 N Spray | – Good corrosion protection for punches during storage |
| Blister packaging | Deep-drawing unit, film-sealing unit and elevation guides near the heated plates unit | BARRIERIA L 55/2 | – Resists very high operating temperatures up to 260 °C – Excellent long-term stability and high purity level |
| | Guide rails, racks, drives and cardan shafts | Klübersynth UH1 14-151 | – Neutral towards many NBR elastomer types – For universal lubrication of rolling and plain bearings |
| | Chains | Klüberoil 4 UH1-1500 N Spray | – Good corrosion protection for punches during storage |
| | Moulds for the deep-drawing film | PARALIQ 91 | – Release agent for moulds in blister machines used for the deep-drawing of film (bottom film) |
| Cartoning machine | Guide rails, racks, drives, spindles, cardan shafts | Klübersynth UH1 14-151 | – Neutral towards many NBR elastomer types – For universal lubrication of rolling and plain bearings |
| | Chains | Klüberoil 4 UH1-1500 N Spray | – Good corrosion protection for punches during storage |
| Sterilisation/ Pasteurisation | Rotary autoclave seal | BARRIERIA L 55/2 | – Considerable reduction of downtime and extension of relubrication intervals from 200 to 600-800 sterilising cycles. |

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