

The Importance of Speciality Lubricants

Enhancing Safety, Efficiency and Equipment Reliability



- Lubricants: a small investment that can make a big difference to equipment reliability, impact positively where environmental concerns are paramount, and increase equipment functionality under extreme conditions
- Technical advances in the industry show that H1 lubricants can deliver the same or better performance than conventional industrial gear oils

Proper lubrication delivers results

Across all industries, day after day, innumerable gears, bearings and compressors work incessantly in assembly belts, baking lines, escalators, in cars, in trains, and on offshore rigs, resulting in a continuous flow of production, transport and assembly, but also a constant consumption of energy. This constant consumption of energy is a major issue for designers and operators of these systems, not only because energy costs figure prominently among the items on a company's bottom line, but also because this energy consumption is one of the main sources of greenhouse gas – CO₂ – which impacts the environment and climate change globally.

There are numerous national and international regulations and guidelines in place to help reduce CO₂ emissions worldwide, but one simple measure, which is often overlooked, is that of speciality lubricants. According to Klüber Lubrication, speciality lubricants can help operators considerably reduce their energy costs and improve their CO₂ balance by reducing friction in gears and bearings. Tests have shown speciality lubricants to minimize friction and increase component efficiency by up to 10% thereby reducing valuable energy loss and thus lowering emissions and energy consumption.

By regarding the lubricant as an investment in economic efficiency rather than just a commodity and taking a proactive approach to lubrication management as part of a preventative maintenance programme an organisation can have a genuine impact on their bottom line.



Component materials, very high or low temperatures, pressure, rotational speed or moisture – all of these factors come into play when selecting a lubricant.

A lubricant, is just a lubricant though right?

On the contrary, a lubricant when selected and used correctly can have a significant impact on various manufacturing aspects, including: increased efficiency, energy saving, CO₂ reduction, cost control, improving reliability, and meeting environmental requirements. Companies rarely spend more than 1% - 3% of their total operating costs on lubricants, but are "happy" to spend maybe 40% on energy, 12% on replacement parts and 35% on labour. We can show you ways to seriously impact these costs.

How to choose the right lubricant

Choosing the right lubricant can be an especially tricky task. As manufacturers continue to push the limits of machine performance, lubricant suppliers must deliver tailored solutions.

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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 85 years.

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Enhancing equipment reliability through lubrication management

Increasing equipment reliability is one of the main concerns of manufacturers, but how can lubrication support this? By selecting the right lubricant for the application in mind is one way, to do this one factor to consider is the base oil viscosity. To select the appropriate viscosity, consider the following information about your application:

- Operating speed (variable or fixed)
- Specific type of friction (e.g., sliding or rolling)
- Load and the environmental conditions
- Industry standards

These general technical requirements are dependent on the operating conditions and manufacturing processes in your plant, some lubricants for example, like polyalkylene glycol (PAG) oils, are good for sliding friction, but are not well suited for rolling friction. Likewise, polyalphaolefin (PAO) oils are used for rolling friction and can handle some sliding friction, whereas silicon and PFPE lubricants are typically used for extremely high temperatures.

Synthetics and mechanical applications

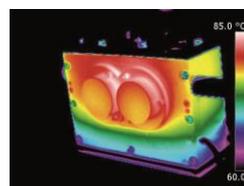
Synthetic oils are usually selected to provide mechanical and chemical properties superior to those found in traditional mineral oils. The benefits of Synthetic base oils, include:

- Low/high-temperature viscosity performance
- Decreased evaporative loss
- Reduced friction
- Reduced wear
- Improved efficiency
- Chemical stability
- Resistance to oil sludge problems
- Extended drain intervals
- Reduced operating costs resulting from less downtime
- Improved labour utilization (less time required for lubrication and maintenance)
- Measurable energy savings and increased output

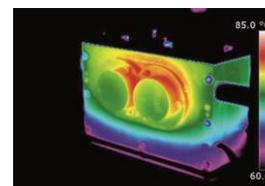
As manufacturing continues to push the limits and seeks to cut energy costs, minimize friction and reduce CO₂ emissions, the use of highly specialized lubrication options for a host of power transmission applications is paramount. Yes, speciality lubricants are more expensive, but it is important to look at the entire cost-benefit calculation of a given application, and price is just the tip of the iceberg, hence the potential for cost savings requires a closer look.

Hiding from first sight, but worth noting are the savings in down-time costs, maintenance, energy usage, spare parts, storage, disposal and of course lubricant consumption overall, as when synthetic high-performance lubricants are tuned to the particular application the total operational cost of that application decreases.

Consider a synthetic gear oil, which offers more energy efficiency because they have better oxidation and thermal stability, which means the gear oil lasts much longer – one could expect to change a mineral oil every 5,000 hours, whereas PAOs or synthetic hydrocarbon oils can last approximately 15,000 hours before a change-out is required. Although the savings provided by one gear box can be miniscule, when multiplied across a manufacturing plant with numerous industrial machines the cost is significant and can lead to a dramatic reduction in energy, thus making a higher performance lubricant that reduces friction resulting in less wear, delivers longer maintenance intervals and lower energy consumption the economical choice.



Standard Gear Oil
(mineral oil, ISO VG 220)



Klübersynth GEM 420 N

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Increasing efficiency through lubrication management

Lubrication evolves from tribology (the science of friction and wear) and not all lubricants are designed the same, which is why it's important to take a proactive approach to lubrication management and make sure the lubricant is applied in the correct manner, including the right amount and at the right time. To do this training is vital and it is important to have the various stakeholders involved from the beginning – it takes time for operators on the factory floor to become knowledgeable in all of the pertinent aspects of lubrication management – lubrication is a science after-all.

As a lubricant manufacturer our aim is to add value to your business, but more specifically value that can be quantified through our lubrication solutions, which is why we developed our "Tech Days". Through our tailored on-site training we support our customers with:

- Equipment "maintainability"
- Safe Storage
- Safe Handling and Dispensing
- Lubrication Application (Best Practice)
- Critical Asset Oil Condition Analysis (OCA)
- Training and Education
- Lubricant Purchase Selection and Quality Criteria
- Lubrication PM Optimisation
- Lubricant Mapping, Scheduling, Tracking and Reporting

We regularly emphasize a train-the-trainer style program, which allows knowledge sharing to become a practice even after the training ends.

We can also assist with development of lubrication schedules, lube mapping, labels for equipment, single point lubricators, recommendations for lube systems and identifying correct procedures for storage, sampling and applying lubricants.



About the company

Klüber Lubrication is the acknowledged global market leader in providing innovative lubrication solutions that solve problems, provide greater product durability, increase energy efficiency, and improve overall lifecycle cost reduction for equipment assets.

We were one of the first companies in Europe, and the first in North America to be certified according to ISO 21469, with 5 accredited sites globally. Our products are manufactured in a clean and safe environment, and as a member of EHEDG (European Hygienic Engineering and Design Group), and in partnership with the BRC (British Retail Consortium) we are committed to food safety initiatives right from the start - from product development to technical expertise - our procedures deliver the highest level of safety and quality to ensure total audit compliance for our customers

An affiliated brand of the Freudenberg Technology Group, we have been developing high-end tribological solutions and ambitious technical concepts for over 85 years', and are known internationally for our substantial number of OEM approvals from world leading manufacturers of food, beverage and pharmaceutical equipment. We are a clear leader in the market when it comes to problem-solving, optimisation, continuous improvement, cost control and best practice, continuing to meet the ever-increasing demands on industry to deliver reliability, sustainability and overall equipment effectiveness whilst maintaining consumer safety – **we are your global specialist.**

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