



ELKALUB **JOURNAL**

THE LUBRICATION PRESS ISSUE 7

European premiere

*Komori Lithrone GX40
equipped with H1 lubricants throughout for the first time
Page 5-7*

New polyurea system
Innovation brings independence
Page 3

Well lubricated, even in the heat
Specialist lubricants at APPARATEBAU
Page 8-9

Dear Readers,

in our seventh edition of the ELKALUB Journal, we are showcasing practical examples to share product knowledge with you that can give you a valuable competitive edge.

After all, there is no such thing as an “all-rounder” lubricant. Our specialist lubricants have very different abilities and are therefore in demand all over the world, and indeed for all kinds of duties. We offer a few examples of these over the following pages.

*With the right lubricants, you can even become a **world champion**, as our report on page 4 illustrates. We also report on a **European premiere** – the first Komori Lithrone GX-640 + L in Europe to be equipped throughout with H1 lubricants (P 5–7).*



*I am proud that, at Chemie-Technik GmbH, we have been able to make other significant investments and implement a **pioneering strategic decision** that will bring our customers several advantages at once in light of the scarcity of the raw material lithium. With an investment in a system to manufacture **polyurea greases**, we will be more independent from lithium and its price changes, enabling us to utilise our expertise in this field and further expand the diversity of our sought-after NSF H1-registered specialist lubricants.*

*We will also be reporting on our developments designed to combat the **seizing of stainless steel screw connections** (P 11), specialist lubricants for **miniature ball bearings** (P 4) and the **halal certification** of almost all NSF H1-registered ELKALUB lubricants (P 10).*

*I hope you find this edition both interesting and useful. Please do not hesitate to contact us should you have any questions. With great pride in my workforce and Chemie-Technik GmbH’s technical resources, I have realised that it is your questions that we are always answering in new ways with the right solutions – **specialist solutions carefully coordinated with your exact requirements.***

*With best wishes,
Joachim Hof, Managing Director
Chemie-Technik GmbH*

LEGAL INFORMATION

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O.D.D. GmbH & Co. KG Print + Medien (P 5 top)
Apparatebau Gronbach GmbH (P 8, 9)
Jan Gutzeit (Canister P 9)
WorldPix/Alamy Stockfoto (P 10)
blaurock markenkommunikation (P 11)



ELKALUB EMPLOYEE
FABIAN BRAUN

Precision reaction guidance
ensures quality

Innovation brings independence

We are strategically countering the current and continued predictions of scarcity and price increases for the raw material lithium with the increased development and production of polyurea greases.

Demand for lithium is growing

Electromobility is booming! At its heart is a battery, which is usually made from lithium compounds. Lithium is also used in the batteries of smartphones, tablets or notebooks – and has been used in lubricants for much longer. In the lubrication industry, we are therefore directly affected by the rising demand for lithium, since greases thickened with lithium soaps occupy the largest share of the global market.

This is because of their positive properties, ease of production and good availability of the raw material. However while the latter is falling, the price is rising.

Polyurea greases – an alternative with advantages

With polyurea greases, however, there is a class of greases that are perfectly adequate replacements for lithium greases. Their characteristics include excellent ageing stability and their high dropping point. Another major advantage is the fact that there are H1-compatible polyurea greases, whereas lithium greases were not permitted for use in food processing.

During the production of polyurea greases, the thickener is manufactured through an exothermic reaction. The process also takes place at lower temperatures than soap production. On the one hand, this saves energy and time, but on the other it also demands a lot of expertise and a wide range of safety precautions.

“In order to go some way towards counteracting the expected further shortage of lithium, we have installed a new system and significantly increased our capacity to produce PU greases”, says Frank Schulz, Head of Research / Development at Chemie-Technik.

The system has been coordinated precisely with the requirements for producing polyurea greases, in which two critical starter materials are processed to create a completely non-critical end product. Following numerous conversations with system builders and after close cooperation with the TÜV Süd organisation, the construction and commissioning of the system took place during the course of the year. Its core modules include larger vessels, an innovative stirrer technology and automatic dosing, which represents a significant improvement in occupational safety for employees.

Chemie-Technik GmbH is well equipped for the future with this investment.

“We have been producing polyurea greases for over 20 years. The new system represents a technological milestone. It is highly automated and allows flexible batch production. This means that we are able to produce both PU greases from our standard range and customer-specific specialist products with the same quality and efficiency.”

Managing Director **Joachim Hof**

Small bearings – big challenges

Without roller bearings, barely any machine will work, whether it be the large, slow-turning taper roller bearings of a wind turbine or the small, fast-turning ball bearings of a dentist's drill. Very small or even miniature ball bearings in particular need special lubricants to keep them running smoothly – and this is the perfect task for the specialists at ELKALUB.

Greases for fast-turning miniature ball bearings must be especially pumpable and dosable in order to ensure even lubrication with automated filling. A high-quality base oil with perfectly coordinated viscosity ensures smooth bearing running and low bearing temperatures, while at the same time providing adequate wear protection. The most important point is that the grease must adhere well to the material and not be spun off at high speeds. As a result, speed factors of > 2 million mm per minute can be achieved.

For miniature ball bearings in dental instruments, there are other complicating factors too: dental turbines are powered by compressed air, with the axial flow weakening the adhesion of the lubricant. Turbines and handpieces need to be sterilised with steam after each patient, and the bearing lubrication needs to withstand this too. Of course, such lubricants are also physiologically

harmless and tested accordingly.

High requirements for small bearings are the reason behind the development of various ELKALUB specialist greases.

A distinction can be made between mineral oil-based lithium special soaps for industrial applications and polyurea greases based on synthetic hydrocarbons for the food or pharmaceutical industries. The polyurea greases in particular are suitable for high-end applications thanks to their excellent resistance to high temperatures and water.

The excellent performance of ELKALUB greases is also reflected in the many years of cooperation with myonic from Leutkirch. Myonic is a highly respected manufacturer of miniature ball bearings and uses ELKALUB greases in a wide range of applications – for example in dental instruments.



Specialist lubricants for miniature ball bearings

ELKALUB VP 860 | Synthetic oil, (48 mm²/s), polyurea thickener, NLGI 1, 2,300,000 ndm

ELKALUB VP 899 | Synthetic oil mixture (40 mm²/s), polyurea thickener, NLGI 1, 2,300,000 ndm NSF H1-registered for food applications

ELKALUB GLS 935/N2-3 | Synthetic oil mixture (46 mm²/s), lithium special soap, NLGI 2-3, 1,800,000 ndm

ELKALUB VP 907 | Mineral oil (22 mm²/s), lithium special soap, NLGI 2, 1,600,000 ndm

ELKALUB creates world champions!



The ELKALUB Racing Team has been participating in international racing competitions for years. By supporting the team, Chemie-Technik GmbH is going back to its roots of producing engine oils, which the chequered flag in the company's logo still refers to today. There's no doubt about it: where there's a need for speed, high-performance lubricants are required.

The miniature combustion engines on boats, some of which run at over 30,000 rpm, are usually powered by methanol. Depending on the class of boat (endurance, offshore, hydro-plane), they have strokes of between 3.5 and 15 cm.

Among other things, the two-stroke engines require lubricants to be added to the fuel, so that the oil film on the cylinder liner and the bearings does not wear away despite the high number of revolutions (ELKALUB MEO 200 and MEO 150 Advanced). Special shaft greases for rigid steel or flexible shafts (ELKALUB VP 873) are also needed, depending on the boat or engine class. The miniature motors are finally rinsed and protected after the race with ELKALUB ARO ("After-run oil").

These special lubricants, which were developed specifically for these applications, are highly regarded all over the world: no fewer than 48 of the finalists in the IMBRA World Championship 2018 in Egletons, France, nine of them world champions already, used ELKALUB products, which the Italian model engine manufacturer CMB (www.cmb-motor-italia.com) also recommends.



★ ★ ★ ★ ★
European première:

O.D.D. PRINT + MEDIEN
 in Bad Kreuznach

Komori Lithrone GX40 equipped with H1 lubricants for the first time

A brand-new Komori Lithrone GLX 640 + L has been equipped with H1-registered lubricants at its commissioning at O.D.D. Print + Medien in Bad Kreuznach. Only these products from the broad spectrum of ELKALUB high-performance lubricants were used.

Following successful installation and the first weeks of testing, the parties involved met up to evaluate this premiere. **Alexander Haßinger**, Managing Partner of O.D.D. Print + Medien, has clearly defined plans for his new printing press: *“The Komori is highly productive, allowing us to replace two older presses and already we’re moving more into the production of folding boxes for the food and pharmaceutical sector.”*

In order to ensure the production hygiene required for this product sector, O.D.D. plans to implement a HACCP concept. This is a method of risk detection and avoidance in food-processing companies and related areas of industry. These include the printing of food and pharmaceutical packaging, since food packaging often has direct contact with the contents. **Alexander Haßinger** explains:

“For HACCP certification, we will need specialist lubricants anyway – and we’ve just put the preparations in place for that with the installation of the new machine.”

Komori’s sales partner in southern Germany, Heinrich Baumann Co., was able to provide support. Project Manager **Stefan Sattig**:

“We have been using conventional ELKALUB products in Komori machines for years – but so far no H1 lubricants. So we took detailed advice from both manufacturers and put together a customised first dress package that was H1-registered throughout. We provided extensive support for the machine during the commissioning stage and over the first few weeks, and the outcome is resoundingly positive – everything is running smoothly.”



THE EXPERTS AT THE MACHINE

Stefan Sattig (Project Manager, Heinrich Baumann Co.),
 Alexander Haßinger (Managing Partner and
 Head of Technology, O.D.D. Print + Medien),
 Christian Sieber (Production Manager, O.D.D.)



PRODUCTIVE FLAGSHIP:

Komori Lithrone GLX 640 + L
with ELKALUB H1 lubricants

H1 lubricants: high-quality raw materials, high performance

Christian Sieber, Production Manager at the printshop, was initially sceptical:

“Do H1 lubricants really perform as well as conventional lubricants? Or do we have to apply lubricant more often?”

Christian Sieber's concerns are understandable. After all, H1 lubricants are subject to various limitations: only certain raw materials are allowed, they have to be of higher purity and may only be used within defined concentrations.

Lubricants need to be found for the various areas of the machine's application that offer maximum performance and have minimal toxicological impacts if the food inadvertently and for technically unavoidable reasons comes into contact with the lubricant. Given these challenges, the effectiveness of the H1-registered lubricants amazes many users.

Dr Stefan Schlomski, Head of Technical Sales at Chemie-Technik GmbH, is able to dispel these concerns.

“We've been focusing greatly on H1 lubricants for many years. Their higher-quality raw materials mean that they even deliver better performance in many areas than conventional products.”

This naturally meets the needs of packaging printers, who are often printing enormous job runs in shifts and tolerate shorter maintenance intervals just as little as they do traces of lubricant on the printed material.



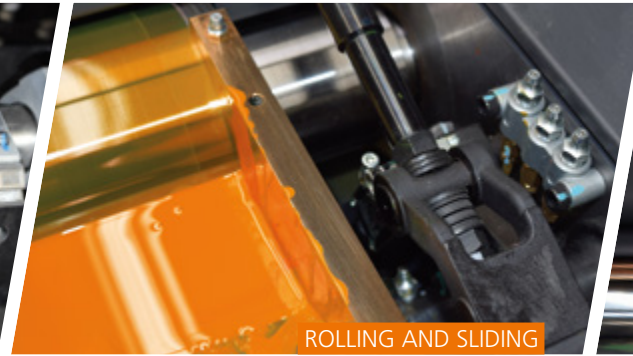
**SLUBRICATION POINTS INSPECTED
AND SATISFACTORY**

From left: Stefan Schlomski (Technical Sales, ELKALUB) and Stefan Sattig (Project Manager, Heinrich Baumann Co.)



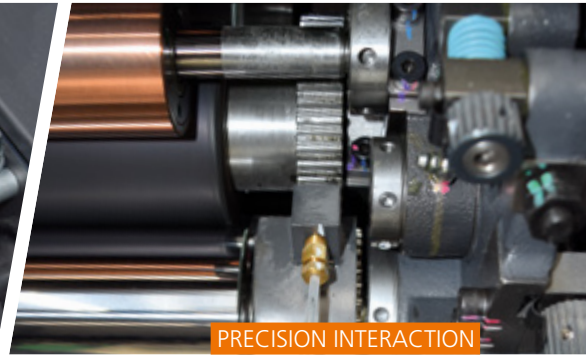
ALWAYS STAY
NICELY MOBILE

Gripper seat lubrication with ELKALUB FLC 4010



ROLLING AND SLIDING

Lubrication of roller bearings and rear jaw of the ink duct with ELKALUB GLS 964/N2



PRECISION INTERACTION

Bearings and gearwheel lubrication in the inking/dampening unit with ELKALUB GLS 964/N2



Advantage of H1:

A well-documented HACCP concept creates tremendous trust in the printshop among customers from the food and pharmaceutical industries.

The printshop's initial fears that they would have to lubricate more often have therefore long since been allayed in practice at O.D.D.

For O.D.D.'s Managing Director **Alexander Haßinger**, not only are the technical aspects important, but so too are the costs. The high-

quality H1 lubricants are naturally more expensive than conventional ones, but enhanced product safety has to be paid for. On the background of an expensive product recall due to contaminated packaging, Alexander Haßinger puts this issue back into perspective and looks proudly at his new Komori:

"I'm not going to let my new press be ruined with cheap lubricants."

ELKALUB H1 lubricant in the Komori Lithrone GLX 640 + L:

OIL CIRCULATION LUBRICATION

ELKALUB LFC 34068

CLP gear oil with high wear protection, even at low temperatures (40 °C)

CHAIN LUBRICATION

ELKALUB LFC 34220

CLP gear and chain oil; very high wear protection, even at low temperatures (40 °C)

FLUID GREASE FOR CENTRAL LUBRICATION

ELKALUB GLS 367/N00

Fluid grease with good adhesive properties for roller and slider bearings, suitable for central lubrication systems

GREASE FOR MANUAL LUBRICATION

ELKALUB GLS 964/N2

H1 special grease for high-speed printing presses. High wear protection and low tendency to be spun off

GRIPPER SEAT LUBRICATION

ELKALUB FLC 4010

Special oil spray based on ester oil; ink and lacquer-dissolving properties safeguard the gripper's mobility. Safe from spin-off thanks to the small grease percentage

CORROSION PROTECTION FOR THE TRANSFER CYLINDER

ELKALUB MBF 360

Lubricant and corrosion protector; contains PTFE and high-quality waxes. Easily removed with suitable cleaners

From South Tyrol to the whole world thanks to good lubrication

Kinematic components for high temperature ranges

Apparatebau Gronbach GmbH in Neumarkt-Laag, South Tyrol, is an SME supplier in the field of sheet metal forming, welding and installation technology. The company specialises in the development and production of kinematic and aesthetic components. Since 1971, the experts at Apparatebau have been producing high-precision and high-quality mechanical components and assemblies for well-known. Numerous innovations, specialist developments and user-orientated solutions have helped Apparatebau become one of the leading companies in a wide range of sectors, including the household appliances industry, for example.

Apparatebau also develops and produces hinges and pull-out rails for all of the well-known manufacturers of household appliances. Around 125 employees work day-in, day-out on solutions for the appliances of today and tomorrow. The premium supplier's customers are based across 30 countries worldwide. **Gerold Meurer**, Head of Innovation at Apparatebau, describes the cooperation with customers as very close:



"We support our customers throughout the entire process: from product development, the construction of the materials and the creation of samples to implementation in series production."

Complex tasks

Apparatebau also has a similarly close cooperation with its suppliers, such as Chemie-Technik GmbH.

Take the example of self-cleaning ovens: while the temperatures in standard ovens reach around 300 °C, self-cleaning ovens reach peak temperatures of 500 °C during their cleaning phase. Normal lubricants will fail at these temperatures. This is why the lubricated pull-out rails had to be removed from the oven when they were self-cleaning.

There is a provisional development product to solve this lubrication problem. **ELKALUB VPG 927** grease is based on specially thickened, non-toxic silicone oil. The silicone oil evaporates at the high self-cleaning temperatures and leaves behind an ultra-thin film of solid lubricants that permanently lubricates the pull-out rails. The product is of course suitable for contact with food and has NSF H1 registration.

Example of "smart living": for a few years now, the subject of "smart living" has been big news. All kinds of elements in the "smart home", such as household appliances, are being increasingly networked, enabling them to be controlled from any location.

For this new era in the home and household sector, Apparatebau has developed products such as the e-Hinge, an electromechanical oven hinge. It allows ovens to be opened and closed using sensor or smartphone control or even fully automatically. Combined with a special baking program, for example, the oven door can be automatically opened after the cooking or baking process by a defined angle to cool down the food inside.

The requirements on the lubrication points and the lubricants are also high for the e-Hinge: The actuators, controlled via electronics, generate high forces on the bearing points, and here too, lifetime lubrication is required. The development is still in its early stages, but the first ELKALUB laboratory samples are already on their way to Apparatebau.

"We have been relying on lubricants from ELKALUB for over 15 years, and we are very happy with their quality."

Gerold Meurer, Head of Innovation at Apparatebau

A good team

The combination of ELKALUB GLS 962/N2 and the G1 oven hinge is not a development, but rather a series that has been used millions of times over. No fewer than 150,000 closing cycles need to be withstood!

The ELKALUB GLS 962/N2 grease adds high-quality chemicals: a synthetic base oil mixture (PAO/ester) with high viscosity (460 mm²/s), oxidation-stable and temperature-resistant to 250 °C.

Dr Frank Schulz, Head of Research and Development at Chemie-Technik GmbH, explains the additional advantages:

“The particular suitability of the NSF H2-registered grease ELKALUB GLS 962 comes from the fact that it reduces the ‘stick-slip effect’, which mostly occurs at temperatures over 100 °C. It also has excellent properties in combination with fibreglass-reinforced PA (polyamide) and galvanised steel.”

The mechanical side is represented by the G1 curved hinge. A displacement and force-controlled kinematic measurement is used here. The form of movement is specified by a curve, while the force is determined by a spiral spring. Clever: the spring can be replaced and can be adapted to the weight of the door. To ensure that the curved hinge remains able to function unremarked for a long time, it is also designed to be space-saving and easy to clean.

The advantages of the G1 curved/oven hinge:

Door-side installation

The hinge is attached to the door and forms a single unit with it. The door and hinge can be easily removed for installation or cleaning purposes.

Comfort opening and closing

The hinge allows the door to be left at any opening angle between 20 ° and 70 °. The patented hinge brake dampens the door stop when it is being closed.



A strong team:

OVEN HINGE FROM APPARATEBAU GRONBACH AND
ELKALUB GLS 962/N2

Versatility

The exchangeable hinge spring allows it to be used in doors of various weight.

Reliability

The construction is virtually indestructible. Well-known household appliance manufacturers have been relying on this hinge for years.

A brief introduction

APPARATEBAU

Products

Aesthetic and functional components
Mechanical and kinematic assemblies

Examples

Folding door hinges
Swivel door hinges
Aesthetic front panels and covers
Aesthetic functional components such as side suction filters
Safety components for outdoor use

Turnover: 22 million
Employees: 125
Export quota: 85%
R & D quota: 6%
Certifications: Family and Career,
ISO 9001, OHSAS 180001



Halal for the global market

From now on, virtually all H1 registered ELKALUB high-performance lubricants are also halal-certified.

*"The initial enquiries for halal-certified ELKALUB lubricants came from dairies wanting to export milk powder to the Middle East or Asia", says the Head of Technical Sales at Chemie-Technik GmbH, **Dr Stefan Schlomski**. With its currently 96 NSF-registered H1 lubricants, the company is already widely represented in food-related production sectors such as manufacturing, transport and packaging.*

The halal certification has only been relevant for a few ELKALUB products so far, however this has changed recently following numerous enquiries from customers abroad.

"For us as a global company with an international sales quota of around 50 per cent, halal certification will allow us to tap into the global market for Muslim foods. Demand is huge, since Islam is the second-largest religion in the world, with around 1.8 billion followers." Stefan Schlomski adds: "Demand is also growing in the packaging industry. Our most recent enquiry came from a blown film manufacturer looking to convert its entire fleet of machines to halal-certified lubricants. The reason is that the film comes into direct contact with the food, therefore both the film and the lubricants used during production need to be halal."

"Our broad range of halal-certified H1 lubricants means that our customers can now switch over wholesale to approved products from a single source."

The certification confirms, from an Islamic point of view, the proper, pure and thus permitted ("halal") quality of ELKALUB high-performance lubricants.

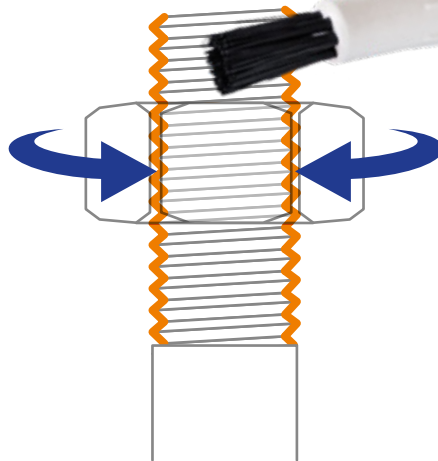
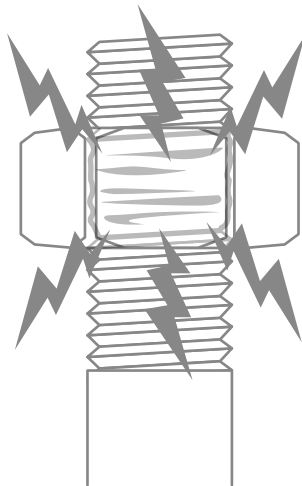
The first stage of the certification process involved a check of the ingredients and formulations to ensure there were no forbidden constituents. In-depth research which also involved upstream suppliers was needed for this. In the second stage, containers and equipment were checked and the processing and cleaning routines were observed. The inspection of the company's production practices by a member company of the "Gütegemeinschaft Halal-Lebensmittel e.V." represented the final stage of the halal certification process.

The entire project was accompanied on Chemie-Technik GmbH's side by graduate food chemist and management representative **Cornelia Hölle**. She monitors the compliance with all regulations, prepares the annual follow-up audits and checks ELKALUB products in the development stage for future compliance with halal requirements. Describing her objective, she says: *"Ideally, we will be developing products for the food sector that are both eligible for NSF H1 registration and certifiable as halal."*

ELKALUB GLS 361/N1

Two mechanisms prevent the “seizing” of stainless steel screw connections.

Screw connections in machinery and equipment in the food and pharmaceutical sector are primarily made from stainless steel. They are often unfastened and screwed back together again for cleaning, maintenance and repair. This incurs the risk of galling.



DISPENSED WITH PINPOINT ACCURACY

With the ELKALUB brush can and ELKALUB GLS 361/N1, threads can be protected

During the screwing process, high spot pressures, loads and temperatures can occur, causing identical metal lattices to quickly fuse together. Stainless steel is particularly prone to this, because its high coefficient of friction leads to relatively high temperatures and surface convergences when it is being screwed.

The coefficient of friction can be increased further by inaccurately cut threads, rough surfaces and compressive or tensile forces during installation. Ultimately, corrosion caused by aggressive cleaning chemicals or physical damage to the passivation layer can also cause tremendous friction and therefore heat during the screwing process. Anyone who has ever touched a heavily rusted screw, that has just been loosened with a lot of force, will be familiar with the painful consequences it can have.

There is an agent that can prevent galling of stainless steel screw connections: the special lubricant **ELKALUB GLS 361/N1** protects the thread using two different mechanisms:

“The adhesive formulation and high-quality white oil create a stable surface film which prevents the ingress of water and aggressive cleaning chemicals. A high proportion of different solid lubricants also reliably prevents solid contact. A very high VKA value of 4,200 N confirms this.”

Dr Stefan Schlomski, Head of Technical Sales at Chemie-Technik GmbH.

Unique selling points of ELKALUB GLS 361/N1

- > NSF H1 registration
- > Available in an application-friendly brush can
- > Suitable for high-temperature applications

ELKALUB



Hochleistungs-Schmierstoffe
High Performance Lubricants

Any questions? Get in touch with us:

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