



January press release

Tribology in the treatment plant

No life of luxury for lubricants

The use of lubricants in treatment plants is a unique science. The example of the EWE WASSER GmbH Edeweicht wastewater treatment plant, which works with ELKALUB lubricants from the Swabian manufacturer Chemie-Technik GmbH, provides valuable tribological insights.



Edeweicht wastewater treatment plant



Stirrer digestion tower with central lubrication

Approx. 2,700,000 cubic metres of wastewater are treated at the highest technical level every year at the Edeweicht wastewater treatment plant. The plant doses, stirs, screens, filters, floats, pumps, coagulates, presses, sorts, dewateres and dries 24 hours a day, 365 days a year. A treatment plant is a chemical plant with a lot of mechanics which work under inhospitable conditions: water, dirt, toxic and explosive gases, heat, cold, snow and ice. These conditions also determine the requirements profile for the lubricants: they have to be adhesive and waterproof, offer good corrosion protection, and work in

automatic lubricant dispensers. The price also has to be right, because most of the applications are loss lubrication situations.

Gas-tight grease block chamber protects an explosive area

The most visible sign of a treatment plant by quite some way is the digestion tower. Here, methane gas which is then burned in the internal cogeneration unit is extracted from sewage sludge. For efficient production of biogas, the sludge must be constantly circulated, allowing approx. 30 percent more biogas to be extracted. A so-called sludge mixer can be used for this purpose. This can accomplish both stirring and vertical sucking and pumping flows using a riser pipe system.



Rail wheel with gear drive

Here, the lubricant is not only responsible for lubrication of the rolling bearings, it is also used to seal the agitator shaft by means of a gas-tight grease block chamber. A thoroughly safety-critical task, since explosive methane gas leaks must be prevented under all circumstances. All lubricants in the digestion tower at the Edewecht treatment plant are continually supplied by means of central lubrication. ELKALUB GLG 16/N000 grease, a lithium saponified grease with good resistance to oxidation, good sliding friction behaviour and high load-carrying capacity, is used here. As a result, the gear unit of the digestion tower mixer, which is subjected to high stressed, can be continually lubricated.

The problem of low shear rates

At ground level, in non-explosive atmospheres, the scraper bridges draw their circles slowly but constantly in the round secondary sedimentation basins. **Dr. Stefan Schlomski**, Head of Technical Sales at Chemie-Technik GmbH, knows: ***“The lubrication for slow movements – like those of the scraper bridges – is often even more challenging than the lubrication of fast-moving machine components. For a tribological point of view, you move for much longer in the boundary friction area. Because, as a result of the low relative movement of the machine components against each other, the lubricant can be pushed out***

of the friction point. The low shear rates allow the lubricant to remain more viscous and thus impair the backflow behaviour.” An adhesive grease with outstanding corrosion protection, the high quality ELKALUB GLS 967/N1-2 synthetic oil grease is therefore used as a lubricant for the scraper bridges.



Secondary clarifier and round cleaner



Memolub lubricator

Like the digestion tower, the scraper bridges are also equipped with automated lubrication technology. Dr. Stefan Schlomski: ***“By now, we offer more modern devices, but the Memolub dispenser which we installed in Edeweicht many years ago is still working extremely reliably. Since we fill the cartridges of all lubricant dispensers ourselves, the provision of the right lubricants is guaranteed for old device types, too.”***

Automated lubrication technology provides safety above all

The introduction of lubricants is necessary because the use of automated lubrication



Central slewing ring with automated lubrication technology

technology in the Edeweicht treatment plant not only saves on staff – it also makes a significant contribution to occupational safety. **Jens Walter**, ELKALUB sales representative for northern Germany, knows: ***“Picture the scene, it’s dark, it’s snowing and the wind is blowing – no-one likes to go up on the roof of the digestion***

tower in those conditions.” and points out the risk: ***“Try to re-lubricate slewing ring on an frozen scraper bridge by hand – there is a high risk that someone will fall off sooner or later. That’s extremely dangerous!”***

Two other specialist lubricants are used in the Edeweicht wastewater treatment plant, particularly on chains in outdoor areas: ELKALUB LA 8 and ELKALUB FLC 8, a chain lubrication oil and a chain lubrication spray. Both products are particularly water and dirt-resistant and provide excellent corrosion and wear protection.

Responsible for the accuracy of the information: Tobias Blaurock

“The ELKALUB treatment plant professionals” from Chemie-Technik GmbH:

ELKALUB GLG 16 / N000:

- Lithium saponified fluid grease with good oxidation resistance and good sliding friction behaviour
- High load-carrying capacity for long-lasting lubrication of gear units under high strain

ELKALUB GLS 967 / N1-2:

- High quality lubricating grease made from synthetic oil
- Adhesive and outstanding corrosion protection

ELKALUB LA 8 / FLC 8:

- Chain lubrication oil and chain lubrication spray
- For all types of chains used outdoors
- Good penetration
- Water and dirt-resistant
- Excellent corrosion and wear protection

More information:

www.elkalub.com

You can get more information upon request and at <http://blaurock-markenkommunikation.de/elkalub/>.

Press contact

blaurock markenkommunikation
Mr Tobias Blaurock
Hechtstraße 30
D-01097 Dresden
Tel: +49 351 / 21 09 871
Fax: +49 351 / 20 78 15 33
blaurock@team-blaurock.de
www.team-blaurock.de