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Focus on sustainability

Sustainable lubricants – is this possible? Of course, provided certain essential details are taken into consideration. Industrial lubricants can protect the environment through their formulation, procurement, storage, usage and disposal. The topic of lubrication furthermore plays a central role when it comes to the aspect of sustainability – a point that is good to know for the technical trade which through competent advice can reduce the ecological footprint of their customers.

In issue TH 4/2020 we already reported on the increasing significance of the topic of sustainability for the technical trade. Even then the focus already lay on lubricants and their contribution to the environment. Since they are omnipresent in all production processes and have a huge influence on emissions, energy consumption and service life.

In November 2021 the VTH expert group “Drive technology” informed themselves in more detail again on “Sustainable lubricants” (P. 26). Focus of the speech by Steve Löffeler, sales manager at OKS Spezialschmierstoffe GmbH, was the question: “How can I support my customers in producing more sustainably by using special lubricants?”. What characterises a sustainable or green lubricant? And what do we have consider for the application? The technical trade, for which competent advice of the user is a significant service feature must be able to answer these questions in the future. The following sections provide an overview.

Notable CO_2 reduction potential thanks to lubricants

At first glance lubricants seem to be a rather insignificant product with regard to sustainability. However, reality paints a different picture! In particular under the aspect of sustainability the topic of lubrication plays a central role for all production processes since a reduction of friction in Germany alone could save up to 22 million tonnes of CO_2 or, put differently, 6.4 % of the CO_2 reduction expected by the German Government until 2030. All-in-all about 30 % of the worldwide energy consumption is wasted in friction and wear processes.

Modern lubricants help to increase the efficiency of plants and their service life – which represents an important contribution to sustainability and to lower operating costs. According to the German lubricant industry association (VSI) annual damage through friction and wear in Germany is estimated to amount to 30 billion Euros. Even higher sums arise through damage due to corrosion. Lubricants are therefore an important contribution towards sustainable resources efficiency.

It is thus not surprising that the demand for sustainable products in the lubricant sector has increased. The lubrication specialist OKS follows this trend with the development of lubricants with an increasing focus on sustainability. With corresponding success. Meaning that this product sector has expanded by approximately 25 % during the current financial year. The entire market segment should develop in a similar way. Technical trade should therefore establish its expertise in this area. Since their role is to help in reducing the "handprint" of their customers, meaning to contribute towards the customers also reduce their CO_2 footprint.

But, before we look at the product level, we should first view the manufacturer. Important aspects when choosing product suppliers are their efforts to reduce their own "footprint". The most important questions which should be checked are:

- Does the manufacturer invest in reducing their energy consumption, for example through efficient production plants and are possibilities of regenerative energy generation exploited?
- What do the vehicle fleet and the supply chains look like? Do they produce in Germany? Are there local procurement and supply chains for raw materials (to reduce transport distances)?
- Are there measures in place to reduce the volume of waste (packaging and production materials)?
- Does the company develop sustainable and innovative product technologies?
- Does the manufacturer use closed manufacturing processes to reduce emissions?
- Does a recycling of specific operating materials such as, for example, solvents take place?
- How rapidly does the supplier respond with its product range to current statutory environmental specifications or to customer and application requirements?
- And what does the manufacturer offer so that the customer can make their operation more sustainable (recycling systems, packaging types, etc.)
- Many of these aspects are already actively implemented at OKS as the company's sustainability report shows in more detail.
- What is a sustainable lubricant?

Not only does the technical trade have to carry out a selection of suitable manufacturers per product category – they must also be able to give their customers orientation and advice on the product-specific level. This begins with the question: When is a lubricant sustainable?

According to lubrication specialists of OKS, this question must be answered in a differentiated manner. A lubricant is considered as "sustainable" when it contributes to reducing the energy consumption of machines and plants and increases their service life, as well as notably reducing the amount of lubricant required in the application itself. Not only the lubricant should be sustainable, but as far as possible the supply form and its packaging as well. A "green" lubricant on the other hand is based on native, renewable raw materials, is biodegradable and does not harm the environment should an unwanted release into the environment occur.

The "Airspray" system saves on disposable spray cans

Packagings which can be used multiple times significantly reduce the use of resources, contribute towards waste reduction, are inexpensive and since they are usually manufacturer-specific higher customer loyalty also results. And they are an active contribution towards reducing the "footprint" of the customer or trading partner.

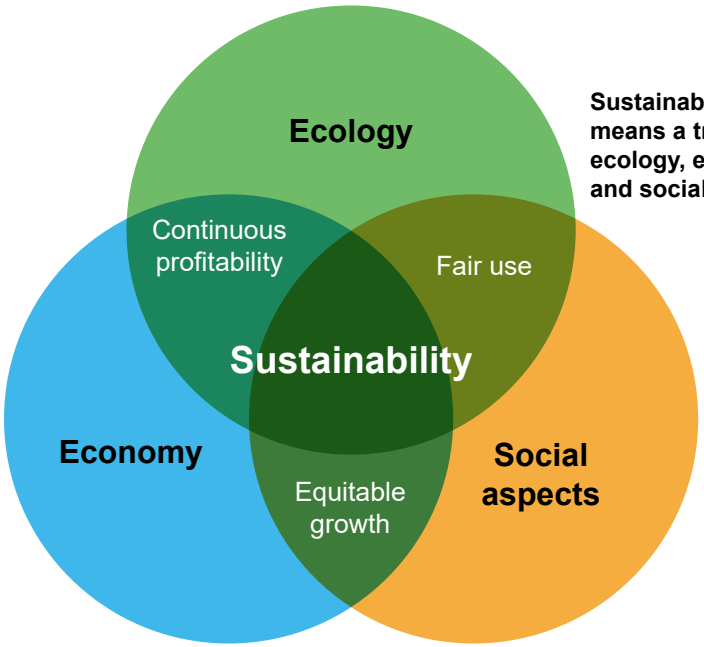
As a rule spray cans are used for manual lubrication – whether in the workshop or in industrial servicing. These have to be disposed of in a complex manner subsequently and their propellant gases have a negative environmental impact. As a sustainable alternative to this OKS has developed its "Airspray" system. This is based on refillable spray cans which in contrast to the classic spray cans use pure compressed air as the propellant gas and which can be filled multiple times with the active ingredient. This saves countless disposable spray cans and minimises the required transport and storage of hazardous substances.

A ground-breaking, though not really new idea, is to refine waste oils again into base oils in order to return them into the raw materials circuit. In a closed-loop process, water and contaminants are removed from oils and furthermore polar as well as acidic substances are removed. This results in high-quality basic oils which are suitable for the production of hydraulic, transmission and transformer oils.

As has become clear, many aspects play a role during the design and development of sustainable lubricants. Therefore the selection of the raw materials used and their formulation not only influence the classification of the lubricant but also its suitability for the use and application under environment-relevant conditions, as the following examples show.

Improved copper paste

The classic copper paste is one of the most used lubricants worldwide. This is due to wide range of usage of this paste which is used wherever the goal is to avoid thread seizure at high temperatures, in corrosive environments and moisture. Copper paste is used when assembling bolted connections, for example at combustion engines, screwed connections at pipe fittings, flange joints and fittings, exhaust pipe screwed connections, gas and oil burner mounting bolts. The problem: As a rule classic copper pastes are classified as dangerous, toxic and environmentally hazardous. Therefore a copper paste designed for sustainability, such as “OKS 245” is characterised, amongst other things, by being fully exempt from labelling requirements, absolutely resistant to fresh water and sea water and despite its small share of copper providing a higher performance.



Sustainability always means a triad of ecology, economy and social aspects

Similar aspects also apply for the classic white pastes. These offer users good wear and corrosion protection and a prolonged lubrication effect. They are used for the lubrication of heavily loaded sliding surfaces of all types, in particular at low sliding speeds or oscillating movements, during surface separation of temperature-stressed threaded connections or for stainless-steel connections. Here, the problem is also that these pastes are often classified as dangerous, toxic, caustic and environmentally hazardous. In contrast to the ceramic paste “OKS 255”. It is not classified as a hazardous substance and is free of solid metal lubricants.

Industrial cleaners have an extremely wide range of usage and are therefore used in nearly all plants, whether it be for the cleaning of cooling devices, beverage and goods vending machines, of tiles, ceramics and natural stone, of construction machines and lorry (tarpaulins) or of machine tools and workshop floors. Most industrial cleaners are based on organic solvents which is why they are labelled as dangerous, toxic, environmentally hazardous and highly inflammable. The industrial cleaner “OKS 2650”, on the other hand, is based on water and can, depending on the degree of soiling, be diluted with water. This cleaner is fully exempt from labelling requirements, easily biodegradable, NSF-certified and free of MOSH/MOAH substances and thus ideal for usage in the food processing industry.

Rust removers made of environmentally-friendly substances

Rust removers are used wherever metal is processed. Fields of usage are loosening rusted threads and restoring their function, such as at screws, turnbuckles, spindles and stud bolts, the derusting of metal surfaces, the removal of rust films and rust stains and the cleaning of metallic encrustation and oil residues. Classic rust removers contain mineral oil and benzine which leads to a number of hazardous material classifications such as toxic, environmentally hazardous and highly flammable. With “OKS 661” a rust remover is now available which is based solely on environmentally-friendly substances and which is free of benzine or mineral oil. Therefore this rust remover is ecologically harmless during usage and thanks to its exemption from labelling requirements especially workplace-friendly.

Biodegradable multi oil

A true classic among the lubricants are multi oils. As the name already implies they have a wide range of usage with numerous fields of application. Like rust removers, multi oils also contain mineral oil and benzine and like them are also labelled as dangerous, toxic, environmentally hazardous and highly flammable. “OKS 8600” is a multi oil which is biodegradable, VOC-free and silicone-free and which, thanks to its very high proportion of renewable resources of 90 %, is significantly less harmful to the environment than conventional multi oils.

On the basis of this overview of the most important lubricants and their possible sustainable product alternatives, the technical trade with its expert advice is able to help customers reduce their “footprint” in the short term and contribute to reducing their customers’ costs.

Source:
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