

Press release (30 September 2016)

Food processing

No-residue lubrication on EPDM gaskets

In many cases, O-rings made of EPDM are used in the assembly of machines. To fix the gaskets in the groove and to ensure twist-free mounting, they are lubricated with mounting greases, which are subject to various requirements: among other things, it must be possible to completely remove mounting greases during cleaning and sterilisation of the facility. Silicone greases are generally used for this purpose, as they are highly compatible with EPDM. However, a disadvantage of these greases is that they are almost impossible to remove from the surface during cleaning. In cooperation with Krones AG, Chemie-Technik GmbH from Vöhringen, Germany, has developed a mounting grease meeting all the requirements.

Vöhringen / Neutraubling: Krones AG is a world leader in facility engineering for process, filling and packaging technology in the food and drink sector. Millions of bottles, cans and plastic containers pass through facilities by Krones every day, bottling beer, soft drinks, wine, champagne and spirits as well as processing products of the food and beverage industry and the chemical, pharmaceutical and cosmetics industries.

These are exactly the industries in which the use of H1-certified lubricants is necessary to avoid dangerous contamination. Lubricants of this type meet strict requirements concerning composition, appearance, odour and toxicity. To receive an H1 certification, the formula of a lubricant must be submitted to the U.S. organisation NSF International and approved by them for use in the food industry. Only the use of H1-certified lubricants ensures that occasional, unavoidable contact between lubricants and foodstuffs does not result in a consumer hazard.

EPDM (ethylene propylene diene monomer rubber) as a special case

In many cases, O-rings made of EPDM are used in the assembly of machines. To fix the gaskets in the groove and to ensure twist-free mounting, e.g. on a shaft, the O-rings must be lubricated with a mounting grease. This grease must not cause any swelling or shrinking of the O-rings. Following the assembly of filling lines, for example, this is complicated by the fact that it must be possible to completely remove the grease during cleaning and sterilisation of the facility. Although the silicone greases used for this purpose in most cases do not negatively impact the dimensional stability of the EPDM gaskets, they come with the disadvantage of being very difficult to remove from the surface during cleaning.

The challenge

For this reason, the list of technical specifications for the development of a mounting paste for EPDM gaskets in facilities for the processing and filling of foodstuffs is rather long:

- H1-certification by the NSF,
- No swelling or shrinking of EPDM gaskets,
- Removable as completely as possible during cleaning,
- No impact on the stability of beer froth,
- No uptake of aromas,
- No release of fragrant or aromatic substances,
- No drying up.

Development

The high-performance H1 lubricant ELKALUB GLS 867 has been developed specifically for the mounting of EPDM gasket rings in facilities with food contact. It is a viscous grease of NLGI Class 0-1 based on a colourless and odourless synthetic oil. The grease does not impact EPDM gaskets in any way and is very easy to remove during cleaning, resulting in clean and fat-free surfaces touching products during testing after a 20-minute cleaning and rinsing procedure. The grease could also be removed without any problems from the parts not touching the product.

Result

Figure 1 shows a flange following the cleaning process at Kronos, with an O-ring lubricated with ELKALUB GLS 867. The lubricant was completely rinsed off the sections touching foodstuffs. Only small amounts of lubricant are still visible on the parts not touching the product, which can be easily removed.



Figure 1

In comparison, Figure 2 shows a flange with an O-ring lubricated with a conventional silicone grease. Here, you can still see significant amounts of grease residue both on the parts touching the product and on the parts not touching the product.



Figure 2

The successful development of a lubricant which better meets the specific requirements than previously existing solutions demonstrates the strength and a characteristic feature of the lubricant experts from Baden-Württemberg, Germany. New special solutions for many different industrial applications are constantly being developed at the company's headquarters in Vöhringen. The facility engineers at Krones – like many other manufacturers – have been using GLS 867 and other special H1 lubricants by ELKALUB for a long time.

The H1-certified mounting grease ELKALUB GLS 867 is available in tubes (250 g), cartridges (400 g) and buckets (5 kg) (Figure 3).



Figure 3

Chemie-Technik GmbH will present its wide range of ELKALUB high-performance greases for various industrial application at this year's Motek trade fair in Stuttgart (10 - 13 October, Hall 6, Booth 6202).

For more information, please visit:

www.ELKALUB.com

www.krones.de

Please contact us for printable product images and further information.

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