

## Case Study

# Klüberfood 4DC 13 in use as barrier fluid in “new food” ball mill



## Starting position

The Bühler Group, based in Uzwil, actively supports an innovative start-up specialising in the production of “new food”.

The new products are manufactured using a ball mill designed to produce homogeneous liquid mixtures. The mill is mainly used to process by-products from the production of beer (grains). This pioneering technology aims to generate world-class products in the “new food” sector.

EagleBurgmann was selected as a partner to provide the sealing systems of these ball mills; EagleBurgmann, in turn, commissioned Klüber Lubrication to supply the barrier fluid for the mechanical seals. Through this synergy, the two Freudenberg companies create outstanding value for their customers.

## Challenge

The challenge was to find a barrier fluid that does not pose any risk for health in case of contact with the produced “new food”. In most such applications, lubricants with NSF H1 registrations are typically used, but there are limitations to their usability. The use of technical oils currently available is limited to approximately 10 ppm according to FDA guidelines.

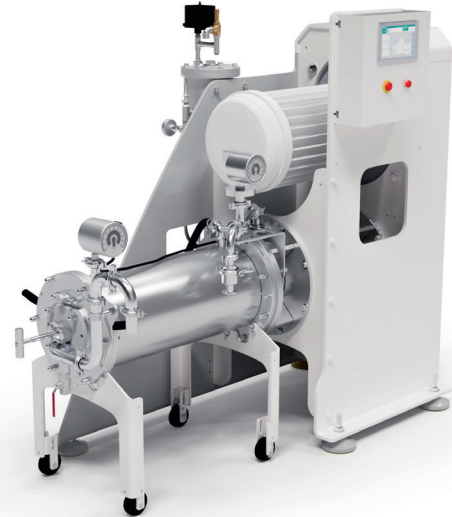
## General conditions

- Seal type: locking mechanical seal with pumping screw – HSMR19 type
- Supply: thermosiphon system using Klüber 4DC as barrier medium
- Material: Q1Q1VLGE (G)-Q1BVLGE (1.4122)
- Speed: 600 to 2000 rpm
- Operating pressure: 0 to 10 bar
- Temperature of medium: < 120 °C

## Solution: Klüberfood 4DC 13, the alternative to NSF H1 barrier fluids

An optimal solution to this challenge comes in the shape of Klüberfood 4DC 13. Klüberfood 4DC (for direct food contact) consists of 100% food-grade raw materials.

The high-quality plant based ingredients provide even better seal lubrication than conventional barrier fluids and so Klüberfood 4DC 13 represents an innovative solution that meets both food safety and technical performance requirements.



*Bühler Cenomic Optima 3 agitator ball mill*

## Case Study

Klüberfood 4DC 13 in use as barrier fluid  
in “new food” ball mill

## Benefits

Klüberfood 4DC 13 is a technical processing aid that offers numerous advantages and benefits:

- ▶ **Safe usability:** Klüberfood 4DC 13 consists exclusively of ingredients in food-grade quality on a plant based basis.
- ▶ **Regulatory compliance:** Not only does the solution meet FDA guidelines, but it also exceeds the limitations of conventional technical oils.
- ▶ **Improved lubrication function:** Klüberfood 4DC 13 demonstrates improved performance in terms of seal lubrication compared to traditional barrier fluids.
- ▶ **Innovative solution:** Using Klüberfood 4DC 13 as a barrier fluid in this new type of ball mill underscores the startup's innovative power and commitment to high quality standards.
- ▶ **MOSH/MOAH:** Since the barrier fluid is not based on mineral/white oil, it can also be used safely in this regard.



*Mechanical seal from EagleBurgmann*

**Conclusion**

Combining EagleBurgmann's sealing system with Klüber Lubrication's barrier fluid creates a unique synergy that only Freudenberg can deliver. A pioneering comprehensive system with fully integrated components was sold to this customer. It features a well thought-out design and effortless functionality.

Similar applications can also be served in other **mills**, **agitators** or **conches** for chocolate production.

**Publisher and copyright**

Klüber Lubrication München GmbH & Co. KG  
Geisenhausenerstraße 7, 81379 München, Deutschland, HRA 46624  
www.klueber.com