Successful implementation of UNIFLOR 8623

Project Overview

A leading manufacturer of glass packaging required a new product to reduce juddering machine mechanisms which were causing unnecessary downtime and impacting on the customer's finances.

The FUCHS UK and NYE Lubricants teams were able to recommend UNIFLOR 8623, a soft silica thickened, heavy viscosity, fully fluorinated PFPE grease with the capability to work in a wide range of temperatures whilst offering excellent anti-wear properties, which would better satisfy the customer's needs.

The Customer

The customer is a global supplier of sustainable and infinitely recyclable glass packaging with 41 glass production facilities in total, four of which are in the UK.

The Problem

The customer was using a competitor product that was not suited for the demanding task it was intended to accomplish. Due to its tendency to solidify when it cooled from over 300 degrees Celsius to 50 degrees Celsius, the competitor's product was generating technical problems that resulted in juddering machine mechanisms when they were being restarted from cooled temperatures. This ultimately impacted the customer's business operations and finances as it would take longer to ramp up the machine mechanisms until the grease was heated back to the operating temperature, to settle the glass container handling onto the conveyor systems.

Further implications of utilising low-quality grease are encountered in the repair and maintenance department. When a mechanism fails, it is returned to the machine repair department, where it is inspected for damage, repaired, and finally checked for operation. Engineers refresh the grease inside the bearings and on the chains that drive the mechanism as part of the maintenance operation. Most mechanisms will run for a long time, typically more than six months, by which time the grease is in extremely poor condition. As a result of the hardened grease, the bearings become extremely difficult to clean, and in certain situations, the bearings must be replaced.

Problem

- Juddering machine mechanisms due to hardened competitor grease resulting in machine downtime and impaction on finances
- High maintenance and repair time as hardened grease would need to be cleaned from bearings and chains

Solution

- Implementation of UNIFLOR 8623, a soft silica thickened, full flourinated PFPE grease from the NYE range which can work in a wide range of temperatures whilst offering excellent anti-wear properties

Results

- Improved start-up and reduced machine downtime as mechanism juddering has been eradicated
- Reduced maintanance time with grease being left in bearings for second run
- Improved site safety as bottles are no longer falling on the converyor

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PRODUCT IMPLEMENTATION

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The Solution

The FUCHS UK team started communication with NYE Lubricants and discussed the technical parameters and temperatures of the specific application, such as the peak temperature/normal operating temperature & cool temperature where they are having problems. It was suggested by the NYE specialists that a silica-thickened PFPE grease may be a better choice than the currently used PTFE product as the thickener should not be affected by the higher temperatures and the grease should stay smooth enough at the lower operating temperatures during the job changeover period. The higher base-oil viscosity to protect the bearings at elevated temperatures would also be maintained during the demanding operational conditions.

The FUCHS UK & NYE teams then investigated some potential products which could solve the customers' problems and agreed on trials of UNIFLOR 8623 from the NYE range, a soft silica thickened, heavy viscosity, fully fluorinated PFPE grease. It has excellent plastic & elastomer compatibility, with the capability to work in a wide range of temperatures whilst offering excellent anti-wear properties and great resistance to aggressive chemicals.

Results & Conclusion

The customer has now been using the product for over 3 months and has since seen improved results and start-up as they are able to settle their machines into production much more efficiently. The juddering of mechanisms after the cool-down period during job changeover activities has dramatically reduced, resulting in more machine up-time and production availability with less financial loss.

A secondary benefit is that the bottles are no longer falling over on the conveyor, both a production and safety concern, and the machine operators are able to focus on other production priorities instead.

The customer's machine repair department also reported that they find it much easier to overhaul the mechanisms in the workshop, as they are no longer having to go through the lengthy process of cleaning out hardened grease. In some cases, they can now leave UNIFLOR 8623 inside the bearings for a second run and only have to change the bearings and chains once they are worn.

The next stage of this project is to roll out across the customers' other plants using the same application. The FUCHS UK team, along with the customer, are now also looking at other hot end applications where this grease could solve further operational issues.

Above: The 3-axis servo pusher mechanism. This mechanism is responsible for transporting the glass containers to the conveyor system as seen in the picture below. This mechanism contains the bearings & chains which are lubricated with the NYE UNIFLOR 8623.

Below: The pusher mechanism operating & pushing the bottles out on to the conveyor system to be transported to the annealing Lehr.

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