Swabbing greases: the right product for the right job

Swabbing greases are essential lubricants in the container glass manufacturing process to ensure a high and constant productivity, reports Victor Grardel.*

Swabbing greases provide a combination of several functionalities during the stage of glass forming like helping the molten glass to perfectly cover the mould surfaces and so avoid defects due to a bad distribution.

Their releasing properties enable us to easily remove the glass items from each mould, which is essential to act against glassware checks. Finally, their lubrication performances will enhance mould life and make them last longer.

Graphite has for decades been a central element in swabbing greases formulations. It is a well-known raw material used for its lubrication properties in several industrial fields. Forging operations and tubes manufacturing are examples of other areas using it. Its origins can be natural (mining ore) or synthetic (full chemical process) and some of its characteristics like the carbon content, the particles size and its crystallography help Condat to select them for optimal performances.

However, graphite is also at the origin of some well-known defects in glassmaking. A common issue is graphite transfer, which leads to a glass item's dirtiness. This phenomenon is explained by the migration of graphite from the swabbing grease, applied to the mould, to the glass container. The second problem is graphite build-up. It mainly occurs in finish moulds where engravings are used. Graphite will concentrate in some areas and will last. The consequence is that the molten glass can't reach them and block the mould covering. Marks are not fully printed, and production must be stopped.

You can limit or overcome these defects by choosing the right swabbing grease for the right job or try a new technology, such as a white swabbing grease.

Each segment of the container glass industry requires specific lubricants adapted to its production specifications: production rate, items cleanliness, types of glass, gob weights, item shape. That's why Condat developed dedicated swabbing solutions depending on their customers application fields such as wine & beer bottles; spirit bottles; cosmetics & perfumes, and pharmaceuticals.

Depending on the glassware produced, a dedicated swabbing grease must be chosen. The use of a non-suitable swabbing grease will lead to more rejects due to graphite transfer and graphite build-up.

Each lubricant are also specified to a mould type. The needs of lubrication between the blank, the neck ring and the finish molds are all different. Where high releasing properties are wanted in the first stage of the glass forming, swabbing the neck ring and the blank mold must be soft and light. Over-swabbing these areas will conduct to more glass checks.

Success story

An Asian glass bottle manufacturer specialised in the production of light amber bottles used for energy drinks had been using a highly graphited swabbing grease for every mould in their 10 sections triple gobs IS Machines. Production yield was correct, but they were looking for more.

After analysing the glass items manufactured and the material used for the mould, Condat suggested to test Condaglass 397, a lower graphited swabbing grease dedicated to the release of small glass containers.

The product has excellent wetting properties, while keeping good gob loading. Thanks to its high quality and minimum amount of graphite, Condaglass 397 helped the company to reduce the number of automatic rejects by 50% after swabbing (***Fig 1***).

Less graphite also means less build-up. An essential feature which helped the company decrease its swabbing frequency by 33% and shorten the maintenance downtime of the moulds.

Over a year, this company could save more than 8 million bottles, together with a decrease of the swabbing grease consumption.

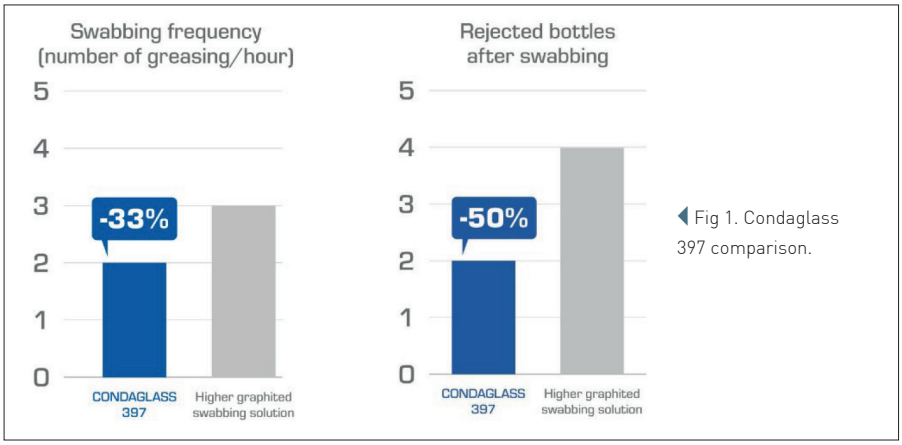

Fig 1. Condaglass 397 comparison.

Safety was also improved. Less swabbing operations led to decrease the risk of operators' injuries.

Turn on white

Made without graphite, Condat white swabbing greases avoid any graphite transfer. Automatic rejects after swabbing can be decreased and so millions of bottles are saved every year. As a result, glass manufacturers generate less waste and observe immediate productivity gains.

Without graphite also means a cleaner working environment for the operators in the gob forming area. They do not handle graphited and blackened products when swabbing the blank, blow and neck ring moulds. And the same improvement occurs at the mold workshop.

Condat's objective is not only to replace graphite from swabbing greases but also to bring technical benefits in application. The lubricating raw materials used in their new technology have a higher thermal resistance which leads to an increase in swabbing frequency. Companies that chose this solution were able to extend their swabbing frequency by two to four times. Thanks to this performance, operators are in less contact with the glass forming area and can be more focused on optimisation of the IS machine working parameters. Thus, white swabbing greases help to consume less, better and create a safer working environment.

Because reducing environmental impact is one main topics at Condat, white swabbing solutions are made of a mix of renewable vegetable-based oils and recycled refined oils. Particular attention was also paid to end-users when developing the product, that's why their Safety Data Sheet does not display any hazardous pictogram. Finally, thanks to their high flash point, Condat's swabbing greases limit fire risk and ensure equipment and co-workers protection. ■

Contact Condat experts at Glassman Latin America in Mexico on stand D20 or at www.condat-lubricants.com

***Glass Market Business Developer, www.condat-lubricants.com**