

Sulphur-free swabbing innovation for bronze moulds

Since 1854, French company Condat has specialised in the conception and production of industrial lubricants, with specific knowhow in greases formulation. Active in the field of hollow glass for more than four decades, the company has recently completed its swabbing mould compounds range with a sulphur-free grease. Nathalie Vidal explains.

For many years, sulphur has been a key component in swabbing mould neckrings, as it is essential to fix the graphite present in the formula. Indeed, graphite content generally gives its lubricating power to the lubricant by giving it a good ability to release glass items from the mould. Graphite and sulphur are generally considered as a prerequisite by operators to minimise swabbing operations in the glass industry.

However, sulphur demonstrates several disadvantages when high quality glass parts production are involved. Sulphur can stain the

bottles and also alter the moulds, thus requiring removing them more frequently. This is especially true for bronze glass moulds. Most of the time, bronze moulds are preferred to cast iron for the production of high quality glass items. Finer in terms of particle size, they allow precise results and a nice bottle aspect.

However, the reaction between sulphur and bronze is a nightmare and can provide serious chill marks if insufficient cleaning and mould changing are performed. Whereas a cast iron mould can easily produce about three million bottles without

any change, a bronze mould needs to be removed every one million bottles manufactured due to sulphur attack. As a consequence, only 10% of the moulds used in the glass industry are made from bronze and this is detrimental to product quality.

Sulphur-free solution

Because customers are becoming increasingly demanding for high quality hollow glass items, the market requested a solution to be found on a sulphur-free lubricant to increase its use of bronze moulds.

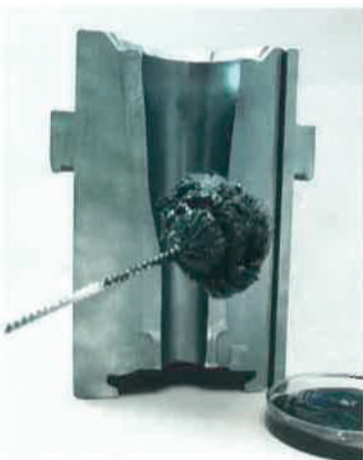
"Our customers always want to improve their product quality to satisfy their final clients" commented Jérôme Charvet, glass market manager. "As IS machine lifetime is very long and the swabbing process has been about the same for ages, we had to find a solution on the swabbing mould compound side."

The Condat R&D department and engineering team found a solution to take the industry forward. "We first worked on the constraints encountered on the neckring and blow moulds" explains Florent Ruffino, glass product manager at Condat. "Most of bronze moulds are dedicated for neckrings and finish release as the quality at this stage must be optimal for the final aspect of the glass item."

Thanks to the company's industrial structure and R&D laboratories (employing 40 people), Condat is able to deliver



The Condat storage facility.



Application of a CONDAGLASS swabbing compound.



The CONDAGLASS 367 sulphur-free graphite grease.



Typical bronze blow mould.

tailor-made developments for greases and lubricants. The company's graphite expertise, earned in other specific applications such as forging and diecasting, is a pledge of reliability and quality on the products that the company offers. "In addition, the acquisition of the Renite company in 2017 brought us new perspectives" Florent Ruffino continued. "Together with our lubricating graphite expertise in various application fields, Condat R&D chemists were able to develop a specific fixing additive to replace the sulphur function in the swabbing compound formulation."

The development of CONDAGLASS 367 SF (sulphur-free) grease has shown very good results at several companies. "Attention was paid mainly to the release properties and demoulding abilities of the product, a main issue when it comes to eliminating sulphur" Jérôme Charvet added. "In-situ tests showed that the time usage of a bronze mould could be doubled thanks to CONDAGLASS 367 SF. More than two million bottles could be produced with this product development. Customers also noticed an improvement of mould surface condition, with no alteration and enhancement of the bottle glass quality. Swabbing frequency could remain identical to that experienced with a sulphurised swabbing compound."

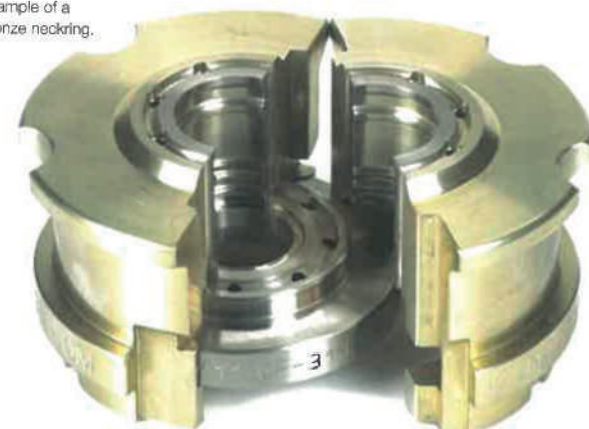
CONDAGLASS 367 SF has been designed for glass producers that want to improve their level of quality and create articles with high perceived added-value. It helps eliminate defects on the affected part of the bottle and ensures lubrication of engravings. "This innovative sulphur-free swabbing mould compound is proposed to the industry at a good quality-price ratio" Jérôme Charvet added. "And it is not more expensive than a sulphur grease."

Alternative supplier aspirations

For the last five years, Condat has been very active in the glass lubricant market and wants to become an alternative supplier in this sector. In addition to its lubricants range dedicated to hollow glass (soluble lubricants for shear spray, scoop oils, dual-component product for delivery coating and oils for conveyor belt chains), the company now offers a comprehensive range of swabbing compounds.

To stand out, four years ago the company launched innovative sprayable greases for robot swabbing and was able to develop a leading position in supplying this type of product on blank moulds. The development of CONDAGLASS 367 SF strengthens its position as an innovative supplier. ●

Example of a bronze neckring.



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