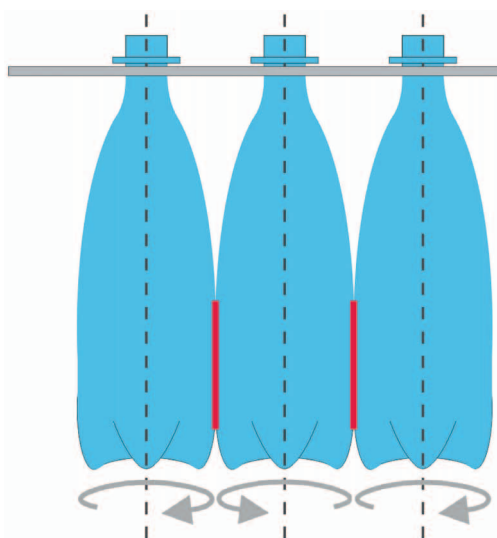


Attaining uptime in a sustainability-driven PET bottle production world

Minimising blockades

In PET bottle manufacturing lines, downtime amounting to just minutes reduces output by thousands of products. And, in our ever-more environmentally-conscious world, strategies to increase uptime can clash with increasingly stringent sustainability touchpoints.

A lubricant applied on the outside of preforms or bottles is said to optimise the slipping zone between blow moulded bottles and to act as a mould release at the same time - in an environmentally-conscious way.



Coating the bottles' surface with a thin sliding film allows them to rotate against each other freely. (Illustration by Steidle)

Blockades are a particular problem in PET stretch blow moulding plants. A post-moulding issue, blockades arise as bottles are transported via air conveyor systems when bottle-to-bottle friction triggers a line block. It is coefficient of friction that causes moulded bottles to move with instability through conveyor systems, and then stick together. This causes a 'fan-like formation' of bottles on the line, which is generally spotted only when production stops.

Production process aid

It's vital that bottles rotate freely as they pass through the transport conveyor or their forced rotation will lead to a blockade. Common at the curves and ascents of conveyor systems, that is where blockade prevention strate-

gies prove critical. Chem-Trend offers a product that is claimed to improve the transport efficiency of formed PET products through air conveyor systems. The product is applied as a lubricant on the outside of preforms or bottles at key points along the PET bottle production process. It can be added at preform or post blow mould stage. It is applied by spraying the product on preforms or bottles by any spray equipment.

A proven and very efficient system is in Process Integrated Coating (PIC) from company Steidle GmbH, based in Leverkusen, Germany. General Manager of this company Rolf Lamers said "Coating the surface with the extremely thin sliding film – Lusin Lub O 32 F – allows the PET bottles to rotate against each other freely. This minimises blockades and facilitates the transport of the PET bottles more smoothly."

Optimising the so-called slipping zone between blow moulded bottles boosts productivity by reducing the potential for blockades along transport conveyors. The coating also provides a protective layer for preforms that continues to function well beyond blow moulding process and transportation stages.

Mould release optimisation

Another advantage of this lubricant is that it acts as a mould release agent, reducing the potential for defects. Bottles sticking to the mould also negatively affect cycle times, meaning higher cost per bottle or more bottles in the scrap bin. During mould ejection, this lubricant ensures a quick and clean release of bottles.

Applied directly on the preform before blowing, the lubricant lays evenly into the blow moulds' surfaces, ensuring a smooth and even repartition of lubricant on the blown bottles. As the lubricant stays fluid, there is no risk of a hardened build-up.

A sustainable PET bottle production aid which reduces imperfections

Sometimes preforms are dropped into octabins before warehousing. Despite every effort during their handling, this might lead to scratches and other imperfections on the preforms. These defects will have a significant impact on the heat absorption of PET preforms when passing through the blow moulding line as well as on the appearance of the finished goods.

The lubricant significantly improves the scratch-resistance of the plastic surfaces during transport and handling. Its lubricating properties also prevent contamination by providing a barrier against dust and enhance the gloss of blown bottles. An added advantage of using Lusin Lub O32F is the optimisation of bulk box filling levels, which can reduce the transport cost significantly. It does not contain any solvents, silicones or halogens and can be removed with water. It is therefore an environmentally-conscious solution for solving many of the problems that arise in PET preform production and blow moulding processes.

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