oerlikon

Technical Article

Increased efficiency and improved tool service life in plastics processing with the new BALINIT MOLDENA coating

In July 2022, Oerlikon Balzers, a world leading Oerlikon technology brand that provides advanced surface solutions for the metal and plastics processing industries, introduced BALINIT MOLDENA. The coating was specially developed for injection molding and extrusion of filled polymers to offer superior abrasive and corrosion resistance, making it perfect for applications with glass fiber-reinforced plastics (GFRPs) and fully recycled materials by ensuring a longer mold service life and delivering high-quality products.

In line with Oerlikon's sustainability strategy, BALINIT MOLDENA is the optimum solution for processing new and recyclable plastics in order to improve energy efficiency and conserve resources. Another important property is that the coating increases mold service life, while customers benefit from a reliable production process and high-quality products.

Harder than its predecessor with outstanding abrasion and corrosion properties

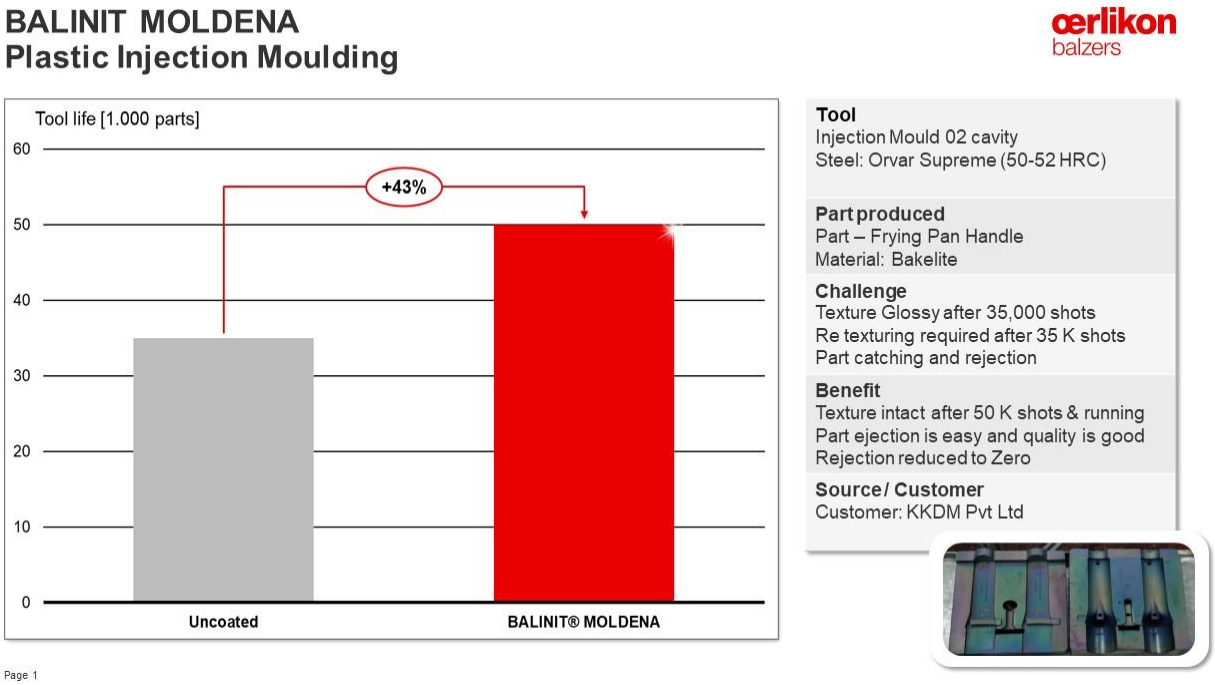
The newly developed coating from the Oerlikon Balzers brand is just 7 µm thin and exceeds the hardness of almost all previous coatings for processing plastics. Its outstanding abrasion and corrosion properties make BALINIT MOLDENA the perfect coating for injection molding and extrusion of abrasive materials such as GFRPs, and it is also ideal for injection molding corrosive materials such as fully recycled materials or those with a high flame-retardant content. BALINIT MOLDENA has already proved effective in two customer injection molding projects, showing less wear than uncoated and conventional abrasion-resistant coatings.

Reducing the scrap rate to zero in the production of panhandles

Krishna Krishna Design & Manufacturing, based near Pune, India, is a manufacturer of household goods and cookware which uses the very corrosive material Bakelite to produce its textured panhandles. The company struggled with short maintenance intervals and sticking of material to the mold after every 30,000 shots, which led to a high scrap rate and rising production costs. Oerlikon Balzers offered BALINIT MOLDENA as the preferred solution for this application, which immediately solved the production problems.

(Image: AdobeStock_527918231)

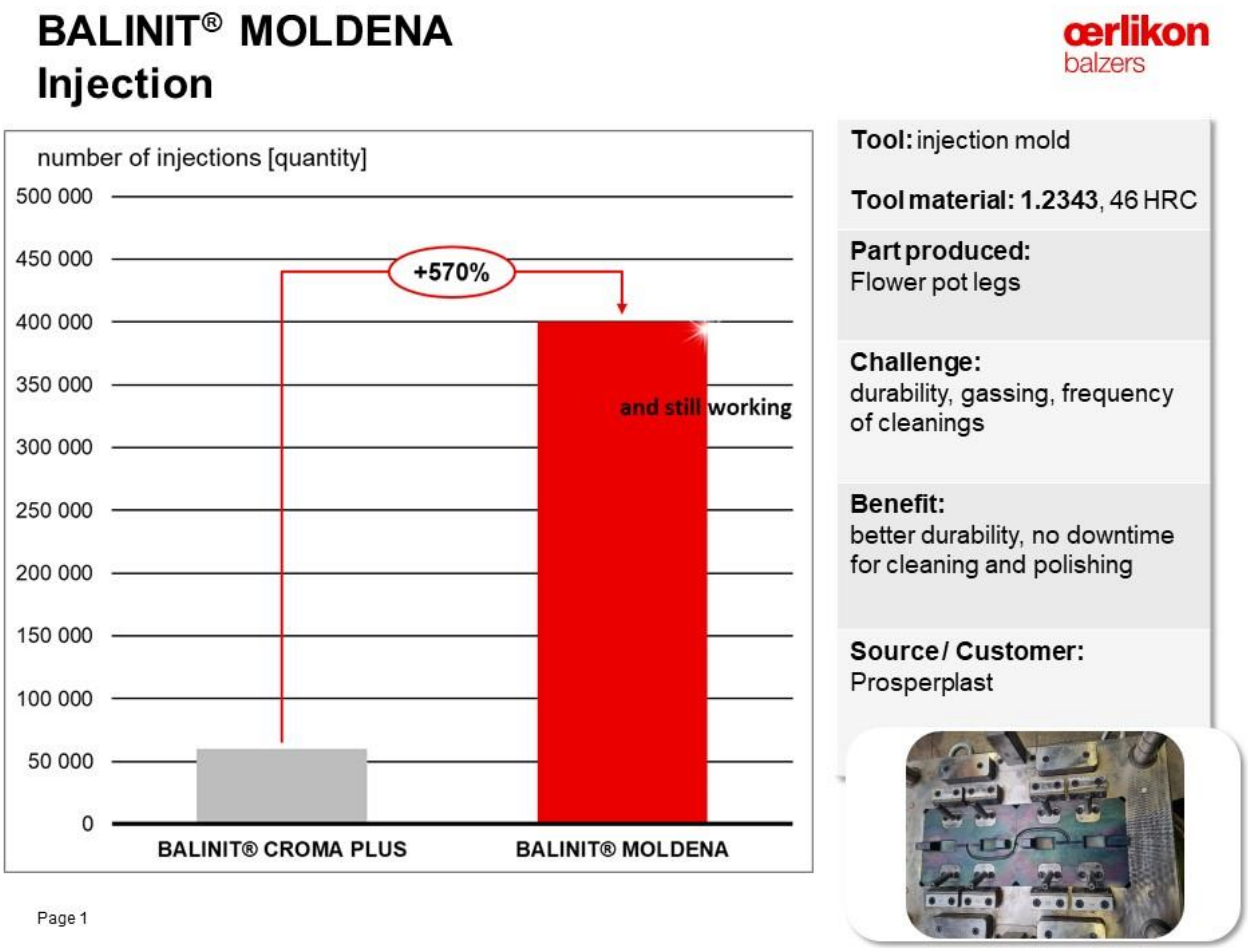
The production data were impressive after coating the mold with BALINIT MOLDENA: even after 50,000 injections, demolding was as easy as the first shot and the texture of the handle was retained. After the scrap rate was reduced to zero, the customer's feedback was very positive. So BALINIT MOLDENA has proved its high wear and corrosion resistance and excellent non-stick behavior during production.



Oerlikon Balzers' new BALINIT MOLDENA coating for injection molding and extrusion of filled polymers offers excellent abrasion and corrosion resistance. In the production of pan handles, the coating helped an Indian manufacturer of household goods and cookware to significantly extend the life of the mold. (Graph: Oerlikon Balzers)

Increased productivity in production of flowerpot legs made of wood-plastic composite

Prosperplast, a leading Polish manufacturer of plastic products for homes and gardens, uses a wood-plastic composite to produce its flowerpot legs. Initially the products suffered from poor surface quality and heavy outgassing, which meant production frequently had to stop in order to clean and polish the mold surface. Replacing the previous coating with the new BALINIT MOLDENA coating helped them achieve the desired high-quality products with no scrap and no downtime for cleaning and polishing.



Scrap and downtime reduced to zero with consistently high-quality products: Prosperplast uses the BALINIT MOLDENA coating for the injection molding of flowerpot legs. (Graphic: Oerlikon Balzers)

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About Oerlikon Balzers
Oerlikon Balzers is a world leading technology brand for surface technologies that significantly improve the performance and durability of precision components as well as tools for the metal and plastics processing industries. Extremely thin and exceptionally hard coatings, marketed under the BALINIT and BALIQ brand names, reduce friction and wear. The BALITHERM brand opens up a broad range of heat treatment services, whereas BALTONE comprises coatings that are available in a full range of elegant colours, perfectly suited for decorative applications. BALIMED ThinFilm coatings, with wear-resistant, biocompatible, antimicrobial and chemically inert properties, have been developed especially for medical applications.

Worldwide, more than 1'300 coating systems are in operation at Oerlikon Balzers facilities and its customers. Equipment engineering and assembly of Balzers' systems are processed in Liechtenstein, in Langenthal (Switzerland) and in Bergisch Gladbach (Germany). Oerlikon Balzers operates a dynamically growing network of more than 110 coating centers in 35 countries in Europe, the Americas and Asia. Oerlikon Balzers is – together with Oerlikon Metco and Oerlikon AM – part of the Surface Solutions Division of the Switzerland-based Oerlikon Group (SIX: OERL).

About Oerlikon
Oerlikon (SIX: OERL) is a global innovation powerhouse for surface engineering, polymer processing and additive manufacturing. The Group's solutions and comprehensive services, together with its advanced materials, improve and maximize the performance, functionality, design and sustainability of its customers' products and manufacturing processes in key industries. Having developed pioneering technology for decades, everything Oerlikon does is guided by its passion to help its customers achieve their goals and to foster a sustainable world. The Group is headquartered in Pfäffikon, Switzerland, and operates its business in two divisions: Surface Solutions and Polymer Processing Solutions. It has a global footprint of more than 11 800 employees at 207 locations in 38 countries. In 2021, Oerlikon generated CHF 2.6 billion in sales and invested CHF 105 million in R&D.