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Siegwerk and Borouge collaborate to develop fully recyclable mono-material solutions to advance circular economy

The new partnership aims to drive the replacement of multi-material packaging with advanced mono-material structures Mono-material solutions combined with innovative inks and coatings technologies will offer the same performance but are also easy to recycle. Both companies are committed to contributing to sustainable packaging solutions to boost circularity and lower carbon footprint



Siegwerk today announced its partnership with **Borouge**, a leading petrochemicals company that provides innovative and differentiated polyolefins solutions, to co-develop 100% recyclable mono-material solutions to further drive packaging design for a circular economy. The goal of the collaboration is to build a pipeline of solutions enabling converters worldwide to produce advanced mono-material packaging, addressing the growing demand for sustainable packaging in the market.

“The majority of flexible packaging still consists of mixed materials and because of this multi-material structure, it is challenging to recycle it in the conventional recycling streams,” explains Dr. Stephane Bertaux, Head of Brand Owner Collaboration and Circular Economy for Southeast Asia at Siegwerk Thailand. “Here, the switch to mono-material packaging is an essential lever to ease the recycling of packaging and thus enhance its circularity.”

However, moving to mono-material structures is also accompanied by several challenges, such as ensuring reliable sealability, certain mechanical properties or thermal stability or realizing specific levels of barrier performance depending on the end-use application. “Enabling mono-material structures using Borouge’s performance polyethylene products with the combination of innovative ink and coating technologies can achieve the desired packaging outcomes. With this new way of industry collaboration, we contribute to addressing global challenges to increase sustainability and circularity. Upcycling is becoming possible through mechanical recycling, resulting in high quality recyclates to further boost circularity and lower carbon footprint versus currently used multi-material packaging, which are mostly incinerated,” adds Anton Wolfsberger, Vice President, Global Marketing, Packaging and Circular Economy, Borouge Pte Ltd.

One of the first co-development projects between the two partners will be a barrier stand-up pouch using Borealis Borstar® technology-based enhanced HDPE FB5600 from Borouge and Siegwerk’s oxygen barrier coating CIRKIT OxyBar BC1582 as well as its primer solution CIRKIT Clearprime for a smooth deinking of the laminates. “By incorporating our special deinking and delamination primer into this innovative mono-material structure with superior performance and mechanical properties, all used inks and coatings can be removed of the printed film during the recycling process resulting in high-quality recycled polyethylene that is suitable for re-use in new packaging materials,” says Bertaux.

In addition, Siegwerk and Borouge are already collaborating with selected converters worldwide to make solutions available to produce high barrier mono-

material packaging combining oxygen (Oxygen Transmission Rate OTR < 1 cc/m2.day) and Moisture Vapor Transmission Rate (MVTR) barrier coatings (MWTR < 1 cc/m2.day).

Both partners are committed to contribute to sustainable and future-oriented packaging through enabling mono-material structures that can replace today's hard-to-recycle multi-material packaging structures. While Borouge already offers a wide range of virgin polyolefins such as polyethylene and polypropylene specifically developed in regard to their recyclability, Siegwerk offers a variety of innovative ink and coating solutions that can improve the recyclability of plastic packaging without compromising on the performance and productivity required. By joining their forces, the two companies are once again underlining the importance of collaboration along the packaging supply chain to develop suitable solutions that can truly make a difference in accelerating the transformation to a Circular Economy.

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