

Media Release

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Borealis and Borouge to present fully recyclable monomaterial pouch solutions at K 2022

- **Combining optimum performance on packaging lines with excellent in-use properties, consumer appeal and circularity**
- **The solutions developed with value chain partners enhance properties and recyclability**
- **Partnership is embodiment of the Borealis EverMinds™ spirit of taking action to accelerate the move towards plastics circularity**

Borealis and Borouge PLC (“Borouge” or “the Company”) (ADX symbol: BOROUGE/ ISIN: AEE01072B225), leading providers of innovative, value-creating plastics solutions, have announced the launch of three all-polyethylene (PE) pouch concepts developed in extensive collaboration with technology partners across the entire value chain to meet the most demanding challenges in flexible consumer packaging.

As many brand owners have pledged to make 100% of their packaging reusable, recyclable or compostable by 2025, there is a growing demand for more sustainable monomaterial film solutions capable of replacing incumbent, non-recyclable multi-material structures without compromising processability and packaging performance. In line with the [Global Commitment](#) initiated by the Ellen McArthur Foundation, the vision of a circular plastics economy also requires major advances in using recycled and/or renewable feedstock to minimise fossil depletion and plastic waste. The three designs will be on display at K 2022 in October and address the need for significant improvements in monomaterial barrier packaging, carbon footprint reduction and design for recycling (DfR). They closely align with the [EverMinds™](#) approach for joint projects with committed value chain players to accelerate the transition of the plastics packaging industry from a linear to a circular economy.

New solutions with proven products

Key challenges identified by Borealis and Borouge for a new generation of fully recyclable monomaterial pouch solutions included reliable sealability, mechanical properties, thermal stability as well as different levels of barrier performance depending on end use. Addressing the needs of various different applications, three monomaterial concepts were developed that share the same proven DfR product platform:

1. Laminated PE pouch for gas barrier packaging of oxygen sensitive products including modified atmosphere packaging, such as nuts or cheese.
2. High-barrier PE laminate pouch for packaging of moisture sensitive food products, such as crisps, biscuits and confectionary.
3. New PE pouch with 35% [Ecoplast](#) low density polyethylene (LDPE) low-gel post-consumer recycled (PCR) for non-food applications, such as detergent powder.

In all three PE monomaterial pouch solutions, [BorShape™](#) and [Borstar®](#) provide the required mechanical and thermal stability performances, while [Anteo™](#) and [Anbiq™](#) combined with [Queo™](#) deliver outstanding sealing performances.

The full PE monomaterial approach eliminates the use of non-recyclable multimaterial solutions. At the same time, it supports the aesthetic consumer appeal (look and feel) of the pouches as well as their end-of-life mechanical recycling in existing flexible PE waste streams.

Enhanced sustainability through partner technologies

The concepts were thoroughly validated and their sustainability was further optimised together with leading industry partners. **Hosokawa Alpine** provided MDO (machine direction orientation) PE film extrusion line and technology, and multiple trials were run with various different pouch formats on **GEA** packaging equipment. Mechanical recyclability was optimised by using a solvent-free lamination adhesive from **Henkel** and digital watermarking technology from **Digimarc**. The [HolyGrail 2.0](#) compatible digital watermark can be read using smartphones or scanners, which facilitates packaging waste sorting but does not interfere with pouch print appearance. For very sensitive goods requiring robust protection with higher moisture and gas barriers, vacuum metallisation technology from **Metlux** offers a cost-efficient process without compromising the mechanical recyclability of the pouches.

“We firmly believe that we can accelerate circularity only by collaborating with competent partners across the value chain to jointly re-invent essentials for sustainable living,” summarises Peter Voortmans, Global Commercial Director Consumer Products at Borealis. “The results of this major joint initiative have demonstrated the feasibility of full PE monomaterial pouch solutions for demanding packaging applications that will help our customers drive and implement their sustainability targets as they strive for carbon neutrality.”

“Borouge is committed to providing innovative solutions to advance circularity and help address global challenges. We are excited to collaborate with partners from across the value chain to develop the right solutions for our customers without compromising on the performance and productivity required for advanced packaging applications,” said Mr Youssef Taha, Senior Vice President, Marketing & Innovation, Borouge.

Physical promotional samples of the new full PE pouch concepts can be requested for evaluation, supported by full technical documentation and extensive test results of performance on various packaging lines.

K 2022 will take place from 19 to 26 October 2022 in Düsseldorf, Germany.

We invite you to “Innovate Collaborate Accelerate” together with us by visiting Borealis and Borouge in Hall 6 at Stand A43, where the new monomaterial pouch solutions will be on display.



The pouch solutions developed with value chain partners enhance properties and recyclability
Photo: © Borealis

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About Borealis

Borealis is one of the world's leading providers of advanced and sustainable polyolefin solutions and a European front-runner in polyolefins recycling. In Europe, we are a market leader in base chemicals and fertilizers. We leverage our polymer expertise and decades of experience to offer value adding, innovative and circular material solutions for key industries such as consumer products, energy, healthcare, infrastructure and mobility. In re-inventing essentials for sustainable living, we build on our commitment to safety, our people, innovation and technology, and performance excellence. We are accelerating the transformation to a circular economy of polyolefins and expanding our geographical footprint to better serve our customers around the globe.

With head offices in Vienna, Austria, we employ 6,900 employees and operate in over 120 countries. In 2021, we generated total sales of EUR 12.342 billion and a net profit of EUR 1,396 million. OMV, the Austria-based international oil and gas company, owns 75% of our shares, while the remaining 25% is owned by a holding company of the Abu-Dhabi based Mubadala. We supply services and products to customers around the globe through Borealis and two important joint ventures: Borouge (with the Abu Dhabi National Oil Company, or ADNOC, based in UAE); and Baystar™ (with TotalEnergies, based in the US). www.borealisgroup.com | www.borealiseverminds.com

About Borouge

Borouge, listed on the Abu Dhabi Securities Exchange (ADX symbol "BOROUGE" / ISIN "AEE01072B225"), is a leading petrochemical company that provides innovative and differentiated polyolefin solutions for the energy, infrastructure, mobility, advanced packaging, healthcare and agriculture industries. ADNOC owns a majority 54% stake and Borealis holds a 36% stake in Borouge.

To find out more, visit: borouge.com

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