

## **Borealis and Mondi collaboration generates more easily recyclable, polypropylene-based food packaging**

### **Breakthrough Borealis innovation is a viable and more sustainable alternative to non-recyclable packaging for meat and dairy products**

Borealis has generated a breakthrough application based on its proprietary Borstar® Nucleation Technology (BNT) that enhances the circularity of plastic food packaging. Using Borealis BC918CF, a special BNT-modified copolymer, Mondi – a global leader in packaging and paper – is producing new monomaterial packaging solutions for meat and dairy products. These offer the same excellent performance characteristics as conventional multimaterial packaging, while also increasing yields for mechanical recycling plants. The Borealis collaboration with Mondi has further shown that even better material performance can be achieved by using the heterophasic copolymer BC918CF in tandem with the random copolymer RB707CF.

### **Monomaterial trend in packaging is picking up speed**

Awareness of the need for more sustainable packaging has become increasingly acute in recent years. From virgin polyolefin producers like Borealis to converters such as Mondi, but also brand owners, retailers and end consumers: there is widespread support for the shift to more sustainable polyolefins-based packaging solutions that more easily enable circularity. However, new material solutions must first be found to serve as suitable alternatives to conventional multi-material plastic materials designs that combine such polymers as polyamide (PA), or Polyethylene terephthalate (PET) with other materials. Despite their efficiency as packaging materials, these traditional plastic multi-material designs result in the rejection of such collected packages during the recycling process and thus reduce yields of mechanical recycling plants and actual materials put back into circulation. What is more, finding truly viable substitutes for multimaterial plastics in food packaging – particularly for chilled products such as cheeses, sliced meats and other foodstuffs packaged on trays – is especially challenging due to complex requirements with regard to safety, hygiene, freshness, as well as visual aesthetics.

Innovative polypropylene (PP) solutions based on Borealis BC918CF and Borealis RB707CF are viable monomaterial substitutes for multimaterial plastics. In addition to offering a high moisture barrier, their use enables material cost savings thanks to downgauging, as well as efficient processing on film conversion and packaging lines. The combination of both copolymers in production helps achieve even better performance, including both thermal resistance and high transparency, a key combination for efficient packaging.

Borealis BC918CF is a most suitable material for downgauging thermoformed packaging. As a specially modified BNT copolymer, it provides excellent mechanical strength, good moisture barrier, and pleasing optics. In modified atmosphere packaging (MAP), it provides the necessary barrier to give meat a shelf-life of up to 12 days.

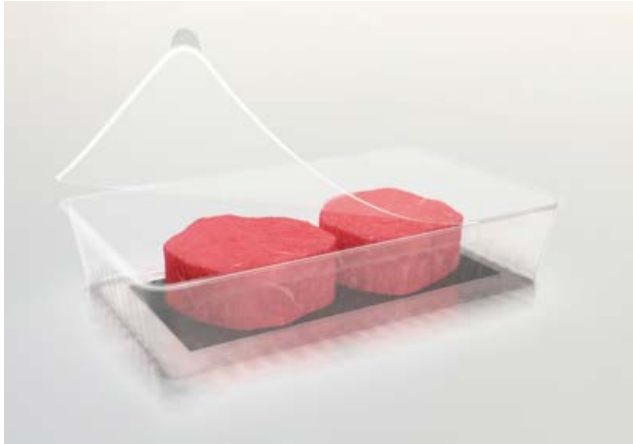


Photo: Borealis and Mondi collaboration generates more easily recyclable polypropylene-based food packaging  
Photo: © Borealis

## Why Borstar® Nucleation Technology is good for converters

Borealis developed BNT based on its proprietary Borstar® technology. The nucleating effect of BNT differs from the standard approach of adding a nucleating agent during pelletisation: the nucleating effect here is obtained in situ, in the polymerisation reactor, during the manufacture of PP. This yields several obvious benefits, including a stronger nucleation effect as well as consistent and better dispersion of the nucleating agent. There is no reaction with other additives, such as colour master batches. It offers low taste and odour, and enables full compliance with food contact regulations.

As Mondi has learned first-hand in its cooperation with Borealis, BNT also delivers multiple benefits to converters:

- Increased stiffness without negatively affecting the drop impact resistance and top load, thus enabling downgauging and as a consequence, material savings in thermoformed packaging.
- Good thermoforming behaviour and gauge distribution thanks to the very even crystalline structure of the PP; the modified gas atmosphere can be maintained for longer periods.
- High dimensional stability, which allows for high packaging speeds and hermetic seals.

“Mondi’s view is that packaging should always be fit-for-purpose – paper where possible, plastic when useful – and sustainable by design,” says Thomas Kahl, Project Manager EcoSolutions for Mondi Consumer Packaging. “For food packaging, plastic plays a vital role – to protect the resources that went into making the food – by extending shelf life, while also enhancing the package’s recyclability. The latter factor is vital as Mondi continues to support the principles of a circular economy.”

“Working closely with long-standing partners like Mondi is the key to making plastic packaging more circular,” claims Geert Van Ballaer, Borealis Head of Marketing Consumer Products. “This collaboration is proof positive of how innovation and cooperation can yield packaging solutions which not only make everyday life easier, but also go easier on the environment.”

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**About Borealis**

Borealis is a leading provider of innovative solutions in the fields of polyolefins, base chemicals, fertilizers and melamine. With its head office in Vienna, Austria, the company currently has more than 6,800 employees and operates in over 120 countries. Borealis generated EUR 8.3 billion in sales revenue and a net profit of EUR 906 million in 2018. Mubadala, through its holding company, owns 64% of the company, with the remaining 36% belonging to Austria-based OMV, an integrated, international oil and gas company. Borealis provides services and products to customers globally, in collaboration with Borouge, a joint venture with the Abu Dhabi National Oil Company (ADNOC) and with Baystar™, a joint venture with Total and NOVA Chemicals in Texas, USA. [www.borealisgroup.com](http://www.borealisgroup.com)

**About Borealis Consumer Products: Making everyday life easier**

With over 50 years' experience in the industry, Borealis is an innovative and reliable supplier of superior polyolefin plastic materials used in consumer products, advanced packaging and fibre.

Superior and proprietary Borealis product brand and technologies like Anteo™, a new family of linear low density polyethylene (LLDPE) packaging grades based on Borealis Borstar® Bimodal Terpolymer Technology, make advanced applications possible in flexible packaging (including lamination film, shrink and protection film, stand-up pouches, food packaging). Borealis also offers high-performing solutions for rigid packaging (caps and closures, bottles, thin wall and transport packaging); and non-woven and technical fibres (filtration systems, hygiene products, technical textiles). These value-added packaging and fibre innovations play a role in safeguarding the quality and safety of consumer and industrial products, but also fulfil demand for enhanced functionality and convenience. Plastic food packaging, for example, helps protect and preserve food from farm to fork. Spoilage is avoided thanks to efficient filling systems and leak-resistant packaging. Food stays fresher longer, and less must be thrown away. What is more, the consumer has a wider range of choices when it comes to convenient and appealing packaging formats.

Also white goods (from washing machines to refrigerators and air conditioning units) and small appliances (from toasters to power tools) are made more robust yet lighter, more energy efficient yet visually appealing, thanks to Borealis' advanced polypropylene solutions.

**About Mondi**

Mondi is a global leader in packaging and paper, delighting its customers and consumers with innovative and sustainable packaging and paper solutions. Mondi is fully integrated across the packaging and paper value chain - from managing forests and producing pulp, paper and plastic films, to developing and manufacturing effective industrial and consumer packaging solutions. Sustainability is embedded in everything Mondi does. In 2018, Mondi had revenues of €7.48 billion and underlying EBITDA of €1.76 billion. Mondi has a dual listed company structure, with a primary listing on the JSE Limited for Mondi Limited under the ticker MND, and a premium listing on the London Stock Exchange for Mondi plc, under the ticker MNDI. Mondi is a FTSE 100 constituent, and has been included in the FTSE4Good Index Series since 2008 and the FTSE/JSE Responsible Investment Index Series since 2007. [www.mondigroup.com](http://www.mondigroup.com)

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