

CASE STUDY

# Value chain partnership enables sustainable replacement solutions for single-use packaging

Borealis, New Loop, Jokey, and Bockatech are creating a resource-efficient circular economy with reusable and widely recyclable cups



In partnership with

new loop 

**BOCKATECH™**



 **BOREALIS**

بوروج  
**Borouge**



## Background

Today's consumers prize the convenience, hygiene, and affordability of single-use packaging. Single-use beverage cups – whether for a hot coffee to go, or a cold soft drink at the stadium – are among the most ubiquitous of single-use packaging formats. Yet of the billions of paper and plastic single-use cups used around the world each year, far too many end up discarded as litter, incinerated, or landfilled. To reduce packaging pollution and promote more sustainable packaging, the EU's Packaging and Packaging Waste Regulation (PPWR) has proposed plastic packaging waste reduction targets of 5% by 2030, 10% by 2035, and 15% by 2040. It also seeks to ban certain plastic packaging types altogether, while at the same time encouraging reuse and refill options for consumers. Thus innovative and more sustainable solutions for the reuse and recycling of single-use cups must be developed and implemented on a broad scale in order to reduce their environmental toll and meet regulatory requirements.

## Challenge

There are many functional requirements which must be fulfilled by reusable cups:

- Durability (in both handling and cleaning, so as to facilitate multiple washing cycles);
- Food-contact compliance;
- Good insulation properties (to maintain beverage temperature without transferring heat/cold to the user);
- Hygiene (should be easy to clean by hand and dishwasher safe);
- Stackability (for more efficient storage and transportation);
- Denesting capability (to enable the easy separation of cups before filling);
- Branding options (for communication and decoration);
- Easy recyclability at end of life.

In the spirit of EverMinds™, the Borealis platform dedicated to accelerating action on plastics circularity, a recent value chain partnership aimed to find a more sustainable replacement solution for single-use cups. The goal was to use raw material resources more wisely, also in the production of the cups themselves; produce less waste; and deliver the same or even improved material performance, such as for thermal insulation properties.



EverMinds™

Accelerating Action  
on Circularity



**“As a born-circular venture, New Loop aims to revolutionize single-use packaging by creating a value chain that reduces the CO<sub>2</sub> footprint at every step along the way: from the production of the first cup, to actual use; from return, collection, and washing, to the cup’s final reuse at end of life as raw material for new products. We are gratified to have forged relationships with partners who are as eager as we are to close the loop on takeaway packaging. We look forward to scaling up the New Loop deposit system together.”**

**Gitte Saaby Kjær**  
New Loop Co-founder and COO



## The New Loop digital deposit system: a model worth emulating

The New Loop deposit scheme for reusable PP cups joins several other notable initiatives which are changing the way takeaway food and beverages are packaged.

Founded in Denmark in 2020, the impact startup New Loop aims to bring about positive change by way of their products and services. It has developed and successfully implemented a digitalized deposit system for single-use packaging in Scandinavia. Its partners include not only festival and event organizers, but also fast-food chains, food delivery services, hospitality operations, and others. Retail consumers are charged a deposit for reusable, 100% polypropylene-based packaging formats such as cups, salad bowls, and food trays. All formats can be washed and used multiple times (up to 125 cycles) before being recycled. To obtain a refund for the deposit, the consumer scans the packaging's QR code to access the New Loop app or website before returning the packaging to the store at which the item was purchased, or to one of New Loop's return points.

## Solution

Four partners contributed their know-how to the development and operationalization of an innovative solution that starts closing the loop for single-use cups in a cost-efficient way while maintaining high material functionality, and enhancing packaging sustainability.

First, Borealis supplies the cup's materials: Daploy™ modified polypropylene (PP) and Borneables™ PP, a renewable feedstock derived from waste and residue streams such as used cooking oil. Using Daploy modified PP produces low-density polymeric foams with fine and controlled cell structures; thanks to the base of Borneables™ PP, the overall CO<sub>2</sub> footprint is reduced while maintaining the same material performance and full recyclability of this monomaterial application.

Next, Bockatech EcoCore® technology is used by leading packaging manufacturer Jokey to produce lightweight, reusable, and widely recyclable PP cups in a cost-efficient way. The innovative EcoCore technology produces packaging with "skin-foam-skin" walls in only seconds, reducing not only the amount of plastic required, but cycle times as well. These reusable PP cups have good thermal insulation properties; are easy to clean, stack, and transport; are resistant to breakage and warpage; and have no plastic taste.

The reusable cup solution has already been successfully implemented at full scale as part of a digital deposit system for takeaway packaging created by Danish startup New Loop. At the Roskilde Festival in Scandinavia, for example, festival goers redeemed their deposit when returning cups for collection, cleaning, and reuse. Once a cup reaches its end of life, New Loop partners such as Jokey are helping close the circular loop by regranulating, then reusing the material in the production of new, non-food packaging applications.

**“The EcoCore technology is the ideal fit for our existing injection molding equipment. When paired with the right plastic materials, such as Borneables PP, we can produce the innovative packaging our customers need to meet both consumer demand and regulatory requirements for more sustainable options: lighter weight, reusable, and recyclable. We are glad to play a role in ensuring the success of circular packaging initiatives such as the New Loop deposit scheme.”**

**Ramona Lob**

Jokey Group Leader Business Unit Reusable Packaging



## KeepIn: high-quality reusable packaging, made in Germany

The Jokey Group founded its subsidiary brand KeepIn in 2023 to accelerate the development of reusable packaging in Germany – and beyond. With its mission to rethink reusability, KeepIn provides sustainable, tailor-made solutions to its customers in the food service industry as well as to wholesalers and system providers.

In addition to cooperation with New Loop and the Spanish Bumerang group, Jokey Group and its sub-brand KeepIn recently invested in Relevo, a Munich-based startup offering a digital, deposit-free reusable system for the restaurant and hospitality trade.

The food-safe cups, bowls and trays in the KeepIn product range are made of 100% polypropylene and are thus 100% recyclable at end of life. Made in Germany, these stackable, dishwasher-safe products can be customized with corporate lettering, laser engraving, in-mold labeling, QR codes, and more.



## Bockatech: accelerating the transition to sustainable plastic packaging

Bockatech EcoCore foamtech is helping some of the world's leading food service and FMCG brands to create more sustainable high-performance thin-wall and reusable packaging that is cost effective. The innovative technology gives brands and converters a competitive edge in a wide range of sectors and applications, including retail food, caps and closures, food service, paint and industrial pails, and healthcare.

EcoCore is used for food service reusables in cities around the world. Robust and recyclable EcoCore cups have been used by world leaders at the annual UN COP climate change conference.

EcoCore was awarded the Solar Impulse Efficient Solution label for its potential to help businesses and governments meet their environmental commitments. It has also been recognized by the Ellen MacArthur Foundation as a pioneering solution for reuse.

Bockatech provides its patented EcoCore foaming technology for plastic injection molding under license.

**“Our innovative EcoCore technology produces applications at a lower cost and with reduced environmental impact. For example, reusing a PP beverage cup that was manufactured using EcoCore twice results in CO<sub>2</sub> emissions reductions of 20% to 30% when compared to conventional single-use cups; using the cup more than 30 times reduces CO<sub>2</sub> emissions by up to 85%.\* Considering how the use of Borealis foaming materials improves the foamability of PP, these lightweight yet robust reusable cups are clearly the more sustainable alternative.”**

**Chris Bocking**  
Bockatech Founder

**“Few want to forgo the convenience of single-use packaging, but more and more consumers demand applications that are not only convenient, but more sustainable as well. At Borealis, we work with our partners to enhance the eco-efficiency and reusability of these formats, for example by incorporating Borneables modified PP into the production of lightweight, reusable cups. Replacing one metric ton of virgin PP with Borneables PP saves 2.1 tons of CO<sub>2</sub>.\*\* This means we are making everyday life not only easier, but more sustainable, too.”**

**Florin Sabau**  
Borealis Global Commercial Director Consumer Products Rigid

\* Note: from a Benchmark Study of the Zero Waste Cups (ISO: 14040 & 14044), 2020 by the LCA Centre for Bockatech. Borealis has not independently verified this and assumes no responsibility for the accuracy or completeness of the calculation.

\*\* CO<sub>2</sub> savings are calculated in a cradle-to-gate Life Cycle Assessment (LCA), conducted according to ISO14040:2006 and ISO14044:2006 for a 100% renewable based solution. The results are outlined in the **Borneables™ brochure**.

## Borealis and Borouge packaging solutions are making everyday life easier

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Borealis is one of the world's leading providers of advanced and sustainable polyolefin solutions. In Europe, Borealis is also an innovative leader in polyolefins recycling and a major producer of base chemicals. 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.

With operations in over 120 countries and head offices in Vienna, Austria, Borealis employs around 6,000 people. In 2022, we generated a net profit of EUR 2.1 billion. OMV, the Austria-based international oil and gas company, owns 75% of our shares. The Abu Dhabi National Oil Company (ADNOC), based in the United Arab Emirates (UAE), owns the remaining 25%.

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. Our operations are augmented by two important joint ventures: Borouge (with ADNOC, headquartered in the UAE), and Baystar™ (with TotalEnergies, based in the US).

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