

Shrewsbury Cup scheme

Enabled by Borealis polypropylene and Bockatech EcoCore[®] foamtech



Background

In the UK, 7 million paper cups are used every day, totaling 2.5 billion a year. Standard single-use paper cups typically have a polyethylene (PE) lining that makes them difficult to recycle. As a result, approximately 94% goes to landfill or is burnt, generating 70,000 tonnes of CO2 every year. Reuse is a key solution to this environmental problem.

In 2019, Sophie Peach and Ali Thomas decided to reduce single-use waste through a reusable cup deposit–return scheme for cafés and restaurants in the British town of Shrewsbury.

Challenge

Concerted efforts by retailers selling reusables to individual consumers has seen limited uptake. This is due to concerns over relatively high entry cost and lack of convenience.

The Shrewsbury Cup scheme set out to design a reuse pooling system offering a safe, convenient and more sustainable 'to-go' cup that can be provided cost-effectively for consumers, businesses and communities alike. Cups for the scheme needed to be:

- **Low cost** — to make the scheme economically viable and attractive for both consumers and food service providers on a large scale
- **Safe** — designed to reuse, able to withstand everyday wear and tear and repeated washing in dishwashers, using only materials that are food approved
- **Sustainable** — extra lightweight to create a minimum environmental footprint
- **Insulated** — to keep drinks hot and fingers cool
- **Attractive** — providing design flexibility for an appealing 'look'
- **Recyclable** — enabling materials to be reused when cups have reached the end of their life

Solution

The Shrewsbury Cup scheme uses foam cups made with a unique blend of Borealis polypropylenes and additives, optimised with Bockatech EcoCore® manufacturing foamtech. This innovative new technology for injection moulding instantly creates skin–foam–skin walls, making recyclable and reusable packaging that is low cost, insulated, highly durable and attractive to consumers.

Today, conversion rates from single-use to Shrewsbury Cups vary from 100% in cafés where all single-use cups have been withdrawn, to around 20% where either customers or staff are less aware of the scheme. Currently, there are just over 6000 cups in circulation, with the scheme preventing around 50,000 single-use cups from being thrown away each year.

Carbon emissions were reduced by approximately 64% in the first year alone, with an 82% reduction estimated for year two. The risk of a large number of single-use cups polluting land and water environments as waste has also been cut substantially. Extensive life–cycle assessment (LCA) environmental impact analysis shows that Shrewsbury Cups breakeven after just three uses, and a local supermarket's tests showed Shrewsbury Cups held up after a thousand washes in a commercial dishwasher.



Photo: Copyright and courtesy of Shrewsbury Cup CIC

Shrewsbury Cup has made a significant impact in educating consumers, businesses and communities about reuse, with around 14 instances of single-use cups being replaced with EcoCore®. For example, Harper Adams University removed all single-use cups on campus for the 2019 academic year.

Significantly, cups were also used at the Hay Festival, leading to a 92% reduction in single-use alternatives.

Which product is used for this solution?

As a leader in lightweight circular economy solutions, and as part of a strategic alliance with Bockatech, a UK Greentech and provider of EcoCore® technology, Borealis were partners in the development of an innovative sustainable cup ideally suited to the Shrewsbury scheme.

This material and technology partnership advanced the circular economy by developing new low-cost, high-performance, reusable and recyclable foam injection-moulding solutions. The open-innovation agreement has accelerated the development of Bockatech's technology, broadening the licensing to more manufacturing partners in various markets for reuse, lightweight single-use, and recycling.

Which products were used for this solution?

A blend of unique resins, made from proprietary Borealis Borstar® and Boreceed™ technology, significantly improved processing and reduced cost by using Bockatech EcoCore® manufacturing foamtech.

The new combination of materials provides the following benefits for foam manufacturers and converters:

- **Innovative and cost-efficient solution for injection-moulding technology**
- **Excellent foamability**
- **Closed-cell foam structure**
- **Futureproof circular economy solution**
- **Consistent raw material and reliable supply**
- **Technical support**
- **In Borealis, you have a partner committed to the development of new solutions with start-ups**
- **Design and colour flexibility**

Awards and nominations

Solar Impulse Foundation

Efficient Solution Award

Ellen MacArthur

Top 100 reuse projects

Horners / British Plastics Federation

Innovation in plastics design and manufacture award winners

MoDiP - Museum of Design in Plastics

Selected to feature in the museum catalogue

Pitch at Palace finalist

Selected to pitch to investors at St James Palace

Footprint waste2zero award

2020 Best Technology, Product and Innovation finalist

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Expanding the limits

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Borealis is one of the world's leading providers of advanced and circular polyolefin solutions and a European market leader in base chemicals, fertilizers and the mechanical recycling of plastics. We leverage our polymers expertise and decades of experience to offer value adding, innovative and circular material solutions for key industries. In re-inventing for more sustainable living, we build on our commitment to safety, our people and excellence as we accelerate the transformation to a circular economy and expand our geographical footprint.

With head offices in Vienna, Austria, Borealis employs 6,900 employees and operates in over 120 countries. In 2019, Borealis generated EUR 8.1 billion in sales revenue and a net profit of EUR 872 million. OMV, the Austria-based international oil and gas company, owns 75% of Borealis, 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 Total, based in the US).

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