



EverMinds™
Accelerating Action on Circularity

 BOREALIS

A more circular economy in the appliance business

The Borealis approach

Plastic use has increased twenty-fold in the past 50 years due to its excellent properties and benefits, such as functionality, durability and versatility. But since becoming indispensable in appliances, approximately 1Mt of plastic waste is now generated every year.

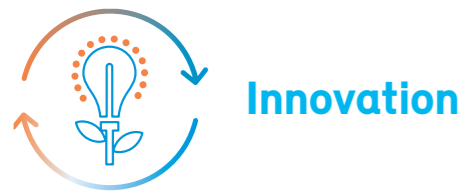
To make sure these products avoid landfill, Borealis promotes the development of a circular economy through three key principles:

1. Preserving and enhancing natural capital
2. Circulating products, components and materials at their highest utility
3. Creating only minimum waste and pollution

By enhancing material effectiveness through reuse, recycling and alternative feedstock, we can ensure the circularity of plastic. This means better environmental and economic outcomes while continuing to harness plastic's many benefits.

How we deliver sustainable solutions to meet the appliance industry's needs.

Building on the three key principles, Borealis has identified nine ways to help transition from a linear to a circular economy in appliance manufacturing.



Innovation

Resources need to stay in the use phase for as long as possible to ensure maximum efficiency. This is true for both virgin and recycled plastics (embedding the latter should not compromise the service life of the appliance product).

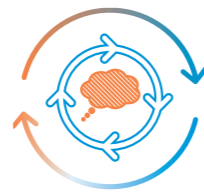
- Innovative recycled product solutions ensure appliances have the longest possible service life. Initially recycled plastics are used for non-structural and non-visible parts. Recycled solutions that meet demanding mechanical requirements (high loads and impact performance, detergent resistance etc.,) and / or aesthetical properties, are needed to further increase the recycle uptake. This requires advanced mechanical recycling and / or chemical recycling technologies.

Products designed to eliminate the use of chemicals of concern (absence by design principle).

- Borealis takes a precautionary approach to substances that are under assessment by regulatory authorities due to potential health or environmental risks, e.g. Borealis has developed non-halogen flame retardant solutions.

Product compliance statements and documentation to facilitate upscaling and commercialisation for products with recycled content.

“Reducing the environmental impacts and maximising the effectiveness of materials in appliance manufacture.”



Design for Circularity (DfC)

DfC is essential to reduce the environmental impact of products over their entire lifetime (including production, use phase and after phase), and to maximise material effectiveness. Appliances must be designed in such a way that plastic parts can be dismantled, and are easy and cost efficient to replace and / or repair, then recycle:

- DfC means making intelligent material and design decisions so products, or their parts, can be reused as well as collected, sorted and recycled efficiently.
- Reuse is preferred over recycling in waste legislation (hierarchy). Borealis supports refurbishment of appliances because it encourages reuse. It does, however, require a fundamental redesign of products.
- Design for recycling (DfR) enables easy dismantling, sorting and recycling of the plastic parts. Borealis has developed 10 Codes of Conduct for DfR of packaging and supports the clear labelling of parts to enable easier dismantling.

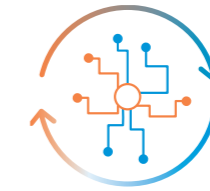


End-of-life

The right end-of-life plans are in place to finance circularity. Borealis supports the development of proper end-of-life protocols to ensure there are schemes to collect, sort and recycle appliance plastic parts at the very end of service life.

Sorting is vital in achieving a segregated and more homogeneous, therefore better quality & consistent, recycled plastics feedstock. EPR and other incentive schemes will drive recyclability and recycled uptake.

“Driving the transition of the appliance industry from a linear to a circular economy.”



Digitalisation

Borealis supports the development of digitalisation to manage the product chain of custody:

- Cost of managing information can be reduced significantly through digitalisation (e.g. blockchain technology) and help to capture the value of waste.



Mechanical recycling

Meet your sustainability targets with mechanically recycled material.

- Borcycle™ M: The solution for high quality with a lower carbon footprint.
- An ever-advancing transformational technology for mechanical recycling that gives polyolefin-based, postconsumer waste another life; a solution for lowering carbon footprints whilst raising material quality fit for demanding applications.

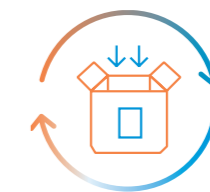


Chemical recycling

ISCC Plus-certified polyolefins with same material performance and regulatory compliance as virgin polyolefin grades.

Borcycle™ C: The solution for high purity, high performance materials.

Transformational technology solutions for chemical recycling that gives polyolefin-based, post-consumer waste another life; a solution creating both virgin-level grade materials and high safety and performance qualities fit for demanding applications.



Packaging

It is our aim to reduce the amount of disposable packaging material and consider returnable packaging systems. We also work to reduce waste in the supply chain (broken appliances) by developing packaging innovations:

- A large amount of disposable packaging (PS foam, carton board and boxes, wood and plastic film) is used in the supply chain of appliances and is growing with the increased importance of e-business.
- Damage to appliances along the supply chain has increased, surpassing 5%, causing significant economic losses and environmental impact.
- Development of innovative packaging solutions can address these challenges.



Renewable feedstock

ISCC Plus-certified polyolefins with same material performance and regulatory compliance as virgin polyolefin grades.

The Bornewables are produced with renewable feedstock derived entirely from waste and residue streams. These premium polyolefins offer the same material performance as virgin polyolefins, yet with a reduced carbon footprint. Using these innovative and more circular products will help enable Borealis customers to meet their own sustainability targets while maintaining existing quality standards. derived entirely from waste and residue streams.



Collaboration

Collaboration with value chain partners and other stakeholders is fundamental to the success of a circular economy:

- Borealis has developed a strategic framework to stepwise move its polyolefin business towards a circular economy, focusing on the commercialisation and proliferation of mechanical and chemical recycling and renewable feedstock, based on life-cycle assessments.
- Active membership in associations such as the Polyolefin Circular Economy Platform, CEFLEX and the Ellen McArthur Foundation, help to direct and drive the transition of the industry from linear to circular. Borealis has signed the Foundation's Global Commitment "A Line in the Sand", one of only two producers invited to do so.

Because thinking circular today will provide us, our partners and society with a better tomorrow.

Launched in 2018, EverMinds™ is an umbrella brand uniting the wide range of Borealis activities and initiatives aimed at making plastics more circular. As a dedicated platform, EverMinds promotes a circular mind-set among all Borealis stakeholders.

The platform encompasses proprietary Borealis technologies as well as established brands such as Purpolen™ and Dipolen.™ It facilitates deeper collaboration between Borealis and

its partners in order to develop innovative and sustainable polyolefins solutions based on the circular model of recycling, re-use and design for circularity. EverMinds also extends to pioneering corporate programmes such as Project STOP, and engagement in industry initiatives like the the Polyolefins Circular Economy Platform (PCEP), and Project CEFLEX.

EverMinds™ – Accelerating Action on Circularity | Date of issue: September 2022

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 2021, Borealis generated total sales and other income of EUR 10,153 million and a net profit of EUR 1,396 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 TotalEnergies, based in the US).

www.borealisgroup.com | www.borealiseverminds.com

Disclaimer The information contained herein is to our knowledge accurate and reliable as of the date of publication. Borealis and Borouge extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the consequences of its use or for any errors. It is the customer's responsibility to inspect and test our products in order to satisfy himself as to the suitability of the products for the customer's particular purpose. The customer is also responsible for the appropriate, safe and legal use, processing and handling of our products. Nothing herein shall constitute any warranty (express or implied, of merchantability, fitness for a particular purpose, compliance with performance indicators, conformity to samples or models, non-infringement or otherwise), nor is protection from any law or patent to be inferred. Insofar as products supplied by Borealis and Borouge are used in conjunction with third-party materials, it is the responsibility of the customer to obtain all necessary information relating to the third-party materials and ensure that Borealis and Borouge products, when used together with these materials, are suitable for the customer's particular purpose. No liability can be accepted in respect of the use of Borealis and Borouge products in conjunction with other materials. The information contained herein relates exclusively to our products when not used in conjunction with any third-party materials. Borcycle, Bornewables and Fibremod are trademarks of Borealis AG. Borstar Nucleation Technology is a registered trademark of the Borealis Group.

EverMinds™ is a trademark of the Borealis Group. Borcycle and Bornewables are trademarks of Borealis AG.

For more information:

visit www.borealisgroup.com,
and www.borealiseverminds.com

Borealis AG

Trabrennstr. 6-8 · 1020 Vienna · Austria

Tel +43 (0) 1 22 400 300 · Fax +43 (0) 1 22 400 333