

Circular Feedstock Queo™

Bringing the advantages of bio-based and chemically recycled feedstock to Queo™ Plastomers and Elastomers

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Background

Recent years have seen a steady increase in the demand for high-performance plastomers and elastomers that combine the physical properties of rubber with the processing advantages of a thermoplastic material. This trend has been accompanied by a growing interest in sustainable solutions that offer the same material performance but with a better environmental impact.

Produced in Geleen, the Netherlands, using proprietary Borceed™ solution technology, Queo™ is Borealis range of high-performance polyolefin plastomers and elastomers. Applications include automotive, flexible and rigid packaging, housewares, and wire and cables.

Challenge

Polyolefin plastomers (POPs) and especially elastomers (POEs) are typically combined with other thermoplastic resins and cannot be collected separately for recycling when end of life is reached. Mechanically recycled plastomers and elastomers are therefore not available on the market. In addition, POPs and POEs often require consistent quality in order to fulfil the requirements of a wide range of applications, including for the food industry. Obtaining re-approvals for a new product can be costly and time-consuming, thus having a circular drop-in solution with qualities identical to the original fossil-based product would be ideal!

Solution

Borealis is introducing new product lines to meet customer demand for circular solutions:

- The Bornewables™ line of Queo, bio-based plastomer and elastomers
- Borcycle™ C Queo, chemically recycled plastomers and elastomers

Produced with ISCC PLUS–certified renewable feedstock, the new lines represent an expansion of the already available Bornewables and Borcycle C portfolios of circular polyolefin products, which offer the same material performance as fossil-based polyolefins, yet decoupled from fossil-based feedstock. Borealis' customers can continue to benefit from Queo's unmatched sealability, flexibility, compatibility and processability properties, while also meeting their sustainability goals.

The Bornewables and Borcycle C lines of Queo are ISCC PLUS–certified based on a mass balance approach, a chain of custody model that makes it possible to track, trace and verify sustainable content from feedback through to finished product. Bornewables feedstock is derived solely from waste and residue streams: from vegetable oil products as well as oil waste and residues — for instance, used cooking oil. Borcycle C feedstock is obtained from chemical recycling, a process which converts plastic waste into monomers, synthetic oil or gas used as raw material in the manufacture of new polymers.

Benefits

- The Bornewables line and Borcycle C Queo offer a circular drop-in alternative to conventional fossil-based plastomers and elastomers.
- The Bornewables line and Borcycle C Queo offer high quality and performance for demanding applications.
- The Bornewables line of Queo offers lower carbon footprint as sourced from a bio-based raw materials.
- Borcycle C Queo offers a way to reduce the plastic waste problem.
- The ISCC PLUS–certification provides traceability throughout supply chain using mass balance approach.
- The Bornewables and Borcycle C are at the core of Borealis' drive to accelerating action on circularity progress towards a sustainable future.



The Queo™ portfolio - Plastomers & Elastomers

Product name	Density [kg/m³] ISO 1183	MFR (190°C/2.16 kg) [g/10 min] ISO 1133	Circular content [%]*
Queo 6201LA-P	862	1	60
Queo 6800LA	868	0,5	60
Queo 7001LA	870	1	60
Queo 7007LA	870	6,6	60
Queo 7030LA-P	870	30	60
Queo 8201LA	883	1,1	70
Queo 8203	883	3	70
Queo 8210LA	883	10	70
Queo 8230	883	30	70
Queo 0201	902	1,1	80
Queo 0201FX	902	1,1	80
Queo 0203	902	3	80
Queo 0210LA	902	10	80
Queo 0219	902	19	80
Queo 0230	902	30	80
Queo 1007	910	6,6	80

Not every Queo™ grade will be immediately available as the Bornewables™ or Borcycle™ C, introduction will depend on market request.

*ISCC PLUS-certified, based on mass balance.

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About Borealis 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 customers in over 120 countries and head office in Vienna, Austria, Borealis employs around 6,200 people. In 2024, we generated a net profit of EUR 566 million. OMV, the sustainable chemicals, fuels and energy company with a focus on circular economy solutions, headquartered in Vienna, Austria, 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).

www.borealisgroup.com | www.borealiseverminds.com

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