

CASE STUDY

# Borealis and Polibak boost the circularity of BOPP film



Accelerating Action  
on Circularity



In partnership with

**polibak**

 **BOREALIS**

بروج  
**Borouge**



## Background

Biaxially Oriented Polypropylene (BOPP) film is produced by stretching the film both in the machine and in the transverse direction, or across machine direction. This process results in a material that is ideally suited for use in flexible packaging applications, and in particular for food products. Shelf life is extended thanks to BOPP's excellent seal integrity and moisture barrier properties. Appealing pack visuals are made possible due to the outstanding transparency of BOPP films and their suitability for conversion and post-lamination operations such as printing, coating with barrier substrates and pouch forming. The carbon footprint of BOPP film is lower than most other polyolefin-based packaging materials thanks to its material efficiency. What makes BOPP truly unique is its low density combined with high mechanical strength: the higher yields obtained during the conversion process mean that the same length of a roll of BOPP film weighs considerably less than one roll made with other flexible packaging materials. Lower weight translates into easier handling and lower transportation costs per unit.



**“At Polibak, we are committed to constant improvement when it comes to BOPP film quality and sustainability. Our aim is to meet and even exceed the highest customer expectations with our own superior machine and production performance. We appreciate our ongoing and very constructive collaboration with Borealis as well as their fast and professional support.”**

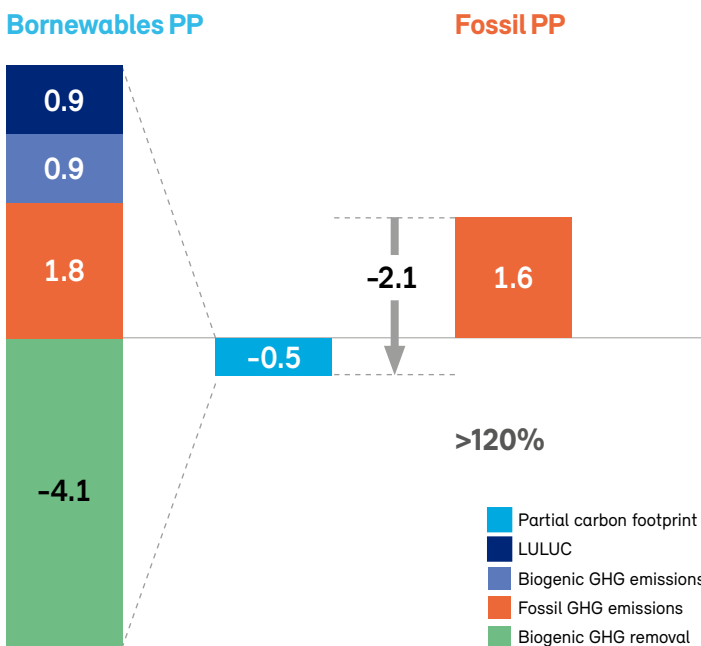
**Özgür Çertuğ**  
General Manager, Polibak

# Challenge

While BOPP film is already among those flexible packaging formats with a reduced environmental impact, major consumer brands are pushing to further enhance BOPP film circularity. The innovative specialist Polibak, a BOPP film producer based in Turkey, sought such a solution for one of their main clients, a leading European food brand known for its chocolates, wafers, crackers, and other sweet and savory snacks. Polibak’s aim was to implement a drop-in solution that is even more sustainable than conventional BOPP while maintaining the same application quality, safety, and food-contact compliance. Efficiency and compatibility were essential parameters to ensure that the new solution would fit seamlessly with Polibak’s existing processing and packaging technology.

# Solution

Borealis worked together with Polibak and the brand owner to identify their specific needs. We proposed an efficient and more sustainable way forward: a drop-in solution from our Borenewables™ BOPP portfolio of food-approved polyolefins produced with renewable-based feedstock. The Borenewables provide the same material performance as virgin polyolefins, yet offer a lower carbon footprint. This is because they are manufactured with second generation feedstock based on waste and residue streams rather than fossil fuel-based feedstocks. Moreover, the renewable content in Borenewables grades is mass balance accredited under the ISCC (International Sustainability & Carbon Certification) PLUS certification method. ISCC Plus allows the customer to track and quantify the actual renewable feedstock used at each step in the manufacturing process.



Unit: kg CO<sub>2</sub> eq./kg polypropylene  
 Note: Biogenic GHG removal shown here is the total CO<sub>2</sub> absorbed from the atmosphere during plant growth associated with the Borenewables feedstock for the production of 1 kg polyolefin. During production, part of the removed CO<sub>2</sub> is released. The balance biogenic CO<sub>2</sub> remains in the product (3,14 kg CO<sub>2</sub> / kg polyolefin).

# Benefits

The nimble and professional support provided by Borealis enabled Polibak to quickly accommodate their customer's sustainability ambitions. Using a Bornevables grade as a drop-in solution required no changes to Polibak's own production and packaging processes, nor did it require any new approvals. Producing BOPP film based on the Bornevables allows customers like Polibak to replace fossil fuel-based feedstock with an identical volume of sustainably sourced renewable feedstock, all while maintaining the same high application quality for which BOPP film is so valued in the food industry.

**“The enhanced functionalities of polyolefins have made them indispensable for most packaging solutions, and in particular for flexible food packaging. Using a Bornevables grade as a drop-in solution offers the same valued benefits – safeguarding of food quality and freshness, and compliance with stringent regulatory guidelines – while reducing the overall environmental footprint. At Borealis, this is what we call re-inventing essentials for sustainable living.”**

**Peter Voortmans**

Global Commercial Director Consumer Products, Borealis

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

date of issue: August 2023

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).

[borealisgroup.com](http://borealisgroup.com) | [borealiseverminds.com](http://borealiseverminds.com)

### Borealis AG

Trabrennstr. 6-8, 1020 Vienna, Austria  
Tel +43 1 22 400 000 - Fax +43 1 22 400 333  
[borealisgroup.com](http://borealisgroup.com)

**Borouge Pte Ltd** Sales and Marketing Head Office  
1 George Street 18-01, Singapore 049145  
[borouge.com](http://borouge.com)

