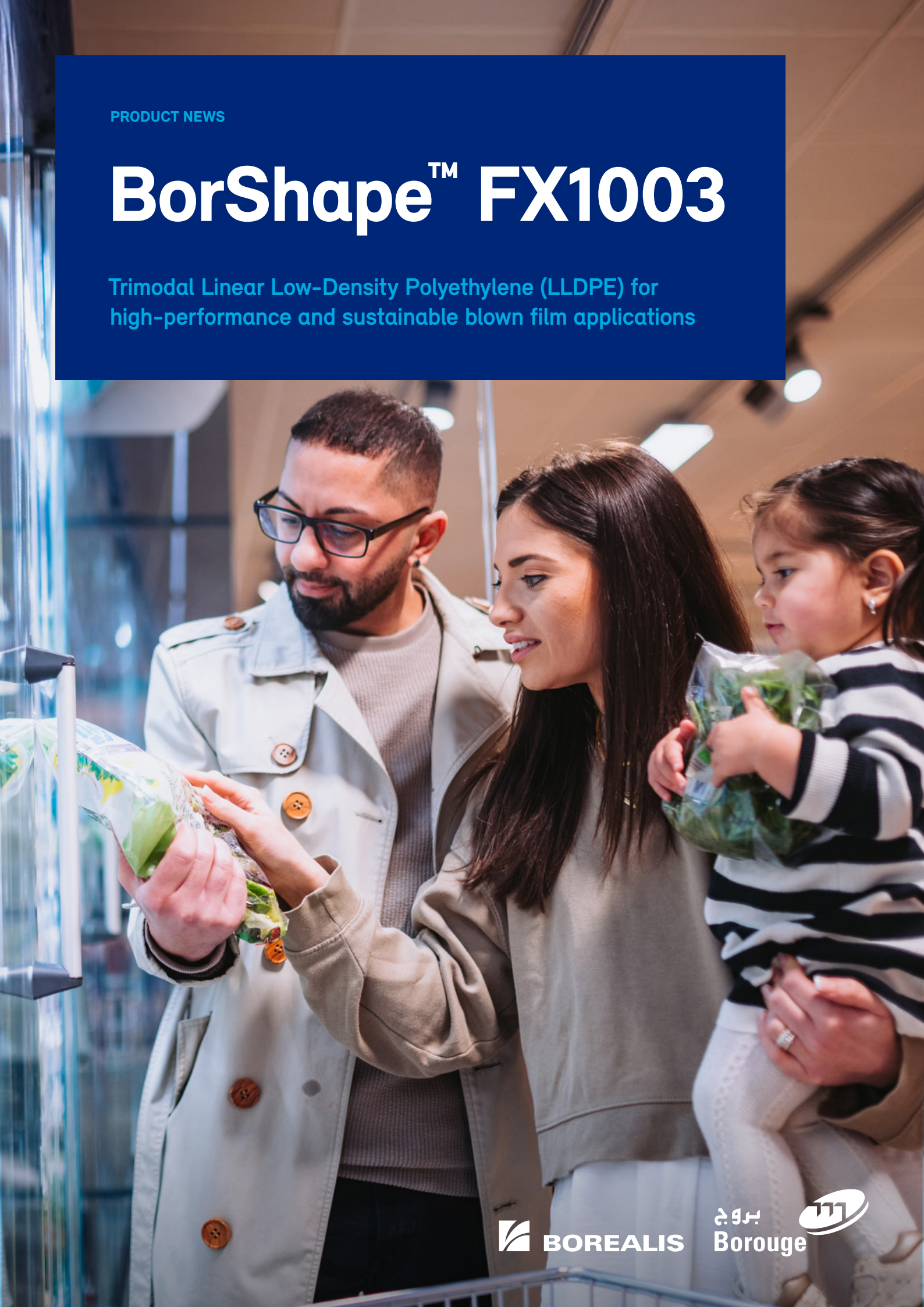
PRODUCT NEWS

BorShape™ FX1003

Trimodal Linear Low-Density Polyethylene (LLDPE) for high-performance and sustainable blown film applications



BOREALIS

Borouge

BorShape™ FX1003

The essential ingredient for meeting challenging sustainability targets in blown film applications

Description

BorShape™ FX1003 is a trimodal Linear Low-Density Polyethylene (LLDPE) terpolymer grade developed specifically for flexible packaging applications. Produced using our proprietary Borstar® 3G Technology, it offers an excellent balance of stiffness and toughness, along with excellent processability. These properties make it ideal for mono-oriented film (MDO) production, providing an alternative to PET or OPA in monomaterial packaging solutions.

BorShape™ FX1003 also provides excellent heat resistance for 100% polyethylene (PE) laminates in both food and non-food applications. When used in combination with our Anteo™ and Queo™ grades, it enables high-performance 100% PE solutions for lamination and form-fill-seal (FFS) applications, aligning with Design for Recycling (DfR) criteria.

Application

BorShape™ FX1003 is suitable for a wide range of food and non-food, industrial and consumer packaging applications, including:

- MDO (monomaterial solutions)
- Consumer food packaging
- Collation shrink
- Heavy-duty shipping sacks (HDSS)
- Medium-duty sacks
- Compression packaging

Designed for circularity

Borshape™ FX1003 blends with mechanically recycled polyethylene, and is available from chemical recycling feedstock, supporting the transition to a circular economy for plastics.

BorShape™ FX1003 special features

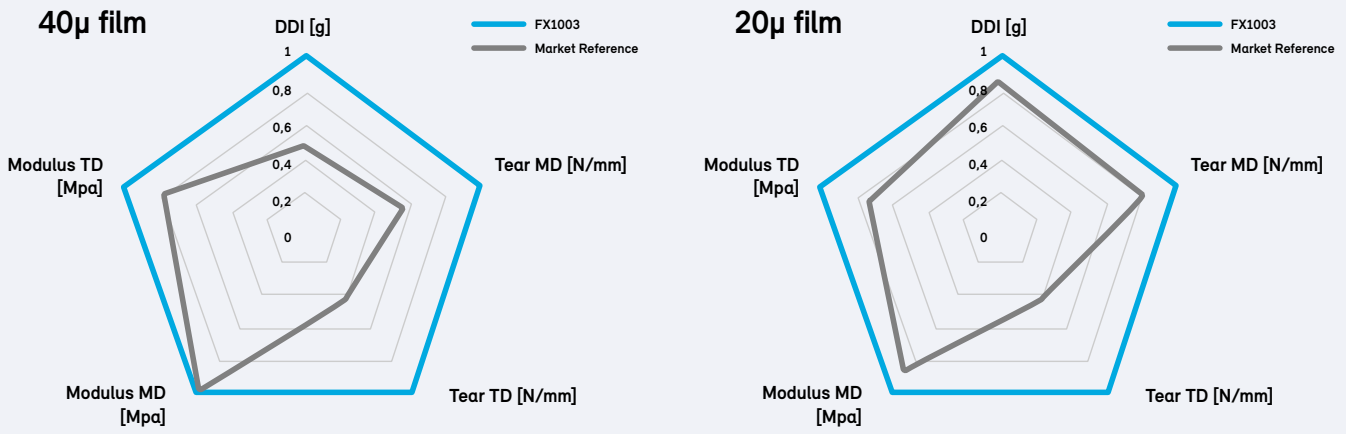
- **Balanced high stiffness and toughness**
- **Excellent puncture resistance**
- **Design for Recycling: a best-in-class grade for reducing, reusing, and recycling**
- **Monomaterial solution, replacing PET and OPA in both Machine Direction-Oriented (MDO) processes and lamination webs**
- **Suitable for a wide range of end uses**
- **Enhances the mechanical properties of structures with high PCR content, especially in high-end, non-food-contact applications**

Comparative film performance

With its unique set of properties, BorShape™ FX1003 stands out from competing grades as a superior choice for a wide range of packaging applications.

Its combination of stiffness, toughness, tear resistance, and ease of processing on blown film lines makes it ideal for food packaging, FFS, MDO, and industrial packaging applications like HDSS.

In addition, it supports the transition to monomaterial solutions, helping to reduce plastic usage, enable reuse, and incorporate PCR.



Graph 1: Film performance comparison of BorShape™ vs. a competing solution, at 40µ and 20µ thickness: blown film produced on a 60mm W&H extruder with L/D 30 and die 200 x 1.2mm, BUR = 3:1, FLH = 2DD. © Borealis

Property	Unit	Test method	BorShape™ FX1003
MFR (@ 190°C/2.16 kg)	g/10min	ISO1133-1	0.35
Density	kg/m3	ISO1183-1	941
Tensile modulus MD/TD	MPa	ISO 527-3	630/850
Dart Drop Impact	g	ISO 7765-1	240

Table: BorShape™ FX1003 physical and film properties
Film properties measured on 40µm-thick blown film produced on a 60mm W&H extruder with L/D 30 and die 200 x 1.2mm, BUR = 3:1, FLH = 2DD

Borealis and Borouge packaging solutions are making everyday life easier

date of issue: **November 2024**

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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