

# Polyethylene BorShape™ FX1002



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## Description

**BorShape FX1002** is a blown film grade.

It is a high alpha olefin terpolymer polyethylene film grade combining excellent extrusion behaviour and superior mechanical properties which are kept in cold conditions.

BorShape™ FX1002 has been specially developed to deliver high throughput while achieving high toughness and high stiffness levels.

## Applications

**BorShape FX1002** is designed for:

Flexible packaging  
Frozen food packaging  
Lamination films  
Heavy-duty bags  
Medium duty bags

Agricultural films  
Refuse bags  
Liquid packaging  
Collation shrink

## Additives

**BorShape FX1002** contains antioxidant.

## Physical Properties

Property	Typical Value	Test Method
Data should not be used for specification work		
Density (Base Resin)	937 kg/m <sup>3</sup>	ISO 1183
Melt Flow Rate (190 °C/5 kg)	2 g/10min	ISO 1133
Melt Flow Rate (190 °C/21 kg)	42 g/10min	ISO 1133
Melting temperature (DSC)	128 °C	ISO 11357-3
Vicat softening temperature	113 °C	ISO 306

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# **Polyethylene** **BorShape FX1002**



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## Film Properties

Film properties are measured on 40 µm blown film produced on a 60 mm W&H extruder with L/D 30 and die 200 x 1,2 mm, BUR = 3:1, FLH = 2DD.

Property		Typical Value	Test Method
Data should not be used for specification work			
Dart Drop		250 g	ISO 7765-1
Instrumented puncture test	Total Penetration Energy	18 J	ISO 7765-2
Haze		60 %	ASTM D 1003
Gloss		10 %	ASTM D 2457
Tensile Strain at Break	MD	550 %	ISO 527-3
Tensile Strain at Break	TD	750 %	ISO 527-3
Tensile Strength	MD	55 MPa	ISO 527-3
Tensile Strength	TD	40 MPa	ISO 527-3
Tensile Modulus	MD	450 MPa	ISO 527-3
Tensile Modulus	TD	550 MPa	ISO 527-3
Tear resistance (Elmendorf)	MD	35 N/mm	ISO 6383/2
	TD	200 N/mm	
Coefficient of friction (Dynamic)		0,4	ISO 8295

## Processing Techniques

BorShape FX1002 is easily processed on conventional extruders.

Borshape FX1002 can be processed in most types of blown film equipment, incl. LDPE, LLDPE or even HDPE extruders. The balance of draw down properties and bubble stability is superior to conventional LLDPE and LDPE. Thicknesses of 10 to >200µm can be processed with good bubble stability. Borshape FX1002 is well suited for co-extrusion.

Recommended extrusion temperature is 190°C-210°C. Conventional die gaps can be used without sharkskin or draw down problems. A gap of 1,0-1,5 mm will give the best balance between extruder pressure and physical properties in the film.

Borshape FX1002 is sensitive to the orientation obtained by the film blowing conditions like Blow Up Ratio (BUR) and Frost Line Height (FLH). Higher impact can be achieved by rising the FLH and 4DD. High BUR (>2) also results in improved mechanical properties and better balance in MD/TD.

## Storage

**BorShape FX1002** should be stored in dry conditions at temperatures below 50°C and protected from UV-light. Improper storage can initiate degradation, which results in odour generation and colour changes and can have negative effects on the physical properties of this product.

More information on storage is found in our "Safety data sheet" / "Product safety information sheet".

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## Safety

The product is not classified as dangerous.

Please see our "Safety data sheet" / "Product safety information sheet" for details on various aspects of safety, recovery and disposal of the product. For more information, contact your Borealis representative.

## Recycling

The product is suitable for recycling using modern methods of shredding and cleaning. In-house production waste should be kept clean to facilitate direct recycling.

## Related Documents

The following related documents are available on request, and represent various aspects on the usability, safety, recovery and disposal of the product.

"Safety data sheet" / "Product safety information sheet"  
Statement on chemicals, regulations and standards  
General statement on compliance to food contact regulations

## Disclaimer

**The product(s) mentioned herein are not intended to be used for medical, pharmaceutical or healthcare applications and we do not support their use for such applications.**

To the best of our knowledge, the information contained herein is accurate and reliable as of the date of publication, however we do not assume any liability whatsoever for the accuracy and completeness of such information.

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No liability can be accepted in respect of the use of any Borealis product in conjunction with any other products and/or materials. The information contained herein relates exclusively to our products when not used in conjunction with any other material unless as specifically provided for in the test methods stated above.

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