

Polyethylene

BorShape™ FX1002

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.

BorShape™ FX1002 contains:

Antioxidant

Applications

BorShape™ FX1002 is intended for following applications:

- | | |
|-----------------------|------------------|
| Collation shrink | Liquid packaging |
| Flexible packaging | Medium duty bags |
| Frozen food packaging | Refuse bags |
| Heavy-duty bags | |

Physical properties

Property	Typical value *	Unit	Test method
Density	937	kg/m ³	ISO 1183-1
Melt flow rate (190 °C/21.6 kg)	42.0	g/10min	ISO 1133-1
Melt flow rate (190 °C/5 kg)	2.00	g/10min	ISO 1133-1
Melting temperature	128	°C	

* Data should not be used for specification work

BorShape™ is a trademark of the Borealis Group



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Film properties

Property	Typical value *	Unit	Test method
Dart drop	240	g	ISO 7765-1
Instrumented puncture test, Total penetration energy ¹	15.0	J/mm	ISO 7765-2
Haze	62.0	%	ASTM D1003
Gloss 45°	6.80	GU	ASTM D2457
Tensile Modulus MD	525	MPa	ISO 527-3
Tensile Modulus TD	750	MPa	ISO 527-3
Tensile strength MD	65.0	MPa	ISO 527-3
Tensile strength TD	45.0	MPa	ISO 527-3
Tensile strain at break MD	550	%	ISO 527-3
Tensile strain at break TD	750	%	ISO 527-3
Tear resistance (Elmendorf) MD ¹	30.0	N/mm	ISO 6383/2
Tear resistance (Elmendorf) TD ¹	300	N/mm	ISO 6383/2
Coefficient of friction (film/film)	0.30	-	ISO 8295

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¹ Normalized

Film properties are measured on 40µm 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.

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 coextrusion.

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.

Packaging and 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 can result in odour generation and colour changes and can have negative effects on the physical properties of this product.

Product compliance documents

Latest versions of product safety information sheets (PSIS), product safety data sheets (SDS) and other product liability documents are available in our website www.borealisgroup.com.

Sustainability aspects

Borealis is ever mindful of the impact of our products on the planet. We promote Design for Circularity (DfC) and Design for Recycling (DfR) to conserve natural resources and to reduce the environmental impact of products over their entire lifetime (including production, use phase and after phase). DfR helps ensure that material can be effectively recycled while maximizing the material performance efficiency. Further information on sustainability and Design for Recycling (DfR) can be found from our websites www.borealisgroup.com and www.borealiseverminds.com.

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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.

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Borealis makes no warranties which extend beyond the description contained herein. Nothing herein shall constitute any warranty of merchantability or fitness for a particular purpose.

It is the customer's responsibility to inspect and test our products in order to satisfy itself as to the suitability of the products for the customer's particular purpose. The customer is responsible for the appropriate, safe and legal use, processing and handling of our products.

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