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Polyethylene
BorShape™ FX1001

Description
BorShape FX1001 is a blown film grade.

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

BorShape FX1001 has been developed especially for applications requiring high toughness at high stiffness levels.

Applications
BorShape FX1001 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 FX1001 contains antioxidant.

Physical Properties

Property	Typical Value Data should not be used for specification work	Test Method
Density (Base Resin)	931 kg/m3	ISO 1183
Melt Flow Rate (190 °C/5 kg)	0,9 g/10min	ISO 1133
Melt Flow Rate (190 °C/21 kg)	20 g/10min	ISO 1133
Melting temperature (DSC)	127 °C	ISO 11357-3

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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 Data should not be used for specification work	Test Method
Dart Drop			480 g	ISO 7765-1
Instrumented puncture test	Total Penetration Energy		28 J	ISO 7765-2
Haze			80 %	ASTM D 1003
Gloss			7 %	ASTM D 2457
Tensile Strain at Break		MD	450 %	ISO 527-3
Tensile Strain at Break		TD	700 %	ISO 527-3
Tensile Strength		MD	50 MPa	ISO 527-3
Tensile Strength		TD	40 MPa	ISO 527-3
Tensile Modulus		MD	350 MPa	ISO 527-3
Tensile Modulus		TD	450 MPa	ISO 527-3
Tear resistance (Elmendorf)		MD	60 N/mm	ISO 6383/2
		TD	250 N/mm	
Coefficient of friction (Dynamic)			0,4	ISO 8295

Processing Techniques

BorShape FX1001 is easily processed on conventional extruders.

Borshape FX1001 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 FX1001 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 FX1001 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 FX1001 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.

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.

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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