Polyethylene

Borstar® FB2310

Linear Low Density Polyethylene for Film Extrusion

Description

Borstar FB2310 is a high molecular weight linear low density polyethylene film grade combining good and flexible extrusion behaviour, excellent draw down and superior mechanical properties

For films made of Borstar FB2310 , the high toughness remains in cold conditions.

Applications

Borstar FB2310 has been developed especially for applications like:

Agricultural films
Food packaging
Frozen food packaging
Heavy-duty sack
Shrink film
Protective film

Additives

Borstar FB2310 contains antioxidant.

Physical Properties

Property	Typical Value Data should not be used for specification work	Test Method
Density	931 kg/m3	ISO 1183
Melt Flow Rate (190 °C/2,16 kg)	0,2 g/10min	ISO 1133
Melt Flow Rate (190 °C/5 kg)	0,9 g/10min	ISO 1133
Melt Flow Rate (190 °C/21,6 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			230 g	ISO 7765-1
Instrumented puncture test	Total Penetration Energy		20 J/mm	ISO 7765-2
Haze			80 %	ASTM D 1003
Gloss			7	ASTM D 2457
Tensile Strain at Break [1]		MD	400 %	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	300 MPa	ISO 527-3
Tensile Modulus		TD	400 MPa	ISO 527-3
Tear resistance (Elmendorf)		MD	50 N/mm	ISO 6383/2
		TD	250 N/mm	
Coefficient of friction (Dynamic)			0,4	ISO 8295

[1] MD = machine direction, TD = transverse direction.

Processing Techniques

Borstar FB2310 is easily processed on conventional extruders.

Borstar FB2310 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. **Borstar FB2310** 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. Wider die gap gives higher machine direction orientation and narrow die gap may give too high extruder pressure.

Borstar FB2310 is sensitive to the orientation obtained by the film blowing conditions like Blow Up Ration (BUR) and Frost Line Height (FLH). Higher impact can be achieved by rising the FLH and 4DD. High BUR (>2) also results in better mechanical properties and better balance in MD/TD.

Storage

Borstar FB2310 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 products. 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
Statement on polymer additives and BSE
General statement on compliance to food contact regulations

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