Polyethylene

Borstar® FB2230

Description

Borstar FB2230 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 FB2230 , the high toughness remains in cold conditions.

Applications

Borstar FB2230 has been developed especially for applications like:

Agricultural films
Food packaging
Frozen food packaging
Heavy-duty sack
Lamination films
General packaging film

Additives

Borstar FB2230 contains antioxidant.

Physical Properties

Property	Typical Value Data should not be used for specification work	Test Method
Density	923 kg/m3	ISO 1183
Melt Flow Rate (190 °C/2,16 kg)	0,2 g/10min	ISO 1133
Melt Flow Rate (190 °C/5,0 kg)	0,9 g/10min	ISO 1133
Melt Flow Rate (190 °C/21,6 kg)	22 g/10min	ISO 1133
Melting temperature	124 °C	ISO 11357-3
Vicat softening temperature (10 N)	101 °C	ISO 306

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			300 g	ISO 7765-1
Puncture resistance	Energy to break		5 J	ASTM D 5748
	Force		65 N	
Haze			70 %	ASTM D 1003
Gloss			10	ASTM D 2457
Tensile Strain at Break [1]		MD	450 %	ISO 527-3
Tensile Strain at Break		TD	750 %	ISO 527-3
Tensile Strength		MD	55 MPa	ISO 527-3
Tensile Strength		TD	45 MPa	ISO 527-3
Tensile Modulus		MD	250 MPa	ASTM D 882-A
Tensile Modulus		TD	300 MPa	ASTM D 882-A

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Tear resistance (Elmendorf)	MD	3 N	ISO 6383/2
	TD	11 N	
Water Vapour Transmission Rate (38 °C, 90 % RH)		8 g/m²*d	ISO 15106-2

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

Processing Techniques
Borstar FB2230 is easily processed on conventional extruders.

Borstar FB2230 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 FB2230** is well suited for co-extrusion.

Recommended extrusion temperature is 190-210ºC. Conventional die gaps can be used without shark skin 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 FB2230 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 to 4DD. High BUR (>2) also results in better mechanical properties and better balance in MD/TD.

As a guideline the following conditions should be used.
FLH: 2 - 4 DD
BUR: 3:1

Storage
Borstar FB2230 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.

Safety
The product is not classified as a dangerous preparation.

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.

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Related Documents

Most Data sheet and safety data sheets are available on Borealis web site www.borealisgroup.com. If the data sheets not could be found on the web, Borealis contact person could supply with information.

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 Borealis' products in conjunction with other materials. The information contained herein relates exclusively to our products when not used in conjunction with any third party materials.

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