Polyethylene

Borstar® FB4230

Linear Low Density Polyethylene for Film Extrusion

Description

Borstar FB4230 is a linear low density polyethylene film grade combining good and flexible extrusion behaviour, excellent draw down and superior mechanical properties.

Blown film extrusion with Borstar LLDPE is comparable to LDPE, but with better flexibility in film thickness range and draw down.

Applications

Borstar FB4230 has been developed especially for applications like:

Food packaging
Pouches
General packaging
Frozen food packaging

Additives

Borstar FB4230 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)	0,4 g/10min	ISO 1133
Melt Flow Rate (190 °C/5,0 kg)	2,0 g/10min	ISO 1133
Melt Flow Rate (190 °C/21,6 kg)	44 g/10min	ISO 1133
Melting temperature (DSC)	124 °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			175 g	ISO 7765-1
Instrumented puncture test	Total Penetration Energy		15 J/mm	ISO 7765-2
Haze			70 %	ASTM D 1003
Gloss at 20 degree (of arc)			10	ASTM D 2457
Tensile Strain at Break [1]		MD	500 %	ISO 527-3
Tensile Strain at Break		TD	750 %	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	350 MPa	ISO 527-3
Tear resistance (Elmendorf)		MD	70 N/mm	ISO 6383/2
		TD	200 N/mm	
Coefficient of friction (Dynamic)			0,4	ISO 8295

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

Processing Techniques

Borstar FB4230 is easily processed on conventional extruders.

Borstar FB4230 can be processed in most types of blown film equipment, incl. HDPE and LLDPE or LDPE extruders. The balance of draw down properties and bubble stability is superior to conventional LLDPE and LDPE. Thickness of 10 to >200µm can be processed with good bubble stability. Borstar FB4230 is especially well suited for co-extrusion. Borstar FB4230 will in most cases provide an improvement of production regularity.

Recommended extrusion temperature is 180°C-210°C. Conventional die gaps can be used without shark skin or draw down problems. A gap of 1,0-1,5 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.

Storage

Borstar FB4230 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
Statement on polymer additives and BSE
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 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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