



## Borstar® FB2310

Borealis A/S - Linear Low Density Polyethylene

Wednesday, February 18, 2009

### General Information

#### Product 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
- Stretch hood film

#### General

Material Status	• Commercial: Active		
Availability	• Europe	• North America	• South America
Additive	• Antioxidant		
Features	• Antioxidant	• Good Flexibility	• Low Temperature Toughness
	• Good Drawdown	• High Molecular Weight	
Uses	• Agricultural Applications	• Food Packaging	• Industrial Applications
	• Film	• Heavy-duty Bags	
Forms	• Pellets		
Processing Method	• Film Extrusion		

### ASTM and ISO Properties<sup>1</sup>

Physical	Nominal Value Unit	Test Method
Density	0.931 g/cm <sup>3</sup>	ISO 1183
Melt Mass-Flow Rate (MFR)		ISO 1133
190°C/2.16 kg	0.20 g/10 min	
190°C/21.6 kg	20 g/10 min	
190°C/5.0 kg	0.90 g/10 min	
Films	Nominal Value Unit	Test Method
Film Puncture Energy	5.00 J	ASTM D5748
Film Puncture Force	65.0 N	ASTM D5748
Tensile Modulus		ISO 527-3
MD	300 MPa	
TD	400 MPa	
Tensile Strength		ISO 527-3
MD	50.0 MPa	
TD	40.0 MPa	
Tensile Elongation		ISO 527-3
MD: Break	400 %	
TD: Break	700 %	
Dart Drop Impact (40.0 µm, Blown Film)	300 g	ISO 7765-1

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The information presented on this data sheet was acquired by IDES from the producer of the material. IDES makes substantial efforts to assure the accuracy of this data. However, IDES assumes no responsibility for the data values and strongly encourages that upon final material selection, data points are validated with the material supplier.

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Films	Nominal Value Unit	Test Method
Elmendorf Tear Strength		ISO 6383-2
MD	2.0 N	
TD	10 N	
Oxygen Permeability (25°C, 40.0 µm, 0% RH)	3500 cm <sup>3</sup> ·mm/m <sup>2</sup> /atm/24 hr	ASTM D3985
Water Vapor Transmission Rate (38°C, 90% RH)	6.0 g·mm/m <sup>2</sup> /atm/24 hr	ISO 15106-2

Thermal	Nominal Value Unit	Test Method
Vicat Softening Temperature	108 °C	ISO 306/A50
Melting Temperature	127 °C	ISO 11357-3

Optical	Nominal Value Unit	Test Method
Gloss	10	ASTM D2457
Haze	80 %	ASTM D1003

### Processing Information

Extrusion	Nominal Value Unit
Melt Temperature	190 to 210 °C

### Extrusion Notes

BUR: 3:1  
FLH: 2 to 4 DD  
Die Gap: 1 to 1.5 mm

### Notes

<sup>1</sup> Typical properties: these are not to be construed as specifications.