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PRODUCT DATA SHEET

Polyethylene

Borstar® FB2310

Description

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

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

Cas No. 25087-34-7

Borstar® FB2310 contains:

Antioxidants

Applications

Borstar® FB2310 is intended for following applications:

Food packaging film	Industrial film
Frozen food packaging	Protective film
Heavy-duty bags	Shrink film

Physical properties

Property	Typical value *	Unit	Test method
Density	931	kg/m³	ISO 1183-1
Melt flow rate (190 °C/5 kg)	0.85	g/10min	ISO 1133-1
Melt flow rate (190 °C/21.6 kg)	20	g/10min	ISO 1133-1
Melting temperature	127	°C	ISO 11357-3

* Data should not be used for specification work

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Manufacturer website: https://www.borealisgroup.com/

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Film properties

Property	Typical value *	Unit	Test method
Tensile Modulus TD[1]	560	MPa	ISO 527-3
Tensile Modulus MD[1]	420	MPa	ISO 527-3
Tensile stress at break MD	55	MPa	ISO 527-3
Tensile stress at break TD	45	MPa	ISO 527-3
Tensile strain at break MD	520	%	ISO 527-3
Tensile strain at break TD	720	%	ISO 527-3
Dart drop	230	g	ISO 7765-1
Instrumented puncture test, Total penetration energy	20	J/mm	ISO 7765-2
Tear resistance (Elmendorf) TD[2]	250	N/mm	ISO 6383/2
Tear resistance (Elmendorf) MD[2]	40	N/mm	ISO 6383/2
Haze	80	%	ASTM D1003
Gloss 45°	5	GU	ASTM D2457
Coefficient of friction (Dynamic)	0.40	-	ISO 8295

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[1] *Internal method*
[2] *Relative Tear resistance*

Film properties measured on 40 µm blown film on 60 mm Windmöller & Hölscher extruder L/D = 30, die diameter 200 mm, die gap 1.4 mm, BUR =3:1, FLH = 3.5DD

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 coextrusion.
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 to 4DD. High BUR (>2) also results in better mechanical properties and better balance in MD/TD.

Packaging and storage

Borstar® FB2310 should be stored in dry conditions at temperatures below 50°C and protected from UV-light. When correctly stored in unopened original package, and according to the above guidelines, the material has a shelf life of 12 months from the date of production. Improper storage can initiate degradation, which can result in odor generation and color changes and can have negative effects on the physical properties of this product.

Product compliance documents

Latest versions of product safety information sheets (PSIS), product safety data sheets (SDS) and other product liability documents are available in our website www.borealisgroup.com.

Sustainability aspects

Borealis is ever mindful of the impact of our products on the planet. We promote Design for Circularity (DfC) and Design for Recycling (DfR) to conserve natural resources and to reduce the environmental impact of products over their entire lifetime (including production, use phase and after phase). DfR helps ensure that material can be effectively recycled while maximizing the material performance efficiency.

Further information on sustainability and Design for Recycling (DfR) can be found from our websites www.borealisgroup.com and www.borealiseverminds.com.

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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.
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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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