

Product Data Sheet

Polyethylene

Borstar® FB2310

ENHANCED POLYETHYLENE FOR HIGH PERFORMANCE FLEXIBLE PACKAGING

DESCRIPTION

Borstar® FB2310 is an enhanced polyethylene film grade combining excellent processability and product performance. Film made from the product exhibits good mechanical properties at normal as well as low temperatures and superior ESCR properties. Excellent stiffness – impact strength balance offers possibility of down gauging with performance maintained.

Borstar® FB2310 contains antioxidant.

APPLICATIONS

Mono layer & co-extrusion films
Lamination (incl. Stand up Pouches)
Shrink Film
Industrial Film
Compression Packaging.
Form Fill Seal (FFS) packaging

Agriculture Film (incl. Greenhouse Film)
Security Packaging
Exclusive Carrier/Boutique bags,
Frozen Food
Impact modifier
Heavy duty shipping sacks

SPECIAL FEATURES

Easy processability
Excellent stiffness – impact balance
Good seal properties
Bubble stability

Excellent draw down
Toughness at low temperature
Superior ESCR
Excellent printability

PHYSICAL PROPERTIES

Property	Typical Value*	Unit	Test Method
Density	931	kg/m ³	ASTM D 4883
Melt Flow Rate MFR (190°C/2.16 kg)	0.2	g/10 min	ASTM D 1238
Melt Flow Rate MFR (190°C/5.0 kg)	0.9	g/10 min	ASTM D 1238
Melt Flow Rate MFR (190°C/21.6 kg)	20	g/10 min	ASTM D 1238
Melting temperature	127	°C	ISO 11357/03
Vicat Softening Temperature A (10 N)	108	°C	ISO 306
ESCR - 10% Igepal / F50	>5000	Hours	ASTM D 1693

* Data should not be used for specification work

FILM PROPERTIES**

Property		Typical Value	Unit	Test Method
Data should not be used for specification work				
Tensile Strength at Break	MD/TD	50/40	MPa	ASTM D 882
Elongation at Break	MD/TD	550/800	%	ASTM D 882
Tensile Strength at Yield	TD	17	MPa	ASTM D 882
Secant Modulus (0.05-1.05%)	MD/TD	300/400	MPa	ASTM D 882
Coefficient of Friction		0.35	-	ASTM D 1894
Gloss		10		ASTM D 2457
Dart Drop		300	g	ASTM D 1709/A
Elmendorf Tear Strength	MD/TD	300/1000	g	ASTM D 1922
Puncture Resistance, force		50	N	ASTM D 5748
Puncture Resistance, energy		3	J	ASTM D 5748

** The film properties are dependent on extrusion conditions.
Film properties: 40µm , BUR=3.1, FLH = 4DD, Die gap 1.2 mm.

PROCESSING GUIDELINES

Borstar® FB2310 can be processed in most types of blown film equipment such as LDPE, LLDPE or HDPE extruders. The balance of draw down properties and bubble stability is superior to conventional LLDPE and LDPE. Thickness of 10 to >2000µm can be processed with good bubble stability. The product is well suited for co-extrusion.

Recommended extrusion temperature is 190 - 220°C. A die gap of 1.0 - 1.8 mm will give the best balance between extruder pressure and physical properties in the film. Wider die gap gives higher machine direction orientation.

Borstar® FB2310 is influenced to the orientation obtained by the running conditions like Blow Up Ratio (BUR) and Frost Line Height (FLH). Higher impact strength can be achieved by raising the FLH. High BUR (>2) also results in better mechanical properties.

Recommended processing conditions:

Melt temperature:	190 – 220°C
Die gap	1.0 -1.8 mm
FLH:	2 - 4 DD
BUR:	>2:1

FOOD CONTACT REGULATIONS

The product fulfils the food contact regulations in most countries. If required, contact your Borouge representative for a certificate.

STORAGE

The product 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 can be found in Safety Information Sheet for this product.

SAFETY

The product is not classified as a hazardous mixture.

Dust and fines from the product carry a risk of dust explosion. All equipment should be properly earthed. Inhalation of dust should be avoided as it may cause irritation of the respiratory system. Small amounts of fumes are generated during processing of the product. Proper ventilation is therefore required.

A Safety Information Sheet is available on request. Please contact your Borouge representative for more details on various aspects of safety, recovery and disposal of the product.

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

Most datasheets and statements are available on Borouge website www.borouge.com. If more information is required, please contact a Borouge representative for information.

Borstar is a registered trademark of the Borealis group

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.

Borouge 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 Borouge 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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