

## Product Data Sheet

## Polyethylene

## Borstar® FB1350

## ENHANCED POLYETHYLENE FOR HIGH PERFORMANCE FLEXIBLE PACKAGING

## DESCRIPTION

**Borstar® FB1350** is produced using the proprietary **Borstar** bimodal technology resulting in easy extrusion with superior mechanical properties. Film made from the product exhibits high dart impact strength combined with excellent yield, tensile strength, stiffness and bubble stability resulting in improved output on blown extrusion machines. Toughness is retained at low temperature. The film has high seal strength and superior ESCR properties.

**Borstar FB1350** contains antioxidant.

## APPLICATIONS

Mono layer & co-extrusion films	Geomembranes
Lamination (incl. Stand up Pouches)	FFS packaging film
Heavy duty shipping sacks	Exclusive Carrier/Boutique bags
Industrial Film	Frozen Food
Shrink Film	

## SPECIAL FEATURES

Easy processability	Excellent draw down
Excellent impact strength – stiffness balance	Toughness at low temperature
Good seal properties	Superior ESCR
Bubble stability	Excellent printability

## PHYSICAL PROPERTIES

Property	Typical Value	Unit	Test Method
Density	935	Kg/m <sup>3</sup>	ASTM D 4883
Melt Flow Rate MFR (190 °C/2.16 kg)	0.1	g/10min	ASTM D1238
Melt Flow Rate MFR (190 °C/5.0 kg)	0.6	g/10min	ASTM D1238
Melt Flow Rate MFR (190 °C/21 kg)	15	g/10min	ASTM D1238
ESCR – 10% Igepal / F50	>5000	Hours	ASTM D 1693

\*Data should not be used for specification work

Borstar is a registered trademark of the Borealis group

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## FLIM PROPERTIES

Property		Typical Value	Unit	Test Method
Tensile Strength at Break	MD/TD	65 / 50	MPa	ISO 527-3
Elongation at Break	MD/TD	400 / 650	%	ISO 527-3
Tensile Strength at Yield	TD	18	MPa	ISO 527-3
Tensile Modulus	MD/TD	500 / 650	MPa	ASTM D 882
Coefficient of Friction		0.35	-	ISO 8295
Dart Drop		400	g	ISO 7765-1
Elmendorf Tear resistance	MD/TD	1 / 7	N	ISO 6383/2
Puncture Resistance, force		50	N	ASTM D 5748
Puncture Resistance, energy		2	J	ASTM D 5748

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\*\*The film properties are dependent on extrusion conditions.

Film properties: 40µm, BUR=3:1, FLH=4DD, Die gap 1.2mm

## PROCESSING GUIDELINES

**Borstar® FB1350** 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 15µm to >2500µm can be processed with good bubble stability. The product is well suited for co-extrusion.

Recommended extrusion temperature is 190 - 210°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® FB1350** provides excellent mechanical properties balance by optimizing film processing parameters 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 improved mechanical properties.

Recommended processing conditions:

Melt temperature      190 –210°C  
Die gap                    1.0 – 1.8 mm  
FLH:                        2 - 4 DD  
BUR:                        >2:1

## FOOD CONTACT REGULATIONS

**Borstar® FB1350** fulfils the food contact regulations in most countries. If required, contact your Borouge representative for a certificate.

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### 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](http://www.borouge.com). If more information is required, please contact a Borouge representative for 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.

**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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