PRODUCT DATA SHEET

Polyethylene

BorShape™ FX1001

Description

BorShape FX1001 is a blown film grade.

It is a high alpha olefin terpolymer polyethylene film grade combining very good extrusion behaviour and superior mechanical properties, which are kept in cold conditions
BorShape FX1001 has been developed especially for applications requiring high toughness at high stiffness levels. BorShape FX1001 is an ideal material for production of high performing MDO film. It is also an outstanding mechanical booster for PCR (post consumer recyclate) maximisation in high end non food contact applications.

Cas No. 60785-11-7

BorShape™ FX1001 contains:

Antioxidants

Applications

Collation shrink
Flexible packaging
Frozen food packaging
Liquid packaging
Refuse bags
Coextruded films for packaging purposes
Food packaging film
Form-fill-and-seal film
Heavy duty shipping sack
High clarity shrink film
High speed FFS film
Lamination film
Stand up pouches

MDO film（Mono Directional Oriented）.
Mechanical booster for PCR（Post Consumer Recyclate)

Physical properties

Property	Typical value *	Unit	Test method
Density	933	kg/m³	ISO 1183-1
Melt flow rate（190 °C/5 kg)	0.80	g/10min	ISO 1133-1
Melt flow rate（190 °C/21.6 kg)	18	g/10min	ISO 1133-1
Melting temperature	128	°C	ISO 11357-3

* Data should not be used for specification work

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Film properties

Property	Typical value *	Unit	Test method
Tensile Modulus MD[1]	470	MPa	ISO 527-3
Tensile Modulus TD[1]	640	MPa	ISO 527-3
Tensile stress at break MD	60	MPa	ISO 527-3
Tensile stress at break TD	50	MPa	ISO 527-3
Tensile strain at break MD	510	%	ISO 527-3
Tensile strain at break TD	680	%	ISO 527-3
Dart drop	380	g	ISO 7765-1
Instrumented puncture test, Total penetration energy	22	J/mm	ISO 7765-2
Tear resistance (Elmendorf) MD[2]	35	N/mm	ISO 6383/2
Tear resistance (Elmendorf) TD[2]	270	N/mm	ISO 6383/2
Haze	80	%	ASTM D1003
Gloss 45°	5	GU	ASTM D2457
Coefficient of friction (Dynamic)	0.30	-	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
BorShape FX1001 coextruded in core layer together with transparent skin layers delivers transparent film

Processing techniques

BorShape™ FX1001 is easily processed on conventional extruders.
Borshape™ FX1001 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. Borshape™ FX1001 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.
Borshape™ FX1001 is sensitive to the orientation obtained by the film blowing conditions like Blow Up Ratio (BUR) and Frost Line Height (FLH). Higher impact can be achieved by rising the FLH and 4DD. High BUR (>2) also results in improved mechanical properties and better balance in MD/TD.

Packaging and storage

BorShape™ FX1001 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.
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