

Polyethylene

FR6012

Halogen Free Flame Retardant Compound

Description

FR6012 is a black, thermoplastic, halogen free flame retardant jacketing compound with high mechanical strength combined with high flame retardancy.

Typical characteristics

FR6012 can be described with following typical characteristics:

High mechanical strength and toughness	UV resistance
High flame retardancy	Must be pre-dried

Applications

FR6012 is intended for following applications:

Halogen free flame retardant jacket for power cables with special fire performance.

Specifications

FR6012 is expected to meet the applicable requirements included in the below mentioned standards provided it is processed using sound material handling and processing practices as well as appropriate testing procedures.

IEC 60840 Type ST12
IEC 62067 Type ST12

Physical properties

Property	Typical value *	Unit	Test method
Density	1315	kg/m ³	ISO 1183-1
MFR 190°C/21.6kg	6.3	g/10 min	ISO 1133-1
Hardness, Shore D ¹	57	-	ISO 868
Tensile strength ²	>15	MPa	ISO 527-2
Elongation at Break ²	>450	%	ISO 527-2
Tensile Strength after Ageing (240 h, 110 °C) ³	>10	MPa	IEC 60811-401
Elongation after Ageing (240 h, 110 °C)	>300	%	IEC 60811-401
Pressure test at high temperature (110 °C, 6h)	< 25	%	IEC 60811-508
Tear resistance ⁴	>15	N/mm	HD 605 S2
Water absorption (70 °C, 14 days)	0.4	mg/cm ²	IEC 60811-402

* Data should not be used for specification work

¹ Measured after 15s
² Measured at 50 mm/min
³ Change d30%
⁴ 23°C

Polyethylene

FR6012

Electrical properties

Property	Typical value *	Unit	Test method
DC Volume resistivity ⁴	20	PΩm	IEC 62631
Dielectric strength	>10	kV/mm	IEC 60243

* Data should not be used for specification work

⁴ 23°C

Other properties

Property	Typical value *	Unit	Test method
Limiting Oxygen Index	>30	%	ISO 4589-2
Corrosivity of combustion fumes, Conductivity	<10	μS/mm	IEC 60754-2
Corrosivity of combustion fumes, pH	>4.3	-	IEC 60754-2

* Data should not be used for specification work

Processing techniques

FR6012 can be processed on a variety of PE/PVC extruders. The length/diameter (L/D) ratio of the extruder should be in the range 24 to 32. FR6012 needs proper homogenisation in the extruder. A low compression screw is recommended but also a screw with medium compression can be used at lower rpm. FR6012 is recommended to be pre-dried.

Processing setting	Typical value/range
Drying temperature ⁵	60 °C
Feed section temperature	85 °C
Barrel temperature	120 - 150 - 170 - 180 °C
Die temperature	190 °C
Maximum melt temperature	190 °C

⁵ 4 - 6 hour

The actual conditions will depend on the type of equipment used.

Packaging and storage

FR6012 should be stored indoors at temperatures between 10 - 30°C in unopened original packages in clean and dry environment, protected from sunlight. Following above-mentioned conditions the material can be safely stored for a period of up to 12 months after date of production.

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.

Polyethylene

FR6012

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.

Borealis 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 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.