

Polyethylene

FR4810

Halogen Free Flame Retardant Compound for Cable Jacketing

Description

FR4810 is a thermoplastic, low smoke halogen free flame retardant, black jacketing compound combining flexibility and fluid resistance.

Typical characteristics

FR4810 can be described with following typical characteristics:

- Low smoke and reduced toxic or corrosive gas emissions
- Excellent processing properties
- High mechanical strength and toughness
- Superb system ageing compatibility
- Low water permeability
- UV resistance

Applications

FR4810 is intended for following applications:

- Aesthetical parts

Specifications

FR4810 and/or articles produced from it, are 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.

Physical properties

Property	Typical value *	Unit	Test method
Density	1270	kg/m ³	ISO 1183-1
MFR 190°C/5.0kg	0.7	g/10min	ISO1133-1
Flexural modulus	200	MPa	ISO 178
Hardness, Shore D ¹	43	-	ISO 868
Brittleness temperature	<-35	°C	ASTM D746
Environmental stress crack resistance (50°C, Igepal 10%, F20)	>1000	h	IEC 60811-406
Water absorption (70 °C, 14 days)	0.8	mg/cm ²	IEC 60811-402
Pressure test at high temperature (90 °C, 4h)	20	%	IEC 60811-508
Tensile strength (50 mm/min) ²	11	MPa	IEC 60811-501
Tensile strain at break (50 mm/min) ²	500	%	IEC 60811-501
Change of tensile properties after ageing 110°C, 10 days ²	≤20	%	IEC 60811-401

* Data should not be used for specification work

¹ 15s
² Measured on extruded tape



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Electrical properties

Property	Typical value *	Unit	Test method
DC volume resistivity	5	PΩcm	IEC 62631
Dielectrical strength	>20	kV/mm	IEC 62631

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Other properties

Property	Typical value *	Unit	Test method
Limiting oxygen index (specimen IV)	35	%	ISO 4589-2
Corrosivity of combustion fumes, pH	>4.3	-	IEC 60754-2
Corrosivity of combustion fumes, Conductivity	<10	μS/mm	IEC 60754-2

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Processing techniques

Most equipment designed for PVC/PE extrusion is suitable.

Using the below recommended starting set temperatures, a stable extrusion process and a cable having a smooth glossy appearance can be achieved. The temperature setting could be changed depending on extruder, tooling and cable design. Recommended melt temperature of 130-150°C. FR4810 is supplied in an aluminium-lined package. Providing the package remains sealed, the material does not require drying prior to extrusion.

Processing setting	Typical value/range
Barrel temperature 1	90 °C
Barrel temperature 2	110 °C
Barrel temperature 3	120 °C
Barrel temperature 4	130 °C
Die temperature	140 °C

Packaging and storage

FR4810 should be stored indoors at temperatures between 10 - 30°C in unopened original packages in clean and dry environment, protected from sunlight. It is recommended to ensure proper stock rotation by using first in -first out principle. Following above-mentioned conditions the material can be safely stored for a period of up to 24 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.

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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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