

 Polyethylene
Casico™ FR4804

Natural Low Smoke Zero Halogen Flame Retardant Jacketing Compound for Data Cables and Energy Distribution Cables

Description

Casico FR4804 is a thermoplastic, low smoke zero halogen (LSZH) flame retardant, UV stabilised, natural jacketing compound combining with excellent extrusion properties.

It is based on the novel technology, Casico, containing inorganic filler and a novel char-forming additive which confer flame retardancy with very limited smoke generation.

Applications

Casico FR4804 is designed for:

Jacket for data cables and 90 °C rated jacket for energy distribution cables.

It can be used in areas sensitive to smoke or corrosive and toxic combustion products.

Specifications

Casico FR4804 meets the applicable requirements below using sound commercial extrusion practice and testing procedures:

ASTM D 1248 Type I, Class A, Category 4

ISO 1872-PE KGHN-23D006

The following cable material standards are met by Casico FR4804:

EN 50290-2-27
EN 50363-8 TM7

VDE 0207 Teil 24 (HM2, HM4 & HM5)
BS 7655 LTS2

Cables manufactured with Casico FR4804 using sound extrusion practice normally comply with the following cable product standards:

EN 50288
VDE 0250 Teil 215

BS 7211
IEC 60502 Part 1 ST3

Special features

Casico FR4804 consists of specially selected components to offer:

Low smoke and reduced toxic or corrosive gas emissions
Excellent processing properties
Superb system ageing compatibility
Low water permeability

UV stabilised and suitable for colouring
Possibility for cable downsizing
Processability on most PVC/PE extrusion equipment
No need for pre-drying normally

Casico is a trademark of Borealis group.

www.borealisgroup.com



Polyethylene

Casico FR4804

Physical Properties

Property	Typical Value	Test Method
Data should not be used for specification work		
Density (Compound) ¹	1150 kg/m ³	ISO 1872-2/ISO 1183
Melt Flow Rate (190 °C/2,16 kg) ¹	0,4 g/10min	ISO 1133
Flexural Modulus ¹	205 MPa	ISO 178
Tensile Strain at Break ²	500 %	IEC 60811-1-1
Tensile Strength (50 mm/min) ²	11 MPa	IEC 60811-1-1
Retention of Tensile Properties After Ageing (240 h, 100 °C) ²	< 20 %	IEC 60811-1-2
Retention of Tensile Properties After UV Ageing	< 20 %	
Hardness, Shore D (15 s) ¹	39	ISO 868
Pressure Test at High Temperature (90 °C, 4 h) ²	9 %	IEC 60811-3-1
Cold Bend (-40 °C) ²	Pass	IEC 60811-1-4
Cold Impact (-40 °C) ²	Pass	IEC 60811-1-4
Water absorption (70 °C,14 Days) ²	0,11 mg/cm ²	IEC 60811-1-3

¹ Compound

² Cable (0.7 mm insulation over 1.5 mm² solid Cu)

Electrical Properties

Property	Typical Value	Test Method
Data should not be used for specification work		
Volume Resistivity ¹	45 POhm.cm	IEC 60093
Dielectric Strength ¹	> 20 kV/mm	IEC 60243
Breakdown Voltage ²	60 kV	ISO 6722
Breakdown Duration ²	Pass	IEC 60227-2/2.3

¹ Compound

² Cable (0.7 mm insulation over 1.5 mm² solid Cu)

Combustion Properties

Property	Typical Value	Test Method
Data should not be used for specification work		
Limited Oxygen Index	35 %	
NBS Smoke Data (76x76x0.7 mm plaque)	Optical Smoke Density Dmax Time to Dmax	ASTM E 662-83
Flaming mode	72 13 min	
NBS Smoke Data (76x76x0.7 mm plaque) Non Flaming mode	Optical Smoke Density Dmax Time to Dmax	ASTM E 662-83
Cone Calorimeter (heat flux 35 kW/m ² , 3 mm plaque)	Ingition time Average Heat Release Max Heat Release Heat Combustion Smoke Obscuration	ISO 5660
	150 s 177 kW/m ² 319 kW/m ² 28 MJ/dm ³ 447 m ² /dm ³	

www.borealisgroup.com

 Polyethylene
Casico FR4804

	CO	0,025 kg/dm ³
	CO ₂	1,8 kg/dm ³
Corrosivity of Combustion Fumes ¹		1,5 µS/cm
		5,3

¹ Compound**Processing Techniques**

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

Using the below set temperatures a stable extrusion process and a cable having a smooth glossy appearance can be achieved. On-size pressure or low draw down tube-on tolling is preferred. Whichever type of tooling is used, the die should preferable have a parallel land of length equal to the final cable diameter. Homo or Copolymer based masterbatches are suitable for colouring Casico FR4804.

Barrel 1	120 °C
Barrel 2	140 °C
Barrel 3	160 °C
Barrel 4	170 °C
Die	170 °C

Packaging

Package: Octabins

Storage

Casico FR4804 normally does not need pre-drying unless the material has been stored in a moist environment for a long period. In such cases drying in dehumidified air for 4 hours at 70°C will normally reduce the moisture content to an acceptable value.

Safety

The product is not classified as dangerous. Check and follow local codes and regulations!

Please see our "Safety data sheet" / "Product safety information sheet" for details on various aspects of safety of the product. For more information, contact your Borealis representative.

www.borealisgroup.com

 Polyethylene
Casico FR4804**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 Borealis' 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.

www.borealisgroup.com