

 Polyethylene
Casico™ FR4820

Natural Low Smoke Zero Halogen Flame Retardant Insulation Compound for Building Energy Cables

Description

Casico FR4820 is a thermoplastic, low smoke zero halogen (LSZH) flame retardant, UV stabilised, natural insulation 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 FR4820 is designed for:

70°C rated insulation for building wires (installation cables), flexible cords, power cables

It can be used in areas sensitive to smoke or corrosive and toxic combustion products. Casico FR4820 is stabilised for use in contact with copper.

Specifications

Casico FR4820 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 FR4820:

EN 50290-2-26
EN 50363-7 T16 & T17

VDE 0207 Teil 23 (HM2)

Special features

Casico FR4820 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
Processability on most PVC/PE extrusion equipment
No need for pre-drying normally

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	215 MPa	ISO 178
Tensile Strain at Break ²	550 %	IEC 60811-1-1
Tensile Strength (50 mm/min) ²	13 MPa	IEC 60811-1-1

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Retention of Tensile Properties After Ageing (240 h, 100 °C) ²	< 20 %	IEC 60811-1-2
Retention of Tensile Properties After UV Ageing ²	< 20 %	
Brittleness temperature ¹	< -60 °C	ISO 974
Hardness, Shore D (15 s) ¹	40	ISO 868
Pressure Test at High Temperature (90 °C, 4 h) ²	< 50 %	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	0,1 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	10 POhm.cm	IEC 60093
Dielectric Strength ¹	> 20 kV/mm	IEC 60243
Breakdown Voltage ²	36 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		
Temperature index ¹	200 °C	ISO 4589-3
Limited Oxygen Index ¹	27 %	
NBS Smoke Data (76x76x0.7 mm plaque)	Optical Smoke Density Dmax Time to Dmax	ISO 5660
Flaming mode	49 6 min	
NBS Smoke Data (76x76x0.7 mm plaque) Non Flaming mode	Optical Smoke Density Dmax Time to Dmax	ISO 5660
Cone Calorimeter (heat flux 35 kW/m ² , 3 mm plaque)	104 20 min	
Corrosivity of Combustion Fumes ¹	Ignition time	IEC 60754-2
	Average Heat Release	
	Max Heat Release	
	Heat Combustion	
	Smoke Obscuration	
	CO	
	CO ₂	
	1,5 µS/cm	
5,6		

¹ Compound

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Casico FR4820**Processing Techniques**

Most equipment designed for PVC/PE extrusion is suitable.

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 FR4820.

Barrel 1	160 °C
Barrel 2	170 °C
Barrel 3	180 °C
Barrel 4	190 °C
Die	190 °C

Packaging

Package: Octabins

Storage

Casico FR4820 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.

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Casico FR4820**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.

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