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 in combination meets the applicable requirements as below when processed using extrusion practice and testing procedure:

EN 50292-2-26
EN 50363-7 TI6
EN 50363-7 TI7

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 Data should not be used for specification work	Test Method
Density (Compound) [1]	1150 kg/m3	ISO 1872-2/ISO 1183
Melt Flow Rate (190 °C/2,16 kg) [1]	0,9 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
Retention of Tensile Properties After Ageing (240 h, 100 °C) [2]	< 20 %	IEC 60811-1-2

Borealis AG | Wagramerstrasse 17-19 | 1220 Vienna | Austria
Telephone +43 1 224 00 0 | Fax +43 1 22 400 333
FN 269858a | CCC Commercial Court of Vienna | Website www.borealisgroup.com

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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/cm2	IEC 60811-1-3

[1] Compound
[2] Cable (0.7 mm insulation over 1.5 mm² solid Cu)

Electrical Properties

Property	Typical Value Data should not be used for specification work	Test Method
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 Data should not be used for specification work	Test Method
Temperature index [1]		200 °C	ISO 4589-3
Limited Oxygen Index [1]		27 %	
NBS Smoke Data	Optical Smoke Density Dmax	49	
(76x76x0.7 mm plaque)	Time to Dmax	6 min	
Flaming mode			
NBS Smoke Data	Optical Smoke Density Dmax	104	
(76x76x0.7 mm plaque) Non	Time to Dmax	20 min	
Flaming mode			
Cone Calorimeter (heat flux	Ingition time	125 s	ISO 5660
35 kW/m2, 3 mm plaque)	Average Heat Release	244 kW/m²	
	Max Heat Release	400 kW/m²	
	Heat Combustion	29 MJ/dm3	
	Smoke Obscuration	520 m2/dm3	
	CO	0,023 kg/dm3	
	CO2	1,7 kg/dm3	
Corrosivity of Combustion Fumes [1]		1,5 µS/cm	IEC 60754-2
		5,6	

[1] Compound

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Processing Techniques
are suitable for most equipment designed for PVC/PE extrusion.

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 Coplymer 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:	Bulk
	Octabins
	Bags

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 70ºC will normally reduce the moisture content to an acceptable value.

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

Please see our Safety Data Sheet for details on various aspects of safety of the product, for more information contact your Borealis representative.

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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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