

Polyethylene

Casico™ FR4804

Halogen Free Flame Retardant Compound

Description

Casico FR4804 is a natural thermoplastic, halogen free, flame retardant, UV stabilised jacketing compound with excellent extrusion properties.

Casico FR4804 is based on Casico technology, in which an inorganic filler and a char-forming additive are combined to achieve flame retardancy and reduced smoke generation.

Typical characteristics

Casico™ FR4804 can be described with following typical characteristics:

Low smoke and toxic gas emissions	Suitable for colouring
Excellent processing properties	Possibility for cable downsizing
Low water permeability	Processable on most PVC/PE extrusion equipment
UV stabilised	Pre-drying not required

Applications

Casico™ FR4804 is intended for following applications:

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

Casico FR4804 can be used in areas sensitive to smoke or corrosive and toxic combustion products. For most cable constructions, Casico FR4804 has sufficient flame retardancy to satisfy single wire vertical burning tests.

Specifications

Casico™ FR4804 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.

EN 50288	VDE 0207 Teil 24 (HM2, HM4 & HM5)
EN 50290-2-27	BS 7655 LTS1-4
EN 50363-8 TM7	DIN VDE 0250 Pt 215-NHMH
IEC 60502 Part 1 ST3	

Physical properties

Property	Typical value *	Unit	Test method
Density	1150	kg/m³	ISO 1183-1
MFR 190°C/2.16kg	0.4	g/10min	ISO 1133-1
Flexural modulus	240	MPa	ISO 178
Hardness, Shore D ¹	38	-	ISO 868
Tensile strength (50 mm/min) ²	12	MPa	IEC 60811-501
Tensile strain at break (50 mm/min) ²	470	%	IEC 60811-501
Change of tensile properties After ageing 100°C, 240h ²	<20	%	IEC 60811-401
Pressure test at high temperature (90 °C, 4h)	<10	%	IEC 60811-508
Water absorption (70 °C, 14 days)	0.11	mg/cm²	IEC 60811-402

* 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 (23°C)	14	PΩcm	IEC 62631
Dielectric strength	>20	kV/mm	IEC 60243

* Data should not be used for specification work

Other properties

Property	Typical value *	Unit	Test method
Limiting Oxygen Index	>28	%	ISO 4589-2
Corrosivity of combustion fumes, pH	>4.3	-	IEC 60754-2
Corrosivity of combustion fumes, Conductivity	<10	μS/mm	IEC 60754-2

* Data should not be used for specification work

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 tooling is preferred. Whichever type of tooling is used, the die should preferably have a parallel land of length equal to the final cable diameter.

Processing setting	Typical value/range
Barrel temperature	120 - 140 - 160 - 170 °C
Die temperature	170 °C

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

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.

Packaging and storage

Casico FR4804 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 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.

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.