

Casico™ FR4802

Polyolefin
Borealis AG

Message:

Casico FR4802 is a thermoplastic, non-halogen containing, natural compound for the insulation and/or jacketing of cables. It combines good extrusion properties with flame retardancy. Inorganic filler and a novel char-forming additive confer flame retardancy. The composition of Casico FR4802 is based on the elements Carbon, Hydrogen, Oxygen, Silicon and Calcium. Compounds based on these elements will therefore be the only significant constituents of the combustion fumes. Other elements may be present in concentrations less than 0.1%.

Casico FR4802 is intended for a 90°C rated insulation for power cables flexible cords and building wires. In addition it may also be used as a superior jacketing compound in PVC replacement applications. This product can be used in areas sensitive to smoke or corrosive and toxic combustion products. For most cable constructions Casico FR4802 has a sufficient flame retardancy to satisfy single wire vertical burning tests. It is stabilised for use in contact with copper.

Casico FR4802 may be considered for applications described in the following cable or raw material specifications:

- EN 50292-2-26
- EN 50290-2-27
- NEMKO 184 part 1 and 5
- SS4240200
- VDE0207 Teil 23 (HI2)
- VDE0207 Teil 24 (HM2, HM4 & HM5)
- VDE0250 Teil 215

General Information			
Filler / Reinforcement	Filler		
Additive	Flame retardancy		
Features	Halogen-free		
	Flame retardancy		
Uses	Cable sheath		
	Cable sheath		
	Wire and cable applications		
Appearance	Natural color		
Forms	Particles		
Processing Method	Extrusion		
Physical	Nominal Value	Unit	Test Method
Density ¹	1.15	g/cm ³	ISO 1183
Melt Mass-Flow Rate (MFR) (190°C/2.16 kg)	0.40	g/10 min	ISO 1133
Water absorption (70°C) ²	0.100	mg/cm ²	IEC 60811-1-3
Cold shock (-40°C) ³	Pass		IEC 60811-1-4
Cold bending (-40°C) ⁴	Pass		IEC 60811-1-4
Breakdown Duration ⁵	Pass		IEC 60227-2/2.3
Cone Calorimeter			ISO 5660
Average Heat Release ⁶	244	kW/m ²	ISO 5660
CO ⁷	0.0230	kg/m ³	ISO 5660

CO ₂ ⁸	1.70	kg/m ³	ISO 5660
Heat Combustion ⁹	29.0		ISO 5660
Ignition time ¹⁰	2.1	min	ISO 5660
Max Heat Release ¹¹	400	kW/m ²	ISO 5660
Smoke Obscuration ¹²	520		ISO 5660
Corrosion - of Combustion Fumes ¹³	1.50	μS/cm	IEC 60754-2
Pressure Test (90°C) ¹⁴		%	IEC 60811-3-1
Breakdown Voltage ¹⁵	36000	V	ISO 6722
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness (Shore D, 15 sec)	40		ISO 868
Mechanical	Nominal Value	Unit	Test Method
Tensile Stress ¹⁶	13.0	MPa	IEC 60811-1-1
Tensile Strain (Break)	550	%	IEC 60811-1-1
Flexural Modulus	220	MPa	ISO 178
Aging	Nominal Value	Unit	Test Method
Change in Tensile Strength in Air (100°C, 10 hr)	> 20	%	IEC 60811-1-2
Thermal	Nominal Value	Unit	Test Method
Brittleness Temperature	< -60.0	°C	ISO 974
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity ¹⁷	1.0E+16	ohms·cm	IEC 60093
Dielectric Strength	> 20	kV/mm	IEC 60243-1
Additional Information	Nominal Value	Unit	Test Method
Temperature Index: ISO 4589-3 - 200°C Limited Oxygen Index - 32% Flaming Mode NBS Smoke Data: Optical Smoke Density Dmax - 4976x76x.7 mm plaque: Time to DMAX - 6 min Non Flaming Mode NBS Smoke Data: Optical Smoke Density Dmax - 10476x76x.7 mm plaque: Time to DMAX - 20 min			
Extrusion	Nominal Value	Unit	
Drying Temperature	70.0	°C	
Drying Time	4.0	hr	
Cylinder Zone 1 Temp.	130	°C	
Cylinder Zone 2 Temp.	160	°C	
Cylinder Zone 3 Temp.	180	°C	
Cylinder Zone 4 Temp.	190	°C	
Die Temperature	190	°C	
Extrusion instructions			
Screw Speed: 100 rpm Line Speed: Up to 185 m/min Head Temperature: 190°C			
NOTE			
1.	Compound, ISO 1872-2		
2.	4 days, Cable (0.7 mm insulation over 1.5 mm ² solid Cu)		
3.	Cable (0.7 mm insulation over 1.5 mm ² solid Cu)		
4.	Cable (0.7 mm insulation over 1.5 mm ² solid Cu)		

5.	Cable (0.7 mm insulation over 1.5 mm ² solid Cu)
6.	heat flux 35 kW/m ² , 3 mm plaque
7.	heat flux 35 kW/m ² , 3 mm plaque
8.	heat flux 35 kW/m ²
9.	heat flux 35 kW/m ² , 3 mm plaque, MJ/dm ³
10.	heat flux 35 kW/m ² , 3 mm plaque
11.	heat flux 35 kW/m ² , 3 mm plaque
12.	heat flux 35 kW/m ² , 3 mm plaque, m ² /dm ³
13.	Compound, 5.3
14.	at high temperature, 4 hrs, Cable (0.7 mm insulation over 1.5 mm ² solid Cu)
15.	Cable (0.7 mm insulation over 1.5 mm ² solid Cu)
16.	50 mm/min
17.	Compound

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