

Casico™ FR4820

Polyethylene

Borealis AG

Message:

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.

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 T16

EN 50363-7 T17

General Information			
Filler / Reinforcement	Filler		
Additive	Flame Retardant		
	UV Stabilizer		
Features	Flame Retardant		
	Good Colorability		
	Good Corrosion Resistance		
	Good Processability		
	Good UV Resistance		
	Halogen Free		
	Low Smoke Emission		
	Low Toxicity		
	Moisture Resistant		
Uses	Building Wire Insulation		
	Building Wire Jacketing		
	Cable Jacketing		
	Flexible Cord Insulation		
	Flexible Cord Jacketing		
	Power Cable Jacketing		
	Wire & Cable Applications		
Appearance	Natural Color		
Forms	Granules		
Processing Method	Extrusion		
Physical	Nominal Value	Unit	Test Method
Density ¹	1.15	g/cm ³	ISO 1183
Melt Mass-Flow Rate (MFR) ² (190°C/2.16 kg)	0.90	g/10 min	ISO 1133

Water Absorption (70°C) ³	0.100	mg/cm ²	IEC 60811-1-3
Cold Bend (-40°C) ⁴	Pass		IEC 60811-1-4
Cold Impact (-40°C) ⁵	Pass		IEC 60811-1-4
Temperature Index - Compound	200	°C	ISO 4589-3
NBS Smoke Density			
-- ⁶	6.0	min	
-- ⁷	49.0		
-- ⁸	20.0	min	
-- ⁹	104		
Breakdown Duration ¹⁰	Pass		IEC 60227-2/2.3
Breakdown Voltage ¹¹	36000	V	ISO 6722
Cone Calorimeter			ISO 5660
Average Heat Release ¹²	244	kW/m ²	
CO ¹³	0.230	kg/m ³	
CO ₂ ¹⁴	17.0	kg/m ³	
Heat Cubustion ¹⁵	29.0		
Ignition time ¹⁶	2.1	min	
Max Heat Release ¹⁷	400	kW/m ²	
Smoke Obscuration ¹⁸	520		
Corrosion - of Combustion Fumes ¹⁹	1.50	µS/cm	IEC 60754-2
Pressure Test (90°C) ²⁰	< 50	%	IEC 60811-3-1
Hardness	Nominal Value	Unit	Test Method
Shore Hardness ²¹ (Shore D, 15 sec)	40		ISO 868
Mechanical	Nominal Value	Unit	Test Method
Tensile Stress ²² (Yield)	13.0	MPa	ISO 527-2/50
Tensile Strain ²³ (Break)	550	%	ISO 527-2
Flexural Modulus ²⁴	215	MPa	ISO 178
Aging	Nominal Value	Unit	Test Method
Change in Tensile Stress			IEC 60811-1-2
-- ²⁵	> -80	%	
100°C, 240 hr	> -80	%	
Thermal	Nominal Value	Unit	Test Method
Brittleness Temperature ²⁶	< -60.0	°C	ISO 974
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity ²⁷	1.0E+16	ohms · cm	IEC 60093
Electric Strength	20	kV/mm	IEC 60243-1
Flammability	Nominal Value	Unit	Test Method
Oxygen Index ²⁸	27	%	
Extrusion	Nominal Value	Unit	
Cylinder Zone 1 Temp.	160	°C	
Cylinder Zone 2 Temp.	170	°C	
Cylinder Zone 3 Temp.	180	°C	

Cylinder Zone 4 Temp.	190	°C
Die Temperature	190	°C
NOTE		
1.	Compound, ISO 1872-2	
2.	Compound	
3.	14 days, 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.	Time to Dmax, (76x76x0.7 mm plaque), Flaming mode	
7.	Optical smoke density Dmax, (76x76x0.7 mm plaque), Flaming mode	
8.	Time to Dmax, (76x76x0.7 mm plaque), Non-flaming mode	
9.	Optical smoke density Dmax, (76x76x0.7 mm plaque), Non-flaming mode	
10.	Cable (0.7 mm insulation over 1.5 mm ² solid Cu)	
11.	Cable (0.7 mm insulation over 1.5 mm ² solid Cu)	
12.	heat flux 35 kW/m ² , 3 mm plaque	
13.	heat flux 35 kW/m ² , 3 mm plaque	
14.	heat flux 35 kW/m ² , 3 mm plaque	
15.	heat flux 35 kW/m ² , 3 mm plaque, MJ/dm ³	
16.	heat flux 35 kW/m ² , 3 mm plaque	
17.	heat flux 35 kW/m ² , 3 mm plaque	
18.	heat flux 35 kW/m ² , 3 mm plaque, m ² /dm ³	
19.	Compound, 5.6	
20.	at high temperature, 4 hrs, Cable (0.7 mm insulation over 1.5 mm ² solid Cu)	
21.	Compound	
22.	Cable (0.7 mm insulation over 1.5 mm ² solid Cu)	
23.	Cable (0.7 mm insulation over 1.5 mm ² solid Cu)	
24.	Compound	
25.	After UV ageing	
26.	Compound	
27.	Compound	
28.	Compound	

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