

TABOCAB SXG 011



Silane-crosslinkable, Halogen Free Flame Retardant compound

Description

TABOCAB SXG 011 is a crosslinkable polyolefin-based Halogen Free Flame Retardant (HFFR) compound made by SIOPLAS technology for outdoor in operating temperature 90 °C and DC voltage rating up to 2 kV. The recommended Catalyst Masterbatch for this compound is **TABOCAB CM 010**.

Typical application

Cable sheathing and insulation for photovoltaic cables in construction of H1Z2Z2-K and in cables requiring EI 5 compound. The properties of this compound comply with the requirements of: **EN 50618:2015; IEC 62930; EN 50363-5.**



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	Typical properties	Test method	Unit	Nominal value
Physical properties	Density	ISO 1183-1A	g/cm ³	1,4
	Melt Flow Index (150 °C/21,6 kg)	ISO 1133	g/10 min	11
	Shore hardness	ISO 868	Shore D	45
	Water absorption (90 °C, 24 hr)	EN 60811-402	mg/cm ²	< 2
	Water absorption (90 °C, 336 hr)	EN 60811-402	mg/cm ²	< 2
Mechanical properties	Tensile strength at break	EN 60811-501	MPa	14,5
	Tensile elongation at break	EN 60811-501	%	> 250
	Dynamic penetration	EN 50618 Anx D	-	pass
Thermal properties	<i>Hot set test 200 °C (20 N/cm²)</i>			
	Elongation under load	EN 60811-507	%	+10
	Permanent elongation	EN 60811-507	%	-15
	<i>Hot set test 250 °C (20 N/cm²)</i>			
	Elongation under load	EN 60811-507	%	+30
	Permanent elongation	EN 60811-507	%	-15
	<i>Mechanical properties after ageing in air oven (150 °C, 168 hr)</i>			
	Change in tensile strength	EN 60811-401	%	+20
	Change in tensile elongation	EN 60811-401	%	-15
	<i>Thermal endurance (120 °C)</i>			
	50% Reduction of elongation	EN 60216-1, -2	hr	> 20000
	Cold bend test (-40 °C)	EN 60811-504	-	no cracks
	Cold impact test (-40 °C)	EN 60811-506	-	no cracks
Hot pressure test - max. penetration (90 °C)	EN 60811-508	%	< 50	
Hot air shrinkage (1 hr, 120 °C)	EN 60811-509	%	< 2	

Chemical resistance	<i>Resistance against acids & alkaline solutions (23 °C, 168 hr)</i>			
	Change in tensile strength	EN 60811-404	%	25
	Change in tensile elongation	EN 60811-404	%	90
	<i>UV and Weathering resistance (60 °C, 720 hr, 43 W/m² / 340 nm)</i>			
	Change in tensile strength	EN 50289-4-17	%	23
	Change in tensile elongation	EN 50289-4-17	%	45
	O ₃ resistance test (25 °C, 24 hr, O ₃ 250 ppm)	EN 60811-403	-	no cracks
	Volume resistivity (20 °C, 500 V)	IEC 60502-1	Ω x cm	8,5 x 10 ¹³
	Volume resistivity (90 °C, 500 V)	IEC 60502-1	Ω x cm	5,8 x 10 ¹¹
	Insulation resistance constant (20 °C, 50 Hz)	IEC 60502-1	MΩ x km	3000
Insulation resistance constant (90 °C, 50 Hz)	IEC 60502-1	MΩ x km	20	
Flammability	Oxygen index	ASTM D2863	%	36
	Caloric potential - (upper gross)	ISO 1716	MJ/kg	17,8
	<i>Corrosive gas in smoke</i>			
	Conductivity	EN 60754-2	μS/mm	< 2,50
	pH	EN 60754-2	-	> 4,3
	Halogenidric acid emissions	EN 60754-1	%	< 0,10
	Determination of fluorine content	EN 60684-2	%	< 0,05
	Determination of chlorine content	EN 60684-2	%	< 0,20
	Determination of bromine content	EN 60684-2	%	< 0,12
	Temperature Index (Burning)	NES 715	°C	300

Notes* The above values are typical for this material, not standardized.

Reference cable* 1 x 2,5 mm² Insul. 0,6 mm TABOCAB SXI 008, Sheath 0,7 mm TABOCAB SXG 011

Processing Guidelines

Drying:

TABOCAB SXG 011 is recommended to be pre-conditioned at least 18 °C before the opening of the package to avoid moisture condensation on the surface of the compound.

Additional level:

Catalyst Masterbatch **TABOCAB CM 010** and graft polymer **TABOCAB SXG 011** are normally being added in the ratio of 95 parts graft to 5 parts of catalyst masterbatch. This formulation insures optimum processing conditions and application performance of the XLPE material.

Coloring: EVA and PE-based masterbatches added at 0,5 - 1,5 % by weight. Higher dosages of color masterbatches may negatively influence the final physical properties such as volume resistivity.

Machine requirements:

TABOCAB SXG 011 can be processed on standard extrusion lines with thermoregulation system. Screw cooling is not required, but a effective steering of the cylinder temperatures with suitable cooling.

The following extrusion setups are recommended:

- Minimal extrusion speed on HFFR/PVC screw with a low compression: 20 RPM
- Using cartridge with the high volume output
- A breaker plate and filter net (40 - 80 holes/cm²)
- Tube type with short polishing surface; ϕ of die should be max 1,5x bigger than ϕ of final cable
- Temperature of water batch for cooling of the cable is recommended at range 40 – 60 °C to eliminate the stress after the extrusion and promote crosslinking



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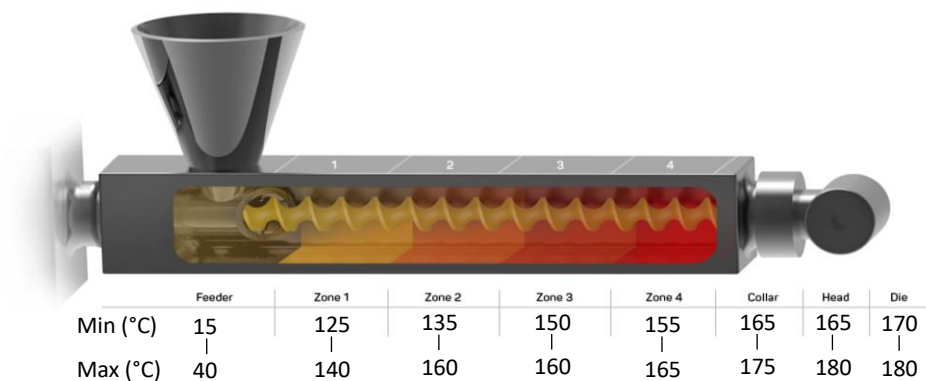
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Screw:

preferably compression: 2,5-3 : 1 (standard HFFR or PVC screw)
 screw length: 20-25 L/D

Temperature profile:



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Cross - linking cure

The following methods are recommended:

- By immersion of the final product in hot water at 70 - 90 °C
- By exposure to low pressure steam at 60 - 80 °C (about 0,15 bar)
- By ambient exposure; kinetics of cross-linking depends on ambient temperature and relative humidity

Storage and handling

TABOCAB SXG 011 must be stored under following conditions:

- Closed and undamaged bags
- Ambient temperature not exceeding 30 °C
- Exposure to direct sun radiation must be avoided
- Shelf life: 9 months from the production date printed on the packaging
- Material should be used directly after opening the packaging

Packaging

Boxes of 600 kg containing a moisture resistant multilayer lining
 Moisture resistant multilayer bags containing 20 kg