Technical Data Sheet

TABOCAB SXI 008

Silane cross-linkable high flexible compound suitable for cable insulation

Description

TABOCAB SXI 008 is a crosslinkable high flexible insulation compound made by SIOPLAS technology for outdoor and renewable applications in operating temperature up to 90 °C and DC voltage rating up to 2 kV. The recommended Catalyst Masterbatch for this compound is **TABOCAB CM 009**.

Typical application:
TABOCAB SXI 008 is designed to be used for Solar Cable as insulation compound which could be comply together with the sheathing compound TABOCAB SXG 011 **EN 50618:2015** and **IEC 62930** in the cable construction of H1Z2Z2-K. The properties of this compound also comply with the requirements of: **IEC 60502 XLPE; IEC 60092/351; VDE 0276 2XI1; HD 604 2XI1**.

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Typical properties		Test method	Unit	Nominal value
Physical properties	Density	ISO 1183-1A	g/cm^3	0,914
	Melt Flow Index (190 °C/5 kg)	ISO 1133	g/10 min	2,2
	Shore hardness	ISO 868	Shore D	48
	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	21,5
	Tensile elongation at break	EN 60811-501	%	> 700
	Dynamic penetration	EN 50618 Annex D	-	pass
Thermal properties	*Hot set test 200 °C (20 N/cm^2)*			
	Elongation under load	EN 60811-507	%	+10
	Permanent elongation	EN 60811-507	%	-10
	Hot set test 250 °C (20 N/cm^2)			
	Elongation under load	EN 60811-507	%	+70
	Permanent elongation	EN 60811-507	%	+6,5
	Mechanical properties after ageing in air oven (150°C, 168 hr)			
	Change in tensile strength	EN 60811-401	%	+20
	Change in tensile elongation	EN 60811-401	%	+12
	Thermal endurance (120 °C)			
	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	*Resistance against acids & alkaline solutions (23 °C, 168 hr)*			
	Change in tensile strength	EN 60811-404	%	25
	Change in tensile elongation	EN 60811-404	%	90
	UV and Weathering resistance (60 °C, 720 hr, 43 W/m ^{2} / 340 nm)			
	Change in tensile strength	EN 50289-4-17	%	23
	Change in tensile elongation	EN 50289-4-17	%	25
	O_3 resistance test (25 °C, 24 hr, O_3 250 ppm)	EN 60811-403	-	no cracks
Electrical properties	Volume resistivity (20 °C, 500 V)	IEC 60502-1	Ω x cm	$4,0 \times 10^{15}$
	Volume resistivity (90 °C, 500 V)	IEC 60502-1	Ω x cm	$1,2 \times 10^{14}$
	Insulation resistance constant (20 °C, 50 Hz)	IEC 60502-1	MΩ x km	14500
	Insulation resistance constant (90 °C, 50 Hz)	IEC 60502-1	MΩ x km	500
Flammability	Caloric potential - (upper gross)	ISO 1716	MJ/kg	37

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

Reference cable* 1 x 2,5 mm^2 Insul. 0,7 mm TABOCAB SXI 008, Sheath 0,8 mm TABOCAB SXG 011

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Processing Guidelines

Drying:

TABOCAB SXI 008 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 009** and graft polymer **TABOCAB SXI 008** are normally being added in the ratio of 94 parts graft to 6 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:

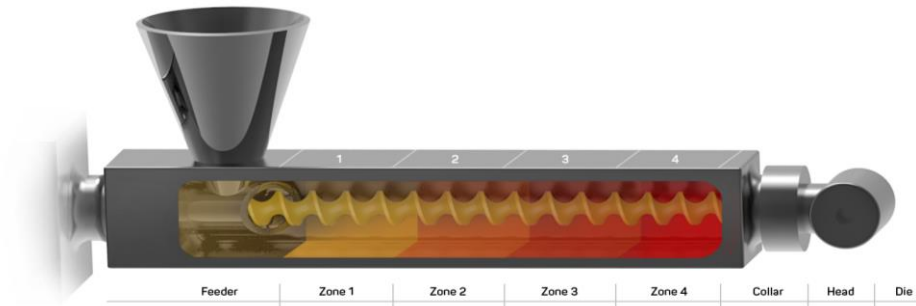
TABOCAB SXI 008 can be processed on standard extrusion lines with a thermoregulation system. Screw cooling is not required, but effective steering of the cylinder temperatures with suitable cooling is recommended.
The following extrusion setups are recomended:

- Pre-heating of the conductor up to 100 °C
- Using cartridge with the shallow inlets – small volume output
- Minimal extrusion speed on PE screw: 20 - 30 RPM, recommended to be 40 RPM
- Using a breaker plate and filter net (80 - 140 holes/cm^2)
- Compression or semi-compression tools with a short polishing surface; die should be 0,1 up to 0,2 mm smaller than the outer diameter of the insulation
- Temperature of water batch for cooling of the insulation is recommended at range 40 – 60 °C to eliminate the stress after the extrusion and promote crosslinking

Screw:

preferably compression: 2,5-3 : 1 (standard PE screw)
screw length: 20-30 L/D

Temperature profile:



	Feeder	Zone 1	Zone 2	Zone 3	Zone 4	Collar	Head	Die
Min (°C)	15	145	150	170	170	180	190	200
Max (°C)	40	155	160	180	180	195	200	220

Cross - linking cure

The following methods are recomended:

- 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 SXI 008 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: 6 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

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