



SX539

Silane crosslinkable semi-conducting compound for medium voltage cable screening applications

This is a silane crosslinkable semi-conducting polyethylene compound to be used in conjunction with silane crosslinkable insulation material for bonded shielding purposes. It is a single component system comprising a silane grafted ethylene polymer known as the graft compound SX539.

Crosslinking occurs in the presence of moisture by migration of catalyst from the adjacent core insulation layer.

Test	Test method	Unit	Typical value
Physical properties and mechanical properties			
Density	BS 2782 Pt. 6 Mtd 620A-D	g/cm ³	1.16
Tensile strength	IEC 60811-1-1	N/mm ²	13
Elongation at break	IEC 60811-1-1	%	150
Hot deformation test at 120°C			
Silane crosslinkable SX539	BS 6469:99:1	%	60
In comparison to:-			
Thermoplastic semi-con compound	BS 6469:99:1	%	100
High pressure resistant thermoplastic semi-con compound	BS 6469:99:1	%	95
Gel content	ASTM D2765-01 (2006)	%	30
Volume resistivity			
at room temperature	IEC 60502	Ohm.cm	<10 ²
at 90°C	IEC 60502	Ohm.cm	<10 ³

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SX539

Recommended Processing and handling conditions

Extruder

Most modern thermoplastic extruders will process SX539 compound.

Extruder Temperature Conditions

As a guide the following temperature profile is recommended:-

Zone 1	Zone 2	Zone 3	Head	Die
130°C	170°C	180°C	180°C	185°C

Screw Water Temperature 60°C

Head and Tool design

The head and tools should be so designed as to allow streamlined flow without the possibility of stagnation of material (where pre-curing could take place).

Drying

Although the material is a silane crosslinkable system, drying is necessary, preferably using desiccant air or vacuum at 40 to 50°C for a minimum of 16 hours.

Crosslinking or "Cure"

The methods and duration of curing will normally be those applicable to the type of insulation material used and the radial thickness of the insulation. Curing temperature is limited to a maximum of 70°C.

Storage & Shelf Life

SX539 normally has shelf life of at least 6 months from the date of manufacture. The storage of silane crosslinkable compounds in cool dry conditions will maximise useful shelf life. Other precautions are:-

- Packaging should remain sealed.
- Avoid temperature above 25°C.
- Avoid storage outside and in direct sunlight.
- Use within 8 hours of opening packaging.

Form and packaging

Form – pellets

Packaging – The following possibilities are available:-

- Moisture resistant sacks containing 25kg.
- Boxes with a heat sealed moisture resistant liner containing approximately 125kg, 500kg or 1000kg.

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