



SX554:CM493 and SX554:CM497

Flexible, silane crosslinkable, EPDM for low and medium voltage cable insulation

This is a silane crosslinkable rubber compound, curable when exposed to moist conditions. The compound is processed in the same way as a non-curable rubber having good extrusion properties at high output rates. The graft component SX554 is mixed with a crosslinking catalyst masterbatch CM493 or CM497 generally in the ratio 95:5. Compound SX554:CM493 or CM497 has been approved for use at 1kV and has found uses up to 10kV.

It is highly flexible and enables the production of soft rubber cables without the use of continuous vulcanization equipment.

Test	Test method	Unit	Typical value
Physical properties and mechanical properties			
Density	BS 2782 Pt. 6 Mtd 620A-D	g/cm ³	0.90
Tensile strength	IEC 60811-1-1	N/mm ²	9.5
Elongation at break	IEC 60811-1-1	%	420
Ozone Resistance	BS EN 60811-2-1	-	Pass
Typical ageing behaviour after 7 days at 135°C			
Tensile strength	IEC 60811-1-2	%Variation	+20
Elongation at break	BS EN 60811-1-2	% Variation	+8
Cure assessment			
Hot elongation (20N/cm ² at 250°C)	IEC 60811-2-1	%	100
Hot set (20N/cm ² at 250°C)	IEC 60811-2-1	%	0
Electrical properties			
Volume resistivity at 20°C	IEC 60502	Ohm.cm	>1 x 10 ¹⁶
Power Factor at 50Hz at 23°C	IEC 60250	-	0.0016
Permittivity at 50Hz at 23°C	IEC 60250	-	2.29

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Recommended Processing and handling conditions

Extruder

Most modern thermoplastic extruders will process SX554:CM493 compound although screw designed to give good homogenisation without excessive shear is recommended. Both polyethylene and PVC screws have given satisfactory results

Extruder temperature conditions

As a guide the following temperature profile is recommended:-

Zone 1	Zone 2	Zone 3	Zone 4	Die
130°C	150°C	180°C	190°C	200°C

This profile will vary slightly depending on extruder type, head design and output.

Screw water temperature 40-60°C

Recommended screen pack 30, 50 (mesh apertures per linear inch) or 600, 300 micron

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). To obtain the optimum in physical properties in the case of tubing tools, it is generally recommended that a draw down ratio not greater than 3.5:1 is used.

Crosslinking or cure

A satisfactory cure can be obtained either by immersion in hot water or exposure to low pressure steam at a temperature up to 70°C.

Catalyst and colour masterbatches

CM493 or CM497 catalyst masterbatch is normally added at 5% to 95% of the SX554 graft. The choice of catalyst will be based on processing conditions and equipment; our engineers can assist with this choice.

Addition of approved colour masterbatches, including black, up to a maximum of 1%, has no detrimental effect on the properties or crosslinking capability.

It is recommended that all masterbatches, including those containing the catalyst, should be thoroughly dried before use for 8 hours at 60°C or 4 hours at 80°C.

Storage and shelf Life

SX554 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 heat sealed moisture resistant liner containing approximately 125kg, 500kg or 1000kg.

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