



SX408:CM401

Silane crosslinkable polyethylene for low voltage power cable insulation

This is a silane crosslinkable polyethylene compound, curable by exposure to moist conditions and possessing excellent extrusion properties at high output rates. The graft component SX408 is mixed with a crosslinking catalyst masterbatch CM401 generally in the ratio 95:5. The SX408:CM401 compound has been specifically developed for low voltage power cable insulation.

Test	Test method	Unit	Typical value
Physical properties and mechanical properties			
Density	BS 2782 Pt. 6 Mtd 620A-D	g/cm ³	0.925
Melt flow rate (2.16kg at 190°C)	AEI Method	g/10min	0.9
Tensile strength	IEC 60811-1-1	N/mm ²	18
Elongation at break	IEC 60811-1-1	%	350
Typical ageing behaviour after 7 days at 135°C			
Tensile strength	IEC 60811-1-2	% variation	+4
Elongation at break	BS EN 60811-1-2	% variation	-2
Thermo mechanical properties			
Cold bend at -70°C	IEC 60811-1-4	-	Pass
Cure assessment by hot set test (forced cured at 80°C in water)			
Elongation under load (20N/cm ² at 200°C)	IEC 60811-2-1	%	<100
Electrical properties			
Volume resistivity at 20°C	IEC 60502	Ohm.cm	>1 x 10 ¹⁶
Dielectric strength at 20°C	IEC 80243	kV/mm	21
Power factor at 50Hz at 23°C	IEC 60250	-	0.0004
Permittivity at 50Hz at 23°C	IEC 60250	-	2.2

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SX408:CM401

Recommended processing and handling conditions

Extruder

Most modern thermoplastic extruders will process SX408:CM401 compounds, particularly if a screw suitable for polyethylene extrusion is available.

Extruder Temperature Conditions

As a guide the following temperature profile is recommended:-

Zone 1	Zone 2	Zone 3	Zone 4	Head	Die
130°C	150°C	170°C	190°C	200°C	210°C

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

Screw Water Temperature 60-70°C

Recommended Screen Pack 30, 100, 30 (mesh apertures per linear inch) or 600, 150, 600 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. For sector-shaped conductors a higher draw down ratio may be necessary.

Catalyst and Colour Masterbatches

CM401 catalyst masterbatch is normally added at 5% to 95% of SX552A graft.

An alternative catalyst masterbatch CM401CD, containing a copper deactivator, is used where the material is required to undergo a 168 hours at 150°C ageing test on bare copper conductor.

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

Storage & Shelf Life

SX408 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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