



SX490:CM401 and SX490:CM401-2

UV stabilised, silane crosslinkable, polyethylene compound for overhead cables

This is a silane crosslinkable polyethylene compound which is curable by exposure to moist conditions and possesses excellent extrudability at high output rates. The graft component SX490 is mixed with a crosslinking catalyst masterbatch CM401 or CM401-2 generally in the ratio 95:5.

The compound contains 2.5% carbon and has been specially developed for insulated "overhead" or aerial cables of the bunched type enabling full compliance with the German specification VDE 0274.

Test	Test method	Unit	Typical value
Physical properties and mechanical properties			
Density	BS 2782 Pt. 6 Mtd 620A-D	g/cm ³	0.93
Carbon Content	BS 2782 Pt. 4 Mtd 452B	%	2.5
Tensile strength	IEC 60811-1-1	N/mm ²	17
Elongation at break	IEC 60811-1-1	%	380
Typical ageing behaviour after 7 days at 135°C			
Tensile strength	IEC 60811-1-2	% variation	+5
Elongation at break	IEC 60811-1-2	% variation	-5
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
Permanent elongation after cooling	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	-	0.0008
Permittivity at 50Hz at 23°C	IEC 60250	-	2.7

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SX490:CM401

Recommended processing and handling conditions

Extruder

Most modern thermoplastic extruders will process SX490: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.

Catalyst and colour masterbatches

CM401 or CM401-2 catalyst masterbatch is normally added at 5% to 95% of SX490 graft. The choice of catalyst masterbatch either CM401 or CM401-2 will be based on processing conditions and equipment and recommendations will be made by our Sales Engineer.

It is recommended that all masterbatches, including those containing the catalyst, should be thoroughly dried before use for 4 hours at 80°C or 6 hours at 60°C.

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 65°C.

Storage and shelf life

SX490 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 moisture resistant heat sealed liner containing approximately 125kg, 500kg or 1000kg.

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