



SX738:CM424

Low-smoke, low-toxicity, halogen-free, flame retardant, silane crosslinkable compound for the production of flexible heat shrinkable tubing.

SX738 is a low smoke, low fume, fire retardant silane grafted compound, curable by exposure to moist conditions. This is designed specifically for the production, by extrusion, of flame retardant halogen free heat shrinkable tubing. The graft component SX738 is mixed with a crosslinking catalyst masterbatch CM424 generally in the ratio 95:5.

The two component system SX738:CM424 combines ease of processing with the ability to achieve a degree of crosslinking compatible with good expansion and contraction.

Test	Test method	Unit	Typical value
Physical properties and mechanical properties			
Density	BS 2782 Pt. 6 Mtd 620A-D	g/cm ³	1.4
Tensile strength	IEC 60811-1-1	N/mm ²	10
Elongation at break	IEC 60811-1-1	%	200
Typical ageing behaviour after 7 days at 135°C			
Tensile strength	IEC 60811-1-2	%Variation	<25
Elongation at break	IEC 60811-1-2	% Variation	<25
Cure assessment			
Hot elongation (35 lb/mm ² at 150°C)	AEI method	%	<180
Fire and smoke properties			
Smoke density	ASTM 2843:2004	%	<3.5
Oxygen index	BS ISO 4589-2	%	26
Temperature index	BS ISO 4589-3	°C	>200
Halogen gas evolution	IEC 60754-1	%	<0.5
Corrosivity of gases	IEC 60754-2	pH	4.6
Conductivity	IEC 60754-2	µS/cm	13
Volume Resistivity	IEC 60502	Ohm.cm	10 ¹³
Dielectric Strength	IEC 80243	Kv/mm	14

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Recommended processing and handling conditions

Extruder

Many modern thermoplastic extruders will process the material although a screw designed to give good homogenisation without excessive shear (which could cause unacceptable increases in melt temperature) should be used. An extruder with an L/D ratio (length/diameter) of 15-24 and an extruder screw of compression ratio 2-3:1 are recommended.

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	180°C	190°C	190°C

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

Screw Water Temperature 40-60°C

Recommended Screen Pack 50 mesh (apertures per linear inch) or 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 the smallest possible draw down ratio is recommended to avoid internal stresses.

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

Catalyst and Colour Masterbatches

CM424 catalyst masterbatch is normally added at 5% to 95% of SX738 graft.

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 for 4 hours at 80°C.

Storage & Shelf Life

SX738 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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