



CT09-38:CT06-81A

Oil resistant, flexible, halogen free, flame-retardant, silane crosslinkable insulation and sheathing for cable applications

This is a flame-retardant, silane crosslinkable, flexible polyolefin compound curable by exposure to moist conditions. The graft component CT09-38 is mixed with a crosslinking catalyst masterbatch CT06-81A generally in the ratio 97:3.

The CT09-38:CT06-81A compound has been developed to meet the requirements of IEC 92-359 SHF2 and EN50264 EM104 ship wiring and railway standards. The product shows good flexibility and confers tough sheathing.

Test	Test method	Unit	Typical value	
Physical properties and mechanical properties				
Density	BS 2782 Pt. 6 Mtd 620A-D	g/cm ³	1.51	
Melt flow rate (21.6kg at 190°C)	AEI Method	g/10min	1.5	
Tensile strength	IEC 60811-1-1	N/mm ²	10.0	
Elongation at break	IEC 60811-1-1	%	140	
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	%	60	
Permanent elongation after cooling	IEC 60811-2-1	%	5	
Heat ageing behaviour after 168 hrs at 120°C				
Variation in tensile strength	IEC 60811-1-2	% variation	+25	
Variation in Elongation	IEC 60811-1-2	% variation	-10	
Flammability Properties				
Oxygen Index	BS ISO 4589-2	%	33	
Halogen Acid Gas Evolution	IEC 60754-1	%	<0.5	
Fluid resistance				
	Time (hrs)	Temperature °C	% Variation in TS	% Variation in EB
IRM 902	24	100	-26	-25
IRM 902	72	100	-30	-24

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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 with a compression ratio 1.2:1 to 2:1 are recommended.

Extruder temperature conditions

As a guide the following temperature profile is suggested when using the recommended extruder and screw designs. However, this profile will vary depending on extruder type, head design and output and should be chosen so that the melt temperature is not allowed to rise above 190°C. The residence time in the extruder should be below three minutes to achieve optimum extrusion quality. A typical temperature profile for a 2:1 screw design is below:-

Zone 1	Zone 2	Zone 3	Zone 4	Head	Die
100°C	130°C	145°C	155°C	160°C	165°C

Any initial purging of extruder should be performed without catalyst masterbatch addition to reduce risks of pre-curing.

Screw water temperature 40 - 60°C if available

Recommended screen pack Spacer ring or beaker plate only

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, the smallest possible draw down ratio of approximately 1.4:1 is recommended to avoid developing internal stresses.

Crosslinking or Cure

A satisfactory cure can also be obtained either by immersion in hot water or exposure to low pressure steam at a temperature up to 75°C.

Catalyst and colour masterbatches

CT06-81A catalyst masterbatch is normally added at a 3% addition rate. 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 at 60°C for 8 hours.

Storage & shelf life

A period of at least 6 months from date of manufacture can normally be expected. The following storage conditions are recommended:-

- Packaging should remain sealed
- Avoid temperature above 25°C
- Avoid storage outside and in direct sunlight
- Use within 8 hours of opening packaging (re-seal container lining completely if it is to be left for longer period)

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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