Compound MX 1090-IN-S

Moisture crosslinkable, silane grafted, high performance modified XLPE compound for cable and wire insulation applications for 90 C continuous operating temperature

Compound properties

MX 1090-IN-S is a moisture crosslinkable, silane grafted compound offering excellent mechanical and electrical properties. The excellent extrudability at high speeds makes this compound an ideal choice for the insulation of bare or tinned copper conductors for a wide range of applications such as shipboard and mobile and fixed offshore units, power, telecommunication, control data and signal cables. In combination with the CAT 1090 this compound shows good crosslinking at ambient temperatures.

Features

- **Excellent processability and cure-rate**
- **Able to withstand temperatures of 250 C during a shortcircuit overload period, without detrimental effect**
- **Safer cable and wire constructions during overload conditions**
- **Continuous operating temperature up to + 90 C**
- **Ozone resistant**
- **Soldering resistant**

Specifications

- **IEC 60092-351 (XLPE), DIN VDE 0207 Part 22(2 XI 1) , BS 7655 (EI 5), HD 22.9S2 (EI 5), KEMA K42 (XLPE), IEC 60502-1 (XLPE), DIN VDE 0250 Part 503 (HI 3) and similar specifications**

Properties	Test Method	Typical value
Physical properties		
Specific gravity	ISO 1183	0,92
Tensile strength	IEC 60 811	20 Mpa
Elongation at break	IEC 60 811	550%
Water absorption (24 h, 100 C)	IEC 60 811	0,5 mg/cm2
Thermal properties		
Melt flow rate (190 C, 2,16 kg)	ISO 1133	0.6gr/10 min
Heat ageing (7 days, 135 C) : - Variation in tensile strength (*)	IEC 60 811	10%
: - Variation in elongation at break (*)	IEC 60 811	-12%
Heat ageing (7 days, 150 C) : - Variation in tensile strength (*)	IEC 60 811	12%
: - Variation in elongation at break (*)	IEC 60 811	-15%
Shrinkage (1 hr 130 C)		2%
Impact at - 20 C	IEC 60 811	Pass
Bending at - 25 C	IEC 60 811	Pass
Hot-set test (200 C, 20 N/cm2)		
: elongation under load	IEC 60 811	50%
: permanent elongation (set)	IEC 60 811	5%
Electrical properties		
Dielectric constant (50 Hz, 20 C)	IEC 60 502	2.3
Insulation constant (20 C)	IEC 60 502	15000 Mohm.km
Dissipation factor	ASTM D-150	0,0001
Volume resistivity (20 C)	IEC 60 502	4x 10@15 ohm.cm
Burning properties		
Halogen content	IEC 754-1	0%
Corrosivity test : pH	IEC 754-2	5.5
: conductivity	IEC 754-2	0,5 uS/mm

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Processing guide		
Extrusion	Mixing	MX 1090-IN-S should be mixed with CAT-1090 in the ratio 95 : 5 parts just prior to processing.
	Drying	Do not dry the MX 1090-IN-S, this to avoid premature crosslinking. It is recommended to pre-dry color masterbatches preferably in a dry-air system at 60 C during 4 hrs, to prevent premature crosslinking/scorching
	Screw	MX 1090-IN-S can be easily processed with extruders having a L/D ratio of at least 18, preferably 24. A PVC or PE screw with a compression ratio of 2 or 2.5 : 1 is recommended.
	Temperature	A profile of approx. 140 - 160 - 180 - 200 - 210 C, will give good results.
	Tooling	With both tubing and pressure tooling, good results have been achieved.
Crosslinking (**)	Hot water : Steam : Ambient :	Immersion during 3 hours in hot water of 70 - 80 C. Exposure to low pressure steam (0.10 - 0.15 bar) during several hours Exposure at ambient conditions (typically 20 C, 70% RH) for several days
(**) : It is recommended to measure the hot-set elongation after crosslinking to ensure meeting specifications. The time period may have to be adapted, depending on the humidity, temperature, size of reel and thickness of insulation.		

Storage, packaging and safety & handling		
Storage	Bags & octabins	Should be unopened before use. Open bags and octabins should be used within 3 - 4 hours after opening.
	Conditions	Store below 30 C and avoid direct exposure to sunlight and weathering
	Shelflife	It is recommended to process the compound within 6 months from the date of production, indicated on the labels
Packaging	Octabins	standard packaging, up to 1250 kg in a PE-bag or a Alu-coated bag
	Bags	Alu-coated bags of 25 kg is optional
Safety		MX 1090-IN-S and CAT-1090 are not classified as dangerous preparations. A safety datasheet is available on request.

(*) : These values are based on full crosslinking. If not crosslinked completely before ageing tests, the variation in the properties may differ considerably.

MX1090INS/RG031205

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