BLS POLYMERS LIMITED **BLSXL1101**

NATURAL CURING SILANE CROSSLINKABLE POLYETHYLENE COMPOUND CROSSLINKABLE BY EXPOSURE TO MOISTURE FOR LOW VOLTAGE POWER AND SIGNALLING CABLE INSULATION

BLS XL1101 is a Linear Low Density Polyethylene based silane pregrafted base compound crosslinkable by moisture when used with the catalyst masterbatch BLS XL1102.

In order to prevent premature crosslinking the pregrafted compound and the catalyst masterbatch should be stored separately and mixed only when used.

SPECIFICATIONS COMPLYING

IEC 60502 XLPE, IEC 60092/351, CEI 18-16/351, BS 7655GP8, VDE 0276 2X11, HD6042X11

TYPICAL PROPERTIES

PROPERTY	TEST METHOD	UNIT	TYPICAL VALUE
Density	ASTM D792	gm/cc	0.922
MFI,190degC/2.16kg load	ASTM D 1238	Gm/10min	0.90
UNAGED MECHANICAL PROPERTIES			
Tensile Strength at break	ASTM D 638	N/mm2	19
Elongation at break	ASTM D 638	%	500
MECHANICAL PROPERTIES AFTER			
AGEING IN AIR OVEN AT 135degC/7 days			
Variation of tensile strength	ASTM D 638	N/mm2	+14
Variation of elongation at break	ASTM D 638	%	-8
Water absorption, 24 hrs at 100degC	IEC 60811	mg/cm2	0.3
Shrinkage Test, 1 hour at 130 degC	IEC 60811	%	<4
Volume Resistivity at 20 degC	ASTM D 257	Ohm-cm	2E15
Hot set test, 15 mins. at 200 degC, 0.2N/mm2	IEC 60811		
Elongation under load		%	60
Permanent elongation after cooling		%	0

Tests have been carried out on granules and on 1.2 mm extruded tape crosslinked for 30 secs. in hot water followed by 30 secs. in cold water after addition of 5% by weight of catalyst masterbatch BLS XL 1102 and allowing it to crosslink for 72 hours under 70% RH.

PROCESSING METHOD

BLSXL1101 silane pregrafted base compound must be added with catalyst masterbatch between 3-7% by weight depending on thickness and blended just before use. For best results dosing the 2 components directly in the extruder hopper is suggested.

Both the silane pregrafted base compound and the catalyst masterbatch is sensitive to moisture; open bags must be used immediately.

BLSXL1101 can be processed with standard PVC / PE extruders having a L/D ratio of 20: 26 and an adequate barrel temperature control.

Preheating of conductor is recommended.

The following temperature profile is suggested as a starting point:

Zone 1: 140-160 degC ; Zone 2 150-170 deg C; Zone 3 160-180 degC; Zone 4 160-180 degC; collar 170-190 degC; head 170-190 degC; die 180-220degC.

Curing can be done in the following ways:

- By exposure in ambient temperature at 25-35 degC, 60-80% RH for some days.
- By immersion in hot water at 90 degC for 2 hours

In all cases curing time depends on insulation thickness and the ambient conditions of temperature and relative humidity. Natural curing process can be accelerated by applying a flame on the extruded wire/cable as it comes out of the die and immersing the wire/cable in first cooling trough having hot water of about 90 degC for 5-10 metre length. Further, in case of dry weather spraying of water on the cable drum is recommended for accelerating the natural curing process. In case of low ambient temperature cables can be placed in a hot room for accelerating the natural curing process.

Colouring can be done with PE based masterbatches by addition of 0.5-1% by weight. Predrying of colour masterbatch is suggested if moisture absorption occurred during storage. Some colour masterbatches because of the pigments, metallic stearates, fillers, uv stabilisers used have a negative effect on the natural curing catalyst used and will interfere and affect the

crosslinking rate and properties. To prevent deactivation of the catalyst during colouring proper selection of colour masterbatches should be undertaken.

STORAGE

The product should be stored under the following conditions:
-Closed and sealed bag
-Ambient temperature not exceeding 30 degC
-Avoid direct exposure to sunlight and weathering

The product could undergo irreversible alterations due to extended period of storage. BLS Polymers suggests using the products within 3 months of the production date printed for best results.

PACKAGING

BLS XL1101 is available in 25 kg moisture resistant bags.
We offer our Technical Services for further information and suggestion in using the product from the beginning and also for any need during the course of the product use.

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