



KLJ POLYMERS & CHEMICALS LIMITED

SIOPLAS XLPE COMPOUND

KLJ XL-01 FR

Description:

KLJ-XL-01 is based on poly-ethylene chemically grafted with Silane. When it is mixed with catalyst master batch **KLJ-XL-MB-01M** and **KLJ-XL-FR-01**, it accelerates the cross linking reaction in presence of moisture, as well as Flame Retardant properties by improving the Limiting Oxygen Index.

This product consists of 3 components viz. Grafted Polymer (**KLJ-XL-01**), Catalyst Masterbatch (**KLJ-XL-MB-01M**) and FR additive package (**KLJ-XL-FR-01**) for LT Power Cable application up to 3 KV.

KLJ-XL-01 when mix with KLJ-XL-FR-01 additive improves the flammability characteristics , such as LOI. It passes UL-94-vo properties.

Specifications:

KLJ-XL-01 Compound meets the following specifications.

IS 7098 Part-I

IEC - 60502

Physical Properties:

Sr. No	Parameter	Unit	Test Method	Spécification IS 7098 Part-I	Typical Value
01	Density	gm/cm ³	ASTM D-792	1.02±0.03	1.03
02	Tensile Strength	Mpa	IS 10810 Part-7 ASTM D-638	12.5 min.	20
03	Elongation at break	%	IS 10810 Part-7 ASTM D-638	200 min.	557
04	Variation in properties after ageing		@ 135±3 °C for 7 days		
A	Tensile Strength	%	IS 10810 Part-11 IEC 60811-1-2	±25	-10
B	Elongation at break	%	IS 10810 Part-11 IEC 60811-1-2	±25	6
05	Hot Set @ 200°C/15 minute 20N/cm ² (Thickess 1.0 mm)	%	IS 10810 Part-30 IEC 60811-1-2	175 max.	60
06	Permanent Set after cooling	%	IS 10810 Part-30 IEC-60811-1-2	15 max.	0.85
07	Volume Resistivity @ 27°C	Ohm-cm	IS 3396 IS-1991	1 x 10 ¹⁴ min.	3.0 x 10 ¹⁶
08	Shrinkage @ 130±3°C/1 hour	%	IS 7098	4.0 max.	1.2
09	Water absorption (gravimetric @ 85±2°C / 14 days)	Mg/cm ²	IS 7098	1.0 max.	0.30
10	Moisture Content	ppm	ASTM D-1045	-	500

11	Cold bend test @ -30°C	-	IS 10810 Part-20	No Cra ck	No Crack
12	Cold Impact test @ -30°C	-	IS 10810 Part-21	No Cr ack	No Crack
13	Cold Elongation test @ -30°C	%	IS 10810 Part-11	-	300
14	Limiting Oxygen Index	%	ASTM D-2863	24 min.	26
15	Flammability Test		UL 94	V0	Pass

Processing Guidelines:

Grafted Polymer mixed with pre-heated Catalyst MB and FR MB in the ratio 60:5:35 can to be extruded on PE or PVC extruder having L/D ratio of 22:1 to 26:1.

Typical process parameters are recommended as under:

Zone -1: 130 ± 15°C, Zone-2 : 150 ± 15°C, Zone- 3 : 170 ± 15°C,
Zone-4 : 190 ± 15°C, Zone-5 : 200 ± 15°C, X-He ad & Die : 205 ± 15°C.

Before extrusion, screw, barrel & tools should be cleaned thoroughly.

Extruder filled with above premix should not be kept idle for more than 10-15 minutes to avoid scorching.

Tube on die extrusion preferable with DDR (Draw Down Ratio) of 2:1 to 3:1

It is recommended to dry the catalyst and FR MB @ 60°C - 80°C for about 1 hour, before mixing with grafted polymer.

Note :- Special catalyst master batch will be available on demand as per below.

1. KLJ-XL-MB-MD (Metal deactivator)
2. KLJ-XL-MB-UV (UV resistant)
3. KLJ-XL-MB-07 (thin insulation less than 0.8 mm thickness).

Cross Linking:

The above extruded product can be cross linked by immersion in hot water or upon exposure to low pressure steam at a temperature of 90 °C.

Typical Cross linking data are as under.

	Thickness mm	Curing Hours	Hot Set %	Permanent Set (Max.) %
Tape Sample	1.1	3.0	50 – 70	8
	2.2	3.0	80 – 120	10
Cable Sample	0.9 – 1.4	6.0	100 – 130	9
		9.0	80 – 100	9

Shelf Life/Storage:

KLJ-XL-01FR can be stored for 6 months from date of manufacturing, without significant deterioration of the quality of material. However, it is recommended to be consumed as soon as possible.

KLJ-XL-01FR is recommended to be stored in a cool, dry & clean environment, away from direct sunlight in unopened original packaging.

The compound should be consumed within 2-3 hours of opening of bags and no leftovers from previous runs should be mixed.

Packaging:

KLJ-XL-01FR granules are packed in 25 kg bags, which are protected from moisture ingress.

20' FCL can take palletized material up to 12 MT and 40' FCL can take up to 24 MT.

Safety:

KLJ-XL-01, KLJ-XL-MB-01N & KLJ-XL-FR-01 are not classified as dangerous preparation.

The products are supplied in the form of free-flowing granules of approx. 2-3 mm size and can be readily handled with commercially available equipment. Handling and transport of the products may generate some dust and fines, which constitute a potential hazard for dust explosion. All metal parts in the system should therefore be properly grounded. Properly designed equipment and good housekeeping will reduce the risk.

Inhalation of any type of dust should be avoided as it may cause irritation of the respiratory system.

The product is intended for industrial use only. MSDS is available on request.

Disclaimer:

- The specifications given are the guidelines only.
- Above compound is suitable to run on different machines; however some adjustments may be required on individual machine.
- All properties are tested as per ASTM/IS/IEC standards.
- Any data may change without prior information.
- The customers are advised to check the quality, prior to commercial use. There is no guarantee and/or warranty what so ever, after processing.