TECHNICAL INFORMATION

KLJ EPR 95

September 2020

SIOPLAS CROSSLINKABLE ELASTOMER

Description:

KLJ-EPR 95 is a silane crosslinkable elastomeric compound, curable when exposed to moist conditions. The compound is processed in the same way as a non-curable elastomer having good extrusion properties at high output rates. The graft component KLJ-EPR 95 is to be mixed with a crosslinking catalyst master batch KLJ-XL-MB PT3 in the ratio 95:5.

Application:

KLJ EPR 95/KLJ XL MB PT3 MD is designed for insulation of low voltage cable.

Specifications:

KLJ EPR 95/KLJ XL MB PT3 MD, in blend meets the applicable requirements as below when processed using sound extrusion and testing procedure:

IEC-60502-2 – EPR | IS 6380 IE-2 | IS 6380 IE-1

The standards referred to above is a short selection of standards and does not cover all applicable standards. Contact your KLJ representative for additional information.

Technical Characteristics:

A) KLJ EPR 95

Properties	Unit	Test Method	Specification	Typical Value
Physical Properties				
Density	gm/cm^3	ASTM D 792	0.915- 0.925	0.92
Melt Flow Index (190°C, 2.16 kg Load)	gm/10min	ASTM D 1238	2.0 – 3.0	1.6
Contamination (Visual)	No./kg	KLJ TM	<5	0

B) KLJ EPR 95/KLJ XL MB PT3 MD

Test Procedure: After mixing in proportion of 95:5 and extruded into a tape of 1.2 mm thickness, the tape is immersed in water at 95°C for 3 hours. The testing is carried out after conditioning this tape for further 3 hrs at ambient conditions.

Property	Unit	Test Method	Specification IS 6380 IE-1,2	Typical Value
Physical Properties				
Tensile Strength (min.)	MPa	IS 10810 Part-7	5	15
Elongation at Break (min.)	%	IS 10810 Part-7	250	600
Hardness	Sh-A	ASTM D 2240	90±3	92
After Ageing (168 h, 135 °C)				
Change of Tensile Properties	%	IS 10810 Part-11	±30	-10
Change of Elongation Properties	%	IS 10810 Part-11	±30	-8.2
After Ageing (168 h, 150 °C)				
Change of Tensile Properties	%	IS 10810 Part-11	±30	-13
Change of Elongation Properties	%	IS 10810 Part-11	±30	-7
Hot Set Test (250 °C, 0.20 MPa)	%	IS 18010 Part-30	175	72
Permanent Set after cooling (max.)	%	IS 18010 Part-30	15	2
Water Absorption (Gravimetric @ 85±2°C / 14 Days (max.)	mg/cm^2	IS 7098	5	1
Moisture Content (max.)	ppm	-	-	200
Cold Bend test @ -50°C	-	IS 10810 Part-20	No Crack	PASS
Cold Impact test @ -50°C	-	IS 10810 Part-21	No Crack	PASS
Electrical Properties				
Volume Resistivity @ 27°C (min.)	Ohm-cm	IS 3396	1×10^{12}	2×10^{15}
Dielectric Constant (max)	-	IEC-60250	2.2	1.97
Dissipation Factor (max)	-	IEC-60250	0.004	0.0003
Dielectric Strength (min)	KV/mm	IEC-60243	22	30

Processing Guidelines:

It is recommended to pre-heat the Catalyst Master Batch and Colour Master Batch (if any) at 80°C in hot air oven in 4-6 cm layers for 2-4 hours. The Grafted Polymer should never be pre-heated.

The Grafted Polymer and Catalyst Master batch should be mixed at a ratio 95:5 at room temperature without shearing, just before consumption. For thin wires lower dosage can work & need to be set depending on the size. Mixing in large quantities should be avoided, since any leftover premix cannot be stored.

It is essential that extruder should not be kept idle when filled with KLJ EPR 95 / KLJ XL MB PT3 MD premix. It should be kept running at a low RPM if it is needed to be stopped for any reason like changeover of size etc.

Typically the following process condition is used:

Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Head	Die
160±10°C	175±10°C	180±10°C	190±10°C	200±10°C	205±10°C	210±10°C

Cross Linking:

The above extruded product can be cross-linked by keeping in ambient condition. Results will vary under different ambient condition.

Relative Humidity %	Temperature °C	Thickness mm	Time to reach 100% Hot Elongation, days
50	23	0.7	2
50	23	1.0	5
50	23	1.2	7

The time period of curing may vary case to case depending on other variables viz. cross section of cable, thickness of insulation, humidity level (Min. 50 – 60%), exposure outdoor condition, sun light, reel size and temperature etc.

For an insulation thickness above 1.2 mm, the time needed for optimum cross-linking should be ascertained by small trial runs; bulk production should be taken up only after getting satisfactory results.

Shelf Life/Storage:

- KLJ EPR 95 can be stored for 180 from date of manufacturing, however it is suggested to use within 90 days from the date of receipt. Shelf life is subject to storage in original intact packing, in cool and dry place, away from sunlight and weathering, storage temperature not generally exceeding 35°C.
- Use the compound immediately, may be within 1 to 2 hours, of opening the bag.

Packaging:

KLJ EPR 95 (Base Grafted Compound):
Form: Granules.
Package: 25 kg aluminium multilayer bag and 550 kg Octabin with aluminium liner with Top & Bottom discharge as required by the customer.

KLJ XL MB PT3 MD (Catalyst Master Batch):
Form: Granules.
Package: 25 kg aluminium multilayer bag and in smaller aluminium pouch, if required.

Safety:

This compound is 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.

For technical service & further information and assistance:

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