



PLEXLINK® : Silane Crosslinkable Polyethylene Compound

Grade 125-KM Medium voltage power cable insulation compound

Characteristics

A chemically crosslinkable polyethylene compound curable by exposure to moisture, used in the manufacture of medium voltage power cable insulation. This compound has been specially designed for cables operating up to 20KV, allowing extrudability at normal output rates. PLEXLINK® is less sensitive to, precrosslinking or scorching. It is also designed to give low shrinkage properties even at high production speed. The resulting insulation is stabilized against copper degradation.

Description

PLEXLINK® is manufactured using the SILOXAN® one-component system, a silane crosslinking system developed by KABELMETAL ELECTRO GmbH. This process utilizes a special system that allows the additives and silane to be homogeneously compounded with polyethylene pellets. The resulting compound is thermoplastic in nature that can be extruded into the finished product. Curing of the finished product is done in the presence of moisture.

Properties

ITEM	Units	Typical Value	Test method
Compound			
Density	g/cm ³	0.92	ASTM D792
Melt Index	g/10min	1.6	ASTM D1238
Moisture	ppm	<200	OWN
Shelf Life	months	12	OWN
Finished Cable			
Tensile	N/mm ²	>15	IEC 811
Elongation at Break	%	>500	IEC 811
Shrinkage	%	<2	IEC 811
*Volume Resistivity	Ohm. cm	>10 ¹⁶	ASTM D257
*Dielectri Constant	--	2.31	ASTM D150
(*Under 25°C.50%RH)			
Heat Aging properties 7 days at 135oC			IEC 811
Variation of tensile strength	%	8	
Variation of elongation at Break	%	9	
Hot set test 20N/cm ² at 200°C			IEC 811
Elongation	%	<80	
Set	%	<5	

Material Handling

- (a) PLEXLINK® in sealed bags can be used even after one year's storage.
- (b) Torn bags are to be sealed immediately . Contents in a resealed bag have to be used within 1 week.
- (c) Store in a cool , dry place .

Processing conditions and precaution

1) Extrusion Equipment

- (a) L/D ratio 20/1-26/1. PVC or PE extruders are suitable with 3-3.5 compression ratio.
- (b) For tube extrusion, the recommended Draw Down ratio is <1.5:1.
- (c) Screen mesh: 60/60; Stainless steel screen is recommended.
- (d) Cooling water temperature to be > 30°C.

2) Typical temperature Setting °C

<u>Feed</u>	<u>Compression</u>	<u>Metering</u>	<u>Neck</u>	<u>Die</u>
160 – 180	170 – 190	180 – 200	200 – 220	210 – 240

3) Preheating

- (a) Under normal conditions, preheating is unnecessary.
- (b) Preheating (60°C/1 hrs) during cold weather may be required to increase line speed.

4) Start Up

- (a) Ensure extruder is thoroughly cleaned.
- (b) Allow the material to exit through the mouth of the extruder and measure the temperature of the melt (180 – 200°C).
- (c) Stop the screw and fix the die onto the extruder .
- (d) Connect the conductor to the capstan.
- (e) Turn on the screw speed and increase it significantly for a few seconds while allowing the material to bleed.
- (f) Slowly turn up the line speed until it reaches desired speed .

DO NOT LEAVE THE MELT IN THE EXTRUDER FOR MORE THAT 20 MINS!

5) Gas Flame

Use of a gas flame directed at the die will ensure a smoother surface and minimize the accumulation of die drool .

6) Curing

- (a) Curing time depends on temperature , thickness of insulation , cure time and presence of moisture.
- (b) Typical curing conditions for normal insulation (1.5 mm insulation thickness) .

<u>ambient</u>	<u>steam</u>	<u>hot water</u>
80%RH, 28°C	low pressure	80°C
15 days	3 hours	3 hours

7) Masterbatches

It is recommended that color masterbatches be thoroughly dried before use i.e. at 60-70°C for 48 hours.

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