PE Compound

ZARLNK™ XL4201-WTR *Technical Datasheet*

Medium Voltage XLPE insulation – Peroxide

- **Description**

ZARLNK™ XL4201 is a cross linkable natural polyethylene compound based on Super cure technology and WATER TREE RETARDANT , specially designed for insulation of power cables. The product is a polyethylene copolymer containing <2% of an ORGANIC PEROXIDE and <1% of a thermal stabilizer. No substance contained in the compound can be classified as hazardous in the stated concentrations.

- **Applications**

ZARLNK™ XL4201 is intended for insulation of XLPE medium voltage (MV) AC cables with rated voltages up to 33 kV (Um = 36 kV).
The values are voltages between phases as defined in IEC 60183.

- **Specifications**

ZARLNK™ XL4201 is expected to meet the applicable requirements included in the below mentioned standards provided it is processed using sound material handling, extrusion and crosslinking practices as well as appropriate testing procedures and WATER TREE RETARDANT (WTR) . This applies up to the maximum recommended voltage level indicated in "Applications" section above since some standards cover wider voltage ranges.

IEC 60502-2

VDE 0271 - 0273

BSI 6622

ANSI/ICEA S-108-720

ANSI/ICEA S-93-639

- **Special Features**

ZARLNK™ XL4201 is a ready-to-use natural compound. Thanks to its inherent properties, ZARLNK™ XL4201 provides very good electrical performance. It offers excellent scorch resistance and long production runs. ZARLNK™ XL4201 cleanliness level is assured through the Plexchem quality management system.

ZARLNK™ XL4201-WTR

Technical Datasheet

Medium Voltage XLPE insulation – Peroxide

- **Physical Properties**
  Data should not be used for specification work

Property	Typical Value	Test Method
Density (Base Resin)	0.93 gr/cm3	ISO 1183
Melt Flow Rate (190'C , 2.16 kg) Base polymer	2.8 gr/10 min	ISO 1133
Elongation at Break (250 mm/min)	>450 %	IEC 60811-401
Tensile Strength (250 mm/min)	17 N/mm2	IEC 60811-401
Hot set test (200'C , 20N/cm2) Elongation under load	75%	IEC 60811-507
Permanent Elongation	5%	"
MDR , max torque	2- 3 d.Nm	ISO 6502
Relative Water Tree Growth (RWTG) in 90 days	7 to 8	ASTM D 6097

- **Electrical Properties**
  Data should not be used for specification work

Property	Typical Value	Test Method
Dielectric Constant (50Hz)	2.3	IEC60250
DC Volume Resistivity (23'C)	>10 P Ohm.cm	IEC 62631
Dissipation Factor (50 Hz)	0.0003	IEC 60250

- **Processibility of Compounds**
  To produce a good and reliable cable, it is essential to ensure careful and very clean handling of the insulation material. Hence all material handling should preferably be conducted in closed systems and in clean room conditions.

Extruder

Recommended using a standard PE extruder with a cooling screw

Screw diameter : 120-150mm
Length of screw : 20-25 D
Screen pack : (Is necessary) : 40/80/40
Screw design : Troester or equivalent having the last 2 D as a Maddox mixing zone or with Shear –mix elements to achieve very good thermal mixing and homogenization of the melt. This is important to prevent overheating of the melt.

ZARLNK™ XL4201-WTR *Technical Datasheet*

Medium Voltage XLPE insulation – Peroxide

	XLPE Extruder								
Screw	Hopper	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Clamp	Connection
90	60	115	115	117	117	117	117	125	128

Cross Head				
Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
120	120	120	125	128

Screw Temperature 100 (+/- 10° C) Hopper Temperature 50 (+/- 5° C)

- **NOTE**: It is important to keep the melt temperature under 135° C to avoid "scorching"

Depending on the cable type, line speeds, and outputs different melt pressures can be realized. Usual values for the melt pressure are

180 Bar (11 KV, 12 m/min.) 260 Bar (25KV, 10 m/min.)

CV Tube Temperature/Pressure Profile (dry curing) For 10-20 KV cables the following profiles are recommended

Line speed 10-15 m/min.

Nitrogen Pressure 9-10 bars

Tube of CV Line										
Splice box	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone6	Zone7	Zone8	Zone9	Zone10
300	400	410	390	380	370	360	350	340	330	300

- Important Note :
  You can adjust lower temperature if your line is running at lower speed , otherwise there is risk of poor hot set and aging properties .

- **Packaging**

Package: Small Octabins (500-550kg) or Octabins (1000 – 1100 kg)

Medium Voltage XLPE insulation – Peroxide

- **Storage**

ZARLNKTM XL4201-WTR has a shelf life of 24 months from production date if stored in unopened original packages, under dry and clean conditions at temperatures between 10 - 35°C (50 - 95°F).

The material can be stored at ambient temperature up to 40°C (104°F) for a period up to 6 months provided it is in unopened original packages and under dry and clean conditions. Material shelf life is affected by the storage conditions and extreme conditions influence the general material quality and performance.

Before use, material shall be conditioned indoors (production room) to reach ambient temperature. It is also recommended to ensure proper stock rotation by First In – First Out principle.