SHAKUN POLYMERS PRIVATE LIMITED

SPL-ZHFR-421 XL

ZERO-HALOGEN LOW SMOKE FLAME RETARDANT COMPOUND

Description

SPL-ZHFR-421 XL is a Zero Halogen, Low smoke, Flame Retardant, Silane grafted, moisture curable by addition of a catalyst master-batch cross-linkable RoHS compliance Compound for insulation / sheathing applications. It has good mechanical properties and high thermal stress resistance. The material contains metal deactivator hence suitable for direct insulation on copper conductor. It is good for insulation of power, signal and control cables.

Specifications

Cables manufactured with **SPL-ZHFR-421 XL** according to standard technology meet the following industrial cable specifications.

Type HF 90 to IEC 60092 / 351 Type EI 8 to BS EN 50363-5

Features

SPL-ZHFR-421 XL consists of special thermoplastic polymers, inorganic filler and other additives. It shows good processing and physical properties. Cross linking is activated by heat and moisture after extrusion.

Properties

Property	*Test Method*	*Unit*	Typical Value
Density at 27°C	ASTM D 792	g/cm^3	1.44
Hardness	ASTM D 2240	Shore D	48
Tensile Strength at break	IEC 60811-1-1	MPa	12
Elongation at Break	IEC 60811-1-1	%	280
Variation in Tensile Properties after heat ageing (7 days at 150°C) - Tensile strength - Elongation	IEC 60811-1-2	 % %	 +8 -15
Variation in Tensile Properties after ageing in air bomb (at 127°C for 40 hrs,0.55 MPa) - Tensile strength - Elongation	IEC 60811-1-2	 % %	 +11 -14
Hot Set Elongation, at 250^{0}C for 15 min. at 0.2 N/mm^2 load	IEC 60811-2-1	%	50
Elongation after unloading (P.S)	IEC 60811-2-1	%	Nil
Limiting Oxygen Index	ASTM D 2863	% O_2	30
Temperature Index	ASTM D 2863	° C	275
Smoke Density Rating	ASTM D 2843	%	6
Halogen Acid Gas Generation	IEC 60754-1	%	Nil
Test on Gases Evolved During Combustion pH.	IEC 60754-2	 pH	 5.5
Conductivity		μs / mm	1.7
Volume Resistivity	ASTM D 257	Ohm-cm	6 x 10^{14}
Pressure Test at 100^{0}C, 4 hrs	IEC 60811-3-1	%	22

*All Data on 1 mm Tape extruded at Temperatures between 130-160^{0}C on Zones and 165-170^{0}C on Crosshead and Die and then Cured in Water at temperature of 85^{0}C

* Data should not be used for specification work.

Processing Techniques

Catalyst (CTMB-11 AOX) dosage is 3 - 5% by weight and blending must be done just before using (2-3 hours max.), preferably in the extruder hopper. Catalyst doesn't need any pre-drying.
In general, it is recommended that this product be processed using a low compression screw with a L/D of 20-24:1. Extrusion temperatures of 120 – 170^{0}C on Zones, 165^{o}C on Neck, 170^{o}C on Crosshead, 175^{o}C on Die are recommended. **Do not dry the compound under any circumstances**.
SPL-ZHFR-421 XL can be cross-linked by immersion in hot water at a temperature of 80^{0}C for a period of 3-4 hrs approx. This duration can be adjusted depending upon insulation thickness, reel size etc. [Specific recommendations for processing conditions can be determined only when the application and type of equipment are known]. Ensure that the layers of the core do not stick during crosslinking process.
Screw: Recommended ZHFR screw with low compression ratio 1.2 - 1.5:1

Colorability

SPL-ZHFR-421 XL is a Colorable Compound with PE/EVA Based master-batch.

Packaging

SPL-ZHFR-421 XL is available in the form of free flowing pellets and supplied in bags which will be placed directly on wooden pallet, duly shrink wrapped, completely export worthy.
Material will be supplied with net content of 1380 Kgs as under.

44 Bags of **SPL-ZHFR-421 XL** @ 30 Kgs = 1320 Kgs & 03 Bags of Catalyst (CTMB) @ 20 Kgs = 60 Kgs

Storage & shelf life

The product/compound should remain in

- Sealed condition
- Without exposing to direct sunlight and temperature not exceeding 45°C

Shelf life of the compound is 09 months from the date of manufacture.
Product alteration may occur due to extended period of storage.
Shakun accepts no liability of any kind in case the above mentioned storage conditions are not fulfilled.

Safety

SPL-ZHFR-421 XL is not classified as a dangerous preparation.
The product is supplied in form of pellets of about 2 – 3 mm in size and can be readily handled with commercially available equipment. All handling and transport of the product may generate some dust and fines, which constitute a potential risk for dust explosion. Therefore, all instruments in the system should be properly grounded. Properly designed equipment and good storage will reduce the potential risk. Please, check and follow local disposal regulations!
Inhalation of any type of dust may irritate the air passages and should be avoided. For hot products: immediately immerse in or flush the affected area with large amounts of cold water to dissipate heat.

In case of adverse exposure to melting products formed at elevated temperatures, immediately remove, the affected victim from exposure.

Sweep up spilled granules and place in suitable containers for recycle or disposal. Consult an expert on disposal or recovered material and ensure conformity to local disposal regulations.

The product is intended for industrial use only. A Material Safety Datasheet is available on request. Please contact our Technical Team at SHAKUN POLYMERS PRIVATE LTD., for more details on various aspects of safety, recovery and disposal of the product.

This information is to the best of our knowledge accurate but all recommendations or suggestions are made without guarantee since the conditions of use are beyond our control. The typical values given do not constitute specification for the product but represent typical analytical values.