

PLS XL-FR 666/PLS 667 Product Data Sheet

Silane Crosslinkable, Low Smoke, Halogen Free, Flame Retardant Compound for Insulation of Low Voltage Power, Signal & Control Cables

DESCRIPTION

PLS XL-FR666 is a Silane Crosslinkable, Low Smoke Halogen Free Flame Retardant Compound for Insulation of Power, Signal & Control Cables. The compound is based on Non-toxic and Non corrosive elements, and has excellent mechanical, electrical & fire retardant properties. It is moisture curable by adding catalyst masterbatch **PLS667** at an addition rate between 4 – 5% (see under curing*).

SPECIFICATIONS

The cables insulated with **PLS XL-FR666/PLS667** using sound commercial extrusion practice and test protocols shall meet **BS 7211, BS EN 50525-3-41, BS EN 60332-1-2, BSEN 50363-5 EI5**.

PROPERTIES

Properties	Test Method	Unit	Typical Value
Density	ASTM D 792	gm/ml	1.45
Melt Flow Index at 160°C at 21.6 kg load	ASTM D 1238	gm/10 minute	15
Mechanical properties before ageing: ⁽¹⁾ -Tensile Strength -Elongation at break	IEC-60811-1-1 IEC-60811-1-1	N/mm ² %	14 210
Variation of mechanical properties after ageing in hot air oven at 135°C for 168 hours: ⁽¹⁾ -Tensile Strength -Elongation at break	IEC-60811-1-2 IEC-60811-1-2	% %	+8 -12
Hot Set Test, 200°C at 20N/cm² for 15 minute: ⁽¹⁾ -Elongation under load -Permanent elongation after cooling	IEC 60811-2-1 IEC 60811-2-1	% %	60 Nil
Pressure test at 100°C, k=1	IEC 60811-3-1	%	40
Limiting Oxygen Index (LOI)	ASTM D 2863	% O ₂	31
Temperature Index	ASTM D 2863	°C	250
Smoke Density	ASTM D 2843	%	3.5
Halogen Acidic gases evolved	IEC 60754-1	%	<0.5
Corrosivity of gasses evolved	IEC 60754-2	pH	5.3
Conductivity of gasses evolved	IEC 60754-2	μS/mm	<10
Electrical properties at 90°C: -Insulation resistance constant (K) -Volume Resistivity	IEC 60502 IEC 60502	MΩ.km Ohm.cm	1.5 3 x 10 ¹²

⁽¹⁾Test made on 0.8mm extruded tape, added with 3-5% catalyst masterbatch **PLS 667** and cured in hot water.

Note: Values may differ when tests are performed on extruded insulation. Typical values should not be used for specification purposes.

PROCESSING

PLS XL-FR666 must be added with Catalyst masterbatch **PLS 667** @3 – 5% by weight through a feeder. Catalyst masterbatch PLS 667 should be thoroughly dried at 60°C for 8 hours or at 80°C for 4 hours, preferably in a dehumidifying drier.

The Silane Crosslinkable Compound PLS XL-FR666 should not be dried.

PLS XL-FR666 can be processed on a wide range of extrusion lines (L/D ratio 15-24), equipped with low compression ratio screws (1.5:1 or less). The actual temperature profile for extrusion will depend on the machine characteristics but the following can be taken as a guideline (please also refer to process parameter).

TEMPERATURE PROFILE:

Zone-1	Zone-2	Zone-3	Zone-4	Zone-5	X Head	Die
130°C	140°C	150°C	165°C	170°C	170°C/175°C	175°C

Note: A strong gas flame on the die face

RECOMMENDED SCREEN PACK

50 (mesh aperture per linear) or 300 microns

*CURING

- A satisfactory cure can be obtained either by immersing the insulated cores in hot water or by exposing to low pressure steam.
- For curing under Ambient conditions, at an enhanced addition level of catalyst PLS 667, (depending on the residence time of compound in the extruder & surface finishing) satisfactory results can be expected. The curing time shall be dependent on (1) Radial thickness of insulation (2) Ambient temperature (3) Relative humidity (4) Addition level of catalyst master batch PLS 667.

SHELF LIFE

Under ideal storage conditions, a shelf life of in excess of 6 months can be expected.

STORAGE AND HANDLING

The following precautions should be taken;

- High storage temperature should be avoided.
- Avoid storage outside or direct sunlight.
- Use materials, directly after opening the packaging. Any leftover material should be properly sealed and should be used as soon as possible.

COLORABILITY

PLS XL-FR666 is available in natural color. Use of 1% EVA/PE based color masterbatches including black for coloring purpose has no detrimental effect on the material properties. All masterbatches should be thoroughly dried at 60°C for 8 hours or at 80°C for 4 hours, preferably in a dehumidifying drier.

PACKAGING

PLS XL-FR666 is manufactured in pellet form and is available in the 600 kg aluminum lined octabins.

PLS 667 is manufactured in pellet form and is available in 25 kg PE bags.

HEALTH AND SAFETY

PLS XL-FR666 ingredients are essentially non-hazardous in the delivered compound. Fines and dust particles associated with handling or conveying **PLS XL-FR666**, as with all polyolefin's may under certain circumstances, pose an explosion hazard. Your facilities and procedures must be designed and operated to minimize the exposure of personnel to the dust and the possibility of a dust explosion occurring.