

PLS 525AC (System XLAC 5000 BK-UV) Product Data Sheet

Atmospheric Cure Catalyst Masterbatch for use with Silane Crosslinkable Black, Polyethylene L.V Overhead Power Cable Insulation Compounds

DESCRIPTION

PLS 525AC (Atmospheric cure) is a masterbatch comprising polyethylene, carbon black pigment, a catalyst to induce silane crosslinking and a stabilisation package to impart long term thermo-oxidative and photo-oxidative (UV) degradation resistance to the final cable insulation. It is specifically designed to renders rapid curing of Black Silane XLPE Insulation for overhead cables in **natural atmospheric** conditions without using **sauna or hot water bath**. It is designed to be used, at a rate of 16.5 wt.%, with 83.5% of Plascom's PLS 505AC silane crosslinkable compound for Overhead and Weather Service Drop Cables. It is suitable for both copper & aluminum cored cables. The curing time in atmospheric condition will be dependent on the surrounding atmospheric temperature, relative humidity, thickness of cable insulation and addition level of catalyst masterbatch PLS 525AC.

SPECIFICATIONS

PLS 525AC / PLS 505AC insulated conductors, when manufactured employing sound extrusion practices and strict process control, will comply with the requirements of the following standard:-

ICEA-S-76-474 NFC 33-209

APPLICATION

PLS 525AC is for use by cable manufacturers requiring best performance properties for low voltage, weather resistant, silane crosslinked cable insulation or jacket. When used at the recommended concentration with PLS 505AC scorch free extrusion and rapid crosslinking in natural atmospheric conditions are achievable. It is suitable for a wide range of cable sizes and types, either copper or aluminium cored.

PACKAGING

PLS 525AC is manufactured in pellet form and is available in the following packages:-

- Polyethylene sacks of 25 kg, palletised

The palletised package is stretch wrapped for environmental protection. Packages damaged during handling should not be stacked.

PROCESSING

PLS 525AC is specifically designed to be used with PLS 505AC at a concentration @ 16.5 wt.%. The consequences of reducing the PLS 525AC addition rate are; slower crosslinking and reduced carbon black content. It is not advisable to reduce the addition level below **16.5 wt.%**. Pre-drying of PLS 525AC at 60 to 70°C for 6 to 8 hours is strongly advised to minimise the risk of scorch. Please study the processing parameters for PLS 505AC/PLS 525AC.

PHYSICAL & ELECTRICAL TYPICAL PROPERTIES

Test	Typical Value ⁽¹⁾	Unit	Test Method
Melt Flow Rate (190/2.16)	3.5	dg/min	ASTM D 1238
Density (Conditioning ISO 1183 - D)	933	kg/m ³	ASTM D 1505
Final Composition Properties^{(2) (2a)}			
Carbon Black Content ⁽²⁾	2.5 ± 5	wt %	ASTM D 1603
Tensile Strength at Break ^(2a)	20	MPa	IEC 60811-1-1
Elongation at Break ^(2a)	600	%	IEC 60811-1-1
Aged Tensile Strength at Break ^{(2) (3)}	>90	% Retain	IEC 60811-1-2
Aged Elongation at Break ^{(2) (3)}	>90	% Retain	IEC 60811-1-2
Hot Set ^{(2a)(4)} (Elongation/Set)	40/0	%	IEC 60811-2-1
Dielectric Strength ⁽²⁾ (short pulse)	>22	kV/mm	IEC 60243
DC Volume Resistivity ⁽²⁾	≥ 1 x 10 ¹⁶	Ω cm	ASTM D 257
Dielectric Constant ⁽²⁾	2.3	At 60 Hz	ASTM D 150
Dissipation Factor ⁽²⁾	0.0004	At 60 Hz	ASTM D 150

Note:

1. Values may differ when tests are performed on extruded insulation. Typical values should not be used for specification purposes.
2. Determined on 2 mm pressed sheet (PLS 505AC:PLS525AC, 83.5:16.5) cured at 90°C in water for 2 hours.
- 2a. Determined on 0.8mm extruded tape (PLS 505AC/PLS 525AC) cured at 90°C in water for 2 hours.
3. Test condition 135°C, 7 days
4. Test condition 200°C, 20 N/cm², 15 min.

HEALTH AND SAFETY

PLS 525AC ingredients are essentially non hazardous in the delivered compound. Fines and dust particles associated with handling or conveying PLS 525AC, as with all polyethylenes, may, under certain circumstances, pose an explosion hazard. Your facilities and procedures must be designed and operated to minimise the exposure of personnel to the dust and the possibility of a dust explosion occurring.

Please refer to the PLS 525AC Material Safety Data Sheet for comprehensive information.

STORAGE AND HANDLING

PLS 525AC may be bulk handled and conveyed using equipment designed for conventional polyethylene pellets. The conveying system should be adequately grounded to prevent accumulation of static charge and equipped with suitable filtration to prevent dust hazards within the factory and local environment. By its nature, PLS 525AC is moisture sensitive so the use of high humidity conveying air should be avoided. The material must be used within a short time after exposure to humidity in order to minimise the risk of scorching during extrusion. It is strongly recommended to dry the catalyst masterbatch PLS 525AC at 60 to 70°C for 6 to 8 hours preferably with dehumidified air before use.

PLS 525AC must be stored unopened in a dry, stable temperature environment for optimum performance. A temperature range of 5°C to 40°C is recommended. Under ideal conditions a shelf life in excess of 24 months can be expected. Irreversible damage may occur to the compound if it is not stored in appropriate conditions.

THIRD PARTY MATERIALS

Insofar as materials not supplied by Plascom are used in conjunction with, or instead of Plascom materials, it is the responsibility of the customer to obtain all relevant data pertaining to their use and to satisfy himself as to their suitability. No liability whatsoever can be accepted by Plascom for use of their materials in conjunction with any other material.