

PLS 425

Product Data Sheet

Catalyst Masterbatch for use with Silane Crosslinkable, Overhead Cable Insulation Compounds

DESCRIPTION

PLS 425 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 be used, at a rate of 11 wt.%, with 89% of Plascom's PLS 405 silane crosslinkable compound for Overhead and Weather Service Drop Cables. The extruded combination is crosslinkable on exposure to hot water or low pressure steam.

Specifications

PLS 425 / PLS 405 insulated conductors, when manufactured employing sound extrusion practices and strict process control, will comply with the requirements of the following standard:-

ICEA-S-66-524

Application

PLS 425 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 405 scorch free extrusion and rapid crosslinking on exposure to hot water are achievable. It is suitable for a wide range of cable sizes and types, either copper or aluminium cored.

Packaging

PLS 425 is manufactured in pellet form and is available in the following packages:-

- lined Aluminum sacks of 25 kg, palletised 500 kg net

Lined sacks are multi-layer heat-sealed to prevent moisture ingress. The palletised package is stretch wrapped for environmental protection. Packages damaged during handling should not be stacked.

Processing

PLS 425 is specifically designed to be used with PLS 405 at a concentration 11 wt.%. In some cable manufacturing scenarios pre-cure, or scorch, of PLS 405 may be apparent. In such cases it may be permissible to reduce the addition rate of PLS 425 below the recommended 11 wt.%. Such an action should only be taken after remedying other potential causes of scorch. The consequences of reducing the PLS 425 addition rate are; slower crosslinking rate and reduced long term thermo-oxidative and photo-oxidative stability. On no account should the addition rate be reduced below 10 wt.% as the final insulation may not comply with the accelerated aging requirement defined in cable standards. Pre-drying of PLS 425 is strongly advised to minimise the risk of scorch. Please study the processing guidelines given in Plascom's data sheet for PLS 405.

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)	80/0	%	IEC 60811-2-1
Dielectric Strength ⁽²⁾ (short pulse)	>22	kV/mm	IEC 60243
DC Volume Resistivity ⁽²⁾	1 x 10 ¹⁵	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 405:PLS425, 89:11) cured at 80°C in water for 3 hours.
- 2a. Determined on 0.8mm extruded tape (PLS 400A/PLS 400/PLS 400M:PLS420/420D, 95:5) cured at 90°C in water for 3 hours.
3. Test condition 135°C, 7 days
4. Test condition 200°C, 20 N/cm², 15 min.

Health and Safety

PLS 425 ingredients are essentially non hazardous in the delivered compound. Fines and dust particles associated with handling or conveying PLS 425, 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 425 Material Safety Data Sheet for comprehensive information.

Storage and Handling

PLS 425 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 425 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. PLS 425 may be used directly from its packaging but it is recommended to dry it with warm, dehumidified air before use.

PLS 425 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.