Polyethylene

Visico™ LE4423 / Visico™ LE4438

Compound for silane crosslinkable cables

Description

Visico LE4423 / Visico LE4438 is a silane crosslinkable natural compound designed for low voltage power cables up to 6 kV.

Visico LE4423 and Visico LE4438 is a combination of a Visico base material and a catalyst master batch which accelerates the moisture-induced crosslinking reaction.

When properly mixed, addition of 5 parts of Visico LE4438 to 95 parts of Visico LE4423 , insulation with excellent thermo-oxidative stability, also in contact with copper as well as aluminium, is achieved.

Applications

Visico LE4423 / Visico LE4438 is designed for:

Insulation of low voltage cables for the range up to 6 kV.

Additives

Visico LE4423 / Visico LE4438 contains antioxidant and metal deactivator. Visico LE4423 contains a permanent scorch retardant additive, ensuring safe processing and enabling the use of a highly active crosslinking catalyst.

Specifications

Visico LE4423 / Visico LE4438 in combination meets the applicable requirements as below when processed using sound extrusion and testing procedure:

ASTM D 1248 Type I, Class A, Category 4
IEC 60502-1
HD 603 S1
HD 604 S1
NEMA WC 70
NEMA WC 71

The standards referred to above is a selection and is not complete coverage of all applicable standards.Contact your Borealis representative for additional information.

Special features

Visico LE4423 / Visico LE4438 consists of specially selected components to offer:

Excellent storage stability
No volatiles

Visico LE4423 and Visico LE4438 is a combination of a Visico base material and a catalyst masterbatch, which accelerates the moisture-induced crosslinking reaction. Visico LE4423 is based upon a cost optimised low density polyethylene, copolymerised with vinyl silane.

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Physical Properties

Property		Typical Value Data should not be used for specification work	Test Method
Density (mixture 95:5)		923 kg/m3	ISO 1872-2/ISO 1183-2
Melt Flow Rate (190 °C/2,16 kg)		1,0 g/10min	ISO 1133
Tensile Strain at Break (250 mm/min)		> 300 %	ISO 527
Tensile Strength (250 mm/min)		> 15 MPa	ISO 527
Change of Tensile Properties After Ageing (240 h, 135 °C) [1]		<= 25 %	IEC 60811-1-2
Brittleness temperature		< -76 °C	ASTM D 746
Environmental Stress Crack Resistance (50 °C) (Igepal 10 %), (F20)		> 96 h	IEC 60811-4-1/B
Hardness, Shore D (1 s)		52	ISO 868
Hot Set Test (200 °C, 0,20 MPa)	Elongation under load	60 %	IEC 60811-2-1
	Permanent deformation	0 %	

[1] These values are based on sufficient crosslinked/cured Visico. If Visico is sufficient crosslinked the material will continue to crosslink during the ageing procedure and a larger change between values before and after ageing may occur.

Electrical Properties

Property	Typical Value Data should not be used for specification work	Test Method
Dielectric constant (50 Hz)	< 2,3	IEC 60250
DC Volume Resistivity	> 10 POhm.cm	IEC 60093
Dielectric Strength	> 22 kV/mm	IEC 60243
Dissipation Factor (50 Hz)	< 0,0005	IEC 60250

Processing Techniques

Most equipment designed for PVC/PE extrusion is suitable.

PVC screw or PE screw with an L/D above 20 is recommended. Use of filter (60-100 mesh) is recommended.

Extrusion

Typically the following process conditions are used:

Barrel 1	150 °C
Barrel 4	170 °C
Barrel 3	170 °C
Barrel 2	170 °C
Die head	170 °C

Having the above set temperature profile a stable extrusion process and a cable having smooth glossy appearance should be achieved. On-size pressure or draw down tube-on tooling is preferred.

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Crosslinking
These products can be crosslinked in room temperature, by immersion in hot water or exposed to low pressure steam at a temperature up to 90°C .This time period may be varied due to the humidity, thickness of insulation, reel size and temperature.

For example, 1.0 mm thick insulation of Visico LE4423 and Visico LE4438 will cross link in a water bath of 90°C for a period of 1 to 4 hours giving a Hot Set Elongation of 60% (depending on conductor and reel size) Visico LE4423 and Visico LE4438 can also be cross linked in ambient conditions from 6 days and longer depending on relative humidity.

Thickness	Time	
1 mm	1 - 4 hrs	90°C, Sauna or water bath.

Packaging

Visico LE4423 - Base material
Package: Bulk
Octabins
Smallbins
Visico LE4438 - Catalyst master batch
Package: Bags

Storage

Visico LE4423 / Visico LE4438 is advised to be stored as follows: Visico LE4423 and Visico LE4438 can be stored for 18 months after production, at 10-30 °C in unopened original packages, without significant detoriation in the quality of the material.

More information on storage is found in our "Safety data sheet" / "Product safety information sheet" for this product.

Safety

These products are not classified as dangerous and are intended for industrial use only. Check and follow local codes and regulations!

Please see our "Safety data sheet" / "Product safety information sheet" for details on various aspects of safety, recovery and disposal of the products. For more information, contact your Borealis representative.

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Disclaimer

The product(s) mentioned herein are not intended to be used for medical, pharmaceutical or healthcare applications and we do not support their use for such applications.

To the best of our knowledge, the information contained herein is accurate and reliable as of the date of publication, however we do not assume any liability whatsoever for the accuracy and completeness of such information.

Borealis makes no warranties which extend beyond the description contained herein. Nothing herein shall constitute any warranty of merchantability or fitness for a particular purpose.

It is the customer's responsibility to inspect and test our products in order to satisfy itself as to the suitability of the products for the customer's particular purpose. The customer is responsible for the appropriate, safe and legal use, processing and handling of our products.

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