

Polyethylene
VisicoTM ME4425 /
VisicoTM LE4438
 Compound for silane crosslinkable cables

Description

Visico ME4425 / Visico LE4438 is a silane crosslinkable natural compound designed for low voltage power cables up to 6 kV.

Visico ME4425 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 ME4425, insulation with excellent thermo-oxidative stability, also in contact with copper as well as aluminium, is achieved.

Applications

Visico ME4425 / Visico LE4438 is designed for:

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

Additives

Visico ME4425 / Visico LE4438 contains antioxidant and metal deactivator. Visico ME4425 contains a permanent scorch retardant additive, ensuring safe processing and enabling the use of a highly active crosslinking catalyst.

Specifications

Visico ME4425 / 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 ME4425 / Visico LE4438 consists of specially selected components to offer:

Excellent storage stability
 No volatiles

Visico ME4425 and Visico LE4438 is a combination of a Visico base material and a catalyst masterbatch, which accelerates the moisture-induced crosslinking reaction. Visico ME4425 is based upon a cost optimised low density polyethylene, copolymerised with vinyl silane.

Visico is a trademark of Borealis A/S, Denmark.

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Physical Properties

Property	Typical Value	Test Method
Data should not be used for specification work		
Density (mixture 95:5)	930 kg/m ³	ISO 1872-2/ISO 1183-2
Melt Flow Rate (190 °C/2,16 kg)	1 g/10min	ISO 1133
Tensile Strain at Break (250 mm/min)	> 300 %	ISO 527
Tensile Strength (250 mm/min)	> 20 MPa	ISO 527
Change of Tensile Properties After Ageing (240 h, 135 °C)	<= 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)	55	ISO 868
Hot Set Test (210 °C, 0,2 MPa)	Elongation under load 60 % Permanent deformation 0 %	IEC 60811-2-1

Electrical Properties

Property	Typical Value	Test Method
Data should not be used for specification work		
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

Visico ME4425 / Visico LE4438 are suitable for most equipment designed for PVC/PE extrusion.

PVC screw or PE screw with an L/D above 20 is recommended.

Use of filler (60-100 mesh) is recommended.

Extrusion

Typically the following process conditions are used:

Barrel 1	150 °C
Barrel 4	185 °C
Barrel 3	185 °C
Barrel 2	185 °C
Die head	185 °C
Melt temperature	190 - 195 °C



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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.

Crosslinking

Visico ME4425 / Visico LE4438 can be crosslinked by immersion in hot water or in a steam sauna at a temperature up to 80 °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 ME4425 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 ME4425 and Visico LE4438 can also be cross linked in ambient conditions from 6 days and longer depending on relative humidity.

Thickness	Time	
1,0 mm	1 - 4 h	90°C, Sauna or water bath.

Packaging

Visico ME4425 - Base material
Package: Octabins
Visico LE4438 - Catalyst master batch
Package: Bags

Storage

Visico ME4425 / Visico LE4438 is advised to be stored as follows: Visico ME4425 and Visico LE4438 can be stored for 18 months after production, at 10-30 °C in unopened original packages, without significant deterioration in the quality of the material. should be stored in dry conditions at temperatures below 50°C and protected from UV-light. Improper storage can initiate degradation, which results in odour generation and colour changes and can have negative effects on the physical properties of this product.

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.

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