PRODUCT DATA SHEET

27.03.2025 Ed.3

Polyethylene

Visico™ ME4425 / Visico™ LE4438

Silane Crosslinkable Insulation Compound

Description

Visico™ ME4425/LE4438 is a silane crosslinkable natural compound system designed for insulation of low voltage energy cables. Visico ME4425 is a medium density polyethylene, copolymerized with vinyl silane. Visico LE4438 is a crosslinking catalyst masterbatch specially designed to be used with Visico base resins. The system crosslinks quickly in sauna or in hot water.
Cable insulation with a proper mixture of Visico ME4425 (95 parts) and Visico LE4438 (5 parts) exhibits excellent thermo-oxidative stability. The combination is suitable for both copper and aluminium conductors.

Typical characteristics

Visico™ ME4425 / Visico™ LE4438 can be described with following typical characteristics:

- Excellent processing properties
- Low scorch allowing long runs and more frequent tooling changes
- Excellent surface finish
- Less smell; more consistent quality (no volatiles)
- Good curing speed
- No drying prior to extrusion
- Excellent storage stability

Applications

Visico™ ME4425 / Visico™ LE4438 is intended for following applications:

Insulation of low voltage energy cables, range up to 6 kV

Specifications

Visico™ ME4425 / Visico™ LE4438 is expected to meet the applicable requirements included in the below mentioned standards provided it is processed using sound material handling and processing practices as well as appropriate testing procedures.

- ASTM D1248 Type II, Class A, Category 4
- EN 50290-2-29
- HD 603 S1
- HD 604 S1
- IEC 60502-1
- NEMA WC 71 / ICEA S-96-659
- ANSI/NEMA WC 70/ICEA S-95-658-2021

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

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Physical properties

Property	Typical value *	Unit	Test method
Density [1]	930	kg/m³	ISO 1183-1
Melt flow rate (190 °C/2.16 kg) [2]	1.0	g/10min	ISO 1133-1
Hot set test - Elongation under load (200 °C, 0.20 MPa) [3]	60	%	IEC 60811-507
Hot set test - Permanent deformation (200 °C, 0.20 MPa) [3]	0	%	IEC 60811-507
Tensile strength (250 mm/min) [3]	>20	MPa	IEC 60811-501
Tensile strain at break (250 mm/min) [3]	>300	%	IEC 60811-501
Change of tensile properties After ageing 135 °C, 168h [4]	≤25	%	IEC 60811-401

* Data should not be used for specification work

[1] *(mixture 95:5)*
[2] *Base resin*
[3] *Addition of 5% Catalyst masterbatch.*
[4] *Addition of 5% Catalyst masterbatch.*
These values are based on sufficient crosslinked/cured Visico. If Visico is not sufficiently 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 *	Unit	Test method
Dielectic constant (50 Hz) [3]	2.3	-	IEC 60250

* Data should not be used for specification work

[3] *Addition of 5% Catalyst masterbatch.*

Processing techniques

Extrusion:
Visico ME4425 / Visico LE4438 are suitable for most equipment designed for PVC/PE extrusion. Typically the following process conditions are used:

Processing setting	Typical value/range
Barrel temperature 1	150 °C
Barrel temperature 2	185 °C
Barrel temperature 3	185 °C
Barrel temperature 4	185 °C
Die head temperature	185 °C
Melt temperature	190-195 °C

The temperature of the melted polymer during extrusion should preferably not exceed 200 °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. The use of a gradient cooling bath will improve the cable insulation physical properties further.

Conductor preheating up to 100°C is recommended when producing cables with a conductor up to 16 mm² for good mechanical properties.

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Crosslinking:
These products can be crosslinked 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.

Packaging and storage

Visico ME4425 - Base material is protected from moisture ingress
Package: Octabins
Bulk
Visico LE4438 - Catalyst master batch is protected from moisture ingress
Package: Bags
Smallbins

Visico ME4425 / Visico LE4438 has excellent storage stability. Visico ME4425 and Visico LE4438 can be stored for 18 months after production, at 10-30°C (50-85°F) in unopened original packages, without significant deterioration in the quality of the material. Visico ME4425 and Visico LE4438 should be stored in dry conditions and protected from direct sunlight. Improper storage can initiate degradation, which results in odor generation and color changes and can have negative effects on the physical properties of this product. Visico LE4438 is sensitive to moisture and is therefore delivered with low moisture content, ready to be used. Pre-drying is not recommended, as it will destroy the drying agent that has been added to prevent the material to take up moisture. The bags must be properly resealed between uses, as even short periods of storage in humid conditions may cause scorch during extrusion.

Product compliance documents

Latest versions of product safety information sheets (PSIS), product safety data sheets (SDS) and other product liability documents are available in our website www.borealisgroup.com.

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.
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