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PRODUCT DATA SHEET

Polyethylene

Visico™ LE4421 / Visico™ LE4438

Silane Crosslinkable Insulation Compound

Description

Visico™ LE4421/LE4438 is a silane crosslinkable natural compound designed for low voltage power cables up to 6 kV.

Visico LE4421 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 LE4421 , insulation with excellent thermo-oxidative stability, also in contact with copper as well as aluminium, is achieved.

Additives:
Visico LE4421 / Visico LE4438 contains antioxidant and metal deactivator. Visico LE4421 contains a permanent scorch retardant additive, ensuring safe processing and enabling the use of a highly active crosslinking catalyst.

Typical characteristics

Visico™ LE4421 / Visico™ LE4438 can be described with following typical characteristics:

Excellent storage stability	No volatiles

Visico LE4421 and Visico LE4438 is a combination of a Visico base material and a catalyst masterbatch, which accelerates the moisture-induced crosslinking reaction. Visico LE4421 is based upon a cost optimised low density polyethylene, copolymerised with vinyl silane.

Applications

Visico™ LE4421 / Visico™ LE4438 is intended for following applications:

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

Specifications

Visico™ LE4421 / 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 I, Class C, Category 4	IEC 60502-1
HD 603 S1	ANSI/NEMA WC 70/ICEA S-95-658-2021
HD 604 S1	NEMA WC 71 / ICEA S-96-659

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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Visico™ LE4421 / Visico™ LE4438

Physical properties

Property	Typical value *	Unit	Test method
Density [1]	923	kg/m³	ISO 1183-1
Melt flow rate (190 °C/2.16 kg) [2]	1.0	g/10min	ISO 1133-1
Tensile strength (250 mm/min) [3]	>15	MPa	IEC 60811-501
Tensile strain at break (250 mm/min) [3]	>200	%	IEC 60811-501
Change of tensile properties After ageing 135 °C, 168h [4]	≤25	%	IEC 60811-401
Hot set test - Permanent deformation (200 °C, 0.20 MPa) [3]	0	%	IEC 60811-507
Hot set test - Elongation under load (200 °C, 0.20 MPa) [3]	60	%	IEC 60811-507

* 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 LE4421 / 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	170 °C
Barrel temperature 3	170 °C
Barrel temperature 4	170 °C
Die head temperature	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.

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.

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Packaging and storage

Visico LE4421 - Base material
Package: Bulk
Octabins
Smallbins
Visico LE4438 - Catalyst master batch
Package: Bags

Visico LE4421 / Visico LE4438 is advised to be stored as follows: Visico LE4421 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 LE4421 and Visico LE4438 should be stored in dry conditions and protected from direct sunlight. 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. 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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