PRODUCT DATA SHEET

Polyethylene

Visico™ LE4423/LE4432

Silane Crosslinkable Insulation Compound

Description

Visico™ LE4423/LE4432 is a silane crosslinkable black compound system designed for insulation of low voltage energy cables and covering/insulation of overhead cables.

Visico™ LE4423 is a low density polyethylene, copolymerised with vinyl silane.
Visico™ LE4432 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 LE4423 (90 parts) and LE4432 (10 parts) exhibits excellent thermooxidative stability.
The combination is suitable for both copper and aluminum conductors. The final product contains nominal 2,5% of fine size carbon black ensuring excellent weatherability.

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

Applications

Visico™ LE4423/LE4432 is intended for following applications:

Covering/insulation of overhead cables	Insulation of low voltage energy cables, range up to 6 kV

Specifications

Visico™ LE4423/LE4432 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.

Canadian Standards Association C22.2 No. 38 Cable Type RW-90 Outdoor	ICEA S-105
Canadian Standards Association C22.2 No. 38 Cable Types RW-90 and RWU-90	IEC 60502-1

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Physical properties

Property	Typical value *	Unit	Test method
Density [1]	923	kg/m³	ISO 1183-1
Density [2]	1050	kg/m³	ASTM D792
Melt flow rate (190 °C/2.16 kg) [1]	1.0	g/10min	ISO 1133-1
Hot Creep Test (150°C, 29 psi) Permanent deformation [3]	0	%	ICEA T-28-562
Hot Creep Test (150°C, 29 psi) Elongation under load [3]	60	%	ICEA T-28-562
Tensile strength 24h [3]	>2200	psi	ASTM D638
Elongation at Break [3]	>200	%	ASTM D638
Change of tensile properties After ageing 121 °C, 168h [4]	≤20	%	ASTM D638

* Data should not be used for specification work

[1] *Base resin*
[2] *Masterbatch*
[3] *Addition of 10% Catalyst masterbatch*
[4] *Addition of 10% 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
Dielectric constant [5]	2.6	-	ASTM D150

* Data should not be used for specification work

[5] *60 Hz, Addition of 10% Catalyst masterbatch*

Processing techniques

Following parameters should be used as guidelines:

Extrusion:
Most equipment designed for PVC or PE extrusion is equally suitable for LE4423/LE4432. Typically the following process conditions should be used as a starting point to achieve a stable extrusion process. On-size pressure or low draw down tube-on tooling is recommended for a cable having a smooth glossy appearance. Whichever type of tooling is used, however, the die should hve parallel lands of a length approximately twice that of the final cable diameter.

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Processing setting	Typical value/range
Barrel temperature 1	295 °F
Barrel temperature 1	146 °C
Barrel temperature 2	310 °F
Barrel temperature 2	155 °C
Barrel temperature 3	325 °F
Barrel temperature 3	163 °C
Barrel temperature 4	340 °F
Barrel temperature 4	171 °C
Die head temperature	350 °F
Die head temperature	177 °C

Packaging and storage

Visico LE4423 - Base material
Package: Octabins
Smallbins
Ambicat LE4432 - Catalyst master batch
Package: Bags
Smallbins

Visico™ LE4423 / Ambicat™ LE44322 has excellent storage stability. Visico LE4423/LE4432 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 LE4423 and Ambicat LE4432 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. Ambicat LE4432 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.

Sustainability aspects

Borealis is ever mindful of the impact of our products on the planet. We promote Design for Circularity (DfC) and Design for Recycling (DfR) to conserve natural resources and to reduce the environmental impact of products over their entire lifetime (including production, use phase and after phase). DfR helps ensure that material can be effectively recycled while maximizing the material performance efficiency.

Further information on sustainability and Design for Recycling (DfR) can be found from our websites www.borealisgroup.com and www.borealiseverminds.com.

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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.
No liability can be accepted in respect of the use of any Borealis product in conjunction with any other products and/or materials. The information contained herein relates exclusively to our products when not used in conjunction with any other material unless as specifically provided for in the test methods stated above.

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