

Polyethylene VisicoTM ME4425 / AmbicatTM LE4472

Description

Visico ME4425 / Ambicat LE4472 is a silane crosslinkable black compound designed for covering/insulation of overhead cables.

The base material Visico ME4425 in combination with the catalyst masterbatch Ambicat LE4472 will accelerate the moisture-induced crosslinking reaction. The system is highly active and crosslinks quickly at ambient conditions, in sauna or in hot water.

When properly mixed, addition of 7 parts of Ambicat LE4472 to 93 parts of Visico ME4425, insulation with excellent thermo-oxidative stability, also in contact with copper as well as aluminium, is achieved. The final product will contain nominal 2,25% of fine size carbon black ensuring excellent weatherability.

Applications

Visico ME4425 / Ambicat LE4472 is designed for:

Covering/insulation of overhead cables.

Additives

Visico ME4425 / Ambicat LE4472 contains antioxidant, metal deactivator and a drying agent. Visico ME4425 contains a permanent scorch retardant additive, ensuring safe processing and enabling the use of a highly active crosslinking catalyst.

Specifications

Visico ME4425 / Ambicat LE4472 in combination meets the applicable requirements as below when processed using sound extrusion and testing procedure:

ANSI/ICEA S-70-547

ASTM D 1248 Type II, Class C, Category 4

HD 626 S1 (TIX-2, TIX-4, TIX-6, TIX-9)

HD 603 S1

NEMA WC 70

NEMA WC 71

IEC 60502-1

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 / Ambicat LE4472 consists of specially selected components to offer:

Excellent storage stability

Excellent processing properties

No volatiles

Low scorch

Environmentally friendly (free from heavy metals)

Outstanding curing rates

No or little die drool

No drying prior to extrusion

Excellent surface finish





PolyethyleneTM VisicoTM ME4425 / AmbicatTM LE4472

The base material Visico ME4425 in combination with the catalyst masterbatch Ambicat LE4472 is a ready-made two-component system which crosslinks quickly at ambient conditions, in sauna or in hot water. Visico ME4425 is based upon a cost optimised low density polyethylene, copolymerised with vinyl silane. The catalyst/carbon black masterbatch, Ambicat LE4472, contains a novel, patented, environmentally friendly crosslinking catalyst and is completely free from heavy metals.

Physical Properties

Property	Typical Value	Test Method
<small>Data should not be used for specification work</small>		
Density (mixture 93:7)	940 kg/m ³	ISO 1872-2/ISO 1183
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)	> 20 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)	55	ISO 868
Hot Set Test (200 °C, 0,20 MPa)	Elongation under load Permanent deformation	IEC 60811-2-1
	60 % 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	Test Method
<small>Data should not be used for specification work</small>		
Dielectric constant (50 Hz)	< 2,5	IEC 60250
DC Volume Resistivity	>= 10 POhm.cm	IEC 60093
Dielectric Strength	> 20 kV/mm	IEC 60243
Dissipation Factor (50 Hz)	< 0,0006	IEC 60250

Processing Techniques

Visico ME4425 / Ambicat LE4472 are suitable for most equipment designed for PVC/PE extrusion.

Extrusion

Typically the following process conditions are used:

Barrel 1	150 °C
Barrel 2	185 °C





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Barrel 3	185 °C
Barrel 4	185 °C
Die head	185 °C
Melt temperature	190 - 195 °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.

Example: Visico ME4425 / Ambicat LE4472 . Time to reach Hot Set elongation value of 100% at different insulation thickness.

Thickness	Time	
0,7 mm	1,5 Days	In air 23°C, 50 % humidity.
1,8 mm	7 Days	In air 23°C, 50 % humidity.
0,7 mm	< 15 min	90°C, Sauna or water bath.
1,8 mm	1 h	90°C, Sauna or water bath.

Packaging

Visico ME4425 - Base material
Package: Octabins
Ambicat LE4472 - Catalyst master batch
Package: Bags





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Storage

Visico ME4425 / Ambicat LE4472 is advised to be stored as follows: Visico ME4425 can be stored for 18 months and Ambicat LE4472 for 15 months after production, at 10-30 °C in unopened original packages, without significant deterioration in the quality of the material. Visico ME4425 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. Ambicat LE4472 is sensible 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. Addition of metal soaps and basic (high pH-) components, like some filler, stearates and UV-stabilisers, will deactivate the catalyst and is not suitable together with the Ambicat catalyst masterbatch. To prevent deactivation of the catalyst during colouring, special designed colour masterbatches are needed.

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 of the product. For more information, contact your Borealis representative.

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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