

Polyethylene
**Visico™ LE4421/LE4460/
LE4437**
Silane Crosslinkable Insulation Compound

Description

Visico LE4421/LE4460/LE4437 is a scorch retardant, moisture-crosslinking polyethylene compound for low voltage insulation

LE4421/LE4460/LE4437 is a natural, moisture-induced crosslinking polyethylene compound that is designed for use as low voltage wire insulation and jacketing. The combination of a **VISICO LE4421** base resin, along with the **LE4460** brominated flame retardant masterbatch and the **LE4437** catalyst, provides a highly scorch retardant compound with excellent thermal stability and good retardant flame properties. **LE4421/LE4460/LE4437** contains a patented scorch retardant additive (SRA) that increases the processing window for a moisture crosslinking compound and minimizes the tendency for premature crosslinking in the extruder, head or die.

A finished compound that is composed of 75 parts of **LE4421** mixed with 20 parts of **LE4460** and 5 parts of **LE4437** is recognized by Underwriters Laboratories as VISICO HORIZONTAL. VISICO HORIZONTAL is designed to reduce normal PE flame spread characteristics and achieve an HB-1 flame rating on 14 AWG wires and larger. **LE4437** also provides, in addition to catalyst, a stabilization package containing suitable antioxidants, a metal passivator and a metal deactivator. Properly mixed, during the extrusion process, **LE4421/LE4460/LE4437** exhibits excellent thermal stability to oxidation.

LE4421/LE4460/LE4437 is readily pigmented to a variety of colors using standard wire & cable color concentrates designed for thermoplastic or crosslinked polyethylene. UV weather resistance is obtained by the addition of a suitable carbon black or UV additive. Using Visico **LE4432** in place of **LE4437** combines a tin catalyst along with the proper carbon black to provide a black, UV resistant, moisture crosslinking cable insulation.

Applications

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

Specifications

EC 502
NBN C 33-321
NF C33-210
Underwriters Laboratories Standards 854 for types USE
and USE-2

ASTM D 2655
HD 603 S1
UL 44 SIS

Visico is a trademark of Borealis group.

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Physical Properties

Property	Typical Value	Test Method
Data should not be used for specification work		
Density (Base Resin)	923 kg/m ³	ASTM D 792
Density (Masterbatch)	2000 kg/m ³	ASTM D 792
Density (Catalyst)	941 kg/m ³	ASTM D 792
Melt Flow Rate (190 °C/2,16 kg) ¹	0,9 g/10min	ASTM D 1238
Tensile Strain at Break	300 %	ASTM D 412
Tensile Strength	16,5 MPa	ASTM D 412
Tensile Strength	2.350 psi	
Retention of Tensile Properties After Ageing (7 d, 121 °C)	>= 90 %	ASTM D 638
Hot Creep Test (150 °C, Elongation under load	< 50 %	ICEA T-28-562
0,20 MPa) Permanent deformation	<= 5 %	

¹ Base Resin

Electrical Properties

Property	Typical Value	Test Method
Data should not be used for specification work		
Dielectric constant (60 Hz)	2,5	ASTM D 150
DC Volume Resistivity	10 POhm.cm	ASTM D 257
Dielectric Strength	> 22 kV/mm	
Dissipation Factor (60 Hz)	0,0005	ASTM D 150

Combustion Properties

Property	Typical Value	Test Method
Data should not be used for specification work		
Horizontal Flame Test (14 AWG-30 mil)	Pass	

Processing Techniques

Following parameters should be used as guidelines:

LE4437 and **LE4460** are typically mixed with the **LE4421** base resin directly at the extruder hopper using a volumetric or gravimetric masterbatch feeder. Most equipment designed for PVC or PE extrusion is equally suitable for **LE4421/LE4460/LE4437**. 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 have parallel lands of length approximately twice that of the final cable diameter.

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Following parameters should be used as guidelines:

146 °C
163 °C
171 °C
171 °C
177 °C

Packaging

- Base material
- Package: Octabins
- Catalyst master batch
- Package: Smallbins
- FR master batch
- Package: Smallbins

Storage

Visico LE4421/LE4460/LE4437 has a shelf life of 12 months from delivery date if stored in unopened original packages, under dry and clean conditions at temperatures between 10 - 30 °C (50 - 85 °F).

More information on storage is found in our "Safety data sheet" / "Product safety information sheet".

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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