



Polyethylene  
**Visico**<sup>TM</sup>

# LE4421/LE4460/LE4432

Silane Crosslinkable Insulation Compound

## Description

**Visico LE4421/LE4460/LE4432** is a scorch retardant, moisture-crosslinking polyethylene compound for low voltage insulation

**LE4421/LE4460/LE4432** is a black, halogen-based flame retardant, moisture-induced crosslinking polyethylene compound that is designed for use as low voltage wire insulation and jacketing. The combination of **VISICO LE4421** base resin, along with the **LE4460** brominated flame retardant masterbatch and the **LE4432** tin catalyst masterbatch provides a highly scorch retardant compound with excellent thermal stability and good flame properties. **LE4421/LE4460/LE4432** 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 70 parts **LE4421** mixed with 20 parts of **LE4460** and 10 parts of **LE4432** 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. **LE4432** also provides, in addition to catalyst, a stabilization package containing suitable antioxidants, a metal deactivator and a 25% loading of fine particle size carbon black for UV weather resistance. Properly mixed, during the extrusion process, **LE4421/LE4460/LE4432** exhibits excellent thermal stability to oxidation. The final insulation or jacketing will also contain 2.5% of suitable carbon black to ensure satisfactory UV weathering stability.

## Application:

LE4421/LE4460/LE4432 is recommended for use as insulation for low voltage control cables and power cables up to 6 kv in rating.

## Specifications

ASTM D 2655  
 HD 603 S1  
 EC 502  
 NBN C 33-321  
 NF C32-090

Underwriters Laboratories Standards 854 for types USE and USE-2  
 Canadian Standards Association C22.2 No. 38 Cable Types RW-90 and RWU-90

## Physical Properties

Property	Typical Value	Test Method
	Data should not be used for specification work	
Density (Base Resin)	923 kg/m <sup>3</sup>	ASTM D 792
Density (Masterbatch)	2000 kg/m <sup>3</sup>	ASTM D 792
Density (Catalyst)	1050 kg/m <sup>3</sup>	ASTM D 792

Visico is a trademark of Borealis A/S, Denmark.

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Melt Flow Rate (190 °C/2,16 kg) <sup>1</sup>		0,9 g/10min	
Tensile Strain at Break		300 %	ASTM D 412
Tensile Strength		2,350 psi	ASTM D 412
Tensile Strength		16,5 MPa	ASTM D 412
Retention of Tensile Properties After Ageing (168 h, 121 °C)		>= 90 %	
Hot Creep Test (150 °C, > 0,20 MPa)	Elongation under load	< 50 %	ICEA T-28-562
	Permanent deformation	< 5 %	

<sup>1</sup> Base Resin

### Electrical Properties

Property	Typical Value	Test Method
Data should not be used for specification work		
Dielectric constant (60 Hz) <sup>1</sup>	2,5	ASTM D 150
DC Volume Resistivity	10 POhm.cm	ASTM D 257
Dielectric Strength	> 550 V/mil	ASTM D 149
Dielectric Strength	> 22 kV/mm	
Dissipation Factor (60 Hz)	0,0005	ASTM D 150

<sup>1</sup> 23 °C

### Combustion Properties

Property	Typical Value	Test Method
Data should not be used for specification work		
Horizontal Flame Test (14 AWG-30 mil)	Pass	UL 1581

### Processing Techniques

Following parameters should be used as guidelines:

**LE4432** 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/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 have parallel lands of length. Whichever type of tooling is used, however, the die should have parallel lands of a length approximaely twice that of the final cable diameter.

Typically the following process conditions are used:



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Barrel 1	295 °F 146 °C
Barrel 2	325 °F 163 °C
Barrel 3	340 °F 171 °C
Barrel 4	340 °F 171 °C
Die head	350 °F 177 °C

### Packaging

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

### Storage

**Visico LE4421/LE4460/LE4432** 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.**

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