

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 Laboratores as **VISICO HORIZONTAL**. **VISICO HORIZONATAL** 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**

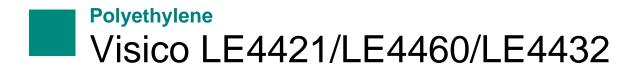
ASTM D 2655 HD 603 S1 EC 502 NBN C 33-321 NF C32-090 Underwriters Laboratories Standards 854 for types USE and USE-2 Canadaian Standards Association C22.2 No. 38 Cable Types RW-90 and RWU-90

# **Physical Properties**

Property	Typical Value Test Method  Data should not be used for specification work		
Density (Base Resin)	923 kg/m3	ASTM D 792	
Density (Masterbatch)	2000 kg/m3	ASTM D 792	
Density (Catalyst)	1050 kg/m3	ASTM D 792	







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

### **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	> 22 kV/mm		
Dissipation Factor (60 Hz)	0,0005	ASTM D 150	
<sup>1</sup> 23 °C			

# **Combustion Properties**

Property	Typical Value Data should not be used for	Test Method or 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.

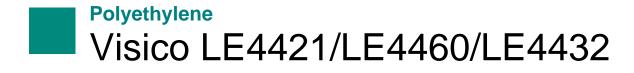
Typically the following process conditions are used:

146 °C 163 °C





<sup>&</sup>lt;sup>1</sup> Base Resin



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/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.

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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