Polyethylene

Visico™ LE4423/LE4460/ LE4437

Silane Crosslinkable Insulation Compound

Description

Visico LE4423/LE4460/LE4437

L**E4423/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 LE4423** 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. **LE4423/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 **LE4423** 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, **LE4423/LE4460/LE4437** exhibits excellent thermal stability to oxidation.

LE4423/LE4460/LE4437 is readily pigmented to a variety of colors using standard wire & cable color concentrates designed for thermoplastic or crosslinked polyethylene. UV wether 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.

APPLICATION:

LE4423/LE4460/LE4437 is recommended for use as insulation for low voltage control cables and power cables up to 6kv in rating.

Specifications

NF C33 209
ASTM D 2655
EC 502
NBN C 33-321
NF C33-210
HD 603 S1
Canadian Standards Association C22.2 No. 1790-00-Airport Series Lighting Cables and C22.2 No. 38 Cable Type RW-90 Outdoor

Borealis Compounds Inc | 176 Thomas Road | Port Murray, NJ 07865 | United States of America
Tel. +1 908 850 6200 | Fax +1 908 850 6268
22-2768116 | Court of New Jersey | Website www.borealisgroup.com

Polyethylene
Visico LE4423/LE4460/LE4437

Physical Properties

Property		Typical Value Data should not be used for specification work	Test Method
Density (Base Resin)		923 kg/m3	ASTM D 792
Density (Masterbatch)		2000 kg/m3	ASTM D 792
Density (Catalyst)		941 kg/m3	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		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 %	

[1] Base Resin

Electrical Properties

Property	Typical Value Data should not be used for specification work	Test Method
Dielectric constant (60 Hz)	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

Combustion Properties

Property	Typical Value Data should not be used for specification work	Test Method
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 LE4423 base resin directly and the extruder hopper using a volumetric or gravimetric masterbatch feeder. Most equipment designed for PVC or PE extrusion is equally suitable for **LE4423/LE4460/LE4437**. Typically the following process and 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 used, however, the die should have parallel lands of length approximately twice that of the final cable diameter.

Borealis Compounds Inc | 176 Thomas Road | Port Murray, NJ 07865 | United States of America
Tel. +1 908 850 6200 | Fax +1 908 850 6268
22-2768116 | Court of New Jersey | Website www.borealisgroup.com

Polyethylene
Visico LE4423/LE4460/LE4437

Typically the following process conditions are used:

Barrel 1	295 °F 146 °C
Barrel 2	310 °F 155 °C
Barrel 3	325 °F 163 °C
Barrel 4	340 °F 177 °C
Die head	350 °F 177 °C

Packaging

Visico LE4423 - Base material
Package: Octabins
LE4437 - Catalyst master batch
Package: Smallbins
LE4460 - FR master batch
Package: Smallbins

Storage

Visico LE4423/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.

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 Borealis' products in conjunction with other materials. The information contained herein relates exclusively to our products when not used in conjunction with any third party materials.

Borealis Compounds Inc | 176 Thomas Road | Port Murray, NJ 07865 | United States of America
Tel. +1 908 850 6200 | Fax +1 908 850 6268
22-2768116 | Court of New Jersey | Website www.borealisgroup.com