Polyethylene
HE1344

Compound for Cellular insulation of Communication cables

Description
HE1344

It is a fully formulated compound for chemical foamed data cable insulation. HE1344 is a high-density polyethylene compound containing chemical blowing agent.

Applications
HE1344 is intended for:

Foam or foam-skin insulation for telephone singles and data cable with typical expansion of 35-40%.

Dry core and petroleum jelly filled cables

Specifications
HE1344 meets the following material classification:

ISO 1872-PE, KEGHN, 45-D006 [1]

ASTM D1248 Type III, Class A, Category 4 [1]

[1] Refers to Base Resin

The following cable material standards are met by HE1344:

EN 50290-2-23

Cables manufactured with HE1344 using sound extrusion practice normally comply with the following cable product standards:

IEC 60708
IEC 61156

EN 50288
EN 50407

Special Features
HE1344 consists of specially selected components to offer:

Consistent cell structure
Excellent extrusion stability
Good surface finish

use in petroleum filled cables when extruded with relative low expansion (<40%)

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Physical Properties

Property	Typical Value Data should not be used for specification work	Test Method
Density (Base Resin)	943 kg/m³	ISO 1183-1, Method A
Density (Compound)	945 kg/m³	ISO 1183-1, Method A
Bulk density	500 - 600 kg/m³	
Tensile Strain at Break (50 mm/min)	600 %	ISO 527-2
Tensile Strength (50 mm/min)	23 MPa	ISO 527-2
Hardness, Shore D (1 s)	61	ISO 868

For information on the influence of petroleum jelly please refer to the article published on borealisgroup.com : "Impact of Petroleum Jelly on the Ageing of Telephone Wire", by going to the following link http://www.borealisgroup.com/pdf/literature/borealis/technical-article/1112Impact_of_Petroleum_Jelly_on_the_Ageing_of_Telephone_Wire_Final.pdf

Physical Properties of expanded (45 %) insulation

Property	Typical Value Data should not be used for specification work	Test Method
Tensile Strength (50 mm/min),	13 MPa	IEC 60811-501
Tensile Strain (50 mm/min),	500 %	IEC 60811-501
Oxidation Induction Time (200 °C),	50 min	IEC 60811-410
Resistance to Thermal Ageing (105 °C)	1.500 h	IEC 60811-408

Electrical Properties

Property	Typical Value Data should not be used for specification work	Test Method
Dielectric constant (1 MHz) [1]	2,33	IEC 60250
Dissipation Factor (1 MHz) [1]	0,0004	IEC 60250

[1] Measured on moulded plaques containing blowing agent but not expanded

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Processing Techniques

HE1344 can be processed over a wide range of conditions.

The adoption of correct processing conditions is important to obtain the optimum physical and electrical properties of the insulated wire. The melt temperature depends on the desired capacitance. The melt temperature should be kept within a close tolerance within +/- 1°C.

Conductor preheating is important for the insulation mechanical properties and to ensure good adhesion to the conductor. Heated water (up to 50°C) in the first cooling trough has been found beneficial to improve conductor adhesion.

Tooling

Pressure tooling is invariably required. The die diameter is a function of the level of expansion with a greater expansion requiring a smaller die. Typically die diameters 3 to 7% below the nominal insulation outer diameter are used.

Extrusion

Conductor preheating	110 - 120 °C
Adapter	195 °C
Barrel 1	155 °C
Barrel 2	170 °C
Barrel 3	185 °C
Barrel 4	195 °C
Die	195 °C
Melt temperature	195 - 200 °C

Please contact your local Borealis representative for specific assistance.

Packaging

Package: Bags
Octabins
Bulk

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Storage

HE1344 should be stored in dry conditions at temperatures below 50°C and protected from UV-light.

Safety

The product is not classified as dangerous and is 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, recovery and disposal 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.

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 any Borealis product in conjunction with any other products and/or materials. The information contained herein relates exclusively to our products when not used in conjunction with any other material unless as specifically provided for in the test methods stated above.

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