

## PRODUCT DATA SHEET

05.10.2016 Ed.4

**Polyethylene****Borstar® HE6068**

Natural Bimodal High Density Polyethylene Compound with Very Low Shrinkage for Submarine and Fibre Optical Cables

**Description**

**Borstar HE6068** is a natural, UV-stabilised, colourable, bimodal high density (HD) jacketing compound, which is produced with the Borealis proprietary Borstar bimodal process technology.

Borstar technology allows the manufacturing of polymers outside the traditional MFR and density range making it possible to optimize processability, reduce shrinkage and yet provide excellent physical toughness and environmental stress crack resistance (ESCR).

Borstar HE6068 contains a well dispersed UV-stabiliser in sufficient amount providing a measure of weathering resistance.

**Applications**

**Borstar HE6068** is designed for:

Submarine and fibre optical cables

Borstar HE6068 offers substantially reduced shrinkage which helps to maintain low signal attenuation for fibre optic communication cables and low jacket retraction for energy cables in combination with excellent mechanical and barrier properties. Borstar HE6068 offers a balance of properties giving advantages in manufacturing, installation and lifetime performance of communication and energy cables.

**Specifications**

**Borstar HE6068** meets the following material classification:

ISO 1872-PE, KHLN, 45 D-022

ASTM D 1248 Type III, Class A, Category 3, Grade E8, E9, J4

The following cable material standards are met by Borstar HE6068:

DMP 5, 7, 13, 16, 18

EN 50290-2-24

Cables manufactured with Borstar HE6068 using sound extrusion practice normally comply with the following cable product standards:

IEC 60502, Part 2, Type ST7  
IEC 60840, Type ST7  
HD 603 S1, DMP 6

DIN VDE 0818  
HD 620 S2, Part 1, table 4B, DMP 5, 13, 16, 18

**Special Features**

**Borstar HE6068** consists of specially selected components to offer:

Superior processability  
Excellent environmental stress cracking resistance (ESCR)

Excellent abrasion & scratch resistance  
Low water permeability

Borstar is a registered trademark of the Borealis group.

Borealis AG | Wagramer Strasse 17-19 | 1220 Vienna | Austria  
Telephone +43 1 224 00 0 | Fax +43 1 22 400 333  
FN 269858a | CCC Commercial Court of Vienna | Website [www.borealisgroup.com](http://www.borealisgroup.com)



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# **Polyethylene** **Borstar HE6068**

Good petroleum-jelly resistance  
Termite resistance  
Very good UV resistance

Very low shrinkage  
Excellent surface hardness

### Physical Properties

| Property                                                       | Typical Value         | Test Method          |
|----------------------------------------------------------------|-----------------------|----------------------|
| Data should not be used for specification work                 |                       |                      |
| Density                                                        | 944 kg/m <sup>3</sup> | ISO 1183-1, Method A |
| Melt Flow Rate (190 °C/2,16 kg)                                | 1,7 g/10min           | ISO 1133-1, Method A |
| Flexural Modulus                                               | 850 MPa               | ISO 178              |
| Tensile Strain at Break (50 mm/min)                            | 900 %                 | ISO 527-2            |
| Tensile Strength (50 mm/min)                                   | 31 MPa                | ISO 527-2            |
| Brittleness temperature                                        | < -76 °C              | ASTM D 746           |
| Environmental Stress Crack Resistance (50 °C, Igepal 10 %, F0) | > 5.000 h             | IEC 60811-406        |
| Hardness, Shore D (1 s)                                        | 61                    | ISO 868              |
| Pressure Test at High Temperature (115 °C, 6 h)                | < 10 %                | IEC 60811-508        |

### Electrical Properties

| Property                                       | Typical Value | Test Method |
|------------------------------------------------|---------------|-------------|
| Data should not be used for specification work |               |             |
| DC Volume Resistivity                          | 10 PΩcm       | IEC 60093   |
| Dielectric Strength                            | 70 kV/mm      | IEC 60243   |

### Processing Techniques

Borstar HE6068 provides excellent surface finish and allows a broad processing window. For extrusion standard PE-screws are recommended, but also screws designed for PVC can be used with good result.

To minimise shrink back gradient cooling with hot water, typically 50°C in the first part of the cooling trough may be found beneficial.

#### Tooling

Tube-on tooling is normally used. Typically a draw down ratio of 3-4 has been found satisfactory.

#### Extrusion

|                  |              |
|------------------|--------------|
| Barrel           | 140 - 180 °C |
| Die head         | 180 °C       |
| Melt temperature | 180 - 200 °C |

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 **Polyethylene**  
**Borstar HE6068****Packaging**

Package: Bulk  
Octabins  
Bags

**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 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.

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**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.**

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