# PRODUCT DATA SHEET

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## Polyethylene

# Borstar® HE6068

### High Density Polyethylene Compound for Cable Jacketing

## 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.

## Typical characteristics

Borstar HE6068 can be described with following typical characteristics:

- Superior processability
- Excellent environmental stress cracking resistance (ESCR)
- Good petroleum-jelly resistance
- Termite resistance
- Very good UV resistance
- Excellent abrasion & scratch resistance
- Low water permeability
- Very low shrinkage
- Excellent surface hardness

## Applications

Borstar® HE6068 is intended for following applications:

Jackets for energy and communication cables

Borstar HE6068 is designed for submarine and fiber optical cables.

Borstar HE6068 offers substantially reduced shrinkage which helps to maintain low signal attenuation for fiber 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 is expected to meet the applicable requirements included in the below mentioned standards provided it is processed using sound material handling and processing practices as well as appropriate testing procedures.

- DIN VDE 0818
- EN 50290-2-24
- HD 603 S1 DMP 6
- HD 620 S2 Part 1, table 4B, DMP 5, 13, 16, 18
- IEC 60502 Part 2, Type ST7
- IEC 60840 Type ST7

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## Physical properties

| Property | Typical value * | Unit | Test method |
|---|---|---|---|
| Density | 944 | kg/m³ | ISO 1183-1 |
| Melt flow rate （190 °C/2.16 kg) | 1.7 | g/10min | ISO 1133-1 |
| Flexural modulus | 850 | MPa | ISO 178 |
| Tensile strain at break （50 mm/min) | > 700 | % | ISO 527-2 |
| Tensile strength （50 mm/min) | > 25 | MPa | ISO 527-2 |
| Low temperature brittleness [1] | 0 | pieces | ASTM D746 |
| Environmental stress crack resistance （50°C, Igepal 10%, F0) | > 5000 | h | IEC 60811-406 |
| Shore-D 1s | 61 | - | ISO 868 |
| Pressure test at high temperature （115 °C, 6h) | < 10 | % | IEC 60811-508 |

* Data should not be used for specification work

[1] *F0 at -76ºC.*

## Electrical properties

| Property | Typical value * | Unit | Test method |
|---|---|---|---|
| DC volume resistivity | >10 | PΩcm | IEC 62631-3 |
| Dielectrical strength | > 20 | kV/mm | IEC 60243 |

* Data should not be used for specification work

## 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 minimize 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.

In order to fully utilize the unique low shrink properties of Borstar HE6068 we recommend the use of non-warping color masterbatches.

| Processing setting | Typical value/range |
|---|---|
| Barrel | 140 - 180 °C |
| Die head temperature | 180 °C |
| Melt temperature | 180 - 200 °C |

Please contact your local Borealis representative for specific assistance.

## Packaging and storage

Package: Bulk, Octabins, Bags

Borstar HE6068 has a shelf life of 24 months from production date if stored in unopened original packages, under dry and clean conditions at temperatures between 10 - 30 °C (50 - 85 °F). Material shelf life is affected by the storage conditions and extreme conditions influence the general material quality and performance. It is also recommended to ensure proper stock rotation by First In – First Out principle.

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## Product compliance documents

Latest versions of product safety information sheets (PSIS), product safety data sheets (SDS) and other product liability documents are available in our website www.borealisgroup.com.

## Sustainability aspects

Borealis is ever mindful of the impact of our products on the planet. We promote Design for Circularity (DfC) and Design for Recycling (DfR) to conserve natural resources and to reduce the environmental impact of products over their entire lifetime (including production, use phase and after phase). DfR helps ensure that material can be effectively recycled while maximizing the material performance efficiency. Further information on sustainability and Design for Recycling (DfR) can be found from our websites www.borealisgroup.com and www.borealiseverminds.com.

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