# PRODUCT DATA SHEET

02.11.2023 Ed.4

## Polyethylene

# HE4872

### Compound for Cellular insulation of Communication Cables

## Description

HE4872 is an HDPE compound for solid insulation of symmetric data cable at high extrusion speed. HE4872 has superior conductor adhesion properties.

## Typical characteristics

HE4872 can be described with following typical characteristics:

Good conductor adhesion
Very good flow behaviour
Low die head pressure
Excellent surface finish
High output

## Applications

HE4872 is intended for following applications:

High frequency data transmission cables
Outer skin of foam-skin constructions

If using HE4872 as telephone single insulation, especially in petroleum jelly filled cables, addition of extra stabilization may be needed to ensure long-term heat stability.

## Specifications

HE4872 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.

ASTM D1248 Type III, Class A, Category 4, Grade E8, E9
EN 50290-2-33

Cables manufactured with HE4872 using sound extrusion practice normally comply with the following cable product standards:
IEC 61156
EN 50288

## Physical properties

| Property | Typical value * | Unit | Test method |
|---|---|---|---|
| Density | 945 | kg/m³ | ISO 1183-1/Method A |
| Melt flow rate (190 °C/2.16 kg) [1] | 0.7 | g/10min | ISO 1133-1 |
| Tensile strain at break (25 mm/min) | 900 | % | ISO527-2 |
| Tensile strength (25 mm/min) | 20 | MPa | ISO527-2 |
| Oxidation induction time (200 °C) | > 60 | min | ISO 11357-6 |
| Brittleness temperature | < -75 | °C | ASTM D746 |
| Environmental stress crack resistance (50°C, Igepal 10%, F20) | > 80 | h | IEC 60811-406 |
| Hardness, Shore D [2] | 58 | - | ISO 868 |

* Data should not be used for specification work

[1] *Method B*
[2] *1 s*

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## Electrical properties

| Property | Typical value * | Unit | Test method |
|---|---|---|---|
| Dielectric constant (1 MHz) | 2.33 | - | IEC 60250 |
| DC Volume resistivity | 10 | PΩm | IEC 60093 |
| Dissipation factor (1 MHz) | 0.00007 | - | IEC 60250 |

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## Processing techniques

HE4872 can be processed using a wide range of process conditions at very high line speeds (typically up to 2400 m/min). For normal extrusion equipment and applications, we suggest a melt and conductor preheating temperatures as outlined below. 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. Typically "on size" die diameters are used.

| Processing setting | Typical value/range |
|---|---|
| Barrel temperature | 165 - 210 °C |
| Die head temperature | 220 °C |
| Melt temperature | 220 - 230 °C |
| Conductor preheating temperature | 110 - 110 °C |

Please contact your local Borealis representative for specific assistance.

## Packaging and storage

Package: Bulk, Octabins, Bags

HE4872 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.

## 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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