PRODUCT DATA SHEET

POLYETHYLENE
BorSafe™ HE3490-LS-H

BLACK HIGH DENSITY BIMODAL PE100 POLYETHYLENE FOR PRESSURE PIPE

DESCRIPTION

BorSafe™ HE3490-LS-H is a black, bimodal, high density polyethylene classified as a MRS 10.0 material (PE100) produced using the advanced Borstar® technology. The compound contains well dispersed carbon black giving outstanding UV resistance and an optimized stabilization package ensuring long term stability.

APPLICATIONS

BorSafe™ HE3490-LS-H is recommended for pressure pipe systems used in drinking water and natural gas, pressure sewerage, relining, sea outfall and industrial applications, especially where they are to be installed in challenging conditions. It is especially designed for the production of larger diameter, thick wall pipe, but can be processed for the whole range of diameters.

SPECIAL FEATURES

BorSafe™ HE3490-LS-H is a high density hexene copolymer compound with an outstanding resistance to slow crack growth.

PHYSICAL PROPERTIES

Property	Typical Value*	Test Method
Density (Compound)	960kg/m^3	ISO 1183
Melt Flow Rate (190°C/5.0kg)	0.25g/10min	ISO 1133
Tensile Modulus (1mm/min)	1100MPa	ISO 527
Tensile Strain at Break (50mm/min)	>600%	ISO 527-2
Tensile Stress at Yield (50mm/min)	25MPa	ISO 527-2
Carbon Black Content	≥2%	ISO 6964
Carbon Black Dispersion	≤3	ISO 18553
Oxidation Induction Time (210°C)	≥20mins	ISO 11357-6
Resistance to Rapid Crack Propagation, S4 test+	>10bar	ISO 13477
Resistance to Slow Crack Growth (9.2bar, 80°C)	>5000hrs	ISO 13479

+Pc at 0°C, test pipe 250mm SDR11
*Data should not be used for specification work

PROCESSING GUIDELINES

Pre-drying

Due to the hygroscopic nature of carbon black, this compound is sensitive to moisture. Storage for a long time or under unfavorable conditions will increase the moisture content. For normal conditions and applications we suggest preheating and drying for minimum 1 hour with a maximum preheat temperature of 90°C.

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Extrusion
The actual extrusion conditions will depend on the type of equipment used. They will also depend on size and wall thickness of the pipe produced. The following conditions may be used as a guide when starting up the extruder:

Cylinder	190 – 210°C
Head	200 – 210°C
Die	200 – 210°C
Melt temperature	200 – 220°C

Specific recommendations for processing conditions can be determined only when the application and type of equipment are known. Please contact your local Borouge representative for such particulars.

STORAGE

BorSafe™ HE3490-LS-H should be stored in dry conditions at temperatures below 50°C and protected from UV-light. Improper storage can initiate degradation, which results in odor generation and can have negative effects on the physical properties of the product.
Expected shelf life at proper storage conditions is 2 years from the date of production.
More information on storage can be found in Safety Information Sheet (SIS) for this product.

SAFETY

The product is not classified as a hazardous preparation.

Dust and fines from the product carry a risk of dust explosion. All equipment should be properly earthed. Inhalation of dust should be avoided as it may cause irritation of the respiratory system. Small amounts of fumes are generated during processing of the product. Proper ventilation is therefore required.

Please see our Safety Information Sheet (SIS) for details on various aspects of safety, recovery and disposal of the product, for more information contact your Borouge representative.

RECYCLING

The product is suitable for recycling using modern methods of shredding and cleaning. In-house production waste should be kept clean to facilitate direct recycling.

RELATED DOCUMENTS

The following related documents are available on request, and represent various aspects on the usability, safety, recovery and disposal of the product.

Recovery and disposal of Polyolefin
Information on Emissions from Processing and Fires
Safety Information Sheet, SIS
Liability statements on:
- Compliance to Food Contact Regulations
- Compliance to Regulations for Drinking Water Pipes
- Heavy Metals

STANDARDS

Borouge is certified to various ISO standards, please refer to Borouge.com for more information.

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.

Borouge 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 Borouge 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.

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