Polyethylene
Borcoat™ HE3450

Description
Borcoat HE3450 is a bimodal, high density polyethylene compound and is coloured black

Borcoat HE3450 contains finely dispersed carbon black that helps to impart excellent weathering properties.

Applications
Borcoat HE3450 is recommended as a top coat for a three layer PE system used in:

Steel Pipe Coating

Borcoat HE3450 is produced using advanced Borstar® technology that provides the material with good melt strength and extrudability, as well as superior mechanical properties at both low and high design temperatures and very good ESCR.

Specifications
Borcoat HE3450 is intended to fulfill following National and International standards, when appropriate industrial manufacturing standard procedures are applied and a continuous quality system is implemented and when used in combination with Borcoat™ ME0420 or Borcoat™ ME0433 and a compatible powder epoxy.

CAN/CSA-Z245.21
DIN 30670
ISO 21809-1
Gazprom 2-2.3-130-2007
NF A49-710

Special features
Borcoat HE3450 is suitable for severe lay conditions at low or elevated ambient temperatures. High processing speeds and a reduction in layer thickness may be possible under certain conditions. Borcoat HE3450 is intended for design temperature from -45 to +80 °C.

Physical Properties

Property	Typical Value Data should not be used for specification work	Test Method
Density (Base Resin)	939 kg/m³	ISO 1183-1 Method A
Density (Compound)	950 kg/m³	ISO 1183-1 Method A
Melt Flow Rate (190 °C/2,16 kg)	0,5 g/10min	ISO 1133
Melt Flow Rate (190 °C/5,0 kg)	2,0 g/10min	ISO 1133
Tensile Strain at Break	> 600 %	ISO 527
Tensile Stress at Yield	> 15 MPa	ISO 527
Tensile Stress at Break	> 26 MPa	ISO 527
Carbon black content	2,2 %	ISO 6964
Melting temperature	128 °C	ISO 11357-3
Oxidation Induction Time (210 °C),	> 30 min	ISO 11357-6
Vicat softening temperature A50, (10 N)	115 °C	ISO 306

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

BOREALIS

Polyethylene
Borcoat HE3450

Brittleness temperature	< -80 °C	ASTM D 746
Environmental Stress Crack Resistance (50 °C, Igepal 10 %, F0)	5.000 h	ASTM D 1693 Cond A and B
Hardness, Shore D (15 s)	58	ISO 868
Moisture	< 500 ppm	ISO 15512

Electrical Properties

Property	Typical Value Data should not be used for specification work	Test Method
Volume Resistivity	2,7 · 10^{14} Ωcm	ASTM D 257

Application Related and other Tests

Property	Typical Value Data should not be used for specification work	Test Method
UV and thermal ageing (ΔMFR)	<= 35 %	ISO 21809-1
Coating Resistivity	> 1,5 · 10^{10} Ωm²	DIN 30670/NFA 49-710

Processing Techniques

Due to hygroscopic behaviour of carbon black and such a compound will be sensitive to moisture. Even as low moisture as 0.04% can give the pipe a bad surface. Despite the fact that the type of the carbon black used in **Borcoat HE3450** is of less sensitive type, storage for a long time or under unfavourable conditions can increase the moisture content. We therefore recommend drying before extrusion.

Extrusion

Borcoat HE3450 can be applied by flat die or crosshead extrusion.The actual extrusion conditions will depend on the type of equipment used.The following conditions may be used as a guide when starting up the extruder.

Cylinder	190 - 210 °C	
Head	190 - 210 °C	
Die	190 - 210 °C	
Melt temperature range	220 - 240 °C	
Melt temperature	< 260 °C	Maximum

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

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

Polyethylene

Borcoat HE3450

Storage

Borcoat HE3450 shall be stored indoors below 50ºC in unopened original packaging in clean and dry environment. It is recommended to ensure proper stock rotation by using first in – first out principle. Following afore-mentioned conditions the material can safely be stored for a period of up to 2 years after production. However, caution shall be taken regarding the moisture level. It is recommended to measure the moisture after longer storage periods prior to processing.

Safety

The product is not classified as dangerous.

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.

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.

Related Documents

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

Recovery and disposal of polyolefins
Information on emissions from processing and fires
"Safety data sheet" / "Product safety information sheet"

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

Polyethylene
Borcoat HE3450

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.

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