



SHAPING THE FUTURE WITH PLASTICS

POLYETHYLENE Borcoat™ HE3450

BLACK HIGH DENSITY POLYETHYLENE FOR STEEL PIPE COATING

DESCRIPTION

Borcoat™ HE3450 is a black, high density polyethylene produced with the advanced Borstar technology, providing the material with especially good melt strength and extrudability. Also its mechanical and heat deformation properties as well as ESCR resistance are very good. It contains very well dispersed, fine particle sized carbon black in order to ensure excellent weathering resistance.

Borcoat™ HE3450 fulfils the requirements in NFA 49710, DIN 30670S, CAN/CSA-Z245.21-M98 and prEN 10285 when used in combination with the grafted adhesives ME0420 or ME0430 and a compatible powder epoxy and applied under sound processing conditions.

APPLICATIONS

Borcoat™ HE3450 is recommended for top-coat in steel pipe coating and is suitable for severe laying conditions even at elevated ambient temperatures. With this material, high running speeds and relatively thin layers are obtained without problems. **Borcoat™ HE3450** can be used up to 85°C service temperature of the pipeline when combined with the grafted adhesives ME0420 or ME0430.

PHYSICAL PROPERTIES

		Typical Value*	Unit	Test Method
Density	(Base resin)	942	kg/m ³	ISO 1183/ISO 1872-2B
Density	(Compound)	952	kg/m ³	ISO 1183/ISO 1872-2B
Melt Flow Rate	(190°C/2.16 kg)	0.5	g/10 min	ISO 1133
Melt Flow Rate	(190°C/5.0 kg)	2.0	g/10 min	ISO 1133
Tensile Stress		>26	MPa	ASTM D 638
Tensile Strength at Break		>600	%	ASTM D 638
Hardness, Shore D		60	-	ASTM D 2240
Vicat Softening Temperature	A50 (10 N)	120	°C	ISO 306
Carbon Black content		≥2	%	ASTM D 1603
Brittleness Temperature		<-82	°C	ASTM D 746
ESCR	(10% Igepal), F ₂₀	>5000	h	IEC 811-4-1/B, ASTM D 1693-A
DC Volume Resistivity		10 ¹⁶	Ω cm	ASTM D 257
Dielectric Strength		>30	kV/mm	IEC 243
Melting Temperature	(DSC)	128	°C	ISO 3146

- Data should not be used for specification work.

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PROCESSING GUIDELINES

Borcoat™ HE3450 can be applied either by using flat die or crosshead technique and provides good surface finish over a broad range of conditions. The actual extrusion conditions will depend on the type of equipment used and the size of the pipe. 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	220 – 240°C
Max recommended melt temperature	<260°C

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.

For normal extrusion conditions and applications we suggest preheating and drying with a maximum preheating temperature of 90°C.

Specific recommendations for processing can be determined only when comprehensive knowledge is available on epoxy and adhesive materials used and type of equipment. Please contact your local Borouge representative for such particulars.

STORAGE AND HANDLING

Borcoat™ HE3450 should be stored in dry conditions at temperatures below 50°C and protected from UV-light.

IMPROPER STORAGE CAN INITIATE DEGRADATION, WHICH RESULTS IN ODOUR GENERATION AND COLOUR CHANGES AND CAN HAVE NEGATIVE EFFECTS ON THE PHYSICAL PROPERTIES OF THE PRODUCT.

Shelf life at proper storage is at least 2 years from production date, but in case of a long storage time potential moisture pick-up needs to be eliminated by drying before extrusion.

SAFETY

Borcoat™ HE3450 is not classified as dangerous 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.



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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.