PRODUCT DATA SHEET

01.09.2022 Ed.8

Polyethylene

Borcoat™ HE3453

High Density Polyethylene for Steel Pipe Coating

Description

Borcoat HE3453 is a bimodal, high density polyethylene material. The product is non pigmented (not coloured) and supplied in pellet form for processing via extrusion.

Borcoat HE3453 contains stabilizers that contribute to long-term stability against thermal and UV ageing. These properties are also influenced by the addition of a colour masterbatch which the coating applicator adds to give the final coating the colour acc to the project needs.

Applications

Steel pipe coating

Borcoat HE3453 is intended to be used as top-coat material in three-layer-PE based anti-corrosion coatings for steel pipes covering a design temperature range from -40°C to +80°C.

Borcoat HE3453 is intended to fulfill below mentioned national and international standards and specifications, when appropriate industrial manufacturing standard procedures are applied, a continuous quality system is implemented and when used in combination with a compatible Fusion Bonded Epoxy (FBE) and adhesive materials such as Borcoat ME0420 or Borcoat ME0433.

Specifications

Borcoat HE3453 and/or articles produced from it, are 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.

CAN/CSA-Z245.21
DIN 30670
DNVGL-RP-F106
EN ISO 21809-1
NF A49-710

Physical properties

Property	Typical value *	Unit	Test method
Density	940	kg/m³	ISO 1183-1/Method A
Melt flow rate (190 °C/2.16 kg)	0.5	g/10min	ISO 1133-1
Melt flow rate (190 °C/5 kg)	2.0	g/10min	ISO 1133-1
Moisture content [1]	≤ 500	ppm	ISO 15512
Melting temperature [2]	128	°C	ISO 11357-3
Oxidation induction time (210 °C)	≥ 30	min	ISO 11357-6
Tensile stress at yield (50 mm/min) (23°C)	≥ 15	MPa	ISO 527-2
Tensile stress at break (50 mm/min) (23°C)	≥ 26	MPa	ISO 527-2
Tensile strain at break (50mm/min) (23°C)	≥ 600	%	ISO 527-2
Hardness, Shore D [3]	60	-	ISO 868
Vicat softening temperature A50 (10 N)	115	°C	ISO 306
Brittleness temperature	≤ -80	°C	ASTM D746
Environmental stress crack resistance (50°C, Igepal 10%, F0)	≥ 5000	h	ASTM D1693
UV and thermal ageing (ΔMFR) [4]	≤ 35	%	ISO 21809-1

* Data should not be used for specification work

[1] *Karl Fischer-titration*
[2] *DSC*
[3] *Measured at 1 s*
[4] *Annex G. UV ageing tested on HE3453 specimens with colour masterbatch added.*

Borcoat™ is a trademark of the Borealis Group

Polyethylene

Borcoat™ HE3453

Processing techniques

Borcoat HE3453 can be applied by flat die or crosshead extrusion. The actual extrusion conditions will depend on the type of equipment used.

Processing setting	Typical value/range
Cylinder temperature	190 -210 °C
Head temperature	190 -210 °C
Die temperature	190 - 210 °C
Melt temperature	220 - 240 °C
Maximum melt temperature	< 260 °C

The actual conditions will depend on the type of equipment used. 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.

Packaging and storage

Borcoat HE3453 is supplied in 25 kg bags on 1375 kg pallets or in bulk.

Borcoat HE3453 shall be stored indoors below 50°C 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 be stored for a period of up to 36 months 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.

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.

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 | Trabrennstrasse 6-8 | A-1020 Vienna | Austria
Telephone: +43 1 22 400 0* | Fax: +43 1 22 400 333
Website www.borealisgroup.com

Borcoat™ is a trademark of the Borealis Group