

## Solutions for

# Healthcare Applications

### Bormed delivers “peace of mind” to our customers!

Besides the superior technical performance, the Bormed product range meets the challenging service requirements of the healthcare industry. Bormed offers stability, reliability, traceability, consistency and continuity.

 <h4>DEDICATED MATERIALS</h4> <ul style="list-style-type: none"> <li>• Broad grade range</li> <li>• Regulatory compliance [EP and USP]</li> <li>• US DMF registered</li> <li>• Special production and quality control [QC] precautions to provide superior product consistency, high quality and purity</li> </ul>	 <h4>ADDITIONAL SUPPORT</h4> <ul style="list-style-type: none"> <li>• Regular updates [EP and USP compliance]</li> <li>• Regular updates DMF files</li> <li>• Long-term traceability [QC data and retained sample]</li> <li>• Extended technical support</li> <li>• Extensive application experience</li> </ul>
 <h4>SECURITY OF SUPPLY</h4> <ul style="list-style-type: none"> <li>• Long-term commitment</li> <li>• Prenotification before deletion or modification</li> <li>• Prioritisation in planning</li> <li>• Higher stock levels</li> <li>• Global supply</li> </ul>	 <h4>INNOVATION</h4> <ul style="list-style-type: none"> <li>• Solutions provider</li> <li>• Strong company commitment</li> <li>• Pilot capabilities</li> <li>• Use of the latest proprietary technologies</li> <li>• Partnership with value chain</li> </ul>



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### Borealis and Borouge – leading, innovative plastics providers

**Borealis and Borouge** are leading providers of innovative, value creating plastics solutions. With more than 40 years of experience in polyolefins and using our unique Borstar® technology, we focus on the infrastructure, automotive and advanced packaging markets across Europe, the Middle East and Asia. Our production facilities, innovation centres and service centres work with customers in more than 170 countries to provide materials that make an essential contribution to society and sustainable development. We are committed to the principles of Responsible Care® and to leading the way in ‘Shaping the Future with Plastics’™.

Borealis is owned 64% by the International Petroleum Investment Company (IPIC) of Abu Dhabi and 36% by OMV, Central Europe’s leading oil and natural gas group. With EUR 6.6 billion revenue in sales in 2008 and 5,400 employees, the company is headquartered

in Vienna and has manufacturing operations in Austria, Belgium, Finland, Germany and Sweden. It also has special, compounding units in Brazil, Italy and the United States. The company’s main products are polyolefins and base chemicals. Polyolefins are the collective name for polyethylene and polypropylene. Base chemicals comprise feedstocks and olefins, phenol and aromatics as well as melamine and plant nutrients.

Borouge is a joint venture established in 1998 between Borealis and the Abu Dhabi National Oil Company (ADNOC), one of the world’s leading oil companies. Headquartered in Abu Dhabi, the United Arab Emirates, its state-of-the-art, world-scale petrochemical complex is located at Ruwais, where it is currently implementing a multi-billion-dollar expansion. The project, called Borouge 2, is due for completion in 2010 and will triple the company’s polyolefin production capacity.

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# Solutions for Healthcare Applications



## Bormed grade range for moulding applications

PP	Product name	Typical basic properties						Best suited for Properties/Applications	Regulatory status		
		MFR 230°C/2.16 kg [g/10 min] ISO 1133	Tensile Modulus 1 mm/min [MPa] ISO 527-2	Charpy impact strength, notched 23°C [kJ/m²] ISO 179/1eA	Rockwell hardness ISO 2039-2	HDT [°C] ISO 75-2	Melting point [°C] DSC		European Pharmacopeia	USP tested/ DMF nr.	Tested according ISO 10993
PP HOMOPOLYMERS	Bormed™ HD810MO	10.0	1,100	4.5	94	90	164	Medium flow – good transparency – radiation resistant up to 25 kGy – nucleated/syringes – needle hubs – catheters	3.2.2	USP class VI/9040	Y
	Bormed™ HD850MO	8.0	1,800	5.5	105	112	162	Medium flow – high HDT – high rigidity – improved transparency – BNT nucleation/closures – packaging – medical devices	3.2.2/3.1.3/3.1.6	USP class VI/17929	Y
	Bormed™ HF840MO	19.0	1,250	3.5	93	85	160	Good flow – low COF – slip agent/syringes – catheters – closures	3.2.2/3.1.3/3.1.6	USP class VI/9040	Y
PP BLOCK COPOLYMER	Bormed™ BE860MO	13.0	1,250	8.0	86	85	164	Medium flow – very good impact even at negative temperatures/closures – packaging – medical devices	3.2.2/3.1.3/3.1.6	USP class VI/17930	Y
PP RANDOM COPOLYMERS	Bormed™ RB845MO	1.9	1,000	7.0	83	83	150	Very high top load, not sensitive to ESCR. Steam sterilisable at 121°C during 20 mn. Can be used on conventional extrusion lines adapted for PP/ampoules and bottles up to 2 l.	3.2.2/3.1.3/3.1.6	USP class VI/17931	N
	Bormed™ RF825MO	20.0	1,150	6.0	90	80	150	Good flow – excellent transparency – suitable for optical reading – nucleated/syringes – catheters – diagnostics packaging	3.2.2	USP class VI/12123	Y
	Bormed™ RF830MO	20.0	1,150	6.0	90	80	150	Good flow – excellent transparency – radiation resistant up to 25 kGy – nucleated/syringes – catheters – blood collection systems	3.2.2	USP class VI/12123	Y
	Bormed™ RG835MO	30.0	1,200	6.0	90	82	150	Excellent flow properties – excellent transparency – low COF – nucleated – slip agent/syringes – closures	3.2.2	USP class VI/12123	Y

  

PE	Product name	Typical basic properties						Key properties	Regulatory status		
		MFR 190°C 2.16 kg [g/10 min] ISO 1133	Tensile Modulus 1 mm/min [MPa] ISO 527-2	Density [kg/m³] ISO 1183	Hardness, Shore D ISO 868	HDT [°C] ISO 75-2	Melting point [°C] DSC		European Pharmacopeia	USP tested/ DMF nr.	Tested according ISO 10993
HDPE	Bormed™ HE2581-PH	0.3	1,300	958	65	80	131	Excellent processability, very high top load, low swell. Very high ESCR. Can be used on conventional extrusion lines & for IBM/Bottles & containers up to 10 l.	3.2.2/3.1.3/3.1.5	USP class VI/18041	N
	Bormed™ HE7541-PH	4.0	850	954	61	65	129	Excellent processability – high ESCR/Closures – Packaging – Medical devices/Closures – Packaging – Medical devices	3.2.2/3.1.3/3.1.5	USP class VI/18351	Y
	Bormed™ HE9621-PH	12.0	1,150	962	62	73	133	Good flow and processability – Good rigidity/Syringe plungers – Closures – Packaging – Medical devices	3.2.2/3.1.3/3.1.5	USP class VI/18040	Y
LDPE	Bormed™ LE6607-PH	0.3	300	927	52	51	114	Pharmaceutical packaging for Intravenous solutions and medicines. Suitable for BFS machines and conventional extrusion lines. Sterilisable <110°C/Ampoules and bottles (up to 1l).	3.2.2/3.1.3/3.1.4	USP class VI/8124	N
	Bormed™ LE6609-PH	0.3	350	930	53	54	117	Pharmaceutical packaging for Intravenous solutions and medicines. Suitable for BFS machines and conventional extrusion lines. Sterilisable >110°C/Ampoules and bottles (up to 1l).	3.2.2/3.1.3/3.1.4	USP class VI/17927	N

## Bormed grade range for film applications

PP	Product name	Typical basic properties						Typical film properties <sup>(1)</sup>			Regulatory status	
		MFR 230°C/2.16kg [g/10 min] ISO 1133	Density [kg/m³] ISO 1183	Flexural Modulus [MPa] ISO 178	Melting point [°C] DSC	Vicat A [°C] ISO 306	Gloss 20° [-] ASTM D2457	Haze [%] ASTM D1003	Tensile Mod. MD/TD [MPa] ISO 527-3	European Pharmacopoeia	USP tested/ DMF nr.	
PP HOMOPOLYMERS	Bormed™ HD800CF	8.0	905	1,450	164	154	> 130	< 2.0	800/800	3.1.3/3.1.6/3.2.2.	up/20240	
	Bormed™ DM55pharm	2.8	905	1,300	164	154	> 90 <sup>(4)</sup>	< 30 <sup>(4)</sup>	1100/1050 <sup>(4)</sup>	3.1.3/3.1.6/3.2.2.	USP class VI/9146	
PP RANDOM COPOLYMERS	Bormed™ RB801CF	1.9	905	750	140	128	> 150	< 1.0	400/400	3.1.3/3.1.6/3.2.2.	USP class VI/16484	
	Bormed™ RD804CF	8.0	905	1,000	151	139	> 130	< 2.0	550/550	3.1.3/3.1.6/3.2.2.	USP class VI/up	
	Bormed™ RD808CF	8.0	905	700	140	125	> 150	< 1.0	400/400	3.1.3/3.1.6/3.2.2.	USP class VI/20244	
	Bormed™ RE806CF	12.0	905	900	143	130	> 150	< 0.5	500/500	3.1.3/3.1.6/3.2.2.	USP class VI/up	
PP TERPOLYMER	Bormed™ TD109CF	6.0	905	700	131	114	> 135	< 1.5	850/650	3.1.3/3.2.2.	USP class VI/up	
PP RANDOM-HETEROPHASIC COPOLYMER/ SOFT PP	Bormed™ SC820CF	4.0	905	550	142	120	> 120	< 1.0	330/330	3.1.3/3.1.6/3.2.2.	USP class VI/20243	
PE												
BORSTAR® LINEAR LOW DENSITY PE	Bormed™ FB8230	0.9 <sup>(2)</sup>	923	365	124	101	< 10 <sup>(3)</sup>	70 <sup>(3)</sup>	350/300 <sup>(3)</sup>	3.1.3/3.1.5/3.2.2.	USP class VI/16219	
PO												
PO SPECIALITIES	Steri Peel™ WD170CF	6.5	910	800	151	105	n.a.	< 25	n.a.	3.1.3/3.2.2.	USP class VI/20242	
	Steri Peel™ WE150CF	12.5	925	1,000	151	105	n.a.	< 10	n.a.	3.1.3/3.2.2.	up/up	

(1) Measured on 50 µm thick monolayer cast films produced acc. to internal standard. (2) MFR 190/5 [g/10 min]. (3) Measured on 40 µm thick monolayer blown films produced acc. to internal standard (BUR 1:3). (4) measured on 300 µm monolayer cast films. up = under preparation.

## Bormed products: dedicated polyolefins for healthcare applications

To meet the challenging needs of the healthcare market, Borealis offers a long term committed and dedicated grade range of Bormed™ polyolefins. Bormed includes both polyethylene and polypropylene grades for moulding and film applications, ensuring a consistent approach to the medical and healthcare market, independent of conversion technology or polymer type.

The broad Bormed grade range meets the technical requirements of a wide variety of end-uses including:

- Packaging of parenteral, ophthalmic and enteral solutions
- Medical devices
- Pharmaceutical and diagnostic products

### For more information please contact:

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