

Solutions for

# PO blown film applications



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

**Borealis and Borouge** are a leading provider of chemical and innovative plastics solutions that create value for society. With sales of EUR 4.7 billion in 2009, customers in over 120 countries, and 5,200 employees worldwide, Borealis is owned 64 % by the International Petroleum Investment Company (IPIC) of Abu Dhabi and 36 % by OMV, the leading energy group in the European growth belt. Borealis is headquartered in Vienna, Austria, and has production locations, innovation centers and customer service centers across Europe and the Americas. Through Borouge, a joint venture between Borealis and the Abu Dhabi National Oil Company (ADNOC), one of the world's major oil companies, the company's footprint reaches out to the Middle East, Asia Pacific, the Indian sub-continent and Africa. Established in 1998, Borouge employs approximately 1,400 people, has customers in more than 50 countries and its headquarters are in Abu Dhabi in the UAE and Singapore. Building on the unique Borstar® technology and their experience in polyolefins for more than 50 years, Borealis and Borouge provide innovative, value creating plastics solutions for the infrastructure (pipe systems and power and communication cables), automotive and advanced packaging markets. In addition, Borealis offers a wide range of base chemicals from melamine and plant nutrients to phenol and acetone.

Today Borealis and Borouge manufacture over 4 million tonnes of polyolefins (polyethylene and polypropylene) per year. Borouge is currently tripling its polyolefins manufacturing capacity to 2 million tonnes per year (t/y) by mid-2010 and an additional 2.5 million t/y is scheduled for 2013. The companies continue to invest to ensure that their customers throughout the value chain, across the globe, can always rely on product quality, consistency and security of supply. Borouge and Borealis are committed to the principles of Responsible Care® and proactively contribute to addressing the world's water and sanitation challenges through their Water for the World™ initiative.

**Borealis'** film and fibre business specialises in supplying advanced polyolefin plastics for the manufacture of film, fibre, coating and thermoforming products. Through foresight and focus on our customers' needs, Borealis provides innovative solutions that add real value throughout the value chain. With over 50 years of experience and pioneering solutions for the film and fibre industry, Borealis has established a leading position on the film and fibre market across Europe, the Middle East and Asia.

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Product	MFR 190°C/2.16 kg [g/10 min]	MFR 190°C/5 kg [g/10 min]	MFR 190°C/21.6 kg [g/10 min]	Density [kg/m <sup>3</sup> ]	Melting Temp. [°C]	AO	Anti-blocking agent [ppm]	Slip agent [ppm]	Other agent additive
<b>Borstar® enhanced PE</b>									
FB2230	0.2	1.0	22	923	124	Yes			
FB2310	0.2	0.9	20	931	127	Yes			
FB4230	0.4	2.0	44	923	124	Yes			
FB4370	0.4	2.1	42	937	128	Yes			
FB3450	0.3	1.1	25	945	129	Yes			
<b>LLDPE butene</b>									
FG5223	0.9			922	122	Yes	1,250		
FG5224	0.9			922	122	Yes	625	480	
FG5199	1.2			919	121	Yes			AF/CA
<b>LDPE autoclave</b>									
FA3220	0.3			922	110	No			
FA3227	0.3			922	110	No			UV
FA5223	1.2			922	110	Yes	850		
FA5224	1.2			922	110	Yes	850	450	
FA6220	2.1			922	111	Yes			
FA6224	2.1			922	111	Yes	850	500	
FA7220	4.0			922	111	Yes			
FA7224	4.0			922	111	Yes	1,100	700	
FA7229	4.0			922	111	Yes			AF/CA
<b>LDPE tubular</b>									
FT3200	0.25			920		No			
FT5230	0.75			923		No			
FT5231	0.75			923		Yes			
FT5232	0.75			923		Yes		550	
FT5236	0.75			923		Yes	800	550	
FT6230	2.0			923		No			
<b>HDPE bimodal</b>									
FB1350		0.6	15	935	127	Yes			
FS1470		0.2	6	947	130	Yes			
FS1560		0.3	9	956	133	Yes			

MFR = Melt Flow Rate

Additives: UV = UV stabilised, AF = Antifog, CA = Cling Additive

Product name	MFR 230°C/2.16 kg [g/10 min]	MWD	Melting Temp. [°C]	C2 content	Nucleated	Stearate	Flexural modulus ISO178 [MPa]	Vicat [10N] ISO 306 [°C]	Properties	Applications
<b>PP Homopolymers</b>										
HC205TF	4.0	B	163		x	x	1,700	155	Very good gloss & purity, low haze, high stiffness, very high heat resistance, high (moisture) barrier	Top layer in coextrusion (high transparent, heat resistant and high barrier layer), label films, barrier films, food packaging, MAP trays
HC110BF	3.2	B	161			x	1,650	156	High stiffness, sterilisable	Blend material/coex layer general packaging, sterilisable applications
<b>PP Random Copolymers</b>										
Borclear™ RB707CF	1.5	M	145	medium	x	x	900	125	High stiffness and very good optics	Label film, laminating films, food packaging
Borclear™ RB709CF	1.5	M	140	high	x	x	650	115	Excellent clarity and sealing	
<b>PP Heterophasic Copolymers</b>										
BB213CF	1.2	M	166	high		x	1,100	150	Good low temperature resistance, balanced stiffness/toughness, sterilisable	Laminating films for food packaging, monoaxial oriented film, hygienic film
BA110CF	0.85	M	166	high		x	1,200	150		Laminating films for food packaging, monoaxial oriented film, hygienic film, siliconisable film
Borpact™ BC918CF	3.0	M	168	medium	x	x	1,400	155	Easy tear, good punching, good optics	Stand up pouch, label films
<b>Random/Heterophasic Copolymers</b>										
Borsoft SA233CF	1.0	B	140	high		x	500	114	Excellent low temperature resistance, high softness and toughness	Hygienic film industrial packaging, stand up pouch
<b>Speciality</b>										
Daploy™ WB180HMS	6.0	M	163		x		1,350	154	High melt strength, high extensibility, high stiffness	Blown film, process modifier

For Technical Data Sheets, Safety Data Sheets and Product Liability Statements please visit us at [www.borealisgroup.com](http://www.borealisgroup.com) and [www.borouge.com](http://www.borouge.com) or contact your Borealis or Borouge representative.