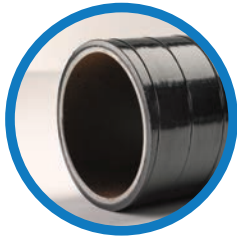


TOMORROW'S INFRASTRUCTURE SOLUTIONS

TOMORROW'S INFRASTRUCTURE SOLUTIONS



Borcoat™
3LPE/PP
For steel pipe
coating



Borstar®
PP-R
For domestic
plumbing



BorSafe™
PE80 & PE100
For utilities



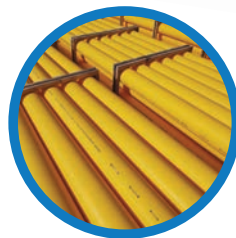
BorECO™
PP-B
For wastewater
and stormwater
drainage



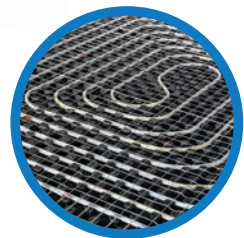
Borstar®
PE
For cast
and blown
geomembranes



BorSafe™
PE100
For industrial,
petrochemical,
and nuclear
applications



BorSafe™
PE80 & PE100
For gas utilities



Borstar®
PE-RT
For hot and cold
water systems

POLYOLEFINS FOR INFRASTRUCTURE SOLUTIONS

PE

Product Name	Designation	Type	Colour	MFR [190°C/5.0kg] g/10min	Density [kg/m ³]	Tensile Stress at Yield [MPa]	Tensile Modulus [MPa]	Key Performance and Applications
BorSafe™ for Pressure Pipes								
HE3490-LS			Black	0.25	960	25	1100	Black PE100 for water, gas, wastewater and industrial pipes and fittings.
HE3490-LS-H			Black	0.25	960	25	1100	Black high stress crack resistant PE100 with superior low sag performance for large diameter pipes.
HE3490-DS-H			Black	0.25	960	25	1100	Black high stress crack resistant PE100 with increased resistance to chlorine/chlorine dioxide disinfectants.
HE3492-LS-H	PE100	HDPE	Orange	0.25	951	25	1000	Orange high stress crack resistant PE100 for higher pressure gas networks.
HE3494-LS-H			Dark Blue	0.3	951	25	1000	Blue high stress crack resistant PE100 for water networks.
HE3490-IM			Black	0.5	961	26	1100	High flow black PE100 for pipe fittings produced through injection moulding.
ME3440	PE80	MDPE	Black	0.8	954	20	850	Unique bimodal black PE80 for smaller gas/water pipes and fittings.
ME3441			Yellow	0.8	944	20	800	Unique bimodal yellow PE80 for small diameter/low pressure gas pipes and fittings.
ME3444			Light Blue	0.8	948	20	850	Unique bimodal blue PE80 for smaller diameter water pipes and fittings.

Product Name	Colour	MFR [190°C/2.16kg] g/10min	Density [kg/m ³]	Form	Peel Strength at 23°C in N/cm	Peel Strength at 80°C in N/cm	Key Performance and Applications
BorCoat™ PE for Steel Pipe Coating							
HE3450-H	Black	0.7	962	Pellets	-	-	Bimodal high performance top coat for 3LPE coatings; superior mechanical properties at both high and low temperatures, with excellent ESCR.
HE3450		0.5	952	Pellets	-	-	Bimodal HDPE top coat for 3LPE coatings with excellent processability.
HE7405		8	944	Powder	-	-	A rough coat applied directly on top coats for improved surface friction and roughness.
ME0410		1.4	933	Pellets	200	50	
ME0420	Natural	1.3	934	Pellets	200	50	Grafted PE adhesive for 3LPE coating systems.
ME0433		4.5	934	Powder	150	40	

Product Name	Designation	Colour	MFR [190°C/21.6kg] g/10min	Density [kg/m ³]	Form	Key Performance and Applications
BorPex™ for Plumbing Applications						
HE1878		Natural	3	956	Powder	Tailor made high density/molecular weight PE for crosslinked PEX-a pipes.
HE1878E	PEX-a	Natural	10.5	952	Powder	Tailor made PEX-a for twin-screw extrusion; facilitates high and stable output.
HE1878E-C2		Natural	9	952	Mini-Pellet	Pre-stabilised PEX-a chlorine resistant Class 5 listed (NSF) compound for twin-screw extrusion.
HE2591		Natural	10.5	945	Powder	PEX-a for twin-screw extrusion; facilitates high/stable output, lower density and higher pipe flexibility.
HE2590	PEX-c	Natural	9	945	Pellet	Pre-stabilised Class 5 listed (NSF) PEX-c compound with excellent pressure resistance.

Product Name	Designation	Colour	MFR [190°C/5.0kg] g/10min	Density [kg/m ³]	Tensile Stress at Yield [MPa]	Tensile Modulus [MPa]	Tensile Strain at Break [%]	Key Performance and Applications
Borstar® for Plumbing Applications								
HE3466RT	PE-RT	Natural	0.8	944	22	800	>800	Natural biomodal PE-RT with enhanced processability for excellent output on high speed extrusion lines. Specifically developed for the production of flexible pipes for domestic/industrial hot and cold water applications.

Product Name	Designation	MFR [190°C/5.0kg] g/10min	Density [kg/m ³]	Tensile Stress at Yield MPa (TD)	Tensile Stress at Break MPa (MD/TD)	% Elongation at Break (MD/TD)	NCTLStress Crack Resistance Hours	Key Performance and Applications
Borstar® for Geomembrane Applications								
FB1370	MDPE	0.5	938	20*	65*/50*	400*/650*	>1500	Natural bimodal MDPE for geomembrane applications; superior melt strength and processability for high output processing. Excellent mechanical, welding and stress crack resistance properties.
FB2230	LLDPE	1.0	923	12*	50*/40*	550*/750*	-	Versatile, natural bimodal LLDPE for geomembrane applications. Superior melt strength and processability for high output processing; excellent mechanical, welding and stress crack resistance properties.

* Data for 40 microns blow film, BUR=3:1, FLH=4XDD, Die gap 1.2mm

Product Name	Designation	Type	Colour	MFR [190°C/5.0kg] g/10min	Density [kg/m ³]	Key Performance and Applications		
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BorSafe™ for the Identification Striping of Black Pressure Pipes

HE3495-LS-H	PE100	HDPE	Dark Blue	0.3	951	Stabilised, specialist grade for the striping of black PE100 potable water pipes.		
HE3496-LS-H			Yellow	0.3	958	Stabilised, specialist grade for the striping of black PE100 gas pipes.		
HE3497-LS-H			Brown	0.3	956	Stabilised, specialist grade for the striping of black PE100 wastewater pipes.		
HE3498-LS-H			Orange	0.3	951	Stabilised, specialist grade for the striping of black PE100 gas pipes.		
ME3445	PE80	MDPE	Light Blue	0.8	948	Stabilised, specialist grade for the striping of black PE80 potable water pipes.		
ME3446			Yellow	0.85	952	Stabilised, specialist grade for the striping of black PE80 gas pipes.		

PP

Product Name	Type	Colour	MFR [230°C/2.16kg] g/10min	Charpy Impact Notched [kJ/m ²]			Tensile Stress at Yield [MPa]	Tensile Modulus [MPa]	Key Performance and Applications
				23°C	-20°C				

Homopolymer for Industrial Applications

BE50	PP-H	Natural	0.3	7	2	36	1650	High molecular weight, low melt flow PP-H for pipe systems and extrusion applications (i.e. sheets, filter plates and solid rods.)
BE60-7032	Beta (β) PP-H	Grey	0.3	50	5	30	1300	High molecular weight, low melt flow PP-H with a fine grained modified crystal structure for excellent impact resistance. Ideal for pipe systems together with extension and compression moulding applications.

Product Name	Type	Colour	MFR [230°C/2.16kg] g/10min	Charpy Impact Notched [kJ/m ²]			Tensile Stress at Yield [MPa]	Tensile Modulus [MPa]	Key Performance and Applications
				23°C	0°C	-20°C			

BorECO™ Block Copolymer for Gravity Piping Systems

BA212E	PP-B HM	Natural	0.3	50	5	31	1700	Flexible/easy to process high modulus PP-B with high stiffness and resistance to impact, elevated temperatures, aggressive chemicals and abrasion. Ideal for solid/structured wall gravity pipes for sewage, waste, drainage and industrial applications.
BC212IM	PP-B HM		4.5	8	3.5	32	1700	A new generation high flow, high modulus PP-B for gravity pipe system components produced by injection moulding.

Product Name	Type	Colour	MFR [230°C/2.16kg] g/10min	Charpy Impact Notched [kJ/m ²]			Tensile Stress at Yield [MPa]	Tensile Modulus [MPa]	Key Performance and Applications
				23°C	0°C	-20°C			

Borstar® Random Copolymer for Plumbing Applications

RA140E	PP-R	Natural	0.3	50	5	3	25	800	New generation, high performance PP-R with enhanced cold impact resistance for domestic/industrial plumbing and heating/cooling applications. Optimal balance of processability and mechanical properties enables reduced injection moulding cycle times and enhanced extrusion speeds.
RA7050	PP-RCT	Grey, light grey and green	0.3	40	4	2	25	800	High performance beta nucleated PP-RCT with higher pressure resistance for domestic/industrial plumbing and cooling/heating applications.

Product Name	Type	Colour	MFR [230°C/2.16kg] g/10min	Charpy Impact Notched [kJ/m ²]			Tensile Stress at Yield [MPa]	Tensile Modulus [MPa]	Key Performance and Applications
				23°C	-20°C				

Borcoat™ PP for Steel Pipe Coating

BB108E-1199	PP-B	White	0.9	25	4	25	1100	UV stabilised white top coat for 3LPE coatings. A powder form is also available for rough coat and repairs.
BA202E		Natural	0.3	50	5	28	1300	Solid/foamed layer for thermal insulation systems.
BB127E		7.5	15	4	22	1100	Grafted adhesive for PP coating systems. Available in both powder and pellet form.	

Product Name	Type	Colour	MFR [230°C/2.16kg] g/10min	Charpy Impact Notched [kJ/m ²]			Tensile Stress at Yield [MPa]	Tensile Modulus [MPa]	Key Performance and Applications
				23°C	-20°C				

Block Copolymer for Injection Moulding of Compression Fittings

BA160E-8229	PP-B	Black	0.3	50	5	30	1300	A heteroplastic copolymer with excellent stress crack resistance for the injection moulding of pressure pipe compression fittings. Nucleated crystalline structure enables high stiffness and impact resistance.
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About Borouge

A joint venture between ADNOC and Borealis, Borouge is a leading petrochemicals company that provides innovative plastics solutions for the energy, infrastructure, mobility, packaging, healthcare and agriculture industries. With 4.5 million tonnes of annual capacity, Borouge is the world's largest integrated polyolefin complex.

Learn more at [Borouge.com](https://www.borouge.com)

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Borouge Pte Ltd

One George Street #18-01 Singapore 049145

Tel: +65 6275 4100 Fax: +65 6377 1233 Email: info@borouge.com