PP Coating Systems

Borouge BB108E-1199
White PE top coat for three component system, design temp -15°C to +70°C for continuous and +80°C for specific offshore applications. Excellent thermal aging resistance and UV protection. Compatible with the adhesive Borouge BB127E.

Borouge BB127E
Graphite adhesive for extreme design temperature up to +140°C, multi-layer structure system. Available in granite and powder form.

BA200E
PP copolymer for thermal insulation.

Borouge BA213E & BB209E
High modulus PP copolymer and high melt strength PP for thermal insulation-deep water applications.

Borouge GA 7688-7032
Grey splayton PP for deep water projects. Thermal insulation and high compressive strength.

Borouge BB100E-7032
Grey PP compound for deep water applications.

Borouge EC 960-1199
White PP for field joints, injection moulding.

Borouge EA16SE
PP for field joints, injection moulding.

MA11SE
High density PP for weight coating.

Borouge BB108E-1199
White PE compound in powder form for rough coating and repairs.

PE Coating Systems

Borouge HE393O-H
High performance black bimodal HDPE topcoat for improved surface protection at higher design temperature range from -30 to +90°C.

Borouge HE395O
Black bimodal HDPE topcoat for pipe coating. Excellent properties from -45 up to +90°C that is produced using the Boronex technology.

Borouge HE394O
Unpainted bimodal HDPE topcoat for corrodible pipe coating systems other than black.

Borouge ME3940
Graphite adhesive in granule form which in combination with Borouge HE394O or Borouge HE395O will provide superior adhesive properties at design temperatures from -40EC to +90°C.

Borouge ME3940
Graphite adhesive in powder form which in combination with Borouge HE394O or Borouge HE395O will provide superior adhesive properties at design temperatures.

Borouge ME33000FC
Yellow PE material specially developed for use in the Whitman Field Jointing System to provide consistent and high quality field joint coating.

Borouge HE156S
Black compounded PE in powder form for “Rough Coat” and repairs.

About Borouge and Borealis

Borouge and Borealis are leading providers of innovative plastics solutions that create value for society.

Building on the unique Borstar® and Borolink® technologies and 50 years of experience in polyolefins, Borouge and Borealis support key industries including infrastructure, automotive and advanced packaging. Their manufacturing capacity reaches over 5.4 million tonnes of polyethylene and polypropylene per year.

Borealis is headquartered in Vienna, Austria, and operates in over 120 countries with around 5,900 employees worldwide. Borouge, its joint venture with the Abu Dhabi National Oil Company (ADNOC), employs approximately 1,700 people, has customers in more than 50 countries and its headquarters are in Abu Dhabi in the UAE and Singapore. Together, both companies provide services and products to customers around the world.

In addition to polyolefins, Borealis offers a wide range of base chemicals, including monomer, phenol and acetone, for the oil and gas, household appliances and fibres industry. The company produces approximately 2.3 million tonnes per year. Borouge also creates real value for the agro business industry with a large portfolio of herbicides and a manufacturing capacity of approximately 1.7 million tonnes per year.

Borouge and Borealis proactively benefit society by taking on today’s challenges and are working to drive ideas forward. Both companies are committed to the principles of Responsible Care®, driving improved safety performance within the chemical industry and contributing to addressing the world’s water and sustainability challenges through product innovation and their Water for the World™ programme.
Save Resources and Protect the Environment

Oil, gas, petrochemicals and water are the lifelines of the modern world. With a rapidly increasing population, the demand for oil and gas for power generation, petrochemicals, automotive fuel and district and domestic heating systems is ever increasing.

Large diameter steel pipelines are the cheapest and most efficient way of transporting high pressure oil, gas, petrochemicals and water from source to where they are needed. However, steel pipes have the natural problem of galvanic corrosion, which can cause leakage and may render them brittle over a period of time and therefore they need to be protected to provide a safe leakage free operational life.

It is important to select the best coating system which provides effective protection from moisture, can withstand the abuses during transportation, handling, storage and installation and can deliver the longest service life with the minimum repair and maintenance. Borouge and Boroleas have been leading suppliers of 3-Layer Polyolefin (3LPE and 3LPP) coatings for many years and continue to develop new and improved solutions.

10 excellent reasons to choose a 3 Layer Polyolefin (3LPO) coating system over other systems

1. Provides the best mechanical protection – Provides the best mechanical protection, corrosion- and wear-resistant during handling, transportation and installation.
2. Highly resistant temperature range – +140ºC to –90ºC for 3LPO coating.
3. Innovative coating system with the latest WENSCOT Borcoat Fluid joint coating system. Complete protection to welds and end to end protection for the whole pipeline – Fluid joint coating is a two-step application.
4. Resistance to heat and sunlight – Fully compounded materials are stabilised against thermal and UV ageing for long service life.
5. Easy to apply – High output rates using side applied methods or specialisation of powder coating techniques.
6. Continuously the lowest total life cycle cost in terms of service life, mechanical and moisture protection, 3LPO coatings will yield the least number of repairs and major savings in overall construction costs.
7. Newer challenges to deep sea and offshore applications such as the 3LPO coating solutions have meet the increasing challenges in terms of tougher environments, higher temperatures and longer service life.
8. Improved performance – Borouge and Boroleas are continuously developing new coating systems with directly stabilised high temperature top coat Borcoat 3LPO (Boronec) and Wencoat Borcoat Field Joint Coating System.

Achieving a high quality 3LPO coating systems for all stakeholders

The success of 3LPO coating system as the leading corrosion protection system for steel pipelines is the result of the excellent cooperation between all the members of the value chain and a common goal of high quality protection for these valuable pipeline assets.

Materials – Using fully documented top coat and adhesives in combination with compatible epoxy resins and the recommended application methods will ensure a long lasting performance of the 3LPO coating system. Borouge and Boroleas materials meet the most stringent requirements and the producers often refer the requirements of international standards. Borcoat systems are approved by all the leading and users in the oil and gas industry.

Field Joint Coatings – Borouge and Borolea 3LPO coatings are compatible with most leading field joint coating systems. In addition Borouge and Boroleas have worked with machinery manufacturer KHV to develop the Wencoat Field Joint Coating System, which is a fully automated method for line and field joint coating system that meets virtually all of the requirements for this highly loaded pipe coating system.

Contractors – All leading contractors are familiar with the superior properties of Borouge 3LPS coating systems and have approved them for many of their projects. Boroco track record lists all the major projects during the past twenty years and is available upon request.

Boroleas – Oil and gas companies are the main beneficiaries of good quality 3LPS coating systems. Boroleas have performed in the most demanding offshore and onshore projects in Norway, North Sea, Mexico, Gulf of Mexico and the Gulf of Mexico. Boroco systems meet the requirements of all major international standards such as API, NACE, CSA/BSG and DNV. They are also approved by the leading pipeline owners such as Norskehavn, Stayinbon, Gas (Italy), ETE (Indonesia), OMV, Austria, Unocal and longer – (Azerbaijan, Russia, Netherlands, Norway) and Petrobras (Brazil) to name a few.
Save Resources and Protect the Environment

Oil, gas, petrochemicals and water are the lifelines of the modern world. With a rapidly increasing population, the demand for oil and gas for power generation, petrochemicals, automotive fuel and district and domestic heating systems is ever increasing.

Large diameter steel pipelines are the cheapest and most efficient way of transporting high pressure oil, gas, petrochemicals and water from source to where they are needed. However, steel pipes have the natural problem of galvanic corrosion, which can cause leakage and may render them brittle over a period of time and therefore they need to be protected to provide a safe leakage free operational life.

It is important to select the best coating system which provides effective protection from moisture, which can withstand the abuses during transportation, handling, storage and installation and can deliver the longest service life with the minimum repair and maintenance.

10 excellent reasons to choose a 3 Layer Polyolefin (3LPO) coating system over other systems

1. Provides the best mechanical protection – Protects the pipe from damage during handling, transportation and installation.
2. Wide service temperature range – 1°C to +140°C for 3LPE coating, -45°C to +140°C for 3LPP coating.
3. Latest technology – With the latest WEICOAT BORCOAT fluoro-alkane resins, BORCOAT 3LPO coatings offer best protection for the whole pipeline – Field joint coating and pipe in place coating.
4. Resistance to heat and sunlight – Fully compounded materials are stabilised against thermal and UV ageing for a long service life.
5. Easy to apply – High output rates using side artificial vibration or spraying or powder coating techniques.
6. Reduces the number of pipe joints – 3LPO coating solutions are now the leading pipe coating system for oil and gas pipelines in the world.
7. Complete solutions available – PE and PP top coat and adhesives are available in granules or powder form. BORCOAT 3LPO is also available as an inner pipe coating for pipes in-pipe insulated systems or inner field joint coatings.
8. Best whole life cost compared to coal tar – The whole life cost of the BORCOAT 3LPO coating system is lower than coal tar coatings.
9. Easier challenges to deep sea and offshore – BORCOAT 3LPO coating system is able to face the major challenges in terms of tougher environment, higher temperatures and longer service life.
10. Improved adhesion – BORCOAT 3LPO coatings are innovatively developed new generation polymers with outstanding high temperature top coat BORCOAT 3LPO coated BORCOAT WEICOAT Borealis Field Joint Coating System.

Achieving a high quality 3LPO coating systems for all stakeholders

The success of 3LPO coating system as the leading corrosion protection system for steel pipelines is the result of the excellent cooperation between all the members of the value chain and a common goal of high quality protection for these valuable pipeline assets.

Materials – Using fully document top coat and adhesives in combination with compatible epoxy resins and the recommended application methods will ensure a long lasting performance of the 3LPO coating system. Borouge and Borealis materials meet the most stringent requirements and the experience offers the opportunity to meet the requirements of international standards. Borealis systems are approved by all the leading users in the oil and gas industry.

Field Joint Coatings – Borouge and Borealis 3LPO coatings are compatible with most leading field joint coating systems. In addition Borouge and Borealis have worked with machinery manufacturer KWH to develop the WEICOAT Field Joint Coating System, which is a fully automated method for field joint coating system that meets virtually all of the requirements for this highly applied pipe joint coating system.

Contractors – All leading contractors are familiar with the superior properties of Borouge 3LPO coating systems and have approved them for many of their projects. Borocat track record has won the major projects during the past twenty years and is one of the main reasons.

Project Owners – Oil and gas companies are the main beneficiaries of good quality 3LPO coating systems. Borouge systems have performed in the most demanding offshore and onshore projects influencing North Sea, Middle East, North Africa and the Gulf of Mexico. Borealis systems meet the requirements of all major international standards such as API, NPA, CAN/CSA and BS. They are also approved by leading project owners such as OAPG, Exxon, Suncor, Sonatrach, Gaz de France, Repsol, Norsk Hydro, South Pars Gas Field (Iran), Elf (India), OMV (Australia), Eni and others (Gazprom, Russgas, Gazprom (Norway) and Petrobras (Brazil) to name a few.

Oil, gas, petrochemicals and water are the lifelines of the modern world. With a rapidly increasing population, the demand for oil and gas for power generation, petrochemicals, automotive fuel and district and domestic heating systems is ever increasing.

Large diameter steel pipelines are the cheapest and most efficient way of transporting high pressure oil, gas, petrochemicals and water from source to where they are needed. However, steel pipes have the natural problem of galvanic corrosion, which can cause leakage and may render them brittle over a period of time and therefore they need to be protected to provide a safe leakage free operational life.

It is important to select the best coating system which provides effective protection from moisture, which can withstand the abuses during transportation, handling, storage and installation and can deliver the longest service life with the minimum repair and maintenance.

Borouge and Borealis have been leading suppliers of 3-Layer Polyolefin (3LPE and 3LPP) coatings for many years and continue to develop new and improved solutions.
Save Resources and Protect the Environment

10 excellent reasons to choose a 3 Layer Polyolefin (3LPO) coating system over other systems

1. Provides the best mechanical protection – Protects the pipeline from damage during handling, transportation and installation.
2. Pipe coating tolerances – 1/16 in. for 3LPO coating – 1/8 in. for CLPP coating.
3. Works with all substrates – With the latest BORCOAT Borcoat field joint system, BORCOAT offers a protective coating for the whole pipeline – Field joint coating is also available.
4. Resistance to heat and sunlight – Fully compounded materials are stabilised against thermal and UV ageing for a long service life.
5. Easy to apply – High output rates using side automated extrusion or bagging coating techniques.
6. Complete systems available – PE and PP top-coat and adhesives are available in granule, adhesive and cold-body form which are used for pipe-in-pipe insulated systems or inner coating.
7. Best whole life cost compared to coal tar – In terms of service life, mechanical and weathering protection, 3LPO coatings will yield the least number of repairs and major savings in overall operation costs.
8. Newer challenges to deeper sea and offshore – To meet the newer challenges in terms of tougher environments, higher temperatures and longer service life.
9. Comprehensive delivery – Borouge and Boroleas are continually developing new systems. We have already introduced high temperature top-coat Borcoat® FTGR 900 which is a BORCOAT Borcoat Field Joint Coating System.
10. Achieving a high quality 3LPO coating systems for all stakeholders

The success of 3LPO coating system as the leading corrosion protection system for steel pipelines is the result of the excellent cooperation between all the members of the value chain and a common goal of high quality protection for these valuable pipelines.

Materials – Using fully documented top coat and adhesives in combination with compatible epoxy resins and the recommended application methods will ensure a long lasting performance of the 3LPO coating system. Borouge and Boroleas materials meet the most stringent requirements and the producers often have won the requirements of international standards. Borcoat systems are approved by all the leading and used in the oil and gas industry.

Field (Joint) Coatings – Borouge and Boroleas 3LPO coatings are compatible with most leading field joint coating systems. In addition Borouge and Boroleas have worked with machinery manufacturer KWH to develop the Wirconal Field Joint Coating System, which is a fully automated, multi layer field joint coating system that meets virtually all of the requirements for this highly specified line pipe coating system.

Contractors – All leading contractors are familiar with the superior properties of Borouge 3LPO coating systems and have approved them for many of their projects. Borouge track record lists all the major projects during the past twenty years and is available upon request.

Reference Cases – Oil and gas companies are the main beneficiaries of good quality 3LPO coating systems. Borouge systems have performed in the most demanding offshore and onshore projects including North Sea,—with 45 year life service life and the Gulf of Mexico. Borcoat systems meet the requirements of all major international standards such as DNV, NFA, CAN/CSA and BOS. They are also approved by leading pipeline operators like CNOOC in China, Petronas in Malaysia, CNOSFE in Vietnam, Sonatrach in Algeria, ENagas in Turkey, Snam in Italy, Statoil in Norway and Petrobras (Brazil) to name a few.

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Large diameter steel pipelines are the cheapest and most efficient way of transporting high pressure oil, gas, petrochemicals and water from source to where they are needed. However, steel pipes have the natural problem of galvanic corrosion, which can cause leakage and may render them brittle over a period of time and therefore they need to be protected to provide a safe leakage free operational life.

It is important to select the best coating system which provides effective protection from moisture, which can withstand the abuses during transportation, handling, storage and installation and can deliver the longest service life with the minimum repair and maintenance. Borouge and Boroleas have been leading suppliers of 3-Layer Polyolefin (3LPE and 3LPP) coatings for many years and continue to develop new and improved solutions.
Borouge / Borealis Product List

PE Coating Systems

Borcoat HE3450-H
High performance black bimodal HDPE topcoat for improved surface protection at higher design temperature range from -30 to +80°C.

Borcoat HE3450
Black bimodal HDPE topcoat for pipe coating. Excellent properties from -45 up to +80°C that is produced using the Borouge technology.

Borcoat HE3453
Natural bimodal HDPE topcoat for colourable pipe coating systems other than black. UV and thermal stabilised. Produced with Borealis technology.

Borcoat ME9340
Graded adhesion in granule form which in combination with Borcoat HE3450 or Borcoat HD4280 or provide superior adhesion properties at design temperatures from -45°C to +80°C.

Borcoat ME9343
Graded adhesion in powder form which in combination with Borcoat HD4280 or Borcoat HE3450 or HE3453 provide superior adhesion properties at design temperatures.

Borcoat ME3000FC
Yellow PE material specially developed for use in the WeatherField Jointing System to provide consistent and high quality field joint coating.

Borcoat HE1165
Black compounded PE in powder form for “Rough Coat” and repairs.

PP Coating Systems

Borcoat BB1008E-1100
White PP topcoat for three component system, design keep from -10°C up to +14°C for moderate and up to +18°C for specific offshore applications. Excellent thermal ageing resistance and UV protection. Compatible with the adhesives Borcoat HE1276.

Borcoat BB1276
Graded adhesion for extreme design temperature up to +14°C multi-layer structures system. Available in granule and powder form.

BA202E
PP copolymer for thermal insulation.

Borcoat BA2123 & VB5306NS
High modulus PP copolymer and high melt strength PP for thermal insulation-deep water applications.

Borcoat GA 7088-7032
Grey sytonic PP for deep water projects. Thermal insulation and high compression strength.

Borcoat BB105E-7032
Grey PP compound for deep water applications.

Borcoat EC 106C-1189
White PP for field joints, injection moulding.

Borcoat EA185E
PP for field joints, injection moulding.

MA115E
High density PP for weight coating.

Borcoat BB1008E-1100 powder
White PP compound in powder form for rough coating and repairs.

About Borouge and Borealis

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Building on the unique Borstar® and Borestyle™ technologies and 50 years of experience in polyolefins, Borouge and Borealis support key industries including infrastructure, automotive and advanced packaging. Their manufacturing capacity reaches over 5.4 million tonnes of polyethylene and polypropylene per year.

Borouge is headquartered in Vienna, Austria, and operates in over 120 countries with around 5,000 employees worldwide. Borouge, its joint venture with the Abu Dhabi National Oil Company (ADNOC), employs approximately 1,700 people, has customers in more than 50 countries and its headquarters are in Abu Dhabi in the UAE and Singapore. Together, both companies provide services and products to customers around the world.

In addition to polyolefins, Borealis offers a wide range of base chemicals, including melanin, phenol and acetone, for the oil and gas, household appliance and fibres industry. The company produces approximately 2.3 million tonnes per year. Borealis also creates real value for the open business industry with a large portfolio of business and a manufacturing capacity of approximately 1.7 million tonnes per year.

Borouge and Borealis proactively benefit society by taking on today’s challenges and are working to drive ideas forward. Both companies are committed to the principles of Responsible Care®, driving improved safety performance within the chemical industry and contributing to addressing the world’s water and sanitation challenges through product innovation and their Water for the World™ programme.
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In addition to polyolefins, Borealis offers a wide range of base chemicals, including melamine, phenol, and acetic acid, for the oil and gas, household appliance, and fibres industry. The company produces approximately 2.3 million tonnes per year. Borealis also creates real value for the agro-business industry with a large portfolio of fertilizers and a manufacturing capacity of approximately 1.7 million tonnes per year.

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3LPO coating systems for corrosion protection of steel pipelines for oil, gas, petrochemicals and water

Borouge / Borealis Product List

PE Coating Systems

- **Borcoat** HD980-H: High-performance black bimodal HDPE topcoat for improved surface protection at higher design temperature range from -30 to +80°C.
- **Borcoat** HD880: Black bimodal HDPE topcoat for pipe coating. Excellent properties from -45 up to +60°C that is produced using the Borstar technology.
- **Borcoat** HD943: Natural bimodal HDPE topcoat for colorable pipe coating systems other than black. UV and thermal stabilised. Produced with Borstar technology.
- **Borcoat** ME9430: Graphitised adhesive in granule form which in combination with Borcoat HD9430 or Borcoat HD9432 provide superior adhesive properties at design temperatures from -45°C to +80°C.
- **Borcoat** ME9433: Graphitised adhesive in powder form which in combination with Borcoat HD9430 or Borcoat HD9432 provide superior adhesive properties at design temperatures from -45°C to +80°C.
- **Borcoat** ME3000FC: Yellow PE material specially developed for use in the Whitestar Field Jointing System to provide consistent and high-quality field joint coating.
- **Borcoat** HD9465: Black compounded PE in powder form for "Rough Coat" and repairs.

PP Coating Systems

- **Borcoat** BB108E-1199: White PP topcoat for three component system, design temp from -10°C to +25°C for composite, and up to +35°C for offshore application. Excellent thermal ageing resistance and UV protection. Compatable with the adhesive Borcoat BB127E.
- **Borcoat** BB127E: Graphitised adhesive for extreme design temperature up to +144°C, multi-layer structures system. Available in granule and powder form.
- **BA202E**: PP copolymer for thermal insulation.
- **Borcoat** BA213E & VB30/VB35: High modulus PP copolymer and high melt strength PP for thermal insulation-deep water applications.
- **Borcoat** GA 7086-7032: Grey epoxy resin/PP for deep water projects. Thermal insulation and high compressive strength.
- **Borcoat** BB108E-7032: Grey PP compound for deep water applications.
- **Borcoat** EC 7096-1189: White PP for field joints, injection moulding.
- **Borcoat** EA18E: PP for field joints, injection moulding.
- **MA115E**: High density PP for weight coating.
- **Borcoat** BB108E-1199: White PP compound in powder form for rough coating and repairs.

Borouge and Borealis are committed to Responsible Care® (RC) principles. For more information, see www.borouge.com and www.borealis.com.®

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