

## **Borealis expands pioneering pipe portfolio**

Borealis, a leading provider of innovative solutions in the fields of polyolefins, base chemicals and fertilizers launches a new grade in its portfolio of polypropylene random crystalline temperature (PP-RCT) pipes. Now commercially available in Europe, the new grade RA7050-LG is an important expansion of the pioneering and superior Borealis PP-RCT portfolio. The improved performance and properties of this grade fulfil market demand for sophisticated applications in industrial heating and cooling, including building risers as well as heating, ventilation and air-conditioning (HVAC) systems.

### **New grade builds on long track record of PP-RCT innovation**

Distributing sufficient quantities of water in buildings in a safe and reliable way has become increasingly challenging due to population growth and urbanisation as well as aging pipe infrastructure. Conventional piping materials are becoming increasingly obsolete because they are too heavy and difficult to handle. In addition, their performance over time is inconsistent.

Over the past 30 years, the development of polypropylene random copolymers (PP-R) has led to a growing acceptance of plastic pipes for plumbing, heating and for industrial applications. In 2004, Borealis launched the first significant resin improvement in decades with the introduction of a next-generation material class called PP-RCT, with improved hydrostatic pressure resistance. Since this pioneering launch, Borealis has continued to build on its PP-RCT track record. The material class has a strong market presence and is standardised in accordance with ISO 15874, which governs PP piping systems for hot and cold water installations in buildings.

"The launch of RA7050-LG is a meaningful PP-RCT portfolio expansion that responds to existing and very specific market demands, but also anticipates future evolutions in pipe infrastructure," says Anton Wolfsberger, Head of Marketing Borealis Consumer Products. "We will continue to innovate in pipe so that we can deliver solutions to key global challenges such as a safe and reliable water supply, enabling life's essentials."

### **RA7050-LG augments existing advantages of PP-RCT**

The overall improved performance and hydrostatic pressure resistance of PP-RCT pipes, especially at elevated temperatures, results in a range of advantages for the entire value chain. For instance, their longer durability makes operations safe and reliable in the long term. Moreover, the increased pressure resistance - given the same dimensionality or even higher hydraulic capacity of pipes and fittings - brings significant benefits for both pipe producers and building designers.

The new light-grey RA7050-LG grade is a fully PP-RCT classified material. It offers numerous additional benefits:

- Fully PP-RCT classified material certified with proven 50 years of service life at 70°C of CRS70°C, 50 years = 5 MPa according to ISO12162 when tested in accordance to ISO9080.
- Produced using special multi-reactor technology and containing high level of beta-nucleation crystals enabling excellent crack growth retardation properties.
- Fully compounded for highest quality control and easy handling.
- State-of-the-art stabilisation package for excellent thermal and chemical resistance.

The new RA7050-LG boasts key benefits when compared to conventional materials:

- Reduced installation times of up to 30%.
- Reduced total installation costs ranging from 30% to 70%.
- Extended lifetime.
- No condensation.
- Reduced energy loss for hot or chilled water applications.

Additional benefits in comparison to first-generation plastic materials in the PP-R class include:

- Increased pressure resistance with same dimensionality.
- Higher hydraulic capacity with same outer layer construction.
- Potential weight reduction ranging from 14% to 25% in pipe production.
- Better cost efficiency due to beneficial dimensionality.
- 'Drop in solution' since no major changes required when utilising existing extrusion and injection moulding equipment.
- Easier installation.
- Suitable for special applications such as high-rise air-conditioning systems.

Grade	Colour	Designation	MFR (230°C/2.16k) g/10min	Tensile stress at yield MPa	Tensile Modulus MPa	Charpy impact notched (+23°C) kJ/m <sup>2</sup>	Charpy impact notched (-20°C) kJ/m <sup>2</sup>	Typical applications
RA7050	Steel-grey	PP-RCT	0.3	25	905	40	2	Plumbing & heating
RA7050-GN	Green	PP-RCT	0.3	25	905	40	2	Plumbing & heating
RA7050-LG	Light-grey	PP-RCT	0.3	25	905	40	2	Plumbing & heating

Image: Polypropylene random crystalline temperature (PP-RCT) grade specifications  
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**K Fair 2016 takes place from 19 to 26 October in Düsseldorf, Germany.  
"Join Our Journey" and visit Borealis, Borouge and NOVA Chemicals  
at Hall 6, Stand 6A43 to learn more.**

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### **Borealis pipe solutions are enabling life's essentials**

As a trusted and experienced partner with more than 40 years of experience, Borealis supplies materials for advanced polyolefin pipe systems that help the pipe industry better serve a variety of communities worldwide.

Using its proprietary Borstar® technology as a base, Borealis offers polyethylene and polypropylene materials for pipes used in many different industries: water and gas supply, waste water and sewage disposal, plumbing and heating, and oil and gas, including multi-layer steel pipe coating solutions for onshore and offshore oil and gas pipelines.

By offering more durable and reliable pipe solutions, Borealis' step-change innovations continue to boost the sustainability of pipe networks by making them safer, longer lasting and more efficient, by helping eliminate wastage and loss whilst at the same time offering energy savings. Borealis has been a solution provider and one-stop shop for polyolefins in the oil and gas industry providing reliable service and quality from one end of the pipeline to the other. Water and sanitation systems can be made more efficient and reliable by using proprietary Borealis materials. Systems made of conventional materials are struggling with water losses up to 30-50%, whereas new PE pipe systems can avoid leakages. Trenchless technology reduces installation costs by up to 60%.

### **About Borealis**

Borealis is a leading provider of innovative solutions in the fields of polyolefins, base chemicals and fertilizers. With headquarters in Vienna, Austria, the company currently has around 6,500 employees and operates in over 120 countries. Borealis generated EUR 7.7 billion in sales revenue and a net profit of EUR 988 million in 2015. The International Petroleum Investment Company (IPIC) of Abu Dhabi owns 64% of the company, the remaining 36% belonging to OMV, an international, integrated oil and gas company based in Vienna. Borealis provides services and products to customers around the world in collaboration with Borouge, a joint venture with the Abu Dhabi National Oil Company (ADNOC).

Building on its proprietary Borstar® and Borlink™ technologies and more than 50 years of experience in polyolefins, Borealis and Borouge support key industries with a wide range of applications in the areas of energy, automotive, pipes, consumer products, healthcare, and advanced packaging.

The Borouge 3 plant expansion will make Borouge the world's largest integrated polyolefins complex. Once fully ramped up in 2016, the additional 2.5 million tonnes of polyolefins capacity will yield a total Borouge capacity of 4.5 million tonnes, and a combined Borealis and Borouge capacity of 8 million tonnes.

Borealis offers a wide range of base chemicals, including melamine, phenol, acetone, ethylene, propylene, butadiene and pygas, servicing a wide range of industries. Borealis also creates real value for the agricultural industry, selling approximately 5 million tonnes of fertilizers. Technical nitrogen and melamine products complement the portfolio with applications ranging from mono-nitrogen oxide (NOx) abatement to glues and laminates in the wood working industry.

Borealis and Borouge aim to proactively benefit society by taking on real societal challenges and offering real solutions. Both companies are committed to the principles of Responsible Care®, an initiative to improve safety performance within the chemical industry, and work to solve the world's water and sanitation challenges through product innovation and their Water for the World™ programme.

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### **For more information visit:**

[www.borealisgroup.com](http://www.borealisgroup.com)  
[www.borouge.com](http://www.borouge.com)  
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