

## Borealis, Borouge and NOVA Chemicals are “Building Tomorrow Together” at the K 2019

- Joint presence of Borealis, Borouge and NOVA Chemicals at K 2019
- Borealis: The EverMinds™ approach is key to generating pioneering circular solutions
- Borouge: Continuing the growth journey with next phase expansion
- NOVA Chemicals: Accelerating Solutions for a Circular Plastics Economy

Borealis, Borouge and NOVA Chemicals are dedicated to sustainable business growth through innovation. A long-term commitment to putting the customer first generates cooperation along the entire value chain, which in turn drives both growth and innovation. The K 2019 motto “Building tomorrow together” means working ever more closely with partners around the globe to produce superior and differentiated polyolefins-based solutions for a more sustainable future. Achieving the transformation from today’s linear system to the circular one of tomorrow will be a challenging and complex task, albeit a solvable one, requiring innovation and collaboration along the entire value chain.

Borealis, Borouge and NOVA Chemicals are members of a global family of polyolefins companies and leading providers of chemical and innovative plastics solutions. While each of the three companies operates as a legally independent entity, all benefit from the strong and stable backing of their shared owners: Austria-based OMV, the Abu Dhabi National Oil Company (ADNOC) and Mubadala.

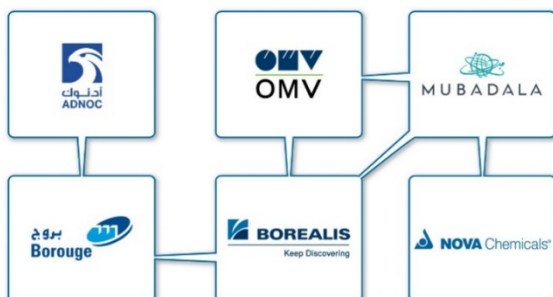


Image: Borealis, Borouge and NOVA Chemicals are members of a global family of polyolefins companies and leading providers of chemical and innovative plastics solutions.



Be a part of “Building Tomorrow Together” by visiting Borealis, Borouge and NOVA Chemicals in Hall 6 at Stand A43.

Each company remains committed to deepening existing customer relationships and cultivating new ones. Success is driven by a value proposition that combines a global scale of operations, feedstock integration, proprietary technologies, and access to global markets. A shared dedication to innovation, applications development, and ongoing expansion through investment enables Borealis, Borouge and NOVA Chemicals to grow their global business.

## **Project STOP: frontline action to stop marine pollution**

Borealis, Borouge and NOVA Chemicals also share a commitment to using their expertise and global reach to advance the circular economy of plastics. The frontline initiative [Project STOP](#) was co-founded by Borealis and SYSTEMIQ in 2017; the two companies have since been joined by Borouge and NOVA Chemicals as strategic partners.

On 23 September, the Alliance to End Plastic Waste joined Project STOP as a strategic partner. The Alliance's three-year collaboration with Project STOP will focus on the regency of [Jembrana](#), a new Project STOP city partnership, located on the northwest coast of Bali. The Alliance will support a feasibility study to achieve a future free of unmanaged plastic waste throughout the island and to assess how to extend the approach, as well as provide financial support and technical expertise. NOVA Chemicals is a founding member of the Alliance to End Plastic Waste.

Project STOP is helping prevent the leakage of thousands of tonnes of plastics into marine environments in Southeast Asia. Project partners work with municipal authorities in Indonesia to design, implement and scale circular economy solutions, including the establishment of effective waste collection, sorting and recycling systems.

## **At Borealis, the EverMinds™ approach generates pioneering circular solutions**

Borealis welcomes the occasion of the K 2019 to showcase the many ways in which the company is making good on its commitment to bring about a circular economy of plastics. "Building tomorrow together" at the K 2019 means collaboration with partners and customers, renewed dedication to Value Creation through Innovation, and promoting increased mindfulness with regard to plastics circularity. The new EverMinds™ platform is the embodiment of this more circular mind-set. It continues to inspire novel, polyolefins-based solutions that enable plastics reuse, recycling and recovery, and promote design for recyclability.

### **[Introducing Borcycle™, an ever-evolving recycling technology](#)**

Combining state-of-the-art technology with profound Borealis polymer expertise, **Borcycle™** transforms plastic waste streams into value-adding, versatile recycled polyolefins (rPO). It expands the company's existing virgin polyolefins portfolio with pioneering circular solutions for a wide range of sophisticated applications. The first of several new rPO compound launches is **Borcycle™ MF1981SY**, containing over 80% recycled material and designed for use in household appliances. Bosch vacuum cleaner parts made with this new compound will be on display at the K 2019 stand.

Existing post-consumer recyclate (PCR) grades currently marketed as Daplen™, including those used for automotive applications, will be rebranded as Borcycle™.

### [Borealis and Neste begin strategic co-operation to accelerate circularity and bioeconomy in plastics](#)

The co-operation of **Borealis and Neste** will enable Borealis to **start using Neste's 100% renewable propane** produced with Neste's proprietary NEXBTL™ technology **as renewable feedstock** at its facilities in Kallo and Beringen, Belgium, starting end of 2019. Borealis' unique propane dehydrogenation (PDH) and polypropylene (PP) plant set-up in Kallo will enable the company to start offering **bio-based propylene** and consequently bio-based PP in which renewable content can be physically verified and measured.

### [Driving tomorrow with global collaboration and innovation](#)

Borealis and Borouge are supporting the global **automotive industry** by engineering lighter weight, high-performance solutions for a growing range of automotive parts. Taking centre stage at the joint K 2019 stand is the **NIO ES8**. The flagship model of the successful Chinese electric vehicle maker NIO unites top material performance and sleek design; numerous interior and exterior parts have been produced using innovative Daplen™ and Fibremod™ compounds. Other automotive highlights at the K 2019 include the launch of the next generation of Fibremod™ Carbon solutions based on second-use carbon fibre. Two new low-density material solutions, **Fibremod™ CG210SY** and **Fibremod™ CD211SY**, offer even better surface aesthetics and mechanical properties.

### [Value chain collaboration produces novel circular solutions for flexible consumer packaging](#)

**Borealis, Borouge, and Henkel** have collaborated on the development of novel and highly circular flexible packaging solutions. Two **stand-up pouches** combine virgin polyethylene (PE) and high amounts of PCR. These solutions offer even better packaging circularity while maintaining excellent shelf appeal. One pouch developed in the course of this value chain co-operation contains 30% Ecoplast-produced PCR, and will be showcased at the joint K 2019 stand.

### [PP and PE-based monomaterial solutions for the most demanding consumer packaging applications](#)

In collaboration with several value chain partners, **Borealis and Borouge** have developed a series of new, **monomaterial pouch solutions** based on PE and PP which expand the range of more sustainable options for the flexible packaging industry. Designed specifically for recyclability, the new stand-up pouches are suitable for the most demanding consumer packaging applications. Several of the pouches, including one containing 35% PCR, will be on display at the K stand.

### [Launching new BorPure™ designed for flip-top cap applications](#)

**Borealis** announces the **commercial launch of BorPure™ RF777MO**. Based on the proprietary Borstar® Nucleation Technology, this new resin fulfils value chain demand for high-quality solutions offering excellent organoleptics. As next generation random polypropylene (PP), BorPure RF777MO has been designed for use in flip-top caps, a growing caps and closures market segment. Hinged

caps made using this new resin are especially robust and, as a monomaterial solution, 100 % recyclable. For certain caps applications, this resin offers proven cycle time reductions of more than 10 % thanks to fast crystallisation behaviour.

“Stepping up collaboration with our customers and value chain partners has enabled us to take great strides towards a more circular economy of plastics,” claims Borealis CEO Alfred Stern. “We are proud and pleased to be able to showcase at the K 2019 the most recent success stories generated in co-operation. In every field of endeavour – from consumer packaging to automotive, to mechanical recycling and beyond – we are applying our circular mind-set to designing, developing, and bringing to the market novel polyolefins-based solutions with enhanced circularity. We look forward to sharing these innovations with our visitors at K 2019.”

## **Borouge: Continuing the growth journey with next phase expansion**

As part of Borouge’s growth ambitions to more than double its current annual capacity of 4.5 million tonnes by 2030, Borouge is building the world’s largest mixed-feed cracker in Ruwais, Abu Dhabi. The cracker will have a 1.8 million tonne ethylene output and a 3.3 million tonne overall capacity comprising olefins and aromatics from varied feedstocks including ethane, butane and naphtha coming from ADNOC’s refinery and gas processing facilities.

The construction of Borouge’s fifth polypropylene (PP) unit, with an annual nameplate capacity of 480,000 tonnes, is on track to come on stream in 2021. This new PP unit will bring the company’s total annual polyolefins production capacity to 5 million tonnes when completed.

Borouge will also significantly increase production of pre-compounded black polyethylene for pressure pipe applications within 2020. This move aims to address the rising demand for pre-compounded piping materials from China and other emerging economies as they continue to invest in their utilities infrastructure.

Borouge continues to work on delivering new mono-material solutions that unlock value for customers. It recently introduced a new grade of bimodal HDPE called FB5600, based on the Borstar® technology platform. FB5600 helps the packaging industry advance its sustainability and circular economy commitments. Its high stiffness enables down-gauging of films which drives cost reduction and a lower environmental footprint, while its strength and barrier properties helps to reduce food waste. FB5600 has proven to be a key component of PE/PE laminates, enabling recyclability.

“Borouge is committed to providing creative plastics solutions that offer significant advantage for businesses and help address global challenges. We are increasing our efforts to bring about a plastics circular economy by working with our value chain partners across Asia Pacific and the Middle East to develop and introduce new disruptive packaging designs for re-use and recyclability, promote after-use plastics collection and recycling, and achieve zero loss of plastics to the environment,” said Wim Roels, CEO of Borouge Pte Ltd.

## **NOVA Chemicals: Accelerating Solutions for a Circular Plastics Economy**

NOVA Chemicals is committed to being the leader in innovation that enables its customers to deliver plastic products that make everyday life healthier, easier and safer. At K 2019, the company is unveiling

three new products and technologies that support that mission by helping converters and brand owners advance the development of a circular plastics economy:

- **BONFIRE® Film Development Platform** version 4.0 – The newest version of the BONFIRE platform includes three new modules and an improved user interface. The BONFIRE platform uses predictive modelling and other virtual tools to enable film and packaging manufacturers to speed development of downgauged and recyclable multi-layer film structures for high-performance food packaging and other flexible film applications.
- **Recycle-Ready Resins** – NOVA Chemicals is offering a new suite of octene and butene polyethylene (PE) resins designed to retain their physical, processability and optical properties after mechanical recycling. These resins are also ideally suited to be used as virgin content in applications that incorporate a high percentage of recycle.
- **VPs412 Sealant Resin** – VPs412 is the newest addition to NOVA Chemicals' family of high-performance sealant resins. A robust, caulkable, fast-sealing resin, VPs412 resin delivers an unbeatable combination of optics, toughness and processability benefits; delivering seal integrity that helps extend shelf life and reduce food waste.

"I'm proud to be part of an organization that is helping to shape a world where products vital to our health and happiness are even better tomorrow than they are today," said John Thayer, senior vice president, polyethylene, NOVA Chemicals.

"Today, that means developing more sustainable polyethylene solutions that reduce food waste, have a smaller environmental footprint and allow us to capture the value in post-use plastics. These new offerings are all significant advancements that help move us toward a circular plastics economy."

**K 2019 takes place from 16 to 23 October 2019 in Düsseldorf, Germany.**

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**About Borealis**

Borealis is a leading provider of innovative solutions in the fields of polyolefins, base chemicals, fertilizers and melamine. With its head office in Vienna, Austria, the company currently has more than 6,800 employees and operates in over 120 countries. Borealis generated EUR 8.3 billion in sales revenue and a net profit of EUR 906 million in 2018. Mubadala, through its holding company, owns 64% of the company, with the remaining 36% belonging to Austria-based OMV, an integrated, international oil and gas company. Borealis provides services and products to customers globally, in collaboration with Borouge, a joint venture with the Abu Dhabi National Oil Company (ADNOC) and with Baystar™, a joint venture with Total and NOVA Chemicals in Texas, USA. [www.borealisgroup.com](http://www.borealisgroup.com) | [www.borealiseverminds.com](http://www.borealiseverminds.com)

**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 has the world's largest integrated polyolefin complex, with the ambition to more than double its current capacity by 2030. With its base in the United Arab Emirates and Marketing & Sales head office in Singapore, Borouge employs more than 3,000 people and serves customers in 50 countries across the Middle East, Asia and Africa. [www.borouge.com](http://www.borouge.com)

**About NOVA Chemicals**

NOVA Chemicals develops and manufactures chemicals and plastic resins that make everyday life safer, healthier and easier. Our employees work to ensure health, safety, security and environmental stewardship through our commitment to sustainability and Responsible Care®. NOVA Chemicals, headquartered in Calgary, Alberta, Canada, is wholly-owned, ultimately by Mubadala Investment Company of the Emirate of Abu Dhabi, United Arab Emirates. [www.novachem.com](http://www.novachem.com)

**About Project STOP**

Launched in 2017 by Borealis and SYSTEMIQ, Project STOP (Stop Ocean Plastics) works with cities to create effective waste management systems that eliminate plastics leakage into the ocean and creates circular systems in Southeast Asia. Supported by industry and government partners, Project STOP aims to achieve zero leakage of waste into the environment, recycle more plastics, and create benefits, including jobs, for the local community. To learn more, please visit [www.stopoceanplastics.com](http://www.stopoceanplastics.com) or follow us on Twitter @endoceanplastic.

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