

Borealis announces start-up of heat recovery unit based on revolutionary Qpinch technology

- **Milestone in open-innovation collaboration reduces CO2 emissions and increases production efficiency**
- **First-ever application of breakthrough Qpinch technology at commercial scale in a polyolefin plant**
- **Demonstration unit in Antwerp to test capabilities of technology as well as scale-up potential for wider Borealis operations and technologies**

Borealis announces that its open-innovation collaboration with Qpinch, the creators of a revolutionary and patented heat recovery technology, has passed an important milestone. The first-ever application of the unique Qpinch technology at commercial scale has been achieved upon the technical completion and start-up of a new demonstrational unit. Located in an existing Borealis low-density polyethylene (LDPE) production location at Europe's largest chemical cluster in the port of Antwerp (Belgium), the heat recovery unit will test the technology's capabilities as well as its scale-up potential for Borealis plants in other parts of the world. The collaboration is especially advantageous because it allows Borealis to take major strides in its efforts to lower CO2 emissions while at the same time increasing production efficiency and maintaining cost competitiveness.

Imitating natural processes to recover massive levels of industrial waste heat

The unique and revolutionary Qpinch technology mimics the natural chemical reactions that take place in the human body in the so-called ATP/ADP cycle (in which ATP refers to adenosine triphosphate, and ADP to adenosine diphosphate). By using a chemical process to raise the temperature of waste heat, the Qpinch technology provides a heat lift for waste heat that could otherwise not be utilised. Unlike the use of conventional heat pumps, this closed-loop process minimises operational costs as well as electricity use. The technology is scalable from one to 50 megawatts (MW) and is therefore able to process enormous levels of industrial waste heat.

Since its start-up, the heat recovery demonstration unit has been testing the capabilities of the Qpinch technology with view to scaling it up for use in other Borealis production facilities around the world, as well as for other Borealis technologies. The start-up of this heat-recovery unit is one of several initiatives bringing Borealis closer to its Energy & Climate goal to be 20% more energy efficient by 2030 compared to 2015. More widespread use of the Qpinch technology in production facilities would enable Borealis to

significantly increase the sustainability and efficiency of its Group operations. The new heat recovery unit in Zwijndrecht/Antwerp alone will enable Borealis to save approximately 2,200 tons of CO₂ per year, or the equivalent of the annual emissions of around 1,500 compact cars.

A spin-off from Ghent University, Qpinch is positioning its patented technology as a large-scale solution for reducing emissions more quickly and efficiently in a range of industries, including chemicals. Borealis and Qpinch first announced in 2018 the open-innovation collaboration that has now resulted in this commercial scale unit. For Borealis, this project marks the largest potential application to date based on the results of open innovation. The project has received ecology funding support from the Flemish government.

“Life demands progress. This collaboration points to the enormous potential of open innovation between like-minded technology pioneers,” says Erik Van Praet, Borealis Vice President Innovation and Technology. “We are confident that this project will be the first of many successes built on co-operation with Qpinch. For Borealis, the start-up of this unit is a landmark achievement in our mission to re-invent for more sustainable living.”

“The integration of our technology in a complex chemical production process is the culmination of ten years of R&D and teamwork,” says Wouter Ducheyne, Qpinch co-founder, co-CEO and CTO. “This first unit demonstrates the vast potential of energy efficiency, and it's great to have Borealis as a first mover on this innovation journey.”



Photo: Start-up of heat recovery unit based on revolutionary Qpinch technology: demonstration unit in Antwerp to test capabilities of technology as well as scale-up potential for wider Borealis operations and technologies.

Photo: © Borealis

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About Borealis:

Borealis is one of the world's leading providers of advanced and circular polyolefin solutions and a European market leader in base chemicals, fertilizers and the mechanical recycling of plastics. We leverage our polymers expertise and decades of experience to offer value adding, innovative and circular material solutions for key industries. In re-inventing for more sustainable living, we build on our commitment to safety, our people and excellence as we accelerate the transformation to a circular economy and expand our geographical footprint.

With head office in Vienna, Austria, Borealis employs 6,900 employees and operates in over 120 countries. In 2020, Borealis generated EUR 6.8 billion in sales revenue and a net profit of EUR 589 million. OMV, the Austria-based international oil and gas company, owns 75% of Borealis, while the remaining 25% is owned by a holding company of the Abu-Dhabi based Mubadala. We supply services and products to customers around the globe through Borealis and two important joint ventures: Borouge (with the Abu Dhabi National Oil Company, or ADNOC, based in UAE); and Baystar™ (with Total, based in the US). www.borealisgroup.com

About Borealis in Belgium:

Borealis operates three production sites in Belgium, Kallo, Zwiindrecht and Beringen as well as a shared service centre in Mechelen with a total of about 1200 employees.

In Beringen, Borealis has two polypropylene (PP) plants and a compounding plant. The main application areas served from Borealis in Beringen are advanced packaging, hygiene and electronic applications and automotive industry.

At Kallo, Borealis produces polypropylene and also operates a dehydrogenation unit to convert propane to propylene. In 2019 the construction works for a new, world-scale propane dehydrogenation (PDH) plant in Kallo started. It will be one of the largest and most efficient facilities in the world.

In Zwiindrecht, Borealis produces ethylene copolymers and polyethylene divided over two high pressure reactor lines used for polyethylene (PE) compounds, for low density polyethylene, and material handling facilities. Main application area is wire & cable industry.

The Borealis Digital Studio was set up near Brussels in 2018 as an autonomous unit within the Borealis Digitalisation Programme and consists of a team of around 30 digital professionals. It is the company's agile enabler for developing smart and proven added-value business solutions based on design thinking principles. <https://www.borealisgroup.com/antwerp>

About Qpinch:

Qpinch introduces breakthrough technology to reduce industrial emissions and energy use. The Qpinch Heat Transformer uses chemistry inspired by nature's energy system (the ATP-ADP cycle). With this patented and novel approach, it overcomes the hurdles faced by conventional technologies to upgrade waste heat into process heat. The large scale and broad applicability position Qpinch as a strategic solution to reduce emissions cheaper and faster in petrochemicals, food & beverages, paper & pulp, and other industries.

Qpinch BV is a spin-off from Ghent University with headquarters in the Port of Antwerp.

For more information:

www.borealisgroup.com
www.borealiseverminds.com
www.qpinch.com

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