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RE: Converting CO₂ emissions into products - European Green Deal project PyroCO₂ kicks off

A new innovation project will demonstrate large-scale conversion of industrial carbon emissions into value-added chemicals and materials.

The project, conducted by a consortium of 20 leading industrial and research partners from 11 countries, aims to demonstrate a new path to create value from industrial CO₂ emissions while improving the sustainability of the chemical industry in Europe. The European Commission funds PyroCO₂ with 40 million euros in support of the European Green Deal, the plan to make the EU's economy sustainable and climate-neutral by 2050.

- "We are excited to finally start our ambitious work that aims to be a gamechanger for European carbon-intensive industries. These will be able to create valuable products from their CO₂ emissions, meeting the need for a lower carbon footprint while maintaining their competitiveness and being a part of the solution for the climate." says Senior Research Scientist Alexander Wentzel at SINTEF, the independent Norwegian research institute that coordinates the project.

The scope of PyroCO₂ is to establish and demonstrate an innovative platform for CCU that turns industrial CO₂ into chemical building-blocks using a new biotechnological approach. These are then converted further catalytically into a wide range of products, including other value-added chemicals (such as components for paints and plastic), synthetic fuels, as well as recyclable or biodegradable materials normally produced from fossil hydrocarbons.

The aim of this 5-year project with a total budget of 44 million euros is to build and operate a facility capable of capturing 10,000 tonnes of industrial CO₂ per year, an equivalent to the annual CO₂ emissions from 2,200 cars and use it to produce chemicals.

- We are excited to participate in a project that both captures CO₂ and creates added value and new products. The European Green Deal boosts the transition towards a more sustainable future, and we choose to be a part of innovation projects like PyroCO₂ to contribute to develop the circular economy and a climate-neutral Europe, says Thor Kamfjord, Director Sustainable Development, Norner.

The PyroCO₂ factory will be located at the industrial cluster of Herøya Industrial Park in Porsgrunn, Norway, featuring several carbon-intensive industries. Here, the PyroCO₂ process will benefit from close to 100% renewable electricity and complement ongoing large-scale carbon capture and storage (CCS) efforts in Norway. Once successfully demonstrated, replication and further upscaling is envisioned throughout Europe and beyond.

- The PyroCO2 project aims to establish itself as a lighthouse for innovative CCU technologies that can benefit equally the European industries, citizens, and the environment, on the path to a climate-neutral Europe with global impact", says Dr. Francesca Di Bartolomeo at SITNEF.
- The PyroCO2 can be a game-changer for carbon-intensive industries, such as plastics. In the project we will develop technology for production of future plastic materials based on the converted CO₂ from our partners in the project. We look forward to contributing with our 40 years of experience in catalytic polymerisation and 15 years of development of CO₂ based polymers to mitigate the challenges of managing the CO₂-emissions and sustainability of plastics, says Dr. Siw B. Fredriksen, Strategic Advisor at Norner.

ABOUT THE PROJECT

- PyroCO2 is a 5-years Innovation Action project in support of the European Green Deal
- Aim: Design, build, and operate a production facility capable of demonstrating chemical production from close to 10,000 tonnes of industrial CO₂ per year
- Project period: 1. Oct. 2021 to 30. Sep. 2026
- Budget: close to 44 million EUROS, of which 40 million euros EC funding
- Partners: SINTEF (coordinator, NO), SecondCircle (DK), Danmarks Tekniske Universitet (DK), Arkema France (FR), Le Centre National De la Recherche Scientifique (FR), Karlsruher Institut für Technologie (DE), Ciaotech SRL (IT), Axelera (FR), Firmenich SA (CH), NORCE Norwegian Research Centre AS (NO), Herøya Industripark (NO), Chalmers Tekniska Høegskola (SE), Bioprocess Technology (ES), Norner Research (NO), SCG Chemicals (TH), Johnson-Matthey PLC (UK), Ranido S.R.O. (CZ), NextChem SPA (IT), Ecoinnovazione SRL (IT), Vestfold og Telemark Fylkeskommune (NO)
- Funding: This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101037009.

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With best regards
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About Norner

Norner is a Global market leader of industrial polymer R&D services based in Norway where we operate an advanced technology centre for development and testing. We strive to fulfil our vision of being the Polymer Explorers for our clients through a full service-portfolio of R&D, laboratory and strategic advisory based on 40 years of industrial experience. Our key customer segments are polymer industry, energy sector, packaging, healthcare and building and infrastructure. With our high activity on circular economy and green technologies, we contribute to increased profitability and improved sustainability for our clients.

Attachment: Photo of Reactor Laboratory at Norner and the Norner Logo

