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Press Release

ICO2CHEM at Ecomondo 2018: The International Green Economy Expo

The presentation is scheduled on November 9, 2018 in Rimini, Italy.

XX October 2018 - The Italian Bioeconomy Strategy, adopted in April 2017, underlines the importance of the bio-based industry at international level where Italy and Europe play a major role with their innovation potential in the field.

ICO2CHEM – the EU Horizon 2020 project funded through SPIRE that aims at developing a new production concept by catalytically converting CO₂ into value-added chemicals additive and plastic production ready for the industrial sector – will be among the featured projects, which will be presented during the ECOMONDO Expo. ICO2CHEM focuses on the production of white oils and high molecular weight aliphatic waxes with an innovative technology based on the combination of a Reverse Water Gas Shift (RWGS) reactor coupled with an innovative modular Fischer-Tropsch (FT) reactor.

During ECOMONDO, the Politecnico di Torino research team – Andrea Lanzini, Marco Marchese, Emanuele Giglio, Massimo Santarelli – will give a talk entitled “*ICO2CHEM Project: From industrial CO₂ streams to added value Fischer-Tropsch chemicals and fuels*” during an half a day conference promoted by Ecomondo Scientific Technical Committee and the Italian Minister of Economic Development and Italian Cluster of Green Chemistry, SPRING. The presentation is part of workshop “*Biorefineries Integrated in Local Areas - Successful cases and future developments*” held on November 9, 2018. The location is the Biobased Industry Room at Rimini Fiera, Rimini, Italy.

Venue:

Friday, November 9, 2018
h. 10.00-13.30
Biobased Industry Room
Rimini Fiere
Rimini, Italy



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+ Project info: Started in October 2017, ICO2CHEM has an international partnership made by Finnish German and Italian top level industries, academic and research centres aimed to transform CO₂ in chemicals for high-quality industrial production, enlightening a typically perceived polluting sector, with a brand new environmental friendly pathway.

Moreover, the aim is to develop a new production concept in order to convert CO₂ emissions into value added chemicals with particular reference to the production of so-called white oils and high molecular weight aliphatic waxes – important chemical feedstocks that are nowadays fossil-based only. The technological core of the project is the combination of a Reverse Water Gas Shift reactor (RWGS), coupled with an innovative modular (FT) Fischer-Tropsch reactor. The Industriepark Höchst, in Frankfurt, Germany, will be the hosting place for the containerized pilot plant, which will convert CO₂ to raw materials for chemicals.

The outcome of the process is therefore ready to get in the production of many sectors like primary raw materials, secondary materials, packaging for any field including food and beverage, at disposal of the worldwide consumer brands.

+ Process details: The pilot plant will convert CO₂ from a biogas upgrading plant together with industrial H₂ a by-product of a chloro-alkali electrolyzer plant, into highly valuable white oils and high molecular weight aliphatic waxes. The pilot plant consists of innovative RWGS and FT reactors, supplied by INERATEC. The RWGS step will convert CO₂ with H₂ into a synthesis gas mixture (CO + H₂). The following FT reaction step will convert the synthesis gas into the chemical products. The FT reactor will be equipped with a novel Co-based catalyst with enhanced selectivity and lifetime, supplied by VTT. The project partner Altana will utilize the white oils and wax emulsions as a raw material for chemical products, such as coatings and sealant materials, and benchmark the properties of the raw material against the fossil-based material.

+ Innovation potential: ICO2CHEM not only foresees at developing a novel feasible CO₂ economic route but also enlightening further knowledge about the entire process as well as the FT catalyst. The project coordinator VTT will develop a novel Co-based catalyst with enhanced selectivity for specific synthetic hydrocarbons. INERATEC will demonstrate on the field the robustness and reliability of the proposed micro-reactor technology. With the leadership and industrial expertise of ALTANA, the recycled byproduct of the process will be introduced in different chemical markets as those of surface additives, wax additives, defoamers and air release additives, adhesion promoters and coupling agents, viscosity reducers and synthesis of fuels like methane, diesel, jet-fuels, with a significant impact in reducing environmental pollution and emissions.

ICO2CHEM is an **EU Horizon 2020** project. It is funded through SPIRE, the European Public-Private Partnership dedicated to innovation in resource and energy efficiency enabled by the process industries. The project partners are **VTT** from Finland, **INERATEC**, **InfraServ**



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Höchst, **ALTANA**, **Provdavis Hochschule** from Germany, and **Politecnico di Torino** from Italy.

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ICO2CHEM Web site

www.spire2030.eu/ico2chem

ECOMONDO Conference

<https://en.ecomondo.com/events/program/seminars-and-conferences/e8587063/biorefineries-integrated-in-local-areas---successful-cases-and-future-developments.html>