CATCO2NVERS, CO2SMOS and VIVALDI to support the green transition towards a low-carbon circular economy by turning CO_2 emissions into essential products

- Uncontrolled CO_2 emissions are causing unequivocal changes in the global climate and the degradation of life on Earth

- The three European projects aim to develop Carbon Capture and Utilisation processes for the conversion of CO_2 into chemicals

Brussels (Belgium), November 7, 2023 – The chemical sector produces the majority of consumer products such as packaging, textiles, cleaning products or cosmetics using fossil carbon, which consequently emits significant amounts of greenhouse gases. The related projects CATCO2NVERS, CO2SMOS, and VIVALDI collaborate to address the environmental challenge of decreasing CO_2 emissions by developing innovative technologies based on Carbon Capture and Utilisation (CCU) to convert CO_2 into high-added-value chemicals.

CCU is a diverse set of technologies that allow the capture and use of carbon dioxide (CO_2) as a feedstock to produce essential carbon-containing products like chemicals, but also fuels and building materials. CCU technologies can allow various processes to reach net zero or even negative CO_2 emissions and are especially useful for carbon-intensive sectors where no or very few alternatives exist to reduce emissions.

In this context, the three initiatives have been funded with a total of €20 Million by the European Research and Development Programme H2020 to fill the gap of those CCU pathways that are still in labs, prototype, or pilot phases. By exploring different solutions and business cases, CATCO2NVERS, CO2SMOS and VIVALDI gather the expertise of international partners representing the entire value chain to transform the biorefineries into a new CO_2-based industrial sector, contributing to largely decrease the carbon footprint of the industry and boost the European Union economy.

The commitment to collaborate and the holistic approach of the entire value chain position these initiatives as a promising pathway towards a more sustainable and carbon-efficient industrial future.

About CATCO2NVERS

The overall idea of CATCO2NVERS is to reduce greenhouse gasses emissions from the Bio Based Industries transforming waste CO_2 from two bio-based industries into five added-value chemicals: glyoxylic acid (GA), lactic acid (LA), furan dicarboxylic methyl ester (FDME), cyclic carbonated fatty acid methyl esters (CCFAMEs) and bio methanol, with application in the chemical, cosmetics and

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plastic industry the project will process bio-based products replacing fossil material with a zero or negative greenhouse gas emissions.

CATCO2NVERS is focused on reducing industrial CO_2 emissions while exploring new procedures to produce bioproducts. With this aim, a bottom-up approach is used by the design and development of innovative catalytic technologies for the valorisation of CO_2 in the fabrication of different biobased products, including monomers for bioplastics production, using CO_2 streams from biorefineries.

More information at www.catco2nvers.eu

About CO2SMOS

The CO2SMOS project develops solutions to transform the carbon emissions generated from bioprocesses and renewable sources (green hydrogen and biomass) into different sustainable bioproducts: durable polymers, renewable biochemicals, and biodegradable materials. With these compounds, it is possible to produce greener end-products such as packaging, coatings and textiles.

CO2SMOS integrated hybrid solution combines innovative biotechnological and intensified electrochemical/catalytic conversion processes. The demonstration of the technical, economic and environmental sustainability of the different CO2SMOS technologies will allow the design of an integrated platform of CO_2 conversion processes for this industry sector.

More information at www.co2smos.eu

About VIVALDI

Focusing on four key bio-industry sectors (Pulp & Paper, Food & Drinks, Bioethanol and Biochemicals), the VIVALDI project transforms real off-gases into 4 organic acids: lactic acid, succinic acid, itaconic acid and 3-hydroxypropionic acid. These high-value chemicals can re-enter the plants' production process to enhance their sustainability, or open new business opportunities as building blocks for novel biomaterials.

In VIVALDI, the building-blocks and nutrients required for yeast-based bioproduction of these added-value organic acids are obtained from gaseous and liquid waste. The feedstocks (methanol and formic acid) are produced via the electrochemical reduction of CO_2 that has been captured from industrial flue gases. The nutrients are recovered from the wastewater of the same or nearby industries using bioelectrochemical systems.

More information at www.vivaldi-h2020.eu

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