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February 2022

# CO2fokus newsletter



CO<sub>2</sub>Fokus aims to develop cutting-edge technology to **convert industrial CO<sub>2</sub> into DME (Dimethyl Ether)**, a valuable gas extensively used in the chemical and energy sectors, providing an **alternative to fossil fuel-derived feedstock.**

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## Fourth Consortium Meeting

On **the 27th of October 2021** all project partners joined the CO2Fokus Fourth Consortium Meeting.

The event, held online, has been a great occasion **to share updates about ongoing activities**, technical developments and open discussions. It has been a lovely opportunity to grow and strengthen collaborations among partners while checking on activities' status.

Project tasks have started, they are proceeding as planned and some developments have already been finalized with relevant results; however, the worldwide coronavirus impacts have also affected the first 24 months of CO2Fokus activities that led to a 6-month project extension request to the

European Commission.

We are all looking forward to presenting new outcomes soon and to organizing the next gathering in the first half of 2022, hopefully in person.

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# Great progress towards CO<sub>2</sub> utilization

A key objective of the CO<sub>2</sub>Fokus project is developing a highly selective and durable catalysts for the direct conversion of CO<sub>2</sub> to DME.

Partner *Hybrid Catalysis (HyCAT)* working together with *ITAE*, *FEY* and *HTF*, synthesized a reference catalyst formulation by conventional deposition on solid carriers. From an industrial application perspective, the selection criteria for a competitive catalyst include their **superior stability in the catalytic reactor and its regeneration capacity**.

**The synthesis of a reference catalyst in CO<sub>2</sub>Fokus was accompanied by activity and stability testing**, with further testing work completed to describe possible catalyst deactivation mechanisms. A set of duration tests led to the identification of the most suitable formulations for the specific process conditions of DME production over time.

This reference catalyst formulation is an important building block towards the optimization of the CO<sub>2</sub> utilization reaction for the production of DME. Crucial activities are ongoing in the second phase of the project. These focus on selecting and testing the best performing catalyst materials and catalyst configurations.

**The partner and project coordinator VITO developed 3D printed multi-channel monolithic catalysts in close collaboration with partners HyCAT, FEY and ITAE.** The project is also advancing on the design specifications for the pilot unit, the optimization of the reaction conditions to maximize DME yields, and also in the selection of reactor and equipment configurations to build on-site at the facilities of partner *SOCAR* in Turkey.

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## Exploring DME Market

The CO<sub>2</sub>Fokus project is not only about the creation of an innovative technology, but the development of an **exploitation strategy** is also foreseen. This is a crucial step since the market launch and the consecutive success of the technology depends on a thorough assessment of what are the sectors and stakeholders interested in order to address the product to the proper target.

To this purpose, LGI is carrying on a market study, which can be considered as the exploitation strategy preliminary phase and through which the market opportunities and the needs of

customers are being analysed. From summer 2020 on, LGi has been developing a PESTEL analysis in which a dozen experts from many areas (Political, Economic, Social, Technological, Environmental and Legal) have been interviewed to gather their opinions and knowledge about the impact of the macro-environment on the positioning of CO2Fokus technology in the market. This work is still going on, and a series of interviews carried on during 2021 have been focused on DME players (in Asia, America and Europe), LPG and vehicle industrials. These interviews allowed to collect interesting inputs to understand the market segmentation of DME, the possible usage, the industry needs, and to conclude on possible positioning.

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## Co2fokus Partners

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