

Press Release

10X ADSORPTION PRODUCTIVITY INCREASE THE AIM AS CCP JOINS 3D PRINTING TECHNOLOGIES PROJECT

CCP (CO₂ Capture Project) has become a co-funding partner in a project that is looking at how innovative 3D printing technologies can be used to improve CO₂ adsorption by significantly improving efficiencies and lowering costs. The 3D-CAPS Project Consortium (ERA-NET ACT Program) also involves Aker Solutions, TNO, SINTEF, Suncor, UBB and 3D-CAT. Printing, testing and techno-economic evaluation should be ready by the end of 2019 and a blueprint for pilot scale implementation made available.

The fast-evolving advances of 3D printing offer the potential for tailor-made solutions that can overcome one of the main drawbacks of traditional adsorption techniques – namely the costly regeneration of packed beds once they have reached capacity. The aims of the project are:

- To achieve a 10-fold productivity increase (i.e. increasing flow and/or productivity of materials) for two sorbent-based technologies in CCS
- To optimize sorbent shapes with Computational Fluid Dynamics and other modelling tools, with direct realization in 3D-printed objects for testing under relevant conditions.

The two types of structured sorbent to be developed are hydrotalcites and amine functionalised silica-supported sorbents. Bespoke material configuration will allow the production of dense and porous ceramic shapes to optimise the interplay between flow-rate through the reactor, pressure drop and kinetics of the adsorption process.

CCP Program Manager, Mark Crombie, comments: “This is an exciting project for CCP to be joining. Over the four phases of our existence, we have always put a focus on new technology development that will advance CCS. 3D printing very much aligns with that and, if successful, the project could create the step-change in productivity and lower costs needed to boost uptake in CCS applications.”

A new CCP Factsheet with more details of the project can be found at www.co2captureproject.org.

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Note to editors:

Since CCP's formation in 2000, it has undertaken more than 150 projects to increase understanding of the science, economics and engineering applications of carbon capture and storage.

CCP works alongside specialists from industry, technology providers and academia to advance technologies, improve operational approaches and help make CCS a viable option for CO₂ mitigation in the oil and gas industry. CCP has been working closely with government organizations – including the US Department of Energy, European Commission and 60+ academic bodies and global research institutes.

The members of CCP's fourth phase are BP, Chevron and Petrobras.

For further information on CCP and its projects, register at www.co2captureproject.org.

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