PYROCO$_2$

Demonstrating sustainable value creation from industrial CO$_2$ by its thermophilic microbial conversion into acetone

ABOUT

PYROCO$_2$ is scaling carbon capture and utilization with its breakthrough bioprocess, turning industrial CO$_2$ and renewable hydrogen into climate-positive acetone, a building block for chemicals and materials with a negative carbon footprint.

The project will build a demonstrator plant using up to 1,000 tonnes of CO$_2$ per year (equal to the annual emissions of 220 cars) and aims to enable 17 Mt CO$_2$eq emissions savings by 2050. Funded by the EU's Horizon 2020 programme under the Green Deal call on closing the industrial carbon cycle.

€ **43**mln
BUDGET

19
PARTNERS

72months
DURATION

OBJECTIVES

PYROCO$_2$ will demonstrate that carbon capture and utilization can deliver climate-positive acetone at scale, creating a sustainable platform for chemicals, fuel additives, and materials.
To achieve this, the project will:

- Design and build a demonstrator plant based on industrial symbiosis, proving how carbon-intensive industries can turn CO$_2$ into value while reducing emissions.

- Demonstrate large-scale thermophilic microbial gas fermentation, producing up to 4,000 t/a of acetone from CO$_2$ and renewable electricity as a platform for further catalytic upgrading.

- Establish acetone from CO$_2$ as a competitive alternative to fossil-based production routes.

- Create synergies with CCUS, renewable energy, and hydrogen initiatives supporting Europe's Green Transition.

- Drive the emergence of CCU hubs across Europe, strengthening the chemical industry's leadership in the low-carbon, circular economy.

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