



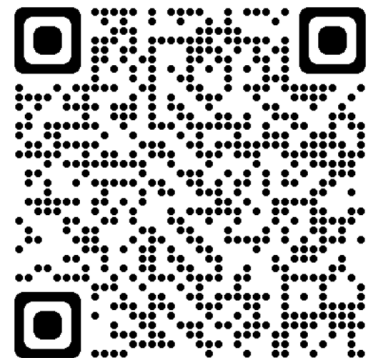
4AirCRAFT

Air Carbon Recycling
for Aviation Fuel
Technology



What is **4AirCRAFT?**

4AirCRAFT combines hybrid catalytic conversion and process intensification to bring out an efficient, precise, flexible and scalable unique technology to direct convert recycled CO₂ into sustainable and clean liquid fuels, thus **making flying carbon neutral**.



<https://4aircraft-project.eu/>

The main goal is the process intensification by a single cascade reactor and the effective low temperature synthesis of alternative long-chain hydrocarbons from residue materials/streams and renewable feedstocks.

“At the core of 4AirCRAFT innovation is the synergetic combination of tuned electro-, chemo- and bio[1]catalysts and their controlled spatial distribution within application tuned catalyst carrier structures. This will enhance the activity of catalytic phases and materials allowing high CO₂ conversion rates and selectivity towards jet fuels (C₈– C₁₆). The unique process requires much less energy, potentially reducing the cost of sustainable fuel for the aviation sector.

4AirCRAFT will develop and proof (TRL3) a flexible, energy-efficient, environmentally friendly, economically viable, and socially affordable reactor technology for the production of clean and sustainable fuel. The unique reactor technology will convert precisely and efficiently CO₂ into C₈- C₁₆ hydrocarbons.”

PHASE 1.

NEXT-GENERATION CATALYST

Rational design of catalyst/porous carriers. Structural, mechanistic investigations and kinetics in terms of CO₂ conversion and C₈-C₁₆ selectivity.



PHASE 2.

MICRO-STRUCTURED REACTOR

Design and manufacturing of hierarchical reactor.

CFD simulation.



PHASE 3.

PROOF-OF-CONCEPT

Lab-scale experimental proof of concept, process conditions and environmental assessment.

The 4AirCRAFT technology uses an innovative catalytic reactor to conduct the conversion in:



Product.

Precise synthesis and high yield of jet fuel



Integration.

Single cascade reactor



Mild conditions.

Unprecedented low temperature



Rational design.

Hybrid catalyst integration & synergetic approach



Disruptive technology.

Validated at lab scale

Innovative technology

The project aims to develop innovative technology for the direct conversion of CO₂ to C₈-C₁₆ under much milder and greener conditions as compared to conventional synthesis routes. This will be achieved through the cooperative development, validation and exploitation of the rational design of catalytic materials and its environment tuning.

Energy challenges

The 4AirCRAFT technology will reduce overall CO₂ emissions by creating a closed carbon fuel cycle contributing to a circular economy and the replacement of fossil fuels, which will strengthen the EU energy security and allow creation of a sustainable transportation sector while helping to solve worldwide energy challenges.

This project addresses the European Green Deal as well as the 2030 Agenda for Sustainable Development Goals (SDGs)



It indirectly contributes also to



NEW BOARD MEMBERS WELCOME TO THE INDUSTRIAL ADVISORY PANEL

4AirCRAFT currently has a very diverse advisory board, industry related from sustainable fuels to chemicals, materials, from aviation sector.

Consortium

International Cooperation with Japan and Brazil



DISCOVER MORE ABOUT THE PROJECT

Send us an email and we will keep you informed:

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