

INNOVATIVE DEVICE FOR CARBON DIOXIDE CONVERSION

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The developed system can be used to convert CO₂ into fuels with particular applications in the "hard to abate" processes.

Protection: Italy, with the possibility to extend internationally

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INVENTION

The goal of mitigating the amount of CO₂ by converting it into high added-value products, such as chemicals, is an increasingly pressing need. The innovation consists of systems based on copper-containing layered double hydroxides supported on carbonaceous gas diffusion membranes for the liquid phase electrochemical reduction of carbon dioxide. During the process, the basic nature of the LDH material allows carbon dioxide to be preferably adsorbed on the surface of the catalyst, where the active sites of copper catalyse its reduction by applying a sufficient potential. By exploiting the different properties of the LDH, it was possible to obtain a production of acetic acid much higher than the state of the art.

ADVANTAGES

- High production efficiency
- Low energy input
- Use of low-cost materials

APPLICATIONS

- Capture and use of CO₂ outgoing from industrial plants
- Capture and use of atmospheric CO₂

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