

ALCHEMHY PROJECT LAUNCH

Brussels, 21/11/2024

The ALCHEMHY project is set to transform the chemical industry by introducing sustainable production methods for two of its most critical components—ammonia and methanol. Officially launched with its kick-off meeting in Zaragoza, Spain, ALCHEMHY is a four-year research and innovation initiative funded by the Horizon Europe Programme to develop electrified production routes for these essential chemicals.

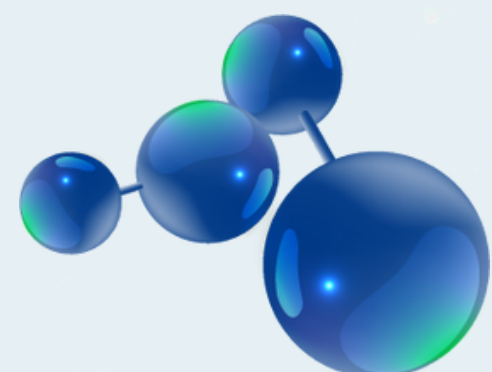
With a strong focus on decarbonization, ALCHEMHY aims to reduce the chemical industry's reliance on fossil fuels, enhance energy efficiency and drive innovation in the sector. By leveraging cutting-edge technologies like plasma processing, induction heating, direct electrochemical synthesis and thermo-catalysis, the project seeks to redefine the way chemicals are produced and pave the way for a more sustainable future.

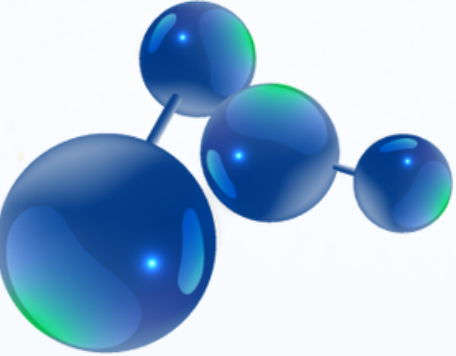
IN MORE DETAIL

The chemical industry is a cornerstone of modern economies, but its high energy consumption and dependence on fossil fuels present significant environmental challenges. Ammonia and methanol, indispensable for fertilizers, plastics, and clean energy applications, are among the most resource-intensive chemicals to produce.

ALCHEMHY, with a total budget of €9.9 million, will tackle these challenges through a range of innovative approaches, including:

- Designing and scaling up electrified production routes for ammonia and methanol using hydrogen as a primary feedstock.
- Utilising process intensification technologies such as plasma processing, induction heating, and thermo-catalysis to improve efficiency and sustainability.
- Integrating digital twin models for real-time optimization and scalability of production processes.
- Promoting decentralised chemical production systems to enhance energy flexibility and resource use.
- Establishing business models to facilitate market adoption and align with Europe's climate goals.





Consortium Partners

ALCHEMHY unites a consortium of sixteen (16) partners from eight (8) European countries, encompassing industry leaders (UCE, SRI, CAS), research institutions (CIRCE, NIC, CIIAE, ICCS, CORE, FBK, AIT), academia (UAV, UANTWERPEN) and SMEs (BER, RC, HST, WR). Coordinated by CIRCE, the partnership includes experts in chemical engineering, environmental technologies and renewable energy solutions, working together to deliver transformative outcomes.

“The 2030 and 2050 European climate and related targets require innovation in all areas of industry, including the chemical industry. ALCHEMHY will investigate two innovative methods for ammonia production and two for methanol that are zero carbon, using non-fossil origin precursors and electrification. These processes will be placed in the wider context of the green transition with technical and economic assessment for their integration into industry”

– Leon Nelsen, Project Manager at CIRCE – Research Centre

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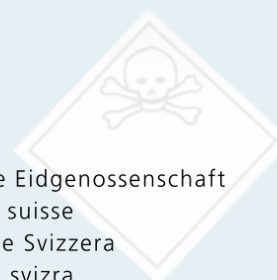
METHANOL
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