

Horizon Europe: HYPER Project

Advancing a safe, circular, and cost competitive electrified technology for H₂O₂ production.

Hydrogen peroxide (H₂O₂) plays a vital role in the textile, pulp and paper, and chemical sectors, valued for its strong oxidising capabilities and its clean decomposition into water and oxygen. However, the industry's prevailing production method, the anthraquinone auto-oxidation process, remains energy-intensive, highly centralised, and dependent on fossil-fuel-based hydrogen.

The HYPER consortium is paving a new, sustainable way for the sector by developing a modular, fully electrochemical route for decentralised H₂O₂ production.

As the project heads into its concluding year, 2025 has delivered a major breakthrough: the latest milestone has been reached and the mini-plant is now operational, achieving TRL 4/5. This accomplishment reflects the outstanding work of all consortium partners.

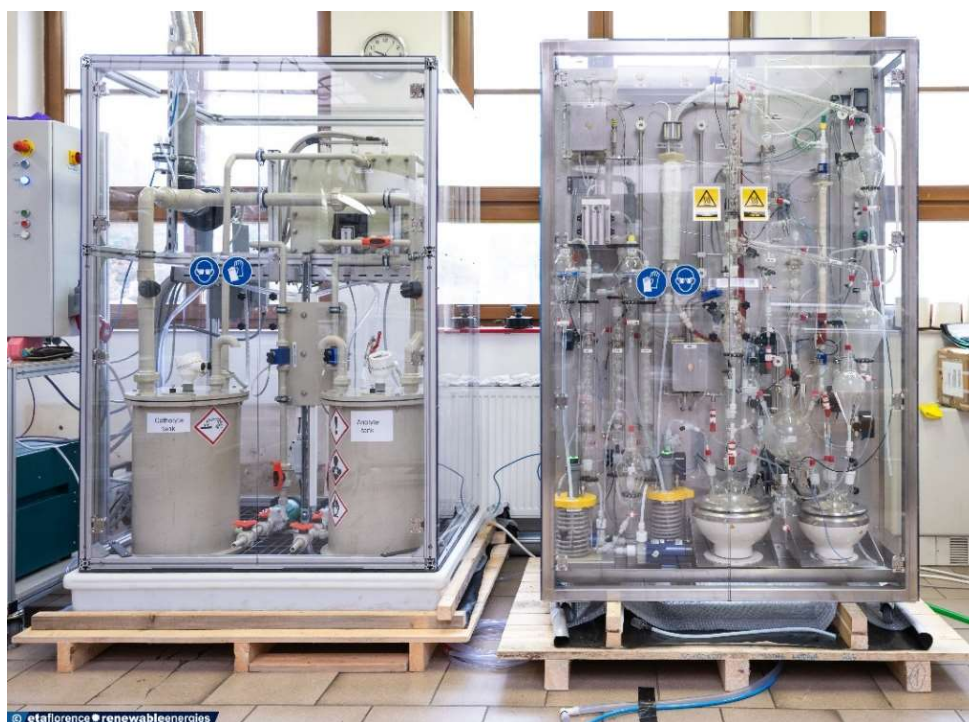


Figure 1 HYPER TRL 4/5 mini-plant. Photo by: ETA-Florence Renewable Energies.



Over the past year, the HYPHER team has actively promoted the project at conferences across Europe and gathered in Hradec Králové, Czech Republic, for the seventh in-person consortium meeting. Following a first day dedicated to presentations and technical exchanges, the second day featured a visit to the InoTex industrial site. Partners were able to observe the TRL 4/5 mini-plant in full operation and witness firsthand the successful bleaching performance of electrochemically produced H_2O_2 on textiles.



Figure 2 HYPHER team at 7th consortium meeting in Hradec Kralove. Photo by: ETA-Florence Renewable Energies.

The first HYPHER webinar is taking place on 4 February 2026, with title “Electrochemical Pathways for a Greener Chemical Industry”. Jointly with Horizon Europe ELOXYCHEM project, it will bring together experts from research and industry to explore how innovative processes can support the transition towards a more sustainable and competitive European chemical industry.

With one year remaining in the project, 2025 marked a period of major advancement, setting the stage for an impactful final phase, towards the TRL 6 plant achievement.



About HYPER:

HYPER – An electrochemically produced oxidiser for modular, onsite generation of Hydrogen PERoxide, started on the 1st January 2023, running for 48 months.

The consortium, coordinated by SINTEF (Norway), includes 12 beneficiaries from 9 countries: ANDRITZ (Finland), CONDIAS (Germany), ETA-Florence (Italy), INERIS (France), Jožef Stefan Institute (Slovenia), Process Design Center (The Netherlands), Kemijski inštitut - National Institute of Chemistry (Slovenia), AristEng S.à r.l. (Luxembourg), INOTEX spol. s r.o. (Czech Republic), KANSAI HELIOS Group (Slovenia), Eilenburger Elektrolyse- und Umwelttechnik GmbH (Germany).

Contact: Richard H. Heyn, Chief Research Scientist, SINTEF Industry, Process Technology

e-mail: rhh@sintef.no

Project email: info@hyperhorizon.eu

Website: <https://www.hyperhorizon.eu/>



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