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REDHY

Redox-Mediated economic, critical raw material free, low capex and highly efficient green hydrogen production technology

REDHY - Deliverable report

D5.3 – MEA engineering for zero – gap cell

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Author(s)	Maria Mancuso, Fausta Giacobello, Veronica Ciccò, Alessandra Muscolino, Stefania Siracusano, Bryan Mondello, Giuseppe Monforte, Maria Bottari, Antonino Salvatore Aricò (CNR)	12-02-2026
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Public Summary

REDHY project develops an innovative water electrolysis technology based on stable single cell architecture that couples redox mediators with external heterogeneous catalysts for efficient O_2 and H_2 evolution. A key objective is to spatially separate oxygen and hydrogen production within the cell, reducing gas crossover and safety risks, enhancing overall cell performance and utilization as well.

The main goal is to validate an electrochemical system that integrate bipolar membranes, specific redox couples, heterogeneous catalysts and advanced high-surface-area electrodes, all designed using non-critical raw materials.

The deliverable D5.3 focuses on the engineering and fabrication of membrane electrode assemblies (MEAs) manufactured with bipolar membranes, high surface electrode coated with CRM-free heterogeneous catalysts in the presence of selected redox couples. Electrochemical and durability tests on zero – gap cells are carried out to evaluate the electrochemical efficiency, the activity of catalysts and redox mediators in order to providing a proof-of-concept for scalable efficient electrolyzer designs.

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Participant No. *	Participant organisation name	Short Name*	Type	Country
1 (Coordinator)	Deutsches Zentrum fur Luft – und Raumfarht EV	DLR	RTO	DE
2	Centre National de la Recherche Scientifique	CNRS	RTO	FR
3	Uniresearch B.V.	UNR	SME	NL
4	Universitat Politecnica de Valancia	UPV	HES	ES
5	Industrie De Nora S.p.A.	IDN	IND	IT
6	Cutting-edge Nanomaterials CENmat UG	CENMAT	IND	DE
7	Consiglio Nazionale Delle Ricerche	CNR	RTO	IT

*IND-Industry; SME-Small and medium enterprise; RTO-Research organization; HES-Higher Educational Establishment

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