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New Anion Exchange Membrane Electrolysers

GRANT AGREEMENT No. 875024



Anion Exchange Membrane Electrolysis for
Renewable Hydrogen Production on a Wide-Scale

ANIONE – Deliverable Report

D3.2 Provision of selected reinforced membranes
and ionomers for characterisation



This project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking (JU) under grant agreement No 875024. This Joint Undertaking receives support from the European Union's Horizon 2020 research and innovation programme, Hydrogen Europe and Hydrogen Europe research.



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D3.2 – Provision of selected reinforced membranes and ionomers for characterisation – CO

Publishable summary

CNR-ITAE developed fluorinated anion exchange ionomer with quaternary ammonium functional groups. The ionomer was characterized in terms of ion exchange capacity and anion conductivity. In addition, a composite membrane based on polyaromatic FUMATech ionomer, containing radical scavenger was developed and characterized.

Hydrolite performed a systematic study based on thermogravimetric analysis, ion exchange capacity and through-plane ion conductivity measurements on the ionomer it developed in comparison with a commercial benchmark.

CNRS developed different types of reinforcements using a range of thermostable polymers and different fibre functionalisation approaches allowing different levels of interaction with the AEI using procedures such as casting or dual electrospinning.

The achieved results exceed the project targets in term of conductivity, mechanical properties and reduced gas cross over for the developed membranes. The next step is the final down-selection of the best ionomer/reinforcement association for further development and characterisation in membrane-electrode assemblies.

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Project partners:

#	Partner	Partner Full Name
1	CNR-ITAE	CONSIGLIO NAZIONALE DELLE RICERCHE
2	CNRS	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE
2.1	UM	UNIVERSITE DE MONTPELLIER
3	HYDRO	HYDROLITE
4	PV3	PV3 TECHNOLOGIES LTD
5	IRD	IRD FUEL CELLS A/S
6	HYDROGENICS	HYDROGENICS EUROPE NV
7	UNR	UNIRESEARCH BV



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