

GREEN HYDROGEN

Purpose

Material, characterization and manufacturing process expertises at CRM are used all along the value chain of green hydrogen.

> Green **Electricity**

H₂ production by electrolysis H₂Transport & storage

Applications

Metallurgy dvanced manufacturing Surface and coatings

- Selection, development, manufacturing of new alloys and microstructures
- Coating and surface treatment (multi-processes)
- Advanced manufacturing technologies (additive, substractive, forging...)

Material expertise Caracterization, tests, validation

- **H₂Lab**: H₂charging (different conditions), impacts on material properties
- Caracterization (physico-chemistry, microstructures, mechanical testing ...)
- Non destructive testing, tests in real conditions

Prototyping, pilots,

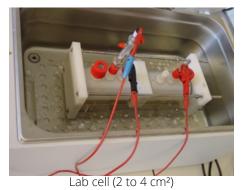
- Forming, machining, assembling (welding)
- Scaling up, techno solutions Industrial trials and industrial transfert





Green Electricity: PV steel roof

H2 production by electrolysis:





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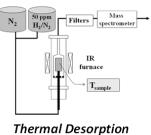


Lab cell (38 cm²)

Alcaline Electrolyzers

Electrode and membranes optimization

H2 transport and storage:



Thermal Desorptior Analysis



Constant Load Testing



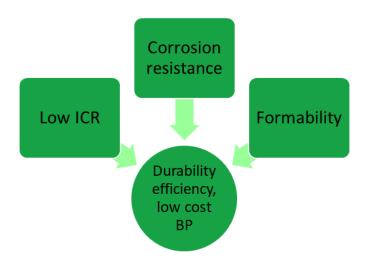
4 p^t bending test

Future: high pressure charging (autoclave) – H permeation – high pressure mechanical testing



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H2 applications: Fuel cells -bipolar plate



Bipolar plate prototyping platform

- Marciniack deformation (ICR, Corrosion)
- Hydroforming press
- Up to 4000bar
- PEM Stack test (in collaboration with ULiège)



