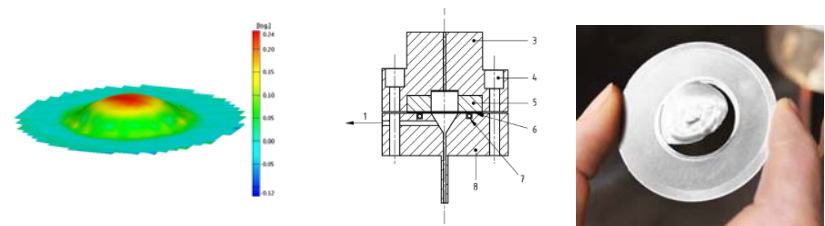


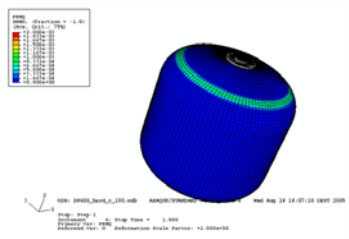
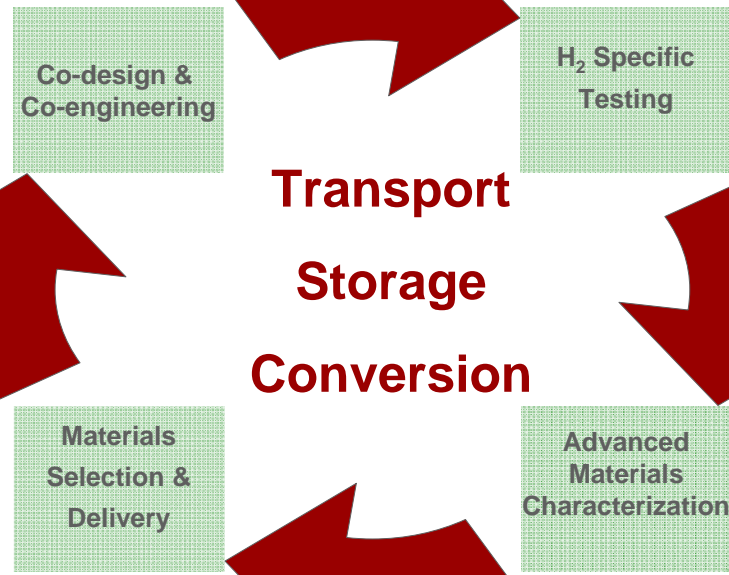
OCAS, your partner for Material Issues in the Hydrogen Economy

- ✓ **Weight or cost reduction** thanks to innovative product design and smart materials selection
- ✓ **Forming, fatigue and joining** simulations
- ✓ Optimisation of **customers' processes**
- ✓ Rapid **prototyping** & production of small series



- ✓ Standardized **disc rupture testing (ISO 11114-4)** to evaluate metallic materials resistance to hydrogen embrittlement in pressurised hydrogen gas
- ✓ Tensile testing device with **in-situ hydrogen charging** to simulate your working conditions
- ✓ **Hydrogen behaviour** inside the material by measuring H-solubility, H-mobility, H-trapping & H-permeation

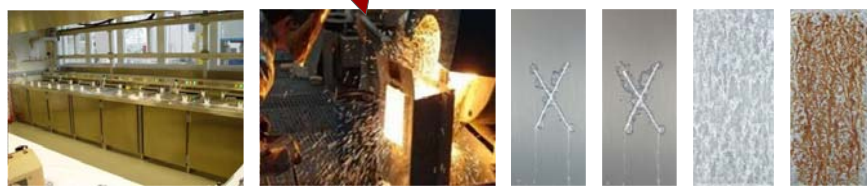
**Transport
Storage
Conversion**



- ✓ Recommendations on **optimised chemical composition, thermo-mechanical parameters and heat treatment**
- ✓ Fully equipped **metallurgical lab** to develop, produce, process and characterise your alloys in small batches
- ✓ Complete **coating laboratory** including novel curing techniques



- ✓ Fully equipped **chemical characterisation** laboratory
- ✓ Extensive **electron microscope and FIB** facilities to study microstructure, precipitates, fracture surfaces
- ✓ Extensive range of **sample preparation** equipment and **testing facilities** for metal sheet and plate in the range of 0.2 to 200 mm
- ✓ **Corrosion studies** in specific environments and extreme conditions



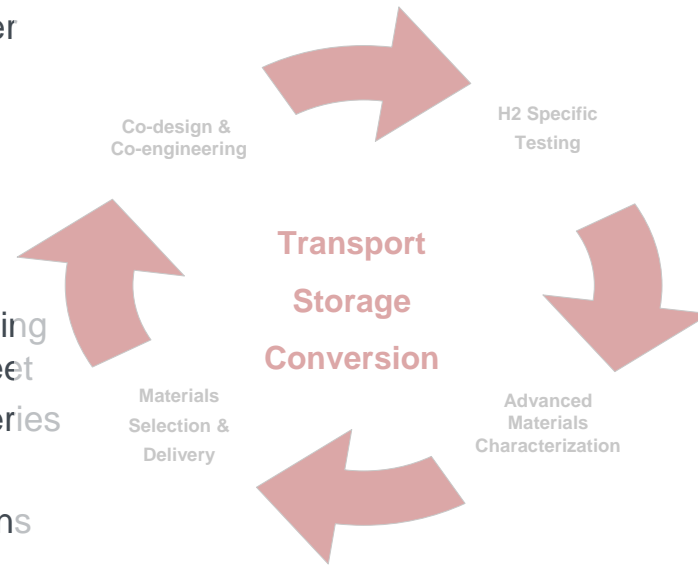
More specific information for your application: services@ocas.be, www.ocas.be or +32 9 345 12 11

OCAS, your partner for Material Issues in the Hydrogen Economy



Our offer:

- Training and knowledge transfer
- Applied research for problem-solving and co-engineering
 - Numerical modelling
 - Process simulations
 - Metallurgical processing including tailor made alloys and rolled sheet
 - Rapid prototyping and small series
 - Materials characterisation
 - Reporting and recommendations
- Fundamental research



Research partnerships

- Sharing our expertise for your R&D projects
- Commitment to and partnership with your team in full confidentiality
- Direct access to experts and cutting-edge instruments
- Support by international network of engineering schools and universities
- Increase materials innovation capacity
- Think outside the box for your next generation developments



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