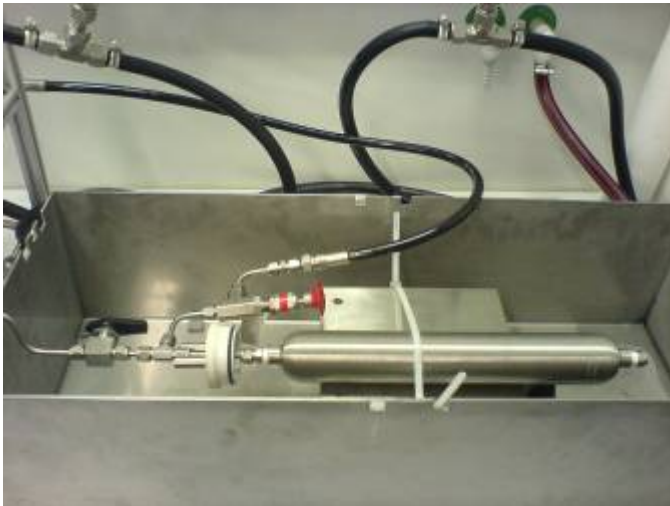


## Subproject Solid Storage: Lab-scale Tank

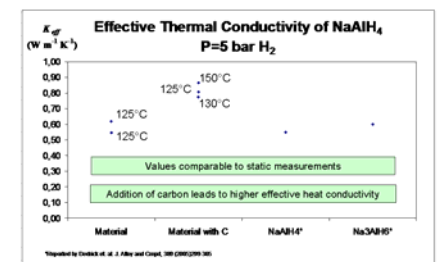
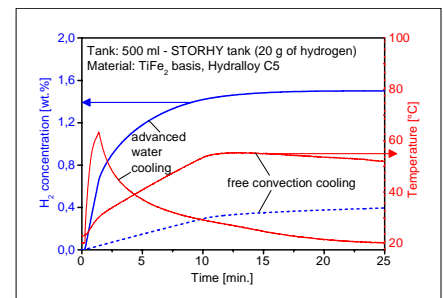
### Objectives

- ❖ Design a tank in lab scale (~ 500 ml) for the testing of metal (complex) hydrides as hydrogen storage materials
- ❖ Build a cycling station with which to test the lab scale tank

### Achievements



- ❖ A cylindrical configuration was selected, since it provides significant advantages:
  - Possibility of comparison with simulations due to the simplicity of the geometry.
  - Commercial tubing available for the pressure hull, allowing cost reductions and easy certification.
  - Possibility of standardization, including size and connections in order to integrate it with extent lab equipment.
- ❖ The main focus of research for the lab tank is the heat exchange behaviour of large hydride samples.
- ❖ Experiments with a thermocell (NessHy) allowed the development of a heat exchange model based on a cylindrical geometry and thus applicable to the StorHy lab scale tank.
- ❖ A ~ 40 % increase in the effective thermal conductivity of alanate via additives has already been achieved.



### Future Perspectives

- ❖ The lab tank will be used for further research into the cycling, kinetic and heat exchange behaviour of complex hydrides.
- ❖ High capacity complex hydrides (e. g. LiBH<sub>4</sub> / MgH<sub>2</sub> with 11.4 wt.%) are envisioned for future projects.

### Partners

- ❖ GKSS Research Centre Geesthacht GmbH
- ❖ Technische Universität Hamburg-Harburg



### Website

[www.storhy.net](http://www.storhy.net)



The project partners wish to thank the European Commission for financial support of the Integrated Project StorHy– Hydrogen Storage Systems for Automotive Application (Contract No.: SES6-CT-2004-502667) within the 6<sup>th</sup> RTD Framework Programme.