



BOR4STORE

Project ID: 303428

Funded under: [FP7-JTI](#)

"Fast, reliable and cost effective boron hydride based high capacity solid state hydrogen storage materials"

From 2012-04-01 **to** 2015-09-30, closed project

Project details

Total cost: EUR 4 070 711,30 EU contribution: EUR 2 273 682 Coordinated in: Germany	Topic(s): SP1-JTI-FCH.2011.2.4 - Novel H2 storage materials for stationary and portable applications Call for proposal: FCH-JU-2011-1 See other projects for this call Funding scheme: JTI-CP-FCH - Joint Technology Initiatives - Collaborative Project (FCH)
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Objective

"BOR4STORE proposes an integrated, multidisciplinary approach for the development and testing of novel, optimised and cost-efficient boron hydride based H₂ storage materials with superior performance (capacity more than 8 wt.% and 80 kg H₂/m³) for specific fuel cell applications.

Building on the results of past and ongoing EC funded projects on H₂ storage, BOR4STORE aspires to tackle the S&T challenges that still hinder the practical use of the extremely attractive boron hydrides. The technical objectives of the project reflect an innovative and carefully designed strategy involving

- (a) new methods for the synthesis and modification of stable and unstable boron hydrides, as well as their combinations resulting in Reactive Hydride Composites and eutectic mixtures,
- (b) systematic and rationalised investigation of the effect of special catalysts and additives, and
- (c) adaptation of scaffolding concepts,

in an attempt to use all possible ways for understanding and tailoring the key aspects of boron hydrides H₂ storage performance (storage capacity, reaction pathways and enthalpies, hydrogenation/dehydrogenation kinetics, cycling stability).

The most promising material(s), to be indicated by rigorous a downselection processes, will be used for the development of a prototype laboratory H₂ storage system that will be integrated and tested in connection with a 1 kW SOFC (representative for fuel cell applications e.g. for stationary power supply).

Special attention will be given, practically for the first time, to significant cost reduction by pursuing cost efficient material synthesis and processing methods (target material price <50 EUR /kg) but also by investigating the level of tolerable impurities of the new materials (target system price 500 EUR /kg of stored H₂)."

Related information

Report Summaries	Final Report Summary - BOR4STORE (Fast, reliable and cost effective boron hydride based high capacity solid state hydrogen storage materials)
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Subjects

[Scientific Research](#)

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