



Hydrogen Europe: European Hydrogen & Fuel cell Project Database

Project MMLRC=SOFC

Working towards Mass Manufactured, Low Cost and Robust SOFC stacks

Lightweight SOFC stacks are currently being developed for stationary applications such as residential CHP units, for automotive applications such as APU and for portable devices. They supply electrical efficiencies of up to 60%, a high fuel flexibility, being able to operate on syn-gas from Diesel reforming as well as LPG, methane or hydrogen, and promising costs due to greatly reduced amounts of steel interconnect material. The project proposal addresses a novel design solution for lightweight SOFC stacks that decouples the thermal stresses within the stack and at the same time allows optimal sealing and contacting. In this way the capability for thermal cycling is enhanced and degradation of contacting reduced. Performance is increased since the force needed for secure contacting is now independent of the force required to secure gas tightness of the sealing joints. The design is highly suitable for industrial manufacturing and automated assembly. The industrial partners will build up the necessary tools and appliances for low cost production of repeating units and the automated quality control, stacking and assembly of stacks. In mobile and portable applications the requirements for thermal cycling are high. It is therefore essential that lightweight stacks have excellent thermal cycling and rapid start-up capabilities. The stack design supplies a compensation of thermo-mechanical stresses between cell and cell frame / repeating unit. Thin steel sheets with protective coating are used for the sake of cost reduction and sufficient stack lifetime, also for stationary applications. The latter will also benefit from improved start-up times, since this allows a more flexible and load-oriented operation.

Project Information

Type of project : Research

Timing : 01/01/2012 > 30/06/2015

Project website: <http://www.birmingham.ac.uk/research/activity/mmclr/index.aspx>

Project Budget : 4.727.248 €

Funding

European Union through FCH JU: **Grant agreement 278525 - CORDIS link**

Project partners

Coordinator :

[University of Birmingham](#)

Partners :

[JÜLICH - Forschungszentrum Jülich GmbH](#)

[SOLIDpower SpA](#)

BORIT NV

MA MICRO AUTOMATION GMBH

AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS

NV BEKAERT SA

Turbocoating s.p.a.

[Sub project\(s\)](#)

Sub project 1

Country: United Kingdom

Address: Edgbaston B15 2TT BIRMINGHAM

Sub project categories

Research

Project Id: 1048

This project datasheet was last updated on : 15.10.2018

[Modify this project datasheet](#)