Hydrogen Europe:
European Hydrogen & Fuel cell Project Database

Project INSIDE

In-situ Diagnostics in Water Electrolyzers

In this project an electrochemical in-situ diagnostic tools for locally resolved measurements of current densities, which has been originally developed for application in polymer electrolyte membrane based fuel cells, will be adapted and integrated into water electrolysers. The tool will be applied to three different electrolysis technologies in a parallel effort: proton exchange membrane electrolysers, alkaline electrolysers and anion exchange membrane electrolysers. With this tool, which will include relevant sensors, the operating conditions will be monitored on-line. Test protocols for normal operation and accelerated ageing operation modes will be applied to the systems with the aim to identify critical operating conditions by means of the new integrated diagnostic tool. Parallel to these in-situ diagnostics, ex-situ investigations of electrolyser components, such as electrodes and membranes, will support the approach. Fresh and aged samples will be studied, in steady interaction with the in-situ diagnostics, to identify the mechanisms leading to performance losses and failure of components. These two approaches will be combined to find strategies and operation parameters to anticipate and to avoid hazardous operation modes. The possible use of electrolysers as decentralised storage systems for excess electric energy and thus providing a sustainable energy carrier in form of hydrogen will require a reliable operation under varying loads.

Project Information

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Project website: http://www.inside-project.eu
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Project partners

Coordinator :
DLR - German Aerospace Center
Partners :
CNRS - Centre National de la Recherche Scientifique
NEW NEL HYDROGEN AS
ACTA SPA
HOCHSCHULE ESSLINGEN

Sub project(s)

Sub project 1

Country: Germany
Address:
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Sub project categories
Research

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