



Hydrogen Europe: European Hydrogen & Fuel cell Project Database

Project ARTEMIS

Automotive pemfc Range extender with high TEMperature Improved meas and Stacks

ARTEMIS is a collaborative project whose aim is to develop new high temperature PEMFC MEAs for operation up to at least 130 °C, and preferably 150 to 180 °C, and their validation in a stack for automotive application as a range extender. There is increasing industrial interest in developing HT-PEMFC systems in conjunction with Diesel or methanol-reformer to continuously charge batteries onboard of automotive vehicles, thus extending the range to several hundred kilometers, using the existing infrastructure for hydrocarbon fuels. HT-PEMFC systems are being developed commercially for backup-systems in remote areas or developing countries where a long operation time is required when the grid fails. Hydrogen supply for those applications is, in the present infrastructure scenario, rather difficult and expensive, leading to the combination of reformers with HT-PEMFC as an attractive option. High temperature fuel cells offer advantages for the overall system. HT-PEM fuel cells require less balance of plant components and thus have reduced ancillary loads, and they offer high tolerance to CO and other pollutants, meaning that either lower quality hydrogen can be used on an onboard reformer integrated to use readily available hydrocarbon fuels (gasoline or diesel in the case of range extender to an ICE, or others, bioethanol for example in the case of a range extender to a battery). The purpose of ARTEMIS is to develop and optimise alternative materials for a new generation of European MEAs which could be integrated into a 3 kWe high temperature PEMFC stack, while reducing cost and increasing durability. The MEAs will be based on new and alternative polybenzimidazole type membranes and improved catalytic layers providing low catalyst loading and high efficiency at high temperature as well as a high tolerance to pollutants. The MEAs should offer long and stable properties under various conditions of operation relevant to the range extender application.

Project Information

Type of project : Research

Timing : 01/10/2012 > 31/12/2015

Project website: <http://www.artemis-htpem.eu/>

Project Budget : 2.822.692 €

Funding

European Union through FCH JU: **Grant agreement 303482 - CORDIS link**

Project partners

Coordinator :

[CNRS - Centre National de la Recherche Scientifique](#)

Partners :

[CEA - Commissariat à l'énergie atomique et aux énergies alternatives](#)

[Nedstack fuel cell technology B.V.](#)

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

Sub project 1

Country: France

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Sub project categories

Research

Project Id: 910

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