

FCCF - APU

FUEL CELL OPERATING ON CONVENTIONAL FUELS AS AUXILIARY POWER UNIT FOR ELECTRICAL VEHICLES

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The project strives for the development of a fuel cell based Auxiliary Power Unit (APU) for battery electric vehicles using HT-PEMFC fuel cell technology and diesel or petrol steam reforming. In order to accomplish this goal including weight and volume targets activities in system engineering as well as in material development are required.

In the first year of the project, the basic requirements for the system were defined and a first system design layout was developed which allowed for the process simulation. It could thus be shown that water autonomous operation is possible without additional measures up to ca. 40°C. Ways to extend this range have also been determined. On the materials level HT-PEMFC electrodes with reduced sensitivity against high humidity were demonstrated. Additionally two Pt-M bimetallic electrodes were found which were significant less sensitive towards sulphur poisoning. With respect to metal bipolar plates the transfer of the milled design for graphitic plates into a moulded design for metallic bipolar plates was accomplished. Also a protective coating with promising properties in a pickling test was determined.

Finally a commercial catalyst for the steam reforming of petrol and diesel with high conversion rates at acceptable space velocities and temperatures was determined.

PROJECT DATA

Funding/€	Total cost/€	Duration
2.219.439	3.272.558	36 months

Partners	
	Fraunhofer Institute for Chemical Technology, DE
	Fraunhofer Institute for Solar Energy Systems ISE, DE
	Serenergy A/S, DK
	Danish Power Systems, DK
	Borit NV, BE-VLG
	Impact Coatings AB, SE
	WS-Reformer GmbH, DE
	Chalmers Tekniska Högskola AB, SE

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OPERATED BY
CONVENTIONAL
FUELS <<

