



FIT-4-AMANDA

Future European Fuel Cell Technology: Fit for Automatic Manufacturing and Assembly

EUROPEAN COMMISSION

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Publishable Executive Summary

In the scope of the project Fit-4-AMandA¹, a redesign of the current PM400 stack format was necessary mainly to comply with the physical frame conditions given by the mass-manufacturing machine (MMM) also developed in the project. The newly redesigned stack had to be thoroughly tested to assess, whether the performance of the new stacks did not decrease in comparison with the pre-existing PM's format (i.e., pre-Fit-4-AMandA design).

Two short stacks were to be built at the PM facilities and, after the break-in and an initial evaluation of the so-called Beginning-of-life (BoL) performance, delivered to TUC's facilities for comprehensive testing. However, the testing could not be completed due to severe disruptions caused by the global pandemic COVID-19.

The so-called Beginning-of-test (BoT) diagnostic was to be performed using selected performance tests (polarisation-curve measurement, cyclic voltammetry, linear sweep voltammetry and electrochemical impedance spectroscopy). Afterward, the accelerated stress tests (ASTs) derived from DOE protocols² and from EU Harmonised test protocols³ were to be performed in order to evaluate the short stack's voltage decay rate and to gain an estimation of the short stack lifetime.

¹ Future European Fuel Cell Technology: Fit for Automatic Manufacturing and Assembly – Fit-4-AMandA (EU project, duration 01 Mar 2017 – 31 Dec 2020, 45 months). Funding Programme H2020-JTI-FCH-2016-1, Grant Agreement #735606.

² Garland, N. et al.: DOE fuel cell program: Durability technical targets and testing protocols. ECS Transactions 11(1), 2007, pp. 923-931.

³ Tsotridis, G. et al.: EU harmonised test protocols for PEMFC MEA testing in single cell configuration for automotive applications. JRC Science for Policy report, 2015.

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Project partners:

#	Partner	Partner Full Name
1	UNR	Uniresearch BV
2	PM	Proton Motor Fuel Cell GmbH
3	IRD	IRD Fuel Cells A/S
4	Aumann	Aumann Limbach-Oberfrohna GmbH
5	Fraunhofer	Fraunhofer-Gesellschaft zur Foerderung der angewandten Forschung e.V.
6	TUC	Technische Universitaet Chemnitz
7	UPS	UPS Europe SA



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