

Stack-Test – Development of EU-wide uniform performance test schemes for PEM fuel cell stacks

Work package 3: Durability and Endurance testing

F. Nygaard^a, L. Jörissen^b, I. Alecha^c, C. Harms^d, P. Piela^e, S. Araya^f, J. Mitzel^g, G. Tsoitridis^h, T. Jungmannⁱ, S. Rosini^j, B. Guicherd^k

^a Technical University of Denmark, 4000 Roskilde, Denmark

^b Centre for Solar Energy and Hydrogen Research Baden-Württemberg, 89081 Ulm, Germany

^c CIDETEC, Fuel Cell Unit, 20009 Donostia-San Sebastián (Gipuzkoa), Spain

^d NEXT ENERGY • EWE Research Centre for Energy Technology, 26129 Oldenburg, Germany

^e Industrial Chemistry Research Institute, 01-793 Warsaw, Poland

^f Aalborg University, Department of Energy Technology, 9220 Aalborg East, Denmark

^g German Aerospace Center (DLR), 70569 Stuttgart, Germany

^h European Commission, Joint Research Centre (JRC), 1755 Petten, The Netherlands

ⁱ Fraunhofer Institute for Solar Energy Systems ISE, 79110 Freiburg, Germany

^j Atomic Energy Commission (CEA), F-38 054 Grenoble, France

^k Symbio Fcell, 75017 Paris, France

Key project activities

- Functional / Performance Testing
- Durability Output Testing
- Environmental / Safety Output Testing
- Liaison to Standard Developing Organizations and Industry

Development of Generic Test Modules and programs

Only few test modules (TM) are defined for the durability assessment of a PEMFC stack. The master document as well as several test modules from work package two will form the basis of the test programs in work package 3. The test modules will be validated individually, before being tested as a part of a more detailed test program, which would be application specific.

The Test Programs (TP) are prepared specific to different applications. They represent topics of interest demanded by end-users concerning the function and the performance of industrial fuel cell stacks.