

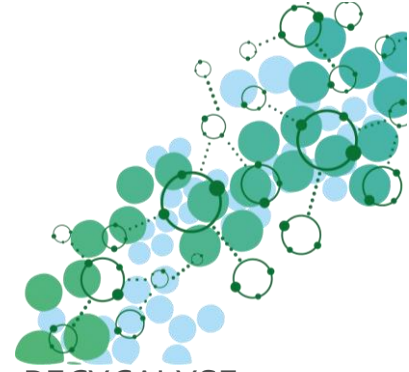
The RECYCALYSE project develops its proton exchange membrane electrolyser prototype

- The RECYCALYSE project keeps pursuing the goal of developing alternatives to the use of critical raw materials within energy storage
- This advancement will contribute to developing a circular economy in the framework of green hydrogen production

Copenhagen (Denmark), May 3rd. The RECYCALYSE project develops the first version of its proton exchange membrane electrolyser stack. The partner HyCentA in collaboration with the Danish Technological Institute, Blue World Technologies, TWI Limited and PRUFREX Innovative Power Products have worked on creating an electrolyser system prototype to conduct the first experiments.

The Recycalyse PEM stack has a net-rated power of 5 kW and will produce up to 1 Nm³ of hydrogen per hour at a target pressure level of 50 bars. The first generation stack consists of 14 cells with a reduced critical raw material content compared to conventional PEM electrolyser stacks by utilising support structures for the catalytic sites. The cells will be further improved in performance and reduction of CRM for the second-generation stack within the next year.

The developed PEM stack system can be operated within 1 to 10 kW electrical power and hydrogen pressures up to 160 bar. It can handle explosive atmospheres on the anode side due to special safety installations, which are necessary to test and qualify PEM stacks in part-load operation. Furthermore, the implemented control and state model allows for testing of operation strategies and optimisation from component to system level.



“This first generation stack is a very important milestone for the RECYCALYSE project, as it will prove that the new approach to catalytic structures is functional at the stack level. The stack will also be used to analyse and optimise the control and operation strategies leading to a longer lifetime and high efficiency as well as to a reduction of operational costs” stated Christian Kallesøe, the project coordinator.

About RECYCALYSE

Led by the Danish Technological Institute, RECYCALYSE is formed by Fraunhofer ICT, Sustainable Innovations, TWI, Blue World Technologies, Technische Universität Bergakademie Freiberg (Institute for Nonferrous Metallurgy and Purest Materials), Bern University, Prüfrefex, HyCentA Research GmbH, and Accurec.

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