SUPREME
Clean Energy Transition Partnership

PFAS Free Membrane for Energy

Industrialization of new generation SUstainable, low-cost, high PerfoRmance, novel water Electrolysis Material, production & system.

Cet Partnership

Co-funded by the European Union

Friday 2nd Oct. 2026

CET 10:00 – 11:30

TEAMS link

Contact:
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SUPREME is engaged to advance next-generation, high-performance, intermittency-friendly, revolutionary proton exchange membrane (PEM) water electrolyser of electricity consumption 45 kWh/kg H_2 at a current density of 3 A/cm^2. This will be achieved by validating a novel centrifugal electrolyser with industrialized catalyst coated membranes (CCMs) using non-fluorinated PEM and low-Ir, recycled catalysts. The project integrates material innovation, efficient collaboration, dissemination, exploitation, stakeholder engagement, and commercialization planning — accelerating the transition to a low-carbon energy system.

This webinar series brings together scientists, researchers & industry representatives from across EU and beyond to address key challenges of the green transition and explore opportunities for collaboration, networking, outreach & partnership. The event features 3 presentations followed by interactive Q&A, fostering knowledge exchange and new cross-sector connections.

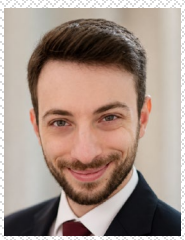
10:00 (CET) #1: PFAS-Free PEM for Water Electrolysis: From State-of-the-Art to Next-Generation Materials

Tugba LEKESİZ, PhD, Chief Researcher, tugba.lekesiz@tubitak.gov.tr, TÜBİTAK Marmara Research Center (TÜBİTAK MAM), Turkey

Abstract: Proton exchange membrane water electrolysis (PEMWE) is a key technology for green hydrogen production and energy transition. This presentation provides an overview of state-of-the-art and emerging PFAS-free membranes for PEMWE, with a particular focus on sulfonated aromatic polymers, intrinsically microporous polymers, and composite membrane concepts. The advantages, limitations, and development status of these materials will be discussed, together with key performance requirements including proton conductivity, chemical and dimensional stability, durability, scalability, and long-term operation under demanding electrolyzer conditions.

10:30 (CET) #2: Towards PFAS-Free PEM Electrolysers: The FASTCH2ANGE Approach for Sustainable H2 Production

Domenico AMICO & Erasmo S. NAPOLITANO, Consultant, Domenico.amico@rina.org, erasmo.napolitano@rina.org, RINA, Italy



Abstract: FASTCH2ANGE develops PFAS-free components for PEM electrolysers through a Safe and Sustainable by Design (SSbD) approach. The project combines QSAR screening, quantum-chemical modelling, and the development of TEOS-derived fluorine-free hybrid membranes to accelerate the discovery of sustainable materials. By integrating predictive assessment, advanced materials design, synthesis, and experimental validation, FASTCH2ANGE supports safer, scalable, and sustainable technologies for green hydrogen production.

11:00(CET) #3: Advancing High-Temperature PEM Fuel Cells for Heavy-Duty Applications

Vasiliki ZOGALI, PhD, Senior Chemist, vasiliki.zogali@advent.energy, Advent Technologies, Platani, Greece

Abstract: The EU-funded Horizon 2020 project MEAsureD develops advanced, cost-effective membrane electrode assemblies (MEAs) for high-temperature PEM fuel cells operating above 160°C, targeting heavy-duty vehicle applications. Based on Advent's Ion Pair™ HT-PEM technology, the project optimizes membranes, ionomers, catalysts, electrodes, and MEA assembly to improve performance, durability, and cost efficiency. By combining materials development, modelling, and validation, MEAsureD aims to reduce PGM loading, enhance operation under dry conditions, and advance sustainable hydrogen-powered transport solutions.

Moderation & organizing committee: Tuba Bedri, Stefan Bercher, Nikolaos Theodoropoulos, Angelo Meduri, Merit Bodner & Shuang Ma Andersen

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