

Press Release

elementarhy Revolutionizes with New Technology Previously Costly Hydrogen Production

- Northern German company awarded "Best European Hydrogen Start-up 2025"
- Advanced membrane electrode technology significantly reduces production costs
- Start-up aims to become a pioneer for green hydrogen

Hamburg / Germany, May 9, 2025 – As an innovative green-tech start-up, **elementarhy** has now been awarded "Best European Hydrogen Start-up 2025" at the **H2 National Summit** hydrogen conference in Hamburg. The company is currently revolutionizing the hydrogen economy with an innovative Membrane Electrode Assembly (MEA) that significantly reduces the use of expensive raw materials in water electrolysis, making hydrogen production cost-effective in the future.

Climate-neutrally produced hydrogen is expected to meet the energy needs of industry in the future and serve as storage for electricity from solar and wind power plants. However, production has been expensive until now. Hydrogen production requires electrolyzers that split hydrogen and oxygen. Electrolyzers use iridium for this purpose - a silvery-white precious metal that is scarcer and more expensive than gold and platinum.

Based on scientific research results of recent decades, **elementarhy** has now developed a cost-effective, innovative Membrane Electrode Assembly (MEA) for electrolysis using plasma technology, which requires 95% less of the expensive raw material than before. This enables central electrolyzer components "Made in Germany" to be produced 25% more cost-effectively - and thus makes hydrogen production as a whole significantly more economical.

With this revolutionary technology, **elementarhy** enables all electrolyzer manufacturers to significantly improve resilience in critical raw material supply and economic efficiency. **elementarhy** offers the MEA exchange as a service to industry-leading customers.

elementarhy can completely eliminate the use of per- and polyfluorinated chemicals (PFAS), which are currently used in catalyst coating. The PFAS substances, known as "forever chemicals," accumulate in nature and living organisms and are considered a health risk. The EU is currently negotiating far-reaching PFAS bans, and the industry is urgently looking for alternatives.

elementarhy is a spin-off from the Leibniz Institute for Plasma Research and Technology in Greifswald. There, innovative solutions for socially and economically important technologies are developed. The Federal Ministry of Economics and Climate Protection (BMWK) has been supporting **elementarhy** as an "outstanding research-based start-up" since 2023. With headquarters in Hamburg and a facility in Greifswald, the company combines Hamburg's economic strength in the hydrogen sector with Greifswald's leading plasma research expertise.

Technology in Focus

The "**Best European Hydrogen Start-up 2025**" award recognizes **elementarhy**'s innovative developments in the field of Membrane Electrode Assemblies (MEA), which make an important contribution to the further development of the hydrogen economy. The H2-Age Award is presented

annually and recognizes start-ups that advance the hydrogen economy through innovative technologies and business models.

The jury particularly acknowledged that the start-up enables large-scale and affordable production of green hydrogen, thereby making a decisive contribution to decoupling from fossil hydrogen. The jury includes Dr. Stefan Kaufmann (Member of the German Bundestag and former Innovation Commissioner for Hydrogen of the Federal Government), Prof. Dr. Christopher Hebling (Fraunhofer ISE), and Jan Rispens (Renewable Energy Hamburg).

The award was presented by Jan Rispens. Dr. Zahra Nasri (CSO) and Arne Birth (CFO) accepted the €5,000 award for elementarhy.

Statements on the Award

The patron of the H2 National Summit, Hamburg's First Mayor Dr. Peter Tschentscher, emphasized the central role of hydrogen for a sustainable energy future: "Hydrogen is a central energy carrier of the future and the key to a successful energy transition. Politics and business are working together to ensure that the production, trade, and use of hydrogen receive tailwind. Hamburg is consistently pursuing this course because decarbonization and modernization go hand in hand with climate protection and economic competitiveness."

Arne Birth (CFO) elementarhy: "Green hydrogen needs innovation. We now enable the hydrogen economy and electrolyzers worldwide to make green hydrogen sustainable, scalable, and, above all, affordable with our Membrane Electrode Assemblies. Our plasma technology significantly reduces critical and costly precious metals like iridium and paves the way for secure energy and raw material supply."

Strong Support for a Sustainable Future

With the H2-Age Award 2025, elementarhy receives another significant recognition for its innovative developments. In addition to the award, the company benefits from support from the Federal Ministry for Economic Affairs and Climate Action and winning the Leibniz Founding Prize 2024. With these funds, the team is driving forward the development of production facilities ready for market and the commercialization of its innovative technology.

The founding team of elementarhy consists of four materials scientists and a market expert: Arne Birth (Business Administration and Geography graduate), André Pacheco (Chemical Engineer), Dr. Martin Rohloff (PhD in Chemistry), Dr. Gustav Sievers (Environmental Scientist and PhD in Electrochemistry), and Dr. Zahra Nasri (PhD in Chemistry).

More about elementarhy: www.elementarhy.com

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