MEDIARELEASE

▶ *POWER SYSTEMS*

7 January 2026

National Hydrogen Strategy: Rheinmetall successfully develops innovative electrode technology for hydrogen production

The technology group Rheinmetall has successfully completed a project to develop a new electrode technology for alkaline electrolysis. This technology is a key technology for the energy transition in the field of hydrogen production. Preparations for the pilot production in the coming year have already been initiated.

The KS Gleitlager GmbH (KSG), a subsidiary of the group, has been conducting research over the past three years as the consortium leader in the German government-funded consortium project 'Noble Metal-free Electrodes for the Next Generation of Alkaline Electrolysis' (E^2ngel). This project is funded within the framework of the National Hydrogen Strategy. The aim is to significantly increase the power density and efficiency of water electrolysis to produce green hydrogen based on noble metal-free catalysts in comparison to current systems.

"The use of our innovative electrode technology will make electrolyser systems more powerful and efficient than they are today", explains Dr. Karsten Lange, head of the E^2ngel consortium project. This will reduce the production costs of green hydrogen through lower investment in the overall system, accompanied by a doubling of power density or an improvement in efficiency of over 10%.

Rheinmetall's wide-ranging expertise, particularly in the areas of special alloy material development, metallic coating processes and various forming, stamping, bending, cutting and joining technologies, enabled the rapid completion of both catalyst and process development. The E^2ngel consortium partners, the German Aerospace Centre (DLR) and McPhy Energy Germany, carried out the timely qualification and validation. The DLR Institute of Technical Thermodynamics tested numerous development variants, and McPhy tested them in the final project phase to ensure their suitability for use in the electrolyser system. The project goals, which were ambitious in terms of cell voltage and current density, were surpassed. This demonstrates that the precious metal-free and therefore highly scalable electrode technology is more efficient than the significantly more complex solutions based on expensive and critical precious metals.

Series production is now underway: pilot production is scheduled to start at the St. Leon-Rot site next year. The production line is designed for electrode dimensions of up to two metres and is therefore suitable for multi-megawatt electrolyser systems. In addition, the volume scaling required for a successful energy revolution was already considered when selecting the process and production technology.

▶ Key facts

- Rheinmetall successfully completes development of innovative electrode technology
- Consortium leader in a project for the German government
- Pilot production already initiated
- Intention: Cost-optimised production of green hydrogen through electrolysis on an industrial scale

▶ Contact

Oliver Hoffmann
Head of Public Relations
Rheinmetall AG
Tel.: +49-(0)211 473 4748
oliver.hoffmann@
rheinmetall.com

Dr. phil. Jan-Phillipp
Weisswange
Deputy Head of Public Relations
Rheinmetall AG
Tel.: +49-(0)211 473 4287
jan-phillipp.weisswange@
rheinmetall.com

▶ Social Media

@Rheinmetallag
@Rheinmetallag
Rheinmetall
Rheinmetall

WhatsApp

RHEINMETALL

Dr. Klaus Pucher, CEO of the responsible business unit, is delighted: “We are thus making a significant contribution to a sustainable and affordable energy transition. At the same time, we are helping to reduce dependence on imported fossil fuels and thus strengthening the resilience of the German and European energy supply”.