

**Calderys is proud to play a key role
in the green hydrogen reheating revolution**

The Group is participating in HYDREAMS, an innovation project financed by the European Union addressing the challenges of the energy transition in the steel industry.

Paris, France - January 23, 2024 – Calderys announces its participation in [HYDREAMS](#), a project coordinated by French firm UGITECH, part of the Swiss Steel Group. HYDREAMS aims to remove carbon emissions from steel treatment thermal processes by using green hydrogen made from renewable energy sources. Its stated objective is full decarbonization of thermal processes for steel reheating and heat treatment by means of clean hydrogen oxyfuel combustion. The process will also improve the energy-efficiency of the thermal treatments, and simultaneously cut nitrogen oxide (NOx) emissions.

How is Calderys contributing to HYDREAMS?

By replacing natural gas with green hydrogen as a fuel source in reheat furnaces, steelmakers may have to adapt their industrial processes and their plant. As the only refractory maker involved in the project, Calderys will study how modifications made to the furnace - to allow the use of hydrogen in the combustion process - affect the refractory lining. Based on the data obtained, Calderys will re-engineer, or manufacture new refractories, as necessary, to withstand the conditions inside the modified, green hydrogen powered furnace.

Bruno Touzo, Global Vice President, Innovation & Technology Calderys, said *"I'm excited to see our teams of experts entering international research projects and placing their refractory expertise at the service of steelmakers making the energy transition. These projects are perfectly aligned with the journey on which we have embarked as a company: to strengthen our innovation at the service of our customers, their industries and the planet."*

It is expected that successful completion of the HYDREAMS project will lead to investment decisions for deployment of green hydrogen reheating furnaces in at least 5 steel plants in Europe.

The future is green hydrogen

According to the EU, renewable energy, including renewable hydrogen, is a central pillar of the REPowerEU Plan*. As well as increasing Europe's energy security, green hydrogen is important in the EU's push for net zero emissions, with a target to achieve a reduction of 55% by 2030, compared to levels measured in 1990 (source: [European Union, Energy](#))

Digital twin

Calderys is a key partner - and the sole supplier of refractories, in the Spain-based [TWINGHY](#) project.

As its name suggests, this project to modify the heat transfer process in reheating furnaces is being developed alongside a digital 'twin', which will be used to control the combustion of hydrogen and oxygen in hybrid burners. The aim of the project is to deliver significant carbon dioxide emission reductions while also saving energy and maintaining low Nitrogen Oxides (NOx) emissions.

Like HYDREAMS, TWINGHY is financed by the European Union under the Research Fund for Coal and Steel (RFCS). Initiated in the summer of 2023, the TWINGHY project will run until 2027.

Bruno Touzo: *"We'll be involved in many more hydrogen green-steel projects in coming years, as the industry moves towards the EU's targets for zero emissions. What we're learning with HYDREAMS and TWINGHY will eventually bring operational and cost benefits to all of our customers, and sustainability, not just in Europe, but worldwide."*

What is green hydrogen?

In industry, hydrogen is produced by the electrolysis process, which uses electricity to separate water into its constituent, atomic parts of hydrogen and oxygen. This simple, but energy intensive process allows the hydrogen to be caught and stored for use as a highly-combustible, clean-burning, and efficient fuel.

To produce green hydrogen, the electrolysis process is powered by electricity generated by renewable sources, instead of fossil fuels. If 100% renewable sources (solar, wind, and hydro) are used, the hydrogen is made with zero carbon emissions. Hence, green.

* Launched in May 2022, **REPowerEU** is a program launched by the EU, helping EU

- save energy
- produce clean energy
- diversify its energy supplies

More info :

https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repower-eu-affordable-secure-and-sustainable-energy-europe_en



About Calderys

Calderys is a leading global provider for industries operating in high-temperature conditions. The Group specializes in thermal protection for industrial equipment with a wide range of refractory products and advanced solutions to enhance steel casting, metallurgical fluxes, and molding processes. With a presence in more than 30 countries and a strong footprint in the Americas through the brand HWI (HarbisonWalker International), Calderys' international network of experts ensures an end-to-end offer with tailored services. Drawing on over 150 years of experience, Calderys supports its customers in their energy transition needs. Headquartered in Paris, France, the Group counts 5,800 employees and contractors and 50 plants on five continents.

For more information, visit www.calderys.com

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