

H2SITE: Enabling Hydrogen Generation and Transportation





An innovative spin-off: H2SITE builds on its membrane reactor and separation technologies developed by Tecnalia and the Eindhoven University of Technology (TU/e) to generate hydrogen from transportable molecules such as ammonia, methanol, and syngas, while also purifying hydrogen mixed with other gases in existing pipelines or other storage infrastructures



The collaboration: The membrane reactor technology was developed through several EU projects and internal investments, **over the span of ten years**. TECNALIA joined forces with the TU/e to **develop and scale-up this technology**, combining Tecnalia's membrane technology with TU/e's membrane reactors



Net-Zero targets will require large volumes of low-carbon hydrogen to decarbonize hard to abate industrial sectors, heavy duty mobility, and other potential new usages to be developed. However, the lack of efficient long-distance transport solutions is a major challenge, with existing technologies adding up to 80-300% to the cost of producing hydrogen. **Carriers like ammonia or methanol represent promising options for transport** given their well-established manufacturing process, supply chain and regulatory framework, while offering higher energy densities and simpler storage requirements compared to liquid hydrogen

H2SITE's technology is based on palladium-alloy membranes that are only selective to hydrogen that guarantees 99.97 % purity levels suitable for use in fuel-cell or industry

These membranes are integrated in advanced reactors and separators solutions that **recover up to 98 % of the hydrogen** to offer high efficiency

H2SITE's Membrane benefits







Palladium-alloy membranes are selective to only hydrogen with the highest permeation.

Easy to operate and robust systems that can process multiple feedstock adapting to

TUGE EINDHOVEN UNIVERSITY OF TECHNOLOGY Pd-based membranes and Membrane Reactor Technology

tecnal:a

MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

Projects & Industrial Partnerships

Technology transfer to H2SITE for hydrogen production and purification



H2SITE: Tecnalia - TU/e Innovation





production and understanding market demand. Together, we're ready to accelerate large-scale infrastructure projects focused on ammonia cracking and hydrogen separation over the next 36 months."

Andrés Galnares, CEO of H2site (December 2024)





The most advanced technology to make high-purity hydrogen available

