

Loss Prevention and Maintenance Modelling for Hydrogen-based Industry

Description

This Ph.D. is part of the H2GLASS project (<https://h2-glass.eu/>).

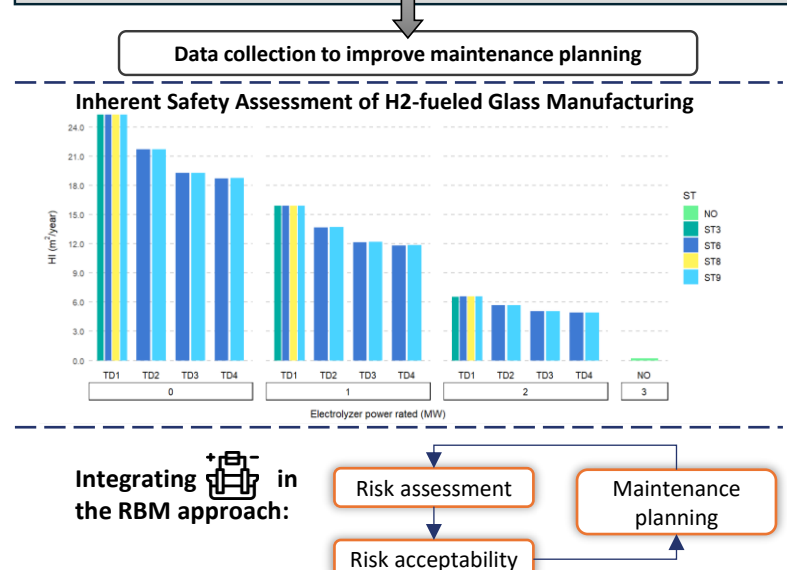
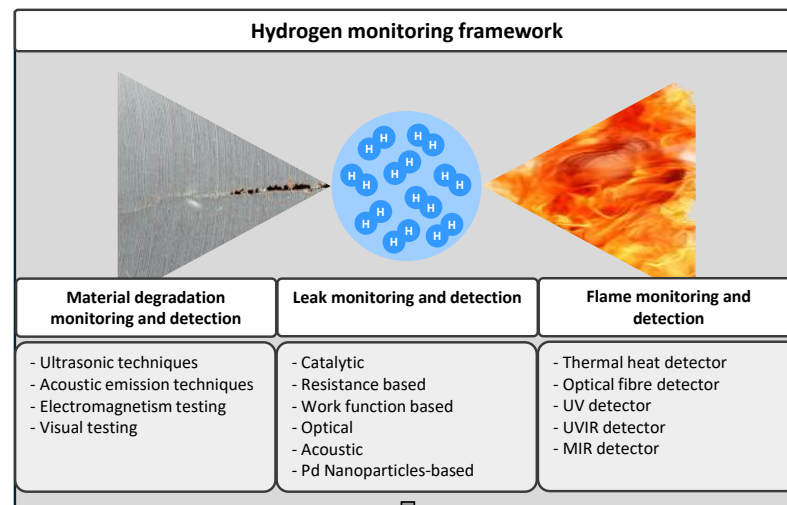
To achieve net-zero emissions by 2050, the glass industry must undergo complete decarbonization. The H2GLASS project aims to develop the necessary technology stack to enable 100% hydrogen combustion in glass manufacturing, ensuring the required product quality, and manage this safely.

Primary objective

Guarantee safe design and operability of emerging hydrogen-based industry

Secondary objectives

- Loss of integrity analysis: models and sensors for H2 applications
- Safe design for emerging H2 industry
- Risk-based inspection and maintenance model development



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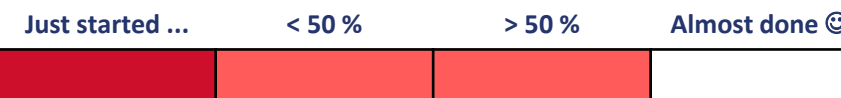
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H2GLASS - advancing Hydrogen (H2) technologies and smart production systems TO decarbonise the Glass and Aluminium Sectors

- Master's degree in Chemical and Process Engineering – University of Bologna (2020-2023)
- Bachelor's degree in Chemical and Biochemical Engineering – University of Bologna (2017-2020)



Estimated progress of the PhD project:



Publications

- Collina G., et al., (2025). Multi-stage monitoring of hydrogen systems for improved maintenance approaches: an extensive review, *International Journal of Hydrogen Energy*, 105, 458-480.
- Collina G., et al., (2024). Hydrogen in Glass Sector: A Comparison between Risk-Based Maintenance and Time-Based Maintenance Approaches, *IFAC-PapersOnLine*, 58(8), 109-114.

