



PERSONA CIÈNCIA EMPRESA
UNIVERSITAT RAMON LLULL

Title: Post-combustion CO₂ capture pilot plant optimization with new adsorbents and digital twin development.

Place: IQS. GESPA research group laboratory

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Summary: The increasing awareness regarding sustainable processes in the industry that contributes to eco-friendly solutions which protects and preserves the planet, thus to its people, has resulted in the need for the development of in-situ CO₂ capture and utilization technologies. The importance of reuse, reducing and recycling in the industry is more important than ever. Solutions are required to bring both economic and energy performance for CO₂ management through greener alternatives. Post-combustion Carbon Capture and on-site Use (CCU) is given as a solution to tackle this demand with a circular economy approach. In this project, Vacuum Swing Adsorption (VSA) technology has been used for carbon capture and utilization in several industry sectors such as industrial wastewater treatment or food industry.



The main goal of this project is to optimize an existing post-combustion CO₂ capture pilot plant at lab scale for its implementation. This will be done tackling four main aspects: to research and analyze new adsorbents, to tune process parameters for different adsorbents and analyze its influence on the process parameters, to study the process control for optimizing energy consumption or production rate and to optimize a digital twin of the installation.