

## May 2025/ No.4

Co-funded by the Horizon Europe Framework Programme of the European Union - Marie Skłodowska-Curie actions© All rights reserved GA Nº 101086354

Valorisation of Agro-Industrial Wastes via the Production of Zeolitebased composite materials and their use in Environmental Remediation and Biofuel production.



Welcome to the VALZEO 4th Newsletter. We are excited to have you on board and to share our sustainable journey with you.

In this edition of the newsletter, we will review the most important events of the last six months. We will showcase some of the advancements in the project's research, result of the collaboration with partners from different countries, as well as the 24 months Project Meeting. We will present the conferences to which VALZEO has actively participated to share the project and its progress, together with fostering relationships with relevant actors. We will highlight important partnerships with researchers from different countries aimed at expanding knowledge and growth. We will also mention future commitments and participation to events that represent a meaningful opportunity for knowledge exchange and collaboration. Welcome Message P.1

VALZEO M24 Progress Meeting P.2

VALZEO secondments P.2

VALZEO Researchers Activities P.3

VALZEO Events P.3 , P.4

VALZEO Training Activities , P.4

### VALZEO M24 Progress Meeting

Advancement in sustainable solutions through Agro industrial waste valorization

On December 4th, 2024, the VALZEO consortium met virtually to review progress made over the past 24 months of the project. Hosted by the Universitat Autònoma de Barcelona (UAB) and coordinated by Dr. Roberto Boada, the meeting featured presentations from leading experts across partner organizations.

The discussions covered key achievements, ongoing tasks, and future goals, concluding with an in-depth review of Work Package 6 (Project Management). The consortium addressed risk management, ensured alignment with project objectives, and outlined next steps for the final stages of the project.

This collaborative exchange reflects VALZEO's commitment to driving innovation and delivering impactful results in sustainable materials research and circular economy solutions.



#### Learn more about VALZEO Month 24 meeting Here

#### Life Cycle Assessment and Cost Analysis of Silica Extraction from Rice Husk Ashes



The VALZEO project is advancing sustainability research through an in-depth Life Cycle Assessment (LCA) and Life Cycle Cost (LCC) analysis of silica extraction from rice husk ashes (RHA). This research, initiated during Roberto Boada's (UAB) secondment at ZPRIME, compares two extraction techniques: mechanical agitation and ultrasonic bath methods.

The study explores the environmental impact, energy consumption, and economic feasibility of these processes, aiming to optimize silica recovery while minimizing ecological and financial costs. Understanding the LCA and LCC of silica extraction is vital for developing cost-effective and environmentally sustainable solutions. By refining extraction methods, VALZEO contributes to the creation of sustainable zeolite-based materials for clean water technologies and greener biodiesel production. This research strengthens the broader vision of resource valorization and circular economy practices, promoting more efficient and eco-friendly industrial applications.

#### Turning Agricultural Waste into Clean Water Solutions: Zeolite-Based Photodegradation of Methylene Blue

The UNIVPM team is exploring innovative ways to purify water using waste-derived materials. Their latest study focuses on the photodegradation of Methylene Blue – a common water contaminant – by leveraging zeolites synthesized from rice husk as solid catalysts, paired with visible light and hydrogen peroxide ( $H_2O_2$ ) as an oxidizing agent.

This sustainable approach generates reactive species capable of efficiently breaking down the dye, showcasing the potential of agricultural waste valorization in environmental applications. The research, supported by seconded researchers Antonia Jimenez Rodriguez and Menta Ballestreros Martin from UPO, highlights the promise of eco-friendly catalytic systems for water treatment. By developing cost-effective and environmentally conscious methods, the VALZEO project contributes to cleaner water technologies and greener industrial practices, reinforcing the broader vision of a circular economy. These findings pave the way for scalable solutions that turn waste into valuable resources, driving sustainability forward.



# VALZEO to Join NICOLE-PROMISCES Joint Spring Workshop 2025



The VALZEO project will participate in the NICOLE-PROMISCES Joint Spring Workshop 2025, set to take place in Frankfurt, Germany. This event brings together leading researchers, industry experts, and policymakers to discuss the latest advances in sustainable environmental solutions and circular economy practices. VALZEO is excited to contribute to workshop's discussions on innovative approaches to environmental remediation. The team will share insights into the development of zeolite-based composite materials, their potential for pollutant adsorption, and the project's progress towards real-world applications. This workshop is a valuable opportunity to foster collaboration, exchange knowledge, and explore new pathways for sustainable innovation.

Discover Event Details Here

#### UAB Leads the Way at Water Knowledge Europe 2024 in Brussels

On December 10th-11th, 2024, the University of Barcelona, as coordinator of the VALZEO project, attended the Water Knowledge Europe 2024 event in Brussels. This specialized event, organized by Water Europe, provided an opportunity for UAB to share the progress of the VALZEO project and collaborate with key players in the water sector. Water Knowledge Europe 2024 brought together EU officials, experts, and industry leaders to discuss future funding opportunities under Horizon Europe for waterrelated projects.

UAB took the opportunity to present their project ideas, including the VALZEO project, and engage in face-to-face meetings with potential partners, further contributing to the development of innovative solutions for the water sector.

#### Extracting silica from Rice Husk Ash Study at the University of Seville

MSc. Dianet Camejo Rodrìguez and MSc. Millianys Pérez Reyes, researchers from UoM, Cuba, are currently on a research stay at the University Pablo de Olavide in Seville, Spain.

Working with Dr. Rabdel Ruiz, the research focuses on extracting silica from RHA and developing multifunctional zeolite-based composites, to be explored as catalysts for environmental remediation and biodiesel production. This collaboration, part of the VALZEO project, is advancing the valorization of agro-industrial waste for sustainable environmental and bioenergy solutions.

### Dr. Alen Nils Baeza Fonte Completes Research Stay in Cuba, Advancing the VALZEO Project

Dr. Alen Nils Baeza Fonte from the Universitat Autònoma de Barcelona completed a highly impactful research stay at the Estación Experimental de Pastos y Forrajes Indio Hatuey, Universidad de Matanzas (EEPFIH), Cuba 🚝. His efforts have greatly contributed to our ongoing research and innovation of the VALZEO project, further advancing the development of sustainable solutions.

> Thank you VALZEO communication team

> > aeris



Water Knowledge Europe 2024, Brussels



Msc. Dianet Camejo Rodrìguez, Msc Millianys Pérez Reyes from UoM and Dr. Robdel Ruitz



Dr. Alen Nils Baeza Fonte from UAB

















https://www.valzeo.eu/