



European Project Semester

PROJECT OUTLINE

Project dates: March – June 2025	
Title: Study and Development of Low-Tech Porous Clay Cooling Systems	
Project activity areas: <i>Low-tech systems, Research & Developments, Product testings</i>	Keywords: <i>Porous clay, passive cooling, low-tech air conditioning, material testing, environmental sustainability</i>
Tutor's name and coordinates Client – End-user: <i>TERRATOOLS</i> ENIT Technical Supervisor + contact: Jérémy FRAISSEIX TECHNACOL – Jeremy.fraisseix@technacol.com – +33 (0)7 52 03 27 02	Project origin <i>Research, Innovation, Sustainability, Low-tech Cooling Systems, Circular Economy, Environmental Impact Reduction, ceramics</i>
Project technical background:  TerraTools is a start-up working on low-tech equipment such as “desert fridge” (clay cooling device using evaporation phenomenon). This project aims to study and optimize porous terracotta containers designed for low-tech air conditioning systems. These systems utilize the natural properties of clay to facilitate evaporative cooling as an eco-friendly alternative to conventional air conditioning. The main objective is to identify and test the most suitable materials, evaluating their impact on air flow and cooling efficiency. This involves determining the optimal porosity of the materials and how this influences the cooling effect, as well as calculating the necessary material quantities for optimal performance. In addition to cooling, the students will explore the integration of a material capable of dehumidifying air at both the inlet and outlet of the system. This will ensure that the system not only cools but also improves air quality by controlling humidity levels, which is critical for comfort and efficiency in low-tech climate control. Through material testing, the project will assess the effectiveness of various compositions in terms of: • Impact on air flow • Cooling efficiency • Structural integrity • Dehumidification performance The goal is to develop a sustainable and efficient low-tech solution that can be deployed in environments where conventional cooling systems are either impractical or too energy-intensive. 	
Studied topics: • Material Engineering • Clay Characterization and Testing • Evaporative Cooling Techniques • Process Optimization • Environmental Sustainability	

