

## Mechanical Behavior of Recycled Mortars Manufactured from Moisture Correction Using the Halogen Light Thermogravimetric Balance as an Alternative to the Traditional ASTM C 128 Method

**Authors :** Diana Gomez-Cano, J. C. Ochoa-Botero, Roberto Bernal Correa, Yhan Paul Arias

**Abstract :** To obtain high mechanical performance, the fresh conditions of a mortar are decisive. Measuring the absorption of aggregates used in mortar mixes is a fundamental requirement for proper design of the mixes prior to their placement in construction sites. In this sense, absorption is a determining factor in the design of a mix because it conditions the amount of water, which in turn affects the water/cement ratio and the final porosity of the mortar. Thus, this work focuses on the mechanical behavior of recycled mortars manufactured from moisture correction using the Thermogravimetric Balancing Halogen Light (TBHL) technique in comparison with the traditional ASTM C 128 International Standard method. The advantages of using the TBHL technique are favorable in terms of reduced consumption of resources such as materials, energy, and time. The results show that in contrast to the ASTM C 128 method, the TBHL alternative technique allows obtaining a higher precision in the absorption values of recycled aggregates, which is reflected not only in a more efficient process in terms of sustainability in the characterization of construction materials but also in an effect on the mechanical performance of recycled mortars.

**Keywords :** alternative raw materials, halogen light, recycled mortar, resources optimization, water absorption

**Conference Title :** ICCMETI 2022 : International Conference on Construction Materials Engineering, Testing and Instrumentation

**Conference Location :** Zurich, Switzerland

**Conference Dates :** July 28-29, 2022