IF Mortar – Experimental and Numerical Analysis of Interface Mortar-Support

Summary

The project intends to analyse the influence of the characteristics of several substrates on the properties of various mortars (Figure 1) so that when choosing the type of mortar coating to be applied we can estimate what will be its real behaviour when applied on the support. The project intends to deliver: i) the study of several mortars (either produced in-situ or predosed ones), types of supports (considering the most used supports in the country) and performance tests; ii) detailed study of the interface mortar-support to obtain mathematical expressions that allow, from the experimental results, to estimate these same parameters for the mortars after application on the substrates.

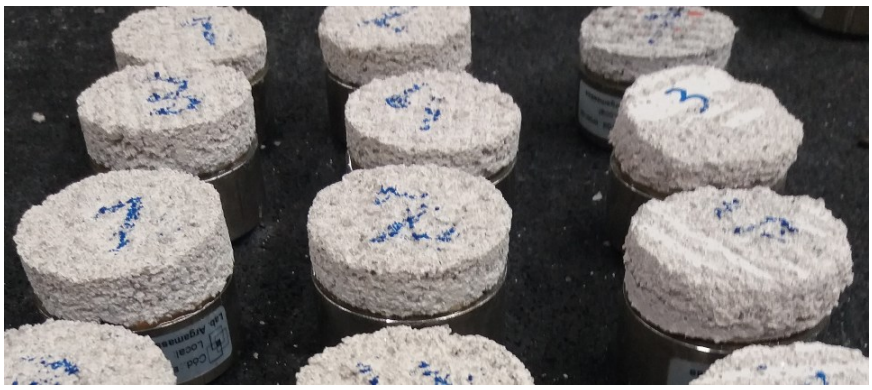

Figure 1. On the left: Micro-CT section; on the right: cross section of applied mortar on brick substrates.

CERIS participation: microscopic and microstructural observations of the interface during the curing period of the mortar will be carried out (Figure 2). After the application of the mortars to the supports, the samples will be removed and analyse microscopically what is happening at the interface. The same procedure will be carried out for the hardened mortars in the moulds in order to have a better comparison and understanding of the hardening phenomenon in the moulds and in-situ (Figure 3). Micro-CT, XRD and SEM will be used to help the characterization (task 4).

Figure 2. On the left: Micro-CT section; on the right: cross section of applied mortar on brick substrates.

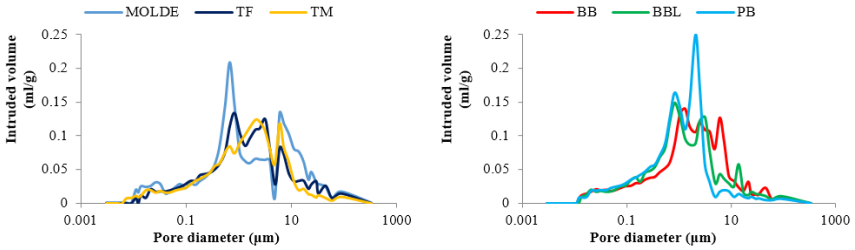

Figure 3. Variation of pore diameter after 28 days for mortar: On the left: mold and brick substrates; on the right: concrete substrates.

CERIS
Civil Engineering Research and Innovation for Sustainability

Project Reference

PTDC/ECI-EGC/32223/2017 / POCI-01-0145-FEDER-032223

Leading Institution

Itecons (Portugal)

Partners

IST-ID – Associação do Instituto Superior Técnico para a Investigação e Desenvolvimento (Portugal)

CERIS Principal Investigator

Inês Flores-Colen (ines.flores.colen@tecnico.ulisboa.pt)

CERIS Research Team

Rafael Travincas, Cristina Matos Silva

Funding

FCT – Fundação para a Ciência e a Tecnologia, COMPETE 2020; Portugal 2020

Period

2018-2022

Total

220 883.82€

CERIS

66 475.00€

Project Website

itecons.uc.pt/services/projects/84?locale=en