

The effect of calcined clay on ternary binders based on calcium aluminate cement, Portland cement and calcium sulfate

PhD Candidate: Sarra EL HOUSSEINI

Blends composed of Calcium Aluminate Cement (CAC) in combination with calcium sulfate (C₃H_x) and Portland Cement (PC) are widely used in building chemistry application where fast setting, rapid drying and shrinkage compensation are required. In order to reduce the CO₂ footprint SCMs such as calcined clay is used to substitute PC. The use of calcined clay can compressive strength properties with a certain substitution rate and fineness of powder.

This project aims to investigate the chemical and mechanical aspects of the use of different calcium aluminate cements and the impact of the substitution level of calcined clay in these systems. The effect of calcined clay on the solution composition will be studied using pH, conductivity, ionic concentration measurements. The changes in the solid phases will be investigated using XRD, TGA and SEM-EDS.