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## Dispersion and optimization of a calcium sulfoaluminate mortar prepared with superplasticizer

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Calcium sulfoaluminate (CSA) cements/mortars are receiving increasing attention since their manufacture produces less CO<sub>2</sub> than ordinary Portland cement (OPC) (up to 22% of decrease depending on its composition). These systems are complex and there are many parameters affecting their hydration mechanism, such as water-to-cement (w/c) ratio, type and amount of sulfate source, and so on. Low w/c ratios, within certain limits, may reduce the porosity and consequently, improve the mechanical strengths. However, it is accompanied by an increasing of viscosity and lack of both workability and homogeneity, with the consequent negative effect on the mechanical properties. The dispersion of the particles through the adsorption of the right amount and type of additives, such as superplasticizers, is a key point to improve the workability of mortars allowing both the preparation of homogeneous mixtures and the reduction of the amount of mixing water.

This work deals with the preparation and optimization of homogeneous CSA-mortars with improved mechanical strengths. The optimum amount of superplasticizer was optimized through rheological measurements. The effect of different amounts of the superplasticizer on the viscosity of the mortars, its hydration mechanism and corresponding mechanical properties has been studied and will be discussed.

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