

عنوان مقاله:

The effect of three types of Superplasticizer on tricalcium aluminate hydration

محل انتشار:

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خلاصه مقاله:

Various types of Superplasticizer have been widely used over the past few decades to produce very high strength and durable concrete. These chemicals interfere with the different physical and chemical processes that occur in primary cement paste. This paper presents the results of investigating the effect of superplasticizers on hydration of pure tricalcium aluminate in the presence of gypsum. Suspension hydration has been investigated using conductivity, isothermal calorimetry and total liquid phase organic carbon analysis. The time required for the formation of ettringite without superplasticizer in the presence of three different types of superplasticizer is specified: Polyphenyl sulfonates (PNSs), polycarboxylate-polyoxide (PCP) and polyethylene diphosphonate. Since polyethylene diphosphonate does not appear to modify the hydration of tricalcium aluminate in the presence of gypsum, PCP and even more PNS slow down the formation of ettringitis. This effect appears to be largely due to increased C3A dissolution and may be linked to PCP. Or PNS observed from the initial hydration of C3A. In addition, the presence of PCP superplasticizer reduces the size of the ettringite crystals.

کلمات کلیدی:

Hydration, Ultrafiltration, Tricalcium aluminate

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