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Determination of the Optimal Content of Commercial Superplasticizer Additives in Cements with Calcined Clay

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Abstract : The use of superplasticizer additives has provided several advances for the civil construction industry, enabling gains in the rheological behavior and mechanical properties of cementitious matrices. These compounds act at the solid-liquid interface of colloidal suspensions of cement pastes, preventing agglomeration of the particles. Although the use in the concrete industry is wide, the mechanisms of dispersion of concrete admixtures composed of polycarboxylate in cement with supplementary cementitious materials have ample opportunity to be investigated, providing the attainment of increasingly compatible and efficient cement-addition-additive systems. The cements used in the research are Portland Cement CPV and two cements Portland Cement Composite (CPIV) with calcined clay contents of 20% and 28% and three commercial additives based on polycarboxylate. The performance of the additives and obtaining the optimal content was determined by the Marsh Cone test and spread by Mini-Slump.

Keywords : calcined clay, composite cements, superplasticizer additives, polycarboxylate
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