



Study of hydration processes of Portland cements blended with supplementary cementitious materials

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GRIN Verlag Sep 2012, 2012. Taschenbuch. Book Condition: Neu. 217x151x15 mm. This item is printed on demand - Print on Demand Neuware - Master's Thesis from the year 2012 in the subject Chemistry - Materials Chemistry, grade: 1,3, TU Bergakademie Freiberg (Institut für Glas, Keramik und Baustofftechnik), course: Bauchemie, language: English, abstract: The production of Portland cement clinker has a share of about 6% to 8% on the global CO₂-emissions. Approximately 60% of those emissions are attributable to the decarbonation of limestone. A widespread approach for the reduction of the CO₂-emissions is to replace the clinker in the cement by pozzolanic waste materials, e.g. fly ash. The reaction of fly ash is generally slow. Due to this slow reaction cement pastes mixed of Portland cement and fly ash have a slower strength development than pure Portland cement, at least at early ages up to 7 days. The goal of this study was to increase early strength properties of Portland cement/fly ash blends by increasing the early ettringite formation in order to decrease the porosity. Therefore various amounts of anhydrite and laboratory synthesised C3A were added to Portland cement/fly ash systems that contained 30% fly ash. The behavior of these systems...



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