MINERAL ADMIXTURES REACTIVITY DETERMINATION

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Sustainability and new greening measures bring new challenges to the construction industry within the European Union. Reducing CO_2 emissions is forcing the market to find new ways and use new materials as admixtures in cement or concrete. Lower quality clays could undoubtedly be such materials. Fly ashes from co-combustion of biomass are also beginning to appear on the market. They have completely different composition and properties compared to conventional fly ashes. However, we must not forget the potential use of power plant slags. In this work, the pozzolanic activity and reactivity of various types of mineral admixtures, both classical and new ones, were compared. The reactivity of the admixtures was determined using the Frattini test and the electrical conductivity test. The eight-day Frattini test proved the pozzolanic activity of all raw materials except for one sample of fly ash from biomass. The shortened one-day Frattini test showed a different reactivity of the substances after one day of hydration. Nevertheless, the quantitative agreement between the results of the one-day Frattini test and the electrical conductivity test was not clearly demonstrated. It was further confirmed that the pozzolanic activity of the supplied substances is determined by their grain size as well.