

A study on relationship between porosity and compressive strength for geopolymer paste

Abstract

This paper presents a study on the relationship between porosity and compressive strength for geopolymer paste. In this research, geopolymer paste was made from fly ash class F based geopolymer mixed with alkaline activator; sodium hydroxide solution and sodium silicate solution. Twelve mixes were cast in 50mm x 50mm x 50mm moulds and the samples were cured for 24 hrs at 60 °C in the oven. The samples were examined after 7, 14, 28 and 90 days in terms of porosity test, pulse velocity test and compressive strength test. It was concluded that the sample at day 90 had the highest compressive strength of 56.50 N/mm² had porosity 3.77%. Thus, the sample with lowest porosity had highest pulse velocity 3303 m/s during ultrasonic testing with lowest transmission time 15.17 μs. Keywords: porosity, compression strength, geopolymer, pulse velocity

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