

Characteristics of Cement Pastes Incorporating Different Amounts of Waste Cellular Concrete Powder

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Abstract : In this study different amounts of waste cellular concrete powder (WCCP) as replacement of cement have been investigated as an attempt to produce green binder, which is useful for sustainable construction applications. From zero to up to 60% of WCCP by mass replacement amounts of cement has been conducted. Consistency, compressive strength, bending strength and the activity index of WCCP through seven to ninety days old specimens have been examined, where the optimum WCCP replacement was up to 30%, depending on which the activity index still increased to the end of test period (90 days) and this could be an evidence for its continuity to increase for longer age. Also up to 30% of WCCP increased the bending strength to be higher than the control one. The main point in the present study that there is a possibility of replacing cement by 30% of WCCP, however, it is preferable to be less than this amount.

Keywords : cellular concrete powder, waste cellular concrete powder (WCCP), supplementary cementitious material, SCM, activity index, mechanical properties

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