

Viability of Eggshells Ash Affecting the Setting Time of Cement

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Abstract : This research paper reports on the feasibility and viability of eggshells ash and its effects on the water content and setting time of cement. An experiment was carried out to determine the quantity of water required in order to follow standard cement paste of normal consistency in accordance with MS EN 196-3:2007. The eggshells ash passing the 90 μ m sieve was used in the investigation. Eggshells ash with percentage of 0%, 0.1%, 0.5%, 1.0%, 1.5% and 2.0% were constituted to replace the cement. Chemical properties of both eggshells ash and cement are compared. From the results obtained, both eggshells ash and cement have the same chemical composition and primary composition which is the calcium compounds. Results from the setting time show that by adding the eggshells ash to the cement, the setting time of the cement decreases. In short, the higher amount of eggshells ash, the faster the rate of setting and apply to all percentage of eggshells ash that were used in this investigation. Both initial and final setting times fulfill the setting time requirements by Malaysian Standard. Hence, it is suggested that eggshells ash can be used as an admixture in concrete mix.

Keywords : construction materials, eggshells ash, solid waste, setting time

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