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EFFECTS OF USING CONCRETE WASH WATER ON A FEW CHARACTERISTICS OF NEW CONCRETE

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Abstract

Construction industries generate a large amount of concrete wash water every day, and it causes soil, surface water and ground water pollution. Therefore, re-using concrete wash water to produce fresh concrete is one of the solutions to prevent environmental pollution and to sustain water use. In this study, we tested setting time of cement, slump, compressive and tensile strength of 24 triplicate cubic samples of concrete with and without micro silica plus additive admixture using concrete wash water. We used 50% of concrete wash water plus 50% tap water and tap water for compressive and tensile strength testing. The results indicated that adding silica and additive admixture to concrete samples caused to decrease the compressive strength when it was compared to other cubic samples made of concrete wash water or mixing tap water plus concrete wash water. Concrete wash water caused to decline final setting time of the cement, while no considerable effects on the concrete workability were observed through the results of the slump. The compressive strength of concrete samples was acceptable according to the requirements by ASTM C94 when using the mixing of tap water and wash water in samples of concrete.

Key words: concrete wash water, compressive strength, settling time

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