

Influential Effect of Self-Healing Treatment on Water Absorption and Electrical Resistance of Normal and Light Weight Aggregate Concretes

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Abstract : Interest in using bacteria in cement materials due to its positive influences has been increased. Cement materials such as mortar and concrete basically suffer from higher porosity and water absorption compared to other building materials such as steel materials. Because of the negative side-effects of certain chemical techniques, biological methods have been proposed as a desired and environmentally friendly strategy for reducing concrete porosity and diminishing water absorption. This paper presents the results of an experimental investigation carried out to evaluate the influence of *Sporosarcina pasteurii* bacteria on the behaviour of two types of concretes (light weight aggregate concrete and normal weight concrete). The resistance of specimens to water penetration by testing water absorption and evaluating the electrical resistance of those concretes was examined and compared. As a conclusion, 20% increase in electrical resistance and 10% reduction in water absorption of lightweight aggregate concrete (LWAC) and for normal concrete the results show 7% decrease in water absorption and almost 10% increase in electrical resistance.

Keywords : bacteria, biological method, normal weight concrete, lightweight aggregate concrete, water absorption, electrical resistance

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