International Journal of Engineering Sciences Paradigms and Researches (IJESPR)
Vol. 47, Issue 04, Quarter 04 (October-November-December 2018)
(An Indexed, Referred and Impact Factor Journal)
ISSN (Online): 2319-6564
www.ijesonline.com

Abstract Details

Title: Importance of Curing in Self-Healing Concrete: A Study

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Abstract: As concrete is the most commonly used construction material in the world, which actually is one of those very smart materials which incorporates the ability of repairing itself from damages caused by mechanical usages or may be due to environment related factors. In concrete this self-repairing/ healing process is related to those biological systems which heal themselves after being wounded. The damages such as cracks etc., when studied deeply at microscopic levels shows the various changes that occurs in its properties such as thermal, electrical and acoustical properties even leading to the complete failure of the structure. Any material including concrete is called self-healing only when, it has the ability to heal itself without human intervention sand such can be achieved by using polymerization catalysts. In studying such cases, the term thickness also plays an important role, such as if the wall of any structure studied is constructed excessively thick, then it may not fracture and if the studied wall is constructed excessively thin, it may rupture as well. So, in order to attain maximum possible strength in concrete, the process of curing is adopted which protects it against the loss of moisture needed for the hydration process and also helping it to be in its optimum temperature range as recommended, as curing is also responsible for increasing strength and decreasing the permeability of the concrete hence reducing thermal and plastic cracks. The main objective of the study is to know the importance of curing in Self-Healing bacterial concrete. The major findings and fruitful suggestions have been given in full paper.

Keywords: Bacterial Concrete, Crack-Healing, Permeability, Micro-organisms, Hydration.