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(57) Abstract :
A self-healing concrete composition and method of preparing thereof is described herein. The self-healing concrete composition comprises a cementitious binder, an aggregate, an encapsulated microbial agent, an encapsulated nutrient, and water. The encapsulated nutrient designed to activate upon crack formation and exposure to moisture. The encapsulated nutrient includes a calcium lactate. The encapsulated microbial agent includes bacteria. The bacterial species have been selected from spore-forming bacteria including Bacillus species. The Bacillus species capable of producing calcium carbonate upon activation. The composition includes microcapsules. The composition autonomously repair cracks up to 0.1-0.8 mm wide within a few days to weeks, depending on environmental conditions.

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