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(57) Abstract :
SELF-HEALING CONCRETE WITH MICROBIAL-INDUCED CALCITE PRECIPITATION ABSTRACT The present invention relates to a self-healing concrete system employing microbial-induced calcite precipitation (MICP) to enhance the durability and longevity of concrete structures. This innovative method involves embedding microorganisms capable of enzymatically inducing calcite precipitation within the concrete matrix. When cracks or voids form due to environmental stressors, these microorganisms facilitate the conversion of calcium ions from the surrounding environment into calcite, effectively sealing the imperfections and restoring the concrete's integrity. The process takes advantage of the natural healing properties of microorganisms, offering a sustainable and cost-effective solution for maintaining concrete structures. The abstracted self-healing mechanism addresses concrete degradation, reducing maintenance requirements and extending the service life of structures, thus contributing to more resilient and sustainable infrastructure.

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