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Using bacteria to make self-healing concreteBACTERIA BASED SELF HEALING CONCRETE Self-Healing \"Bio\" Concrete Repairs Its Own Cracks Self healing concrete and asphalt: Erik Schlangen at TEDxDelft ~~Self Healing Concrete - CNN reporting~~ Self Healing Concrete Self-healing concrete with the use of bacteria

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self healing concrete in hindi**The Secret to Super Strong Concrete Is... Bacteria? Self-Healing Concrete Hendrik Marius Jonkers - Self-healing concrete containing bacteria self-healing concrete | seminar topic | Bacterial concrete | #selfhealingconcrete #civilengineering** ~~Will there ever be a mile-high skyscraper? - Stefan Al~~ FOAM CONCRETE, affordable house built in 6 days!

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Hendrik Marius Jonkers - Self-healing concrete containing bacteria~~What is Self-healing Concrete using Microorganism || Bacterial Concrete || Types of Concrete #21.1~~ This concrete can heal itself as if it were alive Self Healing Concrete - Bio concrete What is Self-healing Concrete? || Microfibers || Types of Concrete #21 Self-healing Concrete Research – Built Environment Research Group

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Bacteria Based Self Healing Concrete

The Sporoscarcina Pasteurii bacteria used in silica fume concrete, it was found that there is an improvement in strength and durability of silica fume concrete through self-healing effect . Bacillus Sphaericus bacteria was used in concrete to check the surface treatment and the results reveal that bacterial carbonate precipitation can be used as an alternative surface treatment for concrete [18] .

Bacteria based self healing concrete – A review ...

Self-healing Concrete is also called Bio concrete or Bacterial Concrete. It's specially made to increase the lifespan or the durability of concrete structure by the self-healing action of that concrete. A Bacterial genus named Bacillus is mixed with the healing agent. The bacteria are capable of surviving in an extremely alkaline environment and can dormant up to 200 years.

What is self healing concrete | Bacterial concrete | with ...

Bacteria-based self-healing concrete. The concept of bacteria-based self-healing concrete was developed in the Netherlands, has received considerable interest from the press and is the subject of numerous UK research programmes. Concrete often cracks due to a variety of processes [see ´construction related cracks´] and in certain circumstances can self-heal those cracks up to a width of 0.3mm [see ´autogenous healing´].

Bacteria-based self-healing concrete

2 Viable bacteria as self healing agent The bacteria to be used as self healing agent in concrete should be fit for the job, i.e. they should be able to perform long-term effective crack sealing, preferably during the total constructions life time. The principle mechanism of bacterial crack healing is that the

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Bacteria-based self-healing concrete

Due to this concrete needs to be rehabilitated. To surmount these situations self-healing techniques are adopted. By the addition of urease engendering bacteria along with calcium source results in...

Bacteria based self healing concrete – A review | Request PDF

Bacteria based self-healing concrete: The selection of the bacteria is depend on the survive capability of bacteria in the alkaline environment. Most of the microorganisms die in an environment with pH value of 10 or above (Edvardsen C, 1999). Strains of the bacteria genus Bacillus will be found to succeed in high alkaline environment.

A Review Paper on Self Healing Concrete - IOSR-JEN

Several chemical products are currently in use for consolidation and crack repair, but a new technique that has been the focus of much research efforts over the last decade is the bacteria-based calcium carbonate precipitation. This technique is now slowly making its way towards practical applications.

Bacteria-based repair and self-healing of concrete ...

Another example of self-healing of concrete from bacteria is that presented by De Belie, where it packages bacterial spores

in a melanin formaldehyde shell, generating a concrete that can cure...

(PDF) Development of a bacteria-based self healing concrete
Mechanism of Bacterial Concrete Self-healing concrete is a result of biological reaction of non-reacted limestone and a calcium based nutrient with the help of bacteria to heal the cracks appeared on the building. Special type of bacteria's known as Bacillus are used along with calcium nutrient known as Calcium Lactate.

Bacterial Concrete or Self Healing Concrete For Crack Repairs
In conclusion, the results presented in this study show that the applied two-component bio-chemical self-healing agent, consisting of a mixture of bacterial spores and calcium lactate, can be successfully applied to promote and enhance the self-healing capacity of concrete as the maximum healable crack width more than doubled.

Quantification of crack-healing in novel bacteria-based ...
It is demonstrated that for the encapsulation method used and the agents chosen it is possible to produce self-healing concrete with similar early-age and mechanical properties to that of normal concrete. This self-healing concrete was then used in a reinforced concrete wall, and the initial findings are described.

Design and performance of bacteria-based self-healing Concrete
An approach to autonomic self-healing of such concretes is the utilization of microbiologically-induced calcite-precipitation. This approach uses the metabolic activity of bacteria and biomineral precursors embedded within the concrete to form an inorganic material, usually calcite, as the healing compound.

Bacteria-based self-healing concrete: Effects of ...
Furthermore, the bacterial type, its varying concentrations & curing procedures as well as the carrier compound used for assimilation of bacteria play an important role toward efficient self-healing of concrete (Hammes et al., 2003). Researchers have used different types of bacteria in mortar and concrete including Bacillus Pastuerii, Shewanella, E. Coli, Bacillus Pseudofirmus and Bacillus ...

Applications of self healing nano concretes - ScienceDirect
Due to the harsh conditions of concrete (high alkalinity and small pore size), bacteria need to be immobilized beforehand. Therefore the properties of the carrier candidates used for immobilization were also evaluated on the aspects of the pore properties and the compatibility with the cementitious matrix.

Bacteria-Based Self-Healing Concrete: Effect of Bio-agents ...
In recent years a bacteria-based self healing concrete is being developed in order to extend the service life. A two component healing agent is added to the concrete mixture. The agent consist of bacteria and an organic mineral precursos compound. What is Self Healing Concrete

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Self Healing Concrete | Concrete Civil Engineering
Bacteria-Based Self Healing Concrete Self healing concrete was invented by Henk Jonkers, a microbiologist and professor at Delft University of Technology in the Netherlands. Jonkers began developing self healing concrete in 2006. After three years of experimenting, he found the perfect healing agent - bacillus.

What is Self-Healing Concrete? | Lorman Education Services
Two types of bacteria-based additives (Type 1 and Type 2) were developed to improve the concrete self-healing capacity mainly achieved by bacteria-induced mineral precipitations.

Performance of Two Bacteria-Based Additives Used for Self ...
This autonomous self-healing process utilizes mineral producing bacteria to help mend cracking in concrete, thereby enhancing the reliability and lifetime of the material. The bacterial spores are embedded into the concrete, along with organic compounds in capsules of polylactic acid for protection.