

Why is Roman concrete 2,000 years ago more sustainable than modern concrete?

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1. Plastic roads are capable of . self-filling potholes in the Netherlands
2. In the future, Wood is the only material to build skyscrapers, not concrete or steel



The wall for thousands of years is still standing firmly.

After a long time of research, scientists have found the reason why such ancient concrete blocks are so sure.

The type of concrete that the ancient people used to create sea walls was made of compounds including lime, seawater, volcanic ash and stone. This combination has created a 'pozzolanic' reaction - a chemical reaction when a material combined with calcium hydroxide forms a cement compound. At the same time, reacting ash with sea water helps these concrete parts become more and more solid. Meanwhile, ocean waves erode modern concrete.



An ancient Roman fort was built thousands of years ago.

Roman concrete contains aluminum tobermorite, a rare mineral. When Roman concrete came into contact with seawater, the tobermorite crystallized and spread out, making the block even harder, reinforcing the strength of the concrete.

When exposed to seawater for a long time, these crystals continue to grow, strengthening the concrete and preventing cracks from growing.

Researchers believe that this discovery will help us create a kind of concrete similar to ancient concrete, which can make modern buildings more sustainable with more time and environmental protection. Because the production of modern Portland cement requires the use of high temperature kilns and the emission of a lot of CO₂.

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