A Japanese research team has tested a process for producing cement from fruit and vegetable scraps | Photo source Institute of Industrials Science, The University of Tokyo

CREATING CEMENT FROM FRUIT AND VEGETABLE SCRAPS

PROPERTY & CONSTRUCTION

Japanese researchers have created cement by applying a new technique to dried, powdered food scraps

Spotted: Food waste is a growing problem all over the world. In the United States alone, it is estimated that up to 40 per cent of all food goes uneaten. That's a lot of wasted resources – not to mention all the methane emissions from food decaying in landfills. But what if we could turn food waste into something useful?

Scientists from the Institute of Industrial Science at the University of Tokyo are using food waste to manufacture construction materials. The method consists of making cement entirely from fruit and vegetable scraps, such as cabbage leaves and orange peels. Results of a study testing the process were promising, with the food waste proving to be an effective binding agent.

The team, led by Professor Yuya Sakai, borrowed a 'heat pressing' concept that is typically used to make construction materials from wood powder. By applying this technique to dried, powdered food scraps such as seaweed, cabbage leaves, orange, onion, pumpkin, and banana peel, the team was able to create a new type of cement with a compressive strength comparable to commercial Portland cement.

In addition to upcycling food waste, the new process has the potential to reduce the carbon footprint of cement production. So far, the technique has only been tested on a small scale. But if it can be successfully scaled up for industrial application—the team's next objective—it could be a game-changer.

Cement production is emissions-intensive and Springwise has spotted several innovations aiming to reduce the carbon footprint of this ubiquitous building material. These include a new carbon-capture

solvent for cement plants, recycled concrete that stores carbon, and cement 'grown' using microbes.

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Takeaway:

The process developed by the University of Tokyo team could have far-reaching consequences for both the construction industry and the fight against climate change. If adopted on a large scale, it could help to reduce our reliance on traditional cement, which is responsible for around 8 per cent of global carbon dioxide emissions. It would also provide a valuable use for food waste, which is currently one of the biggest contributors to greenhouse gas emissions.