

[Request Information](#)

[Permalink](#)

## Room-Temperature Manufacturing Of Low-Carbon Cement And Cementitious Materials

Tech ID: 33719 / UC Case 2025-757-0

### BRIEF DESCRIPTION

A revolutionary low-CO<sub>2</sub> cement produced at room temperature, offering a sustainable alternative to traditional Portland cement.

### FULL DESCRIPTION

Researchers at UCI have developed a novel cement and its manufacturing process as a sustainable alternative to Portland cement, traditionally known for its high carbon footprint. Unlike conventional methods requiring temperatures above 1400 °C and resulting in significant CO<sub>2</sub> emissions, this new approach manufactures cement at room temperature and enables concrete components with long-term CO<sub>2</sub> sequestration capabilities and essential mechanical strength for structural uses.

### SUGGESTED USES

- » Construction of civil, energy, and defense structures requiring low-carbon concrete.
- » Infrastructure projects seeking sustainable building materials.
- » Industrial decarbonization efforts within the cement and concrete industry.
- » Development of CO<sub>2</sub> sequestering building components for environmental impact mitigation.
- » Replacement for traditional Portland cement in any application demanding reduced environmental footprint.

### ADVANTAGES

- » Manufactured at room temperature, significantly reducing energy consumption and CO<sub>2</sub> emissions.
- » Electrifiable manufacturing process, allowing for a transition to renewable energy sources.
- » Utilizes waste materials as raw inputs, further decreasing the carbon footprint.
- » Enables CO<sub>2</sub> sequestration throughout the product's lifespan, enhancing environmental benefits.
- » Provides necessary mechanical strength and durability for construction and structural applications.

### PATENT STATUS

Patent Pending

### CONTACT

Ben Chu  
[ben.chu@uci.edu](mailto:ben.chu@uci.edu)  
tel: .



### OTHER INFORMATION

#### KEYWORDS

Cleantech, Carbon Capture, Concrete, Construction Materials, Green Manufacturing, Clean Manufacturing, Sustainable Materials

#### CATEGORIZED AS

- » **Materials & Chemicals**
- » Composites
- » Other

#### RELATED CASES

2025-757-0

**UCI** Beall  
Applied Innovation

5270 California Avenue / Irvine, CA  
92697-7700 / Tel: 949.824.2683



© 2024, The Regents of the University of  
California  
[Terms of use](#)  
[Privacy Notice](#)