

Crosslinked Jelly Ice Cube (JIC) Technology

Tech ID: 34125 / UC Case 2023-543-0

ABSTRACT

Researchers at the University of California, Davis have developed an innovative cooling solution that reduces the risk of microbial cross-contamination in perishable foods.

FULL DESCRIPTION

This technology introduces a method for creating biodegradable, crosslinked jelly ice cubes (JIC) designed to replace traditional ice cooling methods. By dissolving biodegradable polymers in water and subjecting them to a crosslinking process, these JICs offer a sustainable and efficient cooling medium that significantly lowers the risks associated with meltwater from conventional ice, such as food cross-contamination.

APPLICATIONS

- ▶ Food preservation and safety in retail and consumer settings.
- ▶ Transportation of perishable goods requiring strict temperature control.
- ▶ Customized cooling solutions for specialized packaging needs.
- ▶ Environmentally friendly alternatives for outdoor activities, medical transportation, and more.

FEATURES/BENEFITS

- ▶ Enhanced food safety by minimizing microbial cross-contamination risks.
- ▶ Environmental sustainability through the use of biodegradable polymers.
- ▶ Customizable shapes and sizes via 3-D printing technology for diverse cooling needs.
- ▶ Reusable and scalable, offering efficient cooling without the drawbacks of traditional ice.
- ▶ Reduced environmental impact compared to non-biodegradable cooling packs.
- ▶ Eliminates microbial cross-contamination from meltwater.
- ▶ Addresses environmental concerns associated with traditional ice packs and their non-biodegradable contents.
- ▶ Solves decreased cooling efficiency due to the packaging of conventional ice substitutes.

PATENT STATUS

Country	Type	Number	Dated	Case
Patent Cooperation Treaty	Reference for National Filings	WO 2024/102885	05/16/2024	2023-543

Patent Pending

CONTACT

Pooja N. Bhayani
pnbhayani@ucdavis.edu
tel: .



INVENTORS

- ▶ Sun, Gang
- ▶ Wang, Luxin
- ▶ Zou, Jiahan

OTHER INFORMATION

KEYWORDS

biodegradable polymers, cooling technology, crosslinked jelly ice cubes, environmental sustainability, food safety, microbial cross-contamination, reusable cooling solution, scalable production, temperature control, water contamination prevention

CATEGORIZED AS

- ▶ **Biotechnology**
- ▶ Food
- ▶ **Environment**
- ▶ Other

► **Materials &
Chemicals**

► Polymers

RELATED CASES

2023-543-0

RELATED TECHNOLOGIES

► [Non-melting, Sustainable, Reusable, Plastic-Free and Biodegradable Food Coolant Cubes](#)

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- [Fumigant Detoxification via Reusable Cotton Material](#)
- [Pesticide Detection: Methyl Iodide and Methyl Bromide](#)
- [Non-melting, Sustainable, Reusable, Plastic-Free and Biodegradable Food Coolant Cubes](#)
- [Photo-Rechargeable Antibacterial/Antiviral Materials](#)
- [Environmentally Friendly Manufacturing of Nano, Micro and Sub-micro Fibers with Hybrid CAB System](#)

University of California, Davis
Technology Transfer Office

1 Shields Avenue, Mrak Hall 4th Floor,
Davis,CA 95616

Tel: © 2025, The Regents of the University of California

530.754.8649 [Terms of use](#)

techtransfer@ucdavis.edu [Privacy Notice](#)

<https://research.ucdavis.edu/technology-transfer/>

Fax:

530.754.7620