Material For Thermal Regulation

Tech ID: 30402 / UC Case 2017-802-0

CONTACT

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BRIEF DESCRIPTION

A revolutionary material capable of dynamically controlling heat flow without external power, designed for applications in clothing, buildings, and insulation.

SUGGESTED USES

- Smart clothing for personal temperature regulation
- Energy-efficient building materials for ambient temperature control
- Advanced insulation for pipes to enhance heat retention or cooling
- Thermal management solutions for electronic devices, medical equipment, and aerospace components

FEATURES/BENEFITS

- Dynamic control of heat flow with simple mechanical stretching
- Low energy requirement for operation, eliminating the need for external power
- Flexible and lightweight, making it suitable for integration into various products
- Contributes to energy conservation and cost savings in heating and cooling applications

INVENTORS

- Gorodetsky, Alon A.

OTHER INFORMATION

TECHNOLOGY DESCRIPTION

UCI researchers have developed a stretchable composite that adjusts infrared energy flow when stretched, enabling dynamic thermal regulation. It combines a thermal infrared reflective metal film with an infrared transparent elastomer, allowing for the control of heat transmission through mechanical stretching. This technology promises significant energy savings and enhanced comfort in various applications, from personal wear to building insulation.

CATEGORIZED AS

- **Materials & Chemicals**
  - Composites
  - Nanomaterials
  - Other
  - Polymers
  - Textiles
  - Thin Films
- **Nanotechnology**
  - Materials
- **Engineering**
  - Other

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,913,591	02/27/2024	2017-802

STATE OF DEVELOPMENT

Currently in the working prototype stage.

RELATED CASES

2017-802-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- A sustainable and scalable bioinspired material with tunable heat-managing properties
- Cephalopod-Inspired Adaptive Infrared Camouflage Materials and Systems

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