



Novel Self-heating and Sustainable Pavement System with Enhanced Curing, Deicing, and Self Healing Features

Cold-recycled asphalt with additives cures faster, self-heats, de-ices, and self-heals.

Researchers at Purdue University have developed a sustainable system for incorporating self-heating features into cold-recycled asphalt mixes (CRM) using cost-effective additives. Purdue's system enables a shorter curing period while still achieving road properties (de-icing and self-heating) that are better than conventional asphalt. Long curing times have conventionally been the primary limitation in the use of CRM. Other economic and environmental benefits of the technology include a reduced need for virgin material, reduced waste, and increased overall lifespan of the pavement. This technology has applications for construction materials companies seeking to reduce the cost and environmental impact in the construction of roadways and paved areas. The material also has potential for use in electric vehicle-charging roadways due to enhanced conductivity provided by cost-effective additives

Advantages

- Shorter cure times
- More economical than traditional asphalt
- Reduced environmental impact
- De-icing
- Self-healing

Applications

- Road Construction
- Public Infrastructure

Technology ID
2023-VELA-70279

Category

GreenTech/Circular Economy &
Waste Reduction
GreenTech/Environmental
Remediation & Pollution Control
Automotive & Mobility
Tech/Micromobility & Smart
Urban Infrastructure

Further information

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- Recycled Asphalt
- Green Technology

Technology Validation:

This technology has been validated through the preparation of prototype samples of CRM with cost-effective additives. Initial testing was performed by measuring the resistivity of the samples in comparison with conventional approaches.

TRL: 3

Intellectual Property:

Provisional-Patent, 2023-09-15, United States

Utility Patent, 2024-09-13, United States

Keywords: Asphalt, Civil Engineering, cold-mix recycled asphalt, cost-effective additives; sustainable materials; reclaimed asphalt pavement; curing acceleration