

# **Building energy storage temperature regulating mortar**





## Overview

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The phase change energy storage mortar has good thermal performance and energy storage and temperature regulation capability while meeting the requirements of mechanical properties, which has a broad application prospect in the field of building temperature regulation.

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Abstract: This paper studies the microstructure/mechanical properties/thermal properties/temperature control properties of PD-PCM mortar with different PD-PCM dosages (5%~20%) under the low-temperature environment in winter.

Energy storage temperature regulating mortars provide an innovative solution for managing thermal conditions in construction materials. 2. These specialized mortars can store and release thermal energy, effectively contributing to energy efficiency in buildings. 3. Their composition typically.

temperature and temperature amplitude in comparison to control mortar. Average temperature fluctuation range of mortar having thermal ene does the thermal behavior of cement mortar affect indoor temperature?

The thermal behavior of the cement mortar plays a significant role in regulating the indoor.

The microstructure, mechanical properties, thermal properties and temperature control properties of energy storage mortars with different PD-PCM dosages (5%-20%) were investigated under the low-temperature environment in winter. The results show that: The porosity of energy storage mortar increases.

Energy storage mortar refers to an innovative construction material designed to harness and store thermal energy, particularly in building applications. 1. This material integrates phase change materials (PCMs), which allow it to



absorb, store, and release heat, thus enhancing energy efficiency. 2.



## Building energy storage temperature regulating mortar

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### **CAN ENERGY STORAGE SYSTEM BE USED AS CORE TEMPERATURE ...**

Building energy storage temperature regulating mortar The phase change energy storage mortar has good thermal performance and energy storage and temperature regulation capability while ...

### **CN101987789A**

The present invention relates to the energy-conserving and environment-protective new material technology field, relate in particular to a kind of phase-change accumulation energy insulation ...



### **Phase-change energy-storage dual-limit temperature adjustment mortar**

A technology of phase change energy storage and phase change temperature, which is applied in the field of building materials, can solve the problems of high cost of phase change ...



### **Enhanced thermal performance of phase change mortar using ...**

The total heat energy storage capacity of the PCM mortar is higher, leading to a slower rate of temperature decrease. After 1 h, the



temperatures of all samples decrease to ...



**Mechanical and temperature control properties of energy storage ...**

The phase change energy storage mortar has good thermal performance and energy storage and temperature regulation capability while meeting the requirements of ...



**CN115341680A**

The invention discloses a phase change heat storage temperature-regulating anti-cracking wall body. The method comprises the following steps: the composite phase-change anti-crack ...



**Analysis of temperature regulation and heat storage effect of the**

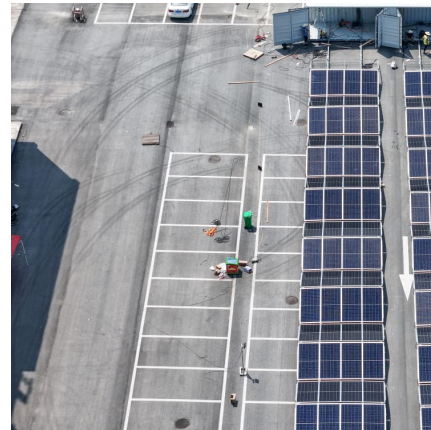
Abstract In order to study the character of heat storage and temperature regulation, a mathematical model of the thermal performance of an ideal passive energy ...





### **Phase-change energy-storing heat preservation and regulation building**

A phase change energy storage and mortar technology, applied in sustainable waste treatment, solid waste management, application, etc., can solve the problems of no energy storage ...



### **Preparation and characterization of innovative cement mortar**

To explore the application of phase change energy storage materials in building energy conservation, in this study, an innovative composite thermal energy storage cement mortar ...

### [A Recyclable Energy Storage Wood Composite with ...](#)

The recyclable wood-based composite energy storage material (PPW) demonstrates exceptional encapsulation and photothermal conversion performance. The ...



### **Plastic composite of bamboo charcoal stabilized polyethylene ...**

Download Citation , Plastic composite of bamboo charcoal stabilized polyethylene glycol with thermal energy storage and temperature regulation for building energy ...



### **Preparation and characterization of innovative cement ...**

To explore the application of phase change energy storage materials in building energy conservation, in this study, an innovative ...



### **Design of a passive temperature management house using ...**

Hence, there is a pressing demand for a building temperature management method that is low-energy or even zero-energy [6]. Thermal energy storage (TES) technology ...



### **Macromoleclar polymer thermoregulation energy-storage insulation mortar**

Technical field [0001] The invention relates to a building heat preservation and heat insulation material, in particular to a high molecular polymer temperature regulating, energy storage and ...





### Impact of microencapsulated phase change materials (PCMs) on ...

This study investigates the integration of Microencapsulated Phase Change Materials (MPCM) into cement mortar to enhance its thermal performance while assessing its ...

### Thermal energy storage in building envelopes using phase ...

In addition to temperature regulation and energy conservation, PCMs play a crucial role in controlling construction quality as they significantly impact the mechanical ...



### CN109384436A

The invention belongs to energy-saving building materials technical fields, and in particular to a kind of phase-change energy-storage temperature adjustment mortar and preparation method ...

### Effect of modified diatomite based shape-stabilized phase change

The phase change cement-based panel has 28-day compressive strength of 24.5 MPa and good temperature regulation performance which can lower the temperature of ...



### Thermal Performance of Mortars Based on Different Binders and

Such an approach allows the regulation of the temperature inside buildings through latent heat energy storage, using only solar energy as a resource, thus, reducing the ...



### Mechanical and temperature control properties of energy storage mortar

The phase change energy storage mortar has good thermal performance and energy storage and temperature regulation capability while meeting the requirements of ...



### Phase-change energy storage dual-limit temperature-regulating mortar

A phase change energy storage and phase change temperature technology, which is applied in the field of building materials, can solve the problems that phase change mortar is difficult to ...





### Composite energy storage cement-based mortar including coal

To mitigate the growing energy consumption of the construction industry, researchers have developed thermal energy storage technology using phase-change materials ...



??????/????????????????????

The phase change energy storage mortar has good thermal performance and energy storage and temperature regulation capability while meeting the requirements of ...

### Energy Storage Temperature Regulating Mortar: The Future of ...

Why Your Building Needs a "Thermal Diet" Ever wondered why some buildings stay cool in summer and warm in winter without cranking up the AC? Meet energy storage temperature ...



### Innovative cementitious mortar incorporated with sepiolite based ...

In light of the urgent demand for enhanced temperature control within the realm of construction and building applications, this research presents an innovative shape-stabilized ...



### Interface modified thermal energy storage aggregate and its ...

The building envelope plays a critical role in regulating indoor temperature, and its thermal performance directly impacts energy consumption. Traditional sensible heat storage materials ...

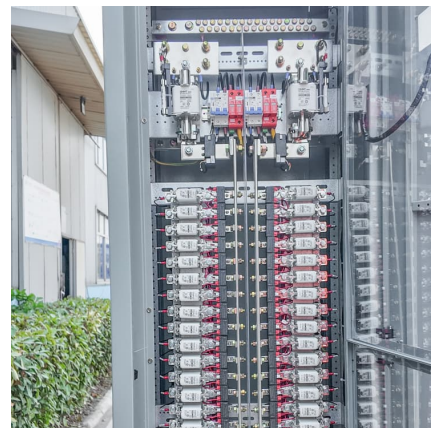


### Thermal Performance of Mortars Based on Different Binders and

Phase change material (PCM)-based thermal energy storage (TES) seems suitable to provide efficient energy redistribution. This is possible because the PCM is able to ...

### Preparation and characterization of innovative cement mortar

To explore the application of phase change energy storage materials in building energy conservation, in this study, an innovative composite thermal energy storage cement ...





[A novel cement mortar comprising natural zeolite/dodecyl](#)

Investigations into Phase Change Materials (PCMs) for heat storage in facilities have gained significance, contributing to indoor temperature regulation, decreased energy usage, and ...

**Design and Experimental Study of Thermally Self-Regulating ...**

PCMs has become an important research direction. As a carrier for thermal energy storage, PCMs can undergo physical phase changes within a certain temperature range [10-13], ...



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