

Phase change energy storage graphene



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Graphene oxide/polyurethane-based composite solid-solid phase change

The preparation of phase change materials (PCMs) with high energy storage, thermal conductivity, and photothermal conversion capability is essential for improving solar ...

A form-stable photothermal conversion phase change material ...

Copper sulfide (CuS) has been considered as an excellent photothermal conversion material in solar energy applications. The integration of CuS into phase change ...



Dual-functional polyethylene glycol/graphene aerogel phase change

The reinforced photothermal effect of conjugated dye/graphene oxide-based phase change materials: fluorescence resonance energy transfer and applications in solar ...

Advanced Phase Change Composite by Thermally ...

Organic phase change materials (PCMs) have

been utilized as latent heat energy storage and release media for effective thermal management. A major ...



Phase change materials microcapsules reinforced with graphene ...

Jiang Z, Yang W, He F, et al. Modified phase change microcapsules with calcium carbonate and graphene oxide shells for enhanced energy storage and leakage ...

Graphene aerogel stabilized phase change material for thermal ...

In this work, graphene oxide (GO) was introduced to prepare a three-dimensional (3D) continuous network of graphene aerogel (GA) via a simple hydrothermal ...

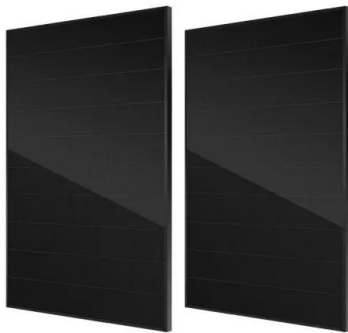


Graphene nanoplatelets-infused binary eutectic phase change ...

Energy depletion for the thermal regulation of buildings is a major global concern. Herein, we develop a binary eutectic phase change material (EPCM) consisting of sodium ...

Performance improvement of phase change materials ...

The modified graphene phase change microcapsule is a kind of energy storage material with high thermal conductivity, strong energy storage capacity and good thermal cycle ...



A novel cobalt-reinforced graphene aerogel composite phase change

Phase change materials can address the temporal and geographical mismatch between heat release and heat demand, which is due to their unique thermal storage ...

Molecular dynamics simulation of thermal properties in composite phase

Polyethylene glycol (PEG) is extensively utilized in phase change energy storage technology due to its appropriate phase change temperature, excellent thermal ...



Graphene-modified Phase Change Microcapsules for Thermal Storage ...

As electronic devices rapidly advance towards miniaturization and integration, heat accumulation and severe electromagnetic interference inevitably occur within limited spaces, impacting the ...



Graphene-modified Phase Change Microcapsules for Thermal ...

Published in: 2023 10th International Conference on Power and Energy Systems Engineering (CPESE) Article #: Date of Conference: 08-10 September 2023 Date Added to IEEE Xplore: 03

...



Fabrication of Graphene/TiO₂/Paraffin Composite Phase Change ...

To enhance the solar energy utilization efficiency of microencapsulated phase change materials (PCMs), a novel composite system was designed by combination of ...

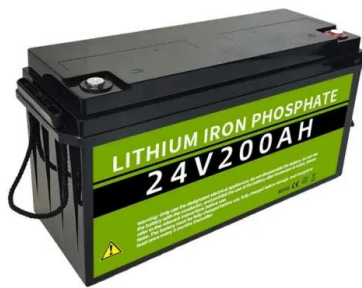
Carbon nanotube graphene multilevel network based ...

Here, we report a cooperative in situ impregnation strategy to introduce graphene oxide (GO) and polyethylene glycol (PEG) together into ...



Graphene Phase Change Energy Storage: The Future of Thermal ...

Why Graphene + Phase Change Materials = Game Changer Traditional phase change materials (PCMs) have been the Clark Kents of thermal storage--great at absorbing ...



Influences of reduction temperature on energy storage ...

...

It is well known that poor thermal conductivity, easy leakage in melting, and low fire safety will hinder the practical application of phase change materials (PCMs) in energy ...



High power and energy density graphene phase change ...

An efficient phase change thermal management system for LIBs protection was developed by hyperbolic graphene-paraffin composite, breaking the trade-off between the high ...



Shape-stabilized phase change materials for thermal energy storage ...

Shape-stabilized phase change material (SSPCM) are widely used as energy storage materials due to its advantages of easy preparation and adjustable scale. But the ...



Intelligent Thermal Control System in Dark Environments Based ...

5 ??? These materials can undergo reversible molecular structural changes and phase transitions under light irradiation, enabling the storage and controlled release of thermal ...



Polyurethane-based solid-solid phase change materials with in

...

Polyurethane-based solid-solid phase change materials with in situ reduced graphene oxide for light-thermal energy conversion and storage



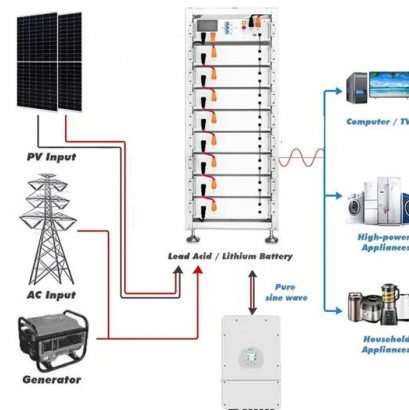
Graphene-enhanced phase change material systems

Thermal energy storage technologies perfectly adapt to the above issues to balance energy supply and demand [7]. Compared with sensible heat storage, phase change ...



Polyethylene glycol/graphene oxide aerogel shape-stabilized phase

Polyethylene glycol/graphene oxide aerogel shape-stabilized phase change materials for photo-to-thermal energy conversion and storage via tuning the oxidation degree ...



Graphene modified octadecane/diatomite composite phase change ...

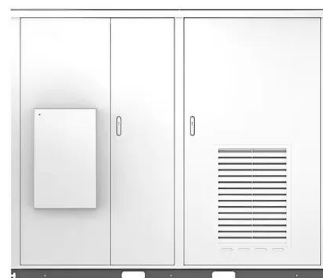
The thermal energy storage concrete (TESC) incorporating phase change materials (PCM) exhibits promising prospects for building energy conservation due to its ...



Performance study of an environmentally friendly, flame ...

Phase change materials (PCMs) have high thermal storage density and constant phase change temperature, showing great potential in sustainable energy utilization, especially ...

Solar



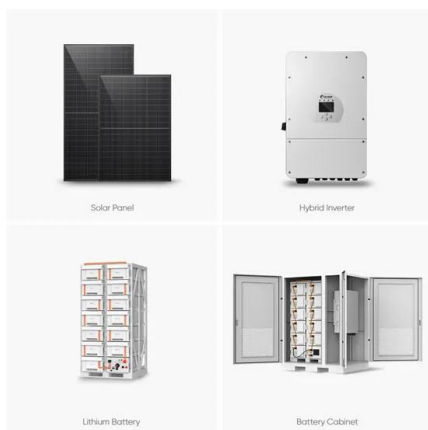


Modified Phase Change Microcapsules with Calcium Carbonate and Graphene

Construction of hybrid graphene oxide/graphene nanoplates shell in paraffin microencapsulated phase change materials to improve thermal conductivity for thermal energy ...

Graphene-based phase change composites for energy harvesting ...

Graphene-based nanostructures, as either graphene nanosheets or graphene-based porous nanostructures, can improve the thermal conductivity of phase change materials ...



High power and energy density graphene phase change ...

Here we present an efficient thermal management system with high power and energy density by hyperbolic graphene phase change material, preventing the rapid heat accumulation of Li-ion ...

High power and energy density graphene phase change ...

Here we present an efficient thermal management system with high power and energy density by hyperbolic graphene phase change material, preventing the rapid heat ...

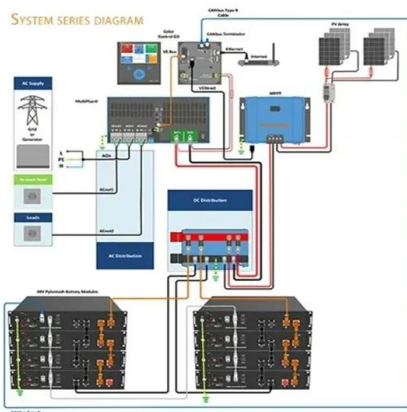


Graphene aerogel-based phase changing composites for thermal energy

Qi G, Yang J, Bao R et al (2017) Hierarchical graphene foam-based phase change materials with enhanced thermal conductivity and shape stability for efficient solar-to-thermal energy ...

Construction of Graphene/SWCNT network in NaCl-based phase change

Thermal energy storage can be achieved by the phase change materials (PCM) during their melting or solidification process [1], [2], [3], since the molten salt-based PCM can ...



Polyethylene glycol based shape-stabilized phase change material for

Graphene oxide (GO) sheets are introduced to stabilize the shape of the most widely studied phase change material for thermal storage, polyethylene glycol (PEG) during ...

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