

This type of energy absorption-storage-emission-re-excitation-re-emission can repeat indefinitely, is similar to the battery's charge-discharge-re-charge-re-discharge process, and can thus be called "light-storing material." The persistent luminescent materials can also be called luminous materials.

With an increase in the particle size, the energy storage capacity of phosphorescent powder is stronger, ... They are made by adding luminous materials (e.g.,  $\text{SrAl}_2\text{O}_4:\text{Eu}^{2+}, \text{Dy}^{3+}$ ) into different substrates by direct mixing method or surface modification method. The material composition, content, particle size are all critical elements on ...

DOI: 10.1016/j.solener.2023.04.049 Corpus ID: 258800180; Study on the mechanics and functionalities of self-luminous cement-based materials with energy storage and slow release properties

Self-luminous wood composite for both thermal and light energy storage. *Energy Storage Mater.*, 18 (2019), pp. 15-22. ... Fabrication and characterization of fatty acid/wood-flour composites as novel form-stable phase change materials for thermal energy storage. *Energ. Build.*, 171 (2018), pp. 88-99. [View PDF](#) [View article](#) [Google Scholar](#) [12]

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Except for the improvement enthalpy value and thermal conductivity of conventional solid-solid phase change materials (SSPCMs), expansion of additional functions other than thermal energy storage function of that has been particularly attractive. In this work, a novel self-luminous SSPCMs based polyethylene glycol have been successfully synthesized ...

Overall, strontium aluminate doped with  $\text{Eu}^{2+}$  co-doped with  $\text{Dy}^{3+}$  ( $\text{SrAl}_2\text{O}_4:\text{Eu}^{2+}, \text{Dy}^{3+}$ ) phosphors and self-luminous pavement for energy storage had great prospects in improving ...

The development of phase change materials (PCMs)-based energy storage devices for both thermal and light energy has the potential to greatly enhance solar energy use efficiency, which is important in addressing the worldwide energy problem. ... Phase change materials, Thermal regulation, Self-luminous; Energy storage  
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1 &#0183; School of Materials Science & Engineering, Nanyang Technological University, 50 Nanyang Avenue Blk N4.1, Singapore, 639798 Singapore. ... Benefitting from these properties, ...

Study on the mechanics and functionalities of self-luminous cement-based materials with energy storage and slow release properties. Author links open overlay panel Wentong Wang a, Wenxiu Jiao a b, Aimin Sha a b, Xinzhou Li a, Wei Jiang a b, Dongdong Yuan a. ... Since the self-luminous cement material is regarded as a surface medium, it is ...

DOI: 10.1016/j.est.2023.110235 Corpus ID: 266837275; Delignified wood for thermal energy storage with high efficient photo-thermal conversion efficiency @article{Li2024DelignifiedWF, title={Delignified wood for thermal energy storage with high efficient photo-thermal conversion efficiency}, author={Yanchen Li and Qi Lu and Jiawei Yang and Weiwei He}, journal={Journal ...

2.1 Materials. Ethyl cellulose (EC,  $M_n = 19000$  g/mol; the degree of ethyl substitution is 2.3) was received from Aladdin Reagent Co., Ltd. China. Polyethylene glycol (PEG) with a number-average molecular weight of 6000 g/mol was bought from Shanghai Titan Scientific Co., Ltd. China, which was employed as the phase change material for thermal energy storage.

Downloadable (with restrictions)! Except for the improvement enthalpy value and thermal conductivity of conventional solid-solid phase change materials (SSPCMs), expansion of additional functions other than thermal energy storage function of that has been particularly attractive. In this work, a novel self-luminous SSPCMs based polyethylene glycol have been ...

1 &#0183; Benefitting from these properties, the assembled all-solid-state energy storage device provides high stretchability of up to 150% strain and a capacity of 0.42 mAh cm<sup>-3</sup> at a high ...

The present invention relates to energy storage water-borne luminescent coating. The coating adopts bivalent europium activated strontium aluminate as luminescent powder and adopts an acrylic acid resin method or a polyethylene wax method to coat the luminescent powder. The hydrolytic stability of the luminescent powder is increased, water-soluble epoxy resin emulsion ...

Currently, there are various types of self-luminous pavement materials containing long afterglow materials, mainly including coating-type, cement-based, resin-based self-luminous materials, etc. The self-luminous markings on the Oss N329 highway in the Netherlands represent a typical application of coating-type self-luminous pavement materials.

DOI: 10.1016/j.ensm.2019.02.005 Corpus ID: 139706386; Self-luminous wood composite for both thermal

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and light energy storage @article{Yang2019SelfluminousWC, title={Self-luminous wood composite for both thermal and light energy storage}, author={Haiyue Yang and Weixiang Chao and Siyuan Wang and Qianqian Yu and Guoliang Cao and Tinghan Yang and Feng Liu and ...

The great versatility of perovskite materials makes them good candidates to be applied as light storage materials, especially those with persistent luminescence. These solids ...

High-temperature phase change materials for thermal energy storage [29] Fan et al. 2011: Thermal conductivity enhancement of PCMs [30] Kenisarin et al. 2012: Form-stable latent heat storage system [8] Tatsidjoudoung et al. 2013: Potential materials for thermal energy storage in building applications [22] Khodadadi et al. 2013

Self-luminous, shape-stabilized porous ethyl cellulose phase-change materials for thermal and light energy storage. The development of phase change materials (PCMs)-based ...

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Moreover, Ag-GNS/PEG composites exhibit enhanced thermal conductivities (49.5-95.3%), high energy storage densities ( $>166.1$  J/g), high thermal energy storage/release rates and outstanding form ...

The development of new energy conversion and storage materials for new urban lighting and energy-saving stands to achieve energy savings, emission reduction, and carbon neutrality is an important research topic in the new era. ... ML can be divided into triboluminescence and piezoluminescence, which refers to the luminous object in various ...

The hardness of energy storage self-luminous plastics was between 10-100HA, which was meeting the requirements of medium hardness plastics, and could be further applied to luminous labels. ... Preparation of the self cleaning and luminous PVC membrane structure material and its properties study. Adv Mater Res, 332-334 (2011), pp. 1931-1936 ...

Concrete with smart and functional properties (e.g., self-sensing, self-healing, and energy harvesting) represents a transformative direction in the field of construction materials. Energy-harvesting concrete has the capability to store or convert the ambient energy (e.g., light, thermal, and mechanical energy) for feasible uses, alleviating global energy and pollution ...

Phase change materials (PCMs), as promising thermal energy storage devices, are drawing much attention due to their high energy storage capacity, small volume change, good thermal stability, long cycle life, and nontoxicity [1], [2], [3], [4].PCMs have been widely applied in many field, such as clothes [5], cylindrical



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power battery pack [6], [7], the wall of building [8], ...

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