Solid phase change energy storage materials

Phase change materials (PCMs) are such a series of materials that exhibit excellent energy storage capacity and are able to store/release large amounts of latent heat at ...

However, certain enduring limitations hinder the widespread industrial use of solid-liquid PCMs in thermal storage systems ... was undertaken using a comprehensive set of keywords that ...

This review illustrates various structural design principles for mol. solar thermal (MOST) energy storage materials based on photoswitches that operate under different conditions, e.g. soln. state, neat liq., and solid, or ...

At present, the shortage of energy resources has become a universal problem. Regarded as the most effective way of utilizing traditional energy [1,2,3,4,5,6], the thermal ...

Conventional solid-solid phase-change materials (SSPCMs) exhibit good thermal energy storage (TES) ability and shape stability, but they cannot be recycled and re-shaped once fabricated ...

A solid-solid phase change method of heat storage can be a good replacement for the solid-liquid phase change in some applications. They can be applied in a direct contact ...

Phase change materials (PCMs) having a large latent heat during solid-liquid phase transition are promising for thermal energy storage applications. However, the relatively low thermal conductivity of the majority of ...

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As the global energy crisis intensifies, the development of solar energy has become a vital area of focus for many nations. The utilization of phase change materials (PCMs) for photothermal ...

Conventional polymeric phase change materials (PCMs) exhibit good shape stability, large energy storage density, and satisfactory chemical stability, but they cannot be recycled and self-healed due to their permanent ...

Solid-solid PCMs, as promising alternatives to solid-liquid PCMs, are gaining much attention toward practical thermal-energy storage (TES) owing to their inimitable advantages such as ...

Here, we report a solid-solid phase change material, tris (hydroxymethyl)aminomethane (TRIS), which has a

phase change temperature of 132 °C in the medium temperature range, enabling high-grade and stable ...

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