

In this review, we provide a timely summary on the recent progress in three types of important Mg-based energy materials, based on the fundamental strategies of composition and structure engineering.

Herein, with a special focus on magnesium based materials and the current understanding of their interaction with hydrogen, the various synthetic methods developed so far are ...

Low-cost salt hydrate eutectic phase change materials (EPCMs) are attracting increasing attentions and have shown good application prospects for medium-temperature solar ...

The magnesium-based metal hydride reactor from this present study is validated against experimental results from Muthukumar et al.<sup>53</sup>. In their study, they employed Mg<sub>2</sub>Ni alloy for hydrogen storage ...

We developed a novel magnesium-based coordination container with outstanding drugs-loading capability and biocompatibility. The multiple binding domains in discrete metal-organic ...

It provides a comprehensive understanding of magnesium-based energy storage materials and their systems, linking the fundamental concepts to the actual challenges encountered in real-life applications.

Energy storage cold materials Common cold storage methods include sensible heat storage (SHS) and latent heat storage (LHS). In SHS, the cold is stored based on the sensible heat (temperature ...

Thermochemical energy storage (TCES) reactions have attractive advantages compared with heat storage methods, such as extremely high energy storage densities (1440 and 3960 MJ m<sup>-3</sup>), no heat ...

Magnesium hydride has been studied extensively for applications as a hydrogen storage material owing to the favourable cost and high gravimetric and volumetric hydrogen densities. ...

Reversible solid-state hydrogen storage of magnesium hydride, traditionally driven by external heating, is constrained by massive energy input and low systematic energy density.

Based on the wide application of Mg alloys, the micro/nano containers in smart self-healing protective coatings are divided into inorganic, organic materials, carbon materials and ...

Thermoelectric technology has emerged as a promising solution for direct heat-to-electricity conversion and solid-state cooling, offering great energy efficiency and environmental ...

The editors will offer a selection of the most cutting-edge novel findings on Mg-based materials connected to H<sub>2</sub> storage and batteries in the current special issue, taking into account the significant ...

The use of sheeting materials within the construction industry is becoming increasingly common as building materials and the way they are used evolves. Recently, magnesium-based ...

But, phase change materials for solar thermal energy systems should possess optical solar absorption capacity and high efficiency of photo-thermal conversion and storage. However, ...



# Magnesium-based materials

solar

container

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