

# Mg-based Hydrogen Absorption Materials with Unique Structures for Energy Storage

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Mg-based materials have been intensively investigated as promising hydrogen storage materials due to the advantages of great abundance, low cost and high hydrogen capacity. However, two technical barriers of poor kinetics and unsuitable thermodynamics in Mg-based materials need to be conquered before these materials can be widely commercialized. Various techniques have been adopted for the kinetics enhancement and thermodynamics tailor in Mg-based hydrogen storage materials. Here the author will introduce the different nano processing techniques which have been applied by the author to synthesize nanostructured Mg-based materials and improve the hydrogen absorption kinetics. We found that nanostructure and catalysts may significantly enhance the hydrogen storage kinetics, however, they do not change the thermodynamics (reaction enthalpy and entropy) with downsizing range of 5-300 nm. The recent research trends in Mg-based materials and the possible applications in this field will be discussed in this work.

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