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TWO-COMPONENT STRUCTURES PROVIDING FAST-LOW TEMPERATURE CHARGING OF Mg WITH HYDROGEN [NIST 11-022]

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Abstract

The invention is a hydrogen storage material and the method of making the novel material. Mg->MgH₂ reaction is a one-step reversible process that stores 7.6 wt% of hydrogen and is suitable for automotive applications. The material suffers from slow kinetics and prohibitory high temperatures needed to drive the reaction. The invention teaches how to overcome the limitations by creating a special structure consisting of small Mg grains separated by a layers/channels of a transition metal. The channels act as "highways" to provide fast delivery of hydrogen to the Mg grains; small size of the Mg grains ensures extremely fast charging/discharging.

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References

- US Patent No. 9,061,907

Status of Availability

This invention is available for licensing exclusively or non-exclusively in any field of use.

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