Short Communication

Effect of hydrogen induced decrepitation on the hydrogen sorption properties of MmNi₅

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MmNi₅ hydrogen storage alloy with an average particle size of 120 µm was subjected to hydriding treatment at 50°C, under 40 atm. pure hydrogen atmosphere. As a result, a large density of particle cracks was formed, which led to an increase in the particle surface area. The enlarged particles surface, in turn, led to substantially improved hydrogen sorption kinetics compared to the as-received (untreated) alloy. It was also found that hydrogen-induced decrepitation of the MmNi₅ powder results in enhancement of the hydrogen diffusivity mainly due to shortening of its diffusion distances.

Keywords: MmNi₅, hydrogen storage, hydriding kinetics, H-induced decrepitation

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