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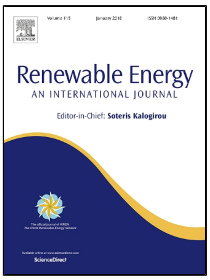

Microstructure and enhanced gaseous hydrogen storage behavior of CoS_2-catalyzed Sm_5Mg_{41} alloy

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Highlights

1. CoS_2 catalyzed Sm_5Mg_{41} alloys were prepared by mechanical milling.
2. CoS_2 exists on the surface of the alloy characterized as nanocrystalline.
3. Adding CoS_2 results in the onset desorption temperature lowered 10.8 °C.
4. Adding CoS_2 catalyst significantly decreases dehydriding activation energy.
5. Doping CoS_2 catalyst slightly reduces hydrogenation/dehydrogenation enthalpy.