

# **HYDROGEN UPTAKE ENHANCEMENT BY THE USE OF A MAGNESIUM HYDRIDE AND CARBON NANOTUBES MIXTURE**

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Previous studies show that the carbon nanotubes (CNTs) serve as hydrogen diffusion channels, when used with magnesium hydride MgH<sub>2</sub>[1]. The hydrogen sorption study, of a MgH<sub>2</sub> and 5wt% of multiwalled carbon nanotubes mixture, was the main purpose of this work. The samples were analyzed by means of X-ray diffraction (XRD) and also studied in a differential scanning calorimeter (DSC). The carbon nanotubes, that were ball milled during 20 min to the MgH<sub>2</sub>, were observed in the scanning electron microscopy (SEM) images. The mixture of MgH<sub>2</sub>-CNT turned out to enhance the hydrogen sorption when compared to pure MgH<sub>2</sub> and in 5 min it desorbed around 5 wt% of hydrogen, at 350°C and 0.01 bar.

[1] J. Yuan, Y. Zhu, Y. Li, L. Zhang, L.Li, Int. J. Hyd. Energy.39, (2014) 10184.