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**Study on hydrogenation of the La<sub>0.7-x</sub>Mg<sub>x</sub>Pr<sub>0.3</sub>Al<sub>0.3</sub>Mn<sub>0.4</sub>Co<sub>0.5</sub>Ni<sub>3.8</sub> (x = 0.0, 0.1 and 0.3) alloys for nickel – metal hydride batteries**

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Hydrogenation of La<sub>0.7-x</sub>Mg<sub>x</sub>Pr<sub>0.3</sub>Al<sub>0.3</sub>Mn<sub>0.4</sub>Co<sub>0.5</sub>Ni<sub>3.8</sub> (x = 0.0, 0.1 and 0.3) alloys in the as cast state have been investigated aiming the production of negative electrodes for nickel-metal hydride batteries (Ni-MH). The results showed that the hydrogenation alloys at 1 MPa of H<sub>2</sub> reduces particle size increasing capacity of the Ni-MH batteries. Thus work shows the two different kinds of fabrication of negative electrodes. The first one the particles mechanically crushed and another by hydrogenated particles.

A battery produced with the La<sub>0.4</sub>Mg<sub>0.3</sub>Pr<sub>0.3</sub>Al<sub>0.3</sub>Mn<sub>0.4</sub>Co<sub>0.5</sub>Ni<sub>3.8</sub> hydrogenated alloy showed a increase discharge capacity (64 mAh) compared to crushed alloy (54 mAh), although the stability decrease.

The electrode materials were characterized using scanning electron microscopy (SEM).