

论文摘要

中国有色金属学报

ZHONGGUO YOUSEJINSHUXUEBAO XUEBAO

第11卷 第4期 (总第43期) 2001年8月

 [PDF全文下载]  [全文在线阅读]

文章编号: 1004-0609(2001)04-0582-05

球磨表面包覆对镁基贮氢合金电化学性能的影响

张耀, 李寿权, 应窈, 雷永泉, 王启东

(浙江大学 材料科学与工程系, 杭州 310027)

摘要: 表面包覆是一种表面改性方法, 对于提高贮氢合金表面活性, 防止氧化和抑制容量衰退都有较积极的作用。探索了以球磨方法对二元非晶合金Mg₅₀Ni₅₀和三元非晶合金Mg(50-x)Ti_xNi₅₀(x=5, 10, 15)进行表面包覆的工艺及其对合金电极充放电循环稳定性的影响。结果表明: Y, Al, Ni等包覆元素皆可在一定程度上延缓非晶合金Mg₅₀Ni₅₀较快的循环容量衰退, 而且Ni对Mg(50-x)Ti_xNi₅₀(x=5, 10, 15)合金的包覆可有效地提高其循环稳定性。

关键字: 表面包覆; 镁基贮氢电极; 循环稳定性

Effect of surface coating by ball milling on cycle stability of Mg-based hydrogen storage electrodes

ZHANG Yao, LI Shou-quan, YING Tiao,
LEI Yong-quan, WANG Qi-Dong

(Department of Materials Science and Engineering,
Zhejiang University, Hangzhou 310027, P.R.China)

Abstract: Surface coating is a kind of surface modification, which plays positive roles in improving the surface activation of hydrogen storage alloys, protecting alloys from oxidation and depressing the capacity degradation. The technology of coating on binary Mg₅₀Ni₅₀ and ternary Mg(50-x)Ti_xNi₅₀ (x=5, 10, 15), and its effect on alloys cycle stability were also reported. The research indicated that the coating of elemental Y, Al and Ni all retard the rapid capacity degradation of amorphous Mg₅₀Ni₅₀ to some degree, and the coating with Ni can effectively improve the cycle stability of Mg(50-x)Ti_xNi₅₀ (x=5, 10, 15) electrodes. The mechanical alloying (MA) technology and the phase structure transformation during the process of MA were discussed.

Key words: surface coating; Mg-based hydrogen storage electrodes; cycle stability

版权所有：《中国有色金属学报》编辑部 湘ICP备09001153号

地 址：湖南省长沙市岳麓山中南大学内 邮编： 410083

电 话： 0731-88876765, 88877197, 88830410 传真： 0731-88877197

电子邮箱： f-ysxb@mail.csu.edu.cn