

论文摘要

中国有色金属学报

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第暂无卷 第暂无期 (总第暂无期) 暂无

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文章编号: 1004-0609(2000)s1-0239-03

稀土对电沉积Ni-P合金镀层显微组织的影响

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摘 要: 研究了在镀液中添加稀土元素后Ni-P合金镀层显微组织的变化。X射线衍射及透射电镜分析结果表明, 在镀液中添加一定量的稀土元素, 明显地促进了Ni-P合金微晶组织向非晶态组织转变, 从而提高Ni-P合金镀层的耐蚀性。电化学极化曲线测试结果表明, 稀土元素能够促进电沉积过程的阴极极化。由于稀土离子的特性吸附抑制了合金原子在电极界面的正常形核, 因而促进了非晶组织的形成。

关键字: 稀土; 电沉积; Ni-P合金

Influence of RE elements on microstructures of Ni-P alloy electro plating coatings

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Abstract: The effect of the rare earth (RE) elements on microstructure of electro depositing Ni-P alloy coatings was investigated. The results of XRD and TEM analyses show that the addition of RE elements in the electro plating solution can obviously promote the amorphism of Ni-P alloy coatings, the corrosion resistance is improved. Electrochemical cathodic polarization curves show that RE can promote cathodic polarization of electro deposition course. The influence of the RE on microstructure of coating probably is the result of the specific adsorption of the RE on the surface of electrode, which interrupts the normal nucleation of nickel.

Key words: rare earth; electro deposition; Ni-P alloy

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