

### 论文

#### 高频脉冲电沉积镍钴合金镀层的硬度研究

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摘要:

在硫酸盐电解液中,采用脉冲电源电沉积了镍钴合金。研究了电解液中 $\text{CoSO}_4$ 的浓度及脉冲参数对镀层中Co含量和镀层显微硬度的影响。采用SEM和XRD研究了镀层的表面形貌和微观结构。结果表明,镀层中的Co含量对镀层硬度有显著影响,当Co含量小于55 mass%时,镀层的硬度随着Co含量的增加递增。Co含量较低时,合金由面心立方结构(fcc)的固溶体组成。

关键词: 高频 镍钴合金 显微硬度 微观结构

#### MICROHARDNESS OF Ni-Co ALLOY PLATED BY HIGH FREQUENCY PULSE CURRENTS

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Abstract:

Ni-Co alloys were deposited by applying current pulses from a sulfate electrolyte. The effect of the ionic concentration of cobalt in the electrolyte and pulse parameters on the cobalt content in the deposits and the microhardness of the deposits were studied. The morphologies and metallic phases of the alloys were analysed by scanning electron microscope(SEM) and X-ray diffraction(XRD). The results indicated that the cobalt content in alloy deposits had a strong effect on its hardness, and the increase of cobalt content resulted in increasing of the hardness of the deposits. At low cobalt content, pure face centered cubic (fcc) structure was identified.

Keywords: High frequency Ni-Co alloys Microhardness Microstructure

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