عنوان مقاله:

process of nanocrystalline permallooy- magnetite coatings

محل انتشار:

اولین کنفرانس بین المللی یافته های نوین علوم و تکنولوژی (سال: 1394)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

In this study, the permalloy-Fe3O4 nanocrystalline composite coatings were electrodeposited on a copper cathode by applying a current density of 100mA/cm3, pH=3.8 and T=25˚C to obtain Crack-free and uniform composite films. The aim of this research was to explore the effect of addition of magnetite particles on electrodeposition mechanism of the composite coatings. Different composite coatings of permalloy-magnetite with various amounts of magnetite particles in the electrolyte (2, 4, 6, 8g/L) were electrodeposited. The amount of the magnetite particles introduced in the deposited permalloy coatings increased with increasing the amount of the magnetite particles suspended into the permalloy bath. The morphology, the phases and the elemental analyses of coatings were compared together by performing secondary and backscattered electrons images of Scanning electron microscope (SEM), X ray diffraction (XRD) pattern, quantometry and energy dispersive spectrometry (EDAX) tests. Results showed that increasing the magnetite amount the in samples enhances by increasing the concentration of magnetite power in the bath. Nevertheless, SEM images showed that there was a limitation in the magnetite amount in the bath. Increasing the amount of magnetite powder more than the limiting amount (4g/L) in the deposition bath resulted in prevention of the formation of permalloy.

کلمات کلیدی:

electrodeposition, Fe3O4, permalloy, nanocrystalline, coatings