

عنوان مقاله:

Pulsed Electrodeposition of Nanocrystalline Silver Coating: Optimization of Pulse Parameters Employing Response Surface Methodology

محل انتشار:

اولین کنفرانس ملی کاربرد نانوتکنولوژی در صنایع نفت و پتروشیمی (سال: 1391)

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خلاصه مقاله:

Pulsed current electrodeposition process has been studied to deposit nanocrystalline silver from potassium iodide solution. The effects of pulse current density, duty cycle and pulse frequency on deposited grain size were evaluated employing Surface Response Methodology (RSM). Central Composite Design (CCD) used for design experiments based on 3 parameters. The final results based on statistical model, illustrate that highcurrent density and low pulse frequency lead to finer grain size, as well as, there are an optimum range of duty cycle to decrease grain size. Morphology, composition and grain size of electrodeposited silver were investigated using FESEM, EDS and XRD methods. Validation testsbased on optimized parameters revealed from RSM carried out and grain size analysis .shows a very low derivation between experimental results and predicted grain size

کلمات کلیدی:

Nanocrystalline Silver, Response Surface Methodology, Electrodeposition, Pulsed Current,Williamson-Hall

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