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전기도금 공정에 의해 제조된 Ni 박막의 스트레스 변화 및 미세조직에 대한 연구 Study of Stress Change and Microstructure in Electrodeposited Ni Thin Film

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Electrodeposited Ni thin film has been studied because of their potential applications in microelectromechanical systems (MEMS), electronic devices (e.g., spintronics, magnetic storages, optical recording devices, and integrated sensors), and several other industries (e.g., automotive, manufacturing, and chemical process). Ni thin films were electrodeposited from chloride baths to investigate the effects of an additive (saccharin) on residual stress, microstructure, and surface morphology of the thin films. The addition of saccharin into Ni plating baths influenced on residual stress, film growth mechanism, surface morphology, grain size, and microstructure. Especially, it was observed from a cross-sectional TEM that Ni thin film exhibited the formation of an amorphous layer (~300 nm) at the initial stage of the film growth. It is suggested that the above changes are attributed to an impurity element of sulfur. The rest of detailed test results will be further discussed.