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레이저 빔 반사법과 전류 천이법을 이용한 순수한 니켈 수산화물과
코발트가 포함된 니켈 수산화물 전극에서 상계면 이동시 발생하는
응력 해석에 대한 연구

Analysis of the Stress Generated during Phase Boundary Movement
in Pure and Co(OH)_2 Incorporated Ni(OH)_2 Film Electrodes Using
Laser Beam Deflection and Current Transient Techniques

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Stress generated during phase boundary movement in pure and Co(OH)_2 incorporated Ni(OH)_2 film electrodes has been investigated employing laser beam deflection and potentiostatic current transient techniques as functions of applied potential and amount of incorporated Co(OH)_2 . Pure and Co(OH)_2 incorporated Ni(OH)_2 film electrodes were electrochemically deposited onto a pure Ni plate in the 0.5 M $\text{Ni(NO}_3)_2$ solution containing various concentrations of $\text{Co(NO}_3)_2$. Laser beam deflection curve and potentiostatic current transient curve were obtained in the applied potential range of 0.25 to 0.51 $V_{\text{Hg/HgO}}$ in 0.1 M KOH solution. From the simultaneously measured laser beam deflection transient and potentiostatic current transient, velocity and mobility of phase boundary were determined as functions of applied potential and concentration of incorporated Co(OH)_2 . The determined velocity and mobility were discussed in terms of hydrogen transport and the resulting stress during phase boundary movement.

Reference

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2. S.-I. Pyun and S.-M. Moon, *J. Korean Electrochem. Soc.*, 1 (1998) 8.