

## 용액 증착법으로 증착된 CdS 박막의 제조와 고상과 액상 화합제에 따른 표면 특성 비교

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### **Advanced Transmittance and Surface-Morphology of CdS thin films prepared by chemical bath deposition using various complexing agents for solar cells**

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**Abstract :** In the past few years, the deposition and characterization of cadmium sulfide semiconducting thin films has received a considerable amount of interest due to their potential application in the area of electronic and opto-electronic devices fabrications. Polycrystalline CdS thin films possess good optical transmittance, wide band-gap and electrical properties makes it as one of the ideal material for their application to solar cell fabrication.

Cadmium sulfate thin films were deposited by the chemical bath deposition method using tartaric acid and triethanolamine as a complexing agent. Deposition parameters such as pH, temperature, deposition time and concentration of the reactant species were optimized so as to obtain reflecting, good adherent uniform thin films on the glass substrate. Reaction mechanism of the thin film formation is also reported. The crystallographic structure and the crystallite size were studied by the X-ray diffraction pattern. The optical band-gap of deposited film is identified by measuring the transmittance in the visible region. Temperature dependence of resistivity confirmed the semiconducting behavior of the film. Scanning electron micrographs (SEM) showed the presence of grain particles of size 50 nm.

**Key Words :** CdS, 화학적 용액 증착법, solar cell