

Characteristic of pH-controlled on electro-deposited CdTe thin films

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CdTe solar cell is II-IV group compound semiconductor with a relatively narrow band gap (1.45eV) and high absorption coefficient ($\alpha > 5 \times 10^5 \text{ cm}^{-1}$). In addition CdTe thin film is relatively easy to fabrication process. The way of CdTe thin film fabrication is electro-deposition, Vacuum evaporation, Close-spaced Sublimation, Screen printing, Sputter, MOCVD etc. In this study, CdTe thin film have been deposited using electro-deposition. CdS thin film was deposited by chemical bath deposition on the TCO(transparent conductive oxide) coated glass substrate. CdTe thin film was deposited by electrochemical deposition after that CdS deposition. The working electrode was a CdS/ITO layer. Pt sheet was used as a counter electrode. CdSO_4 and TeO_2 was used as precursor for the formation CdTe thin film and pH of the solution was controlled by H_2SO_4 . The pH has a range of 0.5~2.5. Properties of CdTe thin film at pH-controlled solution. The thin film samples deposited are characterized using Scanning Electron Microscope(SEM), Energy dispersive spectroscopy(EDS) and X-Ray Diffractometer(XRD).

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