Effect of Zinc/Cadmium Proportion in the Properties of CdS LayersDeposited by Chemical Bath Depostion Method

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Abstract : Cadmium poisoning and the cost of panel recovery which is very expensive and difficult in the buffer layersof CdS in solar cell, for these two drawbacks, we do a search on the effect of proportion of zinc/cadmium inthe properties layers of CdS. For this, our studies study the properties of CdxZn1-xS layers deposited bychemical bath (CBD). CdZnS thin films were synthesized by chemical bath deposition (CBD) with differentdeposition protocols to optimize deposition parameters such as temperature, deposition time, ionconcentrations and pH. The surface morphology, structural, optical and chemical properties of the CdZnS thinfilms were studied by SEM, XRD, Raman and UV-visible spectrophotometer. The transmittance is 80% inthe visible region 300 nm - 800 nm; the crystalline structure is hexagonal for x ? 0.5 and cubic for x?0.5, thegrain size is between 85.7 and 100 nm. It is observe that the transmittance and the shape change with theconcentration of zinc in the solution; this result favours the application of these films in solar cells application.

Keywords : CdZnS, chemical bath, SEM, Raman, solar cells, thin films.