Optical and electrical properties of polycrystalline SnO_2:Sb thin films

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Abstract

Optical properties of spray deposited antimony (Sb) doped tin oxide (SnO_2) thin films, prepared from $SnCl_2.2H_2O$ precursor, have been studied as a function of antimony doping. The electrical and optical studies on the as prepared films were deposited on corning glass slides at the various annealed temperature of 450˚C-600˚C. The optical characteristic of the film have been reported. The optical properties included their transmittance and absorbance spectra of the films were recorded in the wavelength range of 300nm to 600nm. The films were found to exhibit high transmittance and low absorbance in the region from 400 nm to 600 nm. However, the high absorbance of the film was found to be in the visible region from 300 nm to 400 nm. The transmittance was found to increase with the increase in annealed temperature. In electrical studies the resistance was found to decrease with increasing annealed temperature.

Key word: spray deposited, corning glass, various annealed temperature.

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