World Academy of Science, Engineering and Technology
International Journal of Chemical and Materials Engineering
Vol:16, No:09, 2022

Fabrication of Tin Oxide and Metal Doped Tin Oxide for Gas Sensor Application

Authors : Goban Kumar Panneer Selvam

Abstract : In past years, there is lots of death caused due to harmful gases. So its very important to monitor harmful gases for human safety, and semiconductor material play important role in producing effective gas sensors.A novel solvothermal synthesis method based on sol-gel processing was prepared to deposit tin oxide thin films on glass substrate at high temperature for gas sensing application. The structure and morphology of tin oxide were analyzed by X-ray diffraction (XRD), Fourier transforms infrared spectroscopy (FTIR) and scanning electron microscopy (SEM). The SEM analysis of how spheres shape in tin oxide nanoparticles. The structure characterization of tin oxide studied by X-ray diffraction shows 8.95 nm (calculated by sheers equation). The UV visible spectroscopy indicated a maximum absorption band shown at 390 nm. Further dope tin oxide with selected metals to attain maximum sensitivity using dip coating technique with different immersion and sensing characterization are measured.

Keywords : tin oxide, gas sensor, chlorine free, sensitivity, crystalline size
Conference Title : ICNMD 2022 : International Conference on Nanotechnology for Materials and Devices
Conference Location : Toronto, Canada
Conference Dates : September 20-21, 2022