Physical properties of ZnO thin films deposited by spray pyrolysis technique

Abstract

Thin films of ZnO have been prepared on glass substrates at different thicknesses by spray pyrolysis technique using 0.2 M aqueous solution of zinc acetate. X-ray diffraction reveals that the films are polycrystalline in nature having hexagonal wurtzite type crystal structure. The resistivity at room temperature is of the order 10^{-2} Ω cm and decreased as the temperature increased. Films are highly transparent in the visible region. The dependence of the refractive index, n, and extinction coefficient, k, on the wavelength for a sprayed film is also reported. Optical bandgap, E_g, has been reported for the films. A shift from E_g = 3.21 eV to 3.31 eV has been observed for deposited films.