

## Structural and Optical Properties of MgO Thin Films Prepared by Dip-Coating Process: Effect of Thickness

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Magnesium oxide (MgO) thin films with various thicknesses were successfully developed on glass substrates by sol–gel dip-coating technique. We have investigated the influence of the thickness (157, 352, and 915 nm), on the structural, optical, and morphological properties. X-ray diffraction study revealed that the deposited films were polycrystalline in nature with face-centered cubic structure along (200) and (220) directions. The transmittance was found to be decreased as the film thickness increased. In parallel, the optical band gap was found to be increased from 3.88 to 3.98 eV. The microstructure was found to be converted from inhomogeneous grains distribution with some voids in the surface to islands shapes distributed on homogeneous surface with increasing of the thickness. FTIR and EDX analysis confirmed the presence of Mg and oxygen elements. Also, the films were highly stoichiometric.

**Keywords:** MgO, thin films, sol–gel dip-coating, thickness, optical band gap, morphology.

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