

Thermal Stability of Hydrogen Doped AZO Thin Films Prepared by r.f. Magnetron Sputtering

박용섭¹, 이수호², 김중규², 하종찬², 홍병유², 이준신², 이재형²

¹조선이공대학, ²성균관대학교

Aluminum and hydrogen doped zinc oxide (AZHO) films were prepared by r.f. magnetron sputtering. The structural, electrical, and optical properties of the AHZO films were investigated in terms of the annealing conditions to study the thermal stability. The XRD measurements revealed that the degree of c-axis orientation was decreased and the crystallinity of the films was deteriorated by the heat treatment. The electrical resistivity was significantly increased when the films were annealed at higher temperature. Although the optical transmittance of AHZO films didn't highly changed by heat treatment, the optical band gap was reduced, regardless of annealing temperature and duration. The thermal stability of AHZO films was worse compared to AZO films.

Keywords: Aluminum doped zinc oxide (AZO), Hydrogen doping, Thermal stability, Heat treatment, Optical properties, Electrical properties, Solar cell



