

투명전극용 ZnO:Al 박막의 전기광학적 특성에 미치는 밀도의 영향  
**Influence of Film Density on Electro-optical Properties of Al-doped ZnO Thin  
 Films for Transparent Electrode**

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ZnO (zinc oxide) films have been actively investigated as transparent electrode materials for display. We report the influence of the film density on electro-optical properties of Al-doped ZnO thin films. Al-doped ZnO (AZO) thin films were deposited on Corning glass #1737 substrates by d.c. magnetron sputtering method at 150°C using ZnO-2 wt% Al<sub>2</sub>O<sub>3</sub> ceramic target. Argon was introduced near the substrate. The films were deposited in the working pressure from 1 mTorr to 10 mTorr.

The film density was varied with working pressures and it was the highest at the pressure of 1 mTorr. It was explained by atomic bombardment effect. XRR (X-Ray reflectivity) method was used to investigate the variation of the density. The resistivity was the lowest at the point of 1 mTorr. Hall effect measurement analysis was done to understand the variation of the resistivity. It was found that carrier mobility is a dominant factor for controlling the resistivity more than the carrier concentration. Optical property was measured by UV-vis-nir spectrometer.