

Al doped ZnO film on PET deposited by roll to roll vacuum coater for the flexible electronics

Jeong-Do Yang^{1,2}, Dong-Hee Park¹, Kyung-Hwa Yoo², Won-Kook Choi¹

¹Optoelectronic Materials Center, Korea Institute of Science and Technology, Cheongryang P.O Box 131, Seoul 130-650, Korea, ²Department of Physics, Yonsei University, 134 Sinchon-Dong, Seodaemun-Gu, Seoul 120-749, Korea

We investigated the RF sputtering conditions for the deposition of AZO (Al doped ZnO) transparent conducting film on PET using the roll to roll vacuum coater. AZO thin films, sputtered at the various RF powers and working pressures, were studied for their structural, electrical and optical properties.. From the X-Ray diffraction patterns, we calculated the lattice stress using the Bragg equation. The compressive stress tends to decrease with the increase in film thickness. AZO thin film with the thickness of 152nm (1400W, 0.4Pa) exhibit the resistivity of $3.92 \times 10^{-3} \Omega/\text{cm}$ and the transmittance of 96.9% at 550nm.