Soda lime glass기판위의 barrier층(SiO_2, Al_2O_3)이 ITO박막특성에 미치는 영향

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Effect of ITO thin films characterization by barrier layers(SiO_2 and Al_2O_3) on soda lime glass substrate

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Abstract : To apply PDP panel, Soda lime glass(SLG) is cheeper than Non-alkali glass and PD-200 glass but has problems such as low strain temperature and ion diffusion by alkali metal oxide. In this paper suggest the methode that prohibits ion diffusion by deposing barrier layer on SLG. Indium thin oxide(ITO) thin films and barrier layers were prepared on SLG substrate by Rf-magnetron sputtering. These films show a high electrical resistivity and rough uniformity as compared with PD-200 glass due to the alkali ion from the SLG on diffuse to the ITO film by the heat treatment. However these properties can be improved by introducing a barrier layer of SiO_2 or Al_2O_3 between ITO film and SLG substrate. The characteristics of films were examined by the 4-point probe, SEM, UV-VIS spectrometer, and X-ray diffraction. GDS analysis confirmed that barrier layer inhibited Na and Ka ion diffusion from SLG. Especially ITO films deposited on the Al_2O_3 barrier layer had higher properties than those deposited on the SiO_2 barrier layer.

Key Words : Soda lime glass, Indium tin oxide, Barrier layer, Rf-magnetron sputtering, Ion diffusion