

유기 트랜지스터를 위한 자가조립단층을 이용한 ITO의 습식 표면개질

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Wet Chemical Surface Modification of ITO by Self Assembled Monolayer for Organic Thin Film Transistor

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Abstract : Indium tin oxide (ITO), which is used as an electrode in organic thin film transistors (OTFT), was modified with a self-assembled monolayer (SAM) by wet chemical surface modification. The surface of the ITO was treated by dipping method in a solution of 2-chloroethane phosphonic acid (2-CEPA) at room temperature. The work function in the ITO which was modified with the SAM in the 2-CEPA had 5.43eV. A surface energy and a transmittance were unchanged in an error range. On this study, therefore, possibility of ohmic contact is showed in the interface between the ITO and the organic semiconductors. These results suggest that the treatment of the ITO with the SAM can greatly enhance the performance of the OTFT.

Key words : Organic Thin Film Transistor (OTFT), Indium Tin Oxide (ITO), Work function, Self Assembled Monolayer (SAM)

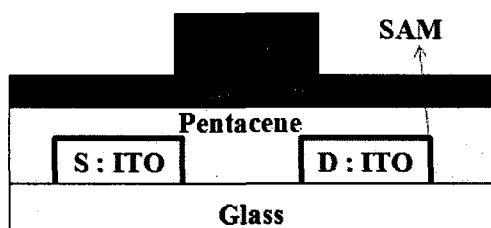


Fig. 1. Schematic diagram of OTFT using ITO electrode

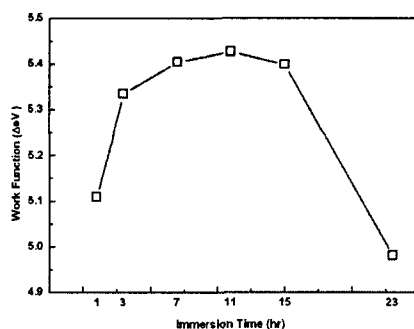


Fig. 2. Dependence of the work function on immersion time for 2-CEPA.