

MgO, Nb₂O₅ 처리된 Core-Shell형 ZnO전극을 이용한 염료감응형 태양전지

박 지혜¹⁾, 신 유주*²⁾

Core-Shell MgO and Nb₂O₅ Coated ZnO Electrode for Dye-Sensitized Solar Cell

Ji-Hye Park¹⁾, Yu-Ju Shin*²⁾

Key words : dye-sensitized solar cell, zinc oxide, core-shell nanomaterials, recombination

Abstract : ZnO nanoparticle was prepared by sol-gel method using zinc acetate and lithium hydroxide of ethanoic solution. Nanoporous ZnO electrode was coated with thin layer of MgO and Nb₂O₅ by dipping in various Mg²⁺ and Nb⁵⁺ solutions. The morphology and composition of the coated electrodes were investigated by SEM(Scanning Electron Microscope), EDX(Energy Dispersive X-ray Analysis) and XRD(X-ray Diffraction) and their Photoelectrochemical properties in DSSC has been characterized by using I-V meter, IPCE and AC impedance spectroscopy. MgO and Nb₂O₅ treated ZnO electrodes showed that the open circuit voltage was significantly increased by coating process, due to the energy barrier on the surface that prohibits the recombination process.

1) 가톨릭대학교 화학과

E-mail : hohoho1003@catholic.ac.kr

Tel : (02)2164-4332

2) 가톨릭대학교 화학과

E-mail : yujushin@catholic.ac.kr

Tel : (02)2164-4335 Fax : (02)2164-4764