

Low Temperature Treatment of TiO₂ Layer for Fabricating enhanced Photovoltaic of Flexible Photoanode

_____, _____, _____, _____*

(jaehkim@ynu.ac.kr*)

The development of high performance flexible photovoltaic devices is essentially required for achieving successful commercialization. In addition, dye sensitized solar cells (DSSCs) system have been extensively studied due to their economic and environmental advantages. Here, indium-doped tin oxide (ITO) electrode is used for transparent conductive electrode because various kinds of flexible substrates consist of polymer and ITO. TiO₂ paste is layered on ITO electrode and post-treated under the irradiation of UV light for removing organic binder. For comparison, TiO₂/ITO electrode is prepared by thermal treatment at high temperature. The duration of UV irradiation is varied for optimizing the process. It is observed that the post treatment by using UV irradiation does not affect to the resistivity of ITO electrode, while thermal treatment seriously increase the resistivity of ITO due to the formation of indium oxide. Moreover, UV irradiation helps the TiO₂ nanoparticles to form mesoporous structured TiO₂ electrode well, which is verified by SEM analyses.