

Improved Transparency of Photoanode Films on Dye-Sensitized Solar Cells

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The TiO₂ Pastes was prepared by using consist of TiO₂(P-25), ethyl cellulose, α -terpinol and bis(2-ethylhexyl) phthalate, and this paste application for dye-sensitized solar cells (DSSCs) were investigated. In order to improved transparency of TiO₂ photoanode films, TiO₂ paste was changed ethyl cellulose and α -terpinol contents. The samples were characterized by ATR-Fourier Transform spectrometer, X-ray diffraction (XRD) and morphology was investigated by field emission scanning electron microscopy (FE-SEM). The electrochemical properties of the thin films and the performance of DSSCs were measured by photovoltaic-current density and AC impedance. Energy conversion efficiency was obtained about 6.5% at ethyl cellulose and α -terpinol on best mixed ratio under illumination with AM 1.5 (100mWcm⁻²) simulated sunlight.