

Comparison of ZnO Nano Particles Synthesized Using Sodium Hydroxide and Triethylamine for Photovoltaic Applications

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ABSTRACT

The formation of zinc oxide (ZnO) nanoparticles were proceeded using the hydrolysis of zinc acetate with sodium hydroxide (NaOH) and triethylamine (TEA). The precipitations from hydrolysis reaction were used to fabricate thin films on Fluorine-doped Tin Oxide glass plates with polyethylene glycol as the binder and triton X-100 as the surfactant by using doctor bade method. Aforementioned ZnO thin films were characterized by X-ray diffraction (XRD) and particle sizes were estimated to be 18 nm and 27 nm in the two samples prepared using NaOH and TEA respectively. Results from UV-Visible spectra and Mott-schottky measurements were used to calculate the energy band gap to test the suitability of material for photovoltaic applications. The values of photovoltaic efficiencies of fabricated photoanodes of ZnO thin films from NaOH and TEA with N719 dye found to be 0.46 % and 0.79 % respectively.

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