

Improvement of Photo Current Density in Dye-sensitized Solar Cell by Glass Texturing

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Recently, many researchers made progress in various studies improving the efficiency of dye-sensitized solar cell. In this paper, we used glass textured by wet-chemical etching process for improvement of photocurrent density in dye-sensitized solar cells. This is owing to increase coefficient of light utilization. Consequently, DSSC using the textured glass exhibit a J_{sc} of 9.49 mA/cm^2 , a V_{oc} of 0.73 V and a fill factor (FF) of 0.67 with an overall conversion efficiency of 4.64. This result showed increasing of 20% current density and 16% conversion efficiency using the textured glass. These results suggested that glass texturing was very effective in controlling the light-scattering properties into the photovoltaic cell.

Keywords: DSSC, Texture, Light-scattering, Photovoltaic cell