

### Highly Efficient Blocking Layers by Spray Pyrolysis Deposition on FTO Substrates

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We studied on the optimal spray pyrolysis deposition conditions in order to form blocking film between FTO substrate and porous TiO<sub>2</sub> film in dye-sensitized solar cell (DSSC). Blocking layer on the FTO substrate prevents charge recombination in the interface of TiO<sub>2</sub> film/electrolyte and improves the conversion efficiency. Titanium(IV) bis(ethylacetoacetato) diisopropoxide precursor solution was used to form blocking layer on the FTO substrate. Samples were prepared by changing the number of spraying cycles and spraying time in the preparation of the blocking TiO<sub>2</sub> films. We compared the character of sprayed samples with the spin coated samples by various measuring equipment. Thickness and the surface morphology of samples were examined by using scanning electron microscope (SEM). Solar simulator was used to measure the conversion efficiency and UV-Vis spectroscopy was used to measure the transparency of FTO substrates. It has been found that spray pyrolysis deposition is able to enhance the conversion efficiency of DSSC.