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Abstract

Applications of Rod TiO2 Electrode on Dye-Sensitized Solar Cell

Abstract

In this study, we preparation column type TiO2 electrode to increase contact of area with Dye-Sensitized by semiconductor process method via sputtering、photo process and etching to make a study of this process.

In this study a side, we used semiconductor theory, describe including sputtering、 photo and etching process manufacture system, to analyze each process influence on TiO2 electrode, and make sure each process parameter optimize to obtain mostly efficiency. We used ITO glass substrate and high purity（99.99%） titanium , put to use sputtering process, add to high purity O2 make it complete the best structure film and the thickness about 1400 U+C5 . By way of 500℃ anneal could got a better anatase phase, this result could easy reaction with electrolyte to increase electron-transferred. Used as spin casting covering PR on ITO substrate, transferring patterns of array circular shapes on a mask to photography, used optimize temperature and time to hard bake. Finally used HCl to etching underexposed TiO2 area, and acetone to tripper top PR, make it to accomplish pillars shape TiO2 electrode.

In this study method, we hope provide all process each different recipe for study TiO2 electrode student, with regard complicate manufacture mode and quickly to find tune optimize process recipe.

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