

Synthesis and Structure of Titania Nanotube Arrays by Anodization for H₂ Production

The synthesis of highly ordered titania nanotubular arrays as working photoanodes for H₂ Production cells by anodization of Ti metal foils in different electrolytes is presented. Data analysis of X-ray diffraction (XRD) conforms that the titania nanotubular arrays are mainly anatase. Scanning electron microscope (SEM) analysis indicates that the titania composed of nanotubes have a high porous tubular morphology. UV-Vis spectra analysis indicates that the band gap of the titania nanotube arrays is about 3.0 eV. The maximum hydrogen generation of the titania nanotube arrays at an illumination of 100 mW/cm² for 1 h is 0.34 mL/h-cm².

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