

Influence of precursors ratios on TiO₂ nanofiber fabrication by electrospinning techniques for photocatalytic reaction and dye-sensitized solar cells

최광일, 이석호, 이인화¹, 박주영*
서남권청정에너지기술연구원; ¹조선대학교
(jypark@sriget.re.kr*)

Electrospinning processes have several attractive advantages such as comparatively low cost, applicability to various materials, and the ability to generate relatively large-scale continuous films. Titanium dioxide (TiO₂) is a very suitable photocatalysts because of its optical and electronic properties, low cost, chemical stability and non-toxicity. Many inorganic micro/nanofibers have been fabricated using electrospinning techniques. We investigate to influence of precursors ratio on TiO₂ nanofiber fabrication by electrospinning techniques for photocatalytic reaction and dye-sensitized solar cells. TiO₂ nanofibers were fabricated by an electrospinning technique using poly(methyl methacrylate) and titanium isopropoxide as precursors. The samples were characterized using thermogravimetric analysis, field-emission scanning electron microscopy, and X-ray diffraction. The photocatalysts were evaluated using the photodecomposition of methylene blue under UV light.