Preparation of TiO_2 nanotube arrays and application

엄선미, 김진솔[1], 임병무[1], 박상선[1], 설용건[1,*]
연세대학교 수소연료전지 특성화대학원;
[1]연세대학교 화학공학과
(shulyg@yonsei.ac.kr*)

Titania (TiO2) is well-known semiconductor apply to gas sensors, photovoltaics, immobilization of biomolecules and generation of hydrogen gas. Titania nanotube can be adopted as a electrode to generate hydrogen in water split system. Ti - Nanotubes have been fabricated by many different methods such as hydrothermal treatment, template-assistant deposition, and electrospinning. Anodic oxidation is also verified to be an effective method in fabrication of nanotube arrays of titania. Anodization of Ti in acidified fluoride solution results in an ordered nanotubular titanium oxide surface. In this work, we present a fabrication of anodic TiO2 nanotube arrays by electrochemical anodization method. TiO2 nanotubes are applied for the production of Hydrogen (H2) by water splitting. Various characterization techniques(Scanning-electron-microscope,X-raydiffractometer,Photoelectrochemistry) are used to study the surface morphology, phase and photo-current density.