

Fabrication of Porous Titania Thin Films by Spray Deposition

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The fabrication of porous nano-crystalline titanium dioxide (TiO₂) has recently attracted much attention because of their versatile applications in solar cell, electrical and photocatalytic systems. Titania is highly stable, non-toxic, and has a suitable redox potential for photodegrading pollutants. Spray deposition system takes advantage of its low cost to set up the equipment and it does not require any severe operating conditions such as high vacuum and high temperature. This study represents the generation of porous titanium dioxide films using titanium isopropoxide mixed with various size of polystyrene bead as a precursor on the silicon wafer. The thickness and morphology of titanium dioxide films was characterized by scanning electron microscopy (SEM). X-ray diffraction (XRD) was used to examine the crystallization properties of porous TiO₂ films.