

Surface treatment of Porous Titania Thin Films fabricated by Spray Deposition to enhance the photoactivity

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TiO₂ film has very effective photo degradation activity for organic contaminants in water and air under UV irradiation due to its high photosensitivity, non-toxic nature, large band gap and stability. However, film-typed photocatalysts normally show lower photocatalytic activity than powdered ones due to its relative low surface area. Therefore, porous TiO₂ films with various sizes were generated by spray deposition to increase surface area. Also, the influence of oxygen plasma treatment and acid treatment of porous TiO₂ films was investigated for better photocatalytic activity. The photoactivity of each film was characterized by UV-vis spectrometer. X-ray Photoelectron Spectra (XPS) revealed that the ratio of titanium dioxide to titanium suboxide. The morphology and thickness of films were characterized by scanning electron microscopy (SEM).