

Preparation of Column Shape TiO₂ by a Diffusion Flame Reactor

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A thin layered TiO₂ nanoparticles on a slide glass have a high potential for practical applications such as self-cleaning paint, florescent light bulb, tiles, automobile side mirrors, home applications, etc. In this study, a thin layered TiO₂ particles were generated by a diffusion flame reactor, and the effects of process variables on the properties of TiO₂ particles were investigated. Column shape TiO₂ particles were characterized by RS(Raman Spectroscopy), SEM(Scanning Electron Microscope), and XRD(X-ray Diffraction), TEM(Transmission Electron Microscopy. As the inlet fuel/O₂ ratio and TTIP concentration increased, the TiO₂ particle size increased. Meanwhile, the particle size decreased as the total gas flow rate increased due to the decreased residence time. As the TiO₂ particle size decreased, a specific surface area increased.