

Preparation of TiO₂/SiO_x Double-Layer Films on Particles and Its Application to NO and SO₂ Removals

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The plasma chemical vapor deposition (PCVD) process has been widely used to prepare thin films for semiconductor fabrication and can also be used to coat thin films on particles. To coat uniformly thin film on particles, we need to make the particles stay in gas phase for some time. In the rotating cylindrical PCVD reactor, the particles will rotate together with the cylindrical PCVD reactor. The active radicals generated by the plasma will be used to coat some particles on the cylindrical tube wall and also other particles dropping in the gas phase of bulk.

In this work, the TiO₂/SiO_x double-layer films were coated on glass beads by rotating PCVD reactor and the growth rates of thin films on particles were analyzed for various process variables. The photocatalytic activities of TiO₂/SiO_x double-layer films on glass beads were tested for the NO and SO₂ removals.