

Adsorbability and Photocatalytic Activity of Carbon-Coated TiO₂ for Wastewater Treatment

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Carbon-coated TiO₂ was found to have many advantages as photocatalyst by hybrid effect of adsorption and photocatalysis, even though it has small amount of carbon contents. Therefore, it has been applied for the decomposition of the organic contaminants dissolved in water and wastewater. The techniques of carbon-coating TiO₂ particle are a powder mixture of TiO₂ with polymers and direct prepare from the alkoxide (Titaniumtetraisopropoxide) through hydrolysis with in an aqueous solution of polymers. The amount of carbon contents on TiO₂ particles was controlled by changing the concentration of PVA (PolyVinylAlcohol) and MMA (MethylMethAcrylate) in the solution and heating temperature. Carbon content and heating temperature of optimal processing condition for decomposition of the reactive dyes were found about 5 mass% and 800°C, respectively. We found that adsorbability of reactive dyes on carbon layer of samples was depended on carbon contents.