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TiO₂及TiO₂-SiO₂复合氧化物特性及其降解水中有机污染物的光催化活性

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摘要

TiO₂ and TiO₂-SiO₂ photocatalysts were prepared by sol-gel and supercritical CO₂ fluid drying method and characterized by X-ray diffraction (XRD), transmission electron microscope (TEM), etc. Their catalytic properties were tested through the photocatalytic degradation of phenol and aniline in wastewater. The results show that the developed fluidized photocatalytic reactor (FPR) and TiO₂ catalyst had better performance in degrading pollutants as compared with slurry photocatalytic reactor (SPR) and commercial TiO₂ catalyst. The composition and crystal form of TiO₂-SiO₂ composite oxide had obvious influence on catalytic effect and TiO₂-SiO₂ photocatalysts showed better catalytic activity and stability.

关键词 [titanium dioxide](#) [composite oxide](#) [photocatalytic activity](#) [degradation](#)

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Preparation of Photocatalytic TiO₂ and TiO₂-SiO₂ Particles and Application to Degradation of Trace Organics in Aqueous Solution

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Abstract TiO₂ and TiO₂-SiO₂ photocatalysts were prepared by sol-gel and supercritical CO₂ fluid drying method and characterized by X-ray diffraction (XRD), transmission electron microscope (TEM), etc. Their catalytic properties were tested through the photocatalytic degradation of phenol and aniline in wastewater. The results show that the developed fluidized photocatalytic reactor (FPR) and TiO₂ catalyst had better performance in degrading pollutants as compared with slurry photocatalytic reactor (SPR) and commercial TiO₂ catalyst. The composition and crystal form of TiO₂-SiO₂ composite oxide had obvious influence on catalytic effect and TiO₂-SiO₂ photocatalysts showed better catalytic activity and stability.

Key words [titanium dioxide](#); [composite oxide](#); [photocatalytic activity](#); [degradation](#)

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