

Gas-phase photocatalytic oxidation of styrene using the TiO₂-coated optical fibers

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To investigate the photocatalytic degradation of styrene, various nanocrystalline TiO₂ thin films have been prepared by sol-gel method. And the optical fibers are employed as the light-transmitting guide with the immobilizing TiO₂. The effects of the inlet concentration of styrene, flow rate, relative humidity and the thickness of TiO₂ thin films on the degradation of the styrene were examined. In addition, the effects of some metal ions that can be doped into the TiO₂ thin films were considered in order to get higher photocatalytic degradation.