Photocatalytic Oxidation of Gaseous Styrene using the TiO_2-Coated Optical Filber

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To investigate the photocatalytic degradation of gaseous styrene, various nanocrystalline TiO_2 thin films have been prepared by sol-gel method. To enhance degradation efficiency, the porous TiO_2 film was prepared by adding carbon black. The optical fibers are employed as the light-transmitting guide with the immobilizing TiO_2. The effects of the inlet concentration of styrene, flow rate, relative humidity, and the thickness of TiO_2 thin films on the degradation of the styrene were examined.