

## PHOTOCATALYTIC DECOMPOSITION OF GASEOUS ACETIC ACID IN FLUIDIZED REACTOR

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The world has encountered tremendous set of environmental problems, and thus extensive research activities are carried on advanced chemical, biochemical, and physicochemical methods for hazardous chemical compounds from air and water. In this field, many works have been done on the photocatalytic treatment of environmental pollutants using semiconductors like TiO<sub>2</sub> and metal/TiO<sub>2</sub>. However, the application has a limitation to use in industrial scale because the observed performances were very low. In order to improve the photocatalytic decomposition of acetic acid, the fluidized reactor is adopted for actual scale application. It has been recognized that fluidized-bed is suitable reactor to increase contacting effect between photosource and catalyst. When acetic acid is decomposed in fluidized reactor, reaction rate is well enhanced by 30~40% comparing with gas phase reactor. For the actual application to fluidized-bed system, main problem was found that fluidization of ultrafine catalyst. Therefore, it is carried out the photocatalytic decomposition with various particle size of TiO<sub>2</sub>.