

## Photocatalytic degradation of factory wastes 2,4,6-Trinitrotoluene (TNT) using $\text{TiO}_2$

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As a priority EPA pollutant, TNT is known to be toxic to aquatic and terrestrial organisms and can also pose a risk for human health through the food chain. Past methods for disposing of TNT contaminated wastes have included dumping at sea, dumping in specific landfill areas, and incineration in the case of small quantities.

In this study the photocatalytic degradation of factory wastes TNT in a circular photocatalytic batch reactor, using a UV lamp as a light source and  $\text{TiO}_2$  as a photocatalyst, was investigated. Especially the effects of various parameters such as temperature, pH and  $\text{TiO}_2$  loading, concentration and light intensity of UV lamp on the factory wastes TNT degradation rate by  $\text{TiO}_2$  photocatalysis were examined. The reaction rate was found to obey pseudo second-order kinetics represented by the Langmuir-Hinshelwood kinetic model. It was also showed that the photocatalysis rate of factory wastes TNT was highly dependent on the initial concentration and temperature.