



## Operational parameters effects on photocatalytic reactors of wastewater pollutant: A review

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### ABSTRACT

This study presents the operational parameters effects on photocatalytic degradation of liquid pollutants using titanium dioxide. Organic pollutants photodegradation is the most widely studied method, where photocatalysis is observed in many forms. Due to the cost efficiency of titanium dioxide as a photocatalyst, it has a greater role in this process as compared to other semiconductors. The operating parameters effects on photocatalytic degradation in wastewater pollutant using titanium dioxide based photocatalyst are presented in this paper. The findings are used to identify and explain the individual influence of different parameters, such as the photocatalyst composition, catalyst loading, initial pH, pollutant concentration, light intensity and temperature, on wastewater pollutants photocatalytic degradation. The successful application of laboratory scale techniques and the choice of treatment are generally dependent on the wastewater composition, however, much research is needed from the aspects of modelling and engineering design for a large scale operation. Besides that, a general overview of a prevailing trend in the use of titanium dioxide photocatalyst is presented with the emphasis placed on its achievements and problems.

*Keywords:* Photocatalyst; Pollutant; Semiconductor; Titanium dioxide; Wastewater

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