



EXPERIMENTAL STUDY OF ODOROUS ESTER PHOTOCATALYSIS

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Abstract

Titanium dioxide photocatalysis is an emerging and very promising technology to reduce odorous industrial pollution. Our project deals with industrial emissions that contain high concentration of ethyl hexanoate: this organic compound has a very low olfactory detection threshold and it is very unpleasant when it is both in industrial indoor air and in outer emission.

The main objective of this study is the determination of various parameters effects such as moisture inflow, pollutants concentration and photocatalyst nature on adsorption and photocatalysis. Adsorption capacity of the media used range between 9 to 18 mg EH per gram of media. It decreases while the relative humidity increases (competition between water and pollutant on photocatalyst sites). Moreover conversion rate observed to 60% of relative humidity increases with inlet concentration's decrease. For an inlet concentration, it exists an optimal relative humidity for an optimal conversion rate. The photoproducts of ethyl hexanoate are also identified.

Keywords: photocatalysis, titanium dioxide, ethylhexanoate

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