



## 论文摘要

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## 光催化分解活性染料及其高效催化剂

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**摘要:** 以太阳光为光源、活性染料活性红为主要研究对象,研究了用光化学催化降解有机物的新方法及其催化机理. 研究表明:光可激发H<sub>2</sub>O<sub>2</sub>的氧化反应,加快活性染料的氧化褪色速度;TiO<sub>2</sub>粉末的光催化作用也较显著;一种廉价、无毒催化剂(CHY)具有很强的光催化性能,在同等光照和pH值条件下,该催化剂对染料的褪色速度为H<sub>2</sub>O<sub>2</sub>的3倍, TiO<sub>2</sub>的15倍,且与H<sub>2</sub>O<sub>2</sub>或(和)TiO<sub>2</sub>具有协同作用,使染料的光解褪色速度进一步加快. 高效光催化剂CHY的发现为工业上合理利用太阳能,实现光化学降解有机污染的产业化提供了一条可行的新途径.

**关键字:** 光催化;染料;废水处理

## Degradation of active dyes by photo-catalysis and its effective catalyst

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**Abstract:** The degradation of active dyes by photocatalysis using solar energy was investigated. The results show that the oxidation of H<sub>2</sub>O<sub>2</sub> can be activated by solar energy and therefore the degradation rate of active dyes is speeded. The photocatalysis is obvious for the degradation of active dyes with TiO<sub>2</sub> powder. Particularly, a cheap, nontoxic and very efficient catalyst (CHY) is found. Its catalytic rate is 15, 3 times faster than that of the very popular TiO<sub>2</sub> and H<sub>2</sub>O<sub>2</sub>, respectively. In addition, CHY has synergetic effect with TiO<sub>2</sub> and H<sub>2</sub>O<sub>2</sub>. Because it is cheap, nontoxic and without the trouble for recovery, it is possible to combine CHY with other catalysts in a more effective and reasonable way to treat various organic effluents.

**Key words:** photocatalysis; dyes; pollution treatment

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