

Chanchai Anuntapanyasuth 2006: Dye Wastewater Treatment Using Photocatalytic Reactor.  
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This research studied dye wastewater treatment using photocatalytic reactor by degradation test in batch and continuous processes. Dye used in testing are Remazol yellow GR dye (Yellow dye), Remazol Brilliant Blue dye (Blue dye) and Cibacron Red dye (Red dye). This experiment was divided into 3 sections. The first section, the material and equipment for photocatalyst dye degradation were tested. The second and the last section were the dye degradation in batch and continuous processes.

The result from the first section showed that Toshiba Blacklight lamp was suitable for dye degradation as it was safe and economic. The lamp could degrade yellow and blue dye to 61 and 28 %, respectively within 180 minutes when air was aerated and initial dye concentration was equal to 30 mg/l. The experiment was performed at 1 g/l  $\text{TiO}_2$  (Carrlo Erba) catalyst in 4 liters of dye solution. The result in the second section demonstrated that the suitable dye degradation condition was pH 3 at 25 mg/l initial dye concentration. Moreover, it was found that 25 mg/l initial dye concentration of Cibacron Red dye was 95 % degradation within 120 minute but  $\text{TiO}_2$  (P-25) was 98 % degradation. The yellow dye was degraded better than red and blue dye. In the last section it was found that the adsorption and rate of reaction for reactor design for continuous process were 0.0204 l/mg and 3.345 mg/l.min, respectively.

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Thesis Advisor's signature

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