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## 论文

### 二氧化锰催化二氧化氯氧化处理萘酚绿模拟废水的实验研究

李文静 施来顺 刘艳璞 余锋俊 董岩岩

山东大学化学与化工学院, 山东 济南 250061

摘要:

研究了二氧化氯直接氧化和催化氧化处理萘酚绿模拟废水.二氧化氯化学氧化处理COD为1533mg/L的萘酚绿废水,在最佳pH值为1.2,二氧化氯投加量为1500mg/L,反应时间60min条件下,COD去除率和脱色率分别为45.3%和92.5%.在最佳pH值1.2,经过1000mg/L二氧化氯和5g MnO<sub>2</sub>-SiO<sub>2</sub>催化剂催化氧化30min后,COD去除率和脱色率分别为70.9%和96.8%.BOD<sub>5</sub>/COD<sub>cr</sub>由原废水的0.22提高至0.71,可生化性得到提高,为难降解废水的后续处理创造了条件.催化剂可循环使用9次而不失去活性.经红外光谱分析,催化剂有效成份二氧化锰与硅胶载体之间是以化学键的形式相连,不是简单的机械混合.

关键词: 二氧化氯; 催化氧化; 二氧化锰; 难降解废水; 萘酚绿

### Study of manganese dioxide catalytic oxidation with chlorine dioxide as an oxidant of simulated wastewater containing naphthol green B

School of Chemistry and Chemical Engineering, Shandong University, Jinan 250061, China

Abstract:

The direct oxidation and catalytic oxidation of simulated wastewater containing naphthol green B with chlorine dioxide as an oxidant were studied. When the wastewater's COD was 1533mg/L, the optimum pH value was 1.2, the dosage of chlorine dioxide was 1500mg/L after reacting for 60min and the COD removal efficiency and the decolor efficiency were 45.3% and 92.5%, respectively. The COD removal efficiency and decolor efficiency were respectively 70.9% and 96.8%, when the wastewater's COD was 1481mg/L, the optimum pH value was 1.2, the dosage of chlorine dioxide was 1000mg/L, and the dosage of MnO<sub>2</sub>-SiO<sub>2</sub> catalyst was 5g after reacting for 30min. The BOD<sub>5</sub>/COD<sub>cr</sub> of original wastewater improved from 0.22 to 0.71. The ability to biologically treat the difficult degradation wastewater improved. The catalyst did not lose activity when used nine times. The IR spectra indicated that the active ingredient of the manganese dioxide was linked with silicone by a chemical bond, not merely mechanical blending.

Keywords: chlorine dioxide; catalytic oxidation; manganese dioxide; difficult degradation wastewater; naphthol green B

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通讯作者: 施来顺(1966-), 男, 教授, 博士, 研究方向为水处理技术、精细化工、沥青乳化剂、等离子体对聚合物的表面改性表征. E-mail: LSHUNSH@sdu.edu.cn

作者简介:

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