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### AEO-7改性PbO<sub>2</sub>电极电催化降解结晶紫

### Electrocatalytic degradation of crystal violet by a PbO<sub>2</sub> electrode modified by AEO-7

关键词: [AEO-7改性PbO<sub>2</sub>电极](#) [阳极氧化](#) [电催化降解](#) [结晶紫](#)

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摘要: 通过在镀液中添加表面活性剂AEO-7,以不锈钢为基体,利用阳极氧化法制备了改性PbO<sub>2</sub>电极.同时,在结晶紫模拟废水中对比了改性前后PbO<sub>2</sub>电极的阳极极化曲线和塔菲尔曲线,并对质量浓度为10 mg · L<sup>-1</sup>的结晶紫模拟废水进行了电催化降解实验.实验结果表明,制备的改性PbO<sub>2</sub>电极对结晶紫废水的降解显示出了较好的电催化活性,最佳电解实验条件为:电解电流密度30 mA · cm<sup>-2</sup>,支持电解质Na<sub>2</sub>SO<sub>4</sub>浓度5 g · L<sup>-1</sup>,处理温度35℃,在此条件下电解40 min后,结晶紫的去除率可达到90%以上.

**Abstract:** A set of PbO<sub>2</sub> electrode modified by surface active agent AEO-7 was prepared on stainless steel substrate by anodic oxidation. The polarization curves and Tafel curves of modified and unmodified PbO<sub>2</sub> electrodes were compared in simulated crystal violet wastewater. The electrocatalytic degradation experiment was carried out in simulated wastewater with 10 mg · L<sup>-1</sup> crystal violet. It was found that the modified electrode showed better electrocatalytic activity than the unmodified one. The optimum process conditions were determined as follows: current density 30 mA · cm<sup>-2</sup>, electrolyte Na<sub>2</sub>SO<sub>4</sub> concentration 5 g · L<sup>-1</sup>, and treatment temperature 35℃. After 40 min of electrolysis, the removal rate of crystal violet can reach above 90%.

**Key words:** [PbO<sub>2</sub> electrode modified by AEO-7](#) [anodic oxidation](#) [electrocatalytic degradation](#) [crystal violet](#)

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