

研究论文

四磺酸基酞菁钴对于光滑Pt电极上氧还原过程的影响

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**摘要** 将大环化合物四磺酸基酞菁钴(CoTSPc)加入到电解液中, 研究了其对Pt阴极催化氧还原以及耐甲醇性能的影响. 实验结果发现, 这种影响与加入到溶液中的CoTSPc的浓度有关, 当溶液中加入CoTSPc的浓度为 $0.09 \text{ mmol}\cdot\text{L}^{-1}$ 时, Pt电极催化氧还原的电流基本不变, 而有效抑制了甲醇在阴极的氧化, 使甲醇氧化的峰电流值下降79.7%.

**关键词** [直接甲醇燃料电池](#) [阴极氧还原](#) [四磺酸基酞菁钴](#) [耐甲醇](#)

分类号

**Effect of Cobalt Tetrasulfonate Phthalocyanine on the Process of Oxygen Reduction at the Pt Electrode**

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**Abstract** The transition metal complex of cobalt tetrasulfonate phthalocyanine (CoTSPc) was added into the electrolyte of  $0.5 \text{ mol}\cdot\text{L}^{-1}$  sulfuric acid and its effect on oxygen reduction and methanol tolerant ability at cathodic Pt electrode was studied. The results showed that this kind of effect was concentration dependent and when the concentration of CoTSPc in the electrolyte was  $0.09 \text{ mmol}\cdot\text{L}^{-1}$ , the oxygen reduction reaction at the cathodic Pt electrode was not affected, however methanol oxidation at the same electrode was effectively restrained—methanol oxidation current was decreased by 79.7% compared to the case without CoTSPc in the electrolyte.

**Key words** [direct methanol fuel cell](#) [cathodic oxygen reduction](#) [cobalt tetrasulfonate phthalocyanine](#) [methanol-tolerant](#)

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