

研究论文

### Pt-WO<sub>3</sub>/C电极表面活化对乙二醇和CO氧化的作用

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摘要 用丙酮和四氢呋喃混合溶液对Pt-WO<sub>3</sub>/C电极进行表面活化处理后, 乙二醇在Pt-

WO<sub>3</sub>/C电极上的电催化氧化活性大幅度提高. 发现无论在中性溶液中还是在酸性溶液中, 表面活化处理后的Pt-

WO<sub>3</sub>/C电极, 乙二醇的起始氧化电位负移, 氧化峰电流在酸性介质中增加到表面活化处理前的3.2倍;

中性介质中增加到表面处理前的4.7倍, 其主要原因是表面活化处理后, 一方面增加了催化剂Pt的活性表面,

另一方面也促进了电极表面吸附的CO的电氧化, 减少了CO对电极表面的毒化作用.

关键词 [乙二醇](#) [CO](#) [电催化氧化](#) [燃料电池](#)

分类号

### Effect of Surface Treatment on Electrocatalytic Activity of Pt-WO<sub>3</sub>/C Electrode for Ethylene Glycol and CO Electrooxidation

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**Abstract** After the Pt-WO<sub>3</sub>/C electrode was treated with mixed solvent of tetrahydrofuran and acetone, the electrocatalytic activity of the Pt-WO<sub>3</sub>/C electrode for the ethylene glycol oxidation was significantly increased. The onset potential of the ethylene glycol oxidation was shifted to the negative direction compared with that at the untreated Pt-WO<sub>3</sub>/C electrode. In the acidic solution, the peak current of the ethylene glycol oxidation at the treated Pt-WO<sub>3</sub>/C electrode was 3.2 times as large as that at the untreated Pt-WO<sub>3</sub>/C electrode. In the neutral solution, it became 4.7 times. The main reason is that the treatment can remove the impurity, such as the surfactant introduced in the preparation of the Pt-WO<sub>3</sub>/C electrode, which changes the surface structure of the electrode to a certain extent and increases the exposure surface area of Pt. In addition, the treatment of the Pt-WO<sub>3</sub>/C electrode can promote the oxidation of CO<sub>ad</sub>, the intermediate of the ethylene glycol oxidation, and thus, decrease the poison effect of the adsorbed CO to the electrode. The treatment method is simple and effective.

**Key words** [ethylene glycol](#) [CO](#) [electrocatalytic oxidation](#) [fuel cell](#)

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