

研究论文

2-甲基吡啶在PbO₂-SPE组合电极上的电氧化研究

李斐, 曹学静, 张恒彬, 张玉敏, 李克昌

吉林大学化学学院, 长春 130021

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摘要 分别采用热压法和热压-电镀法制备PbO₂-SPE组合电极, 通过循环伏安和稳态极化曲线测量, 研究了这两种电极对2-甲基吡啶电氧化反应的电催化活性, 同时考察了工作电极电解液中有、无液相支持电解质电位与电流密度的关系及不同对电极电解液情况下, 电流密度与过电位和过电位与槽压的关系, 通过一般PbO₂电极与热压-电镀法PbO₂-SPE组合电极在电流密度与过电位和电流密度与槽压变化的比较, 发现热压-电镀法制备的PbO₂-SPE组合电极在相同过电位下具有更高的电流密度, 在相同电流密度下具有较低的槽压.

关键词 [固体高聚物电解质](#) [PbO₂-SPE组合电极](#) [2-甲基吡啶](#) [电氧化](#)

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Electrooxidation of 2-Methylpyridine at PbO₂-SPE Composite Electrodes

LI Fei, CAO Xue-Jing, ZHANG Heng-Bin, ZHANG Yu-Min, LI Ke-Chang

College of Chemistry, Jilin University, Changchun 130021, China

Abstract The PbO₂-SPE composite electrodes were prepared by hot press and hot-pressed electroplating methods. The electrocatalytic activity of the PbO₂-SPE composite electrode to the electrooxidation reactions of 2-methylpyridine were studied with the cyclic voltammetry and steady state polarization curves. The relationships between the current density and overpotential and between the overpotential and cell voltage were examined in different electrolytes of the counter electrode, as well as the relationship between the current density and potential was also examined in the solution of the working electrode in the presence of or in the absence of the liquid supporting electrolyte. Also the relationships between the current density and overpotential and between the current density and cell voltage were compared between common PbO₂ electrode and PbO₂-SPE composite electrode prepared by hot press electroplating method. It was found that the latter possesses a high current density at the same overpotential or a low cell voltage at the same current density.

Key words [Solid polymer electrolyte](#) [PbO₂-SPE composite electrode](#) [2-Methylpyridine](#) [Electrooxidation](#)

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通讯作者 张恒彬 hbz@mail.jlu.edu.cn

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