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**摘要:** 利用玻碳电极和粉末微电极测试甲醇在Pt Ru/C催化剂上的循环伏安曲线。比较玻碳电极和粉末微电极上的循环伏安行为,并测定甲醇在Pt Ru/C催化剂上电催化氧化的动力学参数。结果表明:用玻碳电极和粉末微电极测试的甲醇在Pt Ru/C催化剂上循环伏安曲线特性相同,测试计算的甲醇反应动力学参数相同,扩散系数几乎相同,两种电极都能较准确的测试催化剂的电催化活性。粉末微电极上浓差极化较小,当进行低速循环伏安扫描时,可以忽略浓差极化,电极过程只存在电化学极化。在玻碳电极上,使用Nafion膜不影响甲醇的扩散,催化剂的用量可以准确控制,能够精确计算催化剂的利用率。玻碳电极和粉末微电极各有特点,测试催化剂的电催化活性时可以根据实验要求选用。

**关键词:**

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## Comparative investigation of Pt Ru/C catalysts on different electrode for methanol electrooxidation

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**Abstract:** The cyclic voltammetric behavior of platinum ruthenium alloy (Pt Ru/C) catalysts was studied by using the powder microelectrode technique and glass carbon electrode. The cyclic voltammetric behavior on the powder microelectrode and the glassy carbon electrode was compared. The kinetic parameters of methanol electrooxidation on Pt Ru/C catalyst were calculated. It shows that the cyclic voltammetric behaviors are the same on the powder microelectrode and glass carbon electrode. The kinetic parameters of methanol electrooxidation on them were calculated. The diffusion coefficient is the same on them. The catalyst activity was measured accurately on two electrodes. The concentration polarization is small, it can't be calculated when the scan ratio is small on the powder microelectrode and the electrochemical polarization is only being in electrode process. The diffusion of methanol is not affected by Nafion membrane, and the utilizing ratio of catalyst is controlled accurately, the utilization ratio of it is calculated accurately in glassy carbon electrode. The glassy carbon and powder microelectrode have respective trait. It can be chosen to measure the activity of catalysts based on experimental requests.

**Key words:**

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