

不饱和醇电还原质谱-电化学循环伏安(MSCV)法研究: I. 烯丙醇的电还原

陈剑, 刘佩芳, 王辉, 查全性

武汉大学化学系电化学研究室

收稿日期 修回日期 网络版发布日期 接受日期

**摘要** 用MSCV法研究了烯丙醇在多孔Pt电极上 $0.5\text{mol}\cdot\text{dm}^{-3}\text{HClO}_4$ 中的电还原。烯丙醇电还原时主要涉及二类反应: 烯丙基上C-OH断键生成丙烯; 丙烯进一步氢化生成丙烷。表征丙烯及丙烷的诸碎片M/Z的质谱电流(IM)-电极电位( $\Phi$ )扫描曲线详细描绘了各分步反应的状况。在一定电位范围, 各M/Z的 $\lg\text{IM}-\Phi$ 呈线性; 求得各有关M/Z的Tafel斜率。根据实验结果对反应机理进行了详细分析。

**关键词** [反应机理](#) [烯丙醇](#) [电还原](#) [不饱和醇](#) [质谱-电化学循环伏安法](#)

分类号 [0646](#)

## MSCV studies of electroreduction of unsaturated alcohols: I. electroreduction of allyl alcohol

CHEN JIAN, LIU PEIFANG, WANG HUI, CHA QUANXING

**Abstract** The electroreduction of allyl alcohol was studied using MSCV (Mass spectrometric cyclic voltammetry) technique at porous Pt electrodes on  $0.5\text{mol}\cdot\text{dm}^{-3}\text{HClO}_4$ . Two types of reactions are mainly involved in the reduction of allyl alcohol: C-OH bond cleavage from allyl group with formation of propene and the hydrogenation of propene to propane. The mass spectrometric current (IM)- $\Phi$ (potential) curves of the fragments provide detailed information for some of the partial reactions. For all the M/Z values studied the  $\lg\text{IM}-\Phi$  relations exhibit a linear range and their Tafel slopes were obtained. Possible reaction mechanisms are proposed based on experimental results.

**Key words** [REACTION MECHANISM](#) [ALLYL ALCOHOL](#) [ELECTROLYSIS OF CHLORIDE](#)

DOI:

通讯作者

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(0KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [复制索引](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

▶ [本刊中包含“反应机理”的相关文章](#)

▶ 本文作者相关文章

- [陈剑](#)
- [刘佩芳](#)
- [王辉](#)
- [查全性](#)