

研究论文

金属有机化学气相沉积法制备SnO₂/MCM-41半导体传感器及其性能研究

刘秀丽¹, 高国华¹, KAWI Sibudjing²

1. 上海市绿色化学与化工过程绿色化重点实验室, 华东师范大学化学系, 上海 200062;
2. Department of Chemical and Environmental Engineering, National University of Singapore, Singapore 119260

收稿日期 2007-1-29 修回日期 网络版发布日期 2007-10-24 接受日期

摘要 采用金属有机化学气相沉积(MOCVD)法制备了SnO₂/MCM-41半导体传感器, 考察了沉积时间和沉积温度对SnO₂/MCM-41半导体传感器的SnO₂沉积量、比表面积和孔径的影响; 研究发现, 随着SnO₂沉积量的增加, 孔径有规律地下降, 说明SnO₂较均匀地沉积在介孔分子筛MCM-41的孔道之中. SnO₂/MCM-41半导体传感器对CO和H₂具有较高的传感性能, 其传感性能的大小与CO和H₂的浓度成正比.

关键词 [半导体传感器](#) [介孔分子筛\(MCM-41\)](#) [金属有机化学气相沉积\(MOCVD\)](#) [二氧化锡](#) [薄膜](#)

分类号 [0614](#)

Preparation of SnO₂/MCM-41 Semiconductor Sensors with MOCVD and Their Properties

LIU Xiu-Li¹, GAO Guo-Hua^{1*}, KAWI Sibudjing²

1. Shanghai Key Laboratory of Green Chemistry and Chemical Process, Department of Chemistry, East China Normal University, Shanghai 200062, China;
2. Department of Chemical and Biomolecular Engineering, National University of Singapore, Singapore 119260, Singapore

Abstract SnO₂/MCM-41 semiconductor sensors were prepared by metallorganic chemical vapor deposition(MOCVD). The amount of deposition, specific surface area and pore distribution of SnO₂/MCM-41 depend on the deposition time and temperatures. The fact that pore size are closely related with the amount of deposition indicates that SnO₂ is coated smoothly in the pore of MCM-41. SnO₂/MCM-41 sensor has high sensitivities for CO and H₂. The sensitivities show a linear relation with the concentration of CO and H₂.

Key words [Semiconductor sensor](#) [MCM-41](#) [MOCVD](#) [Tin dioxide](#) [Thin film](#)

DOI:

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(325KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [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“半导体传感器”的相关文章](#)

▶ 本文作者相关文章

· [刘秀丽](#)

· [高国华](#)

· [KAWI Sibudjing](#)