

简报

PEG辅助的溶胶凝胶法制备多孔ZnO薄膜

杨礼荣^{1,2}

河北理工大学材料学院¹

收稿日期 2005-12-5 修回日期 2006-3-9 网络版发布日期 2006-8-24 接受日期

摘要 以醋酸锌为前驱体,乙醇为溶剂,乙二醇胺为络合剂,通过聚乙二醇(PEG)辅助的溶胶—凝胶法在玻璃基片上制备了ZnO多孔薄膜。利用IR、TG-DTA、

XRD及SEM等测试方法对薄膜的结构和特性进行了分析。探讨了样品在溶胶-

凝胶及煅烧过程中的物理化学变化。研究了前驱体浓度、PEG2000

加入量对薄膜结构和性能的影响。结果表明,当Zn²⁺的浓度为0.6mol/L的溶胶在70℃水浴时,加入PEG2000后,有利于ZnO多孔结构的形成,而且孔尺寸及密度也随PEG加入量的增大而增大。

关键词 [氧化锌](#) [多孔薄膜](#) [溶胶—凝胶](#) [聚乙二醇](#)

分类号 [0484](#)

Preparation of the porous ZnO films by PEG-assisted sol-gel method

Abstract ZnO porous films were prepared on glass substrates by PEG-assisted sol-gel method using Zn(CH₃COO)₂·2H₂O as precursor, ethanol as solvent and NH(C₂H₂OH)₂ as chelating agent. The characteristics and microstructure of films as well as the chemical and physical changes taken place during sol-gel and heat treatments were analyzed by IR, TG-DTA, XRD and SEM. The effects of precursor concentration and PEG content on the characteristic of films were discussed. The results show that ZnO porous thin films can be prepared based on the admixture of PEG and in water bath at 70℃, pore size and density are increased with the addition of PEG, when Zn²⁺ concentration is 0.6mol/L.

Key words [zinc oxide](#) [porous film](#) [sol-gel](#) [polyethylene glycol](#)

DOI:

通讯作者 杨礼荣 ylr2005@eyou.com

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“氧化锌”的
相关文章](#)

▶ 本文作者相关文章

· [杨礼荣](#)