

研究论文

不同形貌ZrWMoO₈粉体的制备、表征及其负热膨胀特性

刘芹芹, 杨娟, 孙秀娟, 程晓农

江苏大学材料科学与工程学院, 镇江 212013

收稿日期 2006-7-25 修回日期 网络版发布日期 2007-2-28 接受日期

摘要 采用水合先驱物分解的方法, 以钨酸铵、钼酸铵及硝酸氧锆为原料制备了不同形貌的ZrWMoO₈粉体. 对其先驱体进行了热重-差热分析(TG-DSC), 并以X射线粉末衍射(XRD)、扫描电子显微镜(SEM)及X射线荧光光谱仪(XRF)等手段考察了不同胶凝剂(HCl, HClO₄, HNO₃, H₂SO₄及H₃PO₄)对产物结构和形貌的影响. 结果表明, 胶凝剂的选择对ZrWMoO₈粉体的形貌有较大影响. 在100—700 °C范围内, 以HCl为胶凝剂制备出来的立方相ZrWMoO₈粉体的热膨胀系数为 $-3.84 \times 10^{-6} \text{ K}^{-1}$.

关键词 [负热膨胀](#) [ZrWMoO₈](#) [水合先驱物脱水](#)

分类号 [0614.24+1](#) [0614.61+3](#)

Preparation, Characterization and Negative Thermal Expansion Property of ZrWMoO₈ Powders with Different Morphologies

LIU Qin-Qin, YANG Juan, SUN Xiu-Juan, CHENG Xiao-Nong

School of Materials Science and Engineering, Jiangsu University, Zhenjiang 212013, China

Abstract ZrWMoO₈ powders with different morphologies were obtained by using ammonium tungstate, molybdate tungstate and zirconium tungstate as the starting materials by dehydration of the precursor ZrWMoO₇(OH)₂(H₂O)₂. The precursor was studied by thermogravimetric analysis and differential scanning calorimetry(TG-DSC). X-ray powder diffraction(XRD), scanning electron micrograph(SEM) and X-ray fluorescence spectrometer(XRF) were used to study the influence of the varieties of the gelling agents on the crystallization process and crystal morphology of the resulted products. The results show that the kinds of gelling agent has a great influence on the morphologies of the resulted products, the thermal expansion coefficients of cubic ZrWMoO₈ prepared with HCl as the gelling agent is $-3.84 \times 10^{-6} \text{ K}^{-1}$ from 100 °C to 700 °C.

Key words [Negative thermal expansion](#) [ZrWMoO₈](#) [Dehydration of the precursor](#)

DOI:

通讯作者 程晓农 xncheng@ujs.edu.cn

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(554KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [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“负热膨胀”的 相关文章](#)

▶ 本文作者相关文章

- [刘芹芹](#)
- [杨娟](#)
- [孙秀娟](#)
- [程晓农](#)