

研究论文

# 酸蒸气水热免洗法制备前驱物 $ZrMo_{2-x}W_xO_7(OH,Cl)_2 \cdot 2H_2O$ 和立方 $ZrMo_{2-x}W_xO_8$ 热收缩化合物

郭树荣<sup>1</sup>, 邓学彬<sup>2</sup>, 马辉<sup>3</sup>, 赵新华<sup>2</sup>

1. 赤峰学院化学系, 赤峰 024001;
2. 北京师范大学化学学院, 3. 分析测试中心, 北京 100875

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**摘要** 采用酸蒸气水热免洗方法合成了立方 $ZrW_2O_8$ 类型化合物的系列前驱物 $ZrMo_{2-x}W_xO_7(OH, Cl)_2 \cdot 2H_2O$  ( $x=0, 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8$ ), 并由此制备了纯立方相 $ZrMo_{2-x}W_xO_8$  ( $x=0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8$ ). 提出了用X射线粉末衍射相对积分强度表征有序-无序介稳态晶体有序度的方法, 发现在制备条件下, 随着Mo/W摩尔比的减小, 立方相 $ZrMo_{2-x}W_xO_8$ 有序-无序介稳态的饱和有序度增加的规律. 讨论了原料选择以及中间产物的形貌对合成目标产物的影响, 探讨了以铵盐为原料制备前驱物反应的微观过程.

**关键词** [酸蒸气水热法](#) [免洗](#) [前驱物 \$ZrMo\_{2-x}W\_xO\_7\(OH,Cl\)\_2 \cdot 2H\_2O\$](#)  [立方相 \$ZrMo\_{2-x}W\_xO\_8\$](#)  [热收缩](#)

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## Synthesis of Precursors $ZrMo_{2-x}W_xO_7(OH,Cl)_2 \cdot 2H_2O$ and Cubic $ZrMo_{2-x}W_xO_8$ Thermal Contraction Compounds by Acidic Steam Hydrothermal No-wash Method

GUO Shu-Rong<sup>1</sup>, DENG Xue-Bin<sup>2</sup>, Ma Hui<sup>3</sup>, ZHAO Xin-Hua<sup>2</sup>

1. Department of Chemistry, Chifeng College, Chifeng 024001, China;
2. Department of Chemistry, 3. Analysis and Test Center, Beijing Normal University, Beijing 100875, China

**Abstract** The precursors,  $ZrW_2O_7(OH,Cl)_2 \cdot 2H_2O$  ( $x=0, 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8$ ), of cubic  $ZrMo_{2-x}W_xO_8$  were synthesized successfully by acidic steam hydrothermal no-wash (ASH-NW) method, in succession the preparation of cubic  $ZrMo_{2-x}W_xO_8$  were made from the precursors. The relative XRD intensity was proposed to characterize the saturated order degree ( $\eta'$ ) of the metastable order-disorder phases and the correlation was found that the  $n(Mo)/n(W)$  ratio is reduced, the order degree ( $\eta'$ ) is risen under the preparation condition. An argumentation was presented to discuss the effect of raw materials on the morphology of the intermediate phase as well as the products. Furthermore, the outline of the micro-process in which the ammonium salt was used as the raw material during the preparation of precursor was discussed.

**Key words** [Acidic steam hydrothermal \(ASH\)](#) [No-wash](#) [Precursor  \$ZrMo\_{2-x}W\_xO\_7\(OH, Cl\)\_2 \cdot 2H\_2O\$](#)  [Cubic  \$ZrMo\_{2-x}W\_xO\_8\$](#)  [Thermal contraction](#)

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