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Keggin结构杂多酸热性质研究

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摘要 本文利用DSC, TG-DTA, X射线衍射, 变温红外光谱和溶解性试验方法,
系统地研究了Keggin结构杂多酸HnXM12O40(X=Si, P, Ge; M=Mo, W)的热稳定性,
提出杂多化合物热分解的新判据, 给出了Keggin结构杂多酸的热分解过程, 推导出预测热分解温度的半经验公式。

关键词 红外分光光度法 杂多酸 X射线衍射分析 热稳定性 钨酸 示差扫描量热法 热重量分析 硅酸 钼酸 锗酸 KEGGIN结构

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Study on thermal property of heteropolyacids with keggin structure

WANG ZUOPING,NIU JINGYANG,XU LIN,PENG JUN,WANG ENBO

Abstract In this paper, the thermal stability of heteropolyacids with Keggin struc ture HnXM12O40 (X=Si, P, Ge; M=Mo, W) were studied systematically by DSC, TG-DAT, X-ray diffraction, IR spectra at various temperatures and solubility experimental methods. The new criterion of thermal decomposition for heteropoly compounds was proposed. The mechanism of thermal decomposition for heteropolyacids with Keggin structure was presented. A semi-empirical equation being used to predict the thermal decomposition temperatures was obtained. The reaction order and activation energy in every step of loss weight was calculated.

Key words INFRARED SPECTROPHOTOMETRY HETEROPOLYACID X-RAY DIFFRACTION ANALYSIS THERMAL STABILITY TUNGSTIC ACID DIFFERENTIAL SCANNING CALORIMETRY THERMOGRAVIMETRY SILICIC ACID MOLYBDIC ACID

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