高等学校化学学报 2008, 29(12) 2521-2524 DOI: ISSN: 0251-0790 CN: 22-1131/O6

论文

3D异金属Bi(Ⅲ)-Pr(Ⅲ)配位聚合物的合成、晶体结构和热稳定性

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摘要：

在水溶液中合成了双金属配位聚合物({[(NO3)(H2O)3Pr(μ4-Hedta)Bi-(NO3)2]·2H2O}2)n, 并通过元素分析、红外光谱和X射线单晶衍射等手段进行了表征. 该配合物为单斜晶系, P2(1)/n空间群, a=1.26831(18) nm, b=0.82189(12) nm, c=2.3755(3) nm, β=105.055(2)°, R=0.0429, V=2.3913(6) nm3, Z=4. Bi(Ⅲ)-Pr(Ⅲ)间通过配阴离子Hedta3-中4个羧基的桥联作用构建配合物的3D结构. TG-DSC结果表明, 该配合物热分解经历脱水、配体分解以及盐分解过程, 残余物为Bi-Pr-O的三元复合氧化物.

关键词： 异金属配合物 铋(Ⅲ) 镨(Ⅲ)

Synthesis, Crystal Structure and Thermal Stability of 3D Heterometallic Bi(Ⅲ)-Pr(Ⅲ) Polymer Complex

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Abstract:

A new 3D bismuth(Ⅲ)-praseodymium(Ⅲ) heterometallic complex, ({[(NO3)(H2O)3Pr(μ4-Hedta) Bi(NO3)2]·2H2O}2)n(edta=diaminetetraacecarboxylate), was synthesized and characterized by elemental analysis, FTIR, and X-ray diffraction single crystal structure analysis. It crystallizes in the monoclinic system, with space group P2(1)/n, a=1.26831(18) nm, b=0.82189(12) nm, c=2.3755(3)nm, β=105.055(2)°, V=2.3913(6) nm3, Z=4. Bridging Hedta3- anions between Bi atoms and Pr atoms result into a novel infinite 3D network structure. TG-DSC results indicate that thermal decomposition proceeds in several stages, dehydration, pyrolysis of ligand, and finally decomposition of salt.

Keywords: Heterometallic complex Bismuth(Ⅲ) Praseodymium(Ⅲ)

收稿日期 2008-10-04 修回日期 1900-01-01 网络版发布日期

DOI:

基金项目:

通讯作者: HU Ning-Hai

作者简介:

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