化学学报 2001 59 (12): 2170-2175 ISSN: 0567-7351 CN: 31-1320/06

具有三维网络的新型配位聚合物**[Nd(C7H6NO2)3.H2O]n**的合成、结构和性质

牛淑云,张亚玲,来巍,杨忠志,杨光第,叶玲

辽宁师范大学化学系.大连(116022);吉林大学超分子结构与光谱重点实验室

收稿日期 修回日期 网络版发布日期 接受日期

摘要 以Nd(NO3).6H2O和NH2C6H4COOH为原料，经[Nd(C7H6NO2)3.H2O]的自组装，得到了具有三维网络结构的配位聚合物[Nd(C7H6NO2)3.H2O]n。该聚合物晶体属单斜晶系，空间群P2(1)/n,a=0.98069(5)nm,b=2.2736(2)nm,c=0.98254(8)nm,β=100.053(5)°，V=2.1571(3) nm^3,Z=4。最后的一致性因子R=0.038。磁性研究表明，该化合物在低温下表现出反铁磁性质。测定了化合物的UV-vis-NIR和IR光谱，进行了分析和指认。

关键词 高聚物 网状聚合物 紫外分光光度法 红外分光光度法 晶体结构 硝酸钕 苯甲酸P 苯胺P 钕络合物

分类号 0631.3

Synthesis, structure and properties of a novel coordination polymer having three-dimensional networks [Nd(C7H6NO2)3.H2O]n

Niu Shuyun,Zhang Yaling,Lai Wei,Yang Zhongzhi,Yang Guangdi,Ye Ling

Liaoning Normal Univ., Dept of Chem.Dalian(116022)

Abstract Reaction of Nd(NO3).6H2O with NH2C6H4COOH by a hydrothermal method furnishes a novel coordination polymer [Nd(C7H6NO2)3.H2O]n. The polymer is monoclinic, space group P2(1)/n, a=0.98069(5) nm, b=2.2736 (2) nm, c=0.98254(8) nm, β=100.053(5)°, V=2.1571(3) nm^3, Z=4. Final R=0.038. The polymer is prepared by self-assembly of [Nd(C7H6NO2)3. H2O] unit. Each unit contains one Nd^3^+ ion and three independent p- aminobenzoate ligands, which coordinate in different fashions. Each Nd^3^+ is 8-coordinated, forming an irregular polyhedron. In the polymer, firstly, Nd^3^+ ions are bridged by the carboxylic groups of two p-aminobenzoate ligands forming one-dimensional chain. Then chains are linked by the ligands forming two-dimensional network. The two-dimensional networks are bonded by various hydrogen bonds assembling three-dimensional network structure. IR and UV-vis-NIR spectra and magnetic susceptibility of the polymer have been determined and discussed.

Key words HIGHPOLYMER NETWORK POLYMER ULTRAVIOLET SPECTROPHOTOMETRY INFRARED SPECTROPHOTOMETRY CRYSTAL STRUCTURE NEODYMIUM NITRATE BENZENECARBOXYLIC ACID P BENZAMINE P NEODYMIUM COMPLEX

DOI:

通讯作者