化学学报 2007 65 (14): 1381—1384 ISSN: 0567-7351 CN: 31-1320/06

研究简报

新型含2-噁唑啉基三角架配体-银(I)一维配位聚合物的合成与结构

黄永清[1], 周夏英[1], 沈忠良[1], 刘光祥[1], 余金权[2], 孙为银*,[1]

([1]南京大学化学化工学院 配位化学研究所 配位化学国家重点实验室 南京 210093)

([2] Department of Chemistry MS015, Brandeis University, Waltham, Massachusetts 02454-9110, U.S.A.)

收稿日期 2006-12-21 修回日期 2007-2-28 网络版发布日期 2007-7-24 接受日期 2007-3-30

摘要 通过含2-噁唑啉基三角架配体1,3,5-三(2-噁唑啉基)苯(L)与三氟醋酸银反应合成了配合物$[Ag_4(L)_2(CH_3CN)_2(CF_3CO_2)_4]_n$ (**1**), 并利用元素分析、电喷雾质谱、X射线单晶衍射等方法对其进行了表征. 晶体结构解析结果显示配合物**1**属三斜晶系, 空间群*P*-1, a=0.83731(6) nm, b=1.22828(9) nm, c=1.33997(10) nm, α=102.9760(10)°, β=107.3050(10)°, γ=93.8600(10)°, Z=1, R=0.0365, wR_2=0.0929. 该配合物是由$[Ag_4(L)_2(CF_3CO_2)_2]^{2+}$笼状结构单元通过另外两个三氟醋酸根双桥连形成的一维链状结构. 相邻的链间通过C—H…O氢键进一步扩展为二维网状结构. 电喷雾质谱研究结果显示在实验条件下, 溶液中配合物**1**是以聚合状态存在的.

关键词 银配合物 噁唑啉 配位聚合物 晶体结构 电喷雾质谱

分类号

Synthesis and Crystal Structure of a Novel Ag(I) 1D Coordination Polymer with a 2-Oxazolinyl-containing Tripodal Ligand

HUANG Yong-Qing[1], ZHOU Xia-Ying[1], SHEN Zhong-Liang[1], LIU Guang-Xiang[1], YU Jin-Quan[2], SUN Wei-Yin*,[1]

(*[1] State Key Laboratory of Coordination Chemistry, Coordination Chemistry Institute, School of Chemistry and Chemical Engineering, Nanjing University, Nanjing 210093, China*)

(*[2] Department of Chemistry MS015, Brandeis University, Waltham, Massachusetts 02454-9110 USA*)

Abstract A new Ag(I) complex $[Ag_4(L)_2(CH_3CN)_2(CF_3CO_2)_4]_n$ (**1**) was synthesized by the reaction of a 2-oxazolinyl-containing tripodal ligand 1,3,5-tris(2-oxazolinyl)benzene (L) with a silver(I) trifluoroacetate and characterized by means of elemental analysis, electrospray mass (ES-MS) spectroscopy and single crystal X-ray diffraction. The results of the crystallographic analysis showed that the complex **1** is triclinic, with space group *P*-1, a=0.83731(6) nm, b=1.22828(9) nm, c=1.33997(10) nm, α=102.9760(10)°, β=107.3050(10)°, γ=93.8600(10)°, Z=1, R=0.0365, wR_2=0.0929. The complex consists of $[Ag_4(L)_2\text{-}(CF_3CO_2)_2]^{2+}$ cage-like subunits, which are further connected into 1D infinite chain by two bridging CF_3COO^- anions. The 1D chains are further linked by C—H…O hydrogen bonds to form 2D network structure. The results of the ES-MS measurements suggested the polymeric structure of the complex in solution under the ES mass spectroscopy experimental conditions.

Key words silver(I) complex oxazoline coordination polymer crystal structure electrospray mass spectrometry

DOI:

通讯作者 孙为银 sunwy@nju.edu.cn