研究简报

手性二硫代磷酸镍(Ⅱ)

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关键词: 二硫代磷酸盐; 手性; 镍; 配合物
中图分类号: O614.81+3 **文献标识码**: A **文章编号**: 1001-4861(2005)10-1589-02

Chiral Dithiophosphato Nickel(Ⅱ)

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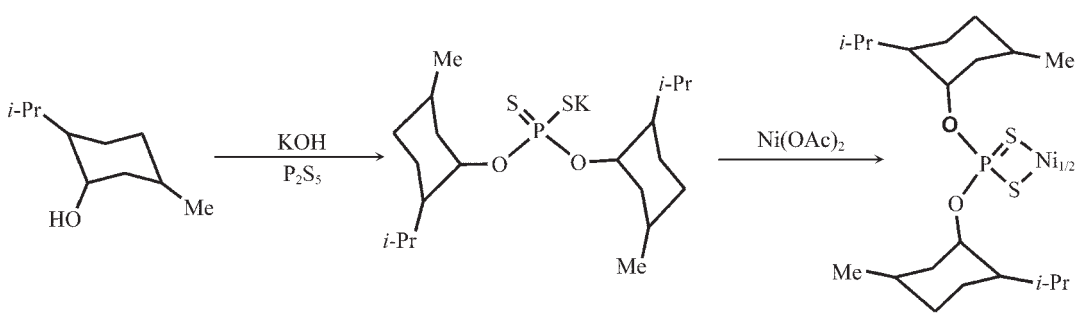
Abstract: Homochiral bis[(*O*,*O*′-di-2-isopropyl-5-methylcyclohexyl) dithiophosphato] nickel(Ⅱ) (**1**), prepared by the reaction of *O*,*O*′-di-2-isopropyl-5-methylcyclohexyl) dithiophosphato potassium with $Ni(OAc)_2$ displays a almost planar tetragonal geometry around Ni center composed of four S atoms from two different ligands. CCDC: 252341.

Key words: dithiophosphate; chiral; nickel; coordination compound

The dithiophosphate ligand (DTP) or its metal salts have been known to be important as antiwear and antioxidant additives in the lubricating oil and petroleum industry, as industrial extracting agent for metal ore, and as agricultural insecticide derivatives[1,2]. Homochiral metal complex with dithiophosphate ligand is relatively rare, as we are aware[3,4]. Herein we report a homochiral dithiophosphate nickel(Ⅱ) complex, bis [(O,O′-di-2-isopropyl-5-methylcyclohexyl) dithiophosphato] nickel(Ⅱ) (**1**) synthesized by the reaction of homochiral (*O*,*O*′-di-2-isopropyl-5-methylcyclohexyl) dithiophosphate potassium with $Ni(OAc)_2$ (Scheme 1). Fig.1 clearly shows that the central Ni atom displays a almost planar square coordination geometry composed of four S atoms of (*O*,*O*′-di-2-isopropyl-5-methylcyclohexyl) dithiophosphate ligand.



Scheme 1

收稿日期:2005-07-25。收修改稿日期:2005-09-12。
973 项目(No.G2000077500)。
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Due to steric hindrance, the formation of adduct of **1** with pyridine may be forbidden.

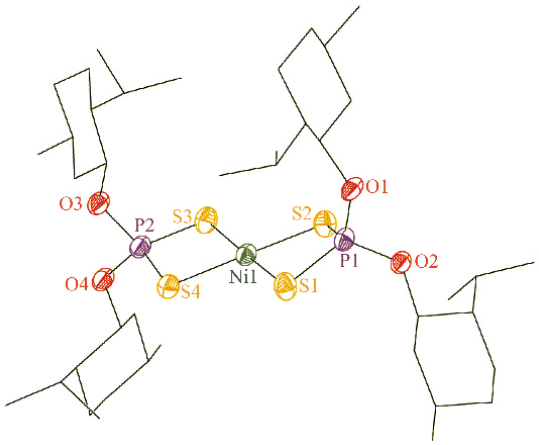

Fig.1 ORTEP view (20% probability ellipsoids) of compound **1**

Key bond distances (nm) and angles (°):
Ni(1)-S(1) 0.221 41(12), Ni(1)-S(3) 0.221 73(12), Ni(1)-S(4) 0.222 70(11), Ni(1)-S(2) 0.223 48(11); S(1)-Ni(1)-S(3) 177.78(5); S(1)-Ni(1)-S(4) 91.52(4); S(3)-Ni(1)-S(4) 88.22(4); S(1)-Ni(1)-S(2) 87.96(4); S(3)-Ni(1)-S(2) 92.33(4); S(4)-Ni(1)-S(2) 179.24(5).

Experimental

Intensity data were collected at 293(2) K on a Bruker AXS SMART CCD. $C_{40}H_{28}NiO_4P_2S_4$, M=821.51, space group $P2_12_12_1$ with a=1.182 92(8) nm, b=1.952 52(12) nm, c=2.115 12(14) nm, $\alpha=\beta=\gamma=90°$, V=4.885 2(6) nm^3, Z=2, R_1 [$I>2\sigma(I)$]=0.037 8, wR_2 (all)=0.102 7. Flack=0.007 (14). Programs used: SAINT, SADABS, SHELX-97, and ORTEP.

CCDC: 252341.

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