

配合物[Ni(IDB)~2][C~6H~4(OH)COO]·ClO~4·CH~3CH~2OH·H~2O的合成、晶体结构及催化尿素水解活性的研究

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摘要 报道三齿配体N,N-二(2-苯并咪唑甲基)亚胺(IDB)及单核镍(II)配合物[Ni(IDB)~2][C~6H~4(OH)COO]·ClO~4·CH~3CH~2OH·H~2O的合成、晶体结构和催化尿素水解活性。该配合物为三斜晶系, P1空间群, a=1.1010(2)nm, b=1.3800(3)nm, c=1.5550(3)nm,  $\alpha=100.75(3)^\circ$ ,  $\beta=102.97(3)^\circ$ ,  $\gamma=107.56(3)^\circ$ , V=2.1113(7)nm<sup>3</sup>, Z=2, F(000)=952, D~c=1.438g/cm<sup>3</sup>, M~r=914.01,  $\mu=0.591\text{mm}^{-1}$ 。最终因子R[I>2 $\sigma$ (I)]:R~1=0.0591,  $\omega R^2=0.1325$ ; R(全部数据): R~1=0.1302,  $\omega R^2=0.1572$ 。结构分析表明, 镍(II)分别与两个配体中的四个苯并咪唑氮和两个亚胺基氮配位形成畸变的八面体构型。用气相色谱仪测定配合物催化尿素水解的活性。  
关键词 [镍络合物](#) [晶体结构](#) [尿素](#) [水解](#) [苯并咪唑P](#) [气相色谱](#)  
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### Synthesis and crystal structure of complex [Ni(IDB)~2][C~6H~4(OH)COO]·ClO~4·CH~3CH~2OH·H~2O and its catalytic activity in hydrolyzing urea

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**Abstract** The title complex [Ni(IDB)~2][C~6H~4(OH)COO]·ClO~4·CH~3CH~2OH·H~2O [IDN=N,N-di(2-benzimidazolylmethyl) imine] has been synthesized and characterized by elemental analysis, IR and UV-Vis spectra. The crystal structure has been determined by single crystal X-ray diffraction. The crystal of mononuclear Ni(II) complex is triclinic system, space group, P1, a=1.1010(2) nm, b=1.3800(3) nm, c=1.5550(3) nm,  $\alpha=100.75(3)^\circ$ ,  $\beta=102.97(3)^\circ$ ,  $\gamma=107.56(3)^\circ$ , V=2.1113(7) nm<sup>3</sup>, Z=2, F(000)=952, D~c=1.438g/cm<sup>3</sup>, M~r=914.01,  $\mu=0.591\text{mm}^{-1}$ . The final R[I>2 $\sigma$ (I)]:R~1=0.0591,  $\omega R^2=0.1325$ ; R(all data):R~1=0.1302,  $\omega R^2=0.1572$ . The nickel (II) atom in the cation has distorted octahedral coordination geometry and is six-coordinated by six nitrogen atoms: four nitrogen atoms of the benzimidazole groups and two imine nitrogen atoms from the ligand IDB. The catalytic activity of the complex in the hydrolysis of urea was measured with gas chromatography.

**Key words** [NICKEL COMPLEX](#) [CRYSTAL STRUCTURE](#) [UREA](#) [HYDROLYSIS](#) [BENZIMIDAZOLE P](#) [GAS CHROMATOGRAPHY](#)

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