APPLIED ORGANOMETALLIC CHEMISTRY
Appl. Organometal. Chem. 2003; **17**: 805–806
Published online in Wiley InterScience (www.interscience.wiley.com). DOI:10.1002/aoc.506

Crystallographic report

A coordination polymer containing $[Zn(NO_3)(H_2O)_2(btp)_2]^+$ units bridged by btp ligands (btp = 2,6-bis(*N*′-1,2,4-triazolyl)pyridine)

Ji Young Ryu[1], Jun Yong Lee[1], Jin Soo Seo[1], Cheal Kim[1]* and Youngmee Kim[2]**

[1]Department of Fine Chemistry, Seoul National University of Technology, Seoul 139-743, Korea
[2]Department of Chemistry, Ewha Womans University, Seoul 120-750, Korea

Received 28 April 2003; Revised 3 May 2003; Accepted 5 May 2003

A zinc(II) coordination polymer has been formed from $Zn(NO_3)_2$ and 2,6-bis(*N*′-1,2,4-triazolyl)pyridine (btp) ligands in which each zinc(II) atom is coordinated by three nitrogen donor atoms from btp and three oxygen donor atoms from a nitrate and two water molecules. Copyright © 2003 John Wiley & Sons, Ltd.

KEYWORDS: crystal structure; zinc(II); coordination polymer

*Correspondence to: Cheal Kim, Department of Fine Chemistry, Seoul National University of Technology, Seoul 139-743, Korea.
E-mail: chealkim@snut.ac.kr
**Correspondence to: Youngmee Kim, Department of Chemistry, Ewha Womans University, Seoul 120-750, Korea.
E-mail: ymeekim@ewha.ac.kr
Contract/grant sponsor: Korea Science & Engineering Foundation; Contract/grant number: R05-2000-00002-0.

COMMENT

A zinc(II) coordination polymer is found in the cation in $[Zn(NO_3)(OH_2)_2(btp)_2]NO_3$, where btp = 2,6-bis(*N*′-1,2,

Contract/grant sponsor: Korean Research Foundation; Contract/grant number: 2002-070-C00053.

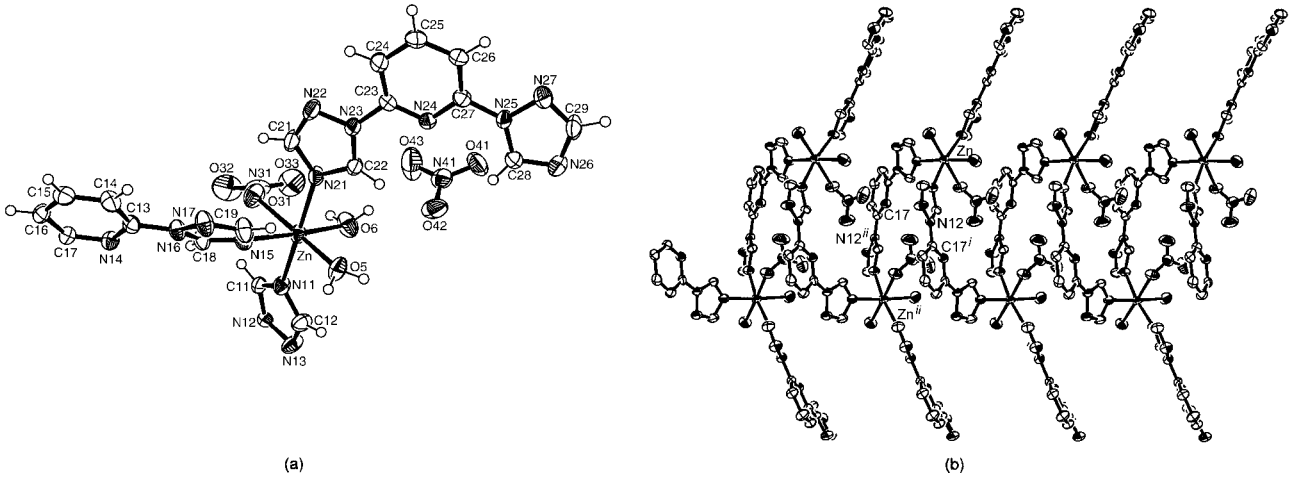

Figure 1. (a) The asymmetric unit of $[Zn(NO_3)(H_2O)_2(btp)_2]NO_3$. Selected bond distances and angles: Zn–N11 2.124(4), Zn–N21 2.103(4), Zn–N15 2.125(4), Zn–O5 2.033(4), Zn–O6 2.141(5), Zn–O31 2.231(4), N12–C17^{i} 1.413(6), C17–N12^{ii} 1.413(6) Å; N11–Zn–N21 171.77(18), N15–Zn–O6 174.79(18), O31–Zn–O5 175.92(17)°. Symmetry operation: (*i*) $-x+1/2, y-1/2, -z+1$, (*ii*) $-x+1/2, y+1/2, -z+1$. (b) The structure of a coordination polymer with hydrogen atoms omitted for clarity.

4-triazolyl)pyridine. Each zinc(II) atom is coordinated by three nitrogen donor atoms from btp and three oxygen donor atoms from a nitrate and two water molecules, so that the coordination geometry is distorted octahedral (Fig. 1a). Two btp ligands bridge two zinc(II) atoms to form a coordination polymer, as shown in Fig. 1b. A water molecule hydrogen bonds to an oxygen atom of a nitrate counteranion (O6···O43 2.838(7) Å).

CRYSTALLOGRAPHY

Colorless block-type crystals were obtained from the aqua mixture solution of $Zn(NO_3)_2$ and a btp[1] ligand. Anal. Found: C, 33.27; H, 2.82; N, 34.39. Calc. for $C_{18}H_{18}N_{16}O_8Zn$: C, 33.16; H, 2.79; N, 34.36%. Intensity data were collected at 293 K on an Enraf-Nonius MACH-3 diffractometer for a colorless block $0.30 \times 0.35 \times 0.45$ mm^3. $C_{18}H_{18}N_{16}O_8Zn$, $M = 651.85$, monoclinic, $P2_1/a$, $a = 17.4996(10)$, $b = 7.3988(10)$, $c = 19.4847(10)$ Å, $\beta = 97.976(10)°$;, $V = 2498.4(4)$ Å^3, $Z = 4$, 4881 unique data, $\theta_{max} = 26.0°$, $R = 0.055$ ($Rw = 0.135$) for $I \geq 2\sigma(I)$, $\rho_{max} = 0.52$ e Å^{-3}. Programs used: CAD-4-PC software, XCAD4, SHELXS97, SHELXL97, ORTEP-3 for Windows. CCDC deposition number: 208 842.

Acknowledgements

This research was supported by the Korea Science & Engineering Foundation (R05-2000-00002-0) and the Korean Research Foundation (2002-070-C00053).

REFERENCE

1. Yoo SK, Ryu JY, Lee JY, Kim C, Kim SJ, Kim Y. *J. Chem. Soc. Dalton Trans.* 2003; 1454.