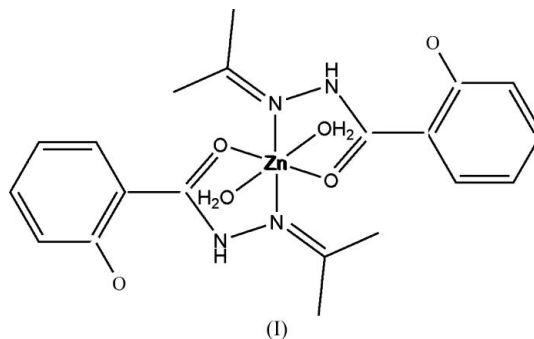


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Yan^b and Jing-Ping Wang^a^aInstitute of Molecular and Crystal Engineering, School of Chemistry and Chemical Engineering, Henan University, Kaifeng, Henan 475001, People's Republic of China, and ^bCollege of Pharmacy, Henan University, Kaifeng, Henan 475001, People's Republic of ChinaCorrespondence e-mail:
limingxue@henu.edu.cn**Key indicators**Single-crystal X-ray study
T = 173 K
Mean $\sigma(\text{C}-\text{C}) = 0.005 \text{ \AA}$
R factor = 0.043
wR factor = 0.100
Data-to-parameter ratio = 13.8For details of how these key indicators were automatically derived from the article, see <http://journals.iucr.org/e>.***trans*-Bis[acetone (2-oxidobenzoyl)hydrazonato- $\kappa^2\text{N},\text{O}$]diaquazinc(II)**

In the title compound, $[\text{Zn}(\text{C}_{10}\text{H}_{11}\text{N}_2\text{O}_2)_2(\text{H}_2\text{O})_2]$, the Zn^{II} atom lies on an inversion centre, and is coordinated in a distorted octahedral geometry by two carbonyl O atoms and two imine N atoms from two anionic bidentate acetone (2-oxidobenzoyl)hydrazone ligands and two aqua ligands. The complexes are linked together *via* $\text{O}-\text{H}\cdots\text{O}$ hydrogen bonds, leading to a two-dimensional network.

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Recently, there has been considerable interest in the chemistry of metal complexes with Schiff base ligands containing N and O atoms as donors (Ali & Livingstone, 1974; Li *et al.*, 2004; Rodriguez-Arguelles *et al.*, 2004). Here, we report the crystal structure of the title compound, (I).



In compound (I), Zn^{II} atom lies on an inversion centre and exhibits a distorted octahedral coordination geometry, with carbonyl atom O2 and imine atom N2 of the anionic acetone-*N*-salicyloylhydrazone ligands in the equatorial plane, and water molecules (O3) in the axial positions (Fig. 1). The phenol group of the ligand is deprotonated, in contrast with the Cu^{II} complex with an analogous ligand (Kraudelt *et al.*, 1996). The C7—O2 and C8—N2 bond distances (Table 1) are mostly consistent with double-bond character. In contrast, the C1—O1 and C7—N1 bond lengths are within the range for normal single bonds (Hu *et al.*, 2006).

There is an intramolecular N1—H1A \cdots O1 hydrogen bond (Table 2). The complexes are linked *via* $\text{O}-\text{H}\cdots\text{O}$ hydrogen bonds, forming a two-dimensional network (Fig. 2).

Experimental

All reagents were commercially available and of analytical grade. To a solution of $\text{Zn}(\text{CH}_3\text{COO})_2\cdot 2\text{H}_2\text{O}$ (0.110 g, 0.5 mmol) in methanol (5 ml) was slowly added a suspension of acetone-*N*-salicyloylhydrazone (0.192 g, 1.0 mmol) in methanol (10 ml). The suspension dissolved partially, and after stirring for 24 h, the reaction mixture

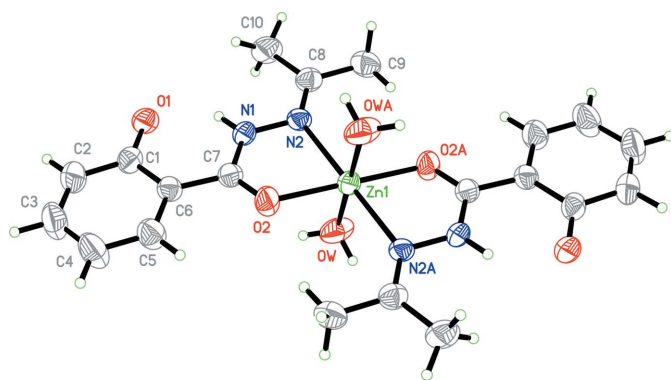


Figure 1
The molecular structure of (I), showing the atom-numbering scheme. Displacement ellipsoids are drawn at the 50% probability level. Atoms N2A, O2A and OWA and unlabelled atoms are related to atoms N2, O2 and OW and other labelled atoms by the symmetry operation $(2 - x, -y, 1 - z)$.

was filtered. Crystals of (I) suitable for X-ray diffraction analysis were obtained from the filtrate by slow evaporation at room temperature. Elemental analysis, calculated for $C_{20}H_{26}N_4O_6Zn$: C 49.65, H 5.42, N 11.58%; found: C 49.44, H 5.33, N 11.45%.

Crystal data

$[Zn(C_{10}H_{11}N_2O_2)_2(H_2O)_2]$ $Z = 4$
 $M_r = 483.82$ $D_x = 1.412 \text{ Mg m}^{-3}$
 Monoclinic, $C2/c$ Mo $K\alpha$ radiation
 $a = 12.246(3) \text{ \AA}$ $\mu = 1.12 \text{ mm}^{-1}$
 $b = 8.6666(18) \text{ \AA}$ $T = 173(2) \text{ K}$
 $c = 21.714(4) \text{ \AA}$ Irregular fragment, colourless
 $\beta = 98.955(4)^\circ$ $0.20 \times 0.16 \times 0.12 \text{ mm}$
 $V = 2276.3(8) \text{ \AA}^3$

Data collection

Bruker SMART APEX CCD area-detector diffractometer 5449 measured reflections
 ω scans 1990 independent reflections
 Absorption correction: multi-scan (SADABS; Sheldrick, 2001) 1506 reflections with $I > 2\sigma(I)$
 $R_{int} = 0.048$
 $\theta_{max} = 25.0^\circ$
 $T_{min} = 0.807, T_{max} = 0.877$

Refinement

Refinement on F^2 H-atom parameters constrained
 $R[F^2 > 2\sigma(F^2)] = 0.043$ $w = 1/[\sigma^2(F_o^2) + (0.048P)^2]$
 $wR(F^2) = 0.100$ where $P = (F_o^2 + 2F_c^2)/3$
 $S = 1.00$ $(\Delta/\sigma)_{max} < 0.001$
 1990 reflections $\Delta\rho_{max} = 0.46 \text{ e \AA}^{-3}$
 144 parameters $\Delta\rho_{min} = -0.25 \text{ e \AA}^{-3}$

Table 1
Selected geometric parameters ($\text{\AA}, ^\circ$).

Zn1—O2	2.062 (2)	C7—O2	1.243 (4)
Zn1—OW	2.074 (2)	C7—N1	1.341 (4)
Zn1—N2	2.204 (3)	C8—N2	1.278 (4)
C1—O1	1.318 (4)	N1—N2	1.384 (3)
O2—Zn1—OW	90.23 (11)	OW—Zn1—N2	87.17 (9)
O2—Zn1—N2	77.14 (9)		

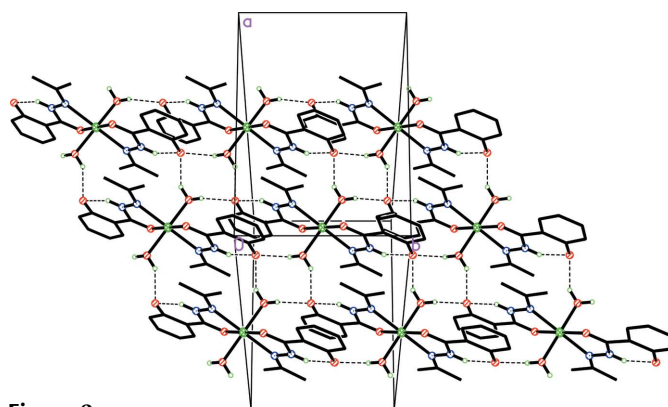


Figure 2
The crystal structure of (I). Dashed lines indicate hydrogen bonds. H atoms not participating in the hydrogen bonding have been omitted for clarity.

Table 2
Hydrogen-bond geometry ($\text{\AA}, ^\circ$).

$D-H \cdots A$	$D-H$	$H \cdots A$	$D \cdots A$	$D-H \cdots A$
N1—H1A \cdots O1	0.88	1.82	2.545 (3)	138
OW—HWA \cdots O1 ⁱ	0.85	2.13	2.659 (3)	120
OW—HWB \cdots O1 ⁱⁱ	0.85	1.94	2.699 (3)	148

Symmetry codes: (i) $-x + 2, -y + 1, -z + 1$; (ii) $x + \frac{1}{2}, y - \frac{1}{2}, z$.

H atoms were positioned geometrically and refined using a riding model, with $C-H = 0.95-0.98 \text{ \AA}$, $N-H = 0.88 \text{ \AA}$ and $O-H = 0.85 \text{ \AA}$, and with $U_{iso}(H) = 1.2U_{eq}(C,N)$, or $1.5U_{eq}(C,O)$ for methyl groups and water molecules.

Data collection: SMART (Bruker, 2001); cell refinement: SAINT-Plus (Bruker, 2001); data reduction: SAINT-Plus; program(s) used to solve structure: SHELXS97 (Sheldrick, 1997); program(s) used to refine structure: SHELXL97 (Sheldrick, 1997); molecular graphics: SHELXL97; software used to prepare material for publication: SHELXL97.

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References

Ali, M. A. & Livingstone, S. E. (1974). *Coord. Chem. Rev.* **13**, 101–132.
 Bruker (2001). SAINT-Plus (Version 6.45) and SMART (Version 5.628). Bruker AXS Inc., Madison, Wisconsin, USA.
 Hu, Z. Q., Ding, Yu., Jia, B., Shi, S. M., Cheng, C. X. & Cao, M. N. (2006). *Chin. J. Inorg. Chem.* **22**, 925–929.
 Kraudelt, P., Ludwig, E., Schilde, U. & Uhlemann, E. (1996). *Z. Naturforsch. Teil B*, **51**, 563–566.
 Li, M. X., Cai, P., Duan, C. Y., Lu, F., Xie, J. & Meng, Q. J. (2004). *Inorg. Chem.* **43**, 5174–5176.
 Rodriguez-Arguelles, M. C., Belicchi Ferrari, M., Bisceglie, F., Pelizzi, C., Pelosi, G., Pinelli, S. & Sassi, M. (2004). *J. Inorg. Biochem.* **98**, 313–321.
 Sheldrick, G. M. (1997). SHELXS97 and SHELXL97. University of Göttingen, Germany.
 Sheldrick, G. M. (2001). SADABS. Version 2.10. Bruker AXS Inc., Madison, Wisconsin, USA.