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## Structure Reports

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# N-(4-Methylphenyl)-N-[(2-nitrophenyl)-acetyl]oxybenzamide

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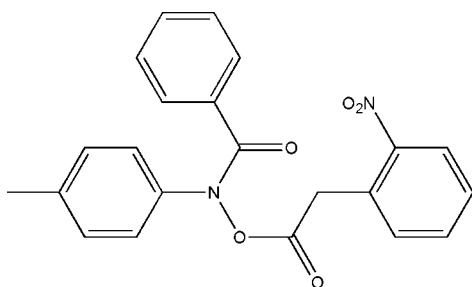
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Key indicators: single-crystal X-ray study;  $T = 296$  K; mean  $\sigma(\text{C}-\text{C}) = 0.004$  Å;  $R$  factor = 0.040;  $wR$  factor = 0.111; data-to-parameter ratio = 13.7.

In the title molecule,  $\text{C}_{22}\text{H}_{18}\text{N}_2\text{O}_5$ , the nitro-substituted benzene ring makes dihedral angles of  $71.56(1)^\circ$  with the benzoyl ring and  $16.28(1)^\circ$  with the methyl-substituted benzene ring. The crystal structure features  $\text{C}-\text{H}\cdots\text{O}$  interactions, which generate chains.

## Related literature

For biological applications of hydroxamic acid derivatives, see: Noh *et al.* (2009); Zeng *et al.* (2003). For the preparation of the title compound, see: Ayyangark *et al.* (1986).



## Experimental

### Crystal data

$\text{C}_{22}\text{H}_{18}\text{N}_2\text{O}_5$   
 $M_r = 390.38$   
 Orthorhombic,  $P2_12_12_1$   
 $a = 9.246(3)$  Å  
 $b = 11.911(4)$  Å  
 $c = 17.923(6)$  Å  
 $V = 1974.0(11)$  Å<sup>3</sup>  
 $Z = 4$   
 Mo  $K\alpha$  radiation  
 $\mu = 0.09$  mm<sup>-1</sup>  
 $T = 296$  K  
 $0.25 \times 0.23 \times 0.22$  mm

### Data collection

Bruker APEXII CCD diffractometer  
 Absorption correction: multi-scan (SADABS; Sheldrick, 1996)  
 $T_{\min} = 0.977$ ,  $T_{\max} = 0.980$   
 8939 measured reflections  
 3605 independent reflections  
 2280 reflections with  $I > 2\sigma(I)$   
 $R_{\text{int}} = 0.033$

### Refinement

$R[F^2 > 2\sigma(F^2)] = 0.040$   
 $wR(F^2) = 0.111$   
 $S = 1.01$   
 3605 reflections  
 264 parameters  
 H-atom parameters constrained  
 $\Delta\rho_{\text{max}} = 0.11$  e Å<sup>-3</sup>  
 $\Delta\rho_{\text{min}} = -0.12$  e Å<sup>-3</sup>

**Table 1**

Hydrogen-bond geometry (Å, °).

$D-\text{H}\cdots A$	$D-\text{H}$	$\text{H}\cdots A$	$D\cdots A$	$D-\text{H}\cdots A$
$\text{C12}-\text{H12}\cdots\text{O1}^i$	0.93	2.55	3.456 (4)	165

Symmetry code: (i)  $-x, y + \frac{1}{2}, -z + \frac{1}{2}$

Data collection: APEX2 (Bruker, 2009); cell refinement: SAINT (Bruker, 2009); data reduction: SAINT; program(s) used to solve structure: SHELXS97 (Sheldrick, 2008); program(s) used to refine structure: SHELXL97 (Sheldrick, 2008); molecular graphics: SHELXTL (Sheldrick, 2008); software used to prepare material for publication: SHELXL97.

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Supplementary data and figures for this paper are available from the IUCr electronic archives (Reference: ZQ2182).

## References

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## supplementary materials

*Acta Cryst.* (2012). E68, o2974 [doi:10.1107/S1600536812039360]

***N*-(4-Methylphenyl)-*N*-{[(2-nitrophenyl)acetyl]oxy}benzamide****Dong-Hui Qu, Hong-Xia Zhang and Jing Ma****Comment**

Hydroxamic acid derivatives have received considerable attention in recent years as the result of the discovery of their role in the biochemical toxicology of many drugs and other chemicals. Thus, these compounds continue to attract much attention as potential biological agents (Noh *et al.*, 2009; Zeng *et al.*, 2003).

The title compound, C<sub>22</sub>H<sub>18</sub>N<sub>2</sub>O<sub>5</sub>, was prepared according to the method described by Ayyangark *et al.* (1986). The molecule contains three branched chains with its centre placed at midpoint of the N2 atom (Fig. 1). The nitro-substituted benzene ring makes a dihedral angle of 71.56 (1)° with the benzoyl ring and 16.28 (1)° with the methyl-substituted benzene ring. The crystal structure features weak intra- and inter-molecular C—H···O interactions (Table 1).

**Experimental**

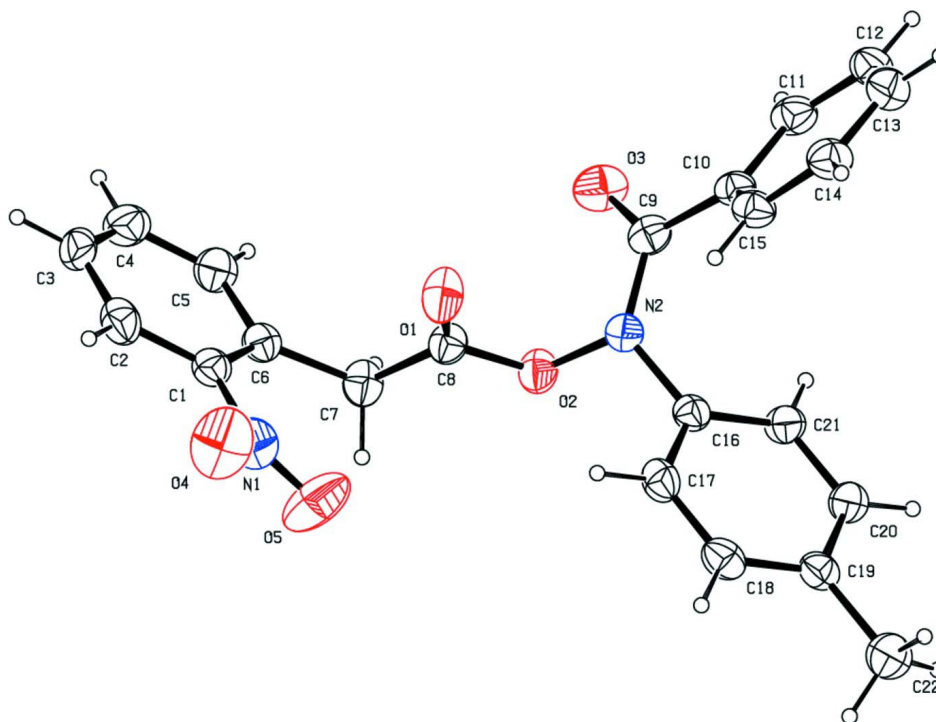
The title compound was prepared according to the method described by Ayyangark *et al.* (1986). The yellow crystals were grown from a solution of dichloromethane–methanol (1:3 v/v) by slow evaporation at room temperature.

**Refinement**

All H atoms were positioned geometrically and allowed to ride on their parent atoms, with C—H = 0.93 Å and  $U_{\text{iso}} = 1.2U_{\text{eq}}(\text{C})$  for aromatic H atoms, with C—H = 0.97 Å and  $U_{\text{iso}} = 1.2U_{\text{eq}}(\text{C})$  for methylene H atoms, and with C—H = 0.96 Å and  $U_{\text{iso}} = 1.5U_{\text{eq}}(\text{C})$  for methyl H atoms.

**Computing details**

Data collection: *APEX2* (Bruker, 2009); cell refinement: *SAINTE* (Bruker, 2009); data reduction: *SAINTE* (Bruker, 2009); program(s) used to solve structure: *SHELXS97* (Sheldrick, 2008); program(s) used to refine structure: *SHELXL97* (Sheldrick, 2008); molecular graphics: *SHELXTL* (Sheldrick, 2008); software used to prepare material for publication: *SHELXL97* (Sheldrick, 2008).


**Figure 1**

The molecular structure of the title compound with the atomic numbering and 50% probability displacement ellipsoids (H atoms are shown as small spheres of arbitrary radius).

***N*-(4-Methylphenyl)-*N*-{[(2-nitrophenyl)acetyl]oxy}benzamide**
*Crystal data*
 $C_{22}H_{18}N_2O_5$ 
 $M_r = 390.38$ 

 Orthorhombic,  $P2_12_12_1$ 

Hall symbol: P 2ac 2ab

 $a = 9.246 (3) \text{ \AA}$ 
 $b = 11.911 (4) \text{ \AA}$ 
 $c = 17.923 (6) \text{ \AA}$ 
 $V = 1974.0 (11) \text{ \AA}^3$ 
 $Z = 4$ 
 $F(000) = 816$ 
 $D_x = 1.314 \text{ Mg m}^{-3}$ 

 Mo  $K\alpha$  radiation,  $\lambda = 0.71073 \text{ \AA}$ 

Cell parameters from 2167 reflections

 $\theta = 2.5\text{--}20.3^\circ$ 
 $\mu = 0.09 \text{ mm}^{-1}$ 
 $T = 296 \text{ K}$ 

Block, yellow

 $0.25 \times 0.23 \times 0.22 \text{ mm}$ 
*Data collection*

Bruker APEXII CCD

diffractometer

Radiation source: fine-focus sealed tube

Graphite monochromator

 $\varphi$  and  $\omega$  scans

Absorption correction: multi-scan

(SADABS; Sheldrick, 1996)

 $T_{\min} = 0.977$ ,  $T_{\max} = 0.980$ 

8939 measured reflections

3605 independent reflections

 2280 reflections with  $I > 2\sigma(I)$ 
 $R_{\text{int}} = 0.033$ 
 $\theta_{\max} = 25.5^\circ$ ,  $\theta_{\min} = 2.5^\circ$ 
 $h = -9 \rightarrow 11$ 
 $k = -14 \rightarrow 14$ 
 $l = -18 \rightarrow 21$

Refinement

Refinement on  $F^2$

Least-squares matrix: full

$R[F^2 > 2\sigma(F^2)] = 0.040$

$wR(F^2) = 0.111$

$S = 1.01$

3605 reflections

264 parameters

0 restraints

H-atom parameters constrained

$$w = 1/[\sigma^2(F_o^2) + (0.0508P)^2 + 0.0436P]$$

$$\text{where } P = (F_o^2 + 2F_c^2)/3$$

$$(\Delta/\sigma)_{\max} = 0.001$$

$$\Delta\rho_{\max} = 0.11 \text{ e } \text{\AA}^{-3}$$

$$\Delta\rho_{\min} = -0.11 \text{ e } \text{\AA}^{-3}$$

Extinction correction: *SHELXL97* (Sheldrick, 2008)

Extinction coefficient: 0.0097 (13)

Special details

**Geometry.** All e.s.d.'s (except the e.s.d. in the dihedral angle between two l.s. planes) are estimated using the full covariance matrix. The cell e.s.d.'s are taken into account individually in the estimation of e.s.d.'s in distances, angles and torsion angles; correlations between e.s.d.'s in cell parameters are only used when they are defined by crystal symmetry. An approximate (isotropic) treatment of cell e.s.d.'s is used for estimating e.s.d.'s involving l.s. planes.

**Refinement.** Refinement of  $F^2$  against ALL reflections. The weighted  $R$ -factor  $wR$  and goodness of fit  $S$  are based on  $F^2$ , conventional  $R$ -factors  $R$  are based on  $F$ , with  $F$  set to zero for negative  $F^2$ . The threshold expression of  $F^2 > \sigma(F^2)$  is used only for calculating  $R$ -factors(gt) *etc.* and is not relevant to the choice of reflections for refinement.  $R$ -factors based on  $F^2$  are statistically about twice as large as those based on  $F$ , and  $R$ -factors based on ALL data will be even larger.

Fractional atomic coordinates and isotropic or equivalent isotropic displacement parameters ( $\text{\AA}^2$ )

	$x$	$y$	$z$	$U_{\text{iso}}^*/U_{\text{eq}}$
C1	0.3532 (3)	0.1353 (2)	-0.07101 (14)	0.0662 (7)
C2	0.2883 (3)	0.1027 (3)	-0.13739 (17)	0.0852 (9)
H2	0.2795	0.0271	-0.1496	0.102*
C3	0.2368 (3)	0.1853 (4)	-0.18535 (16)	0.0961 (11)
H3	0.1933	0.1658	-0.2303	0.115*
C4	0.2508 (4)	0.2945 (3)	-0.16565 (19)	0.0956 (10)
H4	0.2173	0.3502	-0.1977	0.115*
C5	0.3124 (3)	0.3237 (3)	-0.10045 (17)	0.0817 (8)
H5	0.3186	0.3995	-0.0886	0.098*
C6	0.3665 (3)	0.2469 (2)	-0.05063 (13)	0.0637 (7)
C7	0.4263 (3)	0.2894 (2)	0.02163 (14)	0.0747 (8)
H7A	0.5196	0.2548	0.0306	0.090*
H7B	0.4409	0.3698	0.0181	0.090*
C8	0.3285 (3)	0.2649 (2)	0.08568 (14)	0.0648 (7)
C9	0.1744 (3)	0.3805 (2)	0.21269 (15)	0.0675 (7)
C10	0.0711 (3)	0.3651 (2)	0.27535 (14)	0.0613 (7)
C11	-0.0023 (3)	0.4586 (2)	0.30155 (17)	0.0779 (8)
H11	0.0173	0.5291	0.2817	0.094*
C12	-0.1047 (4)	0.4469 (3)	0.35739 (19)	0.0914 (10)
H12	-0.1526	0.5098	0.3757	0.110*
C13	-0.1356 (4)	0.3429 (3)	0.38569 (17)	0.0914 (9)
H13	-0.2047	0.3353	0.4230	0.110*
C14	-0.0659 (3)	0.2509 (3)	0.35956 (16)	0.0808 (8)
H14	-0.0882	0.1804	0.3786	0.097*
C15	0.0376 (3)	0.2615 (2)	0.30509 (15)	0.0687 (7)
H15	0.0858	0.1980	0.2880	0.082*
C16	0.3668 (3)	0.2615 (2)	0.27241 (13)	0.0587 (6)

C17	0.4158 (3)	0.1531 (2)	0.26885 (16)	0.0714 (7)
H17	0.3964	0.1095	0.2270	0.086*
C18	0.4936 (3)	0.1090 (2)	0.32708 (16)	0.0750 (8)
H18	0.5281	0.0358	0.3236	0.090*
C19	0.5220 (3)	0.1707 (2)	0.39074 (14)	0.0668 (7)
C20	0.4722 (3)	0.2792 (2)	0.39293 (15)	0.0727 (8)
H20	0.4898	0.3226	0.4351	0.087*
C21	0.3968 (3)	0.3255 (2)	0.33402 (15)	0.0680 (7)
H21	0.3663	0.3998	0.3361	0.082*
C22	0.6051 (4)	0.1213 (3)	0.45524 (15)	0.0997 (11)
H22A	0.5407	0.0785	0.4862	0.150*
H22B	0.6475	0.1808	0.4841	0.150*
H22C	0.6802	0.0733	0.4365	0.150*
N1	0.4064 (4)	0.0451 (2)	-0.02206 (17)	0.0970 (8)
N2	0.2881 (2)	0.3064 (2)	0.21067 (12)	0.0713 (6)
O1	0.2230 (3)	0.20874 (17)	0.08620 (10)	0.0923 (7)
O2	0.37898 (19)	0.32093 (15)	0.14693 (9)	0.0750 (5)
O3	0.1555 (2)	0.44895 (17)	0.16349 (12)	0.0973 (7)
O4	0.3608 (4)	-0.0472 (2)	-0.03322 (16)	0.1591 (12)
O5	0.4911 (4)	0.0655 (2)	0.02581 (17)	0.1589 (13)

Atomic displacement parameters ( $\text{\AA}^2$ )

	$U^{11}$	$U^{22}$	$U^{33}$	$U^{12}$	$U^{13}$	$U^{23}$
C1	0.0596 (16)	0.0736 (17)	0.0655 (17)	0.0017 (14)	0.0069 (14)	0.0037 (14)
C2	0.072 (2)	0.104 (2)	0.080 (2)	-0.0155 (18)	0.0139 (17)	-0.0225 (19)
C3	0.0593 (19)	0.175 (4)	0.0541 (18)	0.000 (2)	0.0040 (15)	-0.003 (2)
C4	0.080 (2)	0.123 (3)	0.084 (2)	0.017 (2)	0.0039 (19)	0.026 (2)
C5	0.085 (2)	0.0853 (19)	0.0753 (19)	0.0026 (17)	0.0079 (17)	0.0145 (17)
C6	0.0573 (16)	0.0715 (17)	0.0622 (15)	-0.0049 (14)	0.0097 (13)	0.0099 (14)
C7	0.078 (2)	0.0780 (17)	0.0681 (17)	-0.0196 (15)	0.0065 (16)	0.0010 (14)
C8	0.0636 (18)	0.0685 (16)	0.0624 (15)	-0.0117 (15)	-0.0025 (14)	0.0002 (13)
C9	0.0651 (19)	0.0595 (16)	0.0780 (18)	-0.0091 (15)	-0.0111 (15)	0.0001 (14)
C10	0.0515 (15)	0.0589 (15)	0.0735 (17)	0.0002 (13)	-0.0114 (13)	-0.0039 (13)
C11	0.0778 (19)	0.0615 (16)	0.095 (2)	0.0096 (17)	-0.0190 (19)	-0.0074 (15)
C12	0.080 (2)	0.098 (2)	0.096 (2)	0.028 (2)	-0.015 (2)	-0.037 (2)
C13	0.072 (2)	0.117 (3)	0.085 (2)	0.006 (2)	0.0023 (18)	-0.013 (2)
C14	0.0641 (19)	0.089 (2)	0.090 (2)	-0.0034 (17)	0.0018 (17)	0.0038 (18)
C15	0.0571 (18)	0.0627 (17)	0.0864 (18)	0.0001 (13)	-0.0021 (15)	-0.0073 (14)
C16	0.0491 (14)	0.0635 (15)	0.0636 (15)	-0.0052 (12)	0.0035 (13)	-0.0056 (13)
C17	0.0775 (19)	0.0649 (17)	0.0717 (17)	-0.0025 (15)	0.0056 (15)	-0.0173 (14)
C18	0.0778 (19)	0.0603 (16)	0.0869 (19)	0.0090 (16)	0.0150 (17)	0.0030 (15)
C19	0.0643 (17)	0.0671 (17)	0.0690 (17)	0.0077 (14)	0.0126 (15)	0.0068 (14)
C20	0.0708 (19)	0.0748 (18)	0.0725 (17)	0.0015 (15)	-0.0061 (16)	-0.0120 (14)
C21	0.0658 (17)	0.0614 (15)	0.0768 (18)	0.0042 (15)	-0.0112 (14)	-0.0112 (13)
C22	0.107 (3)	0.114 (2)	0.0781 (19)	0.025 (2)	0.0122 (19)	0.0285 (18)
N1	0.119 (2)	0.0711 (18)	0.101 (2)	0.0019 (18)	0.0082 (18)	0.0082 (16)
N2	0.0609 (14)	0.0913 (16)	0.0618 (13)	0.0061 (13)	-0.0007 (12)	-0.0030 (11)
O1	0.0954 (14)	0.1119 (16)	0.0698 (12)	-0.0502 (14)	0.0065 (11)	-0.0052 (11)
O2	0.0661 (12)	0.0943 (13)	0.0647 (11)	-0.0177 (11)	0.0017 (10)	-0.0068 (10)

O3	0.0899 (15)	0.0888 (13)	0.1131 (16)	-0.0055 (13)	-0.0006 (13)	0.0337 (13)
O4	0.238 (4)	0.0828 (17)	0.157 (2)	-0.020 (2)	-0.017 (3)	0.0193 (16)
O5	0.192 (3)	0.116 (2)	0.169 (3)	0.001 (2)	-0.093 (3)	0.0317 (19)

*Geometric parameters (Å, °)*

C1—C6	1.384 (4)	C12—H12	0.9300
C1—C2	1.387 (3)	C13—C14	1.354 (4)
C1—N1	1.472 (4)	C13—H13	0.9300
C2—C3	1.390 (4)	C14—C15	1.373 (4)
C2—H2	0.9300	C14—H14	0.9300
C3—C4	1.354 (5)	C15—H15	0.9300
C3—H3	0.9300	C16—C17	1.369 (4)
C4—C5	1.346 (4)	C16—C21	1.370 (3)
C4—H4	0.9300	C16—N2	1.429 (3)
C5—C6	1.373 (4)	C17—C18	1.372 (4)
C5—H5	0.9300	C17—H17	0.9300
C6—C7	1.496 (3)	C18—C19	1.383 (4)
C7—C8	1.490 (3)	C18—H18	0.9300
C7—H7A	0.9700	C19—C20	1.372 (3)
C7—H7B	0.9700	C19—C22	1.508 (4)
C8—O1	1.183 (3)	C20—C21	1.380 (3)
C8—O2	1.367 (3)	C20—H20	0.9300
C9—O3	1.214 (3)	C21—H21	0.9300
C9—N2	1.372 (3)	C22—H22A	0.9600
C9—C10	1.486 (4)	C22—H22B	0.9600
C10—C15	1.379 (3)	C22—H22C	0.9600
C10—C11	1.386 (3)	N1—O5	1.187 (3)
C11—C12	1.385 (4)	N1—O4	1.194 (3)
C11—H11	0.9300	N2—O2	1.429 (3)
C12—C13	1.369 (4)		
C6—C1—C2	122.2 (3)	C14—C13—H13	119.9
C6—C1—N1	120.9 (3)	C12—C13—H13	119.9
C2—C1—N1	116.9 (3)	C13—C14—C15	120.2 (3)
C1—C2—C3	118.7 (3)	C13—C14—H14	119.9
C1—C2—H2	120.6	C15—C14—H14	119.9
C3—C2—H2	120.6	C14—C15—C10	120.9 (3)
C4—C3—C2	119.0 (3)	C14—C15—H15	119.6
C4—C3—H3	120.5	C10—C15—H15	119.6
C2—C3—H3	120.5	C17—C16—C21	119.7 (2)
C5—C4—C3	121.0 (3)	C17—C16—N2	119.1 (2)
C5—C4—H4	119.5	C21—C16—N2	121.2 (2)
C3—C4—H4	119.5	C16—C17—C18	119.9 (2)
C4—C5—C6	123.1 (3)	C16—C17—H17	120.0
C4—C5—H5	118.4	C18—C17—H17	120.0
C6—C5—H5	118.4	C17—C18—C19	121.6 (2)
C5—C6—C1	115.8 (3)	C17—C18—H18	119.2
C5—C6—C7	118.2 (3)	C19—C18—H18	119.2
C1—C6—C7	125.9 (2)	C20—C19—C18	117.4 (2)

C8—C7—C6	112.1 (2)	C20—C19—C22	121.1 (3)
C8—C7—H7A	109.2	C18—C19—C22	121.5 (2)
C6—C7—H7A	109.2	C19—C20—C21	121.6 (3)
C8—C7—H7B	109.2	C19—C20—H20	119.2
C6—C7—H7B	109.2	C21—C20—H20	119.2
H7A—C7—H7B	107.9	C16—C21—C20	119.8 (2)
O1—C8—O2	123.5 (2)	C16—C21—H21	120.1
O1—C8—C7	128.1 (2)	C20—C21—H21	120.1
O2—C8—C7	108.4 (2)	C19—C22—H22A	109.5
O3—C9—N2	121.5 (3)	C19—C22—H22B	109.5
O3—C9—C10	122.6 (3)	H22A—C22—H22B	109.5
N2—C9—C10	115.7 (2)	C19—C22—H22C	109.5
C15—C10—C11	118.6 (3)	H22A—C22—H22C	109.5
C15—C10—C9	123.1 (2)	H22B—C22—H22C	109.5
C11—C10—C9	118.1 (2)	O5—N1—O4	122.9 (3)
C12—C11—C10	119.9 (3)	O5—N1—C1	120.1 (3)
C12—C11—H11	120.1	O4—N1—C1	117.0 (3)
C10—C11—H11	120.1	C9—N2—O2	113.2 (2)
C13—C12—C11	120.1 (3)	C9—N2—C16	127.6 (2)
C13—C12—H12	119.9	O2—N2—C16	111.39 (19)
C11—C12—H12	119.9	C8—O2—N2	112.48 (19)
C14—C13—C12	120.3 (3)		
C6—C1—C2—C3	0.8 (4)	C21—C16—C17—C18	0.5 (4)
N1—C1—C2—C3	-179.9 (3)	N2—C16—C17—C18	179.0 (2)
C1—C2—C3—C4	-0.3 (4)	C16—C17—C18—C19	1.3 (4)
C2—C3—C4—C5	-0.6 (5)	C17—C18—C19—C20	-1.5 (4)
C3—C4—C5—C6	1.0 (5)	C17—C18—C19—C22	178.9 (3)
C4—C5—C6—C1	-0.5 (4)	C18—C19—C20—C21	0.0 (4)
C4—C5—C6—C7	-177.2 (3)	C22—C19—C20—C21	179.6 (3)
C2—C1—C6—C5	-0.4 (4)	C17—C16—C21—C20	-2.0 (4)
N1—C1—C6—C5	-179.7 (3)	N2—C16—C21—C20	179.6 (2)
C2—C1—C6—C7	176.0 (2)	C19—C20—C21—C16	1.8 (4)
N1—C1—C6—C7	-3.3 (4)	C6—C1—N1—O5	-18.3 (5)
C5—C6—C7—C8	106.5 (3)	C2—C1—N1—O5	162.4 (3)
C1—C6—C7—C8	-69.8 (4)	C6—C1—N1—O4	161.9 (3)
C6—C7—C8—O1	8.2 (4)	C2—C1—N1—O4	-17.4 (4)
C6—C7—C8—O2	-170.7 (2)	O3—C9—N2—O2	1.1 (3)
O3—C9—C10—C15	141.9 (3)	C10—C9—N2—O2	176.52 (19)
N2—C9—C10—C15	-33.4 (3)	O3—C9—N2—C16	147.4 (3)
O3—C9—C10—C11	-33.6 (4)	C10—C9—N2—C16	-37.2 (3)
N2—C9—C10—C11	151.1 (2)	C17—C16—N2—C9	144.5 (3)
C15—C10—C11—C12	1.2 (4)	C21—C16—N2—C9	-37.0 (4)
C9—C10—C11—C12	176.8 (2)	C17—C16—N2—O2	-68.7 (3)
C10—C11—C12—C13	-1.3 (4)	C21—C16—N2—O2	109.7 (3)
C11—C12—C13—C14	0.3 (5)	O1—C8—O2—N2	-1.6 (4)
C12—C13—C14—C15	0.8 (4)	C7—C8—O2—N2	177.4 (2)
C13—C14—C15—C10	-0.9 (4)	C9—N2—O2—C8	-84.8 (2)
C11—C10—C15—C14	-0.1 (4)	C16—N2—O2—C8	123.4 (2)

C9—C10—C15—C14                    -175.5 (2)

*Hydrogen-bond geometry (Å, °)*

<i>D—H···A</i>	<i>D—H</i>	<i>H···A</i>	<i>D···A</i>	<i>D—H···A</i>
C7—H7A···O5	0.97	2.27	2.734 (4)	108
C12—H12···O1 <sup>i</sup>	0.93	2.55	3.456 (4)	165

Symmetry code: (i)  $-x, y+1/2, -z+1/2$ .