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 4-(4-Nitrostyryl)-*N,N*-diphenylamine

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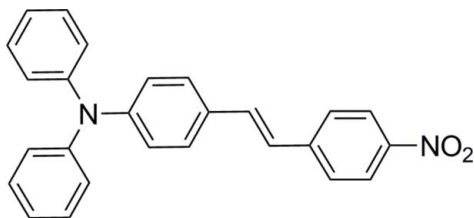
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 Key indicators: single-crystal X-ray study; $T = 298$ K; mean $\sigma(\text{C}-\text{C}) = 0.004$ Å; R factor = 0.057; wR factor = 0.185; data-to-parameter ratio = 13.3.

In the triarylamine group of the title compound, $\text{C}_{26}\text{H}_{20}\text{N}_2\text{O}_2$, the N atom adopts an approximately trigonal-planar geometry, lying 0.046 (5) Å from the plane P defined by its three neighbouring C atoms; the benzene and two terminal phenyl rings are twisted by 37.4 (1), 31.4 (1) and 47.8 (1)°, respectively from plane P . In the *trans*-stilbene fragment, the two benzene rings form a dihedral angle of 31.3 (1)°. In the crystal, weak intermolecular C—H...O interactions link the molecules into ribbons in [100].

Related literature

For a related structure, see: Yang *et al.* (2003). For background to push-pull chromophores, see: Marder *et al.* (1991); Reinhardt *et al.* (1998).



Experimental

Crystal data

 $\text{C}_{26}\text{H}_{20}\text{N}_2\text{O}_2$
 $M_r = 392.44$

 Monoclinic, $P2_1/c$
 $a = 8.4884$ (3) Å

 $b = 8.9834$ (3) Å
 $c = 27.0880$ (8) Å
 $\beta = 96.500$ (2)°
 $V = 2052.31$ (12) Å³
 $Z = 4$

 Mo $K\alpha$ radiation
 $\mu = 0.08$ mm⁻¹
 $T = 298$ K
 $0.30 \times 0.20 \times 0.20$ mm

Data collection

 Bruker SMART CCD area-detector diffractometer
 Absorption correction: multi-scan (SADABS; Sheldrick, 1996)
 $T_{\min} = 0.976$, $T_{\max} = 0.984$

 7675 measured reflections
 3606 independent reflections
 2213 reflections with $I > 2\sigma(I)$
 $R_{\text{int}} = 0.026$

Refinement

 $R[F^2 > 2\sigma(F^2)] = 0.057$
 $wR(F^2) = 0.185$
 $S = 1.04$
 3606 reflections
 272 parameters

 7 restraints
 H-atom parameters constrained
 $\Delta\rho_{\text{max}} = 0.44$ e Å⁻³
 $\Delta\rho_{\text{min}} = -0.20$ e Å⁻³

Table 1

Hydrogen-bond geometry (Å, °).

$D-H\cdots A$	$D-H$	$H\cdots A$	$D\cdots A$	$D-H\cdots A$
$\text{C15}-\text{H15}\cdots\text{O1}^{\text{i}}$	0.93	2.58	3.481 (4)	162
$\text{C12}-\text{H12}\cdots\text{O2}^{\text{ii}}$	0.93	2.56	3.308 (4)	138

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

Data collection: SMART (Bruker, 2007); cell refinement: SAINT (Bruker, 2007); 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: SHELXTL.

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Supplementary data and figures for this paper are available from the IUCr electronic archives (Reference: CV5302).

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supporting information

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4-(4-Nitrostyryl)-N,N-diphenylaniline**Zhi-Wen Zhang, Yan-Qiu Liu, Yu-Chao Zhu and Jie-Ying Wu****S1. Comment**

Push-pull chromophores are characterized by the conjugated linkage of an electron-donating group (D) and an electron-accepting group (A). Such molecules are potentially useful for nonlinear optical applications and many D- π -A type chromophores have been reported (Marder *et al.*, 1991; Reinhardt *et al.*, 1998). As a part of an ongoing study of such type chromophores, here we report the crystal structure of the title compound, (I).

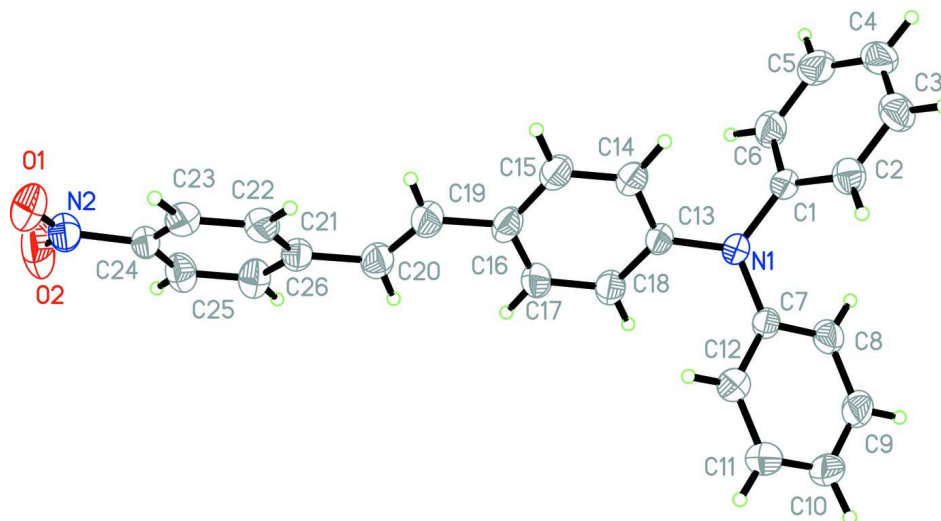
In (I) (Fig. 1), all bond lengths and angles are normal and correspond to those observed in the related 4-(4-methoxystyryl)-N,N-diphenylaniline (Yang *et al.*, 2003). The C = C double bond ($= 1.276(4) \text{ \AA}$) in the molecule adopts a trans-configuration. The dihedral angle between the benzene ring of the triarylamino group and another benzene ring linked by double bond is $31.34(13)^\circ$. In the crystal, weak intermolecular C—H \cdots O interactions (Table 1) link the molecules into ribbons in [100].

S2. Experimental

2.73 g (10 mmol) of diethyl(4-nitrophenyl)methylphosphonate were put into a dry mortar, then 2.24 g (20 mmol) t-BuOK were placed into powder, a modicum of 18-crown-6 and 2.72 g (10 mmol) 4-(diphenylamino)benzaldehyde were added and vigorously grinded. The mixture was monitored by TLC. After completion of the reaction the mixture was dissolved in 150 ml CH_2Cl_2 and washed with Di-water, the organic layer separated and dried over MgSO_4 , filtered and solvent removed *in vacuo*. The product was recrystallized from anhydrous ethanol, to give 2.12 g red acicular crystal. Yield, 54.1%. $^1\text{H NMR}$: (400 Hz, CDCl_3), d(p.p.m.): 8.20(d, 2H, $J = 8.4 \text{ Hz}$) 7.60(d, 2H, $J = 8.8 \text{ Hz}$) 7.40(d, 2H, $J = 8.8 \text{ Hz}$) 7.30–7.26(m, 4H) 7.19(s, 1H) 7.13(d, 4H, $J = 8.0$) 7.09–7.03(m, 4H) 6.99(s, 1H) $^{13}\text{C NMR}$ (125 MHz, CDCl_3) d (p.p.m.) 148.7, 147.8, 147.4, 146.5, 145.0, 144.5, 133.5, 133.0, 130.0 129.7, 129.5, 129.4, 128.2, 126.7, 126.5, 125.1, 124.8, 124.3, 123.8 123.6, 122.8, 122.3. IR (KBr, cm^{-1}): 3029 1585 1514 1485 1335 1283 1175 1111 970 841 758 694. MS: m/z (%) = 504.20 (100)

S3. Refinement

All hydrogen atoms were placed in geometrically idealized positions (C—H = 0.93 \AA), and constrained to ride on their parent atoms, with $U_{\text{iso}}(\text{H}) = 1.2 U_{\text{eq}}(\text{C})$.

**Figure 1**

The molecular structure of (I) showing the atomic numbering and 30% probability displacement ellipsoids.

4-(4-Nitrostyryl)-*N,N*-diphenylaniline

Crystal data

$C_{26}H_{20}N_2O_2$

$M_r = 392.44$

Monoclinic, $P2_1/c$

Hall symbol: $-P\ 2ybc$

$a = 8.4884\ (3)\ \text{\AA}$

$b = 8.9834\ (3)\ \text{\AA}$

$c = 27.0880\ (8)\ \text{\AA}$

$\beta = 96.500\ (2)^\circ$

$V = 2052.31\ (12)\ \text{\AA}^3$

$Z = 4$

$F(000) = 824$

$D_x = 1.270\ \text{Mg m}^{-3}$

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

Cell parameters from 1419 reflections

$\theta = 2.4\text{--}21.1^\circ$

$\mu = 0.08\ \text{mm}^{-1}$

$T = 298\ \text{K}$

Red, block

$0.30 \times 0.20 \times 0.20\ \text{mm}$

Data collection

Bruker SMART CCD area-detector
diffractometer

Radiation source: fine-focus sealed tube

Graphite monochromator

ϕ and ω scans

Absorption correction: multi-scan

(*SADABS*; Sheldrick, 1996)

$T_{\min} = 0.976$, $T_{\max} = 0.984$

7675 measured reflections

3606 independent reflections

2213 reflections with $I > 2\sigma(I)$

$R_{\text{int}} = 0.026$

$\theta_{\max} = 25.0^\circ$, $\theta_{\min} = 2.4^\circ$

$h = -8 \rightarrow 10$

$k = -10 \rightarrow 7$

$l = -32 \rightarrow 32$

Refinement

Refinement on F^2

Least-squares matrix: full

$R[F^2 > 2\sigma(F^2)] = 0.057$

$wR(F^2) = 0.185$

$S = 1.04$

3606 reflections

272 parameters

7 restraints

Primary atom site location: structure-invariant
direct methods

Secondary atom site location: difference Fourier
map

Hydrogen site location: inferred from
neighbouring sites

H-atom parameters constrained

$w = 1/[\sigma^2(F_o^2) + (0.0857P)^2 + 0.4264P]$

where $P = (F_o^2 + 2F_c^2)/3$

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

$\Delta\rho_{\max} = 0.44\ \text{e \AA}^{-3}$

$\Delta\rho_{\min} = -0.20\ \text{e \AA}^{-3}$

Extinction correction: *SHELXL97* (Sheldrick, 2008), $F_c^* = kFc[1 + 0.001xFc^2\lambda^3/\sin(2\theta)]^{-1/4}$

Extinction coefficient: 0.0070 (17)

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 (\AA^2)

	<i>x</i>	<i>y</i>	<i>z</i>	U_{iso}^*/U_{eq}
O1	0.1022 (4)	0.1217 (4)	1.06736 (14)	0.1466 (14)
O2	0.2236 (5)	-0.0213 (4)	1.02338 (11)	0.1424 (13)
N1	0.4781 (2)	1.2271 (2)	0.81947 (8)	0.0608 (6)
N2	0.1826 (4)	0.1004 (4)	1.03580 (13)	0.0983 (10)
C1	0.3616 (3)	1.3187 (3)	0.78910 (9)	0.0553 (7)
C2	0.3483 (3)	1.4677 (3)	0.79922 (10)	0.0654 (7)
H2	0.4128	1.5106	0.8254	0.078*
C3	0.2364 (4)	1.5551 (4)	0.76972 (13)	0.0805 (9)
H3	0.2289	1.6559	0.7770	0.097*
C4	0.1355 (4)	1.4960 (5)	0.72958 (14)	0.0883 (10)
H4	0.0631	1.5566	0.7107	0.106*
C5	0.1463 (4)	1.3478 (4)	0.71906 (13)	0.0938 (11)
H5	0.0806	1.3053	0.6930	0.113*
C6	0.2598 (4)	1.2596 (3)	0.74862 (11)	0.0808 (9)
H6	0.2677	1.1590	0.7411	0.097*
C7	0.6385 (3)	1.2784 (3)	0.83323 (9)	0.0520 (6)
C8	0.7061 (3)	1.3620 (3)	0.80040 (11)	0.0685 (8)
H8	0.6519	1.3862	0.7697	0.082*
C9	0.8628 (4)	1.4119 (3)	0.81420 (15)	0.0855 (10)
H9	0.9097	1.4701	0.7915	0.103*
C10	0.9527 (4)	1.3801 (3)	0.85959 (15)	0.0848 (10)
H10	1.0551	1.4169	0.8667	0.102*
C11	0.8878 (4)	1.2964 (3)	0.89204 (12)	0.0769 (8)
H11	0.9441	1.2712	0.9224	0.092*
C12	0.7319 (3)	1.2467 (3)	0.87945 (10)	0.0638 (7)
H12	0.6861	1.1894	0.9026	0.077*
C13	0.4293 (3)	1.0942 (3)	0.83959 (9)	0.0550 (7)
C14	0.2812 (3)	1.0854 (3)	0.85408 (10)	0.0634 (7)
H14	0.2101	1.1638	0.8479	0.076*
C15	0.2386 (4)	0.9612 (3)	0.87764 (11)	0.0701 (8)
H15	0.1375	0.9567	0.8877	0.084*
C16	0.3393 (3)	0.8402 (3)	0.88742 (10)	0.0664 (7)
C17	0.4834 (3)	0.8447 (3)	0.87023 (11)	0.0679 (7)

H17	0.5512	0.7634	0.8746	0.081*
C18	0.5286 (3)	0.9702 (3)	0.84636 (11)	0.0667 (7)
H18	0.6272	0.9725	0.8345	0.080*
C19	0.2936 (4)	0.7155 (3)	0.91720 (11)	0.0761 (8)
H19	0.1950	0.7239	0.9288	0.091*
C20	0.3702 (4)	0.5964 (3)	0.92954 (11)	0.0729 (8)
H20	0.4687	0.5873	0.9180	0.088*
C21	0.3225 (3)	0.4725 (3)	0.95959 (10)	0.0640 (7)
C22	0.2273 (3)	0.4916 (3)	0.99516 (12)	0.0730 (8)
H22	0.1908	0.5861	1.0021	0.088*
C23	0.1839 (3)	0.3702 (4)	1.02138 (12)	0.0793 (9)
H23	0.1189	0.3830	1.0465	0.095*
C24	0.2349 (3)	0.2320 (3)	1.01095 (11)	0.0691 (8)
C25	0.3328 (4)	0.2112 (3)	0.97748 (11)	0.0768 (9)
H25	0.3709	0.1169	0.9711	0.092*
C26	0.3760 (4)	0.3325 (3)	0.95259 (11)	0.0752 (8)
H26	0.4469	0.3190	0.9292	0.090*

Atomic displacement parameters (Å²)

	U^{11}	U^{22}	U^{33}	U^{12}	U^{13}	U^{23}
O1	0.102 (2)	0.178 (3)	0.165 (3)	−0.0168 (19)	0.041 (2)	0.086 (2)
O2	0.225 (4)	0.0826 (19)	0.114 (2)	−0.039 (2)	−0.005 (2)	0.0338 (17)
N1	0.0531 (13)	0.0507 (13)	0.0774 (15)	−0.0088 (10)	0.0022 (11)	0.0142 (11)
N2	0.093 (2)	0.103 (3)	0.093 (2)	−0.029 (2)	−0.0151 (18)	0.038 (2)
C1	0.0514 (15)	0.0541 (16)	0.0602 (15)	−0.0067 (12)	0.0048 (12)	0.0089 (12)
C2	0.0701 (18)	0.0632 (19)	0.0639 (17)	0.0010 (14)	0.0119 (14)	0.0016 (14)
C3	0.077 (2)	0.076 (2)	0.093 (2)	0.0177 (17)	0.0258 (19)	0.0167 (18)
C4	0.0605 (19)	0.107 (3)	0.098 (3)	0.0091 (18)	0.0143 (18)	0.046 (2)
C5	0.079 (2)	0.110 (3)	0.086 (2)	−0.025 (2)	−0.0210 (18)	0.025 (2)
C6	0.089 (2)	0.0646 (19)	0.084 (2)	−0.0166 (16)	−0.0122 (18)	0.0074 (16)
C7	0.0505 (14)	0.0440 (14)	0.0622 (15)	−0.0018 (11)	0.0101 (12)	0.0037 (12)
C8	0.0616 (17)	0.0667 (18)	0.0794 (19)	0.0054 (14)	0.0177 (15)	0.0196 (15)
C9	0.0581 (18)	0.072 (2)	0.131 (3)	−0.0009 (15)	0.031 (2)	0.0299 (19)
C10	0.0476 (17)	0.069 (2)	0.136 (3)	−0.0007 (15)	0.0042 (19)	0.010 (2)
C11	0.0645 (19)	0.076 (2)	0.086 (2)	−0.0012 (16)	−0.0068 (16)	0.0027 (17)
C12	0.0594 (16)	0.0646 (17)	0.0673 (17)	−0.0032 (13)	0.0075 (13)	0.0034 (13)
C13	0.0568 (16)	0.0473 (15)	0.0599 (15)	−0.0101 (12)	0.0029 (12)	0.0041 (11)
C14	0.0604 (17)	0.0576 (17)	0.0724 (18)	−0.0102 (13)	0.0086 (14)	0.0010 (13)
C15	0.0655 (18)	0.0692 (19)	0.0760 (19)	−0.0166 (15)	0.0093 (15)	0.0024 (15)
C16	0.0727 (16)	0.0654 (16)	0.0598 (16)	−0.0262 (15)	0.0022 (13)	0.0002 (12)
C17	0.0739 (17)	0.0495 (16)	0.0790 (19)	−0.0023 (13)	0.0024 (14)	0.0040 (13)
C18	0.0679 (18)	0.0557 (17)	0.0778 (18)	−0.0030 (14)	0.0136 (14)	0.0061 (14)
C19	0.078 (2)	0.0675 (16)	0.080 (2)	−0.0169 (13)	−0.0011 (15)	0.0085 (14)
C20	0.081 (2)	0.0664 (16)	0.0682 (18)	−0.0164 (13)	−0.0052 (15)	0.0025 (13)
C21	0.0659 (17)	0.0672 (17)	0.0566 (16)	−0.0140 (14)	−0.0033 (14)	0.0054 (12)
C22	0.0665 (18)	0.0613 (18)	0.089 (2)	0.0021 (14)	−0.0002 (16)	0.0082 (16)
C23	0.0585 (18)	0.094 (3)	0.085 (2)	−0.0007 (17)	0.0104 (16)	0.0212 (19)

C24	0.0645 (18)	0.072 (2)	0.0670 (18)	-0.0163 (16)	-0.0075 (15)	0.0249 (15)
C25	0.103 (2)	0.0576 (18)	0.0674 (18)	-0.0071 (16)	-0.0012 (18)	0.0044 (15)
C26	0.095 (2)	0.068 (2)	0.0633 (17)	-0.0131 (17)	0.0124 (16)	-0.0006 (15)

Geometric parameters (Å, °)

O1—N2	1.168 (4)	C12—H12	0.9300
O2—N2	1.207 (4)	C13—C14	1.361 (4)
N1—C13	1.395 (3)	C13—C18	1.397 (4)
N1—C7	1.445 (3)	C14—C15	1.355 (4)
N1—C1	1.465 (3)	C14—H14	0.9300
N2—C24	1.454 (4)	C15—C16	1.390 (4)
C1—C2	1.373 (4)	C15—H15	0.9300
C1—C6	1.420 (4)	C16—C17	1.358 (4)
C2—C3	1.409 (4)	C16—C19	1.458 (4)
C2—H2	0.9300	C17—C18	1.375 (4)
C3—C4	1.410 (5)	C17—H17	0.9300
C3—H3	0.9300	C18—H18	0.9300
C4—C5	1.367 (5)	C19—C20	1.276 (4)
C4—H4	0.9300	C19—H19	0.9300
C5—C6	1.422 (4)	C20—C21	1.463 (4)
C5—H5	0.9300	C20—H20	0.9300
C6—H6	0.9300	C21—C22	1.337 (4)
C7—C8	1.342 (3)	C21—C26	1.358 (4)
C7—C12	1.433 (4)	C22—C23	1.374 (4)
C8—C9	1.413 (4)	C22—H22	0.9300
C8—H8	0.9300	C23—C24	1.356 (4)
C9—C10	1.401 (5)	C23—H23	0.9300
C9—H9	0.9300	C24—C25	1.310 (4)
C10—C11	1.323 (4)	C25—C26	1.354 (4)
C10—H10	0.9300	C25—H25	0.9300
C11—C12	1.402 (4)	C26—H26	0.9300
C11—H11	0.9300		
C13—N1—C7	119.0 (2)	C14—C13—N1	119.2 (2)
C13—N1—C1	119.2 (2)	C14—C13—C18	118.6 (2)
C7—N1—C1	121.44 (19)	N1—C13—C18	122.2 (2)
O1—N2—O2	124.3 (4)	C15—C14—C13	119.2 (3)
O1—N2—C24	116.1 (4)	C15—C14—H14	120.4
O2—N2—C24	119.6 (4)	C13—C14—H14	120.4
C2—C1—C6	117.5 (3)	C14—C15—C16	122.9 (3)
C2—C1—N1	120.0 (2)	C14—C15—H15	118.6
C6—C1—N1	122.5 (2)	C16—C15—H15	118.6
C1—C2—C3	119.7 (3)	C17—C16—C15	118.0 (3)
C1—C2—H2	120.1	C17—C16—C19	121.3 (3)
C3—C2—H2	120.1	C15—C16—C19	120.6 (3)
C2—C3—C4	122.6 (3)	C16—C17—C18	119.7 (3)
C2—C3—H3	118.7	C16—C17—H17	120.1

C4—C3—H3	118.7	C18—C17—H17	120.1
C5—C4—C3	118.6 (3)	C17—C18—C13	121.3 (3)
C5—C4—H4	120.7	C17—C18—H18	119.4
C3—C4—H4	120.7	C13—C18—H18	119.4
C4—C5—C6	118.8 (3)	C20—C19—C16	129.0 (3)
C4—C5—H5	120.6	C20—C19—H19	115.5
C6—C5—H5	120.6	C16—C19—H19	115.5
C1—C6—C5	122.7 (3)	C19—C20—C21	128.2 (3)
C1—C6—H6	118.6	C19—C20—H20	115.9
C5—C6—H6	118.6	C21—C20—H20	115.9
C8—C7—C12	117.0 (2)	C22—C21—C26	117.3 (3)
C8—C7—N1	118.0 (2)	C22—C21—C20	122.1 (3)
C12—C7—N1	125.0 (2)	C26—C21—C20	120.6 (3)
C7—C8—C9	117.6 (3)	C21—C22—C23	119.4 (3)
C7—C8—H8	121.2	C21—C22—H22	120.3
C9—C8—H8	121.2	C23—C22—H22	120.3
C10—C9—C8	124.7 (3)	C24—C23—C22	120.6 (3)
C10—C9—H9	117.6	C24—C23—H23	119.7
C8—C9—H9	117.6	C22—C23—H23	119.7
C11—C10—C9	118.2 (3)	C25—C24—C23	121.2 (3)
C11—C10—H10	120.9	C25—C24—N2	117.1 (3)
C9—C10—H10	120.9	C23—C24—N2	121.8 (3)
C10—C11—C12	118.2 (3)	C24—C25—C26	117.3 (3)
C10—C11—H11	120.9	C24—C25—H25	121.4
C12—C11—H11	120.9	C26—C25—H25	121.4
C11—C12—C7	124.3 (3)	C25—C26—C21	124.2 (3)
C11—C12—H12	117.9	C25—C26—H26	117.9
C7—C12—H12	117.9	C21—C26—H26	117.9
C13—N1—C1—C2	129.1 (3)	C18—C13—C14—C15	4.5 (4)
C7—N1—C1—C2	-44.5 (3)	C13—C14—C15—C16	-0.7 (4)
C13—N1—C1—C6	-51.1 (3)	C14—C15—C16—C17	-3.4 (4)
C7—N1—C1—C6	135.3 (3)	C14—C15—C16—C19	173.8 (3)
C6—C1—C2—C3	0.0 (4)	C15—C16—C17—C18	3.5 (4)
N1—C1—C2—C3	179.7 (2)	C19—C16—C17—C18	-173.8 (3)
C1—C2—C3—C4	0.1 (4)	C16—C17—C18—C13	0.4 (4)
C2—C3—C4—C5	0.3 (5)	C14—C13—C18—C17	-4.5 (4)
C3—C4—C5—C6	-0.6 (5)	N1—C13—C18—C17	174.2 (2)
C2—C1—C6—C5	-0.4 (4)	C17—C16—C19—C20	-3.1 (5)
N1—C1—C6—C5	179.9 (3)	C15—C16—C19—C20	179.7 (3)
C4—C5—C6—C1	0.7 (5)	C16—C19—C20—C21	179.8 (3)
C13—N1—C7—C8	151.6 (2)	C19—C20—C21—C22	-29.6 (5)
C1—N1—C7—C8	-34.8 (3)	C19—C20—C21—C26	151.3 (3)
C13—N1—C7—C12	-28.3 (4)	C26—C21—C22—C23	-2.3 (4)
C1—N1—C7—C12	145.3 (2)	C20—C21—C22—C23	178.6 (3)
C12—C7—C8—C9	-0.2 (4)	C21—C22—C23—C24	-0.9 (4)
N1—C7—C8—C9	179.9 (2)	C22—C23—C24—C25	3.4 (5)
C7—C8—C9—C10	0.2 (5)	C22—C23—C24—N2	-175.9 (3)

C8—C9—C10—C11	0.6 (5)	O1—N2—C24—C25	176.1 (3)
C9—C10—C11—C12	-1.2 (5)	O2—N2—C24—C25	-3.6 (5)
C10—C11—C12—C7	1.1 (4)	O1—N2—C24—C23	-4.6 (5)
C8—C7—C12—C11	-0.4 (4)	O2—N2—C24—C23	175.7 (3)
N1—C7—C12—C11	179.5 (2)	C23—C24—C25—C26	-2.3 (5)
C7—N1—C13—C14	139.6 (3)	N2—C24—C25—C26	177.0 (3)
C1—N1—C13—C14	-34.2 (3)	C24—C25—C26—C21	-1.2 (5)
C7—N1—C13—C18	-39.1 (4)	C22—C21—C26—C25	3.5 (4)
C1—N1—C13—C18	147.1 (3)	C20—C21—C26—C25	-177.4 (3)
N1—C13—C14—C15	-174.2 (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>
C15—H15...O1 ⁱ	0.93	2.58	3.481 (4)	162
C12—H12...O2 ⁱⁱ	0.93	2.56	3.308 (4)	138

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