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# (Acridine-$\kappa N$)(dimethyl sulfoxide-$\kappa S$)-diiodidoplatinum(II)

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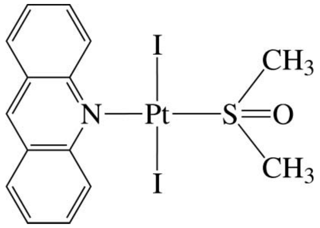
Key indicators: single-crystal X-ray study; $T$ = 200 K; mean $\sigma$(C–C) = 0.013 Å; $R$ factor = 0.035; $wR$ factor = 0.083; data-to-parameter ratio = 18.6.

In the title complex, $[PtI_2(C_{13}H_9N)(C_2H_6OS)]$, the Pt$^{II}$ atom is four-coordinated in an essentially square-planar environment defined by the N atom of the acridine ligand, the S atom of dimethyl sulfoxide, and two iodide ions. The dihedral angle between the nearly planar $PtI_2NS$ unit [maximum deviation = 0.083 (2) Å] and the acridine ligand [maximum deviation = 0.038 (6) Å] is 89.29 (7)°. In the crystal structure, the complex molecules are arranged in a V-shaped packing pattern along the $c$ axis and linked by intermolecular C—H$\cdots$O contacts into supramolecular chains. There are also several intermolecular $\pi$–$\pi$ interactions between the six-membered rings, with a shortest ring centroid–centroid distance of 3.804 (5) Å.

## Related literature

For the crystal structures of $[PtCl_2(acr)_2]$ (acr = acridine) and [PtCl(pic)(DMSO)] (pic = pyridine-2-carboxylate, DMSO = dimethyl sulfoxide), see: Ha (2010*a*,*b*).



## Experimental

### *Crystal data*

$[PtI_2(C_{13}H_9N)(C_2H_6OS)]$
$M_r$ = 706.23
Monoclinic, $P2_1/c$
$a$ = 8.4800 (6) Å
$b$ = 23.8181 (17) Å
$c$ = 9.9036 (7) Å
$\beta$ = 114.492 (1)°
$V$ = 1820.3 (2) Å$^3$
$Z$ = 4
Mo $K\alpha$ radiation
$\mu$ = 11.21 mm$^{-1}$
$T$ = 200 K
0.20 × 0.19 × 0.06 mm

### *Data collection*

Bruker SMART 1000 CCD diffractometer
Absorption correction: multi-scan (*SADABS*; Bruker, 2000)
$T_{min}$ = 0.468, $T_{max}$ = 1.000
11217 measured reflections
3573 independent reflections
2809 reflections with $I > 2\sigma(I)$
$R_{int}$ = 0.051

### *Refinement*

$R[F^2 > 2\sigma(F^2)]$ = 0.035
$wR(F^2)$ = 0.083
$S$ = 1.03
3573 reflections
192 parameters
H-atom parameters constrained
$\Delta\rho_{max}$ = 2.10 e Å$^{-3}$
$\Delta\rho_{min}$ = −1.16 e Å$^{-3}$

**Table 1**
Selected bond lengths (Å).

| | | | |
|---|---|---|---|
| Pt1—N1 | 2.083 (6) | Pt1—I1 | 2.6082 (6) |
| Pt1—S1 | 2.222 (2) | Pt1—I2 | 2.6160 (6) |

**Table 2**
Hydrogen-bond geometry (Å, °).

| $D$—H$\cdots A$ | $D$—H | H$\cdots A$ | $D\cdots A$ | $D$—H$\cdots A$ |
|---|---|---|---|---|
| C14—H14$B\cdots$O1$^{i}$ | 0.98 | 2.36 | 3.209 (10) | 145 |
| C15—H15$B\cdots$O1$^{i}$ | 0.98 | 2.37 | 3.241 (10) | 147 |

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

Data collection: *SMART* (Bruker, 2000); cell refinement: *SAINT* (Bruker, 2000); data reduction: *SAINT*; program(s) used to solve structure: *SHELXS97* (Sheldrick, 2008); program(s) used to refine structure: *SHELXL97* (Sheldrick, 2008); molecular graphics: *ORTEP-3* (Farrugia, 1997) and *PLATON* (Spek, 2009); software used to prepare material for publication: *SHELXL97*.

This work was supported by the Priority Research Centers Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science and Technology (2009–0094056).

Supplementary data and figures for this paper are available from the IUCr electronic archives (Reference: TK2697).

## References

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# supporting information

*Acta Cryst.* (2010). E**66**, m1083 [https://doi.org/10.1107/S1600536810031387]

## (Acridine-*κN*)(dimethyl sulfoxide-*κS*)diiodidoplatinum(II)

**Kwang Ha**

### S1. Comment

Single crystals of the title complex, [$PtI_2(C_{13}H_9N)(C_2H_6OS)$] (where $C_{13}H_9N$ is acridine (acr) and $C_2H_6OS$ is dimethyl sulfoxide (DMSO)), were unexpectedly obtained from a DMSO solution of the dark-yellow reaction product [$PtI_2(acr)_2$] held at 353 K. It seems that an acridine ligand of the complex [$PtI_2(acr)_2$] was replaced by a DMSO molecule during crystallization, whereas the analogous Pt complex [$PtCl_2(acr)_2$] crystallized without substitution in a DMSO solution at 353 K (Ha, 2010*a*). In the title complex, the $Pt^{II}$ atom is four-coordinated in an essentially square-planar environment defined by the N atom of the acridine ligand, the S atom of the dimethyl sulfoxide molecule and two iodide ions (Table 1 and Fig. 1). The dihedral angle between the nearly planar $PtI_2NS$ moiety and acridine ligand is 89.29 (7)°. The I atoms are in *trans* conformation with respect to each other (<I1—Pt1—I2 = 174.03 (2)°) and almost perpendicular to the acridine ligand, with N1—Pt1—I1/2 bond angles of 85.75 (16)° and 89.21 (16)°. The Pt—S bond length (2.222 (2) Å) is comparable to those observed in the Pt-DMSO complex [PtCl(pic)(DMSO)] (2.202 (2) Å, where pic is pyridine-2-carboxylate (Ha, 2010*b*). In the crystal structure, the complexes are arranged in a V-shaped packing pattern along the *c* axis and linked by intermolecular C—H···O contacts into one-dimensional supramolecular chains (Table 2 and Fig. 2). There are also numerous intermolecular $\pi$-$\pi$ interactions between six-membered rings, with the shortest ring centroid-centroid distance being 3.804 (5) Å.

### S2. Experimental

To a solution of $K_2PtCl_4$ (0.2017 g, 0.486 mmol) and KI (0.6410 g, 3.861 mmol) in $H_2O$ (30 ml) was added acridine (0.1903 g, 1.062 mmol) followed by refluxing for 3 h. The precipitate was then separated by filtration, washed with $H_2O$ and EtOH, and dried under vacuum, to give a dark-yellow powder (0.2772 g). Crystals suitable for X-ray analysis were obtained by slow evaporation from a dimethyl sulfoxide at 353 K.

### S3. Refinement

H atoms were positioned geometrically and allowed to ride on their respective parent atoms [C—H = 0.95 Å (CH) or 0.98 Å ($CH_3$) and $U_{iso}(H) = 1.2U_{eq}(C)$ or $1.5U_{eq}$(methyl-C)]. The highest peak (2.10 e $Å^{-3}$) and the deepest hole (-1.16 e $Å^{-3}$) in the difference Fourier map were located 1.05 and 1.64 Å from the atoms Pt1 and I2, respectively.

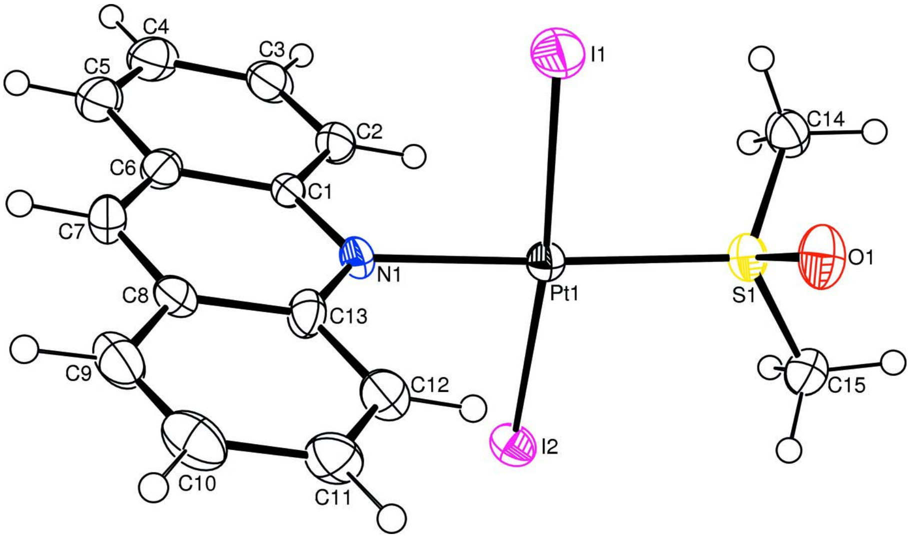

**Figure 1**

The molecular structure of the title complex showing atom labelling. Displacement ellipsoids drawn at the 40% probability level for non-H atoms.

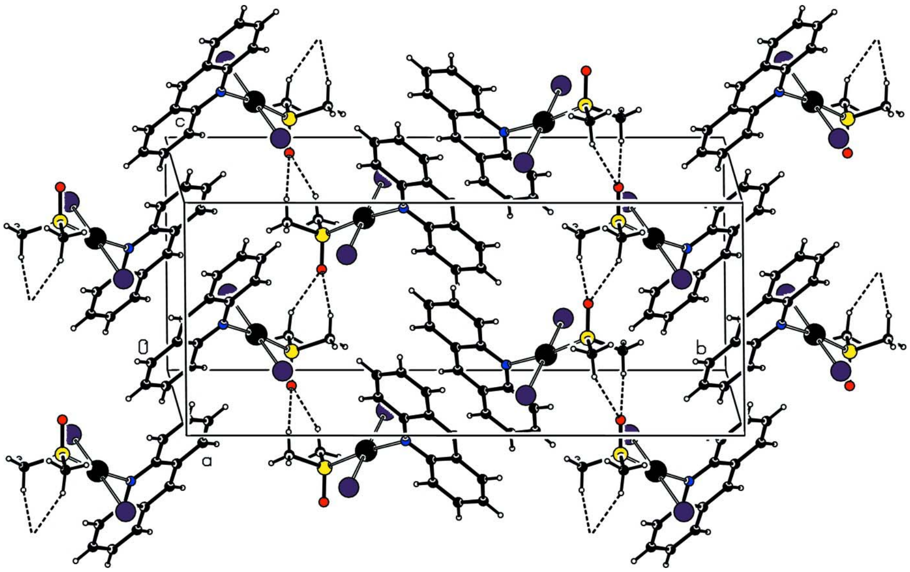

**Figure 2**

View of the unit-cell contents of the title complex. Hydrogen-bond interactions are drawn with dashed lines.

### (Acridine-*κN*)(dimethyl sulfoxide-*κS*)diiodidoplatinum(II)

*Crystal data*

$[PtI_2(C_{13}H_9N)(C_2H_6OS)]$
$M_r$ = 706.23
Monoclinic, $P2_1/c$
Hall symbol: -P 2ybc
$a$ = 8.4800 (6) Å
$b$ = 23.8181 (17) Å
$c$ = 9.9036 (7) Å
$\beta$ = 114.492 (1)°
$V$ = 1820.3 (2) Å$^3$
$Z$ = 4
$F$(000) = 1280
$D_x$ = 2.577 Mg m$^{-3}$
Mo $K\alpha$ radiation, $\lambda$ = 0.71073 Å
Cell parameters from 5088 reflections
$\theta$ = 2.6–26.0°
$\mu$ = 11.21 mm$^{-1}$

| | |
|---|---|
| $T = 200$ K | 0.20 × 0.19 × 0.06 mm |
| Block, yellow | |

*Data collection*

| | |
|---|---|
| Bruker SMART 1000 CCD diffractometer | 11217 measured reflections |
| Radiation source: fine-focus sealed tube | 3573 independent reflections |
| Graphite monochromator | 2809 reflections with $I > 2\sigma(I)$ |
| $\varphi$ and $\omega$ scans | $R_{\text{int}} = 0.051$ |
| Absorption correction: multi-scan (*SADABS*; Bruker, 2000) | $\theta_{\text{max}} = 26.0°$, $\theta_{\text{min}} = 2.4°$ |
| $T_{\text{min}} = 0.468$, $T_{\text{max}} = 1.000$ | $h = -10 \rightarrow 7$ |
| | $k = -28 \rightarrow 29$ |
| | $l = -12 \rightarrow 12$ |

*Refinement*

| | |
|---|---|
| Refinement on $F^2$ | Secondary atom site location: difference Fourier map |
| Least-squares matrix: full | Hydrogen site location: inferred from neighbouring sites |
| $R[F^2 > 2\sigma(F^2)] = 0.035$ | H-atom parameters constrained |
| $wR(F^2) = 0.083$ | $w = 1/[\sigma^2(F_o^2) + (0.0324P)^2]$ where $P = (F_o^2 + 2F_c^2)/3$ |
| $S = 1.03$ | $(\Delta/\sigma)_{\text{max}} < 0.001$ |
| 3573 reflections | $\Delta\rho_{\text{max}} = 2.10$ e Å$^{-3}$ |
| 192 parameters | $\Delta\rho_{\text{min}} = -1.16$ e Å$^{-3}$ |
| 0 restraints | |
| Primary atom site location: structure-invariant direct methods | |

*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 (Å$^2$)*

| | $x$ | $y$ | $z$ | $U_{\text{iso}}$*/$U_{\text{eq}}$ |
|---|---|---|---|---|
| Pt1 | 0.22004 (4) | 0.152591 (13) | 0.21512 (3) | 0.02504 (11) |
| I1 | 0.44358 (8) | 0.19167 (3) | 0.12073 (8) | 0.04961 (19) |
| I2 | 0.02342 (7) | 0.10938 (2) | 0.33373 (6) | 0.03254 (15) |
| S1 | 0.0408 (2) | 0.22130 (9) | 0.0922 (2) | 0.0282 (4) |
| O1 | −0.0003 (7) | 0.2220 (3) | −0.0675 (6) | 0.0410 (15) |
| N1 | 0.3965 (8) | 0.0876 (3) | 0.3075 (7) | 0.0282 (15) |
| C1 | 0.5309 (9) | 0.0945 (3) | 0.4428 (8) | 0.0247 (17) |
| C2 | 0.5382 (11) | 0.1408 (4) | 0.5345 (9) | 0.036 (2) |
| H2 | 0.4474 | 0.1678 | 0.5020 | 0.043* |
| C3 | 0.6736 (11) | 0.1471 (4) | 0.6683 (10) | 0.039 (2) |
| H3 | 0.6754 | 0.1780 | 0.7295 | 0.047* |
| C4 | 0.8130 (11) | 0.1081 (4) | 0.7186 (10) | 0.046 (3) |
| H4 | 0.9081 | 0.1136 | 0.8118 | 0.056* |
| C5 | 0.8103 (10) | 0.0635 (4) | 0.6344 (10) | 0.042 (2) |

| | | | | |
|---|---|---|---|---|
| H5 | 0.9044 | 0.0378 | 0.6686 | 0.050* |
| C6 | 0.6695 (10) | 0.0543 (4) | 0.4955 (9) | 0.034 (2) |
| C7 | 0.6615 (10) | 0.0093 (4) | 0.4048 (10) | 0.039 (2) |
| H7 | 0.7548 | −0.0167 | 0.4367 | 0.047* |
| C8 | 0.5221 (10) | 0.0007 (3) | 0.2686 (9) | 0.0313 (19) |
| C9 | 0.5072 (11) | −0.0455 (4) | 0.1740 (11) | 0.042 (2) |
| H9 | 0.5958 | −0.0732 | 0.2045 | 0.050* |
| C10 | 0.3711 (12) | −0.0513 (4) | 0.0421 (10) | 0.045 (2) |
| H10 | 0.3649 | −0.0821 | −0.0207 | 0.054* |
| C11 | 0.2376 (11) | −0.0108 (4) | −0.0020 (9) | 0.037 (2) |
| H11 | 0.1403 | −0.0152 | −0.0943 | 0.044* |
| C12 | 0.2453 (10) | 0.0344 (4) | 0.0852 (9) | 0.035 (2) |
| H12 | 0.1538 | 0.0610 | 0.0529 | 0.042* |
| C13 | 0.3888 (10) | 0.0418 (3) | 0.2234 (9) | 0.0296 (18) |
| C14 | 0.1268 (10) | 0.2874 (4) | 0.1699 (9) | 0.036 (2) |
| H14A | 0.2394 | 0.2928 | 0.1661 | 0.055* |
| H14B | 0.1415 | 0.2887 | 0.2734 | 0.055* |
| H14C | 0.0471 | 0.3172 | 0.1134 | 0.055* |
| C15 | −0.1582 (10) | 0.2226 (4) | 0.1040 (9) | 0.038 (2) |
| H15A | −0.2275 | 0.2540 | 0.0453 | 0.057* |
| H15B | −0.1395 | 0.2272 | 0.2079 | 0.057* |
| H15C | −0.2197 | 0.1872 | 0.0655 | 0.057* |

*Atomic displacement parameters (Å$^2$)*

| | $U^{11}$ | $U^{22}$ | $U^{33}$ | $U^{12}$ | $U^{13}$ | $U^{23}$ |
|---|---|---|---|---|---|---|
| Pt1 | 0.02442 (17) | 0.0238 (2) | 0.02705 (18) | 0.00111 (12) | 0.01078 (13) | 0.00131 (13) |
| I1 | 0.0400 (4) | 0.0479 (4) | 0.0741 (5) | 0.0065 (3) | 0.0368 (3) | 0.0194 (3) |
| I2 | 0.0375 (3) | 0.0295 (3) | 0.0353 (3) | −0.0020 (2) | 0.0198 (2) | 0.0003 (2) |
| S1 | 0.0316 (11) | 0.0290 (12) | 0.0239 (10) | 0.0046 (8) | 0.0113 (8) | 0.0022 (8) |
| O1 | 0.050 (4) | 0.052 (4) | 0.020 (3) | 0.011 (3) | 0.014 (3) | 0.005 (3) |
| N1 | 0.028 (4) | 0.019 (4) | 0.039 (4) | 0.000 (3) | 0.015 (3) | 0.003 (3) |
| C1 | 0.017 (4) | 0.021 (5) | 0.029 (4) | 0.002 (3) | 0.002 (3) | 0.009 (3) |
| C2 | 0.039 (5) | 0.028 (5) | 0.035 (5) | 0.000 (4) | 0.009 (4) | 0.006 (4) |
| C3 | 0.042 (5) | 0.034 (6) | 0.032 (5) | −0.011 (4) | 0.007 (4) | 0.004 (4) |
| C4 | 0.035 (5) | 0.054 (7) | 0.033 (5) | −0.012 (5) | −0.003 (4) | 0.013 (5) |
| C5 | 0.027 (5) | 0.047 (7) | 0.040 (5) | −0.001 (4) | 0.002 (4) | 0.013 (5) |
| C6 | 0.031 (5) | 0.037 (6) | 0.037 (5) | −0.005 (4) | 0.016 (4) | 0.008 (4) |
| C7 | 0.034 (5) | 0.033 (6) | 0.053 (6) | 0.009 (4) | 0.020 (4) | 0.016 (4) |
| C8 | 0.028 (4) | 0.021 (5) | 0.048 (5) | 0.000 (3) | 0.018 (4) | 0.008 (4) |
| C9 | 0.047 (6) | 0.028 (6) | 0.062 (6) | 0.004 (4) | 0.034 (5) | 0.006 (5) |
| C10 | 0.070 (7) | 0.027 (6) | 0.051 (6) | −0.008 (5) | 0.037 (5) | −0.013 (4) |
| C11 | 0.036 (5) | 0.037 (6) | 0.033 (5) | −0.003 (4) | 0.011 (4) | −0.002 (4) |
| C12 | 0.035 (5) | 0.028 (5) | 0.042 (5) | −0.001 (4) | 0.015 (4) | 0.001 (4) |
| C13 | 0.035 (5) | 0.024 (5) | 0.035 (5) | 0.007 (4) | 0.020 (4) | 0.006 (4) |
| C14 | 0.042 (5) | 0.029 (6) | 0.035 (5) | 0.002 (4) | 0.013 (4) | 0.003 (4) |
| C15 | 0.031 (5) | 0.034 (6) | 0.043 (5) | 0.006 (4) | 0.009 (4) | 0.006 (4) |

*Geometric parameters (Å, º)*

| | | | |
|---|---|---|---|
| Pt1—N1 | 2.083 (6) | C6—C7 | 1.381 (12) |
| Pt1—S1 | 2.222 (2) | C7—C8 | 1.392 (11) |
| Pt1—I1 | 2.6082 (6) | C7—H7 | 0.9500 |
| Pt1—I2 | 2.6160 (6) | C8—C9 | 1.417 (12) |
| S1—O1 | 1.472 (5) | C8—C13 | 1.420 (10) |
| S1—C15 | 1.740 (8) | C9—C10 | 1.344 (13) |
| S1—C14 | 1.771 (9) | C9—H9 | 0.9500 |
| N1—C13 | 1.358 (10) | C10—C11 | 1.410 (12) |
| N1—C1 | 1.362 (9) | C10—H10 | 0.9500 |
| C1—C2 | 1.414 (11) | C11—C12 | 1.364 (11) |
| C1—C6 | 1.435 (11) | C11—H11 | 0.9500 |
| C2—C3 | 1.355 (11) | C12—C13 | 1.415 (11) |
| C2—H2 | 0.9500 | C12—H12 | 0.9500 |
| C3—C4 | 1.420 (12) | C14—H14A | 0.9800 |
| C3—H3 | 0.9500 | C14—H14B | 0.9800 |
| C4—C5 | 1.345 (13) | C14—H14C | 0.9800 |
| C4—H4 | 0.9500 | C15—H15A | 0.9800 |
| C5—C6 | 1.416 (11) | C15—H15B | 0.9800 |
| C5—H5 | 0.9500 | C15—H15C | 0.9800 |
| | | | |
| N1—Pt1—S1 | 172.71 (17) | C6—C7—C8 | 122.5 (8) |
| N1—Pt1—I1 | 85.75 (16) | C6—C7—H7 | 118.7 |
| S1—Pt1—I1 | 88.55 (5) | C8—C7—H7 | 118.7 |
| N1—Pt1—I2 | 89.21 (16) | C7—C8—C9 | 124.3 (8) |
| S1—Pt1—I2 | 96.73 (5) | C7—C8—C13 | 116.7 (8) |
| I1—Pt1—I2 | 174.03 (2) | C9—C8—C13 | 119.0 (8) |
| O1—S1—C15 | 105.5 (4) | C10—C9—C8 | 121.8 (8) |
| O1—S1—C14 | 109.1 (4) | C10—C9—H9 | 119.1 |
| C15—S1—C14 | 101.0 (4) | C8—C9—H9 | 119.1 |
| O1—S1—Pt1 | 113.6 (3) | C9—C10—C11 | 119.1 (8) |
| C15—S1—Pt1 | 116.0 (3) | C9—C10—H10 | 120.4 |
| C14—S1—Pt1 | 110.6 (3) | C11—C10—H10 | 120.4 |
| C13—N1—C1 | 120.5 (7) | C12—C11—C10 | 121.4 (8) |
| C13—N1—Pt1 | 119.0 (5) | C12—C11—H11 | 119.3 |
| C1—N1—Pt1 | 119.9 (5) | C10—C11—H11 | 119.3 |
| N1—C1—C2 | 121.4 (7) | C11—C12—C13 | 120.4 (8) |
| N1—C1—C6 | 120.2 (7) | C11—C12—H12 | 119.8 |
| C2—C1—C6 | 118.4 (7) | C13—C12—H12 | 119.8 |
| C3—C2—C1 | 120.5 (8) | N1—C13—C12 | 119.8 (7) |
| C3—C2—H2 | 119.7 | N1—C13—C8 | 122.0 (7) |
| C1—C2—H2 | 119.7 | C12—C13—C8 | 118.2 (8) |
| C2—C3—C4 | 121.0 (9) | S1—C14—H14A | 109.5 |
| C2—C3—H3 | 119.5 | S1—C14—H14B | 109.5 |
| C4—C3—H3 | 119.5 | H14A—C14—H14B | 109.5 |
| C5—C4—C3 | 120.0 (8) | S1—C14—H14C | 109.5 |
| C5—C4—H4 | 120.0 | H14A—C14—H14C | 109.5 |

| | | | |
|---|---|---|---|
| C3—C4—H4 | 120.0 | H14B—C14—H14C | 109.5 |
| C4—C5—C6 | 121.1 (8) | S1—C15—H15A | 109.5 |
| C4—C5—H5 | 119.5 | S1—C15—H15B | 109.5 |
| C6—C5—H5 | 119.5 | H15A—C15—H15B | 109.5 |
| C7—C6—C5 | 123.1 (8) | S1—C15—H15C | 109.5 |
| C7—C6—C1 | 117.9 (7) | H15A—C15—H15C | 109.5 |
| C5—C6—C1 | 118.9 (8) | H15B—C15—H15C | 109.5 |

| | | | |
|---|---|---|---|
| I1—Pt1—S1—O1 | 57.2 (3) | C2—C1—C6—C7 | −179.7 (7) |
| I2—Pt1—S1—O1 | −125.6 (3) | N1—C1—C6—C5 | 177.9 (7) |
| I1—Pt1—S1—C15 | 179.8 (3) | C2—C1—C6—C5 | −2.1 (11) |
| I2—Pt1—S1—C15 | −3.0 (3) | C5—C6—C7—C8 | 179.9 (8) |
| I1—Pt1—S1—C14 | −65.9 (3) | C1—C6—C7—C8 | −2.6 (12) |
| I2—Pt1—S1—C14 | 111.3 (3) | C6—C7—C8—C9 | −178.6 (7) |
| I1—Pt1—N1—C13 | −87.4 (5) | C6—C7—C8—C13 | 2.2 (12) |
| I2—Pt1—N1—C13 | 95.8 (5) | C7—C8—C9—C10 | −178.7 (8) |
| I1—Pt1—N1—C1 | 84.1 (5) | C13—C8—C9—C10 | 0.6 (12) |
| I2—Pt1—N1—C1 | −92.8 (5) | C8—C9—C10—C11 | −1.4 (13) |
| C13—N1—C1—C2 | −177.6 (7) | C9—C10—C11—C12 | 1.2 (13) |
| Pt1—N1—C1—C2 | 11.0 (9) | C10—C11—C12—C13 | −0.1 (13) |
| C13—N1—C1—C6 | 2.4 (11) | C1—N1—C13—C12 | 178.0 (7) |
| Pt1—N1—C1—C6 | −169.0 (5) | Pt1—N1—C13—C12 | −10.6 (9) |
| N1—C1—C2—C3 | −179.6 (7) | C1—N1—C13—C8 | −2.9 (11) |
| C6—C1—C2—C3 | 0.4 (12) | Pt1—N1—C13—C8 | 168.6 (6) |
| C1—C2—C3—C4 | 1.3 (13) | C11—C12—C13—N1 | 178.5 (7) |
| C2—C3—C4—C5 | −1.3 (14) | C11—C12—C13—C8 | −0.7 (12) |
| C3—C4—C5—C6 | −0.4 (13) | C7—C8—C13—N1 | 0.6 (11) |
| C4—C5—C6—C7 | 179.6 (8) | C9—C8—C13—N1 | −178.7 (7) |
| C4—C5—C6—C1 | 2.1 (12) | C7—C8—C13—C12 | 179.8 (7) |
| N1—C1—C6—C7 | 0.3 (11) | C9—C8—C13—C12 | 0.5 (11) |

*Hydrogen-bond geometry (Å, º)*

| *D*—H···*A* | *D*—H | H···*A* | *D*···*A* | *D*—H···*A* |
|---|---|---|---|---|
| C14—H14*B*···O1$^{i}$ | 0.98 | 2.36 | 3.209 (10) | 145 |
| C15—H15*B*···O1$^{i}$ | 0.98 | 2.37 | 3.241 (10) | 147 |

Symmetry code: (i) *x*, −*y*+1/2, *z*+1/2.