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Poly[[{μ_3-1,2-bis[(3-cyanobenzylidene)-hydrazono]-1,2-diphenylethane}silver(I)] hexafluoridoantimonate]

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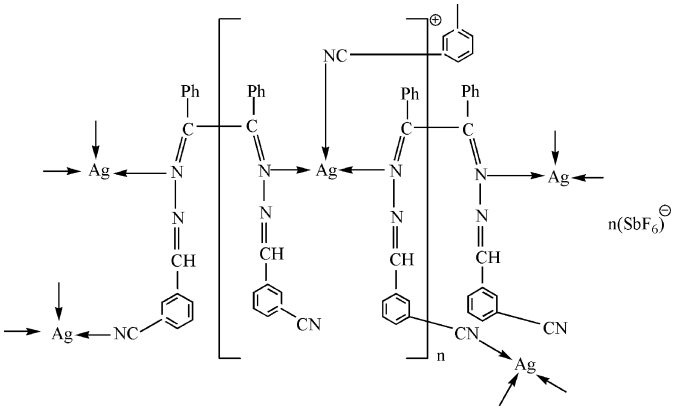
Key indicators: single-crystal X-ray study; T = 298 K; mean σ(C–C) = 0.012 Å; R factor = 0.072; wR factor = 0.223; data-to-parameter ratio = 16.0.

In the title compound, $\{[Ag(C_{30}H_{20}N_6)][SbF_6]\}_n$, the Ag^+ cation has a three-coordinate environment completed by three N atoms of the 1,2-bis[(3-cyanobenzylidene)hydrazono]-1,2-diphenylethane ligand. The Ag^+ cation coordination geometry is best described as distorted T-shaped. The crystal structure forms a three-dimensional structural polymer.

Related literature

For a related structure, see: Wei *et al.* (2007).



Experimental

Crystal data

$[Ag(C_{30}H_{20}N_6)][SbF_6]$
M_r = 808.14
Monoclinic, $P2_1/c$
a = 15.1652 (9) Å
b = 14.6022 (9) Å
c = 14.0711 (9) Å
β = 94.2570 (10)°
V = 3107.4 (3) Å^3
Z = 4
Mo $K\alpha$ radiation
μ = 1.57 mm^{-1}
T = 298 (2) K
0.35 × 0.14 × 0.08 mm

Data collection

Bruker SMART APEX CCD diffractometer
Absorption correction: multi-scan (*SADABS*; Sheldrick, 1996)
T_{min} = 0.610, T_{max} = 0.885
15863 measured reflections
5885 independent reflections
4340 reflections with $I > 2\sigma(I)$
R_{int} = 0.032

Refinement

$R[F^2 > 2\sigma(F^2)]$ = 0.071
$wR(F^2)$ = 0.223
S = 1.05
5885 reflections
367 parameters
6 restraints
H-atom parameters constrained
$\Delta\rho_{max}$ = 1.48 e Å^{-3}
$\Delta\rho_{min}$ = −0.94 e Å^{-3}

Table 1
Selected geometric parameters (Å, °).

Ag1—N5	2.287 (6)	Ag1—N1^{i}	2.354 (9)
Ag1—N3	2.334 (5)		
N5—Ag1—N3	145.2 (2)	N3—Ag1—N1^{i}	97.9 (3)
N5—Ag1—N1^{i}	107.5 (3)		

Symmetry code: (i) $-x+1, y-\frac{1}{2}, -z+\frac{3}{2}$.

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

Supplementary data and figures for this paper are available from the IUCr electronic archives (Reference: BX2129).

References

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Sheldrick, G. M. (1996). *SADABS*. Version 2.10. University of Göttingen, Germany.
Wei, K.-J., Ni, J., Gao, J., Liu, Y.-Z. & Liu, Q.-L. (2007). *Eur. J. Inorg. Chem.* pp. 3868–3880.

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supporting information

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Poly[[{μ_3-1,2-bis[(3-cyanobenzylidene)hydrazono]-1,2-diphenylethane}silver(I)] hexafluoridoantimonate]

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S1. Comment

Silver complexes play a pivotal role in the area of self-assembly coordination chemistry (Wei *et al.*, 2007). Here I report a new Ag(I) coordination polymer, (I) using 1,2-bis(benzene)-1,2-bis((3-cyanobenzylidene)hydrazone)ethane as bridge ligand.

The asymmetric unit of (I) is shown in Fig. 1. It reveals that Ag1 atom is coordinated by three N atoms which come from three ligands, respectively. The Ag1 atom is in a distorted T shape coordination environment (Table 1). In the crystal structure each 1,2-bis(benzene)-1,2-bis((3-cyanobenzylidene)hydrazone)ethane molecule function as tridentate bridge ligand with its two N atoms from two hydrazone groups, respectively, and a N atom from one of two cyanato groups, which resulted in the connections of three Ag(I) ions with separations of 7.0839 (5) Å (between the two Ag^+ ions which are coordinated by two hydrazone groups) and 10.7616 (9) Å (between the two Ag^+ ions which are coordinated by a hydrazone group and a cyanato group, respectively). In the crystal structure exist a weak π-π stacking intereaction, [$Cg1\cdots Cg1^{i}$ = 3.788 (5) Å and $Cg1\cdots Cg1^{i}_{perp}$ = 3.479 Å, symmetry codes: (i) 1 - *x*, 2 - *y*, 2 - *z*, *Cg*1 is the centroid of the the C1—C6 ring; $Cg1\cdots Cg1^{i}_{perp}$ is the perpendicular distance from ring *Cg*1 to ring $Cg1^{i}$]. In addition to the weak π-π stacking interaction there also exists the weak interaction between C15—H15 bond and the conjugated π bond, and the relevant distances are H15$\cdots$*Cg*2 = 2.86 Å and H15$\cdots Cg2_{perp}$ = 2.826 Å [*Cg*2 is the centroid of the C9—C14 ring; H15$\cdots Cg2_{perp}$ is the perpendicular distance from H15 to ring *Cg*2]. The counter hexafluoroantimonate anions are inserted in the micropores of the polymer by electrostatic force.

S2. Experimental

8 ml benzene solution of $AgSbF_6$ (0.0171 g, 0.05 mmol) was added very slowly on the 8 ml tetrahydrofuran solution of 1,2-bis(benzene)-1,2-bis((3-cyanobenzylidene)hydrazone)ethane (0.0093 g, 0.02 mmol). The colorless single crystals were obtained after the solution had been allowed to stand at room temperature for one week.

S3. Refinement

The H atoms were placed in calculated positions with C—H = 0.93 Å, and refined as riding with U_{iso}(H) = 1.2U_{eq}(C). The disordered F atoms were all refined isotropically.

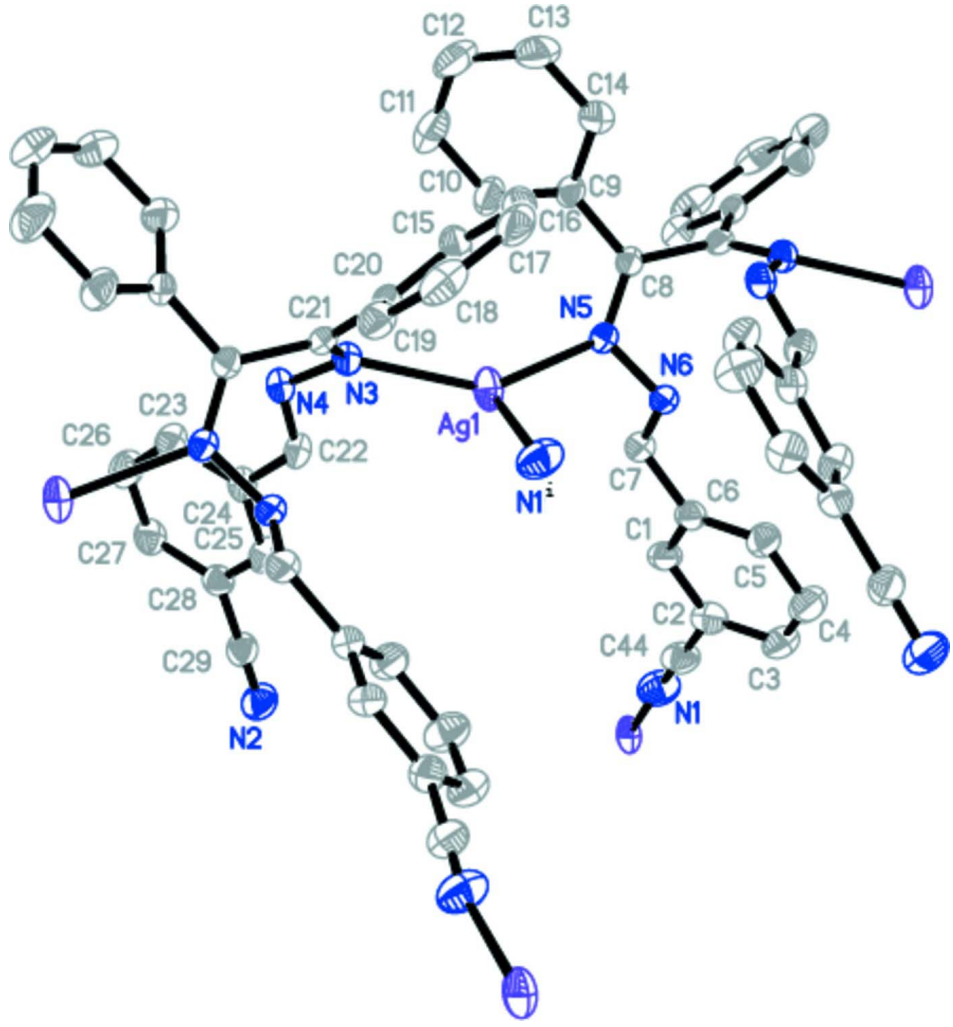

Figure 1

Part of the polymeric structure and the atom-numbering scheme of the title compound. Displacement ellipsoids are shown at the 30% probability level and H atoms and SbF^{-}_{6} anion have been omitted for clarity. [Symmetry code: (i) -*x* + 1, *y* - 1/2, -*z* + 3/2]

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Crystal data

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a = 15.1652 (9) Å
b = 14.6022 (9) Å
c = 14.0711 (9) Å
β = 94.257 (1)°
V = 3107.4 (3) Å^3
Z = 4
$F(000)$ = 1576
D_x = 1.727 Mg m^{-3}
Mo $K\alpha$ radiation, λ = 0.71073 Å
Cell parameters from 3506 reflections
θ = 2.4–21.8°
μ = 1.57 mm^{-1}
T = 298 K
Block, colorless
0.35 × 0.14 × 0.08 mm

Data collection

Bruker SMART APEX CCD diffractometer
Radiation source: fine-focus sealed tube
Graphite monochromator
φ and ω scans
Absorption correction: multi-scan (*SADABS*; Sheldrick, 1996)
T_{min} = 0.610, T_{max} = 0.885
15863 measured reflections
5885 independent reflections
4340 reflections with $I > 2\sigma(I)$
R_{int} = 0.032
θ_{max} = 25.7°, θ_{min} = 1.4°
h = −18→13
k = −17→17
l = −17→16

Refinement

Refinement on F^2
Least-squares matrix: full
$R[F^2 > 2\sigma(F^2)]$ = 0.071
$wR(F^2)$ = 0.223
S = 1.05
5885 reflections
367 parameters
6 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
$w = 1/[\sigma^2(F_o^2) + (0.1282P)^2 + 7.595P]$ where $P = (F_o^2 + 2F_c^2)/3$
$(\Delta/\sigma)_{max}$ = 0.001
$\Delta\rho_{max}$ = 1.48 e Å^{-3}
$\Delta\rho_{min}$ = −0.94 e Å^{-3}

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 (Å²)

	x	*y*	*z*	U_{iso}*/U_{eq}
Ag1	0.26219 (4)	0.77830 (5)	0.61460 (4)	0.0554 (3)
C1	0.5013 (5)	0.9755 (6)	0.8609 (6)	0.0471 (17)
H1	0.4774	1.0223	0.8222	0.056*
C2	0.5826 (5)	0.9864 (6)	0.9087 (6)	0.0521 (19)
C3	0.6190 (6)	0.9176 (8)	0.9667 (7)	0.068 (2)
H3	0.6742	0.9253	0.9990	0.082*
C4	0.5731 (6)	0.8387 (7)	0.9760 (7)	0.069 (2)
H4	0.5970	0.7924	1.0152	0.082*
C5	0.4926 (5)	0.8267 (6)	0.9286 (6)	0.0534 (19)
H5	0.4622	0.7720	0.9353	0.064*
C6	0.4551 (5)	0.8952 (5)	0.8701 (5)	0.0447 (17)
C7	0.3681 (5)	0.8834 (6)	0.8173 (5)	0.0483 (18)
H7	0.3486	0.9279	0.7733	0.058*
C8	0.1698 (4)	0.8068 (4)	0.8094 (5)	0.0350 (14)
C9	0.0853 (4)	0.8073 (5)	0.7522 (5)	0.0400 (15)
C10	0.0724 (6)	0.8656 (6)	0.6764 (6)	0.056 (2)

H10	0.1173	0.9052	0.6613	0.067*
C11	−0.0095 (7)	0.8658 (8)	0.6211 (7)	0.081 (3)
H11	−0.0183	0.9059	0.5700	0.098*
C12	−0.0742 (7)	0.8087 (9)	0.6415 (8)	0.089 (3)
H12	−0.1278	0.8092	0.6048	0.107*
C13	−0.0613 (6)	0.7492 (9)	0.7174 (8)	0.083 (3)
H13	−0.1056	0.7076	0.7294	0.100*
C14	0.0160 (5)	0.7501 (7)	0.7760 (6)	0.061 (2)
H14	0.0220	0.7136	0.8303	0.073*
C15	0.1073 (5)	0.6282 (6)	0.5563 (5)	0.0505 (18)
H15	0.0979	0.6863	0.5806	0.061*
C16	0.0836 (6)	0.5516 (7)	0.6067 (6)	0.065 (3)
H16	0.0582	0.5586	0.6645	0.078*
C17	0.0973 (6)	0.4656 (7)	0.5719 (7)	0.068 (3)
H17	0.0823	0.4141	0.6060	0.082*
C18	0.1329 (6)	0.4568 (6)	0.4874 (9)	0.071 (3)
H18	0.1418	0.3983	0.4639	0.085*
C19	0.1569 (5)	0.5322 (5)	0.4337 (6)	0.0485 (18)
H19	0.1805	0.5244	0.3751	0.058*
C20	0.1444 (4)	0.6192 (5)	0.4706 (5)	0.0383 (15)
C21	0.1707 (4)	0.7000 (5)	0.4178 (4)	0.0348 (14)
C22	0.2843 (5)	0.8878 (5)	0.4167 (5)	0.0446 (17)
H22	0.3236	0.8636	0.4640	0.054*
C23	0.2510 (5)	1.0143 (6)	0.3026 (6)	0.0524 (19)
H23	0.1958	0.9887	0.2866	0.063*
C24	0.3115 (5)	0.9698 (5)	0.3671 (5)	0.0447 (17)
C25	0.3932 (5)	1.0076 (5)	0.3876 (6)	0.0499 (18)
H25	0.4338	0.9774	0.4294	0.060*
C26	0.2742 (6)	1.0966 (6)	0.2630 (7)	0.062 (2)
H26	0.2337	1.1269	0.2211	0.074*
C27	0.3561 (5)	1.1342 (5)	0.2845 (6)	0.0513 (18)
H27	0.3711	1.1894	0.2570	0.062*
C28	0.4167 (5)	1.0895 (5)	0.3478 (5)	0.0442 (16)
C29	0.5013 (5)	1.1297 (6)	0.3716 (6)	0.0519 (19)
C44	0.6304 (6)	1.0721 (7)	0.8957 (7)	0.062 (2)
F1	0.7216 (7)	0.8582 (8)	0.4958 (8)	0.166 (4)*
F2	0.6267 (14)	0.8795 (14)	0.3382 (15)	0.287 (8)*
F3	0.8623 (11)	0.9046 (13)	0.3989 (13)	0.249 (7)*
F4	0.7568 (6)	0.7731 (7)	0.3528 (7)	0.146 (3)*
F5	0.7664 (9)	0.9245 (9)	0.2583 (10)	0.200 (5)*
F6	0.7215 (7)	1.0152 (8)	0.3911 (7)	0.150 (3)*
N1	0.6676 (5)	1.1345 (6)	0.8850 (7)	0.076 (2)
N2	0.5688 (5)	1.1629 (5)	0.3896 (6)	0.068 (2)
N3	0.1969 (4)	0.7738 (4)	0.4591 (4)	0.0381 (13)
N4	0.2127 (4)	0.8481 (4)	0.4001 (4)	0.0415 (13)
N5	0.2418 (4)	0.8153 (4)	0.7693 (4)	0.0381 (13)
N6	0.3198 (4)	0.8160 (4)	0.8293 (4)	0.0425 (14)
Sb1	0.73809 (5)	0.89221 (4)	0.37378 (4)	0.0695 (3)

Atomic displacement parameters (Å²)

	U^{11}	U^{22}	U^{33}	U^{12}	U^{13}	U^{23}
Ag1	0.0756 (5)	0.0607 (4)	0.0291 (3)	−0.0012 (3)	−0.0009 (3)	−0.0029 (2)
C1	0.035 (4)	0.058 (4)	0.049 (4)	−0.004 (3)	0.008 (3)	−0.004 (4)
C2	0.046 (4)	0.054 (5)	0.057 (5)	−0.003 (4)	0.006 (4)	−0.012 (4)
C3	0.040 (5)	0.095 (7)	0.068 (6)	0.002 (5)	−0.007 (4)	0.006 (5)
C4	0.048 (5)	0.076 (6)	0.080 (7)	0.003 (5)	−0.009 (4)	0.009 (5)
C5	0.045 (4)	0.056 (5)	0.058 (5)	−0.004 (4)	−0.001 (4)	0.005 (4)
C6	0.039 (4)	0.059 (5)	0.036 (4)	−0.001 (3)	0.005 (3)	−0.005 (3)
C7	0.039 (4)	0.066 (5)	0.040 (4)	0.003 (4)	0.004 (3)	0.002 (4)
C8	0.035 (4)	0.037 (3)	0.032 (3)	0.001 (3)	−0.001 (3)	0.001 (3)
C9	0.039 (4)	0.047 (4)	0.033 (3)	0.000 (3)	−0.002 (3)	−0.007 (3)
C10	0.057 (5)	0.063 (5)	0.047 (4)	0.001 (4)	−0.015 (4)	0.011 (4)
C11	0.070 (7)	0.101 (8)	0.069 (6)	0.019 (6)	−0.024 (5)	0.017 (6)
C12	0.047 (6)	0.131 (10)	0.087 (8)	0.014 (6)	−0.017 (5)	0.000 (7)
C13	0.035 (5)	0.129 (9)	0.085 (7)	−0.025 (5)	0.002 (5)	−0.010 (7)
C14	0.048 (5)	0.084 (6)	0.049 (5)	−0.009 (4)	0.002 (4)	0.008 (4)
C15	0.049 (4)	0.063 (5)	0.039 (4)	−0.009 (4)	0.002 (3)	0.003 (3)
C16	0.055 (5)	0.091 (8)	0.048 (5)	−0.012 (5)	−0.002 (4)	0.025 (5)
C17	0.054 (5)	0.079 (7)	0.068 (6)	−0.025 (5)	−0.016 (5)	0.037 (5)
C18	0.055 (5)	0.044 (5)	0.108 (9)	−0.003 (4)	−0.029 (6)	0.010 (5)
C19	0.046 (4)	0.043 (4)	0.055 (5)	−0.006 (3)	−0.007 (3)	0.001 (3)
C20	0.031 (3)	0.049 (4)	0.034 (3)	−0.006 (3)	−0.004 (3)	0.002 (3)
C21	0.028 (3)	0.046 (4)	0.030 (3)	−0.001 (3)	−0.001 (2)	0.002 (3)
C22	0.042 (4)	0.057 (5)	0.034 (4)	0.000 (3)	−0.008 (3)	0.006 (3)
C23	0.055 (5)	0.053 (4)	0.047 (4)	−0.008 (4)	−0.010 (4)	0.002 (4)
C24	0.056 (5)	0.042 (4)	0.036 (4)	−0.001 (3)	0.001 (3)	0.001 (3)
C25	0.050 (5)	0.048 (4)	0.050 (4)	0.002 (4)	−0.011 (3)	−0.001 (3)
C26	0.063 (5)	0.053 (5)	0.069 (6)	0.006 (4)	−0.001 (4)	0.022 (4)
C27	0.061 (5)	0.041 (4)	0.052 (5)	−0.004 (4)	0.006 (4)	0.010 (3)
C28	0.041 (4)	0.049 (4)	0.044 (4)	−0.002 (3)	0.004 (3)	−0.002 (3)
C29	0.051 (5)	0.056 (5)	0.047 (4)	−0.006 (4)	−0.003 (3)	−0.001 (4)
C44	0.041 (5)	0.075 (6)	0.071 (6)	−0.011 (4)	0.002 (4)	−0.015 (5)
N1	0.049 (4)	0.072 (5)	0.105 (7)	−0.013 (4)	−0.006 (4)	−0.006 (5)
N2	0.059 (5)	0.074 (5)	0.068 (5)	−0.014 (4)	−0.010 (4)	0.006 (4)
N3	0.038 (3)	0.041 (3)	0.035 (3)	0.000 (2)	0.000 (2)	0.001 (2)
N4	0.050 (4)	0.044 (3)	0.030 (3)	−0.001 (3)	0.002 (2)	0.002 (2)
N5	0.035 (3)	0.048 (3)	0.031 (3)	0.000 (2)	−0.002 (2)	0.001 (2)
N6	0.031 (3)	0.063 (4)	0.033 (3)	−0.004 (3)	−0.001 (2)	0.001 (3)
Sb1	0.1014 (6)	0.0518 (4)	0.0563 (4)	0.0034 (3)	0.0135 (3)	−0.0063 (3)

Geometric parameters (Å, º)

Ag1—N5	2.287 (6)	C16—H16	0.9300
Ag1—N3	2.334 (5)	C17—C18	1.347 (15)
Ag1—N1^{i}	2.354 (9)	C17—H17	0.9300
C1—C2	1.369 (11)	C18—C19	1.399 (12)

C1—C6	1.377 (11)	C18—H18	0.9300
C1—H1	0.9300	C19—C20	1.391 (10)
C2—C3	1.384 (13)	C19—H19	0.9300
C2—C44	1.465 (13)	C20—C21	1.465 (9)
C3—C4	1.357 (13)	C21—N3	1.273 (8)
C3—H3	0.9300	C21—C8^{iii}	1.527 (9)
C4—C5	1.359 (12)	C22—N4	1.238 (9)
C4—H4	0.9300	C22—C24	1.460 (10)
C5—C6	1.390 (11)	C22—H22	0.9300
C5—H5	0.9300	C23—C26	1.380 (12)
C6—C7	1.476 (10)	C23—C24	1.402 (10)
C7—N6	1.246 (10)	C23—H23	0.9300
C7—H7	0.9300	C24—C25	1.367 (11)
C8—N5	1.270 (8)	C25—C28	1.379 (11)
C8—C9	1.463 (9)	C25—H25	0.9300
C8—C21^{ii}	1.527 (9)	C26—C27	1.371 (12)
C9—C10	1.367 (10)	C26—H26	0.9300
C9—C14	1.403 (11)	C27—C28	1.394 (11)
C10—C11	1.416 (12)	C27—H27	0.9300
C10—H10	0.9300	C28—C29	1.428 (11)
C11—C12	1.335 (16)	C29—N2	1.144 (10)
C11—H11	0.9300	C44—N1	1.088 (11)
C12—C13	1.379 (16)	F1—Sb1	1.822 (11)
C12—H12	0.9300	F2—Sb1	1.74 (2)
C13—C14	1.383 (12)	F3—Sb1	1.899 (17)
C13—H13	0.9300	F4—Sb1	1.791 (10)
C14—H14	0.9300	F5—Sb1	1.775 (14)
C15—C20	1.374 (10)	F6—Sb1	1.833 (12)
C15—C16	1.387 (11)	N1—Ag1^{iv}	2.354 (9)
C15—H15	0.9300	N3—N4	1.398 (8)
C16—C17	1.369 (14)	N5—N6	1.402 (8)

N5—Ag1—N3	145.2 (2)	C20—C19—C18	118.0 (8)
N5—Ag1—N1^{i}	107.5 (3)	C20—C19—H19	121.0
N3—Ag1—N1^{i}	97.9 (3)	C18—C19—H19	121.0
C2—C1—C6	119.9 (8)	C15—C20—C19	119.4 (7)
C2—C1—H1	120.0	C15—C20—C21	120.8 (7)
C6—C1—H1	120.0	C19—C20—C21	119.8 (7)
C1—C2—C3	120.6 (8)	N3—C21—C20	122.5 (6)
C1—C2—C44	118.3 (8)	N3—C21—C8^{iii}	119.4 (6)
C3—C2—C44	121.0 (8)	C20—C21—C8^{iii}	118.1 (6)
C4—C3—C2	119.3 (8)	N4—C22—C24	124.7 (6)
C4—C3—H3	120.4	N4—C22—H22	117.7
C2—C3—H3	120.4	C24—C22—H22	117.7
C5—C4—C3	120.7 (9)	C26—C23—C24	119.5 (7)
C5—C4—H4	119.6	C26—C23—H23	120.3
C3—C4—H4	119.6	C24—C23—H23	120.3
C4—C5—C6	120.7 (8)	C25—C24—C23	119.2 (7)

C4—C5—H5	119.7	C25—C24—C22	120.9 (7)
C6—C5—H5	119.7	C23—C24—C22	119.7 (7)
C1—C6—C5	118.7 (7)	C24—C25—C28	121.5 (7)
C1—C6—C7	119.6 (7)	C24—C25—H25	119.3
C5—C6—C7	121.7 (7)	C28—C25—H25	119.3
N6—C7—C6	122.4 (7)	C27—C26—C23	120.8 (8)
N6—C7—H7	118.8	C27—C26—H26	119.6
C6—C7—H7	118.8	C23—C26—H26	119.6
N5—C8—C9	120.1 (6)	C26—C27—C28	119.8 (7)
N5—C8—C21^{ii}	120.4 (6)	C26—C27—H27	120.1
C9—C8—C21^{ii}	119.5 (6)	C28—C27—H27	120.1
C10—C9—C14	119.4 (7)	C25—C28—C27	119.2 (7)
C10—C9—C8	120.1 (7)	C25—C28—C29	121.1 (7)
C14—C9—C8	120.4 (7)	C27—C28—C29	119.7 (7)
C9—C10—C11	119.9 (9)	N2—C29—C28	179.0 (9)
C9—C10—H10	120.0	N1—C44—C2	178.1 (11)
C11—C10—H10	120.0	C44—N1—Ag1^{iv}	170.3 (9)
C12—C11—C10	120.6 (10)	C21—N3—N4	116.5 (5)
C12—C11—H11	119.7	C21—N3—Ag1	123.2 (4)
C10—C11—H11	119.7	N4—N3—Ag1	117.1 (4)
C11—C12—C13	119.7 (9)	C22—N4—N3	116.0 (6)
C11—C12—H12	120.1	C8—N5—N6	116.6 (5)
C13—C12—H12	120.1	C8—N5—Ag1	125.5 (4)
C12—C13—C14	121.4 (10)	N6—N5—Ag1	114.0 (4)
C12—C13—H13	119.3	C7—N6—N5	113.7 (6)
C14—C13—H13	119.3	F2—Sb1—F5	93.5 (8)
C13—C14—C9	118.7 (8)	F2—Sb1—F4	90.6 (7)
C13—C14—H14	120.6	F5—Sb1—F4	93.1 (6)
C9—C14—H14	120.6	F2—Sb1—F1	92.5 (8)
C20—C15—C16	120.7 (8)	F5—Sb1—F1	173.9 (6)
C20—C15—H15	119.6	F4—Sb1—F1	85.7 (5)
C16—C15—H15	119.6	F2—Sb1—F6	90.2 (7)
C17—C16—C15	120.3 (9)	F5—Sb1—F6	84.6 (5)
C17—C16—H16	119.9	F4—Sb1—F6	177.7 (5)
C15—C16—H16	119.9	F1—Sb1—F6	96.4 (5)
C18—C17—C16	119.0 (8)	F2—Sb1—F3	173.9 (8)
C18—C17—H17	120.5	F5—Sb1—F3	80.9 (7)
C16—C17—H17	120.5	F4—Sb1—F3	87.5 (6)
C17—C18—C19	122.6 (9)	F1—Sb1—F3	93.1 (6)
C17—C18—H18	118.7	F6—Sb1—F3	91.5 (6)
C19—C18—H18	118.7		

C6—C1—C2—C3	−0.3 (12)	N4—C22—C24—C25	−177.8 (8)
C6—C1—C2—C44	178.9 (7)	N4—C22—C24—C23	6.8 (12)
C1—C2—C3—C4	0.0 (14)	C23—C24—C25—C28	1.4 (12)
C44—C2—C3—C4	−179.2 (9)	C22—C24—C25—C28	−174.0 (7)
C2—C3—C4—C5	0.4 (15)	C24—C23—C26—C27	1.3 (14)
C3—C4—C5—C6	−0.5 (15)	C23—C26—C27—C28	−0.6 (14)

C2—C1—C6—C5	0.2 (11)	C24—C25—C28—C27	−0.6 (12)
C2—C1—C6—C7	−179.1 (7)	C24—C25—C28—C29	178.3 (7)
C4—C5—C6—C1	0.2 (12)	C26—C27—C28—C25	0.2 (12)
C4—C5—C6—C7	179.5 (8)	C26—C27—C28—C29	−178.8 (8)
C1—C6—C7—N6	−173.4 (7)	C25—C28—C29—N2	178 (100)
C5—C6—C7—N6	7.4 (12)	C27—C28—C29—N2	−3 (59)
N5—C8—C9—C10	−39.2 (10)	C1—C2—C44—N1	−114 (34)
C21^{ii}—C8—C9—C10	138.3 (7)	C3—C2—C44—N1	65 (35)
N5—C8—C9—C14	142.7 (8)	C2—C44—N1—Ag1^{iv}	−150 (31)
C21^{ii}—C8—C9—C14	−39.8 (10)	C20—C21—N3—N4	−174.7 (6)
C14—C9—C10—C11	−2.0 (13)	C8^{iii}—C21—N3—N4	7.9 (9)
C8—C9—C10—C11	179.9 (8)	C20—C21—N3—Ag1	26.0 (9)
C9—C10—C11—C12	−0.6 (16)	C8^{iii}—C21—N3—Ag1	−151.5 (5)
C10—C11—C12—C13	0.1 (18)	N5—Ag1—N3—C21	−105.2 (6)
C11—C12—C13—C14	3.2 (18)	N1^{i}—Ag1—N3—C21	31.9 (6)
C12—C13—C14—C9	−5.8 (16)	N5—Ag1—N3—N4	95.6 (5)
C10—C9—C14—C13	5.1 (13)	N1^{i}—Ag1—N3—N4	−127.2 (5)
C8—C9—C14—C13	−176.8 (8)	C24—C22—N4—N3	−176.3 (7)
C20—C15—C16—C17	0.3 (13)	C21—N3—N4—C22	−130.8 (7)
C15—C16—C17—C18	−1.0 (13)	Ag1—N3—N4—C22	29.8 (8)
C16—C17—C18—C19	0.4 (13)	C9—C8—N5—N6	178.7 (6)
C17—C18—C19—C20	1.0 (12)	C21^{ii}—C8—N5—N6	1.2 (9)
C16—C15—C20—C19	1.1 (11)	C9—C8—N5—Ag1	−24.7 (9)
C16—C15—C20—C21	−179.1 (7)	C21^{ii}—C8—N5—Ag1	157.7 (5)
C18—C19—C20—C15	−1.7 (10)	N3—Ag1—N5—C8	34.6 (7)
C18—C19—C20—C21	178.5 (6)	N1^{i}—Ag1—N5—C8	−100.4 (6)
C15—C20—C21—N3	30.8 (10)	N3—Ag1—N5—N6	−168.3 (4)
C19—C20—C21—N3	−149.4 (7)	N1^{i}—Ag1—N5—N6	56.6 (5)
C15—C20—C21—C8^{iii}	−151.7 (6)	C6—C7—N6—N5	−177.2 (6)
C19—C20—C21—C8^{iii}	28.1 (9)	C8—N5—N6—C7	−126.7 (7)
C26—C23—C24—C25	−1.7 (12)	Ag1—N5—N6—C7	74.1 (7)
C26—C23—C24—C22	173.8 (8)		

Symmetry codes: (i) −*x*+1, *y*−1/2, −*z*+3/2; (ii) *x*, −*y*+3/2, *z*+1/2; (iii) *x*, −*y*+3/2, *z*−1/2; (iv) −*x*+1, *y*+1/2, −*z*+3/2.