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[1,2-Bis(phenylseleno)benzene]-dichloridopalladium(II)

Nobuhiro Takeda,‡ Toru Isobe, Takahiro Sasamori and Norihiro Tokitoh*

Institute for Chemical Research, Kyoto University, Gokasho, Uji, Kyoto 611-0011, Japan
Correspondence e-mail: tokitoh@boc.kuicr.kyoto-u.ac.jp

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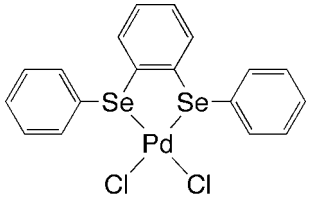
Key indicators: single-crystal X-ray study; T = 103 K; mean σ(C–C) = 0.003 Å; R factor = 0.014; wR factor = 0.037; data-to-parameter ratio = 11.8.

In the title compound, $[PdCl_2\{1,2\text{-}C_6H_4(SePh)_2\}]$, the two Cl atoms and the two Se atoms are arranged in a square-planar fashion around the Pd atom. The two phenyl groups are on the same side of the $PdCl_2Se_2$ plane. Intermolecular interactions between the Cl and Se atoms are suggested [Se···Cl = 3.4003 (4) and 3.4101 (4) Å].

Related literature

For related literature, see: Bondi (1964); Booth *et al.* (1997); Champness *et al.* (1995); Gujadhur & Venkataraman (2003); Gulliver *et al.* (1984); Hartley *et al.* (1979); Nakanishi & Hayashi (2000); Orpen *et al.* (1989); Petragnari & Toscano (1970); Takeda *et al.* (2005); Whitfield (1970).



Experimental

Crystal data

$[PdCl_2(C_{18}H_{14}Se_2)]$
M_r = 565.51
Triclinic, $P\overline{1}$
a = 8.7008 (3) Å
b = 10.4873 (2) Å
c = 10.9779 (3) Å
α = 64.1072 (13)°
β = 78.4779 (12)°
γ = 74.2744 (17)°
V = 863.58 (4) Å^3
Z = 2
Mo $K\alpha$ radiation
μ = 5.59 mm^{-1}
T = 103 (2) K
0.08 × 0.08 × 0.02 mm

Data collection

Rigaku VariMax Saturn diffractometer
Absorption correction: multi-scan (*REQAB*; Jacobson; 1998)
T_{min} = 0.663, T_{max} = 0.896
7378 measured reflections
3122 independent reflections
3057 reflections with $I > 2\sigma(I)$
R_{int} = 0.015

Refinement

$R[F^2 > 2\sigma(F^2)]$ = 0.014
$wR(F^2)$ = 0.037
S = 1.05
3122 reflections
264 parameters
All H-atom parameters refined
$\Delta\rho_{max}$ = 0.63 e Å^{-3}
$\Delta\rho_{min}$ = −0.31 e Å^{-3}

Table 1
Selected geometric parameters (Å, °).

Pd1—Cl2	2.3282 (4)	Se1—C7	1.9367 (16)
Pd1—Cl1	2.3471 (4)	Se1—C1	1.9547 (17)
Pd1—Se2	2.3790 (2)	Se2—C12	1.9301 (16)
Pd1—Se1	2.38098 (19)	Se2—C13	1.9515 (17)
Cl2—Pd1—Cl1	94.066 (15)	C7—Se1—C1	97.24 (7)
Cl2—Pd1—Se2	87.714 (12)	C7—Se1—Pd1	102.52 (5)
Cl1—Pd1—Se2	176.116 (12)	C1—Se1—Pd1	99.60 (5)
Cl2—Pd1—Se1	176.146 (12)	C12—Se2—C13	98.11 (7)
Cl1—Pd1—Se1	87.742 (11)	C12—Se2—Pd1	102.46 (5)
Se2—Pd1—Se1	90.279 (7)	C13—Se2—Pd1	99.58 (5)

Data collection: *CrystalClear* (Rigaku, 2005); cell refinement: *CrystalClear*; data reduction: *CrystalClear*; program(s) used to solve structure: *SHELXS97* (Sheldrick, 1997); program(s) used to refine structure: *SHELXL97* (Sheldrick, 1997); molecular graphics: *ORTEPIII* (Burnett & Johnson, 1996); 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: OM2151).

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‡ Present address: Department of Chemistry and Chemical Biology, Graduate School of Engineering, Gunma University, 1-5-1 Tenjin-cho, Kiryu, Gunma 376-8515, Japan.

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supplementary materials

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[1,2-Bis(phenylseleno)benzene]dichloridopalladium(II)

N. Takeda, T. Isobe, T. Sasamori and N. Tokitoh

Comment

There are no reports on the synthesis of the title compound, $[PdCl_2\{1,2\text{-}C_6H_4(SePh)_2\}]$ (1), although the synthesis and full characterization of the sulfur analog, $[PdCl_2\{1,2\text{-}C_6H_4(SPh)_2\}]$ (2), has already been reported (Hartley *et al.*, 1979; Takeda *et al.*, 2005). This paper presents the first synthesis and X-ray structural analysis of (1).

Compound (1) was prepared by a method similar to that for the sulfur analog (2) (Takeda *et al.*, 2005), *i.e.*, the reaction of the ligand, 1,2-bis(phenylseleno)benzene with $NaPdCl_4$. The X-ray structural analysis of (1) shows features similar to those of (2) (Takeda *et al.*, 2005), *e.g.*, a square planar arrangement of the two chlorine and two chalcogen atoms around the palladium center, and a conformation where the two terminal phenyl groups of the diselenoether ligand are on the same side of the $PdCl_2Ch_2$ plane (Fig. 1). The Pd—Cl bond lengths (Pd1—Cl1 2.3471 (4) and Pd1—Cl2 2.3282 (4) Å) are slightly longer than those of (2) (Pd1—Cl1 2.3159 (6) and Pd1—Cl2 2.3116 (5) Å), although these values are within the range of the reported values for tetracoordinate palladium(II) complexes (2.298–2.354 Å) (Orpen *et al.*, 1989). This result suggests that the coordination of the Se atoms to the Pd center in (1) is slightly stronger than that of the S atoms in (2). The Pd—Se bond lengths (Pd1—Se1 2.38098 (19) and Pd1—Se2 2.3790 (2) Å) are similar to those of the reported *cis*-dichloropalladium(II) complexes with selenoether (2.36–2.40 Å) (Booth *et al.*, 1997; Champness *et al.*, 1995; Whitfield, 1970).

Intermolecular Se—Cl distances (Se1—Cl2 3.4003 (4) and Se2—Cl1 3.4101 (4) Å) are slightly shorter than the sum of the van der Waals radii of chlorine and selinium (3.65 Å) (Bondi, 1964) (Fig. 2). This result suggests there is an intermolecular interaction between the chlorine and selenium atoms as well as between the chlorine and sulfur observed in (2). In addition, there are intermolecular C9—H7—Cl1 (2.94 (2) Å) and C10—H8—Cl2 (3.11 (2) Å) distances, although it is thought that these are weaker than the corresponding interactions in (2).

Experimental

Sodium tetrachloropalladate (93.8 mg, 0.319 mmol) was added to a solution of 1,2-bis(phenylseleno)benzene, $1,2\text{-}C_6H_4(SePh)_2$, (100 mg, 0.258 mmol) (Gujadhur & Venkataraman, 2003; Nakanishi & Hayashi, 2000; Gulliver *et al.*, 1984; Petragnari & Toscano, 1970) in chloroform (3 ml)/ethanol (20 ml) at room temperature. After stirring for 3 h, the mixture was filtered. The precipitates were washed with ethanol (5 ml × 3) and then extracted with dichloromethane(300 ml) and chloroform (300 ml). After filtration of the mixture, evaporation of the filtrate gave the title compound, $[PdCl_2\{1,2\text{-}C_6H_4(SePh)_2\}]$ (1) (138.7 mg, 0.245 mmol, 95%). Further purification by recrystallization from chloroform/ethanol provided analytically pure (1) (m.p. 270 °C, decomposition. Analysis found: C 38.08, H 2.65%; $C_{18}H_{14}Cl_2PdSe_2$ requires: C 38.23, H 2.50%). Suitable crystals for X-ray crystallography were obtained by slow evaporation of a dichloromethane/chloroform solution.

Refinement

All H atoms were refined isotropically, while all the other atoms were refined anisotropically.

Figures

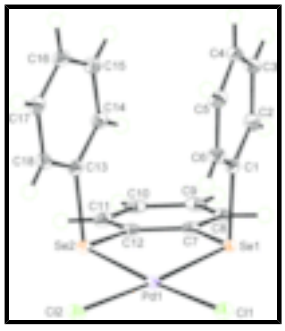

Fig. 1. View of the molecule of the title compound showing the atom-labelling scheme. Displacement ellipsoids are drawn at the 50% probability level. H atoms are represented by circles of arbitrary size.

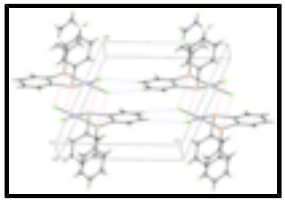

Fig. 2. The molecular packing as viewed down the *a* axis..

[1,2-Bis(phenylseleno)benzene]dichloridopalladium(II)

Crystal data

$[PdCl_2(C_{18}H_{14}Se_2)]$	$Z = 2$
$M_r = 565.51$	$F_{000} = 540$
Triclinic, $P\overline{1}$	$D_x = 2.175$ Mg m^{-3}
Hall symbol: -P 1	Mo $K\alpha$ radiation $\lambda = 0.71069$ Å
$a = 8.7008$ (3) Å	Cell parameters from 2442 reflections
$b = 10.4873$ (2) Å	$\theta = 3.1$–25.5º
$c = 10.9779$ (3) Å	$\mu = 5.59$ mm^{-1}
$\alpha = 64.1072$ (13)º	$T = 103$ (2) K
$\beta = 78.4779$ (12)º	Prism, orange
$\gamma = 74.2744$ (17)º	0.08 × 0.08 × 0.02 mm
$V = 863.58$ (4) Å^3	

Data collection

Rigaku VariMax Saturn diffractometer	3057 reflections with $I > 2\sigma(I)$
Radiation source: rotating-anode X-ray tube	$R_{int} = 0.015$
Monochromator: Confocal	$\theta_{max} = 25.5$º
$T = 103(2)$ K	$\theta_{min} = 3.1$º
ω scans	$h = -10 \rightarrow 10$
Absorption correction: multi-scan (REQAB; Jacobson; 1998)	$k = -12 \rightarrow 12$
$T_{min} = 0.663$, $T_{max} = 0.896$	$l = -13 \rightarrow 13$
7378 measured reflections	Standard reflections: ?

3122 independent reflections

Refinement

Refinement on F^2	Secondary atom site location: difference Fourier map
Least-squares matrix: full	Hydrogen site location: inferred from neighbouring sites
$R[F^2 > 2\sigma(F^2)] = 0.014$	All H-atom parameters refined
$wR(F^2) = 0.037$	$w = 1/[\sigma^2(F_o^2) + (0.0102P)^2 + 0.541P]$ where $P = (F_o^2 + 2F_c^2)/3$
$S = 1.05$	$(\Delta/\sigma)_{max} = 0.002$
3122 reflections	$\Delta\rho_{max} = 0.63$ e Å^{-3}
264 parameters	$\Delta\rho_{min} = -0.31$ e Å^{-3}
Primary atom site location: structure-invariant direct methods	Extinction correction: none

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 $F^2 > 2\text{sigma}(F^2)$ 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_{iso}*/U_{eq}
Pd1	0.646899 (14)	0.363137 (13)	0.003739 (12)	0.01048 (5)
Cl1	0.78072 (5)	0.46915 (5)	−0.21221 (4)	0.01566 (9)
Cl2	0.47187 (5)	0.28911 (5)	−0.07496 (4)	0.01613 (9)
Se1	0.832610 (19)	0.422118 (17)	0.093337 (16)	0.01072 (5)
Se2	0.527966 (19)	0.244530 (17)	0.227340 (16)	0.01141 (5)
C1	0.99842 (19)	0.24472 (18)	0.13286 (17)	0.0128 (3)
C2	1.0948 (2)	0.20103 (19)	0.23691 (18)	0.0153 (3)
H1	1.088 (2)	0.254 (2)	0.287 (2)	0.011 (5)*
C3	1.2088 (2)	0.0720 (2)	0.26636 (18)	0.0169 (4)
H2	1.275 (3)	0.042 (2)	0.335 (2)	0.021 (5)*
C4	1.2279 (2)	−0.0099 (2)	0.19135 (18)	0.0167 (4)
H3	1.302 (2)	−0.097 (2)	0.211 (2)	0.017 (5)*
C5	1.1351 (2)	0.03816 (19)	0.08486 (18)	0.0169 (4)
H4	1.152 (3)	−0.019 (2)	0.033 (2)	0.022 (5)*
C6	1.0194 (2)	0.16632 (19)	0.05435 (17)	0.0155 (3)
H5	0.961 (2)	0.197 (2)	−0.016 (2)	0.017 (5)*
C7	0.7402 (2)	0.38254 (18)	0.27874 (16)	0.0125 (3)

C8	0.8009 (2)	0.42967 (19)	0.35619 (18)	0.0151 (3)
H6	0.888 (3)	0.480 (2)	0.319 (2)	0.020 (5)*
C9	0.7332 (2)	0.40479 (19)	0.48820 (18)	0.0172 (4)
H7	0.774 (3)	0.434 (2)	0.538 (2)	0.023 (6)*
C10	0.6045 (2)	0.33526 (19)	0.54185 (18)	0.0170 (4)
H8	0.557 (2)	0.326 (2)	0.624 (2)	0.017 (5)*
C11	0.5435 (2)	0.28864 (19)	0.46451 (18)	0.0161 (4)
H9	0.453 (3)	0.240 (2)	0.502 (2)	0.024 (6)*
C12	0.6132 (2)	0.31227 (18)	0.33235 (17)	0.0129 (3)
C13	0.6685 (2)	0.05285 (18)	0.27761 (17)	0.0131 (3)
C14	0.7849 (2)	0.00403 (19)	0.36772 (17)	0.0146 (3)
H10	0.799 (2)	0.064 (2)	0.4087 (19)	0.010 (4)*
C15	0.8820 (2)	−0.1332 (2)	0.39744 (18)	0.0171 (4)
H11	0.960 (3)	−0.165 (2)	0.458 (2)	0.018 (5)*
C16	0.8626 (2)	−0.2206 (2)	0.33869 (18)	0.0168 (4)
H12	0.928 (2)	−0.315 (2)	0.358 (2)	0.020 (5)*
C17	0.7451 (2)	−0.17168 (19)	0.25014 (18)	0.0154 (3)
H13	0.732 (2)	−0.224 (2)	0.207 (2)	0.015 (5)*
C18	0.6474 (2)	−0.03441 (19)	0.21878 (17)	0.0143 (3)
H14	0.574 (2)	−0.002 (2)	0.157 (2)	0.018 (5)*

Atomic displacement parameters (Å^2)

	U^{11}	U^{22}	U^{33}	U^{12}	U^{13}	U^{23}
Pd1	0.01126 (8)	0.01039 (8)	0.00946 (8)	−0.00007 (5)	−0.00263 (5)	−0.00429 (6)
Cl1	0.0179 (2)	0.0164 (2)	0.01045 (19)	−0.00168 (16)	−0.00059 (15)	−0.00487 (16)
Cl2	0.0167 (2)	0.0168 (2)	0.0175 (2)	−0.00128 (17)	−0.00698 (16)	−0.00834 (17)
Se1	0.01120 (9)	0.01027 (9)	0.01034 (9)	−0.00178 (7)	−0.00084 (6)	−0.00420 (7)
Se2	0.01043 (9)	0.01092 (9)	0.01232 (9)	−0.00123 (7)	−0.00143 (6)	−0.00464 (7)
C1	0.0103 (8)	0.0113 (8)	0.0143 (8)	−0.0022 (6)	0.0020 (6)	−0.0041 (7)
C2	0.0151 (8)	0.0174 (9)	0.0158 (8)	−0.0049 (7)	−0.0004 (7)	−0.0085 (7)
C3	0.0132 (8)	0.0180 (9)	0.0168 (9)	−0.0025 (7)	−0.0040 (7)	−0.0041 (7)
C4	0.0117 (8)	0.0136 (9)	0.0204 (9)	0.0000 (7)	0.0003 (7)	−0.0052 (7)
C5	0.0180 (9)	0.0150 (9)	0.0175 (9)	−0.0024 (7)	0.0009 (7)	−0.0080 (7)
C6	0.0153 (8)	0.0172 (9)	0.0124 (8)	−0.0026 (7)	−0.0020 (7)	−0.0049 (7)
C7	0.0135 (8)	0.0112 (8)	0.0099 (8)	0.0031 (6)	−0.0021 (6)	−0.0045 (7)
C8	0.0140 (8)	0.0119 (8)	0.0190 (9)	0.0024 (7)	−0.0049 (7)	−0.0076 (7)
C9	0.0187 (9)	0.0159 (9)	0.0180 (9)	0.0059 (7)	−0.0080 (7)	−0.0106 (8)
C10	0.0205 (9)	0.0138 (9)	0.0108 (8)	0.0069 (7)	−0.0020 (7)	−0.0055 (7)
C11	0.0159 (9)	0.0120 (9)	0.0159 (8)	0.0016 (7)	−0.0006 (7)	−0.0045 (7)
C12	0.0162 (8)	0.0097 (8)	0.0124 (8)	0.0021 (7)	−0.0042 (7)	−0.0057 (7)
C13	0.0122 (8)	0.0117 (8)	0.0128 (8)	−0.0026 (7)	0.0019 (6)	−0.0039 (7)
C14	0.0161 (8)	0.0136 (9)	0.0143 (8)	−0.0035 (7)	−0.0002 (7)	−0.0060 (7)
C15	0.0166 (9)	0.0172 (9)	0.0157 (8)	−0.0027 (7)	−0.0047 (7)	−0.0040 (7)
C16	0.0163 (9)	0.0114 (9)	0.0188 (9)	−0.0006 (7)	0.0002 (7)	−0.0048 (7)
C17	0.0169 (8)	0.0144 (9)	0.0168 (8)	−0.0052 (7)	0.0021 (7)	−0.0085 (7)
C18	0.0129 (8)	0.0173 (9)	0.0127 (8)	−0.0049 (7)	−0.0004 (7)	−0.0055 (7)

Geometric parameters (Å, °)

Pd1—Cl2	2.3282 (4)	C7—C8	1.391 (2)
Pd1—Cl1	2.3471 (4)	C8—C9	1.388 (3)
Pd1—Se2	2.3790 (2)	C8—H6	0.96 (2)
Pd1—Se1	2.38098 (19)	C9—C10	1.392 (3)
Se1—C7	1.9367 (16)	C9—H7	0.89 (2)
Se1—C1	1.9547 (17)	C10—C11	1.388 (3)
Se2—C12	1.9301 (16)	C10—H8	0.89 (2)
Se2—C13	1.9515 (17)	C11—C12	1.396 (2)
C1—C6	1.388 (2)	C11—H9	0.97 (2)
C1—C2	1.391 (2)	C13—C14	1.394 (2)
C2—C3	1.392 (3)	C13—C18	1.394 (2)
C2—H1	0.92 (2)	C14—C15	1.391 (3)
C3—C4	1.389 (3)	C14—H10	0.96 (2)
C3—H2	0.93 (2)	C15—C16	1.389 (3)
C4—C5	1.384 (3)	C15—H11	0.94 (2)
C4—H3	0.92 (2)	C16—C17	1.389 (3)
C5—C6	1.393 (2)	C16—H12	0.95 (2)
C5—H4	0.96 (2)	C17—C18	1.391 (3)
C6—H5	0.90 (2)	C17—H13	0.91 (2)
C7—C12	1.383 (2)	C18—H14	0.91 (2)
Cl2—Pd1—Cl1	94.066 (15)	C9—C8—C7	119.29 (17)
Cl2—Pd1—Se2	87.714 (12)	C9—C8—H6	120.0 (13)
Cl1—Pd1—Se2	176.116 (12)	C7—C8—H6	120.7 (13)
Cl2—Pd1—Se1	176.146 (12)	C8—C9—C10	120.37 (16)
Cl1—Pd1—Se1	87.742 (11)	C8—C9—H7	118.7 (14)
Se2—Pd1—Se1	90.279 (7)	C10—C9—H7	121.0 (14)
C7—Se1—C1	97.24 (7)	C11—C10—C9	120.38 (17)
C7—Se1—Pd1	102.52 (5)	C11—C10—H8	119.7 (13)
C1—Se1—Pd1	99.60 (5)	C9—C10—H8	119.8 (13)
C12—Se2—C13	98.11 (7)	C10—C11—C12	119.08 (17)
C12—Se2—Pd1	102.46 (5)	C10—C11—H9	120.4 (13)
C13—Se2—Pd1	99.58 (5)	C12—C11—H9	120.5 (13)
C6—C1—C2	121.35 (16)	C7—C12—C11	120.48 (15)
C6—C1—Se1	119.04 (13)	C7—C12—Se2	121.14 (12)
C2—C1—Se1	119.59 (13)	C11—C12—Se2	118.38 (13)
C1—C2—C3	118.74 (16)	C14—C13—C18	120.97 (16)
C1—C2—H1	123.1 (12)	C14—C13—Se2	122.29 (13)
C3—C2—H1	118.2 (12)	C18—C13—Se2	116.74 (12)
C4—C3—C2	120.52 (16)	C15—C14—C13	119.05 (16)
C4—C3—H2	119.8 (13)	C15—C14—H10	120.2 (11)
C2—C3—H2	119.6 (13)	C13—C14—H10	120.8 (11)
C5—C4—C3	119.89 (17)	C16—C15—C14	120.42 (16)
C5—C4—H3	119.0 (12)	C16—C15—H11	121.0 (13)
C3—C4—H3	121.1 (12)	C14—C15—H11	118.5 (12)
C4—C5—C6	120.53 (16)	C15—C16—C17	120.13 (17)
C4—C5—H4	118.4 (13)	C15—C16—H12	121.4 (12)

C6—C5—H4	121.1 (13)	C17—C16—H12	118.5 (12)
C1—C6—C5	118.88 (16)	C16—C17—C18	120.24 (16)
C1—C6—H5	121.8 (13)	C16—C17—H13	122.3 (13)
C5—C6—H5	119.3 (13)	C18—C17—H13	117.4 (13)
C12—C7—C8	120.39 (15)	C17—C18—C13	119.20 (16)
C12—C7—Se1	120.80 (12)	C17—C18—H14	119.2 (13)
C8—C7—Se1	118.78 (13)	C13—C18—H14	121.5 (13)
Cl1—Pd1—Se1—C7	169.73 (5)	C7—C8—C9—C10	−0.9 (3)
Se2—Pd1—Se1—C7	−13.61 (5)	C8—C9—C10—C11	0.7 (3)
Cl1—Pd1—Se1—C1	−90.57 (5)	C9—C10—C11—C12	0.1 (3)
Se2—Pd1—Se1—C1	86.08 (5)	C8—C7—C12—C11	0.5 (2)
Cl2—Pd1—Se2—C12	−168.85 (5)	Se1—C7—C12—C11	−177.73 (13)
Se1—Pd1—Se2—C12	14.44 (5)	C8—C7—C12—Se2	−179.51 (12)
Cl2—Pd1—Se2—C13	90.55 (5)	Se1—C7—C12—Se2	2.30 (19)
Se1—Pd1—Se2—C13	−86.16 (5)	C10—C11—C12—C7	−0.7 (2)
C7—Se1—C1—C6	133.28 (14)	C10—C11—C12—Se2	179.29 (13)
Pd1—Se1—C1—C6	29.21 (14)	C13—Se2—C12—C7	88.59 (14)
C7—Se1—C1—C2	−47.93 (14)	Pd1—Se2—C12—C7	−13.16 (14)
Pd1—Se1—C1—C2	−152.00 (13)	C13—Se2—C12—C11	−91.38 (14)
C6—C1—C2—C3	−3.3 (3)	Pd1—Se2—C12—C11	166.87 (12)
Se1—C1—C2—C3	177.98 (13)	C12—Se2—C13—C14	1.13 (15)
C1—C2—C3—C4	1.3 (3)	Pd1—Se2—C13—C14	105.32 (14)
C2—C3—C4—C5	1.2 (3)	C12—Se2—C13—C18	−178.82 (13)
C3—C4—C5—C6	−1.7 (3)	Pd1—Se2—C13—C18	−74.64 (13)
C2—C1—C6—C5	2.7 (3)	C18—C13—C14—C15	0.7 (2)
Se1—C1—C6—C5	−178.49 (13)	Se2—C13—C14—C15	−179.21 (13)
C4—C5—C6—C1	−0.2 (3)	C13—C14—C15—C16	−0.3 (3)
C1—Se1—C7—C12	−91.70 (14)	C14—C15—C16—C17	−0.4 (3)
Pd1—Se1—C7—C12	9.85 (14)	C15—C16—C17—C18	0.6 (3)
C1—Se1—C7—C8	90.07 (14)	C16—C17—C18—C13	−0.2 (3)
Pd1—Se1—C7—C8	−168.37 (12)	C14—C13—C18—C17	−0.5 (2)
C12—C7—C8—C9	0.3 (2)	Se2—C13—C18—C17	179.49 (12)
Se1—C7—C8—C9	178.56 (12)		

Fig. 1

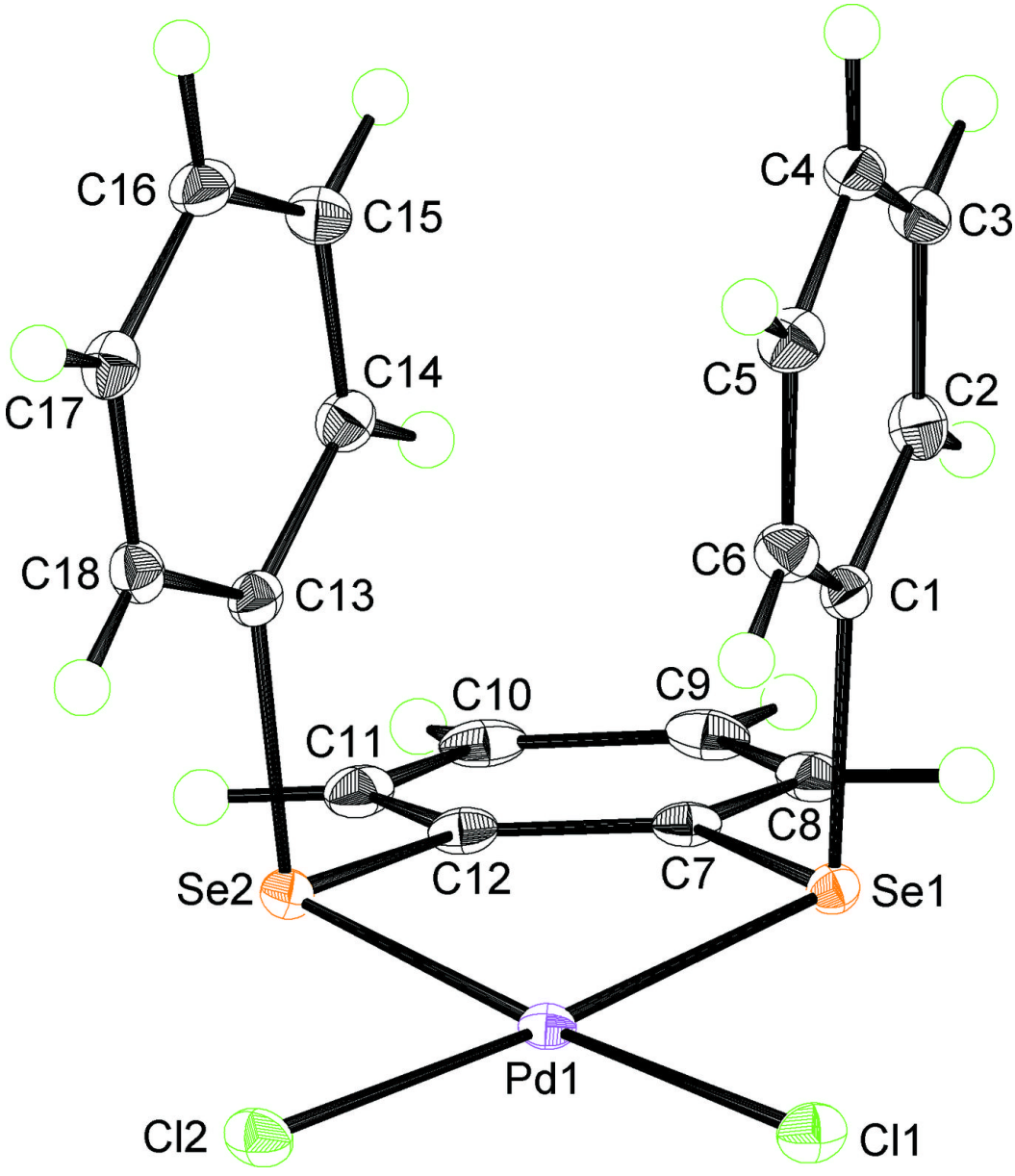
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Fig. 2