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# *trans*-Dibromidobis(tri-*p*-tolylarsine)-palladium(II)

**Leo Kirsten, Gideon Steyl and Andreas Roodt***

Department of Chemistry, University of the Free State, PO Box 339, Bloemfontein 9300, South Africa
Correspondence e-mail: roodta.sci@ufs.ac.za

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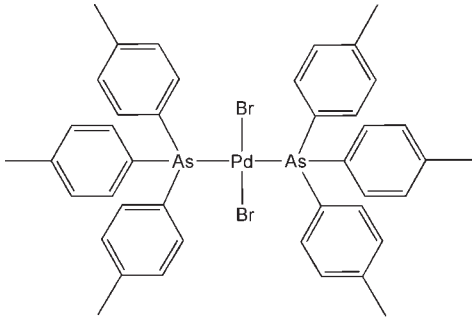
Key indicators: single-crystal X-ray study; $T$ = 100 K; mean $\sigma$(C–C) = 0.003 Å; $R$ factor = 0.019; $wR$ factor = 0.046; data-to-parameter ratio = 19.3.

In the title compound, $[PdBr_2(C_{21}H_{21}As)_2]$, the $Pd^{II}$ ion, residing on a centre of symmetry, is coordinated by two As donor atoms [Pd—As = 2.4276 (2) Å] and two Br anions [Pd—Br = 2.4194 (2) Å] in a distorted square-planar geometry [Br—Pd—As = 87.786 (7)°]. A weak intramolecular C—H···Br interaction occurs. In the crystal structure, intermolecular C—H···Br interactions are observed.

## Related literature

For similar palladium complexes containing arsine and bromido derivatives, see: Kirsten & Steyl (2009) and references therein.




## Experimental

### Crystal data

$[PdBr_2(C_{21}H_{21}As)_2]$
$M_r$ = 962.82
Monoclinic, $P2_1/n$
$a$ = 10.2435 (4) Å
$b$ = 18.2139 (8) Å
$c$ = 10.7509 (4) Å
$\beta$ = 106.185 (2)°
$V$ = 1926.34 (13) Å$^3$
$Z$ = 2
Mo $K\alpha$ radiation
$\mu$ = 4.29 mm$^{-1}$
$T$ = 100 K
0.35 × 0.29 × 0.26 mm

### Data collection

Bruker X8 APEXII 4K Kappa CCD diffractometer
Absorption correction: multi-scan (*SADABS*; Bruker, 1998)
$T_{min}$ = 0.258, $T_{max}$ = 0.330
25665 measured reflections
4194 independent reflections
3862 reflections with $I > 2\sigma(I)$
$R_{int}$ = 0.037

### Refinement

$R[F^2 > 2\sigma(F^2)]$ = 0.019
$wR(F^2)$ = 0.046
$S$ = 1.04
4194 reflections
217 parameters
H-atom parameters constrained
$\Delta\rho_{max}$ = 0.51 e Å$^{-3}$
$\Delta\rho_{min}$ = −0.44 e Å$^{-3}$

**Table 1**
Hydrogen-bond geometry (Å, °).

| $D$—H···$A$ | $D$—H | H···$A$ | $D$···$A$ | $D$—H···$A$ |
|---|---|---|---|---|
| C32—H32···Br | 0.95 | 2.95 | 3.764 (2) | 144 |
| C35—H35···Br$^{i}$ | 0.95 | 2.94 | 3.787 (2) | 149 |

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

Data collection: *APEX2* (Bruker, 2005); cell refinement: *SAINT-Plus* (Bruker, 2004); data reduction: *SAINT-Plus* and *XPREP* (Bruker 2004); program(s) used to solve structure: *SHELXS97* (Sheldrick, 2008); program(s) used to refine structure: *SHELXL97* (Sheldrick, 2008); molecular graphics: *DIAMOND* (Brandenburg & Putz, 2006); 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: CV2631).

## References

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Bruker (2004). *SAINT-Plus* (including *XPREP*). Bruker AXS Inc., Madison, Wisconsin, USA.
Bruker (2005). *APEX2*. Bruker AXS Inc., Madison, Wisconsin, USA.
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Sheldrick, G. M. (2008). *Acta Cryst.* A**64**, 112–122.

# supporting information

*Acta Cryst.* (2009). E**65**, m1449 [https://doi.org/10.1107/S1600536809043372]

## *trans*-Dibromidobis(tri-*p*-tolylarsine)palladium(II)

**Leo Kirsten, Gideon Steyl and Andreas Roodt**

### S1. Comment

In continuation of our study of square-planar palladium complexes containing arsine donor and bromido ligands (Kirsten & Steyl, 2009) we present here the title compound, (I).

The molecule of (I) (Fig. 1), is centrosymmetric, so pairs of equivalent arsino donor ligands lie *trans* to one another in a slightly distorted square-planar geometry, with the *cis* angles deviating from 90° by less than 3° [Br—Pd—As 87.786 (7)°]. A staggered conformation of the two triphenyl arsine moieties is observed, supported by the Br—Pd—As—$C_n$ torsion angles of 160.99 (6)° ($C_n$=C11), 37.93 (6)° ($C_n$=C12) and -78.75 (6)° ($C_n$=C13), respectively.

Weak intra- and intermolecular hydrogen-bonding interactions are observed between the Br and the hydrogen atoms of the triphenylarsine ligands (Table 1). The effect of the methyl substituent on the *para* position of the phenyl rings has no significant effect on the crystallization mode of the complex when compared the the closely related triphenylarsine complex (Kirsten & Steyl, 2009). The rms error of 0.173 Å indicates the iso-structurality of the two complexes (the title complex superimposed with the triphenylarsine complex (Kirsten & Steyl, 2009) including all the atoms except the methyl substituents and the hydrogen atoms).

### S2. Experimental

The title compound was synthesized by the addition of $As(pTol)_3$ (20 mg, 0.0059 mmol) to an acetone solution (15 $cm^3$) of $Pd(Br)_2(COD)$ (10 mg, 0.027 mmol). Crystals suitable for diffraction were obtained by slow evaporation of the reaction mixture (yield 18 mg, 71%).

### S3. Refinement

All H atoms were positioned geometrically (C—H = 0.95–0.98 Å) and allowed to ride on their parent atoms, with $U_{iso}$(H) = 1.2–1.5 $U_{eq}$ of the parent atom.

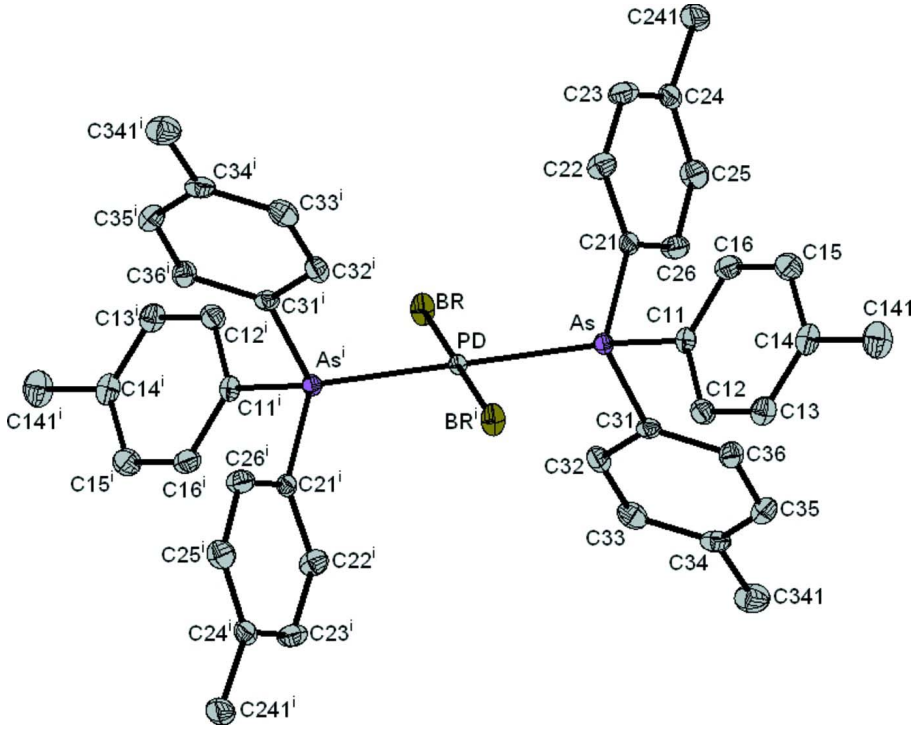


**Figure 1**

The molecular structure of (I) showing the atomic numbering and 30% probability displacement ellipsoids [symmetry code: (i) -*x*,-*y*,-*z*].. H atoms have been omitted for clarity.

## *trans*-Dibromidobis(tri-*p*-tolylarsine)palladium(II)

*Crystal data*

$[PdBr_2(C_{21}H_{21}As)_2]$
$M_r = 962.82$
Monoclinic, $P2_1/n$
Hall symbol: -P 2yn
$a = 10.2435$ (4) Å
$b = 18.2139$ (8) Å
$c = 10.7509$ (4) Å
$\beta = 106.185$ (2)°
$V = 1926.34$ (13) Å$^3$
$Z = 2$
$F(000) = 952$
$D_x = 1.660$ Mg m$^{-3}$
Mo $K\alpha$ radiation, $\lambda = 0.71073$ Å
Cell parameters from 6121 reflections
$\theta = 2.2$–$28.3°$
$\mu = 4.29$ mm$^{-1}$
$T = 100$ K
Cuboid, orange
0.35 × 0.29 × 0.26 mm

*Data collection*

Bruker X8 APEXII 4K Kappa CCD diffractometer
Radiation source: fine-focus sealed tube
Graphite monochromator
Detector resolution: 512 pixels mm$^{-1}$
$\varphi$ and $\omega$ scans
Absorption correction: multi-scan (*SADABS*; Bruker, 1998)
$T_{min} = 0.258$, $T_{max} = 0.330$
25665 measured reflections
4194 independent reflections
3862 reflections with $I > 2\sigma(I)$
$R_{int} = 0.037$
$\theta_{max} = 27.0°$, $\theta_{min} = 2.2°$
$h = -13 \rightarrow 13$
$k = -23 \rightarrow 23$
$l = -13 \rightarrow 13$

*Refinement*

Refinement on $F^2$
Least-squares matrix: full
$R[F^2 > 2\sigma(F^2)] = 0.019$
$wR(F^2) = 0.046$
$S = 1.04$
4194 reflections
217 parameters
0 restraints
Primary atom site location: structure-invariant direct methods
Secondary atom site location: difference Fourier map
Hydrogen site location: riding model
H-atom parameters constrained
$w = 1/[\sigma^2(F_o^2) + (0.0166P)^2 + 1.4379P]$ where $P = (F_o^2 + 2F_c^2)/3$
$(\Delta/\sigma)_{max} = 0.001$
$\Delta\rho_{max} = 0.51$ e Å$^{-3}$
$\Delta\rho_{min} = -0.44$ 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* | $U_{iso}$*/$U_{eq}$ |
|---|---|---|---|---|
| Pd | 0.5000 | 0.5000 | 0.5000 | 0.01048 (5) |
| Br | 0.691876 (19) | 0.534223 (11) | 0.679231 (18) | 0.01856 (6) |
| As | 0.558809 (18) | 0.601507 (10) | 0.379536 (18) | 0.01109 (5) |
| C11 | 0.48804 (19) | 0.60151 (10) | 0.19217 (18) | 0.0137 (4) |
| C12 | 0.3492 (2) | 0.61094 (11) | 0.13618 (19) | 0.0169 (4) |
| H12 | 0.2897 | 0.6156 | 0.1895 | 0.020* |
| C13 | 0.2977 (2) | 0.61356 (11) | 0.00240 (19) | 0.0182 (4) |
| H13 | 0.2028 | 0.6201 | −0.0351 | 0.022* |
| C14 | 0.3827 (2) | 0.60683 (10) | −0.07756 (19) | 0.0180 (4) |
| C15 | 0.5207 (2) | 0.59546 (12) | −0.0208 (2) | 0.0217 (4) |
| H15 | 0.5799 | 0.5890 | −0.0741 | 0.026* |
| C16 | 0.5730 (2) | 0.59340 (11) | 0.1131 (2) | 0.0192 (4) |
| H16 | 0.6677 | 0.5864 | 0.1507 | 0.023* |
| C141 | 0.3282 (2) | 0.61492 (13) | −0.2220 (2) | 0.0263 (5) |
| H14A | 0.2321 | 0.6008 | −0.2489 | 0.039* |
| H14B | 0.3796 | 0.5831 | −0.2648 | 0.039* |
| H14C | 0.3372 | 0.6661 | −0.2463 | 0.039* |
| C21 | 0.75110 (18) | 0.61873 (10) | 0.40559 (17) | 0.0130 (4) |
| C22 | 0.8349 (2) | 0.56148 (11) | 0.3902 (2) | 0.0191 (4) |
| H22 | 0.7985 | 0.5135 | 0.3716 | 0.023* |
| C23 | 0.9715 (2) | 0.57403 (12) | 0.4019 (2) | 0.0204 (4) |
| H23 | 1.0270 | 0.5348 | 0.3883 | 0.025* |
| C24 | 1.02824 (18) | 0.64337 (11) | 0.43333 (18) | 0.0170 (4) |
| C25 | 0.9446 (2) | 0.69946 (11) | 0.4526 (2) | 0.0209 (4) |
| H25 | 0.9821 | 0.7468 | 0.4764 | 0.025* |

| | | | | |
|---|---|---|---|---|
| C26 | 0.8071 (2) | 0.68784 (11) | 0.4377 (2) | 0.0184 (4) |
| H26 | 0.7512 | 0.7274 | 0.4496 | 0.022* |
| C241 | 1.1756 (2) | 0.65736 (13) | 0.4429 (2) | 0.0242 (5) |
| H24A | 1.2274 | 0.6118 | 0.4667 | 0.036* |
| H24B | 1.2115 | 0.6948 | 0.5092 | 0.036* |
| H24C | 1.1839 | 0.6747 | 0.3591 | 0.036* |
| C31 | 0.50031 (18) | 0.69617 (10) | 0.42613 (18) | 0.0130 (4) |
| C32 | 0.51153 (19) | 0.71093 (11) | 0.55552 (19) | 0.0172 (4) |
| H32 | 0.5397 | 0.6734 | 0.6187 | 0.021* |
| C33 | 0.4816 (2) | 0.78054 (11) | 0.5922 (2) | 0.0202 (4) |
| H33 | 0.4892 | 0.7901 | 0.6808 | 0.024* |
| C34 | 0.44053 (19) | 0.83669 (11) | 0.5019 (2) | 0.0186 (4) |
| C35 | 0.4280 (2) | 0.82081 (11) | 0.3726 (2) | 0.0201 (4) |
| H35 | 0.3986 | 0.8581 | 0.3091 | 0.024* |
| C36 | 0.45788 (19) | 0.75149 (11) | 0.33475 (19) | 0.0168 (4) |
| H36 | 0.4493 | 0.7418 | 0.2460 | 0.020* |
| C341 | 0.4165 (2) | 0.91285 (12) | 0.5440 (2) | 0.0267 (5) |
| H34A | 0.3483 | 0.9374 | 0.4741 | 0.040* |
| H34B | 0.5017 | 0.9407 | 0.5640 | 0.040* |
| H34C | 0.3838 | 0.9102 | 0.6213 | 0.040* |

*Atomic displacement parameters (Å²)*

| | $U^{11}$ | $U^{22}$ | $U^{33}$ | $U^{12}$ | $U^{13}$ | $U^{23}$ |
|---|---|---|---|---|---|---|
| Pd | 0.00953 (10) | 0.01177 (10) | 0.00909 (10) | −0.00197 (7) | 0.00087 (7) | 0.00047 (7) |
| Br | 0.01676 (10) | 0.02136 (11) | 0.01337 (10) | −0.00722 (7) | −0.00274 (7) | 0.00204 (7) |
| As | 0.00983 (9) | 0.01240 (9) | 0.01058 (10) | −0.00086 (7) | 0.00209 (7) | 0.00121 (7) |
| C11 | 0.0163 (9) | 0.0128 (9) | 0.0115 (9) | −0.0005 (7) | 0.0029 (7) | 0.0016 (7) |
| C12 | 0.0168 (10) | 0.0186 (10) | 0.0159 (10) | −0.0005 (7) | 0.0056 (8) | 0.0011 (8) |
| C13 | 0.0161 (10) | 0.0182 (10) | 0.0174 (10) | −0.0022 (7) | 0.0000 (8) | 0.0012 (8) |
| C14 | 0.0259 (11) | 0.0130 (9) | 0.0129 (10) | −0.0014 (8) | 0.0020 (8) | −0.0013 (7) |
| C15 | 0.0261 (11) | 0.0246 (11) | 0.0166 (10) | 0.0047 (8) | 0.0095 (8) | 0.0003 (8) |
| C16 | 0.0165 (10) | 0.0216 (10) | 0.0193 (10) | 0.0046 (8) | 0.0047 (8) | 0.0015 (8) |
| C141 | 0.0342 (12) | 0.0291 (12) | 0.0133 (10) | −0.0012 (9) | 0.0029 (9) | −0.0010 (9) |
| C21 | 0.0109 (9) | 0.0165 (9) | 0.0107 (9) | 0.0000 (7) | 0.0018 (7) | 0.0033 (7) |
| C22 | 0.0165 (10) | 0.0158 (10) | 0.0235 (11) | −0.0002 (7) | 0.0032 (8) | −0.0012 (8) |
| C23 | 0.0149 (10) | 0.0226 (11) | 0.0237 (11) | 0.0053 (8) | 0.0051 (8) | 0.0007 (9) |
| C24 | 0.0115 (9) | 0.0263 (11) | 0.0124 (9) | 0.0000 (8) | 0.0022 (7) | 0.0052 (8) |
| C25 | 0.0184 (10) | 0.0177 (10) | 0.0264 (11) | −0.0060 (8) | 0.0062 (8) | −0.0007 (9) |
| C26 | 0.0153 (9) | 0.0156 (10) | 0.0251 (11) | 0.0009 (7) | 0.0069 (8) | −0.0010 (8) |
| C241 | 0.0128 (10) | 0.0345 (12) | 0.0245 (11) | −0.0010 (8) | 0.0037 (8) | 0.0066 (9) |
| C31 | 0.0087 (8) | 0.0140 (9) | 0.0162 (9) | −0.0007 (7) | 0.0030 (7) | −0.0008 (7) |
| C32 | 0.0170 (9) | 0.0207 (10) | 0.0146 (10) | −0.0018 (7) | 0.0058 (7) | 0.0014 (8) |
| C33 | 0.0198 (10) | 0.0243 (11) | 0.0175 (10) | −0.0034 (8) | 0.0072 (8) | −0.0045 (8) |
| C34 | 0.0115 (9) | 0.0195 (10) | 0.0254 (11) | −0.0006 (7) | 0.0063 (8) | −0.0029 (8) |
| C35 | 0.0195 (10) | 0.0192 (10) | 0.0207 (10) | 0.0040 (8) | 0.0042 (8) | 0.0030 (8) |
| C36 | 0.0175 (10) | 0.0191 (10) | 0.0130 (9) | 0.0010 (7) | 0.0029 (7) | 0.0005 (8) |
| C341 | 0.0272 (12) | 0.0227 (11) | 0.0317 (13) | 0.0010 (9) | 0.0107 (10) | −0.0056 (9) |

*Geometric parameters (Å, º)*

| | | | |
|---|---|---|---|
| Pd—Br$^{i}$ | 2.4194 (2) | C23—C24 | 1.392 (3) |
| Pd—Br | 2.4194 (2) | C23—H23 | 0.9500 |
| Pd—As$^{i}$ | 2.4276 (2) | C24—C25 | 1.385 (3) |
| Pd—As | 2.4276 (2) | C24—C241 | 1.506 (3) |
| As—C21 | 1.9363 (18) | C25—C26 | 1.389 (3) |
| As—C31 | 1.9365 (18) | C25—H25 | 0.9500 |
| As—C11 | 1.9414 (19) | C26—H26 | 0.9500 |
| C11—C16 | 1.383 (3) | C241—H24A | 0.9800 |
| C11—C12 | 1.392 (3) | C241—H24B | 0.9800 |
| C12—C13 | 1.388 (3) | C241—H24C | 0.9800 |
| C12—H12 | 0.9500 | C31—C36 | 1.390 (3) |
| C13—C14 | 1.389 (3) | C31—C32 | 1.390 (3) |
| C13—H13 | 0.9500 | C32—C33 | 1.387 (3) |
| C14—C15 | 1.390 (3) | C32—H32 | 0.9500 |
| C14—C141 | 1.503 (3) | C33—C34 | 1.392 (3) |
| C15—C16 | 1.390 (3) | C33—H33 | 0.9500 |
| C15—H15 | 0.9500 | C34—C35 | 1.390 (3) |
| C16—H16 | 0.9500 | C34—C341 | 1.501 (3) |
| C141—H14A | 0.9800 | C35—C36 | 1.386 (3) |
| C141—H14B | 0.9800 | C35—H35 | 0.9500 |
| C141—H14C | 0.9800 | C36—H36 | 0.9500 |
| C21—C26 | 1.386 (3) | C341—H34A | 0.9800 |
| C21—C22 | 1.389 (3) | C341—H34B | 0.9800 |
| C22—C23 | 1.389 (3) | C341—H34C | 0.9800 |
| C22—H22 | 0.9500 | | |
| | | | |
| Br$^{i}$—Pd—Br | 180.0 | C22—C23—C24 | 120.89 (19) |
| Br$^{i}$—Pd—As$^{i}$ | 87.786 (7) | C22—C23—H23 | 119.6 |
| Br—Pd—As$^{i}$ | 92.214 (7) | C24—C23—H23 | 119.6 |
| Br$^{i}$—Pd—As | 92.214 (7) | C25—C24—C23 | 118.14 (18) |
| Br—Pd—As | 87.786 (7) | C25—C24—C241 | 120.99 (19) |
| As$^{i}$—Pd—As | 180.000 (6) | C23—C24—C241 | 120.86 (19) |
| C21—As—C31 | 101.19 (8) | C24—C25—C26 | 121.34 (19) |
| C21—As—C11 | 102.75 (8) | C24—C25—H25 | 119.3 |
| C31—As—C11 | 102.44 (8) | C26—C25—H25 | 119.3 |
| C21—As—Pd | 116.10 (5) | C21—C26—C25 | 120.17 (18) |
| C31—As—Pd | 113.54 (6) | C21—C26—H26 | 119.9 |
| C11—As—Pd | 118.50 (5) | C25—C26—H26 | 119.9 |
| C16—C11—C12 | 119.31 (18) | C24—C241—H24A | 109.5 |
| C16—C11—As | 121.36 (14) | C24—C241—H24B | 109.5 |
| C12—C11—As | 119.32 (14) | H24A—C241—H24B | 109.5 |
| C13—C12—C11 | 119.97 (18) | C24—C241—H24C | 109.5 |
| C13—C12—H12 | 120.0 | H24A—C241—H24C | 109.5 |
| C11—C12—H12 | 120.0 | H24B—C241—H24C | 109.5 |
| C12—C13—C14 | 121.04 (18) | C36—C31—C32 | 119.32 (18) |
| C12—C13—H13 | 119.5 | C36—C31—As | 121.41 (14) |

| | | | |
|---|---|---|---|
| C14—C13—H13 | 119.5 | C32—C31—As | 119.07 (14) |
| C13—C14—C15 | 118.55 (18) | C33—C32—C31 | 119.87 (19) |
| C13—C14—C141 | 120.90 (19) | C33—C32—H32 | 120.1 |
| C15—C14—C141 | 120.49 (19) | C31—C32—H32 | 120.1 |
| C14—C15—C16 | 120.6 (2) | C32—C33—C34 | 121.40 (19) |
| C14—C15—H15 | 119.7 | C32—C33—H33 | 119.3 |
| C16—C15—H15 | 119.7 | C34—C33—H33 | 119.3 |
| C11—C16—C15 | 120.46 (19) | C35—C34—C33 | 118.05 (19) |
| C11—C16—H16 | 119.8 | C35—C34—C341 | 121.11 (19) |
| C15—C16—H16 | 119.8 | C33—C34—C341 | 120.79 (19) |
| C14—C141—H14A | 109.5 | C36—C35—C34 | 121.10 (19) |
| C14—C141—H14B | 109.5 | C36—C35—H35 | 119.4 |
| H14A—C141—H14B | 109.5 | C34—C35—H35 | 119.4 |
| C14—C141—H14C | 109.5 | C35—C36—C31 | 120.26 (18) |
| H14A—C141—H14C | 109.5 | C35—C36—H36 | 119.9 |
| H14B—C141—H14C | 109.5 | C31—C36—H36 | 119.9 |
| C26—C21—C22 | 119.00 (17) | C34—C341—H34A | 109.5 |
| C26—C21—As | 121.09 (14) | C34—C341—H34B | 109.5 |
| C22—C21—As | 119.90 (14) | H34A—C341—H34B | 109.5 |
| C23—C22—C21 | 120.40 (19) | C34—C341—H34C | 109.5 |
| C23—C22—H22 | 119.8 | H34A—C341—H34C | 109.5 |
| C21—C22—H22 | 119.8 | H34B—C341—H34C | 109.5 |

| | | | |
|---|---|---|---|
| Br$^{i}$—Pd—As—C21 | −142.07 (6) | Pd—As—C21—C22 | 52.48 (17) |
| Br—Pd—As—C21 | 37.93 (6) | C26—C21—C22—C23 | −2.5 (3) |
| Br$^{i}$—Pd—As—C31 | 101.25 (6) | As—C21—C22—C23 | 176.57 (15) |
| Br—Pd—As—C31 | −78.75 (6) | C21—C22—C23—C24 | 2.1 (3) |
| Br$^{i}$—Pd—As—C11 | −19.01 (6) | C22—C23—C24—C25 | 0.0 (3) |
| Br—Pd—As—C11 | 160.99 (6) | C22—C23—C24—C241 | −178.57 (19) |
| C21—As—C11—C16 | 16.75 (17) | C23—C24—C25—C26 | −1.7 (3) |
| C31—As—C11—C16 | 121.44 (16) | C241—C24—C25—C26 | 176.82 (19) |
| Pd—As—C11—C16 | −112.75 (15) | C22—C21—C26—C25 | 0.8 (3) |
| C21—As—C11—C12 | −162.31 (15) | As—C21—C26—C25 | −178.28 (15) |
| C31—As—C11—C12 | −57.62 (16) | C24—C25—C26—C21 | 1.4 (3) |
| Pd—As—C11—C12 | 68.20 (16) | C21—As—C31—C36 | 89.24 (16) |
| C16—C11—C12—C13 | −1.3 (3) | C11—As—C31—C36 | −16.66 (17) |
| As—C11—C12—C13 | 177.82 (14) | Pd—As—C31—C36 | −145.64 (14) |
| C11—C12—C13—C14 | 0.1 (3) | C21—As—C31—C32 | −85.50 (16) |
| C12—C13—C14—C15 | 1.6 (3) | C11—As—C31—C32 | 168.60 (15) |
| C12—C13—C14—C141 | −175.71 (19) | Pd—As—C31—C32 | 39.62 (16) |
| C13—C14—C15—C16 | −2.2 (3) | C36—C31—C32—C33 | −0.6 (3) |
| C141—C14—C15—C16 | 175.19 (19) | As—C31—C32—C33 | 174.29 (14) |
| C12—C11—C16—C15 | 0.7 (3) | C31—C32—C33—C34 | −0.2 (3) |
| As—C11—C16—C15 | −178.33 (15) | C32—C33—C34—C35 | 1.1 (3) |
| C14—C15—C16—C11 | 1.0 (3) | C32—C33—C34—C341 | −176.32 (19) |
| C31—As—C21—C26 | −5.08 (18) | C33—C34—C35—C36 | −1.1 (3) |
| C11—As—C21—C26 | 100.58 (17) | C341—C34—C35—C36 | 176.23 (19) |
| Pd—As—C21—C26 | −128.46 (15) | C34—C35—C36—C31 | 0.4 (3) |

| | | | |
|---|---|---|---|
| C31—As—C21—C22 | 175.86 (16) | C32—C31—C36—C35 | 0.5 (3) |
| C11—As—C21—C22 | −78.48 (16) | As—C31—C36—C35 | −174.25 (15) |

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

*Hydrogen-bond geometry (Å, º)*

| *D*—H···*A* | *D*—H | H···*A* | *D*···*A* | *D*—H···*A* |
|---|---|---|---|---|
| C32—H32···Br | 0.95 | 2.95 | 3.764 (2) | 144 |
| C35—H35···Br$^{ii}$ | 0.95 | 2.94 | 3.787 (2) | 149 |

Symmetry code: (ii) *x*−1/2, −*y*+3/2, *z*−1/2.