Table 2. *Selected geometric parameters* (Å, °)

Ir(1)—C(1)	1.78 (2)	C(15)—C(16)	1.530 (9)
Ir(1)—P(1)	2.345 (2)	C(21)—C(22)	1.519 (9)
Ir(1)—P(1^{i})	2.345 (2)	C(21)—C(26)	1.529 (9)
Ir(1)—Cl(1)	2.398 (7)	C(22)—C(23)	1.521 (10)
P(1)—C(11)	1.847 (6)	C(23)—C(24)	1.518 (10)
P(1)—C(31)	1.853 (6)	C(24)—C(25)	1.523 (10)
P(1)—C(21)	1.856 (6)	C(25)—C(26)	1.530 (10)
O(1)—C(1)	1.10 (2)	C(31)—C(36)	1.516 (9)
C(11)—C(12)	1.520 (9)	C(31)—C(32)	1.540 (8)
C(11)—C(16)	1.531 (8)	C(32)—C(33)	1.512 (9)
C(12)—C(13)	1.529 (9)	C(33)—C(34)	1.519 (11)
C(13)—C(14)	1.520 (10)	C(34)—C(35)	1.497 (11)
C(14)—C(15)	1.506 (11)	C(35)—C(36)	1.529 (9)
C(1)—Ir(1)—P(1)	89.0 (6)	C(14)—C(15)—C(16)	111.2 (6)
C(1)—Ir(1)—P(1^{i})	91.0 (6)	C(15)—C(16)—C(11)	110.4 (6)
P(1)—Ir(1)—P(1^{i})	180.0	C(22)—C(21)—C(26)	110.2 (6)
C(1)—Ir(1)—Cl(1)	176.1 (7)	C(22)—C(21)—P(1)	114.2 (5)
P(1)—Ir(1)—Cl(1)	91.24 (13)	C(26)—C(21)—P(1)	110.5 (4)
P(1^{i})—Ir(1)—Cl(1)	88.76 (13)	C(21)—C(22)—C(23)	111.2 (6)
C(11)—P(1)—C(31)	109.6 (3)	C(24)—C(23)—C(22)	111.2 (6)
C(11)—P(1)—C(21)	103.8 (3)	C(23)—C(24)—C(25)	110.0 (6)
C(31)—P(1)—C(21)	103.0 (3)	C(24)—C(25)—C(26)	110.7 (6)
C(11)—P(1)—Ir(1)	112.6 (2)	C(21)—C(26)—C(25)	111.6 (6)
C(31)—P(1)—Ir(1)	114.5 (2)	C(36)—C(31)—C(32)	109.5 (6)
C(21)—P(1)—Ir(1)	112.4 (2)	C(36)—C(31)—P(1)	113.9 (5)
O(1)—C(1)—Ir(1)	178.3 (15)	C(32)—C(31)—P(1)	118.7 (5)
C(12)—C(11)—C(16)	110.3 (6)	C(33)—C(32)—C(31)	110.9 (6)
C(12)—C(11)—P(1)	114.9 (4)	C(32)—C(33)—C(34)	111.5 (7)
C(16)—C(11)—P(1)	116.7 (5)	C(35)—C(34)—C(33)	111.1 (7)
C(11)—C(12)—C(13)	111.0 (6)	C(34)—C(35)—C(36)	112.6 (7)
C(14)—C(13)—C(12)	111.7 (6)	C(31)—C(36)—C(35)	111.1 (6)
C(15)—C(14)—C(13)	111.7 (6)		

Symmetry code: (i) $-x, -y, -z$.

The results of a ψ scan indicated that no correction for absorption was required. The position of the Ir atom was input for a *SHELXS*86 (Sheldrick, 1990) tangential expansion (*TEXP*) using 135 *E* values greater than 1.5. The resulting difference map revealed the atomic positions for the chloride and tricyclohexylphosphine ligands. These atoms, including occupancies of 50% for the Ir and Cl atoms, were input into *SHELXL*93 (Sheldrick, 1994). The C- and O-atom positions of the carbonyl group were determined, and the carbonyl group was assigned an occupancy of 50%. The Cl and carbonyl-group atoms were refined isotropically. All other non-H atoms were refined anisotropically. Idealized methine (C—H = 0.98 Å) and methylene (C—H = 0.97 Å) H atoms of the cyclohexyl groups were geometrically located then refined with fixed isotropic displacement parameters (U = 0.05 Å^2) using a riding model. Geometrical calculations were performed using *SHELXL*93. Data collection: *P*2$_1$ *Assembler Language Data Collection Programs* (Syntex, 1975). Data reduction: local program (Tipton, 1977). Molecular graphics: *ORTEP* (Johnson, 1965). Software used to prepare material for publication: *SHELXL*93.

Lists of structure factors, anisotropic displacement parameters, H-atom coordinates and bond distances and angles involving non-H atoms have been deposited with the IUCr (Reference: BK1025). Copies may be obtained through The Managing Editor, International Union of Crystallography, 5 Abbey Square, Chester CH1 2HU, England.

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[1,1′-Bis(diphenylphosphino)ferrocene]tetracarbonylmolybdenum

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Abstract

Two crystallographically independent but chemically similar molecules (*A* and *B*) form the asymmetric unit of tetracarbonyl-1κ^4C-bis[μ-1κP:2(η^5)-diphenylphosphinocyclopentadienyl]ironmolybdenum, [{($C_{17}H_{14}P$)$_2$Fe}Mo(CO)$_4$]. The [bis(diphenylphosphino)ferrocene] ligand coordinates *via* the two P atoms, completing the *cis*-octahedral coordination of molybdenum. The carbonyl ligands *trans* to these phosphorus donors show the expected carbon–metal bond shortening. The ferrocene ligands have slightly non-parallel cyclopentadienyl rings, with staggered arrangements, and the P atoms are significantly elevated from the planes of the cyclopentadienyl rings.

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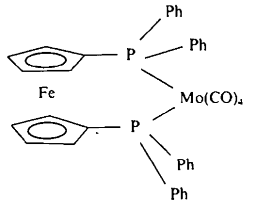
Comment

The structure of the title complex (I) has been reported previously as its benzene solvate (Butler, Cullen, Kim, Rettig & Trotter, 1985). The title structure is of particular interest as the bond parameters of the two independent molecules deviate significantly and in opposite directions from those of the benzene solvate structure. The angular displacement of the phosphino groups about the Cp(centroid)–metal–Cp(centroid) axis is 41.0° for the previous example; the two independent molecules in the title structure show variation: 50.3 (molecule *A*) and 35.2° (molecule *B*). The P···P distances are 3.880 (4) for *A* and 3.764 (4) Å for *B*, which may be compared to the value of 3.784 (3) Å in the previous report. Other reported complexes involving 1,1′-disubstituted phosphinoferrocene ligands include nickel[1,1′-bis(diphenylphosphino)ferrocene]$(Cl)_2$ and palladium[1,1′-bis(diphenylphosphino)ferrocene]$(Cl)_2$ (Hor, Phang, Liu & Wen, 1990). The square-planar Pd complex and the Mo complexes contain staggered Cp rings in the ferrocene ligand, while the tetrahedral Ni complex has an eclipsed Cp ring orientation. All structures show non-parallel Cp rings with deviations from coplanarity of 6.2, 6.2 and 2.2° for the Ni, Pd and Mo (benzene solvate) complexes, respectively, and 2.8 (*A*) and 2.2° (*B*) for the title complex.



(I)

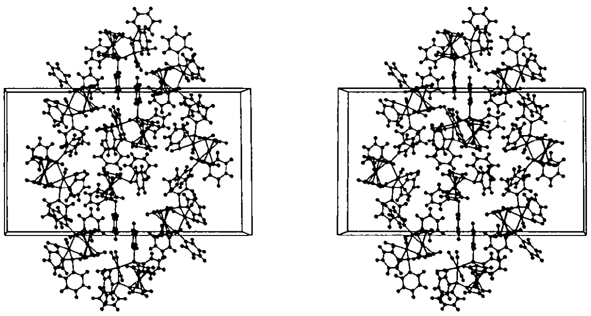


Fig. 2. Unit-cell packing diagram as viewed down the *a* axis.

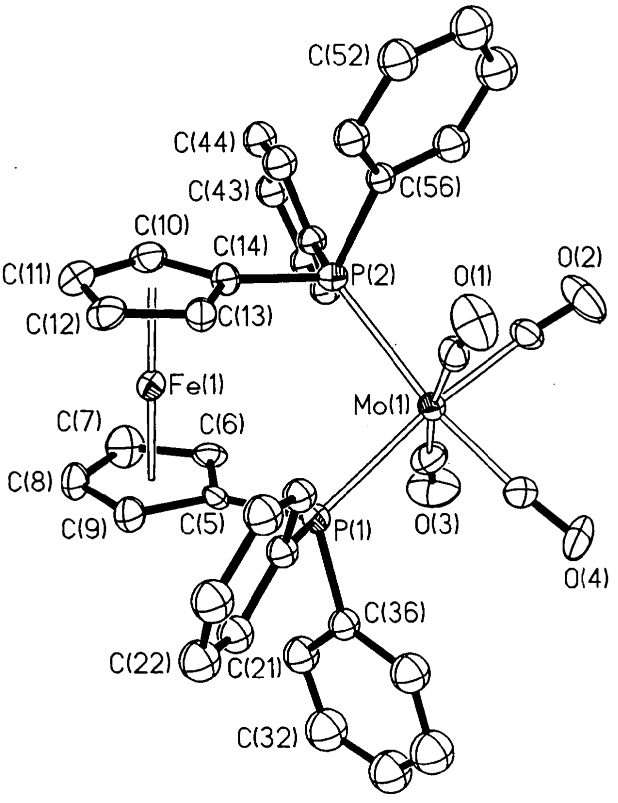


Fig. 1. The molecular structure of tetracarbonyl[bis(diphenyl)-phosphino)ferrocene]molybdenum with the atom-labeling scheme.

Experimental

Crystals were obtained from the reaction of $Mo(CO)_6$ and bis(diphenylphosphino)ferrrocene in dichloromethane/hexane (Hor & Phang, 1989).

Crystal data

$[FeMo(C_{17}H_{14}P)_2(CO)_4]$
$M_r = 762.3$
Monoclinic
$P2_1/n$
$a = 9.373$ (5) Å
$b = 34.821$ (18) Å
$c = 20.434$ (8) Å
$\beta = 92.60$ (4)°
$V = 6662$ (5) Å^3
$Z = 8$
$D_x = 1.520$ Mg m^{-3}

Mo $K\alpha$ radiation
$\lambda = 0.71073$ Å
Cell parameters from 25 reflections
$\theta = 10–12.5°$
$\mu = 0.948$ mm^{-1}
$T = 295$ K
Block
0.42 × 0.22 × 0.18 mm
Yellow

Data collection

Siemens *P*4 diffractometer
Modified ω scans
Absorption correction: empirical ellipsoidal
$T_{min} = 0.854$, $T_{max} = 0.999$
9907 measured reflections
9907 independent reflections
5558 observed reflections $[F_o > 4\sigma(F_o)]$

$\theta_{max} = 24°$
$h = -10 \rightarrow 10$
$k = 0 \rightarrow 39$
$l = 0 \rightarrow 23$
3 standard reflections monitored every 197 reflections intensity variation: <2%

Refinement

Refinement on F
$R = 0.0567$
$wR = 0.0586$
$S = 1.15$
5558 reflections
589 parameters
H atoms
$w = 1/(\sigma^2|F_o| + 0.0008F_o^2)$

$(\Delta/\sigma)_{\text{max}} = 0.001$
$\Delta\rho_{\text{max}} = 0.48$ e Å^{-3}
$\Delta\rho_{\text{min}} = -0.63$ e Å^{-3}
Extinction correction: none
Atomic scattering factors from *International Tables for X-ray Crystallography* (1974, Vol. IV)

Table 1. *Fractional atomic coordinates and isotropic or equivalent isotropic displacement parameters* (Å^2)

U_{iso} for phenyl C atoms; $U_{\text{eq}} = (1/3)\Sigma_i\Sigma_jU_{ij}a_i^*a_j^*\mathbf{a}_i.\mathbf{a}_j$ for others.

	x	y	z	$U_{\text{iso}}/U_{\text{eq}}$
Mo(1)	0.6939 (1)	0.0321 (1)	0.2506 (1)	0.030 (1)
Mo(1′)	0.8752 (1)	0.2390 (1)	0.3837 (1)	0.032 (1)
Fe(1)	0.9996 (2)	−0.0538 (1)	0.1803 (1)	0.035 (1)
Fe(1′)	1.2615 (1)	0.1630 (1)	0.4294 (1)	0.031 (1)
P(1)	0.7599 (3)	−0.0351 (1)	0.2930 (1)	0.030 (1)
P(2)	0.8527 (3)	0.0324 (1)	0.1499 (1)	0.030 (1)
P(1′)	0.9761 (3)	0.2110 (1)	0.4927 (1)	0.031 (1)
P(2′)	1.0981 (3)	0.2257 (1)	0.3215 (1)	0.029 (1)
O(1)	0.4320 (9)	0.0117 (2)	0.1529 (4)	0.069 (3)
O(2)	0.6051 (10)	0.1165 (2)	0.2224 (4)	0.081 (4)
O(3)	0.9083 (10)	0.0636 (2)	0.3622 (4)	0.081 (4)
O(4)	0.4572 (10)	0.0394 (3)	0.3519 (5)	0.100 (4)
O(1′)	0.9303 (10)	0.3245 (2)	0.4307 (5)	0.090 (4)
O(2′)	0.7587 (9)	0.2814 (3)	0.2578 (4)	0.086 (4)
O(3′)	0.7391 (10)	0.1638 (3)	0.3233 (5)	0.104 (4)
O(4′)	0.5773 (8)	0.2499 (2)	0.4440 (4)	0.069 (3)
C(1)	0.5309 (12)	0.0176 (3)	0.1869 (5)	0.041 (4)
C(2)	0.6416 (11)	0.0859 (3)	0.2302 (5)	0.042 (4)
C(3)	0.8369 (13)	0.0515 (3)	0.3205 (5)	0.049 (4)
C(4)	0.5480 (13)	0.0352 (3)	0.3163 (5)	0.053 (4)
C(5)	0.9356 (11)	−0.0515 (2)	0.2735 (4)	0.033 (3)
C(6)	1.0532 (10)	−0.0271 (3)	0.2661 (4)	0.038 (3)
C(7)	1.1694 (11)	−0.0501 (3)	0.2465 (5)	0.056 (4)
C(8)	1.1253 (11)	−0.0881 (3)	0.2417 (5)	0.045 (4)
C(9)	0.9807 (11)	−0.0898 (3)	0.2582 (5)	0.043 (4)
C(10)	1.0488 (11)	−0.0248 (3)	0.0979 (5)	0.047 (4)
C(11)	1.0448 (13)	−0.0646 (3)	0.0851 (5)	0.058 (5)
C(12)	0.9085 (12)	−0.0785 (3)	0.0971 (5)	0.047 (4)
C(13)	0.8257 (11)	−0.0472 (3)	0.1187 (4)	0.037 (3)
C(14)	0.9110 (10)	−0.0135 (3)	0.1194 (4)	0.032 (3)
C(21)	0.6641 (11)	−0.1107 (3)	0.3117 (5)	0.043 (3)
C(22)	0.5898 (11)	−0.1435 (3)	0.2948 (5)	0.053 (3)
C(23)	0.4990 (12)	−0.1436 (3)	0.2399 (5)	0.052 (3)
C(24)	0.4796 (11)	−0.1110 (3)	0.2022 (5)	0.046 (3)
C(25)	0.5535 (10)	−0.0776 (3)	0.2214 (4)	0.035 (2)
C(26)	0.6496 (10)	−0.0774 (3)	0.2739 (4)	0.033 (2)
C(31)	0.8980 (12)	−0.0412 (3)	0.4174 (5)	0.050 (3)
C(32)	0.9029 (14)	−0.0402 (3)	0.4871 (6)	0.071 (4)
C(33)	0.7806 (13)	−0.0357 (3)	0.5166 (6)	0.072 (4)
C(34)	0.6528 (14)	−0.0342 (3)	0.4857 (6)	0.071 (4)
C(35)	0.6455 (12)	−0.0338 (3)	0.4156 (5)	0.057 (3)
C(36)	0.7707 (10)	−0.0364 (3)	0.3823 (4)	0.036 (2)
C(41)	1.0912 (10)	0.0737 (3)	0.2014 (5)	0.038 (2)
C(42)	1.2209 (11)	0.0933 (3)	0.1965 (5)	0.048 (3)
C(43)	1.2783 (12)	0.0980 (3)	0.1360 (5)	0.049 (3)
C(44)	1.2043 (11)	0.0853 (3)	0.0804 (5)	0.049 (3)
C(45)	1.0739 (11)	0.0668 (3)	0.0849 (5)	0.046 (3)
C(46)	1.0172 (10)	0.0602 (3)	0.1456 (4)	0.032 (2)
C(51)	0.6842 (10)	0.0308 (3)	0.0316 (5)	0.043 (3)
C(52)	0.5951 (11)	0.0481 (3)	−0.0167 (5)	0.053 (3)
C(53)	0.5677 (12)	0.0867 (3)	−0.0160 (6)	0.061 (3)
C(54)	0.6323 (12)	0.1095 (3)	0.0306 (5)	0.062 (3)
C(55)	0.7213 (11)	0.0924 (3)	0.0795 (5)	0.048 (3)
C(56)	0.7469 (9)	0.0532 (3)	0.0802 (4)	0.030 (2)
C(1′)	0.9214 (11)	0.2932 (3)	0.4151 (5)	0.044 (4)
C(2′)	0.7998 (11)	0.2652 (3)	0.3036 (6)	0.054 (4)
C(3′)	0.7940 (11)	0.1898 (3)	0.3465 (5)	0.051 (4)
C(4′)	0.6859 (11)	0.2455 (3)	0.4233 (5)	0.043 (4)
C(5′)	1.1516 (9)	0.1886 (3)	0.5014 (4)	0.028 (3)
C(6′)	1.2871 (10)	0.2072 (3)	0.4922 (4)	0.034 (3)
C(7′)	1.3967 (11)	0.1803 (3)	0.5048 (4)	0.041 (4)
C(8′)	1.3314 (11)	0.1442 (3)	0.5206 (4)	0.038 (4)
C(9′)	1.1843 (11)	0.1501 (3)	0.5195 (5)	0.040 (4)
C(10′)	1.3464 (10)	0.1758 (3)	0.3420 (4)	0.039 (4)
C(11′)	1.3745 (12)	0.1369 (3)	0.3581 (5)	0.046 (4)
C(12′)	1.2404 (12)	0.1187 (3)	0.3635 (4)	0.044 (4)
C(13′)	1.1301 (10)	0.1456 (2)	0.3535 (4)	0.031 (3)
C(14′)	1.1978 (10)	0.1817 (2)	0.3392 (4)	0.027 (3)
C(21′)	0.8706 (13)	0.2702 (3)	0.5676 (5)	0.060 (3)
C(22′)	0.8697 (12)	0.2983 (3)	0.6170 (5)	0.055 (3)
C(23′)	0.9876 (11)	0.3029 (3)	0.6554 (5)	0.053 (3)
C(24′)	1.1049 (13)	0.2804 (3)	0.6498 (6)	0.066 (3)
C(25′)	1.1033 (12)	0.2519 (3)	0.6009 (5)	0.055 (3)
C(26′)	0.9870 (10)	0.2468 (3)	0.5583 (5)	0.037 (2)
C(31′)	0.8296 (12)	0.1741 (3)	0.5915 (6)	0.061 (3)
C(32′)	0.7529 (13)	0.1433 (4)	0.6171 (7)	0.077 (4)
C(33′)	0.7115 (13)	0.1140 (4)	0.5793 (6)	0.072 (4)
C(34′)	0.7436 (14)	0.1119 (4)	0.5157 (7)	0.086 (4)
C(35′)	0.8226 (12)	0.1431 (3)	0.4883 (6)	0.061 (3)
C(36′)	0.8670 (10)	0.1733 (3)	0.5277 (5)	0.038 (2)
C(41′)	1.0260 (10)	0.1843 (3)	0.2077 (5)	0.042 (3)
C(42′)	0.9885 (11)	0.1801 (3)	0.1405 (5)	0.056 (3)
C(43′)	0.9776 (12)	0.2115 (3)	0.1003 (6)	0.059 (3)
C(44′)	1.0058 (11)	0.2471 (3)	0.1262 (5)	0.054 (3)
C(45′)	1.0444 (10)	0.2516 (3)	0.1921 (5)	0.043 (3)
C(46′)	1.0554 (9)	0.2201 (2)	0.2333 (4)	0.029 (2)
C(51′)	1.3329 (11)	0.2659 (3)	0.2735 (5)	0.046 (3)
C(52′)	1.4374 (12)	0.2947 (3)	0.2763 (6)	0.064 (3)
C(53′)	1.4465 (12)	0.3185 (3)	0.3286 (6)	0.061 (3)
C(54′)	1.3558 (12)	0.3161 (3)	0.3793 (6)	0.060 (3)
C(55′)	1.2508 (10)	0.2870 (3)	0.3763 (5)	0.040 (3)
C(56′)	1.2397 (10)	0.2623 (3)	0.3239 (4)	0.034 (2)

Table 2. *Selected geometric parameters* (Å, °)

Cp is the centroid of the cyclopentadienyl ring.

Mo(1)—P(1)	2.560 (3)	Mo(1′)—P(1′)	2.571 (3)
Mo(1)—P(2)	2.593 (3)	Mo(1′)—P(2′)	2.536 (3)
Mo(1)—C(1)	2.024 (11)	Mo(1′)—C(1′)	2.035 (11)
Mo(1)—C(2)	1.978 (10)	Mo(1′)—C(2′)	1.977 (11)
Mo(1)—C(3)	2.031 (11)	Mo(1′)—C(3′)	2.011 (11)
Mo(1)—C(4)	1.963 (11)	Mo(1′)—C(4′)	1.997 (10)
O(1)—C(1)	1.152 (13)	O(1′)—C(1′)	1.135 (13)
O(3)—C(3)	1.139 (14)	O(3′)—C(3′)	1.134 (15)
O(2)—C(2)	1.127 (12)	O(2′)—C(2′)	1.144 (14)
O(4)—C(4)	1.154 (15)	O(4′)—C(4′)	1.130 (13)
Fe(1)—*Cp*(1)	1.649 (9)	Fe(1′)—*Cp*(1′)	1.643 (9)
Fe(1)—*Cp*(2)	1.649 (9)	Fe(1′)—*Cp*(2′)	1.644 (9)
P(1)· · ·P(2)	3.880 (4)	P(1′)· · ·P(2′)	3.764 (4)
Cp(1)—Fe—*Cp*(2)	179.2 (4)	*Cp*(1′)—Fe—*Cp*(2′)	178.3 (4)
C(1)—Mo(1)—C(2)	85.9 (4)	C(1′)—Mo(1′)—C(2′)	84.0 (5)
C(1)—Mo(1)—C(3)	171.8 (4)	C(1′)—Mo(1′)—C(3′)	169.0 (4)
C(1)—Mo(1)—C(4)	85.7 (4)	C(1′)—Mo(1′)—C(4′)	86.9 (4)
C(2)—Mo(1)—C(3)	88.8 (4)	C(2′)—Mo(1′)—C(3′)	88.0 (5)
C(2)—Mo(1)—C(4)	85.3 (4)	C(2′)—Mo(1′)—C(4′)	89.5 (4)
C(3)—Mo(1)—C(4)	87.6 (5)	C(3′)—Mo(1′)—C(4′)	85.5 (4)
P(1)—Mo(1)—P(2)	97.7 (1)	P(1′)—Mo(1′)—P(2′)	94.9 (1)
P(1)—Mo(1)—C(1)	98.9 (3)	P(1′)—Mo(1′)—C(1′)	90.8 (3)
P(1)—Mo(1)—C(2)	172.3 (3)	P(1′)—Mo(1′)—C(2′)	174.7 (4)
P(1)—Mo(1)—C(3)	85.7 (3)	P(1′)—Mo(1′)—C(3′)	97.1 (3)
P(1)—Mo(1)—C(4)	89.1 (3)	P(1′)—Mo(1′)—C(4′)	89.5 (3)
P(2)—Mo(1)—C(1)	86.3 (3)	P(2′)—Mo(1′)—C(1′)	99.2 (3)
P(2)—Mo(1)—C(2)	88.6 (3)	P(2′)—Mo(1′)—C(2′)	86.6 (3)
P(2)—Mo(1)—C(3)	99.9 (3)	P(2′)—Mo(1′)—C(3′)	87.8 (3)
P(2)—Mo(1)—C(4)	170.2 (3)	P(2′)—Mo(1′)—C(4′)	172.4 (3)

The structure was solved by direct methods (*TREF* in *SHELXTL-PC*; Sheldrick, 1990). All non-H atoms, except for the phenyl C atoms, were refined anisotropically. Phenyl rings were constrained as rigid planar groups. H atoms were included as idealized contributions (C—H = 0.96 Å).

Lists of structure factors, anisotropic displacement parameters, H-atom coordinates and complete geometry have been deposited with the IUCr (Reference: HH1018). Copies may be obtained through The Managing Editor, International Union of Crystallography, 5 Abbey Square, Chester CH1 2HU, England.

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Chloro[*o*-(diphenylphosphino)benzaldehyde]-{*N*-[*o*-(diphenylphosphino)benzylidene]ethylamine}(tetrachloro-*o*-catecholato)iridium(III)

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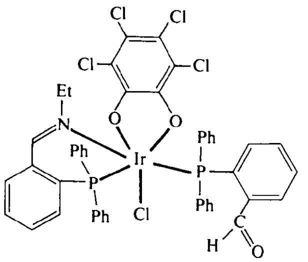
Abstract

The title structure, chloro{2-(diphenylphosphino)benzaldehyde-*P*}[*N*-{2-(diphenylphosphino)benzylidene}ethylamine-*N*,*P*](3,4,5,6-tetrachloro-1,2-benzenediolato-*O*,*O'*)iridium butanol hemisolvate, [IrCl($C_6Cl_4O_2$)($C_{19}H_{15}OP$)($C_{21}H_{20}NP$)].0.5$C_4H_{10}O$, consists of two independent molecules in the asymmetric unit with an Ir^{III} metal atom pseudo octahedrally coordinated by the following donors: two catecholate O atoms, one Cl^- anion, two phosphine groups and one imino group.

Comment

In the course of our studies on transition metal complexes with *o*-quinoid ligands (Bianchini, Masi, Mealli, Meli, Martini, Laschi & Zanello, 1987; Barbaro, Bianchini, Linn, Mealli, Meli, Laschi & Zanello, 1992; Bianchini, Frediani, Laschi, Meli, Vizza & Zanello, 1990), we have found that the square-planar complex [(NPet)$_2$Ir]Cl (Barbaro, Bianchini, Laschie, Midollini, Moneti, Scapacci & Zanello, 1994) [NPet = {*o*-(diphenylphosphino)benzylidene}ethylamino] reacts in acetone with a stoichiometric amount of tetrachloro-*o*-quinone (TClQ) to give the title compound [(NPet)(C_6H_4-PPh_2CHO)IrCl(TClCat)], (I) (TclCat = tetrachloro-*o*-catecholato). The product has been characterized by spectroscopic techniques and by an X-ray crystal structure determination.



(I)

The reaction of [(NPet)$_2$Ir]$^+$ with TClQ is not well understood since several products are generally obtained. However, a complex is selectively produced when the reaction mixture is exposed to air. In this case, [(NPet)($C_6H_4PPh_2CHO$)IrCl(TCl-Cat)] forms as a result of the oxidative addition of TClQ to iridium, followed by hydrolysis of one imino group to a formyl group (March, 1985).

A perspective view of one of the two molecules in the asymmetric unit is shown in Fig. 1. The compound has a distorted octahedral structure with the metal center coordinated by the N and P donor

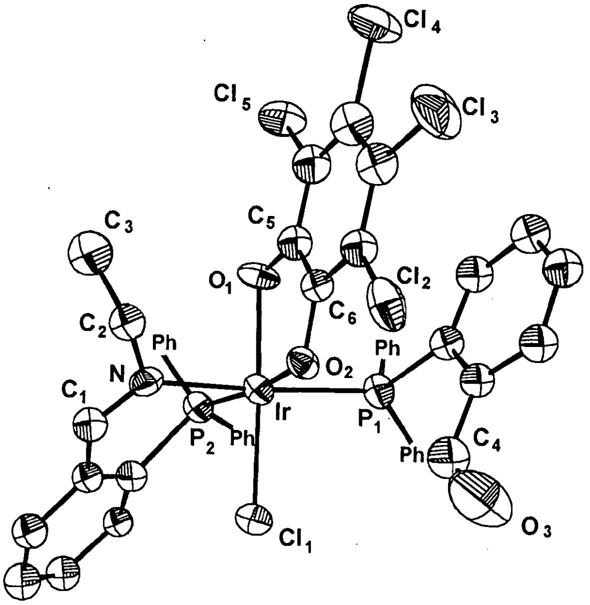


Fig. 1. *ORTEP* drawing of one of the molecules of the title complex showing the labeling scheme. The phenyl substituents on the P atoms are abbreviated for clarity.