

Table 1. Crystal data and structure refinement for 6.

formula	C ₃₁ H ₃₈ Rh Sb
fw	635.27
crystal size, mm ³	0.5 x 0.43 x 0.3
crystal system	Monoclinic
space group	P 2 ₁ /n (No. 14)
cell dimensions determ	25 reflcns, 12 < Θ < 18
a, Å	17.66(5)
b, Å	9.73(3)
c, Å	18.06(5)
β , deg	115.6(1)
V, Å ³	2800(2)
Z	4
d _{calc} , gcm ⁻³	1.508
diffractometer	CAD4 (Enraf-Nonius)
radiation	Mo-K α (0.71073 Å), graphite mono-chromator, Zr filter (factor 15.4)
temp, K	223(2)
μ , mm ⁻¹	1.571
scan method	Ω/Θ -scan
2 Θ (max), deg	48
tot. no. of reflcns scanned	3142
no. of unique rflcns	2986 [R(int) = 0.0328]
no. of data	2984
no. of obsd rflcns [I > 2 σ (I)]	2406
correct. appl.	LP- and empirical abs.-corr. (Ψ -scans, min. transm. 83.47 %)
structure solution	Patterson method (SHELXS-86)
param	298 (full-matrix least-squares on F ² (SHELXL-93))
reflex/param ratio	10.02
final R indices [I > 2 σ (I)]	R ₁ = 0.0304, wR ₂ = 0.0676 *)
R indices (all data)	R ₁ = 0.0493, wR ₂ = 0.0772 *)
resid electron density, eÅ ⁻³	0.519 / -0.535

*) $w = 1/[\sigma^2(F_o^2) + (0.0427P)^2 + 0.7682P]$, where $P = [F_o^2 + 2F_c^2]/3$

Table 2. Atomic coordinates ($\times 10^4$) and equivalent isotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for **6**. $U(\text{eq})$ is defined as one third of the trace of the orthogonalized U_{ij} tensor.

	x	y	z	$U(\text{eq})$
Rh	3715(1)	231(1)	839(1)	35(1)
Sb	4321(1)	718(1)	2381(1)	37(1)
C(1)	4309(4)	-1414(6)	919(3)	36(2)
C(10)	3316(5)	1288(7)	2689(4)	65(2)
C(11)	4983(5)	-934(6)	3225(3)	49(2)
C(12)	5154(6)	2450(6)	2934(4)	60(2)
C(13)	2664(6)	117(9)	2473(6)	97(3)
C(14)	3569(6)	1823(11)	3567(4)	124(4)
C(15)	4456(5)	-2212(6)	3021(4)	67(2)
C(16)	5315(5)	-554(7)	4136(4)	81(3)
C(17)	4714(5)	3761(7)	2502(5)	97(3)
C(18)	6013(6)	2265(8)	2945(5)	91(3)
C(21)	2940(5)	311(6)	-502(4)	50(3)
C(22)	3413(5)	1530(7)	-249(4)	59(2)
C(23)	3122(6)	2257(7)	240(4)	70(3)
C(20)	2283(6)	334(6)	-255(3)	41(2)
C(24)	2404(6)	1560(7)	223(4)	50(2)
C(25)	1817(7)	1862(10)	527(5)	85(4)
C(26)	1168(7)	1012(14)	358(6)	120(5)
C(27)	1063(7)	-165(12)	-98(5)	101(4)
C(28)	1602(6)	-530(8)	-403(4)	62(3)
C(30)	5207(4)	-1699(6)	1481(3)	41(2)
C(31)	5472(4)	-3008(6)	1807(3)	47(2)
C(32)	6301(5)	-3261(7)	2357(4)	59(2)
C(33)	6884(5)	-2224(8)	2568(4)	60(2)
C(34)	6651(5)	-937(7)	2245(4)	51(2)
C(35)	5816(4)	-678(6)	1706(3)	44(2)
C(40)	3914(5)	-2559(6)	329(3)	38(2)
C(41)	3150(5)	-3092(6)	231(3)	49(2)
C(42)	2795(5)	-4214(7)	-303(5)	66(3)
C(43)	3187(6)	-4760(7)	-738(4)	71(3)
C(44)	3918(6)	-4202(7)	-666(4)	72(3)
C(45)	4281(5)	-3123(7)	-130(4)	63(2)

Table 3. Bond lengths [Å] for **6**.

Rh-C(1)	1.885(7)
Rh-C(22)	2.199(8)
Rh-C(21)	2.210(8)
Rh-C(23)	2.274(8)
Rh-C(20)	2.45(1)
Rh-C(24)	2.46(1)
Rh-Sb	2.559(7)
Rh-C(40)	2.94(1)
Rh-C(30)	3.030(9)
Sb-C(10)	2.148(9)
Sb-C(12)	2.176(8)
Sb-C(11)	2.176(7)
C(1)-C(40)	1.490(8)
C(1)-C(30)	1.495(9)
C(10)-C(14)	1.54(1)
C(10)-C(13)	1.55(1)
C(11)-C(15)	1.501(9)
C(11)-C(16)	1.534(9)
C(12)-C(18)	1.52(1)
C(12)-C(17)	1.52(1)
C(21)-C(22)	1.409(9)
C(21)-C(20)	1.41(1)
C(22)-C(23)	1.39(1)
C(23)-C(24)	1.43(1)
C(20)-C(28)	1.40(1)
C(20)-C(24)	1.434(9)
C(24)-C(25)	1.40(1)
C(25)-C(26)	1.34(1)
C(26)-C(27)	1.38(1)
C(27)-C(28)	1.34(1)
C(30)-C(35)	1.389(9)
C(30)-C(31)	1.396(9)
C(31)-C(32)	1.390(9)
C(32)-C(33)	1.37(1)
C(33)-C(34)	1.37(1)
C(34)-C(35)	1.395(9)
C(40)-C(45)	1.368(9)
C(40)-C(41)	1.384(9)
C(41)-C(42)	1.412(9)
C(42)-C(43)	1.36(1)
C(43)-C(44)	1.35(1)

C(44)-C(45) 1.384(9)

Table 4. Bond angles [deg] for **6**.

C(1)-Rh-C(22)	118.0(3)
C(1)-Rh-C(21)	100.1(3)
C(22)-Rh-C(21)	37.3(3)
C(1)-Rh-C(23)	154.1(3)
C(22)-Rh-C(23)	36.2(2)
C(21)-Rh-C(23)	60.5(2)
C(1)-Rh-C(20)	116.3(2)
C(22)-Rh-C(20)	59.2(3)
C(21)-Rh-C(20)	34.8(2)
C(23)-Rh-C(20)	58.5(3)
C(1)-Rh-C(24)	149.9(2)
C(22)-Rh-C(24)	58.4(3)
C(21)-Rh-C(24)	57.9(3)
C(23)-Rh-C(24)	34.8(2)
C(20)-Rh-C(24)	34.0(2)
C(1)-Rh-Sb	96.7(2)
C(22)-Rh-Sb	133.8(2)
C(21)-Rh-Sb	163.0(2)
C(23)-Rh-Sb	104.3(2)
C(20)-Rh-Sb	132.2(2)
C(24)-Rh-Sb	105.3(2)
C(1)-Rh-C(40)	25.9(2)
C(22)-Rh-C(40)	105.5(3)
C(21)-Rh-C(40)	77.9(2)
C(23)-Rh-C(40)	138.2(3)
C(20)-Rh-C(40)	90.4(2)
C(24)-Rh-C(40)	124.2(2)
Sb-Rh-C(40)	117.5(1)
C(1)-Rh-C(30)	23.2(2)
C(22)-Rh-C(30)	122.2(3)
C(21)-Rh-C(30)	117.8(3)
C(23)-Rh-C(30)	149.9(3)
C(20)-Rh-C(30)	139.4(2)
C(24)-Rh-C(30)	173.1(2)
Sb-Rh-C(30)	79.2(2)
C(40)-Rh-C(30)	49.0(2)
C(10)-Sb-C(12)	98.7(4)
C(10)-Sb-C(11)	105.2(3)
C(12)-Sb-C(11)	101.4(3)

C(10)-Sb-Rh	109.0(2)
C(12)-Sb-Rh	121.7(2)
C(11)-Sb-Rh	118.1(2)
C(40)-C(1)-C(30)	112.2(5)
C(40)-C(1)-Rh	120.5(5)
C(30)-C(1)-Rh	127.0(4)
C(14)-C(10)-C(13)	111.3(7)
C(14)-C(10)-Sb	116.7(6)
C(13)-C(10)-Sb	110.6(5)
C(15)-C(11)-C(16)	111.8(6)
C(15)-C(11)-Sb	110.5(5)
C(16)-C(11)-Sb	114.5(4)
C(18)-C(12)-C(17)	113.1(7)
C(18)-C(12)-Sb	112.9(5)
C(17)-C(12)-Sb	108.6(5)
C(22)-C(21)-C(20)	109.7(7)
C(22)-C(21)-Rh	70.9(3)
C(20)-C(21)-Rh	81.8(5)
C(23)-C(22)-C(21)	107.7(7)
C(23)-C(22)-Rh	74.8(4)
C(21)-C(22)-Rh	71.8(4)
C(22)-C(23)-C(24)	108.3(7)
C(22)-C(23)-Rh	69.0(4)
C(24)-C(23)-Rh	79.7(4)
C(28)-C(20)-C(21)	133.5(7)
C(28)-C(20)-C(24)	120.5(9)
C(21)-C(20)-C(24)	106.0(8)
C(28)-C(20)-Rh	129.4(5)
C(21)-C(20)-Rh	63.4(4)
C(24)-C(20)-Rh	73.4(5)
C(25)-C(24)-C(23)	134.0(8)
C(25)-C(24)-C(20)	118.0(9)
C(23)-C(24)-C(20)	107.9(8)
C(25)-C(24)-Rh	130.2(5)
C(23)-C(24)-Rh	65.5(5)
C(20)-C(24)-Rh	72.6(5)
C(26)-C(25)-C(24)	119(1)
C(25)-C(26)-C(27)	122(1)
C(28)-C(27)-C(26)	122(1)
C(27)-C(28)-C(20)	118(1)
C(35)-C(30)-C(31)	117(1)
C(35)-C(30)-C(1)	121.7(6)
C(31)-C(30)-C(1)	121.3(6)
C(35)-C(30)-Rh	96.0(5)
C(31)-C(30)-Rh	143.6(5)

C(1)-C(30)-Rh	29.8(3)
C(32)-C(31)-C(30)	121.4(6)
C(33)-C(32)-C(31)	120.0(7)
C(34)-C(33)-C(32)	120.2(7)
C(33)-C(34)-C(35)	119.8(7)
C(30)-C(35)-C(34)	121.7(6)
C(45)-C(40)-C(41)	117.5(6)
C(45)-C(40)-C(1)	122.4(7)
C(41)-C(40)-C(1)	120.1(6)
C(45)-C(40)-Rh	135.5(5)
C(41)-C(40)-Rh	98.3(4)
C(1)-C(40)-Rh	33.6(3)
C(40)-C(41)-C(42)	119.9(7)
C(43)-C(42)-C(41)	120.7(8)
C(44)-C(43)-C(42)	119.4(8)
C(43)-C(44)-C(45)	120.4(8)
C(40)-C(45)-C(44)	122.0(8)

Table 5. Anisotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for **6**.
The anisotropic displacement factor exponent takes the form:
 $-2 \pi^2 [h^2 a^{*2} U_{11} + \dots + 2 h k a^* b^* U_{12}]$

	U11	U22	U33	U23	U13	U12
Rh	40(1)	33(1)	33(1)	-1(1)	15(1)	0(1)
Sb	45(1)	31(1)	32(1)	-3(1)	15(1)	0(1)
C(1)	28(5)	42(3)	46(3)	-3(3)	22(3)	-2(3)
C(10)	75(7)	65(4)	56(4)	7(3)	29(4)	21(4)
C(11)	62(6)	48(4)	35(3)	1(3)	18(3)	12(4)
C(12)	75(7)	37(3)	51(4)	-14(3)	13(4)	-8(4)
C(13)	96(9)	84(6)	149(8)	31(6)	88(7)	20(6)
C(14)	144(9)	173(10)	56(5)	-5(5)	46(6)	80(8)
C(15)	81(7)	48(4)	80(5)	22(3)	43(4)	12(4)
C(16)	108(8)	83(5)	42(4)	8(3)	24(4)	29(5)
C(17)	115(8)	42(4)	105(6)	-7(4)	19(6)	-23(5)
C(18)	71(8)	83(6)	100(6)	-40(5)	20(5)	-37(5)
C(21)	55(8)	53(4)	34(3)	4(3)	12(4)	3(4)
C(22)	71(7)	59(4)	46(4)	9(3)	24(4)	-15(4)
C(23)	98(8)	36(4)	49(4)	6(3)	6(4)	-6(5)
C(20)	34(8)	52(4)	33(3)	4(3)	11(4)	20(4)
C(24)	51(8)	51(4)	41(3)	-2(3)	12(4)	21(4)

C(25)	67(9)	111(7)	56(5)	-27(5)	8(5)	37(6)
C(26)	53(10)	211(13)	80(6)	-48(8)	13(6)	26(9)
C(27)	42(9)	183(11)	75(6)	-33(7)	21(5)	-13(7)
C(28)	40(8)	81(5)	50(4)	-6(4)	4(4)	-4(5)
C(30)	32(5)	54(4)	40(3)	-17(3)	19(3)	-5(4)
C(31)	37(6)	42(3)	52(4)	-18(3)	10(4)	2(3)
C(32)	50(6)	60(4)	51(4)	-13(3)	8(4)	10(4)
C(33)	36(6)	84(5)	46(4)	-16(4)	4(3)	5(4)
C(34)	35(6)	75(5)	46(4)	-18(3)	19(4)	-13(4)
C(35)	36(6)	60(4)	38(3)	-8(3)	18(3)	-4(4)
C(40)	17(6)	43(3)	43(3)	-6(3)	3(3)	0(3)
C(41)	44(7)	40(3)	53(4)	7(3)	10(4)	5(4)
C(42)	51(7)	44(4)	74(5)	6(4)	0(4)	-16(4)
C(43)	88(9)	31(4)	49(4)	-4(3)	-14(5)	4(4)
C(44)	70(8)	63(5)	55(4)	-28(3)	2(4)	17(5)
C(45)	38(6)	80(5)	64(4)	-35(4)	15(4)	3(4)

Table 6. Hydrogen coordinates ($\times 10^4$) and isotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for **6**.

	x	y	z	U(eq)
H(10)	3025(5)	2052(7)	2323(4)	78
H(11)	5476(5)	-1149(6)	3129(3)	59
H(12)	5238(6)	2514(6)	3506(4)	72
H(13A)	2519(6)	-196(9)	1924(6)	146
H(13B)	2170(6)	451(9)	2510(6)	146
H(13C)	2899(6)	-631(9)	2850(6)	146
H(14A)	3973(6)	2547(11)	3685(4)	185
H(14B)	3809(6)	1086(11)	3952(4)	185
H(14C)	3081(6)	2168(11)	3612(4)	185
H(15A)	4260(5)	-2417(6)	2448(4)	101
H(15B)	3983(5)	-2070(6)	3143(4)	101
H(15C)	4786(5)	-2965(6)	3341(4)	101
H(16A)	5648(5)	266(7)	4243(4)	121
H(16B)	5653(5)	-1293(7)	4466(4)	121
H(16C)	4850(5)	-398(7)	4268(4)	121
H(17A)	4177(5)	3823(7)	2514(5)	146
H(17B)	4638(5)	3744(7)	1943(5)	146
H(17C)	5050(5)	4542(7)	2778(5)	146

H(18A)	6261(6)	1426(8)	3223(5)	136
H(18B)	6367(6)	3026(8)	3226(5)	136
H(18C)	5955(6)	2228(8)	2391(5)	136
H(21)	3044(5)	-401(6)	-790(4)	60
H(22)	3843(5)	1800(7)	-384(4)	71
H(23)	3355(6)	3059(7)	529(4)	84
H(25)	1877(7)	2645(10)	843(5)	101
H(26)	775(7)	1224(14)	556(6)	145
H(27)	602(7)	-725(12)	-197(5)	122
H(28)	1524(6)	-1335(8)	-706(4)	75
H(31)	5087(4)	-3725(6)	1653(3)	56
H(32)	6460(5)	-4132(7)	2583(4)	70
H(33)	7440(5)	-2397(8)	2932(4)	72
H(34)	7048(5)	-238(7)	2383(4)	62
H(35)	5662(4)	202(6)	1491(3)	52
H(41)	2870(5)	-2712(6)	516(3)	59
H(42)	2287(5)	-4584(7)	-358(5)	79
H(43)	2955(6)	-5509(7)	-1082(4)	86
H(44)	4177(6)	-4545(7)	-980(4)	86
H(45)	4791(5)	-2771(7)	-79(4)	76

Table 1. Crystal data and structure refinement for **13**.

formula	C ₃₂ H ₃₈ O P Rh + ¹ / ₂ C ₆ H ₁₄
fw	615.59
crystal size, mm ³	0.5 x 0.4 x 0.4
crystal system	Triclinic
space group	P-1 (no. 2)
cell dimensions determin	25 reflcns, 10 < Θ < 15
a, Å	9.4450(6)
b, Å	11.505(1)
c, Å	14.9591(5)
a, deg	101.660(6)
b, deg	99.720(4)
g, deg	99.542(6)
V, Å ³	1535.1(2)
Z	2
d _{calc} , gcm ⁻³	1.332
diffractometer	CAD4 (Enraf-Nonius)
radiation	Mo-K α (0.71073 Å), graphite mono-chromator, Zr filter (factor 16.4)
temp, K	173(2)
μ , mm ⁻¹	0.627
scan method	Ω/Θ -scan
2 Θ (max), deg	48
tot. no. of reflcns scanned	5149
no. of unique rflcns	4820 [R(int) = 0.0166]
no. of data	4820
no. of obsd rflcns [I>2 σ (I)]	4573
correct. appl.	LP- and empirical abs.-corr. (Ψ -scans, min. transm. 96.35%)
structure solution	SHELXS-86 (Direct Methods)
param	354 (full-matrix least-squares on F ² (SHELXL-93))
reflex/param ratio	13.62
final R indices [I>2 σ (I)]	R ₁ = 0.0265, wR ₂ = 0.0637 *)
R indices (all data)	R ₁ = 0.0283, wR ₂ = 0.0653 *)
resid electron density, eÅ ⁻³	0.730 / -0.705

*) $w = 1/[\sigma^2 F_o^2 + (0.0270P)^2 + 2.0493P]$, where $P = [F_o^2 + 2F_c^2]/3$

remarks: One half of a solvent molecule of hexane was found in the asymmetric and refined anisotropically with restraints on the anisotropic displacement parameters and interatomic distances. The centre of the central C-C-bond lies on the crystallographic centre of symmetry.

Table 2. Atomic coordinates ($\times 10^4$) and equivalent isotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for **13**. $U(\text{eq})$ is defined as one third of the trace of the orthogonalized U_{ij} tensor.

	x	y	z	$U(\text{eq})$
Rh	4024(1)	6642(1)	2441(1)	21(1)
P	2920(1)	4646(1)	1993(1)	23(1)
O	2926(2)	6899(2)	523(1)	44(1)
C(1)	4819(3)	7054(2)	4001(2)	27(1)
C(2)	4287(3)	8053(2)	3769(2)	25(1)
C(3)	5151(3)	8543(2)	3192(2)	23(1)
C(4)	6400(3)	7943(2)	3189(2)	26(1)
C(5)	7646(3)	8131(2)	2801(2)	32(1)
C(6)	8689(3)	7450(3)	2952(2)	39(1)
C(7)	8502(3)	6564(3)	3473(2)	38(1)
C(8)	7279(3)	6341(2)	3838(2)	33(1)
C(9)	6199(3)	7032(2)	3706(2)	27(1)
C(10)	3959(3)	3700(2)	1293(2)	30(1)
C(11)	1074(3)	4299(2)	1208(2)	32(1)
C(12)	2638(3)	3846(2)	2929(2)	30(1)
C(13)	3585(3)	3663(3)	250(2)	41(1)
C(14)	5616(3)	4163(3)	1652(2)	37(1)
C(15)	72(3)	5154(3)	1501(2)	41(1)
C(16)	280(3)	2971(3)	1009(2)	46(1)
C(17)	4073(3)	3785(2)	3545(2)	33(1)
C(18)	1654(3)	4410(3)	3525(2)	42(1)
C(20)	3361(3)	6781(2)	1263(2)	30(1)
C(30)	5063(3)	9690(2)	2855(2)	24(1)
C(40)	6342(3)	10738(2)	3382(2)	24(1)
C(41)	7203(3)	10743(2)	4230(2)	30(1)
C(42)	8329(3)	11728(3)	4698(2)	36(1)
C(43)	8604(3)	12718(3)	4318(2)	37(1)
C(44)	7762(3)	12724(2)	3470(2)	37(1)
C(45)	6642(3)	11739(2)	3006(2)	30(1)
C(50)	3590(3)	10046(2)	2910(2)	26(1)

C(51)	3334(3)	10688(2)	3737(2)	30(1)
C(52)	1969(3)	10962(2)	3788(2)	36(1)
C(53)	842(3)	10602(3)	3015(2)	44(1)
C(54)	1084(3)	9976(3)	2193(3)	51(1)
C(55)	2442(3)	9689(3)	2135(2)	39(1)
C(61)	5354(10)	-394(5)	-115(5)	153(3)
C(62)	6888(12)	265(10)	551(7)	233(7)
C(63)	7777(10)	-209(7)	245(5)	178(4)

Table 3. Bond lengths [Å] for **13**.

Rh-C(20)	1.816(3)
Rh-C(3)	2.238(2)
Rh-C(2)	2.244(2)
Rh-C(1)	2.254(2)
Rh-P	2.2714(7)
Rh-C(4)	2.426(2)
Rh-C(9)	2.458(2)
P-C(12)	1.855(3)
P-C(11)	1.863(3)
P-C(10)	1.867(3)
O-C(20)	1.156(3)
C(1)-C(2)	1.409(4)
C(1)-C(9)	1.448(4)
C(2)-C(3)	1.417(3)
C(3)-C(4)	1.462(3)
C(3)-C(30)	1.515(3)
C(4)-C(5)	1.402(4)
C(4)-C(9)	1.430(4)
C(5)-C(6)	1.373(4)
C(6)-C(7)	1.409(4)
C(7)-C(8)	1.368(4)
C(8)-C(9)	1.406(4)
C(10)-C(13)	1.531(4)
C(10)-C(14)	1.532(4)
C(11)-C(15)	1.527(4)
C(11)-C(16)	1.532(4)
C(12)-C(18)	1.525(4)
C(12)-C(17)	1.525(4)
C(30)-C(50)	1.525(3)

C(30)-C(40)	1.532(3)
C(40)-C(41)	1.386(4)
C(40)-C(45)	1.389(4)
C(41)-C(42)	1.390(4)
C(42)-C(43)	1.378(4)
C(43)-C(44)	1.380(4)
C(44)-C(45)	1.386(4)
C(50)-C(51)	1.387(4)
C(50)-C(55)	1.388(4)
C(51)-C(52)	1.388(4)
C(52)-C(53)	1.374(4)
C(53)-C(54)	1.369(5)
C(54)-C(55)	1.388(4)
C(61)-C(61)#1	1.24(1)
C(61)-C(62)	1.59(1)
C(62)-C(63)	1.18(1)

Table 4. Bond angles [deg] for **13**.

C(20)-Rh-C(3)	103.1(1)
C(20)-Rh-C(2)	126.7(1)
C(3)-Rh-C(2)	36.86(9)
C(20)-Rh-C(1)	163.0(1)
C(3)-Rh-C(1)	61.56(9)
C(2)-Rh-C(1)	36.52(9)
C(20)-Rh-P	88.91(8)
C(3)-Rh-P	167.64(7)
C(2)-Rh-P	132.16(6)
C(1)-Rh-P	106.14(6)
C(20)-Rh-C(4)	113.5(1)
C(3)-Rh-C(4)	36.26(8)
C(2)-Rh-C(4)	59.36(9)
C(1)-Rh-C(4)	59.17(9)
P-Rh-C(4)	140.30(6)
C(20)-Rh-C(9)	144.8(1)
C(3)-Rh-C(9)	59.39(9)
C(2)-Rh-C(9)	58.81(9)
C(1)-Rh-C(9)	35.45(9)
P-Rh-C(9)	111.81(6)
C(4)-Rh-C(9)	34.05(8)
C(12)-P-C(11)	104.1(1)

C(12)-P-C(10)	103.2(1)
C(11)-P-C(10)	102.5(1)
C(12)-P-Rh	117.32(9)
C(11)-P-Rh	114.95(9)
C(10)-P-Rh	113.01(8)
C(2)-C(1)-C(9)	108.3(2)
C(2)-C(1)-Rh	71.4(1)
C(9)-C(1)-Rh	80.0(1)
C(1)-C(2)-C(3)	108.8(2)
C(1)-C(2)-Rh	72.1(1)
C(3)-C(2)-Rh	71.3(1)
C(2)-C(3)-C(4)	107.2(2)
C(2)-C(3)-C(30)	126.8(2)
C(4)-C(3)-C(30)	124.1(2)
C(2)-C(3)-Rh	71.8(1)
C(4)-C(3)-Rh	78.9(1)
C(30)-C(3)-Rh	127.3(2)
C(5)-C(4)-C(9)	120.5(2)
C(5)-C(4)-C(3)	132.0(2)
C(9)-C(4)-C(3)	107.6(2)
C(5)-C(4)-Rh	127.4(2)
C(9)-C(4)-Rh	74.2(1)
C(3)-C(4)-Rh	64.8(1)
C(6)-C(5)-C(4)	118.8(3)
C(5)-C(6)-C(7)	120.8(3)
C(8)-C(7)-C(6)	121.6(3)
C(7)-C(8)-C(9)	119.0(3)
C(8)-C(9)-C(4)	119.3(2)
C(8)-C(9)-C(1)	133.5(2)
C(4)-C(9)-C(1)	107.1(2)
C(8)-C(9)-Rh	129.6(2)
C(4)-C(9)-Rh	71.8(1)
C(1)-C(9)-Rh	64.6(1)
C(13)-C(10)-C(14)	108.8(2)
C(13)-C(10)-P	113.1(2)
C(14)-C(10)-P	110.6(2)
C(15)-C(11)-C(16)	111.0(2)
C(15)-C(11)-P	114.4(2)
C(16)-C(11)-P	113.8(2)
C(18)-C(12)-C(17)	110.4(2)
C(18)-C(12)-P	111.3(2)
C(17)-C(12)-P	113.1(2)
O-C(20)-Rh	178.1(2)
C(3)-C(30)-C(50)	110.9(2)
C(3)-C(30)-C(40)	112.1(2)

C(50)-C(30)-C(40)	111.1(2)
C(41)-C(40)-C(45)	118.2(2)
C(41)-C(40)-C(30)	122.8(2)
C(45)-C(40)-C(30)	119.0(2)
C(40)-C(41)-C(42)	120.9(3)
C(43)-C(42)-C(41)	120.1(3)
C(42)-C(43)-C(44)	119.7(3)
C(43)-C(44)-C(45)	120.0(3)
C(44)-C(45)-C(40)	121.0(3)
C(51)-C(50)-C(55)	118.0(2)
C(51)-C(50)-C(30)	121.6(2)
C(55)-C(50)-C(30)	120.3(2)
C(50)-C(51)-C(52)	121.0(3)
C(53)-C(52)-C(51)	120.3(3)
C(54)-C(53)-C(52)	119.2(3)
C(53)-C(54)-C(55)	121.0(3)
C(50)-C(55)-C(54)	120.4(3)
C(61)#1-C(61)-C(62)	98.1(8)
C(63)-C(62)-C(61)	106.2(7)

Symmetry transformations used to generate equivalent atoms:

#1 -x+1,-y,-z

Table 5. Anisotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for **13**.

The anisotropic displacement factor exponent takes the form:

$$-2 \pi^2 [h^2 a^{*2} U_{11} + \dots + 2 h k a^* b^* U_{12}]$$

	U11	U22	U33	U23	U13	U12
Rh	24(1)	16(1)	22(1)	5(1)	4(1)	1(1)
P	24(1)	19(1)	25(1)	5(1)	5(1)	0(1)
O	56(1)	44(1)	29(1)	14(1)	1(1)	7(1)
C(1)	33(1)	21(1)	23(1)	4(1)	2(1)	-2(1)
C(2)	28(1)	20(1)	24(1)	1(1)	7(1)	2(1)
C(3)	23(1)	18(1)	26(1)	1(1)	4(1)	2(1)
C(4)	24(1)	21(1)	28(1)	1(1)	2(1)	0(1)
C(5)	29(1)	24(1)	40(2)	5(1)	8(1)	1(1)
C(6)	27(2)	34(2)	52(2)	2(1)	9(1)	4(1)
C(7)	29(2)	31(2)	48(2)	1(1)	-3(1)	10(1)

C(8)	34(2)	24(1)	33(2)	3(1)	-6(1)	4(1)
C(9)	29(1)	20(1)	24(1)	0(1)	-2(1)	1(1)
C(10)	35(2)	19(1)	34(2)	3(1)	9(1)	3(1)
C(11)	28(1)	31(2)	31(1)	5(1)	-1(1)	-1(1)
C(12)	30(1)	24(1)	34(1)	12(1)	7(1)	-4(1)
C(13)	45(2)	39(2)	34(2)	-1(1)	11(1)	4(1)
C(14)	34(2)	35(2)	41(2)	5(1)	12(1)	10(1)
C(15)	29(2)	48(2)	44(2)	13(1)	3(1)	8(1)
C(16)	36(2)	37(2)	52(2)	6(1)	-5(1)	-10(1)
C(17)	37(2)	26(1)	39(2)	15(1)	7(1)	4(1)
C(18)	34(2)	56(2)	41(2)	23(2)	14(1)	4(1)
C(20)	34(2)	19(1)	32(2)	6(1)	6(1)	0(1)
C(30)	27(1)	18(1)	26(1)	4(1)	7(1)	1(1)
C(40)	22(1)	19(1)	33(1)	3(1)	11(1)	3(1)
C(41)	31(1)	25(1)	32(1)	6(1)	11(1)	1(1)
C(42)	27(1)	38(2)	36(2)	3(1)	7(1)	-3(1)
C(43)	25(1)	29(2)	49(2)	0(1)	11(1)	-6(1)
C(44)	30(1)	23(1)	57(2)	14(1)	13(1)	-1(1)
C(45)	24(1)	26(1)	41(2)	11(1)	11(1)	6(1)
C(50)	26(1)	16(1)	35(1)	10(1)	7(1)	-1(1)
C(51)	28(1)	22(1)	38(2)	8(1)	7(1)	1(1)
C(52)	34(2)	24(1)	52(2)	9(1)	17(1)	4(1)
C(53)	24(2)	35(2)	74(2)	17(2)	13(2)	5(1)
C(54)	30(2)	55(2)	59(2)	10(2)	-6(2)	4(2)
C(55)	34(2)	38(2)	39(2)	6(1)	2(1)	4(1)
C(61)	272(8)	68(4)	106(5)	1(4)	99(5)	-36(5)
C(62)	233(10)	201(10)	172(9)	-120(8)	60(8)	-27(8)
C(63)	221(8)	130(6)	110(6)	54(5)	-73(6)	-89(6)

Table 6. Hydrogen coordinates ($\times 10^4$) and isotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for **13**.

	x	y	z	U(eq)
H(1)	4351(3)	6492(2)	4300(2)	32
H(2)	3481(3)	8349(2)	3966(2)	30
H(5)	7768(3)	8718(2)	2441(2)	38
H(6)	9547(3)	7578(3)	2702(2)	47

H(7)	9244(3)	6110(3)	3572(2)	46
H(8)	7161(3)	5729(2)	4177(2)	39
H(10)	3705(3)	2852(2)	1370(2)	36
H(11)	1257(3)	4433(2)	593(2)	38
H(12)	2117(3)	2993(2)	2618(2)	36
H(13A)	3702(22)	4493(3)	164(2)	61
H(13B)	2568(8)	3231(17)	-12(4)	61
H(13C)	4247(15)	3242(17)	-69(3)	61
H(14A)	5864(4)	4217(17)	2325(3)	55
H(14B)	5904(5)	4968(8)	1535(13)	55
H(14C)	6141(3)	3601(10)	1328(10)	55
H(15A)	-753(13)	5062(14)	979(5)	61
H(15B)	627(7)	5994(3)	1675(14)	61
H(15C)	-303(19)	4957(13)	2036(9)	61
H(16A)	961(8)	2441(3)	856(15)	69
H(16B)	-556(15)	2804(6)	482(10)	69
H(16C)	-72(21)	2817(6)	1563(6)	69
H(17A)	4660(10)	4608(3)	3812(11)	50
H(17B)	4625(10)	3306(15)	3169(3)	50
H(17C)	3858(3)	3403(16)	4049(8)	50
H(18A)	658(6)	4265(17)	3149(5)	62
H(18B)	2042(13)	5286(4)	3748(12)	62
H(18C)	1630(19)	4043(14)	4060(8)	62
H(30)	5113(28)	9552(24)	2218(20)	25(7)
H(41)	7022(3)	10064(2)	4497(2)	35
H(42)	8910(3)	11719(3)	5279(2)	43
H(43)	9369(3)	13393(3)	4639(2)	44
H(44)	7950(3)	13403(2)	3205(2)	44
H(45)	6071(3)	11748(2)	2421(2)	36
H(51)	4106(3)	10945(2)	4276(2)	36
H(52)	1814(3)	11400(2)	4361(2)	43
H(53)	-94(3)	10784(3)	3051(2)	52
H(54)	312(3)	9734(3)	1655(3)	61
H(55)	2585(3)	9245(3)	1560(2)	46
H(61A)	5405(10)	-529(5)	-783(5)	184
H(61B)	4956(10)	-1173(5)	25(5)	184
H(62A)	7092(12)	1140(10)	560(7)	279
H(62B)	6891(12)	177(10)	1196(7)	279
H(63A)	7818(60)	-952(37)	465(44)	267
H(63B)	8740(18)	343(27)	456(44)	267
H(63C)	7512(46)	-412(63)	-438(5)	267