Table 1. Analytical data for the complexes $[Re(CO)_3L][Re_2(CO)_6(\mu\text{-}X)_3]$ (X = Cl, Br or I) and $[Re(CO)_3L][SbF_6]$.

Complex	Colour	$\nu(CO)$[a]/cm^{-1}		m/z^{+} [b]	m/z^{-} [c]	Analyses[d]		
		cation	anion[e]			C	H	N
$[Re(CO)_3L][Re_2(CO)_6(\mu\text{-}Cl)_3]$	Orange	2036 1949 1920	2024 (2030) ~1920 (1917)	782	645	31.94 (31.94)	1.38 (1.62)	0.91 (0.98)
$[Re(CO)_3L][Re_2(CO)_6(\mu\text{-}Br)_3]$	Orange	2036 1949 1920	2023 (2028) 1910sh (1915)	782	779	29.27 (29.22)	1.38 (1.48)	0.84 (0.90)
$[Re(CO)_3L][Re_2(CO)_6(\mu\text{-}I)_3]$	Orange	2036 1949 1920	2018 (2012) 1905sh (1914)	782	920	26.96 (26.80)	1.19 (1.36)	0.77 (0.82)
$[Re(CO)_3L][SbF_6]$	Yellow	2036 1949 1920		782	234	36.88 (37.77)	2.05 (2.28)	1.36 (1.38)

[a] Infrared data; spectra recorded in CH_2Cl_2 solution.
[b] FAB mass spectral data (cation).
[c] Negative ions mass spectral data.
[d] Calculated values in parentheses.
[e] Literature value given in parentheses (see reference 14); sh = shoulder.

Table 2. Phosphorus-31 NMR data[a] for L and the complexes $[Re(CO)_3L][Re_2(CO)_6(\mu\text{-}X)_3]$ (X = Cl, Br or I) and $[Re(CO)_3L][SbF_6]$.

Compound	δ^{b}	δ_{iso}	δ_{11}	δ_{22}	δ_{33}	$\Delta\sigma$	η
Ligand	38.4 (37.7)[c]	41 38	102 98	98 98	-77 -82	177 180	0.03 0.00
$[Re(CO)_3L][Re_2(CO)_6(\mu\text{-}Cl)_3]$	67.0	65 62	143 134	86 102	-35 -49	150 167	0.57 0.29
$[Re(CO)_3L][Re_2(CO)_6(\mu\text{-}Br)_3]$	67.1	65 62	144 131	86 106	-35 -51	150 169	0.59 0.22
$[Re(CO)_3L][Re_2(CO)_6(\mu\text{-}I)_3]$	66.8	65 62	141 133	84 104	-29 -50	142 168	0.61 0.26
$[Re(CO)_3L][SbF_6]$	66.8	71 66	145 145	84 79	-18 -27	133 139	0.69 0.71

[a] Ambient temperature (298 K) solid-state NMR data except for [b]; CSA tensors assigned according to the Haeberlen convention (reference 12).

[b] Ambient temperature (298 K) solution NMR data; spectra recorded in $CDCl_3$ or CD_2Cl_2 (see text).

[C] Literature value give in parentheses [see reference 10 (solvent not reported)].

Table 3. Hydrogen-1 NMR data[a] for Land the cation, $[Re(CO)_3L]^+$.

Compound[b]	$\delta(H_A/H_{A'})$	$\delta(H_B/H_{B'})$	$\delta(H_C)$	$\delta(H_D/H_{D'})$	$\delta(H_E/H_{E'})$	$\delta(H_F)$	$\delta(H_K/H_{K'})$	$\delta(H_J)$
Ligand	7.60 (7.5[c], 0.8[c] 13.3 [d])	7.30 (7.5[c], 2.8[d])	7.50 (7.5[c], 0.8[c], 1.2[d])				8.71 (7.8[c], 14.1[d])	8.07 (7.8[c], 3.8[d])
$[Re(CO)_3L]^+ A^-$	8.07 (7.6[c], 0.8[c], 15.1[d])	7.79 (7.6[c], 3.6[d])	7.91 (7.6[c], 0.8[c], 1.9 [d])	7.50 (7.4[c], 0.8[c], 14.1[d])	[e]	7.76 (7.4[c], 0.8[c], 1.8[d])	[e]	8.16 (7.7[c], 3.7[d])

[a] Data recorded at 298 K; ^1H chemical shifts quoted relative to tetramethylsilane; spectra of the complexes were recorded in CH_2Cl_2; spectrum of the ligand recorded in $CDCl_3$; see Fig. 1 for labelling.

[b] $A^- = [Re_2(CO)_6(\mu\text{-}X)_3]^-$ (X = Cl, Br or I) or $[SbF_6]^-$.

[c] $^nJ_{HH}$/Hz.

[d] $^nJ_{PH}$/Hz.

[e] $H_E/H_{E'}$ and $H_K/H_{K'}$ overlap, giving a complex multiplet centred at *ca*. 7.6 ppm.