START Experiments recorded for
    from SC-Database on Saturday, 01 January, 2000 at 01:03:30
Software version = 5.81 Data version = 4.62
Experiment list contains 158 experiments for
 (no ligands specified)
 4 metals : Rh+, Rh++, Rh+++, Rh++++
 (no references specified)
 (no experimental details specified)

****

I- HL Iodide CAS 10034-85-2 (20)
Iodide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+	sp	non-aq	22°C	100%	U	M	K'(Rh(P(Ph)3)2COI+I) < -4.5	1975FOa (8353)	1

Medium: dichloromethane. K': Rh(P(Ph)3)2COI+I=Rh(P(Ph)3)COI2+P(Ph)3

Rh+	sp	non-aq	22°C	100%	U	M	K(RhA2COI+I)=-1.30	1975FOa (8354)	2

Medium: dichloromethane. K: RhA2COI+I=RhACOI2+A, A=Triphenyl arsine

Rh+	sp	non-aq	22°C	100%	U	M	K(RhA2COI+I)=-2.7	1975FOa (8355)	3

Medium: dichloromethane. K: RhA2COI+I=RhACOI2+A, A=Triphenyl stibine (Ph3Sb)

Rh+	sp	non-aq	?	100%	U	I	K=2.4	1972FOa (8356)	4

Medium: DMF. K: Rh(Ph3P)2COCl+L=Rh(Ph3P)2COL+Cl. K(Rh((CO)2Cl2+2L=Rh(CO)2L2+2Cl)=1.9 (in 1,2-dichloromethane); 2.3 (MeCN); 1.5 (90% MeCN/H2O)

****

OH- HL Hydroxide (57)
Hydroxide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+	oth	none	25°C	0.0	U		*Kso=3.31?	1958MPa (12044)	5

*Kso: K(1/2Rh2O(s)+H=1/2H2O+Rh); method:combination of thermodynamic data

****

C4H6O2 L Me methacrylate CAS 96-33-3 (815)
Methyl propenoate; CH2:CH.CO2.CH3

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+	nmr	alc/w	20°C	100%	U	M	K(RhA+L)=0.5	1977HRa (29732)	6

Medium: MeOH. A=Ph2P.CH2.CH2.PPh2

****

C6H6 L Benzene CAS 71-43-2 (2143)
Benzene, cyclohexatriene;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+	nmr	alc/w	20°C	100%	U	M	K(RhA+L)=1.3	1977HRa (43170)	7

Medium: MeOH. A=Ph2P.CH2.CH2.PPh2

****

C6H14 L CAS 110-54-3 (2146)
n-Hexane; CH3.CH2.CH2.CH2.CH2.CH3

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+	nmr	alc/w	20°C	100%	U	M	K(RhA+L)=0.3	1977HRa (50626)	8

Medium: MeOH. A=Ph2P.CH2.CH2.PPh2

****

C7H8 L CAS 108-88-3 (2144)
Toluene; C6H5.CH3

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+	nmr	alc/w	20°C	100%	U	M	K(RhA+L)=2.0	1977HRa (55786)	9

Medium: MeOH. A=Ph2P.CH2.CH2.PPh2

****

C8H8 L Vinylbenzene CAS 100-42-5 (811)
Styrene; C6H5.CH:CH2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+	nmr	alc/w	20°C	100%	U	M	K(RhA+L)=1.3	1977HRa (59255)	10

Medium: MeOH. A=Ph2P.CH2.CH2.PPh2

****

C8H10 L p-Xylene CAS 106-42-3 (2145)
1,4-Dimethylbenzene, 4-Xylene; CH3.C6H4.CH3

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+	nmr	alc/w	20°C	100%	U	M	K(RhA+L)=2.7	1977HRa (60683)	11

Medium: MeOH. A=Ph2P.CH2.CH2.PPh2

****

C18H15Sb L CAS 603-36-1 (2654)
Triphenylantimony; (C6H5)3Sb

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo

```
Rh+        sp  non-aq 25°C 100%  C  I                    2002ORa (97159)  12
                                          K(RhCl(CO)L2+L)=2.21
Medium: CH2Cl2. In benzene, K=2.56; diethyl ether, K=2.87;
acetone, K=3.02; ethyl acetate, K=3.10.
*******************************************************************************
C21H21P                 L                      CAS 6163-58-2  (600)
Tri(2-methylphenyl)phosphine (or 4-methyl where indicated); (CH3.C6H4)3P
-------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------------
Rh+        sp  non-aq 25°C 100%  U                      1974TMa (101194)  13
                                          K(H2(g)+RhClL3)=1.26
                                          K(H2(g)+(RhClL2)2)=1.04
Medium: Toluene. Ligand: tri(4-methylphenyl)phosphine
*******************************************************************************
BF4-                    HL                        (2497)
Tetrafluoroborate;
-------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------------
Rh++       dis oth/un 25°C  1.0M U    M                 1974TAb  (1203)  14
                                          K(Rh(phen)3+L)=1.69
                                          K(Rh(phen)3L+L)=0.95
Medium: Na2SO4
*******************************************************************************
Br-                     HL    Bromide          CAS 10035-10-6  (19)
Bromide;
-------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------------
Rh++       sp  oth/un 35°C 1.50M U                      1966BPb  (2288)  15
                                          K(Ru(NH3)5H2O+L)=-0.7
*******************************************************************************
C2H3N                   L    Cyanomethane     CAS 75-05-8  (1399)
Acetonitrile; CH3.CN
-------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------------
Rh++       sp  non-aq 25°C 100%  U   HM                 1979DTa (19194)  16
                                          K(Rh2(butanoate)4+L)=3.2
                                          K(Rh2(butanoate)3L+L)=1.4
Medium: benzene. DH(K1)=-21, DH(K2)=-35 kJ mol-1 by calorimetry
*******************************************************************************
C4H6N2                  L    N-Me-Imidazole   CAS 616-47-7  (354)
N-Methyl-1,3-diazole; C3H3N2.CH3
-------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------------
Rh++       sp  non-aq 25°C 100%  U   HM                 1979DTa (29606)  17
                                          K(Rh2(butanoate)4+L)=9.0
```

K(Rh2(butanoate)3L+L)=4.9
Medium: benzene. DH(K1)=-52, DH(K2)=-44 kJ mol-1 by calorimetry
****
C5H5N L Pyridine CAS 110-86-1 (31)
Pyridine, Azine;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh++ sp non-aq 25°C 100% U HM 1979DTa (36673) 18
K(Rh2(butanoate)4+L)=8.2
K(Rh2(butanoate)3L+L)=4.4
Medium: benzene. DH(K1)=-47, DH(K2)=-47 kJ mol-1 by calorimetry
****
C5H11N L Piperidine CAS 110-89-4 (105)
Perhydropyridine; cyclo(-CH2.CH2.CH2.NH.CH2.CH2-) C5H11N

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh++ sp non-aq 25°C 100% U HM 1979DTa (40457) 19
K(Rh2(butanoate)4+L)=9.0
K(Rh2(butanoate)3L+L)=5.0
Medium: benzene. DH(K1)=-55, DH(K2)=-52 kJ mol-1 by calorimetry
****
C6H11O3P L CAS 824-11-3 (7548)
4-Ethyl-2,6,7-trioxa-1-phosphabicyclo[2,2,2]octane; CH3CH2C(CH2O)3P

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh++ nmr non-aq -60°C 100% U 1998KTa (49006) 20
K(Rh2(OAc)4+L)=2.48
K(Rh2(OAc)4+2L)=4.98
Method: 31P nmr. Medium: CD2Cl2
****
C6H12 L CAS 592-41-6 (2771)
1-Hexene; CH2:CH(CH2)3.CH3

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh++ sp non-aq 25°C 100% U M 1987DMb (49013) 21
K(RhA+L)=1.62
A=trifluoroacetate. Also data for A=perfluorobutyrate; and for L=
styrene, cyclohexene, 2,5-dimethyl-2,4-hexadiene, 2-methoxypropene, and more
****
C7H16NO2P L CAS 38432-39-2 (7549)
N,N-Diethylamine-1,3,2-dioxaphosphorinan; CH2(CH2O)2PN(CH2CH3)2

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh++ nmr non-aq -60°C 100% U M 1998KTa (58028) 22
K(Rh2(OAc)4+L)=3.38

K(Rh2(OAc)4+2L)=5.48
K(Rh2(OAc)4+L+P)=5.56
Method: 31P nmr. Medium: CD2Cl2.
P: 4-Ethyl-2,6,7-trioxa-1-phosphabicyclo[2,2,2]octane.

****

C9H15O6P H3L CAS 2848-01-3 (5882)
Tris(2-carboxyethyl)phosphine; P(CH2.CH2.COOH)3

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh++	sp	NaClO4	25°C	0.10M	U	HM		1988AMa (67600)	23
							Keff(Rh2AB2+L=Rh2ABL+B)=7.04		
							Keff(Rh2ABL+L=Rh2AL2+B)=4.60		

Medium: LiClO4. A=(O2CCH3)4, B=H2O

****

C12H21N2P L CAS 115305-74-3 (5884)
Bis-(3-aminopropyl)phenylphosphine; C6H5P(CH2.CH2.CH2.NH2)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh++	sp	NaClO4	25°C	0.10M	U	HM		1988AMa (82710)	24
							K(Rh2AB2+L=Rh2ABL+B)=6.72		
							K(Rh2ABL+L=Rh2AL+B)=5.06		

Medium: LiClO4. A=(O2CCH3)4, B=H2O

****

C15H15O2P HL CAS 85209-41-2 (4067)
3-(Diphenylphosphino)propanoic acid; (C6H5)2P.CH2.CH2.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh++	sp	NaClO4	25°C	0.10M	U	HM		1988AMa (91918)	25
							K(Rh2AB2+L=Rh2ABL+B)=6.60		
							K(Rh2ABL+L=Rh2AL2+B)=5.26		

Medium: LiClO4. A=(O2CCH3)4, B=H2O

****

C16H20NP L CAS 115290-71-6 (5883)
Diphenyl-(2-N,N-dimethylaminoethyl)phosphine; (C6H5)2P.CH2.CH2.N(CH3)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh++	sp	NaClO4	25°C	0.10M	U	HM		1988AMa (93949)	26
							K(Rh2AB2+L=Rh2ABL+B)=6.40		
							K(Rh2ABL+L=Rh2AL2+B)=4.46		

Medium: LiClO4. A=(O2CCH3)4, B=H2O

****

C18H15O3PS HL CAS 54262-24-7 (327)
4-(Diphenylphosphino)benzenesulfonic acid; (C6H5)2P.C6H4.SO3H

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo

```
Rh++       sp  NaClO4 25°C 0.10M U   HM                  1988AMa (97114)  27
                                        Keff(Rh2AB2+L=Rh2ABL+B)=7.20
                                        Keff(Rh2ABL+L=Rh2AL2+B)=5.38
Medium: LiClO4. A=(O2CCH3)4, B=H2O
********************************************************************************
C18H15P                 L                       CAS 603-35-0  (621)
Triphenylphosphine; (C6H5)3P
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Rh++       sp  non-aq 25°C 100%  U   HM                  1992LPa (97147)  28
In CHCl3. K(Rh2(H-1A)3A2L+L=Rh2(H-1A)3AL2+A)=3.6, K(Rh2(H-1A)2A2L2+2L=Rh2-
(H-1A)2L4+2A=2.9, K(Rh2(H-1A)2AL3+L=Rh2(H-1A)2L4+A)=1.0. HA=CH3COOH
********************************************************************************
C32H48N2O2            H2L                       CAS 103595-81-6  (7708)
N,N'-Ethylenebis(3,5-di-tert-butylsalicylaldimine);
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Rh++       nmr non-aq 23°C 100%  U   H                   2000BNa (105792)  29
Method: 1H nmr. Medium: C6D6. For K(2RhL=Rh2L2), DH=ca. -55.9 kJ mol-1,
DS=ca. -113 J K-1 mol-1.
********************************************************************************
e-                     HL    Electron           (442)
Electron;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Rh+++      EMF none   25°C 0.00  U                   1971ARa   (884)  30
                                        K(Rh + 3e=Rh(s))=38.44(758mV)
--------------------------------------------------------------------------------
Rh+++      oth none   25°C  0.0  U                   1952LAb   (885)  31
                                        K=44.0(870 mV)
K: 0.5Rh2O3(s)+3H+3e=Rh(s)+1.5H2O. K(RhCl6+3e=Rh(s)+6Cl)=21.8(440 mV).
From thermodynamic data
--------------------------------------------------------------------------------
Rh+++      gl  NaClO4 18°C  1.0M U  I                  1938GAa   (886)  32
                                        K(Rh(VI)+3e=Rh)=77(1480 mV)
Medium: HClO4. In 0.15 M HNO3: K=76(1460 mV)
--------------------------------------------------------------------------------
Rh+++      EMF oth/un 18°C 0.10M U  I                  1937GGa   (887)  33
                                        K(Rh(IV)+e=Rh)=24.2(1400 mV)
Medium: H2SO4. In 0.5 M H2SO4: K=24.8(1430 mV)
********************************************************************************
Br-                    HL    Bromide          CAS 10035-10-6  (19)
Bromide;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Rh+++      sol oth/un 25°C 0.10M U  I                  1985PSc  (2289)  34
```

Kout(Rh(phen)3+Br)=0.65
Kout(Rh(phen)3+2Br)=0.56
Also Kout (1:1 complex)=0.55 (I=0.25 M), 0.50 (I=0.5 M), 0.44 (I=0.75 M)
and Kout (1:2 complex)=0.49 (I=0.25 M), 0.37 (I=0.5 M), 0.27 (I=0.75 M)

Rh+++ sp non-aq 25°C 100% U M 1976BOa (2290) 35
K(RhA4+RhA4Br2=Rh2A8Br2)=4.3
Medium: MeCN. A=cyclohexylisocyanide

Rh+++ kin NaClO4 35°C 1.50M U T 1970BPb (2291) 36
K(Rh(NH3)5H2O+L)=-1.23
By spec. K=-0.77. At 70 C: K(trans-Rh(en)2(H2O)2+L)=-0.28 (by kinetics)

Rh+++ kin NaClO4 35°C 4.0M U 1969RSa (2292) 37
K(RhCl5+L)=0.10

Rh+++ kin NaClO4 65°C 4.0M U T 1968MOb (2293) 38
K(Rh(NH3)5+L)=-1.1
K=-1.0(25 C)

Rh+++ vlt oth/un 25°C 0.0 U K1=14.3 B2=16.3 1961CPb (2294) 39
B3=17.6
B4=18.4
B5=17.2
Additional method: spectrophotometry.

Rh+++ oth oth/un 84°C 0.0 U 1939LAa (2295) 40
K(Rh(NH3)5+L)=3.20
Method:chemical analysis

****

CN- HL Cyanide CAS 74-90-8 (230)
Cyanide;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo

---

Rh+++ nmr oth/un 25°C ? U 1994RGa (2759) 41
B6=47
Method: correlation with nmr parameters.

****

CO3-- H2L Carbonate CAS 465-79-6 (268)
Carbonate;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo

---

Rh+++ kin NaClO4 25°C 2.0M C 2000KYb (3366) 42
*K(Rh(NH3)5HCO3)=-6.32
*K is for loss of proton from HCO3-.

****

Cl- HL Chloride CAS 7647-01-0 (50)
Chloride;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values		Reference	ExptNo
Rh+++	sol	oth/un	25°C	0.10M	U	I			1985PSc (5616)	43
							Kout(Rh(phen)3+Cl)=0.43			
Also Kout=0.32 (I=0.25 M), 0.17 (I=0.5 M), 0.03 (I=0.75 M).										
Rh+++	kin	NaCl	50°C	3.0M	C				1975PHa (5617)	44
							K(fac-RhCl3(H2O)3+L)=6.3			
							K(RhCl3(H2O)2L+L)=5.3			
							K(RhCl3(H2O)L2+L)=0.039			
Rh+++	vlt	NaClO4	25°C	1.0M	U		K1=2.62	B2=4.38	1974MMd (5618)	45
							B3=5.94			
							B4=7.42			
							B5=8.79			
Medium: HClO4										
Rh+++	con	non-aq	25°C	100%	U	T			1971PWb (5619)	46
							K(cis-Ru(en)2L2+L)=2.41			
							K(trans-Ru(en)2L2+L)=1			
Medium: DMSO										
Rh+++	kin	NaClO4	35°C	1.50M	U	T M			1970BPb (5620)	47
							K(trans-Rh(NH3)5H2O+L)=-1.3			
65 C: K=-0.74										
Rh+++	kin	NaClO4	45°C	1.50M	U	M			1970BPb (5621)	48
							K(trans-Rh(en)2BrH2O+L)=-0.19			
Rh+++	kin	NaClO4	35°C	4.0M	U				1969RSa (5622)	49
							K6=-1.1			
Rh+++	sp	NaClO4	90°C	4.0M	U		K1=2.49	B2=4.45	1969SEa (5623)	50
							B3=6.15			
							B4=7.6			
							B5=8.1			
							B6=7.8			
Medium: HClO4										
Rh+++	kin	none	87°C	0.0	U	H			1968LBb (5624)	51
77-97 C, DH(Rh(NH3)5+L)=14.6 kJ mol-1, DS=112 J K-1 mol-1										
Rh+++	kin	NaClO4	65°C	4.0M	U	T			1968MOb (5625)	52
							K(Rh(NH3)5+L)=-0.74			
K1=-0.80(25 C). In 4 M LiClO4: K=-0.60(65 C); 5 M NaClO4: -0.66(65 C)										
Rh+++	kin	NaClO4	45°C	4.0M	U	T			1967RSa (5626)	53
							K5=0.77			
Medium: HClO4. K5=0.90(30 C),0.83(35 C),0.80(40 C)										

```
--------------------------------------------------------------------------------
Rh+++      ISE KNO3   55°C 0.10M U T  M                  1966BPc  (5627)  54
                                      K(Ag+RhCl6)=4.68
2nd Metal:Ag+. K=5.69(25 C),5.18(35 C)
--------------------------------------------------------------------------------
Rh+++      EMF NaClO4 55°C 0.10M U    M                  1966BPg  (5628)  55
                                      K(RhCl3(H2O)2OH+H)=4.8
                                      K(RhCl4(H2O)OH+H)=6.0
                                      K(RhCl5OH+H)=7.3
Also solubility data with AgCl
--------------------------------------------------------------------------------
Rh+++      sp  NaClO4 85°C 0.10M U T H                  1966BPh  (5629)  56
                                      K2K3=3.65
Also chemical analysis. Medium: HClO4. K2K3=4.25(25 C), 4.11(40 C),
4.06(55 C), 3.83(70 C),  DH(K2K3)=-20.1 kJ mol-1
--------------------------------------------------------------------------------
Rh+++      kin NaClO4 85°C 2.50M U T      K1=-0.15       1966SHb  (5630)  57
                                      K(RhOH+L)=-0.40
K1=-0.05(75 C),-0.10(80 C); K(RhOH+L)=-0.22(75 C),-0.30(80 C)
--------------------------------------------------------------------------------
Rh+++      oth NaCl   40°C  var  U                     1965BPe  (5631)  58
                                      K3=1.69
                                      K4=0.47
                                      K5=-0.51
Method:electrophoresis
--------------------------------------------------------------------------------
Rh+++      EMF NaClO4 25°C 0.10M U                     1965BPg  (5632)  59
                                      K4=1.39
                                      K5=0.55
                                      K6=-0.23
Medium:HClO4
--------------------------------------------------------------------------------
Rh+++      kin NaClO4 25°C 0.10M U                     1965BPg  (5633)  60
                                      K(Hg+RhCl6)=7.3
2nd Metal:Hg++. Medium:HClO4
--------------------------------------------------------------------------------
Rh+++      kin NaClO4 35°C  4.0M U T                   1965RHa  (5634)  61
                                      K6=-1.14
Medium: HClO4. K6=-0.72(15 C),-0.85(20 C),-0.93(25 C)
--------------------------------------------------------------------------------
Rh+++      sp  NaClO4 120°C  6.0M U        K1=>3     K2=>3     1963WRa  (5635)  62
                                      K3=3
                                      K4=2.4
                                      K5=1.4
                                      K6=-0.25
--------------------------------------------------------------------------------
Rh+++      vlt NaClO4 25°C  1.0M U        K1=2.45   B2=4.54   1958CPb  (5636)  63
                                      K3=1.38
                                      K4=1.16
                                      K5=1.67
```

K6=-0.32
medium: HClO4. B6=8.43

Rh+++ oth oth/un 84°C 0.0 U 1939LAa (5637) 64
K(Rh(NH3)5+L)=4.95
****
ClO4- HL Perchlorate CAS 7001-90-3 (287)
Perchlorate;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh+++ con none 25°C 0.0 U 1974PKa (6373) 65
K(Rh(en)3+L)=0.93
****
F- HL Fluoride CAS 7644-39-3 (201)
Fluoride;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh+++ sp oth/un 45°C 0.20M U T 1970BPb (7137) 66
K(trans-Rh(NH3)5(H2O+F)=0.41
Medium: NaF. K=1.06(75 C)
****
FClBrI HL (541)
Halides, comparative (for book data under ligand 80)

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh+++ kin NaClO4 65°C 1.50M U TI 1968BPb (7430) 67
Kout(Rh(NH3)5H2O+Cl)=-0.81
Kout=-1.02(35C), -1.27(Br,35C). Ai I=0.2: Kout=0.42(F,45 C), 1.06(F,75 C)
Plus data at other I values

Rh+++ kin oth/un 50°C var U HM 1967BPb (7431) 68
K(RhACl+Cl)=2.7
K(RhACl+Br)=3.2
K(RhAI+Cl)=3.0
K(RhAI+I)=3.7
RhA=trans-Rh(en)2

Rh+++ kin NaClO4 50°C 0.20M U HM 1967PSb (7432) 69
K(Rh(NH3)5+Cl)=2.25
K(Rh(NH3)5+Br)=2.16
K(Rh(NH3)5+I)=2.68
DH(Cl)=-5.4 kJ mol-1, DS=-60 J K-1 mol-1; DH(Br)=-2.9, DS=-49; DH(I)=7.5,
DS=-26.8

Rh+++ sp oth/un 96°C 2.0M U T H 1966BPf (7433) 70
K(RhACl2+I=RhAClI+Cl)=0.80?
RhA=trans-Rh(en)2. K=0.78(85 C), 0.85(90 C). Also other halogen complexes

```
------------------------------------------------------------------------------
Rh+++      sp  KCl    85°C 1.50M U    M                  1965BPd  (7434)  71
                                        K(RhACl2+Br=RhABrCl+Cl)=0.29
                                        K(RhABrCl+Br=RhABr2+Cl)=-0.10
RhA=trans-Rh(en)2
******************************************************************************
I-                      HL    Iodide           CAS 10034-85-2  (20)
Iodide;
------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
------------------------------------------------------------------------------
Rh+++      sol oth/un 25°C 0.10M U  I                  1985PSc  (8357)  72
                                        Kout(Rh(phen)3+I)=0.79
                                        Kout(Rh(phen)3+2I)=1.05
Also Kout (1:1 complex)=0.71 (I=0.25 M), 0.67 (I=0.5 M), 0.60 (I=0.75 M)
and Kout (1:2 complex)=0.88 (I=0.25 M), 0.68 (I=0.5 M), 0.56 (I=0.75 M)
------------------------------------------------------------------------------
Rh+++      sp  non-aq 25°C 100%  U  I M                1976BOa  (8358)  73
K:RhA4+RhA4I2=Rh2A8I2, A=cyclohexylisocyanide. In MeCN: K=3.7; in DMSO: 3.8;
In nitromethane: 3.4; in acetone: 2.5
------------------------------------------------------------------------------
Rh+++      kin NaClO4 35°C  4.0M U                    1969RSa  (8359)  74
                                        K(Rh(Cl)5+L)=0.48
******************************************************************************
NH3                      L    Ammonia          CAS 7664-41-7  (414)
Ammonia
------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
------------------------------------------------------------------------------
Rh+++      sol R4N.X  25°C 1.00M U                     1995MPa  (9205)  75
                                        Kout(Rh(NH3)6+L)=0.93
Medium: NH4ClO4
------------------------------------------------------------------------------
Rh+++      sp  NaClO4 25°C 1.00M C T H                 1992SPa  (9206)  76
K((Rh2L8(OH)2(H2O)=2(cis-RhL4(OH)(H2O)))=-1.84
Data also for other equilibria between mononuclear and binuclear species.
------------------------------------------------------------------------------
Rh+++      gl  NaClO4 25°C 1.00M C   H                 1986SKa  (9207)  77
                                        *K1(cis-RhL4)=-6.39
                                        *K2(cis-RhL4)=-8.36
                                        *K1(trans-RhL4)=-4.86
                                        *K2(trans-RhL4)=-8.29
cis-RhL4: DH(*K1)=44.9 kJ mol-1; DH(*K2)=42.6;
trans-RhL4: DH(*K1)=34.0 kJ mol-1; DH(*K2)=36.7
------------------------------------------------------------------------------
Rh+++      sp  NaClO4 125°C 0.10M U T                  1981BJa  (9208)  78
                                        K(RhL5OH+HL=RhL6+H2O)=1.92
For temperatures 111.5, 135, 142 C, K=2.36, 1.80, 1.63 respectively
------------------------------------------------------------------------------
Rh+++      kin NaClO4 125°C 0.10M U T                  1981BJa  (9209)  79
```

```
                                        K(RhL5OH+HL=RhL6+H2O)=2.04
For temperatures 111.5, 135, 142 C, K=2.39, 1.67, 1.67 respectively
--------------------------------------------------------------------------------
Rh+++      gl  oth/un 25°C  var  U                      1968TOb  (9210)  80
                                        K(RhHL4+L)=3.7
                                        K(RhEtL4+L)=9.4
                                        K(Rh(C2F4H)L4+L)=9.7
********************************************************************************
NO2-                    HL    Nitrite          CAS 7782-77-6  (635)
Nitrite;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Rh+++      sol oth/un 26°C  3.0M U T H    K1=6.16   B2=11.21  1983ZYa  (9404)  81
                                        B3=11.53
                                        B4=12.20
                                        B5=12.85
                                        B6=13.99
pH=9-10,NaNO2 aqueous soluton
--------------------------------------------------------------------------------
Rh+++      kin NaClO4 35°C  4.0M U                      1969RSa  (9405)  82
                                        K(RhCl5+L)=0.04
********************************************************************************
N3-                     HL    Azide            CAS 7782-79-8  (441)
Azide;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Rh+++      kin oth/un 77°C  var  U                      1970DLa (10255)  83
                                        K(Rh(NH3)5L+H)=2.2
Medium: HClO4
--------------------------------------------------------------------------------
Rh+++      kin oth/un 60°C  var  U    M                 1968STb (10256)  84
                                        K(Rh(NH3)5L+H)=1.95
********************************************************************************
OH-                     HL    Hydroxide          (57)
Hydroxide;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Rh+++      gl  NaClO4 25°C  1.0M C T H                 1982HNb (12045)  85
                                        *K(H2OA2Rh(OH)RhA2H2O)=-2.372
                                        *K((HO)A2Rh(OH)RhA2H2O)=-9.128
A is 1,2-diaminoethane. K(A2Rh(OH)2RhA2+H2O=H2OA2Rh(OH)RhA2(OH))=1.05
DH(*K((H2O)A2Rh(OH)RhA2(H2O)))=28 kJ mol-1, DS=49 J K-1 mol-1.
--------------------------------------------------------------------------------
Rh+++      gl  NaClO4 25°C 1.00M C    M                 1980SFb (12046)  86
                                        *K1(RhA5(H2O))=-6.93
                                        *K1(cis-RhA4)=-6.40
                                        *K1(trans-RhA4)=-4.92
```

```
                                        *K2(trans-RhA4)=-8.26
A=NH3. *K2=-8.32
-------------------------------------------------------------------------------
Rh+++      oth NaClO4 18°C 0.10M U       K1=11.03  B2=21.47  1976MNa (12047)  87
                                        B3=31.52
                                        B4=38.29
                                        B5=43.06
                                        B6=46.36
-------------------------------------------------------------------------------
Rh+++      gl  NaCl   26°C  1.0M C                    1975PAa (12048)  88
                                        *K1(Rh(en)2(H2O)2)=-4.49
                                        *B2(Rh(en)2(H2O)2)=-11.97
-------------------------------------------------------------------------------
Rh+++      gl  NaClO4 26°C  1.0M C T                  1975PAa (12049)  89
                                        *K1=-4.37
                                        *K2=-7.64
At 40 C: *K1=-4.17, *K2=-7.42; 50 C: -4.02, -7.52; 65 C: *K1=-3.82
-------------------------------------------------------------------------------
Rh+++      kin NaCl   25°C  3.0M C  I                 1975PHa (12050)  90
                                        *K(mer-RhCl3(H2O)3)=-6.51
-------------------------------------------------------------------------------
Rh+++      kin none   25°C  0.0  C  I                 1975PHa (12051)  91
                                        *K(mer-RhCl3(H2O)3)=-6.96
-------------------------------------------------------------------------------
Rh+++      sol oth/un 25°C       U                    1971IBb (12052)  92
                                        K(Rh(OH)3(s)+OH=Rh(OH)4)=-3.9
                                        K(Rh(OH)3(s)+3OH=Rh(OH)6)=-5.9
-------------------------------------------------------------------------------
Rh+++      cal NaClO4 25°C 0.10M U   H                1970CHb (12053)  93
                                        *K(RhA5+H2O=RhA5OH+H)=-6.14
A=NH3. DH(*K)=39.50 kJ mol-1, DS=17.2 J K-1 mol-1
-------------------------------------------------------------------------------
Rh+++      gl  oth/un 20°C  dil  U    M                1967BPb (12054)  94
                                        *K1(tr-Rh(en)2Cl(H2O)2)=-6.44
                                        *K1(tr-Rh(en)2Br(H2O)2)=-6.07
                                        *K1(tr-Rh(en)2I(H2O)2)=-6.55
-------------------------------------------------------------------------------
Rh+++      gl  NaClO4 35°C 0.20M U T H                1967PSb (12055)  95
                                        *K1=-6.24
*K1=-6.63(9.4 C). DH=25 kJ mol-1, DS=-38 J K-1 mol-1
-------------------------------------------------------------------------------
Rh+++      gl  NaClO4 25°C 2.50M U T H                1966SHb (12056)  96
                                        *K1=-3.40
*K1=-3.20(45 C), -3.08(60 C), -2.96(75 C), -2.89(85 C). DH=18.0 kJ mol-1
-------------------------------------------------------------------------------
Rh+++      gl  oth/un 25°C    ?  U                    1964PHb (12057)  97
                                        *K1=-3.2
-------------------------------------------------------------------------------
Rh+++      sp  NaClO4 20°C  1.0M U                    1960COc (12058)  98
                                        *K1=-2.92
```

```
--------------------------------------------------------------------------------
Rh+++      sp  oth/un 25°C  dil  U                        1959FAa (12059)  99
                                        *K1=-3.43?
                                        K(Rh(OH)3(s)=RhOH+2OH)=-22.32
--------------------------------------------------------------------------------
Rh+++      gl  oth/un ?25   dil  U                        1959GVa (12060) 100
                                        *K1(Rh(en)3) < -12
--------------------------------------------------------------------------------
Rh+++      oth none   25°C  0.0  U                        1958MPa (12061) 101
                                        *Kso=2.56?
*Kso: K(0.5 Rh2O3(s)+3H=1.5 H2O+Rh); method:combination of thermodynamic
data
--------------------------------------------------------------------------------
Rh+++      sol oth/un 20°C  dil  U                        1956JOa (12062) 102
                                        K(Rh(OH)3(s)+H=Rh(OH)2)=-5
--------------------------------------------------------------------------------
Rh+++      sp  oth/un 20°C  dil  U                        1930GFa (12063) 103
                                        *K1(Rh(NH3)6)=-11.14
--------------------------------------------------------------------------------
Rh+++      kin none   15°C  0.0  U                        1928BVa (12064) 104
                                        *K1(Rh(NH3)5(H2O))=-5.86
********************************************************************************
P3O10-----            H5L                      CAS 10380-08-2  (1001)
Tripolyphosphate; from (HO)2PO.O.PO(OH).O.PO(OH)2
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Rh+++      sp  oth/un 25°C 1.00M U                        1978FPa (13899) 105
                                        K(Rh+2HP3O10)=16.37
                                        K(Rh+2P3O10)=26.25
K(Rh(H2O)2Cl4+2H2L=RhH2L2+2H+4Cl)=-2.43
********************************************************************************
SCN-                   HL    Thiocyanate      CAS 463-56-9  (106)
Thiocyanate;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Rh+++      nmr oth/un 25°C    ?  U                        1994RGa (15243) 106
                                        B6=35
Method: correlation with nmr parameters.
--------------------------------------------------------------------------------
Rh+++      ISE oth/un 25°C 0.10M U                        1975LMa (15244) 107
                                        K(Rh(NH3)5NCS+Ag)=3.38
--------------------------------------------------------------------------------
Rh+++      kin NaClO4 35°C  4.0M U                        1969RSa (15245) 108
                                        K(RhCl5+L)=0.96
********************************************************************************
SO4--                  H2L    Sulfate          CAS 7664-93-9  (15)
Sulfate;
--------------------------------------------------------------------------------
```

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+++	con	oth/un	25°C	0.01M	U	M	K(Rh(NH3)5Cl+SO4)=2.90 K(Rh(NH3)5NO2+SO4)=2.52	1977SPa (16520)	109
Rh+++	kin	NaClO4	65°C	1.0M	U	I M	Kout(Rh(NH3)5+L)=0.5 Kin(Rh(NH3)5+L)=1.0	1973MOa (16521)	110
When I=4 M: Kout=-0.20, Kin=1.4									
Rh+++	sol	NaClO4	25°C	3.0M	U	HM	K(Rh(en)3+L)=0.15 K(Rh(en)3L+L)=0.11	1972MRe (16522)	111
Rh+++	sp	NaClO4	65°C	4.0M	U	T	K(Rh(NH3)5+L)=-0.15	1968MOb (16523)	112
K=0.0(25 C)									

****

S2O3-- H2L Thiosulfate CAS 73686-28-7 (177)
Thiosulfate;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+++	con	oth/un	25°C	0.01M	U	M	K(Rh(NH3)5Cl+S2O3)=2.50	1977SPa (16898)	113

****

CH4N2S L Thiourea CAS 62-56-6 (51)
Thiocarbamide, Thiourea; (H2N)2CS

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+++	gl	NaClO4	25°C	1.00M	U		*K(Rh3(OH)4(H2O)11)=-3.10	1997SAa (17853)	114

****

C2H3N3S L CAS 3179-31-5 (4221)
1,2,4-Triazoline-3-thione;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+++	sp	KCl	?	1.20M	U		B3=28.5	1972RPb (19246)	115
Medium: HCl									

****

C2H6OS L DMSO CAS 67-68-5 (329)
Dimethylsulfoxide; (CH3)2.SO

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+++	cal	non-aq	24°C	100%	U	HM		1976LDa (22121)	116

Medium: benzene. K((RhACl)2+2L=2RhALCl)=1.9, A=1,5-Cyclooctadiene.
DH=-16 kJ mol-1

****

C2H8N2 L Ethylenediamine CAS 107-15-7 (23)
1,2-Diaminoethane; H2N.CH2.CH2.NH2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+++	sp	NaClO4	25°C	1.00M	C			1983HSc (23227)	117
							*K(trans-RhL2)=-4.47		
							*K(trans-Rh(OH)L2)=-7.91		

****

C3H4N2 L Imidazole CAS 288-32-4 (90)
1,3-Diazole, imidazole; C3H4N2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+++	cal	oth/un	25°C	0.10M	U	HM		1977DSa (23920)	118
							K(Rh2(O2CCH2OCH3)4+L)=3.94		
							K(Rh2(O2CCH2OCH3)4L+L)=2.40		
Medium: phosphate buffer, pH 7.4									
Rh+++	cal	oth/un	25°C	0.10M	U			1976DSa (23921)	119
							K(Rh2(O2CCH2OCH3)4+L)=3.94		
							K(Rh2(O2CCH2OCH3)4L+L)=2.40		

****

C3H6O2S H2L Thiolactic acid CAS 79-42-5 (366)
2-Mercaptopropanoic acid; CH3.CH(SH).COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+++	gl	NaClO4	25°C	0.0	C	TIH	K1=9.12 B2=16.42	1985SNc (25167)	120
							K3=5.35		
Data for I=0.10-1.0 M NaClO4, extrapolated to I=0.0. Data for 35 and 45 C									
DH(K1)=-48.3 kJ mol-1, DS=13; DH(K2)=-31.6, DS=33; DH(K3)=-21.9, DS=29									

****

C3H7NO2 HL Alanine CAS 56-41-7 (86)
2-Aminopropanoic acid; H2N.CH(CH3).COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+++	gl	NaClO4	25°C	0.0	C	TIH	K1=15.95 B2=23.95	1985SNc (26255)	121
							K3=4.35		
Data for I=0.10-1.0 M NaClO4, extrapolated to I=0.0. Data for 35 and 45 C									
DH(K1)=-167 kJ mol-1, DS=-255; DH(K2)=-52.7, DS=-25; DH(K3)=-17.5, DS=25									

****

C3H7NO2S H2L Cysteine CAS 52-90-4 (96)
2-Amino-3-mercaptopropanoic acid; H2N.CH(CH2.SH)COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo

```
--------------------------------------------------------------------------------
Rh+++      gl  NaClO4 25°C  0.0  C TIH    K1=8.60   B2=11.95  1985SNc (26832) 122
                                         K3=2.25
Data for I=0.10-1.0 M NaClO4, extrapolated to I=0.0. Data for 35 and 45 C
DH(K1)=-61.5 kJ mol-1, DS=-42; DH(K2)=-18.0, DS=-25; DH(K3)=-17.6, DS=-17
********************************************************************************
C3H7NS                   L                       CAS 758-16-7  (476)
N,N-Dimethylthioformamide; HCS.N(CH3)2
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Rh+++      cal non-aq 24°C 100%  U   HM                  1976LDa (27258) 123
Medium: benzene. K((RhACl)2+2L=2RhALCl)=6.0, A=1,5-cyclooctadiene.
DH=-37 kJ mol-1
********************************************************************************
C3H10N2                  L    Propanediamine   CAS 109-76-2  (123)
1,3-Diaminopropane; H2N.CH2.CH2.CH2.NH2
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Rh+++      sp  NaClO4 25°C  1.0M C                       1984OSa (28321) 124
                                        *K1(cis-RhL2)=-6.15
                                        *K2(cis-RhL2(OH))=-8.20
                                        *K1(trans-RhL2)=-4.39
                                        *K2(trans-RhL2(OH))=-8.20
********************************************************************************
C4H6O4S               H3L    Thiomalic acid   CAS 70-49-5  (109)
2-Mercaptosuccinic acid, 2-Sulfanyl-1,4-butanedioic acid; HOOC.CH(SH).CH2.COOH
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Rh+++      sp  oth/un 30°C    ?  U        K1=21.6        1966SNb (30360) 125
By glass electrode: K2=8.4
********************************************************************************
C4H8S                    L                       CAS 110-01-0  (150)
Tetrahydrothiophene; cyclo(-CH2.CH2.S.CH2.CH2-)
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Rh+++      cal non-aq 24°C 100%  U   HM                  1976LDa (33741) 126
Medium: benzene. K((RhACl)2+2L=2RhALCl)=1.4, A=1,5-cyclooctadiene.
DH=-22 kJ mol-1
********************************************************************************
C4H9NO                   L    Morpholine       CAS 110-91-8  (318)
Perhydro-1,4-oxazine, Tetrahydro-1,4-oxazine; C4H8NO
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Rh+++      cal non-aq 24°C 100%  U   HM                  1976LDa (33794) 127
Medium: benzene. K((RhACl)2+2L=2RhALCl)=3.9, A=1,5-cyclooctadiene.
```

DH=-41 kJ mol-1
****
C5H5N L Pyridine CAS 110-86-1 (31)
Pyridine, Azine;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh+++ cal oth/un 25°C 0.10M U HM 1977DSa (36674) 128
K(Rh2(O2CCH2OCH3)4+L)=4.52
K(Rh2(O2CCH2OCH3)4L+L)=2.81
Medium: phosphate buffer, pH 7.4

Rh+++ sp alc/w 25°C 100% U T M 1977PVa (36675) 129
K(RhA2Cl2+L)=1.98
A=o-dimethylaminophenyldimethylarsine.Also with many substituted pyridines
Medium: MeOH

Rh+++ cal non-aq 24°C 100% U IHM 1976LDa (36676) 130
Medium: benzene. K((RhACl)2+2L=2RhALCl)=3.04, A=1,5-Cyclooctadiene.
DH=-28 kJ mol-1. In triethylphosphate, K=3.61, DH=-30 kJ mol-1
****
C5H6 HL Cyclopentadiene CAS 542-92-7 (4288)
Cyclopentadiene; cyclo(-CH:CH.CH2.CH:CH-)

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh+++ sp NaClO4 25°C 0.20M U M 1999CEa (37081) 131
*K(RhL(H2O)3)=-6.47
K(2RhL(OH)=(RhL)2(u-OH)3)=-8.9
K(RhL+Cl)=2.1
K(RhL+Br)=2.8
K(RhL+CN-py)=3.2, K(RhL+py-nia)=3.6, K(RhL+py)=4.6, K(RhL+dms)=3.4,
K(RhL+tu)>6, K(RhL+SCN)=5.1. dms: dimethylsulfide; py-nia: nicotinamide.
****
C5H10N4O3 L CAS 54376-69-1 (8335)
N,N'-Carbonylbis(2-aminoacetamide);

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh+++ gl NaClO4 25°C 0.10M U TIH K1=9.75 B2=14.90 1980SAc (40139) 132
Data for 0.075-0.15 M. At I=0, K1=10.20, K2=5.75. Also data for 30 C.
DH and DS values.
****
C5H11N L Piperidine CAS 110-89-4 (105)
Perhydropyridine; cyclo(-CH2.CH2.CH2.NH.CH2.CH2-) C5H11N

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh+++ cal non-aq 24°C 100% U HM 1976LDa (40458) 133
Medium: benzene. K((RhACl)2+2L=2RhALCl)=5.4, A=1,5-Cyclooctadiene.

DH=-42 kJ mol-1

****

C6H7N L gamma-Picoline CAS 108-89-4 (325)
4-Methylpyridine; C5H4N.CH3

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+++	cal	non-aq	24°C	100%	U	IHM		1976LDa (44833)	134

Medium: benzene. K((RhACl)2+2L=2RhALCl)=3.67, A=1,5-Cyclooctadiene.
DH=-30 kJ mol-1. In THF: 2.94, DH(B2)=-32 kJ mol-1

****

C6H9N3O2 HL Histidine CAS 71-00-1 (1)
2-Amino-3-(4'-imidazolyl)propanoic acid; H2N.CH(CH2.C3H3N2)COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+++	cal	oth/un	25°C	0.10M	U	HM	K(Rh2(O2CCH2OCH3)4+L)=4.38 K(Rh2(O2CCH2OCH3)4L+L)=2.79	1977DSa (47608)	135

Medium: phosphate buffer, pH 7.4

****

C6H14S L (6898)
S-Ethyl-2-mercaptobutane; CH3.CH(SCH2.CH3)CH2.CH3

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+++	EMF	non-aq	25°C	100%	U		K1=2.59 B2=4.53 B3=6.25	1990MRc (51141)	136

Medium: Dimethylformamide, 0.1 M NaClO4; Rh/Pt-electrode

****

C7H6O2S H2L Thiosalicylic CAS 147-93-3 (236)
2-Mercaptobenzoic acid; HS.C6H4.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+++	oth	alc/w	?	40%	U		K1=8.55 B2=15.30	1973NNa (53915)	137

****

C7H7NO L Benzamide CAS 55-21-0 (2328)
Benzamide; C6H5.CO.NH2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh+++	sp	NaClO4	25°C	1.0M	U		K(Rh(NH3)5+H-1L)=2.2	1975ZFa (55150)	138

****

C7H13N L Quinuclidine CAS 100-76-5 (1784)
1-Azabicyclo[2.2.2]octane;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo

Rh+++ cal non-aq 24°C 100% U HM 1976LDa (57423) 139
Medium: benzene. K((RhACl)2+2L=2RhALCl)=1.3, A=1,5-Cyclooctadiene.
DH=-29 kJ mol-1
****
C7H16S L (6899)
S-Ethyl-2-methyl-2-mercaptobutane; H3C.CH2.S.C(CH3)2.CH2.CH3

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh+++ EMF non-aq 25°C 100% U I K1=2.32 B2=4.12 1990MRc (58097) 140
B3=5.81
Medium: Dimethylformamide, 0.1 M NaClO4; Rh/Pt-electrode
In acetone: K1=3.71, B2=6.99, B3=9.27
****
C8H13NO6S H3L (5675)
2-Mercapto-1-aminoethane-N,N,S-triethanoic acid; HOOC.CH2.S.CH2.CH2.N(CH2COOH)2

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh+++ gl oth/un 25°C 0.10M U 1983ESa (61830) 141
K(RhL+H)=3.65
K(RhHL+H)=3.2
****
C8H18S L CAS 544-40-1 (2346)
Bis(n-butyl)sulfide; C4H9.S.C4H9

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh+++ EMF non-aq 25°C 100% U I K1=4.05 B2=7.75 1990MRc (63008) 142
B3=10.80
Medium: Acetone, 0.1 M NaClO4; Rh/Pt-electrode. In DMF K1=2.61, B2=4.70,
B3=6.56
****
C9H7N3O2S H2L TAR CAS 2246-46-0 (707)
4-(2'-Thiazolylazo)-resorcinol; C3H2NS.N:N.C6H3(OH)2

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh+++ sp oth/un ? ? U 1968BIb (64723) 143
K(Rh+HL)=8.45

Rh+++ sp alc/w 25°C 50% U 1967NPb (64724) 144
K(?)=12
Medium: 50% MeOH, 0.1 M NaClO4
****
C9H18O2S L (6900)
S-Butyl-O-(2-butyl)thiocarbonate; CH3.CH2.CH(CH3).O.CO.S.CH2.CH2.CH2.CH3

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---

```
Rh+++      EMF non-aq 25°C 100%  U        K1=1.96   B2=3.45   1990MRc (67961) 145
                                          B3=4.81
Medium: Dimethylformamide, 0.1 M NaClO4; Rh/Pt-electrode
**************************************************************************
C10H14N5O7P           H2L    AMP-5           CAS 18422-05-4  (842)
Adenosine-5'-monophosphoric acid, 5-Adenylic acid;
--------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------
Rh+++      cal oth/un 25°C 0.10M U   HM                 1977DSa (72484) 146
                                        K(Rh2(O2CCH2OCH3)4+L)=3.45
                                        K(Rh2(O2CCH2OCH3)4L+L)=2.70
Medium: phosphate buffer, pH 7.4
--------------------------------------------------------------------------
Rh+++      sp  oth/un 22°C 0.10M U    M                 1975RHa (72485) 147
                                        K(RhA+L)=3.18
                                        K(RhB+L)=3.28
                                        K(RhY+L)=3.63
                                        K(RhAL+L)=2.20
At pH 7. K(RhBL+L)=2.31; K(RhCL+L)=2.54. HA=CH3.CO.COOH; HB=CH3.COOH;
HC=C2H5.COOH
**************************************************************************
C10H15N5O10P2         H3L    ADP             CAS 20398-34-9  (2181)
Adenosine-5'-diphosphoric acid;
--------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------
Rh+++      sp  oth/un 22°C 0.10M U        K1=3.06   B2=5.10   1975RHa (73012) 148
Cation is RhCH3COO+ and ionic medium is a K-phosphate buffer
**************************************************************************
C10H16N5O13P3         H4L    ATP             CAS 56-65-5  (403)
Adenosine-5'-triphosphoric acid;
--------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------
Rh+++      sp  oth/un 22°C 0.10M U                     1975RHa (74815) 149
                                        K(Rh(CH3COO)+L)=3.27
                                        K(Rh(CH3COO)L+L)=2.11
                                        K(Rh(C2H5COO)+L)=3.65
                                        K(Rh(C2H5COO)L+L)=2.52
Medium: 0.1 M phosphate buffer, pH 7.5
**************************************************************************
C12H24O2S               L                       (6901)
S-Pentyl-O-(hexyl)thiocarbonate; C6H13.O.CO.S.C5H11
--------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------
Rh+++      EMF non-aq 25°C 100%  U        K1=1.89   B2=3.30   1990MRc (83114) 150
                                          B3=4.51
Medium: Dimethylformamide, 0.1 M NaClO4; Rh/Pt-electrode
```

****
C12H26S L CAS 6294-31-3 (5697)
S,S-Dihexylsulfide; C6H13.S.C6H13

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh+++ EMF non-aq 25°C 100% U K1=3.98 B2=7.54 1990MRc (84034) 151
B3=10.48
Medium: Acetone, 0.1 M NaClO4; Rh/Pt-electrode
****
C13H9N3OS HL TAN CAS 1147-56-4 (4030)
1-(1',3'-Thiazol-2'-ylazo)-2-hydroxynaphthalene;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh+++ sp mixed ? 40% U K1=9.84 1971IBa (84617) 152
Medium: 40% dimethylformamide
****
e- HL Electron (442)
Electron;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh++++ EMF oth/un 25°C 0.25M U I 1948DSa (888) 153
K(Rh(IV)+e=Rh)=23.3(1380 mV)
Medium: H2SO4. In 3 M H2SO4: K=24.4(1440 mV), 0.5 M: 24.3(1435 mV)

Rh++++ EMF oth/un 22°C 0.10M U 1937GGa (889) 154
K(Rh(VI)+2e)=50(1460 mV)
Medium: H2SO4
****
Cl- HL Chloride CAS 7647-01-0 (50)
Chloride;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh++++ sp oth/un 25°C ? U 1974TMa (5638) 155
K4=3.48
****
OH- HL Hydroxide (57)
Hydroxide;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Rh++++ kin NaClO4 25°C 1.00M U 1977KLa (12065) 156
K(RhO(OH)+OH=RhO(OH)2)=4.48
K(RhO(OH)2+OH=RhO(OH)3)=3.54

Rh++++ kin oth/un 25°C .007M U 1977KYa (12066) 157
K(RhO2+OH)=7.3

****

C10H8N2 L 2,2'-Bipyridyl CAS 366-18-7 (25)
2,2'-Bipyridine; (C5H4N)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Rh++++	sp	none	25°C	0.0	U			1982CCc (69637)	158
							K(2Rh(I)L2=[RhL2]2)=4.0		
							K(Rh(I)L2+H3O=RhL2(H)H2O)=7.3		
							K([Rh(I)L2]2+H=[RhL2]2H)=9.3		

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EXPLANATORY NOTES

DATA Flags are :-

T Data at other TEMPERATURES
I Data with various BACKGROUNDS
H Data for THERMOCHEMICAL quantities
M Data for TERNARY Complexes

EVALUATION Flags are :-

END Experiments recorded for
from SC-Database on Saturday, 01 January, 2000 at 01:03:30