START Experiments recorded for
    from SC-Database on Saturday, 01 January, 2000 at 01:01:47
Software version = 5.81 Data version = 4.62
Experiment list contains 232 experiments for
 (no ligands specified)
 5 metals : Ru(IV), Ru(V), Ru(VI), Ru++, Ru+++
 (no references specified)
 (no experimental details specified)

****

e- HL Electron (442)
Electron;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(IV)	oth	none	25°C	0.0	U		1952LAb (890)		1
							K=53.3(790 mV)		

K: RuO2(s)+4H+4e=Ru(s)+2H2O. From thermodynamic data

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(IV)	EMF	NaClO4	25°C	9.0M	U	I	1950WHa (891)		2
							K=102(1510 mV)		

Medium:HClO4. K(Ru(VIII)O4+4e=Ru(IV). I=6 M: K=97(1430 mV), I=1:K=95(1400mV)

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(IV)	EMF	none	25°C	0.0	U	M	1949BDa (892)		3
							K=16.2(960 mV)		

Medium: HCl to I=0 corr. K: R(IV)Cl(OH)2+e)=16.2(960 mV); K(Ru(IV)Br(OH)2+e)
=13.9(820 mV). K(Ru(III)Cl2+e)=1.42(84 mV)

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(IV)	EMF	KCl	25°C	0.50M	U	I	1941GFa (893)		4
							K(Ru+e=Ru(III))=15.35(908 mV)		

Medium: HCl. In 2 M: K=14.51(858 mV)

****

CO L Carbon monoxide CAS 630-08-0 (551)
Carbon monoxide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(IV)	kin	alc/w	25°C	100%	U	M	1983WPa (2821)		5
							K(H3Ru4(CO)12+H)=11.7		
							K(HRu4(CO)13+H)=11.1		

****

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(IV)	sp	NaClO4	rt	4.0M	U		1974SPe (5639)		6
							K(Ru(OH)2L3+L)=0.36		

Medium: HClO4

```
Ru(IV)     sp  NaClO4 90°C  4.0M U                      1972SBb  (5640)   7
                                        K(Ru(OH)2+3L)=6.0
                                        K(Ru(OH)2+4L)=6.2
Medium: HClO4
-------------------------------------------------------------------------------
Ru(IV)     sp  NaClO4  rt   4.0M U                      1971NVa  (5641)   8
                                        K(Ru(OH)2+2L)=1.4
                                        K(Ru(OH)2+4L)=2.16
                                        K=-0.23
Medium: HClO4. K: Ru(OH)2L4+H+L=Ru(OH)L5+ H2O
-------------------------------------------------------------------------------
Ru(IV)     ISE NaClO4  rt   1.0M U       K1=3.27   B2=5.97   1971PSe  (5642)   9
                                        K3=2.57
                                        K4=2.44
                                        K5=2.38
Medium: HClO4
-------------------------------------------------------------------------------
Ru(IV)     oth NaClO4  6°C 0.46M U  I M                 1970OOa  (5643)  10
                                        K1(Ru(OH)2+L)=0.91
                                        K2(Ru(OH)2+2L)=1.12
                                        K3(Ru(OH)2+3L)=0.82
Medium: HClO4. I=0.92 M: K1=0.90; K2=1.05; K3=0.89
Method: electrical migration or transference number
-------------------------------------------------------------------------------
Ru(IV)     ix  NaClO4   ?   1.0M U                      1959PLb  (5644)  11
                                        K(Ru(OH)2+2L)=3.80
                                        K(Ru(OH)2L2+2L)=-0.63
*******************************************************************************
H2                      L    Hydrogen          (6864)
Dihydrogen;
-------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------------
Ru(IV)     cal non-aq   ?  100%  U   HM                  1993BSb  (7519)  12
Medium: Cyclohexane. DH(RuA2+L=RuLA2)=-95.0 kJ mol-1.
A:1,2-Bis(dimethylphosphino)ethane.
-------------------------------------------------------------------------------
Ru(IV)     cal non-aq ???  100%  U   HM                  1993BSb  (7520)  13
Medium: Cyclohexane.  DH(RuA2B+L=RuLA2+B)=84.9 kJ mol-1.
A:1,2-Bis(dimethylphosphino)ethane. B:CO.
-------------------------------------------------------------------------------
Ru(IV)     cal non-aq ???  100%  U   HM                  1993BSb  (7521)  14
Medium: Cyclohexane.  DH(RuA2B+L=RuLA2+B)=-16.3 kJ mol-1.
A:1,2-Bis(dimethylphosphino)ethane. B:N2.
*******************************************************************************
NO3-                    HL    Nitrate          CAS 7697-37-2  (288)
Nitrate;
-------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------------
```

Ru(IV) EMF oth/un 75°C dil U 1974SBe (9909) 15
K(Ru(NO)(NH3)4+L)=0.48
Spectrophotometry and conductivity also used

****

OH- HL Hydroxide (57)
Hydroxide;

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

---

Ru(IV) kin oth/un 25°C 0.50M U 1992LCa (12067) 16
*K(Ru(IV)A(OH)(H2O))=-1.32
*K(Ru(III)A(H2O)2)=-0.98
A=6,7,8,9,10,,11,17,18-Octahydro-6,10-dimethyl-5H-dibenzo[e,n][1,4,8,12]-dioxadiazacyclopentadecine.

Ru(IV) sol NaCl 25°C 0.10M U 1983VKc (12068) 17
K[Ru(OH)2+2OH=Ru(OH)4]= 18.4

Ru(IV) sol oth/un 25°C 0.50M U 1974BNa (12069) 18
Ks(Ru4(OH)16)=-43.3
Medium: CH3SO3Na. Ks: Ru4(OH)16(s)=Ru4(OH)12++++ + 4OH

Ru(IV) sol oth/un 25°C var U 1968BNd (12070) 19
Kso=-49

Ru(IV) sol none 20°C 0.0 U 1961BKa (12071) 20
K(Ru(OH)4=Ru(OH)2+2OH)=-27.3

Ru(IV) sol oth/un 25°C 0.10M U 1961GCa (12072) 21
K(RuO2(s)+2H=RuO)=0.77

Ru(IV) gl oth/un ?25 ? U M 1961ZSa (12073) 22
*K1(RuNO(NO3)3(H2O)2)=-3.08
*K2=-9.00
*K1(RuNO(NO3)2(H2O)3)=-2.40
*K2=-4.14
*K3=-9.67. Values also for other complexes

Ru(IV) sol oth/un ?25 var U 1958STb (12074) 23
Kso(Ru(OH)4)=-43.7

Ru(IV) sol oth/un ? dil U 1957SKb (12075) 24
Kso(Ru(OH)4)=-34

****

SO4-- H2L Sulfate CAS 7664-93-9 (15)
Sulfate;

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

---

Ru(IV) ix NaClO4 35°C 2.0M U TI 1967VLb (16524) 25

K(RuO+L)=1.37
K=1.07(20 C), 1.16(25 C). At I=1: K=1.25(20 C), 1.31(25 C), 1.58(35 C).
I=0.5:K=1.37(20 C),1.47(25 C),1.69(35 C). DH=32 kJ mol-1, DS=67 J K-1 mol-1

Ru(IV) ix NaClO4 ? 4.0M U I 1965VLa (16525) 26
K(RuO+HL=H+RuOL)=0.82
*K1=1.10(I=2)
****
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
---
Ru(IV) sp non-aq 21°C 100% U M 1983LKa (23922) 27
K(Ru(CO)A+L)=4.96
Medium: C2H4Cl2. A=tetraphenylporphin
****
C4H4N2 L Pyrazine CAS 290-37-9 (620)
1,4-Diazine, Pyrazine;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru(IV) sp oth/un 25°C 0.10M U M 1989SFa (28794) 28
Keff(RuA+L)=1.65
Keff(RuB+L)=1.64
A=(NH3)4P(OCH2CH3)2(OH), Keff at pH 6.8; also for pH 2.7, 3.1, 4.5 and 5.4
B=(NH3)4P(OH)3, Keff at pH 6.9; also for pH 2.6. Medium: NaCF3COO
****
C6H6O HL Phenol CAS 108-95-2 (457)
Hydroxybenzene, phenol; C6H5.OH

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru(IV) sp oth/un 25°C 0.10M U 1994CSa (43543) 29
K(RuA5NHCOL+H=RuA5NHCOHL)=8.0
Medium: KCF3SO3. A=NH3
****
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
---
Ru(IV) sp NaCl 23°C 0.10M C T 1996ZWa (69638) 30
K(RuL2HA=RuL2A)=0.82
Ru(II). HA=3-carboxyl-2,2'-bipyridine.

Ru(IV) sp oth/un 25°C 0.10M U 1987ACa (69639) 31
*K(RuL2(H2O)2)=-8.9
Medium: phosphate buffer. Data is for cis isomer. *K=-9.3 for trans.
****

C12H8N2 L Phenanthroline CAS 66-71-7 (144)
1,10-Phenanthroline;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(IV)	sp	oth/un	25°C	0.10M	U		*K(RuL2(H2O)2)=-10.1	1987ACa (80510)	32

****
C12H8N2O4 H2L CAS 6813-38-3 (5904)
4,4'-Dicarboxy-2,2'-bipyridine;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(IV)	sp	oth/un	25°C	?	U	M	K(Ru(HL)2L+H)=1.70 K(RuL2HL+H)=2.20 K(Ru(bpy)LHL+H)=1.80 K(Ru(bpy)L2+H)=2.50	1989NKa (80550)	33

****
C12H8N2O4 H2L CAS 1802-30-8 (5905)
5,5'-Dicarboxy-2,2'-bipyridine;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(IV)	sp	oth/un	25°C	?	U		K(Ru(HL)2L+H)=2.80	1989NKa (80553)	34

****
C18H15P L CAS 603-35-0 (621)
Triphenylphosphine; (C6H5)3P

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(IV)	sp	non-aq	25°C	100%	U	T	K(RuA+L)=3.78 K(RuAL+L)=1.99	1988DFa (97148)	35

H2A=N,N'-ethylenebis(salicylidineimine). Medium: benzene. Also data at 15, 2
1 and 30 C.
****
C19H13N5 L (6734)
2,6-Bis(benzimidazol-2-yl)pyridine;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(IV)	gl	mixed	25°C	50%	U		*K(RuL2) < 0 *K(RuH-1L2) < 0 *K(RuH-2L2) < 2 *K(RuH-3L2)=-3.1	1993XHa (99063)	36

Medium: 50% v/v acetonitrile/H2O.
****

C14H32N4 L 4-Mecyclam-14 CAS 41203-22-9 (935)
1,4,8,11-Tetramethyl-1,4,8,11-tetraazacyclotetradecane;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(V)	kin	oth/un	26°C	0.10M	U	T	K(RuL(O)2+H=RuL(O)OH)=2.79	1990CLb (90804)	37

Medium: F3CSO3Na. RuL(O)2 is trans isomer. At 32 C: K= 2.78;
37 C: K=2.84; 47 C: K=2.89.

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(V)	kin	oth/un	32°C	0.10M	U		K(RuL(O)2+H=RuL(O)OH)=3.127	1990CLb (90805)	38

Medium: D2O,F3CSO3Na. RuL(O)2 is trans isomer

****

e- HL Electron (442)
Electron;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(VI)	sp	oth/un	20°C	var	U	H	K'=0.64 K(RuO4- + e=RuO4)=10.23, 595mV	1966LBa (894)	39

Medium is various concs NaOH. K: RuO4- + MnO4-- = RuO4-- + MnO4-.
DH= -16.7 kJ mol-1, DS= -46 J K-1 mol-1

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(VI)	oth	none	25°C	0.0	M		K(RuO4+e=RuO4-)=1.67, 990 mV K'=27.4	1957CHa (895)	40

K': 4RuO4- + 4H=3RuO4 + RuO2(H2O)2(s)

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(VI)	EMF	none	25°C	0.0	U		K=16.9(1000 mV)	1954SLa (896)	41

Ru(VIII). K:Ru(VIII)O4+e=Ru(VII)O4

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(VI)	EMF	none	25°C	0.0	U		K=10.0(0.59 V)	1954SLa (897)	42

K:RuO4(VII)+e=Ru(VI)O4. By analysis: K(2Ru(VII)O4+RuO2(H2O)x(s)+4OH=
Ru(VI)O4+(2-x)H2O. K(Ru(VII)O4+(2-x)H2O+2e=RuO2(H2O)x(s)+4OH

****

OH- HL Hydroxide (57)
Hydroxide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(VI)	oth	oth/un	25°C	dil	U	T	K(RuO4(aq)=RuO4(g))=-1.01	1964NIb (12076)	43

Ru(VIII). Method: partial pressure RuO4

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru(VI)	EMF	oth/un	25°C	var	U		*K1(RuO4+H2O=HRuO4+OH) < -5	1957CHa (12077)	44

Metal: Ru(VII)

Ru(VI) dis oth/un 20°C dil U 1954MAb (12078) 45
Kd=1.77
*K1=-11.17
Ru(VII). Kd: K(RuO4=RuO4(in CCl4))=1.77; *K1: K(RuO4+H2O=H+HRuO5)
At I=0 corr. K(RuO4+H2O=HRuO5+OH)=-14.24
****
C6H6O8S2 H4L Tiron CAS 149-45-1 (104)
4,5-Dihydroxybenzene-1,3-disulfonic acid; (HO)2.C6H2(SO3H)2

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru(VI) sp NaNO3 25°C 1.50M U 1968PLa (44485) 46
K(?)=14.66
Metal ion: RuO4--. pH 0.28-0.68
****
C8H10N2O3S L (4581)
Methanesulfonylbenzamidoxime; CH3.SO2.C6H4.C(:N.OH).NH2

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru(VI) dis oth/un ? ? U 1972KUa (60750) 47
K(RuO4+2HL=RuO4(2HL)) = 9.35
****
C9H12N2O3S L CAS 33967-87-2 (4684)
Ethanesulfonylbenzamidoxime; CH3.CH2.SO2.NH.C(:N.OH).C6H5

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru(VI) dis oth/un ? ? U 1972KUa (66609) 48
K(RuO4+2HL)=9.47
****
C13H12N2O3S HL CAS 20037-46-1 (5013)
Benzenesulfonylbenzamidoxime;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru(VI) dis oth/un ? ? U 1972KUa (85350) 49
K(RuO4+2HL)=10.42

Ru(VI) sp oth/un ? 1.0M U K1=5.48 B2=10.49 1971KUa (85351) 50
Medium: HCl. In 4 M HCl, K1(?)=5.77. Definition of K values uncertain
****
Br- HL Bromide CAS 10035-10-6 (19)
Bromide;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru++ sp NaClO4 25°C 0.10M U 1973CGb (2296) 51

K(Ru(NH3)5+L)=0.04
Medium: HClO4
****
CN- HL Cyanide CAS 74-90-8 (230)
Cyanide;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru++ con oth/un 25°C 0.0 U 1970FKb (2760) 52
K(K+Ru(CN)6)=2.48
****
Cl- HL Chloride CAS 7647-01-0 (50)
Chloride;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru++ sp non-aq 25°C 100% U T 1974JMa (5645) 53
K(Ru(PPh3)3+L)=4.14
Medium: dimethylacetanilide

Ru++ sp oth/un 25°C 0.10M U 1973CGb (5646) 54
K(Ru(NH3)5+L)=0.15

Ru++ kin oth/un 24°C 0.10M U K1=1 1972DMa (5647) 55
Medium: Li-p-toluenesulfonate

Ru++ vlt oth/un 25°C 0.30M U K1=0.00 1971KEa (5648) 56
Medium: HBF4

Ru++ vlt oth/un var U 1966BMc (5649) 57
B6=-13
****
ClO4- HL Perchlorate CAS 7001-90-3 (287)
Perchlorate;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru++ sol oth/un 25°C ? U 1974TAb (6374) 58
K(Ru(phen)3+L)=3.36
K(Ru(phen)3L+L)=0.83
Medium:Na2SO4. K1=2.38,K2=1.73(dis,CHCl3); K1=5.43,K2=2.49(dis,acetophenone)
****
I- HL Iodide CAS 10034-85-2 (20)
Iodide;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru++ dis oth/un 25°C 0.25M U 1974TAb (8360) 59
K(Ru(phen)3+L)=2.58
K(Ru(phen)3L+L)=0.99

Medium: Na2SO4
****
IO4- HL Periodate CAS 13444-71-8 (6063)
Periodate;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru++ dis oth/un 25°C 0.25M U 1974TAb (8613) 60
K(Ru(phen)3+L)=3.46
K(Ru(phen)3L+L)=1.63
Medium: Na2SO4
****
NH3 L Ammonia CAS 7664-41-7 (414)
Ammonia

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru++ cal oth/un 25°C 0.10M U H 1972WAa (9211) 61
Medium:0.1M NH3. DH6=-5.0 kJ mol-1
****
NO L Nitric oxide CAS 10102-43-9 (850)
Nitric oxide;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru++ sp oth/un 25°C 0.20M C 2002WSa (9308) 62
K(Ru(edta)H2O+NO)=ca.>5.8
Medium: 0.20 M acetate buffer, pH 5.0. Additional method: electrochemical
determination of NO.
****
N2 L Nitrogen CAS 7727-37-9 (5686)
Dinitrogen, also Nitrous oxide; N2O

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru++ cal oth/un ? 0.01M U HM 1972WAa (10025) 63
DH(Ru(NH3)5)OH2+Ru(NH3)5N2=(Ru(NH3)5)2N2+H2O)=-28.0 kJ mol-1

Ru++ sp oth/un 25°C 0.30M U M 1971EGa (10026) 64
K'=3.62
Medium:(K,H)SO4. K': cis-Ru(NH3)4(H2O)2+Os(NH3)5N2. K'=3.61 by kinetics
---
Ru++ kin NaCl 25°C 0.10M U T HM 1970ATa (10027) 65
K'=4.56 (4.52 by analysis)
K'(Ru(NH3)5)H2+N2(aq)=Ru(NH3)5N2+H2O). K'=4.69(20.1 C), 4.36(35 C).
By analysis: K'=4.41(30 C), 4.08(45 C). DH=-42 kJ mol-1

Ru++ oth oth/un 30°C 0.10M U T M 1970ATa (10028) 66
Medium:(Na,H)Cl,Method:chemical analysis,Ligand:dinitrogen,Metal:Ru(NH3)++
B[Ru(NH3)5OH2+N2(aq)=Ru(NH3)5N2+H2O]=4.41,Additional Temp.:B=4.32,4.08(35,45

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--------------------------------------------------------------------------------
Ru++       oth NaCl   25°C 0.10M U T HM                 1970ATa (10029)  67
                                          K'=3.86
Method:chemical analysis. K':Ru(NH3)5OH2+Ru(NH3)5N2=(Ru(NH3)5)2N2+H2O.
K'=3.74(30 C), 3.62(35 C), 3.36(45 C). DH=-46.9 kJ mol-1
--------------------------------------------------------------------------------
Ru++       cal oth/un 25°C  var  U   HM                 1970ATa (10030)  68
DH(2Ru(NH3)OH2+N2(aq)=(Ru(NH3)5)2N2+2H2O)=-92.0 kJ mol-1
--------------------------------------------------------------------------------
Ru++       kin KCl    20°C 0.02M U T  M                 1969ATa (10031)  69
                                          K(Ru(NH3)5+N2O)=0.70
Medium: HCl, N2O in solution. At 6.8 C, K=0.85
--------------------------------------------------------------------------------
Ru++       kin KCl    25°C    ?  U    M                 1969ATa (10032)  70
                                          K(Ru(NH3)5(H2O)+N2)=4.7
Medium: HCl. Ru(NH3)5)OH2+N2(aq)=Ru(NH3)5N2+H2O)
********************************************************************************
OH-                    HL    Hydroxide          (57)
Hydroxide;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Ru++       gl  NaCl   25°C 0.10M U                       1974ITa (12079)  71
                                          *K'=-2.15
                                          K(Ru(NH3)4(SO3)(H2O)+H)=5.05
*K': Ru(NH3)4SO2H2O=Ru(NH3)4SO2(OH) + H
********************************************************************************
SCN-                   HL    Thiocyanate      CAS 463-56-9  (106)
Thiocyanate;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Ru++       dis oth/un 25°C 0.25M U    M                  1974TAb (15246)  72
                                          K(Ru(phen)2+L)=2.80
                                          K(Ru(phen)2L+L)=1.02
********************************************************************************
SO4--                  H2L    Sulfate          CAS 7664-93-9  (15)
Sulfate;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Ru++       oth none   25°C  0.0  C                      1975YYa (16526)  73
                                          K(Ru(phen)3+SO4)=1.60
Method: vapour pressure osmometry.
--------------------------------------------------------------------------------
Ru++       ix  NaClO4 28°C  2.0M U  IH    K1=1.30        1967VLb (16527)  74
K1=1.70(I=1), 1.88(I=0.5), 2.02(I=0.25), 2.72(I=0). DH(K1)=0,DS=52 J K-1 m-1
--------------------------------------------------------------------------------
Ru++       ix  NaClO4 20°C  2.0M U        K1=1.35        1966VLb (16528)  75
********************************************************************************
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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
Ru++	kin	oth/un	25°C	0.10M	U		1996LNa (23923)	76
							K(Ru(NH3)4P(OMe)3+L)=1.82		
							K(Ru(NH3)4P(OBu)3+L)=3.08		
							K(Ru(NH3)4P(OPr)3+L)=3.18		
							K(Ru(NH3)4(SbH3)+L)=0.83		
Medium: 0.1 M (CF3COONa/NaHCO3), pH 8.5.							K(Ru(NH3)4(AsH3)+L)=1.46		
K(Ru(NH3)4(PBu3)+L)=1.86.									
Ru++	kin	oth/un	25°C	0.10M	U	M		1978BSc (23924)	77
							K(Ru(NH3)4SO3+L)=4.07		
Medium: 0.1M Tris-HCl-buffer, pH 8.6									

C4H4N2 L Pyrazine CAS 290-37-9 (620)
1,4-Diazine, Pyrazine;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru++	kin	NaClO4	25°C	0.10M	U		1998PHa (28795)	78
							K(Ru(NH3)5L+H)=2.49		
Medium: 0.10 M LiClO4.									
Ru++	sp	oth/un	23°C	?	U	M	1983JSa (28796)	79
							K(Ru(CN)5L+H)=0.4		
Ru++	kin	oth/un	25°C	0.10M	U	M	1978BSc (28797)	80
							K(Ru(NH3)4SO3)+L)=3.46		

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
Ru++	kin	oth/un	25°C	0.10M	U	M	1978BSc (29607)	81
							K(Ru(NH3)4SO3+L)>4.7		
Medium: 0.1M Tris-HCl-buffer, pH 8.6									

C5H5N5 L Adenine CAS 73-24-5 (237)
6-Aminopurine; H2N.C5H3N4

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru++	kin	oth/un	25°C	0.10M	U	M	1978BSc (36978)	82
							K(Ru(NH3)4SO3+L)=0.90		
Medium: 0.1M Tris-HCl-buffer. pH 8.63									

C6H5NO2 HL Nicotinic acid CAS 59-67-6 (419)
3-Pyridine-carboxylic acid; C5H4N.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru++	gl	mixed	25°C	50%	C		1999PMb (42686)		83
							K(trans-RuL4Cl2+H)=4.61		
							K(trans-RuHL4Cl2+H)=4.42		
							K(trans-RuH2L4Cl2+H)=3.49		
							K(trans-RuH3L4Cl2+H)=2.72		

Medium: 50% v/v acetone/H2O, 0.10 M KCl.

****

C6H5NO2 HL Isonicotinic ac CAS 55-22-1 (1639)
4-Pyridine-carboxylic acid; C5H4N.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru++	gl	mixed	25°C	50%	C		1999PMb (42699)		84
							K(trans-RuL4Cl2+H)=4.80		
							K(trans-RuHL4Cl2+H)=4.31		
							K(trans-RuH2L4Cl2+H)=3.73		
							K(trans-RuH3L4Cl2+H)=2.80		

Medium: 50% v/v acetone/H2O, 0.10 M KCl.

****

C6H5N5 L (1699)
3-(Pyrazin-2-yl)-1,2,4-triazole; C4H3N2.C2H2N3

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru++	sp	oth/un	?	0.04M	M		1991HHa (43000)		85
							K(Ru(bpy)2L+H=Ru(bpy)2HL)=3.7		

Result given is for the N(2) isomer. For the N(4) isomer, K=5.3
With 3-methyl-5-(pyrazin-2-yl)-1,2,4-triazole: K=4.2

****

C6H6N2O L Isonicotinamide CAS 1453-82-3 (1949)
Isonicotinamide, Pyridine-4-carboxylic acid amide; C5H4N.CO.NH2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru++	kin	oth/un	25°C	0.10M	U		1996LNa (43259)		86
							K(Ru(NH3)4(PBu3)+L)=1.98		

Medium: 0.1 M (CF3COONa/NaHCO3), pH 8.5.

****

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
Ru++	kin	oth/un	25°C	0.10M	U	M	1978BSc (47609)		87
							K(Ru(NH3)4SO3+L)=3.04		

Medium: 0.1M Tris-HCl-buffer, pH 8.1
****
C7H9N5O HL CAS 42484-34-4 (2185)
1,9-Dimethylguanine;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru++ kin oth/un 25°C 0.10M U M 1978BSc (56514) 88
K(Ru(NH3)4SO3+L)=2.88
Medium: 0.1M Tris-HCl-buffer, pH 8.63
****
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
---
Ru++ sp NaCl 25°C 0.10M C M 2001RRa (69640) 89
*K(RuLA(H2O))=-11.1
A=N,N-bis(2-pyridyl)ethylamine.
****
C11H15N5O5 HL CAS 2140-65-0 (2184)
1-Methylguanosine;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru++ kin oth/un 25°C 0.10M U M 1978BSc (79075) 90
K(Ru(NH3)4SO3+L)=2.88
Medium: 0.1M Tris-HCl-buffer, pH 8.63
****
C12H8N2 L Phenanthroline CAS 66-71-7 (144)
1,10-Phenanthroline;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru++ gl NaCl 25°C 0.10M C H 2000KEa (80511) 91
Kout(RuL3+L)=1.68
By calorimetry: DH(Kout)=-1.30 kJ mol-1, DS=24 J K-1 mol-1.
****
C12H8N2O4 H2L CAS 6813-38-3 (5904)
4,4'-Dicarboxy-2,2'-bipyridine;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru++ gl alc/w 25°C 20% U 1998ZNa (80551) 92
K(RuL2A+2H)=3.5
K(Ru(HL)2A+2H)=1.8
Medium: 20% (v/v) EtOH/H2O, 0.1 M NaNO3. A: diethyldithiocarbonate.
****
C15H12N3O3P H2L CAS 303111-36-2 (7707)
2,2':6',2"-Terpyridine-4-phosphonic acid;

```
------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
------------------------------------------------------------------------------
Ru++       sp  KNO3   25°C 0.50M U                         2000NZa (91445)  93
                                          K(RuL(Me2bpy)(NCS))=6.0
******************************************************************************
C18H15P                 L                     CAS 603-35-0  (621)
Triphenylphosphine; (C6H5)3P
------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
------------------------------------------------------------------------------
Ru++       sp  non-aq  RT  100%  C                         2002SMa (97149)  94
                                          K(Ru(CO)A+L)=4.08
Medium: CH2Cl2. A is 5,15-bis(3',5'-di-tert-butyl)phenyl-2,8,12,18-tetra-
ethyl-3,7,13,17-tetramethylporphyrin. Data for phenylphosphine acetylenes.
******************************************************************************
C20H24O6                L    DiBz-18-Crown-6  CAS 14187-32-7  (604)
2,3:11,12-Dibenzo-1,4,7,10,13,16-hexaoxacyclooctadeca-2,11-diene
------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
------------------------------------------------------------------------------
Ru++       sp  non-aq 25°C 100%  U    M                    1993TDa (100235)  95
                                          K(Ru2(bpy)(NH3)10+L)=1.36
Medium: nitromethane, 0.02 M Bu4NPF6
******************************************************************************
C20H36O6                L    DiCy-18-crown-6  CAS 16069-36-6  (1653)
2,3:11,12-Dicyclohexyl-1,4,7,10,13,16-hexaoxacyclooctadecane;
------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
------------------------------------------------------------------------------
Ru++       sp  non-aq 25°C 100%  U    M                    1993TDa (100707)  96
                                          K(Ru2(bpy)(NH3)10+L)=2.40
Medium: nitromethane, 0.02 M Bu4NPF6
******************************************************************************
C24H16N6                L                     CAS 135774-29-7  (6575)
5,5'-Bis-2,2'(2-pyridyl)bibenzimidazole;
------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
------------------------------------------------------------------------------
Ru++       sp  non-aq 20°C 100%  U    M                    1991HAa (102861)  97
                                          K(Ru2(bpy)4L+H)=8.1
                                          K(Ru2(bpy)4HL+H)=5.8
                                          K(Ru2(phen)4L+H)=7.7
                                          K(Ru2(phen)4HL+H)=5.9
Medium: MeCN
******************************************************************************
C24H44O8                L    Dicy-24-crown-8  CAS 17455-23-1  (2401)
2,3,14,15-Dicyclohexyl-1,4,7,10,13,16,19,22-octaoxacyclotetracosane;
------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
```

Ru++ sp non-aq 25°C 100% U M 1993TDa (103438) 98
K(Ru2(bpy)(NH3)10+L)=2.56
Medium: nitromethane, 0.02 M Bu4NPF6
****
C28H40O10 L DiBz-30-crown10 CAS 104946-67-0 (1776)
2,3:17,18-Dibenzo-1,4,7,10,13,16,19,22,25,28-decaoxacyclotriaconta-2,17-diene;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru++ sp non-aq 25°C 100% U M 1993TDa (104907) 99
K(Ru2(bpy)(NH3)10+L)=3.22
Medium: nitromethane, 0.02 M Bu4NPF6
****
C36H60O30 L a-Cyclodextrin CAS 10016-20-3 (6946)
alpha-Cyclodextrin, Cyclohexaamylose;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru++ oth oth/un 30°C 0.05M C 2001AUa (106471) 100
K(Ru(NH3)5A+L)=2.40
K(Ru(NH3)5B+L)=1.11
K(Ru(NH3)5C+L)=1.99
Medium: 0.05 M phosphate buffer, pH 6.8. Method: capillary electrophoresis
A:4,4'-bipyridine. B:1,2-bis(4-pyridyl)ethane. C:1,3-bis(4-pyridyl)propane
****
C42H70O35 L b-Cyclodextrin CAS 7585-39-9 (7611)
Cycloheptaamylose;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru++ oth oth/un 30°C 0.05M U 2001AUa (106992) 101
K(Ru(NH3)5A+L)=2.54
K(Ru(NH3)5B+L)=2.15
K(Ru(NH3)5C+L)=2.80
Medium: 0.05 M phosphate buffer, pH 6.8. Method: capillary electrophoresis
A:4,4'-bipyridine. B:1,2-bis(4-pyridyl)ethane. C:1,3-bis(4-pyridyl)propane
****
C48H80O40 L g-Cyclodextrin CAS 17465-86-0 (7612)
Cyclooctaamylose;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru++ oth oth/un 30°C 0.05M U 2001AUa (107430) 102
K(Ru(NH3)5A+L)=0.76
K(Ru(NH3)5B+L)=1.46
K(Ru(NH3)5C+L)=1.58
Medium: 0.05 M phosphate buffer, pH 6.8. Method: capillary electrophoresis
A:4,4'-bipyridine. B:1,2-bis(4-pyridyl)ethane. C:1,3-bis(4-pyridyl)propane
****

Polymer DNA (4185)
Deoxyribonucleic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru++	sp	NaCl	20°C	0.50M	C		2002CLa (108153)		103
							K(Ru(cyclam)A+DNA)=4.70		

Medium: 0.05 M NaCl, 0.005 M Tris buffer; pH 7.2
A is 9,10-phenanthroquinonediimine.

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru++	nmr	oth/un	RT	0.0	C		2001FKa (108154)		104
							Keff((RuA2)2B+L)=4.0		

Method: 1H nmr. Medium: 10% D2O/H2O. A=4,4'-dimethyl-2,2'-bipyridine.
B=2,2'-bipyrimidine.

****

e- HL Electron (442)
Electron;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	kin	oth/un	25°C	1.00M	U		1973LLa	(898)	105
							K=1.12(66mV)		

Medium: CF3SO3Li. K: Ru(NH3)6+++ + e=Ru(NH3)6++

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	kin	oth/un	25°C	1.00M	U		1973LLa	(899)	106
							K=1.42(84mV)		

Medium: CF3SO3Li. K: Ru(NH3)5(H2O)+++ + e=Ru(NH3)5(H2O)++

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	vlt	oth/un	25?°C	0.10M	U		1972LBb	(900)	107
							K=0.86(51mV)		

Medium: NaBF4; K:Ru(NH3)6+++ + e=Ru(NH3)6++. Method: current-voltage studies

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	vlt	oth/un	25?°C	0.20M	U		1972LBb	(901)	108
							K=1.12(66mV)		

Medium: CF3COONa. K: Ru(NH3)5(H2O)+++ + e=Ru(NH3)5(H2O)++

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	vlt	oth/un	25?°C	0.20M	U	I M	1972LBb	(902)	109
							K=-7.10(-420mV,X=OH-)		

Medium:0.2-1 M NaOH. K: Ru(NH3)5X++ + e=Ru(NH3)5X+. Data also for other X:s
in 0.2 NaClO4: K=-0.71(-42mV,X=Cl-); -0.57(-34mV, X=Br-). Current/voltage

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	oth	none	25°C	0.0	U		1968GHa	(903)	110
							K(Ru+e=Ru(II))=4.2 (250mV)		

Method: Estimated data

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	EMF	none	25°C	0.0	M		1968MTb	(904)	111
							K'=2.7, 160 mV		
							K(Ru(en)3+e)=3.6, 210 mV		
							K(Ru(NH3)6+e)=1.7, 100mV		

K': Ru(NH3)5(H2O)+++ + e = Ru(NH3)5(H2O)++

```
--------------------------------------------------------------------------------
Ru+++      oth oth/un 25°C  1.0M U                        1967BLa   (905) 112
                                        K(Ru+e=Ru(II))=3.0, 180 mV
Medium: H2SO4
--------------------------------------------------------------------------------
Ru+++      EMF none   25°C  0.0  M   H                   1966BMc   (906) 113
                                        K(Ru+e=Ru(II))=4.204, 248.7 mV
DH=42.2 kJ mol-1, DS=221 J K-1 mol-1
--------------------------------------------------------------------------------
Ru+++      vlt oth/un 25°C  var  U                        1966BMc   (907) 114
                                        K(RuCl2+e)=-0.2, -10 mV
                                        K(RuCl3+e)=-1.7, -100 mV
--------------------------------------------------------------------------------
Ru+++      EMF none   25°C  0.0  U                        1965ETa   (908) 115
                                        K(Ru(NH3)6+e)=4.1, 240 mV
                                        K(Ru(NH3)5+e)=3.4, 200 mV
By analysis: K(Ru(NH3)6+e=Ru(II)(NH3)6)=3.62, 214 mV
--------------------------------------------------------------------------------
Ru+++      vlt oth/un 25°C  dil  U                        1965MBc   (909) 116
                                        K(Ru+e=Ru++)=3.7, 220 mV
Medium: dil. CH3C6H4HSO3
--------------------------------------------------------------------------------
Ru+++      EMF oth/un 25°C    ?  U                        1962AVa   (910) 117
                                        K(Ru(IV)+e=Ru)=8.30(490 mV)
                                        K(2Ru(IV)+e=Ru(IV)Ru)=9.5(560)
                                        K(RuRu(IV)+e=2Ru)=7.1(420 mV)
Medium:pH 1.15. By polarography, 0.1 M NaClO4: K(Ru+e=Ru(II))=-1.9(-110 mV)
--------------------------------------------------------------------------------
Ru+++      vlt oth/un 27°C  var  U                        1951FDa   (911) 118
                                        K=14.5(860 mV)
K: Ru(CN)6+e=Ru(IV)(CN)6
********************************************************************************
Br-                    HL    Bromide          CAS 10035-10-6  (19)
Bromide;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Ru+++      nmr non-aq  RT  100%  U                        1996BDa  (2297) 119
                                        K(RuA+L)=1.30
Medium: CD3SO. M is Ru++. A is 4,4'-bis[(phenyl)aminocarbonyl]-2,2'-bipyrid-
ine.  Also data for tert-butylaminocarbonyl and substd hydroxyphenyl derivs.
--------------------------------------------------------------------------------
Ru+++      sp  none   25°C  0.0  U                        1975WEa  (2298) 120
                                        Kout(Ru(NH3)6+L)=1.05
--------------------------------------------------------------------------------
Ru+++      sp  oth/un 75°C  dil  U                        1974SBe  (2299) 121
                                        K(RuNO(NH3)4+L)=1.23
--------------------------------------------------------------------------------
Ru+++      EMF oth/un 25°C 0.17M U                        1973CGb  (2300) 122
                                        K(Ru(NH3)5+L)=1.72
```

Medium: p-toluene sulfonic acid. Method:current-voltage studies

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Ru+++ kin oth/un 55°C 0.25M U TI 1971BKa (2301) 123
K(Ru(NH3)5+L)=1.63
Medium: sodium p-toluene sulfonate. In 0.1 M: K=0.91(45 C), 0.97(55 C).
By spec: K1=0.92(45 C), 0.94(55 C)

Ru+++ sp oth/un 25°C var U 1965ETa (2302) 124
K(Ru(NH3)5+L)=1.4

****

CO L Carbon monoxide CAS 630-08-0 (551)
Carbon monoxide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	sp	KCl	25°C	0.10M	U	T M	K(RuHA+L)=2.4 K(RuA+L)=4.9 K(RuHAH2O+RuAL=Ru2A2LOH)=3.7	1989KHa (2822)	125

H4A=EDTA

****

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	nmr	non-aq	RT	100%	U		K(RuA+L)=1.60	1996BDa (5650)	126

Medium: CD3SO. M is Ru++. A is 4,4'-bis[(phenyl)aminocarbonyl]-2,2'-bipyridine. Also data for tert-butylaminocarbonyl and substd hydroxyphenyl derivs.

Ru+++	vlt	KCl	25°C	0.1M	U		K(RuCl(H2O)5+Cl)=4.05 K((RuCl2(H2O)4+Cl)=0.86 K(RuCl3(H2O)3+Cl)=0.33	1986THa (5651)	127

Ru+++	sp	oth/un	60°C	0.10M	U	M	K(RuCl(NH3)4+Cl)=2.58 K(RuCl(en)2+Cl)=2.55 K(RuCl(Cyclam)+Cl) > 6	1977PIa (5652)	128

Ru+++	sp	none	25°C	0.0	U	M	Kout(Ru(NH3)6+L)=1.20	1975WEa (5653)	129

Ru+++	sp	oth/un	75°C	dil	U		K(RuNO(NH3)4+L)=2.23	1974SBe (5654)	130

Ru+++	EMF	oth/un	25°C	0.17M	U		K(Ru(NH3)5+L)=1.98	1973CGb (5655)	131

Medium: p-toluenesulfonic acid. Method:current-voltage studies

```
--------------------------------------------------------------------------------
Ru+++      ix  NaClO4 55°C 0.50M U                      1972MCa  (5656) 132
                                        K(RuNOCl3+Cl)=0.60
By spec. K=0.61. By kinetics, 50 C: K(RuNOClOH+H)=5.34
--------------------------------------------------------------------------------
Ru+++      kin oth/un 55°C 0.25M U T                    1971BKa  (5657) 133
                                        K(Ru(NH3)6+L)=1.94
Medium: Na-p-toluenesulfate. By kinetics K=1.09(36 C), 1.16(45 c); by spec.
K=1.13(36 C), 1.20(45 C)
--------------------------------------------------------------------------------
Ru+++      sp  oth/un 25°C 0.30M U        K1=2.17       1971KEa  (5658) 134
Medium: HBF4
--------------------------------------------------------------------------------
Ru+++      ISE NaClO4  rt   1.0M U  I     K1=3.42   B2=6.22   1971PSe  (5659) 135
                                        K3=2.51
                                        K4=2.41
                                        K5=2.15
Medium: HClO4. In 40% EtOH/H2O, 1 M HClO4: K1=3.57, K2=3.14, K3=2.92,
K4=2.64, K5=2.31
--------------------------------------------------------------------------------
Ru+++      oth NaClO4  6°C 0.21M U  I     K2=1.36       1970OOa  (5660) 136
                                        K3=0.49
                                        K4=-0.15
Medium:HClO4. K2=1.30,K3=0.45,K4=-0.22(I=0.46). Method:paper electrophoresis
--------------------------------------------------------------------------------
Ru+++      sp  NaClO4 25°C 0.11M U                      1965ETa  (5661) 137
                                        K(Ru(NH3)5+L)=1.85
Withdraws earlier value (1962)
--------------------------------------------------------------------------------
Ru+++      oth oth/un 90°C 0.10M U T                    1964BBd  (5662) 138
                                        K(Ru(NH3)5+L)=2.37
Method:chemical analysis. K=2.18(35 C), 2.21(45 C), 2.27(64 C), 2.32(80 C)
--------------------------------------------------------------------------------
Ru+++      gl  oth/un  5°C  dil  U                     1964MCb  (5663) 139
                                        K(Ru(NO)L4OH+H)=6.02
                                        K(Ru(NO)L3(H2O)OH+H)=4.95, 7.5
--------------------------------------------------------------------------------
Ru+++      sp  oth/un 25°C 0.10M U    M                1962ETb  (5664) 140
                                        K(Ru(NH3)5+L)=1.63
--------------------------------------------------------------------------------
Ru+++      sp  KCl    25°C 0.10M U        K2=1.4        1961CFa  (5665) 141
                                        K3=0.4
--------------------------------------------------------------------------------
Ru+++      sp  oth/un 25°C  3.0M U                      1960FIa  (5666) 142
                                        K4=-0.08
                                        B6=-4
Medium: CF3CO2H
********************************************************************************
I-                    HL    Iodide           CAS 10034-85-2  (20)
Iodide;
```

```
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Ru+++      nmr non-aq  RT  100%  U                         1996BDa  (8361) 143
                                      K(RuA+L)=1.0
Medium: CD3SO. M is Ru++. A is 4,4'-bis[(phenyl)aminocarbonyl]-2,2'-bipyrid-
ine.  Also data for tert-butylaminocarbonyl and substd hydroxyphenyl derivs.
--------------------------------------------------------------------------------
Ru+++      sp  none   25°C  0.0  U                         1975WEa  (8362) 144
                                      Kout(Ru(NH3)6+L)=0.99
--------------------------------------------------------------------------------
Ru+++      sp  oth/un 75°C  dil  U                         1974SBe  (8363) 145
                                      K(RuNO(NH3)4+I)=0.85
--------------------------------------------------------------------------------
Ru+++      kin oth/un 55°C 0.25M U                         1971BKa  (8364) 146
                                      K(Ru(NH3)5H2O+I)=1.80
Medium: sodium p-toluene sulfonate, 54.7 C
--------------------------------------------------------------------------------
Ru+++      sp  oth/un 25°C  var  U                         1965ETa  (8365) 147
                                      Ru(NH3)5+L)=1.6
********************************************************************************
NH2SO3-               H2L    Sulfamate        CAS 5329-14-6  (452)
Sulfamate;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Ru+++      sp  NaCl   25°C 0.10M U                         1971ATa  (8802) 148
                                      K(Ru(NH3)5NHSO3+H)=2.6
********************************************************************************
NH3                    L    Ammonia          CAS 7664-41-7  (414)
Ammonia
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Ru+++      kin oth/un 25°C  dil  U                         1969EHa  (9212) 149
                                      K(Ru(NH3)5OH+H)=3.65
********************************************************************************
NO3-                   HL    Nitrate          CAS 7697-37-2  (288)
Nitrate;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Ru+++      dis oth/un 20°C  var  U                         1965SLa  (9910) 150
                                      K3/K2=-0.8
                                      K4/K3=-0.8
                                      K(trans=cis Ru(NO)L2)=0.15
Metal: Ru(NO)+++. Medium: HL
--------------------------------------------------------------------------------
Ru+++      ix  oth/un 20°C 4.50M U       K2=-0.60          1959FBb  (9911) 151
                                      K3=-0.72
```

K4=-0.96
K5=-0.96
Metal: RuNO+++. Method:Cation exchange. Medium:HL. Similar values in 1-12 M

Ru+++ dis oth/un 20°C 3.0M U K1=-0.3 B2=-1.3 1957FLa (9912) 152
K3=-0.7
Metal: RuNO+++. Medium:HL
****
OH- HL Hydroxide (57)
Hydroxide;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ gl NaClO4 25°C 0.10M U 1993CBa (12080) 153
*K((NH3)5Ru(EDTA)Ru(H2O))=-5.1
By kinetics, *K=-4.6

Ru+++ gl KCl 22°C 0.50M M 1993FKa (12081) 154
*K(Ru(terp)(bpy)HA)=-4.3
A=4,4'-bipyridyl.

Ru+++ EMF oth/un ? 0.40M U 1974BTb (12082) 155
Ks=-15.6
Medium: MeSO3Na. Ks: Ru(OH)3(s)=Ru(OH)2+OH

Ru+++ sol oth/un ? var U 1968BNd (12083) 156
Kso=-38

Ru+++ gl oth/un 25°C dil U 1964BBd (12084) 157
*K1(Ru(NH3)5(H2O))=-4.2

Ru+++ sol oth/un ? var U 1958STb (12085) 158
Kso(Ru(OH)3)=-34.2

Ru+++ sol oth/un ? dil U 1957SKb (12086) 159
Kso(Ru(OH)3)=-36

Ru+++ con none 0°C 0.0 U 1956JWa (12087) 160
*K1(RuNO(NO3)3(H2O)2)=-1.85
****
PW11O39------- H7L (2467)
alpha-Heteromonophospho-polytungstate;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ nmr NaCl 0°C 1.0M U 1992RPa (13405) 161
K(RuL(OH)+H)=5.1
Method:NMR.
****
SCN- HL Thiocyanate CAS 463-56-9 (106)

Thiocyanate;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	sp	oth/un	75°C	dil	U		K(RuNO(NH3)4+L)=2.6	1974SBe (15247)	162
Ru+++	sp	NaClO4	70°C	1.0M	U	T	K1=1.78	1952YVa (15248)	163

SO4-- H2L Sulfate CAS 7664-93-9 (15)
Sulfate;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	vlt	NaClO4	25°C	2.0M	U		K1=2.04 B2=3.57	1968LKb (16529)	164

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	sp	alc/w	?	40%	U	M	K(Ru(H2O)+L+4Cl)=18.92 K(Ru(H2O)+2L+3Cl)=22.72 K(Ru(H20)+3L+2Cl)=26.26	1971PSd (17854)	165
Ru+++	sp	NaClO4	25°C	3.0M	U		K(Ru+L=RuH-1L+H)=1.21 K(RuH-1L+2L=RuH-3L+2H)=0.72	1952YVb (17855)	166

CH5N3S L CAS 79-19-6 (372)
Thiosemicarbazide; H2N.CS.NH.NH2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	sp	NaClO4	25°C	1.0M	U		K(Ru+HL=RuL+H)=0.75	1952YVd (18082)	167

C2H2O4 H2L Oxalic acid CAS 144-62-7 (24)
Ethanedioic acid; (COOH)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	gl	oth/un	?	?	U		K1=5 B3=12.3	1969BBb (19050)	168

C2H4N2S2 L Rubeanic acid CAS 79-40-3 (2782)
Dithiooxamide; H2N.CS.CS.NH2

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

```
-------------------------------------------------------------------------------
Ru+++      sp  mixed  25°C  50%  U        K1=13.38  B2=38.14  1952YVc (19454) 169
Medium: 50% ethanoic acid, 1.0 M HClO4
-------------------------------------------------------------------------------
Ru+++      sp  oth/un 25°C  1.0M U                      1952YVc (19455) 170
                                        K(Ru+HL=RuL+H)=2.97
                                        K(RuL+2HL=RuL2+2H)=3.92
*******************************************************************************
C2H6OS                  L    DMSO             CAS 67-68-5  (329)
Dimethylsulfoxide; (CH3)2.SO
-------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------------
Ru+++      sp  non-aq 21°C 100%  U    M                   1983LKa (22122) 171
                                        K(Ru(CO)A+L)=4.53
Medium: C2H4Cl2. A=tetraphenylporphin
*******************************************************************************
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
-------------------------------------------------------------------------------
Ru+++      sp  NaClO4 25°C 0.10M U                      1997BBb (23228) 172
                                        K(RuL3=RuH-1L3+H)<-15
-------------------------------------------------------------------------------
Ru+++      kin NaCl   25°C 1.00M U    M                 1989TGa (23229) 173
                                        K(Ru(CN)5+HL)=3.88
                                        K(Ru(CN)5+L)=4.15
                                        K(Ru(CN)5)L+H)=9.7
*******************************************************************************
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
-------------------------------------------------------------------------------
Ru+++      kin oth/un 25°C 0.10M U    M                 1978BSc (23925) 174
                                        K(Ru(NH3)4SO3+L)=3.63
Medium: 0.1M Tris-HCl-buffer, pH 8.6
*******************************************************************************
C4H3N3O4              H3L    Violuric acid    CAS 26351-19-9  (1208)
2,4,5,6-(1H,3H)Pyrimidinetetrone-5-oxime,  5-isonitrosobarbituric acid;
-------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------------
Ru+++      sp  NaCl   25°C 0.50M U    M                 1976SBa (28750) 175
                                        K(Ru(HL)(H2L)(NO)Cl+H)=2.3
                                        K(Ru(HL)2(NO)Cl+H)=3.5
                                        K(Ru(HL)L(NO)Cl+H)=8.9
                                        K(RuL2(NO)Cl+H)=10.2
Ru in the form: Ru(H2L)3(NO). Data also for Ru(H2L)3(NO) deprotonation.
```

Ru+++ sp oth/un 25°C 0.10M C 1975BRb (28751) 176
K(Ru(OH)2(H2O)4+H2L)=6.34
K(Ru(OH)2(H2O)2H2L+H2L)=12.85
K(Ru(OH)2(H2L)2+H2L)=6.38
Medium Na2SO4.
****
C4H4N2 L Pyrazine CAS 290-37-9 (620)
1,4-Diazine, Pyrazine;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ kin oth/un 25°C 0.10M U M 1978BSc (28798) 177
K(Ru(NH3)4SO3+L)=0.08
Medium: 0.1 M NaHCO3, pH 8.35
****
C4H5N3O HL Cytosine CAS 71-30-7 (1096)
2-Oxy-6-aminopyrimidine;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ kin KCl 25°C 0.20M U 1995CBb (29416) 178
K(Ru(edta)(H2O)+L)=1.88
By spectrophotometry, K=1.86
****
C4H7NO4 H2L IDA CAS 142-73-4 (118)
Iminodiethanoic acid; HN(CH2.COOH)2

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ gl KCl 25°C 0.10M C 1988THa (32350) 179
K(Ru(OH)L+Ru)=2.09
Also data for oxygen complexation: Ru4L4(OH)2O2
****
C5H5N L Pyridine CAS 110-86-1 (31)
Pyridine, Azine;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ sp non-aq 21°C 100% U M 1983LKa (36677) 180
K(Ru(CO)A+L)=4.63
Medium: C2H4Cl2. A-tetraphenylporphin
****
C5H5N5 L Adenine CAS 73-24-5 (237)
6-Aminopurine; H2N.C5H3N4

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ kin KCl 25°C 0.20M U 1995CBb (36979) 181
K(Ru(edta)(H2O)+L)=2.23

****
C5H15N3 L CAS 15995-42-3 (153)
1,1,1-Tris(aminomethyl)ethane; (H2N.CH2)3C.CH3

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ sp NaClO4 25°C 0.10M U 1997BBb (41974) 182
K(RuL2=RuH-1L2+H)=-10.3
K(RuH-1L2=RuH-2L2+H)=<-15
****
C6H6N2O L Isonicotinamide CAS 1453-82-3 (1949)
Isonicotinamide, Pyridine-4-carboxylic acid amide; C5H4N.CO.NH2

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ vlt oth/un 25°C 0.10M U M 1978BSc (43260) 183
K(Ru(NH3)4SO3+L)=0.93
Medium: 0.1M NaHCO3, pH 8.35. Method: Cyclic voltammetry

Ru+++ kin oth/un 25°C 0.10M U M 1978BSc (43261) 184
K(Ru(NH3)4SO3+L)=3.6
Medium: 0.1M NaHCO3, pH 8.35
****
C6H8N2 L CAS 108-50-9 (2531)
2,6-Dimethylpyrazine, 2,6-Dimethyl-1,4-diazine; C4H2N2(CH3)2

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ sp oth/un 25°C 0.00 U T M 1985TSa (45288) 185
K(Ru(NH3)5L+H)=3.55
****
C6H8N2O3 H2L CAS 769-42-6 (6014)
1,3-Dimethylbarbituric acid, 1,3-Dimethyl-2,4,6(1H,3H,5H)-pyrimidinetrione;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ sp KNO3 25°C 0.50M C M 1975SBd (45395) 186
K(RuL3(NO)+2OH=RuL3(NO2))=17.0
With the species (RuNO(NO2)4OH)2-.
(RuL3(NO2)) determined in medium KCl, O.2M at the same temperature.
****
C6H8O6 H2L Ascorbic acid CAS 50-81-7 (285)
Ascorbic acid (Vitamin C);

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ kin KNO3 30°C 0.10M C M 1989KSb (45654) 187
K(RuA+HL)=3.48
K(RuAHL+O2)=3.18
K(RuAHL+B)=2.99

K(RuAHLB+O2=RuALB(O2)+H)=0.95
H4A=EDTA, B=Cyclohexanol, C=Cyclohexene, D=Cyclohexane. K(MAHL+C=MAHLC)=1.50
K(MAHLC+O2=MALC(O2)+H)=1.14, K(MAHL(O2)+D=MAL(O2)D+H)=0.83
****
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
---
Ru+++ vlt oth/un 25°C 0.10M U M 1978BSc (47610) 188
K(Ru(NH3)4SO3+L)=2.63
Medium: 0.1M Tris-HCl-buffer, pH 8.1. Method: cyclic voltammetry
****
C7H6N2S HL CAS 583-39-1 (2043)
2-Mercaptobenzimidazole;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ sp alc/w ? 40% U M 1970PSb (53531) 189
K(Ru+4Cl+H2L)=19.2
K(Ru+3Cl+2H2L)=23.4
K(Ru+2Cl+3H2L)=27.3
Medium: 40% EtOH, 4 M HCl
****
C7H6N4 L (6375)
3-(Pyridin-2'-yl)-1,2,4-triazole;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ sp oth/un 25°C u U 1990BVa (53538) 190
K(Ru(bpy)2HL=Ru(bpy)2L+H)=-5.9
In Britton-Robinson buffer.
****
C7H8N2S HL Phenylthiourea CAS 103-85-5 (625)
1-Phenyl-2-thiourea; C6H5.NH.CS.NH2

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ sp alc/w ? 40% U M 1971PSd (55947) 191
K(Ru(H2O)+L+4Cl)=18.28
K(Ru(H2O)+2L+3Cl)=21.62
K(Ru(H2O)+3L+2Cl)=24.74
Medium: 40% EtOH
****
C7H8N4O2 H2L Theophylline CAS 58-55-9 (1749)
1,3-Dimethylxanthine, 2,6-Dihydroxy-1,3-dimethylpurine;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ gl NaClO4 25°C 1.00M U M K1=1.16 1975CTa (56012) 192

****
C7H9N3S L CAS 5351-69-9 (3161)
4-Phenylthiosemicarbazide;C6H5.NH.NH.CS.NH2

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ sp alc/w 25°C 50% U 1952YVd (56504) 193
K(Ru+L=RuH-1L+H)=1.65
Medium: 50% EtOH, 1 M H/NaClO4
****
C7H9N5O HL CAS 42484-34-4 (2185)
1,9-Dimethylguanine;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ kin oth/un 25°C 0.10M U M 1978BSc (56515) 194
K(Ru(NH3)4SO3+L)=2.60
Medium: 0.1M Tris-HCl-buffer, pH 8.63. Method: Cyclic voltammetry
****
C8H10N4O2 H2L Caffeine CAS 58-08-2 (1750)
1,3,7-Trimethylxanthine;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ gl NaClO4 25°C 1.00M U M K1=1.19 1975CTa (60800) 195
****
C9H5NO2Br2 HL CAS 16846-41-1 (4666)
5,7-Dibromo-8-hydroxyquinoline N-oxide;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ sp mixed ? 60% U K1=12.91 B2=18.20 1970GMa (63583) 196
Medium: 60% dioxan, 0.1 M NaCl
****
C9H5NO2Cl2 HL CAS 21168-33-2 (4665)
5,7-Dichloro-8-hydroxyquinoline N-oxide;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ sp mixed ? 60% U K1=12.54 B2=17.86 1970GMa (63593) 197
Medium: 60% acetone, 0.1 M NaCl
****
C9H5N3O6 HL CAS 21168-36-3 (4609)
5,7-Dinitro-8-hydroxyquinoline-N-oxide;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ sp mixed ? 60% U K1=8.95 B2=12.14 1970GMa (63636) 198
Medium: 60% acetone, 0.1 M NaCl
****

C9H13N3O5 L Cytidine CAS 65-46-3 (2152)
Cytidine, Cytosine-1-beta-D-ribofuranoside;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	kin	KCl	25°C	0.20M	U		1995CBb (67079)		199
							K(Ru(edta)(H2O)+L)=1.66		

By spectrophotometry, K=1.60

****

C10H7NO2 HL CAS 131-91-9 (2668)
1-Nitroso-2-naphthol, alpha-Nitroso-beta-naphthol;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	dis	oth/un	20°C	0.10M	U			1969KOb (68588)	200
							K(RuCl+L)=11.1		
							K(RuCl2+L)=10.4		
							K(RuCl+2L)=19.9		
							K(RuCl3+L=RuCl2L+Cl)=10.0		

Medium: HC1. K(RuCl+HL=RuClL+H)=3.5, K(RuCl2+HL=RuCl2L+H)=2.7
K(RuCl3+HL=RuCl2L+Cl+H)=2.3, K(RuClL+HL=RuClL2+H)=1.2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	dis	oth/un	20°C	0.10M	U			1969KOb (68589)	201
							K(Ru(NO)+L)=9.9		
							K(Ru(NO)NO3+L)=10.7		
							K(Ru(NO)+2L)=19.1		
							K(Ru(NO)NO3+2L)=19.9		

Medium: HNO3. K(Ru(NO)+HL=Ru(NO)L+H)=2.3, K(Ru(NO)NO3+HL=Ru(NO)LNO3+H)=3.0
K(Ru(NO)LNO3+HL=Ru(NO)L2NO3+H)=1.6, K(Ru(NO)L+HL=Ru(NO)L2+H)=1.6

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	sp	alc/w	?	30%	U	M		1964KOa (68590)	202
							K(Ru(NO)+L)=11.8		
							K(Ru(NO)+2L)=21.2		

Medium: 30% EtOH, 0.2 M

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	sp	alc/w	?	30%	U		K1=10.2	1963KOa (68591)	203
							B3=24.2		

Medium: 30% EtOH, 0.2 M citrate buffer

****

C10H7NO2 HL CAS 132-53-6 (2524)
2-Nitroso-1-naphthol;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	dis	oth/un	20°C	0.10M	U			1969KOb (68657)	204
							K(RuCl+L)=10.8		
							K(RuCl2+L)=10.1		
							K(RuCl+2L)=19.3		
							K(RuCl3+L=RuCl2L+Cl)=9.7		

Medium: HCl. K(RuCl+HL=RuClL+H)=3.6, K(RuCl2+HL=RuCl2L+H)=2.8

K(RuCl3+HL=RuCl2L+Cl+H)=2.4, K(RuClL+HL=RuClL2+H)=2.4

Ru+++ dis oth/un 20°C 0.10M U 1969KOb (68658) 205
K(Ru(NO)+L)=9.7
K(Ru(NO)NO3+L)=10.5
K(Ru(NO)+2L)=18.7
K(Ru(NO)NO3+2L)=19.4
Medium: HNO3. K((Ru(NO)+HL=Ru(NO)L+H)=2.5, K(Ru(NO)NO3+HL=Ru(NO)LNO3+H)=3.2
K(Ru(NO)L+HL=Ru(NO)L2+H)=1.8, K(Ru(NO)LNO3+HL=Ru(NO)L2NO3+H)=1.8

Ru+++ sp alc/w ? 30% U M 1964KOa (68659) 206
K(Ru(NO)+L)=11.8
K(Ru(NO)+2L)=20.5
Medium: 20% EtOH, 0.2 M

Ru+++ sp alc/w ? 30% U K1=10.0 1963KOa (68660) 207
B3=24.0
Medium: 30% EtOH, 0.2 M citrate buffer

****

C10H7NO8S2 H3L Nitroso-R acid CAS 525-05-3 (1811)
1-Nitroso-2-hydroxynaphthalene-3,6-disulfonic acid;

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

---

Ru+++ sp oth/un 25°C 0.30M U 1965MSa (69028) 208
K(?)=9.7
Acetate buffer

****

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

---

Ru+++ sp NaCl 25°C 0.10M C M 2001RRa (69641) 209
*K(RuLA(H2O))=-1.2
A=N,N-bis(2-pyridyl)ethylamine.

Ru+++ sp oth/un 25°C ? U M 1988CMc (69642) 210
K(RuL2H2O(OH)+H)=1.8
K(RuL2(OH)2+H)=4.9
K(RuL2(OH)+A)=-0.4
A=MeCN. Data are for cis isomer, trans isomer also reported.
K(RuL2(H2O)OH+MeCN=RuL2(H2O)MeCN+OH)=-0.4

****

C10H13N5O4 L Adenosine CAS 58-61-7 (2154)
Adenosine, Adenine-9-beta-D-ribofuranoside;

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

---

Ru+++ kin KCl 25°C 0.20M U 1995CBb (71949) 211

K(Ru(edta)(H2O)+L)=2.18
By spectrophotometry, K=2.23
****
C10H16N2O8 H4L EDTA CAS 60-00-4 (120)
1,2-Diaminoethane-N,N,N',N'-tetraethanoic acid, Sequestric acid;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ gl KCl 30°C 0.10M U H 1991KMb (74126) 212
K(RuL+H)=2.53
K(RuH-1L+H)=8.01
K(RuH-2L+H)=11.00
DH(RuL+H)=-55.7 kJ mol-1; DS=-134.0 J K-1 mol-1; DH(RuH-1L+H)=-48.6, DS=-8.4

Ru+++ sp KCl 25°C 0.10M C K1=22.49 1988THa (74127) 213
K(RuL+H)=3.00 *
K(Ru(OH)2L+H)=7.15 *
K(Ru(OH)L+H)=5.45 *
* data measured with glass electrode

Ru+++ gl KCl 25°C 0.10M C 1986KHb (74128) 214
K(RuL+H)=2.36
K(Ru(OH)2L+H)=11.07
K(Ru(OH)L+H)=7.86

Ru+++ gl KCl 30°C 0.10M U K1=13.8 1982TRa (74129) 215
*K(RuL)=5.67

Ru+++ gl KCl 35°C 0.1M U 1982TRc (74130) 216
K'=29.84
K'=2Ru+2L+)2+H2O=(Ru(IV)L)2(OH)(O2)+H
****
C10H18N2O7 H3L HEDTA CAS 150-39-0 (392)
N-(Hydroxyethyl)diaminoethane-N,N',N'-triethanoic acid;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Ru+++ sp KCl 25°C 0.10M C K1=19.68 1988THa (75486) 217
K(RuL+H)=2.48 *
K(Ru(OH)2L+H)=6.69 *
K(Ru(OH)L+H)=4.81 *
* data measured with glass electrode

Ru+++ gl KCl 35°C 0.1M U 1982TRc (75487) 218
K'=22.13
K'=2Ru+2L+)2+H2O=(Ru(IV)L)2(OH)(O2)+H
****
C11H15N5O5 HL CAS 2140-65-0 (2184)
1-Methylguanosine;

```
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------
Ru+++      kin oth/un 25°C 0.10M U    M                  1978BSc (79076) 219
                                         K(Ru(NH3)4SO3+L)=2.18
Medium: 0.1M Tris-HCl-buffer, pH 8.63.  Method: cyclic voltammetry.
*************************************************************************
C11H18N2O8            H4L    PDTA            CAS 4408-81-5  (1655)
1,2-Diaminopropane-N,N,N',N'-tetraethanoic acid;
-------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------
Ru+++      gl  KCl    30°C 0.10M U   H                   1991KMb (79331) 220
                                         K(RuL+H)=2.30
                                         K(RuH-1L+H)=8.17
DH(RuL+H)=-58.6 kJ mol-1; DS=-151 J K-1 mol-1; DH(RuH-1L+H)=-41.9, DS=12.6
*************************************************************************
C12H7NO2               HL                     CAS 33489-49-5  (4905)
Acenaphthenequinonemonoxime;
-------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------
Ru+++      sp  oth/un   ?   1.0M U        B2=8.28        1971SSa (80116) 221
Medium: Na acetate
*************************************************************************
C12H8N2                L    Phenanthroline   CAS 66-71-7  (144)
1,10-Phenanthroline;
-------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------
Ru+++      sp  oth/un 25°C    ?  U    M                  1988CMc (80512) 222
                                         K(RuL2H2O(OH)+H)=1.8
                                         K(RuL2(OH)2+H)=5.0
Data are for cis isomer, trans isomer also reported.
*************************************************************************
C13H12N2S              L    diPh-thiourea    CAS 102-08-9  (1075)
1,3-Diphenyl-2-thiourea; C6H5.NH.CS.NH.C6H5
-------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------
Ru+++      sp  alc/w    ?   40%  U    M                  1971PSd (85389) 223
                                         B(RuLCl4)=18.70
                                         B(RuL2Cl3)=22.42
                                         B(RuL3Cl2)=25.92
Medium: 40% v/v ethanol.
*************************************************************************
C14H22N2O8            H4L    CDTA            CAS 482-54-2  (200)
trans-1,2-Diaminocyclohexane-N,N,N',N'-tetraethanoic acid;
-------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------
```

Ru+++ sp KCl 25°C 0.10M C K1=26.00 1988THa (88767) 224
K(RuL+H)=4.41 *
K(Ru(OH)2L+H)=8.14 *
K(Ru(OH)L+H)=6.46 *
* data measured with glass electrode

****

C14H23N3O10 H5L DTPA CAS 67-43-6 (238)
Diethylenetriamine-pentaethanoic acid; HOOC.CH2.N(CH2.CH2.N(CH2.COOH)2)2

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

---

Ru+++ gl KCl 25°C 0.10M C K1=27.23 1988THa (89375) 225
K(RuL+H)=4.26
K(Ru(OH)2L+H)=7.70
K(RuL+Ru)=19.30
K(Ru(OH)L+H)=9.49
K(Ru2(OH)2L+H)=7.18
K(Ru2(OH)L+H)=4.93

****

C15H16N2S L CAS 137-97-3 (5122)
2,2'-Ditolylthiourea; CH3.C6H4.NH.CS.NH.C6H4.CH3

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

---

Ru+++ sp alc/w ? 40% U 1971PSd (91931) 226
B(RuLCl4)=18.64
B(RuL2Cl3)=22.09
B(RuL3Cl2)=25.27
Medium: 40% v/v EtOH

****

C15H16N2S L CAS 621-01-2 (5123)
4,4'-Ditolylthiourea; CH3.C6H4.NH.CS.NH.C6H4.CH3

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

---

Ru+++ sp alc/w ? 40% U 1971PSd (91932) 227
B(RuLCl4)=18.43
B(RuL2Cl3)=21.55
B(RuL3Cl2)=24.34

****

C19H13N5 L (6734)
2,6-Bis(benzimidazol-2-yl)pyridine;

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

---

Ru+++ gl mixed 25°C 50% U 1993XHa (99064) 228
*K(RuL2)=-6.1
*K(RuH-1L2)=-7.8
*K(RuH-2L2)=-9.1
*K(RuH-3L2)=-10.7

Medium: 50% v/v acetonitrile/H2O.

****

C20H24O6 L DiBz-18-Crown-6 CAS 14187-32-7 (604)
2,3:11,12-Dibenzo-1,4,7,10,13,16-hexaoxacyclooctadeca-2,11-diene

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	sp	non-aq	25°C	100%	U	M	K(Ru2(bpy)(NH3)10+L)=3.20	1993TDa (100236)	229

Medium: nitromethane, 0.02 M Bu4NPF6

****

C24H44O8 L Dicy-24-crown-8 CAS 17455-23-1 (2401)
2,3,14,15-Dicyclohexyl-1,4,7,10,13,16,19,22-octaoxacyclotetracosane;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	sp	non-aq	25°C	100%	U	M	K(Ru2(bpy)(NH3)10+L)=8.28	1993TDa (103439)	230

Medium: nitromethane, 0.02 M Bu4NPF6

****

C28H40O10 L DiBz-30-crown10 CAS 104946-67-0 (1776)
2,3:17,18-Dibenzo-1,4,7,10,13,16,19,22,25,28-decaoxacyclotriaconta-2,17-diene;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	sp	non-aq	25°C	100%	U	M	K(Ru2(bpy)(NH3)10+L)=6.70	1993TDa (104908)	231

Medium: nitromethane, 0.02 M Bu4NPF6

****

Polymer DNA (4185)
Deoxyribonucleic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Ru+++	vlt	NaCl	25°C	0.01M	C	M	K(Ru(NH3)6+L)=5.63	2000AIa (108155)	232

Method: differential pulse voltammetry.
Medium: 0.01 M NaCl, 0.01 M Tris, pH 7.

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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 :-

T or IUP=T signifies EVALUATION RATING = Tentative by IUPAC

END Experiments recorded for
from SC-Database on Saturday, 01 January, 2000 at 01:01:47