SC-Database
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

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)

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)

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

```
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
********************************************************************************
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.

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++

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)++

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

---

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)++

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

---

Ru+++	oth	none	25°C	0.0	U			1968GHa (903)	110
							K(Ru+e=Ru(II))=4.2 (250mV)		

Method: Estimated data

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
```

```
--------------------------------------------------------------------------------
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                    1989KHa  (2822) 125
                                        K(RuHA+L)=2.4
                                        K(RuA+L)=4.9
                                        K(RuHAH2O+RuAL=Ru2A2LOH)=3.7
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                        1996BDa  (5650) 126
                                        K(RuA+L)=1.60
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+++      vlt KCl    25°C  0.1M U                       1986THa  (5651) 127
                                        K(RuCl(H2O)5+Cl)=4.05
                                        K((RuCl2(H2O)4+Cl)=0.86
                                        K(RuCl3(H2O)3+Cl)=0.33
--------------------------------------------------------------------------------
Ru+++      sp  oth/un 60°C 0.10M U    M                  1977PIa  (5652) 128
                                        K(RuCl(NH3)4+Cl)=2.58
                                        K(RuCl(en)2+Cl)=2.55
                                        K(RuCl(Cyclam)+Cl) > 6
--------------------------------------------------------------------------------
Ru+++      sp  none   25°C  0.0  U    M                  1975WEa  (5653) 129
                                        Kout(Ru(NH3)6+L)=1.20
--------------------------------------------------------------------------------
Ru+++      sp  oth/un 75°C  dil  U                       1974SBe  (5654) 130
                                        K(RuNO(NH3)4+L)=2.23
--------------------------------------------------------------------------------
Ru+++      EMF oth/un 25°C 0.17M U                       1973CGb  (5655) 131
                                        K(Ru(NH3)5+L)=1.98
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'-bipyridine. Also data for tert-butylaminocarbonyl and substd hydroxyphenyl derivs.

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

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
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                         1974SBe (15247) 162
                                       K(RuNO(NH3)4+L)=2.6
--------------------------------------------------------------------------------
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                    1971PSd (17854) 165
                                       K(Ru(H2O)+L+4Cl)=18.92
                                       K(Ru(H2O)+2L+3Cl)=22.72
                                       K(Ru(H20)+3L+2Cl)=26.26
--------------------------------------------------------------------------------
Ru+++      sp  NaClO4 25°C  3.0M U                         1952YVb (17855) 166
                                       K(Ru+L=RuH-1L+H)=1.21
                                       K(RuH-1L+2L=RuH-3L+2H)=0.72
********************************************************************************
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                         1952YVd (18082) 167
                                       K(Ru+HL=RuL+H)=0.75
********************************************************************************
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             1969BBb (19050) 168
                                       B3=12.3
********************************************************************************
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	K(Ru(NH3)4SO3+L)=0.08	1978BSc (28798)	177

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		K(Ru(edta)(H2O)+L)=1.88	1995CBb (29416)	178

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		K(Ru(OH)L+Ru)=2.09	1988THa (32350)	179

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	K(Ru(CO)A+L)=4.63	1983LKa (36677)	180

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		K(Ru(edta)(H2O)+L)=2.23	1995CBb (36979)	181

****

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
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	K(Ru(NH3)4SO3+L)=2.63	1978BSc (47610)	188

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	K(Ru+4Cl+H2L)=19.2 K(Ru+3Cl+2H2L)=23.4 K(Ru+2Cl+3H2L)=27.3	1970PSb (53531)	189

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		K(Ru(bpy)2HL=Ru(bpy)2L+H)=-5.9	1990BVa (53538)	190

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	K(Ru(H2O)+L+4Cl)=18.28 K(Ru(H2O)+2L+3Cl)=21.62 K(Ru(H2O)+3L+2Cl)=24.74	1971PSd (55947)	191

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	K(RuL+H)=2.53 K(RuH-1L+H)=8.01 K(RuH-2L+H)=11.00	1991KMb (74126)	212
							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 K(RuL+H)=3.00 * K(Ru(OH)2L+H)=7.15 * K(Ru(OH)L+H)=5.45 *	1988THa (74127)	213
							* data measured with glass electrode		
Ru+++	gl	KCl	25°C	0.10M	C		K(RuL+H)=2.36 K(Ru(OH)2L+H)=11.07 K(Ru(OH)L+H)=7.86	1986KHb (74128)	214
Ru+++	gl	KCl	30°C	0.10M	U		K1=13.8 *K(RuL)=5.67	1982TRa (74129)	215
Ru+++	gl	KCl	35°C	0.1M	U		K'=29.84	1982TRc (74130)	216
							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 K(RuL+H)=2.48 * K(Ru(OH)2L+H)=6.69 * K(Ru(OH)L+H)=4.81 *	1988THa (75486)	217
							* data measured with glass electrode		
Ru+++	gl	KCl	35°C	0.1M	U		K'=22.13	1982TRc (75487)	218
							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

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------------------------------------------------------------------------------
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

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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 1993TDa (100236) 229
K(Ru2(bpy)(NH3)10+L)=3.20
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 1993TDa (103439) 230
K(Ru2(bpy)(NH3)10+L)=8.28
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 (104908) 231
K(Ru2(bpy)(NH3)10+L)=6.70
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 2000AIa (108155) 232
K(Ru(NH3)6+L)=5.63
Method: differential pulse voltammetry.
Medium: 0.01 M NaCl, 0.01 M Tris, pH 7.

REFERENCES

2002CLa H-L Chan,H-Q Liu,B-C Tzeng,C-M Che; Inorg.Chem.,41,3161 (2002)
2002SMa E Stulz,M Maue,N Feeder,J Sanders; Inorg.Chem.,41,5255 (2002)
2002WSa A Wanat,T Schneppensieper,R van Eldik; J.Chem.Soc.,Dalton Trans.,941 (2002)
2001AUa I Ando,K Ujimoto,H Kurihara; Bull.Chem.Soc.Jpn.,74,717 (2001)
2001FKa F Foley,F Keene,J Collins; J.Chem.Soc.,Dalton Trans.,2968 (2001)
2001RRa M Rodriguez,I Romero,A Llobet; Inorg.Chem.,40,4150 (2001)
2000AIa M Aslanoglu,C Isaac,B Horrocks; Analyst,125,1791 (2000)
2000KEa R Kanzaki,T Egashira,T Nakazoto; Phys.Chem.Chem.Phys.,2,3825 (2000)
2000NZa M Nazeeruddin,S Zakeeruddin,M Gratzel; Inorg.Chem.,39,4409 (2000)

1999PMb M Paula,M Meier,B Szpoganicz; J.Coord.Chem.,46,491 (1999)
1998PHa S Plotkin,A Haim; Inorg.Chim.Acta,270,189 (1998)
1998ZNa S Zakeeruddin,M Nazeeruddin,M Gratzel; Inorg.Chem.,37,5251 (1998)
1997BBb P Bernhard,D Bull,H-B Burgi et al; Inorg.Chem.,36,2804 (1997)
1996BDa P Beer,S Dent,T Wear; J.Chem.Soc.,Dalton Trans.,2341 (1996)
1996LNa B Lima-Neto,J Nascimento Filho,D Franco; Polyhedron,15,1965 (1996)
1996ZWa G Zheng,Y Wang,D Rillema; Inorg.Chem.,35,7118 (1996)
1995CBb D Chatterjee,H Bajaj,A Das; J.Chem.Soc.,Dalton Trans.,2497 (1995)
1994CSa M Chou,D Szalda,C Creutz,N Sutin; Inorg.Chem.,33,1674 (1994)
1993BSb S Belt,J Scaiano et al; J.Am.Chem.Soc.,115,1921 (1993)
1993CBa D Chatterjee,H Bajaj; J.Chem.Soc.,Dalton Trans.,1065 (1993)
1993FKa F Fagaldi,N Katz; J.Chem.Soc.,Dalton Trans.,571 (1993)
1993TDa M Todd,Y Dong,J Horney et al; Inorg.Chem.,32,2001 (1993)
1993XHa X Xiaoming,M Haga,T M-Inoue; J.Chem.Soc.,Dalton Trans.,2477 (1993)
1992LCa C-K Li,C-M Che,W-F Tong,T-F Lai; J.Chem.Soc.,Dalton Trans.,813 (1992)
1992RPa C Rong,M Pope; J.Am.Chem.Soc.,114,2932 (1992)
1991HAa M Haga,T Ano,K Kano,S Yamabe; Inorg.Chem.,30,3843 (1991)
1991HHa R Hage,J Haasnoot et al; J.Chem.Soc.,Dalton Trans.,3271 (1991)
1991KMb M Khan,M Moiz,A Hussain; J.Coord.Chem.,23,245 (1991)
1990BVa B Buchanan,J Vos,M Tanaka et al; J.Chem.Soc.,Dalton Trans.,2425 (1990)
1990CLb C Che,K Lau et al; J.Am.Chem.Soc.,112,5176 (1990)
1989KHa M Khan,A Hussain,M Moiz et al; Polyhedron,8,2199 (1989)
1989KSb M Khan,R Shukla,A Rao; Inorg.Chem.,28,452 (1989)
1989NKa M Nazeeruddin,K Kalyanasundaram; Inorg.Chem.,28,4251 (1989)
1989SFa R Sernaglia,D Franco; Inorg.Chem.,28,3485 (1989)
1989TGa A Tokman,L Gentil,J Olabe; Polyhedron,8,2091 (1989)
1988CMc J Chang,S Meyerhoffer,L Allen et al; Inorg.Chem.,27,1602 (1988)
1988DFa H Doine,H Fukutomi,R Cannon; J.Chem.Soc.,Dalton Trans.,2007 (1988)
1988THa M Taqui-Khan,A Hussain et al; J.Mol.Catalysis,44,117 (1988)
1987ACa L Allen,P Craft,B Durham,J Walsh; Inorg.Chem.,26,53 (1987)
1986KHb M Taqui-Khan,A Hussain et al; Inorg.Chem.,25,3023 (1986)
1986THa M Taqui-Khan,A Hussain et al.; Inorg.Chem.,25,665 (1986)
1985TSa H Toma,E Stadler; Inorg.Chem.,24,3085 (1985)
1983JSa C Johnson,R Shepherd; Inorg.Chem.,22,1117 (1983)
1983LKa D Leggett,S Kelly,L Shiue,K Kadish; Talanta,30,579 (1983)
1983VKc G Varshal,I Koshcheeva et al; Zh.Anal.Khim.38,1826 (1983)
1983WPa H Walker,R Pearson et al; J.Am.Chem.Soc.,105,1179 (1983)
1982TRa M Taqui-Khan,G Ramchandraiah; Indian J.Chem.,21A,441 (1982)
1982TRc M Taqui-Khan,G Ramachandraiah; Inorg.Chem.,21,2109 (1982)
1978BSc G Brown,J Sutton,H Taube; J.Am.Chem.Soc.,100,2767 (1978)
1977PIa C-K Poon,D Isabirye; J.Chem.Soc.,Dalton Trans.,2115 (1977)
1976SBa S Sueur,C Bremard,G Nowogrocki; J.Inorg.Nucl.Chem.,38,2037 (1976)
1975BRb C Bremard; Bull.Soc.Chim.Fr.,953 (1975)
1975CTa M Clarke,H Tanbe; J.Am.Chem.Soc.,97,1397 (1975)
1975SBd S Sueur,C Bremard; Bull.Soc.Chim.Fr.,961 (1975)
1975WEa D Waysbort,M Evenor,G Navon; Inorg.Chem.,14,514 (1975)
1975YYa H Yokoyama,H Yamatera; Bull.Chem.Soc.Jpn.,48,2708,2719 (1975)
1974BNa C Bremard,G Nowogrocki,G Tridot; Bull.Soc.Chim.Fr.,392 (1974)
1974BTb C Bremard,G Tridot; Compt.Rend.,278C,1413 (1974)
1974ITa S Isied,H Taube; Inorg.Chem.,13,1545 (1974)

1974JMa B James,L Markham; Inorg.Chem.,13,97 (1974)
1974SBe N Sinitsyn,V Borisov; Zh.Neorg.Khim.,19,1688(E:918) (1974)
1974SPe V Shlenskaya,G Pichugina et al; Izv.Akad.Nauk(USSR),23,268 (1974)
1974TAb T Takamatsu; Bull.Chem.Soc.Jpn.,47,118 (1974)
1973CGb G Coleman,J Gesler,F Shirley,J Kuempl; Inorg.Chem.,12,1036 (1973)
1973LLa D Lavallee,C Lavallee,J Sullivan et al; Inorg.Chem.,12,570 (1973)
1972DMa P Dumas,E Mercer; Inorg.Chem.,11,531 (1972)
1972KUa E Klimkovich,Y Usatenko,N Fedorova; Isvest.VUZ.Khim.,15,9,1312;1313 (1972)
1972LBb H Lim,D Barclay,F Anson; Inorg.Chem.,11,1460 (1972)
1972MCa E Mercer,A Cox; Inorg.Chim.Acta,6,577 (1972)
1972SBb V Shlenskaya,A Biryukov,V Kadomtseva; Zh.Neorg.Khim.,17,1104(E:572) (1972)
1972WAa G Watt; J.Am.Chem.Soc.,94,7351 (1972)
1971ATa J Armor,H Taube; Inorg.Chem.,10,1570 (1971)
1971BKa J Broomhead,L Kane-Maguire; Inorg.Chem.,10,85 (1971)
1971EGa C Elson,J Gulens,J Page; Can.J.Chem.,49,207 (1971)
1971KEa T Kallen,J Earley; Inorg.Chem.,10,1149 (1971)
1971KUa E Klimkovich,Y Usatenko,N Fedorova; Isvest.VUZ.Khim.,14,4,366 (1971)
1971NVa E Neikova,C Vassilev; Compt.Rend.Acad.Bulg.Sci.,24,1641 (1971)
1971PSd A Pilipenko,I Sereda et al; Zh.Neorg.Khim.,16,11,3082 (1971)
1971PSe A Pilipenko,I Sereda,Z Semchinskaya; Zh.Neorg.Khim.,16,2529(E:1349) (1971)
1971SSa S Sindhwani,R Singh; Anal.Chim.Acta,55,409 (1971)
1970ATa J Armor,H Taube; J.Am.Chem.Soc.,92,6170 (1970)
1970FKb A Fidler,F Kralik; Collec.Czech.Chem.Commun.,35,1913 (1970)
1970GMa R Gupta,G Manku,A Bhat,B Jain; Anal.Chim.Acta,50,109 (1970)
1970OOa E Ohyoshi,A Ohyoshi,M Shinagawa; Radiochim.Acta,13,10 (1970)
1970PSb A Pilipenko,I Sereda,E Semenyuk; Zh.Anal.Khim.,25,10,1958 (1970)
1969ATa J Armor,H Taube; J.Am.Chem.Soc.,91,6874 (1969)
1969BBb R Bittel,C Bremard,G Nowogrocki et al; Bull.Soc.Chim.Fr.,3830 (1969)
1969EHa T Eliades,R Harris,P Reinsalu; Can.J.Chem.,47,3823 (1969)
1969KOb C Konecny; Z.Phys.Chem.,240,196;225 (1969)
1968BNd C Bremard,G Nowogrocki,G Tridot; Bull.Soc.Chim.Fr.,1961 (1968)
1968GHa R Goldberg,L Hepler; Chem.Revs.,68,229 (1968)
1968LKb L Lazarev,Y Khvorostin; Zh.Neorg.Khim.,13,598 (1968)
1968MTb T Meyer,H Taube; Inorg.Chem.,7,2369 (1968)
1968PLa G Popa,C Lazar; An.Univ.Bucuresti,Chim.,17,9 (1968)
1967BLa F Brito,D Lewis; Ark.Kemi.,26,391;401 (1967)
1967VLb V Vdovenko,L Lazarev,Y Khvorostin; Radiokhim.,9;460,464 (1967)
1966BMc R Buckley,E Mercer; J.Phys.Chem.,70,3103 (1966)
1966LBa E Luoma,C Brubaker; Inorg.Chem.,5,1637 (1966)
1966VLb V Vdovenko,L Lazarev,Y Khvorostin; Radiokhim.,30,673 (1966)
1965ETa J Endicott,H Taube; Inorg.Chem.,4,437 (1965)
1965MBc E Mercer,R Buckley; Inorg.Chem.,4,1692 (1965)
1965MSa D Miller,S Srivastava,M Good; Anal.Chem.,37,739 (1965)
1965SLa D Scargill,C Lyon,N Large,J Fletcher; J.Inorg.Nucl.Chem.,27,161 (1965)
1965VLa V Vdovenko,L Lazarev,Y Khvorostin; Radiokhim.,7,232 (1965)
1964BBd J Broomhead,F Basolo,R Pearson; Inorg.Chem.,3,826 (1964)
1964KOa C Konecny; Anal.Chim.Acta,31,352 (1964)

1964MCb E Mercer,W Campbell,R Wallace; Inorg.Chem.,3,1018 (1964)
1964NIb A Nikolskii; Zh.Neorg.Khim.,9,2511 (1964)
1963KOa C Konecny; Anal.Chim.Acta,29,423 (1963)
1962AVa D Atwood,T de Vries; J.Am.Chem.Soc.,84,2659 (1962)
1962ETb J Endicott,H Taube; J.Am.Chem.Soc.,84,4984 (1962)
1961BKa J Brandstetr,M Krivanek,J Vrestal; Collec.Czech.Chem.Commun.,26,2596 (1961)
1961CFa R Connick,D Fine; J.Am.Chem.Soc.,83,3414 (1961)
1961GCa F Gortsema,J Cobble; J.Am.Chem.Soc.,83,4317 (1961)
1961ZSa O Zvyagintsev,V Starostin; Zh.Neorg.Khim.,6,1281 (1961)
1960FIa D Fine; Thesis,Univ.Calif.Berkeley.,UCRL-9059 (1960)
1959FBb J Fletcher,P Brown,E Gardner et al; J.Inorg.Nucl.Chem.,12,154 (1959)
1959PLb V Paramonova,E Latyshev; Radiokhim.,1,458 (1959)
1958STb I Starik; Zh.Neorg.Khim.,3,6 (1958)
1957CHa R Connick,C Hurley; J.Phys.Chem.,61,1018 (1957)
1957FLa J Fletcher; J.Inorg.Nucl.Chem.,8,277 (1957)
1957SKb I Starik,A Kositsyn; Zh.Neorg.Khim.,2,444 (1957)
1956JWa I Jenkins,A Wain; J.Inorg.Nucl.Chem.,3,28 (1956)
1954MAb F Martin; J.Chem.Soc.,2564 (1954)
1954SLa M Silverman,H Levy; J.Am.Chem.Soc.,76,3319 (1954)
1952LAb W Latimer; "Oxidation Potentials",Prentice Hall,NY (1952)
1952YVa R Yaffee,A Voigt; J.Am.Chem.Soc.,72,2500 (1952)
1952YVb R Yaffee,A Voigt; J.Am.Chem.Soc.,74,2503 (1952)
1952YVc R Yaffee,A Voigt; J.Am.Chem.Soc.,74,2941;3163 (1952)
1952YVd R Yaffee,A Voigt; J.Am.Chem.Soc.,74,5043 (1952)
1951FDa D de Ford,A Davidson; J.Am.Chem.Soc.,73,1469 (1951)
1950WHa P Wehner,J Hindman; J.Am.Chem.Soc.,72,3911 (1950)
1949BDa J Backhouse,F Dwyer; J.Proc.Roy.Soc.,NSW,83,138;146 (1949)
1941GFa G Grube,G Fromm; Z.Elektrochem.,47,208 (1941)

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