START Experiments recorded for
    from SC-Database on Saturday, 01 January, 2000 at 00:56:14
Software version = 5.81 Data version = 4.62
Experiment list contains 35 experiments for
 (no ligands specified)
 Metal : Os
 (no references specified)
 (no experimental details specified)

****
e-   HL   Electron   (442)
Electron;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Os kin oth/un ? 1.00M U H 1968BHc (762) 1
                                K=0.89.
Medium: 1 M KOH. K: OsO6---- + OsO4-- = 2Os(VII)

Os EMF none 25°C 0.0 M 1966BDb (763) 2
                                K=14.96, 884.7 mV
                                K'=8.18, 483.6 mV
K: Os(bpy)3+++ + e = Os(bpy)3++. K': Os(bpY)2(py)Cl++ + e = Os(bpy)2(py)Cl+
17 similar reactions

Os EMF none 25°C 0.0 U 1956CAa (764) 3
                                K=65.3(964 mV)
K: OsO4(aq)+4H+4e=OsO2(H2O)x(s)+2H2O

Os oth none 25°C 0.0 U 1952LAb (765) 4
                                K=10(0.3 V)
K(HOs(VIII)O5+2e=Os(VI)O4+OH); from thermodynamic data. Estimated values:
K(OsO4+8H+8e=Os(s)+4H2O)=114(850 mV), K(Os(IV)Cl6+e)=14(850 mV)

Os EMF oth/un 25°C 2.11M U I 1950MCa (766) 5
                                K=5.90(349 mV)
Medium: M HBr; K: Os(IV)Br6+e=Os(V)Br6. In I=4 M: K=5.24(310 mV), I=3.25 M:
K=5.43(321 mV), I=2.12: K=5.90(349 mV)

Os EMF oth/un 20°C 0.10M U I 1946DHa (767) 6
                                K=7.67(446 mV)
Medium: HCl; K: Os(IV)+e=Os(III). For I=5 M HCl: K=5.28(307 mV); 3.5 M: K=
5.80(337 mV); 2 M: 6.66(387 mV). Also in HBr: 1 M: K=6.63(392 mV)
****
CO   L   Carbon monoxide CAS 630-08-0 (551)
Carbon monoxide;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Os kin non-aq 25°C 100% U T HM 1993PSb (2816) 7

K(Os3L10H2+L)=2.77
Medium: Decalin. T. 25-90 C. K=2.63(30C); 2.51(35); 2.41(40); 1.96(60); 1.87 (70); 1.64(80); 1.49(90). At 25-40C, DH=-42.3 kJ mol-1; at 50-90 C, DH=-39.8

Os gl non-aq 25°C 100% U HM 1993PSb (2817) 8
B(Os3L10H2+2L)=ca. 7.70
Medium:Decalin. DH=-79.9 kJ mol-1; DS=-113.0.

Os kin alc/w 25°C 100% U 1983WPa (2818) 9
K(H3Os4(CO)12+H)=12.0
K(HOs3(CO)12+H)=14.7
K(HOs(CO)4+H)=15.2
****
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
---
Os sp oth/un 25°C 0.30M U M 1971EGa (10024) 10
K'=3.62
Medium:(K,H)SO4. K': cis-Ru(NH3)4(H2O)2+Os(NH3)5N2. K'=3.61 by kinetics
****
N2H4 L Hydrazine CAS 302-01-2 (2117)
Hydrazine; H2N.NH2

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Os kin oth/un 25°C var U K1=6.76 1972RKc (10085) 11
Metal: OsO4 (?) Medium: HCl
****
OH- HL Hydroxide (57)
Hydroxide;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Os gl KCl 25°C 1.2M C 1998ARa (11828) 12
*K(OsO(H2O)(CN)4)=3
*K(OsO(OH)(CN)4)=>-1
Medium: KCl/KNO3

Os sp oth/un 25°C var C 1983GZa (11829) 13
*K(H2OsO2(OH)4)=-8.5
*K(HOsO2(OH)2=-10.4
Metal is Os(VI).

Os sp oth/un 25°C var C 1983GZa (11830) 14
*K(OsO4)=-12.2
Metal is Os(VIII).

Os sp NaClO4 10°C 4.00M U M 1982BMa (11831) 15

```
                                        K(Os(VI)Cl4(OH)2+H)=0.8
                                        K(Os(VI)Cl4(H2O)OH+H)=0.3
--------------------------------------------------------------------------------
Os         kin oth/un 20°C 0.10M C                    1978LDa (11832)  16
                                        K(OsO4+OH=HOsO5)=2.48
Metal is Os(VIII). Medium: 0.10 M NaHCO3/Na2CO3.
--------------------------------------------------------------------------------
Os         kin oth/un 35°C  1.0M U                    1977MGa (11833)  17
                                        K(OsO3L3+L)=1.50
--------------------------------------------------------------------------------
Os         dis oth/un 24°C       U                    1972LEb (11834)  18
                                        *K1(OsO4+H2O=OsO4OH+H)=-12.5
medium:KOH at various concentrations
--------------------------------------------------------------------------------
Os         gl  oth/un 20°C 0.25M U                    1967BNa (11835)  19
                                        *K1=-7.24
Os as OsO2(OH)4. Medium: 0.25 M Na2SO4. In 'dilute' soln: *K1=-7.2,
*K2=12.2, *K3=-13.95, *K4=K(OsO5OH=OsO56+H)=-14.17
--------------------------------------------------------------------------------
Os         gl  oth/un 25?°C  dil  U                    1966WSa (11836)  20
                                        *K1(Os(en)3)=-5.10
Metal: Os+++
--------------------------------------------------------------------------------
Os         dis none   25°C  0.0  U  I                 1963GOb (11837)  21
                                        Kd(M(aq)=M(CCl4))=1.09
M is OsO4(H2O)n; data also for 1 M-NaClO4 (Kd=1.16); no ev polynuclear
complex for <10**-3 M-Os in CCl4
--------------------------------------------------------------------------------
Os         gl  oth/un   ?   var  U                    1955DHa (11838)  22
                                        *K1(Os(en)3) > 0
                                        *K2=-5.8
--------------------------------------------------------------------------------
Os         dis NaClO4 25°C  1.0M U                    1953SSb (11839)  23
                                        *K1(OsO4(H2O)n)=-12.0
                                        *K2=-14.85?
By spectrophotometry *K1=-12.0, *K2=-14.52
--------------------------------------------------------------------------------
Os         dis non-aq 25°C 100%  U                    1938AYa (11840)  24
                                        Kd=1.89(x units)
                                        K=0.80 in CCl4
In CCl4; metal is OsO4(H2O)n; Kd: K(OsO4(aq)=OsO4(CCl4));ev (OsO4)n in CCl4,
K(4OsO4=(OsO4)4?); method:also partial pressure of CCl4
--------------------------------------------------------------------------------
Os         dis oth/un 25°C  dil  U                    1928YWa (11841)  25
                                        *K1(OsO4(H2O)n)=-12.10
                                        Kd=1.09
metal is OsO4(H2O)n; Kd(OsO4(aq)=OsO4(CCl4))
********************************************************************************
PO4---                H3L    Phosphate        CAS 7664-38-2  (176)
Phosphate;
```

```
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Os         kin oth/un 25°C  var  U                        1973KRb (13282)  26
                                          K(OsO4+L)=2.4 (?)
********************************************************************************
C2H5NO2                HL    Glycine          CAS 56-40-6  (85)
2-Aminoethanoic acid; H2N.CH2.COOH
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Os         kin NaCl   25°C 1.00M U T H    K1=1.30        1984MKa (21655)  27
Data at 25-40C. DH = 8 kJ mol-1. Os = OsO4(OH)2
********************************************************************************
C3H7NO2                HL    Alanine          CAS 56-41-7  (86)
2-Aminopropanoic acid; H2N.CH(CH3).COOH
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Os         kin NaCl   25°C 1.00M U T H    K1=0.93        1984MKa (26229)  28
Data at 25-40C. DH = 17 kJ mol-1. Os = OsO4(OH)2
********************************************************************************
C5H11NS2               HL                    CAS 147-84-2  (2126)
Diethyldithiocarbamic acid; (CH3.CH2)2N.CSSH
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Os         sp  non-aq 30°C 100%  U                        1993PBa (41358)  29
K(trans-OsL2A2=cis-OsL2A2)=0.78 (for Os(II)) and -3.87 (for Os(III)).
********************************************************************************
C9H7N3O2S             H2L    TAR              CAS 2246-46-0  (707)
4-(2'-Thiazolylazo)-resorcinol; C3H2NS.N:N.C6H3(OH)2
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Os         sp  oth/un   ?  0.10M U                        1969IBc (64718)  30
                                          K(?)=8.59
Metal:Os(IV). For Os(VIII), K(?)=6.49
********************************************************************************
C10H11N7S2              L                    CAS 60435-22-5  (2819)
Phthalimide-dithiosemicarbazone;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Os         sp  none   25°C  0.0  U                        1976GPc (71099)  31
                                          Keff=4.18
Os(VIII) at pH 4
********************************************************************************
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
---
Os sp none 25°C 0.0 U 1990KNb (80549) 32
K(OsH2L3=OsL3+2H)=-1.70
****
C14H10N4 L CAS 25005-96-3 (5906)
2,3-Bis(2-pyridyl)pyrazine;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Os sp none 25°C 0.0 U 1990KNb (86913) 33
K(OsHL3=OsL3+H)=4.60
****
C15H11N3O HL PAN CAS 85-85-8 (572)
1-(2-Pyridylazo)-2-naphthol; C5H4N.N:N.C10H6.OH

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Os sp mixed ? 50% U K1=9.34 1969BIc (91235) 34
Os(IV). Medium: 50% DMF, 0.1 M NaClO4). With Os(VIII), K1(?)=8.62
****
C15H12N2O3S HL (4070)
2-(3'-Benzoylthioureido)benzoic acid;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Os sp alc/w 30°C 96% U 1966MBa (91440) 35
K(?)=4.38
Metal: Os(VIII). Medium: 95% EtOH

REFERENCES

1998ARa A Abou-Hamdan,A Roodt,A Merbach; Inorg.Chem.,37,1278 (1998)
1993PBa A Pramanik,N Bag,A Chakravorty; J.Chem.Soc.,Dalton Trans.,237 (1993)
1993PSb A Poe,C Sampson et al; J.Am.Chem.Soc.,115,3174 (1993)
1990KNb K Kalyanasundaram,K Nazeeruddin; Inorg.Chim.Acta,171,213 (1990)
1984MKa R Mehrotra,R Kapoor,S Vajpai; J.Chem.Soc.,Dalton Trans.,999 (1984)
1983GZa Z Galbacs,A Zsednai,L Csanyi; Transition Met.Chem.,8,328 (1983)
1983WPa H Walker,R Pearson et al; J.Am.Chem.Soc.,105,1179 (1983)
1982BMa C Bremard,B Mouchel; Inorg.Chem.,21,1810 (1982)
1978LDa J Leipoldt,C Dennis,A van Wyk; Inorg.Chim.Acta,31,187 (1978)
1977MGa D Mohan,Y Gupta; J.Chem.Soc.,Dalton Trans.,1085 (1977)
1976GPc M Guzman,D Perez-Bendito et al; Anal.Chim.Acta,83,259 (1976)
1973KRb G Konishevskaya,V Romanov,K Yatsimirskii; Zh.Neorg.Khim.,18,462(E:243) (1973)
1972LEb D Lee; J.Inorg.Nucl.Chem.,34,375 (1972)
1972RKc V Romanov,G Kinishevskaya et al; Zh.Neorg.Khim.,17,3300(E:1734) (1972)
1971EGa C Elson,J Gulens,J Page; Can.J.Chem.,49,207 (1971)
1969BIc A Busev,V Ivanov,L Bogdanovich; Vestnik Moskov Univ.,24,3,86 (1969)

1969IBc V Ivanov,A Busev,L Popova et al; Zh.Anal.Khim.,24,7,1064 (1969)
1968BHc J Beaufils,M Hellin,F Coussemant; Compt.Rend.,266C,496 (1968)
1967BNa J Bavay,G Nowogrocki,G Tridot; Bull.Soc.Chim.Fr.,2026 (1967)
1966BDb D Buckingham,F Dwyer,A Sargeson; Inorg.Chem.,5,1243 (1966)
1966MBa A Majumdar,S Bhowal; Anal.Chim.Acta,35,479 (1966)
1966WSa G Watt,J Summers,E Potrafke,E Birnbaum; Inorg.Chem.,5,857 (1966)
1963GOb G Goldstein; Inorg.Chem.,2,425 (1963)
1956CAa G Cartledge; J.Phys.Chem.,60,1468 (1956)
1955DHa F Dwyer,J Hogarth; J.Am.Chem.Soc.,77,6152 (1955)
1953SSb R Sauerbrunn,E Sandell; J.Am.Chem.Soc.,75,4170 (1953)
1952LAb W Latimer; "Oxidation Potentials",Prentice Hall,NY (1952)
1950MCa R Mertes,W Crowell,R Brinton; J.Am.Chem.Soc.,72,4218 (1950)
1946DHa F Dwyer,J Humpoletz,R Nyholm; J.Proc.Roy.Soc.,NSW,80,242 (1946)
1938AYa L Anderson,D Yost; J.Am.Chem.Soc., 60,1822 (1938)
1928YWa D Yost,R White; J.Am.Chem.Soc., 50,81 (1928)

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

END Experiments recorded for
from SC-Database on Saturday, 01 January, 2000 at 00:56:14