

SC-Database

Software version = 5.81 Data version = 4.62

Experiment list contains 38 experiments for
(no ligands specified)

Metal : Po++++

(no references specified)

(no experimental details specified)

e- HL Electron (442)
Electron;

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

Po++++ kin oth/un 25°C 2.00M U 1966HPc (808) 1
K=6.71 (397 mV)
K'=12.27 (363 mV)
K(Po+++ + e=Po++)=5.58 (330mV)
K(Po++ + 2e=Po(s))=24.7(730mV)

Medium: HCl. K: PoCl6-- + e = PoCl5--. K': PoCl6-- + 2e = PoCl4--.

Po++++ EMF none 25°C 0.0 M 1965EGa (809) 2
K=17.2, 510 mV
K'=24.1, 712 mV

K: PoCl4-- + 2e = Po(s) + 4Cl-. K': PoCl6-- + 2e = PoCl4-- + 2Cl-.

Po++++ oth oth/un 18°C var U 1958CHb (810) 3
K=ca.28(880 mV)

Medium: HNO3. K: PoO2(s)+4H+2e=Po(II)+2H2O. Method: deposition studies

Po++++ oth oth/un 20°C 0.10M U 1958NSa (811) 4
K=52.6(765 mV)

Medium: HCl. K:Po+4e=Po(s). Method: deposition studies. K(Po(II)+2e=Po(s))=23.3(679 mV)

Po++++ EMF oth/un 22°C 1.0M U 1956BFb (812) 5
K=25(0.72 V)

Medium: HCl. K(Po(IV)Cl6+2e=Po(II)). K(Po+4e=Po(s))=26(380 mV). In 1 M HNO3: K(Po+4e=Po(s))=52(760 mV)

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

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

Po++++ dis NaCl04 RT 1M U 1981SHb (5487) 6
K(Po(OH)4+H+L=Po(OH)3Cl)=4.6
K(Po(OH)4+2HL=Po(OH)2Cl2)=8.7

Solvent extraction with dithizone into CCl4

Po++++ dis oth/un 0.0 U 1967IYa (5488) 7
K6=2.3

Also equilib. constants for Po(II) and Po(IV) and distribution coefficients

Po++++ dis KCl 5.0M U K1=2.56 B2=4.80 1965SAd (5489) 8
B3=6.88
B4=8.85
B5=10.60
B6=11.92

Medium:4-6 M HCl. $K_d(\text{Po}+\text{H}+5\text{L}+2\text{TBP}(\text{benzene})=\text{HPoL5}(\text{TBP})_2(\text{benzene}))=1.78$

Po++++ ix NaClO4 24°C 1.0M U I K1=2.34 B2=4.42 1964SAb (5490) 9
B3=6.34
B4=8.53
B5=10.08
B6=11.57

Method:cation exchange. Medium: HClO4. Also in 10% and 20% acetone

Po++++ con oth/un 22°C 1.0M U 1956BFb (5491) 10
B6=14

ClO4- HL Perchlorate CAS 7001-90-3 (287)
Perchlorate;

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

Po++++ dis NaClO4 var U K1=-0.89 B2=-1.48 1965SAd (6355) 11
B3=-2.05
B4=-2.80
 $K_d(\text{Po}+4\text{L}+\text{TBP}(\text{C6H6}))=-0.12$

Medium:HClO4 var.

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

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

Po++++ sol oth/un 22°C var U 1956BEb (8327) 12
 $K(\text{PoL4}(\text{s})+\text{L}=\text{PoL5})=-4.17$
 $K(\text{PoL4}(\text{s})+2\text{L}=\text{PoL6})=-2.23$

NO3- HL Nitrate CAS 7697-37-2 (288)
Nitrate;

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

Po++++ ix NaClO4 0°C 1.0M U I K1=0.56 B2=1.15 1973AMb (9872) 13
B3=1.30

Metal: Po(OH)x. Method: Cation exchange. Medium: HClO4. K1=0.53, B2=1.08, B3=1.30(I=1.5)

OH- HL Hydroxide (57)
Hydroxide;

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

Po++++ dis NaClO4 RT 1M U 1981HSa (11934) 14
K(Po(OH)4+H=Po(OH)3)=13.3

Solvent extraction with dithizone into CCl4

Po++++ dis NaClO4 25°C 1.00M U 1975AMa (11935) 15
*K1=-0.48
*B2=-3.22

Po++++ dis NaClO4 ? 3.0M U 1965GUb (11936) 16
*K1=-0.14
*B2=-0.52
*B3=-1.77

Po++++ dis NaClO4 20°C 0.10M U 1964SAb (11937) 17
*K1=-1.10
*B2=-2.20
*B3=-3.06
*B4=-4.80

Po++++ ix NaClO4 21°C 0.04M U 1963KSa (11938) 18
*K1=-3.4
*B2=-8.15

Po++++ sol oth/un ? dil U 1959SAc (11939) 19
Ks(Pu(OH)4=Pu(OH)2+2OH)=-25.8
Alternatively: Ks(Pu(OH)4=Pu+4OH)=-38.2 ?

Po++++ sol oth/un ? dil U 1959SAc (11940) 20
Ks(Pu(OH)4=Pu(OH)2+2OH)=-25.8
Alternatively: Ks(Pu(OH)4=Pu+4OH)=-38.2 ?

Po++++ sol oth/un ? dil U 1959ZEa (11941) 21
Kso(Pu(OH)4)=-37

Po++++ sol oth/un ? dil U 1959ZEa (11942) 22
Kso(Pu(OH)4)=-37

Po++++ sol oth/un ? var U 1958STb (11943) 23
Kso(Po(OH)4)=-37

Po++++ sol oth/un ? var U 1958STb (11944) 24
Kso(Po(OH)4)=-37

Po++++ sol oth/un ? var U 1958ZZa (11945) 25

Kso(Po(OH)4)=-38

Po++++ sol oth/un ? var U 1958ZZa (11946) 26
Kso(Po(OH)4)=-38

Po++++ sol oth/un 25°C var U 1957BFa (11947) 27
Ks(Po(OH)4(s)+2OH)=-4.09

Po++++ sol oth/un 25°C var U 1957BFa (11948) 28
Ks(Po(OH)4(s)+2OH)=-4.09

S-- H2L Sulfide CAS 7783-06-4 (705)
Sulfide;

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

Po++++ sol oth/un 25°C var U 1957BRa (14453) 29
Kso(PoL)=-28.26

S04-- H2L Sulfate CAS 7664-93-9 (15)
Sulfate;

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

Po++++ ix oth/un ? 2.0M U 1973AMb (16472) 30
K(Po(OH)n+L)=1.5
K(Po(OH)n+2L)=3.4

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

Po++++ ix NaClO4 ? 1.00M U K1=5.23 B2=9.74 1973AMb (19035) 31
Metal ion : PoO++

Po++++ dis NaClO4 22°C 1.00M U I 1966KFa (19036) 32
K(Po(OH)2+2L)=7.78

Method : ion exchange, I=0.4, 25 C, K=7.48

C2H4O2 HL Acetic acid CAS 64-19-7 (36)
Ethanoic acid; CH3.COOH

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

Po++++ ix NaClO4 ? 1.00M U K1=2.50 B2=4.85 1973AMb (20132) 33
B3=7.18

Metal ion: PoO++

C4H6O6 H2L L-Tartaric acid CAS 87-69-4 (92)

L-Tartaric acid, L-2,3-Dihydroxybutanedioic acid; HOOC.CH(OH).CH(OH).COOH

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

Po++++ dis NaClO4 22°C 1.00M U M 1966KF a (31337) 34
K(Po(OH)2+2L)=7.30

Using ion exchange: K(Po(OH)2+2L)=7.90

C6H9NO6 H3L NTA CAS 139-13-9 (191)
Nitrilotriethanoic acid; N(CH2.COOH)3

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

Po++++ dis NaClO4 22°C 1.00M U 1966KF a (46984) 35
K(Po(OH)2+2HL)=8.18 (?)
K(Po(OH)2+2HL)=5.78 (?)

C8H5O2F3S HL TTA CAS 326-91-0 (165)
4,4,4-Trifluoro-1-(2-thienyl)butane-1,3-dione; F3C.CO.CH2.CO.C4H3S

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

Po++++ dis NaClO4 22°C 1.0M U M 1966KF a (58666) 36
K(Po(OH)2+L)=7.60
K(Po(OH)2+2L)=13.11

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

Po++++ dis NaClO4 22°C 1.0M U 1966KF a (74079) 37
K(Po(OH)2+HL)=8.0

Po++++ ix oth/un 25°C 0.40M U 1966KF a (74080) 38
K(Po(OH)2+HL)=5.95

REFERENCES

- 1981HSa I Hataye, H Sukanuma, M Sakata, Y Nagame; J. Inorg. Nucl. Chem., 43, 2101 (1981)
- 1981SHb H Sukanuma, I Hataye; J. Inorg. Nucl. Chem., 43, 2511 (1981)
- 1975AMa N Ampellogova; Radiokhim., 18, 68 (1975)
- 1973AMb N Ampellogova; Radiokhim., 15, 813(E:823) (1973)
- 1967IYa B Iofa, A Yushchenko; Vestnik Moskov Univ., 22, 6, 20 (1967)
- 1966HPc H Haissinsky, E Pluchet; J. Inorg. Nucl. Chem., 28, 2861 (1966)
- 1966KF a H Koch, W Falkenberg; Solv. Extr. Chem. PIC., Goteborg, 26 (1966)
- 1965EGa J Eichelberger, G Grove, L Jones; Mound Laboratory Report MLM-1250 (1965)
- 1965GUb R Guillaumont; Compt. Rend., 260, 1416 (1965)
- 1965SAd I Starik, N Ampellogova; Radiokhim., 7, 658 (1965)
- 1964SAb I Starik, N Ampellogova, B Kuznetsov; Radiokhim., 6, 519; 524 (1964)

1963KSa H Koch,H Schmidt; Z.Naturforsch.,18B,936 (1963)
1959SAc I Starik,N Ampelogova; Radiokhim.,1,414;419 (1959)
1959ZEa D Ziv,I Efros; Radiokhim.,1,290 (1959)
1958CHb G Charlot; Oxid-Reduction Potentials(IUPAC),London (1958)
1958NSa B Nikolskii,G Sinitsyna,D Ziv; Trudy Rad.Inst.,8,141 (1958)
1958STb I Starik; Zh.Neorg.Khim.,3,6 (1958)
1958ZZa D Ziv,V Zib,G Sinitsyna; Trudy Rad.Inst.,8,158 (1958)
1957BFa K Bagnall,J Freeman; J.Chem.Soc.,2161 (1957)
1957BRa K Bagnall,D Robertson; J.Chem.Soc.,1044 (1957)
1956BEb K Bagnall,R deye,J Freeman; J.Chem.Soc.,3385 (1956)
1956BFb K Bagnall,J Freeman; J.Chem.Soc.,2770 (1956)

EXPLANATORY NOTES

DATA Flags are :-

I Data with various BACKGROUNDS
M Data for TERNARY Complexes

END