SC-Database
Software version = 5.81 Data version = 4.62
Experiment list contains 25 experiments for
 (no ligands specified)
 2 metals : Se(IV), Se(not IV)
 (no references specified)
 (no experimental details specified)

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Se(IV)	EMF	none	25°C	0.0	U		1966OVa (931)		1
							K=50.3, 744 mV		

K: H2SeO3 + 4H + 4e = Se(s) + 3H2O

Se(IV)	oth	none	25°C	0.0	U		1952LAb (932)		2
							K=38.9(1150 mV)		

K: Se(VI)O4+4H+2e=H2SeO3+H2O. From thermodynamic data. K(H2SeO3+4H+4e=Se(s)+3H2O)=50.04(740 mV) plus others
****
Br- HL Bromide CAS 10035-10-6 (19)
Bromide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Se(IV)	sp	non-aq	25°C	100%	U	T H	1975WSa (2308)		3
							K(SeO2+Br)=1.11		
							K(SeOCl2+Br)=1.49		

Medium: DMSO. DH(SeO2L)=-11.1; DS=-59. DH(SeOCl2L)=21.3 kJ mol-1; DS=96 J K-1 mol-1
****
CN- HL Cyanide CAS 74-90-8 (230)
Cyanide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Se(IV)	sol	oth/un	0°C	dil	U	T	1961HAb (2761)		4
							K(Se(s)+HL=SeCN+H)=-3.11		

Medium: not specified; at 0.3 C. Se(all)=Se(0). At 10.8 C, K=-3.33
****
Cl- HL Chloride CAS 7647-01-0 (50)
Chloride;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Se(IV)	sp	non-aq	25°C	100%	U	T H	1975WSa (5699)		5
							K(SeO2+Cl)=1.50		

```
                                        K(SeOCl2+Cl)=1.08
Medium: DMSO. DH(SeO2L)=-4.1; DS=-42. DH(SeOCl2L)=24.3 kJ mol-1;   DS=100 J
K-1 mol-1
--------------------------------------------------------------------------
Se(IV)     EMF non-aq 25°C 100%  U                      1969DTa  (5700)   6
                                        K(SeOL2=SeOL+L)=-9.7
Medium: SeOCl2, 0.5 M (C2H5)4NClO4
**************************************************************************
I-                    HL    Iodide           CAS 10034-85-2  (20)
Iodide;
--------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------
Se(IV)     sp  non-aq 25°C 100%  U T H    K1=0.95        1975WSa  (8373)   7
Medium: DMSO. DH(SeO2L)= 12.2 kJ mol-1. DS=-56 J K-1 mol-1
**************************************************************************
NO3-                  HL    Nitrate          CAS 7697-37-2  (288)
Nitrate;
--------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------
Se(IV)     ix  oth/un 25°C   >3  U        K1=2.34   B2=3.47   1985OKa  (9917)   8
                                        K3=0.69
                                        K4=0.45
                                        K5=0.28
                                        K6=0.13
**************************************************************************
OH-                   HL    Hydroxide          (57)
Hydroxide;
--------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------
Se(IV)     oth NaClO4 20°C 2.50M U        B2=29.0        1984OKa (12121)   9
                                        K3=14.15
                                        K4=12.30
**************************************************************************
CH4O                   L    Methyl alcohol   CAS 67-56-1  (597)
Methanol; CH3.OH
--------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------
Se(IV)     EMF alc/w  20°C 100%  U                      1971GSa (17899)  10
                                        K(Se+4L=Se(H-1L)4+4H) > 1
Medium: MeOH, 1 M Me4NCl
**************************************************************************
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
--------------------------------------------------------------------------
```

```
Se(IV)     sp  non-aq   ?  100%  U    M                  1968SRg (41370)  11
                                        K(Se(HA)4+4HL=SeL4+4H2A)=6.5
Medium: CCl4.  H2A=dithizone
*************************************************************************
C6H7NS                 HL                    CAS 137-07-5  (3098)
2-Aminothiophenol (o-aminothiophenol); H2N.C6H4.SH
-------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------
Se(IV)     sp  oth/un 25°C 2.00M U                         1971BSi (45089)  12
I=2.0-2.4.  K(H2SeO3+4HL=SeL2+L2+3H2O)=16.2   (L2=PhSSPh, SeL2=PhSSeSPh)
*************************************************************************
C7H5NS2                HL                    CAS 149-30-3  (3752)
2-Mercaptobenzo-1,3-thiazole;
-------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------
Se(IV)     sp  oth/un 25°C 1.80M U                         1971BSi (53085)  13
Range of ionic strength 1.7-2.0.     K(H2SeO3+4RSH=RSSeSR+RSSR+3H2O)=13.3
*************************************************************************
C7H6O2S               H2L    Thiosalicylic    CAS 147-93-3  (236)
2-Mercaptobenzoic acid; HS.C6H4.COOH
-------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------
Se(IV)     sp  oth/un 25°C  2.0M U                         1971BSi (53916)  14
Range of ionic strength 2.0-2.8.     K(H2SeO3+4RSH=RSSeSR+RSSR+3H2O)=16.7
*************************************************************************
C14H9NO4              H2L    Alizarin Maroon  CAS 3963-78-8  (1052)
3-Amino-1,2-dihydroxyanthraquinone;
-------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------
Se(IV)     gl  NaClO4 20°C 0.10M U    M   K1=6.9    B2=12.90  1982ISa (86813)  15
                                       Se(IV), selenite
*************************************************************************
C28H15NO4               L                     CAS 82-22-4  (3522)
1,1'-Iminodianthraquinone;  (1,1'-dianthrimide)
-------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------
Se(IV)     sp  mixed    ?   96%  U                       1966DLa (104654)  16
                                       K(2HSeO2+HL)=8.75
Medium: 96% H2SO4
-------------------------------------------------------------------------
Se(IV)     sp  oth/un 70°C  96%  U                       1959LSa (104655)  17
                                       K(H2SeO3+HL=HSeO2L(?))=5.04
Medium: 96.25% H2SO4
*************************************************************************
C28H15NO4               L                      (4171)
```

1,2'-Iminodianthraquinone (1,2'-dianthrimide)

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Se(IV)	sp	mixed	?	96%	U		1966MLa (104658)		18
							K(HSeO2+HL)=4.40		

Medium: 96.0% H2SO4

C28H15NO4 L CAS 30999-75-8 (4172)

2,2'-Iminodianthraquinone (2,2'-dianthrimide)

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Se(IV)	sp	mixed	?	96%	U		1966DLa (104659)		19
							K(HSeO2+HL)=3.89		
							K(2HSeO2+2HL)=12.50		

Medium: 95.5% H2SO4

e- HL Electron (442)

Electron;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Se(not IV)	oth	none	25°C	0.0	U		1952LAb (933)		20
							K=-12.5(-370 mV)		

K: Se(s)+2H+2e=H2Se(g). From thermodynamic data. K(Se(s)+2e=Se(II))=-31.2 (-920 mV)

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

Cyanide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Se(not IV)	sol	oth/un	0°C	dil	U	T	1961HAb (2762)		21
							Ks(Se(s)+HL=Se(0)CN+H)=-3.11		

At 10.8 C, K=-3.33

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

Carbon monoxide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Se(not IV)	nmr	non-aq	120°C	100%	U	T H	1994KRa (2823)		22

Metal:Co(0). Method:NMR. Medium:Carbon monoxide. T. 120-225 C
K:Co2L8=2CoL4. DH=79.5 kJ mol-1; DS=121

SO3-- H2L Sulfite CAS 7782-99-2 (801)

Sulfite;

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

```
--------------------------------------------------------------------------------
Se(not IV) oth oth/un 20°C  var  U T                    1947GOa (15477)  23
                                        K(L+Se(s)=SeSO3)=0.64
By chemical analysis. Medium: Na2L. K=-0.09(97.5 C)
********************************************************************************
SeCN-                  HL    Selenocyanate    CAS 73102-11-2  (440)
Selenocyanate;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Se(not IV) sp  non-aq  2°C 100%  U                      1972CPb (16994)  24
                                        K((SeCN)2+L)=4.3
Medium: acetonitrile, 0.1 M LiClO4. K1=4.6 from current-voltage studies
********************************************************************************
C2H6OS                 HL                    CAS 60-24-2  (841)
2-Mercaptoethanol; HS.CH2.CH2.OH
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Se(not IV) vlt NaCl    0°C 0.20M U    M                 1993BSa (22079)  25
                                        Kox((4Fe-4S)+L)=4.55
                                        Kred((4Fe-4S)+L)=1.01
Metal:Fe(oxidation state unknown).
(4Fe-4S)++ and (4Fe-4S)+ are in Ferrodoxin III.
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EXPLANATORY NOTES

DATA Flags are :-

T Data at other TEMPERATURES
H Data for THERMOCHEMICAL quantities
M Data for TERNARY Complexes

END