SC-Database
Software version = 5.81 Data version = 4.62
Experiment list contains 196 experiments for
 (no ligands specified)
 2 metals : Au+, Au+++
 (no references specified)
 (no experimental details specified)

****

e- HL Electron (442)

Electron;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference		ExptNo
Au+	EMF	R4N.X	25°C	10.0M	M		B2=26.5 E(e+AuA2=Au+2A)=0.563 V	1974SBb	(314)	1
Medium:10 M NH4NO3. A=NH3. K value: 9.52										
Au+	sol	oth/un	175°C	0.50M	U	T	K=1.29	1973SEa	(315)	2
At 1000 bar; K(Au(SH)2- + 1/2H2(g)=Au(s) + H2S(aq) + SH-)=1.28(200 C), 1.22(225 C), 1.19(250 C)										
Au+	sol	oth/un	175°C	0.50M	U	T	K=2.14	1973SEa	(316)	3
At 1000 bar; K(Au2(SH)2S-- + H2(g)=2Au(s) + H2S(aq) + 2SH-)=2.40(200 C), 2.50(225 C), 2.55(250 C)										
Au+	vlt	non-aq	25°C	100%	U		K=Au+ + e=Au(s))=25.22(1.492V)	1972FDb	(317)	4
Medium: DMSO, 0.1 M p-toluene sulfonic acid										
Au+	EMF	KNO3	25°C	1.00M	U	I	K=-7.8(-0.46V)	1972HFa	(318)	5
K: Au(CN)2- + e=Au(s) + 2CN-. Data also in 0.025 M KCN(K=-8.5(-0.50 V))										
Au+	oth	oth/un	25°C	0.03M	U		K(Au+e+Au(s))=28.20(1.668V)	1972HFa	(319)	6
Method:Estimated data. Medium: 0.025 M KCN										
Au+	oth	oth/un	25°C	0.03M	U		B2=36.6 E(Au+e)=1.668V	1972HFa	(320)	7
Method: estimated value										
Au+	EMF	none	25°C	0.00	U	T	K=11.19(662mV)	1971CPa	(321)	8
K: Au(SCN)2- + e=Au(s) + 2SCN-. K=10.48(651mV,40 C), 9.58(638mV,62.5 C), 8.98(629mV,80 C)										
Au+	oth	none	25°C	0.0	U	T		1970HMa	(322)	9

```
                                        K(Au+e=Au(s))=35.8(2.12V)
Method:Estimated data
-------------------------------------------------------------------------------
Au+        oth none   25°C  0.0  U T                    1969EPa   (323)  10
                                        K(Au+e=Au(s))=31.3(1.85V)
Method:Estimated data.
-------------------------------------------------------------------------------
Au+        oth none   25°C  0.0  U                      1969EPb   (324)  11
                                        K'=8.96 (530mV)
Method:Estimated data. K': AuI(s)+e=Au(s)+I
-------------------------------------------------------------------------------
Au+        EMF none   25°C  0.0  U                      1966PGb   (325)  12
                                        K=11.19, 662 mV
K: Au(SCN)2- + e = Au(s) + 2SCN-
-------------------------------------------------------------------------------
Au+        EMF none   25°C  0.0  M                      1965PGc   (326)  13
                                        K=19.41, 1148 mV
K: AuCl2- + e = Au(s) + 2Cl-
-------------------------------------------------------------------------------
Au+        EMF oth/un 25°C  var  U                      1964KLb   (327)  14
                                        K=6.4, 380 mV
K: Au((NH2)2CS)2+ + e = Au(s) + 2(NH2)2CS
-------------------------------------------------------------------------------
Au+        EMF none   25°C  0.0  U   H                  1963PKb   (328)  15
                                        K=16.28(963 mV)
K: AuBr2+e=Au(s)+2Br. DH(K)=-113.8 kJ mol-1,DS=-69.5 J K-1 mol-1
-------------------------------------------------------------------------------
Au+        EMF none   25°C  0.0  U                      1962LIb   (329)  16
                                        K(AuCl2+e=Au(s))=19.51(1154mV)
-------------------------------------------------------------------------------
Au+        EMF none   20°C  0.0  U                      1961BBb   (330)  17
                                        K(AuCl2+e=Au(s))=19.05(1127mV)
-------------------------------------------------------------------------------
Au+        EMF oth/un 25°C  dil  U                      1954TRa   (331)  18
                                        K=18.82(1113 mV)
Medium: HCl. K: AuCl2+e=Au(s)+2Cl. DH(K)=-134.7 kJ mol-1, DS=91 J K-1 mol-1
-------------------------------------------------------------------------------
Au+        EMF oth/un 20°C  var  U                      1948BJa   (332)  19
                                        K=19.24(1119 mV)
Medium: HCl. K: AuCl2+e=Au(s)+2Cl
-------------------------------------------------------------------------------
Au+        EMF oth/un 60°C  var  U                      1932GMc   (333)  20
                                        K(AuBr2+e=Au(s)+2Br)=14.6(964)
-------------------------------------------------------------------------------
Au+        EMF oth/un 40°C  var  U T                    1929GRa   (334)  21
                                        K=18.2(1130 mV)
Medium: HCl. K: AuCl2+e=Au(s)+2Cl. At 60 C: K=15.7(1040 mV)
-------------------------------------------------------------------------------
Au+        EMF oth/un 20°C  1.0M U                      1918BKa   (335)  22
                                        K=11.85(689 mV)
```

Medium: HCl. K(Au(SCN)2+e=Au(s)+2SCN

Au+ EMF oth/un 18°C ? U 1903BOa (336) 23

K=-10.6(-611 mV)

K: Au(CN)2+e=Au(s)+2CN

****

Br- HL Bromide CAS 10035-10-6 (19)

Bromide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values		Reference	ExptNo
Au+	gl	non-aq	25°C	100%	C	IH	K1=5.29	B2=9.4	1989ANa (1725)	24

Medium: pyridine, 0.1 M Et4NClO4. DH(K1)=-0.1 kJ mol-1, DH(B2)= 0.6.
In acetonitrile K1=12.08, B2=20.71, DH(K1)=-36.4 kJ mol-1, DH(B2)=-46.4

Au+	ISE	non-aq	20°C	100%	C	M	K1=12.9	B2=22.20	1975RFa (1726)	25

Medium: MeCN

Au+	EMF	non-aq	20°C	100%	U		K1=12.0	B2=20.6	1973RLa (1727)	26

Medium: MeCN, 0.1 M Et4NClO4. K(Et4N+Br)=1.35; K(Et4N+ClO4)=1.05

Au+	EMF	non-aq	25°C	100%	U		K1=10.6	B2=16.6	1972FDb (1728)	27

Medium: DMSO, 0.1 M LiClO4. Method:current-voltage studies

****

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

Cyanide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	dis	NaClO4	25°C	0.10M	U	T H		1972FHc (2610)	28

K(Au(CN)2+I2)=4.12

Medium:H(ClO4). K=4.32(5 C), 4.22(15 C), 3.99(35 C)
DH=-18.0 kJ mol-1, DS=18.0 J K-1 mol-1

Au+	EMF	oth/un	25°C	var	U	T M		1971PCb (2611)	29

K(AuL2+Au(SCN)2=2AuSCN+2L)=0.5

K=0.9(63 C)

Au+	oth	none	25°C	0.0	U		B2=47	1970HMa (2612)	30

Method: estimated value

Au+	vlt	non-aq	195°C	100%	U		B2=11.23	1967ETa (2613)	31

Medium: molten KSCN

Au+	oth	none	25°C	0.0	U		B2=38.3	1952LAb (2614)	32

Method: combination of thermodynamic data and estimates

Au+	ISE	oth/un	??	var	U			1903BOa (2615)	33

B2 > 29.4

****

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	sol	oth/un	300°C	0.0	C	T	B2=6.31 B(Au(OH)Cl)=11.2 B(Au(OH)2)=15.47	2003SSb (4482)	34

Calculated for 500 bar from data for dissolution of Au in HCl/NaCl/NaOH (0.15-1.72 m Cl) under H2 at 500-1800 bar. Data for 300-600 C.

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	gl	non-aq	25°C	100%	C	IH	K1=5.39 B2=9.12	1989ANa (4483)	35

Medium: pyridine, 0.1 M Et4NClO4. DH(K1)=1.9 kJ mol-1, DH(B2)=4.9.
In acetonitrile: K1=11.94, B2=20.04, DH(K1)=-21.6 kJ mol-1, DH(B2)=-27.9

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	ISE	non-aq	20°C	100%	C		K1=12.05 B2=19.30	1975RFa (4484)	36

Medium: MeCN

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	EMF	non-aq	20°C	100%	U	M	K1=12.0 B2=20.2 K(AuL2+SbPh3=AuLSbPh3+L)=-0.8 K(AuL2+AsPh3=AuLAsPh3+L)=1.1 K(AuL2+PPh3=AuLPPh3+L) > 2	1973RLa (4485)	37

Medium: CH3CN

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	EMF	non-aq	25°C	100%	U	T	K1=10.9 B2=16.60	1973SIb (4486)	38

Medium: DMSO, 0.1 M Et4NClO4. With p-toluenesulfonic acid: K1=10.7, K2=5.5

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	EMF	non-aq	25°C	100%	U		K1=12.6 B2=18.0	1972FDb (4487)	39

Medium: DMSO, 0.1 M LiClO4, Et4NClO4

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	EMF	non-aq	25°C	100%	U		K1=12.63 B2=21.52	1969BIb (4488)	40

Medium: MeCN, 0.1 M Et4NClO4

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	oth	none	50°C	0.0	U	T	B2=8.4	1969HEa (4489)	41

Estimated from literature data. B2=7.5(100 C), 6.9(150 C)

****

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	gl	non-aq	25°C	100%	C	IH	K1=6.26 B2=11.9	1989ANa (7886)	42

Medium: pyridine, 0.1 M Et4NClO4. DH(K1)=-7.8 kJ mol-1, DH(B2)=-6.1.
In acetonitrile: B2=23

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	sol	NaClO4	25°C	1.00M	U		K(AuI(s)+I=AuI2)=-0.91 K(AuI(s)+I3=AuI4)=-1.41	1975HJa (7887)	43

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	EMF	non-aq	20°C	100%	U		K1=17.1 B2=23.8	1973RLa (7888)	44

Medium: MeCN, 0.1 M Et4NClO4. K(Et4N+ClO4)=1.05

Au+	ISE	KNO3	rt	0.10M	U		1969EPb	(7889)	45
						Ks2(AuI(s)+I=AuI2)=-0.82			
Au+	EMF	oth/un	25°C	dil	U		1969EPb	(7890)	46
						Kso(AuI(s)=Au+I)=-22.3			
Au+	vlt	R4N.X	127°C	100%	U	K1=2.07 B2=4.23	1969PVa	(7891)	47

Medium: Et4NCl

****

NH3 L Ammonia CAS 7664-41-7 (414)

Ammonia

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	oth	none	25°C	0.0	U		B2=26.5	1974SBd (9091)	48

Method:estimated

****

OH- HL Hydroxide (57)

Hydroxide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	sol	oth/un	300°C	0.0	C	T	K1=13.84	2003SSc (11000)	49

Calculated for 500 bar from data for dissolution of Au in 0.05-0.50 m NaOH under H2 at 500-1500 bar. Data for 300-600 C. At 25 and 500 bar, K1=20.4

Au+	gl	NaClO4	25°C	0.10M	C		K1=10.2	1997KWa (11001)	50
Au+	sol	oth/un	25°C	var	M			1990VWa (11002)	51
							K(Au(s)+H2O=Au(OH)+H+e)=-22.57		
Au+	EMF	oth/un	25°C		U	M		1972GPa (11003)	52
							B(AuCl2+OH=AuClOH+Cl)=6.66		
							B(AuOHCl+OH=Au(OH)2+Cl)=6		
							B(AuBr2+OH=AuBrOH+Br)=5.53		

****

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

Sulfide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	sol	none	25°C	0.0	M	T H		1996BSb (14315)	53
							K(Au+HS)=24.55		
							K(Au+2HS)=32.32		

Method: oxidation and solubility of Au in HS- and H2S solutions at 150-400 and 500-1500 bar. DH(Au+HS)=-109.7 kJ mol-1, DH(Au+2HS)=-154.8.

Au+	sol	NaCl	250°C	var	M	T		1991HOa (14316)	54

```
                                        K(Au(s),HAu(HS)2)=-5.1
Constants at I=0. 250-350 C and I=0-4 M NaCl.
K(Au(s),HAu(HS)2)=K(Au(s)+2H2S=HAu(HS)2+0.5H2(aq))
--------------------------------------------------------------------------------
Au+        sol oth/un 25°C  var  U                      1989RSc (14317)  55
                                        K(Au2S(s)+HS+H=2AuHS)=-6.68
                                        K(Au2S(s)+3HS+H=2Au(HS)2=4.52
                                        K(Au2S(s)+HS=Au2S2+H)=-14.63
Constants at I=0
--------------------------------------------------------------------------------
Au+        sol oth/un 150°C  var  M T H                 1989SBd (14318)  56
                                        K(Au(s),Au(HS)2)=-2.39
Constants at I=0. 150-350 C.
K(Au(s),Au(HS)2)=K(Au(s)+2H2S=HAu(HS)2+0.5H2(aq))
--------------------------------------------------------------------------------
Au+        oth none   25°C    0  U                     1988LIa (14319)  57
                                        Kso(Au2S)=-72.8
                                        *Kso(Au2S)=-55.5
Derived from thermodynamic data and K(H+S=HS)=17.3.
--------------------------------------------------------------------------------
Au+        sol oth/un 175°C 0.50M U T                   1973SEa (14320)  58
                                        K(Au+2SH)=23.1
                                        K(2Au+2SH+S)=53.0
Pressure:1000bar   K(Au+2SH)=21.1(200 C), 20.3(225 C), 19.5(250 C)
K(2Au+2SH+S)=50.7(200 C), 49.3(225 C), 47.9(250 C)
--------------------------------------------------------------------------------
Au+        oth oth/un 25°C  var  U                      1972CPd (14321)  59
                                        Kso=-68.4
********************************************************************************
SCN-                   HL    Thiocyanate      CAS 463-56-9  (106)
Thiocyanate;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Au+        gl  non-aq 25°C 100%  C  IH  T K1=4.63   B2=8.36   1989ANa (14815)  60
Medium: pyridine, 0.1 M Et4NClO4. DH(K1)=-4.5 kJ mol-1, DH(B2)=-3.7.
In acetonitrile: B2=19.99
--------------------------------------------------------------------------------
Au+        EMF NaClO4 19°C 1.50M U        K2=0.8         1971EPa (14816)  61
--------------------------------------------------------------------------------
Au+        vlt R4N.X  127°C  0.0  U        K1=1.19   B2=2.20   1969PVa (14817)  62
Medium: Et4NCl, solvent not given
--------------------------------------------------------------------------------
Au+        ISE NaClO4 25°C  3.0M U        K1=15.27  B2=16.98  1966KIa (14818)  63
                                        K(Au+e=Au(s))=28.4, 1680 mV
--------------------------------------------------------------------------------
Au+        ISE oth/un 20°C  var  U                      1918BKa (14819)  64
                                        B2(AuCN)/B2(AuSCN)=22.4
********************************************************************************
S2O3--                 H2L    Thiosulfate      CAS 73686-28-7  (177)
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Thiosulfate;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	vlt	oth/un	25°C	dil	U		B2=26	1969PGb (16805)	65

****

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	sol	NaCl	20°C	0.10M	U		B2=21.3	1983KAb (17810)	66
Au+	sol	NaClO4	25°C	0.50M	U	T	K1=4.52 B2=5.76 B3=6.10	1980ZYa (17811)	67

****

C2H3N L Cyanomethane CAS 75-05-8 (1399)
Acetonitrile; CH3.CN

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	gl	NaClO4	25°C	0.10M	C	I	B2=3.1 B(Au(OH)L)=10.7	1997KWa (19180)	68

Extrapolated from data at 0.05 to 4.4 M acetonitrile in H2O.

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	ISE	non-aq	20°C	100%	C	M	K(AuCl+L)=14.72 K(AuBr+L)=13.20 B(AuCl2)=22.20	1975RFa (19181)	69

Medium: MeCN

****

C2H3N3S L CAS 3179-31-5 (4221)
1,2,4-Triazoline-3-thione;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	sp	KCl	?	1.00M	U		B2=18.9	1973RRc (19243)	70

Medium: HCl

****

C2H6S L CAS 75-18-3 (151)
Dimethyl sulfide; CH3.S.CH3

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	ISE	non-aq	20°C	100%	C	M	K(AuCl+L)=8.94 K(AuBr+L)=7.32	1975RFa (22188)	71

Medium: MeCN

****

C2H6Se L DiMeSelenide CAS 81369-92-3 (911)

Dimethylselenide; CH3.Se.CH3

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	ISE	non-aq	20°C	100%	C	M	K(AuCl+L)=10.78 K(AuBr+L)=9.08	1975RFa (22205)	72

Medium: MeCN

****

C2H6Te L DiMeTelluride CAS 593-80-6 (912)

Dimethyltelluride; CH3.Te.CH3

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	ISE	non-aq	20°C	100%	C	M	K(AuBr+L)=12.88	1975RFa (22208)	73

Medium: MeCN

****

C3H7NO2S H2L Cysteine CAS 52-90-4 (96)

2-Amino-3-mercaptopropanoic acid; H2N.CH(CH2.SH)COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	gl	KNO3	37°C	0.15M	M	T	K1=12.04	1979ZJa (26753)	74

At 20 C, 0.15 M KNO3, K1=11.11. Method: ligand competition.

****

C3H8O3S3 H3L Unithiol CAS 74-61-3 (1271)

2,3-Dimercaptopropanesulfonic acid; HS.CH2.CH(SH).CH2.SO3H

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	EMF	KNO3	?	1.00M	U		B(Au2L2)=45.42	1969SOa (27781)	75

Medium:HNO3

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	vlt	R4N.X	?	1.00M	U		B(Au2L2)=45.52	1968OFa (27782)	76

Medium:NH4OH

****

C4H6O4S H3L Thiomalic acid CAS 70-49-5 (109)

2-Mercaptosuccinic acid, 2-Sulfanyl-1,4-butanedioic acid; HOOC.CH(SH).CH2.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	gl	KNO3	37°C	0.15M	M	T	K1=11.23	1979ZJa (30319)	77

At 20 C, 0.15 M KNO3, K1=10.27.

****

C5H11NO2S H2L D-Penicillamine CAS 52-67-5 (1323)

D-2-Amino-3-mercapto-3-methylbutanoic acid; (CH3)2C(SH)CH(NH2)COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values		Reference	ExptNo
Au+	gl	KNO3	37°C	0.15M	M	T	K1=13.50		1979ZJa (41181)	78

At 20 C, 0.15 M KNO3, K1=12.50. Method: ligand competition.

****

C6H7NS L CAS 2044-27-1 (5858)
1-Methylpyridine-2-thione;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values		Reference	ExptNo
Au+	sp	NaClO4	25°C	0.10M	C	M	B2=23.3		1988DWa (45084)	79
							B(Au(CN)L)=30.9			

****

C6H12O5S HL (691)
1-Thio-beta-D-glucopyranose;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values		Reference	ExptNo
Au+	gl	KNO3	37°C	0.15M	M	T	K1=8.87		1979ZJa (49525)	80

At 20 C, 0.15 M KNO3, K1=8.51.

****

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
Au+	sol	oth/un	25°C	var	M		K1=29.9	B2=31.7	1990VWa (53903)	81

****

C7H6O3 H2L Salicylic acid CAS 69-72-7 (14)
2-Hydroxybenzoic acid, Salicylic acid; HO.C6H4.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values		Reference	ExptNo
Au+	sol	oth/un	25°C	var	M		B2=17.5		1990VWa (54148)	82

****

C8H11P L CAS 672-66-2 (2290)
Dimethyl-phenyl-phosphine; (CH3)2.P.C6H5

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values		Reference	ExptNo
Au+	ISE	non-aq	20°C	100%	C	M	B2=26.26		1975RFa (61320)	83
							K(AuCl+L)=16.73			
							K(AuBr+L)=16.34			

Medium: MeCN

****

C8H12 L Cyclooctadiene CAS 111-78-4 (2901)
1,5-Cyclooctadiene; cyclo(-CH:CH.CH2.CH2.CH:CH.CH2.CH2-)

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

```
Au+        ISE non-aq 20°C 100%  C    M                  1975RFa (61326)  84
                                      K(AuCl+L) < 3.0
                                      K(AuBr+L) < 3.0
Medium: MeCN
**************************************************************************
C9H9N                  L                     CAS 2769-71-3  (2900)
1,3-Dimethylphenylisocyanide; (CH3)2.C6H3.NC
--------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------
Au+        ISE non-aq 20°C 100%  C    M   B2=19.0        1975RFa (65025)  85
                                      K(AuCl+L)=13.04
                                      K(AuBr+L)=12.15
Medium: MeCN
**************************************************************************
C12H24O2S4             L                      (6657)
1,4,7,10-Tetrathia-13,16-dioxacyclooctadecane, 1,4,7,10-Tetrathia-18-crown-6;
--------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------
Au+        ix  none   25°C  0.0  U        K1=46.2        1991BTa (83117)  86
**************************************************************************
C13H13P                L                     CAS 1486-28-8  (1731)
Diphenyl-methyl-phosphine; CH3(C6H5)2P
--------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------
Au+        ISE non-aq 20°C 100%  C    M                  1975RFa (85548)  87
                                      K(AuCl+L)=15.69
                                      K(AuBr+L)=15.32
Medium: MeCN
**************************************************************************
C13H26O4S2             L                      (6656)
1,5-Dithia-8,11,14,17-tetraoxacyclononadecane, 1,5-Dithia-19-crown-6;
--------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------
Au+        ix  none   25°C  0.0  U        K1=44.1        1991BTa (86460)  88
**************************************************************************
C14H20O9S              L                     CAS 19879-84-6  (5840)
1-Thio-B-D-glucopyranose-2,3,4,6-tetraethanoate, 1-Thio-D-glucose tetraacetate;
--------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------
Au+        sp  none   25°C  0.0  U  I M                  1987BMc (88399)  89
                                      K(AuPL+H+Cl=AuPCl+L)=-3.34
                                      K(AuPL+AuPCl=Au2P2L+Cl)=3.08
P=triphenylphosphine. Also in 1.0 M NaCl at 37 C (K=-3.34; 3.30) and in 50%
methanol/H2O/0.10 M NaCl (K=-2.70; 2.11).
**************************************************************************
```

C18H15As L CAS 603-32-7 (2653)
Triphenylarsine; (C6H5)3As

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values		Reference	ExptNo
Au+	EMF	non-aq	25°C	100%	U	H	K1=3.70	B2=4.80	1988ABd (96968)	90

Medium: pyridine; 0.1M tetraethylammonium perchlorate

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	ISE	non-aq	20°C	100%	C	M	K(AuCl+L)=13.04 K(AuBr+L)=12.61	1975RFa (96969)	91

Medium: MeCN

****

C18H15N L Triphenylamine CAS 603-34-9 (2902)
Triphenylamine; (C6H5)3N

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	EMF	non-aq	25°C	100%	U	H	K1=6.72	1988ABd (96981)	92

Medium: pyridine; 0.1M tetraethylammonium perchlorate

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	ISE	non-aq	20°C	100%	C	M	K(AuCl+L) < 3.0 K(AuBr+L) < 3.0	1975RFa (96982)	93

Medium: MeCN

****

C18H15O3PS HL CAS 16704-71-5 (3365)
3-Diphenylphosphino-benzene sulfonic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	ISE	oth/un	25°C	0.10M	U	I	B2=35.4 B3=39.5	1970HMa (97105)	94

With medium (0.1 NaSCN): K(Au(SCN)2+L=AuL(SCN)+SCN)=6.5
K(AuL(SCN)+L=AuL2+SCN)=3.9

****

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values		Reference	ExptNo
Au+	EMF	non-aq	25°C	100%	U	H	K1=9.94	B2=13.33	1988ABd (97129)	95

Medium: pyridine; 0.1M tetraethylammonium perchlorate

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	ISE	non-aq	20°C	100%	C	M	B2=22.11 K(AuCl+L)=14.11 K(AuBr+L)=13.75	1975RFa (97130)	96

Medium: MeCN

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+	con	non-aq	25°C	100%	U	M		1969WEa (97131)	97

K(AuLCl+L=AuL2+Cl)=2.85
K(AuLBr+L=AuL2+Br)=2.48
K(AuLI+L=AuL2+I)=2.34
K(AuLCl+2L=AuL3+Cl)=0.18
Medium: C6H5NO2. K(AuLBr+2L=AuL3+Br)=0.57; K(AuLI+2L=AuL3+I) > 1.54
****
C18H15Sb L CAS 603-36-1 (2654)
Triphenylantimony; (C6H5)3Sb

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Au+ EMF non-aq 25°C 100% U H K1=2.65 B2=4.89 1988ABd (97156) 98
Medium: pyridine; 0.1M tetraethylammonium perchlorate

Au+ ISE non-aq 20°C 100% C M 1975RFa (97157) 99
K(AuCl+L)=12.92
K(AuBr+L)=11.76
Medium: MeCN
****
C18H33P L CAS 2622-14-2 (169)
Tri-(cyclohexyl)phosphine; (C6H11)3P

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Au+ EMF non-aq 25°C 100% U H K1=9.55 B2=13.95 1988ABd (98307) 100
Medium: pyridine; 0.1M tetraethylammonium perchlorate
****
C96H100O4P4 L CAS 172036-64-5 (7765)
5,11,17,23-Tetra-tert-butyl-25,26,27,28-tetrakis(diphenylphosphinomethoxy)calix[4]a
rene;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Au+ sp non-aq 25°C 100% U K1=4.4 B2= 7.00 2000DMa (107958) 101
B4=14.5
M is AuCl. Method: UV/vis spectrophotometry. Medium: acetonitrile.
****
e- HL Electron (442)
Electron;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Au+++ EMF R4N.X 25°C 10.0M M 1974SBb (337) 102
E(2e+AuA4=AuA2+2A)=0.206 V
E(3e+AuA4=Au(s)+4A)=0.325 V
Medium:10 M NH4NO3. A=NH3. K values: 6.96, 16.48

Au+++ EMF oth/un 135°C 100% U 1969APa (338) 103
K(Au + 2Au(s)=3Au+) > -39.4
Medium: (Na,K,Al)Cl

Au+++ oth none 25°C 0.0 U T 1969EPa (339) 104
K'=28.4/0.56V
Method:Estimated data. K': AuI4+3e=Au(s)+4I

Au+++ oth none 50°C 0.0 U T 1969HEa (340) 105
K(Au+Au(s)=3Au(I))=-7.91
Method:Estimated data.Temp Range 50-300.(60 C) -7.22,(100 C) -4.76,(150 C) -2.24,(200 C) -0.16,(250 C) 1.60,(300 C) 3.11

Au+++ EMF none 25°C 0.0 U 1966PGb (341) 106
K=21.06, 623 mV
K'=32.25, 636 mV
K: Au(SCN)4- + 2e=Au(SCN)2- + 2SCN-. K; Au(SCN)4- + 3e=Au(s) + 4SCN-

---

Au+++ oth none 25°C 0.0 U H 1966POb (342) 107
DH(AuCl4- + 3e = Au(s) + 4C-)=-363.7 kJ mol-1.

Au+++ oth oth/un 25°C 0.0 U H 1966POb (343) 108
DH(AuBr4- + e = Au(s) + 4Br-)=-289 kJ mol-1

Au+++ EMF none 25°C 0.0 M 1965PGb (344) 109
K=26.98, 798 mV
K'=43.21, 852 mV
K"=-5.48
K"'=16.23, 960 mV
K: AuBr4- + 2e = AuBr2- + 2Br-. K': AuBr4- + 3e = Au(s) + 4Br-.
K": AuBr4- + 2Au(s) + 2Br- = 3AuBr2-. K"': AuBr2- + e =Au(s) + 2Br-

---

Au+++ EMF none 25°C 0.0 M 1965PGc (345) 110
K=31.14, 921 mV
K'=50.46, 995 mV
K"=-7.68
K: AuCl4- + 2e = AuCl2- + 2Cl-. K': AuCl4 + 3e = Au(s) + 4Cl-.
K": AuCl4- + 2Au(s) + 2Cl- = 3AuCl2-

Au+++ EMF none 25°C 0.0 M 1963ELc (346) 111
K=27.12, 802 mV
K'=43.21, 854 mV
K"=16.21, 959 mV
K'"=-5.34
K: AuBr4- + 2e = AuBr2- + 2Br-. K': AuBr4- + 3e = Au(s) + 4Br-
K": AuBr2- + e = Au(s) + 2Br-. K"': AuBr4- + 2Au(s) + 2Br- = 3AuBr2-

---

Au+++ EMF none 25°C 0.0 U H 1963PKb (347) 112
K=27.22(805 mV)
K: AuBr4+2e=Au(I)Br2+2Br. DH(K)=-171.1 kJ mol-1,DS=-48 J K-1 m-1 (I=0.34 M)
K(AuBr4+3e=Au(s)+4Br)=43.51(858 mV). DH(K)=-285, DS=-118 (I=0.34 M)

Au+++ sp none 25°C 0.0 U 1962LIb (348) 113

K=-7.74
K: AuCl4+2Au(s)+2Cl=3Au(I)Cl2. From thermodynamic data: K(AuCl4+2e=Au(I)Cl2+2Cl)=31.31(926 mV). K(AuCl4+3e=Au(s)+4Cl)=50.82(1002 mV)

Au+++ EMF none 20°C 0.0 U 1961BBb (349) 114
K=31.71(938 mV)
K: AuCl4+2e=Au(I)Cl2+2Cl

Au+++ EMF oth/un 25°C dil U 1954TRa (350) 115
K=31.6(935 mV)
Medium: HCl. K: AuCl4+2e=Au(I)Cl2+2Cl. K(AgCl4+3e=Ag(s)+4Cl)=50.4(994 mV)

Au+++ oth none 25°C 0.0 U 1952LAb (351) 116
K(Au+3e=Au(s))=76(1.50 V)

Au+++ EMF oth/un 20°C var U 1948BJa (352) 117
K=32.0(932 mV)
Medium: HCl. K: AuCl4+2e=Au(I)Cl2+2Cl

Au+++ EMF oth/un 60°C var U 1932GMc (353) 118
K=24.8(819 mV)
Medium: HBr. K: AuBr4+2e=Au(I)Br2+2Br. K(AuBr4+3e=Au(s)+4Br)=39.4(867 mV)

Au+++ EMF oth/un 40°C var U T 1929GRa (354) 119
K=30.6(950 mV)
Medium: HCl. K: AuCl4+2e=Au(I)Cl2+2Cl. At 60 C: K=29.1(960 mV)
K(AuCl4+3e=Au(s)+4Cl)=48.8(40 C,1010 mV), 44.9(60 C,990 mV)

Au+++ EMF none 25°C 0.0 U 1927BRa (355) 120
K=69.2(1364 mV)
K: 0.5Au2O3(s)+3H+3e=Au(s)+1.5H2O

Au+++ EMF none 25°C 0.0 U 1927GRa (356) 121
K=69.1(1362 mV)
K: 0.5Au2O3(s)+3H+3e=Au(s)+1.5H2O

Au+++ EMF oth/un 18°C 0.50M U 1924GDa (357) 122
K(Au+3e=Au(s))=71.2(1370 mV)

Au+++ EMF none 18°C 0.0 U 1924JJa (358) 123
K=68.1(1311 mV)
K: 0.5Au2O3(s)+3H+3e=Au(s)+1.5H2O. In H2SO4 K(Au(III)+3e=Au(s))=82(17 M,1580 mV), 79(13 M,1520 mV), 75(9 M,1440 mV), 72.2(0.5 to 6 M,1390 mV)

Au+++ EMF KCl 18°C 1.0M U 1918BKa (359) 124
K=22.3(645 mV)
Medium: HCl. K: Au(SCN)4+2e=Au(I)(SCN)2+2SCN. K(Au(SCN)4+2e=Au(I)(SCN)2+(SCN)2(aq))=-4.31. K(AuCl4+3e=Au(s)+4Cl)=51.5(989 mV)
****
Br- HL Bromide CAS 10035-10-6 (19)

Bromide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+++	kin	NaClO4	25°C	1.00M	U			1978EGa (1729)	125
							K(AuCl4+Br=AuCl3Br+Cl)=2.39		
							K(AuCl3Br+Br=AuCl2Br2+Cl)=1.99		
							K(AuCl2Br2+Br=AuClBr3+Cl)=1.69		
							K(AuClBr3+Br=AuBr4+Cl)=1.23		
Au+++	sp	KCl	20°C	0.10M	U	M		1974LBa (1730)	126
							K(AuCl4+2L=AuCl2L2+2Cl)=5.8		
Medium: HCl									
Au+++	sp	NaClO4	25°C	3.0M	U	M		1971ALa (1731)	127
							K(AuCl4+L=AuCl3L+Cl)=2.46		
							K(AuCl4+2L=AuCl2L2+2Cl)=4.59		
							K(AuCl4+3L=AuClL3+3Cl)=6.40		
							K(AuCl4+4L=AuL4+4Cl)=7.77		
Medium: HClO4									
Au+++	EMF	NaClO4	25°C	0.40M	U			1971DDd (1732)	128
							B4 < 27		
Medium: HClO4									
Au+++	EMF	oth/un	25°C	0.40M	U	M		1971DDd (1733)	129
							K(AuCl3+L=AuCl3L)=8.27		
							K(AuCl2L+L=AuCl2L2)=6.94		
							K(AuClL2+L=AuClL3)=6.05		
Medium: HClO4									
Au+++	ISE	oth/un	25?°C	0.0	U			1968DSe (1734)	130
							K4=5.47		
Au+++	ISE	oth/un	25°C	0.0	U			1966CGa (1735)	131
							K3(Au(OH)2L2+H+L=AuOHL3)=9.0		
							K4(AuOHL3+H+L=AuL4+H2O)=8.5		
Au+++	EMF	KCl	25°C	0.20M	U	M		1963PKa (1736)	132
							K(AuCl4+4L=AuL4+4Cl)=6.60		

****

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

Chloride;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+++	sp	NaClO4	25°C	1.70M	U	M		1976ANa (4490)	133
							K(AuCl2(HA)+Cl=AuCl3HA)=0.28		
A=3-methyl-3-azapentane-1,5-diamine									

```
Au+++      sp  NaClO4 21°C 0.02M U T                    1972BKc  (4491) 134
                                       K(AuL4+H2O=AuL3OH+H+L)=-6.15
K=-5.63(50 C). At I=0 corr: K=-6.27(21 C), -5.76(50 C)
-------------------------------------------------------------------------------
Au+++      kin NaClO4 25°C  2.0M U                    1972BRa  (4492) 135
                                       K4=5.02
                                       K(AuL3OH+H)=0.63
-------------------------------------------------------------------------------
Au+++      EMF oth/un 25°C    ?  U                    1972PPd  (4493) 136
                                       K5=1.0
-------------------------------------------------------------------------------
Au+++      kin non-aq 25°C 100%  U    M                1972PSe  (4494) 137
                                       K(AuAL+Br=AuABr+L)=1.49
                                       K(AuAL+SCN=AuA(SCN)+L)=1.98
                                       K(AuAL+N3=AuAN3+L)=0.87
Medium: MeOH, 0.2 M LiClO4.HA=diethylenetriamine (A=NH deprotonated)
-------------------------------------------------------------------------------
Au+++      sp  none   20°C  0.0  U                    1971PBc  (4495) 138
                                       K4=4.9
                                       K(AuL3OH+H)=1.0
-------------------------------------------------------------------------------
Au+++      sp  NaClO4 25°C 0.51M U    M                1970MAd  (4496) 139
                                       K(AuA2Br2+L=AuA2BrL+Br)=-2.09
                                       K(AuA2BrL+L=AuA2L2+Br)=-3.03
trans-complexes. A=CN-
-------------------------------------------------------------------------------
Au+++      oth none   50°C  0.0  U T                  1969HEa  (4497) 140
                                       B4=24.5
Evaluated from literature data. B4=22.4(100 C), 21.0(150 C)
-------------------------------------------------------------------------------
Au+++      ISE oth/un 25?°C  0.0  U                    1968DSe  (4498) 141
                                       K4=4.34
                                       K(AuL3OH+H)=1.7
-------------------------------------------------------------------------------
Au+++      dis oth/un       dil  U                    1968RSl  (4499) 142
                                       Kd(A+AuCl4=AAuCl4)=5.7
Medium: C2H4Cl2 A=(PhHN)3C+
-------------------------------------------------------------------------------
Au+++      gl  NaClO4 25°C  3.0M U                    1967CLa  (4500) 143
                                       K(Au(OH)2L2+H+L=AuOHL3)=7.04
                                       K(AuOHL3+L=AuL4)=6.22
                                       K(AuL3OH+H)=2.72
-------------------------------------------------------------------------------
Au+++      gl  none         0.0  U                    1967ROa  (4501) 144
                                       K(AuL3OH+H) > 3
-------------------------------------------------------------------------------
Au+++      ISE oth/un 25°C  0.0  U                    1966CGa  (4502) 145
                                       K(Au(OH)4+H+L=Au(OH)3L)=8.7
                                       K(Au(OH)3L+H+L=Au(OH)2L2)=8.0
                                       K(Au(OH)2L2+H+L=AuOHL3)=7.15
```

K(AuOHL3+H+L=AuL4)=6.15

Au+++ kin oth/un 26°C var U 1966FHa (4503) 146
K(Au(OH)L+H+L=AuL4)=6.36

Au+++ ISE none 18°C 0.0 U 1964PCa (4504) 147
B4=26

Au+++ dis non-aq 25°C 100% U I 1962MSf (4505) 148
K=5.3 (org=C6H6)
K=6.4 (org=C6H5Cl)
K=3.4 (org=o-C6H4Cl2)
K=0.6 (org=C6H5NO2)
K: H(org)+AuCl4(org)=HAuCl4(org). K=5.3(org=C6H6), 6.4(C6H5Cl), 3.4(o-C6H4Cl2), 0.6(C6H5NO2)

Au+++ gl none 20°C 0.0 U 1961BBb (4506) 149
+K1=9.26
+K2=8.31
+K3=7.31
+K4=6.16
+K1: Au(OH)4+H+Cl=AuCl(OH)3+H2O, +K2: AuCl(OH)3+H+Cl=AuCl2(OH)2+H2O, +K3: AuCl2(OH)2+H+Cl=AuCl3OH++H2O, +K4: AuCl3OH+H+Cl=AuCl4+H2O.

Au+++ dis oth/un rt var U 1960FWa (4507) 150
K1(AuCl4+H=HAuCl4)=0.6
Medium: HCl. Kd(AuL4+H=HAuL4)=0.2 in i-Pr2O

Au+++ gl none 20°C 0.0 U 1948BJa (4508) 151
+K1=8.51
+K2=8.06
+K3=7.00
+K4=6.07
I=0 corr. +K1: Au(OH)4+H+Cl=AuCl(OH)3+H2O, +K2: AuCl(OH)#+H+Cl=AuCl2(OH)2+ H2O, +K3: AuCl2(OH)2+H+Cl=AuCl3OH+H2O, +K4: AuCl3OH+H+Cl=AuCl4+H2O.

Au+++ ISE oth/un 18°C 0.10M U 1918BKa (4509) 152
K(AuL(OH)+H+L=AuL4+H2O)=4.26
B4=21.30
Medium: HAuCl4

****

FClBrI HL (541)
Halides, comparative (for book data under ligand 80)

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

---

Au+++ sp oth/un 19°C 0.10M U H 1967PBe (7386) 153
K(AuCl4+Br=AuCl3Br+Cl)=2.53
K(AuCl3Br+Br=AuCl2Br2+Cl)=2.04
K(AuCl2Br2+Br=AuClBr2+Cl)=1.70

```
                                        K(AuClBr3+Br=AuBr4+Cl)=1.5
--------------------------------------------------------------------------------
Au+++      ISE oth/un 25°C  var  U                        1966PCb  (7387) 154
                                        K(AuCl4+Br=AuCl3Br+Cl)=2.57
                                        K(AuCl3Br+Cl=AuCl2Br2+Cl)=1.80
                                        K(AuCl2Br2+Br=AuClBr3+Cl)=1.80
                                        K(AuClBr3+Br=AuBr4+Cl)=1.13
********************************************************************************
I-                      HL    Iodide           CAS 10034-85-2  (20)
Iodide;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Au+++      EMF NaClO4 25°C 0.40M U    M                   1971DDc  (7892) 155
                                        K(AuA3Cl+L=AuA3L+Cl)=4.67
Medium: HClO4. A=CN-
********************************************************************************
NH3                      L    Ammonia          CAS 7664-41-7  (414)
Ammonia
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Au+++      sp  NaClO4 25°C  1.0M C                        2000MTb  (9092) 156
                                        K(AuCl4+NH3=AuCl3NH3+Cl)=6.73
--------------------------------------------------------------------------------
Au+++      sp  R4N.X  25°C 1.00M C T H                    1988BJc  (9093) 157
                                        K(AuH-1L4+H)=7.48
In NH4ClO4. DH=67 kJ mol-1, DS=82 J K-1 mol-1. Data also at 17, 8.8 and 0 C
--------------------------------------------------------------------------------
Au+++      sp  NaClO4 25°C 1.00M C   H                    1974SBa  (9094) 158
                                        K(AuH-1L4+H)=7.48
                                        *K(AuL3(H2O)=-0.7
                                        K4=10.3,    B4=46(est)
                                        K(AuL4+L=AuL3NH2+NH4)=1.99
K(AuL4+H2O=AuL3OH+HL)=0.3 (50-70 C), 0 (80 C)
********************************************************************************
OH-                      HL    Hydroxide          (57)
Hydroxide;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Au+++      sp  none   25°C    0  C                        2005MIa (11004) 159
                                        K(Au(OH)4+H)=3.0
                                        K(Au(OH)3+H)]=1.8
--------------------------------------------------------------------------------
Au+++      sp  none   20°C 0.01M U                        1975LBb (11005) 160
                                        K(Au(OH)Cl3+H+Cl)=6.0
                                        K(Au+3Cl+OH)=29.3
--------------------------------------------------------------------------------
Au+++      gl  NaClO4 25°C 0.30M U                        1969HTa (11006) 161
```

```
                                        *B(2,2)=-9.794
-------------------------------------------------------------------------
Au+++      gl  NaClO4 25°C 0.50M U  I M                 1963BBa (11007) 162
                                        *K1(Au(dien)Cl)=-4.0
                                        *K1(Au(dien)Br)=-4.5
                                        *K1(Au(dien)OH)=-5.8
                                        *K1(Au(en)2)=-6.3
In 0.5 M NaCl: *K1(Au(dien)Cl)=-4.7, *K1(Au(en)2)=-7.2
-------------------------------------------------------------------------
Au+++      sol oth/un 18°C  var  U                     1961BPa (11008) 163
                                        *Ks1=-2.4
                                        *Ks2=-3.6
Medium:H2SO4 *Ks1: K(0.5Au2O3(s)+2H=AuOH+0.5H2O?). May be SO4 complex
*Ks2: K(0.5Au2O3(s)+0.5H2O+H=Au(OH)2). May be NO3 complex
-------------------------------------------------------------------------
Au+++      gl  oth/un   ?   dil  U                     1951BBa (11009) 164
                                        *K1(Au(en)2)=ca.-6.8
                                        *K1(Au(pn)2) ca.-6.6
-------------------------------------------------------------------------
Au+++      sol none   25°C  0.0  U                     1938JLa (11010) 165
                                        Ks3 < -5.52
                                        Ks4=-3.28
                                        Ks5=-2.64
                                        *K4 > -11.8
*K5=-13.36, *K6=<-15.3; Ks=[Na]**2x[Au(OH)5--]=-4.82;
Ksn: K(Au(OH)3(s)+(n-3)OH=Au(OH)n); *Kn: K(Au(OH)n-1+H2O=Au(OH)n+H)
-------------------------------------------------------------------------
Au+++      sol KNO3   22°C 0.45M U                     1924JJa (11011) 166
                                        Kso(Au(OH)3)=-45.26
*************************************************************************
S--                    H2L    Sulfide          CAS 7783-06-4  (705)
Sulfide;
-------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------
Au+++      sol oth/un 30°C  var  U                     1965DUa (14322) 167
                                        K(Au2S3(s)+HS+OH=2AuS2)=-2.8
                                        Ks(Au2S3+S)=-1.89
*************************************************************************
SCN-                    HL    Thiocyanate      CAS 463-56-9  (106)
Thiocyanate;
-------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------
Au+++      kin oth/un 25°C    ?  U    M                1996EEa (14820) 168
                                        K(Au(CN)2AL+L=Au(CN)2L2+A)=4.6
                                        K(Au(CN)2BL+L=Au(CN)2L2+B)=2.0
A=Cl, B=Br
-------------------------------------------------------------------------
Au+++      oth none   25°C  0.0  U                     1952LAb (14821) 169
```

B4=42
Method: combination of thermodynamic data and estimation

Au+++ sol NaCl 18°C 2.20M U I 1918BKa (14822) 170
K(NaAuL4(s)=Na+AuL4)=-3.30
K5=0.00
K6=0.04
In 0.6 M NaCl: K(NaAuL4(s)=-3.4, K5=0.00, K6=0.04. In 2.2 M KCl: Ks(KAuL4(s)=K+AuL4)=-4.22. B(Au(SCN)4)/B(AuCl4)=17.67
****
C2H6S L CAS 75-18-3 (151)
Dimethyl sulfide; CH3.S.CH3

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Au+++ sp alc/w 25°C 10% C 1997EEa (22189) 171
K(Au(CN)2Cl2+L)=ca. 4.99
K(Au(CN)2Br2+L)=3.64
K(Au(CN)2Cl2+2L)>8.46
K(Au(CN)2Br2+2L)=3.34
Medium: 10% w/w methanol/H2O.
****
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
---
Au+++ sp NaClO4 25°C 1.0M C 2000MTb (23129) 172
K(AuCl4+en=AuCl2en+2Cl)=16.2
****
C3H3NO L Oxazole CAS 288-42-6 (6404)
Oxazole;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Au+++ sp alc/w 25°C 95% U 1991CCd (23498) 173
K(AuCl4+L=AuCl3L+Cl)=-0.47
In 95% v/v methanol/H2O, 0.2 M LiClO4.
****
C3H3NS L Thiazole CAS 288-47-1 (382)
Thiazole; cyclo(-S.CH:N.CH:CH-) C3H3NS

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Au+++ sp alc/w 25°C 95% U 1991CCd (23528) 174
K(AuCl4+L=AuCl3L+Cl)=0.08
In 95% v/v methanol/H2O, 0.2 M LiClO4.
****
C3H7NO2S H2L Cysteine CAS 52-90-4 (96)
2-Amino-3-mercaptopropanoic acid; H2N.CH(CH2.SH)COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+++	gl	NaNO3	15°C	0.10M	U	T	K1=14.85	1984IDa (26754)	175

At 30 C, K1=14.65.

****

C4H5NS L 4-Methiazole CAS 693-95-5 (820)
4-Methylthiazole; C3H2NS.CH3

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+++	sp	alc/w	25°C	95%	U			1991CCd (29326)	176
							K(AuCl4+L=AuCl3L+Cl)=-0.08		

In 95% v/v methanol/H2O, 0.2 M LiClO4. For 5-methylthiazole: K=0.34

****

C4H7NO4 H2L Aspartic acid CAS 56-84-8 (21)
Aminobutanedioic acid; H2N.CH(CH2.COOH).COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+++	gl	NaClO4	25°C	0.10M	U		K1=9.63 B2=18.23	1972SSe (31816)	177
							K3=6.71		

****

C4H13N3 L Dien CAS 111-40-0 (584)
1,4,7-Triazaheptane, 2,2'Iminobis(ethylamine), diethylenetriamine;
NH2.(CH2)2.NH.(CH2)2.NH2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+++	sp	NaClO4	25°C	1.0M	C			2000MTb (35766)	178
							K(AuCl4+L=AuClL+3Cl)=22.7		

****

C5H5N L Pyridine CAS 110-86-1 (31)
Pyridine, Azine;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+++	sp	alc/w	25°C	95%	U			1991CCd (36594)	179
							K(AuCl4+L=AuCl3L+Cl)=1.95		

In 95% v/v methanol/H2O, 0.2 M LiClO4.

****

C5H7NS L CAS 541-58-2 (1421)
2,4-Dimethylthiazole; C3HNS(CH3)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+++	sp	alc/w	25°C	95%	U			1991CCd (37570)	180
							K(AuCl4+L=AuCl3L+Cl)=0.72		

In 95% v/v methanol/H2O, 0.2 M LiClO4. For 4,5-dimethylthiazole: K=0.41

****

C5H9NO4 H2L Glutamic acid CAS 56-86-0 (22)
2-Aminopentanedioic acid; H2N.CH(CH2.CH2.COOH)COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+++	gl	NaClO4	25°C	0.10M	U		K1=9.59 B2=17.58 K3=6.26	1972SSe (39065)	181

****
C6H4N2 L CAS 100-48-1 (321)
4-Cyanopyridine; C5H4N.CN

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+++	sp	alc/w	25°C	95%	U		K(AuCl4+L=AuCl3L+Cl)=-0.22	1991CCd (42196)	182

In 95% v/v methanol/H2O, 0.2 M LiClO4. For 4-chloropyridien: K=0.70
****
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
Au+++	gl	KNO3	25°C	0.10M	U		K1=12.40 B2=22.50 K3=8.90	1988ZMa (42663)	183

****
C6H9NS L (6403)
2,4,5-Trimethylthiazole;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+++	sp	alc/w	25°C	95%	U		K(AuCl4+L=AuCl3L+Cl)=1.56	1991CCd (47135)	184

In 95% v/v methanol/H2O, 0.2 M LiClO4.
****
C7H5NO L Benzoxazole CAS 273-53-0 (6405)
Benzoxazole;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+++	sp	alc/w	25°C	95%	U		K(AuCl4+L=AuCl3L+Cl)=-0.72	1991CCd (52583)	185

In 95% v/v methanol/H2O, 0.2 M LiClO4.
****
C7H5NS L Benzothiazole CAS 95-16-9 (618)
Benzothiazole;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+++	sp	alc/w	25°C	95%	U		K(AuCl4+L=AuCl3L+Cl)=-0.57	1991CCd (53082)	186

In 95% v/v methanol/H2O, 0.2 M LiClO4.
****
C7H7NCl2 L (6406)
2,6-Bis(chloromethyl)pyridine;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Au+++ sp alc/w 25°C 95% U 1991CCd (55125) 187
K(AuCl4+L=AuCl3L+Cl)=0.26
In 95% v/v methanol/H2O, 0.2 M LiClO4.
****
C8H7NO L CAS 95-21-6 (4497)
2-Methylbenzoxazole;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Au+++ sp alc/w 25°C 95% U 1991CCd (59088) 188
K(AuCl4+L=AuCl3L+Cl)=-0.77
In 95% v/v methanol/H2O, 0.2 M LiClO4. 2,4,5-trimethylthiazole: K=0.23
****
C8H7NS L CAS 120-75-2 (4501)
2-Methylbenzothiazole;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Au+++ sp alc/w 25°C 95% U 1991CCd (59169) 189
K(AuCl4+L=AuCl3L+Cl)=-0.38
In 95% v/v methanol/H2O, 0.2 M LiClO4.
****
C9H6NO4IS H2L Ferron CAS 547-91-1 (275)
7-Iodo-8-hydroxyquinoline-5-sulfonic acid; (HO)(HO3S)C9H4NI

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Au+++ gl KNO3 25°C 0.10M C K1=11.67 B2=21.20 1985ZHa (63781) 190
K3=6.80
****
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
---
Au+++ sp alc/w 25°C 50% U 1967NPb (64695) 191
K(Au+HL)=12 ?
****
C10H7NO2 HL Quinaldic acid CAS 93-10-7 (2209)
Quinoline-2-carboxylic acid;

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

Au+++ gl KNO3 25°C 0.10M U K1=11.00 B2=20.38 1988ZMa (68699) 192
K3=8.56

****

C10H15N5O4 HL Gly-Gly-His CAS 93404-95-6 (74)
Glycyl-glycyl-histidine; H2N.CH2.CO.NH.CH2.CO.NH.CH(CH2.C3H3N2).COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+++	gl	KCl	25°C	0.20M	C			1997BCb (72798)	193
							*K(AuH-2L)=-2.58		
							*K(AuH-3L)=-8.63		
							*K(AuH-4L)=-11.5		

Successive *K correspond to deprotonation of COOH, coordinated pyrrol N, and coordinated -NH2.

****

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
Au+++	sp	KNO3	25°C	1.00M	U	M		1975SDb (73595)	194
							B(AuLBr)=31.20		
							B(AuL(OH))=34.65		
							B(AuL(ONO))=33.40		
							B(AuL(SCN))=32.25		

****

C12H11NOS L CAS 53730-71-5 (798)
Phenyl-2-pyridylmethyl sulfoxide; C5H4N.CH2.SO.C6H5

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+++	sp	alc/w	25°C	95%	U			1985CCa (80819)	195
							K(AuCl4+L=AuLCl3+Cl)=2.27		

****

C15H11N3 L CAS 1148-79-4 (488)
2,2':6'2"-Terpyridine; C5H4N.C5H3N.C5H4N

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Au+++	kin	NaClO4	25°C	0.10M	U			1999PMa (91152)	196
							*K(Au(H2O)L)=<0.9		

Medium: LiClO4.

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EXPLANATORY NOTES

DATA Flags are :-

T Data at other TEMPERATURES
I Data with various BACKGROUNDS
H Data for THERMOCHEMICAL quantities
M Data for TERNARY Complexes

EVALUATION Flags are :-

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

END