

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

Method:Estimated data										K(Au+e=Au(s))=35.8(2.12V)	
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)	

Au+ EMF oth/un 18°C ? U 1903B0a (336) 23
K=-10.6(-611 mV)

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+ 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 1972FD b (1728) 27
Medium: DMSO, 0.1 M LiClO4. Method: current-voltage studies

CN- Cyanide;	HL	Cyanide	CAS 74-90-8 (230)
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Au+ dis NaClO₄ 25°C 0.10M U T H 1972FHC (2610) 28
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

K(Au(CN)₂+I₂)=4.12

Au+ EMF oth/un 25°C var U T M 1971PCb (2611) 29
 $K(\text{AuL}_2 + \text{Au}(\text{SCN})_2 = 2\text{AuSCN} + 2\text{L}) = 0.5$
 $K = 0.9(63^\circ\text{C})$

Au+ 0th 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+ 0th 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 B2 > 29.4 1903B0a (2615) 33

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.										
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										
Au+	ISE	non-aq	20°C	100%	C			K1=12.05 B2=19.30	1975RFa (4484)	36
Medium: MeCN										
Au+	EMF	non-aq	20°C	100%	U	M		K1=12.0 B2=20.2	1973RLa (4485)	37
K(AuL2+SbPh3=AuLSbPh3+L)=-0.8 K(AuL2+AsPh3=AuLAsPh3+L)=1.1 K(AuL2+PPh3=AuLPPh3+L) > 2 Medium: CH3CN										
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										
Au+	EMF	non-aq	25°C	100%	U			K1=12.6 B2=18.0	1972FDb (4487)	39
Medium: DMSO, 0.1 M LiClO4, Et4NClO4										
Au+	EMF	non-aq	25°C	100%	U			K1=12.63 B2=21.52	1969BIb (4488)	40
Medium: MeCN, 0.1 M Et4NClO4										
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										
Au+	sol	NaClO4	25°C	1.00M	U				1975HJa (7887)	43
K(AuI(s)+I=AuI2)=-0.91 K(AuI(s)+I3=AuI4)=-1.41										
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 1972GPb (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 1991H0a (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)

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	NaCl04	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	NaCl04	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.									
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
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Au+	ISE	non-aq	20°C	100%	C	M			1975RFa (22205)	72
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K(AuCl+L)=10.78

K(AuBr+L)=9.08

Medium: MeCN

C2H6Te	L	DiMeTelluride	CAS 593-80-6	(912)
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Dimethyltelluride; CH₃.Te.CH₃

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

Medium: MeCN

C3H7NO2S	H2L	Cysteine	CAS 52-90-4	(96)
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2-Amino-3-mercaptopropanoic acid; H₂N.CH(CH₂.SH)COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
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Au+	gl	KNO ₃	37°C	0.15M	M	T		K1=12.04	1979ZJa (26753)	74
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At 20 C, 0.15 M KNO₃, K1=11.11. Method: ligand competition.

C3H8O3S3	H3L	Unithiol	CAS 74-61-3	(1271)
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2,3-Dimercaptopropanesulfonic acid; HS.CH₂.CH(SH).CH₂.SO₃H

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
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Au+	EMF	KNO ₃	?	1.00M	U				1969SOa (27781)	75
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B(Au₂L₂)=45.42

Medium: HNO₃

Au+	vlt	R4N.X	?	1.00M	U				1968OFa (27782)	76
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B(Au₂L₂)=45.52

Medium: NH₄OH

C4H6O4S	H3L	Thiomalic acid	CAS 70-49-5	(109)
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2-Mercaptosuccinic acid, 2-Sulfanyl-1,4-butanedioic acid; H₂OC.CH(SH).CH₂.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
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Au+	gl	KNO ₃	37°C	0.15M	M	T		K1=11.23	1979ZJa (30319)	77
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At 20 C, 0.15 M KNO₃, K1=10.27.

C5H11NO2S	H2L	D-Penicillamine	CAS 52-67-5	(1323)
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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 B(Au(CN)L)=30.9	1988DWa (45084)	79

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 K(AuCl+L)=16.73 K(AuBr+L)=16.34	1975RFa (61320)	83

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
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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)₂C₆H₃.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									
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									
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									
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

Au+	con	non-aq	25°C	100%	U	M		1969WEa (97131)	97
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$K(\text{AuLC1}+\text{L}=\text{AuL2}+\text{Cl})=2.85$

$K(\text{AuLBr}+\text{L}=\text{AuL2}+\text{Br})=2.48$

$K(\text{AuLI}+\text{L}=\text{AuL2}+\text{I})=2.34$

$K(\text{AuLC1}+2\text{L}=\text{AuL3}+\text{Cl})=0.18$

Medium: $\text{C}_6\text{H}_5\text{NO}_2$. $K(\text{AuLBr}+2\text{L}=\text{AuL3}+\text{Br})=0.57$; $K(\text{AuLI}+2\text{L}=\text{AuL3}+\text{I}) > 1.54$

$\text{C}_{18}\text{H}_{15}\text{Sb}$ L CAS 603-36-1 (2654)

Triphenylantimony; $(\text{C}_6\text{H}_5)_3\text{Sb}$

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
$K(\text{AuCl}+\text{L})=12.92$										
$K(\text{AuBr}+\text{L})=11.76$										

Medium: MeCN

$\text{C}_{18}\text{H}_{33}\text{P}$ L CAS 2622-14-2 (169)

Tri-(cyclohexyl)phosphine; $(\text{C}_6\text{H}_{11})_3\text{P}$

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										

$\text{C}_{96}\text{H}_{10004}\text{P}_4$ L CAS 172036-64-5 (7765)

5,11,17,23-Tetra-tert-butyl-25,26,27,28-tetrakis(diphenylphosphinomethoxy)calix[4]arene;

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 B4=14.5	2000DMa (107958)	101

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
$E(2\text{e}+\text{AuA4}=\text{AuA2}+2\text{A})=0.206 \text{ V}$										
$E(3\text{e}+\text{AuA4}=\text{Au(s)}+4\text{A})=0.325 \text{ V}$										

Medium: 10 M NH_4NO_3 . A= NH_3 . K values: 6.96, 16.48

Au+++	EMF	oth/un	135°C	100%	U				1969APa (338)	103
$K(\text{Au} + 2\text{Au(s)}=3\text{Au}+) > -39.4$										

Medium: (Na,K,Al)Cl

K=-7.74

K: $\text{AuCl}_4 + 2\text{Au(s)} + 2\text{Cl} = 3\text{Au(I)Cl}_2$. From thermodynamic data: $K(\text{AuCl}_4 + 2\text{e} = \text{Au(I)Cl}_2 + 2\text{Cl}) = 31.31(926 \text{ mV})$. $K(\text{AuCl}_4 + 3\text{e} = \text{Au(s)} + 4\text{Cl}) = 50.82(1002 \text{ mV})$

Au+++ EMF none 20°C 0.0 U 1961BBb (349) 114
K=31.71(938 mV)

K: $\text{AuCl}_4 + 2\text{e} = \text{Au(I)Cl}_2 + 2\text{Cl}$

Au+++ EMF oth/un 25°C dil U 1954TRa (350) 115
K=31.6(935 mV)

Medium: HCl. K: $\text{AuCl}_4 + 2\text{e} = \text{Au(I)Cl}_2 + 2\text{Cl}$. $K(\text{AgCl}_4 + 3\text{e} = \text{Ag(s)} + 4\text{Cl}) = 50.4(994 \text{ mV})$

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: $\text{AuCl}_4 + 2\text{e} = \text{Au(I)Cl}_2 + 2\text{Cl}$

Au+++ EMF oth/un 60°C var U 1932GMc (353) 118
K=24.8(819 mV)

Medium: HBr. K: $\text{AuBr}_4 + 2\text{e} = \text{Au(I)Br}_2 + 2\text{Br}$. $K(\text{AuBr}_4 + 3\text{e} = \text{Au(s)} + 4\text{Br}) = 39.4(867 \text{ mV})$

Au+++ EMF oth/un 40°C var U T 1929GRa (354) 119
K=30.6(950 mV)

Medium: HCl. K: $\text{AuCl}_4 + 2\text{e} = \text{Au(I)Cl}_2 + 2\text{Cl}$. At 60 C: K=29.1(960 mV)

$K(\text{AuCl}_4 + 3\text{e} = \text{Au(s)} + 4\text{Cl}) = 48.8(40 \text{ C}, 1010 \text{ mV}), 44.9(60 \text{ C}, 990 \text{ mV})$

Au+++ EMF none 25°C 0.0 U 1927BRa (355) 120
K=69.2(1364 mV)

K: $0.5\text{Au}_{203}(\text{s}) + 3\text{H} + 3\text{e} = \text{Au(s)} + 1.5\text{H}_2\text{O}$

Au+++ EMF none 25°C 0.0 U 1927GRa (356) 121
K=69.1(1362 mV)

K: $0.5\text{Au}_{203}(\text{s}) + 3\text{H} + 3\text{e} = \text{Au(s)} + 1.5\text{H}_2\text{O}$

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 1924JJJa (358) 123
K=68.1(1311 mV)

K: $0.5\text{Au}_{203}(\text{s}) + 3\text{H} + 3\text{e} = \text{Au(s)} + 1.5\text{H}_2\text{O}$. In H_2SO_4 $K(\text{Au(III)} + 3\text{e} = \text{Au(s)}) = 82(17 \text{ M}, 1580 \text{ mV}), 79(13 \text{ M}, 1520 \text{ mV}), 75(9 \text{ M}, 1440 \text{ mV}), 72.2(0.5 \text{ to } 6 \text{ M}, 1390 \text{ mV})$

Au+++ EMF KCl 18°C 1.0M U 1918BKa (359) 124
K=22.3(645 mV)

Medium: HCl. K: $\text{Au(SCN)}_4 + 2\text{e} = \text{Au(I)(SCN)}_2 + 2\text{SCN}$. $K(\text{Au(SCN)}_4 + 2\text{e} = \text{Au(I)(SCN)}_2 + (\text{SCN})_2(\text{aq})) = -4.31$. $K(\text{AuCl}_4 + 3\text{e} = \text{Au(s)} + 4\text{Cl}) = 51.5(989 \text{ mV})$

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)
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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		1968RS1	(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									

Au+++ kin oth/un 26°C var U 1966FHa (4503) 146
 $K(Au(OH)_4 + H_2O = Au(OH)_3 + H_2O) = 6.36$

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: $\text{Au}(\text{OH})_4 + \text{H} + \text{Cl} = \text{AuCl}(\text{OH})_3 + \text{H}_2\text{O}$, +K2: $\text{AuCl}(\text{OH})\# + \text{H} + \text{Cl} = \text{AuCl}_2(\text{OH})_2 + \text{H}_2\text{O}$, +K3: $\text{AuCl}_2(\text{OH})_2 + \text{H} + \text{Cl} = \text{AuCl}_3\text{OH} + \text{H}_2\text{O}$, +K4: $\text{AuCl}_3\text{OH} + \text{H} + \text{Cl} = \text{AuCl}_4 + \text{H}_2\text{O}$.

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

FCIBrI 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 K(AuCl ₄ +Br=AuCl ₃ Br+Cl)=2.53 K(AuCl ₃ Br+Br=AuCl ₂ Br ₂ +Cl)=2.04 K(AuCl ₂ Br ₂ +Br=AuClBr ₂ +Cl)=1.70	(7386)	153

$$K(\text{AuClBr}_3 + \text{Br} = \text{AuBr}_4 + \text{Cl}) = 1.5$$

Au+++	ISE oth/un 25°C	var	U	1966PCb (7387)	154
				K(AuCl ₄ +Br=AuCl ₃ Br+Cl)=2.57	
				K(AuCl ₃ Br+Cl=AuCl ₂ Br ₂ +Cl)=1.80	
				K(AuCl ₂ Br ₂ +Br=AuClBr ₃ +Cl)=1.80	
				K(AuClBr ₃ +Br=AuBr ₄ +Cl)=1.13	

I- Iodide;	HL	Iodide	CAS 10034-85-2	(20)
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Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
Au+++	EMF	NaClO4	25°C	0.40M	U	M		K(AuA3Cl+L=AuA3L+Cl)=4.67	1971DDc (7892)	155

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 K(AuCl4+NH3=AuCl3NH3+Cl)=6.73	(9092)	156

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)

$$\text{OH-Hydroxide; HL Hydroxide} \quad (57)$$

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
Au+++	sp	none	25°C	0	C			K(Au(OH) ₄ +H)=3.0 K(Au(OH) ₃ +H)=1.8	2005MIa (11004)	159

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

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*B(2,2)=-9.794
-----
Au+++      gl  NaCl04 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      1961BP a (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      1924JJ a (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      1965DU a (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      1996EE a (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

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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-mercaptopropionic acid; H2N.CH(CH2.SH)COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
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Au+++	gl	NaNO3	15°C	0.10M	U	T	K1=14.85	1984IDa (26754)	175
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At 30 C, K1=14.65.

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
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Au+++	sp	alc/w	25°C	95%	U			1991CCd (29326)	176
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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)
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Aminobutanedioic acid; H2N.CH(CH2.COOH).COOH

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

C4H13N3	L	Dien	CAS	111-40-0	(584)
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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
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Au+++	sp	NaClO4	25°C	1.0M	C			2000MTb (35766)	178
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K(AuCl4+L=AuClL+3Cl)=22.7

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

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

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

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
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Au+++	sp	alc/w	25°C	95%	U			1991CCd (37570)	180
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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			1991CCd (42196)	182	
									K(AuCl4+L=AuCl3L+Cl)=-0.22	

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			1991CCd (47135)	184	
									K(AuCl4+L=AuCl3L+Cl)=1.56	

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			1991CCd (52583)	185	
									K(AuCl4+L=AuCl3L+Cl)=-0.72	

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			1991CCd (53082)	186	
									K(AuCl4+L=AuCl3L+Cl)=-0.57	

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

C7H7NC12 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, Sequestic 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