SC-Database
Software version = 5.81 Data version = 4.62
Experiment list contains 119 experiments for
 (no ligands specified)
 5 metals : W(0), W(III), W(IV), W(V), W(VI)
 (no references specified)
 (no experimental details specified)

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

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(0) gl oth/un 0°C var U M 1959HEb (2824) 1
K(H3W3L9(OH)2(H2O)+H)=1.5
K(H2W3L9(OH)2(H2O)+H)=5.4
****
C3H9O3P L CAS 121-45-9 (1786)
Trimethylphosphite; (CH3O)3.P

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(0) cal non-aq 25°C 100% U HM 1991ZGa (28004) 2
Medium: THF. DH(Mo(CO)3A2+L)=-110.9 kJ mol-1, A=P(C6H11)3
****
C18H33P L CAS 2622-14-2 (169)
Tri-(cyclohexyl)phosphine; (C6H11)3P

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(0) cal non-aq 25°C 100% U HM 1991ZGa (98316) 3
K(W(CO)3py2+L)=-6.84
Medium: THF. DH=-79.1 kJ mol-1
****
C3H9P L CAS 594-09-2 (1732)
Trimethyl phosphine; (CH3)3P

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(III) nmr non-aq 30°C 100% U T HM 1992RZa (28058) 4
K(WL6=WL4A(H)+L)=1.25
Metal::W(0). Method:NMR. Medium:C6D6. T=30-70C. K=1.48(40C); 1.78(50C); 1.92
(60C); 2.00(70C). DH=38.9 kJ mol-1; DS=155. A:P(CH3)2(CH2).
****
C8H19P L (6822)
Di(t-Butyl)phosphine; ((CH3)3C)2PH

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

W(III) nmr non-aq ? 100% U T HM 1992BCc (63202) 5
Metal:W+++. Method:NMR. Medium:toluene. DH(1,2-W2L2(NMe2)4(anti-gauche isomerization)=-2.1 kJ mol-1, DS=-1.3. Data also for other phosphides

****

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(IV)	kin	KNO3	25°C	1.00M	U		1995SPb (2775)	6
							K(WO(H2O)L4+L)=3.0		
							K(WO(H2O)L4+HL=WO(HL)L4)=0.0		
							*K(WO(HL)L4)=-5.8		
W(IV)	EMF	KCl	20°C	0.10M	U	I	1973HKa (2776)	7
							K(WO2(CN)4+H)=11.7		
							K'(WO2(CN)4H+H)=8.25		
K=12.0(I=0.014); 12.1(I=0.04); 11.8(I=0.06); 11.6(I=0.2); 11.6(I=0.5); -12.1(I=0). I=0: K=12.1. K'=8.57(I=0.014); -7.76(I=0.5). I=0: K'=8.84									
W(IV)	gl	oth/un	20°C	0.10M	U		1971SKc (2777)	8
							K(H+W(CN)8)=1.6		

****

F- HL Fluoride CAS 7644-39-3 (201)
Fluoride;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(IV)	sp	KNO3	20°C	1.00M	U	M	1986LBa (7331)	9
							K(WO(H2O)(CN)4+F)=2.15		

****

OH- HL Hydroxide (57)
Hydroxide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(IV)	gl	KCl	25°C	1.2M	C		1998ARa (12484)	10
							*K(WO(H2O)(CN)4)=-7.89		
							*K(WO(OH)(CN)4)=-14.5		
Medium: KCl/KNO3									
W(IV)	EMF	oth/un	16°C	var	U		1959LMa (12485)	11
							K(W(CN)4(OH)+OH)=9.10		
							K(W(CN)4(OH)2+OH)=6.67		
							K(W(CN)4(OH)3+OH)=3.28		
Metal is W(IV). Method: Bi electrode									
W(IV)	gl	oth/un	25°C	var	U		1956BAa (12486)	12
							K1(W(CN)8+H) < 2		
							K1(W(CN)8+H) < 2		

****
C2H4 L Ethylene CAS 74-85-1 (478)
Ethene; H2C:CH2

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(IV) nmr non-aq 24°C 100% U M 1992HMa (19431) 13
K(WOA3Cl2+L=WOLA2Cl2+A)=2.30
Method:NMR. Medium:C6D6. A=PMePh2. When A=PMe3, K=-3.02
****
e- HL Electron (442)
Electron;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(V) EMF none 25°C 0.0 U 1955BTa (1029) 14
K(W(CN)8+e)=7.73(457 mV)

W(V) vlt oth/un 25°C 12.0M U 1952LAb (1030) 15
K(W+e=W(IV))=-5(-300 mV)
K(W+2e=W(III))=-7(red WCl5,-200 mV), -3.4(W(III),-100 mV), 3.4(green W2Cl9)

W(V) EMF KCl 0°C 1.0M U I 1924COa (1031) 16
K(W(CN)8+e)=11.0(597 mV)
At I=0.5 M K=K=10.7(580 mV), I=0.25 M: K=10.5(568 mV)
****
CN- HL Cyanide CAS 74-90-8 (230)
Cyanide;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(V) nmr KNO3 25°C 0.10M C 1994RLa (2778) 17
*K(WO(CN)4(H2O))=-7.85
W=W(IV). Method: N.M.R.

W(V) gl oth/un 20°C 0.10M U 1971SKc (2779) 18
K(H+W(CN)8)=2.35
K(H+HW(CN)8)=1.7
****
Cl- HL Chloride CAS 7647-01-0 (50)
Chloride;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(V) oth oth/un 20°C var U T H 1972JRa (5948) 19
K=6.48
K: 2WOCl5+6H2O=W2L2O4(OH)2(H2O)2+6H+8Cl. K=6.61(1 C), 6.30(40 C).
DH(K)=-14.6 kJ mol-1, DS=74 J K-1 mol-1. Method: magnetic susceptibility
---
W(V) oth KCl 40°C var U T 1967JRa (5949) 20

K(2WOCl5+6H2O=X+8Cl+6H)=12.58
Method:magnetic susceptibility. Medium:HCl var. K=13.23(1 C),12.94(20 C)
X=W2O2(OH)6Cl2
****
OH- HL Hydroxide (57)
Hydroxide;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(V) kin oth/un 25°C 2.00M U 1993PSa (12487) 21
*K(Mo2WO4(H2O))=-0.013
*K(Mo2WO4(NCS))=-1.7
Metals are W(IV) and Mo(IV). Medium: 2.0 M Li(tetrafluoromethane sulfonate).
****
SCN- HL Thiocyanate CAS 463-56-9 (106)
Thiocyanate;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(V) kin NaClO4 25°C 2.00M U 1993VSa (15338) 22
K(W3S4(H2O)9+L)=3.18
K(MoW2S4(H2O)9+L)=3.29
K(Mo2WS4(H2O)9+L)=3.02
Medium: 2.0 M HClO4. Metals are W(IV) and Mo(IV). For mixed Mo/W species the data refer to binding of L to W.
****
C5H9N L t-Butylnitrile CAS 7188-38-7 (913)
t-Butylcyanide;(CH3)3C.CN

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(V) con non-aq 40°C 100% U M 1992LIa (38458) 23
K(WL6I+I)=3.11
Medium: MeCN, 0.0063 M Bu4NClO4, W++. Contradictory data in Tables and text
****
e- HL Electron (442)
Electron;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(VI) vlt oth/un 25°C 0.0 U I 1952LAb (1032) 24
K(WO2Cl3+e)=4.4(260 mV)
K'=-9(-90 mV)
K"=-107(1050 mV)
K': WO3(s)+6H+6e=W(s)+3H2O. K": WO4+4H2O+6e=W(s)+8)H. K(WO2Cl3+e) in 12M HCl
****
CN- HL Cyanide CAS 74-90-8 (230)
Cyanide;

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

```
--------------------------------------------------------------------------------
W(VI)      sp  KCl    20°C 0.20M U                        1978SSc  (2780)  25
                                        K(WL7+H)=4.82
                                        K(WL7OH+H)=9.17
********************************************************************************
F-                      HL    Fluoride         CAS 7644-39-3  (201)
Fluoride;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
W(VI)      nmr non-aq -75°C 100%  U        K1=1.7    B2=2.40   1974SBc  (7332)  26
Medium: vinyl chloride
--------------------------------------------------------------------------------
W(VI)      kin KCl    25°C 0.20M U                        1964YPa  (7333)  27
                                        K1eff=3.0
--------------------------------------------------------------------------------
W(VI)      con non-aq -5°C 100%  U                         1960NVa  (7334)  28
                                        K(WO2F2+4HF=WF6+2H2O)=-2.8
Medium: liquid HF, m units
********************************************************************************
MoO4--                 H2L    Molybdate          (443)
Molybdate;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
W(VI)      nmr oth/un 25°C   >6  U                         1994AHa  (8761)  29
                                        Beff(1,6)=1.00
                                        Beff(2,5)=1.57
                                        Beff(3,4)=1.83
                                        Beff(4,3)=1.83
Beff(5,2)=1.55, Beff(6,1)=0.98.  Beff(q,r): pH+qMo7O24+rW7O24 at pH 6.0
********************************************************************************
NH2SO3-                H2L    Sulfamate        CAS 5329-14-6  (452)
Sulfamate;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
W(VI)      sp  NaCl   25°C  1.0M U                         1958SAc  (8804)  30
                                        K(2H+2L+WO4=WO3L2+H2O)=-8 ?
********************************************************************************
OH-                     HL    Hydroxide          (57)
Hydroxide;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
W(VI)      sp  NaClO4 25°C 2.00M U                         1992RSb (12488)  31
                                        *K(W3S4(H2O)9)=-0.59
Medium: 2.0 M LiClO4. Metal is W(IV).
--------------------------------------------------------------------------------
W(VI)      sol oth/un 300°C  var  M T H                    1992WOa (12489)  32
```

```
                                        Ks(WO3(s)+H2O=H2WO4)=-4.0
300-600 C and P=1 kbar. DH(K)=41 kJ mol-1. Constant at I=0
--------------------------------------------------------------------------------
W(VI)      kin NaCl   25°C 0.10M U  I                    1978KKc (12490)  33
                                        K(PW12O40+OH)=0.85
In NaCl: K=0.20; in LiCl: K=0.78
--------------------------------------------------------------------------------
W(VI)      sp  alc/w  20°C  10%  U  I                    1977NPb (12491)  34
                                        K(WO2+OH)=13.17
                                        K(WO2+2OH)=25.72
                                        K(WO2+3OH)=37.69
--------------------------------------------------------------------------------
W(VI)      gl  NaClO4 25°C 3.00M C                       1974ASa (12492)  35
                                        B(2,1)=11.30
                                        B(6,6)=52.46
                                        B(7,6)=60.76
                                        B(14,12)=123.24
B(p,q): pH+qWO4=Hp(WO4)q. A recalculation of data published by Y.Sasaki
--------------------------------------------------------------------------------
W(VI)      sp  NaNO3  25°C 0.10M U  I     K1=13.18  B2=25.9   1969NPd (12493)  36
                                        B3=38.2
W(VI)=WO2++.  K1=13.28, B2=26.2, B3=38.7(I=2.5)
********************************************************************************
O2--                  H2L    Peroxide         CAS 7772-84-1  (2813)
Peroxide; -O.O-
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
W(VI)      sp  oth/un 24°C  var  U                        1963DLa (12758)  37
                                        K(WL4+H)=4.9 to 6.9
                                        K(WL4+H2L=HWL4+HL)=-6.9 to -8
********************************************************************************
SCN-                   HL    Thiocyanate      CAS 463-56-9  (106)
Thiocyanate;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
W(VI)      sp  non-aq   ?  100%  U  I     K1=3.5    B2=7.2    1967USa (15339)  38
Medium: Me2CO. W added as WCl5. Conductivity also used. In MeCOEt: K1=3.1,
B2=6.3, B4=13.25. In cyclohexanone: B6=20.6
********************************************************************************
WO4--                 H2L    Tungstate        CAS 13783-36-3  (445)
Tungstate;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
W(VI)      gl  NaCl   25°C 1.00M U                        1979IRa (17453)  39
                                        K(7H+6WO4=HW6O21+3H2O)=56.42
                                        K(9H+6WO4=H3W6O21+3H2O)=70.45
********************************************************************************
```

CH2O2 HL Formic acid CAS 64-18-6 (37)
Methanoic acid; H.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values		Reference	ExptNo
W(VI)	ix	oth/un	?	0.05M	U		K1=0.30	B2=2.28	1970SHa (17661)	40
							B3=3.18			
							B4=4.90			

Metal ion: WO2++. Medium: 0.01-0.05 HL, pH 2.5

****

CH4O L Methyl alcohol CAS 67-56-1 (597)
Methanol; CH3.OH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	EMF	alc/w	20°C	100%	U			1964GUa (17911)	41
							K(WO(L')3+L'=WO(L')4)=12.51		
							K(WO(L')5+H=WO(L')4+L)=4.09		

Method: H electrode. Medium: MeOH, 1.0 M Me4NCl. L'=H-1L (i.e. CH3O)

****

C2H2O4 H2L Oxalic acid CAS 144-62-7 (24)
Ethanedioic acid; (COOH)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	gl	KNO3	21°C	0.22M	C			1978MBc (19152)	42
							K(WO4+2H+L=WO3L+H2O)=13.97		

Medium pH 5-7.

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	oth	oth/un	?	?	U		K1=1.48	1969SHd (19153)	43

Metal ion: WO2++

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	vlt	oth/un	25°C	0.16M	U			1962YBa (19154)	44
							K(H2WO4+H2L)=4.85		
							K(H2WO3L+H2L)=7.5		

Medium:0.08-0.24 H2SO4

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	kin	oth/un	25°C	?	U			1962YPb (19155)	45
							K(H2WO4+H2L)=5.13		

****

C2H4O3 HL Glycolic acid CAS 79-14-1 (33)
2-Hydroxyethanoic acid; HO.CH2.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	sp	oth/un	25°C	0.10M	C			1995HCa (20656)	46
							Keff(WO4+2L+2H=WO2L2)=16.85		

Medium: 0.1 M acetate buffer, pH 4.7

****

C3H4O4 H2L Malonic acid CAS 141-82-2 (79)

Propanedioic acid; CH2(COOH)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	kin	oth/un	25°C	0.05M	U		1962YPa (24594)		47
							K(H2WO4+H2L)=3.09		

****

C3H6O3 HL L-Lactic acid CAS 79-33-4 (82)
L-2-Hydroxypropanoic acid; CH3.CH(OH).COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	sp	oth/un	25°C	0.10M	C		1995HCa (25570)		48
							Keff(WO4+2L+2H=WO2L2)=18.15		
Medium:0.1 M acetate buffer, pH 4.7									
W(VI)	gl	NaCl	25°C	1.00M	C	H	1993CKb (25571)		49
							B(1,2,2)=17.47		
							B(1,2,3)=18.38		
							B(1,1,2)=13.03		
							B(1,1,3)=14.56		

B(p,q,r): pWO4 +qHL +rH =(WO4)pLqHq+r. B(2,2,3)=25.47. DH by calorimetry: DH(1,2,2)=-80 kJ mol-1.

****

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
W(VI)	sp	NaCl	18°C	1.00M	U		1990CJa (26853)		50
							K(WO4+L+2H=WO3L+H2O)=18.8		

****

C3H9P L CAS 594-09-2 (1732)
Trimethyl phosphine; (CH3)3P

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	nmr	non-aq	25°C	100%	U	T HM	1992WWa (28059)		51
							K(WABC2+L)=2.73		

Method:NMR. Medium:Toluene. T=-10-40. K=4.23(-10C);3.73(0);3.28(10);2.96(18);2.10(40). A:CHC(CH3)3. B:NC6H4(i-C3H7)2 C:OC(CH3)3. DH=-65.7kJmol-1;DS=-170

****

C4H6O4 H2L Succinic acid CAS 110-15-6 (112)
1,4-Butanedioic acid; HOOC.CH2.CH2.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	ix	oth/un	22°C	0.10M	U		K1=1.06	1973SDa (30076)	52
Metal ion: WO2++, pH 2.5									

****

C4H6O5 H2L Malic acid CAS 617-48-1 (393)
2-Hydroxybutane-1,4-dioic acid, Hydroxy-succinic acid; HOOC.CH2.CH(OH).COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	gl	NaCl	25°C	1.0M	C	H	B(1,1,1)=8.85 B(1,1,2)=14.78 B(1,1,3)=17.26 B(1,2,2)=17.20	1997CKa (30756)	53

B(p,q,r):pWO4+qHL+rH=(WO4)p(HL)qHr. B(1,2,3)=21.70, B(1,2,4)=25.61, B(2,1,3) =23.07, B(2,2,2)=18.87, B(2,2,3)=25.72, B(2,2,4)=31.88. DH by calorimetry.

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	oth	NaClO4	30°C	1.00M	U	M	B((WO4)H2L2)=23.1	1979CBa (30757)	54

Method: polarimetry

****

C4H6O6 H2L DL-Tartaric acd CAS 133-37-9 (94)
DL-Tartaric acid,DL-2,3-Dihydroxybutanedioic acid; HOOC.CH(OH).CH(OH).COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	sp	oth/un	25°C	0.10M	C		Keff(2WO4+2L+4H=(WO)2L2)=33.55	1995HCa (31037)	55

Medium: 0.1 M acetate buffer, pH 4.7

****

C4H6O6 H2L L-Tartaric acid CAS 87-69-4 (92)
L-Tartaric acid, L-2,3-Dihydroxybutanedioic acid; HOOC.CH(OH).CH(OH).COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	kin	oth/un	25°C	0.10M	U		K(H2WO4+H2L)=3.93	1962YPb (31396)	56

****

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
W(VI)	gl	NaClO4	25°C	0.10M	U		K1=8.20 B2=14.07 K3=3.81	1972SSe (31978)	57

Metal ion is WO2++

****

C4H7NO4 H2L IDA CAS 142-73-4 (118)
Iminodiethanoic acid; HN(CH2.COOH)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	gl	NaClO4	25°C	3.0M	U		B(WO4+L+2H=WO3L)=18.14	1979ZLa (32398)	58

W(VI) gl oth/un 25°C 0.15M U 1966KRa (32399) 59
K(WO4+L+2H=WO3L)=18.5
****
C4H8N2O3 HL Asparagine CAS 70-47-3 (17)
2-Aminobutanedioic acid 4-amide; H2N.CH(CH2.CO.NH2).COOH

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(VI) gl NaClO4 25°C 0.10M U K1=5.84 B2=10.95 1973TSe (32746) 60
K3=3.30
****
C4H8O3 HL CAS 594-61-6 (81)
2-Hydroxy-2-methylpropanoic acid; (CH3)2C(OH).COOH

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(VI) sp oth/un 25°C 0.10M C 1995HCa (33537) 61
Keff(WO4+2L+2H=WO2L2)=18.75
Medium: 0.1 M acetate buffer, pH 4.7
****
C4H8O3 HL CAS 965-70-8 (423)
2-Hydroxybutanoic acid; CH3.CH2.CH(OH).COOH

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(VI) sp oth/un 25°C 0.10M C 1995HCa (33588) 62
Keff(WO4+2L+2H=WO2L2)=18.25
Medium: 0.1 M acetate buffer, pH 4.7
****
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
---
W(VI) gl NaClO4 25°C 0.10M U K1=7.95 B2=13.40 1972SSe (39147) 63
K3=3.60
****
C5H9NO4 H2L MIDA CAS 4408-64-4 (190)
N-Methyliminodiethanoic acid; CH3.N(CH2.COOH)2

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(VI) gl oth/un 25°C 0.15M U 1966KRa (39293) 64
K(WO4+L+2H=WO3L)=18.70

W(VI) nmr oth/un 35°C 1.00M U 1966KRa (39294) 65
K(WO4+L+2H=WO3L)=18.6
****
C5H10N2O3 HL Glutamine CAS 56-85-9 (18)

2-Aminopentanedioic acid 5-amide; H2N.CH(CH2.CH2.CO.NH2)COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	gl	NaClO4	25°C	0.10M	U		K1=5.76 B2=10.85 K3=3.20	1973TSe (39847)	66

****

C5H10O5 L CAS 1114-34-7 (6113)
D-Lyxose

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	gl	KCl	25°C	0.10M	C		B(2WO4+L+2H)=18.08	1989VCa (40340)	67

****

C5H12O5 L Xylitol CAS 87-99-0 (2139)
Xylitol; HO.CH2.HCOH.HOCH.HCOH.CH2.OH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	gl	KCl	RT	0.10M	M	I	K(2WO4+2H+L=W2O7L+H2O)=18.50	1990VSc (41694)	68

Data for 0.01-1.0 M KCl and NaCl. In 0.01 M KCl, K=19.65.

****

C6H2O4Cl2 H2L Chloranilic acd CAS 87-88-7 (1281)
3,6-Dichloro-2,5-dihydroxy-1,4-benzoquinone;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	sp	oth/un	30°C	?	U		K1=5.23	1981BMd (42061)	69

****

C6H4N2O6 H2L CAS 7659-29-2 (2694)
1,2-Dihydroxy-3,5-dinitrobenzene; (HO)2.C6H2(NO2)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	sp	NaNO3	25°C	0.10M	U		K(WO2+2L)=20.74	1972PSb (42268)	70

****

C6H5NO4 H2L 4-Nitrocatechol CAS 3316-09-4 (890)
1,2-Dihydroxy-4-nitrobenzene; O2N.C6H3(OH)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	sp	oth/un	25°C	.575M	U		K(H2WO4L+H2L=WO2L2+2H2O)=3.15 K(WO4+H2L)=3.31	1980NKa (42946)	71

Medium: 0.1 M NH4OH, 0.08 M Na2S2O5. pH 8
Medium: 0.1 M NH4OH, 0.08 M Na2S2O5, pH 8

****

C6H5O2Cl H2L 4-Cl-Catechol CAS 2138-22-9 (1656)
1,2-Dihydroxy-4-chlorobenzene; Cl.C6H3(OH)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	sp	oth/un	25°C	.575M	U			1980NKa (43086)	72
							K(H2WO4L+H2L=WO2L2+2H2O)=3.41		
							K(WO4+H2L)=3.25		

Medium: 0.1 M NH4OH, 0.08 M Na2S2O5. pH 8

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	sp	KCl	25°C	0.10M	U			1963HAc (43087)	73
							K(WO4+2H2L)=7.1		

****

C6H6O2 H2L Catechol CAS 120-80-9 (534)
1,2-Dihydroxybenzene, pyrocatechol; HO.C6H4.OH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	sp	oth/un	25°C	.575M	U			1980NKa (43864)	74
							K(H2WO4L+H2L=WO2L2+2H2O)=3.98		
							K(WO4+H2L)=2.59		

Medium: 0.1 M NH4OH, 0.08 M Na2S2O5. pH 8

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	sp	oth/un	20°C	0.10M	U			1964PCa (43865)	75
							K(WO4+2H2L=WO2L2)=6.53		

Medium: 0.1 M NaHSO3

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	sp	oth/un	20°C	?	U			1959HAa (43866)	76
							K(WO4+2H2L=WO2L2)=6.53		

****

C6H6O3 H3L Pyrogallol CAS 87-66-1 (696)
1,2,3-Trihydroxybenzene; C6H3(OH)3

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	sp	oth/un	25°C	.575M	U			1980NKa (43998)	77
							K(H2WO4L+H2L=WO2L2+2H2O)=3.21		
							K(WO4+H2L)=2.98		

Medium: 0.1 M NH4OH, 0.08 M Na2S2O5. pH 8

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	sp	oth/un	20°C	?	U			1959HAa (43999)	78
							K(WO4+2H3L=WO2(HL)2)=6.98		
W(VI)	sp	oth/un	20°C	?	U			1958PIa (44000)	79
							K(WO4+2H3L=WO2(HL)2)=7.34		

****

C6H8O7 H3L Isocitric acid CAS 1637-73-6 (2527)
2-Hydroxy-3-carboxypentanedioic acid; HOOC.CH(OH).CH(COOH).CH2.COOH

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

---

W(VI) sp oth/un 25°C 0.10M C 1995HCa (45736) 80
Keff(2WO4+2HL+2H=(WO2)2O2L2)=25.7. Medium: 0.1 M acetate buffer, pH 4.7

****

C6H8O7 H3L Citric acid CAS 77-92-9 (95)
2-Hydroxypropane-1,2,3-tricarboxylic acid; HOOCCH2.CH(OH)(COOH).CH2COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	gl	NaCl	25°C	1.00M	U	H	B(111)=10.21 B(121)=17.03 B(131)=21.67 B(141)=22.82	1995CRa (46309)	81

B(pqr): pWO4 + qH + rL = (WO4)pHqLr

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	gl	NaCl	25°C	1.00M	C	H	B(1,1,1)=10.21 B(1,2,1)=17.03 B(1,3,1)=21.67 B(1,4,1)=22.82	1991CKa (46310)	82

B(2,4,2)=34.89, B(2,5,2)=39.33, B(1,6,2)=34.51, B(2,4,1)=31.68.
B(p,q,r): pWO4+qH+rL=WO4pHqLr. Also DH by calorimetry. Ligand defined as H4L

****

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	sp	NaClO4	25°C	0.10M	C	I	Keff(WO4+2H+L)=19.00	2004MZa (47096)	83

Data for 0.3-1.0M NaClO4. At I=1.0 M, Keff=19.40.

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	sp	NaClO4	25°C	0.5M	C		K(WO4+2H+L=WO3L+H2O)=17.75	1976CLa (47097)	84

Method: stopped flow spectrophotometry

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	gl	oth/un	25°C	0.15M	U		K(WO4+L+2H=WO3L)=18.86	1966KRa (47098)	85

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	nmr	oth/un	35°C	2.00M	U		K(WO4+L+2H=WO3L)=19.1	1966KRa (47099)	86

****

C6H12N2O4 H2L EDDA CAS 5657-17-0 (119)
1,2-Diaminoethane-N,N'-diethanoic acid; HOOC.CH2.NH.CH2.CH2.NH.CH2.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	gl	NaClO4	25°C	3.0M	U		B(WO4+L+2H=WO3L)=19.62	1979ZLa (49284)	87

****
C6H12O5 L L-Rhamnose CAS 634-74-2 (3659)
6-Deoxy-L-mannose;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(VI) gl KCl 25°C 0.10M C 1989VCa (49509) 88
B((WO4)2H2L)=17.04
B((WO4)2H3L)=20.54
K((WO4)2H2L+H)=3.50
****
C6H12O6 L D-Mannose CAS 3458-28-4 (1562)
D-Mannose

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(VI) gl KCl 25°C 0.10M C 1989VCa (49608) 89
B((WO4)2H2L)=17.50
M=WO4
****
C6H14O6 L D-Mannitol CAS 69-65-8 (3664)
D-Mannitol;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(VI) gl KNO3 21°C 0.10M C 1978MBc (51090) 90
Medium pH 3-5. K(2WO4+2H+L=W2O5(H-4L)+3H2O)=18.78
****
C6H14O6 L Glucitol CAS 50-70-4 (2878)
D-Sorbitol;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(VI) gl KCl RT 0.10M M I 1990VSc (51110) 91
K(2WO4+2H+L=W2O7L+H2O)=19.15
Data for 0.01-1.0 M KCl and NaCl. In 0.01 M KCl, K=19.30.

W(VI) gl KNO3 21°C 0.10M C 1978MBc (51111) 92
Medium pH 3-5. K(2WO4+2H+L=W2O5(H-4L)+3H2O)=19.26
****
C7H6O3 H2L CAS 139-85-5 (881)
3,4-Dihydroxybenzaldehyde, protocatechuic aldehyde; C6H3(OH)2.CHO

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
W(VI) sp oth/un 25°C .575M U 1980NKa (54359) 93
K(H2WO4L+H2L=WO2L2+2H2O)=3.39
K(WO4+H2L)=3.10
Medium: 0.1 M NH4OH, 0.08 M Na2S2O5. pH 8

```
W(VI)      sp  oth/un 20°C    ?  U                          1959HAa (54360)  94
                                          K(WO4+H2L=WO2L2)=7.76
**************************************************************************
C7H6O4                H3L    Protocatechuic   CAS 99-50-3  (875)
3,4-Dihydroxybenzoic acid; C6H3(OH)2.COOH
--------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------
W(VI)      sp  oth/un 25°C .575M U                          1980NKa (54709)  95
                                          K(H2WO4L+H2L=WO2L2+2H2O)=3.18
                                          K(WO4+H2L)=3.23
Medium: 0.1 M NH4OH, 0.08 M Na2S2O5. pH 8
--------------------------------------------------------------------------
W(VI)      sp  oth/un 20°C    ?  U                          1959HAa (54710)  96
                                          K(WO4+2H3L=WO2H2L2)=7.30
**************************************************************************
C7H6O5                H4L    Gallic acid      CAS 149-91-7  (446)
3,4,5-Trihydroxybenzoic acid; C6H2(OH)3.COOH
--------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------
W(VI)      sp  oth/un 25°C .575M U                          1980NKa (54772)  97
                                          K(H2WO4L+H2L=WO2L2+2H2O)=3.39
                                          K(WO4+H2L)=3.34
Medium: 0.1 M NH4OH, 0.08 M Na2S2O5. pH 8
--------------------------------------------------------------------------
W(VI)      sp  oth/un 20°C    ?  U                          1959HAa (54773)  98
                                          K(WO4+H3L=WO3HL)=3.37
**************************************************************************
C7H7NO2                HL                    CAS 495-18-1  (184)
Benzohydroxamic acid; C6H5.CO.NH.OH
--------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------
W(VI)      dis KCl      ?   4.0M U                          1967PNa (55526)  99
                                          K(WO2+2HL=WO2L2+2H)=7.11
**************************************************************************
C7H8O2                H2L                   CAS 488-17-5  (1657)
1,2-Dihydroxy-3-methylbenzene; CH3.C6H3(OH)2
--------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------
W(VI)      sp  oth/un 25°C .575M U                          1980NKa (56057) 100
                                          K(H2WO4L+H2L=WO2L2+2H2O)=3.60
                                          K(WO4+H2L)=3.22
Medium: 0.1 M NH4OH, 0.08 M Na2S2O5. pH 8
**************************************************************************
C7H8O2                H2L    Methylcatechol   CAS 452-86-8  (525)
1,2-Dihydroxy-4-methylbenzene; CH3.C6H3(OH)2
--------------------------------------------------------------------------
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------
W(VI)      sp  oth/un 25°C .575M U                      1980NKa (56082) 101
                                        K(H2WO4L+H2L=WO2L2+2H2O)=3.76
                                        K(WO4+H2L)=2.42
Medium: 0.1 M NH4OH, 0.08 M Na2S2O5. pH 8
-------------------------------------------------------------------------
W(VI)      sp  KCl    25°C 0.10M U                      1963HAc (56083) 102
                                        K(WO4+2H2L)=6.31
*************************************************************************
C8H8O3                 HL    Mandelic Acid    CAS 611-72-3  (80)
2-Phenyl-2-hydroxyethanoic acid; C6H5.CH(OH).COOH
-------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------
W(VI)      sp  oth/un 25°C 0.10M C                      1995HCa (59888) 103
                                        Keff(WO4+2L+2H=WO2L2)=18.15
Medium: 0.1 M acetate buffer, pH 4.7
*************************************************************************
C9H7NO3S2              H2L                      CAS 58447-10-2  (4675)
8-Mercaptoquinoline-5-sulfonic acid;
-------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------
W(VI)      sp  oth/un   ?     ?  U                      1968ABa (64433) 104
                                        K(W2O5+L)=10.6
                                        K(W2O5+2L)=19.7
*************************************************************************
C9H7NO4S               H2L    Sulfoxine        CAS 84-88-8  (448)
8-Hydroxyquinoline-5-sulfonic acid;
-------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------
W(VI)      gl  KNO3   16°C 0.10M U                      1969GTa (64589) 105
                                        K(WO4+L+2H=WO3L)=19.87
*************************************************************************
C10H8O2                H2L                      CAS 92-44-4  (1658)
2,3-Dihydroxynaphthalene;
-------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
-------------------------------------------------------------------------
W(VI)      sp  oth/un 25°C .575M U                      1980NKa (69784) 106
                                        K(H2WO4L+H2L=WO2L2+2H2O)=3.47
                                        K(WO4+H2L)=3.57
Medium: 0.1 M NH4OH, 0.08 M Na2S2O5. pH 8
*************************************************************************
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
```

```
--------------------------------------------------------------------------------
W(VI)      gl  NaClO4 25°C  3.0M U                      1979ZLa (74306) 107
                                        B(WO4+L+2H=WO3L)=19.67
                                        B(2WO4+L+2H=W2O6L)=36.22
--------------------------------------------------------------------------------
W(VI)      gl  NaClO4 25°C 0.10M U       K1=9.92       1975PPb (74307) 108
                                        K(WO3L+H)=7.31
                                        B((WO3)2L)=18.41
K1: WO3+L=WO3L
--------------------------------------------------------------------------------
W(VI)      gl  oth/un 25°C 0.15M U                     1966KRa (74308) 109
                                        K(WO4+L+2H)=18.9
                                        K(WO4+WO3L+2H)=16.9
--------------------------------------------------------------------------------
W(VI)      nmr oth/un 35°C  1.0M U                     1966KRa (74309) 110
                                        K(WO4+L+2H)=18.7
                                        K(WO4+WO3L+2H)=16.7
                                        K(WO3L+H)=7.5
********************************************************************************
C10H25N5                L    15-Ane-N5        CAS 295-64-7  (99)
1,4,7,10,13-Pentaazacyclopentadecane; cyclo(-(HN.CH2.CH2)5-)
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
W(VI)      vlt NaClO4 25°C 0.20M C                     1999SSe (76739) 111
                                        K(WO4+H3L)=2.11
Method: differentail pulse polarography.
********************************************************************************
C12H30N6                L                    CAS 296-35-5  (143)
1,4,7,10,13,16-Hexaazacyclooctadecane; cyclo(-(NH.CH2.CH2)6-)
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
W(VI)      vlt NaClO4 25°C 0.20M C                     1999SSe (84361) 112
                                        K(WO4+H3L)=2.21
Method: differentail pulse polarography.
********************************************************************************
C14H8O7S             H3L    DASA             CAS 83-61-4  (950)
1,2-Dihydroxyanthraquinone-3-sulfonic acid, Alizarin Red S;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
W(VI)      sp  oth/un 25°C    ?  U        B2=7.8         1959DBb (86771) 113
********************************************************************************
C15H11N3O4S          H2L                        (5130)
7-Phenylazo-8-hydroxyquinoline-5-sulfonic acid;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
W(VI)      gl  KNO3   16°C 0.10M U                     1969GTa (91339) 114
```

B((WO4)H2L)=18.34

****

C15H11N3O7S2 H3L CAS 17852-90-3 (5131)
7-(4-Sulfophenylazo)-8-hydroxyquinoline-5-sulfonic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	gl	KNO3	16°C	0.10M	U			1969GTa (91352)	115
							B((WO4)H2L)=18.05		

****

C19H13N3O7S2 H3L SNAZOXS CAS 117-87-3 (995)
8-Hydroxy-7-(4'-sulfo-1'-naphthylazo)-quinoline-5-sulfonic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	gl	KNO3	16°C	0.10M	U			1969GTa (99051)	116
							K(WO4+L+2H)=18.00		

****

C22H20O13 H5L Carminic acid CAS 1260-17-9 (714)
Carminic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	sp	oth/un	22°C	?	U			1966KWb (101707)	117
							K(WO4+H5L=WO3H3L)=5.5(?)		

****

C22H24N2O8 L Deoxycycline CAS 564-25-0 (2204)
Deoxycycline, 6-Deoxy-5-hydroxytetracycline;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	gl	none	20°C	0.0	C			1991JMa (101767)	118
							K(WO4+H3L=WO3HL)=8.39		
							K(WO4+2H3L=WO3(H2L)2)=8.26		

****

C22H24N2O8 H2L Tetracycline CAS 60-54-8 (2201)
Tetracycline;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
W(VI)	gl	none	20°C	dil	C			1989VJa (101831)	119
							K(WO4+HL)=7.86		

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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 :-

END