

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;

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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
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C3H9O3P L CAS 121-45-9 (1786)
Trimethylphosphite; (CH3O)3P

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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
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C18H33P L CAS 2622-14-2 (169)
Tri-(cyclohexyl)phosphine; (C6H11)3P

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

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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).
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C8H19P L (6822)
Di(t-Butyl)phosphine; ((CH3)3C)2PH

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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
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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(WO3C12+L=WO2A2C12+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 WC15,-200 mV), -3.4(W(III),-100 mV), 3.4(green W2C19)

 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: 2WOC15+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

$$K(2WOCl_5+6H_2O=X+8Cl+6H)=12.58$$

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(Mo2W04(H2O))=-0.013
 *K(Mo2W04(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 1993V5a (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(WL70H+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+qMo7024+rW7024 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+W04=W03L2+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 1992W0a (12489) 32

$$K_s(WO_3(s)+H_2O=H_2WO_4)=-4.0$$

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; -0.0-

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.CO₂H

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.

W(VI) oth oth/un ? ? U K1=1.48 1969SHd (19153) 43

Metal ion: WO₂⁺⁺

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

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

K_{eff}(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

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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(H2W04+H2L)=3.09
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C₃H₆O₃ HL L-Lactic acid CAS 79-33-4 (82)
 L-2-Hydroxypropanoic acid; CH₃.CH(OH).COOH

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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(W04+2L+2H=W02L2)=18.15
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Medium:0.1 M acetate buffer, pH 4.7

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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
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B(p,q,r): pW₀₄ +qHL +rH =(W₀₄)pLqHq+r. B(2,2,3)=25.47. DH by calorimetry:
 DH(1,2,2)=-80 kJ mol⁻¹.

C₃H₇N₀S₂ H₂L Cysteine CAS 52-90-4 (96)
 2-Amino-3-mercaptopropanoic acid; H₂N.CH(CH₂.SH)COOH

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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(W04+L+2H=W03L+H2O)=18.8
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C₃H₉P L CAS 594-09-2 (1732)
 Trimethyl phosphine; (CH₃)₃P

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

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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: W02++, pH 2.5
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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 1997CKa (30756) 53

B(1,1,1)=8.85
B(1,1,2)=14.78
B(1,1,3)=17.26
B(1,2,2)=17.20

B(p,q,r):pW04+qHL+rH=(W04)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.

W(VI) oth NaClO4 30°C 1.00M U M 1979CBa (30757) 54

B((W04)H2L2)=23.1

Method: polarimetry

C4H6O6 H2L DL-Tartaric acid 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 1995HCa (31037) 55

Keff(2W04+2L+4H)=(W0)2L2)=33.55

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 1962YPb (31396) 56

K(H2W04+H2L)=3.93

C4H7N04 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 1972SSe (31978) 57

K3=3.81

Metal ion is W02++

C4H7N04 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 1979ZLa (32398) 58

B(W04+L+2H=W03L)=18.14

W(VI) gl oth/un 25°C 0.15M U 1966KRa (32399) 59
K(W04+L+2H=W03L)=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(W04+2L+2H=W02L2)=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(W04+2L+2H=W02L2)=18.25

Medium: 0.1 M acetate buffer, pH 4.7

C5H9N04 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

C5H9N04 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(W04+L+2H=W03L)=18.70

W(VI) nmr oth/un 35°C 1.00M U 1966KRa (39294) 65
K(W04+L+2H=W03L)=18.6

C5H10N2O3 HL Glutamine CAS 56-85-9 (18)

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

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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
W(VI)      gl  NaCl04 25°C 0.10M U          K1=5.76  B2=10.85 1973TSe (39847) 66
                                     K3=3.20
*****
C5H10O5          L          CAS 1114-34-7 (6113)
D-Lyxose
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
W(VI)      gl  KCl    25°C 0.10M C          B(2W04+L+2H)=18.08
                                     1989VCa (40340) 67
*****
C5H12O5          L  Xylitol          CAS 87-99-0 (2139)
Xylitol; HO.CH2.HCOH.HOCH.HCOH.CH2.OH
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
W(VI)      gl  KCl    RT 0.10M M I          K(2W04+2H+L=W207L+H2O)=18.50
                                     1990VSc (41694) 68
Data for 0.01-1.0 M KCl and NaCl. In 0.01 M KCl, K=19.65.
*****
C6H204Cl2        H2L  Chloranilic acid CAS 87-88-7 (1281)
3,6-Dichloro-2,5-dihydroxy-1,4-benzoquinone;
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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
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
W(VI)      sp  NaNO3 25°C 0.10M U          K(W02+2L)=20.74
                                     1972PSb (42268) 70
*****
C6H5N04          H2L  4-Nitrocatechol CAS 3316-09-4 (890)
1,2-Dihydroxy-4-nitrobenzene; O2N.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          K(H2W04L+H2L=W02L2+2H2O)=3.15
                                     K(W04+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
*****
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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

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

W(VI) sp oth/un 20°C 0.10M U 1964PCa (43865) 75
K(WO4+2H2L=WO2L2)=6.53

Medium: 0.1 M NaHSO3

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

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(2W04+2HL+2H=(W02)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 1995CRa (46309) 81
B(111)=10.21
B(121)=17.03
B(131)=21.67
B(141)=22.82

B(pqr): pW04 + qH + rL = (W04)pHqLr

W(VI) gl NaCl 25°C 1.00M C H 1991CKa (46310) 82
B(1,1,1)=10.21
B(1,2,1)=17.03
B(1,3,1)=21.67
B(1,4,1)=22.82

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): pW04+qH+rL=W04pHqLr. 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 NaCl04 25°C 0.10M C I 2004MZA (47096) 83
Keff(W04+2H+L)=19.00
Data for 0.3-1.0M NaCl04. At I=1.0 M, Keff=19.40.

W(VI) sp NaCl04 25°C 0.5M C 1976CLa (47097) 84
K(W04+2H+L=W03L+H2O)=17.75
Method: stopped flow spectrophotometry

W(VI) gl oth/un 25°C 0.15M U 1966KRa (47098) 85
K(W04+L+2H=W03L)=18.86

W(VI) nmr oth/un 35°C 2.00M U 1966KRa (47099) 86
K(W04+L+2H=W03L)=19.1

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 NaCl04 25°C 3.0M U 1979ZLa (49284) 87
B(W04+L+2H=W03L)=19.62

 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((W04)2H2L)=17.04		
								B((W04)2H3L)=20.54		
								K((W04)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((W04)2H2L)=17.50		

M=W04

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
								K(2W04+2H+L=W205(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(2W04+2H+L=W207L+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
								K(2W04+2H+L=W205(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(H2W04L+H2L=W02L2+2H2O)=3.39		
								K(W04+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

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(H2W04L+H2L=W02L2+2H2O)=3.76		
							K(W04+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(W04+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(W04+2L+2H=W02L2)=18.15		
Medium: 0.1 M acetate buffer, pH 4.7									

C9H7N03S2		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(W205+L)=10.6		
							K(W205+2L)=19.7		

C9H7N04S		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	KN03	16°C	0.10M	U			1969GTa (64589)	105
							K(W04+L+2H=W03L)=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(H2W04L+H2L=W02L2+2H2O)=3.47		
							K(W04+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
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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((W04)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((W04)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(W04+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(W04+H5L=W03H3L)=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(W04+H3L=W03HL)=8.39

K(W04+2H3L=W03(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(W04+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