

SC-Database

Software version = 5.81 Data version = 4.62

Experiment list contains 889 experiments for  
(no ligands specified)

5 metals : V(IV), V(V), V++, V+++, VO++

(no references specified)

(no experimental details specified)

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(IV)	ISE	KNO3	37°C	0.32M	U	M			1985TMb (4439)	1
									K(VA2Cl+Cl=VA2Cl2)=2.57	

A=Cyclopentadiene

\*\*\*\*\*  
MoO4-- H2L Molybdate (443)  
Molybdate;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(IV)	sp	oth/un	25°C	2.0M	C				1994MFb (8709)	2
									K(VO+1/2Mo2O4=VOH-1MoO2+H)=1.5	

Medium: HNO3.

\*\*\*\*\*  
OH- HL Hydroxide (57)  
Hydroxide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(IV)	gl	KNO3	37°C	0.32M	U				1985TMb (10880)	3
									*K(VA2(H2O)2)=-4.73	
									*K(VA2(H2O)OH)=-5.15	

A=cyclopentadiene

\*\*\*\*\*  
VO4--- H3L CAS 15457-75-7 (1586)  
Vanadate; VO2(OH)3-- or polymers

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(IV)	sp	NaCl		0.10M	U				19640Sa (17376)	4
									K=-8.4	

K: 2HV04+V4O9+H2O=HV6O15+3OH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(IV)	sp	NaCl	45°C	1.0M	U	T			19640Sa (17377)	5
									K=71	

K: 0.7H2V10O28+3VO+7.2OH=HV10O26+3.8H2O. At rt: K(0.3H2V10O28+7VO+16.8H2O=HV10O24+8.2H2O)=143. Many other complex equilibria given

\*\*\*\*\*  
 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  
 -----  
 V(IV) sp NaClO4 20°C 0.1M U 1997KVb (18773) 6  
 K(VO+L)=7.11  
 K(VO+2L)=10.45

\*\*\*\*\*  
 C2H4O2 HL Acetic acid CAS 64-19-7 (36)  
 Ethanoic acid; CH3.COOH

-----  
 Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
 -----  
 V(IV) nmr KCl RT 1.0M C 1990TLA (19879) 7  
 K(VO4H2+2HL=VO2L2+2H2O)=1.01

Method: 51V nmr spectroscopy.

-----  
 V(IV) nmr KCl RT 1.0M C 1990TLA (19880) 8  
 Keff(VO4H2+2HL=VO2L2)=0.20

Method: 51V nmr spectroscopy. pH 5.0.

\*\*\*\*\*  
 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  
 -----  
 V(IV) sp NaClO4 20°C 0.1M U 1997KVb (24381) 9  
 K(VO+OH+L)=18.71  
 K(VO+2OH+L)=28.52

-----  
 V(IV) nmr KCl RT 1.0M C 1990TLA (24382) 10  
 Keff(VO4H2+H2L=VO2L+2H2O)=0.70

Method: 51V nmr spectroscopy. pH 5.0.

\*\*\*\*\*  
 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  
 -----  
 V(IV) gl KNO3 25°C 0.15M U T K1=5.78 B2= 8.91 1985KRa (26750) 11  
 At 35 C, K1=6.01, K2=3.83. At 45 C, K1=6.27, K2=5.06.

\*\*\*\*\*  
 C4H5O4Cl H2L CAS 16045-92-4 (2232)  
 Chlorosuccinic acid; HOOC.CH(Cl).CH2.COOH

-----  
 Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
 -----  
 V(IV) nmr KCl RT 1.0M C 1990TLA (29434) 12

Keff(V04H2+2HL=V02L2)=-0.7  
Keff(V04H2+H2L=V02L+2H2O)=1.22

Method: 51V nmr spectroscopy. pH 5.0.

\*\*\*\*\*

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  
-----

V(IV) sp NaClO4 20°C 0.1M U 1997KVb (29926) 13  
-----

V(IV) nmr KCl RT 1.0M C 1990TLA (29927) 14

Keff(V04H2+2HL=V02L2)=0.76  
Keff(V04H2+H2L=V02L+2H2O)=0.86

Method: 51V nmr spectroscopy. pH 5.0.

\*\*\*\*\*

C4H9NO4 HL CAS 17149-11-0 (8049)  
(1-Hydroxymethyl)serine;

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

V(IV) gl KNO3 25°C 0.10M M B2=12.57 1995KKb (34399) 15

B(V0H-1L2)=4.48  
B(V0H-2L2)=-4.39  
B(V0H-3L2)=-15.09

\*\*\*\*\*

C5H8O2 HL Acetylacetone CAS 123-54-6 (164)  
Pentane-2,4-dione; CH3.CO.CH2.CO.CH3

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

V(IV) sp non-aq 25°C 100% C 1983MGa (37909) 16

K(VOL2+py)=1.83  
K(VOL2+2-Me-py)=1.03  
K(VOL2+4-Me-py)=2.11  
K(VOL2+2,4-di-Me-py)=1.28

Medium: dichloromethane. Data for other di-methylpyridine analogues.

\*\*\*\*\*

C5H8O4 H2L CAS 498-21-5 (2234)  
Methylsuccinic acid; HOOC.CH2.CH(CH3).COOH

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

V(IV) nmr KCl RT 1.0M C 1990TLA (38256) 17

Keff(V04H2+2HL=V02L2)=0.96  
Keff(V04H2+H2L=V02L+2H2O)=0.15

Method: 51V nmr spectroscopy. pH 5.0.

\*\*\*\*\*

C5H8O4 H2L Glutaric acid CAS 110-94-1 (420)  
Pentanedioic acid; HOOC.CH2.CH2.CH2.COOH

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-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
V(IV)     nmr KCl      RT   1.0M C                                1990TLa (38308)  18
                                                Keff(V04H2+2HL=V02L2)=0.95
                                                Keff(V04H2+H2L=V02L+2H2O)=0.26
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Method: 51V nmr spectroscopy. pH 5.0.

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*****
C5H10O2           HL   n-Valeric acid   CAS 109-52-4 (3027)
Pentanoic acid; CH3(CH2)3.COOH
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
V(IV)     nmr KCl      RT   1.0M C                                1990TLa (40200)  19
                                                Keff(V04H2+2HL=V02L2)=0.59
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Method: 51V nmr spectroscopy. pH 5.0.

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*****
C6H9N3O2           HL   Histidine       CAS 71-00-1 (1)
2-Amino-3-(4'-imidazolyl)propanoic acid; H2N.CH(CH2.C3H3N2)COOH
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-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
V(IV)     gl  KNO3      25°C 0.15M U T      K1=9.79          1985KRa (47528)  20
At 35 C, K1=9.28. At 45 C, K1=9.04.
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*****
C6H10O4           H2L   Adipic acid     CAS 124-04-9 (401)
1,6-Hexanedioic acid; HOOC.(CH2)4.COOH
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-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
V(IV)     nmr KCl      RT   1.0M C                                1990TLa (48063)  21
                                                Keff(V04H2+2HL=V02L2)=1.04
                                                Keff(V04H2+H2L=V02L+2H2O)=0.28
```

Method: 51V nmr spectroscopy. pH 5.0.

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*****
C6H11NO5           H2L   HIMDA           CAS 93-62-9 (192)
N-(2-Hydroxyethyl)iminodiethanoic acid; HO.CH2.CH2.N(CH2.COOH)2
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-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
V(IV)     sp  NaClO4  20°C 0.1M U                                1997KVb (48686)  22
                                                K(VO+L)=9.87
                                                K(VO+OH+L)=18.23
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*****
C8H15NO8           HL                               CAS 5616-22-8 (6474)
N-(2,3,4,5,6-Pentahydroxyhexanoyl)glycine, N-D-Gluconylglycine;
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-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
V(IV)     gl  KCl      25°C 0.20M C      K1=1.75          2001GJa (62229)  23
```

B((VO)2H-2L2)=-1.37  
B((VO2)2H-3L2)=-5.57  
B((VO2)2H-4L2)=-10.17  
B((VO2)2H-5L2)=-16.67

B((VO2)2H-6L2)=-25.01, B((VO)H-4L)=-24.80, K(VO+HL=VOL+H)=-1.57.

\*\*\*\*\*

C9H11NO2 HL Phenylalanine CAS 63-91-2 (2)  
2-Amino-3-phenylpropanoic acid; H2N.CH(CH2.C6H5)COOH

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

V(IV) g1 KNO3 25°C 0.15M U T K1=7.58 1985KRa (65922) 24  
At 35 C, K1=7.24. At 45 C, K1=6.73.

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C9H12N2O6 HL Uridine CAS 58-96-8 (828)  
Uracil-1-beta-D-ribofuranoside;

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

V(IV) g1 NaCl 25°C 0.60M U 1998ECa (66691) 25

B(0,2,2,0)=7.66  
B(-1,2,2,0)=-1.09  
B(-1,1,1,0)=-7.43  
B(0,1,1,1)=3.12

B(p,q,r,s): pH+qH2VO4+rHL+sHA=Hp(H2VO4)q(HL)r(HA)s.

B(-1,1,1,1)=-6.26. A is imidazole.

\*\*\*\*\*

C9H17NO8 HL CAS 94231-90-0 (7909)  
N-(2,3,4,5,6-Pentahydroxyhexanoyl)-beta-alanine, N-D-gluconyl-beta-alanine;

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

V(IV) g1 KCl 25°C 0.20M C K1=1.91 2001GJa (67845) 26

B((VO)2H-2L2)=-1.19  
B((VO2)2H-3L2)=-5.48  
B((VO2)2H-4L2)=-10.17  
B((VO2)2H-5L2)=-16.52

B((VO2)2H-6L2)=-24.43, B((VO)H-4L)=-23.98, K(VO+HL=VOL+H)=-2.23.

\*\*\*\*\*

C9H17NO9 HL CAS 168107-24-2 (7910)  
N-(2,3,4,5,6-Pentahydroxyhexanoyl)serine, N-D-gluconyl-L-serine;

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

V(IV) g1 KCl 25°C 0.20M C K1=2.19 2001GJa (67849) 27

B((VO)2H-2L2)=-1.37  
B((VO2)2H-3L2)=-5.08  
B((VO2)2H-4L2)=-9.21  
B((VO2)2H-5L2)=-15.11

B((VO2)2H-6L2)=-22.84, B((VO)H-4L)=-23.74, K(VO+HL=VOL+H)=-0.91

\*\*\*\*\*

C15H15NO3 HL (6240)  
N-4-Tolyl-4'-methoxybenzohydroxamic acid; CH3O.C6H4.CO.N(C6H4.CH3).OH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
V(IV)	dis	NaClO4	30°C	0.20M	C		K1=5.11 B2= 9.79 B3=9.79	1980GKb (91862)	28

Method: distribution from 0.2 M NaClO4 into chloroform.

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C16H13N2O11AsS2 H6L Arsenazo I CAS 520-10-5 (277)  
2-(2'-Arsonophenylazo)chromotropic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
V(IV)	sp	oth/un	?	?	U		K(?)=12.7	1967LPa (93247)	29

\*\*\*\*\*

C19H15NO8 H4L Alizarin Comp. CAS 3952-78-1 (671)  
(3,4-Dihydroxy-2-anthraquinonyl-methyl)iminodiethanoic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
V(IV)	sp	oth/un	RT	dil	C		K1eff=4.7 B2eff=8.6	1982EDa (99128)	30

Medium: borax buffer, pH 10.

\*\*\*\*\*

e- HL Electron (442)  
Electron;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
V(V)	EMF	NaCl	25°C	0.60M	C		K(e+VO2+2H=VO++)=17.37 E=1.028 V	1985PHa (1020)	31

V(V)	cal	none	25°C	0.0	M	H		1966BDb (1021)	32
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DH(Fe(II) + VO2+ + 2H = Fe(III) + VO++ + H2O)=82.346 kJ mol-1

V(V)	EMF	none	25°C	0.0	U			1940HPa (1022)	33
------	-----	------	------	-----	---	--	--	----------------	----

K=16.90(999.6 mV)

K: VO2+2H+e=VO+H2O

\*\*\*\*\*

AsO4--- H3L Arsenate CAS 7778-39-4 (1557)  
Arsenate;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
V(V)	nmr	KCl	25°C	1.00M	U	I		1986GTa (1165)	34

K1eff=1.11

At pH 6.47: K1eff: H2VO4+H2L=H2VO3L+H2O

\*\*\*\*\*

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

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

V(V) sp NaClO4 25°C 4.00M U I 1985IKa (5937) 35  
K(VO2 + L)=-0.483

V(V) sp NaClO4 19°C 1.01M U 1966IVc (5938) 36  
K(VO2+L)=-0.38

\*\*\*\*\*

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

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

V(V) ISE NaNO3 20°C 4.00M U K1=5.34 B2=10.34 1985VRb (7320) 37  
B3=15.04

V(V) ix oth/un ? ? U 1972PAb (7321) 38  
K(VOF3+F)=3.68

V(V) sp NaClO4 20°C 1.0M U K1=3.04 B2=5.59 1969IVa (7322) 39  
B3=6.86

Metal ion: VO2+

-----  
V(V) sp NaClO4 20°C 1.0M U 1967IVa (7323) 40

K(VO2+L)=3.67  
K(VO2+2L)=6.32

\*\*\*\*\*

H2PO2- HL Hypophosphite CAS 6303-21-5 (6304)  
Hypophosphite;

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

V(V) sp NaClO4 25°C 1.00M U K1=1.22 1971CHc (7652) 41  
Medium:LiClO4, metal ion: VO2+. K1 calc. on the basis of K(H2L+H)=1.00

\*\*\*\*\*

NH2SO3- H2L Sulfamate CAS 5329-14-6 (452)  
Sulfamate;

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

V(V) sp oth/un 18°C dil U 1958SAd (8803) 42  
K(2VO3+L=V2O5L)=5.12

\*\*\*\*\*

NH3O L Hydroxylamine; CAS 5470-11-1 (1808)

Hydroxylamine; NH2.OH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
V(V)	nmr	KCl	25°C	1.0M	C		K1=2.91 K(H2VO4+H+2L)=12.95	1997PAa (9275)	43

Method: 51V nmr.

\*\*\*\*\*

NO3- HL Nitrate CAS 7697-37-2 (288)  
Nitrate;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
V(V)	sol	NaNO3	20°C	0.22M	U	I	K1=-0.07	1973IYb (10006)	44
Metal:VO2+. At I=1, K1=-0.49									

V(V)	sp	NaClO4	20°C	1.0M	U		K(VO2+L)=-0.5	1966IVb (10007)	45
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OH- HL Hydroxide (57)  
Hydroxide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
V(V)	sp	NaCl	25°C	1.00M	U	H	K(2HVO4=V2O7+H2O)=0.83 K(HVO4+OH=VO4+H2O)=0.431 K(HVO4=VO4+H)=-13.27	1991CHc (12450)	46

DH(2HVO4=V2O7+H2O)=-28 kJ mol-1, DS=-80 J K-1 mol-1;  
DH(HVO4+OH=VO4+H2O)=-32, DS=97

V(V)	gl	KNO3	20°C	0.50M	M		K(3VO3=V3O9)=7.20 K(4VO3=V4O12)=10.15	1983BSb (12451)	47
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V(V)	nmr	NaClO4	0°C	2.0M	U		*K(HVO4)=-7.1 *K(H2V2O7)=-7.2 *K(HV2O7)=-8.9 K(3HVO4+H=V3O10+2H2O)=21.1	1981HHa (12452)	48
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Method: 51V and 170 nmr. Medium: 2.0 M LiClO4. K(2HVO4=V2O7+H2O)=1.39  
K(4HVO4+4H=V4O12+4H2O)=40.0

V(V)	dis	oth/un	20°C	0.10M	U		K1=12.16 B2=23.78	1978TKa (12453)	49
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V(V)	sp	NaClO4	25°C	1.00M	U		B(10,14)=-7.63 B(10,15)=-11.57 B(10,16)=-17.40 B'(2,1)=11.69	1977BMb (12454)	50
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B'(3,3)=33.51;B'(-1,1)=-12.09; B(m,n): K(mVO2=(VO2)m(OH)n+nH  
B'(m,n): K(VO4=(VO4)m(OH)n+nH)

V(V) ix NaCl04 20°C 2.00M U K1=14.86 B2=29.52 1977LPa (12455) 51  
Metal ion: VO+++

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O2-- H2L Peroxide CAS 7772-84-1 (2813)  
Peroxide; -0.0-

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

V(V) nmr NaCl 25°C 0.15M C 2004AGa (12741) 52

B(2,1,1,1)=20.22  
B(2,1,1,2)=25.96  
B(0,1,2,1)=14.67

B(p,q,r,s): pH+q(H2VO4)+r(H2O2)+sL=(H)p(H2VO4)q(H2O2)r(L)s.

-----  
V(V) nmr NaCl 25°C 0.15M C M 2004GGb (12742) 53

B(2,2,1,1)=20.06  
B(1,2,3,1)=27.06  
B(2,2,3,1)=32.59  
B(2,2,2,1)=29.43

51V nmr. B(p,q,r,s): pH+q(H2VO4)+rH2O2+sL=(H)p(H2VO4)q(H2O2)r(L)s.

B(2,1,1,1)=19.56, B(0,1,2,1)=11.87, B(1,1,2,1)=17.21.

-----  
V(V) gl NaCl 25°C 0.15M C 2001SAb (12743) 54

B(0,1,1,1)=7.68  
B(1,1,1,1)=14.80  
B(-1,1,2,1)=6.29  
B(0,1,2,1)=14.48

Additional method: 51V nmr. HA is alanyl-histidine.

B(p,q,r,s): pH+qH2VO+rH2O2+sHA=Hp(H2VO4)q(H2O2)r(HA)s

-----  
V(V) gl NaCl 25°C 0.15M C 2000AAb (12744) 55

B(-1,1,1)=-2.27  
B(-1,1,2)=3.61  
B(0,1,2)=11.28  
B(-1,1,3)=5.14

Additional method: 51V nmr. B(p,q,r): pH+qH2VO4+rH2L=Hp(H2O4)q(H2L)r

B(-1,2,4)=16.48, B(2,2,3)=23.73, B(-1,2,1)=-0.34, B(-1,2,2)=5.33

-----  
V(V) gl NaCl 25°C 0.15M C M 2000SAC (12745) 56

B(0,1,1,1)=7.69  
B(1,1,1,1)=14.82  
B(-1,1,2,1)=6.24  
B(0,1,2,1)=14.50

Additional method: 51V nmr.

B(p,q,r,s): pH+qH2VO4+rH2O2+sHL=(H)p(H2VO4)q(H2O2)r(HL)s

-----  
V(V) nmr KCl 22°C 1.00M U 1993TJa (12746) 57

$K(2VO_3(O_2)_2=(VO_3)_2(O_2)_4)=1.52$   
 $*K(VO_3(H_2O_2))=-7.38$

-----  
V(V) sp NaClO4 23°C 1.0M U 19670Wa (12747) 58  
 $K(VOL+H_2L=VOL_2+2H)=2.15 ?$   
-----

V(V) sp oth/un ? var U 1966BVc (12748) 59  
 $K(VO_2HL+H)=0.4$   
 $K(VO_2+HL)=15.92$   
-----

V(V) kin oth/un 65°C var U T 1965BYb (12749) 60  
 $K(VO_3+H_2L=VO_2L+H_2O)=7.18$   
 $K=5.88(45 C); 6.74(55 C)$   
-----

V(V) sp oth/un 24°C var U 1963FLa (12750) 61  
 $K(H_2VO_3L+2H)=7.8$   
 $K(HVO_3L+H)=6.5$   
-----

V(V) sp NaClO4 22°C 1.0M U I 1961DEc (12751) 62  
 $K(VO_2+H_2L=VOL(red)+H_2O)=4.53$   
Medium: HClO4. In 0.5 M H2SO4 K=4.50. Data also for formation of a yellow anionic complex  
-----

V(V) gl NaCl ? 1.0M U I 1960CHb (12752) 63  
 $K(VOL_2+HVO_2L_2=HV_2O_3L_4)=2.30$   
 $K(HVO_2L_2+H=VOL_2+H_2O)=7.15$   
 $K(HVO_2L_2+H_2L=HVOL_3+H_2O)=1.68$   
In 4 M NaClO4, 0 C:  $K(HVOL_3+HL=VL_4+H_2O)=0.45$ ,  $K(VOL_3+HL=VL_4+OH)=-1.60$   
-----

V(V) sp oth/un 20°C dil U 1956TSc (12753) 64  
 $K(V(V)+H_2L)=4.11$   
-----

V(V) sp oth/un ? var U 1952BVa (12754) 65  
 $K(V(V)+H_2L)=4.52$   
-----

V(V) sp oth/un 20°C 20% U 1948STa (12755) 66  
 $K(V(V)+H_2L)=4.91$   
-----

V(V) sp oth/un 20°C var U 1937RUa (12756) 67  
 $K(V(V)+H_2L)=3.63$   
-----

\*\*\*\*\*

PO4--- H3L Phosphate CAS 7664-38-2 (176)  
Phosphate;  
-----

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

V(V) nmr KCl 25°C 1.00M U I 1986GTa (13376) 68  
 $K_{1eff}=1.40$   
-----

At pH 6.69.  $K_{1eff}: H_2VO_4+H_2L=H_2VO_3L+H_2O$   
-----

V(V) sp NaClO4 25°C 1.00M U 1974IKb (13377) 69  
 K(VO2+H2L)=1.37  
 K(VO2+HL)=5.20  
 K(VO2+2HL)=8.20

\*\*\*\*\*  
 P207---- H4L Pyrophosphate CAS 2466-09-3 (198)  
 Diphosphate; from (HO)2PO.O.PO(OH)2

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

V(V) nmr KCl 25°C 1.00M U 1986GTa (13668) 70  
 K1eff=1.59

At pH 7.98: K1eff: H2VO4+HL=HVO3L+H2O

-----  
 V(V) sp NaClO4 ? 1.00M U 1972LGb (13669) 71  
 K(VO+HL)=6.52  
 K(VO+H2L)=3.30  
 K(VO+2H2L)=6.41

\*\*\*\*\*  
 P3010----- H5L CAS 10380-08-2 (1001)  
 Tripolyphosphate; from (HO)2PO.O.PO(OH).O.PO(OH)2

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

V(V) sp NaClO4 25°C 1.00M U 1984IKa (13916) 72  
 K(VO2+H2P3010)=4.60  
 K(VO2+HP3010)=8.13  
 K(VO2+2(HP3010))=12.9

\*\*\*\*\*  
 S04-- H2L Sulfate CAS 7664-93-9 (15)  
 Sulfate;

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

V(V) sp NaClO4 22°C 5.80M U 1978FHa (16656) 73  
 K(VO2+S04)=0.84  
 B(VO2+2S04+H)=1.22

-----  
 V(V) sol NaClO4 20°C 1.0M U 1973IYb (16657) 74  
 K(VO2+L)=0.95

-----  
 V(V) con non-aq 25°C 100% U 1966GKa (16658) 75  
 K(VO(HL)4+H)=-2.1

Method: also freezing point. Medium:H2S04, m units

-----  
 V(V) sp NaClO4 19°C 1.01M U 1966IVc (16659) 76  
 K1=0.97  
 \*K1=-0.14

Metal:VO2+

\*\*\*\*\*  
 W04-- H2L Tungstate CAS 13783-36-3 (445)

Tungstate;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) gl NaCl 25°C 0.60M C 1996AHa (17448) 77  
B(6,4,2)=56.67 (cis isomer)  
B(7,4,2)=58.90 (cis isomer)  
B(6,4,2)=54.75 (trans isomer)  
\*K(trans-HW4V2019)=-2.5  
B(p,q,r): pH+q(WO4)+r(H2VO4)=Hp(WO4)q(H2VO4)r. B(6,1,9)=65.52, B(7,1,9)=65.7  
-----

V(V) gl NaCl 25°C 0.60M C 1996AHa (17449) 78  
B(4,3,3)=41.56 (fac isomer)  
B(5,3,3)=48.55 (fac isomer)  
B(4,3,3)=40.60 (mer isomer)  
B(5,3,3)=48.59 (mer isomer)  
B(p,q,r): pH+q(WO4)+r(H2VO4)=Hp(WO4)q(H2VO4)r.  
-----

V(V) gl NaCl 25°C 1.00M U M 1981AIa (17450) 79  
K(V3W3019)=33.95  
K(HV3W3019)=41.82  
Equations: 0.75V4O12+3WO4+4H=V3W3019+2H2O  
0.75V4O12+3WO4+5H=HV3W3019+2H2O.  
-----

V(V) gl NaCl 25°C 1.00M U M 1981IAa (17451) 80  
K(V2W4019)=51.06  
Equation: V4O12/2+4WO4+6H=V2W4019+3H2O  
-----

V(V) sp NaCl 25°C 0.50M U 1960CHb (17452) 81  
K(V2W4019+H)=2.8  
\*\*\*\*\*  
CH4O L Methyl alcohol CAS 67-56-1 (597)  
Methanol; CH3.OH  
-----

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) nmr alc/w ? 100% U M 1993CCc (17910) 82  
K(VOA+L)=-0.770  
K(VOAL+2L=VO(H-1L)3+H3A)=-4.22  
K(VOBL+2L=VO(H-1L)3+H3B)=-5  
K(VOB+L)=-1.44  
Method:NMR. Medium: MeOH. H3A:Triethanolamine.  
H3B:Tri(2-propanol)amine. Also data for L=i-PrOH and t-BuOH.  
\*\*\*\*\*

CH5NO L CAS 593-77-1 (7603)  
N-Methylhydroxylamine;  
-----

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) nmr KCl 25°C 1.0M C K1=3.53 1997PAa (18034) 83  
-----

$$K(H_2VO_4+H+2L)=13.43$$

Method: 51V nmr.

\*\*\*\*\*

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
V(V)	nmr	KCl	21°C	1.0M	C				1987TGc (19134)	84
									K(H <sub>2</sub> VO <sub>4</sub> +H+L=H <sub>3</sub> VO <sub>4</sub> L)=8.15	
									K(H <sub>3</sub> VO <sub>4</sub> L+H+L=VO <sub>2</sub> L <sub>2</sub> +2H <sub>2</sub> O)=9.26	

Method: 51V nmr.

V(V)	gl	NaCl	25°C	0.60M	C				1986EAb (19135)	85
									K(2H+H <sub>2</sub> VO <sub>4</sub> +2L)=17.11	
									K(2H+H <sub>2</sub> VO <sub>4</sub> +L)=13.07	

V(V)	gl	KNO3	20°C	0.50M	M				1983BSb (19136)	86
									K(VO <sub>3</sub> +2H+2L=VO <sub>2</sub> L <sub>2</sub> +H <sub>2</sub> O)=17.42	
									K(VO <sub>3</sub> +H+L=VO <sub>2</sub> (OH)L)=8.58	

V(V)	sp	none	20°C	0.00	U		K1=6.49	B2=9.99	1969VIa (19137)	87
Metal ion: VO <sub>2</sub> <sup>+</sup>										

V(V)	sp	NaClO <sub>4</sub>	20°C	1.00M	U		K1=5.08		1966IVa (19138)	88
Metal ion: VO <sub>2</sub> <sup>+</sup>										

V(V)	sp	NaCl	25°C	1.00M	U		K1=2.32	B2=0.04	1964NNa (19139)	89
Metal ion: VO <sub>2</sub> <sup>+</sup>										

V(V)	dis	NaClO <sub>4</sub>	20°C	0.10M	U		K1=6.4	B2=9.0	1963STc (19140)	90
Metal: VO <sub>2</sub> <sup>+</sup> . Medium: KClO <sub>4</sub>										

\*\*\*\*\*

C2H4O2                      HL      Acetic acid              CAS 64-19-7    (36)  
 Ethanoic acid; CH<sub>3</sub>.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(V)	sp	NaClO <sub>4</sub>	20°C	1.00M	U		K1=2.28		1966IVa (20223)	91
Metal ion: VO <sub>2</sub> <sup>+</sup>										

\*\*\*\*\*

C2H4O3                      HL      Glycolic acid              CAS 79-14-1    (33)  
 2-Hydroxyethanoic acid; HO.CH<sub>2</sub>.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(V)	gl	NaCl	25°C	1.00M	C				1975VIa (20650)	92
									K(V <sub>4</sub> O <sub>12</sub> +2L+2H=V <sub>4</sub> O <sub>11</sub> L <sub>2</sub> )=14.3	
									K(0.5V <sub>4</sub> O <sub>12</sub> +2L+2H=V <sub>2</sub> O <sub>5</sub> L <sub>2</sub> )=13	

\*\*\*\*\*

C2H5NO2 HL Glycine CAS 56-40-6 (85)  
 2-Aminoethanoic acid; H2N.CH2.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(V)	sp	alc/w	25°C	0.20M	C			K1=9.828	2005MMa (21748)	93
Medium: 0.2 mol/L NaClO4 in 0.979 mol parts EtOH in H2O For 0.749 mol parts K1=10.555										
V(V)	gl	NaCl	25°C	0.2M	C			K1=10.48	1996KBb (21749)	94
Also K1=11.06 (I=0.4), K1=10.90 (I=0.6), K1=10.48 (I=0.8)										
V(V)	gl	NaCl	25°C	0.20M	C	I		K1=10.48	1996KBb (21750)	95
K1=11.06 (I=0.4), K1=10.90 (I=0.6), K1=10.49 (I=0.8). Additional method: spectrophotometry.										
V(V)	gl	NaClO4	25°C	1.00M	C			K1=11.55 B2=19.71	1994LSa (21751)	96
V(V)	nmr	KCl	22°C	1.00M	U				1993TJa (21752)	97
Keff(VO3(O2)+2L)=0.94										

Measured at pH 8.5

\*\*\*\*\*

C2H5NO2 HL Acetohydroxamic CAS 546-88-3 (2766)  
 Acetohydroxamic acid, N-Hydroxyacetamide; CH3.CO.NHOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(V)	sp	oth/un	25°C	0.02M	C				2002BPa (21818)	98
K1eff=3.32 K2eff=2.63										

Medium: 0.02 M MOPS, pH 7.50.

V(V)	gl	NaCl	25°C	0.15M	C				1997YPa (21819)	99
B(1,1,1)=7.54 B(0,1,1)=2.70 B(-1,1,1)=-5.66 B(1,1,2)=8.95										

B(p,q,r): pH+q(H2VO4)+rHL = Hp(H2VO4)q(HL)r. B(0,1,2)=5.40,  
 B(-1,1,2)=-3.8. Additional methods: spectrophotometry, NMR.

\*\*\*\*\*

C2H6N2O L Glycinamide CAS 598-41-4 (60)  
 2-Aminoethanoic acid amide; H2N.CH2.CO.NH2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(V)	nmr	KCl	22°C	1.00M	U				1993TJa (21956)	100
K(VO3(H2O)2+L)=-0.19										

\*\*\*\*\*

C2H6O L Ethanol CAS 64-17-5 (1913)  
 Ethanol; CH3.CH2.OH

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-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
V(V)      nmr alc/w    ? 100% U    M                      1993CCc (22031) 101
                      K(VOA+L)=-0.569
                      K(VOAL+2L=VO(H-1L)3+H3A)=-2.40
                      K(VOB+L)=-1.24
                      K(VOBL+2L=VO(H-1L)3+H3B)=-4.22
Method:NMR. Medium: EtOH. H3A:triethanolamine, H3B=tri(2-propyl)amine
*****
C2H7NO          L                      CAS 5725-96-2 (7602)
N,N-Dimethylhydroxylamine;
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
V(V)      nmr KCl     25°C 1.0M C                      1997PAa (22419) 102
                      K1eff=2.86
                      B2eff=6.91
Method: 51V nmr. Keff for pH 6.7.
*****
C3H4N2          L    Imidazole          CAS 288-32-4 (90)
1,3-Diazole, imidazole; C3H4N2
-----

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-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
V(V)      gl  NaCl     25°C 0.15M C    M                      2000AAb (23929) 103
                      B(0,1,1,1)=7.31
                      B(0,12,1)=14.84
                      B(-1,2,4,1)=19.27
B(p,q,r,s): pH+qH2VO4+rH2O2+sHL=Hp(H2O4)q(H2O2)r(HL)s
Additional method: 51V nmr.
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-----
V(V)      nmr KCl     22°C 1.00M U                      1993TJa (23930) 104
                      K(VO3(O2)2+L)=2.61
*****
C3H7NO2          HL    Alanine          CAS 56-41-7 (86)
2-Aminopropanoic acid; H2N.CH(CH3).COOH
-----

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-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
V(V)      gl  NaClO4  25°C 0.10M C                      K1=10.56 B2=19.55 2003GFb (26291) 105
-----
V(V)      nmr KCl     22°C 1.00M U                      1993TJa (26292) 106
                      K(VO3(O2)2+L)=0.04
                      K(VO3(O2)2L+L)=-0.045
*****
C3H7NO3          HL    Serine          CAS 56-45-1 (49)
2-Amino-3-hydroxypropanoic acid; H2N.CH(CH2.OH)COOH
-----

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

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-----  
V(V) sp NaClO4 25°C 1.00M U K1=9.20 1995KGa (27194) 107  
K(V02L+H)=0.90

\*\*\*\*\*  
C3H8N2O2 HL (6666)  
beta-Alaninehydroxamic acid; NH2.CH2.CH2.CO.NHOH  
-----

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

V(V) gl NaClO4 25°C 0.10M C K1=14.2 B2=18.15 1999YPa (27609) 108  
B(V02HL)=18.72  
B(V02H-1L)=6.95  
B(V02H-2L)=-3.17  
B(V02H3L2)=37.5

Additional method: 51V nmr. B(V02H2L2)=34.96, B(V02HL2)=27.78  
\*\*\*\*\*  
C3H12N09P3 H6L NTPA CAS 6419-19-8 (2920)  
Nitrilotris(methylenephosphonic acid); N(CH2PO3H2)3  
-----

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

V(V) sp oth/un 20°C 1.00M U 1982SPb (28594) 109  
K(V02+H2L)=12.6

\*\*\*\*\*  
C4H6N2 L N-Me-Imidazole CAS 616-47-7 (354)  
N-Methyl-1,3-diazole; C3H3N2.CH3  
-----

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

V(V) nmr KCl 22°C 1.00M U 1993TJa (29609) 110  
K(V03(O2)2+L)=2.57

\*\*\*\*\*  
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  
-----

V(V) gl KNO3 20°C 0.50M M 1983BSb (31389) 111  
K(4V03+4H+2L=V408(H-2L)2)=39.7  
K(2V03+H+L=HV205(H-2L))=11.82

-----  
V(V) sp oth/un 25°C ? U 1963GMa (31390) 112  
K(2HV03+H2L)=4.9 ?

\*\*\*\*\*  
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  
-----

V(V) gl NaClO4 25°C 3.0M U K1=11.7 B2=22.2 1979ZLa (32391) 113



\*\*\*\*\*  
 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  
 -----  
 V(V) sp NaCl04 25°C 0.15M U 2001GMb (32741) 114  
 K(V02+L)=9.47  
 K(V02+2L)=14.57

\*\*\*\*\*  
 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  
 -----  
 V(V) nmr NaCl 25°C 1.0M C 2001HBa (33535) 115  
 Keff(H2V04+L)=1.41  
 Keff(2H2V04+2L)=6.66  
 Keff(3H2V04+2L)=10.2  
 \*K(H2V04L)=-6.2

Method: 51V NMR spectroscopy. Medium pH: 7.06 (HEPES buffer).

\*\*\*\*\*  
 C4H9NO3 HL Threonine CAS 72-19-5 (48)  
 2-Amino-3-hydroxybutanoic acid; H2N.CH(CH(OH).CH3)COOH

-----  
 Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
 -----  
 V(V) sp NaCl04 25°C 1.00M U K1=10.29 1995KGa (34337) 116  
 K(V02L+H)=1.17

\*\*\*\*\*  
 C4H9N3O3 H2L CAS 36212-68-7 (2042)  
 2-Aminobutanedioic acid-4-hydrazide; HOOC.CH(NH2).CH2.CO.NH.NH2

-----  
 Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
 -----  
 V(V) sp NaCl04 20°C 2.00M U 1977MSb (34424) 117  
 K(V02+H2L)=2.06

\*\*\*\*\*  
 C4H10O3 L CAS 111-46-6 (3579)  
 2,2'-Oxydiethanol; (HO.CH2.CH2)2.0 (Diethylene glycol)

-----  
 Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
 -----  
 V(V) nmr KCl 25°C 0.40M U 1988CSb (34704) 118  
 K(H2V04+L)=0.08

\*\*\*\*\*  
 C4H11NO2 L Diethanolamine CAS 111-42-2 (89)  
 2,2'-Iminodiethanol; HN(CH2.CH2.OH)2

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

-----  
V(V) nmr KCl RT 0.40M C H 1998CBc (34963) 119  
K(H2V04+L=V02H-2L+2H2O)=2.71  
Method: 51V and 1H nmr. DH(K)=-21.2 kJ mol<sup>-1</sup>, DS(K)=-13.5 J K<sup>-1</sup> mol<sup>-1</sup>.  
-----

V(V) gl NaCl 25°C 0.60M M 1991CEa (34964) 120  
K(H2V04+L)=3.02  
-----

V(V) nmr KCl 25°C 0.40M U 1988CSb (34965) 121  
K(H2V04+HL=H2V04L+H)=-6.17  
K(HV04+HL)=2.04  
K(H2V04+L)=2.71  
K(HV04+L=V03L+OH)=-3.06  
-----

\*\*\*\*\*  
C4H11N08P2 H5L CAS 2439-99-8 (2129)  
N-Carboxymethyl-N,N-bis(methylenephosphonic acid); HOOC.CH2.N(CH2.PO3H2)2  
-----

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(V)	sp	oth/un	20°C	1.00M	U				1982SPb (35116)	122
									K(V02+HL)=13.24	

-----

\*\*\*\*\*  
C5H5NO HL 2-Pyridinol CAS 142-08-5 (1890)  
2-Hydroxypyridine, Pyridin-2-one;  
-----

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(V)	nmr	KCl	25°C	0.01M	U				1989GTa (36696)	123
									Keff(V+HL=VL+H)=-0.05	

-----

At pH 7.0. V=H2V04  
-----

\*\*\*\*\*  
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
V(V)	sp	NaCl04	25°C	1.00M	U			K1=11.89 B2=15.99	1997GAa (39141)	124

-----

\*\*\*\*\*  
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
V(V)	gl	NaCl04	25°C	1.00M	U T H			K1=10.16	1976YNa (39290)	125
									K(V02(H2O)=V02(OH)+H)=-6.13	
									K(V02LOH+H2O=HV04+L+2H)=-19.7	
									K(V02L+2H2O=HV04+L+3H)=-25.9	

-----

V(V) as V02+. Data also at 15 and 35 C  
DH=-25.0 kJ mol<sup>-1</sup> and DS=117 J mol<sup>-1</sup> K<sup>-1</sup>.  
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C5H10N07P H4L PMID A CAS 5994-61-6 (2433)  
 N-(Phosphonomethyl)iminodiethanoic acid; H2O3P.CH2.N(CH2.COOH)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(V)	gl	KCl	25°C	0.20M	C				1999CJa (39687)	126
								B(5,1,1)=35.93	(V02H2L)	
								B(4,1,1)=34.77	(V02HL)	
								B(3,1,1)=31.03	(V02L)	

B(p,q,r): pHV04+qL+rH=(HV04)pLqHr.

Additional methods: 1H, 13C, 31P, 17O, 51V nmr.

\*\*\*\*\*

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
V(V)	sp	NaCl04	25°C	0.1M	C	I		K1=9.91 B2=17.01	2003GAa (39842)	127

V(V)	sp	NaCl04	25°C	0.15M	U				2001GMb (39843)	128
								K(V02+L)=9.54		
								K(V02+2L)=14.81		

V(V)	sp	NaCl04	25°C	1.00M	U			K1=8.70 B2=11.98	1997GAa (39844)	129
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C5H10N2O3 HL Ala-Gly CAS 687-69-4 (55)  
 Alanyl-glycine; H2N.CH(CH3).CO.NH.CH2.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(V)	gl	NaCl04	25°C	0.10M	C			K1=9.85	2003GFb (39894)	130
								B(V02HL)=4.60		

V(V)	gl	NaCl	25°C	0.60M	C				1997FEa (39895)	131
								B(0,1,1)=1.715		
								B(0,2,2)=5.76		
								B(0,1,2)=2.86		
								B(0,2,1)=4.66		

B(p,q,r): pH+qH2V04+rHL=Hp(H2V04)q(HL)r

\*\*\*\*\*

C5H11N02 HL Valine CAS 72-18-4 (43)  
 2-Amino-3-methylbutanoic acid; H2N.CH(CH(CH3)2)COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(V)	gl	NaCl	25°C	0.10M	U	TIH		K1=7.30 B2=10.08	2002GNa (40770)	132

Cation V02+; For 15 C K1=7.61; B2=9.21; for 35 C K1=7.80; B2=11.01

For 45 C K1=8.30; B2=11.91; Also data for I=0.3; 0.5; 0.7 and 1.0



C6H5NO2 HL Picolinic acid CAS 98-98-6 (391)  
2-Pyridine-carboxylic acid; C5H4N.COOH

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

V(V) nmr NaCl 25°C 0.15M C 2004AGa (42614) 139

B(1,1,1)=9.31  
B(2,1,1)=14.06  
B(2,1,2)=18.92

B(p,q,r): pH+q(H2VO4)+rL=(H)p(H2VO4)q(L)r. Isomers detected for MHL  
and MH2L2. Ternary complexes with H2O2 reported.

\*\*\*\*\*

C6H5NO3 H2L CAS 609-71-2 (5910)  
2-Hydroxypyridine-3-carboxylic acid;

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

V(V) nmr KCl 25°C 0.50M U 1989GTa (42725) 140

Keff(V+HL=VL+H)=-0.24  
Keff(VL+HL=VL2+H)=1.23

At pH 7.0. V=H2VO4

\*\*\*\*\*

C6H5NO3 H2L CAS 874-24-8 (4356)  
3-Hydroxypyridine-2-carboxylic acid; C5H3N.(OH)(COOH)

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

V(V) nmr KCl 25°C 0.01M U 1989GTa (42755) 141

Keff(V+HL=VL+H)=2.76  
Keff(VL+HL=VL2+H)=2.64

At pH 7.0. V=H2VO4

\*\*\*\*\*

C6H5NO2 HL 4-Nitrophenol CAS 100-02-7 (454)  
4-Nitrohydroxybenzene; HO.C6H4.NO2

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

V(V) nmr mixed 25°C 42% C 1988GTa (42819) 142

K(H2VO4+HL)=0.52

Medium: 42% acetone

\*\*\*\*\*

C6H5OCl HL 2-Chlorophenol CAS 95-57-8 (3671)  
2-Chlorophenol; HO.C6H4.Cl

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

V(V) nmr mixed 25°C 42% C 1988GTa (43032) 143

K(H2VO4+HL)=0.41  
K(H3VO4L+HL)=0.46

Medium: 42% acetone

\*\*\*\*\*  
 C6H5OCl HL 3-Chlorophenol CAS 108-43-0 (3672)  
 3-Chlorophenol; HO.C6H4.Cl

-----  
 Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
 -----  
 V(V) nmr mixed 25°C 42% C 1988GTa (43042) 144  
 K(H2VO4+HL)=0.43

Medium: 42% acetone

\*\*\*\*\*  
 C6H6O HL Phenol CAS 108-95-2 (457)  
 Hydroxybenzene, phenol; C6H5.OH

-----  
 Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
 -----  
 V(V) nmr KCl 22°C 1.0M M M 1993JTa (43548) 145  
 K(V(peroxo)+HL=VL+H)=-5.21

V is peroxovanadate. Method:NMR. K(V(diperoxo)+L=VL+H)=-6.22

-----  
 V(V) nmr mixed 25°C 42% C 1988GTa (43549) 146  
 K(H2VO4+HL)=0.25  
 K(H3VO4L+HL)=0.04

Medium: 42% acetone. Data also for complexes of other substituted phenols

\*\*\*\*\*  
 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  
 -----  
 V(V) kin NaClO4 25°C 1.00M M 1974KLa (43860) 147  
 Keff(VO2+H2L)=2.64

Medium: 0.2 - 1 M HClO4

\*\*\*\*\*  
 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  
 -----  
 V(V) sp oth/un 23°C 85% U 1981BMe (43993) 148  
 K(V(V)+2H3L)=2.96

Medium: 96% H2SO4. In 85%: K(V(V)+H3L)=2.6

-----  
 V(V) kin NaClO4 25°C 1.00M M 1974KLa (43994) 149  
 Keff(VO2+H2L)=3.72

Medium: 0.2 - 1 M HClO4

\*\*\*\*\*  
 C6H6O3 H3L CAS 533-73-3 (1734)  
 1,2,4-Trihydroxybenzene; C6H3(OH)3

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

V(V) kin NaClO4 25°C 1.00M M 1974KLa (44005) 150  
Keff(VO2+H2L)=3.96

Medium: 0.2 - 1 M HClO4

\*\*\*\*\*

C6H6O3 HL Maltol CAS 118-71-8 (2442)  
3-Hydroxy-2-methyl-4H-pyran-4-one;

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

V(V) gl NaCl 25°C 0.15M C 1996EBa (44104) 151

B(0,1,1)=2.66  
B(0,1,2)=7.02  
B(-1,1,1)=-7.37

B(p,q,r): pH+qH2VO4+rHL=Hp(H2VO4)q(HL)r

V(V) gl NaCl 25°C 0.15M U K1=7.5 B2=13.70 1995CGc (44105) 152

Metal ion: VO2+

V(V) gl KNO3 20°C 0.50M M M 1983BSb (44106) 153

K(VO3+2HL=VO2L2+H2O)=7.31  
K(VO3+H+HL+A=VO2LA+H2O)=12.67

H2A is oxalic acid.

\*\*\*\*\*

C6H6O3 HL Allomaltol CAS 644-46-2 (2688)  
5-Hydroxy-2-methyl-4H-pyran-4-one;

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

V(V) gl NaCl 25°C 0.16M C K1=9.55 B2=16.86 2002SSb (44129) 154

\*\*\*\*\*

C6H6O8S2 H4L Tiron CAS 149-45-1 (104)  
4,5-Dihydroxybenzene-1,3-disulfonic acid; (HO)2.C6H2(SO3H)2

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

V(V) sp oth/un 22°C 0.10M U 1969BFa (44510) 155

K(VO2+H2L=VOL+H2O)=1.15

Medium: NaSO4, pH=1

\*\*\*\*\*

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  
-----

V(V) nmr NaCl 25°C 0.15M C M 2004GGb (46305) 156

B(2,1,1)=14.19  
B(3,1,1)=18.25  
B(1,2,1)=12.58  
B(2,2,1)=20.06

51V nmr. B(p,q,r):  $pH+q(H_2VO_4)+rL=(H)p(H_2VO_4)q(L)r$ . B(3,2,1)=25.16, B(6,2,2)=40.69. Ternary complexes with H<sub>2</sub>O<sub>2</sub> and lactic acid also reported

-----  
 V(V) nmr NaCl 25°C 0.60M C 1989EAa (46306) 157  
 K(2(H<sub>2</sub>VO<sub>4</sub>)+H+L)=12.84  
 K(2(H<sub>2</sub>VO<sub>4</sub>)+2H+L)=19.68  
 K(3H+2(H<sub>2</sub>VO<sub>4</sub>)+L)=24.12  
 K(3H+H<sub>2</sub>VO<sub>4</sub>+L)=18.1

\*\*\*\*\*  
 C6H9NO6 H3L NTA CAS 139-13-9 (191)  
 Nitriлотriethanoic acid; N(CH<sub>2</sub>.COOH)<sub>3</sub>

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

-----  
 V(V) kin NaClO<sub>4</sub> 25°C 3.00M U T 1984LAa (47081) 158  
 K(VO<sub>2</sub>L+H) < 0.0

Data at 10 to 40C

-----  
 V(V) sp NaClO<sub>4</sub> 25°C 3.00M C 1978LLa (47082) 159  
 K(VO<sub>2</sub>+L)=13.8

-----  
 V(V) gl NaClO<sub>4</sub> 25°C 1.00M U T H T K<sub>1</sub>=13.8 1976YNa (47083) 160  
 K(VO<sub>2</sub>L+2H<sub>2</sub>O=HVO<sub>4</sub>+L+3H)=-28.3

V(V) as VO<sub>2</sub>+. Data also at 15 and 35 C  
 DH(K<sub>1</sub>)=0 kJ mol<sup>-1</sup> and DS(K<sub>1</sub>)=263 J mol<sup>-1</sup> K<sup>-1</sup>.

-----  
 V(V) gl NaClO<sub>4</sub> 25°C 3.00M C 1975LLb (47084) 161  
 K(VO<sub>2</sub>+H<sub>3</sub>L=VO<sub>2</sub>L+3H)=-0.07

By spectrophotometry: 270nm: K=-0.03; 300nm: K=-0.11. Kinetics also studied.  
 \*\*\*\*\*

C6H9N3O2 HL Histidine CAS 71-00-1 (1)  
 2-Amino-3-(4'-imidazolyl)propanoic acid; H<sub>2</sub>N.CH(CH<sub>2</sub>.C<sub>3</sub>H<sub>3</sub>N<sub>2</sub>)COOH

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

-----  
 V(V) nmr KCl 22°C 1.00M U 1993TJa (47625) 162  
 K(VO<sub>3</sub>(O<sub>2</sub>)<sub>2</sub>+L)=2.36

\*\*\*\*\*  
 C6H10O8 H2L Mucic acid CAS 526-99-8 (3650)  
 2,3,4,5-Tetrahydroxyhexanedioic acid, Galactaric acid; HOOC.(CHOH)<sub>4</sub>.COOH

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

-----  
 V(V) gl KCl 25°C 0.20M C 2004DGa (48440) 163  
 B(1,1,4)=22.51  
 B(1,1,2)=16.17  
 B(1,1,1)=10.13  
 B(2,1,4)=32.46

B(p,q,r):  $p(HVO_4)+qL+rH=(VO_2)p(L)q(H)r+2p(H_2O)$ . B(2,1,3)=28.05  
 B(2,2,6)=42.79, B(2,2,5)=39.54, B(2,2,4)=35.35, B(3,2,5)=46.5



\*\*\*\*\*  
 C6H10O8 H2L Saccharic acid CAS 87-73-0 (1191)  
 D-2,3,4,5-Tetrahydroxy-1,6-hexanedioic acid, Glucaric acid; HOOC.(CHOH)4.COOH

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

V(V) gl KCl 25°C 0.20M C 2004DGa (48489) 164  
 B(1,1,4)=22.52  
 B(1,1,2)=16.11  
 B(1,1,1)=10.24  
 B(2,1,4)=33.69

B(p,q,r): p(HVO4)+qL+rH=(VO2)p(L)q(H)r+2p(H2O). B(2,1,3)=29.01  
 B(2,2,6)=43.14, B(2,2,5)=39.50, B(2,2,4)=35.20, B(3,2,5)=48.1

\*\*\*\*\*

C6H11NO5 H2L HIMDA CAS 93-62-9 (192)  
 N-(2-Hydroxyethyl)iminodiethanoic acid; HO.CH2.CH2.N(CH2.COOH)2

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

V(V) sp oth/un 25°C 1.00M U K1=11.86 1987TKa (48808) 165

\*\*\*\*\*

C6H12N2O3 HL Ala-Ala CAS 1948-31-8 (53)  
 Alanyl-alanine; H2N.CH(CH3).CO.NH.CH(CH3).COOH

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

V(V) gl NaClO4 25°C 0.10M C K1=9.93 2003GFb (49108) 166  
 B(VO2HL)=4.66

\*\*\*\*\*

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  
 -----

V(V) kin NaClO4 25°C 3.00M U T K(VO2L+H)=0.72 1984LAa (49280) 167

Also data at 15 and 35 C

-----  
 V(V) gl NaClO4 25°C 3.0M U K1=15.98 1979ZLa (49281) 168  
 -----

V(V) gl NaClO4 25°C 1.00M U T H K1=14.5 1976YNa (49282) 169  
 K(VO2L+2H2O=HVO4+L+3H)=-29.7

V(V) as VO2+. Data also at 15 and 35 C  
 DH(K1)=-59.0 kJ mol<sup>-1</sup> and DS=79.0 J mol<sup>-1</sup> K<sup>-1</sup>.

\*\*\*\*\*

C6H12O2 L CAS 1792-81-0 (3657)  
 cis-1,2-Cyclohexanediol; C6H10(OH)2

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

V(V) nmr KCl 25°C 1.0M U 1988TGa (49431) 170

Keff(V+L)=-0.17

Keff(VL+L)=-0.62

At pH 7.5. V=H2V04. Data are for trans-L, for cis isomer: Keff(V+L)=-0.62

\*\*\*\*\*

C6H12O3 HL DiEtGlycolic CAS 3639-21-2 (421)

2-Ethyl-2-hydroxybutanoic acid; (C2H5)2.C(OH).COOH

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

V(V) nmr NaCl 25°C 1.0M U 2001HBa (49467) 171

Keff(H2V04+L)=1.30

Keff(2H2V04+2L)=6.52

Keff(3H2V04+2L)=11.43

\*K(H2V04L)=-6.6

Method: 51V NMR spectroscopy. Medium pH: 7.1 (HEPES buffer).

\*\*\*\*\*

C6H13NO2 HL Isoleucine CAS 73-32-5 (424)

2-Amino-3-methylpentanoic acid; CH3.CH2.CH(CH3).CH(NH2).COOH

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

V(V) sp NaClO4 25°C 0.20M C I K1=8.61 B2=13.88 2000GFa (49919) 172

Data for 0.2-0.8 M NaClO4. For I=0.4 M, K1=8.41, B2=12.85; I=0.6 M,

K1=7.86, B2=11.66; I=0.6 M, K1=8.05, B2=11.94.

\*\*\*\*\*

C6H13NO2 HL Leucine CAS 61-90-5 (47)

2-Amino-4-methylpentanoic acid; H2N.CH(CH2.CH(CH3)2)COOH

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

V(V) gl NaClO4 25°C 0.15M C I K1=9.51 1999GMa (50120) 173

Other media:0.05-0.19 mole fraction MeOH/H2O and 0.05-0.18 mole fraction dioxane/H2O, 0.15 M NaClO4.

-----  
V(V) sp NaClO4 25°C 0.15M C I 1999GMa (50121) 174

K(V02+HL=V02L+H)=-7.99

K(V02L+HL=V02L2+H)=-6.74

Other media:0.05-0.19 mole fraction MeOH/H2O and 0.05-0.18 mole fraction dioxane/H2O, 0.15 M NaClO4.

\*\*\*\*\*

C6H13NO5 HL Tricine CAS 5704-04-1 (1239)

N-(Tris(hydroxymethyl)methyl)glycine; (HO.CH2)3C.NH.CH2.COOH

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

V(V) gl NaCl 25°C 0.60M M 1991CEa (50513) 175

K(H2V04+L)=3.65

K(H+H2V04+L)=6.69

\*\*\*\*\*

C6H15NO2 L CAS 7087-40-5 (8757)  
2-[(2-Hydroxyethyl)amino]-2-methyl-1-propanol;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) nmr KCl RT 0.40M C 1998CBc (51198) 176  
K(H2VO4+L=VO2H-2L+2H2O)=0.30

Method: 51V and 1H nmr.

\*\*\*\*\*

C6H15NO2 L CAS 139-87-7 (3707)  
N-Ethyl-2,2'-iminodiethanol; CH3.CH2.N(CH2.CH2.OH)2

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) nmr KCl RT 0.40M C H 1998CBc (51209) 177  
K(H2VO4+L=VO2H-2L+2H2O)=2.477

Method: 51V and 1H nmr. DH(K)=-27.5 kJ mol<sup>-1</sup>, DS(K)=-42.0 J K<sup>-1</sup> mol<sup>-1</sup>.

\*\*\*\*\*

C6H15NO3 Triethanolamine CAS 102-71-6 (447)  
Tris-(2-hydroxyethyl)amine; L

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) nmr KCl RT 0.40M C H 1998CBc (51305) 178  
K(H2VO4+L=VO2H-2L+2H2O)=2.72

Method: 51V and 1H nmr. DH(K)=-22.2 kJ mol<sup>-1</sup>, DS(K)=-22.1 J K<sup>-1</sup> mol<sup>-1</sup>.

-----  
V(V) nmr KCl 25°C 0.40M U 1988CSb (51306) 179  
K(H2VO4+HL=H2VO4L+H)=-5.57  
K(HVO4+HL)=2.62  
K(H2VO4+L)=3.30  
K(HVO4+L=VO3L+OH)=-3.0

\*\*\*\*\*

C6H15NO4 L CAS 7343-51-3 (8756)  
2-[(Hydroxyethyl)amino]-2-(hydroxymethyl)-1,3-propanediol;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) nmr KCl RT 0.40M C 1998CBc (51308) 180  
K(H2VO4+L=VO2H-2L+2H2O)=3.20

Method: 51V and 1H nmr.

\*\*\*\*\*

C6H20N2O12P4 H8L EDTPA CAS 1429-50-1 (434)  
Ethane-1,2-bis(iminobis(methylenephosphonic acid)); ((H2O3PCH2)2NCH2.)2

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) sp oth/un 20°C 1.00M U 1982SPb (52369) 181  
K(VO2+H4L)=10.0

\*\*\*\*\*

C7H5N04 H2L Dipicolinic aci CAS 449-83-2 (418)  
2,6-Pyridinedicarboxylic acid; C5H3N.(COOH)2

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) gl KCl 25°C 0.40M C 2000CYa (52817) 182  
K(H2VO4+2H+L)=15.79  
K(H2VO4+3H+L)=16.3  
-----

V(V) sp NaClO4 25°C 1.00M C T K1=8.65 1977FHb (52818) 183  
K((VO2)L(OH)+H)=5.87

Metal: VO2+. At 17 C: K((VO2)LOH+H)=5.91; 35 C: 5.82

\*\*\*\*\*

C7H5N05 H3L CAS 499-51-4 (3150)  
4-Hydroxypyridine-2,6-dicarboxylic acid; H0.C5H2N(COOH)2

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) gl KCl 25°C 0.20M C 2003JJJa (53078) 184  
K(H2VO4+3H+L=VO2HL+2H2O)=24.26  
K(H2VO4+2H+L=VO2L+2H2O)=20.56  
K(H2VO4+H+L=VO2H-1L+2H2O)=12.7  
-----

V(V) nmr oth/un 24°C var C 2002YLb (53079) 185  
K(VO2+H2L=VO2L+2H)=1.96  
K(H2VO4+H+HL=VO2L+2H2O)=10.20

Self-medium: 0.004-0.04 M vanadate. Method: 1H and 51V nmr.

\*\*\*\*\*

C7H6N2O4 HL CAS 1613-76-9 (8273)  
4-Nitro-benzohydroxamic acid;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) sp oth/un 25°C 0.02M C 2002BPa (53515) 186  
K1eff=4.46  
K2eff=1.0  
-----

Medium: 0.02 M MOPS, pH 7.50. By 1H nmr, K1eff=4.48, K2eff=1.13.

\*\*\*\*\*

C7H6O3 H2L Salicylic acid CAS 69-72-7 (14)  
2-Hydroxybenzoic acid, Salicylic acid; H0.C6H4.COOH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) nmr KCl 25°C 1.00M U 1989GTa (54329) 187  
Keff(V+HL=VL+H)=-0.64  
Keff(VL+HL=VL2+H)=0.23  
-----

At pH 7.0. V=H2VO4

\*\*\*\*\*

C7H6O3 H2L CAS 99-96-7 (1371)  
4-Hydroxybenzoic acid; H0.C6H4.COOH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) nmr mixed 25°C 42% C 1988GTa (54437) 188  
K(H2V04+H2L)=0.34

Medium: 42% acetone

\*\*\*\*\*

C7H6O5 H4L CAS 610-02-6 (3725)  
2,3,4-Trihydroxybenzoic acid; (HO)3.C6H2.CO0H

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) sp oth/un ? ? U 1969KSb (54724) 189  
K(V02+2H2L)=5.05

\*\*\*\*\*

C7H6O5 H4L Gallic acid CAS 149-91-7 (446)  
3,4,5-Trihydroxybenzoic acid; C6H2(OH)3.CO0H

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) sp alc/w 20°C 50% U I 1970CSc (54770) 190  
K(V02+H2L)=3.06  
K(V02+2H2L)=5.85  
K(V02+3H2L)=8.48

Medium: 0-100% methanol. Range of temperture 18-22C. K(V02+H2L)(0%)=2.08  
(100%)=3.22; K(V02+2H2L)(25%)=5.02, (100%)=5.89; K(V02+3H2L)(100%)=8.28

\*\*\*\*\*

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  
-----  
V(V) sp oth/un 25°C 0.02M C 2002BPa (55525) 191  
K1eff=3.47  
K2eff=2.62

Medium: 0.02 M MOPS, pH 7.50. By 1H nmr, K1eff=3.45, K2eff=2.61.

\*\*\*\*\*

C7H8O3 HL CAS 2298-99-9 (8830)  
3-Hydroxy-2,6-dimethyl-4H-pyran-4-one;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) gl NaCl 25°C 0.16M C K1=10.60 B2=18.04 2002SSb (56104) 192  
\*\*\*\*\*

C8H5O2F3S HL TTA CAS 326-91-0 (165)  
4,4,4-Trifluoro-1-(2-thienyl)butane-1,3-dione; F3C.CO.CH2.CO.C4H3S

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) dis oth/un 25°C 0.10M U 1972KMe (58694) 193

K(VO(OH)+L)=14.91

\*\*\*\*\*

C8H9NO2 HL CAS 5330-97-2 (6248)  
Phenylacetohydroxamic acid; C6H5.CH2.CO.NH.OH

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

V(V) sp oth/un 25°C 0.02M C 2002BPa (60358) 194  
K1eff=2.64

Medium: 0.02 M MOPS, pH 7.50.

\*\*\*\*\*

C8H9NO3 HL CAS 10507-69-4 (8584)  
4-Methoxybenzohydroxamic acid;

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

V(V) sp oth/un 25°C 0.02M C 2002BPa (60430) 195  
K1eff=2.99  
K2eff=2.08

Medium: 0.02 M MOPS, pH 7.50. By 1H nmr, K1eff=2.99, K2eff<2.

\*\*\*\*\*

C8H12N4O3 HL Gly-His CAS 3486-76-8 (273)  
Glycyl-histidine; H2N.CH2.CO.NH.CH(CH2.C3H3N2).COOH

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

V(V) gl KCl 21°C 1.0M M 1995TJb (61595) 196  
K1eff=2.0  
K(H2VO4+HL=H2VO4L+H)=-4.96  
\*K(H2VO4L)=-7.0

Additional methods: 1H, 13C and 51V nmr. K1eff at pH 7.0.

\*\*\*\*\*

C8H12N4O3 HL His-Gly CAS 2578-58-7 (274)  
Histidyl-glycine; H2N.CH(CH2.C3H3N2).CO.NH.CH2.COOH

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

V(V) gl KCl 21°C 1.0M M 1995TJb (61630) 197  
K1eff=1.83  
K(H2VO4+HL=H2VO4L+H)=-4.70  
\*K(H2VO4L)=-6.7

Additional methods: 1H, 13C and 51V nmr. K1eff at pH 7.0.

\*\*\*\*\*

C8H14N2O3 HL Pro-Ala CAS 6422-36-2 (263)  
Prolyl-alanine; C4H8N.CO.NH.CH(CH3).COOH

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

V(V) gl NaCl 25°C 0.60M C 1997FEa (61930) 198  
B(0,1,1)=2.44

B(0,2,2)=6.98

B(0,1,2)=4.08

B(0,2,1)=5.23

B(p,q,r): pH+qH<sub>2</sub>V<sub>04</sub>+rHL=Hp(H<sub>2</sub>V<sub>04</sub>)q(HL)r

\*\*\*\*\*

C8H19NO2 L CAS 102-79-4 (3841)

N-Butyl-2,2'-iminodiethanol (butyldiethanolamine);

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) nmr KCl RT 0.40M C 1998CBc (63035) 199  
K(H<sub>2</sub>V<sub>04</sub>+L=V<sub>02</sub>H-2L+2H<sub>2</sub>O)=2.64

Method: 51V and 1H nmr.

\*\*\*\*\*

C9H7N3O2S H2L TAR CAS 2246-46-0 (707)

4-(2'-Thiazolylazo)-resorcinol; C<sub>3</sub>H<sub>2</sub>NS.N:N.C<sub>6</sub>H<sub>3</sub>(OH)<sub>2</sub>

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) oth oth/un ? ? U K1=13.15 1969MGB (64736) 200  
K(V<sub>02</sub>+HL)=10.6

Metal:V<sub>02</sub>+

-----  
V(V) sp alc/w 25°C 50% U 1967NPb (64737) 201  
K(V<sub>03</sub>+H<sub>2</sub>L)=12.5(?)

Medium: 50% MeOH, 0.1 M NaCl<sub>04</sub>

\*\*\*\*\*

C9H11NO3 H2L Tyrosine CAS 60-18-4 (4)

2-Amino-3-(4-hydroxyphenyl)propanoic acid; HO.C<sub>6</sub>H<sub>4</sub>.CH<sub>2</sub>.CH(NH<sub>2</sub>).COOH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) gl NaCl<sub>04</sub> 25°C 0.10M C I 2004GNa (66243) 202  
K(V<sub>02</sub>+H+HL)=7.45  
K(V<sub>02</sub>+2H+2HL)=5.57

Data for 0.3-1.0 M NaCl<sub>04</sub>. At I=1.0 M, K(V<sub>02</sub>+H+HL)=7.82,  
K(V<sub>02</sub>+2H+2HL)=6.85.

\*\*\*\*\*

C9H11NO4 H3L DOPA CAS 59-92-7 (5)

2-Amino-3-(3,4-dihydroxyphenyl)propanoic acid; H<sub>2</sub>NCH(CH<sub>2</sub>C<sub>6</sub>H<sub>3</sub>(OH)<sub>2</sub>)COOH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) kin NaCl<sub>04</sub> 25°C 1.00M M 1974KLa (66403) 203  
Keff(V<sub>02</sub>+H<sub>2</sub>L)=2.31

Medium: 0.2 - 1 M HCl<sub>04</sub>

\*\*\*\*\*

C9H11N3O L CAS 4813-04-1 (4646)

Acetone isonicotinylhydrazone; C<sub>5</sub>H<sub>4</sub>N.CONHN:C(CH<sub>3</sub>)<sub>2</sub>

-----

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
V(V)	oth	oth/un	20°C	0.10M	U		K1=3.63 B2=6.98	1973Z0a (66473)	204

Metal: V02+

\*\*\*\*\*

C9H12N2O6	HL	Uridine	CAS 58-96-8	(828)
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Uracil-1-beta-D-ribofuranoside;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
V(V)	nmr	KCl	25°C	0.40M	C		K1=1.41 K(2H2V04+2L=(H2V04)2L2)=7.72	1991CHa (66714)	205

V(V)	nmr	KCl	25°C	0.10M	U		Beff(2V04+2L)=7.45 pH 7.5	1988TGc (66715)	206
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\*\*\*\*\*

C9H13NO3	H2L	(-)Adrenaline	CAS 51-43-4	(252)
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4-(1-Hydroxy-2-(methylamino)ethyl)-1,2-dihydroxybenzene,  
Epinephrine;CH3NHCH(OH)C6H3(OH)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
V(V)	kin	NaClO4	25°C	1.00M	M			1974KLa (66869)	207

Medium: 0.2 - 1 M HClO4  
Keff(V02+H2L)=2.41

Medium: 0.2 - 1 M HClO4

\*\*\*\*\*

C9H13N3O5	L	Cytidine	CAS 65-46-3	(2152)
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Cytidine, Cytosine-1-beta-D-ribofuranoside;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
V(V)	nmr	KCl	25°C	0.40M	C		K1=1.26 K(2H2V04+2L=(H2V04)2L2)=7.18	1991CHa (67085)	208

\*\*\*\*\*

C9H14N4O3	HL	Ala-His	CAS 3253-17-6	(5767)
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Alanyl-histidine;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
V(V)	nmr	NaCl	25°C	0.15M	C		B(0,1,1)=2.52 B(1,1,1)=9.40	2001SAb (67341)	209

Method: 51V nmr. B(p,q,r): pH+qH2V04+rHL=Hp(H2V04)q(HL)r

V(V)	gl	NaCl	25°C	0.15M	C		B(0,1,1)=2.52 B(1,1,1)=9.40	2000SAc (67342)	210
------	----	------	------	-------	---	--	--------------------------------	-----------------	-----

Additional method: 51V nmr. B(p,q,r): pH+qH2V04+rHL=(H)p(H2V04)q(HL)r

V(V)	oth	NaCl	25°C	0.60M	C			1994EFb (67343)	211
------	-----	------	------	-------	---	--	--	-----------------	-----



B(0,1,1)=2.55

B(1,1,1)=9.44

B(p,q,r); pH+q(H2VO4)+rHL=Hp(H2VO4)q(HL)r

Method: potentiometric titrations (glass electrode) + 51V-NMR

\*\*\*\*\*

C9H14N4O4 HL His-Ser CAS 21438-60-8 (7466)

Histidyl-serine;

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

V(V) gl KCl 21°C 1.0M M 1995TJb (67348) 212

K1eff=2.50

K(H2VO4+HL=H2VO4L+H)=-4.82

\*K(H2VO4L)=-7.5

Additional methods: 1H, 13C and 51V nmr. K1eff at pH 7.0.

\*\*\*\*\*

C9H21NO3 L CAS 122-20-3 (946)

Tri-isopropanolamine; (CH3.CH(OH).CH2)3N

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

V(V) nmr KCl RT 0.40M C 1998CBc (68143) 213

K(H2VO4+L=VO2H-2L+2H2O)=2.98

Method: 51V and 1H nmr.

\*\*\*\*\*

C9H28N3O15P5 10L DTPPH CAS 15827-60-8 (2921)

Diethylenetriamine-N,N,N',N'',N''-penta(methylphosphonic acid);

H2O3PCH2.N(CH2CH2.N(CH2PO3H2)2)2 H

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

V(V) sp oth/un 20°C 1.00M U 1982SPb (68416) 214

K(VO2+H6L)=9.3

\*\*\*\*\*

C10H10O2 HL Benzoylacetone CAS 93-91-4 (197)

1-Phenylbutane-1,3-dione; C6H5.CO.CH2.CO.CH3

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

V(V) dis oth/un 25°C 0.10M U 1972KMe (70782) 215

K(VO(OH)+2L)=21.62

Metal: VO+++

\*\*\*\*\*

C10H12N2O4 H2L CAS 16598-05-3 (967)

2-Pyridylmethyliminodiethanoic acid; C5H4N.CH2.N(CH2.COOH)2

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

V(V) nmr KCl RT 0.40M U 1997CKb (71279) 216

K(H2VO4+L)=3.89

Medium: 20% D2O

\*\*\*\*\*

C10H13N5O4 L Adenosine CAS 58-61-7 (2154)  
Adenosine, Adenine-9-beta-D-ribofuranoside;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) gl NaCl 25°C 0.60M C 1997ECa (71955) 217

B(1,2,2,0)=11.89

B(0,2,2,0)=7.68

Additional method: 51V nmr. B(p,q,r,s): pH+qH2V04+rHL+sA=Hp(H2V04)q(HL)r(A)s. A is imidazole.

-----  
V(V) gl NaCl 25°C 0.60M C M 1997ECa (71956) 218

B(0,1,1,1)=3.04

B(0,1,2,1)=4.84

B(0,1,1,2)=3.60

B(0,1,2,2)=5.43

B(p,q,r,s): pH+qH2V04+rHL+sA=Hp(H2V04)q(HL)r(A)s. A: imidazole.

B(0,2,2,2)=8.68, B(0,2,2,1)=8.08, B(0,2,1,2)=6.91, B(0,2,1,1)=6.30.

-----  
V(V) nmr KCl 25°C 0.40M C K1=1.41 1991CHa (71957) 219

K(2H2V04+2L)=(H2V04)2L2)=7.82

\*\*\*\*\*  
C10H13N5O5 HL Guanosine CAS 118-00-3 (1402)  
2-Aminopurin-6-one-9-riboside;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) nmr KCl 25°C 0.40M C K1=1.08 1991CHa (72024) 220

K(2H2V04+2L)=(H2V04)2L2)=7.36

\*\*\*\*\*  
C10H14N5O7P H2L AMP-5 CAS 18422-05-4 (842)  
Adenosine-5'-monophosphoric acid, 5-Adenylic acid;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) nmr KCl 25°C 0.10M U 1988TGc (72500) 221

Beff(2V04+2L)=6.53 pH 7.5

\*\*\*\*\*  
C10H16N2O2 L (7408)  
N-(2-Pyridylmethyl)iminodiethanol; C5H4N.CH2.N(CH2CH2.OH)2

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) nmr KCl RT 0.40M U 1997CKb (73036) 222

K(H2V04+L)=3.59

Medium: 20% D2O.

\*\*\*\*\*

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
V(V)	kin	NaCl04	25°C	3.00M	U	T			1984LAa (74285)	223
									K(V02H2L+H) > 0.0	
Data at 10 to 40C										
V(V)	sp	NaCl04	25°C	3.00M	C				1978LLa (74286)	224
									K(V02+H2L)=6.9	
									K(V02+HL)=10.6	
									K(V02+L)=15.5	
V(V)	sp	KCl	RT	0.10M	C			K1=17.38	1975IYb (74287)	225
Method: competition with PAR.										
V(V)	gl	NaCl04	25°C	3.0M	U				1972LLb (74288)	226
									K(V02+H4L=V02H2L+2H)=2.22	
V(V)	sp	oth/un	18°C	0.02M	U				1971PLb (74289)	227
									K(V02+HL+H02)=24.44	
V(V)	sp	KCl	20°C	0.10M	U	T			1965PSa (74290)	228
									K(V02+L)=15.55	
									K(V02+HL)=9.60	
									K(V02+H2L)=6.93	
									K(V02+H3L)=5.6	
V(V)	sp	none	?	0.0	U			K1=18.0	1958RIa (74291)	229
									K(V02+HL)=11.4	
V(V)	sp	NaCl04	25°C	0.10M	U			K1=18.05	1957RSa (74292)	230
*****										
C11H9NO3			H2L		PAR		CAS 13065-86-6 (4828)			
2-Hydroxy-3-naphthohydroxamic acid;										
Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(V)	sp	oth/un	?	?	U				1969M0b (77356)	231
									K(V02+L)=3.58	
									K(V02L+L)=3.20	
*****										
C11H9N3O2			H2L		PAR		CAS 1141-59-9 (636)			
4-(2'-Pyridylazo)-1,3-dihydroxybenzene; C5H4N.N:N.C6H3(OH)2										
Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(V)	sp	KCl	RT	0.10M	C				1975IYb (77597)	232
									K(V02+HR)=17.16	
									K(V02R+H)=3.95	

-----  
V(V) sp oth/un ? ? U M K1=17.10 1973LPa (77598) 233  
K(VO2(NH2OH)+HL)=13.52  
K(VO2+NH2O+L)=24.85  
-----

V(V) sp oth/un 25°C ? U 1967ADa (77599) 234  
K(?)=4.2  
-----

V(V) sp oth/un 15°C 0.01M U 1966BVb (77600) 235  
K(VO2+L)=16.49  
-----

\*\*\*\*\*

C11H12N2O L Antipyrine CAS 60-80-0 (2026)  
2,3-Dimethyl-1-phenyl-3-pyrazolin-5-one, Phenazone;  
-----

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

V(V) sp oth/un ? ? U M 1969KSb (78006) 236  
K(VO2(H2A)2+3HL)=1.19  
-----

H4A=2,3,4-trihydroxybenzoic acid

\*\*\*\*\*

C11H14N2O4 H2L Gly-Tyr CAS 658-79-5 (533)  
Glycyl-tyrosine; H2N.CH2.CO.NH.CH(CH2.C6H4.OH).COOH  
-----

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

V(V) nmr KCl 22°C 1.0M M M 1993JTa (78860) 237  
K(V(peroxo)+H2L=VHL+H)=-5.15  
-----

V is peroxovanadate. Method:NMR. Coordination site is phenolate.

V(V) nmr KCl 22°C 1.0M M M 1993JTa (78861) 238  
K(V(diperoxo)+HL=VL+H)=-5.82  
-----

V is diperoxovanadate. Method:NMR. Coordination site is amino.

For phenolate coordination K=-6.08

\*\*\*\*\*

C11H14N2O4 H2L Tyr-Gly CAS 673-08-5 (532)  
Tyrosyl-glycine; H2N.CH(CH2.C6H4.OH).CO.NH.CH2.COOH  
-----

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

V(V) sp KCl 21°C 1.0M M 1995TJb (78919) 239  
K1eff=1.53  
-----

Method: 1H, 13C and 51V nmr. K1eff at pH 7.0.

Also data for HL=Trp-Tyr, Trp-Trp, Trp-Phe, Tyr-Tyr, Phe-Glu.

\*\*\*\*\*

C11H16N2O5 HL CAS 213412-33-0 (8754)  
N-(2-Hydroxy-5-nitrobenzyl)iminodiethanol;  
-----

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

V(V) nmr KCl RT 0.40M C 1998CBc (79097) 240  
-----

$$K(H_2VO_4+L=VO_2H-2L+2H_2O)=2.56$$

Method: 51V and 1H nmr.

\*\*\*\*\*

C11H21N3O5 H2L CAS 499238-77-6 (8837)  
 N-Hydroxy-N'-[4-(hydroxymethylamino)-4-oxobutyl]-N-methylpentanediamide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(V)	gl	KCl	25°C	0.20M	C				2002FBb (79797)	241
								K(HVO4+L+5H=VOL+3H2O)=37.73		
								K(HVO4+L+4H=VO2HL+2H2O)=36.11		
								K(HVO4+L+3H=VO2L+2H2O)=31.69		

By spectrophotometry,  $K(2HVO_4+3L+14H=V_2L_3+8H_2O)=100.9$ .

\*\*\*\*\*

C12H13N3O4 H2L (7410)  
 N-(Benzimidazol-2-ylmethyl)iminodiethanoic acid; C7H5N2.CH2.N(CH2COOH)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(V)	nmr	KCl	RT	0.40M	U				1997CKb (81310)	242
								K(H2VO4+L)=2.99		

Medium: 20% D2O.

\*\*\*\*\*

C12H17N3O2 L (7409)  
 N-(Benzimidazol-2-ylmethyl)iminodiethanol; C7H5N2.CH2.N(CH2CH2.OH)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(V)	nmr	KCl	RT	0.40M	U				1997CKb (81726)	243
								K(H2VO4+L)=1.83		

Medium: 20% D2O

\*\*\*\*\*

C12H23N3O5 H2L CAS 499238-78-7 (8836)  
 N-Hydroxy-N'-[5-(hydroxymethylamino)-5-oxopentyl]-N-methylpentanediamide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(V)	gl	KCl	25°C	0.20M	C				2002FBb (82987)	244
								K(HVO4+L+5H=VOL+3H2O)=36.61		
								K(HVO4+L+4H=VO2HL+2H2O)=35.78		
								K(HVO4+L+3H=VO2L+2H2O)=31.39		

By spectrophotometry,  $K(2HVO_4+3L+14H=V_2L_3+8H_2O)=99.6$ .

\*\*\*\*\*

C12H23N3O5 H2L CAS 499238-79-8 (8835)  
 N-Hydroxy-N'-[6-(hydroxymethylamino)-6-oxohexyl]-N-methylbutanediamide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(V)	gl	KCl	25°C	0.20M	C				2002FBb (82997)	245
								K(HVO4+L+5H=VOL+3H2O)=38.56		

K(HV04+L+4H=V02HL+2H2O)=37.33

K(HV04+L+3H=V02L+2H2O)=33.01

By spectrophotometry: K(2HV04+3L+14H=V2L3+8H2O)=103.7

\*\*\*\*\*

C13H10N02Cl HL CAS 36016-24-7 (1818)  
N-(4-Chlorophenyl)benzohydroxamic acid; C6H5.CO.N(C6H4Cl)OH

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

V(V) sp oth/un 28°C ? U 1965MDa (84720) 246  
K(V03+L=V02(H2L))=7.05(?)

\*\*\*\*\*

C13H11N3O2 HL (4985)  
2- or 4-Hydroxybenzaldehyde isonicotinylhydrazone;

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

V(V) oth oth/un 20°C 0.10M U 1973Z0a (85272) 247  
K(V02+L)=4.13

\*\*\*\*\*

C13H11N3O6S H2L (2811)  
1-(2-Carboxy-5-sulfonatophenyl)-3-hydroxy-phenyltriazen;

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

V(V) sp none 25°C 0.0 U K1=4.7 1974CHa (85305) 248

\*\*\*\*\*

C13H15N3O3 HL Gly-Trp CAS 2390-74-1 (3411)  
Glycyltryptophan;

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

V(V) sp KCl 21°C 1.0M M 1995TJb (85899) 249  
K1eff=2.16

Method: 1H, 13C and 51V nmr. K1eff at pH 7.0.

\*\*\*\*\*

C13H15N3O3 HL Trp-Gly CAS 7360-09-0 (5804)  
Tryptophyl-Glycine;

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

V(V) sp KCl 21°C 1.0M M 1995TJb (85902) 250  
K1eff=2.00

Method: 1H, 13C and 51V nmr. K1eff at pH 7.0.

\*\*\*\*\*

C13H21N02 L CAS 213412-34-1 (8755)  
N-2,5-(Dimethylbenzyl)iminodiethanol;

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

V(V) nmr KCl RT 0.40M C 1998CBc (86159) 251  
K(H2VO4+L=VO2H-2L+2H2O)=1.34

Method: 51V and 1H nmr.

\*\*\*\*\*

C14H8N4O4Cl2S H2L (6672)  
7-((3,5-Dichloro-2-pyridyl)azo)-8-hydroxyquinoline-5-sulfonic acid;

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

V(V) vlt KNO3 25°C 0.10M U 1993HKa (86622) 252  
K(VO(OH)2(H2O)+L)=16.35

For 3,5-dibromo analogue K=16.38

\*\*\*\*\*

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  
-----

V(V) sp NaClO4 25°C 0.10M U 1962SDa (86767) 253  
K(VO3+H2L=VO2L)=8.5(?)

V(V) sp oth/un 25°C ? U 1961BDc (86768) 254  
K(VO3+H2L=VO2L)=8.6(?)

V(V) sp oth/un 25°C ? U B2=8.6 1959DBb (86769) 255

\*\*\*\*\*

C14H12N4O2Br2 HL CAS 72833-87-5 (2533)  
2-(2-(3,5-Dibromopyridyl)azo)-5-dimethylaminobenzoic acid;

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

V(V) sp diox/w 25°C 40% C K1=8.97 1986KHa (87320) 256

\*\*\*\*\*

C14H13NO2 HL CAS 1143-74-2 (4044)  
N-2-Tolylbenzohydroxamic acid; C6H5.CO.N(C6H4.CH3).OH

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

V(V) sp oth/un 28°C ? U 1964MDa (87484) 257  
K(VO3+2HL=VOL2)=8.1(?)

\*\*\*\*\*

C14H13N5OS HL (5394)  
1-(2-Pyridylmethylideneamino)-3-(salicylideneamino)thiourea;

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

V(V) sp mixed 25°C 40% U 1985RGa (87618) 258  
K1eff=6.09

Medium: 40% DMF, pH 4.5

\*\*\*\*\*

C14H13N5O2 HL (5393)  
1-(2-Pyridylmethylideneamino)-3-(salicylideneamino)urea;

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

V(V) sp mixed 25°C 32% U 1985RGa (87625) 259

K1eff=4.68

Medium: 32% DMF, pH 4.5

\*\*\*\*\*

C14H14N4OBr2 HL CAS 35601-32-2 (5092)  
5-(3,5-Dibromo-2-pyridylazo)-2-ethylamino-4-hydroxy-1-methylbenzene;

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

V(V) dis oth/un ? ? U 1967GUa (87690) 260

K(?)=7.52

\*\*\*\*\*

C14H15N4OBr CAS 14337-50-9 (5095)  
5-(5-Bromo-2-pyridylazo)-2-ethylamino-4-hydroxy-1-methylbenzene;

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

V(V) dis oth/un ? ? U 1967GUa (87771) 261

K(?)=5.59

\*\*\*\*\*

C14H16N4O HL PAAC CAS 13059-69-3 (5067)  
5-Ethylamino-4-methyl-2-(2'-pyridylazo)phenol;

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

V(V) dis oth/un ? ? U 1967GSb (88022) 262

K(?)=6.73

\*\*\*\*\*

C14H22N2O8 H4L CDTA CAS 482-54-2 (200)  
trans-1,2-Diaminocyclohexane-N,N,N',N'-tetraethanoic acid;

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

V(V) sp none 25°C 0.0 U 1975IYa (88814) 263

K1=16.61  
K(V02+HL)=8.91

-----  
V(V) sp KCl RT 0.10M C 1975IYb (88815) 264

Method: competition with PAR.

\*\*\*\*\*

C14H24N2O10 EGTA CAS 67-42-5 (349)  
Ethyleneglycol-0,0'-bis(2-aminoethyl ether)-N,N,N',N'-tetraethanoic acid; H4L

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

V(V) sp NaCl04 22°C 0.10M C 1980DCc (89960) 265



K(VO2+HL)=7.73  
\*K(VO2HL)=-5.49

\*\*\*\*\*

C15H9N3O4Cl2S H2L (6673)  
1-((3,5-Dichloro-2-pyridyl)azo)-2-hydroxynaphthalene-4-sulfonic acid;

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

V(V) vlt KNO3 25°C 0.10M U 1993HKa (90937) 266  
B(VO(OH)2+L=VO(OH)2L)= 21.91. For 3,5-dibromo analogue K=21.96;  
For 3,5-dichloro...-1-hydroxynaphthalene analogue K=16.12, -dibromo- K=15.97

\*\*\*\*\*

C15H10O7 H5L Morin CAS 104363-16-8 (5100)  
2',3,4',5,7-Pentahydroxyflavone;

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

V(V) sp non-aq ? 100% U 1972CMb (91006) 267

K(VO2+H4L)=(?)4.21  
K(VO2+2H4L)=(?)7.95

Medium: MeOH. pH=3

\*\*\*\*\*

C15H11N3O4S H2L (5130)  
7-Phenylazo-8-hydroxyquinoline-5-sulfonic acid;

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

V(V) vlt KNO3 25°C 0.10M U 1993HKa (91338) 268  
B(VO(OH)2(H2O)+L=VO(OH)2LH2O)= 17.07. For 4-chlorophenyl analogue K=16.86

\*\*\*\*\*

C15H16N4OBr2 HL CAS 14337-54-3 (993)  
2-(3,5-Dibromo-2-pyridylazo)-5-diethylaminophenol;

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

V(V) vlt oth/un 25°C ? U 1990WZa (91944) 269

K(VO2+HL)=10.40

\*\*\*\*\*

C15H17N4OBr HL CAS 14357-53-2 (712)  
2-(5-Bromo-2-pyridylazo)-5-diethylaminophenol; BrC5H3N.N:N.C6H3(OH)N(CH3)2

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

V(V) vlt oth/un 25°C 0.60M U M 1989WZb (91983) 270

K(V+L+H2O2=VL(H2O2))=10.3

\*\*\*\*\*

C16H14N4O2S HL CAS 83688-78-2 (2534)  
2-(2-Benzothiazolylazo)-5-dimethylaminobenzoic acid;

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

-----  
V(V) sp diox/w 25°C 40% C K1=6.62 1986KHa (93484) 271  
\*\*\*\*\*  
C16H19NO2 L CAS 157008-41-8 (8758)  
meso-2,2'-Diphenyliminodiethanol;  
-----

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

V(V) nmr KCl RT 0.40M C H 1998CBc (93911) 272  
K(H2VO4+L=VO2H-2L+2H2O)=2.18

Method: 51V and 1H nmr. L is R,S-stereoisomer. DH(K)=-26.8 kJ mol<sup>-1</sup>,  
DS(K)=-50.4 J K<sup>-1</sup> mol<sup>-1</sup>. For R,R-isomer, K=1.79, DH(K)=-30.6, DS=-83.6.  
\*\*\*\*\*

C16H20N2O6 H2L CAS 488827-72-1 (8831)  
N,N'-Bis(3-hydroxy-6-methyl-2-methylene-4-pyrone)ethylenediamine;  
-----

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

V(V) gl NaCl 25°C 0.16M C K1=17.10 2002SSb (94008) 273  
K(VO+HL)=13.29  
K(VO+H2L)=8.75  
K(VO+H3L)=5.3  
\*K(VOL)=-8.75  
\*\*\*\*\*

C19H19NO7 H2L (7003)  
3-Methoxy-5-(N,N-dicarboxymethyl)aminomethyl-4-hydroxybenzophenone;  
-----

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

V(V) gl KCl 20°C 0.10M U K1=14.0 1981SYa (99257) 274  
K(VO2+HL)=7.7  
\*\*\*\*\*

C22H14N4O5S H3L CAS 74261-72-6 (9033)  
5-Hydroxy-6-(2-hydroxy-5-sulfophenylazo)benzo[a]phenazine;  
-----

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

V(V) sp KCl 25°C 0.02M C K1=13.05 B2=21.39 1980NKb (101481) 275  
K(VO2+H2L=VO2L+2H)=-1.29  
K(VO2(OH)2+H2L=VO2L+2H2O)=5.4  
-----

V(V) sp KCl 25°C 1.0M C 1980NKc (101482) 276  
K(VO2+H2L=VO2L+2H)=-1.29  
K(VO2(OH)2+H2L=VO2L+2H2O)=5.46

For protonation reactions, K1=13.05, K2=8.34 (O Navratil, Radiokhimiya,19,  
626 (1977)). Data for 0.1 and 0.01 M Septonex solutions.  
\*\*\*\*\*

C25H28N2O13 H6L CAS 42281-29-8 (5335)  
(Carbonylbis((6-hydroxy-5-methoxy-3-phenylene)methylenenitrilo))tetraethanoic acid;  
-----

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) gl KCl 20°C 0.10M U 1973VIb (103665) 277  
K(VO2+HL)=17.2  
K(VO2+H2L)=13.8  
K(VO2+H3L)=9.6

\*\*\*\*\*  
C28H31N3O18S3 H9L 3,4-LICAMS CAS 71659-79-5 (5469)  
N,N',N''-Tris(2,3-dihydroxy-5-sulfonatobenzoyl)-1,5,10-triazadecane;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) gl KNO3 25°C 1.00M C 1992BRa (104747) 278  
\*K(VL)=-3.16  
\*K(VOHL)=-7.15  
K(VOL+H2O=VO2HL+H)=-9.12  
Keff(VO2+H3L+H=VL+2H2O)=24.2

Keff in 0.5 M KNO3, pH 5.5. Data also for 1,5,9-triazanonane and 1,4,7-triazaheptane analogues  
\*\*\*\*\*

C31H32N2O13S H6L Xylenol orange CAS 63721-85-5 (432)  
5,5'-Bis-N,N-bis(carboxymethyl)aminomethyl-4'-hydroxy-3,3'-dimethylfuchsone-2"-sulfonic acid;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) sp NaNO3 20?°C 0.20M U 1963BGa (105508) 279  
B((VO2)2L2)=63.1

V(V) sp oth/un 25?°C ? U 19630Ta (105509) 280  
K(?)=6.45

\*\*\*\*\*  
Polymer Lactoferrin (7106)  
Lactoferrin;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V(V) sp oth/un rt 0.03M U 1995SAa (108257) 281  
Keff(VL+V=VL2)=6.22

Medium: 0.025 M Tris, 0.01 M NaCl, 0.01 M NaHCO3, pH 7.8. L is human lactoferrin.  
\*\*\*\*\*

e- HL Electron (442)  
Electron;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V++ oth none 25°C 0.0 U 1952LAb (1023) 282  
K(V+2e=V(s))=-40.1(-1180 mV)

\*\*\*\*\*

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

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

V++ kin oth/un 25°C 1.00M U I M 1969DEa (2772) 283  
K(V+Co(III)(CN)5(SCN))=1.5  
K(V+Co(III)(CN)5Cl)=1.6  
K(V+Co(III)(CN)5I)=1.3  
K(V+Co(III)(CN)5H2O)=1.7

I=0.2: K(V+Co(CN)5Br)=2.0

-----  
V++ cal oth/un 25°C var U H 1964GHc (2773) 284  
DH(B6)=-196.5 kJ mol<sup>-1</sup>

-----  
V++ cal oth/un 25°C ? U H 1961GUa (2774) 285  
DH(B6)=-205.4 kJ mol<sup>-1</sup>

\*\*\*\*\*

HPO3-- H2L Phosphite CAS 13598-36-2 (6305)  
Phosphite;

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

V++ gl oth/un 25°C 0.0 U K1=4.61 1966POa (7515) 286  
B(V+HL)=2.50  
B(VHL+HL)=1.67  
B(VL+HL)=2.01

\*\*\*\*\*

OH- HL Hydroxide (57)  
Hydroxide;

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

V++ EMF oth/un ? var U H 1964PPa (12456) 287  
\*K1=-6.85(15 C)  
\*K1=-6.49(25 C)  
\*K1=-6.10(35 C)

Medium: VSO4 in various concentrations. DH(\*K1)=64.8 kJ mol<sup>-1</sup>

\*\*\*\*\*

SCN- HL Thiocyanate CAS 463-56-9 (106)  
Thiocyanate;

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

V++ kin NaClO4 24°C 1.0M U K1=1.04 1968KTc (15323) 288  
Method: Temperature jump

-----  
V++ sp NaClO4 45°C 0.84M U T H T K1=1.18 1968MSc (15324) 289

Medium: 0.84 M LiClO4, 0.05 H+. K1(11 C)=1.61, K1(25 C)=1.43

DH(K1)=-21.7 kJ mol<sup>-1</sup>, DS=-46 J K<sup>-1</sup> mol<sup>-1</sup>

-----  
V++ sp NaClO4 25°C 1.0M U K1=1.43 1968OPa (15325) 290  
\*\*\*\*\*  
C4H4O4 H2L Maleic acid CAS 110-16-7 (111)  
cis-Butenedioic acid; HOOC.CH:CH.COOH  
-----

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

V++ sp oth/un 23°C var U 1970Vsa (29155) 291  
K(V+H2L)=-0.68  
K(V+HL)=1.81  
\*\*\*\*\*

C4H6O4S H2L Thiodiacetic CAS 123-93-3 (140)  
2,2'-Thiodiglycolic acid, Thiodiethanoic acid; HOOC.CH2.S.CH2.COOH  
-----

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

V++ gl NaClO4 25°C 0.10M U K1=1.73 1970PPa (30242) 292  
\*\*\*\*\*  
C5H8O2 HL Acetylacetone CAS 123-54-6 (164)  
Pentane-2,4-dione; CH3.CO.CH2.CO.CH3  
-----

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

V++ gl KCl 25°C 1.00M U K1=5.38 B2=10.19 1965SCd (38118) 293  
B3=14.70  
\*\*\*\*\*

C6H5NO2 HL Picolinic acid CAS 98-98-6 (391)  
2-Pyridine-carboxylic acid; C5H4N.COOH  
-----

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

V++ sp KCl 25°C 0.50M U I K1=4.43 B2=9.00 1965MBb (42615) 294  
B3=12.84  
In 0.5 M K2SO4: B3=12.77. By polarography: B2=8.54, B3=12.46  
\*\*\*\*\*

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  
-----

V++ vlt KCl 22°C 1.0M C K1=3.46 1988Mwb (47085) 295  
Method: cyclic voltammetry and differential pulse polarography.  
\*\*\*\*\*

C6H10O4S2 H2L CAS 7244-02-2 (438)  
1,2-Bis(carboxymethylthio)ethane; HOOC.CH2.S.CH2.CH2.S.CH2.COOH  
-----

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

V++ gl NaClO4 25°C 0.10M U K1=1.39 1971PPb (48252) 296

\*\*\*\*\*

C8H13NO6S H3L (5675)  
2-Mercapto-1-aminoethane-N,N,S-triethanoic acid; HOOC.CH2.S.CH2.CH2.N(CH2COOH)2

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V++ gl NaCl04 25°C 0.10M U K1=7.21 1975POa (61833) 297  
K(V+HL)=1.7

\*\*\*\*\*

C8H14O4S3 H2L (2526)  
3,6,9-Trithiaundecanedioic acid; HOOC.CH2.S.C2H4.S.C2H4.S.CH2.COOH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V++ gl NaCl04 25°C 0.10M U K1=1.2 1971PPc (62127) 298

\*\*\*\*\*

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  
-----  
V++ vlt NaCl 25°C 1.3M C 1983KNb (74293) 299  
K(VL+H)=3.40  
\*K(VL(H2O))=-12.6

Method: dc and ac polarography.

-----  
V++ gl KCl 20°C 0.10M U K1=12.70 1953SSa (74294) 300

\*\*\*\*\*

C12H8N2 L Phenanthroline CAS 66-71-7 (144)  
1,10-Phenanthroline;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V++ sp NaCl ? 0.10M U 1972BBh (80528) 301  
B3=19.68  
K(V20+L)=6.60

\*\*\*\*\*

C24H16N2 L Bathophenan CAS 1662-01-7 (2749)  
4,7-Diphenyl-1,10-phenanthroline;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V++ sp NaCl ? 0.10M U 1973BBh (102860) 302  
B3=15.65  
K(V20+L)=6.44

\*\*\*\*\*

e- HL Electron (442)  
Electron;

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

-----  
V+++ EMF NaCl 25°C 1.00M U 1993FOa (1024) 303  
E(e + V+++)= $-0.242V$   
Method: mercury electrode. At I=0.0, E= $-0.196V$ .  
-----

V+++ EMF oth/un 17°C 1.0M U I 1962AND (1025) 304  
K(V+e=V(II))= $-5.35(-308\text{ mV})$   
Medium:H2SO4. In 1 M HCl: K= $-4.92(-283\text{ mV})$ , 1 M HClO4: K= $-4.79(-276\text{ mv})$   
-----

V+++ EMF none 25°C 0.0 U T 1944JCb (1026) 305  
K(V+e=V(II))= $-4.31(-255\text{ mV})$   
At 0 C: K= $-4.89(-265\text{ mV})$   
-----

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V+++	sp	alc/w	20°C	100%	U	M		1987KAa (5939) 306 B(V2(1,2-diazole)6Cl5)=2.4		

V+++	sp	alc/w	20°C	100%	U	M		1987KAa (5940) 307 B(V2(imidazole)6Cl5)=3.2		
------	----	-------	------	------	---	---	--	--	--	--

V+++	sp	alc/w	20°C	100%	U	M		1987KAa (5941) 308 B(V2(thiazole)6Cl5)=3.4		
------	----	-------	------	------	---	---	--	---	--	--

V+++	sp	alc/w	22°C	100%	U	M		1983KAa (5942) 309 B(V(a-pic)2Cl4)=3.9 B(V(b-pic)4Cl2)=4.7 B(V(g-pic)4Cl2)=4.7		
------	----	-------	------	------	---	---	--	---	--	--

Measurements in 99.8% ethyl alcohol; a-, b-, g-pic are alpha-, beta-, gamma-picoline (2-, 3-, 4-methylazine) respectively  
-----

V+++ vlt NaCl 25°C 5.00M U K1= $-0.46$  1981JGa (5943) 310  
\*\*\*\*\*  
F- HL Fluoride CAS 7644-39-3 (201)  
Fluoride;  
-----

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V+++	ISE	non-aq	185°C	100%	M			K1=4.56 B2=8.58 B3=12.15 B4=15.53 B5=18.04	1988JHa (7324)	311

Medium: molten KSCN. K1=mol<sup>-1</sup> kg, B2=mol<sup>-2</sup> kg<sup>2</sup> etc.  
-----

V+++ ISE NaClO4 25°C 1.00M U K1=5.00 1980HMa (7325) 312  
\*\*\*\*\*  
NO3- HL Nitrate CAS 7697-37-2 (288)  
-----

Nitrate;

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

V+++ dis KNO3 22°C 1.0M U K1=-0.35 1972BHa (10008) 313  
Medium: HNO3

\*\*\*\*\*

N3- HL Azide CAS 7782-79-8 (441)  
Azide;

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

V+++ sp NaClO4 25°C 1.0M U K(V+HL=VL+H)=-1.80 1970EPa (10270) 314

Medium: LiClO4

\*\*\*\*\*

OH- HL Hydroxide (57)  
Hydroxide;

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

V+++ gl KCl 25°C 0.20M C 2005BNa (12457) 315

\*K1=-2.17  
\*B2=-6.27  
\*B(V2(OH)2)=-2.76  
\*B(V3(OH)8)=-21.96

UV-vis spec also used

-----  
V+++ vlt NaClO4 25°C 1.00M C K1=11.0 B2=20.38 1989GGc (12458) 316  
Method: polarography. Medium pH 0-4.6.

-----  
V+++ dis oth/un 20°C 0.10M U K1=12.98 B2=25.52 1978TKa (12459) 317  
B3=37.62

-----  
V+++ kin NaCl 30°C 1.0M C 1974SPa (12460) 318  
\*K1=-3.0

-----  
V+++ kin NaCl 30°C 1.00M U 1974SPa (12461) 319  
\*K1=-3.0

-----  
V+++ EMF KCl 25°C 3.00M U 1968DBa (12462) 320

\*K1=-3.07  
\*B(2,2)=-3.93  
\*B(2,3)=-8.0

Method: H electrode

-----  
V+++ gl KCl 25°C 3.00M U 1966BRb (12463) 321

\*K1=-3.07  
\*B(2,2)=-3.96  
\*B2=-7.5



\*B(2,3)=-8.7

V+++ gl none 23°C 0.0 U 1963Pac (12464) 322  
\*K1=-2.4  
\*K2=-3.85

V+++ gl NaCl 20°C 3.00M U I 1963Pac (12465) 323  
\*K1=-3.15  
\*B2=-7.3  
\*B(2,2)=-4.1  
In 1 M NaCl: \*K1=-2.85, \*B2=-6.7, \*B(2,2)=-3.9

V+++ gl KCl 22°C 1.0M U 1960JPa (12466) 324  
\*K1=-2.57  
\*K2=-3.70

V+++ gl NaClO4 25°C 1.0M U 1959GSa (12467) 325  
\*K1=-2.53

V+++ gl oth/un 25°C var U 1953MEa (12468) 326  
\*K1=-2.9  
\*K2=-3.5

V+++ gl oth/un 25°C var U 1950FDa (12469) 327  
\*K1=-2.7

V+++ sp NaClO4 25°C 1.0M U H 1950FGa (12470) 328  
DH(\*K1)=42 kJ mol<sup>-1</sup>

\*\*\*\*\*

SCN- HL Thiocyanate CAS 463-56-9 (106)  
Thiocyanate;

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

V+++ sp non-aq 25°C 100% U H K1=2.22 1992DSb (15326) 329  
In DMSO, I=0.5M Natriflate. DH1=2.9 kJ mol<sup>-1</sup>, DS1=52.1 J K<sup>-1</sup> mol<sup>-1</sup>

V+++ sp oth/un 25°C ? U K1=2.20 1989SDc (15327) 330  
isothiocyanate complex

V+++ kin NaClO4 23°C 1.0M U K1=2.18 1968KTc (15328) 331  
Method: Temperature jump

V+++ sp NaClO4 37°C 1.0M U T H T K1=1.94 1967BSa (15329) 332  
K1(5 C)=2.16, K1(12 C)=2.14, K1(25 C)=2.07. DH(K1)=-14.6 kJ mol<sup>-1</sup>, DS=-9.2

V+++ sp alc/w 24°C 100% U B6=15 to 16 1963GKb (15330) 333

V+++ sp NaClO4 25°C 2.60M U H T K1=2.0 1951FGa (15331) 334

DH(K1)=-15.1 kJ mol<sup>-1</sup>.

\*\*\*\*\*

S04-- H2L Sulfate CAS 7664-93-9 (15)  
Sulfate;

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

V+++ sp NaCl04 25°C 1.0M U K1=1.45 1972Kmd (16660) 335

\*\*\*\*\*

C2H3O2Cl HL Chloroacetic CAS 79-11-8 (34)  
Chloroethanoic acid; ClCH2.COOH

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

V+++ gl KCl 22°C 1.0M U 1960JPa (19393) 336  
K(V+2VOH+6L)=18.52

\*\*\*\*\*

C2H5NO2 HL Glycine CAS 56-40-6 (85)  
2-Aminoethanoic acid; H2N.CH2.COOH

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

V+++ sp oth/un ? ? U K1=9.08 1970PKb (21753) 337

\*\*\*\*\*

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  
-----

V+++ sp alc/w 20°C 100% U M 1987KAa (23529) 338  
B(V2L6C15)=3.4

\*\*\*\*\*

C3H4N2 L Imidazole CAS 288-32-4 (90)  
1,3-Diazole, imidazole; C3H4N2

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

V+++ sp alc/w 20°C 100% U M 1987KAa (23931) 339  
B(V2L6C15)=3.2

\*\*\*\*\*

C3H7NO2 HL Alanine CAS 56-41-7 (86)  
2-Aminopropanoic acid; H2N.CH(CH3).COOH

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

V+++ gl NaCl 20°C 0.50M C K1=8.44 B2=15.55 2003BPa (26293) 340  
B(VHL)=12.08  
B(VH2L2)=22.02  
B(VHL2)=19.02  
B(VH-2L2)=-1.48

\*\*\*\*\*

C3H7NO3 HL Serine CAS 56-45-1 (49)  
2-Amino-3-hydroxypropanoic acid; H2N.CH(CH2.OH)COOH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V+++ gl KCl 25°C 0.20M C K1=8.75 B2=15.35 1986KDa (27195) 341  
\*\*\*\*\*

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  
-----  
V+++ gl NaCl 20°C 0.50M C K1=9.83 B2=16.86 2003BPa (31971) 342  
B(VHL)=12.89  
B(VH2L2)=24.52  
B(VHL2)=20.42  
B(V2H-2L2)=14.51  
B(V2H-4L2)=-1.69, B(V2H-2L4)=20.32.

-----  
V+++ gl KCl 20°C 0.20M C K1=9.48 B2=17.16 1988KDa (31972) 343  
\*\*\*\*\*

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  
-----  
V+++ gl KCl 20°C 0.20M C K1=8.08 B2=15.33 1988KDa (32742) 344  
\*\*\*\*\*

C4H9NO3 HL Threonine CAS 72-19-5 (48)  
2-Amino-3-hydroxybutanoic acid; H2N.CH(CH(OH).CH3)COOH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V+++ gl KCl 25°C 0.20M C K1=8.36 B2=14.76 1986KDa (34338) 345  
\*\*\*\*\*

C5H5N5 L Adenine CAS 73-24-5 (237)  
6-Aminopurine; H2N.C5H3N4

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
V+++ gl NaCl 25°C 0.50M C 2001BKa (36985) 346  
K(V(OH)+HL=VL)=3.15  
K(2V(OH)L=V2OL+H2O)=4.86  
K(V2O(OH)+HL=V2OL+H2O)=4.13

\*\*\*\*\*

C5H8O2 HL Acetylacetone CAS 123-54-6 (164)  
Pentane-2,4-dione; CH3.CO.CH2.CO.CH3

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

-----  
V+++ dis NaClO4 25°C 0.10M U K1=10.19 B2=19.18 1986ISb (38119) 347  
B3=26.10

\*\*\*\*\*  
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  
-----

V+++ gl KCl 20°C 0.20M C K1=9.35 B2=17.00 1988KDa (39142) 348

\*\*\*\*\*  
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  
-----

V+++ gl KCl 20°C 0.20M C K1=8.20 B2=15.82 1988KDa (39845) 349

\*\*\*\*\*  
C6H5NO2 HL Picolinic acid CAS 98-98-6 (391)  
2-Pyridine-carboxylic acid; C5H4N.COOH  
-----

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

V+++ gl KCl 25°C 0.20M C K1=6.28 B2=12.16 2005BNa (42616) 350

B3=16.63  
B(VH-1L)=3.87  
B(VH-1L2)=9.06  
B(VH-2L2)=1.1

-----  
V+++ sp KCl 25°C 0.50M U 1965MBb (42617) 351

B3=15.41

\*\*\*\*\*  
C6H6O3 HL Maltol CAS 118-71-8 (2442)  
3-Hydroxy-2-methyl-4H-pyran-4-one;  
-----

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

V+++ gl KCl 25°C 0.20M C K1=10.38 B2=18.97 2005BNa (44107) 352

B3=26.01  
B(VH-1L)=6.39  
B(VH-1L2)=13.1

\*\*\*\*\*  
C6H6O8S2 H4L Tiron CAS 149-45-1 (104)  
4,5-Dihydroxybenzene-1,3-disulfonic acid; (HO)2.C6H2(SO3H)2  
-----

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

V+++ gl KCl 25°C 0.20M C K1=18.65 B2=37.53 2005BNa (44511) 353

B3=43.10  
B(VH-1L)=13.69

B(VH-1L2)=24.80

\*\*\*\*\*

C6H7N L Picoline CAS 109-06-8 (320)  
2-Methylpyridine; C5H4N.CH3

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

V+++ sp alc/w 22°C 100% U M 1983KAa (44617) 354  
B(VL2CL4)=3.9

\*\*\*\*\*

C6H7N L beta-Picoline CAS 108-99-6 (324)  
3-Methylpyridine; C5H4N.CH3

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

V+++ sp alc/w 22°C 100% U M 1983KAa (44709) 355  
B(VL4CL2)=4.7

\*\*\*\*\*

C6H7N L gamma-Picoline CAS 108-89-4 (325)  
4-Methylpyridine; C5H4N.CH3

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

V+++ sp alc/w 22°C 100% U M 1983KAa (44835) 356  
B((VL4CL2)+)=4.7

\*\*\*\*\*

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  
-----

V+++ sp NaCl 20°C 1.0M U K1=16.9 1974PIa (47086) 357

V+++ vlt NaCl04 20°C 0.10M U T K1=13.41 B2=22.09 1970PHb (47087) 358

\*\*\*\*\*

C6H9N3O2 HL Histidine CAS 71-00-1 (1)  
2-Amino-3-(4'-imidazolyl)propanoic acid; H2N.CH(CH2.C3H3N2)COOH

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

V+++ gl KCl 25°C 0.10M C K1=12.9 1997BKa (47626) 359  
B(VHL)=15.3  
B(VH2L)=18.3  
B(VH2L2)=29.2  
B(VH4L2)=34.4

\*\*\*\*\*

C6H13NO2 HL Leucine CAS 61-90-5 (47)  
2-Amino-4-methylpentanoic acid; H2N.CH(CH2.CH(CH3)2)COOH

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

-----  
V+++ gl KCl 25°C 0.20M C K1=8.96 B2=16.26 1986KDa (50122) 360

\*\*\*\*\*

C7H5NO5 H2L Nitrosalicylic CAS 96-97-9 (148)

2-Hydroxy-5-nitrobenzoic acid; HO.C6H3(NO2).COOH

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

-----  
V+++ kin oth/un 25°C 1.00M U 1980PTa (53057) 361

K(V+HL=VL+H)=-3.05

K(V+HL)=2.93

\*\*\*\*\*

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

-----  
V+++ kin NaCl04 27°C 1.00M U T 1979PTa (54330) 362

K(V+HL=VL+H)=2.3

K(V+HL)=3.3

\*\*\*\*\*

C7H7NO2 HL CAS 3222-47-7 (3154)

6-Methylpyridine-2-carboxylic acid; CH3.C5H3N.COOH

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

-----  
V+++ gl KCl 25°C 0.20M C K1=5.98 2005BNa (55433) 363

B(VH-1L)=2.67

B(VH-1L2)=6.90

\*\*\*\*\*

C7H9NO2 HL CAS 30652-11-0 (2458)

3-Hydroxy-1,2-dimethylpyridin-4(1H)-one; (OH)(CH3)(O:)C5H2N.CH3

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

-----  
V+++ gl KCl 25°C 0.20M C K1=13.36 B2=24.45 2005BNa (56443) 364

B3=33.39

B(VH-1L)=9.10

B(VH-1L2)=18.39

\*\*\*\*\*

C8H9N3O7 H2L Uramildiacetic CAS 13055-06-5 (185)

5-Amino-2,4,6-trioxo-1,3-perhydrodiazimino-N,N-diethanoic acid;

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

-----  
V+++ sp NaCl 20°C 1.0M U K1=13.51 1974PIa (60662) 365

\*\*\*\*\*

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
V+++	gl	NaCl04	25°C	1.00M	C				1983AHa (74295)	366
									K(VL+H)=0.22	

V+++	vlt	NaCl	25°C	1.3M	C				1983KNb (74296)	367
									K(VL+H)=2.54	
									*K(VL(H2O))=-9.27	

Method: dc and ac polarography.

V+++	gl	NaCl04	25°C	1.0M	M	I			1977KSc (74297)	368
									*K(VL(H2O))=-9.57	
									K(2VL(H2O)=LVOVL+2H)=-15.99	
									K(2VL(OH)=LVOVL+H2O)=3.14	

At I=0.20, \*K(VL(H2O))=-10.16, K(2VL(H2O)=LVOVL+2H)=-16.71,  
K(2VL(OH)=LVOVL+H2O)=3.62.

V+++	sp	NaCl	25°C	0.10M	U			K1=0.67	1974TPa (74298)	369
------	----	------	------	-------	---	--	--	---------	-----------------	-----

V+++	EMF	KCl	20°C	0.10M	U		T	K1=25.9	1953SSa (74299)	370
									K(VLOH+H)=9.54	

\*\*\*\*\*

C10H18N2O7                      H3L      HEDTA                      CAS 150-39-0 (392)  
N-(Hydroxyethyl)diaminoethane-N,N',N'-triethanoic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V+++	vlt	NaCl	25°C	1.3M	C	I			1983KNb (75531)	371
									K(2V(OH)L=V2(OH)2L2)=4.20	
									*K(VL(H2O))=-6.52	

Method: dc and ac polarography. By pH titration at I=0.6 M NaCl:  
\*K(VL(H2O))=-6.31, K(2V(OH)L=V2(OH)2L2)=4.05.

V+++	gl	NaCl04	25°C	1.0M	M	I			1977KSc (75532)	372
									*K(VL(H2O))=-6.59	
									K(2VL(H2O)=LVOVL+2H)=-9.16	
									K(2VL(OH)=LVOVL+H2O)=4.01	

At I=0.20, \*K(VL(H2O))=-6.39, K(2VL(H2O)=LVOVL+2H)=-9.05,  
K(2VL(OH)=LVOVL+H2O)=3.74.

V+++	sp	NaCl	20°C	1.0M	U			K1=17.6	1974PIa (75533)	373
------	----	------	------	------	---	--	--	---------	-----------------	-----

\*\*\*\*\*

C11H9N3O2                      H2L      PAR                      CAS 1141-59-9 (636)  
4-(2'-Pyridylazo)-1,3-dihydroxybenzene; C5H4N.N:N.C6H3(OH)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V+++	sp	oth/un	?	?	U				1970BBg (77601)	374
									K(VO+L)=15.75	

\*\*\*\*\*

C14H23N3O10 H5L DTPA CAS 67-43-6 (238)  
 Diethylenetriamine-pentaethanoic acid; HOOC.CH2.N(CH2.CH2.N(CH2.COOH)2)2

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

V+++ sp NaCl 25°C 0.10M U K2=5.6 1974TPa (89430) 375  
 -----

V+++ sp oth/un 20°C ? U K1=27.89 1970KAF (89431) 376  
 -----

C15H12N2O5 H2L CAS 1562-85-2 (5111)  
 Gallocyanine;

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

V+++ sp oth/un ? ? U K1=11.64 B2=17.30 1973TPb (91443) 377  
 By polarography: K1=11.04, B2=16.24  
 -----

C20H16N4O5S H2L EriochromeRed B CAS 14954-75-7 (3510)  
 4-(4,5-Dihydro-3-Me-5-oxo-1-Phe-1H-pyrazol-4-ylazo)-3-naphthol-1-sulfonic acid;

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

V+++ sp oth/un 20°C 0.20M U 1972TPb (99799) 378  
 -----

K(V+HL)=6.96, pH=4-6  
 -----

C23H18O9S H4L Eriochrome cyan CAS 3564-18-9 (433)  
 4'-Hydroxy-3,3'-dimethyl-2''-sulfofuchsone-5,5'-dicarboxylic acid;

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

V+++ sp oth/un ? ? U K1=5.04 B2=10.21 1973TPb (102639) 379  
 By polarography: K1=5.96, B2=10.26  
 -----

C32H18N8O12S4 H4L CAS 33308-41-7 (5367)  
 Phthalocyanine tetrasulfonic acid;

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

V+++ sp oth/un ? ? U K1=4.48 B2=8.98 1971TPa (105561) 380  
 -----

e- HL Electron (442)  
 -----

Electron;

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

VO++ kin oth/un 25°C 1.00M U 1968SEa (1027) 381  
 -----

K' = 2.85

K': VO++ + Cu(I) + 2H = V+++ + Cu(II) + H2O. I=3.0 M, K'=3.04  
 -----

VO++ EMF none 25°C 0.0 U T 1944JCa (1028) 382



K=5.70(337 mV)

K: VO+2H+e=V+H2O. At 0 C: K=6.66(361 mV)

\*\*\*\*\*

BrO3- HL Bromate (6017)  
Bromate;

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

VO++ kin NaClO4 20°C 0.10M U K1=1.95 1969FOa (2439) 383  
medium: (H,Li)ClO4

\*\*\*\*\*

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

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

VO++ kin NaClO4 25°C 2.0M U K1=-0.63 1972MGc (5944) 384

VO++ sp KCl rt var U B2=-0.75 1971KGa (5945) 385  
K(VOC12+2H+2Cl=H2VOC14)=-3.75

Medium: HCl

-----  
VO++ nmr KCl 27°C var U H K1=-1.9 B2=-4.90 1971ZMb (5946) 386  
Medium: HCl. Method: nmr. DH(K1)=31.4 kJ mol-1, DH(K2)=10.9 kJ mol-1

-----  
VO++ EMF NaClO4 20°C 1.0M U K1=0.04 1958ANb (5947) 387

\*\*\*\*\*

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

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

VO++ ISE non-aq 185°C 100% M K1=3.94 B2=7.64 1988JHa (7326) 388  
B3=11.08  
B4=13.99

Medium: molten KSCN. K1=mol-1 kg, B2=mol-2 kg2 etc.

-----  
VO++ ISE NaClO4 25°C 1.0M U K1=3.38 B2=5.75 1971AKa (7327) 389  
B3=7.31  
B4=8.0

Method: quinhydrone and fluoride-ISE

-----  
VO++ cal NaClO4 25°C 1.0M U H 1971AKa (7328) 390

DH(K1)=7.9 kJ mol-1, DH(K2)=6.5, DH(K3)=5.9, DH(K4)=6.3;

DS(K1)=90.8 J K-1 mol-1, DS(K2)=66.9, DS(K3)=49.4, DS(K4)=35.6

-----  
VO++ EMF NaClO4 20°C 1.00M U K1=3.31 B2=5.57 1961RYa (7329) 391  
K3=1.56  
B3=7.13  
B4=7.8

-----  
VO++ gl none 25°C 0.0 U K1=3.15 1951DUa (7330) 392  
\*\*\*\*\*

FClBrI HL (541)

Halides, comparative (for book data under ligand 80)

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

VO++ sp non-aq 100% U I 1968GMc (7438) 393

K(VO(acac)2+N3)=3.1  
K(VO(acac)2+SCN)=1.96  
K(VO(acac)2+Cl)=0.43  
K(VO(acac)2+Br) < -0.1

Medium: MeCN. In C2H4Cl2: K=2.64(N3), 1.74(SCN), 0.38(Cl), <-0.1(Br)

\*\*\*\*\*

HPO3-- H2L Phosphite CAS 13598-36-2 (6305)

Phosphite;

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

VO++ gl oth/un 20°C dil U K1=3.80 1967PSa (7516) 394

B(VO+HL)=1.80  
B(VOHL+HL)=1.22

By solubility: K(VOL+H2L)=2.79

\*\*\*\*\*

I03- HL Iodate CAS 7782-68-5 (1257)

Iodate;

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

VO++ kin NaClO4 16°C 5.50M U K1=0.35 1972G0b (8573) 395

\*\*\*\*\*

NH3O L Hydroxylamine; CAS 5470-11-1 (1808)

Hydroxylamine; NH2.OH

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

VO++ sp NaClO4 25°C 1.0M U 1973BEa (9276) 396

K(VO2+H3NOH)=1.2

\*\*\*\*\*

OH- HL Hydroxide (57)

Hydroxide;

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

VO++ gl NaClO4 25°C 1.00M C 1982NFa (12471) 397

\*K1=-6.07  
\*B(2,2)=-6.59

-----  
VO++ gl oth/un 25°C 0.10M C 1977KHa (12472) 398

\*K1=-5.05  
\*B(2,2)=-6.72  
Kso(VO(OH)2)=-22.18  
B((VO)2(OH)5)=47.26

Medium: 0.10 M LiClO4. Ks(Na(VO)2(OH)5)=Na+(VO)2(OH)5=-3.74,  
Ks(2VO(OH)2(s)+H2O=(VO)2(OH)5+H)=-11.1. \*B(p,q): pVO+qH2O=(VO)p(OH)q+qH.

-----  
VO++ nmr none 25°C 0.0 U 1975FCb (12473) 399  
\*B(2,2)=-6.82  
Kso(VO(OH)2)=-21.97  
-----

VO++ gl none 25°C 0.00 U 1973HMb (12474) 400  
\*K1=-5.67  
\*B(2,2)=-6.67  
-----

VO++ dis oth/un 25°C 0.10M U K1=11.46 B2=22.5 1972KEb (12475) 401  
Medium: HClO4  
-----

VO++ gl KCl 25°C 3.00M U 1972MBa (12476) 402  
\*K1=-6.4  
\*B2=-10.0  
\*B(2,2)=-7.45  
-----

VO++ dis NaClO4 25°C 0.10M U K1=11.32 B2=22.3 1971MKe (12477) 403  
-----

VO++ kin NaClO4 25°C 0.30M U T H 1970LWa (12478) 404  
\*B(2,2)=-6.96

DH(\*B(2,2))=53.1 kJ mol<sup>-1</sup>.  
\*B(2,2)=-7.62(4 C), -7.22(16 C), -6.60(36 C), -6.30(46 C)  
-----

VO++ nmr NaClO4 rt var U I 1962RIa (12479) 405  
K(VO+H)=-0.9  
Medium: HClO4. K=-0.5(H2SO4), -0.6(HNO3)  
-----

VO++ gl oth/un 20°C var U 1960WEa (12480) 406  
K(H18V12037+H)=10.7 ?  
-----

VO++ gl NaClO4 25°C 3.0M U 1955RRa (12481) 407  
\*K1=-6.0  
\*B(2,2)=-6.88  
K(2VO(OH)=(VOOH)2)=5.1  
-----

VO++ gl oth/un 25°C var U 1953MEa (12482) 408  
\*K1(VO+H2O=VO(OH)+H)=-5.36  
-----

VO++ gl none 20°C 0.0 U 1951DUa (12483) 409  
\*K1=-4.77  
Kso(VO(OH)2)=-22.13  
K(H2V2O5(s)=HV2O5+H)=-10.3  
-----

\*\*\*\*\*

O2-- H2L Peroxide CAS 7772-84-1 (2813)  
 Peroxide; -0.0-

-----  
 Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
 -----  
 VO++ nmr KCl 25°C 1.00M U 1991JTb (12757) 410  
 K(VO2(OH)2+H2L=VO(OH)2L)=2.78  
 K(VO(OH)2L+H2L=V(OH)2L2)=5.78  
 K(V(OH)2L2+H2L=VOHL3)=-5.57  
 K(VO(OH)2L=VO2OHL+H)=-6.2  
 K(V(OH)2L2=VO(OH)L2+H)=-7.2; K(2V(OH)2L2=(VOL2)2OH+H)=-4.77.

\*\*\*\*\*

P04--- H3L Phosphate CAS 7664-38-2 (176)  
 Phosphate;

-----  
 Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
 -----  
 VO++ gl KCl 25°C 0.20M C M K1=10.8 1998KKe (13378) 411  
 B(VOH2L)=20.3  
 B(VOHL)=16.8  
 B(VOH-2L)=-3.0  
 B((VO)2H-2L2)=13.35  
 B(VOLA)=18.81, B(VOHLA)=25.00, B(VOH2LA)=28.69, HA=maltol.

-----  
 VO++ sp NaClO4 25°C 1.0M C 1976CKb (13379) 412  
 K(VO+H2PO4)=3.20  
 K(VO(H2PO4)+H2PO4)=1.95  
 \*K(VO(H2PO4))=-3.22  
 \*K(VO(H2PO4)2)=-3.5

-----  
 VO++ sp NaClO4 25°C 1.00M U 1975IVa (13380) 413  
 K(VO+H2L)=1.49  
 K(VO+HL)=5.33  
 K(VO+2HL)=8.25

-----  
 VO++ kin KCl 25°C 0.20M U 1971KYa (13381) 414  
 K(VO+H2L)=2.18

-----  
 VO++ vlt none 25°C 0.0 U 1956ZKa (13382) 415  
 Kso((VO)3L2)=-24.1

\*\*\*\*\*

P207---- H4L Pyrophosphate CAS 2466-09-3 (198)  
 Diphosphate; from (HO)2PO.0.PO(OH)2

-----  
 Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
 -----  
 VO++ gl KCl 25°C 0.20M C B2=17.67 1995BKb (13670) 416  
 B(VOH2L)=16.36  
 B(VOHL)=15.00  
 B(VOH-1L)=4.45

B(VOHL2)=23.18

B((VO)3L3)=42.55

-----  
VO++ kin KCl 25°C 0.20M U 1971KYa (13671) 417

K((VO+H2L)=4.20

\*\*\*\*\*

P3010----- H5L CAS 10380-08-2 (1001)

Tripolyphosphate; from (HO)2PO.O.PO(OH).O.PO(OH)2

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

-----  
VO++ gl KCl 25°C 0.20M C K1=10.33 B2=14.40 1995BKb (13917) 418

B((VO)H2L)=15.17

B((VO)HL)=14.16

B((VO)H-1L)=2.72

B((VO)H-2L)=-6.06

B((VO)HL2)=20.88

-----  
VO++ gl NaCl04 25°C 0.10M U K1=9.87 1989CGb (13918) 419

B((VO)HL)=14.06

-----  
VO++ kin KCl 25°C 0.20M U 1971KYa (13919) 420

K((VO+H2L)=4.81

\*\*\*\*\*

SCN- HL Thiocyanate CAS 463-56-9 (106)

Thiocyanate;

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

-----  
VO++ sp NaCl 30°C 3.0M U K1=1.38 B2=2.24 1970LNa (15332) 421

B3=3.08

-----  
VO++ ISE oth/un 40°C 0.0 U T H T K1=2.15 B2=3.47 1968SWb (15333) 422

Medium:0 corr. K1=2.48(10 C), 2.32(25 C): K2=1.4(10 C), 1.36(25 C)

DH(K1)=-17.7 kJ mol<sup>-1</sup>, DS=-11.7 J K<sup>-1</sup> mol<sup>-1</sup>

-----  
VO++ EMF oth/un rt var U K1=1.7 1963GKd (15334) 423

-----  
VO++ sp oth/un rt var U K1=1.25 1963GKd (15335) 424

-----  
VO++ sp alc/w rt 100% U I 1963GKd (15336) 425

B2=ca.5.2

Medium: MeOH. In acetone B2=ca.6.9

-----  
VO++ sp NaCl04 25°C 2.60M U H T K1=0.92 1951FGa (15337) 426

DH(K1)=1.7 kJ mol<sup>-1</sup>.

\*\*\*\*\*

S04-- H2L Sulfate CAS 7664-93-9 (15)

Sulfate;

-----

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	sol	oth/un	20°C	5.25M	U				1973GTa (16661)	427
K(VO+HL)=0.55										
Medium: Na2SO4										
VO++	sp	NaClO4	20°C	1.0M	U			K1=1.74 B2=2.51	1973IVb (16662)	428
K(VO+HL)=0.23										
VO++	cal	oth/un	25°C	0.0	U	H			1971BLc (16663)	429
DH(K1)=17.2 kJ mol <sup>-1</sup> , DS=105.3 J K <sup>-1</sup> mol <sup>-1</sup> , DG=-14.13 kJ mol <sup>-1</sup>										
VO++	kin	oth/un	25°C	var	U			K1=2.40	1966KWa (16664)	430
K1in/K1out=0.0										
K1out=2.10										

K1 by conductivity, I=0 corr.

VO++	sol	oth/un	25°C	0.0	U			K1=2.48	1963SWc (16665)	431
*****										
CH202		HL						Formic acid	CAS 64-18-6	(37)
Methanoic acid; H.COOH										

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	sp	NaClO4	20°C	1.00M	U			K1=1.98 B2=2.77	1973IVc (17660)	432
*****										
CH305P		H3L						Phosphonoformic	CAS 4428-95-9	(5654)
Phosphonoformic Acid; O:P(OH)2.COOH										

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	KCl	25°C	0.20M	C			K1=9.20 B2=15.22	1996SMa (17704)	433
B((VO)HL)=11.53										
B((VO)H-1L)=2.73										
B((VO)HL2)=18.35										
*****										
CH503P		H2L							CAS 13590-71-1	(1752)
Methylphosphonic acid; CH3.PO3H2										

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	KCl	25°C	0.20M	C			K1=5.87	1996SMa (18135)	434
B((VO)HL)=9.55										
B((VO)H-2L)=-5.98										
B((VOH-1L)2)=6.72										
*****										
CH504P		H2L							CAS 2617-47-2	(1977)
Hydroxymethylphosphonic acid; HO.CH2.PO3H2										

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
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-----  
VO++ gl KCl 25°C 0.20M C K1=6.59 1996SMa (18152) 435  
B((VO)HL)=10.14  
B((VO)H-2L)=-6.39  
B((VO)H-1L2)=4.24  
B((VOH-1L)2)=7.69  
\*\*\*\*\*

CH606P2 H4L Medronic acid CAS 1984-15-2 (2384)  
Methanediphosphonic acid; CH2(PO3H2)2  
-----

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

VO++ gl KCl 25°C 0.20M C B2=19.75 1996SMa (18297) 436  
B((VO)H2L)=21.64  
B((VO)HL)=19.03  
B((VO)3L3)=53.29  
\*\*\*\*\*

C2H02Cl3 HL Trichloroacetic CAS 76-03-9 (1205)  
Trichloroethanoic acid; Cl3C.COOH  
-----

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

VO++ dis oth/un 25°C 0.35M U M 1976RSa (18338) 437  
B2,3(VOL2+3(antipyrine))=6.39  
B2,3(VOL2+3py)=4.78  
3-picoline, B=6.05, 4-pic,6.88  
quinoline, 6.02, iso-quin,9.4  
\*\*\*\*\*

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  
-----

VO++ gl KCl 25°C 0.20M C K1=5.77 B2=10.63 2000BKa (19141) 438  
B((VOH-1L))=0.44  
-----

VO++ gl KNO3 35°C 0.10M U T HM 1978JKa (19142) 439  
B((VO(bpy)L))=8.88

Data for 45 C. DH and DS values reported.  
-----

VO++ gl KNO3 25°C 0.10M U M 1978JSb (19143) 440  
B((VO(Iminodiethanoate)L))=7.66  
-----

VO++ gl KNO3 30°C 0.10M M K1=4.65 1978SVa (19144) 441  
-----

VO++ sp NaCl04 21°C 1.00M U K1=6.45 B2=11.77 1970IVa (19145) 442  
-----

VO++ gl NaCl04 25°C 0.10M U 1966KFc (19146) 443  
K(VOL(OH)+H)=5.7  
-----

VO++ sp NaCl 25°C 1.00M U K1=6.48 B2=9.28 1964NNa (19147) 444

VO++ sp oth/un ? 0.50M U K1=9.76 1959TTa (19148) 445

VO++ ISE oth/un 25°C ? U B2=12.3 1959ZOa (19149) 446  
Medium: saturated K2C2O4

VO++ sp oth/un ? 0.05M U B2=9.80 1957TTa (19150) 447

VO++ sp oth/un ? 0.05M U K1=9.76 1956TTa (19151) 448

\*\*\*\*\*  
C2H3O2Cl HL Chloroacetic CAS 79-11-8 (34)  
Chloroethanoic acid; ClCH2.COOH

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

VO++ gl NaClO4 25°C 1.00M C K1=1.04 B2=1.60 1981LLc (19394) 449  
B3=2.15

VO++ gl NaClO4 25°C 1.00M U K1=1.15 B2=1.78 1969DDa (19395) 450  
K3=0.36

\*\*\*\*\*  
C2H4O2 HL Acetic acid CAS 64-19-7 (36)  
Ethanoic acid; CH3.COOH

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

VO++ gl NaClO4 25°C 1.0M U H K1=1.97 B2= 3.46 1988DTa (20224) 451  
By calorimetry: DH(K1)=10.42 kJ mol<sup>-1</sup>, DS(K1)=73 J K<sup>-1</sup> mol<sup>-1</sup>; DH(B2)=19.33  
DS(B2)=131.

VO++ gl NaClO4 25°C 1.00M U K1=1.86 B2=2.96 1981LLa (20225) 452

VO++ gl NaClO4 25°C 1.00M C K1=1.86 B2=2.96 1981LLc (20226) 453

\*\*\*\*\*  
C2H4O2S H2L Thioglycolic CAS 68-11-1 (596)  
Mercaptoethanoic acid; HS.CH2.COOH

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

VO++ gl KCl 25°C 0.20M C K1=8.6 B2=17.6 1993KBb (20383) 454  
B((VO)HL)=12.8  
B((VO)HL2)=22.3  
K(VO+H2L=VOHL+H)=-1.81

\*\*\*\*\*  
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



VO++ gl KCl 25°C 0.20M C T K1=2.66 B2=4.39 1993MSa (20651) 455  
B((VO)H-1L)=-1.35  
B((VO)H-1L2)=0.89  
B((VO)H-2L2)=-3.98

VO++ gl NaClO4 25°C 1.0M U H K1=2.56 B2= 4.22 1988DTa (20652) 456  
B3=5.19  
By calorimetry: DH(K1)=-0.59 kJ mol<sup>-1</sup>, DS(K1)=47 J K<sup>-1</sup> mol<sup>-1</sup>; DH(B2)=6.40,  
DS(B2)=102; DH(B3)=4.39, DS(B3)=114.

VO++ gl NaClO4 25°C 1.00M C T K1=2.56 B2=4.22 1981LLc (20653) 457  
B3=5.19

VO++ gl KNO3 35°C 0.10M U T HM 1978JKa (20654) 458  
B(VO(bpy)L)=23.26  
Data for 45 C. DH and DS values reported.

VO++ gl KNO3 25°C 0.10M U M 1978JSb (20655) 459  
B(VO(Iminodiethanoate)L)=17.96

\*\*\*\*\*  
C2H5NO2 HL Glycine CAS 56-40-6 (85)  
2-Aminoethanoic acid; H2N.CH2.COOH

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

VO++ gl NaClO4 25°C 1.0M C I K1=11.24 1995GZa (21754) 460  
Additional method: spectrophotometry

VO++ nmr KCl 25°C 1.00M U K1=6.81 B2=12.23 1994NSb (21755) 461  
Method: H1 Nuclear magnetic relaxation of solvent (H2O).

VO++ gl NaClO4 25°C 1.0M U H 1988DTa (21756) 462  
K(VO+HL)=1.06  
K(VO+2HL)=2.25  
By calorimetry: DH(VO+HL)=4.51 kJ mol<sup>-1</sup>, DS(VO+HL)=35 J K<sup>-1</sup> mol<sup>-1</sup>;  
DH(VO+2HL)=3.50, DS(VO+2HL)=55.

VO++ gl NaClO4 25°C 1.00M C T K1=6.51 B2=11.82 1982FNb (21757) 463  
B((VO)HL)=10.81  
B((VO)HL2)=16.63  
B((VO)H-1L2)=4.10  
B((VO)H-1L)=1.3  
B((VO)H-2L)=-6.3; B((VO)2H-2L2)=5.1

VO++ gl oth/un 25°C U K1=8.24 B2=15.66 1970CBb (21758) 464  
\*\*\*\*\*  
C2H5NO2 HL Acetohydroxamic CAS 546-88-3 (2766)  
Acetohydroxamic acid, N-Hydroxyacetamide; CH3.CO.NHOH

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

-----  
VO++ gl NaClO4 25°C 0.10M C K1=8.58 B2=16.21 2003SCa (21820) 465  
B((VO)HL)=9.23  
B((VO)HL2)=0.70

By spectrophotometry: K1=8.30, B2=15.91, B((VO)HL)=9.21, B((VO)HL2)=1.28.

\*\*\*\*\*

C2H5NO3 HL N-OH Glycine CAS 4746-62-7 (1235)  
N-Hydroxy-2-aminoethanoic acid; HO.NH.CH2.COOH

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

VO++ gl KNO3 25°C 0.10M U K1=6.4 B2=12.60 1987BKa (21831) 466  
K3=5.1

\*\*\*\*\*

C2H5O5P H3L CAS 4408-78-0 (4225)  
Phosphonoethanoic acid; HOOC.CH2.PO3H2

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

VO++ gl KCl 25°C 0.20M C K1=9.28 B2=15.13 1996SMa (21897) 467  
B((VO)HL)=12.99  
B((VO)H-1L)=2.52  
B((VO)H2L2)=23.76  
B((VO)HL2)=19.86

\*\*\*\*\*

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  
-----

VO++ con oth/un 20°C 0.01M U B2=5.7 1961BSa (23245) 468  
Medium: 0.017 VOS04

\*\*\*\*\*

C2H8O7P2 H4L HEDPA CAS 2809-21-4 (436)  
1-Hydroxyethane-1,1-diphosphonic acid; CH3.C(OH)(PO3H2)2

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

VO++ gl KNO3 25°C 0.10M C 1998DKa (23403) 469  
B((VO)HL)=18.56  
B((VO)3L3)=53.25

-----  
VO++ gl KCl 25°C 0.20M C 1996SMa (23404) 470

B((VO)HL)=19.27  
B((VO)3L3)=54.73

\*\*\*\*\*

C2H9NO6P2 H4L IDPA CAS 32545-63-4 (1335)  
Imino-N,N-bis(methylenephosphonic acid); HN(CH2PO3H2)2

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

-----  
 VO++ gl KCl 25°C 0.20M C K1=12.22 1999SBb (23460) 471  
 B(VOHL2)=26.29  
 B((VO)2H-2L2)=12.67  
 B(VOHL)=17.55

\*\*\*\*\*

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  
 -----

VO++ gl KCl 25°C 0.20M C K1=5.62 B2= 9.20 2000BKa (24587) 472  
 B(VOHL)=7.2  
 B(VOH-1L)=-0.71

-----  
 VO++ gl NaClO4 25°C 1.00M C K1=5.594 B2=9.480 1982NFa (24588) 473  
 B((VO)HL)=6.20  
 B((VO)H-1L)=0.52  
 B((VO)H-1L2)=2.56

-----  
 VO++ gl NaClO4 30°C 0.10M U K1=6.10 B2=10.60 1980NSd (24589) 474

-----  
 VO++ gl KNO3 35°C 0.10M U T HM 1978JKa (24590) 475  
 B(VO(bpy)L)=11.34

Data for 45 C. DH and DS values reported.

-----  
 VO++ gl KNO3 25°C 0.10M U M 1978JSb (24591) 476  
 B(VO(Iminodiethanoate)L)=11.85

-----  
 VO++ gl NaClO4 25°C 3.00M U 1973ITa (24592) 477  
 K(VO+H+L)=7.41

-----  
 VO++ sp NaClO4 21°C 1.00M U K1=5.23 B2=8.85 1970IVa (24593) 478

\*\*\*\*\*

C3H5O2Cl HL CAS 107-94-8 (1436)  
 3-Chloropropanoic acid; Cl.CH2.CH2.COOH

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

VO++ gl NaClO4 25°C 1.00M C K1=1.54 B2=2.63 1981LLc (24738) 479  
 B3=3.20

\*\*\*\*\*

C3H6O2 HL Propionic acid CAS 79-09-4 (35)  
 Propanoic acid; CH3.CH2.COOH

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

VO++ gl NaClO4 25°C 1.0M C K1=1.91 B2=3.46 1983LLb (25074) 480

\*\*\*\*\*

C3H6O2S H2L Thiolactic acid CAS 79-42-5 (366)

2-Mercaptopropanoic acid; CH3.CH(SH).COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	KCl	25°C	0.20M	C			K1=8.40 B2=17.55 B((VO)HL)=11.85 B((VO)HL2)=20.68	1993KBb (25178)	481

\*\*\*\*\*

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
VO++	gl	KCl	25°C	0.20M	C	T		K1=2.79 B2=5.15 B((VO)H-1L)=-1.34 B((VO)H-1L2)=1.28 B((VO)H-2L2)=-3.80	1993MSa (25568)	482

VO++ sp NaClO4 20°C 1.0M U K1=2.68 B2=4.83 1965JLa (25569) 483  
Also by circular dichroism

\*\*\*\*\*

C3H7NO2 HL Alanine CAS 56-41-7 (86)  
2-Aminopropanoic acid; H2N.CH(CH3).COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	NaClO4	25°C	1.0M	C	I		K1=11.46	1995GZa (26294)	484
Additional method: spectrophotometry										
VO++	gl	NaNO3	25°C	2.25M	C			K1=6.87 B2=12.4 B((VO)HL)=11.16 B((VO)H2L2)=21.4 B((VO)HL2)=17.6 B((VO)2H-2L2)=5.8 B((VO)H-1L2)=4.4, B((VO)2H-3L2)=-1.3, B((VO)H-2L)=-6.7	1988PBa (26295)	485

VO++ gl oth/un 25°C dil U K1=8.34 B2=15.63 1970CBb (26296) 486

VO++ EMF oth/un ? ? U K1=8.70 1970FMb (26297) 487

\*\*\*\*\*

C3H7NO2 HL B-Alanine CAS 107-95-9 (575)  
3-Aminopropanoic acid; H2N.CH2.CH2.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	oth/un	25°C	dil	U			K1=8.34	1970CBb (26494)	488
VO++	EMF	oth/un	?	?	U			K1=9.80	1970FMb (26495)	489

\*\*\*\*\*

C3H7NO2 HL DL-Alanine CAS 302-72-7 (189)

DL-2-Aminopropanoic acid; H2N.CH(CH3).COOH

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-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      nmr KCl    25°C 1.00M U          K1=6.64  B2=12.06  1994NSb (26544) 490
Method: H1 Nuclear magnetic relaxation of solvent (H2O).
*****
```

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
-----
VO++      gl  NaNO3   25°C 2.25M C          B2=19.6      1990CVa (26851) 491
                               B((VO)H2L)=19.9
                               B((VO)HL)=16.1
                               B((VO)H4L2)=39.1
                               B((VO)H3L2)=35.8
B((VO)H2L2)=31.4; B((VO)HL2)=26.4; B((VO)2L2)=25.3
-----
```

```
VO++      sp  NaNO3   25°C 2.25M U          B2=19.2      1989PBc (26852) 492
                               B((VO)HL)=16.1
                               B((VO)H2L)=19.9
                               B((VO)H4L2)=39.3
                               B((VO)H3L2)=35.8
B((VO)H2L2)=31.0, B((VO)HL2)=26.0, B((VO)2L2)=25.2
*****
```

C3H7NO3                    HL    Serine                    CAS 56-45-1 (49)  
 2-Amino-3-hydroxypropanoic acid; H2N.CH(CH2.OH)COOH

```
-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      gl  NaNO3   25°C 2.25M C          K1=6.38  B2=11.70  1989PBd (27196) 493
                               B((VO)HL)=10.37
                               B((VO)H2L2)=19.9
                               B((VO)HL2)=16.44
                               B((VO)2H-2L2)=4.99
B((VO)H-1L2)=4.45, B((VO)2H-3L2)=-1.23, B((VO)H-2L2)=-5.0, B((VO)H-2L)=-6.0,
B((VO)H-3L)=-18.0
-----
```

```
VO++      EMF oth/un  ?    ?  U          K1=7.50      1970FMb (27197) 494
*****
C3H7NO3                    H2L                    CAS 6252-11-5 (1236)
N-Hydroxy-N-methyl-2-aminoethanoic acid; CH3(HO)N.CH2.COOH
-----
```

```
-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      gl  KNO3    25°C 0.10M U          K1=6        B2=11.00  1987BKa (27233) 495
                               K3=4
*****
```

C3H7O7P                    H4L                    CAS 820-11-1 (8695)

D-3-Phosphoglyceric acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	KCl	25°C	0.20M	C			K1=6.99 B(VOHL)=10.34 B((VO)2H-1L2)=13.35 B((VO)2H-2L2)=9.23 B((VO)2H-3L2)=2.31	2001HJa (27335)	496

\*\*\*\*\*  
 C3H8NO5P                      H3L      Glyphosate                      CAS 1071-83-6    (1617)  
 N-(Phosphonomethyl)glycine; H2O3P.CH2.NH.CH2.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	KCl	25°C	0.20M	C			K1=10.69    B2=15.89 B(VOHL2)=23.35 B((VO)2H-2L2)=10.74 B(VOHL)=14.37	1999SBb (27410)	497

\*\*\*\*\*  
 C3H12NO9P3                      H6L      NTPA                                      CAS 6419-19-8    (2920)  
 Nitritotris(methylenephosphonic acid); N(CH2PO3H2)3

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	KCl	25°C	0.20M	C			K1=17.66 B(VOHL)=24.84 B(VOH-1L)=8.33 B(VOH2L)=28.94 B(VOH3L)=31.39	1999SBb (28595)	498

B(VOH4L)=33.3. By spectrophotometry: K1=18.0.  
 \*\*\*\*\*

C4H2O4                              H2L      Squaric acid                      CAS 2892-51-5    (439)  
 3,4-Dihydroxy-3-cyclobutene-1,2-dione;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	sp	NaClO4	25°C	3.00M	C			K1=2.47	1974AVa (28671)	499

\*\*\*\*\*

C4H4O4		H2L						Maleic acid                      CAS 110-16-7    (111)		
cis-Butenedioic acid; HOOC.CH:CH.COOH										

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	NaClO4	20°C	0.1M	U			K(VO+OH+L)=16.39	1999MKc (29156)	500

VO++	gl	NaClO4	30°C	0.10M	U			K1=5.19	1980NSd (29157)	501
------	----	--------	------	-------	---	--	--	---------	-----------------	-----

VO++	gl	KNO3	35°C	0.10M	U	T	HM		1978JKa (29158)	502
------	----	------	------	-------	---	---	----	--	-----------------	-----

B(VO(bpy)L)=11.44

Data for 45 C. DH and DS values reported.

-----  
VO++ gl KNO3 30°C 0.10M M K1=4.41 1978SVa (29159) 503  
\*\*\*\*\*  
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  
-----  
VO++ gl KCl 25°C 0.20M C K1=3.20 B2= 5.60 1998PGb (30073) 504  
B((VO)HL)=7.2  
B((VO)HL2)=-7.25  
B((VO)HL2)=9.56  
-----

VO++ gl NaClO4 30°C 0.10M U K1=3.65 1980NSd (30074) 505  
-----

VO++ EMF NaClO4 30°C 0.10M U M 1977SJa (30075) 506  
B((VO)LA)=8.70  
B((VO)LB)=8.34  
B((VO)LC)=11.29  
B((VO)LD)=9.40  
-----

H2A=malonic,H2B=phthalic,H3C=5-sulphosalicylic,H2D=3,5-dinitrosalicylic acid  
\*\*\*\*\*  
C4H6O4S H2L Thiodiacetic CAS 123-93-3 (140)  
2,2'-Thiodiglycolic acid, Thiodiethanoic acid; HOOC.CH2.S.CH2.COOH  
-----

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl NaClO4 25°C 0.50M U K1=3.14 1973NAc (30243) 507  
\*\*\*\*\*  
C4H6O4S H3L Thiomalic acid CAS 70-49-5 (109)  
2-Mercaptosuccinic acid, 2-Sulfanyl-1,4-butanedioic acid; HOOC.CH(SH).CH2.COOH  
-----

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KCl 25°C 0.20M C K1=10.40 B2=17.45 1993KBb (30378) 508  
B((VO)HL)=13.51  
B((VO)HL2)=22.42  
B((VO)H-1L)=4.44  
-----

\*\*\*\*\*  
C4H6O4S2 H4L CAS 2418-14-6 (4264)  
2,3-Dimercaptobutanedioic acid; HOOC.CH(SH).CH(SH).COOH  
-----

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KCl 25°C 0.20M C B2=20.71 1993KBb (30399) 509  
B((VO)HL)=20.91  
B((VO)HL2)=30.19  
B((VO)H2L)=23.39  
-----

B((VO)3L2)=38.31

B((VO)2L2)=35.60

\*\*\*\*\*

C4H6O4S2 H2L CAS 505-73-7 (3585)

Dithiodiethanoic acid; HOOC.CH2.S.S.CH2.COOH

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

VO++ gl NaClO4 25°C 0.10M M TIH K1=2.55 B2= 4.08 1980BDc (30414) 510

Data for 0.1-0.3 M NaClO4 and for 35 C. At I=0.0 M, K1=2.39, K2=1.37.

DH(K1)=-14.1 kJ mol<sup>-1</sup>, DS(K1)=1.1 J K<sup>-1</sup> mol<sup>-1</sup>; DH(K2)=-3.5, DS(K2)=17.0.

\*\*\*\*\*

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  
-----

VO++ gl NaNO3 25°C 2.25M C K1=4.3 B2=7.8 1992HTa (30755) 511

B((VO)H2L2)=13.1

B((VO)HL)=6.9

B((VO)HL2)=11.4

B((VO)H-1L)=0.6

B((VO)H-2L)=-4.4; B((VO)H-1L2)=2.8; B((VO)H-2L2)=-4.2

\*\*\*\*\*

C4H6O5 H2L Diglycolic acid CAS 110-99-6 (243)

Di(carboxy)methyl ether, 2,2'-Oxydiethanoic acid; HOOC.CH2.O.CH2.COOH

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

VO++ gl NaClO4 25°C 0.10M M TIH K1=3.10 B2= 5.16 1980BDc (30946) 512

Data for 0.1-0.3 M NaClO4 and for 35 C. At I=0.0 M, K1=3.01, K2=1.95.

DH(K1)=-15.8 kJ mol<sup>-1</sup>, DS(K1)=5.8 J K<sup>-1</sup> mol<sup>-1</sup>; DH(K2)=-0.0, DS(K2)=38.4.

-----  
VO++ gl NaClO4 25°C 0.50M U K1=5.01 1973NAC (30947) 513

\*\*\*\*\*

C4H6O6 H2L D-Tartaric acid CAS 147-71-7 (93)

D-Tartaric acid, D-2,3-Dihydroxybutanedioic acid; HOOC.CH(OH).CH(OH).COOH

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

VO++ gl KCl 25°C 0.20M C K1=4.04 1995KBa (30980) 514

B((VO)2H-1L2)=9.34

B((VO)2H-2L2)=6.37

B((VO)2H-3L2)=-0.49

B((VO)2H-4L2)=-5.61

-----  
VO++ sp NaClO4 25°C 2.00M U I 1981HTb (30981) 515

K((VO)2L2+2L)=0.8

-----  
VO++ gl KNO3 25°C 0.10M C 1978PSa (30982) 516



B((VO)H-1L)=1.33  
 B((VO)2H-1L2)=9.78  
 B((VO)2H-2L2)=5.97  
 B((VO)2H-3L2)=-0.9

\*\*\*\*\*

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  
 -----

VO++ gl KCl 25°C 0.20M C K1=3.99 1995KBa (31033) 517  
 B((VO)2H-1L2)=9.01  
 B((VO)2H-2L2)=6.05  
 B((VO)2H-3L2)=-0.48  
 B((VO)2H-4L2)=-4.86

-----  
 VO++ gl none 25°C 0.0 M 1982H0c (31034) 518  
 K((VO)2L2+H)=4.69  
 K(H(VO)2L2+H)=7.09

-----  
 VO++ sp NaCl04 25°C 2.00M U I 1981HTb (31035) 519  
 K((VO)2L2+2L)=0.09

-----  
 VO++ gl KNO3 25°C 0.10M C K1=3.86 1978PSa (31036) 520  
 B((VO)H-1L)=1.20  
 B((VO)H-2L)=-4.31  
 B((VO)2H-1L2)=9.53  
 B((VO)2H-2L2)=6.11

\*\*\*\*\*

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  
 -----

VO++ gl KCl 25°C 0.20M C K1=3.80 1995KBa (31391) 521  
 B((VO)2H-1L)=9.31  
 B((VO)2H-2L2)=6.24  
 B((VO)2H-3L2)=-0.81  
 B((VO)2H-4L2)=-5.80

-----  
 VO++ gl none 25°C 0.0 M 1982H0c (31392) 522  
 K((VO)2L2+H)=5.99  
 K(H(VO)2L2+H)=7.01

-----  
 VO++ gl NaCl04 30°C 0.10M U K1=6.24 B2=11.12 1980NSd (31393) 523

-----  
 VO++ gl KNO3 25°C 0.10M C K1=4.0 1978PSa (31394) 524  
 B((VO)H-1L)=1.50  
 B((VO)2H-1L2)=9.84  
 B((VO)2H-2L2)=6.21

$$B((VO)2H-3L2)=-0.3$$

-----  
VO++ sp KNO3 25°C 0.25M U 1970KPb (31395) 525  
K((VO+HL=VOL+H)=1.10  
K((VOL+HL=VOL2+H)=0.30

\*\*\*\*\*

C4H6O6 H2L meso-Tartaric CAS 147-73-9 (91)  
meso-2,3-Dihydroxybutanedioic acid; HOOC.CH(OH).CH(OH).COOH

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

VO++ gl KCl 25°C 0.20M C K1=4.52 1995KBa (31431) 526  
B((VO)3H-3L3)=8.56  
B((VO)3H-4L3)=4.55  
B((VO)3H-5L3)=-2.04  
B((VO)3H-6L3)=-10.46  
B((VO)H-1L)=0.56, B((VO)H-1L2)=3.45, B((VO)H-2L2)=-2.48

-----  
VO++ gl KNO3 25°C 0.10M C K1=4.42 1978PSa (31432) 527  
B((VO)2H-1L2)=7.75  
B((VO)2H-2L2)=4.46  
B((VO)2H-3L2)=-0.41

\*\*\*\*\*

C4H7NO2 HL Acetoacetamide CAS 2044-64-6 (1407)  
3-Oxobutanamide;

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

VO++ gl KCl 25°C 0.20M C 2001CKa (31449) 528  
K((VO+HL=VOL+H)=-2.30  
K((VO+2HL=VOL2+2H)=-6.04

\*\*\*\*\*

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  
-----

VO++ nmr KCl 25°C 1.00M U K1=7.23 B2=12.64 1994NSb (31973) 529  
Method: H1 Nuclear magnetic relaxation of solvent (H2O). For the DL isomer  
K1=7.23, B2=12.64

-----  
VO++ gl NaNO3 25°C 2.25M C K1=9.05 B2=16.25 1990CMA (31974) 530  
B((VO)H2L)= 15.55  
B((VO)HL)= 12.56  
B((VO)HL2)= 21.49  
B((VO)H3L2)= 27.77

-----  
VO++ gl KNO3 25°C 0.10M U K1=9.2 1987BKa (31975) 531  
-----

VO++ gl NaClO4 25°C 0.10M U K1=8.98 B2=15.47 1972SSe (31976) 532

K3=4.42

-----  
VO++ gl KNO3 25°C 0.10M U K1=8.39 B2=14.43 1972TSd (31977) 533  
\*\*\*\*\*  
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  
-----  
VO++ gl KCl 25°C 0.20M C K1=8.84 B2=15.32 1999SBb (32392) 534  
B(VOHL2)=20.08  
B((VO)2H-2L2)=9.56  
-----

VO++ gl KNO3 25°C 0.10M C K1=9.00 1984FVa (32393) 535  
K(VO(OH)L+H)=5.8  
K((VO)2(OH)2L2+2H)=9.1  
-----

VO++ gl KNO3 25°C 0.10M U K1=8.98 1983FSa (32394) 536  
-----

VO++ gl KNO3 25°C 0.10M U M 1978JSb (32395) 537  
B((VO)LA)=7.66  
B((VO)LB)=11.85  
B((VO)LC)=18.35  
B((VO)LD)=18.35  
-----

B((VO)LE)=17.52, B((VO)LF)=17.96. H2A=oxalic, H2B=malonic, H2C=succinic,  
H3D=5-sulfosalicylic, HE=mandelic, HF=glycolic acid  
-----

VO++ gl KNO3 25°C 0.10M U T M K1=9.01 B2=15.63 1973STc (32396) 538  
K(VO(OH)L+H=VOL)=5.71  
K((VO(OH)L)2+2H=2VOL)=8.31  
30 C: K1=8.98; K2=6.51; K(VO(OH)L+H=VOL)=5.59; K((VO(OH)L)2+2H=2VOL)=8.14  
-----

VO++ gl NaClO4 25°C 0.10M U 1966KFc (32397) 539  
K(VOLOH+H)=5.50  
-----

\*\*\*\*\*  
C4H7NO5 H2L (1237)  
N-Hydroxyaminobutanedioic acid; HO.NH.CH(CH2.COOH)COOH  
-----

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KNO3 25°C 0.10M U K1=7.24 B2=12.64 1987BKa (32411) 540  
\*\*\*\*\*  
C4H7NO5 H2L (1234)  
N-Hydroxyiminodiethanoic acid; HO.N(CH2.COOH)2  
-----

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl NaClO4 25°C 1.00M C H B2=21.9 1987AKa (32427) 541  
DH(B2)=-56.5 kJ mol<sup>-1</sup>, DS=229 J K<sup>-1</sup> mol<sup>-1</sup>  
-----

VO++ sp KNO3 25°C 0.10M U 1987BKa (32428) 542  
K(VO+2L=VL2)=21.9

VO++ gl KNO3 25°C 0.10M C K1=7.16 B2=13.26 1984FVa (32429) 543  
K(VO(OH)L+H)=5.0  
K((VO)2(OH)2L2+2H)=6.4

\*\*\*\*\*  
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  
-----

VO++ gl KNO3 25°C 0.10M U T K1=7.05 B2=13.50 1986SSe (32743) 544  
Data for 25-45 C and 0-1.0 M KNO3. DH and DS values reported.

VO++ gl NaClO4 25°C 0.10M U K1=7.50 B2=14.60 1973TSe (32744) 545  
K3=4.04

-----  
VO++ EMF oth/un ? ? U K1=6.90 1970FMb (32745) 546

\*\*\*\*\*  
C4H8N2O3 HL Gly-Gly CAS 556-50-3 (54)  
Glycyl-glycine; H2N.CH2.CO.NH.CH2.COOH

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

VO++ gl NaNO3 25°C 2.25M C 1997PLa (33061) 547  
K(VO+HL)=1.85

-----  
VO++ gl NaNO3 25°C 2.25M C 1993CLa (33062) 548

B((VO)HL)=10.3  
B((VO)H-1L)=1.9  
B((VO)H2L2)=19.5

\*\*\*\*\*  
C4H8N2O4 H2L HDA CAS 19247-05-3 (1025)  
Hydrazine-N,N'-diethanoic acid; HOOC.CH2.NH.NH.CH2.COOH

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

VO++ gl KNO3 25°C 0.10M U K1=7.61 1983FSa (33096) 549

\*\*\*\*\*  
C4H8N2O4 H2L CAS 39156-77-9 (3008)  
Hydrazine-N,N-diethanoic acid; H2N.N(CH2.COOH)2

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

VO++ gl NaClO4 20°C 0.1M U K1=8.04 1999MKc (33117) 550  
K(M+OH+L)=16.95

\*\*\*\*\*  
C4H8O2 HL Isobutyric acid CAS 79-31-2 (573)  
2-Methylpropanoic acid; CH3.CH(CH3).COOH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl NaClO4 25°C 1.0M C K1=1.97 B2=3.39 1983LLb (33260) 551  
\*\*\*\*\*  
C4H8O2 HL CAS 107-92-6 (1118)  
n-Butanoic acid; CH3.CH2.CH2.COOH  
-----

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl NaClO4 25°C 1.0M C K1=1.94 B2=3.37 1983LLb (33356) 552  
\*\*\*\*\*  
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  
-----  
VO++ gl KCl 25°C 0.20M C T K1=3.10 B2=5.89 1993MSa (33536) 553  
B((VO)H-1L)=-1.03  
B((VO)H-1L2)=1.64  
B((VO)H-2L2)=-3.03  
\*\*\*\*\*  
C4H9NO3 HL Threonine CAS 72-19-5 (48)  
2-Amino-3-hydroxybutanoic acid; H2N.CH(CH(OH).CH3)COOH  
-----

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl NaNO3 25°C 2.25M C K1=6.41 B2=11.93 1989PBd (34339) 554  
B((VO)HL)=10.30  
B((VO)H2L2)=20.0  
B((VO)HL2)=16.43  
B((VO)2H-2L2)=4.98  
B((VO)H-1L2)=4.80, B((VO)2H-3L2)=-1.35, B((VO)H-2L2)=-4.8, B((VO)H-2L)=-6.0,  
B((VO)H-3L)=-18.0  
-----

-----  
VO++ vlt NaClO4 25°C 0.10M C K1=0.89 1986SPb (34340) 555  
Method: polarography.  
\*\*\*\*\*  
C4H11NO8P2 H5L CAS 2439-99-8 (2129)  
N-Carboxymethyl-N,N-bis(methylenephosphonic acid); HOOC.CH2.N(CH2.PO3H2)2  
-----

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KCl 25°C 0.20M C K1=16.78 1999SBb (35117) 556  
B(VOHL)=21.26  
B(VOH-1L)=7.87  
B(VOH2L)=24.5  
-----

By spectrophotometry: K1=16.0  
\*\*\*\*\*  
C4H13NO7P2 H4L CAS 63132-40-1 (1347)  
-----

1-Hydroxy-4-aminobutyl-1,1-diphosphonic acid; (P<sub>3</sub>H<sub>2</sub>)<sub>2</sub>C(OH).CH<sub>2</sub>.CH<sub>2</sub>.CH<sub>2</sub>.NH<sub>2</sub>

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

VO++ gl KNO<sub>3</sub> 25°C 0.10M C 1998DKa (35618) 557

B((VO)HL)=17.41  
B((VO)3L3)=50.17

\*\*\*\*\*

C<sub>5</sub>H<sub>4</sub>N<sub>2</sub>O<sub>2</sub> HL CAS 98-97-5 (1879)

Pyrazine-2-carboxylic acid; cyclo(-CH:CH.N:C(COOH).CH:N-)

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

VO++ gl NaClO<sub>4</sub> 25°C 0.50M C K<sub>1</sub>=3.30 B<sub>2</sub>=6.25 1989NMa (36067) 558

B<sub>3</sub>=7.80

\*\*\*\*\*

C<sub>5</sub>H<sub>4</sub>N<sub>2</sub>O<sub>4</sub> H<sub>2</sub>L CAS 570-22-9 (7544)

Imidazole-4,5-dicarboxylic acid; C<sub>3</sub>H<sub>2</sub>N<sub>2</sub>(COOH)<sub>2</sub>

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

VO++ gl KCl 25°C 0.20M C K<sub>1</sub>=7.80 B<sub>2</sub>=13.55 1998SMa (36131) 559

B(VOH-2L<sub>2</sub>)=-2.7

B(VOHL)=11.04

B((VO)4H-4L<sub>4</sub>)=23.15

B((VO)4H-5L<sub>4</sub>)=16.55

B((VO)4H-6L<sub>4</sub>)=8.65, B((VO)4H-7L<sub>4</sub>)=-0.30, B((VO)4H-8L<sub>4</sub>)=-9.46.

\*\*\*\*\*

C<sub>5</sub>H<sub>4</sub>N<sub>2</sub>O<sub>4</sub> H<sub>2</sub>L CAS 85908-17-4 (7545)

Pyrazole-3,5-dicarboxylic acid;

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

VO++ gl KCl 25°C 0.20M C K<sub>1</sub>=3.72 B<sub>2</sub>= 6.52 1998SMa (36133) 560

B((VO)2H-2L<sub>2</sub>)=1.72

B((VO)2H-3L<sub>2</sub>)=-4.26

B((VO)2H-4L<sub>2</sub>)=-10.6

-----  
VO++ gl KCl 25°C 0.20M C K<sub>1</sub>=3.72 B<sub>2</sub>= 6.52 1998SMa (36134) 561

B((VO)2H-2L<sub>2</sub>)=1.72

B((VO)2H-3L<sub>2</sub>)=-4.26

B((VO)2H-4L<sub>2</sub>)=-10.6

\*\*\*\*\*

C<sub>5</sub>H<sub>5</sub>N L Pyridine CAS 110-86-1 (31)

Pyridine, Azine;

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

VO++ sp oth/un 25°C ? U K<sub>1</sub>=-1.70 1956ERa (36690) 562

\*\*\*\*\*

C5H5NOS (4389)  
2-Mercaptopyridine N-oxide;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KCl 25°C 0.20M C I K1=6.7 B2=13.00 2003KKa (36723) 563  
In 60% w/w DMSO/H2O, K1=7.7, B2=14.9.

-----  
VO++ gl KCl 25°C 0.20M C M 2003KKa (36724) 564  
B(VOHLA)=17.01  
B(VOLA)=13.80  
B(VOLB)=12.39  
B(VOH-1LC)=5.47

B(VOHL(P04))=23.40. H3A is citric acid, H2B is oxalic acid, HC is lactic acid.

\*\*\*\*\*

C5H5NO2 HL CAS 13161-30-3 (5582)  
1-Hydroxypyridin-2(1H)-one, 2-Hydroxypyridine 1-oxide;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KCl 25°C 0.20M C I K1=8.30 B2=16.01 2003KKa (36757) 565  
In 60% w/w DMSO/H2O, K1=8.80, B2=16.87.

-----  
VO++ gl KCl 25°C 0.20M C M 2003KKa (36758) 566  
B(VOHLA)=18.41  
B(VOLA)=15.14  
B(VOH-1LA)=8.47  
B(VOLB)=14.25

B(VOH-1LB)=7.18, B(VOLC)=11.88, B(VOH-1LC)=6.79, B(VOH2L(P04))=30.44,  
B(VOHL(P04))=25.62. H3A is citric, H2B is oxalic and HC is lactic acid.

\*\*\*\*\*

C5H5O2F3 HL CAS 367-57-7 (163)  
1,1,1-Trifluoropentane-2,4-dione; CF3.CO.CH2.CO.CH3

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ sp NaClO4 25°C 1.0M U 1980HRa (37060) 567  
K(VO+HL=VOL+H)=-0.96

\*\*\*\*\*

C5H6N2O2 HL CAS 645-65-8 (3620)  
4(or 5)-Imidazolylethanoic acid; C3H3N2.CH2.COOH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KCl 25°C 0.20M C K1=6.10 B2=10.70 1998SMa (37319) 568  
B(VOH-1L2)=3.1  
B((VO)2H-2L2)=4.29

\*\*\*\*\*

C5H6O4 H2L Citraconic acid CAS 498-23-7 (3021)

Citraconic acid; CH3.C(COOH):CH.COOH

---

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	NaCl04	30°C	0.10M	U			K1=6.33	1980NSd (37375)	569
*****										
C5H6O4		H2L		Itaconic acid				CAS 97-65-4	(398)	
Methylenesuccinic acid; HOOC.CH2.C(:CH2).COOH										

---

---

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	NaCl04	30°C	0.10M	U			K1=3.91	1980NSd (37459)	570
VO++	EMF	NaCl04	30°C	0.10M	U	M			1977SJa (37460)	571
B((VO)LA)=9.24										
B((VO)LB)=11.39										
B((VO)LC)=9.68										

---

H2A=malonic acid, H3B=5-sulphosalicylic acid, H2C=3,5-dinitrosalicylic acid  
\*\*\*\*\*

---

C5H8O2		HL		Acetylacetone				CAS 123-54-6	(164)	
Pentane-2,4-dione; CH3.CO.CH2.CO.CH3										

---

---

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	dis	NaCl04	25°C	0.10M	U			K1=8.59 B2=16.10	1986ISb (38120)	572
VO++	sp	NaCl04	25°C	1.0M	U				1980HRa (38121)	573
K((VO+HL=VOL+H))=-0.26										
VO++	sp	none	25°C	0.0	U	M			1978JZa (38122)	574
K((VOL2+(Me)2SO))=0.63										
K((VOL2+(Et)2SO))=0.68										
K((VOL2+(Pr)2SO))=0.68										
K((VOL2+(Bu)2SO))=0.70										

---

---

VO++	sp	non-aq	20°C	100%	U	M			1976KTa (38123)	575
K((VOL2+isopropylamine))=3.98										
K((VOL2+butylamine))=3.95										
K((VOL2+t-butylamine))=3.93										
K((VOL2+cyclohexylamine))=4.00										

---

Medium: CH2Cl2

---

VO++	sp	non-aq	20°C	100%	U	M			1976KTa (38124)	576
K((VOL2+diethylamine))=2.21										
K((VOL2+diisopropylamine))=2.26										
K((VOL2+diisobutylamine))=2.23										
K((VOL2+dicyclohexylamine))=2.03										

---

Medium: CH2Cl2

---

VO++	sp	non-aq	20°C	100%	U	M			1976KTa (38125)	577
------	----	--------	------	------	---	---	--	--	-----------------	-----

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K(VOL2+morpholine)=3.64  
 K(VOL2+piperidine)=4.11  
 K(VOL2+quinoline)=1.18  
 K(VOL2+isoquinoline)=2.92

Medium: CH<sub>2</sub>Cl<sub>2</sub>

VO++ sp non-aq 20°C 100% U M 1976K<sub>Ta</sub> (38126) 578  
 K(VOL2+pyridine)=2.94  
 K(VOL2+(2-picoline))=1.02  
 K(VOL2+(3-picoline))=3.19  
 K(VOL2+(4-picoline))=3.28

Medium: CH<sub>2</sub>Cl<sub>2</sub>

VO++ sp non-aq 20°C 100% U M 1976K<sub>Ta</sub> (38127) 579  
 K(VOL2+(2,4-lutidene))=1.62  
 K(VOL2+(3,5-lutidene))=3.26  
 K(VOL2+2-hydroxypyridine)=2.81  
 K(VOL2+(2-cyanopyridine))=1.22

Medium: CH<sub>2</sub>Cl<sub>2</sub>

VO++ sp non-aq 20°C 100% U M 1976K<sub>Ta</sub> (38128) 580  
 K(VOL2+(3-cyanopyridine))=2.23  
 K(VOL2+(4-cyanopyridine))=2.20  
 K(VOL2+(4-ethylpyridine))=3.26  
 K(VOL2+(2-aminopyridine))=1.89

Medium: CH<sub>2</sub>Cl<sub>2</sub>

VO++ sp non-aq 20°C 100% U M 1975K<sub>Ta</sub> (38129) 581  
 K(VO(L)2+A)=1.54  
 K(VO(L)2+B)=1.59  
 K(VO(L)2+C)=1.59  
 K(VO(L)2+D)=1.62

Medium: CH<sub>2</sub>Cl<sub>2</sub>. A=N,N-dimethylacetamide, B=N,N-diethylacetamide.

C=N,N-di-n-propylacetamide, D=N,N-diisopropylacetamide

VO++ sp non-aq 20°C 100% U M 1975K<sub>Ta</sub> (38130) 582  
 K(VO(L)2+A)=1.44  
 K(VO(L)2+B)=1.39  
 K(VO(L)2+C)=1.43  
 K(VO(L)2+D)=1.42

Medium: CH<sub>2</sub>Cl<sub>2</sub>. A=N,N-di(n-butyl)acetamide, B=N,N-di(isobutyl)acetamide,

C=N-methyl-N-phenylacetamide, D=N-ethyl-N-phenylacetamide

VO++ sp non-aq 20°C 100% U M 1975K<sub>Ta</sub> (38131) 583  
 K(VO(L)2+A)=1.42  
 K(VO(L)2+B)=2.10  
 K(VO(L)2+C)=1.42  
 K(VO(L)2+D)=1.61

Medium: CH<sub>2</sub>Cl<sub>2</sub>. A=N-methyl-N-benzylacetamide, B=N,N-dicyclohexylacetamide,

C=N-acetylmorpholine, D=N-acetylpiperidine

-----  
VO++ sp non-aq 20°C 100% U M 1975KTa (38132) 584

K((VO(L)2+A)=1.62

K((VO(L)2+B)=0.97

K((VO(L)2+C)=1.38

Medium: CH2Cl2. A=N,N,N',N'-tetramethylurea, B=N,N-dimethylbenzamide,  
C=N,N-dimethyl-chloroacetamide

-----  
VO++ gl oth/un 25°C ? U H K1=8.68 B2=15.79 1956BTa (38133) 585

DH(VO2+HL=VOL+H)=-7.1 kJ mol<sup>-1</sup>, DS=142; DH(VOL+HL=VOL2+H)=-28, DS=40

\*\*\*\*\*

C5H8O6 H2L CAS 34618-90-1 (4292)

2-Methyltartaric acid; HOOC.C(OH)(CH3).CH(OH).COOH

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

-----  
VO++ gl none 25°C 0.0 M 1982H0c (38408) 586

K((VO)2L2+H)=5.98

K(H(VO)2L2+H)=5.19

For the L-isomer, K((VO)2L2+H)=6.31, K(H(VO)2L2+H)=5.44

\*\*\*\*\*

C5H8O7 H2L CAS 40120-71-6 (3022)

2,3,4-Trihydroxypentanedioic acid, Trihydroxyglutaric acid; HOOC.(CH(OH))3.COOH

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

-----  
VO++ sp NaClO4 ? 0.01M U K1=3.82 1962GMa (38444) 587

Medium: HClO4

\*\*\*\*\*

C5H9NO2 HL Proline CAS 147-85-3 (44)

Pyrrolidine-2-carboxylic acid; C4H8N.COOH

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

-----  
VO++ nmr KCl 25°C 1.00M U K1=7.28 B2=13.12 1994NSb (38655) 588

Method: H1 Nuclear magnetic relaxation of solvent (H2O). For the DL isomer

K1=7.28, B2=13.11

-----  
VO++ EMF oth/un ? ? U K1=10.30 1970FMb (38656) 589

\*\*\*\*\*

C5H9NO3S H2L Thiopronin CAS 1953-02-2 (2162)

N-2-Mercaptopropanoyl-glycine; CH3.CH(SH).CO.NH.CH2.COOH

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

-----  
VO++ gl KCl 25°C 0.20M C M K1=5.13 2002JBa (38787) 590

B(VOH2L2)=19.4

B(VOHL)=10.02

B(VOH-1L)=1.10

B(VOH-1L2)=4.57

B(VOH-2L)=-5.80, B(VOH-1(bpy)L)=6.14, B(VOH-1AL)=14.06, B(VOH-1(mal)L)=6.84, B(VOH-1(ox)L)=3.2. H4A is tiron.

\*\*\*\*\*

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
VO++	gl	NaClO4	25°C	0.20M	C	TIH		K1=11.53 K(VO2L+H)=4.81 K(VO2+H2L=VO2HL+H)=2.58	2001MMb (39143)	591

Data for 20-30 C and for 0.06-0.31 mole fraction MeOH/H2O.

DH(K1)=-3.57 kJ mol<sup>-1</sup>, DS(K1)=208 J K<sup>-1</sup> mol<sup>-1</sup>.

VO++	nmr	KCl	25°C	1.00M	U			K1=8.06 B2=13.51	1994NSb (39144)	592
------	-----	-----	------	-------	---	--	--	------------------	-----------------	-----

Method: H1 Nuclear magnetic relaxation of solvent (H2O). For the DL isomer  
K1=8.01, B2=13.59

VO++	gl	NaNO3	25°C	2.25M	C			B((VO)H2L)=14.9 B((VO)H4L2)=29.0 B((VO)HL)=12.0 B((VO)H2L2)=23.3	1992CAa (39145)	593
------	----	-------	------	-------	---	--	--	---	-----------------	-----

B((VO)HL2)=18.9; B((VO)H-1L2)=7.5; B((VO)2H-5L2)=-10.4; B((VO)H-3L)=-10.4;  
B((VO)2H-6L2)=-19.0

VO++	gl	NaClO4	25°C	0.10M	U			K1=7.73 B2=14.10 K3=3.90	1972SSe (39146)	594
------	----	--------	------	-------	---	--	--	-----------------------------	-----------------	-----

\*\*\*\*\*

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
VO++	gl	KNO3	25°C	0.10M	U			K1=9.56	1983FSa (39291)	595
VO++	gl	NaClO4	25°C	0.50M	U			K1=9.44 *K(VOL)=-5.76 K(2VOL=(VO(OH)L)2+2H)=-9.05	1977NAa (39292)	596

\*\*\*\*\*

C5H10NO7P H4L PMIDA CAS 5994-61-6 (2433)  
N-(Phosphonomethyl)iminodiethanoic acid; H2O3P.CH2.N(CH2.COOH)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	KCl	25°C	0.20M	C			K1=15.14 B(VOH2L)=20.4 B(VOH-1L)=7.06	1999SBb (39688)	597

By spectrophotometry: K1=14.9

\*\*\*\*\*

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  
-----  
VO++ gl NaClO4 25°C 0.10M U K1=7.40 B2=14.40 1973TSe (39846) 598  
K3=4.07

\*\*\*\*\*  
C5H10O3 HL CAS 3739-30-8 (3612)  
2-Hydroxy-2-methylbutanoic acid, Methylene glycolic acid; CH3.CH2.C(OH)(CH3)COOH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KCl 25°C 0.20M C K1=2.88 B2=5.55 1993MSa (40266) 599  
B((VO)H-1L)=-1.15  
B((VO)H-1L2)=1.19  
B((VO)H-2L2)=-2.97

\*\*\*\*\*  
C5H11N L Piperidine CAS 110-89-4 (105)  
Perhydropyridine; cyclo(-CH2.CH2.CH2.NH.CH2.CH2-) C5H11N

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ sp non-aq 25°C 100% U M 1975WHa (40459) 600  
K(VOW+L)=-0.17  
K(VOX+L)=-0.28  
K(VOY+L)=-0.40  
K(VOZ+L)=-0.44

Medium: toluene. W=(p-Cyano)tetraphenylporphyrin complex of VO++.  
X=(p-chlor-), Y=(H-) analogue, Z=(OCH3-) analogus

-----  
VO++ sp non-aq 25°C 100% U T HM 1975WHa (40460) 601  
K(VOY+L)=-0.42

Medium: toluene. VOY: (p-Methyl)tetraphenylporphyrin complex of VO++  
DH(VOY+L)=-23.4 kJ mol<sup>-1</sup> at 35 C. 35 C: K=-0.55; 45 C: -0.68

\*\*\*\*\*  
C5H11NO2 HL Valine CAS 72-18-4 (43)  
2-Amino-3-methylbutanoic acid; H2N.CH(CH(CH3)2)COOH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ nmr KCl 25°C 1.00M U K1=6.37 B2=11.42 1994NSb (40771) 602  
Method: H1 Nuclear magnetic relaxation of solvent (H2O). For the DL isomer  
K1=6.37, B2=11.40

-----  
VO++ EMF oth/un ? ? U K1=8.65 1970FMb (40772) 603

\*\*\*\*\*  
C5H11NO2S H2L D-Penicillamine CAS 52-67-5 (1323)  
D-2-Amino-3-mercapto-3-methylbutanoic acid; (CH3)2C(SH)CH(NH2)COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	NaNO3	25°C	2.25M	C			B2=21.0 B((VO)H2L)=20.09 B((VO)HL)=16.3 B((VO)H4L2)=39.4 B((VO)H3L2)=36.1	1990CVa (41193)	604
B((VO)H2L2)=32.2; B((VO)HL2)=27.5; B((VO)2L2)=26.7; B((VO)H-1L2)=7.9; B((VO)H-2L)=-5.2										

VO++	sp	NaNO3	25°C	2.25M	U			B2=19.7 B((VO)HL)=16.3 B((VO)H2L)=19.8 B((VO)H4L2)=39.5 B((VO)H3L2)=36.1	1989PBc (41194)	605
B((VO)H2L2)=31.7, B((VO)HL2)=26.7, B((VO)2L2)=26.0										
*****										
C5H14O7P2                      H4L                      (7243)										
1-Hydroxypentane-1,1-diphosphonic acid; HO.C(PO(OH)2)2.(CH2)3CH3										

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	KNO3	25°C	0.10M	C			B((VO2)HL)=18.23 B((VO)3L3)=51.52	1998DKa (41938)	606
*****										
C6H2O4Br2                      H2L                      Bromanic acid CAS 4379-59-6 (1279)										
3,6-Dibromo-2,5-dihydroxy-1,4-benzoquinone;										

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	sp	oth/un	25°C	1.00M	U			K((VO(OH)2+2L+2H=VOL2)=18.98	1980Vpa (42041)	607
*****										
C6H2O4Cl2                      H2L                      Chloranilic acid 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
VO++	sp	oth/un	25°C	1.00M	U			K((VO(OH)2+2L+2H=VOL2)=18.82	1980Vpa (42060)	608
*****										
C6H4N2O4                      H2L                      CAS 89-01-0 (5801)										
Pyrazine-2,3-dicarboxylic acid;										

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	NaClO4	25°C	0.50M	C			K1=3.90    B2=6.45	1989NMa (42208)	609
*****										
C6H4O4                      H2L                      CAS 615-94-1 (1280)										

2,5-Dihydroxy-1,4-benzoquinone;

```
-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      sp  oth/un 25°C 1.00M U                        1980VPa (42311) 610
                                         K((VO(OH)2+2L+2H=VOL2)=21.27
```

```
*****
C6H5NO2          HL  Picolinic acid  CAS 98-98-6 (391)
2-Pyridine-carboxylic acid; C5H4N.COOH
-----
```

```
-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      gl  KCl    25°C 0.20M C    M    K1=6.66  B2=12.11  2000KGd (42618) 611
                                         B((VO)2H-2L2)=6.15
                                         B((VO)H-1L2)=5.13
                                         B((VO)AL)=12.38
                                         B((VO)BL)=13.33
```

B((VO)HBL)=16.96, B((VO)H-1BL)=7.57. H2 A is oxalic acid, H3B is citric acid.

```
-----
VO++      gl  KCl    25°C 0.20M C    M                        2000KGd (42619) 612
                                         B((VO)AL)=9.29
                                         B((VO)H-1AL)=5.20
                                         B((VO)BL)=15.52
                                         B((VO)HBL2)=26.21
```

B((VO)BL2)=18.90, B((VO)H2BL)=26.97, B((VO)HBL)=22.73. HA is lactic acid, H3B is phosphoric acid.

```
-----
VO++      gl  KCl    25°C 0.20M C                        K1=6.66  B2=12.11  2000KPa (42620) 613
                                         B((VOH-1L)2)=6.15
                                         B(VOH-1L2)=5.13
```

```
-----
VO++      gl  NaNO3  25°C 0.10M C                        K1=6.68  B2=11.99  1994DHa (42621) 614
-----
```

```
VO++      gl  NaClO4 25°C 0.50M C                        K1=6.50  B2=11.90  1987NMB (42622) 615
pK values of ligand: in Annali di Chimica, 76, 277 (1986)
-----
```

```
VO++      gl  KNO3   30°C 0.10M U                        1979VSA (42623) 616
                                         B((VO2)LA)=18.63
                                         B((VO2)LB)=16.44
```

H2A=2-hydroxybenzoic acid; H3B=5-sulpho-4-hydroxybenzoic acid

```
-----
VO++      gl  KNO3   30°C 0.10M U    M                        1975STd (42624) 617
                                         B((VO)AL)=21.27
                                         K(VOA+H2L=VOAL+2H)=-5.79
                                         K(VOA+L)=15.34
                                         K(VO+HA+H2L=VOAL+3H)=-5.14
```

H2A=catechol

```
-----
VO++      gl  KNO3   30°C 0.10M U    M                        1975STd (42625) 618
```

B((VO)AL)=21.67  
 K(VOA+H2L=VOAL+2H)=-4.30  
 K(VOA+L)=15.74  
 K(VO+HA+H2L=VOAL+3H)=-3.65

H4A=tiron (4,5-dihydroxynaphthalene-3,6-disulfonic acid)

-----  
 VO++ gl KNO3 30°C 0.10M U M 1975STd (42626) 619

B((VO)LA)=22.14  
 K(VOL+H2A=VOAL+2H)=-4.73  
 K(VOL+A)=16.21  
 K(VO+HL+H2A=VOAL+3H)=-4.08

H4A=4,5-dihydroxynaphthalene-3,6-disulfonic acid (chromotropic acid)

-----  
 VO++ gl NaClO4 25°C 0.10M U 1966KFc (42627) 620

K(VOLOH+H)=5.03  
 K(VOL2OH+H)=6.95

By spectrophotometry: K(VOL2OH+H)=6.98

\*\*\*\*\*

C6H5NO3 H2L CAS 609-71-2 (5910)  
 2-Hydroxypyridine-3-carboxylic acid;

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

-----  
 VO++ gl KCl 25°C 0.20M C B2=19.09 2000KPa (42726) 621

B(VOHL)=17.30  
 B(VOH2L2)=33.71  
 B(VOHL2)=26.69  
 B(VOH-1L2)=10.71

\*\*\*\*\*

C6H5NO3 H2L CAS 874-24-8 (4356)  
 3-Hydroxypyridine-2-carboxylic acid; C5H3N.(OH)(COOH)

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

-----  
 VO++ gl KCl 25°C 0.20M C B2=20.55 2000KPa (42756) 622

B(VOHL)=17.27  
 B(VOH2L2)=33.93  
 B(VOHL2)=28.31  
 B(VOH-1L2)=10.03

B((VOL)4)=66.70

\*\*\*\*\*

C6H6N2O HL CAS 873-69-8 (1258)  
 Pyridine-2-aldoxime; C5H4N.CH:NOH

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

-----  
 VO++ gl KNO3 30°C 0.10M U I M 1979SVa (43303) 623

K(VOA+H2L=VOAL+2H)=5.12  
 K(VO+H2A+H2L=VOAL+4H)=8.53  
 K(VOB+H2L=VOBL+2H)=5.42

$K(\text{VO}+\text{H2B}+\text{H2L}=\text{VOBL}+4\text{H})=8.15$   
 $K(\text{MC}+\text{H2L}=\text{MCL}+2\text{H})=5.32$  and  $K(\text{M}+\text{H2C}+\text{H2L}=\text{MCL}+4\text{H})=7.39$ .  $\text{H2A}=\text{Salicylic acid}$ ,  
 $\text{H2B}=\text{sulfosalicylic acid}$  and  $\text{H2C}=\text{8-Hydroxyquinoline-5-sulfonic acid}$

---

VO++ gl KNO3 30°C 0.10M M M 1978SVa (43304) 624  
 $K(\text{VO}(\text{A})+\text{L})=8.18$   
 $\text{B}((\text{VO})\text{AL})=12.83$   
 $K(\text{VO}(\text{B})+\text{L})=8.62$   
 $\text{B}((\text{VO})\text{BL})=12.63$   
 $K(\text{VO}(\text{C})+\text{L})=9.24$ ,  $\text{B}(\text{VO}(\text{C})\text{L})=13.65$ .  $\text{H2A}$  is oxalic acid,  $\text{H2B}$  is phthalic acid  
 $\text{H2C}$  is maleic acid.

---

VO++ gl KNO3 30°C 0.10M M 1975STc (43305) 625  
 $K(\text{VO}+\text{H2L}=\text{VO}(\text{OH})\text{L}+\text{H})=-8.40$

\*\*\*\*\*  
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
-------	-----	--------	------	------	-----	-------	----	----------	-----------	--------

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VO++ gl KCl 25°C 0.20M C  $K1=16.75$   $B2=31.58$  1990JKb (43861) 626  
 $\text{B}(\text{VOH}-1\text{L})=10.21$   
 $\text{B}(\text{VO2H}-2\text{L2})=22.92$

---

VO++ gl KNO3 20°C 0.10M U  $K1=17.7$   $B2=33.50$  1971ZBa (43862) 627

---

VO++ gl oth/un 30°C 0.10M U M  $K1=15.28$   $B2=28.30$  1967LAb (43863) 628  
 $K(\text{VO}(\text{OH})\text{L}+\text{H})=5.90$   
 $K(\text{VO}(\text{phen})+\text{L})=16.69$

\*\*\*\*\*  
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
-------	-----	--------	------	------	-----	-------	----	----------	-----------	--------

---

VO++ gl KNO3 20°C 0.10M U 1971ZBa (43995) 629  
 $K(\text{VO}+\text{HL})=15.0$   
 $K(\text{VOHL}+\text{HL})=13.7$

---

VO++ sp alc/w 25°C 50% U I 1970CSf (43996) 630  
 $K(\text{VO2}+\text{HL})=5.3$   
Medium: 0-100% MeOH, 0.01 M LiNO3.  $K(0\%)=4.7$ ,  $K(75\%)=6.3$ ,  $K(100\%)=7.0$

---

VO++ sp oth/un ? 0.10M U 1970CSg (43997) 631  
 $K(\text{VO}+\text{HL})=7.02$

\*\*\*\*\*  
C6H6O3 HL Maltol CAS 118-71-8 (2442)  
3-Hydroxy-2-methyl-4H-pyran-4-one;

---

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

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-----  
VO++ gl KCl 25°C 0.20M C K1=8.69 B2=16.29 2000BKa (44108) 632  
B((VOH-1L)2)=9.88  
B(VOH-1L2)=7.5  
-----

VO++ gl KCl 25°C 0.20M C M K1=8.69 B2=16.29 1998KKe (44109) 633  
B((VOH-1L)2)=9.88  
B(VOH-1L2)=7.5

B(VOLA)=12.5(A=AMP), 13.97(ADP), 13.72(ATP), 25.32(dopamine), 25.08(DOPA),  
13.92(oxlate), 15.41(citrate), 17.41(diphosphate), 16.31(triphosphate).

-----  
VO++ gl NaCl 25°C 0.15M U K1=8.80 B2=7.51 1995CGc (44110) 634  
\*\*\*\*\*

C6H603 HL Allomaltol CAS 644-46-2 (2688)  
5-Hydroxy-2-methyl-4H-pyran-4-one;

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

VO++ gl NaCl 25°C 0.16M C K1=7.90 B2=14.83 2002SSb (44130) 635  
\*K(VOL2)=-8.80

\*\*\*\*\*

C6H604 HL Kojic acid CAS 501-30-4 (1800)  
5-Hydroxy-2-(hydroxymethyl)-4H-pyran-4-one;

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

VO++ gl KCl 25°C 0.20M C K1=7.63 B2=14.37 2000BKa (44256) 636  
B((VOH-1L)2)=7.93  
B(VOH-1L2)=5.9

-----  
VO++ gl NaCl 25°C 0.15M U K1=7.61 B2=14.50 1997YCa (44257) 637  
\*\*\*\*\*

C6H605S H3L CAS 7134-09-0 (3687)  
3,4-Dihydroxybenzenesulfonic acid; (HO)2.C6H3.SO3H

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

VO++ gl KNO3 20°C 0.10M U K1=16.7 B2=31.20 1971ZBa (44289) 638  
\*\*\*\*\*

C6H606 HL CAS 490-83-5 (2575)  
Dehydroascorbic acid;

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

VO++ gl NaClO4 25°C 0.20M U K1=7.20 1976KKe (44293) 639  
\*\*\*\*\*

C6H608S2 H4L Tiron CAS 149-45-1 (104)  
4,5-Dihydroxybenzene-1,3-disulfonic acid; (HO)2.C6H2(SO3H)2

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

-----  
 VO++ gl KCl 25°C 0.20M C K1=16.47 B2=31.22 1991BKb (44512) 640  
 B((VO)H2L3)= 52.5  
 B((VO)2H-1L4)= 51.9

VOH2L3=V(IV)L3.H2O containing "bare" V(IV).  
 -----

VO++ gl KNO3 20°C 0.10M U K1=16.8 B2=31.20 1971ZBa (44513) 641  
 -----

VO++ gl KCl 30°C 0.10M U M K1=16.61 1967LAd (44514) 642  
 K((VO)(phen)+L)=17.19  
 -----

VO++ gl KNO3 25°C 0.10M U T H K1=16.74 B2=30.94 1966MMb (44515) 643  
 K((VO)(OH)L+H=VOL)=6.3  
 K(2VO(OH)L=(VO(OH)L)2)=4.3

K1=16.05(35C), DH(K1)=-10.5 kJ mol<sup>-1</sup>, DS=280 J K<sup>-1</sup> mol<sup>-1</sup>  
 -----

VO++ gl oth/un 25°C 0.10M U K1=15.88 1960GRa (44516) 644  
 -----

VO++ gl KNO3 25°C 0.10M U K1=17.2 1959CGa (44517) 645  
 K((VOOHL+H=VOL)=5.1

\*\*\*\*\*

C6H8N2 L 2-Picolylamine CAS 29722-36-9 (502)  
 2-(Aminomethyl)pyridine; C5H4N.CH2NH2  
 -----

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

VO++ gl NaNO3 25°C 0.10M C K1=6.75 B2=12.04 1994DHa (45360) 646  
 -----

\*\*\*\*\*

C6H8O6 H2L Ascorbic acid CAS 50-81-7 (285)  
 Ascorbic acid (Vitamin C);  
 -----

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

VO++ gl mixed 25°C 80% U K1=7.85 1980KKd (45665) 647  
 K((VO+HL)=4.6

Medium: 80% DMF  
 -----

VO++ gl NaClO4 25°C 0.20M U K1=2.18 1976KKe (45666) 648  
 -----

\*\*\*\*\*

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  
 -----

VO++ gl KCl 25°C 0.20M C K1=7.85 1995KBa (46307) 649  
 B((VO)HL)=10.65  
 B((VO)2H-1L2)=15.71  
 B((VO)2H-2L2)=10.73  
 B((VO)2H-3L2)=1.6

B((VO)H-2L)=-5.7, B((VO)H-2L2)=-2.89

-----  
VO++ sp NaCl 20°C 1.0M U K1=8.83 1967Nnd (46308) 650  
K(2VO+L)=11.50

\*\*\*\*\*  
C6H9N05 H2L N-Acetyl-Asp CAS 997-55-7 (7440)  
N-Acetyl-aminobutanedioic acid, N-acetyl-L-aspartic acid;  
-----

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

VO++ gl KCl 25°C 0.20M C K1=2.7 B2= 5.00 1998PGb (46354) 651  
B(VOHL)=6.2  
B(VOH-2L)=-7.32  
B(VOHL2)=9.56

\*\*\*\*\*  
C6H9N06 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  
-----

VO++ gl KCl 25°C 0.20M C K1=13.18 1999SBb (47088) 652  
B(VOHL)=15.69  
B(VOH-1L)=6.07

By spectrophotometry: K1=12.64  
-----

VO++ sp NaClO4 20°C 0.10M U M K1=13.94 1998MKb (47089) 653  
-----

VO++ EMF NaClO4 25°C 0.10M U K((VO)H-1L+H)=7.0 1985NSa (47090) 654  
-----

VO++ gl KNO3 25°C 0.10M U K1=11.47 1983FSa (47091) 655  
-----

VO++ gl NaClO4 25°C 0.50M U K1=12.30 1977NAa (47092) 656  
\*K(VOL)=-7.15  
-----

VO++ sp oth/un 25°C 1.0M U K1=15.34 1975TPa (47093) 657  
Medium: (NH4)2SO4  
-----

VO++ gl KNO3 25°C 0.10M U T T K1=10.82 1973STc (47094) 658  
K(VO(OH)L+H=VOL)=7.23  
K(VO(OH)2L+2H=VOL)=12.81

30 C: K1=10.70, K(VO(OH)L+H=VOL)=7.17, K(VO(OH)2L+2H=VOL)=12.97  
-----

VO++ gl NaClO4 25°C 0.10M U K(VOLOH+H=VOL)=7.38 1966KFc (47095) 659  
-----

\*\*\*\*\*  
C6H9N3O2 HL Histidine CAS 71-00-1 (1)  
2-Amino-3-(4'-imidazolyl)propanoic acid; H2N.CH(CH2.C3H3N2)COOH  
-----

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

VO++ gl NaNO3 25°C 2.25M C B2=15.74 1994CLa (47627) 660  
 B((VO)H2L)=17.4  
 B((VO)HL)=13.6  
 B((VO)H4L2)=33.5  
 B((VO)H3L2)=30.2  
 B((VO)H2L2)=26.3, B((VO)HL2)=21.85, B((VO)H-2L)=-5.0, B((VO)H-1L2)=6.4,  
 B((VO)H-4L2)=-7.8

VO++ gl KNO3 25°C 0.10M C T K1=9.04 B2=15.48 1976PSb (47628) 661  
 B(VOHL2)=21.42  
 B(VOH2L2)=26.0  
 B(VOH-1L)=3.48

VO++ gl KNO3 25°C 0.10M C K1=9.06 B2=15.49 1976PSb (47629) 662  
 B(VOHL2)=21.33  
 B(VO(HL)2)=25.9  
 B(VOH-1L)=3.43

Ligand: D-His

\*\*\*\*\*

C6H10N2O5 H2L Asp-Gly CAS 3790-51-0 (6521)  
 Aspartyl-glycine; H2N.CH(CH2.COOH)CO.NH.CH2.COOH

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

VO++ gl KCl 25°C 0.20M C K1=6.42 1998PGb (47760) 663  
 B(VOHL)=10.46  
 B(VOH2L)=13.4  
 B(VOH-1L)=0.83

\*\*\*\*\*

C6H10N2O5 H2L Gly-Asp CAS 4685-12-5 (282)  
 Glycyl-aspartic acid; H2N.CH2.CO.NH.CH(CH2.COOH).COOH

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

VO++ gl KCl 25°C 0.20M C 1998PGb (47780) 664  
 B(VOHL)=11.52  
 B(VOH2L)=15.1  
 B(VOH-1L)=1.7  
 B(VOH2L2)=22.5

B(VOH3L)=26.6, B(VOHL2)=17.1

\*\*\*\*\*

C6H10O4 H2L Adipic acid CAS 124-04-9 (401)  
 1,6-Hexanedioic acid; HOOC.(CH2)4.COOH

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

VO++ EMF NaClO4 30°C 0.10M U M 1977SJa (48100) 665  
 B((VO)LA)=9.68  
 B((VO)LB)=11.67  
 B((VO)LC)=9.36

H2A=malonic acid, H3B=5-sulphosalicylic acid, H2C=3,5-dinitrosalicylic acid  
\*\*\*\*\*

C6H1004S2 H2L CAS 7244-02-2 (438)  
1,2-Bis(carboxymethylthio)ethane; HOOC.CH2.S.CH2.CH2.S.CH2.COOH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl NaClO4 25°C 0.50M C M 1981NAe (48253) 666  
B(VOL)=2.68

\*\*\*\*\*  
C6H1006 H2L CAS 14812-53-4 (5460)  
2,3-Dimethyl-2,3-dihydroxybutanedioic acid;HOCC(OH)(CH3)C(OH)(CH3)COOH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl none 25°C 0.0 M 1982HOc (48362) 667  
K((VO)2L2+H)=6.94  
K(H(VO)2L2+H)=5.21

For the L-isomer, K((VO)2L2+H)=7.19, K(H(VO)2L2+H)=5.24  
\*\*\*\*\*

C6H1007 HL Galacturonic CAS 685-73-4 (290)  
D-Galacturonic acid;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KNO3 25°C 0.10M C K1=4.57 B2= 8.75 2001GLa (48397) 668  
B(VOH-1L)=1.46  
B(VOH-2L2)=-0.76  
B(VOH-3L2)=-8.31  
B(VOH-4L2)=-17.64

B((VO)2H-4L2)=-4.20, B((VO)2H-5L2)=-10.48.  
\*\*\*\*\*

C6H1007 HL Glucuronic acid CAS 6556-12-3 (599)  
D-Glucuronic acid;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KNO3 25°C 0.10M C K1=3.28 B2= 6.23 2001GLa (48424) 669  
B(VOH-1L)=-0.28  
B(VOH-4L2)=-22.89  
B((VO)2H-4L2)=-6.91  
B((VO)2H-5L2)=-15.75

\*\*\*\*\*  
C6H1008 H2L Mucic acid CAS 526-99-8 (3650)  
2,3,4,5-Tetrahydroxyhexanedioic acid, Galactaric acid; HOOC.(CHOH)4.COOH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KCl 25°C 0.20M C K1=3.56 2004DGA (48441) 670  
B((VO)2H-2L2)=3.08

B((VO)2H-3L2)=-1.00

B((VO)2H-4L2)=-7.01

\*\*\*\*\*

C6H10O8 H2L Saccharic acid CAS 87-73-0 (1191)  
D-2,3,4,5-Tetrahydroxy-1,6-hexanedioic acid, Glucaric acid; HOOC.(CHOH)4.COOH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KCl 25°C 0.20M C 2004DGa (48490) 671

B(VOHL)=6.84  
B((VO)2H-2L2)=5.87  
B((VO)2H-3L2)=0.65  
B((VO)2H-4L2)=-5.55

\*\*\*\*\*

C6H11NO2 HL CAS 2044-64-6 (4374)  
N,N-Dimethylacetoacetamide; CH3.CO.CH2.CO.N(CH3)2

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KCl 25°C 0.20M C 2001CKa (48543) 672

K(VO+HL=VOL+H)=-2.34  
K(VO+2HL=VOL2+2H)=-6.46

\*\*\*\*\*

C6H11NO4 H2L (1232)  
2,2'-Iminodipropionic acid; HN(CH(CH3)COOH)2

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KNO3 25°C 0.10M C K1=9.4 1987AKa (48577) 673

C6H11NO4 H2L CAS 103954-11-6 (5805)  
N-(1-Carboxyethyl)-alanine; HOOC.CH(CH3).NH.CH2.CH2.COOH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KNO3 25°C 0.10M C K1=9.54 1984FVa (48594) 674

K(VO(OH)L+H)=6.1  
K((VO)2(OH)2L2+2H)=9.2

\*\*\*\*\*

C6H11NO5 H2L CAS 50825-12-2 (5806)  
N-(1-Carboxyethyl)-N-hydroxy-alanine; HOOC.CH(CH3).N(OH).CH2.CH2.COOH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KNO3 25°C 0.10M C K1=7.34 B2=12.85 1984FVa (48625) 675

K(VO(OH)L+H)=5.0  
K((VO)2(OH)2L2+2H)=-6.6

\*\*\*\*\*

C6H11NO5 H2L HIMDA CAS 93-62-9 (192)  
N-(2-Hydroxyethyl)iminodiethanoic acid; HO.CH2.CH2.N(CH2.COOH)2

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-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      gl  KNO3   25°C 0.10M U          K1=9.60      1983FSa (48809) 676
-----
VO++      gl  NaClO4 25°C 0.50M U          K1=9.26      1977NAa (48810) 677
                        *K(VOL)=-5.11
-----
VO++      gl  KNO3   25°C 0.10M U          K(VO(OH)L+H)=5.7 1959CGa (48811) 678
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C6H11N05      H2L      (1238)
N-Hydroxy-3,3'-iminodipropionic acid; HO.N(CH2.CH2.COOH)2
-----

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-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      gl  KNO3   25°C 0.10M U          K1=5.8      B2=10.00 1987BKa (48827) 679
-----
C6H11N05      H2L      (1233)
N-Hydroxyimino-2,2'-dipropionic acid; HO.N(CH(CH3)COOH)2
-----

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-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      gl  NaClO4 25°C 1.00M C  H      B2=23.4      1987AKa (48840) 680
DH(B2)=-60.2 kJ mol-1, DS=245 J K-1 mol-1
-----
VO++      sp  KNO3   25°C 0.10M U          B2=23.0      1987BKa (48841) 681
-----
C6H11N304      HL      Gly-Gly-Gly      CAS 556-33-2 (415)
Glycyl-glycyl-glycine; H2N.CH2.CO.NH.CH2.CO.NH.CH2.COOH
-----

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-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      gl  NaNO3  25°C 2.25M C          K(VO+HL)=1.84 1997PLa (48989) 682
-----
VO++      gl  NaNO3  25°C 2.25M C          B((VO)HL)=10.1
                        B((VO)H-1L)=1.6
                        B((VO)H2L2)=19.4
1993CLa (48990) 683
-----

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*****
C6H12N204      H2L      EDDA      CAS 5657-17-0 (119)
1,2-Diaminoethane-N,N'-diethanoic acid; HOOC.CH2.NH.CH2.CH2.NH.CH2.COOH
-----

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-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      gl  KNO3   25°C 0.10M U          K1=13.40     1983FSa (49283) 684
-----
C6H1203      HL      DiEtGlycolic      CAS 3639-21-2 (421)
2-Ethyl-2-hydroxybutanoic acid; (C2H5)2.C(OH).COOH
-----

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-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KCl 25°C 0.20M C K1=2.61 B2=5.05 1993MSa (49468) 685  
B((VO)H-1L)=-1.09  
B((VO)H-1L2)=1.03  
B((VO)H-2L2)=-2.85  
\*\*\*\*\*

C6H12O7 HL Gluconic acid CAS 526-95-4 (904)  
D-Gluconic acid, 2,3,4,5,6-Pentahydroxyhexanoic acid; HO.CH2(CHOH)4.COOH  
-----

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ sp oth/un 25°C ? M K1=3.34 1976GSc (49767) 686  
K'=5.26

Metal ion: VO(OH)2. K': VO(OH)2 + 2L = VO(OH)(H-1L)2  
\*\*\*\*\*

C6H13NO4 HL Bicine CAS 150-25-4 (2124)  
N,N-Bis(2-hydroxyethyl)glycine; (HO.CH2.CH2)2N.CH2.COOH  
-----

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl NaClO4 30°C 0.10M U T H K1=6.42 B2=11.87 1980SGh (50417) 687  
Also data at 20 and 40 C. DH(B2)=-56.7 kJ mol<sup>-1</sup>, DS(B2)=38.0 J K<sup>-1</sup> mol<sup>-1</sup>.  
\*\*\*\*\*

C7H4N2O7 H2L CAS 609-99-4 (400)  
3,5-Dinitrosalicylic acid; (O2N)2.C6H2(OH).COOH  
-----

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ EMF NaClO4 30°C 0.10M U M 1977SJa (52507) 688  
B((VO)LA)=11.86  
B((VO)LB)=14.30  
H2A=5-sulphosalicylic acid, H3B=4-hydroxysalicylic acid  
-----

-----  
VO++ gl KNO3 35°C 0.10M U K1=6.8 B2=12.40 1970DDc (52508) 689  
K3=2.5  
\*\*\*\*\*

C7H5NO4 H2L Quinolinic acid CAS 89-00-9 (567)  
2,3-Pyridinedicarboxylic acid; C5H3N.(COOH)2  
-----

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl NaClO4 25°C 0.50M C K1=5.95 B2=11.00 1987NMB (52634) 690  
pK values of ligand: in Annali di Chimica, 76, 277 (1986)  
\*\*\*\*\*

C7H5NO4 H2L CAS 499-80-9 (566)  
2,4-Pyridinedicarboxylic acid; C5H3N.(COOH)2  
-----

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



-----  
VO++ gl NaClO4 25°C 0.50M C K1=5.20 B2=9.85 1987NMb (52654) 691  
\*\*\*\*\*

C7H5N04 H2L CAS 100-26-5 (2528)  
2,5-Pyridinedicarboxylic acid, Isocinchomeric acid; C5H3N.(COOH)2  
-----

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

VO++ gl NaClO4 25°C 0.50M C K1=4.90 B2=8.85 1987NMb (52670) 692  
\*\*\*\*\*

C7H5N04 H2L Dipicolinic aci CAS 449-83-2 (418)  
2,6-Pyridinedicarboxylic acid; C5H3N.(COOH)2  
-----

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

VO++ gl KCl 25°C 0.20M C K1=6.69 B2= 9.47 2003JJa (52819) 693  
B(VOH-1L)=-0.03  
B(VOHL2)=12.96  
B(VOH-1L2)=2.62  
-----

VO++ gl NaClO4 25°C 0.50M C K1=6.70 B2=9.53 1987NMb (52820) 694  
-----

VO++ sp NaClO4 25°C 1.0M C K1=6.77 1982FFa (52821) 695  
\*\*\*\*\*

C7H5N05 H2L Nitrosalicylic CAS 96-97-9 (148)  
2-Hydroxy-5-nitrobenzoic acid; HO.C6H3(NO2).COOH  
-----

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

VO++ sp oth/un ? ? U 1971KHb (53058) 696  
K(VO+H2L=VOL+2H)=-3.37  
\*\*\*\*\*

C7H5N05 H3L CAS 499-51-4 (3150)  
4-Hydroxypyridine-2,6-dicarboxylic acid; HO.C5H2N(COOH)2  
-----

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

VO++ gl KCl 25°C 0.20M C K1=10.43 B2=17.96 2003JJa (53080) 697  
B(VOHL)=14.52  
B(VOH2L2)=27.36  
B(VOHL2)=23.32  
\*\*\*\*\*

C7H6N03Br H2L CAS 87353-69-3 (207)  
4-Bromosalicylhydroxamic acid; Br.C6H3(OH).CO.NH.OH  
-----

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

VO++ gl diox/w 30°C 50% U K1=7.88 1977DJb (53398) 698  
\*\*\*\*\*

C7H6N03Br H2L CAS 5798-94-7 (206)

5-Bromosalicylhydroxamic acid; Br.C6H3(OH).CO.NH.OH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl diox/w 30°C 50% U K1=8.04 1977DJb (53409) 699  
\*\*\*\*\*  
C7H6NO3Cl H2L (205)  
3-Chlorosalicylhydroxamic acid; Cl.C6H3(OH).CO.NH.OH  
-----

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl diox/w 30°C 50% U K1=7.52 1977DJb (53419) 700  
\*\*\*\*\*  
C7H6NO3Cl HL (6263)  
4-Chlorosalicylhydroxamic acid; Cl.C6H3(OH).CO.NH.OH  
-----

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl diox/w 30°C 50% U K1=6.02 1977DJb (53422) 701  
\*\*\*\*\*  
C7H6NO3Cl HL CAS 37551-43-2 (6262)  
5-Chlorosalicylhydroxamic acid; Cl.C6H3(OH).CO.NH.OH  
-----

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl diox/w 30°C 50% U K1=8.34 1977DJb (53425) 702  
\*\*\*\*\*  
C7H6N2O5 H2L CAS 831-51-6 (208)  
5-Nitrosalicylhydroxamic acid; O2N.C6H3(OH).CO.NH.OH  
-----

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl diox/w 30°C 50% U K1=6.02 1977DJb (53525) 703  
\*\*\*\*\*  
C7H6N2S HL CAS 583-39-1 (2043)  
2-Mercaptobenzimidazole;  
-----

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl alc/w 25°C 50% U K1=9.05 1978Zia (53534) 704  
\*\*\*\*\*  
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  
-----  
VO++ gl alc/w 25°C 50% U K1=10.24 B2=18.63 1971RFb (53924) 705  
\*\*\*\*\*  
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
-----
VO++      gl  KCl    25°C 0.20M C    M    K1=12.97 B2=22.81 1990JKb (54331) 706
          B((VOH-1L2))=13.16
          B((VOH-1L))=6.32
          B((VO2H-2L2))=16.61

```

B((VOLA))=27.66, where H2A=catechol

```

-----
VO++      gl  NaClO4 25°C 0.10M U I    K1=12.68      1987GMa (54332) 707
          B((VO)HL)=14.68
I=0.4: K1=12.52, B((UO2)HL)=14.88; I=0.7: K1=12.56, B((UO2)HL)=15.25

```

```

-----
VO++      gl  KNO3   30°C 0.10M M    M    K1=13.18      1981VSd (54333) 708
          K((VO+H2L=VOL+2H))=-3.41
          K((VO+HL+A))=14.78
          K((VOL+A))=1.60

```

HA is hippuric acid

```

-----
VO++      gl  KNO3   35°C 0.10M U T HM          1978JKa (54334) 709
          B((VO(bpy)L))=27.78

```

Data for 45 C. DH and DS values reported.

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-----
VO++      gl  KNO3   25°C 0.10M U    M          1978JSb (54335) 710
          B((VO(Iminodiethanoate)L))=18.35

```

```

-----
VO++      gl  KNO3   30°C 0.10M U    M    K1=13.18      1975STb (54336) 711
          K((VOL(OH)+H=ML))=4.63
          K((VOL+Sulfoxine))=12.7

```

```

-----
VO++      gl  KNO3   20°C 0.10M U          K1=12.7 B2=22.40 1971ZBa (54337) 712

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```

-----
VO++      gl  KNO3   35°C 0.10M U T H    K1=12.89      1966MMb (54338) 713
K1=13.38(25 C). DH(K1)=-8.8 kJ mol-1, DS=226 J K-1 mol-1

```

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-----
VO++      sp  oth/un  ?  0.05M U          K1=15.4      1962LZa (54339) 714
*****
C7H6O4          H3L          CAS 303-38-8 (1398)
2,3-Dihydroxybenzoic acid; C6H3(OH)2.COOH

```

```

-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      gl  KCl    25°C 0.20M C          T K1=9.97 B2=17.25 1990JKb (54473) 715
          B((VOH-1L))=4.02
          B((VOH-1L2))=10.46
          B((VO2H-2L2))=12.86
          B((VOH-2L2))=2.00

```

B((VOH-2L))=-2.88, B((VOH-3L))=-14.13

```

*****
C7H6O4          H3L    Resorcylic acid CAS 89-86-1 (876)

```

2,4-Dihydroxybenzoic acid, b-Resorcylic acid; C6H3(OH)2.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	KCl	25°C	0.20M	C		T	K1=8.50 B2=14.22 B(VOH-1L2)=5.93 B(VOH-1L)=1.48 B(VO2H-2L2)=8.60	1990JKb (54552)	716

VO++	gl	KNO3	35°C	0.10M	U			K(VO+HL)=20.8 K(VOHL+HL)=16.2	1970DDc (54553)	717
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\*\*\*\*\*

C7H6O4 H3L CAS 409-79-9 (1115)  
2,5-Dihydroxybenzoic acid; C6H3(OH)2.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	KCl	25°C	0.20M	C		T	K1=9.61 B2=16.43 B(VOH-1L2)=7.48 B(VOH-1L)=2.49 B(VO2H-2L2)=10.58	1990JKb (54592)	718

\*\*\*\*\*

C7H6O4 H3L g-Resorcylic ac CAS 303-07-1 (1624)  
2,6-Dihydroxybenzoic acid; C6H3(OH)2.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	KCl	25°C	0.20M	C		T	K1=12.25 B2=21.98 B(VOH-1L2)=12.04 B(VOH-1L)=4.96 B(VO2H-2L2)=22.92	1990JKb (54608)	719

\*\*\*\*\*

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
VO++	gl	KCl	25°C	0.20M	C			K1=17.13 B2=31.42 B(VOH-1L)=11.23 B(VOHL)=21.54 B(VO2H-2L2)=24.36 B(VOH2L2)=40.62	1990JKb (54707)	720

B(VOHL2)=36.61

VO++	gl	NaClO4	25°C	0.10M	U	I		K1=16.63 B2=20.83 I=0.4: K1=16.34, B2=20.65; I=0.7: K1=16.26, B2=20.76	1987GMa (54708)	721
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\*\*\*\*\*

C7H6O5 H4L CAS 610-02-6 (3725)  
2,3,4-Trihydroxybenzoic acid; (HO)3.C6H2.COOH

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KCl 25°C 0.20M C K1=8.72 1994KMa (54725) 722  
B((VO)HL)=11.36  
B((VO)H-1L)=4.49  
B((VO)H-2L)=-1.41  
B((VO)4H-8L4)=4.89  
B((VO)H-1L2)=10.24, B((VO)H-2L2)=4.88

\*\*\*\*\*  
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  
-----  
VO++ sp alc/w 20°C 50% U I K(VO+HL)=4.10 1973CSc (54771) 723  
K(VO+2HL)=7.40  
K(VO+3HL)=10.44

Medium: 25-100% MeOH, 0.01 M LiNO3  
K(VO+HL)(100%)=4.20; K(VO+2HL)(100%)=7.62; K(VO+3HL)=10.87  
\*\*\*\*\*

C7H6O6S H3L CAS 5965-83-3 (399)  
5-Sulfosalicylic acid, 2-Hydroxy-5-sulfobenzoic; H03S.C6H3(OH).COOH  
-----

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KNO3 30°C 0.10M M M K1=11.37 1981VSD (55074) 724  
K(VO+H2L=VOL+2H)=-2.73  
K(VO+HL+A)=13.54  
K(VOL+A)=2.17

HA is hippuric acid

-----  
VO++ gl KNO3 35°C 0.10M U T HM B(VO(bpy)L)=22.93 1978JKa (55075) 725  
Data for 45 C. DH and DS values reported.

-----  
VO++ gl KNO3 25°C 0.10M U M B(VO(Iminodiethanoate)L)=18.35 1978JSb (55076) 726

-----  
VO++ gl KNO3 30°C 0.10M U M K1=11.73 1975STb (55077) 727  
K(VOL(OH)+H)=4.34  
K(VOL+Sulfoxine)=10.7

-----  
VO++ gl KNO3 20°C 0.10M U K1=12.0 B2=20.60 1971ZBa (55078) 728

-----  
VO++ gl KNO3 25°C 0.10M U T H K1=11.71 1966MMb (55079) 729  
K(VO(OH)L+H)=7.22  
K(2VO(OH)L=(VO(OH)L)2)=5.33  
K1=11.29(35 C); DH(K1)=-7.1 kJ mol<sup>-1</sup>, DS=188 J K<sup>-1</sup> mol<sup>-1</sup>

\*\*\*\*\*  
 C7H7NO2 HL Anthranilic CAS 118-92-3 (1589)  
 2-Aminobenzoic acid, Anthranilic acid; H2N.C6H4.COOH

-----  
 Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
 -----  
 VO++ gl KNO3 30°C 0.10M M 1975STc (55270) 730  
 K((VO+H2L)=VO(OH)L+H)=-6.32

\*\*\*\*\*  
 C7H7NO2 HL CAS 3222-47-7 (3154)  
 6-Methylpyridine-2-carboxylic acid; CH3.C5H3N.COOH

-----  
 Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
 -----  
 VO++ gl KCl 25°C 0.20M C M 2000KGd (55434) 731  
 B((VO)AL)=8.21  
 B((VO)H-1AL)=3.28  
 B((VO)BL)=15.40  
 B((VO)HBL)=20.94

HA is lactic acid, H3B is phosphoric acid.

-----  
 VO++ gl KCl 25°C 0.20M C M K1=5.13 B2= 9.28 2000KGd (55435) 732  
 B((VO)HL)=7.27  
 B((VO)2H-2L2)=3.25  
 B((VO)H-2L)=-6.56  
 B((VO)AL)=11.22

B((VO)BL)=13.05, B((VO)HBL)=16.19, B((VO)H-1BL)=7.39.

H2A is oxalic acid, H3B is citric acid.

\*\*\*\*\*  
 C7H7NO3 H2L CAS 89-73-6 (204)  
 2-Hydroxybenzohydroxamic acid (salicylhydroxamic acid); HO.C6H4.CO.NHOH

-----  
 Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
 -----  
 VO++ gl diox/w 30°C 50% U K1=8.90 1977DJb (55617) 733

\*\*\*\*\*  
 C7H7O6P H3L CAS 6064-83-1 (822)  
 Salicyl phosphate; HO.C6H4.CO2.PO3H2

-----  
 Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
 -----  
 VO++ gl KNO3 25°C 0.10M U T H K1=5.81 1966MMb (55777) 734  
 K((VO(OH)L+H)=5.7  
 K(2VO(OH)L=(VO(OH)L)2)=2.3

At 35 C: K1=5.68; DH(K1)=-2.1 kJ mol<sup>-1</sup>, DS=104 J K<sup>-1</sup> mol<sup>-1</sup>

\*\*\*\*\*  
 C7H8O3 HL CAS 2298-99-9 (8830)  
 3-Hydroxy-2,6-dimethyl-4H-pyran-4-one;

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

-----  
VO++ g1 NaCl 25°C 0.16M C K1=9.23 B2=17.06 2002SSb (56105) 735  
\*K(VOL2)=-8.70

\*\*\*\*\*  
C7H10N2O3S HL CAS 71691-06-0 (1247)  
2-(N-Pyrrolideneimino)ethane sulfonic acid; C4H4N.CH:N.CH2.CH2.SO3H  
-----

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

VO++ g1 NaClO4 25°C 0.10M U T K1=10.80 B2=19.10 1979GSa (56694) 736  
\*\*\*\*\*

C7H11NO6 H3L MNTA (1026)  
Nitrilo(2-propanoic)-diethanoic acid; HOOC.CH(CH3).N(CH2.COOH)2  
-----

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

VO++ g1 KNO3 25°C 0.10M U K1=11.77 1983FSa (56921) 737  
\*\*\*\*\*

C7H12N2O2 HL (6181)  
2-(N-2-Pyrrolidimino)propanoic acid;  
-----

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

VO++ g1 NaClO4 25°C 0.10M U TIH B2=22.40 1988GRb (57075) 738  
35 C:B2=24.52, 45 C:24.61. DH(B2)=19.1 kJ mol<sup>-1</sup>, DS=531.3 J K<sup>-1</sup> mol<sup>-1</sup>  
\*\*\*\*\*

C7H12O2 HL CAS 7424-54-6 (4421)  
Heptane-3,5-dione; CH3.CH2.CO.CH2.CO.CH2.CH3  
-----

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

VO++ sp NaClO4 25°C 0.5M C K1=9.39 1998BLa (57248) 739  
-----

VO++ EMF NaClO4 25°C 0.50M U K1=9.39 1990BHa (57249) 740  
\*\*\*\*\*  
C7H12O6 HL Quinic acid CAS 77-95-2 (2578)  
1,3,4,5-Tetrahydroxycyclohexane-1-carboxylic acid;  
-----

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

VO++ g1 KNO3 25°C 0.10M C K1=2.83 B2= 5.42 2001GLa (57413) 741  
B(VOH-1L)=0.32  
B(VOH-2L2)=-0.74  
B(VOH-3L2)=-9.92  
B(VOH-4L2)=-21.31  
-----

VO++ g1 NaCl 25°C 0.15M C 2000AFb (57414) 742  
K(VO+H-1L)=11.56  
K(VO+2H-1L)=22.01  
K(VO+H-1L=VOH-2L+H)=6.28

$$K((VO+2H-1L=VOH-3L2+H))=11.34$$

$$K((VO+2H-1L=VOH-4L2+2H))=0.54$$

\*\*\*\*\*

C8H5O2F3S                      HL      TTA                      CAS 326-91-0 (165)  
 4,4,4-Trifluoro-1-(2-thienyl)butane-1,3-dione; F3C.CO.CH2.CO.C4H3S

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

VO++            sp    NaClO4 25°C 1.0M U                      1980HRa (58695) 743

$$K((VO+HL=VOL+H))=-0.49$$

\*\*\*\*\*

C8H6O4                      H2L      Phthalic acid                      CAS 88-99-3 (113)  
 Benzene-1,2-dicarboxylic acid; C6H4(COOH)2

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

VO++            gl    NaClO4 20°C 0.1M U                      1999MKc (59031) 744

$$K((VO+OH+L))=16.14$$

-----  
 VO++            gl    NaClO4 25°C 0.50M C                      K1=3.73                      1989NMa (59032) 745  
 -----

VO++            gl    NaClO4 25°C 0.10M U I                      K1=3.97    B2=6.39    1987GMa (59033) 746

$$B((VO)HL)=6.28$$

I=0.4: K1=3.68, B2=5.85, B((VO)HL)=6.10. I=0.7: K1=3.61, B((VO)HL)=6.97

-----  
 VO++            gl    NaClO4 25°C 0.50M C                      K1=3.73                      1987NMb (59034) 747  
 -----

VO++            gl    KNO3    35°C 0.10M U T HM                      1978JKa (59035) 748

$$B((VO(bpy)L))=10.97$$

Data for 45 C. DH and DS values reported.

-----  
 VO++            gl    KNO3    30°C 0.10M M                      K1=4.01                      1978SVa (59036) 749  
 -----

\*\*\*\*\*

C8H6O6                      H4L                      (6671)  
 2,3-Dihydroxybenzene-1,4-dicarboxylic acid;

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

VO++            gl    KCl      25°C 0.20M C                      K1=3.2                      1994KMa (59078) 750

$$B((VO)H-1L)=0.31$$

$$B((VO)2H-3L2)=-0.5$$

$$B((VO)3H-6L3)=-4.39$$

$$B((VO)H-3L2)=-10.86$$

Ligand as H2L

\*\*\*\*\*

C8H7NO2Cl2                      HL                      CAS 13538-26-6 (6286)  
 3,5-Dichloro-2-hydroxyacetophenone oxime; Cl2(HO)C6H2.C(CH3):NOH

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



VO++ gl alc/w 27°C 75% U I K1=8.70 B2=16.65 1976LGa (59120) 751  
Data in 75% EtOH. Data also in 75% acetone and 75% dioxan

\*\*\*\*\*

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  
-----

VO++ gl KCl 25°C 0.20M C K1=2.60 1993MSa (59886) 752  
B((VO)H-1L)=-1.04  
B((VO)H-1L2)=1.52  
B((VO)H-2L2)=-3.10

-----  
VO++ gl KNO3 25°C 0.10M U M 1978JSb (59887) 753  
B(VO(Iminodiethanoate)L)=17.52

\*\*\*\*\*

C8H9NO2S HL CAS 6310-11-8 (4576)  
3-Mercaptoacetamidophenol; HS.CH2.CO.NH.C6H4.OH

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

VO++ gl oth/un 17°C ? U K1=6.38 B2=12.22 1973KPd (60387) 754

\*\*\*\*\*

C8H9NO3 H2L CAS 26071-07-8 (209)  
5-Methylsalicylhydroxamic acid; CH3.C6H3(OH).CO.NH.OH

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

VO++ gl diox/w 30°C 50% U K1=9.22 1977DJb (60440) 755

\*\*\*\*\*

C8H11NO2 H2L Dopamine CAS 579-59-9 (251)  
2-(3',4'-Dihydroxyphenyl)ethylamine; (HO)2.C6H3.CH2.CH2.NH2

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

VO++ gl KCl 25°C 0.20M C K1=21.34 B2=31.75 1993BDc (61087) 756  
B((VO)HL)=27.10  
B((VO)H2L2)=52.65  
B((VO)HL2)=42.42  
B((VO)H5L3)=87.26

K(VO+2HL)=25.45, \*K(VOH2L2)=-10.23, \*K(VOHL2)=-10.67.

\*\*\*\*\*

C8H11NO3 H2L Noradrenaline CAS 138-65-8 (253)  
Norepinephrine, 3,4-Dihydroxyphenylethanolamine; (HO)2C6H3.CH(CH2.NH2).OH

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

VO++ gl KCl 25°C 0.20M C B2=31.40 1993BDc (61169) 757  
B((VO)HL)=26.09  
B((VO)H2L2)=50.35

B((VO)HL2)=41.09  
B((VO)H5L3)=83.60

K(VO+2HL)=24.26, \*K(VOH2L2)=-9.26, \*K(VOHL2)=-9.69.

-----  
VO++ sp NaCl 25°C 0.20M U 1978CFa (61170) 758

K1eff=2.45

B2eff=7.43

Medium: tris buffer, pH 7.4; 0.1 M NaCl, 0.02 M KCl

\*\*\*\*\*

C8H12O7P2 H4L (7244)

1-Hydroxy-2-phenylethane-1,1-diphosphonic acid; HO.C(PO(OH)2)2.CH2C6H5

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

-----  
VO++ gl KNO3 25°C 0.10M C K1=7.02 1998DKa (61740) 759

\*\*\*\*\*

C8H16N2O4 H2L (267)

1,2-Diaminoethane-N,N'-di(2-propanoic acid); ((CH3)(COOH).CH.NH.CH2)2

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

-----  
VO++ gl KNO3 25°C 0.10M U K1=13.34 1983FSa (62477) 760

\*\*\*\*\*

C9H7NO HL Oxine CAS 148-24-3 (504)

8-Hydroxyquinoline (8-quinolinol);

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

-----  
VO++ sp NaClO4 25°C 1.00M U K1=12.4 B2=21.0 1979YYa (64372) 761

-----  
VO++ gl NaClO4 25°C 0.10M U 1966KFc (64373) 762

K(VO(OH)L+H=VOL)=5.3

-----  
VO++ gl oth/un 25°C .085M U K1=10.97 B2=20.19 1957TBa (64374) 763

\*\*\*\*\*

C9H7NO3S2 H2L CAS 58447-10-2 (4675)

8-Mercaptoquinoline-5-sulfonic acid;

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

-----  
VO++ sp oth/un ? ? U B2=7.8 1968ABa (64432) 764

\*\*\*\*\*

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

-----  
VO++ gl KNO3 30°C 0.10M M M K1=10.48 1981VSD (64585) 765

K(VO+H2L=VOL+2H)=-2.07

K(VO+HL+A)=12.55

K(VOL+A)=2.07

HA is hippuric acid

-----  
VO++ sp none 25°C 0.0 U K1=11.8 1980D0a (64586) 766  
-----

VO++ gl KNO3 30°C 0.10M U M K1=10.48 1975STb (64587) 767  
K(VO(salicylate)+L)=12.7  
K(VO(sulfosalicylate)+L)=10.7  
K(VO(maleate)+L)=5.5  
K(VO(phthalate)+L)=3.4  
-----

VO++ gl KNO3 25°C 0.10M U T H K1=11.79 1966MMb (64588) 768  
K(VO(OH)L+H=VOL)=6.45  
K(2VO(OH)L=(VO(OH)L)2)=4.84

K1=11.32(35 C). DH(K1)=-7.1 kJ mol<sup>-1</sup>, DS=188 J K<sup>-1</sup> mol<sup>-1</sup>  
\*\*\*\*\*

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  
-----

VO++ gl alc/w 25°C 50% U 1967NPb (64738) 769  
K(VO+HL)=11.2  
K(VO(HL)+HL)=9.8

Medium: 50% MeOH, 0.1 M NaClO4  
\*\*\*\*\*

C9H8O4 H3L Caffeic acid CAS 331-39-5 (6037)  
3-(3,4-Dihydroxyphenyl)propenoic acid; (HO)2C6H3.CH:CH.COOH  
-----

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

VO++ gl NaCl 25°C 0.15M U K1=16.52 B2=29.42 2002WBb (64921) 770  
B(VOH-1L)=11.10  
B(VOH-2L)=0.79  
B((VO)3L2)=39.67  
B((VO)2L)=20.30  
-----

C9H9NO3 HL Hippuric acid CAS 495-69-2 (1184)  
Benzoylaminoethanoic acid, N-benzoylglycine; C6H5.CO.NH.CH2.COOH  
-----

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

VO++ gl KNO3 30°C 0.10M M 1975STc (65058) 771  
K(VO+H2L=VO(OH)L+H)=-4.47  
-----

C9H9NO4 H2L Salicylglycine CAS 487-54-7 (3869)  
N-(2-Hydroxybenzoyl)glycine, 2-hydroxyhippuric acid; HO.C6H4.CO.NH.CH2.COOH  
-----

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

VO++ gl KCl 25°C 0.20M C K1=7.05 1998KPa (65096) 772  
B(VOHL)=10.24  
B(VOH-1L)=2.29  
B(VOH-2L)=-5.28  
B(VOH-1L2)=5.55

\*\*\*\*\*  
C9H10O8 H4L CAS 3724-52-5 (1264)  
cis-1,2,3,4-Cyclopentanetetracarboxylic acid; C5H6.(COOH)4

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

VO++ gl NaClO4 30°C 0.19M U K1=6.75 B2=11.85 1985MSb (65653) 773

\*\*\*\*\*  
C9H11NO4 H3L DOPA CAS 59-92-7 (5)  
2-Amino-3-(3,4-dihydroxyphenyl)propanoic acid; H2NCH(CH2C6H3(OH)2)COOH

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

VO++ gl KCl 25°C 0.20M C K1=21.34 B2=31.79 1993BDc (66404) 774

B((VO)HL)=26.88  
B((VO)H2L2)=51.67  
B((VO)HL2)=42.18  
B((VO)H5L3)=86.24

B(VOH2L)=30.05, K(VO+2HL)=24.79, \*K(VOH2L2)=-9.49, \*K(VOHL2)=-10.39.

\*\*\*\*\*  
C9H12N2O5 L CAS 951-78-0 (6537)  
2'-Deoxy-uracil-1-beta-D-ribofuranoside;

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

VO++ nmr KCl 25°C 1.00M U 1990TJa (66629) 775

Keff(VO+L)=0.20

At pH 7 in 30mM HEPES. Data also for methyl-beta-D-ribofuranoside: K=0.52,  
B=7.46

\*\*\*\*\*  
C9H12N2O6 HL Uridine CAS 58-96-8 (828)  
Uracil-1-beta-D-ribofuranoside;

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

VO++ nmr KCl 25°C 1.00M U 1990TJa (66716) 776

Keff(VO+L)=0.65  
Beff((VO)2L2)=7.61

At pH 7 in 30mM HEPES

\*\*\*\*\*  
C9H13NO3 H2L (-)Adrenaline CAS 51-43-4 (252)  
4-(1-Hydroxy-2-(methylamino)ethyl)-1,2-dihydroxybenzene,  
Epinephrine; CH3NHCH(OH)C6H3(OH)2

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

-----  
VO++ gl KCl 25°C 0.20M C B2=31.82 1993BDc (66870) 777  
B((VO)HL)=26.64  
B((VO)H2L2)=51.59  
B((VO)HL2)=41.92  
B((VO)H5L3)=85.42  
K(VO+2HL)=24.95, \*K(VOH2L2)=-9.67, \*K(VOHL2)=-10.10.  
-----

VO++ gl KNO3 25°C 0.10M U K1=21.42 B2=32.01 1986JKa (66871) 778  
B((VO)HL)=26.81  
B((VO)H2L2)=51.63  
B((VO)HL2)=42.01  
-----

\*\*\*\*\*  
C9H13N3O5 L Cytidine CAS 65-46-3 (2152)  
Cytidine, Cytosine-1-beta-D-ribofuranoside;  
-----

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	nmr	KCl	25°C	1.00M	U				1990TJa (67086)	779
								Keff(VO+L)=0.62 Beff((VO)2L2)=7.40		

At pH 7 in 30mM HEPES

\*\*\*\*\*  
C9H14N4O3 HL Carnosine CAS 305-84-0 (272)  
3-Alanyl-histidine; H2N.CH2.CH2.CO.NH.CH(CH2.C3H3N2).COOH  
-----

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	KCl	25°C	0.15M	C				2002AMc (67327)	780
								B2=11.2 K(VO+H3L+H2L)=ca.4 K(VO+2H2L)=ca.4 K(VO+H2L+HL)=6.5 K(VO+2HL)=8.6		

K(VO+HL+L)=9.5, \*K(VOH5L2)=ca.-3, \*K(VOH4L2)=ca.-4, \*K(VOH3L2)=-4.5,  
\*K(VOH2L2)=-8.5, \*K(VOHL2)=-8, \*K(VOL2)=-8.7.  
-----

C10H7NO5S H2L CAS 3682-32-4 (1812)  
2-Nitroso-1-hydroxynaphthalene-4-sulfonic acid;  
-----

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	sp	KCl	25°C	0.10M	C				1975MLa (68896)	781
								K1=5.96		

VO++	gl	KNO3	35°C	0.10M	U				1974LSa (68897)	782
								K1=5.47		

\*\*\*\*\*  
C10H7NO5S H2L CAS 23525-13-6 (1813)  
2-Nitroso-1-hydroxynaphthalene-5-sulfonic acid;  
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Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
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VO++ sp KCl 25°C 0.10M C K1=6.19 1975MLa (68913) 783  
 \*\*\*\*\*  
 C10H7NO5S H2L CAS 31005-79-9 (1814)  
 2-Nitroso-1-hydroxynaphthalene-8-sulfonic acid;

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

VO++ sp KCl 25°C 0.10M C K1=7.19 1975MLa (68954) 784  
 \*\*\*\*\*  
 C10H7NO8S2 H3L Nitroso-R acid CAS 525-05-3 (1811)  
 1-Nitroso-2-hydroxynaphthalene-3,6-disulfonic acid;

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

VO++ sp KCl 25°C 0.10M C K1=6.71 1975MLa (69037) 785  
 \*\*\*\*\*  
 C10H7NO8S2 H3L CAS 52664-45-6 (1627)  
 2-Nitroso-1-hydroxynaphthalene-4,6-disulfonic acid;

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

VO++ sp KCl 25°C 0.10M C K1=5.68 1975MLa (69056) 786  
 \*\*\*\*\*  
 C10H8N2 L 2,2'-Bipyridyl CAS 366-18-7 (25)  
 2,2'-Bipyridine; (C5H4N)2

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

VO++ gl KCl 25°C 0.20M C K1=4.91 B2= 8.46 2002JBa (69662) 787  
 B(VOH-1L)=0.2  
 B((VO)2H-2L2)=4.35  
 B(VOH-1L2)=3.84

-----  
 VO++ gl NaNO3 25°C 0.10M C K1=5.08 B2=8.65 1994DHa (69663) 788  
 K(VOL2+OH)=1.23

\*\*\*\*\*  
 C10H8O5S H3L DHNSA (877)  
 2,3-Dihydroxynaphthalene-6-sulfonic acid;

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

VO++ gl NaClO4 25°C 0.10M C I K1=16.21 B2=30.64 1979LPb (69868) 789  
 \*\*\*\*\*  
 C10H8O8S2 H4L Chromotropic ac CAS 148-25-4 (1875)  
 1,8-Dihydroxynaphthalene-3,6-disulfonic acid;

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

VO++ gl KCl 30°C 0.10M U M K1=17.17 1967LAd (69984) 790  
 K(VO(phen)+L)=18.09

\*\*\*\*\*

C10H9NO3S2 HL (7206)  
6-Methyl-5-sulfo-8-mercaptoquinoline;

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

VO++ sp oth/un 20°C 0.10M U K1=8.0 1985DAb (70181) 791  
-----

\*\*\*\*\*  
C10H9N3 L Dipyriddyamine CAS 1202-34-2 (2428)  
(2,2'-Dipyriddyamine; C5H4N.NH.C5H4N

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

VO++ gl NaNO3 25°C 0.10M C K1=5.48 B2=9.37 1994DHa (70342) 792  
K3=2.45  
-----

\*\*\*\*\*  
C10H10O2 HL Benzoylacetone CAS 93-91-4 (197)  
1-Phenylbutane-1,3-dione; C6H5.CO.CH2.CO.CH3

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

VO++ dis oth/un 25°C 0.10M U K1=10.52 B2=20.55 1970MKh (70783) 793  
-----

\*\*\*\*\*  
C10H12N2O3S HL CAS 93100-65-3 (6199)  
2-(2-Pyrrolydineamino)benzene sulfonic acid; C4H7N:N.C6H4.HS03

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

VO++ gl NaClO4 25°C 0.10M U T H K1=19.08 1987RDb (71212) 794  
35 C:K=19.77, 45 C:20.34. DH=114.31 kJ mol-1, DS=740 J K-1 mol-1  
-----

\*\*\*\*\*  
C10H12N2O4 H2L CAS 16598-05-3 (967)  
2-Pyridylmethyliminodiethanoic acid; C5H4N.CH2.N(CH2.COOH)2

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

VO++ EMF NaClO4 25°C 0.10M U 1985NSa (71280) 795  
K((VO)H-1L+H)=6.5  
-----

VO++ gl KNO3 25°C 0.10M U K1=11.3 1983FSa (71281) 796  
-----

VO++ gl NaClO4 25°C 0.10M U 1966KFc (71282) 797  
K(VOL(OH)+H=VOL)=6.45  
-----

\*\*\*\*\*  
C10H12N4O5 HL Inosine CAS 58-63-9 (2344)  
Hypoxanthine-9-beta-D-ribofuranoside;

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

VO++ nmr KCl 25°C 1.00M U I 1990TJa (71409) 798

Keff(VO+L)=0.58  
Beff((VO)2L2)=7.85

At pH 7 in 30mM HEPES. In 0.035M KCl: Keff(VO+L)=0.59, Beff((VO)2L2)=7.81  
\*\*\*\*\*

C10H13N5O4 L Adenosine CAS 58-61-7 (2154)  
Adenosine, Adenine-9-beta-D-ribofuranoside;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ nmr KCl 25°C 1.00M U 1990TJa (71958) 799  
Keff(VO+L)=0.76  
Beff((VO)2L2)=7.61

At pH 7 in 30mM HEPES  
\*\*\*\*\*

C10H13N5O5 HL Guanosine CAS 118-00-3 (1402)  
2-Aminopurin-6-one-9-ribose;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ nmr KCl 25°C 1.00M U 1990TJa (72025) 800  
Beff((VO)2L2)=7.56

At pH 7 in 30mM HEPES  
\*\*\*\*\*

C10H15N5O10P2 H3L ADP CAS 20398-34-9 (2181)  
Adenosine-5'-diphosphoric acid;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KCl 25°C 0.20M C K1=6.68 B2=10.80 1995ADb (73021) 801  
B((VO)HL)=10.09  
B((VO)H-2L2)=-4.45  
B((VO)H-4L2)=-22.34  
B((VO)2H-2L2)=4.96

B((VO)2H-4L2)=-10.53, B((VO)2H-6L2)=-28.03.  
\*\*\*\*\*

C10H16N2O8 H4L EDDS CAS 52759-67-8 (1100)  
1,2-Diaminoethane-N,N'-di-1,4-butanedioic acid; (CH2.NH.CH(COOH)CH2.COOH)2

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ oth KNO3 25°C 0.10M U 1972TSd (73196) 802  
K(VO+H2L=VOL+2H)=12.89  
K(VOL+H2O=VO(OH)L+H)=-9.60  
K(VOL+2H2O=VO(OH)2L+2H)=-18.0  
K(2VOL+2H2O=(VO)2(OH)2L2+2H)=-15.08

-----  
VO++ gl KNO3 25°C 0.10M U K1=12.89 1972TSd (73197) 803  
K(VO(OH)L+H)=9.60  
K(VO(OH)2L+2H)=18.0  
K((VO(OH)L)2+2H)=15.08



\*\*\*\*\*

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  
-----

VO++ cal KNO3 25°C 0.10M C H K1=18.63 1987AKa (74300) 804  
DH(K1)=-10.5 kJ mol-1, DS=326 J K-1 mol-1

VO++ EMF NaClO4 25°C 1.00M U H K(VOL+H)=3.22 1985SKa (74301) 805

VO++ gl NaClO4 25°C 1.00M C K(VOL+H)=3.16 1983AHa (74302) 806

VO++ gl KNO3 25°C 0.10M U T K1=18.77 1983FSa (74303) 807

VO++ sp none ? 0.0 U K1=18.0 1958RIa (74304) 808  
K((VO)HL)=11.4  
K(VOL+H)=3.65

VO++ vlt KCl 20°C 0.10M U T K1=18.77 1954SGa (74305) 809

\*\*\*\*\*

C10H16N5O13P3 H4L ATP CAS 56-65-5 (403)  
Adenosine-5'-triphosphoric acid;

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

VO++ gl KCl 25°C 0.20M C K1=6.49 B2=10.42 1995ADb (74838) 810  
B((VO)HL)=10.00  
B((VO)H-2L2)=-3.76  
B((VO)H-4L2)=-22.57  
B((VO)2H-2L2)=3.82  
B((VO)2H-4L2)=-9.27, B((VO)2H-6L2)=-28.84.

VO++ gl NaClO4 25°C 0.10M U K1=6.67 B2=10.32 1989CGb (74839) 811  
B((VO)2L)=10.21

\*\*\*\*\*

C10H17N08S HL (1735)  
2-(5-Carboxy-1,2,3,4-tetrahydroxypropyl)4-carboxythiazolidine,  
Galactocarboxythiazolidine;

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

VO++ gl NaClO4 25°C 0.10M C K1=5.73 B2=9.88 1992GNa (75014) 812  
B((VO)HL)=8.33  
B((VO)H-1L)=2.14  
B((VO)H-1L2)=4.34  
B((VO)H-2L2)=-2.40  
B((VO)H-3L2)=-11.89, B((VO)2H-3L2)=1.46, B((VO)2H-4L2)=4.96,

B((VO)2H-5L2)=-13.68, B((VO)2H-6L2)=-23.88

\*\*\*\*\*

C10H17N3O6S H3L Glutathione CAS 70-18-8 (333)  
Glutamyl-cysteinyl-glycine;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KCl 25°C 1.5M C 2001AMB (75149) 813

K(VO+2H3L)=4.7  
K(VO+2H3L=VO(H2L)2+2H)=3.2  
K(VO+2H3L=VO(HL)H2L+3H)=>-8.4  
K(VO+2H3L=VO(HL)2+4H)=-13.7

\*\*\*\*\*

C10H18N2O7 H3L HEDTA CAS 150-39-0 (392)  
N-(Hydroxyethyl)diaminoethane-N,N',N'-triethanoic acid;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KNO3 25°C 0.10M U K1=17.12 1983FSa (75534) 814

\*\*\*\*\*

C10H20N2O4 H2L CAS 7532-84-5 (1027)  
1,2-Diaminoethane-N,N'-di(2-(2-methyl)propanoic acid)

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KNO3 25°C 0.10M U K1=12.23 1983FSa (75766) 815

\*\*\*\*\*

C10H20N2O6 H2L CAS 5616-21-7 (570)  
N,N'-Bis(2-hydroxyethyl)diaminoethane-N,N'-diethanoic acid;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KNO3 25°C 0.10M U 1959CGa (75860) 816

K(VOLOH+H)=5.5

\*\*\*\*\*

C11H8O4 HL CAS 6724-42-1 (6183)  
8-Formyl-7-hydroxy-4-methyl-2H-1-benzopyran-2-one; CHO.C9H30(:O)(CH3)(OH)

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl alc/w 35°C 70% U K1=6.98 B2=13.52 1988KRc (77209) 817

\*\*\*\*\*

C11H9N3O2 H2L PAR CAS 1141-59-9 (636)  
4-(2'-Pyridylazo)-1,3-dihydroxybenzene; C5H4N.N:N.C6H3(OH)2

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ sp oth/un ? ? U 1973KLb (77602) 818

K(VOL+H)=4.8  
K(VO2L+H)=4.5

-----  
VO++ sp oth/un ? ? U 1970BBg (77603) 819  
K((VO(OH)+L)=16.47

\*\*\*\*\*  
C11H11N06 H3L CAS 1147-65-5 (425)  
N-(2'-Carboxyphenyl)iminodiethanoic acid; HOOC.C6H4.N(CH2.COOH)2

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

VO++ gl KNO3 25°C 0.10M U K1=9.49 1983FSa (77840) 820

\*\*\*\*\*  
C11H12N202 HL CAS 103314-23-4 (6182)  
2-(N-2-Pyrrolidimino)benzoic acid; C4H7N:N.C6H4.COOH

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

VO++ gl NaClO4 25°C 0.10M U TIH B2=24.99 1988GRb (78025) 821  
35 C:B2=25.10, 45 C:25.25. DH(B2)=23.6 kJ mol<sup>-1</sup>, DS=557.1 J K<sup>-1</sup> mol<sup>-1</sup>

\*\*\*\*\*  
C11H12N202 HL Tryptophan CAS 73-22-3 (3)  
2-Amino-3-(3-indolyl)propanoic acid; H2N.CH(CH2.C8H6N)COOH

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

VO++ gl NaClO4 20°C 0.10M U T H K1=7.58 B2=14.81 1981SSh (78239) 822  
Also data for 30 and 40C. DH(B2)=111 kJ mol<sup>-1</sup>, DS(B2)=663 J K<sup>-1</sup> mol<sup>-1</sup>

\*\*\*\*\*  
C11H14N204 H2L CAS 511537-84-1 (8567)  
N-[(2-Hydroxyphenyl)methyl]glycyl-glycine;

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

VO++ gl KCl 25°C 0.20M C K1=11.60 B2=18.47 2002PCa (78903) 823  
B((VO)H2L)=19.2  
B((VO)H-1L)=6.17  
B((VO)H-2L)=-2.09

B((VO)H2L) determined by spectrophotometry.

\*\*\*\*\*  
C11H18N208 H4L CAS 4408-81-5 (923)  
1,3-Diaminopropane-N,N,N',N'-tetraethanoic acid; ((HOOC.CH2)2N.CH2.)2.CH2

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

VO++ gl KNO3 20°C 0.10M U K1=18.97 1977SJa (79477) 824

\*\*\*\*\*  
C12H8N2 L Phenanthroline CAS 66-71-7 (144)  
1,10-Phenanthroline;

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

VO++ gl NaNO3 25°C 0.10M C K1=5.48 B2=10.25 1994DHa (80529) 825  
K(VOL2+OH)=5.12

VO++ gl KCl 30°C 0.10M U M K1=5.88 1967LAd (80530) 826  
K(VO(OH)L+H)=3.04

Ternary complexes with catechol, tiron and chromotropic acid

VO++ gl oth/un 25°C 0.08M U K1=5.47 B2=9.69 1957TBa (80531) 827  
\*\*\*\*\*

C12H9NO3 HL CAS 63098-85-1 (6279)  
2-(N-2'-Furfuralideneimino)benzoic acid; C4H3O.CH:N.C6H4.COOH

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

VO++ gl NaClO4 25°C 0.10M U TI K1=4.43 B2=8.02 1978SKg (80583) 828  
\*\*\*\*\*

C12H10N2O2 H2L CAS 2050-14-8 (3378)  
2,2'-Dihydroxyazobenzene; HO.C6H4.N:N.C6H4.OH

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

VO++ gl diox/w 25°C 75% U K1=22.2 1998FHa (80702) 829  
Medium: 75% (v/v) dioxane/water; 0.1 M KNO3.

C12H20N2O8 H4L CAS 40623-42-5 (1101)  
1,2-Diaminoethane-N,N'-di(2-pentane-1,5-dioic acid); (CH2NHCH(COOH)CH2CH2COOH)2

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

VO++ gl KNO3 25°C 0.10M U K1=12.49 1972TSd (82108) 830  
K(VO(OH)L+H)=8.31  
K(VO(OH)2L+2H)=16.90  
K((VO(OH)L)2+2H)=14.71

C12H22O12 HL Lactobionic acid CAS 96-82-2 (2487)  
4-O-Beta-D-Galactopyranosyl-D-gluconic acid;

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

VO++ gl KNO3 25°C 0.10M C B2=6.07 1991KBa (82934) 831  
B((VO)H-1L2)=2.32  
B((VO)H-2L2)=-1.92  
B((VO)H-3L2)=-10.31  
B((VO)H-4L2)=-18.56

C13H11NOS H2L (7306)  
2-(Salicylideneamino)thiophenol, Salicylaldehyde-2-mercaptoanil;  
HO.C6H4.CH:N.C6H4.SH

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

-----  
VO++ gl diox/w 25°C 75% U K1=19.4 1998FHa (85049) 832  
Medium: 75% (v/v) dioxane/water; 0.1 M KNO3.

\*\*\*\*\*  
C13H11NO2 HL CAS 1761-56-4 (3408)  
2-(Salicylideneamino)phenol, Salicylaldehyde-2-hydroxyanil; HO.C6H4.CH:N.C6H4.OH  
-----

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

VO++ gl diox/w 25°C 75% U K1=17.7 1998FHa (85070) 833  
Medium: 75% (v/v) dioxane/water; 0.1 M KNO3.

\*\*\*\*\*  
C13H11N2O3F3 HL (5563)  
3-(2-Acetylphenylhydrazone)-1,1,1-trifluoropentane-2,4-dione;  
CF3.CO.C(CO.CH3):N.HN.C6H4.COCH3  
-----

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

VO++ gl diox/w 25°C 75% U K1=10.68 B2=18.68 1990ASb (85256) 834  
\*\*\*\*\*

C13H12N4O L Diphenylcarbaz. CAS 538-62-5 (1195)  
Diphenylcarbazone; C6H5.NH.NH.CO.N:N.C6H5  
-----

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

VO++ gl diox/w 25°C 50% U K1=8.5 B2=16.10 1986MHb (85422) 835  
\*\*\*\*\*

C13H14N2O3 HL (4940)  
3-(2-Acetylphenylhydrazone)pentane-2,4-dione; (CH3.CO)2C:N.NH.C6H4(CO.CH3)  
-----

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

VO++ gl diox/w 25°C 75% U K1=12.75 B2=24.22 1990ASb (85619) 836  
\*\*\*\*\*

C13H17N3O5 H2L CAS 511537-86-3 (8568)  
N-[(2-Hydroxyphenyl)methyl]glycylglycylglycine;  
-----

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

VO++ gl KCl 25°C 0.20M C K1=11.18 B2=18.29 2002PCa (86019) 837  
B((VO)H2L)=19.1

B((VO)H2L) determined by spectrophotometry.

\*\*\*\*\*  
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  
-----

VO++ sp oth/un 25°C ? U 1966SMa (86770) 838  
K(VO3+H2L=VO2L)=8.4(?)

\*\*\*\*\*

C14H12N2O5 H2L (7309)  
Salicylaldehyde thiobenzoylhydrazone; HO.C6H4.CH:N.N:C(SH).C6H5

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

VO++ gl diox/w 25°C 75% U K1=20.5 1998FHa (87164) 839  
Medium: 75% (v/v) dioxane/water; 0.1 M KNO3.

\*\*\*\*\*

C14H12N2O2 H2L (7307)  
Salicylaldehyde benzoylhydrazone; HO.C6H4.CH:N.N:C(OH).C6H5

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

VO++ gl diox/w 25°C 75% U K1=23.8 1998FHa (87191) 840  
Medium: 75% (v/v) dioxane/water; 0.1 M KNO3.

\*\*\*\*\*

C14H12N2O3 H3L (7308)  
Salicylaldehyde salicylhydrazone; HO.C6H4.CH:N.N:C(OH).C6H4OH

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

VO++ gl diox/w 25°C 75% U K1=17.6 1998FHa (87233) 841  
Medium: 75% (v/v) dioxane/water; 0.1 M KNO3.

\*\*\*\*\*

C14H12O3 HL Benzilic acid CAS 76-93-7 (710)  
Diphenylglycolic acid, (benzilic acid); (C6H5)2C(OH).COOH

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

VO++ gl KCl 25°C 0.20M C K1=2.29 1993MSa (87353) 842  
B((VO)H-1L)=-0.92  
B((VO)H-1L2)=1.63  
B((VO)H-2L2)=-1.90

\*\*\*\*\*

C14H22N2O8 H4L CDTA CAS 482-54-2 (200)  
trans-1,2-Diaminocyclohexane-N,N,N',N'-tetraethanoic acid;

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

VO++ gl KNO3 25°C 0.10M U K1=20.1 1983FSa (88816) 843

-----  
VO++ vlt KNO3 20°C 0.10M U K1=19.40 1954SGa (88817) 844

\*\*\*\*\*

C14H22N4O10 H3L CAS 29725-87-9 (5074)  
Ethylenedinitrilo-N,N'-bis(methylenecarbonyliminoethanoic)-N,N'-diethanoic acid;

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

VO++ gl KNO3 25°C 0.10M U K1=12.46 1970MMc (88935) 845



-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl diox/w 25°C 75% U K1=20.4 1998FHa (91105) 852  
Medium: 75% (v/v) dioxane/water; 0.1 M KNO3.  
\*\*\*\*\*  
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  
-----  
VO++ gl NaNO3 25°C 0.10M C K1=6.40 B2=15.66 1994DHa (91165) 853  
\*\*\*\*\*  
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  
-----  
VO++ sp NaClO4 25°C 0.10M U K1=15.07 1993HKb (91351) 854  
\*\*\*\*\*  
C15H11N3O8S2 H4L (6674)  
7-((2-Hydroxy-5-sulfophenyl)azo)-8-hydroxyquinoline-5-sulfonic acid;  
-----

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ sp NaClO4 25°C 0.10M U 1993HKb (91358) 855  
K(VO+HL)=16.31  
\*\*\*\*\*  
C15H12O2 HL Diphenylacac CAS 120-46-7 (362)  
1,3-Diphenylpropane-1,3-dione, Dibenzoylmethane; C6H5.CO.CH2.CO.C6H5  
-----

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ dis NaClO4 25°C 0.10M U B2=25.47 1971KKh (91568) 856  
\*\*\*\*\*  
C15H16N4O L CAS 15933-19-4 (6218)  
Di(2-methylphenyl)carbazone;  
-----

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl diox/w 25°C 50% U K1=8.0 B2=15.50 1986MHb (91938) 857  
Data also for Di-(4-methyl), Di-(2,5-dimethyl), Di-(4-nitro) etc. analogues  
\*\*\*\*\*  
C15H22N2O18P2 H4L CAS 2616-64-0 (7987)  
Uridine-5'-diphosphoglucuronic acid;  
-----

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl KNO3 25°C 0.10M C K1=8.70 2001GLa (92242) 858  
B(VOH2L)=16.64  
-----



B(VOHL)=13.86  
B(VOH-4L2)=-22.93  
B((VO)2H-2L2)=10.52

B((VO)2H-3L2)=3.26, B((VO)2H-4L2)=-5.89.

\*\*\*\*\*

C15H24N2O17P2 H3L CAS 133-89-1 (7986)

Uridine-5'-diphosphoglucose;

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

VO++ gl KNO3 25°C 0.10M C B2=15.91 2001GLa (92334) 859

B(VOHL)=14.66  
B(VOH2L2)=26.32  
B(VOH-1L2)=7.98  
B(VOH-2L2)=-0.46

B(VOH-3L2)=-10.96, B(VOH-4L2)=-22.17, B((VO)2L2)=22.17,  
B((VO)2H-2L2)=12.95, B((VO)2H-3L2)=4.88.

\*\*\*\*\*

C16H9N3O6Cl2S H3L (6683)

7-((3,5-Dichloro-2-carboxyphenyl)azo)-8-hydroxyquinoline-5-sulfonic acid;

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

VO++ sp KNO3 25°C 0.10M U K1=15.94 1993HKc (92674) 860

C16H11N2O8ClS2 H4L (7166)

2-((3-Chlorophenyl)azo)1,8-dihydroxynaphthalene-3,6-disulfonic acid;

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

VO++ sp NaClO4 25°C 0.10M C 1994HKb (92775) 861

K(VO+H2L=VOL+2H)=33.72

C16H11N2O9ClS2 H4L Plasmocorinth CAS 1058-92-0 (5203)

3-(5-Chloro-2-hydroxyphenylazo)chromotropic acid (Eriochrome Blue SE)

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

VO++ sp NaClO4 25°C 0.10M C 1994HKb (92787) 862

K(VO+H3L=VOHL+2H)=30.28  
K(VOHL+H3L=VOH2L2+2H)=29.35

C16H12N2O2 H2L CAS 9486-98-2 (3462)

1-(2-Hydroxyphenylazo)-2-hydroxynaphthalene;

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

VO++ gl diox/w 25°C 75% U K1=22.6 1998FHa (92960) 863

Medium: 75% (v/v) dioxane/water; 0.1 M KNO3.

\*\*\*\*\*

C16H12N2O8S2 H4L (6676)  
1-((2-Hydroxy-5-sulfophenyl)azo)-2-hydroxynaphthalene-6-sulfonic acid;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ sp NaClO4 25°C 0.10M U K1=34.28 1993HKb (93040) 864  
\*\*\*\*\*

C16H12N2O8S2 H4L (6675)  
2-((2-Hydroxy-5-sulfophenyl)azo)-1-hydroxynaphthalene-4-sulfonic acid;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ sp NaClO4 25°C 0.10M U K1=32.27 1993HKb (93045) 865  
\*\*\*\*\*

C16H18N2O3 HL (5564)  
2-(2-Acetylphenylhydrazone)-5,5-dimethyl-1,3-cyclohexanedione;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl diox/w 25°C 75% U K1=12.80 B2=23.20 1990ASb (93789) 866  
\*\*\*\*\*

C16H20N2O6 H2L CAS 488827-72-1 (8831)  
N,N'-Bis(3-hydroxy-6-methyl-2-methylene-4-pyrone)ethylenediamine;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ gl NaCl 25°C 0.16M C K1=15.57 2002SSb (94009) 867  
K(VO+HL)=11.77  
K(VO+H2L)=7.6  
K(VO+H3L)=4.2  
\*K(VOL)=-8.95  
\*\*\*\*\*

C17H10N2O6Cl2S H3L (6684)  
2-((3,5-Dichloro-2-carboxyphenyl)azo)-1-hydroxynaphthalene-4-sulfonic acid;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ sp KNO3 25°C 0.10M U K1=14.68 1993HKc (95684) 868  
For 1-....-2-hydroxynaphthalene K1=19.17  
\*\*\*\*\*

C17H14N2O2 L CAS 4551-69-3 (698)  
4-Benzoyl-3-methyl-1-phenyl-2-pyrazolin-5-one;

-----  
Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
-----  
VO++ dis NaClO4 25°C 0.10M U B2=14.11 1972KEc (95906) 869  
\*\*\*\*\*

C17H16N2O2 H2L (7310)  
Benzoylacetone benzoylhydrazone; C6H5.C(OH):CH.C(CH3):N.N:C(OH).C6H5  
-----

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	diox/w	25°C	75%	U			K1=20.9	1998FHa (96032)	870
Medium: 75% (v/v) dioxane/water; 0.1 M KNO3.										
*****										
C17H16N2O3		H3L						(7311)		
Benzoylacetone salicylhydrazone; C6H5.C(OH):CH.C(CH3):N.N:C(OH).C6H4.OH										

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	diox/w	25°C	75%	U			K1=24.2	1998FHa (96034)	871
Medium: 75% (v/v) dioxane/water; 0.1 M KNO3.										
*****										
C17H18N3O3F		HL						CAS 189257-90-7 (7142)		
1-Cyclopropyl-6-fluoro-1,4-dihydro-4-oxo-7[1-piperazinyl]-3-quinoline carboxylic acid;										

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	KCl	25°C	0.20M	C				2003Tgb (96226)	872
B(VOHL)=15.11										
B(VOH2L2)=30.64										
B(VOHL2)=24.4										
*****										
C18H14N2O2		HL						CAS 15017-21-7 (6859)		
2-Hydroxynaphthalidene benzoyl hydrazone; C6H5.CO.NH.N:CH.C10H6.OH										

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	diox/w	20°C	75%	U T			K1=8.00 B2=14.12	1992Mcb (96911)	873
30 C: B1=7.91, B2=13.95; 40 C: B1=7.81, B2=13.83										
*****										
C18H14N2O3		H2L						CAS 54009-54-0 (6860)		
2-Hydroxynaphthalidene salicylic hydrazone; HO.C6H4.CO.NH.N:CH.C10H6.OH										

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	diox/w	20°C	75%	U T			K1=7.30 B2=13.15	1992Mcb (96921)	874
30 C: B1=7.15, B2=12.94; 40 C: B1=7.00, B2=12.70										
*****										
C18H16N2O3		HL						(5560)		
2-(2-Acetylphenylhydrazone)-1-phenyl-but-1,3-dione; C6H5.CO.C(CO.CH3):N.NH.C6H4.COCH3										

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	diox/w	25°C	75%	U			K1=12.85 B2=23.58	1990ASb (97182)	875
*****										
C18H30N4O12		H6L						CAS 869-52-3 (694)		
Triethylenetetraaminehexaethanoic acid;((HOOC.CH2)2N.CH2.CH2.N(CH2.COOH).CH2)2										

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-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      gl  NaCl04 25°C 0.50M C                                1976NAa (98104) 876
                                                K(VOL+H)=8.95
                                                K(VOHL+H)=4.36
                                                K(VOH2L+H)=2.32

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*****
C19H14O7S      H4L      Pyrocatechol Vi CAS 369596-29-2 (709)
Pyrocatechol Violet,
3-[3,4-Dihydroxyphenyl-3-hydroxy-4-oxo-2,5-cyclohexadien-1-ylidenemethyl-b.;
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      sp  oth/un 25°C 0.0 U                                1967MPc (99117) 877
                                                Beff((VO)2L)=9 (pH 4.2)

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*****
C19H19NO7      H2L                                (7003)
3-Methoxy-5-(N,N-dicarboxymethyl)aminomethyl-4-hydroxybenzophenone;
-----

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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      gl  KCl    20°C 0.10M U                                1981SYa (99258) 878
                                                K1=17.0
                                                K(VO+HL)=7.4

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*****
C20H15NO3      H2L                                (2120)
2-(alpha-Phenyl-2-hydroxybenzylideneimino)benzoic acid; HO.C6H4.C(C6H5):N.C6H4.COOH
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      gl  NaCl04 25°C 0.10M U TIH      K1=11.19 B2=20.68 1986SGb (99750) 879
35 C: K1=11.55, K2=9.82; 45 C:K1=11.80, K2=10.17
DH(K1)=-58.07 kJ mol-1, DS=248 J K-1 mol-1

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*****
C20H32N6O12S2      H4L      GSSG                                CAS 27025-41-8 (1241)
Glutathione oxidized; (HOOC.CH(NH2)C2H4.CO.NH.CH(CO.NH.CH2.COOH)CH2.S)2
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      gl  KCl    25°C 0.20M C                                2001PTa (100488) 880
                                                K1=11.39
                                                B((VO)H4L)=27.2
                                                B((VO)H3L)=24.82
                                                B((VO)H2L)=21.47
                                                B((VO)HL)=17.06

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B((VO)H-1L)=3.27, B((VO)H-2L)=-6.65.
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C21H22N4O      HL                                CAS 56932-30-0 (5308)
1-Hydroxy-2-(2-N-methylanabasiny1-alpha-azo)naphthalene;
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----

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 VO++ sp oth/un ? ? U B2=10.49 1966APa (101204) 881  
 \*\*\*\*\*  
 C22H17N3O3 HL CAS 53855-37-1 (4154)  
 8-Hydroxy-7-(3'-nitroanilinobenzyl)-quinoline;  
 -----

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	diox/w	25°C	70%	U			K1=10.08 B2=19.47	1978SPf (101572)	882

Medium: 70% v/v dioxane/H2O, 0.10 M KNO3.  
 \*\*\*\*\*  
 C23H16O9Cl2S H4L Chrome azuro1 S CAS 1667-99-8 (711)  
 Chromazuro1 S;  
 -----

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	sp	oth/un	25°C		? U				1967SSb (102578)	883

K1eff=4.6 (pH 4.0)  
 \*\*\*\*\*  
 C23H18N2O3 HL (5561)  
 2-(2-Acetylphenylhydrazone)-1,3-diphenyl-prop-1,3-dione;  
 C6H5.CO.C(CO.C6H5):N.NH.C6H4.COCH3  
 -----

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	diox/w	25°C	75%	U			K1=11.42 B2=20.60	1990ASb (102604)	884

\*\*\*\*\*  
 C25H28N2O13 H6L CAS 42281-29-8 (5335)  
 (Carbonylbis((6-hydroxy-5-methoxy-3-phenylene)methylenenitrilo))tetraethanoic acid;  
 -----

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	gl	KCl	20°C	0.10M	U			K1=20.8	1973VIb (103666)	885

K(VO+HL)=17.9  
 K(VO+H2L)=14.9  
 K(VO+H3L)=9.9  
 \*\*\*\*\*  
 C25H48N6O8 H3L Desferrioxamine CAS 70-51-9 (2488)  
 Desferrioxamine B; NH2.((CH2)5.NOH.CO.C2H4.CO.NH)2.(CH2)5.NOH.CO.CH3  
 -----

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
VO++	sp	NaClO4	25°C	2.00M	U				1991BBc (103824)	886

K(VO+H4L=VOH3L+H)=1.27  
 K(VOH3L=VOH2L+H)=-1.70  
 K(VHL+H2O=VOH2L+H)=4.22  
 \*\*\*\*\*  
 C27H28N2O9S H4L Gly-cresol Red CAS 4079-10-1 (4170)  
 4'-Hydroxy-3,3'-dimethyl-5,5'-bis(N-carboxymethyl)aminomethyl)fuchsone-2"-sulfonic acid;  
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      sp  NaCl04   ?  0.10M U                                1973BBg (104428) 887
                                         K(VO+H2L)=6.60
                                         K(VO+2H2L)=14.05

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\*\*\*\*\*

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C31H32N2O13S      H6L  Xylenol orange  CAS 63721-85-5 (432)
5,5'-Bis-N,N-bis(carboxymethyl)aminomethyl-4'-hydroxy-3,3'-dimethylfuchstone-2"-sulf
onic acid;

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-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      sp  NaCl04   ?  0.10M U                                1972BBi (105510) 888
                                         K(VO+H2L)=10.48
                                         K(VO+H2L+H5L)=15.67

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Polymer      H2L                                (5378)
4,4',4'',4'''-Tetraoctadecylsulfonamidophthalocyanine;

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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      sp  non-aq  25°C 100% U                                1972MBf (108037) 889
                                         K(2VOL=V02L2)=6.30

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Medium: benzene

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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

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END