

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	KN03	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	KN03	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.

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
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-mercaptopropionic 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	1985KR a (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; H00C.CH2.CH2.C00H

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V(IV)	sp	NaCl04	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 B(V0H-1L2)=4.48 B(V0H-2L2)=-4.39 B(V0H-3L2)=-15.09	1995KKb (34399)	15

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			K(V0L2+py)=1.83 K(V0L2+2-Me-py)=1.03 K(V0L2+4-Me-py)=2.11 K(V0L2+2,4-di-Me-py)=1.28	1983MGa (37909)	16

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

C5H8O4 H2L CAS 498-21-5 (2234)
Methylsuccinic acid; H00C.CH2.CH(CH3).C00H

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; H00C.CH2.CH2.CH2.C00H

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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
Method: 51V nmr spectroscopy. pH 5.0.
*****
C5H10O2      HL      n-Valeric acid      CAS 109-52-4 (3027)
Pentanoic acid; CH3(CH2)3.COOH
-----
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
Method: 51V nmr spectroscopy. pH 5.0.
*****
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(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.
*****
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
-----
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.
*****
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(IV)      sp      NaClO4 20°C 0.1M U                      1997KVb (48686)  22
                                      K(V0+L)=9.87
                                      K(V0+OH+L)=18.23
*****
C8H15NO8      HL      CAS 5616-22-8 (6474)
N-(2,3,4,5,6-Pentahydroxyhexanoyl)glycine, N-D-Gluconylglycine;
-----
Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
V(IV)      gl      KCl      25°C 0.20M C                      2001GJa (62229)  23

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$B((V0)2H-2L2)=-1.37$
 $B((V02)2H-3L2)=-5.57$
 $B((V02)2H-4L2)=-10.17$
 $B((V02)2H-5L2)=-16.67$
 $B((V02)2H-6L2)=-25.01$, $B((V0)H-4L)=-24.80$, $K(V0+HL=VOL+H)=-1.57$.

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)	gl	KNO3	25°C	0.15M	U	T	K1=7.58	1985KR a (65922)	24

At 35 C, K1=7.24. At 45 C, K1=6.73.

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)	gl	NaCl	25°C	0.60M	U			1998EC a (66691)	25

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

$B(p,q,r,s): pH+qH2V04+rHL+sHA=Hp(H2V04)q(HL)r(HA)s$.
 $B(-1,1,1,1)=-6.26$. 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)	gl	KCl	25°C	0.20M	C		K1=1.91	2001GJ a (67845)	26

$B((V0)2H-2L2)=-1.19$
 $B((V02)2H-3L2)=-5.48$
 $B((V02)2H-4L2)=-10.17$
 $B((V02)2H-5L2)=-16.52$

$B((V02)2H-6L2)=-24.43$, $B((V0)H-4L)=-23.98$, $K(V0+HL=VOL+H)=-2.23$.

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
V(IV)	gl	KCl	25°C	0.20M	C		K1=2.19	2001GJ a (67849)	27

$B((V0)2H-2L2)=-1.37$
 $B((V02)2H-3L2)=-5.08$
 $B((V02)2H-4L2)=-9.21$
 $B((V02)2H-5L2)=-15.11$

$B((V02)2H-6L2)=-22.84$, $B((V0)H-4L)=-23.74$, $K(V0+HL=VOL+H)=-0.91$

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.

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		K=16.90(999.6 mV)	1940HPa (1022)	33
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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 B3=15.04	1985VRb (7320)	37

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 B3=6.86	1969IVa (7322)	39
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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
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

$B'(3,3)=33.51; B'(-1,1)=-12.09; B(m,n): K(mV02=(V02)m(OH)n+nH$
 $B'(m,n): K(V04=(V04)m(OH)n+nH)$

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

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

$B(2,1,1,1)=20.22$

$B(2,1,1,2)=25.96$

$B(0,1,2,1)=14.67$

$B(p,q,r,s): pH+q(H2V04)+r(H2O2)+sL=(H)p(H2V04)q(H2O2)r(L)s.$

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. $B(p,q,r,s): pH+q(H2V04)+rH2O2+sL=(H)p(H2V04)q(H2O2)r(L)s.$

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

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.

$B(p,q,r,s): pH+qH2VO+rH2O2+sHA=Hp(H2V04)q(H2O2)r(HA)s$

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. $B(p,q,r): pH+qH2V04+rH2L=Hp(H2O4)q(H2L)r$

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

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.

$B(p,q,r,s): pH+qH2V04+rH2O2+sHL=(H)p(H2V04)q(H2O2)r(HL)s$

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

$$*K(V03(H2O2)) = -7.38$$

At pH 6.69. $K1_{eff}$: $H_2VO_4 + H_2L = H_2VO_3L + H_2O$

V(V) sp NaCl04 25°C 1.00M U 1974IKb (13377) 69
 $K(VO_2+H_2L)=1.37$
 $K(VO_2+HL)=5.20$
 $K(VO_2+2HL)=8.20$

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
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V(V)	nmr	KCl	25°C	1.00M	U			1986GTa (13668)	70
							$K_{1eff}=1.59$		

At pH 7.98: $K_{1eff}: H_2VO_4+HL=HVO_3L+H_2O$

V(V)	sp	NaCl04	?	1.00M	U			1972LGb (13669)	71
							$K(VO+HL)=6.52$		
							$K(VO+H_2L)=3.30$		
							$K(VO+2H_2L)=6.41$		

P3010----- H5L CAS 10380-08-2 (1001)
 Tripolyphosphate; from (HO)2PO.0.PO(OH).0.PO(OH)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
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V(V)	sp	NaCl04	25°C	1.00M	U			1984IKa (13916)	72
							$K(VO_2+H_2P3010)=4.60$		
							$K(VO_2+HP3010)=8.13$		
							$K(VO_2+2(HP3010))=12.9$		

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
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V(V)	sp	NaCl04	22°C	5.80M	U			1978FHa (16656)	73
							$K(VO_2+S04)=0.84$		
							$B(VO_2+2S04+H)=1.22$		

V(V)	sol	NaCl04	20°C	1.0M	U			1973IYb (16657)	74
							$K(VO_2+L)=0.95$		

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	NaCl04	19°C	1.01M	U		$K_1=0.97$	1966IVc (16659)	76
							$*K_1=-0.14$		

Metal:VO2+

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

Tungstate;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
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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: 0.75V4012+3WO4+4H=V3W3019+2H2O

0.75V4012+3WO4+5H=HV3W3019+2H2O.

V(V)	gl	NaCl	25°C	1.00M	U	M		1981IAa (17451)	80
------	----	------	------	-------	---	---	--	-----------------	----

K(V2W4019)=51.06

Equation: V4012/2+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
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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
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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 ₂ VO ₄ +H+L=H ₃ VO ₄ L)=8.15		
							K(H ₃ VO ₄ L+H+L=VO ₂ L ₂ +2H ₂ O)=9.26		

Method: 51V nmr.

V(V)	gl	NaCl	25°C	0.60M	C			1986EAb (19135)	85
							K(2H+H ₂ VO ₄ +2L)=17.11		
							K(2H+H ₂ VO ₄ +L)=13.07		
V(V)	gl	KNO ₃	20°C	0.50M	M			1983BSb (19136)	86
							K(VO ₃ +2H+2L=VO ₂ L ₂ +H ₂ O)=17.42		
							K(VO ₃ +H+L=VO ₂ (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 ₂ +									
V(V)	sp	NaClO ₄	20°C	1.00M	U		K1=5.08	1966IVa (19138)	88
Metal ion: VO ₂ +									
V(V)	sp	NaCl	25°C	1.00M	U		K1=2.32 B2=0.04	1964NNa (19139)	89
Metal ion: VO ₂ +									
V(V)	dis	NaClO ₄	20°C	0.10M	U		K1=6.4 B2=9.0	1963STc (19140)	90
Metal: VO ₂ +		Medium: KClO ₄							

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(V)	sp	NaClO ₄	20°C	1.00M	U		K1=2.28	1966IVa (20223)	91
Metal ion: VO ₂ +									

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
V(V)	gl	NaCl	25°C	1.00M	C			1975VIa (20650)	92
							K(V ₄ O ₁₂ +2L+2H=V ₄ O ₁₁ L ₂)=14.3		
							K(0.5V ₄ O ₁₂ +2L+2H=V ₂ O ₅ L ₂)=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(H2O2)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  NaCl04  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; HOOCH(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

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C4H8N2O3 HL Asparagine CAS 70-47-3 (17)
2-Aminobutanedioic acid 4-amide; H2N.CH(CH2.CO.NH2).COOH

C4H8O3 HL CAS 594-61-6 (81)
2-Hydroxy-2-methylpropanoic acid; (CH₃)₂C(OH).COOH

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

C4H9N3O3 H2L CAS 36212-68-7 (2042)
2-Aminobutanedioic acid-4-hydrazide; $\text{HOOC} \cdot \text{CH}(\text{NH}_2) \cdot \text{CH}_2 \cdot \text{CO} \cdot \text{NH} \cdot \text{NH}_2$

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

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

V(V) nmr KCl RT 0.40M C H 1998CBc (34963) 119
K(H2VO4+L=VO2H-2L+2H2O)=2.71
Method: 51V and 1H nmr. DH(K)=-21.2 kJ mol⁻¹, DS(K)=-13.5 J K⁻¹ mol⁻¹.

V(V) gl NaCl 25°C 0.60M M 1991CEa (34964) 120
K(H2VO4+L)=3.02

V(V) nmr KCl 25°C 0.40M U 1988CSb (34965) 121
K(H2VO4+HL=H2VO4L+H)=-6.17
K(HVO4+HL)=2.04
K(H2VO4+L)=2.71
K(HVO4+L=VO3L+OH)=-3.06

C4H11N08P2 H5L CAS 2439-99-8 (2129)
N-Carboxymethyl-N,N-bis(methylenephosphonic acid); H00C.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(VO2+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=H2VO4

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(VO2(H2O)=VO2(OH)+H)=-6.13	
									K(VO2LOH+H2O=HVO4+L+2H)=-19.7	
									K(VO2L+2H2O=HVO4+L+3H)=-25.9	

V(V) as VO2+. Data also at 15 and 35 C
DH=-25.0 kJ mol⁻¹ and DS=117 J mol⁻¹ K⁻¹.

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
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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
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V(V)	sp	NaCl04	25°C	0.1M	C	I	K1=9.91 B2=17.01	2003GAa (39842)	127
for I=0.3 M K1=9.71; B2=16.69; for I=0.5 M K1=9.93; B2=17.04									
for I=0.7 M K1=9.96; B2=17.24; for I=1.0 M K1=10.12; B2=17.36									

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
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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
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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									

C5H11NO2S HL Methionine CAS 63-68-3 (42)
2-Amino-4-(methylthio)butanoic acid; H2N.CH(CH2.CH2.S.CH3)COOH

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

V(V) gl alc/w 25°C 0.15M U I 2002GVa (41132) 133
K(V02+L)=9.31

Medium:0.15 M NaClO4 in 0.194 mol parts MeOH in H2O;for 0.123 m.p. K1=9.26
for 0.15 M NaClO4 in H2O K1=9.14

V(V) gl alc/w 25°C 0.15M U I 2002GVa (41133) 134
K(V02+L)=9.41

Medium:0.15 M NaClO4 in 0.18 mol parts dioxane/H2O;for 0.128 m.p. K1=9.32
for 0.053 mol parts dioxane/H2O K1=9.21

C5H12O3 L (5881)
1,1,1-Tris(hydroxymethyl)ethane; CH3.C(CH2.OH)3

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

V(V) nmr KCl 25°C 1.0M U 1988TGb (41646) 135
Keff(H2V04+L)=-0.29 pH 7.5
Keff(H2V04L+L)=-0.74 pH 7.5

C5H13NO2 L CAS 105-59-9 (1070)
N-Methyldiethanolamine; CH3.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 (41743) 136
K(H2V04+L=V02H-2L+2H2O)=3.04

Method: 51V and 1H nmr. DH(K)=-22.2 kJ mol-1, DS(K)=-13.9 J K-1 mol-1.

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

V(V) sp oth/un 30°C ? U K1=3.48 1981BMd (42059) 137

C6H3OCl3 HL CAS 88-06-2 (508)
2,4,6-Trichlorophenol; HO.C6H2(Cl)3

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

V(V) nmr mixed 25°C 42% C 1988GTa (42164) 138
K(H2V04+HL)=1.46

Medium: 42% acetone

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

C6H5NO3 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
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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
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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

Medium: 42% acetone

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

V is peroxovanadate. Method:NMR. $K(V(\text{diperoxo})+L=VL+H)=-6.22$

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

Medium: 0.2 - 1 M HClO₄

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

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

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
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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; HOOCCCH2.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 H₂O₂ and lactic acid also reported

V(V) nmr NaCl 25°C 0.60M C 1989EAa (46306) 157

K(2(H₂VO₄)+H+L)=12.84
K(2(H₂VO₄)+2H+L)=19.68
K(3H+2(H₂VO₄)+L)=24.12
K(3H+H₂VO₄+L)=18.1

C₆H₉N₃O₆ 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(V) kin NaClO₄ 25°C 3.00M U T 1984LAa (47081) 158
K(VO₂L+H) < 0.0

Data at 10 to 40C

V(V) sp NaClO₄ 25°C 3.00M C 1978LLa (47082) 159
K(VO₂+L)=13.8

V(V) gl NaClO₄ 25°C 1.00M U T H T K₁=13.8 1976YNa (47083) 160
K(VO₂L+2H₂O=HVO₄+L+3H)=-28.3

V(V) as VO₂+. Data also at 15 and 35 C
DH(K₁)=0 kJ mol⁻¹ and DS(K₁)=263 J mol⁻¹ K⁻¹.

V(V) gl NaClO₄ 25°C 3.00M C 1975LLb (47084) 161
K(VO₂+H₃L=VO₂L+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; H₂N.CH(CH₂.C₃H₃N₂)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(VO₃(O₂)₂+L)=2.36

C₆H₁₀O₈ 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

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
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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(HV04)+qL+rH=(V02)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
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V(V)	sp	oth/un	25°C	1.00M	U		K1=11.86	1987TKa (48808)	165
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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
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V(V)	gl	NaCl04	25°C	0.10M	C		K1=9.93	2003GFb (49108)	166
							B(V02HL)=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
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V(V)	kin	NaCl04	25°C	3.00M	U T			1984LAa (49280)	167
							K(V02L+H)=0.72		

Also data at 15 and 35 C

V(V)	gl	NaCl04	25°C	3.0M	U		K1=15.98	1979ZLa (49281)	168
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V(V)	gl	NaCl04	25°C	1.00M	U T H		K1=14.5	1976YNa (49282)	169
							K(V02L+2H2O=HV04+L+3H)=-29.7		

V(V) as V02+. Data also at 15 and 35 C

DH(K1)=-59.0 kJ mol⁻¹ and DS=79.0 J mol⁻¹ K⁻¹.

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
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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 NaCl04 25°C 0.20M C I K1=8.61 B2=13.88 2000GFa (49919) 172

Data for 0.2-0.8 M NaCl04. 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 NaCl04 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 NaCl04.

V(V) sp NaCl04 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 NaCl04.

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
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V(V)	nmr	KCl	RT	0.40M	C				1998CBc (51198)	176
									$K(H_2VO_4 + L = VO_2H - 2L + 2H_2O) = 0.30$	

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
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V(V)	nmr	KCl	RT	0.40M	C	H			1998CBc (51209)	177
									$K(H_2VO_4 + L = VO_2H - 2L + 2H_2O) = 2.477$	

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

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
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V(V)	nmr	KCl	RT	0.40M	C	H			1998CBc (51305)	178
									$K(H_2VO_4 + L = VO_2H - 2L + 2H_2O) = 2.72$	

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

V(V)	nmr	KCl	25°C	0.40M	U				1988CSb (51306)	179
									$K(H_2VO_4 + HL = H_2VO_4L + H) = -5.57$	

$K(HVO_4 + HL) = 2.62$

$K(H_2VO_4 + L) = 3.30$

$K(HVO_4 + L = VO_3L + OH) = -3.0$

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
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V(V)	nmr	KCl	RT	0.40M	C				1998CBc (51308)	180
									$K(H_2VO_4 + L = VO_2H - 2L + 2H_2O) = 3.20$	

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
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V(V)	sp	oth/un	20°C	1.00M	U				1982SPb (52369)	181
									$K(VO_2 + H_4L) = 10.0$	

C7H5NO4 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 K((VO2)L(OH)+H)=5.87	1977FHb (52818)	183
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Metal: VO2+. At 17 C: K((VO2)LOH+H)=5.91; 35 C: 5.82

C7H5NO5 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
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; HO.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; HO.C6H4.COOH

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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
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V(V)       nmr mixed  25°C  42%  C                      1988GTa (54437) 188
                                         K(H2VO4+H2L)=0.34

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Medium: 42% acetone

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C7H6O5          H4L          CAS 610-02-6  (3725)
2,3,4-Trihydroxybenzoic acid; (HO)3.C6H2.CO0H
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
V(V)       sp  oth/un  ?      ?  U                      1969KSb (54724) 189
                                         K(VO2+2H2L)=5.05

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*****
C7H6O5          H4L      Gallic acid      CAS 149-91-7  (446)
3,4,5-Trihydroxybenzoic acid; C6H2(OH)3.CO0H
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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(VO2+H2L)=3.06
                                         K(VO2+2H2L)=5.85
                                         K(VO2+3H2L)=8.48

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Medium: 0-100% methanol. Range of temperture 18-22C. K(VO2+H2L)(0%)=2.08 (100%)=3.22; K(VO2+2H2L)(25%)=5.02, (100%)=5.89; K(VO2+3H2L)(100%)=8.28

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*****
C7H7NO2          HL          CAS 495-18-1  (184)
Benzohydroxamic acid; C6H5.CO.NH.OH
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
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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.

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*****
C7H8O3          HL          CAS 2298-99-9  (8830)
3-Hydroxy-2,6-dimethyl-4H-pyran-4-one;
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
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V(V)       gl  NaCl    25°C  0.16M C                      K1=10.60 B2=18.04 2002SSb (56104) 192

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C8H5O2F3S          HL      TTA          CAS 326-91-0  (165)
4,4,4-Trifluoro-1-(2-thienyl)butane-1,3-dione; F3C.CO.CH2.CO.C4H3S
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
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V(V)       dis oth/un  25°C  0.10M U                      1972KMe (58694) 193

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$$K(VO(OH)+L)=14.91$$

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): $\text{pH} + q\text{H}_2\text{V04} + r\text{HL} = \text{Hp}(\text{H}_2\text{V04})^q(\text{HL})^r$

C8H19N02 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
								$K(\text{H}_2\text{V04} + \text{L} = \text{V02H} - 2\text{L} + 2\text{H}_2\text{O}) = 2.64$	

Method: 51V and 1H nmr.

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
V(V)	oth	oth/un	?	?	U		K1=13.15 $K(\text{V02} + \text{HL}) = 10.6$	1969MGB (64736)	200

Metal:V02+

V(V)	sp	alc/w	25°C	50%	U			1967NPb (64737)	201
							$K(\text{V03} + \text{H}_2\text{L}) = 12.5(?)$		

Medium: 50% MeOH, 0.1 M NaClO4

C9H11N03 H2L Tyrosine CAS 60-18-4 (4)

2-Amino-3-(4-hydroxyphenyl)propanoic acid; HO.C6H4.CH2.CH(NH2).COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
V(V)	gl	NaClO4	25°C	0.10M	C	I		2004GNa (66243)	202
							$K(\text{V02} + \text{H} + \text{HL}) = 7.45$ $K(\text{V02} + 2\text{H} + 2\text{HL}) = 5.57$		

Data for 0.3-1.0 M NaClO4. At I=1.0 M, $K(\text{V02} + \text{H} + \text{HL}) = 7.82$,

$K(\text{V02} + 2\text{H} + 2\text{HL}) = 6.85$.

C9H11N04 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
V(V)	kin	NaClO4	25°C	1.00M	M			1974KLa (66403)	203
							$\text{Keff}(\text{V02} + \text{H}_2\text{L}) = 2.31$		

Medium: 0.2 - 1 M HClO4

C9H11N3O L CAS 4813-04-1 (4646)

Acetone isonicotinylhydrazone; C5H4N.CONHN:C(CH3)2

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)		
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	1991CHa (66714)	205
							K(2H2V04+2L)=(H2V04)2L2)=7.72		

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

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
V(V)	kin	NaCl04	25°C	1.00M	M			1974KLa (66869)	207
							Keff(V02+H2L)=2.41		
Medium: 0.2 - 1 M HCl04									

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
V(V)	nmr	KCl	25°C	0.40M	C		K1=1.26	1991CHa (67085)	208
							K(2H2V04+2L)=(H2V04)2L2)=7.18		

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
V(V)	nmr	NaCl	25°C	0.15M	C			2001SAb (67341)	209
							B(0,1,1)=2.52		
							B(1,1,1)=9.40		
Method: 51V nmr. B(p,q,r): pH+qH2V04+rHL=Hp(H2V04)q(HL)r									

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

$$B(1,1,1)=9.44$$

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

Histidyl-serine;

V(V)	gl	KCl	21°C	1.0M M	1995TJb (67348)	212
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$$K(H_2VO_4 + HL = H_2VO_4L + H) = -4.82$$
$$*K(H_2VO_4L) = -7.5$$

Tri-isopropanolamine; $(\text{CH}_3.\text{CH}(\text{OH}).\text{CH}_2)_3\text{N}$

V(V)	nmr KCl	RT	0.40M C	1998CBc (68143)	213
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$$K(H_2VO_4 + L = VO_2H + 2L + 2H_2O) = 2.98$$

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

$$\text{H}_2\text{O}_3\text{PCH}_2.\text{N}(\text{CH}_2\text{CH}_2.\text{N}(\text{CH}_2\text{PO}_3\text{H}_2)_2)_2 \quad \text{H}$$

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

$$K(VO_2+H_6L)=9.3$$

1-Phenylbutane-1,3-dione; $\text{C}_6\text{H}_5.\text{CO}.\text{CH}_2.\text{CO}.\text{CH}_3$

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

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

2-Pyridylmethyliminodiethanoic acid; $C_5H_4N.CH_2.N(CH_2.COOH)_2$

V(V)	nmr KCl	RT	0.40M U	1997CKb (71279) 216
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$$K(H_2VO_4 + L) = 3.89$$

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		K(V02H2L+H) > 0.0	1984LAa (74285)	223
Data at 10 to 40C										
V(V)	sp	NaCl04	25°C	3.00M	C			K(V02+H2L)=6.9 K(V02+HL)=10.6 K(V02+L)=15.5	1978LLa (74286)	224
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			K(V02+H4L=V02H2L+2H)=2.22	1972LLb (74288)	226
V(V)	sp	oth/un	18°C	0.02M	U			K(V02+HL+H02)=24.44	1971PLb (74289)	227
V(V)	sp	KCl	20°C	0.10M	U	T		K(V02+L)=15.55 K(V02+HL)=9.60 K(V02+H2L)=6.93 K(V02+H3L)=5.6	1965PSa (74290)	228
V(V)	sp	none	?	0.0	U			K1=18.0 K(V02+HL)=11.4	1958RIa (74291)	229
V(V)	sp	NaCl04	25°C	0.10M	U			K1=18.05	1957RSa (74292)	230

C11H9N03		H2L		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			K(V02+L)=3.58 K(V02L+L)=3.20	1969M0b (77356)	231

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			K(V02+HR)=17.16 K(V02R+H)=3.95	1975IYb (77597)	232

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 $K(HVO_4+L+5H=VOL+3H_2O)=37.73$ $K(HVO_4+L+4H=VO_2HL+2H_2O)=36.11$ $K(HVO_4+L+3H=VO_2L+2H_2O)=31.69$		

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 $K(H_2VO_4+L)=2.99$		

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 $K(H_2VO_4+L)=1.83$		

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 $K(HVO_4+L+5H=VOL+3H_2O)=36.61$ $K(HVO_4+L+4H=VO_2HL+2H_2O)=35.78$ $K(HVO_4+L+3H=VO_2L+2H_2O)=31.39$		

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 $K(HVO_4+L+5H=VOL+3H_2O)=38.56$		

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-phenyltriazenes;

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		K1=16.61	1975IYa (88814)	263
------	----	------	------	-----	---	--	----------	-----------------	-----

K(V02+HL)=8.91

V(V)	sp	KCl	RT	0.10M	C		K1=16.59	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		K1=11.18	1980DCc (89960)	265
------	----	--------	------	-------	---	--	----------	-----------------	-----

K(V02+HL)=7.73
*K(V02HL)=-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(V0(OH)2+L=V0(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(V02+H4L)=(?)4.21
K(V02+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(V0(OH)2(H2O)+L=V0(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(V02+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

C16H19N02 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(H2V04+L=V02H-2L+2H2O)=2.18
Method: 51V and 1H nmr. L is R,S-stereoisomer. DH(K)=-26.8 kJ mol⁻¹,
DS(K)=-50.4 J K⁻¹ mol⁻¹. 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(V0+HL)=13.29
K(V0+H2L)=8.75
K(V0+H3L)=5.3
*K(V0L)=-8.75

C19H19N07 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(V02+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(V02+H2L=V02L+2H)=-1.29
K(V02(OH)2+H2L=V02L+2H2O)=5.4

V(V) sp KCl 25°C 1.0M C 1980NKc (101482) 276
K(V02+H2L=V02L+2H)=-1.29
K(V02(OH)2+H2L=V02L+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

$K(VO_2+HL)=17.2$
 $K(VO_2+H_2L)=13.8$
 $K(VO_2+H_3L)=9.6$

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

$*K(VL)=-3.16$
 $*K(VOHL)=-7.15$
 $K(VOL+H_2O=VO_2HL+H)=-9.12$
 $K_{eff}(VO_2+H_3L+H=VL+2H_2O)=24.2$

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

$B((VO_2)2L_2)=63.1$

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

$K_{eff}(VL+V=VL_2)=6.22$

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

$K(V+2e=V(s))=-40.1(-1180 \text{ mV})$

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 ⁻¹		

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

HP03-- H2L Phosphite CAS 13598-36-2 (6305)
Phosphite;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
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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: VS04 in various concentrations. DH(*K1)=64.8 kJ mol⁻¹

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

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

V++	kin	NaCl04	24°C	1.0M	U		K1=1.04	1968KTc (15323)	288

Method: Temperature jump

V++	sp	NaCl04	45°C	0.84M	U	T H	T K1=1.18	1968MSc (15324)	289
-----	----	--------	------	-------	---	-----	-----------	-----------------	-----

Medium: 0.84 M LiCl04, 0.05 H+. K1(11 C)=1.61, K1(25 C)=1.43

DH(K1)=-21.7 kJ mol⁻¹, DS=-46 J K⁻¹ mol⁻¹

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-----
V++      sp  NaCl04 25°C 1.0M U      K1=1.43      19680Pa (15325) 290
*****
C4H4O4      H2L      Maleic acid      CAS 110-16-7 (111)
cis-Butenedioic acid; H00C.CH:CH.C00H
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
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V++      sp  oth/un 23°C var U      1970Vsa (29155) 291
                        K(V+H2L)=-0.68
                        K(V+HL)=1.81
*****

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C4H6O4S      H2L      Thiodiacetic      CAS 123-93-3 (140)
2,2'-Thiodiglycolic acid, Thiodiethanoic acid; H00C.CH2.S.CH2.C00H
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
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V++      gl  NaCl04 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
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
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V++      gl  KCl      25°C 1.00M U      K1=5.38      B2=10.19      1965SCd (38118) 293
                        B3=14.70
*****

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C6H5NO2      HL      Picolinic acid      CAS 98-98-6 (391)
2-Pyridine-carboxylic acid; C5H4N.C00H
-----

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

V++      sp  KCl      25°C 0.50M U I      K1=4.43      B2=9.00      1965MBb (42615) 294
                        B3=12.84

```

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In 0.5 M K2S04: B3=12.77. By polarography: B2=8.54, B3=12.46
*****

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C6H9NO6      H3L      NTA      CAS 139-13-9 (191)
Nitrilotriethanoic acid; N(CH2.C00H)3
-----

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

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

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```

C6H10O4S2      H2L      CAS 7244-02-2 (438)
1,2-Bis(carboxymethylthio)ethane; H00C.CH2.S.CH2.CH2.S.CH2.C00H
-----

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

V++      gl  NaCl04 25°C 0.10M U      K1=1.39      1971PPb (48252) 296

```

C8H13NO6S H3L (5675)
2-Mercapto-1-aminoethane-N,N,S-triethanoic acid; $\text{HOOC} \cdot \text{CH}_2 \cdot \text{S} \cdot \text{CH}_2 \cdot \text{CH}_2 \cdot \text{N}(\text{CH}_2\text{COOH})_2$

C8H14O4S3 H2L (2526)
3,6,9-Trithiaundecanedioic acid; $\text{HOOC} \cdot \text{CH}_2 \cdot \text{S} \cdot \text{C}_2\text{H}_4 \cdot \text{S} \cdot \text{C}_2\text{H}_4 \cdot \text{S} \cdot \text{CH}_2 \cdot \text{COOH}$

C10H16N2O8	H4L	EDTA	CAS 60-00-4	(120)
1,2-Diaminoethane-N,N,N',N'-tetraethanoic acid, Sequesteric acid;				

Method: dc and ac polarography.

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

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

e- Electron;	HL	Electron	(442)
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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 mV)

Medium:H2SO4. In 1 M HCl: K=-4.92(-283 mV), 1 M HClO4: K=-4.79(-276 mv)

V+++ EMF none 25°C 0.0 U T 1944JCb (1026) 305

K(V+e=V(II))= -4.31(-255 mV)

At 0 C: K=-4.89(-265 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 1988JHa (7324) 311

B3=12.15

B4=15.53

B5=18.04

Medium: molten KSCN. K1=mol-1 kg, B2=mol-2 kg2 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
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V+++	dis	KN03	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	NaCl04	25°C	1.0M	U			1970EPa (10270)	314
------	----	--------	------	------	---	--	--	-----------------	-----

K(V+HL=VL+H)=-1.80

Medium: LiCl04

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	NaCl04	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	NaCl04	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	NaCl04	25°C	1.0M	U	H		1950FGa (12470)	328
DH(*K1)=42 kJ mol ⁻¹ *****									
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 ⁻¹ , DS1=52.1 J K ⁻¹ mol ⁻¹									
V+++	sp	oth/un	25°C	?	U		K1=2.20	1989SDc (15327)	330
isothiocyanate complex									
V+++	kin	NaCl04	23°C	1.0M	U		K1=2.18	1968KTc (15328)	331
Method: Temperature jump									
V+++	sp	NaCl04	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 ⁻¹ , DS=-9.2									
V+++	sp	alc/w	24°C	100%	U			1963GKb (15330)	333
B6=15 to 16									
V+++	sp	NaCl04	25°C	2.60M	U	H T	K1=2.0	1951FGa (15331)	334

DH(K1)=-15.1 kJ mol⁻¹.

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

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

$$B(V2H-4L2)=-1.69, \quad B(V2H-2L4)=20.32.$$

C4H9NO3 HL Threonine CAS 72-19-5 (48)
2-Amino-3-hydroxybutanoic acid; H2N.CH(CH(OH)).CH3COOH

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

C5H8O2	HL	Acetylacetone	CAS 123-54-6	(164)
Pentane-2,4-dione; CH ₃ .CO.CH ₂ .CO.CH ₃				

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
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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		K(VL+H)=0.22	1983AHa (74295)	366

V+++	vlt	NaCl	25°C	1.3M	C		K(VL+H)=2.54 *K(VL(H2O))=-9.27	1983KNb (74296)	367
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Method: dc and ac polarography.

V+++	gl	NaCl04	25°C	1.0M	M	I	*K(VL(H2O))=-9.57 K(2VL(H2O)=LV0VL+2H)=-15.99 K(2VL(OH)=LV0VL+H2O)=3.14	1977KSc (74297)	368
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At I=0.20, *K(VL(H2O))=-10.16, K(2VL(H2O)=LV0VL+2H)=-16.71,
K(2VL(OH)=LV0VL+H2O)=3.62.

V+++	sp	NaCl	25°C	0.10M	U		K1=0.67	1974TPa (74298)	369
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V+++	EMF	KCl	20°C	0.10M	U	T	K1=25.9 K(VLOH+H)=9.54	1953SSa (74299)	370
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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	K(2V(OH)L=V2(OH)2L2)=4.20 *K(VL(H2O))=-6.52	1983KNb (75531)	371

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	*K(VL(H2O))=-6.59 K(2VL(H2O)=LV0VL+2H)=-9.16 K(2VL(OH)=LV0VL+H2O)=4.01	1977KSc (75532)	372
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At I=0.20, *K(VL(H2O))=-6.39, K(2VL(H2O)=LV0VL+2H)=-9.05,
K(2VL(OH)=LV0VL+H2O)=3.74.

V+++	sp	NaCl	20°C	1.0M	U		K1=17.6	1974PIa (75533)	373
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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		K(VO+L)=15.75	1970BBg (77601)	374

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
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K=5.70(337 mV)

K: $\text{VO} + 2\text{H} + \text{e} = \text{V} + \text{H}_2\text{O}$. 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(VOC_l2+2H+2Cl=H₂VOC_l4)=-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

FCIBrI 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)

HP03-- 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 NaCl04 16°C 5.50M U K1=0.35 1972G0b (8573) 395

NH30 L Hydroxylamine; CAS 5470-11-1 (1808)

Hydroxylamine; NH2.OH

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

VO++ sp NaCl04 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 NaCl04 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

Medium: 0.10 M LiClO_4 . $K_s(\text{Na}(\text{VO})_2(\text{OH})_5 = \text{Na} + (\text{VO})_2(\text{OH})_5 = -3.74$,
 $K_s(2\text{VO}(\text{OH})_2(\text{s}) + \text{H}_2\text{O} = (\text{VO})_2(\text{OH})_5 + \text{H} = -11.1$. *B(p, q): $p\text{VO} + q\text{H}_2\text{O} = (\text{VO})_p(\text{OH})_q + q\text{H}$.

[illegible]

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-1, DS=-11.7 J K-1 mol-1

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-1.

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		K(VO+HL)=0.55	1973GTa (16661)	427
Medium: Na2SO4									
VO++	sp	NaCl04	20°C	1.0M	U		K1=1.74 B2=2.51 K(VO+HL)=0.23	1973IVb (16662)	428
VO++	cal	oth/un	25°C	0.0	U	H		1971BLc (16663)	429
DH(K1)=17.2 kJ mol-1, DS=105.3 J K-1 mol-1, DG=-14.13 kJ mol-1									
VO++	kin	oth/un	25°C	var	U		K1=2.40 K1in/K1out=0.0 K1out=2.10	1966Kwa (16664)	430
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.CO0H									
Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
VO++	sp	NaCl04	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.CO0H									
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 B((VO)HL)=11.53 B((VO)H-1L)=2.73 B((VO)HL2)=18.35	1996SMa (17704)	433

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 B((VO)HL)=9.55 B((VO)H-2L)=-5.98 B((VOH-1L)2)=6.72	1996SMa (18135)	434

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

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CH6O6P2      H4L      Medronic acid      CAS 1984-15-2 (2384)
Methanediphosphonic acid; CH2(PO3H2)2

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

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C2H02Cl3      HL      Trichloroacetic      CAS 76-03-9 (1205)
Trichloroethanoic acid; Cl3C.COOH

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

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

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-----
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=5.77      B2=10.63      2000BKa (19141) 438
          B(VOH-1L)=0.44

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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.

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-----
VO++      gl  KNO3     25°C 0.10M U      M      1978JSb (19143) 440
          B(VO(Iminodiethanoate)L)=7.66

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-----
VO++      gl  KNO3     30°C 0.10M M      K1=4.65      1978SVa (19144) 441

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-----
VO++      sp  NaCl04  21°C 1.00M U      K1=6.45      B2=11.77      1970IVa (19145) 442

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```

-----
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 1959Z0a (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 NaCl04 25°C 1.00M C K1=1.04 B2=1.60 1981LLc (19394) 449
B3=2.15

VO++ gl NaCl04 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 NaCl04 25°C 1.0M U H K1=1.97 B2= 3.46 1988DTa (20224) 451
By calorimetry: DH(K1)=10.42 kJ mol⁻¹, DS(K1)=73 J K⁻¹ mol⁻¹; DH(B2)=19.33
DS(B2)=131.

VO++ gl NaCl04 25°C 1.00M U K1=1.86 B2=2.96 1981LLa (20225) 452

VO++ gl NaCl04 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⁻¹, DS(K1)=47 J K⁻¹ mol⁻¹; 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
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VO++	gl	NaClO4	25°C	1.0M	C	I		K1=11.24	1995GZa (21754)	460
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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⁻¹, DS(VO+HL)=35 J K⁻¹ mol⁻¹;
 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
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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

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C3H4O4      H2L      Malonic acid      CAS 141-82-2 (79)
Propanedioic acid; CH2(COOH)2

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

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-----
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

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-----
VO++      gl  NaClO4 30°C 0.10M U      K1=6.10      B2=10.60      1980NSd (24589) 474

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-----
VO++      gl  KNO3      35°C 0.10M U T HM      1978JKa (24590) 475
              B(VO(bpy)L)=11.34

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Data for 45 C. DH and DS values reported.

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-----
VO++      gl  KNO3      25°C 0.10M U      M      1978JSb (24591) 476
              B(VO(Iminodiethanoate)L)=11.85

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-----
VO++      gl  NaClO4 25°C 3.00M U      1973ITa (24592) 477
              K(VO+H+L)=7.41

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-----
VO++      sp  NaClO4 21°C 1.00M U      K1=5.23      B2=8.85      1970IVa (24593) 478

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C3H5O2Cl      HL      CAS 107-94-8 (1436)
3-Chloropropanoic acid; Cl.CH2.CH2.COOH

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-----
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

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C3H6O2      HL      Propionic acid      CAS 79-09-4 (35)
Propanoic acid; CH3.CH2.COOH

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-----
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

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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 NaCl04 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	NaCl04	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

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
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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
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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
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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
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VO++	gl	KN03	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								
cis-Butenedioic acid;										

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; HOOCH₂CH₂COOH

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(VOHL)=7.2
B(VOH-2L)=-7.25
B(VOHL2)=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; HOOCH₂SCCH₂COOH

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; HOOCH(SH)CH₂COOH

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; HOOCH(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 ⁻¹ , DS(K1)=1.1 J K ⁻¹ mol ⁻¹ ; 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 ⁻¹ , DS(K1)=5.8 J K ⁻¹ mol ⁻¹ ; DH(K2)=-0.0, DS(K2)=38.4.									

VO++	gl	NaClO4	25°C	0.50M	U		K1=5.01	1973NAC (30947)	513
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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
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$B((VO)H-1L)=1.33$
 $B((VO)2H-1L2)=9.78$
 $B((VO)2H-2L2)=5.97$
 $B((VO)2H-3L2)=-0.9$

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		$K1=3.99$ $B((VO)2H-1L2)=9.01$ $B((VO)2H-2L2)=6.05$ $B((VO)2H-3L2)=-0.48$ $B((VO)2H-4L2)=-4.86$	1995KBa (31033)	517

VO++	gl	none	25°C	0.0	M		$K((VO)2L2+H)=4.69$ $K(H(VO)2L2+H)=7.09$	1982H0c (31034)	518
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VO++	sp	NaCl04	25°C	2.00M	U	I	$K((VO)2L2+2L)=0.09$	1981HTb (31035)	519
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VO++	gl	KNO3	25°C	0.10M	C		$K1=3.86$ $B((VO)H-1L)=1.20$ $B((VO)H-2L)=-4.31$ $B((VO)2H-1L2)=9.53$ $B((VO)2H-2L2)=6.11$	1978PSa (31036)	520
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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		$K1=3.80$ $B((VO)2H-1L)=9.31$ $B((VO)2H-2L2)=6.24$ $B((VO)2H-3L2)=-0.81$ $B((VO)2H-4L2)=-5.80$	1995KBa (31391)	521

VO++	gl	none	25°C	0.0	M		$K((VO)2L2+H)=5.99$ $K(H(VO)2L2+H)=7.01$	1982H0c (31392)	522
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VO++	gl	NaCl04	30°C	0.10M	U		$K1=6.24$ $B2=11.12$	1980NSd (31393)	523
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VO++	gl	KNO3	25°C	0.10M	C		$K1=4.0$ $B((VO)H-1L)=1.50$ $B((VO)2H-1L2)=9.84$ $B((VO)2H-2L2)=6.21$	1978PSa (31394)	524
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$$B((VO)2H-3L2)=-0.3$$

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⁻¹, DS=229 J K⁻¹ mol⁻¹

VO++	sp	KN03	25°C	0.10M	U				1987BKa (32428)	542
K(V0+2L=VL2)=21.9										
VO++	gl	KN03	25°C	0.10M	C		K1=7.16	B2=13.26	1984FVa (32429)	543
K(V0(OH)L+H)=5.0										
K((V0)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	KN03	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 KN03. DH and DS values reported.										
VO++	gl	NaCl04	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(V0+HL)=1.85										
VO++	gl	NaNO3	25°C	2.25M	C				1993CLa (33062)	548
B((V0)HL)=10.3										
B((V0)H-1L)=1.9										
B((V0)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	KN03	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	NaCl04	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										

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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      gl  NaCl04 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
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
VO++      gl  NaCl04 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
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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
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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
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-----
VO++      vlt NaCl04 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); HOOCH2.N(CH2.PO3H2)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      K1=16.78      1999SBb (35117) 556
                        B(VOHL)=21.26
                        B(VOH-1L)=7.87
                        B(VOH2L)=24.5

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By spectrophotometry: K1=16.0

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*****
C4H13NO7P2      H4L      CAS 63132-40-1 (1347)

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1-Hydroxy-4-aminobutyl-1,1-diphosphonic acid; (P03H2)2C(OH).CH2.CH2.CH2.NH2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
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VO++	gl	KNO3	25°C	0.10M	C				1998DKa (35618)	557
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B((VO)HL)=17.41

B((VO)3L3)=50.17

C5H4N2O2

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	NaClO4	25°C	0.50M	C			K1=3.30 B2=6.25	1989NMa (36067)	558
------	----	--------	------	-------	---	--	--	-----------------	-----------------	-----

B3=7.80

C5H4N2O4

H2L

CAS 570-22-9 (7544)

Imidazole-4,5-dicarboxylic acid; C3H2N2(COOH)2

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=7.80 B2=13.55	1998Sma (36131)	559
------	----	-----	------	-------	---	--	--	------------------	-----------------	-----

B(VOH-2L2)=-2.7

B(VOHL)=11.04

B((VO)4H-4L4)=23.15

B((VO)4H-5L4)=16.55

B((VO)4H-6L4)=8.65, B((VO)4H-7L4)=-0.30, B((VO)4H-8L4)=-9.46.

C5H4N2O4

H2L

CAS 85908-17-4 (7545)

Pyrazole-3,5-dicarboxylic acid;

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=3.72 B2= 6.52	1998Sma (36133)	560
------	----	-----	------	-------	---	--	--	------------------	-----------------	-----

B((VO)2H-2L2)=1.72

B((VO)2H-3L2)=-4.26

B((VO)2H-4L2)=-10.6

VO++	gl	KCl	25°C	0.20M	C			K1=3.72 B2= 6.52	1998Sma (36134)	561
------	----	-----	------	-------	---	--	--	------------------	-----------------	-----

B((VO)2H-2L2)=1.72

B((VO)2H-3L2)=-4.26

B((VO)2H-4L2)=-10.6

C5H5N

L

Pyridine

CAS 110-86-1 (31)

Pyridine, Azine;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
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VO++	sp	oth/un	25°C	?	U			K1=-1.70	1956ERa (36690)	562
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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
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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.CO.OH

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; H00C.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
------	----	--------	------	------	---	---	--	--	-----------------	-----

K(VOL2+morpholine)=3.64
K(VOL2+piperidine)=4.11
K(VOL2+quinoline)=1.18
K(VOL2+isoquinoline)=2.92

Medium: CH₂Cl₂

VO++	sp	non-aq	20°C	100%	U	M	1976KTa (38126)	578
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K(VOL2+pyridine)=2.94
K(VOL2+(2-picoline))=1.02
K(VOL2+(3-picoline))=3.19
K(VOL2+(4-picoline))=3.28

Medium: CH₂Cl₂

VO++	sp	non-aq	20°C	100%	U	M	1976KTa (38127)	579
------	----	--------	------	------	---	---	-----------------	-----

K(VOL2+(2,4-lutidine))=1.62
K(VOL2+(3,5-lutidine))=3.26
K(VOL2+2-hydroxypyridine)=2.81
K(VOL2+(2-cyanopyridine))=1.22

Medium: CH₂Cl₂

VO++	sp	non-aq	20°C	100%	U	M	1976KTa (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: CH₂Cl₂

VO++	sp	non-aq	20°C	100%	U	M	1975KTa (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: CH₂Cl₂. 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	1975KTa (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: CH₂Cl₂. 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	1975KTa (38131)	583
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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: CH₂Cl₂. A=N-methyl-N-benzylacetamide, B=N,N-dicyclohexylacetamide,

C=N-acetylmorpholine, D=N-acetyl piperidine

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⁻¹, 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⁻¹, DS(K1)=208 J K⁻¹ mol⁻¹.

VO++	nmr	KCl	25°C	1.00M	U		K1=8.06 B2=13.51	1994NSb (39144)	592
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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			1992CAa (39145)	593
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B((VO)H2L)=14.9
B((VO)H4L2)=29.0
B((VO)HL)=12.0
B((VO)H2L2)=23.3

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
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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 K3=4.07	1973TSe (39846)	598

C5H10O3 HL CAS 3739-30-8 (3612)
2-Hydroxy-2-methylbutanoic acid, Methylethylglycolic 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 B((VO)H-1L)=-1.15 B((VO)H-1L2)=1.19 B((VO)H-2L2)=-2.97	1993MSa (40266)	599

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-clhlor-), 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-1 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
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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 Bromanilic 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.CO0H									

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
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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
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$B((VO)AL)=21.67$
 $K(VOA+H2L=VOAL+2H)=-4.30$
 $K(VOA+L)=15.74$
 $K(VO+HA+H2L=VOAL+3H)=-3.65$
 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(VO+H2B+H2L=VOBL+4H)=8.15
K(MC+H2L=MCL+2H)=5.32 and K(M+H2C+H2L=MCL+4H)=7.39. H2A=Salicylic acid,
H2B=sulfosalicylic acid and H2C=8-Hydroxyquinoline-5-sulfonic acid

VO++ gl KNO3 30°C 0.10M M M 1978SVa (43304) 624

K(VO(A)+L)=8.18
B((VO)AL)=12.83
K(VO(B)+L)=8.62
B((VO)BL)=12.63

K(VO(C)+L)=9.24, B(VO(C)L)=13.65. H2A is oxalic acid, H2B is phthalic acid
H2C is maleic acid.

VO++ gl KNO3 30°C 0.10M M 1975STc (43305) 625

K(VO+H2L=VO(OH)L+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

VO++ gl KCl 25°C 0.20M C K1=16.75 B2=31.58 1990JKb (43861) 626
B(VOH-1L)=10.21
B(VO2H-2L2)=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(VO(OH)L+H)=5.90
K(VO(phen)+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(VO+HL)=15.0
K(VOHL+HL)=13.7

VO++ sp alc/w 25°C 50% U I 1970CSf (43996) 630
K(VO2+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(VO+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

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⁻¹, DS=280 J K⁻¹ mol⁻¹

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 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; HOOCCCH2.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

C6H9NO5 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

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

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 1985NSa (47090) 654
K((VO)H-1L+H)=7.0

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 1966KFc (47095) 659
K(VOLOH+H=VOL)=7.38

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-42L2)=-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; H00C.CH2.S.CH2.CH2.S.CH2.C00H

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
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VO++	gl	NaCl04	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; H00CC(OH)(CH3)C(OH)(CH3)C00H

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
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VO++	gl	none	25°C	0.0	M				1982H0c (48362)	667
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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
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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
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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; H00C.(CHOH)4.C00H

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=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; HOO C.(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'-Iminodipropanoic 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; HOO C.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; HOO C.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

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 *K(VOL)=-5.11	1977NAa (48810)	677
VO++	gl	KNO3	25°C	0.10M	U		K(VO(OH)L+H)=5.7	1959CGa (48811)	678

C6H11NO5 H2L (1238)
N-Hydroxy-3,3'-iminodipropionic acid; HO.N(CH2.CH2.COOH)2

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

C6H11NO5 H2L (1233)
N-Hydroxyimino-2,2'-dipropionic acid; HO.N(CH(CH3)COOH)2

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
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C6H11N3O4 HL Gly-Gly-Gly CAS 556-33-2 (415)
Glycyl-glycyl-glycine; H2N.CH2.CO.NH.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		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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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
VO++	gl	KNO3	25°C	0.10M	U		K1=13.40	1983FSa (49283)	684

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
VO++	gl	KCl	25°C	0.20M	C		K1=2.61 B2=5.05 B((VO)H-1L)=-1.09 B((VO)H-1L2)=1.03 B((VO)H-2L2)=-2.85	1993MSa (49468)	685

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 K'=5.26	1976GSc (49767)	686
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-1, DS(B2)=38.0 J K-1 mol-1.									

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		B((VO)LA)=11.86 B((VO)LB)=14.30	1977SJa (52507)	688
H2A=5-sulphosalicylic acid, H3B=4-hydroxysalicylic acid									
Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
VO++	gl	KNO3	35°C	0.10M	U		K1=6.8 B2=12.40 K3=2.5	1970DDc (52508)	689

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 2003JJ a (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 2003JJ a (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
V0++	gl	diox/w	30°C	50%	U			K1=8.04	1977DJb (53409)	699

C7H6N03Cl				H2L				(205)		
3-Chlorosalicylhydroxamic acid; Cl.C6H3(OH).CO.NH.OH										

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V0++	gl	diox/w	30°C	50%	U			K1=7.52	1977DJb (53419)	700

C7H6N03Cl				HL				(6263)		
4-Chlorosalicylhydroxamic acid; Cl.C6H3(OH).CO.NH.OH										

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
V0++	gl	diox/w	30°C	50%	U			K1=6.02	1977DJb (53422)	701

C7H6N03Cl				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
V0++	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
V0++	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
V0++	gl	alc/w	25°C	50%	U			K1=9.05	1978ZLa (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
V0++	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 B(VOH-1L2)=13.16 B(VOH-1L)=6.32 B(VO2H-2L2)=16.61	1990JKb (54331)	706

B(VOLA)=27.66, where H2A=catechol

VO++	gl	NaClO4	25°C	0.10M	U	I	K1=12.68 B((VO)HL)=14.68	1987GMa (54332)	707
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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 K(VO+H2L=VOL+2H)=-3.41 K(VO+HL+A)=14.78 K(VOL+A)=1.60	1981VSd (54333)	708
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HA is hippuric acid

VO++	gl	KNO3	35°C	0.10M	U	T HM	B(VO(bpy)L)=27.78	1978JKa (54334)	709
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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 (54335)	710
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VO++	gl	KNO3	30°C	0.10M	U	M	K1=13.18 K(VOL(OH)+H=ML)=4.63 K(VOL+Sulfoxine)=12.7	1975STb (54336)	711
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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
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K1=13.38(25 C). DH(K1)=-8.8 kJ mol⁻¹, DS=226 J K⁻¹ mol⁻¹

VO++	sp	oth/un	?	0.05M	U		K1=15.4	1962LZa (54339)	714
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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 B(VOH-1L)=4.02 B(VOH-1L2)=10.46 B(VO2H-2L2)=12.86 B(VOH-2L2)=2.00	1990JKb (54473)	715

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(V02H-2L2)=8.60	1990JKb (54552)	716

VO++	gl	KNO3	35°C	0.10M	U			K(V0+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(V02H-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(V02H-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(V02H-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

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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=8.72      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
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C7H6O5      H4L      Gallic acid      CAS 149-91-7 (446)
3,4,5-Trihydroxybenzoic acid; C6H2(OH)3.COOH
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
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VO++      sp  alc/w  20°C 50% U I          K(VO+HL)=4.10
                        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
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
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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

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HA is hippuric acid

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VO++      gl  KNO3     35°C 0.10M U T HM          B(VO(bpy)L)=22.93
Data for 45 C. DH and DS values reported.
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VO++      gl  KNO3     25°C 0.10M U      M          B(VO(Iminodiethanoate)L)=18.35
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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
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VO++      gl  KNO3     20°C 0.10M U          K1=12.0 B2=20.60 1971ZBa (55078) 728
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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

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K1=11.29(35 C); DH(K1)=-7.1 kJ mol⁻¹, DS=188 J K⁻¹ mol⁻¹

C7H7NO2 HL Anthranilic CAS 118-92-3 (1589)
2-Aminobenzoic acid, Anthranilic acid; H2N.C6H4.COOH

C7H7N02 HL CAS 3222-47-7 (3154)
6-Methylpyridine-2-carboxylic acid; CH₃.C5H3N.COOH

HA is lactic acid, H3B is phosphoric acid.

$$B((VO)BL)=13.05, \quad B((VO)HBL)=16.19, \quad B((VO)H-1BL)=7.39.$$

H2A is oxalic acid, H3B is citric acid.

C7H7NO3 H2L CAS 89-73-6 (204)
2-Hydroxybenzohydroxamic acid (salicylhydroxamic acid); HO.C6H4.CO.NHOH

C7H7O6P H3L CAS 6064-83-1 (822)
Salicyl phosphate; HO.C6H4.CO2.PO3H2

At 35 C: $K_1=5.68$; $\Delta H(K_1)=-2.1 \text{ kJ mol}^{-1}$, $\Delta S=104 \text{ J K}^{-1} \text{ mol}^{-1}$

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

$$K(VO+2H-1L=VOH-3L2+H)=11.34$$

$$K(VO+2H-1L=VOH-4L2+2H)=0.54$$

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 K(VO(salicylate)+L)=12.7 K(VO(sulfosalicylate)+L)=10.7 K(VO(maleate)+L)=5.5 K(VO(phthalate)+L)=3.4	1975STb (64587)	767

VO++	gl	KNO3	25°C	0.10M	U	T H	K1=11.79 K(VO(OH)L+H=VOL)=6.45 K(2VO(OH)L=(VO(OH)L)2)=4.84	1966MMb (64588)	768
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K1=11.32(35 C). DH(K1)=-7.1 kJ mol⁻¹, DS=188 J K⁻¹ mol⁻¹

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		K(VO+HL)=11.2 K(VO(HL)+HL)=9.8	1967NPb (64738)	769

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.CO2H

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 B(VOH-1L)=11.10 B(VOH-2L)=0.79 B((VO)3L2)=39.67 B((VO)2L)=20.30	2002WBb (64921)	770

C9H9NO3 HL Hippuric acid CAS 495-69-2 (1184)

Benzoylaminoethanoic acid, N-benzoylglycine; C6H5.CO.NH.CH2.CO2H

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
VO++	gl	KNO3	30°C	0.10M	M		K(VO+H2L=VO(OH)L+H)=-4.47	1975STc (65058)	771

C9H9NO4 H2L Salicylglycine CAS 487-54-7 (3869)

N-(2-Hydroxybenzoyl)glycine, 2-hydroxyhippuric acid; HO.C6H4.CO.NH.CH2.CO2H

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=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 NaCl04 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++ 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 Dipyrldylamine CAS 1202-34-2 (2428)
(2,2'-Dipyrldyl)amine; 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-Pyrrolideneamino)benzene sulfonic acid; C4H7N:N.C6H4.HSO3

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

$K_{eff}(VO+L)=0.58$
 $B_{eff}((VO)2L2)=7.85$
 At pH 7 in 30mM HEPES. In 0.035M KCl: $K_{eff}(VO+L)=0.59$, $B_{eff}((VO)2L2)=7.81$

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
							$K_{eff}(VO+L)=0.76$ $B_{eff}((VO)2L2)=7.61$		

At pH 7 in 30mM HEPES

 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
VO++	nmr	KCl	25°C	1.00M	U			1990TJa (72025)	800
							$B_{eff}((VO)2L2)=7.56$		

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		$K_1=6.68$ $B_2=10.80$ $B((VO)HL)=10.09$ $B((VO)H-2L2)=-4.45$ $B((VO)H-4L2)=-22.34$ $B((VO)2H-2L2)=4.96$	1995ADb (73021)	801

$B((VO)2H-4L2)=-10.53$, $B((VO)2H-6L2)=-28.03$.

 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
							$K(VO+H2L=VOL+2H)=12.89$ $K(VOL+H2O=VO(OH)L+H)=-9.60$ $K(VOL+2H2O=VO(OH)2L+2H)=-18.0$		

$K(2VOL+2H2O=(VO)2(OH)2L2+2H)=-15.08$

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
VO++	gl	KNO3	25°C	0.10M	U		$K_1=12.89$ $K(VO(OH)L+H)=9.60$ $K(VO(OH)2L+2H)=18.0$ $K((VO(OH)L)2+2H)=15.08$	1972TSd (73197)	803

C10H16N2O8 H4L EDTA CAS 60-00-4 (120)
1,2-Diaminoethane-N,N,N',N'-tetraethanoic acid, Sequestic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
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VO++	cal	KNO3	25°C	0.10M	C	H	K1=18.63	1987AKa (74300)	804
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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
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VO++	gl	NaClO4	25°C	1.00M	C		K(VOL+H)=3.16	1983AHa (74302)	806
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VO++	gl	KNO3	25°C	0.10M	U	T	K1=18.77	1983FSa (74303)	807
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VO++	sp	none	?	0.0	U		K1=18.0 K(VO+HL)=11.4 K(VOL+H)=3.65	1958RIa (74304)	808
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VO++	vlt	KCl	20°C	0.10M	U	T	K1=18.77	1954SGa (74305)	809
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C10H16N5O13P3 H4L ATP CAS 56-65-5 (403)
Adenosine-5'-triphosphoric acid;

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=6.49 B2=10.42 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.	1995ADb (74838)	810
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VO++	gl	NaClO4	25°C	0.10M	U		K1=6.67 B2=10.32 B((VO)2L)=10.21	1989CGb (74839)	811
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C10H17N08S HL (1735)
2-(5-Carboxy-1,2,3,4-tetrahydroxypentyl)4-carboxythiazolidine,
Galactocarboxythiazolidine;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
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VO++	gl	NaClO4	25°C	0.10M	C		K1=5.73 B2=9.88 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,	1992GNa (75014)	812
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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; CH0.C9H3O(: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

C11H11NO6 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

C11H12N2O2 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⁻¹, DS=557.1 J K⁻¹ mol⁻¹

C11H12N2O2 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⁻¹, DS(B2)=663 J K⁻¹ mol⁻¹

C11H14N2O4 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.

C11H18N2O8 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

K(VOL+H)=3.64
K(VOHL+H)=2.70

C14H22N4O10 H4L DGENTA CAS 29725-86-8 (2371)
N,N-Diglycyldiaminoethane-tetraethanoic acid; (-CH2.HNCOCH2N(CH2COOH)2)2

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

VO++ gl KNO3 25°C 0.10M U K1=10.3 1970MMc (88953) 846
K(VOL+H)=5.39

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

VO++ gl NaClO4 25°C 0.50M U K1=16.31 B2=23.3 1975NAb (89432) 847
K(VO+HL)=13.84
K(VOL+H)=7.00

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

VO++ gl KNO3 25°C 0.10M U 1983FSa (89961) 848
K(VO+HL)=10.48

VO++ gl NaClO4 25°C 0.50M U K1=14.02 1975NAb (89962) 849
K(VO+HL)=10.33
K(VOL+H)=5.20

C14H32N2O4 L CAS 102-60-3 (2678)
Tetra(2-hydroxypropyl)-N,N,N',N'-diaminoethane; (-CH2.N(CH2.CH(OH).CH3)2)2

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

VO++ gl NaNO3 25°C 0.10M C K1=6.57 1994DHa (90751) 850

C15H11N2O2 H2L (430)
2-(2'-Hydroxyphenyl)-8-hydroxyquinoline; HO.C6H4.C9H5N.OH

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

VO++ gl diox/w 25°C 75% U K1=26.0 1998FHa (91057) 851
Medium: 75% (v/v) dioxane/water; 0.1 M KNO3.

C15H11N2O2F3S H2L (7312)
1-(2-Thenoyl)-3,3,3-trifluoroacetone benzoylhydrazone;
C4H3S.C(OH):CH.C(CF3):N.N:C(OH).C6H5

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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
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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
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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;
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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;
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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
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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;
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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;
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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
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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-sulphophenyl)azo)-2-hydroxynaphthalene-6-sulfonic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
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V0++ sp NaCl04 25°C 0.10M U K1=34.28 1993HKb (93040) 864

C16H12N2O8S2 H4L (6675)
2-((2-Hydroxy-5-sulphophenyl)azo)-1-hydroxynaphthalene-4-sulfonic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
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V0++ sp NaCl04 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
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V0++ 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
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V0++ g1 NaCl 25°C 0.16M C K1=15.57 2002SSb (94009) 867

$$K(V0+HL)=11.77$$
$$K(V_0 + H_2L) = 7.6$$
$$K(V_0 + H_3 L) = 4.2$$
$$*K(VOL) = -8.95$$

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
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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
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VO++ dis NaClO4 25°C 0.10M U B2=14.11 1972KEc (95906) 869

C17H16N2O2 H2L (7310)

Benzoylacetone benzoylhydrazone; $\text{C}_6\text{H}_5.\text{C}(\text{OH}):\text{CH}.\text{C}(\text{CH}_3):\text{N}.\text{N}:\text{C}(\text{OH}).\text{C}_6\text{H}_5$

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 KN03.

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 KN03.

C17H18N3O3F HL Ciprofloxacin 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 TTHA CAS 869-52-3 (694)
Triethylenetetraaminehexaethanoic acid;((H0OC.CH2)2N.CH2.CH2.N(CH2.COOH).CH2)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
VO++	gl	NaClO4	25°C	0.50M	C		K(VOL+H)=8.95 K(VOHL+H)=4.36 K(VOH2L+H)=2.32	1976NAa (98104)	876

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.;									

VO++	sp	oth/un	25°C	0.0	U		Beff((VO)2L)=9 (pH 4.2)	1967MPc (99117)	877

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

VO++	gl	KCl	20°C	0.10M	U		K1=17.0 K(VO+HL)=7.4	1981SYa (99258)	878

C20H15NO3		H2L					(2120)		
2-(alpha-Phenyl-2-hydroxybenzylideneimino)benzoic acid; HO.C6H4.C(C6H5):N.C6H4.COOH									

VO++	gl	NaClO4	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									

C20H32N6O12S2		H4L		GSSG		CAS 27025-41-8	(1241)		
Glutathione oxidized; (HOOC.CH(NH2)C2H4.CO.NH.CH(CO.NH.CH2.COOH)CH2.S)2									

VO++	gl	KCl	25°C	0.20M	C		K1=11.39 B((VO)H4L)=27.2 B((VO)H3L)=24.82 B((VO)H2L)=21.47 B((VO)HL)=17.06	2001PTa (100488)	880
B((VO)H-1L)=3.27, B((VO)H-2L)=-6.65.									

C21H22N4O		HL				CAS 56932-30-0	(5308)		
1-Hydroxy-2-(2-N-methylanabasiny-1-alpha-azo)naphthalene;									

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

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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C31H32N2O13S      H6L    Xylenol orange  CAS 63721-85-5 (432)
5,5'-Bis-N,N-bis(carboxymethyl)aminomethyl-4'-hydroxy-3,3'-dimethylfuchsone-2"-sulf
onic acid;
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
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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
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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

END