

SC-Database

Software version = 5.81 Data version = 4.62

Experiment list contains 101 experiments for

(no ligands specified)

2 metals : Nb(V), Nb++++

(no references specified)

(no experimental details specified)

e- HL Electron (442)
Electron;

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

Nb(V) vlt oth/un 25°C 1.00M U 1965MHb (709) 1
K'=14.40, 426 mV

K': Nb6Cl12++++ + 2e=Nb6Cl12++.

Nb(V) vlt oth/un 25°C 12MM U 1954CVa (710) 2
K(Nb+e)=-3.60, -213 mV

Medium 12 M HCl

Nb(V) oth none 25°C 0.0 U 1952LAB (711) 3
K=-54.4(-650 mV)
K(Nb(III)+3e)=-56 (-1100 mV)

K: 0.5Nb2O4(s)+5H+5e=Nb(s)+2.5H2O. From thermodynamic data

Nb(V) EMF oth/un 18°C 6.25M U I 1938GGa (712) 4
K=-10.84(-313 mV)

Medium:H2SO4. K: Nb+2e=Nb(III). At I=4.95 M: K=-10.74(-310 mV), 3 M: -12.02 (-347 mV). Also at 18 C. At I=0: K(NbO+2H+2e=Nb(III)+H2O)=-11.88(-343 mV)

Nb(V) EMF oth/un 25°C 9.87M U I 1928KHa (713) 5
K=-14.41(-426.1 mV)

Medium: H2SO4. K(Nb+2e=Nb(III)). At I=5.9: K=-13.02(-384.9 mV), I=3: -12.62 (-373.0 mV)

Br- HL Bromide CAS 10035-10-6 (19)
Bromide;

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

Nb(V) sp oth/un 25°C var M 1973LJb (2150) 6
K(NbO0HL4+H+L=NbOL5+H2O)=-5.2

Medium: HBr

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

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

 Nb(V) cal non-aq 25°C 100% U HM 1993DSb (5278) 7
 Metal:Nb(IV). Medium:iso-Propyl ether. DH(Nb(H-1A)2B2(s)+2HL=NbL2(H-1A)2+
 2HB)=-216.4 kJ mol-1. A:Cyclopentadiene. B:CH3. Also for B=PhS and p-ClC6H4S

Nb(V) dis KCl var U 1968SSf (5279) 8
 Kd(Nb+4Cl+3TBP(benzene))=-1.8

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

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

Nb(V) ISE non-aq ? 100% C 1978GRa (7039) 9
 K6=6.88
 K(NbF5+NbF6=Nb2F11)=1.32
 Medium: liquid anhydrous HF

Nb(V) sp mixed ? 20% U 1973LCa (7040) 10
 K(NbH2O2+F)=2.62
 K(NbH2O2+2F)=1.72
 K(NbH2O2+3F)=1.58
 K(NbH2O2+4F)=1.52
 Medium: 20% H2SO4

Nb(V) ISE NaClO4 25°C 0.50M U 1972LOa (7041) 11
 K(NbOF2+F)=3.80
 K(NbOF3+F)=4.30
 K(NbOF4+F)=4.51
 K(NbOF5+F)=4.67
 Medium: (Na,H)ClO4. Nb(V)=NbO+++ . K(NbOF6+2H+F=NbF7+H2O)=11.4;
 K(NbF7+F)=3.08, K(NbF8+F)=4.0

Nb(V) EMF KCl 25°C 3.0M U 1970NEb (7042) 12
 K(Nb(OH)2F4+F)=2.51

Nb(V) dis NaClO4 25°C 5.0M U T 1969ESa (7043) 13
 K6K7=10.66

Nb(V) sp oth/un ? 17.0M U K1=7.12 1969PEc (7044) 14
 Medium: H2SO4

Nb(V) sol KNO3 18?°C 0.50M U 1967BNd (7045) 15
 Ks(Nb(OH)2F(s))=-5.22
 K(Nb(OH)4F+HF=Nb(OH)4F2+H)=3.6
 K(Nb(OH)4F+F)=6.8
 In 3 M HNO3: Ks(Nb(OH)4F2(s)=Nb(OH)4F2)=-4.82, K(Nb(OH)3F2+HF=Nb(OH)2F3)=4.2

 I- HL Iodide CAS 10034-85-2 (20)
 Iodide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
Nb(V)	cal	non-aq	25°C	100%	U	HM			1993DSb (8273)	16
Metal:Nb(IV). Medium: Toluene or iso-Propyl ether. DH(Nb(H-1A)2B2(s)+2I2=NbI2(H-1A)+2BI)=-289.9 kJ mol ⁻¹ . A:Cyclopentadiene. B:CH3. *****										
OH-		HL		Hydroxide				(57)		
Hydroxide;										
Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
Nb(V)	gl	KCl	25°C	3.00M	C	I			1994EFa (11777)	17
K(Nb6O19+H=HNb6O19)=13.63 K(Nb6O19+2H=H2Nb6O19)=23.55 K(Nb6O19+3H=H3Nb6O19)=32.90 Values at I=0 corr: K=16.11, K(Nb6O19+2H)=27.97, K(Nb6O19+3H)=39.91. K(Nb2O5(s)+5H2O=2Nb(OH)5)=-9.71. K(6Nb(OH)5=H3Nb6O19+5H)=-14.46.										
Nb(V)	dis	NaClO4	25°C	0.10M	U				1970GFb (11778)	18
*B(NbO2+H2O=NbO2OH+H)=-3.2 Medium: LiClO4 *****										
O2--		H2L		Peroxide				CAS 7772-84-1 (2813)		
Peroxide; -0.0-										
Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
Nb(V)	sp	oth/un	25°C	95%	U	T H			1971VZa (12683)	19
K(NbOSO4+H2L)=3.67 Medium:95% H2SO4. K=3.83(15 C), 3.53(35 C), 3.41(45 C). DH=-25 kJ mol ⁻¹ 63% H2SO4. K=2.73(25 C), 2.56(35 C), 2.42(45 C). DH=-29										
Nb(V)	sp	oth/un	0°C	10%	U				1969CKa (12684)	20
K(NbOSO4+H2L)=5 Medium: 10% H2SO4										
Nb(V)	EMF	KCl	0°C	1.0M	U				1969SPc (12685)	21
K(3NbO2L+H=HNb3O6L3)=13.08 K(3NbL3+3H2O+H=HNb3O3L6+3H2L)=4.50. In 3 M KCl: K(NbL4+OH=NbOL3+HL)=1.5, K(HNbOL3+H2L+OH=NbL4+2H2O)=3.3										
Nb(V)	sp	oth/un	?	var	U				1966BNa (12686)	22
K(Nb(OH)4HL+H)=2.7										
Nb(V)	sp	mixed	23°C	97%	U				1957AHb (12687)	23
K(2Nb(V)+3H2L)=12.70 Medium: 97.2% H2SO4.										
Nb(V)	sp	oth/un	?	96%	U				1956SSc (12688)	24

$$K(\text{Nb(V)}+\text{H}_2\text{L})=3.6$$

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

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

Nb(V) sp alc/w ? 100% U I K1=3.58 B2=6.74 1964GSc (15186) 25
B3=9.23

Medium: MeOH. In BuOH: K1=4.37, B2=8.58, B4=16.92. In Me2NCHO: K1=3.08, B2=6.11, B3=8.92, B4=11.55, B5=14.45, B6=16.72, B7=19.28. Nb added as NbCl5

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

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

Nb(V) ix oth/un 20°C var U 1969Mnc (16395) 26
K(NbO(OH)2+L)=1.7

Medium: H2SO4. By distribution: K(NbO(OH)2+2L+2H=NbO(L)2+2H2O)=3.12
In NH42SO4: K(NbO(OH)3L+L+H=NbO(OH)2L+H2O)=1.09

Nb(V) sp oth/un 22°C 10.0M U 1966GAc (16396) 27
B(Nb(III)4Nb2)=4.3?

Medium: H2SO4

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

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

Nb(V) EMF alc/w 20°C 100% U 1971GSa (17891) 28

$$K(\text{Nb}+3\text{L}=\text{Nb}(\text{H}-1\text{L})_3+3\text{H}) > 1$$

$$K(\text{Nb}(\text{H}-1\text{L})_3+\text{H}-1\text{L})=14.3$$

Medium: MeOH, 1 M Me4NCl

Nb(V) EMF alc/w 20°C 100% U M 1965GBa (17892) 29
K(NbA(L')4+2L'=Nb(L')6+A)=5.1
K(Nb(H-1L)4+A)=10.84
K(NbA(H-1L)3+L)=12.4
K(Nb(L')5+HA=NbA(L')4+L)=5.18

Method: H electrode. Medium: MeOH, 1.0 M Me4NCl. L'=H-1L; HA=acetylacetone

Nb(V) EMF alc/w 20°C 100% U M 1965GBa (17893) 30
K(NbAL'3+H2A+L'=NbA2L'2)=13.9
K(NbA2L'2+H2A+L'=NbA3L')=7.0
K(NbA(L')3+L'=NbA(L')4)=7.89
K(NbAL'4+NbAL'3=Nb2A2L'7)=2.5

Method: H electrode. Medium: MeOH, 1.0 M Me4NCl. L'=H-1L; H2B=catechol

Nb(V) EMF alc/w 20°C 100% U 1964GUa (17894) 31
 K(Nb(H-1L)4+H-1L)=10.45
 K(Nb(H-1L)5+H-1L)=5.45
 K(Nb(H-1L)6+H=Nb(H-1L)5)=6.15
 K(Nb(H-1L)7+H=Nb(H-1L)6)=11.15

Method: H electrode. Medium: MeOH, 1.0 M Me4NCl

Nb(V) EMF alc/w 20°C 100% U 1964GUa (17895) 32
 K(NbO(H-1L)2+H-1L)=10.51
 K(NbO(H-1L)4+H)=6.03

Method: H electrode. Medium: MeOH, 1.0 M Me4NCl

C2H2NBr L CAS 590-17-0 (4217)
 Cyanomethyl bromide; Br.CH2.CN

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
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Nb(V)	nmr	non-aq	-60°C	100%	U	M	1971MBa (18364)	33
							K(NbCl5A+L=NbCl5L+A)=0.99	
							K(NbCl5B+L=NbCl5L+B)=0.43	

Medium: CHCl3. A=cyanomethyl fluoride, B=cyanomethyl chloride

Nb(V)	nmr	non-aq	-60°C	100%	U	M	1971MBa (18365)	34
							K(NbCl5A+L=NbCl5L+A)=0.55	
							K(NbCl5A+L=NbCl5L+A)=0.37	

Medium: CHCl3. A=cyanomethyl fluoride, B=POCl3

C2H2NI L CAS 624-75-9 (4219)
 Cyanomethyl iodide; I.CH2.CN

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
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Nb(V)	nmr	non-aq	-60°C	100%	U	M	1972MBb (18366)	35
							K(NcCl5A+L=NbCl5L+A)=0.75	
							K(NbCl5B+L=NbCl5L+B)=1.18	
							K(NbCl5C+L=NbCl5L+C)=0.64	

Medium: CHCl3. A=cyanomethyl bromide, B=cyanomethyl chloride, C=Et2O

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
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Nb(V)	sol	NaClO4	?	?	U		1970ZPa (18980)	36
							K3=6.17	

Metal ion is NbO+++ . Medium : HClO4

Nb(V)	sol	oth/un	18°C	0.50M	U		B2=35.9	1968Bmb (18981)	37

Metal ion is NbO+++

Nb(V) sol oth/un 18°C 0.50M U 1968BMB (18982) 38
K(NbO(OH)2+L)=9.08

Nb(V) dis NaCl 20°C 4.50M U 1967K0d (18983) 39
Medium: 4.5(NaCl or NaNO3+2.5 M H). K(Nb(OH)4+H2L=Nb(OH)4HL+H)=3.55
K(Nb(OH)4+2H2L=Nb(OH)2L2+2H)=5.13

Nb(V) EMF oth/un 25°C 0.50M U 1967NSb (18984) 40
K(Nb(OH)4+2HL)=12.11
K(Nb(OH)4+2HL+L)=17.15

C2H3N L Cyanomethane CAS 75-05-8 (1399)
Acetonitrile; CH3.CN

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

Nb(V) nmr non-aq -60°C 100% U M 1974GMa (19189) 41
K(NbBr5A+L=NbBr5L+A)=0.15
Medium: CH2Cl2. A=t-butylcyanide

Nb(V) nmr non-aq -60°C 100% U M 1972MBb (19190) 42
K(NbCl5A+L=NbCl5L+A)=0.46
Medium: CHCl3. A=1,4-dioxan

Nb(V) nmr non-aq -60°C 100% U M 1971MBa (19191) 43
K(NbCl5A+L=NbCl5L+A)=0.76
Medium: CHCl3. A=1-chloro-4-cyanobenzene. K=0.34, A=cyanobenzene;
K=0.68, A=cyanoethane; K=0.38, A=dimethylether.

C2H6NOC12P L CAS 667-43-0 (910)
Dichloro(dimethylamine)phosphine oxide; (CH3)2N.P(O)Cl2

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

Nb(V) nmr non-aq -60°C 100% U M 1974GMa (21900) 44
K(NbBr5A+L=NbBr5L+A)=0.72
Medium: CH2Cl2, A=acetonitrile

C2H6O L CAS 115-10-6 (4214)
Dimethyl ether; CH3.O.CH3

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

Nb(V) nmr non-aq -40°C 100% U M 1972MBb (22019) 45
K(NbCl5A+L=NbCl5L+A)=0.08
Medium: CHCl3. A=dioxan. K=0.38, A=1-chloro-4-cyanobenzene (-60 C)

Nb(V) nmr non-aq -60°C 100% U M 1971MBa (22020) 46
K(NbCl5A+L=NbCl5L+A)=0.38
Medium: CHCl3. A=1-chloro-4-cyanobenzene

 C2H6S L CAS 75-18-3 (151)
 Dimethyl sulfide; CH3.S.CH3

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

 Nb(V) nmr non-aq -60°C 100% U M 1974GMa (22190) 47
 K(NbBr5A+L=NbBr5L+A)=1.52

Medium: CH2Cl2, A=t-butylcyanide

 Nb(V) nmr non-aq -60°C 100% U M 1972MBb (22191) 48
 K(NbCl5A+L=NbCl5L+A)=1.32

Medium: CHCl3. A=t-butylnitride

 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

 Nb(V) dis NaCl 20°C 4.50M U T 1967K0d (24509) 49
 Medium:4.5(NaCl or NaNO3+2.5 HCl). K(Nb(OH)4+H2L=Nb(OH)4HL+H)=1.72

 C3H9O4P L CAS 512-56-1 (2431)
 Trimethyl phosphate; (CH3O)3.P:O

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

 Nb(V) nmr non-aq -60°C 100% U M 1972BMb (28024) 50
 K(NbCl5L+A=NbCl5A+L) > 2.0

K(NbCl5OPCl3+L=NbCl5L+OPCl3) > 7.0, . A=tris(dimethylamino)phosphine oxide

Medium: CHCl3

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

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

 Nb(V) dis NaCl 20°C 4.50M U 1967K0d (30004) 51
 K(Nb(OH)4+H2L=Nb(OH)4HL+H)=1.53, Medium: (NaCl or NaNO3+2.5 HCl)

 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

 Nb(V) dis NaCl 20°C 4.50M U 1967K0d (30682) 52
 K(Nb(OH)4+H2L=Nb(OH)4HL+H)=2.01. Medium: NaCl or NaBO3 + 2.5 M HCl

 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

Nb(V) dis KCl 20°C 1.00M U B2=33.5 1971LFc (31314) 53
Metal ion: NbO+++

Nb(V) oth oth/un ? ? U K1=25.15 B2=33.00 1969EMa (31315) 54
Metal ion: NbO+++

Nb(V) dis NaCl 20°C 4.50M U 1967K0d (31316) 55
K(Nb(OH)4+H2L=Nb(OH)4HL+H)=2.34. Medium: NaCl or NaNO3 + 2.5 M HCl

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

Nb(V) dis KNO3 20°C 2.00M U 1969K0b (31898) 56
K(NbO2+H2L)=4.82
Medium: HNO3

C4H8OS L 1,4-Thioxane CAS 15980-15-1 (4266)
1,4-Oxathiane; cyclo(-O.CH2.CH2.S.CH2.CH2-)

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

Nb(V) nmr non-aq -60°C 100% U M 1972MBb (33190) 57
K(NbCl5A+L=NbCl5L+A)=0.08
Medium: CHCl3. A=t-butyl nitrile

C4H8S L CAS 110-01-0 (150)
Tetrahydrothiophene; cyclo(-CH2.CH2.S.CH2.CH2-)

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

Nb(V) nmr non-aq -60°C 100% U 1972MBb (33739) 58
K(NbCl5A+L=NbCl5L+A)=1.80
A=t-butyl mercaptan. Medium: CHCl3

C4H8S2 L 1,4-Dithiane CAS 505-29-3 (4255)
1,4-Dithiane; cyclo-(S.CH2.CH2.S.CH2.CH2-)

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

Nb(V) nmr non-aq -60°C 100% U 1972MBb (33743) 59
K(NbCl5A+L=NbCl5L+A)=0.16
A=t-butyl nitrile. Medium: CHCl3

C4H10O L Ether CAS 60-29-7 (3573)
Diethyl ether (ethyl ether, ethoxyethane); C2H5.O.C2H5

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

Nb(V) nmr non-aq -60°C 100% U M 1972MBb (34652) 60
K(NbCl1A+L=NbCl1L+A)=0.11
A=cyanomethyl bromide. Medium: CHCl3. When A=cyanomethyl chloride, K=0.54

C4H10S L CAS 352-93-2 (4259)
Diethyl sulfide; C2H5.S.C2H5

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

Nb(V) nmr non-aq -60°C 100% U M 1974GMa (34719) 61
K(NbBr5A+L=NbBr5L+A)=0.59
A=t-butyl nitrile. Medium: CH2Cl2

Nb(V) nmr non-aq -40°C 100% U M 1972MBb (34720) 62
K(NbCl15A+L=NbCl15L+A)=0.66
A=dimethyl ether. Medium: CHCl3. When A=acetone, K=0.88

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

Nb(V) EMF non-aq 20°C 100% U M 1971GSa (38035) 63
K(NbA5+HL=NbA4L+HA)=5.18
K(NbA3L+A)=12.40
K(NbA4L+2A=NbA6+L)=5.06
Medium: CH3OH, 1 M Me4NCl. A=CH3OH

C5H9N L t-Butylnitrile CAS 7188-38-7 (913)
t-Butylcyanide;(CH3)3C.CN

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

Nb(V) nmr non-aq -60°C 100% U M 1974GMa (38453) 64
K(NbBr5A+L=NbBr5L+A)=1.68
Medium: CH2Cl2, A=dimethylether

Nb(V) nmr non-aq -60°C 100% U M 1972MBb (38454) 65
K(NbCl15A+L=NbCl15L+A)=0.42
Medium: CHCl3. A=dimethyl ether. When A=1,4-dioxan, K=0.50

Nb(V) nmr non-aq -60°C 100% U M 1971MBa (38455) 66
K(NbCl15A+L=NbCl15L+A)=0.04
Medium: CHCl3. A=cyanomethane. When A=cyanoethane, K=0.72

C6H6N2O2 HL Cupferron CAS 135-20-6 (637)
N-Nitrosophenylhydroxylamine; C6H5.N(OH).NO

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
Nb(V)	sp	alc/w	25°C	50%	U			K(NbOL2+L)=4.83	1967LSb (43419)	67
Medium: 50% EtOH, 0.1 M (NH4)2SO4										

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
Nb(V)	EMF	alc/w	20°C	100%	U	M		K(NbA3L+A)=7.89 K(NbA3L+NbA4L=Nb2A7L2)=2.50 K(NbA3L+H2L+A=NbA2L2+2HA)=13.9 K(NbA2L2+H2L+A=NbAL3+2HA)=6.98	1971GSa (43797)	68
Medium: MeOH, 1.0 M Me4NCl. HA=CH3OH										

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
Nb(V)	sp	oth/un	23°C	96%	U			K(Nb(V)+H3L)=5.62	1981BVa (43971)	69
Medium: 96% H2SO4. In 85%: K(Nb(V)+H3L)=2.30										

C6H7NO3S		HL						CAS 599-71-3	(4398)	
Benzenesulfohydroxamic acid; C6H5.SO2.NH.OH										
Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
Nb(V)	sp	oth/un	20°C	1.0M	U	M			1971GVa (45071)	70
Medium: 1-10 M HCl. K(NbOC15+2H2L=(H2L)2NbOC15)=4.91										

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
Nb(V)	sp	oth/un	?	?	U			K1=9.4	1966SAb (45649)	71

C6H8O7		H3L		Citric acid				CAS 77-92-9	(95)	
2-Hydroxypropane-1,2,3-tricarboxylic acid; HOOCH2.CH(OH)(COOH).CH2COOH										
Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg	K values	Reference	ExptNo
Nb(V)	dis	oth/un	20°C	4.50M	U				1967K0d (46195)	72
Medium: 4.5(NaCl or NaNO3+2.5 HCl). K(Nb(OH)4+H3L=Nb(OH)4H2L+H)=2.94 ?										

Nb(V) sp oth/un 20°C dil U M 1972LVa (55604) 78
K(NbOCl5+2H3L)=4.58

C9H6N2O5S H2L CAS 5263-74-1 (2738)
7-Nitroso-8-hydroxyquinoline-5-sulfonic acid;

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

Nb(V) gl alc/w 27°C 50% C H K1=6.15 B2=11.53 1986EAa (63877) 79

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

Nb(V) sp alc/w 25°C 50% U 1967NPb (64716) 80
K(NbO3+H2L)=9.5(?)

Medium: 50% MeOH, 0.1 M NaClO4

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

Nb(V) sp NaCl 20°C 0.10M U I 1964SHa (69962) 81
K(NbO2+3L+4H)=64.7

In 3 M NaClO4: K(NbO2+2H+2L)=42.5

C10H12O5 H3L CAS 121-79-9 (3895)
3,4,5-Trihydroxybenzoic acid propyl ester; (HO)3.C6H2.CO.O.CH2.CH2.CH3

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

Nb(V) sp mixed 22°C 5% U 1968LSc (71685) 82
K(?)=3.48

Medium: 5% 1-PrOH, carbonate buffer

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

Nb(V) dis KNO3 20°C 2.0M U 1969KKf (73986) 83
K(NbO2+H3L)=10.54

Nb(V) vlt KCl ? 0.40M U K1=39.4 1969SVd (73987) 84

Nb(V) vlt oth/un 20°C 1.0M U 1967VSd (73988) 85
K(Nb(OH)2+L)=40.78

 C15H13NO2 HL CAS 7369-44-0 (4066)
 N-3-Diphenylpropenohydroxamic acid;

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

 Nb(V) dis KCl 20°C 1.0M U 1971LFC (91639) 92
 K(NbO+3L)=59.7

 C15H18N4O HL CAS 14337-52-1 (5124)
 5-Diethylamino-2-(2-pyridylazo)phenol;

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

 Nb(V) sp oth/un ? ? U M 1969EMa (92097) 93
 K(NbOA+L)=20.63

H2A=tartaric acid

 C16H11N2O5ClS H3L CAS 3567-23-5 (5202)
 5-Chloro-2-hydroxy-3-(2-hydroxy-1-naphthylazo)-benzenesulfonic acid;

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

 Nb(V) EMF oth/un ? ? U M 1971ENC (92770) 94
 K(NbOA+L)=27.5

H2A=tartaric acid

 C16H11N3O10S2 H4L (5174)
 2-Hydroxy-1-(2'-hydroxy-4'-nitro)phenylazo-3,6-disulfonaphthalene;

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

 Nb(V) sp oth/un 25°C ? U 1971RCd (92882) 95
 K(?)=5.51

 C17H17NO3 HL CAS 58434-59-6 (1213)
 2'-Hydroxy-4-methoxy-5'-methylbenzylidene acetophenone oxime

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

 Nb(V) sp oth/un 30°C 8.00M U M 1980GKa (96190) 96
 K(NbO(SCN)+L)=2.67
 K(NbO(SCN)L+L)=2.27

 C17H21N5O HL (5223)
 3-Amino-1-hydroxy-6-(2-N-methylanabasiny1-alpha-azo)benzene;

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

 Nb(V) sp oth/un ? ? U 1967TTa (96389) 97

K(?)=11.36

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

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

Nb(V) sp oth/un 25°C ? U 1967ADc (105482) 98

K(?)=4.7

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

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

Nb++++ EMF alc/w 20°C 100% U 1971GSa (17896) 99

K(Nb(L')2+L')=12.6

K(2Nb(L')3+3L'=Nb2(L')9)=23.9

Medium: MeOH, 1 M LiCl

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

Nb++++ sp oth/un ? ? U M 1969EMa (77565) 100

K(NbOA+L)=21.22

H2A=tartaric acid

C22H14N4O16Cl2S4 H8L ClSulfophenol S CAS 2103-73-3 (4156)
2,7-Bis(5'-chloro-2'-hydroxy-3'-sulfo-phenylazo)chromotropic acid;

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

Nb++++ sp KNO3 20°C 0.20M U 1965BSe (101484) 101

B(NbO2+6H+L)=53.0

Metal: Nb(III)

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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

END