SC-Database
Software version = 5.81 Data version = 4.62
Experiment list contains 62 experiments for
 (no ligands specified)
 Metal : Pm+++
 (no references specified)
 (no experimental details specified)

****
e- HL Electron (442)
Electron;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Pm+++ oth none 25°C 0.0 U 1974JOb (806) 1
K(Pm+3e=Pm(s))=-116.1(-2.29)
K(Pm+e=Pm(II))=-42(-2.5V)
Method: Literature evaluated data

Pm+++ oth none 25°C 0.0 U 1952LAb (807) 2
K(Pm+3e)=-122.8(-2420 mV)
****
Cl- HL Chloride CAS 7647-01-0 (50)
Chloride;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Pm+++ oth KCl 15°C var U K1=0.7 1969MKc (5486) 3
K2(?)=-0.8
Medium: HCl. Method: paper electrophoresis
****
F- HL Fluoride CAS 7644-39-3 (201)
Fluoride;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Pm+++ oth NaClO4 25°C 0.10M U K1=3.3 1973MSg (7108) 4
method:electromigration or transference number
****
IO3- HL Iodate CAS 7782-68-5 (1257)
Iodate;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Pm+++ dis NaClO4 25°C 0.10M U K1=1.12 1973CBd (8547) 5
****
NO3- HL Nitrate CAS 7697-37-2 (288)
Nitrate;

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

```
--------------------------------------------------------------------------------
Pm+++      dis NaClO4 25°C  1.0M U        K1=0.26        1967KOb  (9870)   6
--------------------------------------------------------------------------------
Pm+++      dis NaClO4 25°C  1.0M U        K1=0.39        1965CSb  (9871)   7
********************************************************************************
OH-                    HL    Hydroxide          (57)
Hydroxide;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Pm+++      oth R4N.X  25°C 0.00  U        K1=10.4   B2=19.8   1972SSf (11931)   8
Medium: NH4ClO4 at I=0.005 M. Method: electrical migration or transference
number
--------------------------------------------------------------------------------
Pm+++      dis NaClO4   ?  0.10M U T                     1971GDb (11932)   9
                                       *K1=-6.5
Medium: LiClO4
--------------------------------------------------------------------------------
Pm+++      sol oth/un   ?   var  U                       1958STb (11933)  10
                                       Kso(Pm(OH)3)=-34
********************************************************************************
PO4---                 H3L    Phosphate        CAS 7664-38-2  (176)
Phosphate;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Pm+++      ix  none   25°C  0.0  U                       1972EZb (13302)  11
                                       K(Pm+H2L)=2.51
--------------------------------------------------------------------------------
Pm+++      ix  R4N.X  25°C 0.20M U  I                    1966BEc (13303)  12
                                       K(Pm+H2L)=1.69
Medium: NH4ClO4. K=2.51 (I=0 corr)
********************************************************************************
P3O9---                H3L                    CAS 13566-25-1  (235)
Cyclotrimetaphosphate;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Pm+++      ix  none   25°C  0.0  U        K1=6.26        1972EZb (13968)  13
--------------------------------------------------------------------------------
Pm+++      ix  R4N.X  25°C 0.20M U  I     K1=3.80        1967ELa (13969)  14
Medium: NH4ClO4. K1=5.74(I=0 corr)
********************************************************************************
SCN-                   HL    Thiocyanate      CAS 463-56-9  (106)
Thiocyanate;
--------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
--------------------------------------------------------------------------------
Pm+++      dis oth/un 30°C  1.0M C        K1=0.18   B2= 0.33  1980KMe (15229)  15
In 1.0 M NH4ClO4/NH4SCN. Extraction of 147Pm into hexane/ammonium dinonyl-
```

naphthalene sulfonate.
****
SO4-- H2L Sulfate CAS 7664-93-9 (15)
Sulfate;

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Pm+++ dis NaClO4 55°C 2.0M U T H K1=1.60 B2=2.28 1967CCd (16471) 16
K1=1.08(0 C), 1.34(25 C), 1.49(40 C); B2=1.62(0 C), 1.88(25 C), 2.00(40 C)
DH(K1)=16.3 kJ mol-1, DS=79.4 J K-1 mol-1
****
CH5O3P H2L CAS 13590-71-1 (1752)
Methylphosphonic acid; CH3.PO3H2

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Pm+++ ix none 25°C 0.00 U I 1967BEa (18133) 17
K(Pm+HL)=2.67
At I=0.5 M NH4ClO4: K(Pm+HL)=1.72
****
CH5O4P H2L CAS 2617-47-2 (1977)
Hydroxymethylphosphonic acid; HO.CH2.PO3H2

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Pm+++ ix R4N.X 25°C 0.20M U 1972EZd (18151) 18
K(Pm+HL)=1.65
K(Pm+2HL)=3.30
Medium: NH4ClO4
****
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
---
Pm+++ oth oth/un 25°C 0.10M U K1=5.20 B2=8.80 1971STe (19033) 19
Method : electrical migration or transference number

Pm+++ dis R4N.X 20°C 1.00M U B2=8.3 1966STa (19034) 20
B3=11.8
Medium : NH4Cl
****
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
---
Pm+++ dis NaClO4 25°C 2.0M U T H 1968TCa (21682) 21
K(Pm+HL)=0.67
K=0.45(0 C), 0.52(11 C), 0.79(40 C). At 25 C:DH(K1)=14.6 kJ mol-1, DS=62.7

****

C2H5O5P H3L CAS 4408-78-0 (4225)
Phosphonoethanoic acid; HOOC.CH2.PO3H2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Pm+++	ix	none	25°C	0.00	U		K(Pm+HL)=5.15 B(Pm+2HL)=8.50 K(Pm+H2L)=2.75	1972EZc (21894)	22

****

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
Pm+++	oth	KCl	10°C	1.50M	U		K1=2.54 B2=4.24	1972SNa (25517)	23
Method: (gelatinized cellulose acetate), electrophoresis									
Pm+++	ix	NaClO4	20°C	0.20M	U		K1=2.43 B2=4.20 B3=3.35	1968WZa (25518)	24
Pm+++	ix	oth/un	25°C	0.10M	U		B2=5.38	1967DVa (25519)	25

****

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
Pm+++	dis	oth/un	20°C	0.10M	U		K1=3.9 B2=6.8	1966STa (31335)	26
Medium: NH4Cl									
Pm+++	oth	NaCl	?	0.10M	U		B2=5.81	1965MSd (31336)	27
Method: paper electrophoresis									

****

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Pm+++	oth	oth/un	25°C	0.10M	U		K1=2.79 B2=4.69 B3-6.20	1971SHb (33505)	28
Method is electrical migration or transference number									
Pm+++	ix	NaClO4	20°C	0.20M	U		K1=2.63 B2=4.78 B3=5.90	1968WZa (33506)	29
Pm+++	ix	oth/un	?	?	U		B2=6.00	1967DVa (33507)	30

****

C4H11O4P HL (4276)

Diethylphosphoric acid; (C2H5O)2.PO.OH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values		Reference	ExptNo
Pm+++	oth	oth/un	25°C		U		K1=1.54		1971MGb (35265)	31

Estimated

C4H14N2O4P2 H2L CAS 37107-07-6 (4287)
Ethylenebis(iminomethylenephosphonous acid)

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values		Reference	ExptNo
Pm+++	ix	oth/un	25°C	0.50M	U				1971EZd (35832)	32
							K(Pm+H2L)=5.78			

C4H14N2O6P2 H2L EDDPO CAS 1733-49-9 (2435)
1,2-Diaminoethane-N,N'-bis(methylenephosphonic) acid; (H2O3P.CH2.NH.CH2)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values		Reference	ExptNo
Pm+++	ix	R4N.X	25°C	0.50M	U				1973EZa (35891)	33
							K(Pm+H2L)=5.72			

Medium: NH4ClO4

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values		Reference	ExptNo
Pm+++	dis	NaClO4	25°C	0.15M	U				1973HHc (46231)	34
							K(Pm+HL+L)=11.13			
Pm+++	ix	NaCl	25°C	0.10M	U		K1=7.00	B2=11.91	1972OOa (46232)	35
							K(Pm+HL)=5.46			
							K(PmHL+HL)=8.42			
Pm+++	oth	oth/un	25°C	0.10M	U		K1=7.75	B2=10.95	1971STe (46233)	36
							K(PmL+HL)=2.40			

Constants obtained by survey of literature data

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
Pm+++	dis	NaClO4	20°C	0.10M	U	T	K1=11	B2=19.71	1966STa (46983)	37

C6H10O3 HL CAS 16841-19-3 (3649)
1-Hydroxycyclopentanecarboxylic acid; HO.C5H8.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values		Reference	ExptNo
Pm+++	oth	NaClO4	25°C	0.10M	U		K1=2.73 K3=1.40	B2=4.77	1966PRb (47994)	38

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
Pm+++	dis	oth/un	25°C	0.10M	U		K1=8.97		1971EVb (48781)	39

C7H15O3P HL CAS 9095-99-6 (4458)
Diethylphosphinylpropanoic acid; (CH3.CH2)2.PO.CH2.CH2.COOH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values		Reference	ExptNo
Pm+++	ix	R4N.X	25°C	0.50M	U		K1=1.82	B2=3.25	1972EZa (58026)	40

Medium: NH4ClO4

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
Pm+++	gl	alc/w	22°C	80%	U		K1=6.34 K3=4.06	B2=11.84	1995MTa (58665)	41

Medium: 0.1 M NaClO4 in 80% (v/v) EtOH/H2O.

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
Pm+++	ix	NaClO4	20°C	0.20M	U		K1=2.32 B3=5.11	B2=4.02	1968WZa (59861)	42

C8H19O4P HL CAS 107-66-4 (2130)
Dibutylphosphoric acid; (C4H9O)2P(O)OH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values		Reference	ExptNo
Pm+++	dis	oth/un	26°C	0.10M	C	I			1992SNc (63189)	43

K(Pm+5HL(org)=PmL3(HL)2(org)+3H)=15.7. Method: extraction of 147Pm from HNO3 solution into CFC-112. For extraction into benzene, K=2.54.

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values		Reference	ExptNo
Pm+++	kin	oth/un	25°C	?	U		K1=2.40		1971MGb (63190)	44

C8H22N2O6P2 H4L EDDIPH CAS 13516-59-1 (1355)
Diaminoethane-N,N'-di(isopropylphosphonic)acid;(CH2.NH.C(CH3)2.PO3H2)2

```
------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
------------------------------------------------------------------------------
Pm+++      oth oth/un 25°C 0.10M U        K1=17.23       1971SHb (63355)  45
                                         K(Pm+HL)=13.91
                                         K(Pm+H2L)=8.91
                                         K(Pm+H3L)=6.28
Method : electrical migration or transference number
******************************************************************************
C9H7NO                  HL    Oxine            CAS 148-24-3  (504)
8-Hydroxyquinoline (8-quinolinol);
------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
------------------------------------------------------------------------------
Pm+++      dis oth/un   ?   0.0  U        K1=6.91   B2=13.25  1970BLd (64334)  46
                                         B3=19.08
******************************************************************************
C9H10O3                 HL    Atrolactic acid  CAS 940-31-8  (3859)
2-Hydroxy-2-phenylpropanoic acid; CH3.C(OH)(C6H5).COOH
------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
------------------------------------------------------------------------------
Pm+++      ix  NaClO4 20°C 0.20M U        K1=2.34   B2=4.06   1968WZa (65441)  47
                                         B3=5.08
Other Method: pH method
******************************************************************************
C10H5O2F7S              L                        (6996)
1-(2-Thienyl)-3-heptafluoropropylpropane-1,3-dione; C3F7.C(O)CH2C(O)C4H3S
------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
------------------------------------------------------------------------------
Pm+++      gl  alc/w  22°C  80%  U        K1=6.16   B2=11.74  1995MTa (68431)  48
                                         K3=4.93
Medium: 0.1 M NaClO4 in 80% (v/v) EtOH/H2O.
******************************************************************************
C10H7O2F3               HL                       CAS 326-06-7  (196)
3-Benzoyl-1,1,1-trifluoroacetone; CF3.CO.CH2.CO.C6H5
------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
------------------------------------------------------------------------------
Pm+++      gl  alc/w  22°C  80%  U        K1=6.77   B2=13.33  1995MTa (69160)  49
                                         K3=5.66
Medium: 0.1 M NaClO4 in 80% (v/v) EtOH/H2O.
******************************************************************************
C10H11NO5              H3L                       CAS 100844-86-8  (2108)
N-(2-Hydroxyphenyl)iminodiethanoic acid; HO.C6H4.N(CH2.COOH)2
------------------------------------------------------------------------------
Metal      Mtd Medium Temp Conc Cal Flags Lg K values       Reference ExptNo
------------------------------------------------------------------------------
Pm+++      dis R4N.X  25°C 0.10M U                         1971EVa (71046)  50
```

K(Pm+HL)=6.70
K(Pm+2HL)=11.56
Medium: 0.1 M NH4ClO4
****
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
---
Pm+++ ix R4N.X ? 0.10M U I K1=16.75 1971EZb (74076) 51
Medium: (NH4ClO4), I= near zero, K1=19.41

Pm+++ sol R4N.X 20°C 0.10M U T K1=16.94 1966STa (74077) 52
Medium: NH4Cl

Pm+++ ix none ? 0.0 U K1=16.75 1957FUa (74078) 53
****
C12H7O2F7 L (6994)
1-Heptafluoropropyl-3-phenylpropane-1,3-dione; C3F7.CO.CH2.CO.C6H5

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Pm+++ gl alc/w 22°C 80% U K1=6.39 B2=12.14 1995MTa (80188) 54
K3=5.63
Medium: 0.1 M NaClO4 in 80% (v/v) EtOH/H2O.
****
C13H5O2F13S L (6997)
1-(2-Thienyl)-3-tridecafluorohexylpropane-1,3-dione; C6F13.CO.CH2.CO.C4H3S

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Pm+++ gl alc/w 22°C 80% U K1=5.66 B2=10.87 1995MTa (84459) 55
K3=4.44
Medium: 0.1 M NaClO4 in 80% (v/v) EtOH/H2O.
****
C13H22N2O9 H4L DETAP CAS 36829-96-6 (5602)
Bis(2-aminoethyl)ether-N,N,N'-triethanoic acid-N'-(3-propanoic acid);

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Pm+++ gl KNO3 25°C 0.10M C K1=15.1 1985PLa (86308) 56
K(Pm+HL)=9.5
****
C14H12O2 HL Diphenylacetic CAS 117-34-0 (1952)
Diphenylethanoic acid; (C6H5)2CH.COOH

Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo
---
Pm+++ ix NaClO4 20°C 0.20M U K1=<2.15 B2=<4.0 1968WZa (87333) 57
B3 < 5.0

****

C14H16O3P2 HL CAS 1638-77-3 (5072)
(Methylenephosphinylmethyl)phenylphosphinic acid;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Pm+++	ix	R4N.X	25°C	0.20M	U	I	K1=3.40	1972EZb (88027)	58

Medium: NH4ClO4. I=0: K1=4.21

****

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
Pm+++	ix	oth/un	25°C	0.10M	U	I	K1=18.50	1971EZc (88752)	59

I=near 0, K1=21.16
At 80 C: K1(I=0.05)=18.99, K1(0.06)=19.01, K1(0.07)=18.93, K1(0.17)=17.83

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Pm+++	dis	R4N.X	20°C	0.10M	U		K1=18.17	1966STa (88753)	60

Medium: NH4Cl

****

C16H9N2OBr3 HL CAS 84317-74-8 (5169)
1-(2,4,6-Tribromophenylazo)-2-hydroxynaphthalene;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Pm+++	kin	oth/un	25°C	0.02M	U		K1=4.75	1972GSe (92661)	61

****

C16H35O4P HL CAS 298-07-7 (1625)
Di-(2-ethylhexyl)-phosphoric acid; (C2H5C6H12O)2P(O)OH

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Pm+++	dis	oth/un	20°C	0.10M	C			1992SNb (95513)	62

Extraction of 147Pm from 0.10 M LiNO3/HNO3 medium into 90% CFC-112/benzene
K(Pm+4HL(org)=PmL3(HL)(org)+3H)=2.00

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EXPLANATORY NOTES

   DATA Flags are :-

        T Data at other TEMPERATURES
        I Data with various BACKGROUNDS
        H Data for THERMOCHEMICAL quantities

   EVALUATION Flags are :-

        T or IUP=T signifies EVALUATION RATING = Tentative by IUPAC

END