

SC-Database

Software version = 5.81 Data version = 4.62

Experiment list contains 20 experiments for
(no ligands specified)

Metal : Bk+++

(no references specified)

(no experimental details specified)

e- HL Electron (442)
Electron;

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

Bk+++ dis oth/un 25°C 4.00M U I 1971WSc (371) 1
K=-1.08

Medium: HNO3; K: Bk(IV)+Ce(III)=Bk(III)+Ce(IV); data also in 4 M HClO4
(K=-1.88); also data for 1,2,3,5,6,7 and 8 M acid

Bk+++ EMF oth/un 25°C 0.10M U 1970PHa (372) 2
K(Bk++++ + e)=24.2(1.43V)

Medium: H2SO4

Bk+++ oth none 25°C 0.0 U 1969NBa (373) 3
K(Bk+e=Bk(II))=-57.5(-3.4V)

Method:Estimated data

Bk+++ EMF oth/un 25°C 0.50M U 1969SBb (374) 4
K(Bk++++ + e)=23.2(1.37V)

Medium: 0.5-2 M H2SO4

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

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

Bk+++ dis NaClO4 20°C 3.00M U K1=0.15 B2=0.29 1982FKb (1756) 5

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

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

Bk+++ dis NaClO4 20°C 3.00M U K1=0.59 B2=0.25 1982FKb (4563) 6

Bk+++ dis NaClO4 25°C 1.0M U K1=-0.02 1972HPa (4564) 7

OH- HL Hydroxide (57)
Hydroxide;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Bk+++	dis	NaClO4	23°C	0.10M	U			1969DHa (11094)	8
							*K1=-5.66		

Medium: LiClO4

P04---		H3L	Phosphate				CAS 7664-38-2 (176)		
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Phosphate;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Bk+++	sp	non-aq	25°C	100%	U			1988PLa (13120)	9
							K(Bk+H2PO4)=12.15		

Medium: acetonitrile

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Bk+++	dis	NaClO4	25°C	5.0M	U	T H T	K1=0.86	1974KCa (14836)	10
							K1=0.85(10 C), 0.85(40 C), 0.93(55 C). By calorimetry, DH(K1)=2.9 kJ mol-1		
Bk+++	dis	NaClO4	25°C	1.0M	U		T K1=0.49 B2=-0.51 B3=0.37	1972HPb (14837)	11

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Bk+++	dis	none	25°C	0.0	U		K1=3.71 B2=5.59 B3=5.04	1972Mcc (16033)	12

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Bk+++	oth	oth/un	25°C	0.10M	U		K1=5.50 B2=9.19	1971STe (18822)	13

Method : electrical migration or transference number

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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Bk+++	dis	NaClO4	25°C	2.00M	U	T	K1=2.05	1970CSd (19908)	14
							0.7 C: K1=1.77, 10.4 C: K1=1.98, 39.8 C: K1=2.18		

C2H4O3 HL Glycolic acid CAS 79-14-1 (33)
 2-Hydroxyethanoic acid; HO.CH2.COOH

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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
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Bk+++     dis NaCl04 25°C 2.00M U T      T K1=2.65  B2=4.70  1972Cdb (20500) 15
0.5 C: K1=2.73, K2=1.91; 52.8 C: K1=2.57, K2=1.98
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C6H8O7 H3L Citric acid CAS 77-92-9 (95)
 2-Hydroxypropane-1,2,3-tricarboxylic acid; H00CCH2.CH(OH)(COOH).CH2COOH

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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
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Bk+++     oth oth/un 25°C 0.10M U          K1=7.89  B2=11.19 1971STe (46051) 16
K(BkL+HL)=2.60
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Constants obtained by survey of literature data

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*****
C11H18N2O8 H4L          CAS 4408-81-5 (923)
1,3-Diaminopropane-N,N,N',N'-tetraethanoic acid; ((H00C.CH2)2N.CH2.)2.CH2
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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
Bk+++     dis NaCl 25°C 0.10M C          K1=14.36  1985CMc (79426) 17
Method: extraction of 249Bk from 0.1 M NaCl (pH 5.5) into toluene/HDEHP.
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C14H22N2O8 H4L CDTA CAS 482-54-2 (200)
 trans-1,2-Diaminocyclohexane-N,N,N',N'-tetraethanoic acid;

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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
-----
Bk+++     ix R4N.X 25°C 0.10M U          K1=19.16  1966BAc (88599) 18
Medium: NH4Cl04
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C14H23N3O10 H5L DTPA CAS 67-43-6 (238)
 Diethylenetriamine-pentaethanoic acid; H00C.CH2.N(CH2.CH2.N(CH2.COOH)2)2

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Metal      Mtd Medium Temp Conc Cal Flags Lg K values      Reference ExptNo
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Bk+++     oth oth/un 0.10M U          K1=23.1  1966STb (89168) 19
Literature data from ORNL-3651
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Bk+++     ix R4N.X 25°C 0.10M U          K1=22.79  1965BAc (89169) 20
Medium: NH4Cl04
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REFERENCES

1988PLa S Perevalov, I Lebedev et al; Radiokhim., 30, 452 (1988)
 1985CMc G Choppin, A Muscatello; Inorg. Chim. Acta, 109, 67 (1985)
 1982FKb T Fukusawa, I Kawasuji et al; Bull. Chem. Soc. Jpn., 55, 726 (1982)
 1974KCa W Kinard, G Choppin; J. Inorg. Nucl. Chem., 36, 1131 (1974)

1972Cdb G Choppin,G Degischer; J.Inorg.Nucl.Chem.,34,3473 (1972)
1972HPa H Harmon,J Peterson,W McDowell; Inorg.Nucl.Chem.Lett.,8,57 (1972)
1972HPb H Harmon,J Peterson et al; J.Inorg.Nucl.Chem.,34,1381 (1972)
1972MCc W McDowell,C Coleman; J.Inorg.Nucl.Chem.,34,2837 (1972)
1971STe A Stepanov; Zh.Neorg.Khim.,16,11,2981 (1971)
1971WSc B Weaver,J Stevenson; J.Inorg.Nucl.Chem.,33,1877 (1971)
1970CSd G Choppin,J Schneider; J.Inorg.Nucl.Chem.,32,3283 (1970)
1970PHa R Propst,M Hyder; J.Inorg.Nucl.Chem.,32,2205 (1970)
1969DHa B Desire,M Hussonois et al; Compt.Rend.,269C,448 (1969)
1969NBa L Nugent,R Baybarz,J Burnett; J.Phys.Chem.,73,1177 (1969)
1969SBb J Stokely,R Baybarz,W Schults; Inorg.Nucl.Chem.Lett.,5,877 (1969)
1966BAC R Baybarz; J.Inorg.Nucl.Chem.,28,1055 (1966)
1966STb J Stary; Talanta,13,421 (1966)
1965BAC R Baybarz; J.Inorg.Nucl.Chem.,27,1831 (1965)

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

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