

## SC-Database

Software version = 5.81 Data version = 4.62

Experiment list contains 47 experiments for

(no ligands specified)

Metal : Cf+++

(no references specified)

(no experimental details specified)

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e- HL Electron (442)

Electron;

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Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo-----  
Cf+++ oth none 25°C 0.0 U 1972MRd (399) 1  
K(Cf+e=Cf(II))=-27.1(-1.6V)

Method:Estimated data

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Cf+++ oth none 25°C 0.0 U 1969NBa (400) 2  
K(Cf+e=Cf(II))=-33.8(-2.0V)

Method:Estimated data

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

Bromide;

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Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo-----  
Cf+++ dis NaClO4 20°C 3.00M U K1=0.30 B2=0.30 1982FKb (1819) 3

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

Chloride;

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Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo-----  
Cf+++ dis NaClO4 20°C 3.00M U K1=0.61 B2=0.25 1982FKb (4600) 4-----  
Cf+++ dis NaCl 30°C 1.00M U K1=0.14 B2=0.06 1980KMa (4601) 5

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ClO4- HL Perchlorate CAS 7001-90-3 (287)

Perchlorate;

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Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo-----  
Cf+++ dis NaClO4 25°C 2.00M U T B2=-0.59 1981LMa (6175) 6

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

Fluoride;

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

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Cf+++ dis NaClO4 25°C 1.0M U K1=2.99 1969JCa (6808) 7  
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NO3- HL Nitrate CAS 7697-37-2 (288)  
Nitrate;

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Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
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Cf+++ dis NaCl 30°C 1.00M U K1=0.40 B2=0.21 1980KMa (9621) 8  
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Cf+++ dis R4N.X 25°C 2.0M U K1=0.48 1973CDd (9622) 9  
Medium: NH4SCN  
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OH- HL Hydroxide (57)  
Hydroxide;

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Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
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Cf+++ dis NaClO4 ? 0.10M U 1973HHd (11125) 10  
\*K1=-5.05

Medium: LiClO4  
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Cf+++ dis NaClO4 23°C 0.10M U 1969DHa (11126) 11  
\*K1=-5.62

Medium: LiClO4  
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SCN- HL Thiocyanate CAS 463-56-9 (106)  
Thiocyanate;

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Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
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Cf+++ dis NaCl 30°C 1.00M U K1=0.20 B2=0.79 1980KMa (14844) 12  
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Cf+++ dis oth/un 30°C 1.0M C T H K1=0.20 B2= 0.79 1980KMe (14845) 13  
In 1.0 M NH4ClO4/NH4SCN. Extraction of 252Cf into hexane/ammonium dinonyl-  
naphthalene sulfonate. Data for 15-45 C. DH(K1)=-8.6 kJ mol<sup>-1</sup>, DH(K2)=3.0  
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Cf+++ dis R4N.X 25°C 2.0M U K1=0.2 B2=0.91 1973CDd (14846) 14  
B3=1.38  
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Cf+++ dis NaClO4 25°C 1.0M U T K1=0.57 B2=-0.55 1972HPb (14847) 15  
B3=0.42  
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Cf+++ dis NaClO4 25°C 1.0M U T K1=0.49 1965CKb (14848) 16  
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SO4-- H2L Sulfate CAS 7664-93-9 (15)  
Sulfate;

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Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
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Cf+++ dis NaCl 30°C 1.00M U K1=1.48 B2=2.71 1980KMa (16060) 17

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 Cf+++ dis none 25°C 0.0 U K1=3.73 B2=5.58 1972MCC (16061) 18  
 B3=5.09  
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Cf+++ dis NaCl04 55°C 2.0M U T H K1=1.62 B2=2.34 1967CCd (16062) 19  
 K1=1.04(0 C), 1.36(25 C), 1.49(40 C); B2=1.75(0 C), 2.07(25 C), 2.09(40 C)  
 DH(K1)=18.8 kJ mol<sup>-1</sup>, DS=87.8 J K<sup>-1</sup> mol<sup>-1</sup>  
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C2H2O4 H2L Oxalic acid CAS 144-62-7 (24)  
 Ethanedioic acid; (COOH)<sub>2</sub>  
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Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
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Cf+++ oth oth/un 25°C 0.10M U K1=5.50 B2=9.37 1971STe (18831) 20  
 Method : electrical migration or transference number  
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C2H4O2 HL Acetic acid CAS 64-19-7 (36)  
 Ethanoic acid; CH<sub>3</sub>.COOH  
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Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
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Cf+++ dis NaCl04 25°C 2.00M U T K1=2.12 1970CSd (19921) 21  
 0-55 C. 0 C: K1=1.82, 40 C: K1=2.26, 55 C: K1=2.35  
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C2H4O3 HL Glycolic acid CAS 79-14-1 (33)  
 2-Hydroxyethanoic acid; HO.CH<sub>2</sub>.COOH  
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Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
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Cf+++ dis NaCl04 53°C 2.00M U T K1=2.63 B2=4.60 1972CDb (20514) 22  
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C3H6O3 HL L-Lactic acid CAS 79-33-4 (82)  
 L-2-Hydroxypropanoic acid; CH<sub>3</sub>.CH(OH).COOH  
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Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
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Cf+++ dis R4N.X 20°C 0.50M U B3=6.09 1967ESa (25423) 23  
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Medium: NH<sub>4</sub>Cl04. By ix B3=6.08  
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C4H2O4 H2L Squaric acid CAS 2892-51-5 (439)  
 3,4-Dihydroxy-3-cyclobutene-1,2-dione;  
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Metal Mtd Medium Temp Conc Cal Flags Lg K values Reference ExptNo  
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Cf+++ ix R4N.X 25°C 1.00M U K1=2.48 B2=4.18 1972CSb (28640) 24  
 Medium: NH<sub>4</sub>Cl04  
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C6H8O7 H3L Citric acid CAS 77-92-9 (95)  
 2-Hydroxypropane-1,2,3-tricarboxylic acid; HOOCCCH<sub>2</sub>.CH(OH)(COOH).CH<sub>2</sub>COOH  
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Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Cf+++	dis	NaClO4	25°C	0.10M	U		K(CfL2+6H)=13.9 K(CfL(HL)+5H)=9.42	1974HHa (46059)	25
Cf+++	dis	oth/un	25°C	0.10M	U		K1=7.28 K(Cf+2H3L=CfHL2+5H)=-9.9	1971GBa (46060)	26
Cf+++	oth	oth/un	25°C	0.10M	U		K1=7.93 B2=11.23 K(CfL+HL)=2.60	1971STe (46061)	27

Constants obtained by survey of literature data

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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
Cf+++	ix	R4N.X	25°C	0.10M	U	T	K1=11.92 B2=21.21	1968EAa (46743)	28

Medium: NH4ClO4

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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
Cf+++	dis	oth/un	25°C	0.10M	U		K1=9.61	1971EVb (48703)	29

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C7H11NO6 H3L CAS 40199-58-4 (3165)  
N-(2'-Carboxyethyl)iminodiethanoic acid; HOOCH2.CH2.N(CH2.COOH)2

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Cf+++	ix	R4N.X	25°C	0.10M	U		K1=10.94 B2=18.45 K(Cf+HL)=4.43	1968EAa (56880)	30

Medium: NH4ClO4

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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

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
Cf+++	dis	oth/un	25°C	0.10M	U		B3=14.94	1969KSa (58608)	31

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C9H5NOCl2 HL CAS 82613-17-0 (4664)  
3,5-Dichloro-8-hydroxyquinoline;

Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
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 C12H24O6 L 18-Crown-6 CAS 17455-13-9 (577)  
 1,4,7,10,13,16-Hexaoxacyclooctadecane;

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Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
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Cf+++	vlt	R4N.X	25°C	0.10M	C		K1=2.0	1984SSg (83310)	39
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Method: radiopolarography using 250,252Cf. Medium: 0.10 M Me4NI.  
 Metal is Cf++.

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 C14H9O2F3 HL (3429)  
 1,1,1-Trifluoro-1'-naphthoylacetone;

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Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
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Cf+++	dis	oth/un	25°C	0.10M	U			1969KSa (86871)	40
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B3=18.83

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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
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Cf+++	dis	NaClO4	20°C	0.10M	U		K1=19.56	1990GBc (88608)	41
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Cf+++	oth	oth/un	25°C	0.10M	U		K1=19.9 K(Cf+HL)=1.6	1970SMe (88609)	42
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Method: electrical migration or transference number.

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Cf+++	ix	R4N.X	25°C	0.10M	U		K1=19.42	1966BAc (88610)	43
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Medium: NH4ClO4

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 C14H23N3O10 H5L DTPA CAS 67-43-6 (238)  
 Diethylenetriamine-pentaethanoic acid; HOOCH2CH2N(CH2CH2N(CH2COOH)2)2

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Metal	Mtd	Medium	Temp	Conc	Cal	Flags	Lg K values	Reference	ExptNo
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Cf+++	ix	R4N.X	25°C	0.10M	U		K1=24.95	1971BRa (89186)	44
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K(Cf+HL)=15.89

Medium: NH4ClO4

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Cf+++	oth	oth/un		0.10M	U		K1=22.6	1966STb (89187)	45
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Literature data from ORNL-3651

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Cf+++	ix	R4N.X	25°C	0.10M	U		K1=22.57	1965BAc (89188)	46
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Medium: NH4ClO4

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 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
Cf+++	dis	oth/un	25°C	0.10M	U				1973BKc (95875)	47
B3=17.78										

## REFERENCES

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## EXPLANATORY NOTES

DATA Flags are :-

T Data at other TEMPERATURES

H Data for THERMOCHEMICAL quantities

EVALUATION Flags are :-

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

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