

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
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Cf+++      oth none  25°C  0.0  U                1972MRd  (399)  1
                                     K(Cf+e=Cf(II))=-27.1(-1.6V)
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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)
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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
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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
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Cf+++      dis NaClO4 20°C 3.00M U          K1=0.61 B2=0.25  1982FKb  (4600)  4
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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
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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  
 -----

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-1, 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  
 -----

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  
-----

Cf+++ dis NaClO4 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 NaClO4 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 NaClO4 53°C 2.00M U T K1=2.63 B2=4.60 1972CDb (20514) 22  
-----

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>ClO<sub>4</sub>. 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>ClO<sub>4</sub>  
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C6H8O7 H3L Citric acid CAS 77-92-9 (95)  
2-Hydroxypropane-1,2,3-tricarboxylic acid; HOOCCH<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)  
Nitritotriethanoic 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; HOOC.CH2.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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Cf+++ dis R4N.X 25°C 0.10M U K1=6.5 B2=15.10 1969FKb (63529) 32  
K3=7.4

Medium : 0.1 (H,NH4)ClO4

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C10H7O2F3 HL CAS 326-06-7 (196)

3-Benzoyl-1,1,1-trifluoroacetone; CF3.CO.CH2.CO.C6H5

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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 (69138) 33  
B3=16.06

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C10H11NO5 H3L CAS 100844-86-8 (2108)

N-(2-Hydroxyphenyl)iminodiethanoic acid; HO.C6H4.N(CH2.COOH)2

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

-----  
Cf+++ dis R4N.X 25°C 0.10M U 1971EVa (71039) 34  
K(Cf+HL)=7.38  
K(Cf+2HL)=12.28

Medium: 0.1 M NH4ClO4

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C10H16N2O8 H4L EDTA CAS 60-00-4 (120)

1,2-Diaminoethane-N,N,N',N'-tetraethanoic acid, Sequestric acid;

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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=18.70 1970SMe (73660) 35  
K(Cf+HL)=1.0

Method: electrical migration or transference number

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Cf+++ ix R4N.X 25°C 0.10M U K1=19.09 1957FSa (73661) 36

Medium: 0.1 M NH4ClO4

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C11H18N2O8 H4L CAS 4408-81-5 (923)

1,3-Diaminopropane-N,N,N',N'-tetraethanoic acid; ((HOOC.CH2)2N.CH2.)2.CH2

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

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Cf+++ dis NaCl 25°C 0.10M C K1=14.66 1985CMc (79429) 37

Method: extraction of 252Cf from 0.1 M NaCl (pH 5.5) into toluene/HDEHP.

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C12H12N2O2 HL CAS 4173-74-4 (4915)

1-Phenyl-3-methyl-4-acetylpyrazol-5-one;

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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 1973BKc (81041) 38  
B3=13.48

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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  
 -----  
 Cf+++ vlt R4N.X 25°C 0.10M C K1=2.0 1984SSg (83310) 39  
 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 B3=18.83 1969KSa (86871) 40

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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  
 -----  
 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 1970SMe (88609) 42  
 K(Cf+HL)=1.6  
 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  
 Medium: NH4ClO4

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 C14H23N3O10 H5L DTPA CAS 67-43-6 (238)  
 Diethylenetriamine-pentaethanoic acid; HOOC.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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 Cf+++ ix R4N.X 25°C 0.10M U K1=24.95 1971BRa (89186) 44  
 K(Cf+HL)=15.89  
 Medium: NH4ClO4

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

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

- 1990GBc B Gorski,G Buklanov et al; Radiochim.Acta,51,59 (1990)  
1985CMc G Choppin,A Muscatello; Inorg.Chim.Acta,109,67 (1985)  
1984SSg Y Shiokawa,S Suzuki; Bull.Chem.Soc.Jpn.,57,2910 (1984)  
1982FKb T Fukusawa,I Kawasuji et al; Bull.Chem.Soc.Jpn.,55,726 (1982)  
1981LMa I Lebedev,Y Mazur; Radiokhim.,23,359 (1981)  
1980KMa P Khopkar,J Mathur; J.Inorg.Nucl.Chem.,42,109 (1980)  
1980KMe P Khopkar,J Mathur; Thermochim.Acta,37,71 (1980)  
1974HHa S Hubert,M Hussonois,L Brillard et al; J.Inorg.Nucl.Chem.,36,2361 (1974)  
1973BKc W Bacher,C Keller; J.Inorg.Nucl.Chem.,35,2945 (1973)  
1973CDd R Chiarizia,P Danesi,G Scibona et al; J.Inorg.Nucl.Chem.,35,3595 (1973)  
1973HHd M Hussonois,S Hubert,L Brillard et al; Radiochem.Radioanal.Lett.,15,47 (1973)  
1972CDB G Choppin,G Degischer; J.Inorg.Nucl.Chem.,34,3473 (1972)  
1972CSb L Cilindro,E Stadlbauer,C Keller; J.Inorg.Nucl.Chem.,34,2577 (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)  
1972MRd N Mikheev,A Rumer; Radiokhim.,14,492(E:502) (1972)  
1971BRa E Brandau; Inorg.Nucl.Chem.Lett.,7,1177 (1971)  
1971Eva V Ermakov,V Vorobeva,A Zaitsev et al; Radiokhim.,13,5,692 (1971)  
1971EVb V Ermakov,V Vorobeva,A Zaitsev et al; Radiokhim.,13,6,840 (1971)  
1971GBa R Guillaumont,L Bourderie; Bull.Soc.Chim.Fr.,2806 (1971)  
1971STe A Stepanov; Zh.Neorg.Khim.,16,11,2981 (1971)  
1970CSd G Choppin,J Schneider; J.Inorg.Nucl.Chem.,32,3283 (1970)  
1970SMe A Stepanov,A Maksimova,E Pazukhin et al; Radiokhim.,12,5,727 (1970)  
1969DHa B Desire,M Hussonois et al; Compt.Rend.,269C,448 (1969)  
1969FKb D Feinauer,C Keller; Inorg.Nucl.Chem.Lett.,5,625 (1969)  
1969JCa A Jones,G Choppin; Actinide Reviews,1,311 (1969)  
1969KSa C Keller,H Schreck; J.Inorg.Nucl.Chem.,31,1121 (1969)  
1969NBa L Nugent,R Baybarz,J Burnett; J.Phys.Chem.,73,1177 (1969)  
1968EAa S Eberle,S Ali; Z.Anorg.Allg.Chem.,361,1 (1968)  
1967CCd R Carvalho,G Choppin; J.Inorg.Nucl.Chem.,29,725;737 (1967)  
1967ESa V Ermakov,I Stary; Radiokhim.,9,197 (1967)  
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)  
1965CKb G Choppin,J Ketels; J.Inorg.Nucl.Chem.,27,1335 (1965)  
1957FSa J Foreman,T Smith; J.Chem.Soc.,1752 (1957)

## 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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END