Ри-ции

Ри (III), IV и др. ошиб. состояния

$Pu^{+2}(aq)$ [Om. 25544] 1947

Evans et. W.,

United States Atomic.
Energy Commission,
MDDC-1206 August 27,
1947.

$\Delta_f H$,
298

Pu^{+3}

Pu^{+4}

(ΔH)

Вф – НАК 42 – VIII 1949

Evans M. W.

The Transuranium Elements ...

p 282-294 paper 3.30

Pu^{3+} Bp-1100-VI 1949

Pu^{4+} Evans M. V.

($\Delta H, \Delta S$) Natl. Nucl. Energy

Ser., Div. IV 14B

Transuran. Elements

1949, Pt I, 282-94

1949

VI-1100

Ce^{4+}, Cr^{5+}(Δ Hf), Pu^{3+},
PuO_2^{2+}, Pu^{4+}, Fe^{2+}, Fe^{3+} (Δ H,S)

Evans M.V.

Nafl. Nuclear Energy Ser., Div.1V, 14B,
Transuranium Elements, 1949, PtI, 282-94.

Heats and entropies of Pu(III), Pu(IV), and Pu(VI) in 0,% M perchloric acid at 25°.

Est/F.

W,

CA., 1951, 1414h

VIII 1578 1949

Pu^{++++} (K aq)

Hindman J.C.,

Natl. Nuclear Energy Ser., Div. IV, 14B
Transuranium Elements, 1949, Pt. I, 370
-387

Ionic species of plutonium present in aqueous solutions of different acids

CA, 1950, 44, 3830c

Dus

VIII -4810 1949

PuO_2^{2+}, Pu^{3+}, Pu^{4+} (р-р, HCl, $HClO_4$)

(E°; Kp)

Kasha M.,

Nat. Nuclear Energie. Ser.,

1949, IV-14B, 295

B

VIII 1216 1949

Pu^{3+}, Pu^{4+}, Pu^{5+}, Pu^{6+} (K)

$Pu(OH)_4$ (Пр)

Kasha M.,

Nat. Nuclear Energy Ser., Div. IV, 14B,

Transuranium Elements,

1949, part 1, 295-334

Au

CA, 1950, 44, 3830e

Pu^{3+} [49 ROB/WES] 1949

Robinson H.P., Westrum Jr. E.F.

The dependence of the heat of solution of plutonium trichloride on the concentration of hydrochloric acid in:

The transuranium elements. New York: McGraw-Hill, 1949, p. 922-25, Seaborg G.T., Katz J.J., Manning W.M. editors.

VIII 2308 1949

Pu^{4+}, PuF_3, $PuCl_3$, $PuOCl$, $PuBr_3$, Np^{3+}, Np^{4+}, NpO_2^+, NpO_2^{2+}. (ΔH_f°)

PuF_3, $PuCl_3$, $PuBr_3$ (T_s, ΔH_s, T_b, ΔH_l)

Seaborg G.T., Katz J.J., Manning W.M., The Transuranium Elements. Research Papers, National Nuclear Energy Series, 14B, New York, Mc Graw-Hill Book Co, 1949

1949

Cite 500

М, Б

1950

U^{4+}, Pu^{4+}

(Np^{4+})

UOH^{3+}

$PuOH^{3+}$

Kraus K. A., Nelson F.,
J. amer. chem. Soc.,
1950, 72, 3901-6

VIII 5019

В, Ну есть ф-л

& Ncy

VIII - 4553 1957

Pu^{4+}, Pu^{3+} (P-P, $HClO_4$). (ΔH)

Connick R.E., [redacted] McVey W.H.,

J. Amer. Chem. Soc., 1951, 73, 1798

B

VIII -2112 1957

Pu^{4+}, Pu^{3+} (p-p, $HClO_4$) (ΔH)

Rabideau S. W., [redacted] Lemons J. F.,

J. Amer. Chem. Soc., 1957, 73, 2895

B

VIII - 4554 1952

Pu^{4+}, Pu^{3+} (р-р, HCl) (E°; Кр)

Connick R.E., [redacted] McVey W.H.,

J. Amer. Chem. Soc., 1952, 74, 1341

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Б

VIII -4789 1953

$Pu_4O_2^{2+}$, Pu^{3+}, Pu^{4+}, $PuCl^{2+}$ (p-p; H_2O) (K_p, E°)

Connick R.E., McVey W.H.,

J. Amer. Chem. Soc., 1953, 75, 474.

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B.

VIII 1999

1953

Pu^{3+}, Pu^{4+}, PuO_2^{2+}, $PuCl^{3+}$.

(ΔF, ΔH, ΔS, K_p)

Rabideau S.W., Cowan H.D.,

J. Amer. Chem. Soc., 1953, 77, №23,

6145-6148.

РЖХ, 1956, №22, 71407

В. Ду

VIII 1995

1953

Pu^{4+}, Pu^{3+}, PuO_2^{2+} (Kc)

Rabideau S.W.,

J.Amer.Chem.Soc., 1953, 75, N 4, 798-801

Equilibria and reaction rates in the disproportionation of Pu (IV)

Ref.Zhur., 1955, N 10, 18346

Pu^{4+} [55 RAB/COW] 1955

Rabideau S.W., Cowan H.D.,
"Chloride complexing and disproportionation of Pu(IV) in hydrochloric acid"
J. Am. Chem. Soc, 1955, 77, p. 6145-48.

А-1388 1955

Галогениды и двуокиси.
Ac, Th, U, Np, Pu, Am, La, Ce, Pr, Nd
(ΔH_f)

Ионы Ac, Th, U, Np, Pu, Am, La, Ce, Pr, Nd
(ΔH_{aq})

Серебренников В.В., Серебренникова И.А.,

Учен. зап. Томского ун-та,
1955, № 26, 9-15

М, В

РЖХ, 1957, 14629

1956

$Pu(OH)_3$ Newton T. W., Baker F. B.

$Pu(OH)_4$ JACS, 1956, —, N, 1417

Р-ции Pu(III) и O_2 в водн. р-рах

сульфатов

V-1144

V-1200

VIII 1996 1956

PuO_2^+, PuO_2^{2+} (ΔF, ΔH, ΔS, K_p.)

Pu^{3+}, Pu^{4+} (K_p)

Rabideau S. W.,

J. Amer. Chem. Soc., 1956, 78, 2705-2707

М. Ду

РЖХ, 1957, 40750

VIII 1997

1957

Pu^{4+}, $PuOH^{3+}$ (Kp, Δ F)

Rabidean S.W.,

J.Amer.Chem . Soc., 1957, 79, N 14, 3675-3677

The hydrolysis of plutonium (IV)

РЖХим., 1958, .10681

Pu^{4+}; Pu^{3+}; PuO_2^{2+}

УIII 2678 1957

Артюхин П.И., Гельман А.Д., Медведовский В.И.,

Докл. АН СССР, I958, I20, № I, 98-I00

Исследование окислительно-восстановительных потенциалов плутония в азотной кислоте

РЖХим., I958, № 24, 80837 Яц

VIII 2000 1958

Pu^{3+}, PuO_2^{2+}, Pu^{4+}, PuO_2^{+} (K_p, ΔF, ΔH, ΔS)

Rabideau S.W., Kline R.J.,

J. Phys. Chem., 1958, 62, 617-620

М.В.

РЖХ, 1958, №24, 80709

VIII - 4808

1958

NpO_2SO_4, $NpCe^{3+}$, Pu^{3+}, Pu^{4+} (P-P; H_2O) (E°, K_D)

Stromatt R. W., Pee Keng R. M.,
Scott F. A., 1958, HW-58212
(Hanford Works)

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8.

VIII - [redacted] 4641 1959

Pu^{6+}, Pu^{3+}, Pu^{4+} (р-р, HNO_3) (E^0, $K_р$)

Артюхин Л. И., Червецовский В. И.
и Лилеев А. Д.,

Ж. неорган. химии, 1959, 4, 1324

В

Pu 4+

[62 SCH/NEB]

1962

Schwabe K., Nebel D.

"Potentiometric studies on plutonium. I Investigation of the complex formation between Pu(IV) and Pu(III) and acetate ions". Z. Phys. Chem. (Leipzig), 1962, 220, p. 339-354.

VIII 1111 1963

Pu II, Pu III (Te)

Bauche J., Blaise J., Fred M.,

C. r. Acad. sci., 1963, 256, 5091-5093

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Physpy, 1964, 2D-125 нет опч.

VIII 1496 1963

Pu^{3+}, Am^{3+}, $PuCl_3$, $AmCl_3$, PuOCl, AmOCl (ΔH_f)

Fuger J., Cunnigham B. B.,
J. Inorg and Nucl. Chem.,
1963, 25, N11, 1423–1429

Ржх, 1964, 13Б411 В, М есть ориг.

VIII 2756 1965

U, U^+, Pu^+, Pu (ρ^*, $H_T - H_o$, S^o_T)

Gurvich L.V., Yungman V.S.

Thermodinamics, Proc. Symp. Vienna, 1965, 2, 613-619

Вычисление термодинамических функций газообразных урана, нептуния и их ионов до 20 000°К

М

Pu^{3+} [66AKH] 1966

Akhachinsky V.V.
"The heat of solution of plutonium in hydrochloric acid" in:
"Thermodynamics; Proc. Symp. held in Vienna, Austria, 22-27 July 1965"
vol. 2, Vienna, Austria: International Atomic Energy Agency, 1966 p. 561-570,
in Russian.

Pu^{4+} [66 RAN] 1966

Rand M.H., „Thermochemical properties, in: Plutonium: Physicochemical properties of its compounds and alloys".
At. Energy Rev, 1966, 4, p. 7-51.

VIII 2110 1968

Pu^{2+}, Pu^{3+}, $Pu(OH)^{3+}$, $Pu(SO_3NH_2)^{3+}$

(K_p)

Cleveland J. M.,

Inorganic Chemistry, 1968, 7, 874-878

Pu

есть q-k

Np^{7+}, Pu^{7+} (св-ва) 86 VIII 3523 1969

Крот Н.Н.; Гельман А.Д.; Спицын В.И.

Ж. неорг. хим. 1969, 14(10), 2633-9

Семивалентное состояние трансурановых элементов и их положение в периодической системе Менделеева. 6

В (Ф)

[illegible] CA, 1970, 72, N4, 15803z

Pu^+(I), Pu_2C_3, PuC_2 (ΔGf, ΔH) 1970

$PuC_{1,5}$ (ΔHf, ΔSf, ΔH) 8 VIII 3555

Battles J.E., Shinn P.E., Blackburn P.E. Edwards R.K.

High Temperat. Sci., 1970, 2, III, 80-93 (англ.)

A mass spectrometric study of the volatilization behavior in the plutonium-carbon system.

pitt Vam, 1970

156716

9 M, 10 ФР

$Pu^{3+}aq$ (S°) Cm^{3+}(S) 1970

$PuCl_3 \cdot 6H_2O$ ($\Delta H aq$) $PuCl_3$ VIII 3730

Hinchey R. J., Cobble J. W.,

Inorg. Chem., 1970, 9, №4, 922-6 (англ.)

Thermodynamic functions for $Pu^{3+}(aq)$ and the entropies for some trivalent actinide ions.

B, M 5 (Pu) CA, 1970, 72, 122, 115422t

Cs_2NaPCl_6, $Cs_2NaLaCl_6$, $Cs_2NaCeCl_6$, (ΔH_{soln}, ΔH_{aq},) 1971
Cs_2Na [illegible] $Cs_2NaGdCl_3$, $Cs_2NaDyCl_6$ ΔH_f.
Y^{3+} [illegible] $Cs_2NaLuCl_6$ Cs_2NaYCl_6
La^{3+}_{aq}, Ce^{3+}_{aq}, Gd^{3+}_{aq}, Nd^{3+}_{aq} (ΔH_f) 10 8
Dy^{3+}_{aq}, Er^{3+}_{aq}, Lu^{3+}_{aq}, Pu^{3+}_{aq} VIII 4325

Flores L. R.,
J. Phys. Chem., 1971, 75, №3, 392-9 (and.)
Thermochemistry of some chlorocomplex compounds of the rare earths. Third ionization potentials and hydration enthalpies of the trivalent ions.

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CA, 1971, 74, N14, 68511a

Pu(IV) [72 MET/GUI] 1972

Metivier H, Guilbaumont R.
Hydrolyse du plutonium
tétravalent "
Radiochem. Radioanal. Lett.
1972, 10, 27-35, En French.

$\frac{Ru^{3+} + HNO_3 + H^+ \rightleftarrows}{Ru^{4+} + NO + H_2O}$ (Kp, ΔH) 1973

VIII 5898.

Колтунов В.С., Марченко В.И.,

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Реакция между нитритом и азотной кислотой. I. Равновесие.

В ОР ЖА, 1974, 80, №8, 41540и

Pu^{4+}, Pu^{3+} (Kp, ΔH, ΔS) XVIII 244 1974

Landresse G., Фускаель Б.

Inorg. and Nucl. Chem. Lett., 1974, 10, N11, 1051-1057 (франц)

Есть

Экспериментальное исследование методом абсорбционной спектрометрии равновесия $Pu^{4+} + Cl^- \rightleftarrows Pu^{3+} + 1/2\, Cl_2$ в расплаве LiCl-CsCl (55-45 мол %)

РЖХим., 1975

7Б933

ВФ

Ac^{3+}, Th^{3+}, Pa^{3+}, U^{3+}, Np^{3+}, Pu^{3+}, Am^{3+}, Cm^{3+}, Bk^{3+}, Cf^{3+}, Es^{3+}, Fm^{3+}, Md^{3+}, No^{3+}, Lr^{3+} (ΔG)

1975

Goldman Saul, Morss Lester R.

Can. J. Chem., 1975, 53, N18, 2695-2700 (англ.)

Semiempirical calculations on the free energy and enthalpy of hydration for the trivalent lanthanides and actinides.

XVIII-644

PIHXush., 1976

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Ly, B, M, (Qp)

Хор

Pu^{3+}

[#8FUB/OET]

1976

Fuger J., Oetting F. L., The chemical thermodynamics of actinide elements and compounds: Part 2. The actinide aqueous ions. Vienna: International Atomic Energy Agency, 1976, 65 p.

Pu^{3+} [оптика 10617] 1980.

Fuger J., et al.

т. дин.
эл-во

комплексы
в водн.
р-ре

Proc. Sympos. Nuclear Materials. IAEA, Vienna, 1980, Vol. II p. 59-74

1980

$Pu^{+}(aq)$

Lemire R. J., et al.,
J. Chem. Eng. Data 1980,
25(4), 361-70.

ΔG_f

(cf. $U^{+}(aq)$; I)

$Pu^{5+}_{(aq)}$

1980

93: 13979w Equilibrium of the reduction of plutonium(VI) by nitrous acid. Ryabova, A. A.; Koltunov, V. S.; Marchenko, V. I. (USSR). *Radiokhimiya* 1980, 22(2), 254–9 (Russ). The redn. equil. in the Pu(VI)–Pu(V)–HNO_2–HNO_3 system was studied spectrophotometrically at ionic strength 2 and at 15–40°. The equil. const. $K = [Pu(V)]^2[H^+]^3[NO_3^-]/[Pu(VI)]^2[HNO_2] = 1.05 \pm 0.22$ M^3 at 22°. The heat of reaction is ~2 kcal/mol.

$Pu^{6+}_{(aq)}$

$(K_p; \Delta H)$

CA 1980 93 N2

Pu^{3+}

Pu^{4+}

1980

94: 37333c Plutonium(4+) thermodynamics in alkali metal chloride melts. Savochkin, Yu. P.; Sabanova, T. I.; Skiba, O. V. (Nauchno-Issled. Inst., At. Reakt., Dimitrovgrad, USSR). *Report* 1979, NIIAR-37(396), 16 pp. (Russ). Avail. INIS. From *INIS Atomindex* 1980, 11(18), Abstr. No. 54S260. Spectrometry was used to detn. the equil. const. of Pu^{3+} oxidn. by alkali metal chloride melts. The stability of the Pu^{4+} formed increases with increasing cation radius of the salt. Pu^{4+} thermodn. in alkali metal chloride melts were detd. from Pu^{3+} thermodn. values and the equil. consts. detd.

(Ксмаб.)

C.A. 1981. 94 N6

Pu^+ 4910	Четвериков А. П., 1981 Габерлерия В. Я., Кушков В. В.
Ионная	Журн. техн. физики, 1981, 51, 130
207	Pu^+(т. х.), U^+(т. х.)

Pu(3+), Pu(4+)

1981

✓ 12 Б656. Диаграмма работы для плутония. Silver G. L. Work diagram for plutonium. «J. Inorg. and Nucl. Chem.», 1981, 43, № 11, 2997—2999 (англ.)

Для води. р-ров Pu построена диаграмма работы в координатах «свободная энергия, кал — pH», показывающая, сколько работы (ΔG, кал) надо затратить для перевода 1 ммоль Pu, первоначально присутствующего в 1 л р-ра только в виде Pu(3+) в новое состояние, в к-ром Pu(3+) находится в равновесии с Pu в др. степени окисления. Напр., при pH —1 требуется затратить 10,9 кал для перевода 1 ммоль Pu(3+) в 1 л воды в смесь эквимол. количеств Pu(3+) и Pu(4+).

С. С. Бердоносов

диаграмма работы

Х. 1982, 19, N 12.

Pu(4+)(aq)

1982

3Б1861. **Гидролиз ионов плутония (IV).** Першин А. С., Сапожникова Т. В. «2 Всес. конф. по химии нептуния и плутония, Ленинград, 23—25 нояб., 1982. Тез. докл.» Л., 1982, 63

Изучен гидролиз Pu(4+) в водн. р-рах в интервале pH 0,9—2,0 и конц-ий металла 10^{-6}—$3{,}3 \cdot 10^{-3}$ М. На основе полученных данных ориентировочно установлена область «характеристич. кривой гидролиза» Pu(4+), к-рая расположена в области более высоких значений pH, чем кривая, рассчитанная из значений констант гидролиза, приведенных в литературе. А. С. Соловкин

Кр;

Ж. 1983, 19, №3

Pu^{3+} (aq)

Pu^{+4} (aq)

Kpi

От. 16995

Fuger J.

получено ей J. Fuger
в сенеч. 1983 г.
ссылка пока неи-
это часть будущей
книги.

Pu^{4+}/Pu^{3+}(aq) 1984

Blanc P., Madic C.

S; Inorg. Chim. Acta, 1984,
94, N1-3, 134-136.

(see: NpO_2^{2+}/NpO_2^{+}); T.

Pu^{3+} om. 23459 1984

Pu^{4+} Marcus Y., Loewenschuss A.,

Si Ann. Rept. Progress Chemistry, Section C, Physical Chemistry, 1984, C81, 81-135, Chem. Soc. (London)

Pu^{3+}_{aq} 1985

David F., Fourest B., Duplessis J.

Термодинамика гидратации Pu^{3+}_{aq}
и трансплутониевых ионов

J. Nucl. Mat., 1985, v. 130, p. 273-279

есть реферат!

$Pu^{+2}(aq)$
$Pu^{+3}(aq)$
$Pu^{+4}(aq)$

$S^{\circ}; \Delta f H;$

Am. 25041

1986

David F.,

J. Less-Common Metals, 1986, 121, 27-42.

Pu $^{2+}$

1988

Михеев Н. Б.

Двухвалентный плутоний и некоторые его свойства
// Радиохимия. — 1988. — Т. 30, вып. 1. — С. 16—20.
Библиогр. : 9 назв.
— — 1. Плутоний (2) — Реакции.

№ 73844
18 № 3272
НПО ВКП 14.07.88

УДК 546.799.4
ЕКЛ 17.4

Pu^{3+}
Pu
Pu^{2+}

(Оп. 28948) 1988

Михеев Н.Б., Казакевич М.З. и др.,

(Кс) Радиохимия, 1988, №2, 268-270.

Pu(VI) [88422/SCH] 1988

Ullman W.J., Schreiner F.
"Calorimetric determination of the enthalpies of the carbonate complexes of U(VI), Np(VI) and Pu(VI) in aqueous solution at 25°C."
Radiochim. Acta, 1988, 43, 37-44

Pu^{4+}

[89 RIG/ROB]

1989

Riglet C., Robouch P., Vitorge P.
„Standard potentials of the (MO_2^{2+}/MO_2^{+}) and (M^{4+}/M^{3+}) redox systems for neptunium and plutonium."
Radiochim. Acta, 1989, 46, p. 85-94

Pu^{4+} [92CAP/VIT] 1992

Capdevila, H., Vitorge, P., Giffaut E.,
" Stability of pentavalent plutonium. Spectrophotometric study of PuO_2^+ and Pu^{4+} disproportionation in perchloric media" Radiochem. Acta, 1992, 58/59, p. 45-52.

Pu^{4+} [92CAP] 1992

Capdeville, H.
Données thermodynamiques sur l'oxydoréduction du plutonium en milieux acide et carbonate. Stabilité de Pu(V). Ph. D. thesis. Université de Paris-Sud, Orsay, France, 1992, in French. Also published as CEA-R-5643 Commissariat à l'énergie atomique, France, 1993, 197p.

Pu^{3+} [92CAP] 1992

Capdevilá, H. Données thermodynamiques sur l'oxydoréduction du plutonium en milieux acide et carbonate. Stabilité de Pu(V). Ph.D. thesis. Université de Paris-Sud, Orsay, France, 1992, in French. Also published as CEA-R-5693 Commissariat à l'energie atomique France, 1993, p. 197.

Pu^{3+} [92 CHP/VIT] 1992

Capdeville H, Vitorge P, Giffaut E.,
" Stability of pentavalent plutonium.
Spectrophotometric study of PuO_2^+ and
Pu^{4+} disproportionation in perchloric
media". Radiochim. Acta. 1992, 58/59, p. 45-52

Pu^{4+}

1993

Reznitskii L.A.

Zh. Fiz. Khim. 1993,
67(11), 2306.

(AH)

● (cw. Tb^{4+}; I)

Гидролиз Pu(VI) и U(VI) 1994

121: 309483q **Thermodynamics of Uranium(VI) and Plutonium(VI) hydrolysis.** Rizkalla, E. N.; Rao, L. F.; Choppin, G. R.; Sullivan, J. C. (Chem. Dep., Florida State Univ., Tallahassee, FL 32306-3006 USA). *Radiochim. Acta* 1994, 65(1), 23-7 (Eng). The thermodn. parameters for the hydrolysis of hexavalent uranyl and plutonyl ions were detd. by calorimetric titrn. in the presence of 1.0 M tetramethylammonium chloride and 1.0 M sodium perchlorate as background electrolytes for these ions, resp. The measurements were obtained at 25° over a wide range of n̄ values and at different initial metal concns. to ensure reliability of data. The values for the consts. and the corresponding reactions are: $2UO_2^{2+} + 2H_2O \leftrightarrow [(UO_2)_2(OH)_2]^{2+}$ $dH_{22} = 44.4 \pm 1.9$kJ mol^{-1}; $\Delta S_{22} = 36 \pm 6$ J K^{-1}mol^{-1} $PuO_2^{2+} + H_2O \leftrightarrow PuO_2(OH)^+ + H^+$ $\Delta H_{11} = 28.0 \pm 5.0$ kJ mol^{-1}; $\Delta S_{11} = 4 \pm 17$ J K^{-1}mol^{-1} and $PuO_2^{2+} + 2H_2O \leftrightarrow PuO_2(OH)_2 + 2H^+$ $\Delta H_{12} = 42.6 \pm 7.0$ kJ mol^{-1}; $\Delta S_{12} = -48 \pm 23$ J K^{-1}mol^{-1}. These values are compared to the literature data.

(+) (X) Гидролиз U(VI)

С.А. 1994, 121, N26

Pu(VI) [94 R[Z/RAO] 1994

Rizkalla E.N; Rao Z.F., Copper G.R.,
Sullivan J.C.
"Thermodynamics of U(VI) and Pu(VI)
hydrolisos."
Radiochim. Acta, 1994, 65, 23-27.

Pu(IV) [94 YAM/SAK] 1994

Yamaguchi T, Sakamoto Y, Ohnuki T.
„Effect of the complexation on solubility of Pu(IV) in aqueous carbonate system".
Radiochem. Acta, 1994, 66/67, p. 9-14.

Pu^{4+}/Pu^{3+}

1995

122: 225103y **Redox potentials of PuO_2^{2+}/PuO_2^{+} and Pu^{4+}/Pu^{3+} at different ionic strengths and temperatures. Entropy and heat capacity.** Capdevila, Helene; Vitorge, Pierre (Section de Geochimie, CEA, F-92265 Fontenay aux Roses, Fr.). *Radiochim. Acta* 1995, 68(1), 51-62 (Eng). The redox potentials of the reversible couples of Pu are measured by using cyclic voltammetry, in perchloric media at ionic strength I, and temp. T. At each T, the exptl. results, E(T,I), are extrapolated to I = 0 by applying the Specific Interaction Theory (S.I.T.) to get interaction coeffs. $\Delta\epsilon(T)$, and E(0, T) (e.g., std. potential E°, when T = 25°). A systematic error due to disproportionation or redox impurities could explain some discrepancies obsd. between numerical values already published. The exptl. data are fitted to the following series expansion about T°:. The entropy changes ΔS, and heat capacity changes ΔC_p, are then detd. A 2nd order expansion of $\Delta\epsilon(T)$ and of the Debye Hueckel term were used to propose extended S.I.T. equations that account for both the ionic strength and the temp. influences on ΔG, ΔS, ΔC_p, ΔH, and $\log K$. These equations are 1st checked using published mean activity coeffs. of HCl and NaCl and then for redox equil. of Pu. For the PuO_2^{2+}/PuO_2^{+} couple and for the Pu^{4+}/Pu^{3+} couple. The small discrepancy between the numerical values of entropy changes deduced from electrochem. and calorimetric techniques are discussed for actinides redox couples.

термод. св-ва, S_0, C_p

(+) (X)

C.A. 1995, 122, N 18

PuO_2^{2+}/PuO_2^{+}

Am(III)
Pu(III)

[95 NOV/CRA] 1995

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Pu(III)-Pu(VI) [96PER/KIR4] 1996.

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"Determination of solubility of Np(IV)-(VI), Pu(III)-Pu(VI), Am(III)-(VI) and Tc(IV), V, hydroxo compounds in 0,5-14 M NaOH solutions"
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Pu^{3+}
Pu^{4+}
PuO_2^{2+}

[98CON/A-ZM] 1998.

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Clark D.L., Hess N.J., Hudson E.A.,
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of plutonium aquo ions using
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Lu(III)
An(III)

[2000 ALL/BUC]

2000

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Pu^{+3}
Pu^{+4}

[2000 DAV/FOR] 2000

David F, Fourest B, Hubert S,
Perans J., Vokhmin V, Madic C.,
"Thermodynamic properties of Pu^{3+} and Pu^{4+} aquo ions", Plutonium-Futures-The Science. Conference Transactions, Santa Fe, NM, USA 10-13 July. p. 338. 2000

Pu^{3+} Lemire R.J. et al. 2001

Chem. Thermodynamics of Np and Pu.

p. 55. Amsterdam et al. Elsevier, 2001

$\Delta_f G^\circ_{298} = (-578,384 \pm 2,688)\ kJ \cdot mol^{-1}$

$\Delta_f H^\circ_{298} = (-591,730 \pm 1,964)\ kJ \cdot mol^{-1}$

$S^\circ_{298} = (-184,510 \pm 6,154)\ J \cdot K^{-1} \cdot mol^{-1}$

Pu^{4+}

Lemire R.J. et al 2001

Chem. Thermodynamics of Np and Pu.

p. 55. Amsterdam et al. Elsevier, 2001.

$\Delta_f G^\circ_{298} = (-477,988 \pm 2,705)\ kJ\,mol^{-1}$

$\Delta_f H^\circ_{298} = (-539,895 \pm 3,103)\ kJ\,mol^{-1}$

$S^\circ_{298} = (-414,535 \pm 10,192)\ JK^{-1}\,mol^{-1}$

Pu^{3+} Lemire R.J. et al. 2001

Chemical Thermodynamics of Np and Pu.

p.60. Amsterdam et al., Elsevier, 2001

$$PuCl_3 \cdot 6H_2O(cr) = 3Cl^- + 6H_2O(l) + Pu^{3+}$$

$$\Delta_z S^\circ_{298} = (-15{,}010 \pm 3{,}533)\ J \cdot K^{-1} mol^{-1}$$

Pu^{4+} Lemire R.J. et al. 2001

Chemical Thermodynamics of Np and Pu.

p.60. Amsterdam et al., Elsevier, 2001

$$H^+ + Pu^{3+} = 0,5(H_2)(g) + Pu^{4+}$$

$$Dr S^\circ_{298} = (-164,685 \pm 8,124)\ J \cdot K^{-1} mol^{-1}$$

Pu(IV)
Pu^{4+}

[2001NEC/KIM] 2001

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