Fe-Cl-H-O

1892

VI-1299

$FeCl_3 \cdot nH_2O$, $FeCl_3 \cdot HCl \cdot nH_2O$ (Tm)

Roozeboom

10. Z.physik. Chem.10,477(1892)

Circ.500 W, F

VI-1307 1937

/$(Fe(H_2O)_5Cl)^{++}$/
/$(Fe(H_2O)_6^{+++}$//$Cl^{-}$/ (K)

Møller M.,

J.Phys.Chem.1937,41,1123-8.

"Complex formation of ferric ions with chloride ions".

Est/Fe ф. II.

CAö,1938,4129

Ja F

VI-1150 1956

$TiO_2FeO$, FeO, $TiO_2$,
$FeCl_2$(HCl;aq), T, $Cl_4$.(HCl,ap)
$FeCl_2$.(HCl,aq), (Kp), (F).

Wilske Seppo.

Suomen Kem., 1956, 29, N11, B195 – B199
RX.,1958,N17;56649

W,M, F

1958

V1-1175

$Fe_2O_3$ (Ttr, $\Delta$Haq в HCl)

$Fe_2O_3$ черн., $Cl_2$, $FeCl_3O_2$ (Kp, $\Delta$ H)

$Fe_2O_3$ крас., $Cl_2$, $FeCl_3$, $O_2$ (Kp)

Kangro W., Wittke-Peschel I.
Wiebke, Krackow.

Z.anorgam. und allgem.Chem.,1958,295,
N1-2,117-130.

Uber Eisen (III)-oxyd.

RX.,1958,N24,80949 M,W, F

1959

VI-1234

$Fe(H_2O)_6^{3+}$, $Fe(H_2O)_5Cl^{2+}$ (Kp, $\Delta$ H)

Connick R.E., Coppel C.P.

J.Amer.Chem.Soc., 1959, 81, N24, 6389-94.

Kinetics of the formation of the ferric chloride complex.



RX., 1960, 72799 Ja

1960

VI-1280

$Kp(FeCl_2^+, FeCl_3, FeCl^-_4, HFeCl_4)$

Marcus Y.

J.Inorg. and Nucl.Chem., 1960, 12, N3-4, 287-96.

The anion exchavge of metal complexes IV. The' iron (III)-chloride system.



RX., 1960, 91825 Ja

$Fe^{3+}$

$Fe(OH)_3Cl_3$

равновесие

1965

119383e Chemical equilibrium of ferric ion in sodium chloride medium. Tsaihwa J. Chow (Univ. of California, Berkeley). *Trav. Centre Tech. Etud. Oceanogr.* (Paris) 6(1–2–3–4), 53–5 (1965)(Eng). The chem. equil. of ferric ion in 500 millimolar NaCl medium was studied at 25° by detg. the $Fe^{3+}$ and $H^+$ concns. Emf. measurements were made by using a glass electrode and $Fe^{3+}$–$Fe^{2+}$ and Ag–AgCl electrode half cells. The $H^+$ and $Fe^{3+}$ concns. were detd. periodically by emf. measurements, and the steady state was attained after 45 days. The test soln. contg. a high $Fe^{3+}$ concn. attained the steady state faster than those of low concn. No stable reading was obtained for solns. of <1 millimolar $Fe^{3+}$. The main hydrolysis product was a ppt. with the empirical formula $Fe(OH)_{2.7}Cl_{0.3}$. The chem. compn. of the ppt. was detd. by plotting $-\log [H^+]$ vs. $-\log [Fe^{3+}]$. The equil. const. of the reaction $Fe^{3+} + 2.7H_2O + 0.3 Cl^- \rightleftharpoons Fe(OH)_{2.7}Cl_{0.3}(s) + 2.7 H^+$ was calcd. as $\log K = -3.05 \pm 0.10$, and $\log K_s = -34.0 \pm 0.2$. D. Sri Rama Rao

C.A 1967 · 66 · 26

HFeCl4

1976

Kgucc,

25907u Effect of temperature on the extraction of iron(III) by methyl butyl ketone from hydrochloric acid solutions. Iofa, B. Z.; Kropotov, V. A. (Mosk. Gos. Univ. im. Lomonosova, Moscow, USSR). *Izv. Vyssh. Uchebn. Zaved., Khim. Khim. Tekhnol.* 1976; 19(3), 359-62 (Russ). The distribution coeff. of Fe(III) between BuCOMe and 1.5*M* HCl increased with temp. at 5-60° and decreased with concn. at 1.1 × 10⁻³ *M* 10 *M*. The dissocn. const. of the extd. complex $HFeCl_4$ is 1.5 × 10⁻³ at 5° and 13 × 10⁻³ at 60°. C. E. Stevenson

C.A. 1976 85 N4

$Fe(H_2O)Cl_{aq}^{2+}$

1979

Kfp

(Kp)

91: 63512t Thermodynamics and kinetics of aqueous iron(III) chloride complexes formation. Strahm, Ulrich; Patel, Ramesh C.; Matijevic, Egon (Inst. Colloid Surf. Sci., Clarkson Coll. Technol., Potsdam, NY 13676 USA). *J. Phys. Chem.* 1979, 83(13), 1689-95 (Eng). The formation of ferric chloride complexes in aq. solns. was studied by spectrophotometric and temp. jump techniques by utilizing both the relaxation times and the relaxation amplitudes. The results were analyzed by a multiparametric curve fitting procedure. Equil. consts., and thermodn. parameters were detd. for the following reactions at 25° and at an ionic strength of 2.6 M: (1) $Fe_{aq}^{3+} + Cl_{aq}^{-} \rightleftharpoons Fe(H_2O)Cl_{aq}^{2+}$; (2) $Fe(H_2O)Cl_{aq}^{2+} \rightleftharpoons FeCl_{in,aq}^{2+}$; (3) $Fe_{aq}^{3+} + Cl_{aq}^{-} \rightleftharpoons FeCl_{aq}^{2+}$; (4) $FeCl_{in,aq}^{2+} + Cl_{aq}^{-} \rightleftharpoons FeCl_{2,aq}^{+}$; (5) $FeCl_{2,aq}^{+} + Cl_{aq}^{-} \rightleftharpoons FeCl_{3,aq}$. The rate consts. for the formation of the inner-sphere complexes of the ferric mono- and dichloro ions are given. A species distribution diagram based on the thermodn. data is shown for a const. ferric ion concn. (0.086 M $Fe(ClO_4)_3$) and a wide range of chloride ion concns.

CA-1979-91/18

$Fe_2(OH)_3Cl$ (Dm 31067) 1988

110: 102822b **Evaluation of standard heats of formation of iron-group metal hydroxyhalide.** Burylev, B. P. (Kubansk. Gos. Univ., Krasnodar, USSR). *Izv. Vyssh. Uchebn. Zaved., Chern. Metall.* 1988, (12), 131 (Russ). A comparison method was used to calc. the std. heats of formation of $Fe_2(OH)_3Cl$ and $Ni_2(OH)_3Cl$.

$(\Delta_f H)$

(H) ☒

$Ni_2(OH)_3Cl$

C.A. 1989, 110, N 12

$Fe(H_2O)Cl_2(г)$ от 30125 1988

1 В6. Гидрат хлорида трехвалентного железа в паровой фазе. Iron(III) chloride hydrate in the vapor phase / Rustad D. S., Gregory N. W. // Inorg. Chem.— 1988.— 27, № 16.— С. 2840—2844.— Англ.

Спектрофотометрически в интервале длин волн 240—440 нм изучено равновесие в гомогенной системе $FeCl_3$—$Cl_2$—HCl—$H_2O$ при т-рах 415—640 К. Отмечено, что доминирующим равновесием в системе <600 К является 0,5 $Fe_2Cl_6$ (газ.) + $H_2O$ (газ.) ⇌ $Fe(H_2O)Cl_3$ (газ.). Из равновесных данных определены термодинамич. параметры ($\Delta H$ и $\Delta S$) процесса образования газ. $Fe(H_2O)Cl_3$. При 500 К значения $\Delta H$ и $\Delta S$ составляют —590 кДжмоль$^{-1}$ и 471 Джмоль$^{-1}$ К$^{-1}$ соотв. Энтальпия координац. дативной связи Fe—O составляет при 500 К 93,6 кДжмоль$^{-1}$. Изменение величины абсорбции пара $Fe(H_2O)Cl_3$ в интервале т-р 415—475 К объяснено присутствием в системе конденс. гидратной фазы состава $Fe_2Cl_6(H_2O)_3$.

Г. П. Чичерина

$(K_p, \Delta H, \Delta S)$

X. 1989, N 1

$[Fe(H_2O)_4Cl_2]^+ + 2Cl^- \rightarrow FeCl_4^- + 4H_2O$

OM 32060

1989

110: 201877c Vibrational spectral studies of solutions at elevated temperatures and pressures. 11. A Raman spectral study of aqueous iron(III) chloride solutions between 25 and 300°. Murata, Katsuo; Irish, Donald E.; Toogood, Gerald E. (Dep. Chem., Univ. Waterloo, Waterloo, ON Can. N2L 3G1). *Can. J. Chem.* 1989, 67(3), 517–24 (Eng). The Raman spectra of acidified aq. $FeCl_3$ solns. were measured at 25–300°. When $[Fe^{3+}]$ = 0.75–1.0 mol/kg and $Cl^-/Fe^{3+}$ ratios, *R*, = 3–9.5, the dominant species at 25° is *trans*-$[Fe(H_2O)_4Cl_2]^+$; at 300° the sole Fe-contg. species is $T_d$ $FeCl_4^-$. Conversion of $[Fe(H_2O)_4Cl_2]^+$ into $FeCl_4^-$ appears not to involve intermediate Fe species. In the presence of excess $Cl^-$ the reaction $[Fe(H_2O)_4Cl_2]^+ + 2Cl^- \rightarrow FeCl_4^- + 4H_2O$ is presumed to occur; $\Delta H$ for this reaction was estd. as +65 ± 8 kJ/mol. Other factors which favor $FeCl_4^-$ over other Fe species include increasing acidity, increasing *R*, and decreasing dielec. const.

(ΔH)

C.A. 1989, 110, N22