FeOOH

1964

VI-4227

α-FeOOH (Vi)

Suetaka W.,

Nippon Kinzoku Gakkaishi, 1964, 28(10), 615.

Far infrared absorption spectra of ferric oxides and oxyhydroxide.

J CA, 1967, 67, N4, 16276p.

FeOOH

ИК

ν_i

Watari Suetaka 1964

Nippon Kinzoku Gakkaishi, 28, N10, 615

Спектры в дальней ИК-области Fe_2O_3 и гидроокисей.

(См. Fe_2O_3) III

FeOOH

1971.

64533u Infrared spectroscopic study of iron hydroxide. Tsymbal, E. P.; Smyshlyaev, S. I.; Orobei, V. G. (USSR). *Tr. Krasnodar. Politekh. Inst.* 1971, No. 40, 60–6 (Russ). From *Ref. Zh., Khim.* 1972, Abstr. No. 16B210. The ir absorption spectra of amorphous Fe hydroxide suspensions were measured at 400–4000 cm^{-1}. The freshly pptd. samples revealed a true hydroxide structure of FeOOH and not a hydrated Fe oxide $Fe_2O_3.H_2O$. The bands corresponding to the following vibrations were obsd.: 470 and 560 cm^{-1}-FeO bond vibration; 625 cm^{-1}-libration vibration of the OH group; 985, 1060 and 1140 cm^{-1}-deformation vibration of the surface OH groups of a hydroxide; 1660 cm^{-1}-plain deformation vibration of water mol. and 3410 cm^{-1}-stretching vibration of hydroxides bound by a H bond. The H-bond energy of α-FeOOH was 6.8–6.9 kcal/mole. Annealing of FeOOH at 389° resulted in the conversion to α-Fe_2O_3 with preservation of adsorbed water, and at 1000° converted to pure α-Fe_2O_3.

(Vi)

C.A. 1973. 78. N 10

γ-FeOOH

1972

50147j Infrared spectra of iron(III) hydroxide sulfates and hydroxides. Shokarev, M. M.; Margulis, E. V.; Vershinina, F. I.; Beisekeeva, L. I.; Savchenko, L. A. (USSR). *Zh. Neorg. Khim.* 1972, 17(9), 2474–9 (Russ). The ir spectra of α- and γ-FeOOH, $Fe(OH)SO_4$, $MFe_3(OH)_6(SO_4)_2$, (M = Na, K, NH_4 or N_2O) are given. The anal. of the normal vibrational modes of the compds. is given; the absorption max. were assigned. The OH^- bridges in the compds. are discussed. The authors recommend absorption bands which can be used for the identification of the investigated compds.

(Vi)

(+1) $Fe(OH)SO_4$;

C.A. 1973, 78, N 8

FeOOH

Оттиск 14206

1982

кислотно-
основн.
св-ва и
термодинам.
характер.

Май Л.А.,

Изв. Акад. Наук
Латвийской ССР,
● 1982, N 3, 292-295

Si_2N_2O ($\Delta_f H$, S°_{298}, термодин. функции)

C.A. 1981, <u>95</u>, N18, 157 744e

α-FeOOH 14083 1982

97: 14216q Normal coordinate analysis of α-FeOOH - a molecular approach. Verdonck, L.; Hoste, S.; Roelandt, F. F.; Van der Kelen, G. P. (Lab. Gen. Inorg. Chem. B, Univ. Ghent, B-9000 Ghent, Belg.). *J. Mol. Struct.* 1982, 79, 273-9 (Eng). The IR spectra of α-FeOOH and the deuterated analog are interpreted by a normal coordinate anal. The assumption was made of partial covalent bond formation between the oxy and hydroxy O and Fe. Frequencies and force consts. involving the motion of the H atom and the Fe-OH bond are evaluated in a distorted Fe_3OH tetrahedron. The Fe-O parameters are sep. derived in a quasi planar trigonal Fe_3O geometry.

ИК спектр

(H) Fe_3OH (спектр)

C.A. 1982, 97, N2.

Ommick 14083 | 1982

α-FeOOH

ИК спектр, Di, сил. под.; структура

Verdonck L., Hoste S., et al.,

J. Mol. Struct., 1982, 79, 273-279.

C.A. 1978, 89, N26,

α- FeOOH [14083] 1982

18 Б614. Нормально-координатный анализ α-FeOOH: молекулярное приближение. Verdonck L., Höste S., Roelandt F. F., van der Kelen G. P. Normal coordinate analysis of α-FeOOH—a molecular approach. Proceedings of the 15 European Congress on Molecular Spectroscopy, University of East Anglia, Norwich, 7—11 Sept., 1981. «J. Mol. Struct.», 1982, 79, 273—279 (англ.)

ИК спектры поглощения

Измерены ИК-спектры поглощения гетита, α-FeOOH (ф. гр. *Pbnm*, $Z=4$) и его дейтероаналога в таблетках CsBr. Рассчитаны частоты и силовые постоянные нормальных колебаний в «молек. приближении» путем рассмотрения колебания атомов H и связи Fe—OH в искаженном тетраэдре Fe_3OH, а также несмешивающихся с ними колебаний Fe—O в квазиплоской тригон.

Х. 1982, 19, №18.

группировке Fe_3O. Эксперим. частоты вал. кол. OH (OD) 3140 $см^{-1}$ (2330 $см^{-1}$), деф. плоскостн. OH (OD) 886 (680), деф. внеплоскостн. OH (OD) 795 (580), вал. Fe(3)—OH 450, вал. асимм. ν_{as} Fe—OH 403, вал. симм. ν_s OH 360, вал. Fe(3)—O 630, ν_{as} Fe—O 495, ν_s Fe—O 270 $см^{-1}$ хорошо описываются принятой упрощенной моделью. Небольшие расхождения могут быть связаны с пренебрежением влиянием H-связей OH...O.

Б. В. Рассадин

1994

S-FeOOH
образование
крист. зародыш

Ishikawa T., Yasukawa A., Kandori K.
Oriol R.,
J. Chem. Soc. Faraday Trans. 1994, 90, №17.
2567-2571
Textures of tetradecahedron S-FeOOH particles and their thermal decomposition product.

γ-FeOOH

1998

128: 206905u **Thermodynamic properties of iron oxides and hydroxides. Part 3. Surface and bulk thermodynamic properties of lepidocrocite (γ–FeOOH) to 500 K.** Diakonov, Igor I. (Department Geology, University Bristol, Bristol, UK BS8 1RJ). *Eur. J. Mineral.* 1998, 10(1), 31–41 (Eng), E. Schweizerbart'sche Verlagsbuchhandlung. A consistent set of bulk thermodn. properties ≤ 500 K for lepidocrocite (I) was generated on the basis of a crit. anal. of literature data with the account for the surface thermodn. properties. Exptl. measurements of the heat capacity of I are consistent with the equation: $C_p^o = 65.205 + 0.067665T - 0.81564 \times 10^6/T^2$ (298.15–500 K) which yields a value of the std. heat capacity at 298.15 K: $C_p^o = 76.2 \pm 1.5$ J/mol K. Measured enthalpies of dehydration of I to disordered maghemite and of its transition reaction to goethite result in a std. enthalpy of formation of I at 298.15 K: $\Delta_f H^o = -556.4 \pm 2.0$ kJ/mol. Std. entropy at 298.15 K was estd. as $S^o = 62.5 \pm 5.0$ J/mol K from those of goethite, diaspore, and boehmite. Std. Gibbs energy of formation at 298.15 K and the soly. product of I were calcd. as: $\Delta_f G^o = -486.3 \pm 2.5$ kJ/mol and $pK_{sp} = 41.4 \pm 0.6$. Soly. curves of I were calcd. at 298.15 K as a function of pH and grain size.

Cp.
$\Delta_f G^o$,
термод.
св-ва

C.A. 1998, 128, №17

№378
6/VII 98