Si-заложници

$SiCl_3I_3$
$SiBrI_3$
$SiClBr_3$
$SiCl_3Br$
$SiCl_2Br_2$

Tm

T6

BP-7322-IV

1891

Besson A.

Compt rend. 1891, 112,
788-91

Вф-5858-IV 1950

SiF_3Y	$SiFBr_3$
SiF_2Y_2	SiF_2Br_2
$SiFY_3$	SiF_3Br

Anderson H.H.

Tb

J. Am. Chem. Soc. 1950, 72, 2091-93

Tm

1954

$Si_{10}F_{22}$	Schmeisser M.,
$Si_{10}Br_{16}$	Silicium, Schwefel, Phosphate,
$Si_{10}Cl_{16}$	Colloq. Sek. Anorg. Chem. Intern.
$Si_{13}Cl_{22}$	Union Reine u. Angew. Chem. Münster,
	1954, 28-31 (Veröffentlicht 1955)
Соединения	Низшие хлориды и бромиды
кремния	кремния
Образование	Смешанные хлор-бром силаны
	реакцией с Mg и разл. соединения
	C.A., 1957, 14475 gh

кремния, типа $(SiF_{11})_x$ — желтые порошки, выделяющие при обработке NaOH водород.

$Si_{10}Cl_{22}$ реагирует с ZnF_2 и дает $Si_{10}F_{22}$ — белый нелетучий порошок, с $Si_{10}Br_{16}$ дает ~~$Si_{10}Br_{1}$, $Si_{10}Br_{16}$~~ $Si_{10}F_{16}$.

1956

$Si + SiX_4 \rightleftarrows$	Kempter Ch. P.,
$\rightleftarrows 2SiX_2$	Diss. Abst., 1956, 16, №7, 1209
	Реакция кремния с четырехгалоидными соединениями кремния
Реакция, как источник получения чистого Si.	
Сбор	ВИФ, ИНХ Кр нет.

Шефер, Морхер. 1957

$SiCl_2$ Schäfer, Morcher.

$SiBr_2$ Z. anorgan. und allgem. Chem., 294

SiJ_2 1957, 290, № 5-6, 279-291, 221,

Термое вещества в химических

образование реакциях III. О термосе кремния

термос при перепаде температур

кремния при помощи диалогенидов кре-

ОИФХ им ния и о зависимости направ-

Х-58-6-16982

Линия переноса ей давления.

Грапи. 1958.

Si

галогениды

Pranić Petar

Tehnika, 1958 13, N 10;

Rud. i metalurg., 9, N 10,

220-221.

-Получение лабораторных

количеств галогенидов

кремния

X-59- 19-67485.

БЭ-М786-IV 1965

Si-Hal(сил.) Schenk P.W.,
Blocking H.

Tб Z. anorgan. und allgem.
Chem., 1965, 334, N 1-2, 54.

[Сил.(SiCl$_2$)x] I

Si Hal

1967

11 B19. Неорганические галогениды кремния. Henge E. Inorganic silicon halides. «Halogen Chem. Vol. 2». London—New York, Acad. Press, 1967, 169—232 (англ.)
Обзор. Библ. 381

X. 1968 · 11

1967

Si – субгалогениды (обзор)

19 В38. Получения и химические свойства субгалогенидов кремния. Schmeißer M., Voss P. Darstellung und chemisches Verhalten von Siliciumsubhalogeniden. «Fortschr. chem. Forsch.», 1967, 9, № 1, 165—205 (нем.)

Обзор. Библ. 153

X.1968. 19

Si - Hal

1970

(124226e) Thermodynamic functions of halosilanes. Boiko, V. V.; Karetnikova, N. N.; Maslov, P. G.; Veretenova, G. I.; Georgieva, I. I. (Leningrad. Pedagog. Inst. im. Gertsena, Leningrad, USSR). *Termodin. Termokhim. Konstanty* 1970, 224–9 (Russ). Edited by Astakhov, K. V. Izd. "Nauka": Moscow, USSR. Internally consistent equations for heat capacity C_p, enthalpy H, entropy S, and Gibbs free energy G as functions of temp. T and pressure were proposed for halosilanes. The equations are quadratic forms in T and $\ln T$ and they are valid at 250–2000°K where the gases may be considered to be ideal. Coeffs. in the equations were evaluated on the basis of statistical mech. calcns. The accuracy is 0.2–1.5% for S and G and 0.2–3.0% for H and C_p. Karel A. Hlavaty

C_p,
ΔH,
ΔG

C.A. 1970 73.24

Si - Hal

1970

137173q Thermodynamic functions of SiX_2YZ-type halosilanes. Maslov, P. G.; Usvyattseva, T. R.; Boiko, V. G.; Karetnikova, N. I.; Engalychev, Yu. S. (Leningrad. Gos. Pedagog. Inst. im. Gertsena, Leningrad, USSR). *Zh. Fiz. Khim.* 1970, 44(3), 825 (Russ). Formulas are derived for the calcn. of thermodynamic properties of 12 gaseous halosilanes SiX_2YZ (X, Y, Z = F, Cl, Br, I) as function of temp. and pressure. They were obtained by the method reported earlier (*CA* 64: 16715f). Formulas are valid for $C_p°$ and enthalpy ($H_T° - H_0°$) at 250–1000°K (accuracy 0.2–3%); as well as for entropy at 250–1500–2000°K (accuracy 0.2–1.5%). Values of coeffs. in these formulas, are given.

T. Ya. Cheroc

C_p

$H_T^\circ - H_0^\circ$

ΔS

C.A. 1970. 72. 26

SiF_4
$SiCl_4$
$SiBr_4$

ΔH_f

1973

Yushin A.S., etal.

Zh. Fiz. Khim., I973, 47(7), I828-3i.

● (cont. BF_3; I)

SiX_4 1982

X-галоид Dittmer G., Niemann U.
(F, Cl, Br, I) и оксигалоид Philips J. Res., 1982,
Δf H 37, N 1-2, 1-30.

● (см. BX_3; I)

$SiH_{4-n}X_n$ Силаны (галоген замещен.) 1982

$SiH_{4-n}X_nY_m$

97: 116245r **Additive schemes for the calculating enthalpies of formation of substituted silanes in an atom-by-atom approximation.** Kanovich, M. M.; Papulov, Yu. G.; Smolyakov, V. M.; Poterin, V. N.; Klyuchnikov, V. A. (Kalinin. Gos. Univ., Kalinin, USSR). *Zh. Fiz. Khim.* 1982, 56(7), 1766–9 (Russ). An optimum additive scheme is presented for calcg. the heats of formation of substituted silanes $SiH_{4-e}X_e$ and $SiH_{4-e}X_eY_m$, where X and Y each are Cl or Me(Et); *e* and *m* each are 0, 1, 2, 3, or 4; and $e \leq m$. Calcd. and exptl. values were compared for 35 compds. This procedures may be used for predicting the heats of formation of as-yet unstudied silanes.

X, Y = Cl, CH_3, C_2H_5

$e \leq m = 0 \div 4$
(аддитивн. схема)

C.A. 1982, 97, N 14

$Si_2Cl_6 - Si_2Br_6$

1983

10 Б3080. **Равновесные реакции дисиланов.** Äquilibrierungsreaktionen an disilanen. Schmölzer H., Hengge E. «Österr. Chem.—Z.», 1983, 84, № 9, 228 (нем.)

С помощью ЯМР, ИК- и КР-спектроскопии изучены равновесные р-ции в системах Si_2Cl_6—Si_2Br_6 (1) и $Me_2Si_2Cl_4$—$Me_2Si_2H_4$ (2). В системе (1) образуются дисиланы типа $Si_2Cl_xBr_{6-x}$, причем равновесие в системе достигается за 60—70 ч при 100° С. Однако разделить продукты р-ций невозможно из-за лабильности системы, обусловленной р-циями диспропорционирования. В системе (2) происходит обмен между атомами хлора и водорода при 200° С в присутствии катализатора $AlCl_3$. Равновесие достигается в течение часа при 90° С. Возможно дистилляц. разделение продуктов р-ции состава $Me_2Si_2Cl_xH_{4-x}$ после отделения от катализатора.

Л. Г. Титов

Кр;

Х. 1984, 19, №10

Силицирование галогенидов Si. 1983

Sladkow I. B.

V_y - мол. объём при Тв;

Zh. Fiz. Khim. 1983, 57 (10), 2619-22.

(см. Силицирование галогенидов С; I)

Si - Xn

1983

99: 219783k **Thermochemistry of silicon-containing compounds. Part 1. Silicon-halogen compounds, an evaluation.** Walsh, Robin (Dep. Chem., Univ. Reading, Reading, UK RG6 2AD). *J. Chem. Soc., Faraday Trans. 1* 1983, 79(9), 2233-48 (Eng). Literature data on the heats of formation of Si-halogen compds. were collected and reviewed. The coverage includes all tetravalent monosilicon compds. contg. Si-H-X, where X is a single halogen, as well as the subhalides SiX_n, where n = 1, 2, or 3. The data are critically evaluated from the standpoints of bond additivity and general chem. reactivity of the species involved as well as by detailed consideration of individual studies. A set of recommended values (with uncertainties) is proposed. For the divalent species, SiX_2, a self-consistent set of lone-pair stabilization energies was obtained.

X - галоген

(ΔfH)

С.А. 1983, 99, N 26

сш. орш.

$X_{ax}(H_3)_{aq}Si\cdots Y$ 1986

$X = \underline{H}, F, Cl$

$Y = H^-$

104: 213528f **Quantum-chemical analysis of silicon atom pentacoordination.** Frolov, Yu. L.; Shevchenko, S. G.; Voronkov, M. G. (Irk. Inst. Org. Khim., Irkutsk, USSR). *Teor. Eksp. Khim.* 1986, 22(1), 70–5 (Russ). The energy characteristics and charge redistribution in model systems $X_{ax}(H_3)_{eq}Si\cdots Y$ as a function of the Si ← Y coordination bond and rehybridization of valence shell AOs of Si were calcd. within the MNDO approxn. with total or partial geometry optimization. Formation of complex anions X = H, F, Cl; Y = H⁻ and of complex X = F, Y = O-CH-OH was examd. During formation of intramol. coordination bond Si ← Y, there is an electron transfer to the axial and equatorial atoms surrounding Si. The calcd. heat of complexation [kJ/mol] are: −253.9 (X = H, Y = H⁻); −273.2 (X = F, Y = H⁻); −298.7 (X = Cl, Y = H⁻) and 72.4 for X = F, Y = O:CH-OH.

(ΔfH)

(+2) ☒ ●

1) $F_{ax}(H_3)_{aq}Si\cdots H$

2) $Cl_{ax}(H_3)_{aq}Si\cdots H$

C. A. 1986, 104, N24

$F_{ax}(H_3)_{aq}Si\ldots H^-$ 1986

Frolov Yu. L., Shevchenko S. G., et al.

($\Delta_f H$) Teor. Eksp. Khim. 1986, 22(1), 70-5.

(see. $X_{ax}(H_3)_{aq}Si\ldots L$; I)

SiH_3X

X - галоген.

1989

110: 102782p New electronegativity scale for the correlation of heats of formation. 5. Simple silicon-containing compounds. Luo, Yu Ran; Benson, Sidney W. (Donald P. and Katherine B. Loker Hydrocarbon Res. Inst., Univ. South. California, Los Angeles, CA 90089-1661 USA). *J. Phys. Chem.* 1989, 93(4), 1674-5 (Eng). A linear equation for the calcn. of the heats of formation of simple Si-contg. compds. (SiH_3X) was derived in terms of heat of formation of a related CH_3X compd., the no. of H atoms in the HX mol., and the unshielded core potential of the X atoms attached to H. The equation thus relate the thermodn. properties of Si compds. to those for C compds.

$(\Delta_f H)$

C.A. 1989, 110, N 12

SiH_mX_n (2) 1993

X - заполн.

121: 118809f Relationship between thermodynamic properties and structure of covalent compounds -- gas phase standard enthalpies of formation of SiH_mX_n. Li, Liangchao; Luo, Mingzhao; Qu, Songsheng; Yan, Xiaoci; Zhang, Guoding (Jingzhou Educ. Coll., Jingzhou, Peop. Rep. China 434108). *Xibei Daxue Xuebao, Ziran Kexueban* 1993, 23(5), 437-41,449 (Ch). An exptl. formula of estg. the gas phase std. enthalpies $\Delta_f H_m$ (SiH_mX_n,g) of SiH_mX_n is presented. It shows that $\Delta_f H_m$ (SiH_mX_n,g) is related to bond enthalpy and bond nos. (m,n) of Si-H and Si-X bond. Moreover, when $(m+n)<4$, conjugate and coordinate effect has an great influence on $\Delta_f H_m$ (SiH_mX_n,g) in central atom and adjacent atoms.

($\Delta_f H$)

C.A. 1994, 121, N 10

17 Ri. Галогенсилан 1998

129: 33002n **Standard entropy of liquid halosilanes and halogermanes.** Sladkov, I. V. (St. Peterburg. Gos. Tekh. Univ., St. Petersburg, Russia). *Zh. Prikl. Khim. (S.-Peterburg)* 1998, 71(1), 41–45 (Russ), Nauka. A method is proposed for calcg. the entropy of liq. mol. inorg. compds. in std. conditions. The initial data are the substance's entropy in gas phase and a parameter which characterizes the thermodn. similarity of mol. inorg. compds. The method was used to calc. the std. entropies of 17 liq. halosilanes and 15 liq. halogermanes.

(3)

(4) 15 Ri. Галогенсилан

C. A. 1998, 129, n 3

SiF_4 K_2

2001

Lyman, J.L. et al.,

J. Phys Chem. Ref. Data,

(m.X) 2001, 30 (1), 165-186

(see Li_2F_6, ● 2, k (I))

SiH_mX_n
$X = F, Cl, Br, I$

2001

135: 186194a **Study on standard formation enthalpies of SiH_mX_n and CH_mX_n molecules with charge/radius of atoms.** Xie, Bing; Feng, Lin; Yang, Feng; Luo, Mingdao; Qu, Songsheng (Department of Chemistry, Guizhou Institute for Nationalities, Guiyang, Peop. Rep. China 550025). *Diqiu Kexue* 2001, 26(3), 328–330 (Ch), Zhongguo Dizhi Daxue Xuebao Bianjibu. The at. and mol. structure parameters P_i and P are defined as: $P_i = (m_i/4r_i)(1 + n_i^*/n_i)(1 + (Z_i' + 2)/Z)$ and $P = {}^n\Sigma_i P_i$. The correlation relationships between P and the std. formation enthalpies of SiH_mX_n and CH_mX_n (X = F, Cl, Br, I) show correlation coeffs. of 0.9765 and 0.9752, resp.

$(\Delta_f H)$

C.A. 2001, 135, 113

CH_mX_n
$X = F, Cl, Br, I$
$(\Delta_f H)$