"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEIRETOV, K.

Load of the working organ of the СЭ-3у excavator, and determination of the trajectory of its ladle during scooping. Godishnik Min geol inst 7:315-323 '60/'61 [publ. '62].

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEIBETOV, K.

Determining the theoretical productivity of one-ladle excavators. Godishnik Min geol inst 7:325-329 '60/'61 [publ. '62].

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

IVANOV, Khr., dots. inzh.; KOZAROV, As., dots. inzh. [deceased]; SHEIRETOV, K., k.t.n. inzh.; TSVETKOV, Khr. inzh.; MATEEV, M., inzh.

Theory of the work of rotary boring machines. Godishnik Min geol inst 8:195-208 '61-'62 [publ.'63]

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

PESHEV, Iv.; SHEIRETOVA, E.

Roentgenological picture of pulmonary lymphogranulomatosis. Nauch. tr. vissh. med. inst. Sofiia 42 no.6:109-123 '63

1. Predstavena ot prof. A.Nikolaev, rukovoditel na Katedrata po rentgenologiia i radiologiia.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEITANOV, Khr.; KISH, IU.

Coulometric determination of small quantities of iodine ions through internal electrolysis. Godishnik khim tekh 5 no.2:63-71 '58 (Publ.'60).

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEITANOV, Khristo

Coulometric determination of small quantities ferroions through internal electrolysis. Godishnik khim tekh 6 no.2:29-33 '59 (Publ. '61).

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

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SHEITANOV, Khr.; TODOROVA, N.; BOIKOVA, D.

Coulometric determination of ferroions through internal electrolysis after preliminary reduction in column with elementary silver. Godishnik khim tekh 6 no.2:35-40 '59 (Publ '61).

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

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SHEITANOVA, Siika

Fast, inexpensive, and qualitative building, constant task of the rationalizers at the Inzhstroi Building and Mounting Works. Ratsionalizatsiia no.5:4-7 '62.

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEJBAL, J.; SLAVIK, J.; SOUCEK, J.

Folic acid and metabolism. Part 7: Transformation of one-carbon compounds and of folic acid in germinating plants. Coll Cz chem 27 no.6:1470-1475 Je '62.

1. Department of Biochemistry and Laboratory for Protein Metabolism, Charles University, Prague (for Shejbal and Slavik). 2. Institute of Hematology and Blood Transfusion, Prague (for Soucek).

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SHEJBAL, Slavomil

Machines and tools for sole margin roughing. Kozarstvi 13 no. 11: 344-346 N '63.

1. Svit, n.p., Gottwaldov.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

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SHEK, G.Kh., kand.sel'skokhoz.nauk; SLIVKINA, K.A., kand.sel'skokhoz. nauk

Forecasting the development of the gray grain moth in Kazakhstan. Zashch.rast.ot vred.i bol. 5 no.3:40-42 Mr '60. (MIRA 16:1)
(Kazakhstan—Grain—Diseases and pests)
(Kazakhstan—Moths)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEK, G. Kh., kand. sel'skokhoz. nauk

New wheat pest in Kazakhstan. Zashch. rast. ot vred. i bol. 5 no.10:53 O '60. (MIRA 16:1)

1. Kazakhskiy nauchno-issledovatel'skiy institut zashchity rasteniy.

(Kazakhstan—Wheat—Diseases and pests)
(Kazakhstan—Moths)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEK, G. Kh., kand. sel'skokhoz. nauk (Alma-Ata)

Methods for estimating and short-term forecasting outbreaks of the cutworm Hadena sordida. Zashch. rast. ot vred. i bol. 6 no.6:43-44 Je '61. (MIRA 16:4)

(Kazakhstan—Cutworms)
(Kazakhstan—Wheat—Diseases and pests)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEK, G.Kh.

Noctuid pests (Noctuidae, Agrotinae) of Kazakhstan. Zool zhur. 44 no.2:296-299 '65. (MIRA 18:5)

1. Kazakhskiy institut zashchity rasteniy, Alma-Ata.

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

GOROSHCHENKO, Yakov Gavrilovich; SHEF, I.A., prof., doktor khim. nauk, otv. red.; POKROVSKAYA, Z.S., red.

[Chemistry of niobium and tantalum] Khimiia niobiia i tantala. Kiev, Naukova dumka, 1965. 482 p. (MIRA 18:8)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEK, [illegible] [illegible] [illegible] [illegible]y [illegible]hby, kand. med. nauk

[illegible] views on the effect of high temperature of the air on the organism and the prevention of heat-caused lesions in the U.S.A. army; a review of literature. Voen-med. zhur. no.9:45-46 '64. (MIRA 18:5)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEK, M.P.

Absorption in the digestive tract during rest and following muscular activity. Fiziol. zhur. 46 no. 5:602-606 My '60. (MIRA 13:12)

1. From the Kirov Academy of Military Medicine.
(DIGESTIVE ORGANS) (EXERCISE) (REST)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEK, M.P. (Leningrad)

Intensity of water absorption in small intestine of a dog during various stages of overheating. Fiziol. zhur. 46 no.12: 1483-1484 D '60. (MIRA 14:1)

(INTESTINES) (ABSORPTION (PHYSIOLOGY))
(HEAT--PHYSIOLOGICAL EFFECT)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEK, M.P.

Water losses and replacement during muscular activity in dogs under conditions of high environmental temperature. Fiziol.zhur. 47 no.5: 612-616 My '61. (MIRA 14:5)

1. From the S.M.Kirov Military Medical Academy, Leningrad.
(WATER IN THE BODY) (EXERCISE)
(HEAT—PHYSIOLOGICAL EFFECT)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

GENKIN, A.A.; MEDVEDEV, V.I.; SHEK, M.P.

Some principles for the development of correcting tables to be used for the evaluation of the information processing rate. Vop. psikhol. 9 no.1: 104-110 Ja-F '63. (MIRA 16:4)

1. Voyenno-meditsinskaya ordena Lenina akademiya imeni S.M.Kirova, Leningrad.

(Information theory in psychology)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEK, M.P.

Information losses in a visual analyse depending on the character of fatigue. Vop. psikhol. 9 no.1:111-113 Ja-F '63. (MIRA 16:4)

1. Voyenno-meditsinskaya ordena Lenina akademiya imeni S.M.Kirova, Leningrad.

(Vison)

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L 13079-63 EWT(1)/ES(a)/ES(b)/ES(c)/ES(k)/BDS AFFTC Pb-4

ACCESSION NR: AP3001500 S/0239/63/049/005/0542/0547

58
57

AUTHOR: Shek, M. P.

TITLE: Hypothermia in dogs and its relation to body water resources during muscular exercise under high environmental temperature

SOURCE: Fiziologicheskiy zhurnal SSSR, v. 49, no. 5, 1963, 542-547

TOPIC TAGS: hypothermia, muscular activity, overheated organism, body water, body temperature

ABSTRACT: Earlier studies suggested that hypothermia may have a different meaning for the organism depending on the conditions under which it develops. Hyperthermia developing during muscular exercise may be necessary for proper oxidation within the body and could be considered "operational" hyperthermia. But hyperthermia developing under high environmental temperature as a result of insufficient body temperature control mechanisms could lead to body disturbances and be of a pathological nature. To gain greater insight into the problem, this study compares hyperthermia developing under conditions of high environmental temperature, muscular exercise, and high environmental temperature and muscular exercise combined in relation to body water

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resources. Three series of experiments on dogs were conducted. In the first, dogs were overheated in a heat chamber. In the second, dogs exercised on a treadmill under normal temperature. In the third, dogs exercised on a treadmill under high environmental temperature. In each series two types of water regimens were studied: no water given during the experiment and water given every half hour during the experiment. Rectal temperature was the primary index, other indices being weight loss, amount of water consumed during or after experiment and breathing difficulty caused by heat. Results show that the rectal temperature for overheated animals deprived of water is higher than for overheated animals who had water. But the rectal temperature of exercising dogs is not affected by intake of water before, during, or after the experiment. This is also true for dogs exercising under high temperature. The author theorizes that the effect of water on hyperthermia in overheated organisms has physical and physiological components. The physical component consists of the cooling effect on the digestive tract and the physiological component consists of reflexive heat emission increase. In the case of organisms engaged in muscular exercise under normal or high temperature, water has practically no effect on hyperthermia because it appears that the muscular activity alerts the central nervous system to oncoming

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L 13079-63
ACCESSION NR: AP3001500

hypothermia and external factors are prevented from affecting temperature control processes in the organism. The sharp increase in body heat production and the more intense oxidation that occur under such conditions appear to confirm that hyperthermia is a physiological necessity for the organism. Original art. has: 4 figures, 3 tables.

ASSOCIATION: Voyenno-meditsinskaya akademiya im. S. M. Kirova, Leningrad (Military Medicine Academy)

SUBMITTED: 19Jan62 DATE ACQ: 12Jun63 ENCL: 00

SUB CODE: AM NO REF SOV: 011 OTHER: 000

Card 3/3

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

ALIYEV, A.K.; SHEK-OVSEPYAN, O.T.; GINIS, Yu.B.

Some geological data on Kiurovdag, the new oil field. Azerb. neft.khoz. 36 no.8:5-8 Ag '57. (MIRA 10:11)
(Kura Lowland--Oil fields)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

ALIYEV, A.K.; SHEK-OVSEPYAN, O.T.; DZHEVANSHIR, D.A.

Oil- and gas-bearing prospects of the Babazanan field. Izv. vys. ucheb. zav.; neft' i gaz no.1:15-21 '58. (MIRA 11:8)

1.Azerbaydzhanskiy industrial'nyy institut im. M. Azizbekova.
(Kura Valley--Petroleum geology)
(Kura Valley--Gas, Natural--Geology)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

ALIYEV, A.K.; SHEK-OVSEPYAN, O.T.; GINIS, Yu.B.

Preliminary data on geological structure of the Kalmas area and its gas and oil potentials. Izv. vys. uchreb. zav.; neft' i gaz no. 5:3-9 '58. (MIRA 11:8)

1. Azerbaydzhanskiy industrial'nyy institut im. M.Azizbekova i trest "Azmornefterazvedka."
(Kazi-Magomed District--Petroleum geology)
(Kazi-Magomed District--Gas, Natural--Geology)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

ACC NR: AP6037073 SOURCE CODE: UR/0056/66/051/ /1445/1456

AUTHOR: Sheka, V. I.; Sneka, D. I.

ORG: Institute of Semiconductors, Academy of Sciences, Ukrainian SSR (Institut poluprovodnikov Akademii nauk Ukrainskoy SSR); Kiev State University (Kiyevskiy gosudarstvennyy universitet)

TITLE: Local states in semiconductors with narrow forbidden band

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 51, no. 5, 1966, 1445-1456

TOPIC TAGS: semiconductor band structure, impurity level, conduction band, valence band, ionization, impurity center

ABSTRACT: A theory of impurity states in semiconductors having the same band structure as InSb is developed, within the framework of the scheme of E. O. Kane (Phys. Chem. Sol. v. 1, 249, 1957), in a multiband approximation which takes into account the interaction between the conduction and valence bands. By analyzing in detail the band structure it is possible to calculate, in agreement with experiment, the ionization energy of the acceptors and also to determine the wave function of the corresponding state. A variational method is used to solve the equations of motion. The changes occurring in the analytic structure of the solutions for the local center when account is taken of the remote bands is also analyzed. The analysis indicates that the behavior of the carrier near the acceptor center can be correctly described

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ACC NR: AP6037073

only if the upper bands are taken into account. The behavior of the carrier in the vicinity of the donor is practically independent of the equations of motion. The energy levels of large-radius local centers in InSb are determined numerically. The ionization potential thus obtained for the singly-charged acceptor center in InSb is in agreement with the experimental value. Several models of the band structure are presented for the case when the change in the system of singular points of the equations of motion makes it possible to obtain the exact solution. These include cases when the valence band is split by the spin-orbit interaction and is located above the bands of the light and heavy poles, when the spin-orbit splitting of the valence bands is eliminated, and others. The authors thank E. I. Rashba for constant interest in the work and a discussion. Orig. art. has: 3 figures and 33 formulas.

SUB CODE: 20/ SUBM DATE: 05May66/ ORIG REF: 008/ OTH REF: 006

Card 2/2

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

TOLPYGO, K.B.; SHEKA, D.I.

Spin-orbital splitting of hole zones in alkali halide crystals. Fiz. tver tela 5 no.9:2609-2619 S '63. (MIRA 16:10)

1. Kiyevskiy gosudarstvennyy universitet im. T.G.Shevchenko.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

S/0181/64/006/003/0922/0935

ACCESSION NR: AP4019861

AUTHOR: Sheka, D. I.

TITLE: Spin orbital splitting of the hole band in crystals of diamond type

SOURCE: Fizika tverdogo tela, v. 6, no. 3, 1964, 922-935

TOPIC TAGS: spin orbital splitting, spin orbital interaction, Brillouin zone, crystal property

ABSTRACT: The author has used the multi-electron approach developed by K. B. Tolpygo and A. M. Fedorchenko (ZhETF, 31, 845, 1956) and Ye. I. Kaplunova (FTT, 1, 177, 1959) to examine spin-orbital interaction and its relation to the hole band in diamond-type crystals. Actual computations were made on the assumption that the number of holes is small and that interaction between them (as well as between holes and conduction electrons) may be neglected. Sixteen levels were obtained at the point Γ (GAMMA), and appropriate wave functions were found. The dispersion law at low values of the wave vector was determined for energy values considered to be lowest. It was determined individually for levels split

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ACCESSION NR: AP4019861

by spin-orbital interaction. The results obtained agree with experiments on cyclotron resonance and are suitable for Ge at any practically attainable temperature, and for Si at room temperature. Solutions were obtained for secular equations with symmetrical directions of Δ (along [001]) and λ (along [111]) for any arbitrary value of the wave vector. The energy value is thus found for different points and for the edge of the Brillouin zone. "I express my sincere thanks to K. B. Tolpygo, Doctor of physical and mathematical sciences, for his constant interest in the work and his attentive attitude toward it." Orig. art. has: 69 formulas.

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet im. T. G. Shevchenko (Kiev State University)

SUBMITTED: 17May63 DATE ACQ: 31Mar64 ENCL: 00

SUB. CODE: SS, EC NO REF SOV: 004 OTHER: 003

Card 2/2

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

L 01823-67 EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) JD/GG

ACC NR: AP6030955 SOURCE CODE: UR/0181/66/008/009/2587/2593

54

B

AUTHOR: Tolpygo, K. B.; Sheka, D. I.

ORG: Kiev State University im. T. G. Shevchenko (Kiyevskiy gosudarstvennyy universitet)

TITLE: Theory of the intrinsic absorption of light in NaCl-type crystals 21

SOURCE: Fizika tverdogo tela, v. 8, no. 9, 1966, 2587-2593

TOPIC TAGS: light absorption, sodium chloride, intrinsic light absorption, electron bands, trihole band, sodium chloride crystal, refraction index, absorption coefficient, incident light

ABSTRACT: Principles developed earlier by K. B. Tolpygo, D. I. Sheka, and Z. Ya. Yevseyev on electron and tri-hole bands in sodium chloride crystals (Fizika tverdogo tela, 1963, no. 5, pp. 2345 and 2609) were used as a basis for a study of the intrinsic absorption of light related to band-to-band transition. Values obtained on the index of refraction, the coefficient of absorption, and reflection, as a function of the frequency of incident light, were in good agreement with experimental data,

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ACC NR: AP6030955

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both in relation to the shape of the curve and the order of magnitude of the coefficient of refraction. Orig. art. has: 9 formulas, 1 table, and 3 figures. [Authors' abstract] [SP]

SUB CODE: 20/ SUBM DATE: 10Jan66/ ORIG REF: 004/ OTH REF: 002/

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

ACC NR: AP7003896 SOURCE CODE: GE/0030/67/019/001/0395/0406

AUTHOR: Broude, V. L.; Rashba, E. I.; Sheka, E. F.

ORG: Institute of Physics, Academy of Sciences of the Ukrainian SSR, Kiev

TITLE: A new approach to the vibronic spectra of molecular crystals

SOURCE: Physica status solidi, v. 19, no. 1, 1967, 395-406

TOPIC TAGS: crystal absorption spectrum, exciton, naphthalene, molecular crystal, Coulomb excitation, absorption band

ABSTRACT:
Crystal absorption spectra are considered in the light of a recently developed theory which assumes the presence of interactions between the vibrational, electronic, and vibrational-electronic (vibronic) excitations, in particular a decay of vibronic intramolecular excitations into pure electronic and intramolecular-vibrational excitations of separate molecules [E. I. Rashba, Zh. E. T. F., v. 50, 1966, 1064—1080, transl. Soviet Physics JETP, v. 23, 708—718].. These interactions affect the distribution of one-particle excitations (concurrent propagation of an exciton and a phonon) and two-particle excitations (independent propagation of the exciton and photon). These collective processes are illustrated by means of simplified models. Their influence on absorption spectra is investigated, the most important effect being regarded as a reduction of the vibrational frequency of the molecule

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ACC NR: AP7003896

accompanying its electronic excitation. Interpretation of available data on molecular absorption bands of both pure and isotope (deuterium)-doped naphthalene crystals is then presented in considerable detail. These data are in good agreement with the theory. The authors thank Dr. M. S. Saskin for providing and discussing these data. Orig. art. has: 2 formulas and 5 figures. [JM]

SUB CODE: 20/ SUBM DATE: 05Oct66/ ORIG REF: 010/ OTH REF: 006/ ATD PRESS: 5115

Card 2/2

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

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Electrodeposition of silver from organic solvents. I. A. Shek, Y. A. Plotnikov and Z. A. Yankelevich. Russ. 33,135, Nov. 30, 1933. The deposition is carried out in a soln. of $AlBr_3$ and AgBr in aromatic or brominated hydrocarbons, such as C_6H_6 and $(CH_2Br)_2$.

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

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Ca

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Electrochemical and cryoscopic investigation of triple systems: aluminum bromide-bromides of lithium, copper, and silver and solvents benzene, toluene and xylene. V. A. Plotnikov, I. A. Sheka and V. A. Yankelevich. *J. Gen. Chem.* (U. S. S. R.) 3, 481-99(1933).—C_6H_6 and PhMe solns. of $LiBr-AlBr_3$, $CuBr-AlBr_3$ and $AgBr-AlBr_3$ conduct current. The max. cond. of LiBr in C_6H_6 soln. of $AlBr_3$ is $K = 5.72 \times 10^{-6}$. The cond. of AgBr in the same soln.: $K = 5.80 \times 10^{-6}$; the cond. of CuBr: $K = 4.0 \times 10^{-6}$. In PhMe solns. for $LiBr-AlBr_3$, $K = 5.28 \times 10^{-6}$; for $AgBr-AlBr_3$, $K = 5.50 \times 10^{-6}$; and for $CuBr-AlBr_3$, $K = 4.86 \times 10^{-6}$. With increase in concn. of bromides of Li, Cu and Ag, the cond. increases and changes abruptly when the molar ratio corresponds to complexes of the compn.: $LiBr.2AlBr_3$, $CuBr.2AlBr_3$, and $AgBr.2AlBr_3$. The cond. in C_6H_6 and PhMe solns. is: AgBr > LiBr > CuBr. During electrolysis in C_6H_6, PhMe and $C_6H_4Me_2$, Cu and Ag sep. on the cathode from the systems $CuBr-AlBr_3$ and $AgBr-AlBr_3$, and Al from the system $LiBr-AlBr_3$. The best ppts. are obtained from $C_6H_4Me_2$. The decompn. potential in C_6H_6 soln. of $AlBr_3$ for CuBr is 1.10 v., for AgBr 1.35 v., for LiBr 1.60 v.; in PhMe soln. of $AlBr_3$ the decompn. potential for CuBr is 1.40 v., for AgBr 1.14 v. and for LiBr 2.00 v. Cryoscopic investigation of $LiBr.2AlBr_3$, $AgBr.2AlBr_3$ and $CuBr.AlBr_3$ in C_6H_6 showed that the complexes are very much assocd. and the degree of assocn. increases with concn. Addn. of CuBr, LiBr or AgBr to the C_6H_6 soln. of $AlBr_3$ raises the f. p.; this indicates a further assocn. of $AlBr_3$ during the formation of complex compds. W. P. Ericks

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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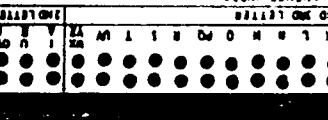
1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

The dielectric constant and the dipole moment of aluminum bromide. V. A. Plotnikov, I. A. Shaka and Z. A. Yankelevich. *Mem. Inst. Chem., Acad. Sci. Ukrain. S. S. R.* 4, 363-80(in Russian 381-2, in German 382-3)(1938).—The dielec. const. of fused $AlBr_3$ and $AlBr_3$ solns. in C_6H_6, CS_2 and Br of various concns. was detd. at different temps. On increasing the temp. the dielec. const. drops. Up to a concn. of 2.5% $AlBr_3$ in C_6H_6 the const. rises sharply, from 2.5 to 35% it increases slowly and at still higher concns. it again rises sharply. For $AlBr_3$ solns. in Br and CS_2 the dielec. const. rises regularly. The dipole moment for $AlBr_3$ in dil. C_6H_6 solns. was 5.03 D. The absence of dipole moments for $AlBr_3$ in Br, CS_2 and concd. C_6H_6 solns. in which $AlBr_3$ exists as a doubled mol. favors the following structure:



B. Z. Kamich

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Molecular weights of certain complex aluminum bromide compounds. Z. A. Yankelevich and I. A. Sheka. *Mem. Inst. Chem., Acad. Sci. Ukrain. S. S. R.* 5, 59–79 (in Russian 79–81, in English 81–3)(1938).—Cryoscopic investigations were conducted with NaBr, $BiBr_3$, $AsBr_3$ in benzene soln. of $AlBr_3$ with a concn. of 1 to 10–12%. Below a concn. of 10% the complexes have a cond. of the order of 10^{-8} to 10^{-9} and the products of electrolytic dissocn. had no significant effect on cryoscopic measurements. By increasing the concn. the assocn. rises and also the cond. In the system $AsBr_3$–$AlBr_3$ the drop in f. p. was proportional to $AsBr_3$ added. The calcd. and the theoretical mol. wts. were close. Hence $AsBr_3$ does not form a complex with $AlBr_3$, or if it does then to a very small extent. $SbBr_3$ forms an unstable complex with $AlBr_3$ which breaks up into Al_2Br_6 and $2SbBr_3.C_6H_6$. $BiBr_3$ forms a stable compd. with $AlBr_3$ and is accompanied by a considerable assocn. of mols. B. Z. K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

2

The dielectric constant and the dipole moment of aluminum bromide. V. A. Plotnikov, I. A. Sheka and Z. A. Yenkelevich. *J. Gen. Chem.* (U. S. S. R.) 9, 868-79 (1939).—See *C. A.* 32, 7791[1]. J. E. D.

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

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PROCESSES AND PROPERTIES INDEX

CA

Molecular weights of certain complex aluminum bromide compounds. Z. A. Yankelevich and I. A. Sheka. *J. Gen. Chem.* (U. S. S. R.) 9, 880-94(1939).—See C. A. 32, 7802[2]. J. E. D.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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1ST AND 2ND ORDERS | 3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

CA

2

W. W. Stifler

Dipole moments of some complex compounds of aluminum chloride. I. A. Sheka. *Zapiski Inst. Khim., Akad. Nauk U. R. S. R.* 7, No. 1, 57-67 (in Russian, 67-8; in German, 68-9) (1940).—The dipole moments of the following complexes were detd.: $AlCl_3.o\text{-}ClC_6H_4NO_2$ (μ = 9.48 D.), $AlCl_3.p\text{-}ClC_6H_4NO_2$ (μ = 7.79 D.), $AlCl_3$.anisole (μ = 6.54 D.), $AlCl_3.o$-nitrotoluene (μ = 8.68 D.) and $AlCl_3.p$-nitrotoluene (μ = 9.68 D.). The difference between the dipole moment of the complex and the org. mol. entering into the complex is const. and the av. is 5.3 D. The formation of the complex is accompanied by a sharp change in the polar properties of $AlCl_3$ which accounts for the large dipole moments of the complexes.

B. Z. Kamich

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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[illegible], [illegible].

Institute of Chemistry of the Academy of Sciences Ukrainian SSR (1940)

"The Dipole Moments of Some Complex Compounds of Aluminum Chloride."

Zhur. Fiz. Khim., Vol. 14, No. 2, 1940.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

[illegible]

"[illegible] Certain Complex Compounds of Aluminum [illegible]." [illegible], [illegible] 16 [illegible], Institute of Chemistry, Academy of Sciences Ukrainian SSR [illegible] February 1951.

[redacted] [illegible], 21 Oct. 1951.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

[illegible]

FA 15T34

USSR/Chemistry - Aluminum Compounds
Chemistry - Quinoline

Feb 1947

"Complex Compounds of Aluminum Bromide and Chloride with Quinoline," I. A. Sheka, F. F. Kargman, 6 pp

"Zhur Obshch Khim" Vol XVII, No 2

Study of the equilibrium diagrams of aluminum bromide--quinoline and aluminum chloride--quinoline, and of certain properties of the complex compounds obtained.

15T34

[illegible]

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

Sheka, [illegible]

The dipole moment of iodine bromide, determined in bromine, equals 1.21D. It is shown that the bond in iodine bromide is predominantly co-valent and changes with changes in the medium.

Inst. of General and Inorganic Chem. Acad. of Sci. Ukranian USSR Kiev
Nov. 29, 1948

S : Journal of Physical Chemistry (USSR) 23, No. 8 (1949)

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

[illegible], [illegible]

[illegible]. [illegible], [illegible], I. A. Refraktometricheskie issledovaniya kompleksnykh [illegible] [illegible] Alyumin'ya [illegible] [illegible] [illegible] Metallov v Benzole. [illegible] Khimii, 1949, [illegible] p. 11, c. 127[illegible]-[illegible]. - Bibliogr: 15 Nazv.

[illegible]: Letopis' Zhurnal'nykh Statey, Vol. 50, Moskva, 19[illegible]

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

1 A

6

Refractometric study of complex compounds of aluminum bromide with halides of alkali metals in benzene. [illegible] Shika and J. A. Shika (Acad. Sci. Ukrain. S.S.R., [illegible] Zhur. Fiz. Khim. 23, 1276-80(1949). The mol refraction R was calcd. from n detd. at 20° for Na light. R was independent of concn. (approx. 3-30%). R for [illegible] Al_2Br_6 was 32.12, whereas R calcd. for Al^{+++} + 3 Br is 38.15. For homopolar bonds, R is calcd. to be 26. R for $LiCl.Al_2Br_6$, $NaCl.Al_2Br_6$, and $KCl.Al_2Br_6$ was 70.15, 70.56, and 72.23, about 3 less than R calcd. from the additivity rule; and R of $LiBr.Al_2Br_6$, $NaBr.Al_2Br_6$, and $KBr.Al_2Br_6$ was 73.03, 73.17, and 75.15, about 4 less than calcd. Presumably the halogens of the binary salt form homopolar bonds with Al_2Br_6. J. J. Bikerman

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

Sheka, I. A.

USSR/Chemistry - Metallurgy, Manganese Jun 50

"Investigation of the Ternary Systems: $MnSO_4$ - $(NH_4)_2SO_4$ - H_2O and $MnCl_2$ - NH_4Cl - H_2O," I. A. Sheka, A. L. Goldinoye, Inst of Gen and Inorg Chem Acad Sci Ukrainian SSR

"Ukrainskiy Khimicheskiy Zhurnal" Vol XVI, No 1, pp 83-98

The existence of complex compds was established and their compn detd in the concd solns $MnSO_4$ - $(NH_4)_2SO_4$ - H_2O and $MnCl_2$ - NH_4Cl - H_2O by studying the sp vols, refractive indices, and sp conductances by the method of continuous measurement.

212T5

Presence of the compd $MnSO_4 \cdot (NH_4)_2SO_4$ was established in 1 and 2 molar solns of $MnSO_4$ - $(NH_4)_2SO_4$ - H_2O by means of the max in the Δ - compn curves. Similarly, $MnCl_2 \cdot 2NH_4Cl$ was shown to be present in concd solns of $MnCl_2$ and NH_4Cl. It is very probable that water is also present in the compn of these complex compds, but its presence could not be detd by the method employed.

212T5

Sheka, I. A.

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USSR

Transfer of ions in solutions of bromides of aluminum and sodium in ethyl bromide. Z. A. Sheka, I. A. Sheka, and R. I. Fechenaya. *Ukrain. Khim. Zhur.* 16, [illegible] (in Russian); cf. *C.A.* 48, 6790k.—The investigation was made on solns. contg. from 7.7 to 13.7% $AlBr_3$ and varying amts. of NaBr according to the ratio mole NaBr/mole $AlBr_3$ = 0.2 to 0.9. Following the electrolytic dissocn. the concns. of individual components were detd. analytically, Al as Al_2O_3, Na as Na_2SO_4, and Br by the Volhard method. The results showed that at the ratio R = mole NaBr/mole $AlBr_3$ <0.5 the only potential was 2.1 volts, which corresponded to the deposition potential of Al. At ratio R = 0.6 to 0.9 two potentials were measured, 2.1 and 4.0 volts, which correspond to the deposition potential of Al and Na, resp. At the ratio R = 1.0 only one deposition potential of 4.0 volts was established, which is that of Na. At low ratios of NaBr/$AlBr_3$ $Al^{+++} \cdot nC_2H_5Br$ ions, and at high ratios the ions of Na, predominate; anions $AlBr_4^-$ and $Al_2Br_7^-$ are in equilibrium. Transport of Al to the anode of the system NaBr-$AlBr_3$-C_2H_5Br differs from other similar systems in the amt. of the transported Al and in its dependency on the ratio NaBr/$AlBr_3$.

M. O. Holowaty

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

A

Dipole moments of complex compounds of aluminum bromide with chlorides of alkali metals. I. A. Sheka (Acad. Sci. Ukr. S.S.R., Kiev). *Zhur. Fiz. Khim.* 24, 519-23(1950); cf. C.A. 44, 1296i.—The dipole moments μ of MCl calcd. from d. and dielec. const. of C_6H_6 solns. of either MCl Al_2Br_6 or $AlBr_3$ + a small amt. of MCl are identical, showing that $AlBr_3$ does not contribute to μ. LiCl, NaCl, and KCl have μ = 8.2-8.3, 9.0, and 10.2 ± 0.1 × 10^{-18}, resp. RbCl and CsCl dissolve in C_6H_6 solns. of $AlBr_3$ in the ratio not greater than 2:5; in these solns. μ was 10.5 and 10.9, resp. These values agree with those calcd. from the polarizability of ions. I. I. B.

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6

CA

The compound between aluminum bromide and ethyl bromide. I. A. Sheka and Z. A. Sheka (Inst. Gen. Inorg. Chem., Acad. Sci. U.S.S.R., Moscow). *Doklady Akad. Nauk S.S.S.R.* 73, 739-42(1950).—The deviation $\Delta\varepsilon$ of the exptl. dielec. const. of mixts. of $AlBr_3$ with EtBr at 20°, in soln. in CS_2 of const. total concn. $AlBr_3$ + EtBr = 0.427 *M*, and with the proportion of each component varying from 0 to 100%, from the dielec. const. calcd. by the additivity rule, passes through a max. at the mol. ratio $AlBr_3$:EtBr = 1. The deviation ΔP of the exptl. polarization from that calcd. from additivity has also a max. at that ratio. The max. is relatively flat. The plot of ε against the mol. ratio EtBr/$AlBr_3$, at the const. mol. ratio $AlBr_3/CS_2$ = 0.0137, consists of 2 rectilinear portions of different slopes with a break at EtBr/$AlBr_3$ = 1. This proves the existence of a relatively little stable compd. $AlBr_3$, EtBr in soln.

N. Thon

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SHEKA, I. A.

(2)

Transport of ions in solutions of aluminum bromide in ethyl bromide. Z. A. Sheka, I. A. Sheka, and E. I. Pechenaya. *Ukrain. Khim. Zhur.* 17, 911-17(1951); cf. *ibid.* 16, 337(1950).—During an investigation of the Friedel-Crafts reaction the migration no. M of each of the ions in the $AlBr_3$-EtBr system was observed in a transference cell (C); M was the ratio of the net change in the no. of equivs. of Al (or Br) in either compartment of C to the no. of faradays passed through C. Values of M for anionic Al and Br were 2.00 and 2.12, resp. In dil. solns. (about 5%) of $AlCl_3$ in $PhNO_2$, $AlBr_3$ in MeCN, and $AlBr_3$ in $MeNO_2$ the values of M for anionic Al and Br in that order were 1.3 and 1.9, 0.6 and 1.3, and 0.6 and 1.3, resp. The $AlBr_3$-EtBr system contains the compd. $AlBr_3.C_2H_5Br$ and such complex ions as $Al(C_2H_5Br)_6^{+++}$ and $(AlBr_4)^-$ or $(Al_2Br_7)^-$.

J. W. Loweberg, Jr.

10-13-54 M.E.F.

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SHEKA, I. A.

USSR/Chemistry - Aluminum Halide Complexes

May 51

"Compounds of Aluminum Halides With Dioxane," I. A. Sheka, K. F. Karlysheva, Lab of Complex Compds, Inst of Gen and Inorg Chem, Acad Sci Ukrainian SSR

"Zhur Obshch Khim" Vol XXI, No 5, pp 833-839

Obtained complex compds of $AlBr_3$ and $AlCl_3$ with dioxane as follows: $AlBr_3 \cdot C_4H_8O_2$, $Al_2Br_6 \cdot C_4H_8O_2$, $AlCl_3 \cdot C_4H_8O_2$, and $AlCl_3 \cdot 2C_4H_8O_2$. Detd dipolar moment of these complex compds, and proposes most probable structures for them.

182T34

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

USSR

The application of dielectric polarization for the determination of the composition of complex compounds in solutions. I. A. Sheka. *Izvest. Sektora Platiny i Drug. Blagorod. Metal., Akad. Nauk S.S.S.R., Inst. Obshchei i Neorg. Khim.* 26, 189-203(1951).—It has been known for some time that the dielec. polarization P for complexes is more than the simple sum of the compounding mols. By comparing numerous reliable data from the literature, it was noted that not only ΔP will accept a rather large value for the case of complex formation, but $\Delta\epsilon$ also, which is understandable, as ϵ (dielec. const.) appears in the formula for P. By plotting curves ΔP vs. compn. and $\Delta\epsilon$ vs. compn., a max. in such curves will indicate the formation of a complex. For allyl isothiocyanate and piperidine in benzene these 2 max. coincided with those for viscosity, deviation of the sp. vol., heat of mixing, n, and the temp. coeff. of the viscosity. For pyridine and ICl in $CHCl_3$ the ΔP and $\Delta\epsilon$ max. coincided with one of the m.p. max. in the m.p. diagram of pyridine ICl. Thus the plotting of the ΔP-compn. and $\Delta\epsilon$-compn. diagrams may serve to replace other very tedious detns. of other physicochem. values which have been used heretofore to find out the presence or absence of complexes. The max. in these curves will not occur if merely van der Waals forces are acting. If more than one complex is formed, only one will give rise to a max.; the other will be indicated by a break in the curve. Thus for the case $AlBr_3$-dioxane the break is found for $(AlBr_3)_2.C_4H_8O_2$, whereas the max. lies at $AlBr_3.C_4H_8O_2$. The higher the max. in these curves, the more stable the complexes. W. J.

BB

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

[illegible]

"Electrochemical Analysis

"Use of dielectric polarization for determining the composition of complex compounds in solutions. I. A. [illegible]., Izv. Sekt. [illegible] blag. met., no. 26, 1952.

[illegible] Library of Congress, May 1952. Uncl.

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

DUMANSKIY, A.V.; SHEKA, I.A.

National conference on inorganic chemistry. Ukr.khim.zhur. 19 no.6:700-702 '53. (MLRA 8:5)
(Kiev - Chemisty, Inorganic - Congresses)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

USSR

7 Dipole moments of complex compounds. I. A. Sheka. *Raboty Khim. Rastvorov i Kompleks. Soedinenii, Akad. Nauk Ukr. S.S.R.* 1954. 73–112.—An extensive review with 150 references, from all sources, covering the present status of dipole-moment measurement as applied to complex compds. of org.-inorg. and purely inorg. types. Group III and the Pt family are stressed, although all other examples are cited. G. M. Kosolapoff

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Sheka I. A.

Dielectric properties of systems formed between allyl mustard oil and amines. I. A. Sheka and K. F. Karlysheva. *Ukrain. Khim. Zhur.* 20, 247-56(1951)(in Russian).—Dielec. const. and polarization of the systems formed between allyl mustard oil, piperidine, *N*-methylaniline, *o*- and *p*-toluidine, and piperazine were studied with different vol. ratio, and benzene or toluene as solvents. Reactions took place in sealed tubes at 60-70°, for 10-60 hrs. In all the known cases in which there is compd. formation, a deviation (I) from additivity of dielec. const. and polarization was observed. Therefore I can be used for detg. intermol. interactions in soln. and specification of it. compn.

Michael Dymicky

C.A. [No. 3] (1)

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3

Chem The dipole moments of indium and thallium trihalides. I. A. Sheka, J. Gen. Chem. U.S.S.R. 25, 2283-8(1955) (English translation).—See C.A. 50, 4572c. R. M. R.

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SHEKA, I. A.

3

The dipole moments of indium and thallium trihalides. I. A. Sheka. *Zhur. Obshchei Khim.* 25, 2101-5(1955).—The dipole moments were detd. for $InBr_3$ in dioxane (μ = 1.88 D.), and of $TlCl_3$ in dioxane (μ = 1.93 D.), in ether (μ = 2.04 D.), and in benzene (μ = 3.93 D.). The large values of μ are attributed to the formation of mol. compds. between the solvent and the solutes. J. Rovtar Lynch

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SHEKA, J. A.

Yakov Anatol'evich Finkov, I. A. Sheka, Zhur. Neorg. Khim. 1, No. 3, 353-6(1956). ~~A review of his work~~ on the occasion of his 60th birthday. C. H. Fuchsman

Rens.

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USSR/Inorganic Chemistry. Complex Compounds. C

Abs Jour : Referat. Zhurnal Khimiya, No 6, 1957. 18841

Author : I.A. Sheka, B.A. Voytovich.
Inst : -
Title : Concerning Compounds of Zirconium Tetrachloride with Phosphorus Oxychloride.

Orig Pub : Zh. Neorgan. Khimii 1956, 1, No 5, 964-968

Abstract : The composition of the compounds $ZrCl_4$ (I) with $POCl_3$ (II) was studied with the application of the method of thermal analysis of the system I - II. I was prepared by the chlorination of ZrO_2 in quartz or porcelain boats. The boats were introduced into a furnace which had been preheated one hour at 180 to 200°. after that the temperature was raised to 800° and chlorination of ZrO_2 was performed. The produced I was purified of admixtures by a twofold sublimation at 320 to 350° and the obtained white product was kept in sealed ampoules. The phase convdrsions in the sys-

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USSR/Inorganic Chemistry. Complex Compounds C

Abs Jour : Referat. Zhurnal Khimiya, No 6, 1957 18841

tem I - II were studied in an apparatus isolated from the air. At the content of I in the amount of 2 to 40 mol. %, the separation of crystals from the fused mass occurred easily. When 45 to 65 mol. % of I are present in the two-component system the fused masses can be strongly undercooled. Such fused masses crystallize at temperatures 15 to 20° below the melting point in several hours' time. 2 distectics and 3 eutectics were discovered on the graph of the fusibility of the system I - II at the concentration of I of 0 to 77.8 mol. %. The first (- 1.6°), the second (162.5°) and third (175.3°) eutectics correspond to the contents in the system of 0.9, 40.25 and 56.5 mol. % of I respectively. The first distetic indicates the formation of the compound $ZrCl_4 \cdot 2POCl_3$ with the melting point of 184.7°; the second distetic corresponds to the compound $ZrCl_4 \cdot POCl_3$ with the melting point of 205°. Both these compounds are not subject to ther-

Card 2/3 -18

Card 3/3 -19-

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEKA, I. A., and PEVSNER, Ts. V.

"Concerning the Composition of Zirconium and Hafnium Phthalates," by I. A. Sheka and Ts. V. Pevsner, Institute of General and Inorganic Chemistry, Academy of Sciences USSR, Zhurnal Neorganicheskoy Khimii, Vol 1, No 12, 1956, pp 2767-2771

The experiments described show that the stable phthalates of zirconium and hafnium are compounds in which one atom of the metal corresponds to one molecule of phthalic acid. A zirconium phthalate of this composition is obtained when an excess of phthalic acid is used. It is pointed out that phthalic acid is used as a reagent for the quantitative determination of zirconium and as a precipitant in the preparation of very pure zirconium compounds.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

AUTHORS: Sheka, I.A. and Voytovich, B.A.

TITLE: Cryoscopic Investigation of the Systems $ZrCl_4$-$POCl_3$; $HfCl_4$-$POCl_3$; $ZrCl_4$-CH_3OH; $HfCl_4$-CH_3OH in Nitrobenzene. (Krioskopicheskoe Issledovanie Sistem $ZrCl_4$-$POCl_3$; $HfCl_4$-$POCl_3$; $ZrCl_4$-CH_3OH; $HfCl_4$-CH_3OH v Nitrobenzole).

PERIODICAL: "Zhurnal Neorganicheskoy Khimii" (Journal of Inorganic Chemistry), Vol.11, No.2, pp.426-433. (U.S.S.R.). 1966

ABSTRACT: Carefully purified materials were used to study systems of zirconium or hafnium chloride with $POCl_3$ or CH_3OH in nitrobenzene by measuring deviations from additivity in the depression of the freezing point. The cryoscopic measurements were carried out in an air-tight Beckman apparatus with a platinum electromagnetic stirrer, the accuracy of the freezing point determination being + or - 0.002°C.

It was shown that zirconium and hafnium tetrachlorides and their complex compounds with methyl alcohol, $ZrCl_4 \cdot 2CH_3OH$ and $HfCl_4 \cdot 2CH_3OH$, have normal molecular weights in nitrobenzene. Determinations of electrical conductivity of the solutions of the chlorides and their complex compounds with $POCl_3$ and methyl alcohol in nitrobenzene showed the conductivity of $HfCl_4$ solutions to be somewhat higher than those of $ZrCl_4$ solutions. The existence of the complex compounds of the chlorides with 2

Card 1/2

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

Cryoscopic Investigation of the Systems $ZrCl_4$-$POCl_3$; $HfCl_4$-$POCl_3$; $ZrCl_4$-CH_3OH; $HfCl_4$-CH_3OH in Nitrobenzene. (Cont.)

molecules of methyl alcohol was established by cryoscopic investigations using the continuous-changes method. It was also shown that in the systems $ZrCl_4$-$POCl_3$ and $HfCl_4$-$POCl_3$ the compounds $ZrCl_4.2POCl_3$ and $ZrCl_4.POCl_3$, $HfCl_4.2POCl_3$ and $HfCl_4.POCl_3$, are respectively present simultaneously. Calculations of the instability constants were made for the complex compounds $ZrCl_4.2POCl_3$ and $HfCl_4.2POCl_3$ for their decomposition into $MeCl_4.POCl_3$ and phosphorus oxic chloride: values obtained were 6.2×10^{-3} and 5.3×10^{-3}, respectively. The first value is in good agreement with the data of Larsen, Layton and Wittenberg[7], the latter value is somewhat higher than that obtained by these authors.

There are thirtysix references, twenty-two of them Russian.

There are six Tables, four Figures.

Ref.7 quoted is E.M.Larsen, Layton, J.Wittenberg, J.Amer.Chem. Soc., vol.77, 5850, 1955.

The work was carried out at the General and Inorganic Chemistry Institute of the Academy of Sciences of the Ukrainian SSR.

Received 3 November, 1956.

Card 2/2

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

Cryoscopic investigations of lime-sugar-water systems. I. A. Sheka, M. M. Polyachenko, and I. I. Sokova. *Trudy Tekhnol. Inst. Pishchevoi Prom. im. A. I. Mikoyana* 16, 227–34(1956).—Solns. contg. sugar (0.1, 0.2, 0.3 and 0.4 mol./kg.) and varying amts. of CaO (from 0 to satn.) were investigated cryoscopically. The f.p. was initially rapidly reduced in 0.1*M* solns. of sucrose when CaO was introduced, but was more slowly depressed with increasing proportions of CaO to sucrose. The f.p. curve of solns. contg. concns. of 0.2, 0.3, and 0.4 mol./kg., with the addn. of increasing amts. of lime, was initially reduced, terminating at a min. and then increasing. The cryoscopic curves obtained suggested that low concns. of sugar and lime in soln. for the most part form $C_{12}H_{21}O_{11}CaOH$, and that larger concns. form this compd. and 2 more complicated compds., such as $(C_{12}H_{21}O_{11})_2Ca$ or $C_{12}H_{21}O_{11}Ca\text{-}O\text{-}CaC_{12}H_{21}O_{11}$. These compds. in the soln. are solvated by the water.

B. A. McComb—6

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APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEKA, I.A.

IAkov Anatol'evich Fialkov; on the 60th anniversary of his birth. Ukr.khim.shur. 22 no.2:266-269 '56. (MLRA 9:8)
(Fialkov, IAkov Anatol'evich, 1895-)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

Shcka, I.A.

The dipole moments of some complex compounds of the trihalides of indium and thallium. I. A. Shcka. *Zhur. Obshchei Khim.* 26, 26-30(1956); cf. C.A. 49, 9339h.—The dipole moments and dielec. consts. were measured for $TlCl_3.2C_4H_8O_2$ (I) $TlCl_3.3C_5H_5N$ (II), $TlCl_3.2C_5H_5N$ (III), and $InBr_3.Et_2O$ (IV). I was obtained by slow vacuum evapn. of a soln. of $TlCl_3$ in dioxane. It melts with decompn., in a scaled capillary at 65-75°. It is slightly sol. in benzene. The dipole moments were: I μ = 3.66D., II 4.07D., III 5.68D., IV 5.04D. C. H. Fuchsman

Institute of General & Inorganic Chemistry Academy of Sciences USSR.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

USSR/Electricity - Dielectrics G-2

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 5962

Author : Sheka, I.A.
Inst : Institute of General and Inorganic Chemistry of the Academy of Sciences, Ukrainian SSR
Title : Dielectric Properties of Solutions of Aluminum Bromide in Certain Substances.

Orig Pub : Zh. obshch. khimii, 1956, 26, No 5, 1340-1350

Abstract : A study was made of the dielectric properties of systems, formed by aluminum bromide with anisole, pyridine, diphenyl and diethyl ethers, benzophenon, nitrobenzol, nitromethane, and dioxane in benzol and in carbon bisulfide as solvents.

Card : 1/1

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEKA, I. A.

USSR/ Chemistry - Organic compounds

Card 1/1 Pub. 147 - 13/35

Authors : Sheka, I. A.

Title : Dielectric properties of iodine halide complexes with certain organic compounds

Periodical : Zhur. fiz. khim. 30/1, 109-116, Jan 1956

Abstract : The dielectric properties of iodine chloride-dioxane, pyridine or quinoline complexes, as well as of iodine bromide-dioxand systems were investigated in chloroform and in carbon tetrachloride as solvents. It is shown that the deviation maxima of the dielectric constants and polarizations from the calculated values correspond to the formation of specific complex compounds in the solutions. It was established that the quinoline-iodine chloride system forms two compounds one of which ($C_9H_7N \cdot 2JCl$) is more stable in a chloroform solution than in a pyridine solution. Fourteen references: 9 USSR, 2 Fr., 1 Germ. and 2 USA (1892-1954). Tables; graphs.

Institution : Acad. of Sc., Ukr. SSR, Inst. of Gen. and Inorgan. Chem., Kiev

Submitted : May 14, 1955

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

USSR/Electricity - Dielectrics

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 12095

Author : Sheka, I.A., Karlysheva, K.F.

Inst : Institute of General and Inorganic Chemistry, Academy of Science, Ukrainian SSR, Kiev.

Title : Dipole Moment and Dielectric Constant of Nicotine.

Orig Pub : Zh. fiz. khimii, 1956, 30, No 6, 1316-1318

Abstract : The authors have determined the dielectric constant (ε) and the polarization (P) of nicotine in benzol. The dielectric constant of nicotine and of its solutions were measured by the beat method at a wave of 301.3 meters at a temperature 20 ± 0.02°. The polarization was determined using the method of dilute solutions and calculated in accordance with the Clausius-Mosotti formula. P_∞, extrapolated to infinite dilution, is 198 cm^3. The

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEKA, Z. A.

19

The use of radioactive isotopes in the study of the behavior of impurities in the zinc sulfate electrolyte. Z. A. Sheka and K. F. Karlysheva. *Doklady Akad. Nauk S.S.S.R.* 108, 120-9(1956).—The effects of metallic impurities upon electrolysis were studied by adding these impurities tagged with radioactive isotopes to the $ZnSO_4$ electrolyte, contg. 60 g./l. Zn and 100 g./l. H_2SO_4, at a c.d. of 400 amp./sq. m. and at 20°. The coprecipitation of Co, Fe, Cb, Cu, Sb, As, In, and Ge was estd. from changes in the soln. radioactivity, and all these metals were found to be codeposited with Zn in the approx. proportion in which they were present in the soln. Increasing the H_2SO_4 concn. decreases the Co codeposition, has no effect on Sb and As codeposition, and increases the Ge codeposition. At higher temps. more Co and Ge are deposited and the Sb content is not affected. The codeposition kinetics are interesting in that Sb and Co are deposited more intensively at first. The addn. of glue or gelatine actually increases somewhat the Co and Sb codeposition. The effect of Mn on the codeposition of metals, if present as the only other impurity in the electrolyte, was of especial interest. Under Zn deposition conditions, hydrated MnO_2 is deposited on the anode and collects as a sludge at the bottom. The combination of the largely developed surface, strong oxidizing power, and high adsorptive capacity result in 3-5% of Se, Sb, and Sn present being eliminated from the electrolyte with the sludge, and 0.2% As. Up to 23% In and 12% Ge become collected in the sludge. Cu, Cd, and In are largely codeposited with Zn (7-14%), while most of the Co, Fe, Cd, and Cu remain in the electrolyte. The formation of SbH_3 depends on the amount of Sb in soln., and on the Zn current yield, and may reach 4-7% of Sb deposited. SbH_3 formation can be detected with 0.1 mg. Sb/l., at c.d. of 400 amp./sq. m. The addition of glue to the electrolyte prevents the SbH_3 forma-

W. M. Stembera

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEKA, I. A.

"Cryoscopic Investigation of the Systems $ZrCl_4$ - $POCl_3$; $ZrCl_4$ - CH_3OH; and $HfCl_4$ - CH_3OH in Nitrobenzene," by I. A. Sheka and B. A. Voytovich, Institute of General and Inorganic Chemistry, Academy of Sciences Ukrainian SSR, Zhurnal Neorganicheskoy Khimii, Vol 2, No 2, Feb 57 pp 426-433

It has been established that the tetrachlorides of zirconium and hafnium and their complex compounds with methyl alcohol, $ZrCl_4.2CH_3OH$ and $HfCl_4.2CH_3OH$, exhibit in nitrobenzene a normal molecular weight which does not change with dilution. The conductance of solutions of zirconium and hafnium tetrachlorides and of their complex compounds with phosphorus oxichloride and methyl alcohol has been determined in nitrobenzene solutions. It was established that the conductance of $HfCl_4$ solutions is somewhat higher than that of $ZrCl_4$ solutions. Cryoscopic investigation of the systems $ZrCl_4$ - $POCl_3$, $HfCl_4$ - $POCl_3$, $ZrCl_4$ - CH_3OH, and $HfCl_4$ - CH_3OH in nitrobenzene has been carried out by observing continuously the changes which take place. The results obtained indicate the existence of the compounds $ZrCl_4.2CH_3OH$ and $HfCl_4.2CH_3OH$. It was shown that in the case of the system $ZrCl_4$ - $POCl_3$, the compounds $ZrCl_4.2POCl_3$ and $ZrCl_4.2POCl_3$, and in the case of the system $HfCL_4$ - $POCl_3$, the compounds $HfCl_4.2POCl_3$ and $HfCl_4.POCl_3$ are present simultaneously in solution. The constants of instability of the compounds $ZrCl_4.2POCl_3$ and $HfCl_4.2POCl_3$ have been calculated with respect to the decomposition of these compounds into $MeCl_4.POCl_3$ and phosphorus oxychloride. (U)

SUM. 1345

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

78-3-28/35

AUTHORS: Sheka, I. A. and Voytovich, B. A.

TITLE: Certain electro-chemical properties of the systems $ZrCl_4$-CH_3OH and $HfCl_4$-CH_3OH. (Nekotoryye elektrokhimicheskiye svoystva sistem $ZrCl_4$-CH_3OH i $HfCl_4$-CH_3OH)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1957, Vol.II, Nr.3, pp. 676-684 (USSR)

ABSTRACT: The electric conductivity and the transfer of ions was studied in the systems $ZrCl_4$-CH_3OH and $HfCl_4$-CH_3OH. For elucidating the role of HCl in electro-chemical processes taking place in methanol solutions of $ZrCl_4$ and $HfCl_4$, the electric conductivity was measured of the solutions of $ZrCl_4$ and $HfCl_4$ in methyl alcohol and also of solutions from which HCl, forming during the process of interaction of the components, was eliminated. The specific and molecular electric conductivity of zirconium and hafnium tetra-

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

78-3-28/35

Certain electro-chemical properties of the systems $ZrCl_4$-CH_3OH and $HfCl_4$-CH_3OH.

chlorides in methyl alcohol was determined and it was established that the conductivities of concentrated $ZrCl_4$ solutions are somewhat higher than the conductivities of $HfCl_4$ solutions. It was found that the electric conductivity of zirconium and hafnium chlorides is caused fundamentally by the HCl which forms as a result of solvolysis of these chlorides. Depending on the concentrations of the zirconium and hafnium chlorides in the solution, mono- and bi-substituted metoxyl chlorides will form. In concentrated methanol solutions the degree of alcoholysis of zirconium tetrachloride is larger than for hafnium tetrachloride, whilst in diluted solutions it is smaller. The transfer of ions in the system $ZrCl_4$-CH_3OH was studied. On the basis of the obtained results the assumption is expressed that $ZrCl_5^-$, $ZrCl_6^{2-}$, $ZrCl_5CH_3O^{2-}$ are anions;

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

78-3-28/35

Certain electro-chemical properties of the systems $ZrCl_4$-CH_3OH and $HfCl_4$-CH_3OH.

in diluted solutions the hydrogen ions act as cations, whilst in concentrated solutions the cations are complex, for instance, $ZrCl_3^+.nCH_3OH$, $ZrCl_2^{2+}.mCH_3OH$.

There are 7 figures, 8 tables and 15 references, 5 of which are Slavic.

ASSOCIATION: Institute of General and Inorganic Chemistry, Ukrainian Ac. Sc. (Institut Obshchey i Neorganicheskoy Khimii AN Ukr SSR).

SUBMITTED: November 26, 1956.

AVAILABLE: Library of Congress.

Card 3/3

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

Sheka, I. A.

AUTHORS: Sheka, I.A., and Voytovich (Voytovych), B. A. 21-6-8/22

TITLE: Physico-Chemical Investigations of the Systems: Tetrachlorides of Zirconium and Hafnium with Methyl Alcohol (Fiziko-khimicheskiye issledovaniya sistem: tetrakhloridy tsirkoniya i gafniya s metilovym spirtom)

PERIODICAL: Dopovidi Akademii Nauk Ukrains'koi RSR, 1957, No 6, pp 566-568 (USSR)

ABSTRACT: Among the numerous methods of separating zirconium from hafnium the adsorption method is especially recommended. This method is based on the selective adsorption of hafnium by the silica gel from the solutions of zirconium and hafnium tetrachlorides and hafnium in the methyl alcohol. The viscosity of solutions plays an important part in separating zirconium and hafnium by the adsorption method. The obtained results indicate that the most favorable conditions for separation zirconium and hafnium by this method occur at the concentration of their tetrachlorides in the methyl alcohol amounting to 20 to 24%. Next the problem of alcoholysis was investigated. It turned out that the degree of alcoholysis considerably increases with temperature rise: at 40° C the alcoholysis amounts to 50% (instead of 33% at 20° C for $ZrCl_4$). The study

Card 1/2

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

21-6-8/22

Physico-Chemical Investigations of the Systems: Tetrachlorides of Zirconium and Hafnium with Methyl Alcohol

of electric conductivity at various temperatures has shown that the reaction of alcoholysis is reversible. Cryoscopic investigations were carried out in order to clear up the problem of producing molecular compounds of zirconium and hafnium chlorides with methyl alcohol. The investigation has shown that the solvent has a great effect on the processes of interaction of substances dissolved in it.
The article contains 3 non-Slavic references.

ASSOCIATION: Institute of General and Inorganic Chemistry of the AN Ukrainian SSR (Instytut zahal'noi ta neorhanichnoi khimii AN URSR)

PRESENTED: By Yu.K. Delimarskiy (Delimars'kyy), Member of the AN Ukrainian SSR

SUBMITTED: 1 April 1957

AVAILABLE: Library of Congress

Card 2/2

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEKA, I.A.

Analytic control of production discussed at the conference on the chemistry and technology of gallium indium and thallium. Zhur. anal. khim. 12 no.1:151-152 Ja-F '57. (MLRA 10:4)
(Thallium) (Indium) (Gallium)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEKA, I.A.; KABAN, A.P.

Dielectric permeability of aqueous solutions of glucose and saccharose. Trudy KTIPP no.17:179-185 '57. (MIRA 13:1)
(Glucose) (Sucrose)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

AUTHORS: Sheka, I.A. and Voytovich, B.A. 73-2-3/22

TITLE: Physico-chemical study of $ZrCl_4$ and $HfCl_4$ in Methyl Alcohol. (Fiziko-khimicheskoye issledovaniye rastvorov $ZrCl_4$ and $HfCl_4$ v metilovom spirte).

PERIODICAL: "Ukrainskiy Khimicheskiy Zhurnal" (Ukrainian Journal of Chemistry), Vol.23, No.2, March-April, 1957, pp.152 - 158 (USSR).

ABSTRACT: The physico-chemical properties of the above compounds in methyl alcohol have not been investigated previously although they are of great practical importance. R.S.Hansen et al.(Ref.2: R.S.Hansen, K.Gunnar, A.Jacobs, C.R.Simmons; J.Amer.Chem.Soc.,1950, 72,5043) concluded that in 1 mole of a $ZrCl_4$ solution in methyl alcohol approximately 30% zirconium occurs as methoxy-trichloride of zirconium. On investigating the physico-chemical properties of $ZrCl_4$ and $HfCl_4$ it was found that the density of the solutions depends on the concentration and the temperature of the solution. The viscosity of the solutions was defined and found to be equal for both solutions at identical molar concentration. The viscosity did not change after repeated heating. At a temperature of 20 C and at concentrations varying between 12 - 44%

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73-2-3/22

Physico-chemical study of $ZrCl_4$ and $HfCl_4$ in Methyl Alcohol. (Cont.)

methoxy-trichlorides of zirconium and hafnium are formed when the 2 compounds are treated with a defined quantity of HCl. An increase in temperature causes alcoholysis. Methoxy-dichlorides of zirconium and hafnium are formed on heating up to approximately 100 C and repeated distillation of methanol and HCl. The degree of alcoholysis of $ZrCl_4$ was found to be higher than for $HfCl_4$ within the limits of concentration given (12 - 44%). Isotherms of density for both compounds were plotted as well as the specific volumes (Diagrams 2 and 3). It can be seen that the isotherms of the density of the solutions show a slight curvature towards the axis. Values for the viscosity and the density of the solutions are tabulated in Tables 1 and 2.

Card 2/3 There are 4 diagrams, 4 tables and 1 drawing. There are 13 references, 3 of which are Slavic.

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

73-2-3/22

Physico-chemical study of $ZrCl_4$ and $HfCl_4$ in Methyl Alcohol. (Cont.)

SUBMITTED: 24 October, 1956.

AVAILABLE: Library of Congress

Card 3/3

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEKA, I. A.

Distr: 4E4j/4E3d

Dielectric properties of systems of acetic acid-pyridine (aniline) in benzene. I. A. Sheka. *Zhur. Obshchei Khim.* 27, 848-56(1957).—The compn.-property diagrams are shown for dielec. const., viscosity, and sp. vol. in systems of AcOH with $PhNH_2$ or pyridine in C_6H_6 at 20° and 50°. Deviations from additivity indicate the existence of $PhNH_2.3AcOH$ and $C_5H_5N.3AcOH$ in concd. solns. In dil. solns. these become $PhNH_2.AcOH$ and $C_5H_5N.AcOH$, resp.

G. M. Kosolapoff

Inst. Gen + Inorg. Chem. AS UkrSSR.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

FIALKOV, Yakov Anatol'yevich [deceased]; SHEKA, I.A., doktor khim.nauk, otv. red.; LABEZNIK, K.I., red.izd-va; SIVACHENKO, Ye.K., tekhn.red.

[Interhalogen compounds] Mezhgaloidnye soedineniia. Kiev, Izd-vo Akad.nauk USSR, 1958. 393 p. (MIRA 12:2)

1. Chlen-korrespondent AN USSR (for Fialkov).
(Halogen halides)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7"

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEK, I. A.

SHEK, I. A.

5(4)

AUTHORS: Vasil'yev, V. P., Korableva, V. D., Yatsimirskiy, K. B. SOV/153-58-3-30/30

TITLE: Conference Discussion on the Methods of Investigating the Complex Formation in Solutions (Soveshchaniye-diskussiya po metodam izucheniya kompleksoobrazovaniya v rastvorakh)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp 173 - 174 (USSR)

ABSTRACT: From February 18 to 21, 1958 a conference discussion took place at the town of Ivanovo; it dealt with the subjects mentioned in the title. It was called on a decision of the VIIth All-Union Conference on the Chemistry of Complex Formations. More than 200 persons attended the conference, among them 103 delegates from various towns of the USSR. At the conference methods of determining the composition of the complexes in solutions were discussed, as well as the methods of calculating the instability constants according to experimental data and problems concerning the influence of the solvent upon the processes of complex formation. [illegible]. In the lecture by A. K. Babko and M. M. Tananayko, "Physical and Chemical Analysis of the Systems With 3 Colored Complexes in the Solution", the results of a systematic investigation in copper-quinoline-salicylate, as well as in copper-pyridine-salicylate systems by means of the optical method were dealt with. In the lecture by Ya. A. Fialkov the idea of a further investigation of the complex formation processes in solutions was developed. Besides the determination of the composition and stability of the complexes also the physical and chemical properties, the chemical nature and the structure of the complex compounds must be investigated.....

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I. I. Alekseyeva and K. B. Yatsimirskiy in their lecture "Investigation of the Polymerization of Iso-Poly Acids in Solutions" mentioned experimental results of the investigation of the polymerization in solutions of molybdic acid. The authors proved that especially the molybdic acid within a certain range of the pH values and the concentrations exists as a number of compounds that can be expressed by an overall formula $MoO_4(HMoO_4)^{n-2}$. In the lecture by N. V. Aksel'rud and V. B. Spivakovskiy investigation results on basic salts taking into account the complex formation in solutions by means of the potentiometric method were mentioned for systems with zinc, cadmium and indium. In the evaluation of their results the authors employed the method of the table difference. The calculation of the consecutive constants was carried out according to the interpolation formula by Newton. M. A. Chepelevtskiy held a lecture on "pH Measurement Method of the Solutions in Combination With the System Analysis of the Solubility Diagram of the System Cu^{2+}-HCl - H_2O in Investigating Complex Copper Compounds in Saturated Solutions". It was found that the substance at the bottom of the liquid is more basic than the solution; furthermore, the increased acidity of the solution from the viewpoint of the formation of hydroxy-chloro complexes in the solution was explained. V. I. Kuznetsov opened the discussion with his lecture; he pointed out the necessity of utilizing the concepts worked out in the investigations of the polymerization in organic chemistry in the chemistry of polynuclear complexes. A. A. Grinberg thinks that the new approach of the hydrolysis

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investigation as developed by the Scandinavian school is of high value. He also pointed to the necessity of studying the kinetics of the polymerization process and a quantitative determination of the strength of the polymers. A. K. Babko pointed out that the study of the polymer structure was necessary. N. P. Komar' mentioned in his lecture that the rather widely spread polymerization type according to the scheme "nucleus + chain members" is not obtained in all cases. The following scientists took part in the discussion: V. N. Tolmachev, A. V. Ablov, I. S. Mustafin, I. V. Tananayev and K. B. Yatsimirskiy. A. K. Babko then discussed in his lecture "Methods of Determining the Dissociation Constant of the Complex Groups in Solutions" the main principles of determining the instability constants. N. P. Komar' discussed in his lecture "Calculation Methods of the Instability Constants of the Complex Compounds According to Experimental Data" the possibilities of using the known calculation methods of the instability constants for various cases of the complex formation in solution. If several mononuclear complexes are formed the displacement method by Abegg and Bodlender (completed by A. K. Babko) cannot be recommended for the calculation of the instability constant. The lecturer discussed the dissolution methods of the polynomials proposed by B'yerrum, Leden, Rossotti, Sketchard, Edsolloy and other authors. The constants calculated in this way are not very accurate. It was proved that the method of successive approximations can lead to wrong conclusions as to the chemical processes taking place in the system investigated. The most probable value of the physical constants can be obtained by the method of the least squares. B. V. Ptitsyn, Ye. N. Tekster and L. I. Vinogradova described the determination methods of the instability constants of the oxalate complexes of niobium, uranium and iron which are based on the investigation of the equilibrium displacement of the complex formation by silver ions. N. K. Bol'shakova, I. V. Tananayev and G. S. Savchenko held a lecture on "The Role of the Time Factor in the Investigation of the Complex Formation". In the discussion on the lectures A. A. Grinberg mentioned that due to the slow adjustment of the equilibria the methods discussed of determining the instability constants (palladium and cobalt complexes) can often not be employed. A. V. Ablov pointed out the necessity of devising direct methods of proving the existence of intermediate forms in a step-wise complex formation. K. B. Yatsimirskiy mentioned that the instability constants of slowly dissociating complexes can be calculated from thermochemical data. L. P. Adamovich, A. M. Golub among others took part in the discussion on the lectures. A. K. Babko requested inclusion in the next conference on the chemistry of complex compounds a lecture in which various calculation methods of the instability constants should be discussed by the example of actual cases. This should clarify to which divergencies of the values of the constants different methods of evaluating the experimental data can lead. N. P. Komar' stressed that in the determination of the instability constants all chemical equilibria should be taken into account that render complex the complex formation process in the solution, especially the hydrolysis processes of the central ion and the addendum. In the lecture delivered by V. M. Peshkova and A. P. Zozulya "Application of the Distribution Method to the Investigation of the Stability Constants

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of Some Thorium Complex Compounds" results obtained from the experimental investigation of the distribution of thorium compounds in the systems: acetylacetone - benzene - water, and 2-oxy-1,4,-naphthoquinone - chloroform - water were given. From these data the instability constants of the thorium complexes with acetyl-acetone and 2-oxy-1,4-naphthoquinone were calculated. I. V. Tananayev, G. S. Savchenko and Ye. V. Goncharov held a lecture on the application of the solubility method in the determination of the stability of complex compounds in solutions. In this lecture also other methods of investigating complex formation processes in the solution were discussed (pH measurement, measurement of the optical density, as well as of the heat of mixing). B. D. Berezin held a lecture on the "Application of the Solubility Method in Studying the Phthalocyanine Complexes of Metals". He used the determined quantitative characteristics of the reaction of the transition of the phthalocyanides of cobalt, nickel, copper and zinc, as well as of the free phthalocyanine into the sulfuric acid solution for the theoretical reasoning, and as an experimental proof of the existence of

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π-bonds in the complexes investigated. These characteristics also served him as a proof of new electronic formulae of phthalocyanine and its complex derivatives. In the lecture delivered by I. L. Krupatkin on "The Method of the Two Solvents as a Method of Investigating the Formation and Properties of Organic Complexes" it was proved that this method makes it possible to determine the number of complexes formed in the system, their composition and relative stability. V. I. Kuznetsov, A. E. Sabko, N. P. Komar', I. S. Mustafin and Ya. I. Tur'yan took part in this discussion. In the lecture delivered by A. A. Grinberg and S. P. Kiseleva on the complex palladium compounds (II) with a coordination number above four it was proved that in the case of a large chlorine and bromine ion excess complexes with the coordination number 5 are formed. The instability constants of these complexes were estimated. L. P. Adamovich mentioned a new manipulation in the spectrophotometric investigation of the complex compounds that can be used in systems with the formation (or predomination) of one single complex. This method makes it

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possible to determine the composition and instability constant of the complex. In the lecture delivered by K. B. Yatsimirskiy and V. D. Korableva the application of the theory of crystalline fields for the determination of the composition and structure of the chloride complexes of cobalt, nickel and copper according to the absorption spectra of these complexes was discussed. It was proved that in a hydrochloric acid concentration above 5 mole/liter in the solution there exists an equilibrium between the tetrahedric and octahedric form of the cobalt chloro complexes. Yu. P. Nazarenko proved in his lecture "The Application of Radioactive Isotopes in the Investigation of the Solvation Equilibrium in Solutions of Complex Compounds" the possibility of using data on the isotope exchange to clarify the structure of the complex and mechanism of the hydration processes. V. Klimov mentioned in his lecture the use of radioactive isotopes in the study of tin and antimony complexes in non-aqueous solutions. A. V. Ablov, V. N. Tolmachev, V. I. Kuznetsov and A. M. Golub took part in the discussion of the lectures. The usefulness of employing the theory of the crystalline fields in explaining the results obtained from the absorption spectra of the com-

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plex compounds was stressed. In the lecture delivered by I. A. Shek on "The Investigation of the Complex Formation by the Method of the Dielectric Permeability and the Polarization" the principles of the methods mentioned were presented. This method was employed for investigating the compounds of the type of the "affiliation" products. The lecture delivered by I. A. Shek and Ie. Ya. Kriss "Employing the Method of the Dielectric Constant for Investigating Complex Compounds of the Type of Crystal Solvates in Solutions" dealt with the investigation of the solvates of lanthanum and cerium chlorides with ketones, as well as with the study of the compounds formed in heterogeneous systems with tributyl phosphate and nitric acid. V. F. Toropova gave in her lecture "The Polarographic Method of Investigating the Complex Formation in Solutions" a survey of the applications of the polarographic method in the study of the complex compounds, and illustrated several fine characteristic features of this method. In the lecture delivered by T. N. Sumarokova "The Cryoscopic Method of Investigating the Complex Formation Reactions" a survey of the possibilities of the cryoscopic method was given, and its applicability in the study of several complex compounds of stannic chloride with organic substances was proved. A. M. Golub described the results of his investigations of thiocyanate complexes of several metals. A vivid discussion took place on the lectures held. Ya. A. Fialkov and Yu. Ya. Fialkov considered the cryoscopic method of investigating complex compounds to be of considerable value. I. B. Yatsimirskiy pointed out that the publication of the surveys on individual methods of investigating the complex formation reactions would be desired; this concerns especially the polarographic method. The cryoscopic method should be brought to a level that makes the calculation of the equilibrium constants of the processes to be investigated possible. The problem of the method of evaluating the experimental results becomes more and more important. Many scientists use the instability constants without taking into account the way in which they had been obtained. The calculation methods employed by A. M. Golub are one step back, as compared to those employed at present. In his lecture N. P. Komar' pointed out the extremely great importance of the mathematical evaluation of the results obtained, as well as of the plotting of curves. A. K. Babko suggested selecting one or two systems that are experimentally well investigated, and to evaluate the results obtained according to different methods so that it is possible to check and evaluate them. Ya. I. Tur'yan took part in the discussion. Ya. A. Fialkov discussed in his lecture "The Effect of the Solvent on the Complex Formation Process as Well as on the State of Equilibrium in the Solutions of Complex Compounds" the influence exerted by the solvents upon the molecular state, upon the solvation of the system components, upon the stabilization of the complexes formed in the system, upon the step-wise dissociation of the complexes and upon a number of other processes. The influence exercised by the dielectric constant upon the complex formation process was discussed. It was concluded that a direct relation does not exist, and that the chemical nature of the solvent must be taken into account. A. V. Ablov and L. V. Nagarova held a lecture on "The Spectroscopic Investigation of Nickel Cobalt 'Pyridinates' in Various Solvents". The instability constants of the complexes were determined and it was proved that the

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Conference Discussion on the Methods of Investigating the Complex Formation in Solutions

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stability of the 'pyridinates' is changed in dependence on the solvent. Ya. I. Tur'yan in his lecture "The Influence of the Solvent Upon the Composition and Stability of Complex Ions" discussed the polarographic investigation method of the chloride and thiocyanate complexes of lead in aqueous ethanol solutions at different content of the non-aqueous solvent and at a constant ionic strength. A step-wise character of the complex formation was found as well as the instability constants of the complexes. The influence of the dielectric constant of the solution on the stability of the investigated complexes was proved. In the lecture by V. P. Vasil'yev on the "Investigation of Aquo Complexes in Mixed Solvents" the main attention was devoted to the necessity of the qualitative recording of the solvation effects in the complex formation. The applicability of the polarographic method in the determination of the composition and stability of the aquo complexes in mixed solvents was proved and experimental material on the thermodynamics of the dissociation of the cadmium-aquo complexes in aqueous ethanol solutions was mentioned. V. S. Tolmachev, V. I. Kuznetsov

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and I. V. Tananayev stressed in their lectures the necessity of a more complete and general investigation of the solvation processes. A. K. Babko and A. M. Golub pointed out the great importance of the investigations of the complex formation equilibria in non-aqueous solutions, and made several critical comments on the lecture by Ya. I. Tur'yan. The following scientists took part in this discussion: L. P. Adamovich, G. I. Khotayanovskiy, A. P. Moskvin and A. G. Mustakhev. At the final meeting of the conference A. A. Grinberg, Corresponding Member, AS USSR, said in his speech that such a conference was very urgent. A detailed discussion of the determination methods of the composition of the complexes, as well as of the method used in the study of the quantitative characteristics of the step-wise complex formation was extremely useful for all who attended this conference.

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AUTHORS: Sheka, I. A., Voytovich, B. A. SOV/78-3-8-43/48

TITLE: On the Compounds Between Hafnium Tetrachloride and Phosphorus Oxychloride (O soyedineniyakh chetyrekhkhloristogo gafniya fosfora s khlorokis'yu fosfora)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol. 3, Nr 8, pp. 1973-1976 (USSR)

ABSTRACT: The fusion diagrams of the system $HfCl_4$-$POCl_3$ were investigated. This system is analogous to the system zirconium tetrachloride phosphorus oxychloride. Solutions containing 0-38 mole% $HfCl_4$ were well crystallized. The solutions containing 40-65 mole% $HfCl_4$ tend to considerable undercool; in such solutions crystallizations occur only after a long storing of the solution (at a temperature by 15-20°C lower than the melting temperature). The fusion diagrams of the system $HfCl_4$-$POCl_3$ are investigated within the range 0-77,7 mole%, i.e. in such concentration ranges within which the formation of complex compounds is possible. The thermal analysis of the system showed that in the fusion diagram two distectics and three eutectics occur. The presence

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On the Compounds Between Hafnium Tetrachloride and Phosphorus Oxychloride

of two distectic maxima was found in correspondence with the compounds with the following formula: $HfCl_4 \cdot 2POCl_3$ and $HfCl_4 \cdot POCl_3$, having the following melting temperature: 198,3 and 221,8°C. The clear maxima prove that those compounds at their melting temperatures have a comparatively high stability. The thermal properties of the system $HfCl_4$-$POCl_3$ are analogous to those of the system $ZrCl_4$-$POCl_3$; there is only the difference that the liquidus curve of the system $HfCl_4$-$POCl_3$ is higher than that of the system $ZrCl_4$-$POCl_3$. The results obtained show that the compound $3\ HfCl_4 \cdot 2\ POCl_3$ mentioned in papers does not occur. There are 1 figure, 2 tables, and 10 references, 5 of which are Soviet.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii Akademii nauk USSR (Institute of General and Inorganic Chemistry, AS UkrSSR)

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

AUTHORS: Voytovich, R.A. and Sheka, I.A. SOV-21-58-8-12/27

TITLE: On the Interaction of the Chlorides of Hafnium, Niobium and Tantalum with Phosphorus Chloride (O vzaimodeystvii khloridov gafniya, niobiya i tantala s khlorokis'yu fosfora)

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1958, Nr 8, pp 849-852 (USSR)

ABSTRACT: The authors studied phase transformations in the systems $HfCl_4$ - $POCl_3$, $NbCl_5$ - $POCl_3$, $TaCl_5$ - $POCl_3$, and conducted investigations on the interaction processes of the chlorides of hafnium, niobium and tantalum with phosphorus chloride in nitrobenzene and benzene by the cryoscopic method. The formation of the compounds $HfCl_4.2POCl_3$; $HfCl_4.POCl_3$; $NbCl_5.POCl_3$ and $TaCl_5.POCl_3$ is proved. On the other hand, the composition of hafnium and zirconium chloride compounds with phosphorus chloride, cited by van Arkel and de Boer (Ref. 1) and also by Gruen and Katz (Ref. 2), was not confirmed by the present experiments. The authors have established the following regularity: the thermal stability of compounds of tetrachlorides of the elements belonging to the titanium subgroup and niobium and tantalum with phosphorus oxychloride, rises with the increasing atomic number of the element. The

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SOV-21-58-8-12/27

On the Interaction of the Chlorides of Hafnium, Niobium and Tantalum with Phosphorus Chloride

inactivity of silicon tetrachloride in the reactions with phosphorus oxychloride was noticed previously by V.V. Udovenko and Yu.Ya. Fialkov (Ref. 13).
There is 1 graph, 2 tables and 13 references, 8 of which are Soviet, 1 German, 3 American and 1 Dutch.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii AN UkrSSR (Institute of General and Inorganic Chemistry of the AS UkrSSR)

PRESENTED: By Member of the AS UkrSSR, Yu.K. Delimarskiy

SUBMITTED: March 17, 1958

NOTE: Russian title and Russian names of individuals and institutions appearing in this article have been used in the transliteration.

1. Chlorides--Transformations 2. Chlorides--Phase studies
3. Chlorides--Chemical reactions

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NEKRYACH, Ye.F. [Nekriach, IE.F.]; NAZARENKO, Yu.P.; CHERNETSKIY, V.P., [Chernets'kyi, V.P.]; BABKO, A.K., akademik, otv.red.; ROZUM, Yu.S., kand.khim.nauk, red.; FIALKOV, Ya.A., red. [deceased]; FOMENKO, G.S. [Fomenko, H.S.], kand.khim.nauk, red.; SHEKA, I.A., prof., doktor khim.nauk, red.; GNATYUK, G.M. [Hnatiuk, H.M.], red.-leksikograf; POKROVSKAYA, Z.S. [Pokrovs'ka, Z.S.], red.izd-va; YEFIMOVA, M.I. [IEfimova, M.I.], tekhn.red.

[Russian-Ukrainian chemical dictionary; 6000 words and terms] Russko-ukrainskii khimicheskii slovar'; 6000 terminov. Sost.E.F.Nekriach, IU.P.Nazarenko i V.P.Chernetskii. Kiev, 1959. 204 p.
(MIRA 13:4)

1. Akademiya nauk USSR, Kiyev. 2.AN USSR (for Babko). 3. Chlen-korrespondent AN USSR (for Fialkov).
(Chemistry--Dictionaries)
(Russian language--Dictionaries--Ukrainian)

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Sheka, I.A.

5(1,4) [illegible] SOV/3413

Akademiya nauk Ukrainskoy SSR. Institut obshchey i neorganicheskoy khimii

Raboty po khimii rastvorov i kompleksnykh soyedineniy, vyp. 2 (Papers on the Chemistry of Solutions and Complex Compounds, Nr 2) Kiyev, 1959. 2[illegible]9 p. Errata slip inserted. 2,000 copies printed.

Resp. Ed.: Ya.A. Fialkov (Deceased) Corresponding Member, Ukrainian SSR, Academy of Sciences; Ed. of Publishing House: Z.S. Pokrovskaya; Tech. Ed.: M.I. Yefimova.

PURPOSE: This book is intended for research scientists, teachers in schools of higher education and technical schools, aspirants, and students of advanced chemistry courses.

COVERAGE: The collection contains 9 articles which review work conducted at the Institute for General and Inorganic Chemistry, Ukrainian Academy of Sciences, on electrolytic aqueous and nonaqueous solutions, the chemistry of complex compounds,

Fialkov, Ya.A. and Yu.P. Nazarenko. Study of Inorganic Halides on the Basis of Isotope Exchange Reactions 116

Sheka, Z.A., and Ye.Ye. Kriss. Metal Xanthates 135

Sheka, I.A. Physicochemical Analysis of Solutions on the Basis of Dielectric Properties 163

Babko, A.K., and T.Ye. Get'man. Spectrophotometric Study of Complexes of Low Stability During Complex Formation 186

Babko, A.K., and T.N. Nazarchuk. Study of Metal Compounds Dyed With Oxyanthroquinones 199

Markov, B.F. Electromotive Forces of Chemical Bonds With Individual Fused Slats 216

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"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549010004-7

SHEKA, I.A.

Physicochemical analysis of solutions, based on their dielectric properties. Rab.po khim.rastv.i kompl.soed. no.2:163-185 '59. (MIRA 13:4)

(Solution(Chemistry)--Electric properties)
(Systems(Chemistry)--Electric properties)

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SOV/78-4-7-1/44

AUTHOR: Sheka, I. A.

TITLE: Yakov Anatol'yevich Fialkov (Necrology)(Yakov Anatol'yevich Fialkov (nekrolog))

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 7, pp 1465-1474 (USSR)

ABSTRACT: Ya. A. Fialkov, one of the most prominent Soviet inorganic chemists, Corresponding Member of the Academy of Sciences of the UkrSSR, died after a serious illness on November 16, 1958. He was born at Kiyev in 1895, became a chemist's apprentice after four years of secondary school education, and finished an evening course of general education in 1919. He then studied at the Chemical Department of Kiyev Polytechnic Institute from 1921-1925 and was aspirant under V. A. Plotnikov, after which he became a prominent research worker and teacher. He was one of the first collaborators at the Institute of Chemistry (which was later reorganized as the Institute for General and Inorganic Chemistry) of the Academy of Sciences of the UkrSSR, where he worked until he died. 1939-1946 he was Head of the Laboratory

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Yakov Anatol'yevich Fialkov (Necrology) SOV/78-4-7-1/44

for Inorganic Chemistry, later that for Complex Compounds. At the same time he was Docent and (1929-1935) Chairman of the farmatsevticheskiy institut (Pharmaceutical Institute) Professor of the Chair of Physical Chemistry of the Polytechnic Institute (1929-1941), Professor of Inorganic Chemistry at Kiyev University (1934-1957). During the war Fialkov was at Ufa, together with the Institute for Chemistry of the AS UkrSSR, later in Moscow, and finally at Kiyev, where he was occupied with important war work. He was awarded the titles of Candidate of Chemical Sciences (1936) and Doctor of Pharmaceutical Sciences (1941) without having to defend a dissertation. Since February 1945 he has been Corresponding Member of the AS UkrSSR. His main field was that of the chemistry of complex compounds. Under his supervision and cooperation, methods were developed for the production of rare metals in a pure state, and technical processes of producing nonferrous metals were improved. In the field of mineral salts processes for the production of potash fertilizers were developed and new knowledge was acquired of the thermal constancy of salts of oxygen acids and the equilibria in the liquid phase of water-salt systems. Fialkov's research work exercised considerable influence on the

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Yakov Anatol'yevich Fialkov (Necrology) SOV/78-4-7-1/44

development of pharmaceutical chemistry and industry in the USSR. He is the author of more than 200 works, textbooks, and monographs. At the laboratory for complex compounds of the IONKh (Institut obshchey i neorganicheskoy khimii - Institute for General and Inorganic Chemistry) of the AS UkrSSR, Fialkov created a center for the investigation of complex compounds and the application of radioactive isotopes in inorganic chemistry. He was several times awarded decorations by the government, and he received honorary diplomas from the Ministerstvo tsvetnoy metallurgii SSSR (Ministry for the Metallurgy of Nonferrous Metals, USSR), from the Presidium of the Supreme Council of the UkrSSR and the Bashkirskaya ASSR, as well as from the Ministerstvo zdravookhraneniya SSSR (Ministry of Health, USSR). Fialkov was a Member of the Commission for the Coordination of the Chemistry of the Complex Compounds of Rare Elements and the Elements of Rare Earths, Member of the Gosudarstvennyy farmakopeynyy komitet (State Committee for Pharmacopoia) of the Ministry of Health, USSR, Member of the Committee of Experts for Chemical Sciences at the Ministry for University Education of the UkrSSR, and Member of the Editorial Staffs of the

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Yakov Anatol'yevich Fialkov (Necrology) SOV/78-4-7-1/44

Periodicals "Ukrainskiy khimicheskiy zhurnal" (Ukrainian Chemical Journal) and "Zhurnal neorganicheskoy khimii" (Journal for Inorganic Chemistry). He was Head of the Department for Inorganic Chemistry of the Branch of the Kiyev oblast' of the Vsesoyuznoye khimicheskoye obshchestvo im. D. I. Mendeleyeva (All-union Society for Chemistry imeni D. I. Mendeleyev). There follows a list of 207 works by the deceased. There are 1 figure and 207 Soviet references.

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