

SAVCHENKO, D.K.; KAZANTSEV, I., red.; ZHDANOVA, G., tekhn.red.

[Wholesale trade in the U.S.S.R.] Optovaiia torgovlia  
v SSSR. Barnaul, Altaiskoe knizhnoe izd-vo, 1960. 32 p.  
(MIRA 14:12)

(Wholesale trade)

SAVCHENKO, D.S.; NAZARCHUK, A.P., kandidat sel'skokhozyaystvennykh nauk;  
BOBOROVA, G.K., redaktor; TISHEVSKIY, I.I., tekhnicheskiy redaktor

[Raising 48.6 centers of millet per hectare] 48,6 tsentnera prosa s  
gektora. [Moskva, Izd-vo Ministerstva sel'skogo khoziaistva SSSR,  
1956] folder (4 p.) (MIRA 10:1)  
(Millet)

SAVCHENKO, E. D., ANDRUSOV, P. I., SHERSHILOV, N. M.,  
TANICH, L. F., GARIN, N. D.

Equipment at present used in pneumosurgery and experimental clinical data on  
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Noye khirurgicheskie apparaty i instrumenty i opyt ikh primeneniye (New  
SURGICAL Equipment and Instruments and Experience in Their Use) NO. 1,  
Moscow, 1957 A collection of Papers of the Scientific Research Inst.  
for Experimental Surgical Equipment and Instruments.

*NIEKhAI*

SAVCHENKO, E. D., BRYUKHONENKO, S. S., SHCHERBAKOVA, T. T., PERESTORONIN, S. A.,  
LAPCHINSKII, A. A., LEVITSKAYA, L. A., KASHCHEVSKAYA, L. A.

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Novye khirurgicheskie apparaty i instrumenty i opyt ikh primeneniye (New  
SURGICAL Equipment and Instruments and Experience in Their Use) NO. 1,  
Moscow, 1957 A collection of Papers of the Scientific Research Inst.  
for Experimental Surgical Equipment and Instruments.

*NIIEKH A. I.*

SAVCHENKO, E. D., UMIR, V. I., SHESHKINA, I. D., LAPCHENSKIY, A. G.,  
VIKTOROV, B. F., GORBOVITSKIY, E. B., GUROVA, E. V., DANIEL'SON, A. K.,  
LEHNEVA, N. S., MEDVEDEVA, J. V., PERESTORCHIN, S. A.

Apparatus for the conservation of whole organs by chilling with artificial circulation and its use in experiments on transplantation of extremities and kidneys of dogs .... 177

Novye khirurgicheskie apparaty i instrumenty i opyt ikh primeneniye (New SURGICAL Equipment and Instruments and Experience in Their Use) NO. 1, Moscow, 1957. A collection of Papers of the Scientific Research Inst. for Experimental Surgical Equipment and Instruments.

*NIIEKA A. I.*

SAVCHENKO, E.D.

Penetration of a gastric ulcer into the heart. Khirurgiia no.9:  
132-134 '62. (MIRA 15:10)

1. Iz Gosudarstvennogo nauchno-issledovatel'skogo rentgenoradio-  
logicheskogo instituta (dir. - prof. I.G.Lagunova) Ministerstva  
zdravookhraneniya RSFSR.

(HEART--DISEASES)

(PEPTIC ULCER)

SAVCHENKO E.N.

NIKHOSON, I.M.; KAMBUR, I.B.; SAVCHENKO, E.N.

Q fever on Sakhalin. Zhur.mikrobiol.epid. i immun. 29 no.2:51-54  
F '58. (MIRA 11:4)

(Q FEVER, epidemiology,  
in Russia (Rus))

SAVCHENKO, E.N.

Tick-borne encephalitis in Sakhalin; preliminary report. Vop.virus.  
6 no.5:625 S-0 '60. (MIRA 14:7)

(SAKHALIN—ENCEPHALITIS)



SAVCHENKO, F.A.

Tool for drilling in dry sands. Razved. i okh. nedr' 28 no.2:49  
F '62. (MIRA 15:3)

1. Gosudarstvennyy institut po proyektirovaniyu spetsial'nykh  
sooruzheniy promyshlennogo stroitel'stva.  
(Boring machinery)

SARANTSEV, Petr Loont'yevich; SAVCHENKO, F.T., retsenzent; YATSENKO,  
N.F., retsenzent; MAZURENKO, K.D., red.; PESKOVA, L.N., red.;  
BOBROVA, Ye.N., tekhn. red.

[Geography of the transportation systems of the U.S.S.R.] Ge-  
ografii putei soobshcheniia SSSR. Izd. 2., perer. i dop. Mo-  
skva, Transzheldorizdat, 1962. 233 p. (MIRA 15:10)  
(Transportation)

SAVCHENKO, G.; KHAIT, S.

[Bendery; a plan for the future] Bendery; prospekt. Kishinev,  
Kartia moldoveniaske, 1962. 39 p. (MIRA 15:12)  
(Bendery--Description)

BOTUK, B.O. (Odessa); IMITRIYEVSKIY, N.G. (Odessa); SAVCHENKO, G.D.  
(Odessa); ALEKSEYEV, Yu.S. (Odessa)

Efficient type of distributing structures in sewage purification  
works. Vod.i san.tekh. no.4:22-24 Ap '60. (MIRA 13:6)

(Sewage--Purification)

ZAGLADKIN, A.I., inzhener (stantsiya Rovno); SAVCHENKO, G.Kh., inzhener  
(stantsiya Rovno).

Repairing sleepers in section shops. Zhel.dor.transp.37 no.11:  
80-81 N '55. (MIRA 9:2)

- 1.Nachal'nik tekhnicheskogo byuro otdeleniya dorogi (for Zagladkin)
- 2.Zamestitel' nachal'nika distantzii puti (for Savchenko).  
(Railroads--Ties)

SAVCHENKO, G.Kh.

SAVCHENKO, G.Kh. (stantsiya Rovno).

We repair ties in railroad shops. Put! i put.khoz. no.9:41-43:  
S '57. (MIRA 10:10)

1. Zamestitel' nachal'nika Rovenskoy distantsii.  
(Railroads--Ties)

SAVCHENKO, G. Kh.

Track protection against electrolytic corrosion in tunnels. Put'  
i put.khoz. 4 no.6:22 Je '60. (MIRA 13:7)

1. Glavnyy inzhener sluzhby puti, L'vov.  
(Electrolytic corrosion) (Electric railroads--Rails)

SAVCHENKO, G.Kh. (L'vov)

Our practice in tie repairs. Put'i put.khoz. 4 no.7:30 JI '60.  
(Railroads--Ties)



SAVCHENKO, G., inzh.

Better utilization of the mobile highway maintenance and repair unit.  
Avt.dor. 24 no.4:28 Ap '61. (MIRA 14:5)  
(Roads—Maintenance and repair)











system may be formed and the dead stem replaced. Individual strains of bacteria show variations in virulence, and some reduce the yield on rich, dark-coloured soils as heavily as on poor, sandy loams, though the general tendency is for the latter to be most affected.

Further studies are required in the case of the seed bacteriosis, causing a loss of germination of 28 per cent., and also on those responsible for physiological changes in the root system and reducing the yield by 15 to 20 per cent.

Bacterial infection of flax appears to be largely controllable by proper tillage on virgin soil and the use of suitable fertilizers.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

1ST AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX

ca 7

The determination of fluorine in artificial cryolite. I. V. Tananayev and G. S. Savchenko. *J. Applied Chem.* (U. S. S. R.) 9, 742-6 (in German 740) (1936).--A proximate method of analysis is based on the assumption that when artificial  $\text{Na}_2\text{AlF}_6$  is treated with  $\text{NaOH}$  and  $\text{CaCl}_2$ , the undissolved residue will be  $\text{NaAlO}_2$  and  $\text{CaF}_2$  after neutralizing to phenolphthalein. The F content can then be calcd. after pptg. the unused  $\text{Ca}^{2+}$  in the filtrate as oxalate and titrating the ppt. with  $\text{KMnO}_4$ . H. M. L.

COMPONENT ELEMENTS  
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SYMBOLIC INDEX



PROCESSES AND PROCEDURES INDEX

ca

---Volumetric determination of silicon in ferromanganese, steels and cast irons. B. G. Karpov and G. S. Savchenko. *Zavodskaya Lab.* 6, 1051-3 (1937).--The volumetric detn. of Si in the presence of Fe is made possible by the fixation of Fe with excess oxalic acid. Then  $K_2SiF_6$  can be pptd. free from  $K_2FeF_6$ . Excellent results were obtained with cast iron and Mn, Mo, V and other steels. Decompose 1-1.5 g. of sample (depending on amt. of Si present) in 10-15 cc. of concd.  $HNO_3$ , evap. the soln. and transfer it, without filtering from any graphite, to a Pt dish. Introduce 2 g. of  $C_2O_4H_2$ , 2-3 g.  $H_2P$  and finally sat. with  $KCl$  (5-7 g. in 100 cc.). After 15 min., filter off the  $K_2SiF_6$  through a paraffined funnel and wash thoroughly with semi-satd.  $KCl$  soln. Transfer the ppt. with the filter to an Erlenmeyer flask and titrate, hot, with 0.5 N  $NaOH$  to phenolphthalein. C. H.

ASME-ISA METALLURGICAL LITERATURE CLASSIFICATION

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Complex fluoride compounds of tantalum and columbium. I. G. S. Savchenko, and I. V. Tsvetkov. *J. Applied Chem. (USSR)* 19, 1063 (1946) (in Russian). - Titration of  $K_2TaF_7$  solns. in dil. HF with NaOH with phenolphthalein, methyl orange, and methyl red as indicators (the last in the presence of  $CaCl_2$ ) consumes, resp., 5.0, 3.5-4.5, 4.1-4.7 mols. NaOH per mol.  $K_2TaF_7$ ; the figure 4.5 mols. NaOH, with methyl red, was adopted. The 25° soly. isotherm of the  $K_2TaF_7$ -HF- $H_2O$  system shows that the soly. of  $K_2TaF_7$  increases with increasing HF, up to a max. 14.9% at 45.29% HF; at this point, the ratio  $KF:TaF_5$  in soln. rises sharply; the new solid phase appearing from this point on was shown to be  $KTaF_6$ , by analysis of the product synthesized in 3 ways: (a) Ta was dissolved in HF +  $HNO_3$ , the soln. concd., 70-80% HF added to make the soln. 50-60% in HF, and pptd. with a  $KHF_2$  soln. in an amt. calcd. for  $K_2TaF_7$ ; the ppt. was washed with 50% HF and dried; (b) same method, with double the amt. of  $KHF_2$ ; (c) by recrystn. of the first product in 50% HF; the 3 products were identical,  $KTaF_6$ . Below 45% HF, the salt decomposes according to  $2K_2TaF_7 \rightarrow K_3TaF_7 + TaF_5$ . Above that point, the soly. of  $KTaF_6$  at 25° as a function of HF is congruent and has a shallow min. (15.93%) at about 54% HF.  $K_2CbF_7$  was prepd. by dissolving Cb in HF +  $HNO_3$ , concg., treating with  $K^+$ , washing the ppt. with alc., and recrystg. from 10% HF; on heating at 110°, the salt evolves HF continuously. Titration of  $K_2CbF_7$  in dil. HF with NaOH (methyl red, in the presence of  $CaCl_2$ ) consumes 5 mols. NaOH per mol.  $CbF_5$ . On account of the spontaneous hydrolysis of  $K_2CbF_7$  into  $K_2CbOF_5 \cdot H_2O$  and HF, the soly. isotherm  $K_2CbF_7$ -HF- $H_2O$  at 25° was investigated by increasing only the amt. of  $K_2CbF_7$ , without adding HF, until the compn. of the

soln. became const. on further addn. of the salt; from then on the HF content was raised by direct addn. of HF. The soly. of the salt first increases with rising HF content, up to a max. at about 7% HF, then falls and passes through a min. at about 23-27% HF; along the rising branch, the solid phase is  $K_2CbOF_5 \cdot H_2O$ , at the max. solid  $K_2CbOF_5 \cdot H_2O$  and  $K_2CbF_7$  coexist; the latter is the solid phase up to about 49.5% HF, where the ratio  $KF:CbF_5$  in soln. changes abruptly from about a const. 2 to increasing values. The new solid phase is  $KCbF_6$ , synthesized in the same way as  $KTaF_6$ . With HF increasing from 49.9 to 50%, the soly. of  $KCbF_6$  is congruent and falls slowly and uniformly. For the system  $K_2TaF_7$ - $K_2CbF_7$ -HF- $H_2O$  at 25°, the sum Ta + Cb (as  $Ta_2O_5$  +  $Cb_2O_5$ ) in soln. was detd. as a function of HF, in the presence of both Ta and Cb in the solid phase. The combined soly. rises with increasing HF up to 5.00% at HF 3.75%; solid phase  $K_2CbOF_5 \cdot H_2O$  +  $K_2TaF_7$  falls down to a min. of 3.34% at HF 17.10%, and then rises again, solid phase  $K_2CbF_7$  +  $K_2TaF_7$ ; the "combined" soly. is somewhat lower than the sum of individual solubilities, owing to mutual salting out; no chem. interaction and no solid soln. are observed. The conditions of stability of double compds.  $nRF_2 \cdot MF_3$  (R = alkali metal, M = Ta, Cb) are represented by a plot of  $n$  ( $n = 1, 2, 3$ ) against increasing HF (to the right of the zero abscissa) and increasing RF (to the left of the zero); with increasing HF (decreasing RF),  $n$  falls linearly, the order from left to right being Cs, Rb, K, Na, NH<sub>4</sub>; example,  $2RbF_2 \cdot TaF_5$  is stable at a lower HF concn. than  $RbF_2 \cdot TaF_5$ ;  $3NH_4F \cdot TaF_5$  is stable at a slightly higher HF than  $2RbF_2 \cdot TaF_5$ ;  $2NH_4F \cdot TaF_5$  can only exist at considerably higher HF,  $NH_4F \cdot TaF_5$  only at very high HF. (7) All known (20) double alkali metal fluorotantalates and fluorocolumbates are listed including the new  $KTaF_6$  and  $KCbF_6$ . (8) Soly. data do not promise any better conditions for the sepm. of Ta and Cb than through their  $2KF \cdot MF_3$  salts. N. Thom

6

Complex fluorides of tantalum and of columbium. II.  
 G. S. Savchenko and I. V. Tananaev. *J. Applied Chem.*  
 (U.S.S.R.): 20, 385-400 (1947) (in Russian); cf. *C.A.* 41,  
 1733d. — (1) The soly. of  $K_2TaF_7$  in  $H_2O$  in the presence of  
 HF at 70° rises increasingly steeply with the amt. of HF;  
 up to 35.5% HF, there is no change in the compn. of the  
 solid phase. Soly. of  $K_2CbF_7$  at 70° is about 3 times  
 higher than at 25°; up to about 5% HF the solid phase is  
 $K_2CbF_7 \cdot H_2O$ , beyond that point it is  $K_2CbF_7$ ; at the  
 transition point the soly is max. (CbF, 23.77, KF 14.38%),  
 then it drops sharply and passes through a min. (CbF,  
 11.00, KF 0.80%) at about 20% HF; the compn. of the  
 solid phase remains const. up to 33.0% HF. (2) The  
 quaternary systems  $K_2TaF_7(K_2CbF_7)$ -KF-HF- $H_2O$  were  
 investigated at 25° ± 0.1° along the sections HF =  
 1, 2, 5, and 10%, at KF = 1, 2, 5, and 10% in each section,  
 tabulated and plotted in soly. curves of  $K_2TaF_7(K_2CbF_7)$   
 against KF. The soly. of  $K_2TaF_7$  decreases with increas-  
 ing KF, fastest at the lowest KF; above 5% KF, the soly.  
 remains practically const.; increasing HF content shifts  
 the soly. curves upwards without change in shape; 1% KF  
 decreases the soly. of  $K_2TaF_7$  to  $1/10$  its value, 2% KF to  
 $1/100$ , 5% KF to  $1/1000$ ; possibly, at this concn.,  $K_2TaF_7$   
 is completely insol., the residual soly. observed belonging  
 to the Cb salt present in the  $K_2TaF_7$ . The corresponding  
 curves for  $K_2CbF_7$  are qualitatively similar to  $K_2TaF_7$  but  
 quantitatively different: in 1% HF, change of KF from  
 0 to 10% decreases the soly. of  $K_2CbF_7$  to  $1/100$ , in 2, 3, and  
 10% HF only to  $1/10$ - $1/4$ ; at low concns. of KF, the fall of  
 soly. is much slower than in the case of  $K_2TaF_7$ ; thus, 1%

KF decreases the soly. of  $K_2CbF_7$  to  $1/10$  as compared to  $1/100$   
 for  $K_2TaF_7$ . Plots of the soly. ratio  $K_2CbF_7/K_2TaF_7$   
 against HF (at const. HF) have a max. at about 5% KF,  
 at any HF concn. (3) From a weakly acid (HF) mixed  
 soln. of  $TaF_5$  and  $CbF_5$ , addn. of KF up to 2% in soln.  
 will ppt.  $K_2TaF_7$  if it is present at over 0.05%;  $K_2CbF_7$   
 will not ppt. under these conditions as long as its concn. is  
 less than 3%; if there is more of it,  $K_2TaF_7$  can still be  
 pptd. pure by dilg. the soln.; it can be purified still farther  
 by recrystn. from dil. HF. The  $K_2CbF_7$  obtained by  
 evapn. of the filtrate contains about 1%  $K_2TaF_7$ ; it can  
 be freed from it by a single recrystn. from dil. HF. Prac-  
 tically, it is preferable to carry out the sepn. at 1-2% HF,  
 with the Cb sepn. in the form of  $K_2CbF_7 \cdot H_2O$ . N. T.

ASB-5LA METALLURGICAL LITERATURE CLASSIFICATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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SAVCHENKO G. S.

USSR/Chemistry - Fluorine and Aluminum Compounds Dec 51

"Forms of Complex Fluoroaluminates in Aqueous Solutions," G. S. Savchenko, I. V. Tenanayev, Inst of Gen and Inorg Chem imeni N. S. Kurnakov, Acad Sci USSR

FA 194T70

"Zhur Obshch Khim" Vol XXI, No 12, pp 2235-2245

Studied systems  $Al(NO_3)_3-HF-H_2O$ ,  $AlCl_3-HF-H_2O$ ,  $Al_2(SO_4)_3-HF-H_2O$  using methods of H ion concn and thermometric measurements. Found that in all 3 systems very stable  $AlF_2^+$  ions, not noticeably disocd in soln, are formed. Their existence is

194T70

USSR/Chemistry - Fluorine and Aluminum Compounds (Contd) Dec 51

explained by ability of salts of Al and many other polyvalent metals to dissolve difficultly sol fluorides (cryolite,  $CaF_2$ ). Existence of  $AlF_3$  or complex fluoroaluminates of type  $AlF_2^+$  could not be confirmed due to their high deg of disocn. These data compel a change in views on state and behavior of polyvalent metallic fluorides in soln.

194T70

SAVCHENKO, G.S.

Reaction of aluminum nitrate with oxalic acid and its sodium salts. G. S. Savchenko. *Izvest. Sektora Fiz.-Khim. Anal. Inst. Obshchestvennaya Khim. Akad. Nauk S.S.R.* 25, 280-302 (1954).—The separate sections in the systems  $Al(NO_3)_3 \cdot H_2C_2O_4$  (or its Na salts)  $- H_2O$  were studied by methods of conductivity, e.m.f., spectrophotometry, and thermometry. In some cases the deviation from the additive values of properties can be used to det. compn. of compds. formed in soln. The compn. of compds. formed in these systems depends on pH. At low pH  $Al_2(C_2O_4)_3$  is formed but in neutral or weakly acid media  $Na[Al(C_2O_4)_2]$  is stable. Eurlia Mayerle

MA  
MIT

SAVCHENKO, G.S.

Study of the interaction of aluminum nitrate with tartaric acid and its sodium salts. Izv.Sekt.fiz.-khim.anal. no.25:303-313 '54.  
(MIRA 8:5)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova  
Akademii nauk SSSR.

(Aluminum nitrate) (Tartaric acid)

SAVCHENKO, G. S.

"A spectrophotometric investigation of the interaction of sodium tungstate and molybdate with some organic acids in aqueous solution", Khimiya Redkikh Elementov, No. 2, p 68, 1955.

Reactions of sodium tungstate and molybdate with oxalic tartaric and citric acids were investigated by measurement of the optical density of solutions in the ultraviolet part of the spectrum. It was found that sodium molybdate reacts with oxalic acid in two stages with the formation of a complex salt  $H_2 MoO_3 (C_2O_4)$ . The reaction with other two acids as well as the reaction of sodium tungstate with all three acids can be regarded as exchange reactions or more strictly as neutralisation reactions, since sodium molybdate and tungstate have alkaline reactions (phenolphthalein).

SO: D--413171



SAVCHENKO, G.S.; GONCHAROV, Ye.V.

Study of the interaction of gallium chloride with tartaric acid  
and its sodium salts. Zhur.neorg.khim. 1 no.8:1804-1825 Ag '56.  
(Gallium chlorides) (Tartaric acids) (MLBA 9:11)

SAVCHENKO, G.S.  
TATANAYEV, I.V.; SAVCHENKO, G.S.

Investigating the solubility in the system  $As_2O_3$  --HF-- $H_2O$ .  
Zhur. neorg. khim. 2 10:2449-2454 0 '57. (MIRA 11:3)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova  
AN SSSR.

(Solubility) (Hydrofluoric acid) (Arsenic oxide)

SAVCHENKO, G.S.

3(2) FRASE I BOOK EXTRACTATION 507/252

Академия наук СССР. Институт обиходной и неорганической химии  
Редкие редкоземельные элементы, вып. 3 (Chemistry of Rare Elements, Pt. 3) Moscow,  
Izd-vo AN SSSR, 1971. 135 p. 4,500 copies printed. Errata slip inserted.  
M. of Publishing House; Yu. S. Shlyuzhko, Tech. Ed.; A. A. Fedorovskiy  
Editorial Board; I. V. Tsukanov (Dep. Ed.); G. A. Pogodin, Sr. En-  
gineer, V. G. Zinoviy, and G. P. Bogdan (Secretary).

REMARKS: The book is intended for scientists and engineers concerned with the  
study and utilization of rare elements.

COVER: The book is a collection of papers on investigations in the chemistry  
of rare elements conducted at the Institut obikhodny i neorganicheskoy khimii  
Imeni M. S. Kurakova (Institute of General and Inorganic Chemistry Imeni  
M. S. Kurakova). No personalities are mentioned. There are 113 references;  
99 Soviet, 23 English, 11 German, 15 French, 3 Italian, and 1 Japanese.

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SAVCHENKO G.S.

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5(4)  
AUTHORS:

Kashlyev, V. P., Korobleva, V. D., 507/153-56-3-30/30  
Katsiratskiy, K. B.

TITLE:

Conference Discussion on the Methods of Investigating the  
Complex Formation in Solutions (Soveshaniya-diskusiya  
po metodam issledeniya kompleksobrazovaniya v rastvorakh)

PERIODICAL:

Investiya vrazbikh ubebayth svedeniya. Khimiya i  
khimicheskaya tekhnologiya, 1958, Nr. 3, pp 173 - 174 (USSR)

ABSTRACT:

From February 16 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  
Vilth 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 complex 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.  
The authors discuss the results of the investigation of the  
systems with 3 colored cations in the solutions, the results  
of the potentiometric determination in copper-quinoline-salicylate,  
of the systems copper-pyridine-salicylate systems by means of  
the optical method were dealt with. In the lecture by Ye. I.  
Zil'kov 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 complex  
also the physical and chemical properties, the chemical nature  
and the structure of the complex compounds must be investi-  
gated.

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Alkshayeva and K. B. Katsiratskiy in their lecture "Investiga-  
tion of the Polymerization of Iso-Poly Acids in Solutions"  
mentioned experimental results of the investigation of the  
polymerization in solutions of polyphosphoric acid. The authors  
proved that especially the polyphosphoric 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  
 $MOO_4(MO_2O)_n \cdot 2H_2O$ . In the lecture by E. V. Aksel'rud and V. P.  
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 differences. The  
calculation of the consecutive constants was carried out  
according to the interpolation formula by Neston. M. A.  
Chabal'skiy held a lecture on "pH Measurement Method of the  
Solutions in Combination With the System Analysis of the  
Solubility Diagram of the System  $Cu^{2+}-Cl^- - H_2O$  in Investi-  
gating 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 location of  
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 Seminarian 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 polymerization process was necessary. E. 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. Tolstochev, A. V. Ablor, I. S. Mustafin, I. V. Tzanayev, A. K. B. Yashmirakly. 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. E. 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 Bodländer (completed by A. K. Babko) cannot be recommended for the calculation of the instability constant. The lecturer discussed the displacement method of the polyonants proposed by F. Yerrus, Leden, Rosotti, Shochet, Kozlov 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 stability constants taking place in the system investigated. The exact calculation of the physical constants can be obtained by the method of the least squares. E. V. Pitsyn, Ye. E. Zekser, A. 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. E. K. Bol'shakova, I. V. Tzanayev and G. M. Davshchikova held a lecture on "The Role of the Time Factor in the Investigation of the Complex Formation". In the discussion on the subject of the equilibrium constants of the complex formation, the lecturer A. A. Grinberg mentioned that due to the slow determining of the equilibrium constants (palladium and cobalt complexes) can often not be employed. A. V. Ablor pointed out the necessity of devising direct methods of proving the existence of intermediate forms in a step-wise complex formation. E. B. Yashmirakly mentioned that the instability constants of slowly dissociating complexes can be calculated from thermodynamic data. L. F. Adamovich, A. M. Golub and E. K. Babko took part in the discussion on the lecture. A. K. Babko requested inclusion in the next conference on the calculation methods of the instability constants should be discussed by the experts of actual cases. This should clarify to which divergency of the values of the constants different methods of evaluation of the experimental data can lead. E. P. Komar stressed that in the determination of the instability constants all essential 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 P. M. Zashkova 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: acrylate - benzene - water, and 2-oxyl-4-naphthoquinone - chloroform - water were given. From the results of the stability constants of the thorium complexes with acrylate and 2-oxyl-4-naphthoquinone were calculated. V. I. Kuznetsov, G. S. Serebrenko 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 his 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). A. V. Kiselev 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  $\sigma$ -bonds in the complexes investigated. These characteristics also served him as a proof of new electronic formulas 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 reaction, their composition and relative stability. V. I. Kuznetsov, A. K. Babko, E. P. Komar, L. S. Mustafaev and Ye. I. Tur' took part in this discussion. In the lecture delivered by M. G. Korshak and S. F. Kiselev on the complex palladium compound, with a coordination number above four it was proved that, in the case of a large chlorine and bromine ion excess complex with the coordination number 5 are formed. The instability constants of these complexes were estimated. L. E. Idemovich presented a new manipulation in the spectrophotometric investigation of the complex compounds that can be used in systems with the complex predominance of one single complex. This method makes it possible to determine the composition and instability constant of the complex. In the lecture delivered by K. B. Zaslavskiy and V. D. Korshak on the application of the theory of crystal-line 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 tetrahedral and octahedral form of the cobalt chloro complexes. Ye. P. Isakrenko 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. Kilmov mentioned in his lecture the use of radioactive isotopes in the study of the many complexes in non-aqueous solutions. A. V. Ablov, M. G. Korshak, 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 Ya. I. Zhuk 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 is employed for investigating the compounds of the type of the reaction products. The lecture delivered by I. A. Zhuk and Ye. Zhukovskaya on "The Method of the Dielectric Constant for Investigating the 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 phosphite and nitric acid. V. F. Zoropova 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. M. Zhuravkova "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 cadmium chloride with organic substances was proved. A. M. Golub described the results of his investigations of thio-oximes on the organic acids. Ya. A. Fialkov and Yu. Ya. Fialkov considered the cryoscopic method of investigating complex compounds to a considerable value. E. S. Yatsimirskiy pointed out that the investigation of the surveys in individual methods of investigating the complex formation reactions would be desired; this concerns complex formation to a level that makes the calculation of the equilibrium constants of the processes to be investigated possible. The problems of the method of evaluating the experimental results become more and more important. Many scientists use the in "ability 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 E. P. Komay 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 which it is possible to check and evaluate them. Ya. I. Zhuk's part in the discussion. Ya. A. Fialkov discussed in his lecture "The Effect of the Solvent on the Complex Formation of Gaseous Compounds" the influence exerted by the solvents upon the compounds' state, upon the solvation of the system components, upon the stabilization of the complexes formed and upon a number of other processes. The influence exerted by the dielectric constant on 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 A. V. Zborova gave a lecture on "The Spectroscopic Investigation of the Complex 'Pyridinates' in Various Solvents". The stability constants of the complexes were determined and it was proved that the

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stability of the 'pyridinates' is changed in dependence on the solvent. Ya. Z. Fuz'yan in his lecture "The Influence of the Solvent Upon the Composition and Stability of Complex Ions" discussed the polarographic investigation method of the chelated and the different complexes of lead in aqueous ethanol and in some other different solvents. 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. Yast'rov 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. E. Tolmashov, V. I. Kuznetsov

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and I. V. Znanovetsky 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; they made several critical comments on the lecture by Ya. Z. Fuz'yan. The following notes on the work of Ya. Z. Fuz'yan were made by M. M. Kabanov, G. A. Kabanov, A. P. Makrin and A. G. Orinberg. At the final meeting of the conference A. A. Orinberg, 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 stepwise complex formation was extremely useful for all who attended this conference.

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SOV/78-4-7-15/44

5(2)

AUTHORS:

Savchenko, G. S., Goncharov, Ye. V.

TITLE:

On the Tartrates of Indium (O tartratakh indiya)

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 7,  
pp 1558-1567 (USSR)

ABSTRACT:

The reaction of indium chloride in an aqueous solution with tartaric acid and sodium tartrate was investigated in isomolar series of from 0.1 mol/l to 0.5 mol/l. The results obtained by measuring the e.m.f., the hydrogen ion concentration, and the optical density are shown by figures 1-3 and by tables 1 and 2. The development of hydrogen ion concentration with a further addition of tartaric acid indicates a complex formation in stages. The primary stable complex ion has the highest stoichiometric ratio 1 : 1, the less stable ion with maximum saturation has the ratio 4 : 1 (tartaric acid :  $\text{InCl}_3$ ).

Figure 4 shows the time-dependent precipitation in the case of varying tartaric acid concentration, and figure 5 - the solubility of the  $\text{In}^{3+}$ -ion under the same conditions. Indium tartrate forms a precipitate in solutions with a ratio

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## On the Tartrates of Indium .

(tartaric acid :  $\text{InCl}_3$ ) of  $n = 0.7$  and  $n = 1$ . The precipitate is amorphous and crystallizes only after several days. At  $n > 2$  the precipitate again dissolves. The analysis of the precipitates is given in table 3, the molar ratio between  $\text{C}_4\text{H}_4\text{O}_6^{2-}$  and  $\text{In}^{3+}$  is 1 : 1. Also the thermograms of the precipitates obtained at  $n = 0.7$  and  $n = 2$  (Figs 7,8) prove the same character of the precipitates. Tables 4 and 5 show the analyses of precipitates which were dried above  $\text{P}_2\text{O}_5$ . The  $\text{OH}^-$  content determined by difference is 0.65 instead of 1, so that the formation of a dimer with the elimination of water is assumed. A comparison with the tartrates of aluminum and gallium shows that indium differs from these elements by complex formation in stages. A salt of little solubility is formed, which dissolves in the excess of tartrate. The oxy groups of the tartrate participate in complex formation. There are 8 figures, 5 tables, and 6 references, 4 of which are Soviet.

SUBMITTED: April 8, 1958  
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S/078/60/005/011/021/025/XX  
B004/B060

5.5100

1153, 1273, 1350

AUTHORS: Savchenko, G. S., Tananayev, I. V.

TITLE: Interaction of Aluminum Ions With Ethylene Diamine  
Tetraacetic Acid and Its Salts in Aqueous Solution

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 11,  
pp. 2593 - 2597

TEXT: It is stated that most studies on complex compounds are concerned with the determination of the instability constants. By contrast, the authors examined the interaction between  $Al^{3+}$  and ethylene diamine tetraacetic acid (EDTA) and its sodium salts by the physicochemical method, with a view to establishing the limits of the existence of individual complexes and the conditions of their mutual conversion. These data are said to be important both for the theory of the complex problem and for the practical use of complexons. The study was conducted with systems of the general type  $Me^{3+} - Y^{4-} - H^+ - H_2O$  (the EDTA radical being indicated by  $Y^{4-}$ ). The components were  $AlCl_3$  and EDTA saturated to different

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Interaction of Aluminum Ions With Ethylene Diamine Tetraacetic Acid and Its Salts in Aqueous Solution

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B004/B060

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degrees:  $H_4Y$ ;  $NaH_3Y$ ;  $Na_2H_2Y$ ;  $Na_3HY$ ; and  $Na_4Y$ . Five systems were thus examined by way of isomolar series and series with a constant cation concentration. Measurements (after 12 - 14 hours of stirring) included pH, specific conductivity  $\kappa$ , optical density  $D$ , in some cases also the mixing heat  $\Delta H$ . Fig. 1 shows the change of the  $H^+$  concentration in 0.05 mole/l isomeric series as a function of the molar ratio  $n = Na_x H_{4-x} Y : AlCl_3$  for all five systems. While curves 1 - 4 exhibit a maximum near  $n = 1$ , two breaks appear on curve 5 (corresponding to the system with  $Na_4Y$ ), which are interpreted as the formation of complex ions  $[AlY]^-$  and  $[Al(OH)Y]^{2-}$ . The maximum of the curves 1 - 4 for  $n \sim 1$  is accompanied by the formation of a precipitate, which was found to be  $H_4Y$ . In the reaction of  $Al^{3+}$  with  $H_4Y$  and their acid salts, the concentration of  $H^+$  ions rises rapidly at first. Thereupon, however, the  $H^+$  ions start competing with the  $Al^{3+}$  ions, and  $H_4Y$  is salted out. This is illus-

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Interaction of Aluminum Ions With Ethylene Diamine Tetraacetic Acid and Its Salts in Aqueous Solution S/078/60/005/011/021/025/XX  
B004/B060

trated in Fig. 3 for the process in the system  $\text{AlCl}_3 - \text{Na}_2\text{H}_2\text{Y} - \text{H}_2\text{O}$  (for  $\text{AlCl}_3 = 0.01$  mole/l). To  $n = 1$  there corresponds a maximum of  $[\text{H}^+]$  and  $\kappa$ . The hatched zone shows the weight of the precipitate. The latter forms only at  $n > 1$ . The decrease of the amount of precipitate with a further increase of  $n$  is caused by secondary reactions: formation of  $[\text{Al}(\text{H}_{4-x}\text{Y})]^{(3-x)}$  ions. The displacement of  $\text{Al}^{3+}$  ions from  $\text{H}_2\text{Y}^{2-}$  is thus reversible. As is shown by Fig. 4, the system  $\text{AlCl}_3 - \text{Na}_4\text{Y} - \text{H}_2\text{O}$  exhibits two breaks on the curves of pH and  $\Delta\text{H}$  for  $n = 1$  and  $n = 2$ . The first break corresponds to the reaction  $\text{Na}_4\text{Y} + \text{AlCl}_3 \longrightarrow \text{Na}[\text{AlY}] + 3\text{NaCl}$ , and after prolonged standing a conversion takes place corresponding to  $2\text{Na}[\text{AlY}] + 2\text{H}_2\text{O} \longrightarrow (\text{AlOH})_2\text{Y} + \text{Na}_2\text{H}_2\text{Y}$ . The second break displays the reaction  $\text{Na}[\text{AlY}] + \text{Na}_4\text{Y} + \text{H}_2\text{O} \longrightarrow \text{Na}_2[\text{Al}(\text{OH})\text{Y}] + \text{Na}_3\text{HY}$ . The acid salt  $\text{H}[\text{AlY}]$  ( $K_{\text{H}} = 2 \cdot 10^{-3}$ ) is formed quantitatively in an acid medium. By contrast, the ion  $[\text{AlY}]^-$  ( $\text{pK} = 15.7$ ) is formed primarily at a high pH. The Card 3/8

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Interaction of Aluminum Ions With Ethylene  
Diamine Tetraacetic Acid and Its Salts in  
Aqueous Solution

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B004/B060

acid salt displays two forms corresponding to the reaction  $AlHY \rightleftharpoons H[AlY]$   
whose equilibrium is shifted as a function of pH. There are 4 figures  
and 4 Soviet references.

SUBMITTED: February 12, 1960

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B004/B060

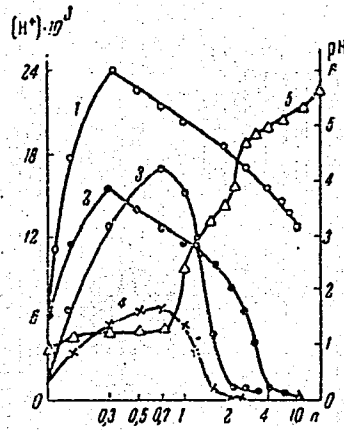


Рис. 1

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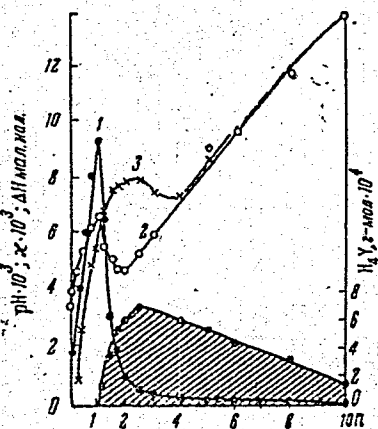


Рис. 3

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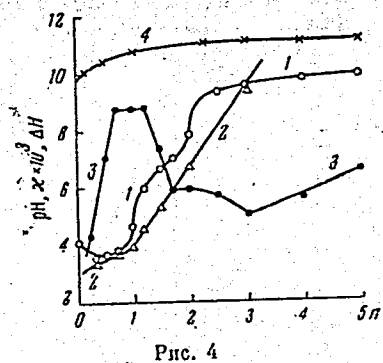


Рис. 4

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Legend to Fig. 1. 1:  $\text{AlCl}_3 - \text{H}_4\text{Y} - \text{H}_2\text{O}$ ; 2:  $\text{AlCl}_3 - \text{NaH}_3\text{Y} - \text{H}_2\text{O}$ ;  
3:  $\text{AlCl}_3 - \text{Na}_2\text{H}_2\text{Y} - \text{H}_2\text{O}$ ; 4:  $\text{AlCl}_3 - \text{Na}_3\text{HY} - \text{H}_2\text{O}$ ; 5:  $\text{AlCl}_3 - \text{Na}_4\text{Y} - \text{H}_2\text{O}$   
Legend to Fig. 3. 1:  $[\text{H}^+] \cdot 10^3$ ; 2:  $\kappa \cdot 10^3$ ; 3:  $\Delta\text{H}$ ; 4: weight of  $\text{H}_4\text{Y} \cdot 10^4$   
precipitate.  
Legend to Fig. 4. 1: pH; 2:  $\kappa$ ; 3:  $\Delta\text{H}$ ; 4: pH in solutions of  $\text{Na}_4\text{Y}$  at  
concentrations corresponding to the n-values of the systems.

X

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Fluoro oxalates of tetravalent...

S/089/62/012/005/004/014  
B101/B108

oxalic acid at 200°C (removal of the free oxalic acid by sublimation). The compound  $(UF)_2(C_2O_4)_3$  was obtained which is also new and which might contain one molecule of crystal water. Owing to the small size of the crystals a crystal optical analysis of this compound was not possible. The ionic radicals  $(UF_2)^{2+}$  and  $(UF)^{3+}$  are assumed to take part in the reaction. There are 7 figures and 2 tables.

SUBMITTED: October 28, 1961

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Formation of uranium tetrafluoride... S/089/62/012/005/005/014 35  
B101/B108

result of the sedimentation of uranium tetrafluoride. (3) Measurement of  
the pH confirmed the step-by-step addition of the fluorine anions to 40  
uranium: at  $n = 2$ ,  $UF_2^{2+}$  arises, at  $n \geq 2$  the poorly soluble monoclinic  
 $UF_4 \cdot 2.5H_2O$  arises. Study of the solubility in the system  $UF_4 - HF - H_2O$  ✓  
at  $25^\circ C$  gave a solubility curve from which the solid phases could be  
estimated:  $UF_4 \cdot 2.5H_2O$  at 0 - 38% HF in the solution;  $UF_4$  (poorly soluble) 45  
at 38 - 56% HF, and  $UF_4 \cdot 4HF$  at 56 - 80% HF. The compound  $UF_4 \cdot 4HF$  is stable  
only in concentrated HF (>55%). There are 11 figures and 2 tables.

SUBMITTED: October 28, 1961 50

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TANANAYEV, I.V.; GALKIN, N.P.; SAVCHENKO, G.S.; SUTYAGIN, V.M.

8 Interaction of  $UCl_4$  and  $U(SO_4)_2$  with NaF in aqueous solutions. Zhur.  
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(Uranium chloride) (Uranium sulfate) (Sodium fluoride)

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Morphological changes in a tumor during the preoperative treatment  
of pulmonary cancer with Thio-TEPA. Khirurgiia 41 no.4:24-32 Ap '65.  
(MIRA 18:5)

1. Patologoanatomicheskoye otdeleniye (zav. - kand. med. nauk Z.V.  
Gol'bert) Onkologicheskogo instituta imeni Gertsena, Moskva.

SAVCHENKO, G.V.

In the enterprises of our country. Standartizatsia 29  
no. 11:60-61 N '65 (MIRA 19:1)

SAVCHENKO, G.V.

Metal bases for manometers. Izn.tekh. no.12:63 D '61.  
(MIRA 15:1)  
(Manometer)



SAVCHENKO, G.V.

Self-centering fastener for pressure gauges. Elek. i tepl.  
tiaga no.1:29 Ja '61. (MIRA 14:3)

1. Rukovoditel' Ternopol'skoy gosudarstvennoy kontrol'noy laboratorii.  
(Pressure gauges)

SAVCHENKO, G.V.

New organization of the repairing and testing of measuring devices in  
rural regions. Izm.tekh. no.6:56-57 Js '61. (MIRA 14:5)  
(Measuring instruments—Maintenance and repair)

ISAYEV, S.I.; DRYAGINA, I.V.; SAVCHENKO, G.V.

Irradiation of apple trees by Co<sup>60</sup>. Nauch. dokl. vys. shkoly;  
biol. nauki no.3:105-108 '61. (MIRA 14:7)

1. Rekomendovana kafedroy genetiki i selektsii Moskovskogo  
gosudarstvennogo universiteta im. M.V.Lomonosova.  
(PLANTS, EFFECT OF GAMMA RAYS ON) (APPLE)

ACCESSION NR: AP4005833

s/0129/63/000/012/0043/0044

AUTHOR: Savchenko, G. V.; Novokreshchenova, P. D.

TITLE: Effect of low-melting metal coatings on metal thermal fatigue

SOURCE: Metalloved. i termich. obrab. metallov, no. 12, 1963, 43-44

TOPIC TAGS: thermal fatigue, metal, alloy, steel, metal coating, alloy coating, coating

ABSTRACT: The authors studied the effect of Sn, Bi, Zn and PO<sub>5</sub>40 alloy coatings on the thermal fatigue of Ni (NP2), bronze, brass (L62) and steel (1Kh18N9T) subjected to 1000 cycles in the temperature range 400-1300C. The thermal fatigue of the specimens was evaluated on the basis of a 5%, 10% and 20% decrease in ultimate strength and elasticity. The thermal fatigue of the basic metal was decreased by more than 30% when Ni was coated with Bi, while other metal coatings had no effect. Sn and PO<sub>5</sub>40 alloy coatings strongly affected the thermal fatigue of bronze and brass; Zn, that of steel at higher temperatures. The increased thermal fatigue of steel with a Zn coating is explained by the low thermal strains produced by this metal. The decrease in thermal fatigue produced by active low-melting coatings is explained by the Rebinder effect. Orig. art. has: 4 graphs.

Card

1/2 ASSOCIATIONS: Voronezh Pedagogical Institute

SAVCHENKO, G.V.

Rare case of anomalous location of the large intestine. Khirurgia  
38 no.10:123 0 '62. (MIRA 15:12)  
(INTESTINES---ABNORMITIES AND DEFORMITIES)

ZHARIKOVA, G.G.; KOVYAZIN, N.V.; LUKIN, A.A.; MITRONOVA, T.N.; SAVCHENKO,  
G.V.; SILAYEV, A.B.; SUSHKOVA, I.V.

Production of gramicidin C by the flat form of *Bacillus brevis*  
var. GB. Antibiotiki 8 no.3:228-232 Mr'63 (MIRA 17:4)

1. Laboratoriya antibiotikov i kafedra genetiki biologo-poch-  
vennogo fakul'teta Moskovskogo universiteta imeni Lomonosova.

ZHARIKOVA, G. G.; SAVCHENKO, G. V.; MIRONOVA, L. A.; SILAYEV, A. B.; KATRUKHA, G. S.

"Antibiotic production by four dissociation forms of bac. brevis var. GB."

report submitted for antibiotics cong, Prague, 15-19 Jun 64.

Lab of Antibiotics, Faculty of Soil Biology, Moscow State Univ.

ZHARIKOVA, G.G.; SAVCHENKO, G.V.; MIRONOVA, L.A.

Effect of antibiotics on four types of *Bacterium brevis* var. GB.  
Antibiotiki 9 no.8:734-737 Ag '64. (MIRA 18:3)

1. Laboratoriya antibiotikov biologo-pochvennogo fakul'teta  
Moskovskogo universiteta imeni Lomonosova.



ZHARIKOVA, G.G.; SAVCHENKO, G.V.; MITRONOVA, T.N.

Dissociation forms of *Bacillus brevis* var. G.B. *Mikrobiologiya*  
33 no.4:605-609 J1-Ag '64. (MIRA 18:3)

1. Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo  
universiteta.

ACC NR: AF7002939

SOURCE CODE: UR/0020/66/171/006/1443/1446

AUTHOR: Shlyk, A. A.; ~~Savchenko, G. Ye.~~; Stanishevskaya, Ye. M.; Shevchuk, S. N.;  
Gaponenko, V. I.; Gatikh, O. A.

ORG: Laboratory of Biophysics and Isotopes Academy of Sciences BSSR (Laboratoriya  
biofiziki i izotopov Akademii nauk BSSR)

TITLE: Role of phytochrome in the chlorophyll metabolism of green plants

SOURCE: AN SSSR. Doklady, v. 171, no. 6, 1966, 1443-1446

TOPIC TAGS: chloroplast, chlorophyll synthesis, light biologic effect, tracer study

ABSTRACT: Effect of phytochrome on chlorophylls a and b and on protochlorophyll was investigated in etiolated rye seedlings and rye green leaves under different lighting conditions. Groups of rye green leaves were exposed for 15 min to infrared light ( $1.4 \text{ mw/cm}^2$ ), far infrared light ( $1.0 \text{ mw/cm}^2$ ), infra red and far infrared light combined, and white light. Following exposure the seeds were kept in the dark for 3 hrs before determining chlorophyll levels and for 15 hrs before determining protochlorophyll levels. In the second experimental series groups of 9 to 10 day old seedlings placed on damp filter paper between glass slides were exposed for a 10 to 15 min period to infrared light ( $658 \text{ m}\mu$  or  $645 \text{ m}\mu$ ) and to far infrared light ( $737 \text{ m}\mu$ ) at an intensity of  $1.0$  to  $6.5 \text{ mw/cm}^2$  and a ratio of 1 or 1.5 between the duration of the

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UDC: 581.132

SAVCHENKO, I., inzh.

A pocket radio receiver. Znan.ta pratsia no.6:21 Je '59.  
(MIRA 12:11)

(Radio--Receivers and reception)

SAYCHENKO, I.

Timers. Znan. ta pratsia no.9:30 S '60. (MIRA 13:9)  
(Automatic timers)

SAVCHENKO, I., inzh.

Magic crystals. Znan. ta pratsia no. 12:32 D '60. (MIRA 14:4)  
(Semiconductors)

SAVCHENKO, I.

Use of breathers on petroleum storage tanks. Pozh.deio. 5 no.11:  
12 N '59. (MIRA 13:4)

(Petroleum--Storage)

SAVCHENKO, I.

Training of municipal engineers. Zhil.-kom. khoz. 3 no.11:26-27  
[N]'53. (MLRA 6:12)

1. Direktor Stalingradskogo instituta gorodskogo khozyaystva.  
(Municipal engineering)

SAVCHENKO, I., inzh.; GOLTVYANITSA, K. [Holtv<sup>n</sup>ianytsia, K.], inzh.;  
BOGDANOV, M. [Bohdanov, M.], inzh.; SHAYDUK, V., inzh.

Use of thermal cutters for working granites. Bud.mat.i konstr.  
4 no.6:51-53 N-D '62. (MIRA 15:12)  
(Stonecutting--Equipment and supplies)



SAVCHENKO, I., inzh.

Received by phototelegraph. Znan. ta pratsia no.6:8-9  
Je '61. (MIRA 16:8)

SAVCHENKO, I.A.

Simplified injector rack of the GAB bottle-washing machine.  
Spirt.prom. 28 no.2:35-36 '62. (MIRA 15:3)

1. Mariinskiy likero-vodochnyy zavod.  
(Bottle washing)

SAVCHENKO, I.A.

Improving the quality of bottle washing. Spirt.prom. 29 no.1:29-30 '63.  
(MIRA 16:2)

1. Mariinskiy likero-vodochnyy zavod.  
(Bottle washing)

SAVCHENKO, I. A.

Feeding of bottles to the washing systems without the use of  
containers. Spirt. prom. 29 no.3:41-42 '63.

(MIRA 16:4)

1. Mariinskiy likero-vodochnyy zavod.

(Bottle washing)

21(7)

SOV/56-36-4-68/70

AUTHORS:

Zaytsev, A. A., Leonov, G. S., Zavchenko, I. A.

TITLE:

On the Oscillations of Plasma Electrons (O kolebaniyakh elektronov plazmy)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 4, pp 1332-1334 (USSR)

ABSTRACT:

The authors of the present "Letter to the Editor" deal with investigations of electronic oscillations in plasmas of viscous gases at pressures of from  $3 \cdot 10^{-1}$  to  $5 \cdot 10^{-4}$  torr. Recording of the oscillation was carried out by means of a heterodyne circuit with an independent generator for the decimeter range and an independent amplifier for the intermediate frequencies. Work was carried out at a frequency of 30 megacycles on the 10 megacycle band. The upper limit at which regular oscillations could still be observed was found to be independent of the nature of the gas (He:  $2 \cdot 10^{-1}$ , Ar:  $10^{-2}$ , Xe:  $6 \cdot 10^{-3}$  torr). For the purpose of solving the problem of oscillation excitation it is of great importance to investigate oscillation distribution along the discharge axis; hitherto, such investigations have not been carried

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On the Oscillations of Plasma Electrons

SOV/56-36-4-68/70

out without probe influences. The authors endeavored to eliminate these influences and to investigate the non-influenced oscillation distribution. For this purpose they used a cylindrical tube of 7 cm diameter and an electrode gap of 2.2 cm. A figure shows the distribution of oscillation intensities at a pressure for which the free length of path of the primary electrons were great as against the electrode gap; in the diagram the intensities in dependence on the distances between the probe and the cathode are plotted. It was found that the oscillation distribution, which is representable by a periodic function, has amplitudes which increase in the direction towards the anode. The intensity of oscillations and the coefficient of increase grow with a decrease of pressure. Oscillation intensity may vary by more than the thousandfold under these experimental conditions along the beam. At sufficiently high pressures, if electron free length of path is small with respect to the electrode gap, the oscillations are damped towards the anode, and one maximum only can be found. Measurements showed that the spatial oscillation period can be well approximated by the formula  $l = 2\pi v_0 / \omega$  ( $v_0$  = velocity of electrons in the beam [cm/sec], and  $\omega$  = cyclic

Card 2/3

On the Oscillations of Plasma Electrons

SOV/56-36-4-68/70

frequency of the observed oscillations). Within the range of sufficiently strong oscillations an anomalous scattering of the primary beam can be visually observed. This fact is, finally, discussed in short. There are 1 figure and 4 references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: February 19, 1959

Card 3/3

24,2120 (1049,1482,1502)  
26.2311

21609

S/188/61/000/002/004/010  
B113/B203

AUTHORS: Savchenko, I.A., Zaytsev, A.A.

TITLE: High-frequency oscillations in a low-pressure discharge

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya 3, fizika,  
astronomiya, no. 2, 1961, 19 - 25

TEXT: The authors experimentally studied the effect of plasma boundaries on the excitation conditions and intensity distribution of electron oscillations of an argon plasma. They studied oscillations in a low-pressure discharge in a cylindrical tube of 65 mm diameter with an indirectly heated oxide cathode of 3 mm diameter. The tube also contained a mobile anticathode and a side electrode. The mobile electrode could be connected as anode or electron reflector; in the latter case, the discharge started glowing on a voltage supply between cathode and side electrode. The oscillations were indicated by a cylindrical probe 0.08 mm in diameter, which only touched the beam to keep the measurements free from interferences otherwise caused by the probe. The authors observed various pressure-dependent forms of discharge. The form shown in Fig. 2, a occurs at a

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S/188/61/000/002/004/010  
B:13/B203

X

High-frequency oscillations in ...

pressure of  $10^{-2}$  mm Hg. A pinch is formed on a decrease in pressure. At a pressure of  $7 \cdot 10^{-3}$  mm Hg, the pinch becomes stronger. Behind it, there is a scattering, and the intensity of oscillations increases. At a pressure of  $5 \cdot 10^{-3}$  mm Hg, a sharp pinch is formed. Behind the pinch, there is another scattering, and the intensity of oscillations continues increasing. Finally, a pressure  $< 3 \cdot 10^{-3}$  mm Hg gives uniformly diverging beams. No oscillations were observed in this case. A certain periodicity (probably due to the effect of plasma boundaries) was noticed with respect to the distribution of intensity of oscillations with anode-cathode spacings of less than 26 mm. Considerable oscillations were also observed. A standing wave is probably formed due to electron reflections from the anode, which enables the oscillations to be amplified. If the mobile electrode has a negative potential relative to the cathode, the electrons are reflected into the plasma by a retarding field formed near the reflector. The effect of the reflector on the character of oscillations gradually decreases while moving away from the cathode, and finally vanishes. When determining the range of generation of oscillations, the authors found that oscillations existed for all anode-cathode spacings if the discharge showed a

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B113/B203

High-frequency oscillations in ...

pinch. If however, the spark gap was bounded by a small anode-cathode spacing the beam did not converge to a pinch, and no oscillations were formed. Thus, it may be concluded that the range of generation of intense oscillations is limited to the zone of the pinch. There are 5 figures and 17 references: 6 Soviet-bloc and 11 non-Soviet-bloc.

ASSOCIATION: Kafedra Elektroniki (Department of Electronics)

SUBMITTED: July 8, 1960

Card 3/3

L 53798-65 EWT(1)/EPF(n)-2/EWG(m)/EPA(n)-2 Pz-6/Pe-4/Pab-10/Fi-4 IJP(c)

WW/AT  
ACCESSION NR: AP5013367 UR/0207/65/000/002/0030/0034

AUTHOR: Zaytsev, A. A. (Moscow); Savchenko, I. A. (Moscow) 62  
B

TITLE: Electron oscillations in a plasma 21

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 2, 1965, 30-34

TOPIC TAGS: plasma oscillation, intensity distribution, spatial intensity, plasma beam interaction

ABSTRACT: Conditions under which periodicity occurs in the spatial distribution of the intensity of plasma oscillations excited by an electron beam were studied experimentally. It was found that periodicity occurs in the presence of a boundary which reflects primary or emits secondary electrons to form a reflected wave. In the absence of such a boundary, the oscillations are amplified in accordance with the theory of convective plasma instability. The experiments were conducted with a plasma produced in several types of argon-filled discharge tubes. The role of the reflected wave in the formation of periodicity was considered first. The distribution of oscillation intensity along the discharge axis was determined for two different cases in which a) the reflector plane was perpendicular to the direction of the primary beam, and b) the reflector formed an angle of 45° with

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ACCESSION NR: AP5013367

the direction of the primary beam (see Fig. 1 of the Enclosure). In the first case, the intensity distribution had a distinct periodic structure, while there was none in the second. The distance from the cathode to the zone of maximum oscillation intensity, together with the growth factor, were next determined. Finally, the relationship between the intensity of oscillations at a fixed frequency and the current strength in the plasma was measured. Calculations of the plasma frequency, based on data from electron concentration measurements with a Langmuir probe, showed that the maximum oscillation intensity is reached at a frequency approaching the frequency of the plasma electron oscillations. Fig. 2 illustrates the typical spatial distribution of oscillation intensity for a case in which the oscillations in the beam are caused by plasma-beam interactions. Orig. art. has: 6 figures and 1 table. [JR]

ASSOCIATION: none

SUBMITTED: 10Jul64

ENCL: 01

SUB CODE: ME, NP

NO REF SOV: 006

OTHER: 007

ATD PRESS: 4023

Card 2/32

L 59509-65 EWT(1)/EPA(s)-2/EWT(m)/EPP(c)/EPA(w)-2/EWP(t)/EWP(b)/EWA(m)-2 Pr-1  
LJP(c) JD  
ACCESSION NR: AP5016631 UR/0188/65/000/003/0089/0091  
533.951.3:537.525

AUTHORS: Zaytsev, A. A.; Savchenko, I. A.

TITLE: Ion oscillations in low pressure discharge

SOURCE: Moscow. Universitet. Vestnik. Seriya 3. Fizika, astronomiya, no. 3, 1965, 89-91

TOPIC TAGS: gas discharge, plasma, ionization, argon, helium, neon, plasma frequency/ S4-8 spectrum analyzer

ABSTRACT: The results of experiments with ion oscillations in low density discharge tubes are reported in the kilocycle-to-megacycle frequency range. Type of gases used were argon, neon, and helium. The tubes were 7 cm in diameter, with cathodes 3 mm in diameter and flat moveable anodes 6 cm in diameter. Oscillations were picked up by probes and analyzed by means of an S4-8 spectrum analyzer. Two types of oscillations were observed. One occurred in the free domain of the discharge when the magnitude of the current was less than the saturation thermoelectric current. It is thought that such a discharge is created by the formation

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L 59509-65

ACCESSION NR: AP5016631

of a minimum potential field ahead of the cathode. The second type of oscillation occurred at large currents. Its magnitude became especially large when the discharge had the shape of a "meniscus." Curves of frequency square versus discharge current showed a linear rise as the magnitude of the current was increased. The ion oscillation frequency also increased with increased gas pressure. Orig. art. has: 3 figures, 1 table, and 1 formula.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet, Kafedra elektroniki (Moscow State University, Department of Electronics)

SUBMITTED: 09Sep64

ENCL: 00

SUB CODE: GP

NO REF SOV: 005

OTHER: 006

Card 2/2 *dm*

SAVCHENKO, I.A.

Effect of vibration on the internal friction of sands. [Trudy]  
NIIOSP no.32:83-88 '58. (MIRA 12:2)  
(Soils--Testing) (Vibration) (Friction)

PREOBRAZHENSKAYA, H.A.; SAVCHENKO, I.A.

Effect of vibration on shear resistance of clayey soils. [Trudy]

NIIOSP no.32:89-92 '58.

(MIRA 12:2)

(Soils--Testing)

(Vibration)

(Clay)



SAVCHENKO, I.A.

Experimental investigation of the absorption coefficient of  
soils. Trudy NIIOSP no.44:107-111 '61. (MIRA 14:8)  
(Soil mechanics) (Vibration)

SAVCHENKO, I.A.

Effect of the size of the soil specimen on the results of  
laboratory determination of its resistance to shear. Trudy  
NIIOSP no.44:112-114 '61. (MIRA 14:8)  
(Soil mechanics) (Vibration)

L 26612-66 EWT(1) JT

ACC NR: AP6009440

SOURCE CODE: UR/0377/65/000/003/0030/0033

AUTHORS: Tarnizhevskiy, B. V.; Razgovorov, A. D.; Savchenko, I. G.

35  
B

ORG: All-Union Order of Labor Red Banner Scientific Research Institute of Current Sources (Vsesoyuznyy ordena Trudovogo Krasnogo Znameni n.-1. institut istochnikov toka)

TITLE: Investigation of optical and power characteristics of a solar radiation concentrator manufactured by the "bulge" method

SOURCE: Geliotekhnika, no. 3, 1965, 30-33

TOPIC TAGS: solar radiation, solar furnace, experimental method, optic method

ABSTRACT: The optical and power characteristics of a solar furnace concentrator are investigated. The concentrator is made by the "bulge" method, using sheet material under an equilibrium load. This gives the concentrator an approximately parabolic shape. The radiant flux density along the focal image for a parabolic concentrator is given by

$$E_r = C_1 e^{-C_2 r^2}$$

where r is the distance from the optical axis. To verify this experimentally, a

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L 26612-66

ACC NR: AP6009440

continuous-flow calorimeter is placed on the focal point of the concentrator with a collection of diaphragms to locate the beam along the focal image. The measurement results are plotted as E (the radiant flux density) versus distance from the optical axis r. When compared with the above theoretically derived formula, the agreement is found to be quite poor. For the "bulged" concentrator, the results show a sharp maximum of E on the optical axis. Orig. art. has: 3 figures and 2 formulas.

SUB CODE: 13/ SUBM DATE: 31May65/ ORIG REF: 004/ OTH REF: 001

Card 2/2 BKG

SAVCHENKOV, I. I., Physician

"Gunshot Osteomyelitis in Dynamic X-Ray Representation." Sub 29 Sep 47.  
Second Moscow State Medical Inst imeni I. V. Stalin

Dissertations presented for degrees in science and engineering in  
Moscow in 1947

SO: Sum No. 457, 18 Apr 55

SAVCHENKOV, I.I., kandidat meditsinskikh nauk; MYASNIKOV, A.L., professor,  
deystvitel'nyy chlen Akademii meditsinskikh nauk SSSR, direktor.

Total orthoroentgenography of the heart and the aorta. Vest.rent.i rad.  
no.3:68-71 My-Je '53. (MLRA 6:8)

1. Institut terapii Akademii meditsinskikh nauk SSSR (for Savchenkov).
2. Tsentral'naya poliklinika Iechsanupra Kremlya (for Savchenkov).  
(Radiography) (Heart) (Aorta)

MOGIL'NITSKIY, B.N., professor; MAZAYEV, P.N., professor; SAVCHENKO, I.I.

Experiments with the effect of the cerebral cortex on permeability of blood vessels. Trudy AMN SSSR 24 no.2:151-159 '53. (MLRA 7:7)

1. Chlen-korrespondent Akademii meditsinskikh nauk (for Mogil'nitskiy)  
(CEREBRAL CORTEX, physiology,  
\*regulation of permeability of blood vessels in various  
exper. pathol. cond.)  
(BLOOD VESSELS, physiology,  
\*permeability, regulation by cerebral cortex in various  
exper. pathol. cond.)

SAVCHENKOV, I.I.

Roentgenoteleauscultation characteristics of coarctation of the  
aorta. Vest. rent. i rad. no.5:37-45 S-0 '54. (MLHA 7:12)

1. Iz Instituta terapii (dir. deystvitel'nyy chlen Akademii  
meditsinskikh nauk SSSR prof. A.L.Myasnikov) akademii meditsinskikh  
nauk SSSR.

(COARCTATION OF AORTA, diagnosis,  
x-ray-tele-auscultation technic)



*SAVCHENKOV, I. I.*

SAVCHENKOV, I. I.

Roentgenologic endo-auscultation and registration of variations of movements of the cardiovascular system at the esophagus, trachea, stomach, and duodenum. Khirurgiia no.11:18-27 N '54. (MLRA 8:3)

1. Iz laboratorii rentgeno-fonodiagnostiki serdechno-sosudistykh zabolevaniy (zav. I. I. Savchenkov) Instituta terapii (dir. prof. A. L. Myasnikov) Akademii meditsinskikh nauk SSSR.

(CARDIOVASCULAR DISEASES, diagnosis,  
x-ray endo-auscultation technic)

(CARDIAC MURMURS AND SOUNDS,  
endo-auscultation, roentgenographic technic)

SAVCHENKOV, Ivan Ivanovich, kandidat meditsinskikh nauk; KIPNIS, S.Ye.,  
redaktor; DMITRIYEVA, R.V., tekhnicheskiy redaktor.

[Phonoroentgenology of the heart; based on "Sunday Lectures"  
material of the Polytechnical museum] Zvukovaia rentgenologiya  
serdtsa; po materialam "Voskresnykh chtenii" politekhnicheskogo  
muzeia. Moskva, Izd-vo, "Znanie," 1955. 23 p. (Vsesoiuznoe ob-  
shchestvo po rasprostraneniю politicheskikh i nauchnykh znanii.  
Ser. 3, no.24) (MLRA 8:9)  
(Heart)

SAVCHENKOV, I.I.

VISHNEVSKIY, A.A.; SMELOVSKIY, S.I.; pri uchasti N.K.Galankina, A.M.  
Kudryavtsevov, G.Ye.Perchikovoy, I.I.Savchenkova (Moskva)

Surgical treatment of mitral stenosis with local anesthesia. Klin.  
med. 33 no.2:3-12 P '55. (MLRA 8:5)

1. Iz Instituta khirurgii imeni A.V.Vishnevskogo AMN SSSR (dir.  
prof. A.A.Vishnevskiy) i Instituta terapii AMN SSSR (dir. prof.  
A.L.Mysnikov).

(ANESTHESIA, LOCAL,  
in mitral stenosis surg.)

*Savchenko I.I.*

VISHNEVSKIY, A.A., professor; GALANKIN, N.K., kandidat meditsinskikh nauk;  
DZHAGARYAN, A.D., kandidat meditsinskikh nauk; SAVCHENKOV, I.I.,  
kandidat meditsinskikh nauk

Surgical treatment of double aortic arch. Khirurgiia 32 no.4:56-62  
Ap '56. (MLRA 9:8)

1. Iz Instituta khirurgii imeni A.V.Vishnevskogo AMN SSSR (dir.  
chlen-korrespondent AMN SSSR prof. A.A.Vishnevskiy) i Instituta  
terapii AMN SSSR (dir. deyatvitel'nyy chlen AMN SSSR prof. A.L.  
Myasnikov)

(CARDIOVASCULAR DEFECTS, CONGENITAL,  
double aortic arch, surg. (Rus))