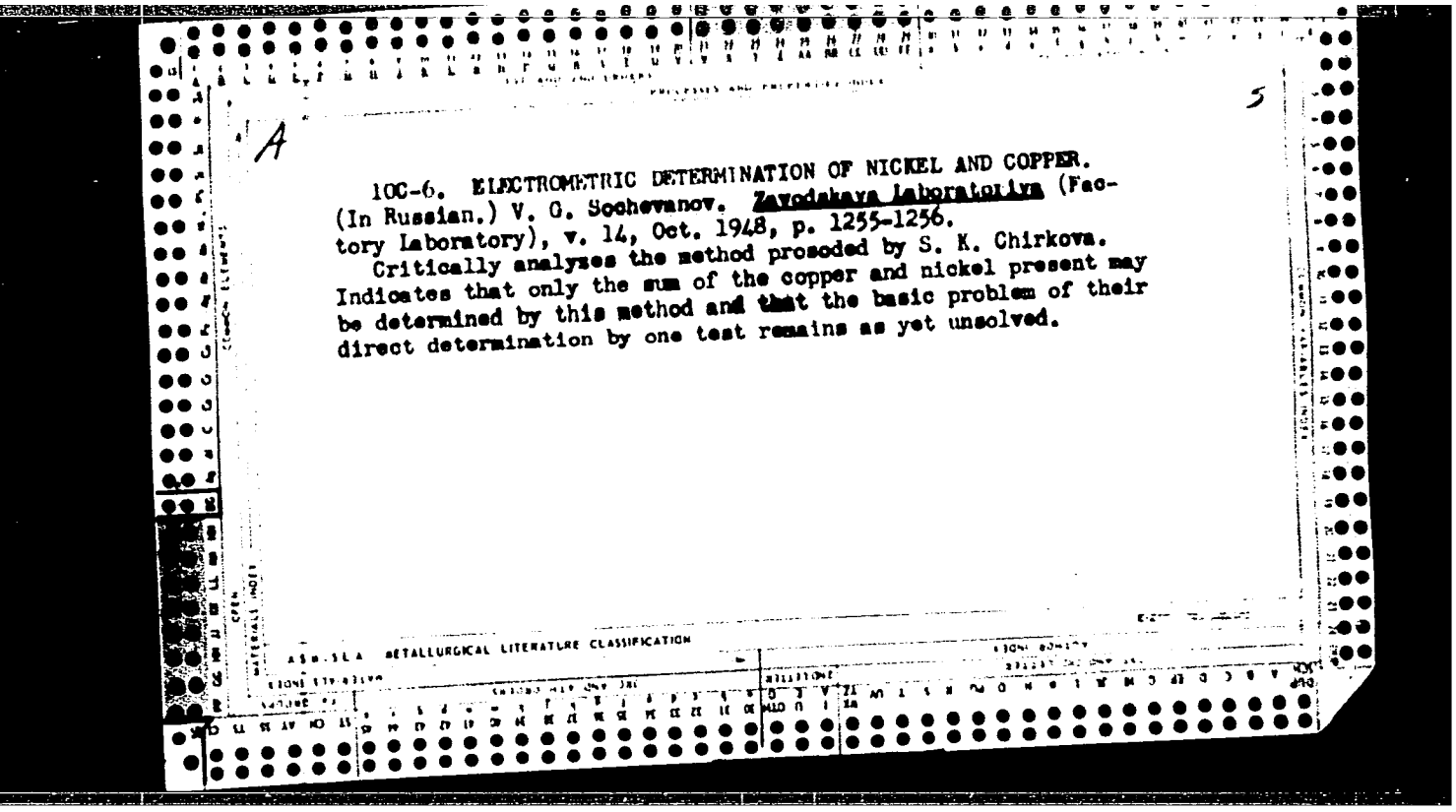


A

5

10C-6. ELECTROMETRIC DETERMINATION OF NICKEL AND COPPER. (In Russian.) V. G. Sochevanov. Zavodskaya Laboratoriya (Factory Laboratory), v. 14, Oct. 1948, p. 1255-1256.

Critically analyzes the method proposed by S. K. Chirkova. Indicates that only the sum of the copper and nickel present may be determined by this method and that the basic problem of their direct determination by one test remains as yet unsolved.

A 5 0.1 L A METALLURGICAL LITERATURE CLASSIFICATION

SOCHEVANOV, V.G.; BAGOTSKIY, V.S., red.; BOGATIN, G.A., red.; BABOCHKIN, S.N., tekhn. red.

[Galvanic cells] Gal'vanicheskie elementy. Moskva, Gosenergoizdat, 1951. 271 p. (MIRA 16:7)
(Electric batteries)

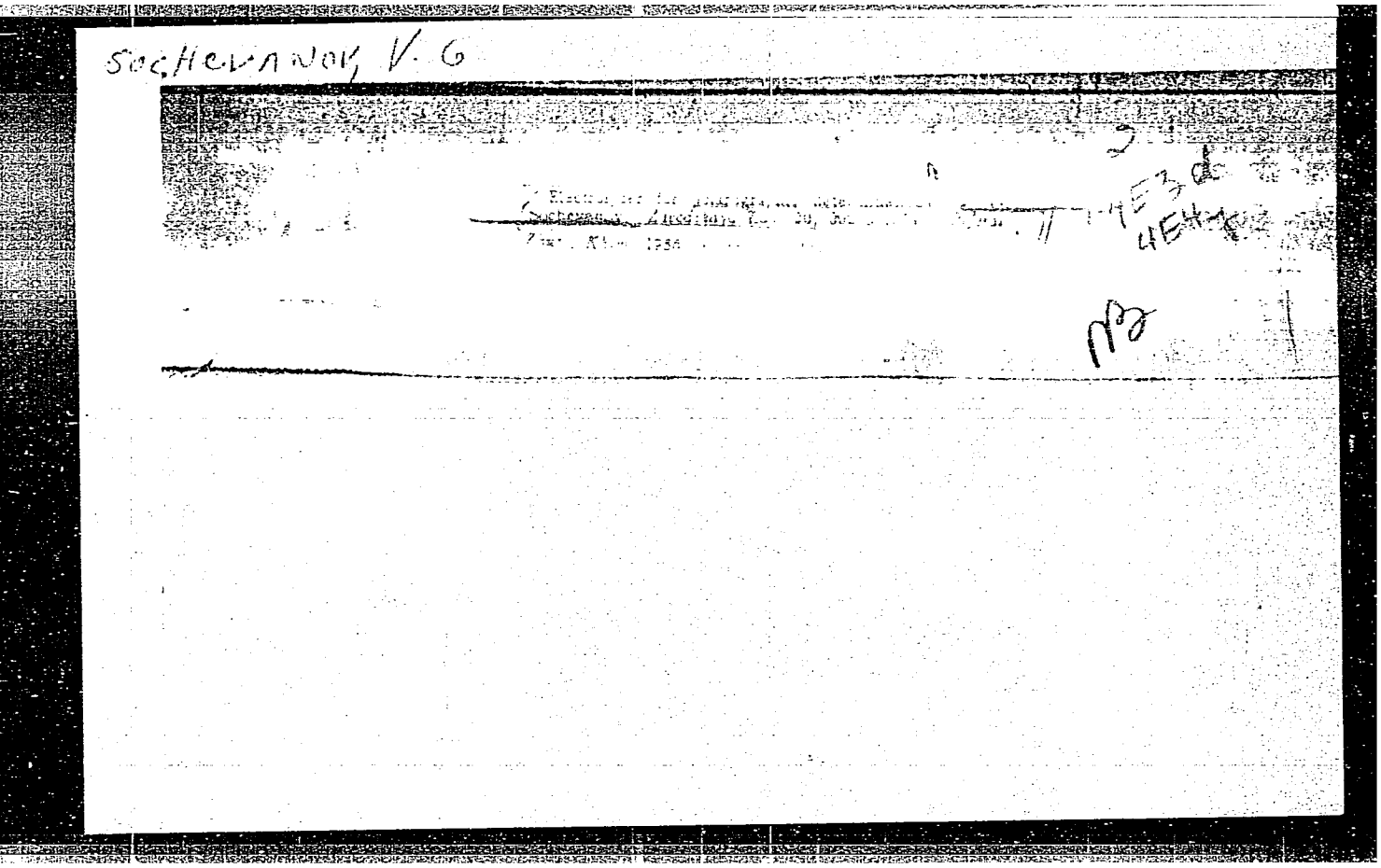
SOKOLOVANOV, V. G.

"Method for preparation of stable solutions of sodium and potassium zincates." (p. 1973)

SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1952, Vol. 22, No. 7

FEYNBERG, S.Yu.; ALIMARIN, I.P., professor, doktor, retsenzent; SOCHEVANOV, V.G., kandidat khimicheskikh nauk, retsenzent; TITOV, V.I., kandidat khimicheskikh nauk, retsenzent.

[Analysis of ores of non-ferrous metals] Analiz rud tsvetnykh metallov. 2. ispr.i dop. izd. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1953. 832 p. (MLRA 7:4)
(Assaying)



SOCHEVANOV V.G.

KRYUKOV, P.A.; SOCHEVANOV, V.G.

Glass electrode for the measurement of pH. Gidrokhim.mat. no.22: 96-103 '54. (MLRA 7:11)

1. Gidrokhimicheskiy institut Akademii nauk SSSR, Novocherkassk. (Electrodes, Glass) (Hydrogen-ion concentration)

KNIPOVICH,Yu.N., redaktor; SOKOLOV,I.Yu., redaktor; SOCHEVANOV,V.G., redaktor; TITOV,V.I., redaktor; SHMANENKOV,I.V., redaktor KOLOSKOVA,M.I., redaktor; PEN'KOVA,S.A., tekhnicheskiy redaktor

[Chemical and physico-chemical methods of analyzing mineral ores] Khimicheskie i fiziko-khimicheskie metody analiza mineral'nogo syr'ia. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po geologii i okhrane nedr, 1955. 191 p. (MLRA 9:4)

1. Vsesoyuznoye soveshchaniye rabotnikov khimiko-analiticheskikh laboratoriy.
(Ores--Sampling and estimation)

Call Nr AF 1095038

AUTHOR: Sochevanov, V. G. (Supervisor), Volkova, G. A., Volkova, S. P., Martynova, L. T., Pakhomova, K. S., Popova, T. P., Rozbianskaya, A. A., Rozovskaya, G. V., and Shmakova, N. V.

TITLE: Methods of Chemical Analysis of Mineral Ores (Metody khimicheskogo analiza mineral'nogo syr'ya); Polarography (Polyarografiya). Nr 2.

PUB. DATA: Gosudarstvennoye nauchno-tekhnicheskoye izdatel'stvo literatury po geologii i okhrane nedr, Moscow, 1956, 100 pp., 5,000 copies.

ORIG. AGENCY: Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya (VIMS) Ministerstva geologii i okhrany nedr SSSR

EDITOR: Sochevanov, V. G.

PURPOSE: This is a manual for use in industrial laboratories of agencies under the Ministry of Geology and Conservation of Mineral Resources of the USSR.

Card 1/11

Call Nr AF 1095038

Methods of Chemical Analysis of Mineral Ores (Cont.)

Scientific Council of the VIMS, namely: G. A. Lanskiy (Chairman), V. I. Titov (Vice-Chairman), V. M.Pensionerova (Secretary), S. K. Rusanov, V. M. Zvenigorodskaya, V. G. Sochevanov, I. V. Sorokin, L. I. Gerkhardt, I. Yu. Sokolov, and I. V. Shmanenkov (Deputy Director of VIMS, Science Division). It was found that the polarographic method for determination of a few per cent or of traces of the constituents frequently excels orthodox methods. The book gives instructions for the polarographic determination of copper, zinc, cadmium, lead, tin, molybdenum, antimony, indium, and thallium in ores. The polarographic method of analysis is discussed in detail, the equipment is described, and lists of reagents are given. Illustrations of electrolytic cells are given on pp. 6,7,8, and 9. The institutions where the polarographic methods were developed are mentioned in the Table of Contents and in the description of the individual procedures in the text. (Soviet scientists distinguish two types of apparatus: 1. polarometers or "visual polarographs", and 2. recording polarographs or "polarographs".) An extensive bibliography is included. There are 47 references of which 40 are USSR.

Card 3/11

Methods of Chemical Analysis of Mineral Ores (Cont.)

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Polarographic determination of lead in ores containing acid-soluble tin 58

Polarographic method for determination of lead in high-grade ores 61

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SOCHEVANOV, V.E.

SOCHEVANOV, V.G.; SHMAKOVA, N.V.; VOLKOVA, G.A.

Conditions for precipitation of uranyl ferrocyanide in aqueous solutions. Zhur.neorg.khim. 2 no.9:2049-2057 S '57. (MIRA 10:12)
(Precipitation Chemistry)) (Uranyl ferrocyanide)

PHASE I BOOK EXPLOITATION 846

U.S.S.R. Ministerstvo geologii i okhrany nedr

Metody opredleniya radioaktivnykh elementov v mineral'nom syr'ye (Methods of Determining Radioactive Elements in Mineral Raw Materials) Moscow, Gosgeoltekhizdat, 1958. 68 p. 3,000 copies printed.

Compilers: Sochevanov, V.G. and Titov, V.I.; Ed.: Krasnova, N.E. Tech. Ed.: Averkiyeva, T.A.

PURPOSE: This book is for those engaged in geochemical prospecting for radioactive ores.

COVERAGE: The chemical determination of radioactive substances in minerals and rock formations is described in this publication. Chemical treatment of materials in preparation for radiometric analysis is also included. The proposed methods are considered to be the most

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reliable for geochemical research. Methods are presented in the form of separate procedure instructions with the inclusion of: principle of the method, elimination of interfering factors, application limits, necessary reagents, procedure of analysis. Specifications for high purity reagents are given whenever necessary. There is a bibliography with 26 references, 17 of which are Soviet, 4 English, 3 German, 1 Czech, and 1 Swiss.

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AVAILABLE: Library of Congress

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SOCHEVANOV, V.G.; VOLKOVA, G.A.; LYUDIMOVA, L.N.; MARTYNOVA, L.T.; SHMAKOVA, N.V.; PANOVA, A.I., red.izd-va; PEN'KOVA, S.A., tekhn.red.

[Methods of polarographic analysis of raw minerals; results of a seminar conducted in 1956, in Sverdlovsk] Metody poliarograficheskogo analiza mineral'nogo syr'ia; itogi seminara, provedennogo v 1956 g. v Sverdlovske. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geol. i okhrane nedr, 1960. 161 p. (MIRA 13:12)

1. Russia (1923- U.S.S.R.) Ministerstvo geologii i okhrany nedr. 2. Vsesoyuznyy institut mineral'nogo syr'ya (for Sochevanov, Volkova, Martynova, Shmakova).
(Mines and mineral resources) (Polarography)

5.5210

77753
SOV/75-15-1-15/29

AUTHORS: Sochevanov, V. G., Shmakova, N. V., Volkova, G. A.

TITLE: The Effect of Some Ions on the Precipitation of Uranyl Ferrocyanide From Aqueous Solutions

PERIODICAL: Zhurnal analiticheskoy khimii, 1960, Vol 15, Nr 1, pp 77-83 (USSR)

ABSTRACT: The effect of some ions on the composition of the precipitate formed by the reaction of uranyl ion with ferrocyanide was studied, using amperometric titration. Titration was conducted in I M potassium nitrate solution at pH 3.0—5.0 and 40-60°. According to the effect on uranyl ferrocyanide precipitation, the investigated elements form the following groups. Ions which do not effect the composition of uranyl ferrocyanide: NH_4^+, Na^+, Mg^{2+}, Al^{3+}, Cr^{3+}, Ce^{3+}, VO_3^-, CrO_4^- and Cl^-; ions which change the composition

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of uranyl ferrocyanide: Zn^{2+}, Cu^{2+}, Ni^{2+}, Pb^{2+}, Fe^{3+}, Th^{4+}, MoO_4^{2-}, PO_4^{3-}, SO_4^{2-}. The effect of copper ions is shown in Table 1. Other results are shown in Tables 2 and 4. There are 4 tables; and 9 references, 1 Swiss, 8 Soviet.

SUBMITTED: May 9, 1959

The Effect of Some Ions on the Precipitation of Uranyl Ferrocyanide From Aqueous Solutions

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SOV/75-15-1-15/29

Table 1. Results of amperometric titration of uranyl and copper solutions with ferrocyanide. (a) Taken (millimole); (b) molar ratio; (c) consumption of $K_4Fe(CN)_6$ (millimole; (d) molar ratio; (e) composition of the salt corresponding to the given ratio.

(a) Cu^{2+}	(a) UO_2^{2+}	(b) Cu^{2+}/UO_2^{2+}	(c)	(d) $n(Cu^{2+}+UO_2^{2+})$ / $Fe(CN)_6^{4-}$	(e)
0	0,01	0 : 1	0,0078	1,29	$K_2(UO_2)_3[Fe(CN)_6]_2$
0,01	0,1	1 : 10	0,0850	1,27	
0,01	0,05	1 : 5	0,0465	1,29	
0,01	0,02	1 : 2	0,0232	1,29	
0,01	0,01	1 : 2	0,0232	1,29	
0,01	0,01	1 : 1	0,0145	1,37	$K_2(Cu,UO_2)_3$ · $[Fe(CN)_6]_2$
0,01	0,01	1 : 1	0,0145	1,37	
0,01	0,01	2 : 1	0,0224	1,34	
0,03	0,01	3 : 1	0,0290	1,37	
0,05	0,01	5 : 1	0,0370	1,63	$K_2(Cu,UO_2)_3$ · $[Fe(CN)_6]_2$
0,10	0,01	10 : 1	0,0750	1,47	
0,15	0,01	15 : 1	0,0960	1,55	
0,06	-	6 : 0	0,0415	1,45	
0,10	-	10 : 0	0,0663	1,51	
0,20	-	20 : 0	0,1280	1,56	$K_2Cu[Fe(CN)_6]_2$
0,30	-	30 : 0	0,1940	1,55	

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Table 2. Amperometric titration of uranium in the presence of Al, Cr, and Ce. (a) Taken (millimole); (b) molar ratio; (c) consumption; (d) remarks; (e) is not titrated; (f) the same; (g) titrating curves are distinct; (i) titrating curves are not distinct; (J) titrating curve not quite distinct.

(a)				(b)	(c)	(d)
Al^{3+}	Cr^{+}	Ce^{3+}	UO_2^{2+}	Me^{3+}/UO_2^{2+}	$K_4[Fe(CN)_6]$, *ml*	
—	—	—	0,01	0 : 1	0,80	
0,10				1 : 0	(e)	
0,50				5 : 0	(f)	
0,01			0,01	1 : 1	0,90	
0,05	—	—	0,01	5 : 1	0,90	
0,10	—	—	0,01	10 : 1	0,88	(g)
0,30	—	—	0,01	30 : 1	0,90	
0,50	—	—	0,01	50 : 1	0,90	
0,80			0,01	80 : 1	1,00	(i)
1,00	—	—	0,01	100 : 1	1,00	

The Effect of Some Ions on the Precipitation of Uranyl Ferrocyanide From Aqueous Solutions

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SOV/75-15-1-15/29

Table 2. Continued from Card 4/6

(a)				(b)	(c)	(d)
—	0,01	—	—	1 : 1	(e)	
—	0,05			5 : 1	(f)	
—	0,01	—	0,01	1 : 1	0,85	
—	0,02	—	0,01	2 : 1	0,80	(g)
—	0,03		0,01	3 : 1	0,80	
—	0,05		0,01	5 : 1	0,80	
—	—	0,005	—	0 : 0,5	(e)	
—	—	0,010	—	0 : 1	(f)	
—	—	0,0025	0,01	0,25 : 1	0,85	
—	—	0,0050	0,01	0,5 : 1	0,85	(g)
—	—	0,010	0,01	1 : 1	0,85	
—	—	0,025	0,01	2,5 : 1	0,90	
—	—	0,050	0,01	5,0 : 1	0,95	

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The Effect of Some Ions on the Precipitation of Uranyl Ferrocyanide From Aqueous Solutions

77753
SOV/75-15-1-15/29

Table 4. Amperometric determination of uranium in the presence of vanadate (a) Take VO_3 (millimole); (b) taken ... (millimole); (c) ratio ... (millimole), (d) consumption ... for titration (ml); (e) is not titrated; (f) the same.

(a)	(b) UO_2^{2+}.	(c) VO_3^- / UO_2^{2+}.	(d) $K_4Fe(CN)_6$	(a)	(b) UO_2^{2+}.	(c) VO_3^- / UO_2^{2+}.	(d) $K_4Fe(CN)_6$, ml
—	0,010	0 : 1	0,80	0,03	0,010	8 : 1	0,75
0,02	—	2 : 0	(e)	0,08	0,010	8 : 1	0,80
0,08	—	8 : 0	(f)	0,16	0,010	16 : 1	0,85
0,20	—	20 : 0	» »	0,40	0,015	27 : 1	1,27
0,80	—	80 : 0	» »	0,40	0,15	27 : 1	1,25
0,04	0,010	4 : 1	0,80	0,40	0,010	40 : 1	0,85
0,04	0,010	4 : 1	0,80	0,40	0,010	40 : 1	0,90

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S/032/60/026/04/07/046
B010/B006

AUTHORS: Sochevanov, V. G., Shmakova, N. V., Martynova, L. T., Volkova, G.A.

TITLE: The Analytical Characteristics of an Anion Exchanger of the Type EDE-10p 28

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 4, pp. 422 - 425

TEXT: The properties of an increased basic anion exchanger of the type EDE-10p prepared in the USSR were investigated. The elution constants of the chlorides of various elements were determined. It was found that the absorption of the EDE-10p exchanger is similar to that of the strong base German exchanger of type Wofatit L 150, so that the behavior of metal ions on the two exchangers may - to a certain extent - be expected to be identical. The elements investigated (Table) are divided into three groups, the nonabsorbable, the partly absorbable, and the easily absorbable elements. The tests were carried out using the exchanger in the Cl-form and working in acid solutions. As an example, the separation of lead and zinc from a solution containing larger amounts of copper and iron is described. There are 1 figure, 1 table, and 13 references, 6 of which are Soviet.

Card 1/1

SOCHEVANOVA, M.M., SOCHEVANOV, V.G.

Complexometric analysis of ferruginous carbonate rocks. Zav. lab. 26 no.5:543-545 '60. (MIRA 13:7)

1. Geologicheskiy institut Akademii nauk SSSR i Vsesoyuznyy institut mineral'nogo syr'ya.
(Iron ores--Analysis)

S/032/60/026/06/08/044
B010/B126

5.5400

AUTHORS: Lyubimova, L. N., Sochevanov, V. G.

TITLE: Polarographic Determination of High Concentrations of Elements

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 6, pp. 703 - 707

TEXT: A polarographic method of analyzing ore samples was devised, in which the metal to be determined (Zn, Cd, Pb, Ni, and Cu) could be present in the test solution in concentrations of from 0.005 to 0.25 M. Since the resistivity of the mercury in the capillary disturbs the determination with high concentrations, a special cell (Fig. 2) with low electric resistance was built. Examinations of the dependence between the current and the concentration showed that with concentrations of 0.005 - 0.25 M Ilkovič's equation is valid. It was established that copper and zinc are more easily determined from ammonium sulfate solutions (2 to 4 g/50 ml), and lead can also be found in the same weighed sample. In order to depress the "maxima" of copper and zinc, not only gelatine, but also two surface-active substances should be used, for example gelatine and methyl red. Copper is

Card 1/2

Polarographic Determination of High Concentrations of Elements

S/032/60/026/06/08/044
B010/B126

determined at a polarization tension of 0.275 to 0.700 volts, and zinc at 1.0 to 1.5 volts. If lead is present, it is precipitated as lead sulfate, separated, and polarographized as acetate at pH ~ 6 with the addition of gelatine. A comparative table shows that results of the same accuracy are obtained with the described method as with chemical methods. D.P. Shcherbov and I. I. Sagalovich are mentioned. There are 4 figures, 1 table, and 4 references: 3 Soviet and 1 French.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya (All-Union Scientific Research Institute for Raw Minerals)

Card 2/2

MARTYNOVA, L.T., ZOCHEVANOV, V.G.

Polarographic determination of cadmium in ores. Zav.lab. 26 no.7:792-793 '60. (MIRA 13:7)

1. Vsesoyuznyy institut mineral'nogo syr'ya.
(Cadmium--Analysis)

ZHELEZNOVA, Ye.I.; SOCHEVANOV, V.G.; TITOV, V.I.; DERZHAVINA, N.G., red. izd-va; IYERUSALIMSKAYA, Ye.S., tekhn. red.

[Methods for the determination of radioactive elements in minerals] Metody opredeleniia radioaktivnykh elementov v mineral'nom syr'e. Sost. E.I.Zheleznova, V.G.Sochevanov, V.I. Titov, Izd.2., dop. i perer. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po geol. i okhrane nedr, 1961. 147 p. (MIRA 14:10)
(Minerals) (Radioactive substances)

BRODSKAYA, V.M.; LANSKOY, G.A.; SOCHEVANOV, V.G.

Interference of vanadium in the determination of uranium by means of hydrosulfite-phosphate titrimetric and photometric methods. Zhur.anal.khim. 16 no.2:185-190 Mr-Ap '61. (MIRA 14:5)
(Uranium--Analysis)
(Vanadium)

SOCHEVANOV, V.G.; SHMAKOVA, N.V.; MARTYNOVA, L.T.; VOLKOVA, G.A.

Increased sensitivity of the polarographic determination of uranium in the presence of vanadium and phosphate ions. Zhur. anal.khim.16 no.3:362-363 My-Je '61. (MIRA 14:6)
(Uranium--Analysis)
(Polarography)

LYUBIMOVA, L.N.; SOCHEVANOV, V.G.

Determination of uranium in uranium in ores and minerals by the polarographic method. Radiokhimiia 4 no.6:701-706 '62.
(MIRA 16:1)

(Uranium--Analysis) (Polarography)

S/032/62/028/001/001/017
B125/B138

AUTHORS: Lyubimova, L. N., and Sochevanov, V. G.

TITLE: Determination of titanium and iron in titanium-zirconium and iron ores and -concentrates by the polarographic method

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 1, 1962, 15-17

TEXT: A method is suggested for the determination of high titanium and iron concentrations against a background of 5M H_3PO_4 and 1M H_2SO_4. The procedure for determining the optimum composition of the sulfuric acid-phosphoric acid background has already been described (V. G. Sochevanov, Zhurnal obshchey khimii, 22, 1073 (1952)) in a study of the stability of zincate solutions. Solutions of this acidity with a maximum titanium concentration of 1 - 1.5 mg/ml, which are stable for several days, were also found suitable for determining iron. At titanium and iron concentrations between $1.5 \cdot 10^{-3}$ and $2.5 \cdot 10^{-2}$M the amperage was linearly dependent on concentration. Titanium and iron can be determined with sufficient accuracy also at concentrations of 1:5 and 5:1. The substances Cr((VI),

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Determination of titanium and iron ...

Sn(II), Cu, As (III), Sb(III), Bi, U(IV), Mo(IV,V,VI), V(V), Cd(II) which were formed besides titanium and iron in an acid solution as well as some other substances, disturb the polarographic determination of titanium and iron. The elements zirconium, niobium and tantalum frequently occurring together with titanium have no disturbing effect. The analysis is fully described. Samples of titanium-zirconium ores and concentrates of up to 95% TiO_2 and up to 60% Fe_2O_3 were analyzed volumetrically and polarographically. The maximum determination error for TiO_2 is -1.3%, for Fe_2O_3 is +5.2%. There are 1 figure, 1 table, and 5 Soviet references.

ASSOCIATION: Vsesoyuznyy institut mineral'nogo syr'ya (All-Union Scientific Research Institute of Mineral Raw Materials)

SOCHEVANOV, V.G.

Effect of pH on the selectivity of complexometric analysis. Zav.lab. 29 no.5:531-536 '63. (MIRA 16:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya.
(Complexons) (Hydrogen-ion concentration)

L 63577-65 EWT(m)/EWP(b)/EWP(t) IJP(c) JD
ACCESSION NR: AP5012490 UR/0032/65/031/005/0541/0543
546.289 : 543.253

16
B

AUTHORS: Volkova, G. A.; Sochevanov, V. G. 27

TITLE: Polarographic determination of germanium in ores and concentrates

SOURCE: Zavodskaya laboratoriya, v. 31, no. 5, 1965, 541-543

TOPIC TAGS: polarographic analysis, germanium, distillation, carbonate/ Complexon III

ABSTRACT: A method is proposed for determining germanium by a combination of germanium distillation and final polarographic analysis in a solution containing a mixture of carbonate, bicarbonate, and Complexon III. Best results are obtained at a pH of 8-9. The method is applicable to analysis of ores and concentrates with Ge contents ranging from hundredths of a percent to 20%. The Ge-bearing sample is placed in a flask to which H_3PO_4, HNO_3, and H_2SO_4 are added, and is boiled under a glass cover for 5-10 minutes. The cover is removed, and heating is maintained until fumes of H_2SO_4 appear. Potassium permanganate is added to the cooled flask, which is attached to a distilling apparatus. At the condenser end a flask is placed in which NaOH, Complexon III, sodium sulfate, phenophthalein, and water have been mixed.

Card 1/2

L 63577-65
ACCESSION NR: AP5012490

This end of the condenser must be submerged in an alkaline solution. HCl is added with a jet of air or hydrogen, and the vapor neutralizes the alkaline solution. Several drops of caustic soda are added until the color becomes rosy, then a drop or two of HCl is added, the color almost disappearing, and the carbonate mixture is added. This is followed by distilled water, and the mixture is shaken. After 10-15 minutes, polarographic analysis is made. Samples with Ge content ranging down to 0.000375% have been measured and compared with the colorimetric method. Variation in results ranges from 0.375 to 0.7%. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: GC

NO REF SOV: 003 OTHER: 006

Card 2/2

SOCHEVANOVA, M.M.; SOCHEVANOV, V.G.

Theory for the use of complexons in the analysis of polymetallic systems. Zav. lab. 31 no.9:1058-1062 '65. (MIRA 18:10)

1. Institut geologicheskikh nauk AN SSSR i Vsesoyuznyy institut mineral'nogo syr'ya.

SOCHEVANOV, V. Ye., Physician Cand. Med. Sci.

Dissertation: "Physiotherapy of Psychic Diseases."

11/9/50
Second Moscow State Medical Inst. imeni. I. V. Stalin

SO Vecheryaya Moskva
Sum 71

SOCHEVANOVA, M. M.

958. Use of EDTA (disodium salt) for the rapid determination of calcium and magnesium in limestone and dolomite. M. M. Sochevanova (Inst. Geol. Sci., USSR Acad. Sci.). *Zavod. Lab.*, 1955, 21 (5), 530–532.—The sample (0·5 g) of silicate or carbonate is boiled with dil. HCl, the solution is filtered, treated with NH_4Cl and methyl red indicator, and the hydroxides are pptd. by the addition of aq. NH_3 to the hot solution. After filtration the solution is made up to 250 ml in a calibrated flask. A portion (50 ml) is mixed with 50 ml of water, 10 ml of a buffer solution (20 g of NH_4Cl dissolved in a small amount of water, mixed with 100 ml of 25 per cent. aq. NH_3, and made up to 1 litre) and titrated with 0·1 *N* EDTA (disodium salt) in the usual way; the amount used corresponds to the total Ca + Mg. In another portion (100 ml) Ca is pptd. as oxalate and the Mg is titrated with EDTA (disodium salt) in the usual way.

G. S. Smith

SOCHEVANOVA, M.M.

4

Murexide, its properties as indicator, and method of its preparation. M. M. Sochevanova (Inst. Geol. Sci. Acad. Sci. U.S.S.R., Moscow). *Zhur. Anal. Khim.* 11, 219–22 (1960).—Murexide reacts with Ca to produce a red-colored sol. chelate. When this soln. is titrated with Trilon B, the latter combines with the Ca, liberating the amethyst-colored murexide base. The titration is carried out in an alk. medium. The color transition occurs at the equivalent point and is sharp. The method permits detn. of Ca in the presence of Mg. A simple procedure for synthesizing of murexide is outlined. — M. Hosch

SOCHEVANOVA, M.M., SOCHEVANOV, V.G.

Complexometric analysis of ferruginous carbonate rocks. Zav. lab. 26 no.5:543-545 '60. (MIRA 13:7)

1. Geologicheskiy institut Akademii nauk SSSR i Vsesoyuznyy institut mineral'nogo syr'ya.
(Iron ores--Analysis)

S/032/63/029/002/003/028
B101/B186

AUTHOR: Sochevanova, M. M.

TITLE: Use of complexometry to analyze silicate minerals

PERIODICAL: Zavodskaya laboratoriya, v. 29, no. 2, 1963, 143 - 146

TEXT: A rapid method of analyzing silicate minerals is proposed. The sample is fused with soda, the silicic acid precipitated with gelatin and determined gravimetrically. The sesquioxides are precipitated with urotropin. The precipitate is dissolved in HCl, Fe is either complexometrically determined with sulfosalicylic acid, or the sum of Fe + Al + Ti is titrated with complexone, then Al and Ti are removed with fluoride from the complex, titrated with xylenol orange, and Fe is determined from the difference. Ti is colorimetrically determined in an aliquot part of the solution with ascorbic acid or H_2O_2. In the filtrate of the urotropin precipitate, Ca is determined in an aliquot part with murexide or fluorexane, in another the sum of Ca, Mg, and Mn is determined with chromogen black ET-00 or beryllon II IREA, in a third part Mn is colorimetrically determined with formaldoxime. A comparison of analyses of eruptive rocks made

Use of complexometry to...

by the classical and by the rapid method shows good agreement. The rapid method takes 30 - 50 % of the time required for the classical method. There are 2 tables.

ASSOCIATION: Geologicheskiy institut Akademii nauk SSSR (Institute of Geology of the Academy of Sciences USSR)

Card 2/2

SOCHEVANOVA, M.M.; SOCHEVANOV, V.G.

Theory for the use of complexons in the analysis of polymetallic systems. Zav. lab. 31 no.9:1058-1062 '65. (MIRA 18:10)

1. Institut geologicheskikh nauk AN SSSR i Vsesoyuznyy institut mineral'nogo syr'ya.

SOSNOVEC, G. V.

Dissertation : --"Vietnam (Economicogeographic Features)." Cand Geog Sci, Inst of Geography, Acad Sci USSR, 11 Jun 54. (Vechernyaya Moskva, Moscow, 2 Jun 54)

SO: Sum 318, 23 Dec. 1954

SOCHEVKO, G.G.

Agriculture in Vietnam and its distribution. Trudy Inst.geog.
no. 59:122-147 '54. (MLRA 8:5)
(Vietnam--Agriculture) (Agriculture--Vietnam)

SOCHEVKO, G.; TIKHOMIROV, V.P., otvetstvennyy redaktor; KOSTINSKIY, D.N., redaktor; NOGINA, N.I., tekhnicheskiy redaktor.

[Vietnam, Cambodia, Laos] V'etnam, Kambodzha, Laos. Moskva, Gos. izd-vo geogr.lit-ry, 1957. 30 p. (MLRA 10:4)
(Indochina)

SOCHEVKO, Glob Grigor'yevich; ZABIROV, B.Sh., red.; PANOCHKINA, N.S., mladshiy red.; MAL'CHEVSKIY, G.N., red.kart; KOSHELEVA, S.M., tekhn.red.

[Vietnam] V'etnam. Moskva, Gos.izd-vo geogr.lit-ry, 1959. 148 p. (MIRA 12:12)
(Vietnam--Economic conditions)

SOV/81-59-16-58516

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 16, p 412 (USSR)

AUTHORS: Lipovskaya, K.S., Voznesenskaya, Ye.V., Sochevko, T.I.

TITLE: The Investigation of Paraffin From Zhirnov Petroleum

PERIODICAL: Tr. Vses. n.-i. in-t po pererabotke nefti i gaza i polucheniyu iskusstv. zhidk. topliva, 1958, Nr 7, pp 318-328

ABSTRACT: Samples of paraffin (P) with a m. p. of 55°C were investigated which had been separated from the refined distillate of the autol fraction of Zhirnov petroleum, and of low-melting paraffin (LP) with a m. p. of 36°C separated from the filtrate after deoiling of P. P and LP were devided into fractions by means of complex-formation with urea and adsorption on silica-gel and activated coal. The obtained fractions were analyzed by physical-chemical methods. It has been found that P contains (%) 87 n-paraffins, 12.4 isoparaffins and 0.6 monocyclic aromatic hydrocarbons (AH) with a small admixture of bicyclic AH; LP consists of 48.2 n-paraffins, 1.8 monocyclic AH and 50 of a concentrate of naphthene hydrocarbons. Spectral analysis of P, LP and the fractions confirmed the small content of AH in them.

A. Ravikovich.

Card 1/1

VOZNESENSKAYA, Ye.V.; SHAKHSUVAROVA, G.V.; SOCHEVKO, T.I.

Solubility of paraffins from Tuymazy petroleum in solvents used for dewaxing and oil removal. Trudy VNII NP no.7:339-344 '58. (MIRA 12:10)

(Paraffins) (Solubility)

L 3904-66 EWT(m)/EPF(c)/EWP(j)/T DJ/RM

ACCESSION NR: AP5023506 UR/0318/65/000/008/0027/0030

665.521.4.061.54:678.049

AUTHOR: Alekperov, K. A.; Kusov, A. B.; Lukashevich, I. P.; Sochevko, T. I.

TITLE: Resin mixture plasticizer made of extracts from selective purification of petroleum lubricating oils

SOURCE: Neftepererabotka i neftekhimiya, no. 8, 1965, 27-30

TOPIC TAGS: plasticizer, butadiene styrene rubber, synthetic rubber

ABSTRACT: Applicability of 340-400°, 400-450°, and 450-500°C fractions, of the prepurified distillate extract, their mixtures, and their blends with vacuum distillation residue (above 500°C) as plasticizer for resin mixtures based on non-plasticized SKS-30 butadiene-styrene rubber was studied. The individual fractions and the residue were obtained by vacuum distillation of phenol- and furfurol extracts from distillate. The distillate extract was a product of the NPZ plant at Omsk. The object of this study was to develop a substitute for the PN-6 residual extract (vacuum distillation residue--above 500°C) and to assure a compliance of the substitute with the VTU 71-61 technical standard for the PN-6 extract. The base non-plasticized resin was prepared by rolling the following mixture (in weight

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units): SKS-30 rubber--100, stearic acid--2.0, zinc oxide--5.0, channel gas black--50, Altax--0.6, diphenylquanidine--0.75, and sulfur--2.0. After rolling the mixture was vulcanized for 10-80 min at 143 ± 1°C. It was found that mixtures of narrow fractions of distillate extract with distillation residue can be used as plasticizer substitute for butadiene-styrene rubber. The effect of plasticizer substitute viscosity on tensile strength of SKS-30 vulcanized rubber (content of the channel gas black is 50 wt %, content of the softener is 20 wt %) is shown in fig. 1 of the Enclosure. The strength of the vulcanized rubber increases with increasing content of heavy aromatics and tar in the plasticizer. Orig. art. has: 1 figure, 2 tables.

ASSOCIATION: LTI im. Lensoveta; MINKh i GP im. I. M. Gubkina 44

SUBMITTED: 00 ENCL: 01 SUB CODE: MT, FP

NO REF SOV: 007 OTHER: 005

L 3904-66

ACCESSION NR: AP5023506

ENCLOSURE: 01

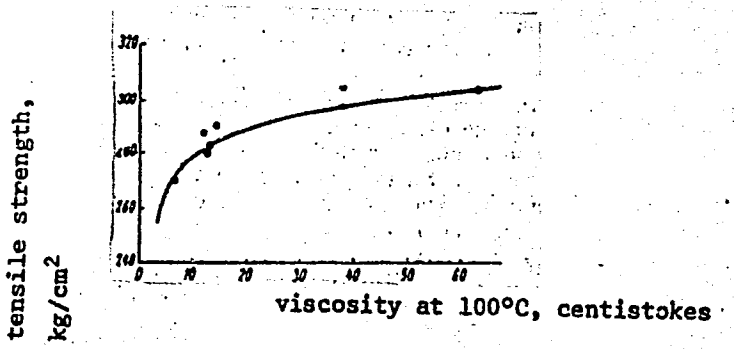

Fig. 1.

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SOCHILIN, B.G.; BLYUKHMAN, L.S.; YERONENKOVA, Ye.I.; AZAROV, E.K., red.; SHERMUSHENKO, T.A., tekhn.red.

[Transition of Leningrad enterprises to a shorter workday] Opyt perekhoda leningradskikh predpriiatii na sokrashchennyi rabochii den'. Leningrad, Lenizdat, 1960. 69 p. (MIRA 13:7)
(Leningrad--Hours of labor)

SOCHILIN, Boris Georgiyevich; LEPIN, E.A., red.

[Every enterprise should have a permanent labor force] Kazhdomu predpriiatiiu - stabil'nye kadry. Leningrad, Lenizdat, 1964. 65 p. (MIRA 18:4)

SOCHILIN, B.

Pledges of Leningrad people and ways to carry them out. Sots.trud 6 no.3:95-102 Mr '61. (MIRA 14:3)

1. Nachal'nik otdela truda, zarabotnoy platy i rabochikh kadrov soveta narodnogo khozyaystva Leningradskogo ekonomicheskogo administrativnogo rayona.
(Leningrad Economic Region--Socialist competition)
(Leningrad Economic Region--Industries)

YERMOLAYEV, A.M.; SOCHILIN, G.B.

Ground state of two-electron atoms and ions. Dokl. AN SSSR 155 no. 5:1050-1053 Ap '64. (MIRA 17:5)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova i Leningradskoye otdeleniye Matematicheskogo instituta im. V.A. Steklova AN SSSR. Predstavleno akademikom V.A.Fokom.

ACCESSION NR: AT4041509 S/2910/63/003/01-/0167/0174

AUTHOR: Yermolayev, A. M., Sochilin, G. B.

TITLE: An exact variational method for computation of the S-states in atoms with two electrons

SOURCE: AN LitSSR. Litovskiy fizicheskiy sbornik, v. 3, no. 1-2, 1963, 167-174

TOPIC TAGS: S state, variational computation method, electron configuration, two electron atom, wave function, Hylleraas equation, variational wave function, helium

ABSTRACT: The variational method is based on Fock's investigation of the Hylleraas equation (Izv. AN SSSR, 18, 161, 1954), a nonrelativistic wave equation for a two-electron atom with infinitely heavy nucleus whose charge is Z. The variational wave function Ψ is chosen to be an analytic expression containing variable parameters. This function is chosen so that it represents the behavior of the exact wave function at the potential energy singularities and approaches the same asymptote at infinity. The coefficients of the exponential terms in the wave function expression are then decomposed into Fock's series. Each term of this series is a solution of a certain system of coupled equations on a four-dimensional sphere. The highest term can be determined exactly but the terms of lower order must be obtained from an approximate solution. The resulting variational wave

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ACCESSION NR: AT4041509

function contains arbitrary coefficients of a linear combination of 4-dimensional spherical functions of order n = 1, 2, . . . , N + 1 and accounts for those terms of the Fock's series which describe the behavior of the exact wave function in the vicinity of potential energy singularity. By introduction of auxiliary arbitrary coefficients, the total number of coefficients to be determined is decreased without changing the characteristics of the wave function. The standard Ritz procedure is used to obtain the final solution. An example in which the S state of the helium atom is computed is given. The variational wave function has 30 coefficients and gives a value of energy which could be obtained from a 40-parameter Kinoshita function (T. Kinoshita: Phys. Rev. 105, 1490, 1957 and 115, 366, 1959). The method, as presented in the paper, applies only to two-electron systems in S-states but can be generalized for multi-electron systems. Orig. art. has: 19 equations and 1 table.

ASSOCIATION: Leningradskiy gosudarstvenny*y universitet im. Zhdanova (Leningrad State University); Leningradskoye otdeleniye Matematicheskogo instituta im. Steklova (Leningrad Branch of the Steklov Mathematical Institute)

SUBMITTED: 00 ENCL: 00

SUB CODE: NP NO REF SOV: 003 OTHER: 002

Card 2/2

ACCESSION NR: AP4034536 S/0020/64/155/005/1050/1053

AUTHOR: Yermolayev, A. M.; Sochilin, G. B.

TITLE: Ground State of Two-electron Atoms and Ions

SOURCE: AN SSSR. Doklady*, v. 155, no. 5, 1964, 1050-1053

TOPIC TAGS: ground atomic state, two electron atom, two electron ion, S state, wave function, numerical computation, quantum mechanics

ABSTRACT: V. A. Fock (Izv. AN SSSR, ser. fiz. 18, 161 (1954)) has given a rigorous method for analysis of the S-state in the vicinity of the singular points. The present authors apply his method for numerical computation of the ground state of H^-, He, Li^+, Be^{+2}, Be^{+3}, O^{+6}, and Ne^{+8}. The expansions used converge rapidly (they have about 30 parameters). The numerical computations were made with the BECM-2 computer of the computer Center of the Leningrad Division of the Mathematical Institute AN SSSR. "The authors are grateful to acad. V. A. Fock for discussions and comments, and to Yu. N. Demkov for discussions." Orig. art. has: no figures, 4 equations, 2 tables.

Card 1/2

ACCESSION NR: AP4034536

ASSOCIATION: Leningradskiy gosudarstvenny*y universitet im. A. A. Zhdanova (Leningrad State University); Leningradskoye otdeleniye Matematicheskogo instituta im V. A. Stcklova Akademii Nauk SSSR (Leningrad Division of the Mathematical Institute Academy of Sciences, SSSR)

SUBMITTED: 27Nov63 DATE ACQ: 13May64 ENCL: 00

SUB CODE: NP NO REF SOV: 003 OTHER: 007

Card 2/2

FD-2727

USSR/Chemistry - Halogeno-organic compounds

Card 1/1 Pub. 50 - 8/20

Authors : Sochilin, Ye. G., Cand Chem Sci; Kaluzhskiy, A. A.

Title : Production of chloroacetic acid by the oxidation of ethylene chlorohydrin

Periodical : Khim. prom. No 5, 285-287, Jul-Aug 1955

Abstract : In view of the fact that production of chloroacetic acid (which can be converted to fluoroacetic acid for rodenticides and is used in the synthesis of dyestuffs and drugs) is too expensive and complex when acetylene is used as a starting material, recommend that ethylene chlorohydrin derived from petroleum gas ethylene be oxidized to chloroacetic acid with nitric acid. State that they obtained an 83% yield of chloroacetic acid with the use of this procedure. Five references; 2 USSR, none prior to 1940.

Institution : Leningrad Order of the Labor Red Banner Technological Institute imeni Lensovet

IVIN, B.A.; MAKAROV, V.I.; SOKOLIN, Ye.G.

New method for polyfluoropyramidine preparation. Zhur. ob khim. 34 no.12:4120 D '64 (MIR 18:1)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

LYUMINARSKIY, B.M.; SOCHILIN, Ye.G.; IVIN, B.A.

Some oxadiacetic acid derivatives. Zhur. org. khim. 1 (MIRA 18:11)
no.7:1335 Jl '65.

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

SOCHILINA, A.S.

Ephemeris of Du-Toit-Neujmin-Delport's comet (1941 VII) for 1958. Biul.Inst.teor.astron. 6 no.9:671-674 '58. (MIRA 13:3)

(Comets--1941)

SHMAKOVA, M.Ya.; SOCHILINA, A.S.

Approximate determination of the circular orbit of an astroid.
Biul.Inst.teor.astron. 7 no.1:72-75 '58. (MIRA 13:4)
(Planets, Minor--Orbits)

SHMAKOVA, M.Ya.; SOCHILINA, A.S.

Elements of elliptic and circular orbits of unnumbered minor planets. Biul.Inst.teor.astron. 7 no.1:76-77 '58.
(MIRA 13:4)

(Planets, Minor--Orbits)

69849
SOV/35-59-9-6931

3.1400

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1959, Nr 9, p 9 (USSR)

AUTHOR: Sochilina, A.S.

TITLE: On the Accumulation of Errors During Numerical Integration in Certain Problems of Celestial Mechanics

PERIODICAL: Byul. in-ta teor. astron. AS USSR, 1959, Vol 7, Nr 4, pp 281 - 286 (Engl. résumé)

ABSTRACT: V.F. Myachin has derived formulae (Ref 6930) for evaluating the accumulation of rounding errors during the numerical integration of the equations of motion in the two-body problem. If the integration of the equations of motion of the planet is started from perihelion, then, neglecting the effect of eccentricity, the formulae for the evaluation of the error at the k step of integration can be reduced to the following form (with $k > 200$):

$$\varepsilon_k^{(1)} = 70.3\,\rho\,k^{1/2},$$

$$\varepsilon_k^{(2)} = 3\,\rho\,k^{3/2},$$

where ρ is the maximum rounding error in the calculation of the right-

Card 1/2

On the Accumulation of Errors During Numerical Integration in Certain Problems of Celestial Mechanics

hand sides of the equations at each step, and the upper index is the number of coordinates (x, y, z). In order to check the formulae, special examples were examined. 1) The problem was solved of plane unperturbed motion with various initial data selected in such a way that there are exactly a hundred steps per one revolution. The results of the integration were compared with the values derived from formulae of elliptic motion, and their difference was taken to be the pure accumulation of rounding errors. 2) The coordinates of Jupiter, Saturn, and Uranus obtained by D.K. Kulikov during the integration of the equations of the VIII satellite of Jupiter for the period from 1930 to 1965 were compared with the coordinates of the same planets taken from the Astronomical Papers 1951, Vol 12. As a result of the study of these examples, it was found that the evaluation according to Myachin's formulae reflected the fluctuating character of the error and gave a slight overestimation (less than by 10 times). After 1,000 steps of integration, vanishe not over five digits on account of rounding erros. So Myachin's formulae are fully adequate for practical use.

S.G. Makover

Card 2/2

BATRAKOV, Yu.V.; SOCHILINA, A.S.

Motion of the rocket carrier of the third Soviet artificial earth satellite ($1958\delta_1$) and the magnitude of the oblateness of the earth. Biul. sta. opt. nabl. isk. sput. Zem. no. 7:6-12 '60. (MIRA 14:2)

1. Institut teoreticheskoy astronomii AN SSSR.
(Artificial satellites—Tracking)

S/035/62/000/007/008/083
A001/A101

3.2200

AUTHOR: Sochilina, A. S.

TITLE: Calculation of approximate positions of artificial Earth's satellites

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 7, 1962, 16, abstract 7A112 ("Byul. st. optich. nablyudeniya isskusstv. sputnikov Zemli", 1960, no. 11, 12 - 16)

TEXT: The author describes a method of calculating approximate positions of artificial Earth's satellites for the case when the osculating elements of a satellite at a certain instant are known, as well as the coordinates of the observing station. There are 5 references.

/B

R. Ye.

[Abstracter's note: Complete translation]

Card 1/1

SOCHILINA, A.S.

Calculating ephemerides of artificial earth satellites. Biul.Inst. teor.astron. 8 no.2:153-163 '61. (MIRA 14:4)
(Artificial satellites--Tracking)

h256h

S/816/61/000/024/002/003

AUTHORS: Makover, S. G., Gontkovskaya, V. T., Kochina, N. G., Sochilina, A. S., and Subbotina, N. S.

TITLE: Investigation of the motion of the second Soviet artificial earth satellite (Sputnik II or 1957 β).

SOURCE: Akademiya nauk SSSR. Astronomicheskiy sovet. Byulleten' stantsiy opticheskogo nablyudeniya iskusstvennykh sputnikov Zemli. no. 24. 1961, 11-16.

TEXT: This is a presentation of the results of calculations of the orbit elements of Sputnik II from November 1957 to March 1958, based on visual tracking data, as used in the short-range prediction of the ephemerides. The method employed is outlined in the paper by Makover, S. G., The orbit determination of artificial earth satellites. Byulleten' stantsiy ... no. 24, 1961, 3-11 (Abstract S/816/61/000/024/-001/003). Computations were performed on the БЭСМ (BESM) electronic high-speed computer of the AS USSR Computing Center (A. A. Dorodnitsin, Director); all preparatory work was done at the State Astronomical Institute imeni Shternberg, (D. Ya. Martynov, Director). The computation program comprised the following specific steps: (1) Computation of the instantaneous orbit elements for the time of a given observation; (2) computation of the rectangular satellite coordinates from

Card 1/3

Investigation of the motion ...

the formulas of its elliptical motion; (3) computation of the local sidereal time and the rectangular coordinates of the observation station; (4) computation of the spherical equatorial coordinates of the satellite and comparison between calculated and observed coordinates; (5) computation of the coefficients of tentative equations, and (6) computation of the corresponding component coefficients for the normal equations. Computational stages (1) through (6) were performed consecutively for each observer, resulting in the ultimate coefficients of the normal equations. The following operations were then performed: (7) Determination of corrections to the elements as obtained from the solution of the system of normal equations, and determination of an improved system of elements; (8) determination of weight factors for each unknown. An entire cycle of orbit improvement from 100 observations required one minute of machine time. Upon completion of all computations including stages (1) through (8), the entire computational cycle was repeated until convergence of the successive approximations was achieved (usually, 5 to 6 cycles). An additional computation was made of the so-called "variations," i.e., the changes of the right ascension and declination of the satellite due to an assumed 1-second error in the time determination by the observer; this variation was found to be useful in the analysis and reconciliation of differences between observational values and theory. Elimination of gross errors, e.g., incorrect time readings, mistaken identities of reference stars, etc., was achieved by eliminating any observation with a

...exceeding coordinate error of more than a given limit (15° in the first improve-... to 5° in the last cycle). The observations used came primarily ...-satellite-observations tracking network and consisted of ... declination data referred to the equinox 1950.0; the nominal ... was assumed to be 0°.1 time accuracy 0°.1. However, even ... of gross errors, the actual mean-square accuracy of a single ob-... 2°.0, possibly attributable primarily to bad time keeping. Initially, data were reported via the Astronomicheskiy sovet (Astronomical Council), AS USSR, ... directly by telegraph. Some foreign observations were used, but most arrived ... for inclusion. A few high-accuracy photographic observations made ... Pulkovo, ... and elsewhere were included. As a by-product, the differ-... between the observed and the computed coordinates of the satellite were used ... quality of the data provided by each station. Numerical results are ... there is 1 Soviet (only) reference.

ASSOCIATION: Institut teoreticheskoy astronomii AN SSSR (Institute of Theoretical Astronomy, AS USSR).

SUBMITTED: July 6, 1961.

Card 3/3

62"65

3,2200

S/516/61/000/024/003/003

[illegible] L. A. and Sochilina, A. S.

[illegible] orbit elements of the capsule of the fourth Soviet artificial [illegible] (Cosmic [illegible]).

[illegible] nauk SSSR. Astron[illegible] Byulleten' stantsiy [illegible] nabludeniya iskusstvennykh sputnikov Zemli, no. 24. [illegible] 16-20.

[illegible] summary of the system of [illegible] elements of the capsule of the Sp[illegible] June 1960 through June 1961, [illegible] from visual observations. [illegible] were determined for 2-4 day periods at 7-10-day intervals. The fol[illegible] elements are reported: t_0 - the osculation epoch of the elements, Ω - the right [illegible] of the node; ω - the perigee-to-node distance; M_0 - the mean [illegible] t_0, [illegible] - the angle of the [illegible] eccentricity; $\bar{n}$ - the mean 24-[illegible] satellite; and i - the [illegible] inclination relative to the equatorial [illegible] are referred to the true equator and the equinox of the time of [illegible] secular perturbation coefficients are also provided. The value of [illegible] be readily obtained from other [illegible] given directly [illegible] computations [illegible] on the 5[illegible] (BESM) [illegible]

Card [illegible]

computer of the Computing Center of the AS USSR according to methods developed at the Institute of Theoretical Astronomy of the AS USSR. There is 1 three-page table.

ASSOCIATION: Institut teoreticheskoy astronomii AN SSSR (Institute of Theoretical Astronomy, AS USSR).

SUBMITTED: August 19, 1961.

SOCHILINA, A.S.

S/511/61/008/002/004/004
B163/B186

AUTHOR: Sochilina, A. S.

TITLE: The computation of ephemerides of artificial satellites of the earth

SOURCE: Akademiya nauk SSSR. Institut teoreticheskoy astronomii. Byulleten'. v. 8, no. 2(95), 1961, 153 - 163

TEXT: When ephemerides of satellites are compiled it is important to check whether the following conditions for visibility from a given observatory are fulfilled: (1) the sun must be at least 6° below the horizon, (2) the satellite must be above the horizon, (3) the satellite must not be in the earth's shadow. An analytical expression is derived, from which the limits of the observable part of the orbit, limited by these conditions, can be determined. An advantage of the proposed method as compared with earlier methods published by other authors is that it lends itself to an easy computation using an electronic high-speed computer. Further equations are given which are used for computing the time of passage of the satellite through the point of maximal height and through the meridian of

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The computation of ephemerides ...

the position of the observatory. The computing procedure is demonstrated with an example. First the times of 6° morning and evening crepusculum are computed, then the values u_1 and u_2 of the argument of latitude corresponding to the points of intersection of the orbit with the horizontal plane, and their arithmetical mean u_m. For the corresponding time T*, the calculation of the arguments u_1, u_2, u_m is repeated. Subsequently a check is made that during this time the satellite is illuminated by the sun, and the limits u_3, u_4 of the illuminated part of the orbit are computed approximately. Then the times T_3 and T_4 are computed, which correspond to the highest point of the orbit and the corrected u_m, and the horizontal spherical coordinates for the times T_3 and T_4. For the next revolution the computing procedure is analogous. The calculations were performed with the electronic computer БЭСМ(BESM). 1 or 2 minutes were sufficient to calculate the ephemerides for 5 days. There are 3 figures and 9 tables.

Card 2/2

SOCHILINA, A.S.

Some changes in the method for improving orbits of artificial earth satellites. Biul. Inst. teor. astron. 9 no.1: 11-14 '63. (MIRA 16:8)

SOCHILINA, A.S.

Improvement of orbital elements of artificial earth satellites. Biul.Inst.teor.astron. 9 no.5:310-322 '63. (MIRA 17:4)

L 27210-65 EEO-2/EWT(d)/FBD/FSF(h)/FSS-2/EWT(1)/FS(v)-3/EEC(k)-2/EWG(s)-2/EWA(d)/EEC(t)/EWG(v)/ T/EEC(c)-2/EED-2/EED(b)-3 Pn-4/Po-4/Pe-5/Pq-4/Pac-4/Pg-4/Pae-2/Pi-4/Pk-4/Pl-4 IJP(c) TT/GG/WR

ACCESSION NR: AT5003544 S/2816/63/000/032/0029/0031

AUTHOR: Sochilina, A. S.

TITLE: Determination of the orbital elements of the satellite 1958 δ_1 from photographic observations

SOURCE: AN SSSR. Astronomicheskiy sovet. Byulleten' stantsiy opticheskogo nablyudeniya iskusstvennykh sputnikov Zemli, no. 32, 1963, 29-31

TOPIC TAGS: artificial satellite, satellite orbit, satellite tracking, 1958 δ_1 satellite

ABSTRACT: It is difficult to obtain accurate elements for satellites with perigee distances of 200-250 km, because of the atmospheric effect that must be determined empirically from satellite observations. Air resistance is maximal on average diurnal movement, and consequently on the position of the satellite in its orbit. Many observations show that daily movement may be represented completely for time by the relation $\bar{n} = \bar{n}_0 + 2n'(t-t_0) + 3n''(t-t_0)^2$ in an interval not exceeding 7-10 days, where n' and n'' (so-called acceleration of daily movement) are determined from observation. Observational accuracy is on the order of 0.5°. For good

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L 27210-65

ACCESSION NR: AT5003541

accuracy then, intervals shorter than 7-10 days should be used, but n' and n" are poorly determined in short intervals. It is therefore proposed that all elements, including n' and n", be determined at an interval of 10 days at t_0. Then all elements except n' and n" are redetermined for 2-day periods during that interval. If the observations are at an angle less than 20° to the geocentric arc of the orbit, however, all values are poorly determined. It is then best to exclude inclination of the orbit, the perigee longitude, and the orbital eccentricity. To test this, the author processed all photographic observations of satellite 1958 δ, in addition to some visual observation for July-November 1958. The true equatorial plane was used for computation. Longitude was computed from a point displaced from the mean equinoctial point at an angle equal to the precession in right ascension for the period t - 1950.0. Results are furnished in a table. Orig. art. has: 1 table.

ASSOCIATION: none (but article not complete)

SUBMITTED: 16Oct62 ENCL: 00 SUB CODE: SV, DC

NO REF SOV: 000 OTHER: 002

Card 2/2

L 37672-65 FSF(h)/EWT(1)/FS(v)-3/EEC(k)-2/EWA(d) Pae-2 GW

ACCESSION NR: AT5004162 S/3126/63/000/002/0064/0079

AUTHOR: Czebotariew, G. A. (Chebotarev, G. A.); Makarowa, J. N. (Makarova, Ye. N.); Soczylina, A. S. (Sochilina, A. S.)

TITLE: Determination of orbits and computation of the ephemerides of artificial earth satellites

SOURCE: Nablyudeniya iskusstvennykh sputnikov Zemli, no. 2, 1963. Warsaw, PAN, 1963, 64-79

TOPIC TAGS: artificial earth satellite, artificial satellite observation, satellite ephemeris, artificial satellite orbit

ABSTRACT: Basic formulas intended for reference use at artificial earth satellite observation stations are reviewed. Section 1 discusses the two-body problem and the use of Kepler's laws; Section 2 presents the Gauss method for preliminary determination of artificial earth satellite orbits in the modification proposed by G. M. Bazhenov *(Byulleten' Instituta teoreticheskoy astronomii, Vol. VII, No. 10, 93, 1960)*; Section 3 gives the Laplace method for determining the initial orbit as developed by French astronomers (F. Barbier, *Proceedings of the Second International Space Science Symposium, Florence, 1962, p. 83* and J. Kovalevsky,

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L 37672-65
ACCESSION NR: AT5004162 O

Space Science Reviews, Vol. I, No. 2, October, 1962, p. 313 and *Space Research, Vol. II, 1962, p. 91);* Section 4 gives a discussion of the influence of the earth's flattening on the motion of an artificial satellite, including the Lagrange formulas; Section 5 is devoted to first-order perturbations for the case of small eccentricities where the Lagrange Formulas are not applicable and based on work by G. A. Chebotarev *(Byull. ITA. Vol. IX, No. 1, 104, 1963);* Section 6 discusses first order perturbations using a variant of the Lagrange formulas as presented by Y. Kozai *(Astronomical Journal, Vol. 64, No. 9, 1959);* Section 7 presents formulas for use in improvement of an orbit on the basis of the materials in the above-cited paper by Chebotarev; Section 8 considers orbital improvement with formulas for use in a general case; Section 9 very briefly considers the influence of atmospheric resistance on satellite motion; Section 10 discusses the appropriate coordination system to be used in reduction of observations; Section 11 gives a procedure for computation of emphemerides of artificial satellites as presented by A. S. Sochilina *(Byull. ITA, VIII, No. 2, 95, 1961).* Orig. art. has: 100 formulas.

ASSOCIATION: none

Card 2/3

KARBYSHEV, D.M., Geroy Sovetskogo Soyuza, prof., doktor voennykh nauk, general-leytenant inzh. voysk[deceased]; GOLDOVICH, A.I., general-leytenant inzh., voysk v otstavke, red.; PLYASKIN, V.Ya., V.Ya., general-leytenant inzh. voysk, red.; LEOSHENYA, Ye.V., general-leytenant inzh. voysk v otstavke, red.; SOCHILOV, M.F., general-mayor inzh. voysk v otstavke, red.; AFANAS'YEV, D.M., polkovnik v otstavke, red.; BORISOV, D.S., polkovnik zapasa, red.; TOROPOV, K.V., inzh.-polkovnik v otstavke, red.; SHOR, D.I., inzh.-polkovnik v otstavke, red.; SHEVCHUK, M.K., podpolkovnik zapasa, red.;ROSSAL, N.A., polkovnik, red.; SOKOLOVA, G.F., tekhn. red.

[Selected scientific work]Izbrannye nauchnye trudy. Moskva, Voenizdat, 1962. 703 p. (MIRA 16:3)
(Military engineering)

S/124/63/000/003/021/065
D234/D308

AUTHORS: Zhivotovskiy, L. S., Karlin, B. I., Lopatin, N. A., Platonov, V. A., Sochilov, V. V. and Buyevich, V. A.

TITLE: Calculation of head loss due to friction in a horizontal pulp duct

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 3, 1963, 111, abstract 3B691 (Gidrotekhn. str-vo, 1962, no. 10, 45-49)

TEXT: Different results obtained in calculating the head loss of a suspension of solids in water from different formulas induced the authors to make field tests using pulp ducts 405-610 mm in diameter. The solid phase is represented by sands containing several size-fractions, and by fine gravel. Empirical constructions are based on Dyuran's parameters. The authors use these parameters for soils containing a range of grain sizes. [Abstracter's note: Complete translation.]

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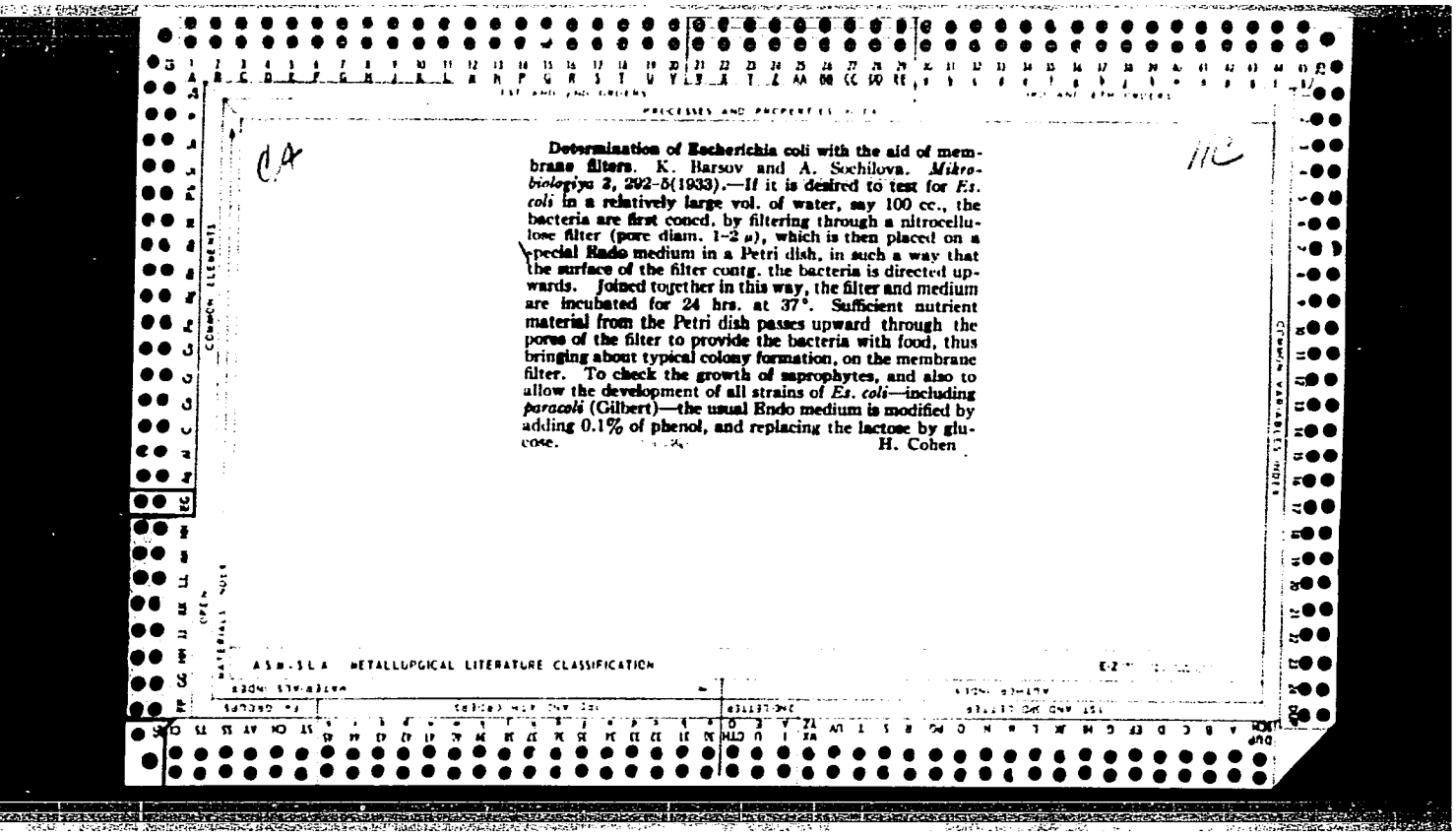
SOCHILOV, V.V., inzh.

Calculation of pressure loss at localized points of resistance in the transportation of a water-borne mixture. Gidr.stroi. 32 no.7:39-40 Jl '62. (MIRA 15:7)
(Hydraulic conveying)



CA

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Determination of Escherichia coli with the aid of membrane filters. K. Barsov and A. Sochilova. *Mikrobiologiya* **2**, 292–5(1933).—If it is desired to test for *Es. coli* in a relatively large vol. of water, say 100 cc., the bacteria are first concd. by filtering through a nitrocellulose filter (pore diam. 1–2 μ), which is then placed on a special Endo medium in a Petri dish, in such a way that the surface of the filter contg. the bacteria is directed upwards. Joined together in this way, the filter and medium are incubated for 24 hrs. at 37°. Sufficient nutrient material from the Petri dish passes upward through the pores of the filter to provide the bacteria with food, thus bringing about typical colony formation, on the membrane filter. To check the growth of saprophytes, and also to allow the development of all strains of *Es. coli*—including *paracoli* (Gilbert)—the usual Endo medium is modified by adding 0.1% of phenol, and replacing the lactose by glucose.

H. Cohen

SOCHILOVA, A.A.; BUYANOVSKAYA, I.S.; KENINA, A.Ye.; DMITRIYEVA, V.S.; FURER, N.M.; BELYAYEVA, L.A.; KUVSHINOVA, Ye.V.; VAKULENKO, N.A.; ZAMUKHOVSKAYA, A.N.; LEONOVA, A.G.

Agar diffusion method for determining the activity of antibiotics. Trudy VNIIA no.1:10-26 '53. (MLRA 8:1)
(Antibiotics--Testing) (Bacteriology--Culture and culture media)

SOCHILOVA, A.A., kandidat biologicheskikh nauk.

Sterility test of penicillin inactivated with hydroxylamine hydrocloride. Trudy VNILA no.1:50-55 '53. (MLRA 8:1)
(Penicillin) (Hydroxylamine)

SOCHILOVA, A.A., kandidat biologicheskikh nauk.

Ultrafiltration method for testing the sterility of antibiotics. Trudy VNIIA no.1:55-59 '53. (MLRA 8:1)
(Antibiotics--Testing) (Filters and filtration)

SOCHIN, P. [Sochyn, P.]

Health currents. Znan. ta pratsia no.10:9 O '61. (MIRA 14:8)

(MEDICAL ELECTRONICS)

SOCHINSKIY, A.

"Technical and economic problems in the design and modernization of printing machinery" by L.M.Kheifets. Reviewed by A.Sochinskii. Mashinostroitel' no.2:45 F '63. (MIRA 16:3)

(Printing machinery and supplies) (Kheifets, L.M.)

MAREVICH, N.V.; TRAVIN, A.B.; SOCHINSKIY, A.A., akademik.

Tendency of the petrographic types of coal of the Prokop'evsk deposits of the Kuznetsk Basin toward spontaneous combustion. Izv.AN SSSR Otd.tekh. nauk no.8:1110-1117 Ag '53. (MLRA 6:8)
(Prokop'evsk--Coal) (Combustion, Spontaneous)