DOTSENKO, V.Ye., prof.; YELINSON, R.N., insh.

Organization of the repair of the electrical equipment of track maintenance machines. Trudy MIIT no.205:116-122 '65. (MIRA 18:9)

AUTHORS: Yelinson, S. V., Oleznyuk, V. A. 75-1-15/26

TITLE: The Gravimetric Determination of Uranium Using Cupferron for Its Separation (Vesovoy metod opredeleniya urana s primeneniyem kupferona dlya yego otdeleniya)

PERIODICAL: Zhurnal Analiticheskoy Khimii, 1958, Vol 13, Nr 1, pp 95-99 (USSR)

ABSTRACT: Besides many other organic reagents cupferron is especially used for the separation of uranium as a complex compound. In the analytical chemistry of uranium the precipitation with cupferron is mainly used for the separation of elements disturbing in titrimetric uranium determination. In the gravimetric determination of hexavalent uranium a precipitation is first performed with "cupferron ", in order to separate iron, titanium, vanadium and other elements. Then uranium is reduced to the tetravalent stage and is precipitated with cupferron, in order to separate it from aluminum, chromium, beryllium, phosphorus, manganese and other elements. Collidey and Kenningkhem (reference 5) after the separation of the admixtures by "cupferron" oxidized the

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excess "cupferron" by repeated treatment with sulfuric acid and nitric acid, then reduced uranium in a Jones reductor or by other methods and finally precipitated the "cupferronate" of tetravalent uranium. The cupferronate is burned and annealed, under which conditions U_3O_8 forms, which is weighed. This gravimetric method can, however, in the manner in which it is suggested, not be employed in the analysis of ores and concentrates in series analyses. The oxidation of the excess "cupferron" is a lengthy operation and moreover does not always lead to success. The authors made it their task to find conditions for the method of the double precipitation with 'cupferron" by which it works rapidly and simply and by which it is suitable for the analysis of ores and concentrates in works laboratories. In the method newly worked out the excess cupferron is not oxidized after the first precipitation. As the precipitation of the "cupferronate" of the reduced uranium is then inevitable in the Jones reductor, amalgamated zinc, cadmium or bismuth

The Gravimetric Determination of Uranium Using Cupferron for Its Separation

cannot be used for the reduction of uranium. Rivalent chromium also proved to be useless, as it is also carried down in precipitation. Sodium hydrosulfite ($Na_2S_4O_6$) is suitable as reducing agent.
(This nomenclature is not in agreement with the international nomenclature. It should read sodium tetrathionate. Abstractor's remark). The completeness of the reduction as dependent on time was also investigated. It became evident that solutions with a uranium content of 150-200 mg must be left standing for at least 20 minutes after the addition of sodium hydrosulphite, in order to attein a complete reduction. The influence exerted by foreign ions upon the determination: iron, aluminum and vanadium may well be separated from uranium by this method. The presence of molybdenum highly increases the results of the analysis. Molybdenum cannot be separated from uranium by cupferron, is on addition of sodium hydrosulphite precicipitated as sulfide and on annealing is converted to MoO_3.
Copper, lead and other elements of the hydrogen sulfide group are also precipitated as sulfides on addition

of sodium hydrosulphite. In these cases the course of the analysis has to be modified, by precipitating copper, molybdenum, lead and other elements by sodium thiosulfate as sulfides. The excess thiosulfate is destroyed with a solution of potassium permanganate. When beside copper and molybdenum no other elements of the hydrogen sulfide group are present, the separation of these two elements can be attained by a single precipitation with ammonia. The loss of uranium in the analysis of samples with a high uranium content was determined by an examination of the luminescence of the filtrates and the washing liquids of the precipitation of the "cuperronate" of tetravalent uranium. It became evident that these losses are insignificant. This method can be used for precision analyses of ores and concentrates with a uranium content of more than 5% in factory laboratories. One determination takes 4 to 5 hours. 4 weighed portions can be analyzed simultaneously. The accuracy or reproducability of the method results from the average error square δ. For samples with a uranium content of 50 % δ lies near ± 0,3 % (relatively), for samples with

The Gravimetric Determination of Uranium Using Cupferron for Its Separation 75-1-15/26

5 to 10 % near ± 1,2 % (relatively).

There are 1 figure, 6 tables, and 7 references, 4 of which are Slavic

SUBMITTED: June 19, 1957

AVAILABLE: Library of Congress

1. Uranium - Determination 2. Uranium - Gravimetric analysis 3. Cupferron - Reagent

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SOV/75-13-5-12/24

AUTHORS: Yelinson, S. V., Petrov, K. I., Rezova, A. T.

TITLE: Spectrochemical Determination of Tantalum in Zirconium (Spektrokhimicheskoye opredeleniye tantala v tsirkonii)

PERIODICAL: Zhurnal analiticheskoy khimii, 1958, Vol 13, Nr 5, pp 576-579 (USSR)

ABSTRACT: For the determination of small amounts of tantalum ($< 0{,}01\%$) in zirconium photometric methods are not suitable because of their comparatively small sensitivity (40γ in 20 ml). The sensitivity of a direct spectral determination of tantalum in zirconium is also small ($\sim 1.10^{-2}\%$). By preceding separation of tantalum from zirconium the sensitivity of the spectrometric determination can be increased. The separation is best carried out by extraction of tantalum in form of its fluoride complex (Refs 2-4). Chernikov, Tramm and Pevzner (Ref 5) used for this extraction the fluoride compound cyclohexanone. In the present paper it is shown that the extraction by cyclohexanone permits the quantitative separation of tantalum from zirconium. The tantalum is removed from the 2-4 m sulfuric acid solution, which contains hydrofluoric acid, by cyclohexanone. For the quanti-

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Spectrochemical Determination of Tantalum in Zirconium

tative extraction it will be sufficient to shake out three times with always the same volume cyclohexanone as the test solution. Under these conditions also relatively large amounts of tantalum pass quantitatively into the organic layer whereas the zirconium remains in the aqueous solution. In the spectrometric determination of small amounts of tantalum in the extract it is necessary to concentrate the extract previously in order to achieve high sensitivity of the determination. For this purpose, cyclohexanone as azeotrope is distilled off with water (boiling point 90°). By means of the radioisotope Ta^{182} it was proved that no tantalum is lost on the extraction and on the distillation of the azeotrope. The authors also investigated the conditions for the spectrometric determination of the tantalum in the extract. The highest sensitivity is attained by spark-excitation of the spectra and by the use of carbon electrodes with a diameter of only 3-3,5 mm. When working on a spectrograph of type ISP-22, the sensitivity under these conditions amounts to 0,1 γ. Molybdenum was used as internal standard. The most intensive line of tantalum (2685,1 Å) was measured. The line of molybdenum lies in a comparative position at 2688,0 Å. These two lines are very well apt for the quanti-

Spectrochemical Determination of Tantalum in Zirconium

tative determination. In a log c - W diagram (W... variation of blackening) the calibration curve within the range 3-100 γ Ta/ml is a straight line. On extraction of the tantalum fluoride complex also small quantities of sulfuric acid and zirconium are extracted. The acidity, however, does not affect the precision of the spectral analysis, the sensitivity only is a little reduced by the sulfuric acid. Also quantities up to 30 γ zirconium/ml do not influence the determination of tantalum. The elaborated spectrochemical determination for tantalum in zirconium was applied to several samples of zirconium. The results are given and are satisfactory. The method permits the determination of 1.10^{-3}% Ta in 1g Zr with a mean arithmetic error of ~20% (relative). The authors express their gratitude for valuable advices to L. V. Lipis.
There are 2 figures, 9 tables, and 6 references, 3 of which are Soviet.

SUBMITTED: September 2, 1957

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SOV/32-24-12-6/45

5(2)
AUTHORS: Yelinson, S.V., Limonik, M.S.

TITLE: The Determination of Magnesium in Zirconium Using Ion Exchange Chromatography (Opredeleniye magniya v tsirkonii s primeneniyem ionnoobmennoy khromatografii)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 12, pp 1434-1436 (USSR)

ABSTRACT: The method is based upon the ability of zirconium to form an easily soluble oxalate complex compound which is not adsorbed by a cation exchanger (cationite). The magnesium in the solution is, however, adsorbed by the cationite and can then be eluted with hydrochloric acid. An ion exchange resin with the trade mark SBS (SO_3H is the active group) was used. The columns used were 25 ml burettes with a diameter of 12 mm and a height of 400 mm. Hf, Ti, Ca, Fe, and Al, and other admixtures may be present in the metallic zirconium, since they either form complex compounds which are not adsorbed (as the Zr), or are precipitated out at some point in the analytical procedure. Magnesium in content of 0.005 to 0.1% in zirconium can be determined colorimetrically using titanium yellow. A photocolorimeter of the FEK-M type with green filter (530 mμ) was used in these experiments. The experimental results (Tables 1,2,3) and the analytical procedure

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The Determination of Magnesium in Zirconium Using Ion Exchange Chromatography

are given.-There are 3 tables.

5 (2) SOV/32-25-8-5/44

AUTHORS: Yelinson, S. V., Pobedina, L. I.

TITLE: Photocolorimetric Determination of Silicon in Zirconium

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 8, pp 909 - 911 (USSR)

ABSTRACT: A photocolorimetric determination method was developed for silicon (I) in zirconium (II) and the alloys of (II). The method is based on the measurement of the optical density of silicon molybdenumheteropolyacid which was reduced to a blue-colored complex compound with ascorbic acid (III) (Ref 1). It was established by experiments that it is possible to obtain permanently colored solutions with a 2 ml/50 ml content of a 1%-solution of (III). A series of analyses was made with different (I)-concentrations in solutions having the following composition: 35 ml of 0.1 n H_2SO_4, 3 ml of 5%-aqueous ammonium molybdate solution (10 minutes' delay), 8 ml of 8 n H_2SO_4, (III) and (II). It was established that the maximum optical density (measured with a photocolorimeter FEK-M) was achieved with an addition of the above-mentioned quantity of ammonium molybdate; however, this quantity has to be increased in the presence of

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Photocolorimetric Determination of Silicon in Zirconium SOV/32-25-8-5/44

5 - 10 mg of Fe. The influence of phosphoric acid can be eliminated by increasing the acidity to 2.4 n H_2SO_4. Tungsten does not disturb the analysis (Table 1: results of analyses with samples containing Zr, Fe, P and W). The analysis results of several (II)-alloys show that the mean square error of the described photocolorimetric method is relatively $\pm$ 7.2%. There are 1 figure, 2 tables, and 2 Soviet references.

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PHASE I BOOK EXPLOITATION SOV/4448

Yelinson, Samuil Vladimirovich, and Karl Ivanovich Petrov

Tsirkoniy; khimicheskiye i fizicheskiye metody analiza (Zirconium; Chemical and Physical Methods of Analysis) Moscow, Atomizdat, 1960. 211 p. Errata slip inserted. 5,000 copies printed.

Scientific Ed.: P.N. Paley; Ed.: G.M. Pchelintseva; Tech. Ed.: Ye. I. Mazel'.

PURPOSE: This book is intended for chemists who perform zirconium analyses. It may be used by teachers and students of schools for higher technical education to supplement courses in chemical analysis.

COVERAGE: The monograph is a manual on methods of zirconium analysis and is based on Soviet and non-Soviet literature published up to the second half of 1959. It discusses practical problems in the analytical chemistry of zirconium and describes the more accurate and proven methods of determining zirconium in natural raw materials and in processing products. The effects of impurities and alloying elements on the properties of zirconium are considered. In view of the remarkable mechanical properties of zirconium, i.e., its high corrosion resistance and low cross section for thermal neutron capture, the study included material on zirconium

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Zirconium; Chemical and Physical Methods of Analysis SOV/4448

in nuclear power engineering applications. Theoretical problems are discussed only as they are necessary to understand the chemistry of the analytical reactions cited. S.V. Yelinson wrote Chs. II, III, IV, V, VI and VIII; K.I. Petrov, Chs. VII and IX; both authors Chs. I and X. L.V. Lipis, Doctor of Technical Sciences, edited the manuscript. There are 395 references, mainly Soviet and English, with a scattering of French and German references.

TABLE OF CONTENTS:

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PHASE I BOOK EXPLOITATION SOV/5117

Markov, V. K., A. V. Vinogradov, S. V. Yelinson, A. Ye. Klygin, and I. V. Moiseyev

Uran, metody yego opredeleniya (Uranium, Methods of Detection) Moscow, Atomizdat, 1960. 262 p. Errata slip inserted. 6,000 copies printed.

Ed. (Title page): V. K. Markov, Doctor of Chemical Sciences; Ed.: Ye. I. Panasenkova; Tech. Ed.: Ye. I. Mazel'.

PURPOSE: This book is intended for technical personnel of the uranium industry.

COVERAGE: The book contains systematized material on the determination and separation of uranium. Chemical, luminescence, and radiometric methods for qualitative detection of uranium in various media are described in detail. The description of methods for the separation of uranium includes, among others, precipitation, extraction, and cation and anion exchange. The

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bulk of the material is on the determination of uranium by gravimetric, volumetric, photometric, electrometric, and radiometric methods. One chapter is devoted to the determination of uranium by the luminescence method. No personalities are mentioned. References accompany each of the chapters.

TABLE OF CONTENTS:

5.5210

77752
SOV/75-15-1-14/29

AUTHORS: Yelinson, S. V., Nezhnova, T. I.

TITLE: Concerning Solubility of Zirconium Cupferronate

PERIODICAL: Zhurnal analiticheskoy khimii, 1960, Vol 15, Nr 1, pp 73-76 (USSR)

ABSTRACT: Solubility of Zr cupferronate was determined according to Pyatnitskiy's method (Zh. analit. khimii, 1, 57, 1946). The equilibrium constants (K_p) were found from:

$$Me^{4+} + 4HR \leftrightharpoons MeR_4 + 4H^+ \qquad (1)$$

$$K_p = (H^+)^4 / (Me^{4+})(HR)^4 \qquad (2)$$

Card 1/6 The solubility product constant (L_p) for MeR_4 can

be expressed:

$$L_p = (Me^{4+}) (R^-)^4 \qquad (3)$$

Dissociation constant of cupferron in acid is:

$$K_s = (H^+) (R^-)/(HR) \qquad (4)$$

From equations 4 and 2, L_p is found:

$$L_p = K_s^4/K_p \qquad (5)$$

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Equation 5 makes possible the calculation of Lp, if Kp is known. Ks in Eq. 5 was determined (for cupferron

in an acid) by Pyatnitskiy; it is equal to 5.3×10^{-5}. Equilibrium constant of zirconium precipitation with cupferron was determined as follows; 1M zirconium sulfate solution was precipitated with cupferron in a 100 ml beaker at 20° (in a thermostat) and filtered through a sintered glass filter Nr 4. Concentration of Zr in the filtrate was determined by the tagged atoms method (Zr^{95} was used). The more detailed conditions of the experiments and the results obtained are given in Table A.

Table A. Determination of K_p of precipitation of Zr with cupferron. The volume of filtrate was 50 ml.

(a)	(b)	(c)	(d)			(h)				$K_p \cdot 10^{19}$
			(e)	(f)	(g)	$[HSO_4^-]$	$[H^+]$	$[Zr^{++}] \cdot 10^4$	$[HR] \cdot 10^4$	
5	35	0,25	2,5	8024	0,390	0,220	0,280	3,14	4,70	4,01
10	70	0,50	2,0	11456	0,696	0,462	0,538	4,52	8,64	3,33
5	38	0,25	5,0	5062	0,123	0,220	0,280	1,03	7,10	2,35
5	38	0,50	2,0	7835	0,476	0,462	0,538	3,08	9,30	3,64
10	76	0,50	2,0	4940	0,300	0,462	0,538	1,95	12,90	1,55
5	39	0,27	5,0	3457	0,084	0,243	0,297	0,61	7,15	4,88
5	39	0,54	2,0	6419	0,390	0,510	0,570	2,29	9,84	4,92
5	44	0,25	25,0	1220	0,0059	0,220	0,280	0,05	12,80	4,58
5	44	0,50	10,0	7819	0,095	0,462	0,538	0,61	13,7	3,99
5	44	1,00	1,0	9053	1,10	0,945	1,055	14,7	22,5	0,41

$K_p = 3,36 \cdot 10^{19}$

Key to Table A. (a) Zr taken (mg); (b) cupferron introduced (mg); (c) sulfuric acid concentration (mole/liter); (d) Zr found in the filtrate; (e) aliquot part (ml); (f) counts per min in the aliquot part;

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(g) total (mg); (h) equilibrium concentrations (mole/liter).

Using the obtained equilibrium constant and Eq. 5, the solubility product constant can be calculated:

$$L_p = \frac{K_S^4}{K_p} = \frac{(6{,}3 \cdot 10^{-6})^4}{3{,}36 \cdot 10^{19}} = 2{,}35 \cdot 10^{-37}.$$

Using the obtained value for L_p, solubility of zirconium cupferronate can be calculated:

$$S_{Zr} = \sqrt[5]{\frac{L_p}{256}} = \sqrt[5]{\frac{2{,}35 \cdot 10^{-37}}{256}} = 1{,}6 \cdot 10^{-8} \text{ mole/liter}$$

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The obtained value of Zr cupferronate solubility

(1.6×10^{-8} mole/liter) is close to the value (2.3×10^{-8}) found by Elving, P. and Olson, E. (see references). There are 1 table; and 9 references, 4 U.S., 1 French, 2 German, 2 Soviet. The U.S. references are: Lundel, G., Knowless, H., Ind. Eng. Chem. Anal. Ed., 12, 344 (1920); Connick, R., McVey, W., J. Am. Chem. Soc. 71, 3182 (1949); Connick, R., Reas, W., J. Am. Chem. Soc. 73, 1171 (1951); Elving, P., Olson, E., J. Am. Chem. Soc. 78, 17, 4206 (1956).

SUBMITTED: July 14, 1958

Card 6/6

YELINSON, S.V.; POBEDINA, L.I.; MIRZOYAN, N.A.

Analysis of certain zirconium-base alloys. Zhur.anal.khim. 15 no.3:334-338 My-Je '60. (MIRA 13:7)
(Zirconium alloys--Analysis)

S/032/60/026/011/004/035
B015/B066

AUTHORS: Yelinson, S. V. and Rezova, A. T.

TITLE: Determination of Alkali Metals and Halogens in Zirconium Dioxide by High-voltage Electrodialysis

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 11, pp. 1209-1210

TEXT: In the production of metallic Zr by electrolysis of molten potassium fluozirconate small quantities of F and K may be left in the Zr metal. Also the zirconium dioxide obtained from the raw material may contain these impurities. To separate potassium and fluorine from zirconium dioxide, a high-voltage electrodialysis was applied in the present case. B. S. Tsyvina (Ref. 1) already indicated that this method is applicable to hydroxides of metals which may be precipitated at pH below 7.5. Since Zr precipitates from dilute solution at pH = 2, this method may be used. A device consisting of an electrodialyzer of the Pauli type with a BBC-1 (VVS 1) rectifier and the corresponding

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Determination of Alkali Metals and Halogens in Zirconium Dioxide by High-voltage Electrodialysis

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controlling and measuring instruments may be used to separate potassium. A voltage up to 2000 v and an amperage up to 300 ma may be attained. The electrode chambers are separated by a cellophane membrane which is permeable for the electrolyte. Platinum electrodes are used and a stirrer is fitted in the central chamber. The completeness of the potassium and fluorine separation was checked on artificial ZrO_2 samples. It was found that at high potassium content the liquid in the electrode chambers must be changed 2-3 times. The final determination of the separated potassium was made gravimetrically with tetraphenyl borate, that of fluorine was performed colorimetrically or in the form of PbClF (Ref. 4). There are 1 figure, 2 tables, and 4 Soviet references.

Card 2/2

ALIMARIN, I.P.; BILIMOVICH, G.N.; BUSEV, A.I.; VAYNSHTEYN, E.Ye.; VOLYNETS, M.P.; GORYUSHINA, V.G.; DYMOV, A.M.; YELINSON, S.V.; ZVYAGINTSEV, O.Ye.; KOLOSOVA, G.M.; KORCHEMNAYA, Ye.K.; LEBEDEV, V.I.; MALOFEYEVA, G.A.; MELENT'YEV, B.N.; NAZARENKO, V.A.; NAZARENKO, L.I.; PETROVA, T.V.; POLUEKTOV, N.S.; PONOMAREV, A.I.; RYABUKHIN, V.A.; STROGANOVA, N.S.; CHERNIKHOV, Yu.A.; VINOGRADOV, A.P., akademik, otv. red.; RYABCHIKOV, D.I., doktor khim. nauk, prof., otv. red.; GUS'KOVA, O., tekhn. red.

[Methods for the determination and analysis of rare elements] Metody opredeleniia i analiza redkikh elementov. Moskva, 1961. 667 p. (MIRA 14:7)

1. Akademiya nauk SSSR. Institut geokhimii i analiticheskoy khimii. (Metals, Rare and minor)

S/137/62/000/001/237/237
A154/A101

AUTHOR: Yelinson, S. V.

TITLE: The present state of the analytical chemistry of zirconium and hafnium

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 14, abstract 1K90 (V sb. "Metody opredeleniya i analiza redk. elementov", Moscow, AN SSSR, 1961, 303 - 373)

TEXT: This review gives methods for the following: X-ray-spectral determination of Zr and Hf in rocks, ores and minerals. Direct quantitative spectrographic determination of Hf in ores. Spectral determination of Zr and Nb in alumosilicate ores. Photometric determination of Zr in ores with arsenazo III. Photometric determination of Zr in ores with arsenazo I and alizarin red. Photometric determination of Zr in phosphorites and other ore materials with pyrocatechin violet. Gravimetric determination of Zr in concentrates, alloys and other materials with amygdalic acid. Trilonometric determination of Zr with a xylenol orange indicator in alloys, oxides and commercial salts. Volumetric determination of Zr in alloys with Nb, U and other metals. Spectrochemical deter-

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The present state of the...

mination of Ta in Zr and Zr-base alloys. Determination of Al, Be, Mg, U and Zn in Zr and Zr-base alloys. Spectral determination of Hf in Zr dioxide. Determination of Hf oxide in joint oxides of Zr and Hf by β-reflection. Determination of Hf in the presence of Zr by the isotopic dilution method after chromatographic separation. Spectral determination of admixtures in metallic Hf and Zr. Spectral determination of admixtures in Zr and its compounds with the aid of a discharge in a hollow cathode. Spectral determination of Fe, Ca, Mg, Cr, Ni, Si and B in Zr. Spectral determination of admixtures in Zr by the fractional evaporation method with a carrier in a d-c arc. Photometric determination of minute amounts (of the order of micrograms) of Th in Zr with arsenazo III. Determination of admixtures in Zr. Photometric determination of Si in Zr. Spectral determination of B in Zr. Photometric determination of B in Zr. Spectral-isotopic determination of H_2 in Zr and Zr-base alloys. Determination of O_2 in Zr. Determination of N in Zr. There are 262 references.

N. Gertseva

[Abstracter's note: Complete translation]

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YELINSON, S.V.

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PHASE I BOOK EXPLOITATION SOV/5777

Vinogradov, A. P., Academician, and D. I. Ryabchikov, Doctor of Chemical Sciences, Professor, Resp. Eds.

Metody opredeleniya i analiza redkikh elementov (Methods for the Detection and Analysis of Rare Elements) Moscow, Izd-vo AN SSSR, 1961. 667 p. Errata slip inserted. 6000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo.

Ed. of Publishing House: M. P. Volynets; Tech. Ed.: O. Gus'kova.

PURPOSE: This book is intended for analytical chemists and for students of analytical chemistry.

COVERAGE: The handbook was published in accordance with a decision of the Vsesoyuznoye soveshchaniye po analizu redkikh elementov (All-Union Conference on the Analysis of Rare Elements) called

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together by the Gosudarstvennyy nauchno-tekhnicheskiy komitet Soveta Ministrov SSSR (State Scientific and Technical Committee of the Council of Ministers of the USSR) and the Academy of Sciences USSR in December, 1959. The material is arranged in accordance with the group position of elements in the periodic system, and each section is prefaced by an article discussing the analytical methods most used in the Soviet and non-Soviet countries. Each section deals with the physical, physicochemical, and chemical methods for the analysis of raw materials, semi-products, and pure metals, and is accompanied by an extensive bibliography listing works published in the field in recent years. The following are mentioned for their help in preparing the book for publication: I. P. Alimarin, G. N. Bilimovich, A. I. Busev, E. Ye. Vaynshteyn, M. P. Volynets, V. G. Goryushina, A. M. Dymov, S. V. Yelinson, O. Ye. Zvyagintsev, G. M. Kolosova, Ye. K. Korchemnaya, V. I. Lebedev, G. A. Malofeyeva, B. N. Melent'yev, V. A. Nazarenko, I. I. Nazarenko, T. V. Petrova, N. S. Poluektov, A. I. Ponomarev, V. A. Ryabukhin, N. S. Stroganova, and Yu. A. Chernikhov.

Methods for the Detection (Cont.) SOV/5777

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S/032/61/027/007/002/012
B110/B203

5.5310

AUTHORS: Yelinson, S. V., and Mirzoyan, N. A.

TITLE: Photometric zirconium determination in hafnium by Arsenazo III reagent

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 7, 1961, 798-801

TEXT: The spectral methods hitherto used for determining high Zr concentrations in hafnium are inaccurate. The great similarity of their chemical and physical properties causes identical coloring with organic reagents. At higher acidity, however, some Hf dye complexes are much less stable than the Zr complexes. Thus, Hf dye complexes with rufigallic acid and with 2,4-disulfobenzaurin-3,1'-dicarboxylic acid decompose at high acidity while the corresponding Zr complexes are stable. If the acidity increases from 0.25 N HCl to 1 N HCl, the optical density of the Arsenazo I-Hf complex drops considerably, while the decrease is low in the corresponding Zr complex. The determination of ≈20% of hafnium oxide in a mixture with zirconium oxide is based thereon. For determining low Zr concentrations in metallic Hf, Arsenazo III synthesized by S. B.

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Photometric zirconium determination ...

Savvin (Ref. 4: Doklady AN SSSR, 127, 6, 1231 (1959)) was used which, contrary to Arsenazo I suggested by V. I. Kuznetsov (Ref. 7: Zavodskaya laboratoriya, XI, 768,(1945)) for the photometric determination of several elements, forms more stable complexes. This permits a determination in strongly acid medium with higher selectivity. The optical density of the intensely blue-colored Arsenazo III complex with Zr is constant within an acidity range of from 1 N to 6 N HCl. According to Fig. 1, the optical density of complexes, which reaches a maximum at 1 N HCl for Zr and Hf, drops sharply with Hf, slightly with Zr, at an increase to 4 N HCl. With an increase to 6 N HCl, the optical densities rise again. There is, however, no constant absorption as for 4 N HCl. According to Fig. 2, the absorption maxima shift to the longwave band. The absorptions of free dye are equal with 1 N and 4 N HCl. The maxima of the metal complexes depend on the HCl concentration (1 N HCl = 625mμ; 4 N HCl = 665mμ). The curves were obtained by means of СФ-2М (SF-2M) at 1=2 cm, Zr and Hf=50γ; Arsenazo III = 2 ml of 0.05% solution in 50 ml. The stoichiometric coefficients in the formation reaction of complexes were determined by continuously changing the component ration (Ostromyslenskiy - Job method). Measurements were made by means of ФЭК-М (FEK-M), red light filter (~650

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mμ) in cuvettes with 3 cm layer thickness. The molar coefficients (ε=D/cl) for both complexes at the acidities mentioned were determined by the method of isomolar series. Ten experiments were conducted with the ratio metal: reagent = $2 \cdot 10^{-4}$; $2 \cdot 10^{-6}$, the other ten with reagent excess (Table 1). Thus, it was possible to determine optically low Zr concentrations in metallic hafnium. 10-20 mg of Hf metal was mixed in a Pt bowl with 50 ml H_2O and 1 ml Hf. After dissolution, 1 ml H_2SO_4 (1.84) was added, evaporated until the appearance of SO_3 vapors, mixed with 2-3 ml H_2O, and evaporated to dryness. The residue was dissolved under heating in 4 N HCl, and filled up with 4 N HCl to 500 ml. A liquid volume containing $\leq$50γHf was diluted with 4 N HCl to 25-35 ml, heated to boiling, and mixed with 2 ml of 0.05% Arsenazo III solution. After filling up with 4 N HCl to 50 ml, the optical density was measured by means of FEK-M and red light filter. According to the calibration curve (Fig. 3), the Zr concentration in hafnium was determined. Th, U^{4+}, Ti^{4+} ions disturb the determination with freshly prepared reagent

Photometric zirconium determination ...

(0.05 g Arsenazo III dissolved in 80-90 ml H_2O, mixed with 5 ml of 6 N HCl, and filled up with H_2O to 100 ml). Fe^{3+} must be reduced with ascorbic acid to Fe^{2+}. Other elements do not disturb. The mean square error σ is about $\pm$20% (with 0.5% Zr) and $\pm$10% (with 1% Zr). In the presence of tungsten and molybdenum, the hafnium must be precipitated quantitatively with NH_3 in a centrifuge glass after evaporation of H_2SO_4 and dissolution of the residue in 10-15 ml. In the absence of Zr, Hf is photometrically determined with Arsenazo III in 1 N HCl. For plotting the calibration curve, solutions of 5-50 γ Hf (at intervals of 5 γ Hf concentration) are diluted with 25-30 ml of 1 N HCl, and boiled. After cooling, 2 ml of 0.05% Arsenazo III solution is added, and filled up with 1 N HCl to 50 ml. After 30 min, measurement is made by means of FEK-M, a red light filter, and a cuvette with a 3-cm thick layer, and comparison is made with the blank test sample of the reagent dissolved in 1 N HCl. There are 3 figures, 2 tables and 8 references: 7 Soviet-bloc and 1 non-Soviet-bloc.

Card 4/8

S/075/63/018/002/005/009
E195/E436

AUTHORS: Yelinson, S.V., Pobedina, L.I.

TITLE: New photometric methods for the determination of niobium and tantalum in metals and alloys Communication I. Photometric determination of niobium with the aid of 1(2-pyridylazo)-resorcinol

PERIODICAL: Zhurnal analiticheskoy khimii, v.18, no.2, 1963, 189-195

TEXT: The use of new reagents for the determination of Ni was investigated because of limitations in the use of methods known at present. Niobium with hydrogen peroxide and 1-(2-pyridylazo)-resorcinol (PAR) forms at pH 5 a crimson complex, which has an absorption maximum at 590 mμ, pure PAR having this maximum at 420 mμ. It was established by the method of isomolar series (at a general molar concentration of 2×10^{-5} mol/litre) that Ni reacts with PAR in the presence of H_2O_2 at pH 5 at the molar ratio 1:1. The equilibrium constant of the reaction and the molar extinction coefficient of the complex were determined by the Komar'-Tolmachev method as 5.52 and 32260 respectively.

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S/075/63/018/002/005/009
E195/E436

New photometric methods ...

The effect of H_2O_2, complexone III and other masking substances on the optical density D of the complex was also studied. It was found that D decreases proportionally with the increase of complexone III concentration in the solution. A photometric method was developed for the determination of Ni in zirconium- and titanium-based alloys. The sensitivity of the method is 5 μg in 50 ml of solution. The accuracy of the method at the niobium concentration of 0.1 to 1% in the alloy is characterized by the mean square error 2 to 4%. There are 7 figures and 3 tables.

SUBMITTED: May 29, 1962

Card 2/2

YELINSON, S.V.; POBEDINA, L.I.

New photometric methods for the determination of niobium and tantalum in metals and alloys. Report No.2: Photometric determination of niobium with xylenol orange. Zhur.anal.khim. 18 no. 6:734-738 Je '63. (MIRA 16:9)
(Niobium—Analysis) (Xylenol orange)

YELINSON, S.V.; POBEDINA, L.I.

Complexometric determination of titanium in alloys. Zav.lab. 29 no.2:139-142 '63. (MIRA 16:5)
(Titanium—Analysis) (Titanium alloys)

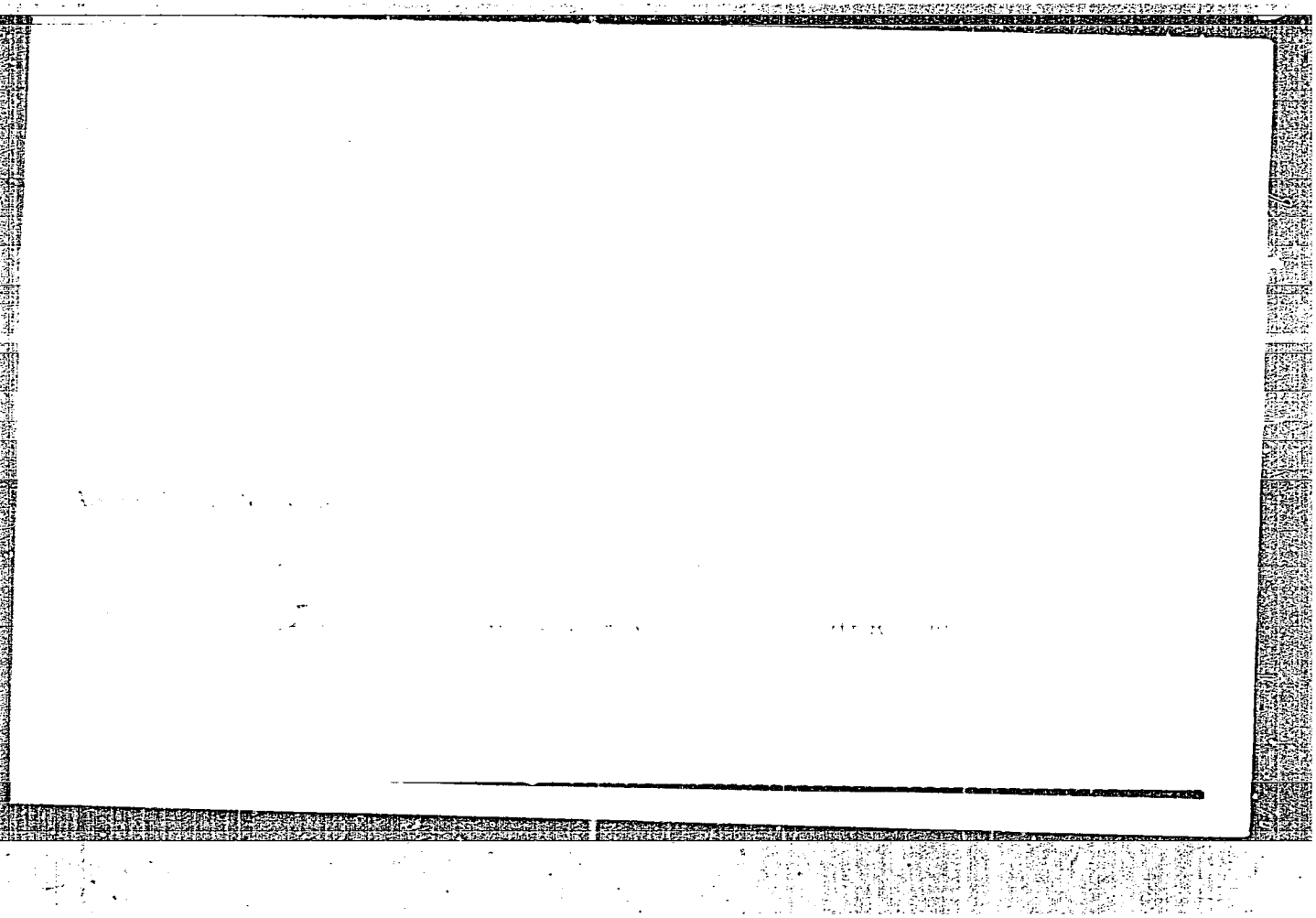
YELINSON, S.V.; POBEDINA, L.I.

New photometric methods for determining niobium and tantalum in metals and alloys. Report No.1: Photometric determination of niobium by means of 1-(2-pyridylazo)-resorcinol. Zhur. anal. khim. 18 no.2:189-195 F '63.

(MIRA 17:10)

new colorimetric reagents [illegible] tantalum in solution. It was established of various other constituents which keep tantalum [illegible] forms colored complexes [illegible] resistant alloys

Card 1 2



APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R001962530002-3"

S/0032/64/030/004/0396/0399

ACCESSION NR: AP4033607

AUTHORS: Yelinson, S. V.; Nezhnova, T. I.

TITLE: Photometric determination of zirconium in niobium and other metals

SOURCE: Zavodskaya laboratoriya, v. 30, no. 4, 1964, 396-399

TOPIC TAGS: zirconium analysis, photometric zirconium analysis, xylenol zirconium complex, optical density, niobium interference, vanadium interference

ABSTRACT: The proposed method for zirconium determination in an alloy is based on the formation by zirconium of a colored complex with xylenol orange. This method permits the determination of 0.02% zirconium in niobium and other metals (with a 10% error). A 100-300 mg sample of niobium was digested on a hot plate by a mixture of 0.3-1.0 gm ammonium sulfate with 3 ml of concentrated sulfuric acid. This was followed by the addition of 0.1-0.2 ml of 30% hydrogen peroxide, dilution with water, cooling, and bringing the volume to 100 ml. Of this, two aliquots containing not over 50 micrograms zirconium were placed in 50 ml volumetric flasks and diluted to the 20 ml mark with 1-normal sulfuric acid. To one of the flasks were then added 0.2 ml of a 0.05 molar solution of trilon to prevent

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ACCESSION NR: AP4033607

color formation by niobium upon the subsequent addition of 1 ml of a 0.1% solution of xylenol orange (the proper acidity of 0.4 normality is essential). The contents of the flask were next diluted with water to the mark and allowed to stand for 15-20 minutes. The optical density was determined on a FEK-N-57 spectrophotometer at a wavelength of 530. The color remained stable for a long time. The method was found to be suitable for the determination of zirconium in uranium, molybdenum, tungsten, titanium, and other metals. The interference of vanadium can be eliminated by substituting 8-10 gms of ammonium sulfate for the hydrogen peroxide. Orig. art. has: 3 tables and 3 charts.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 28Apr64 ENCL: 00

SUB CODE: CH NO REF SOV: 005 OTHER: 003

Card 2/2

Card 1/2

YELINSON, S.V.; POBEDINA, L.I.; REZOVA, A.T.

New photometric methods for the determination of niobium and tantalum in metals and alloys. Report No.4: Study of a niobium complex with 1-(2-pyridylazo)-resorcinol in the presence of oxalate, tartrate, and other addends. Zhur. anal. khim. 20 no.5:676-682 '65. (MIRA 18:7)

L 12927-66 EWT(1)/EWT(m)/EPF(n)-2/EWP(t)/EWP(b) IJP(c) JD/JG

ACC NR: AP6000179 SOURCE CODE: UR/0032/65/031/012/1434/1437

AUTHOR: Yelinson, S. V.; Pobedina, L. I.; Rezova, A. T.

ORG: none

TITLE: Spectrophotometric determination of niobium in steels with a PAR reagent

SOURCE: Zavodskaya laboratoriya, v. 31, no. 12, 1965, 1434-1437

TOPIC TAGS: photometry, spectrophotometric analysis, niobium

ABSTRACT: A method was developed for analyzing niobium content in steels alloyed with Cr, Ni, Ti, Mo, W etc., based on optical density measurements of niobium compound complexes with the reagent PAR-1 (2-pyridyl-azo-resorcin), in tartrate solutions acidified with 0.75-N HCl. The method has an accuracy of ±2% for samples containing about 1% of niobium. Since the optical density of niobium - PAR solutions is a sensitive function of the pH in tartrate solutions (a plateau occurs however between 5 to 7 pH), experiments were performed on solutions containing niobium acidified with HCl to obtain pH control. It was found that the optical density remained constant for 50 ml solutions containing 50 mkg of niobium and 100 mg of ammonium tartrate in which the concentration of HCl ranged from 0.5 to 1.0 N; consequently, 0.75-N HCl solutions were used throughout. The dependence of optical density on niobium content in 0.75-N solutions of HCl was linear, thereby permitting the determination of 5 to 80 mkg of nio-

Card 1/2 UDC: 543.420.62

L 12927-66
ACC NR: AP6000179

bium in a 50 ml volume. Data are given for limitations on the concentrations (mg/50 ml) of the alloying elements, to prevent discrepancies in the analysis. The method is described. Optical density was measured on a FEK-M with a green filter (λ = 536 mmk) in a glass cuvette with l = 3 cm. Niobium content was calculated according to the formula

$$\%Nb = \frac{Kd_{pr}}{d_{so}}$$

where K-Nb content in the standard sample, %; d_{pr}, d_{so} are optical densities of the aliquots of the sample solution (assay) and of the standard sample. Results are given for industrial heats of steels containing from 0.1 to 8% Nb. Orig. art. has: 2 figures, 3 tables.

SUB CODE: 07,14/ SUBM DATE: 00/ ORIG REF: 008/ OTH REF: 002

Card 2/2

ACC NR: AP6028188 SOURCE CODE: UR/0032/66/032/006/0654/0657

AUTHOR: Yelinson, S. V.; Savvin, S. B.; Dedkov, Yu. M.; Tsvetkova, V. T.

ORG: none

TITLE: Photometric and differential-spectrophotometric determination of niobium in alloys with R-picramine

SOURCE: Zavodskaya laboratoriya, v. 32, no. 6, 1966, 654-657

TOPIC TAGS: quantitative analysis, niobium, spectrophotometric analysis

ABSTRACT: The article reports an investigation of the formation of complexes between niobium and R-picramine. The reagent reacts with niobium in a ratio of 1:1, and the molar coefficient of light extinction is approximately 11,000. The article describes a photometric method for determining niobium in molybdenum, tungsten, uranium, titanium, tin, and aluminum base alloys. The method permits determination of amounts from 0.1% with a relative accuracy of ± 10%. A curve shows the optical density as a function of the acidity of the solution. The second part of the article describes a differential spectrophotometric method for determining niobium in alloys and intermetallic compounds with tin. The method permits determination of > 70% Nb with a relative accuracy of 1.5%. Experimental data are exhibited in tabular form. Orig. art. has: 3 figures and 3 tables.

SUB CODE: 07, 11, 20/ SUBM DATE: none/ ORIG REF: 006 UDC: 543.7

Card 1/1

YELINSON, Samuil Vladimirovich; PETROV, Karl Ivanovich; KUZNETSOV, V.I., prof., retsenzent; YERMAKOV, A.N., retsenzent; VINOGRADOV, A.P., akademik, glav. red.; BUSEV, A.I., red.

[Analytical chemistry of zirconium and hafnium] Analiticheskaia khimiia tsirkoniia i gafniia. Moskva, Nauka, 1965. 239 p. (MIRA 18:2)

YELINSON, Zh.L.

Roentgenological signs of secondary lesions of the large intestine in ovarian tumors. Vest. rent. i rad. 39 no.1:17-21 Ja-F '64. (MIRA 18:2)

1. Rentgeno-radiologicheskiy otdel (zav. - prof. I.L. Tager) i ginekologicheskoye otdeleniye (zav. - chlen-korrespondent AMN SSSR prof. L.A. Novikova) Instituta eksperimental'noy i klinicheskoy onkologii AMN SSSR, Moskva.

YELINSON, Zh.L.; SAVINOVA V.F.

X-ray methods for the study and diagnosis of cancer of the uterus and its adnexa. Akush. i gin. 40 no.4:77-82 Jl-Ag '64. (MIRA 18:4)

1. Rentgeno-radiologicheskiy otdel (zav. - prof. I.L.Tager) i ginekologicheskoye otdeleniye (zav. - chlen-korrespondent AMN SSSR prof. L.A. Novikova) Instituta eksperimental'noy i klinicheskoy onkologii (dir. - deystvitel'nyy chlen AMN SSSR prof. N.N.Blokhin) AMN SSSR, Moskva.

Yeliokumson, B.I.

130-1-7/17

AUTHORS: Belykh, K.D., Yeliokumson, B.I. and Razumovskiy, K.R.

TITLE: Radiocommunication in Control-room Work (Radiosvyaz' v dispetcherskoy sluzhbe)

PERIODICAL: Metallurg, 1958, No.1, pp. 12 - 13 (USSR)

ABSTRACT: The authors recall that with increased scale of operation of the blast furnaces at their works, difficulties in organising the rail transport of hot metal and slag were encountered. They outline early measures to improve the situation and then describe the radiocommunication system introduced to establish direct contact between locomotives working on the metal side and the control-room. At present, five locomotives are so equipped and are provided with spare turbo-generators. Type RP-1 radio stations are used. The metal, slag and flue-dust transport operations are shown in a special schedule which is analysed each shift by the railway and blast-furnace representatives. For the slag side, a type TY-600 loudspeaker system is used (as proposed by the manager of the rail shops, M.Ye. Olushko) and the authors describe the way in which good audibility has been secured. To increase radio valve life, an arrangement has been adopted whereby the high-tension current is applied to the anodes by a button in the shunting supervisor's office. The adoption of all these measures is said to have enabled two slag-transport locomotives and one flue-

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dust transporting one to be freed and transport operations to be improved to such an extent that the number of schedules broken through transport faults is said to have fallen from 368, 420 and 502 for the months of May, June and July, 1955, to 13, 10 and 18 for the corresponding months of 1957.

ASSOCIATION: imeni Dzerzhinskiy Works (Zavod imeni Dzerzhinskogo)

AVAILABLE: Library of Congress

Card 2/2

YELIOKUMSON, B.I.; MITROFANOVA, M.A.; GAVRILYUK, A.N.; BALTAKSA, M.G.; LITVINENKO, BELYKH, K.D.

New and useful book for industrial transport workers ("Organization of railroad transportation in metallurgical plants" by A.K.Averbukh. Reviewed by B.I.Eliokumson and others). Metallurg 5 no.6:33 Je '60. (MIRA 13:8)

1. Zavod im. Dzerzhinskogo.
(Railroads, Industrial)
(Averbukh, A.K.)

KATSENOVICH, A.L., prof.; MADZHIDOV, V.M., dotsent; KADYROV, V.K., assistent; SHEKHTEL', A.I.; BISEROVA, M.G.; Prinimali uchastiye: KHAVKINA, Ye.B.; SADYMENKO, I.I.; VASIL'YEVA, T.L.; ATAYEVA, T.I.; MYATISHKINA, Z.I.; TUTAYEVA, V.F.; SAIDOV, T.I.; YAKUNINA, N.I.; SOKOLOVA, Ye.G.; LOPATO, E.A.; ABDULLAYEVA, N.A.; YELIOKUL'SON, L.M.; BAGDASAROVA, K.A.; DENISOVA, A.P.

Some unsolved problems of influenzal infection from the aspect of the epidemic of influenza in 1957 and 1959. Med. zhur. Uzb. no.2: 3-8 F '62. (MIRA 15:4)

(INFLUENZA)

GLAZKOV, P.G., inzh.; SLADKOSHTEYEV, V.T., kand.tekhn.nauk; TELESOV, S.A., inzh.; OFENGENDEN, A.M., inzh.; STRELETS, V.M., kand.tekhn.nauk; MURZOV, K.P., inzh.; Prinimali uchastiye: MALAKHA, A.V.; DRUZHININ, I.I.; YELISOF, A.V.; YEVTUSHENKO, V.B.; OSIPOV, V.G.; BABASHIN, Yu.Z.; SLIN'KO, A.N.; ZELENOV, S.N.; GENKIN, V.Ya.; PITAK, N.V.; VYSOTSKAYA, T.M.

Investigating the operation of multiple-pit continuous steel casting arrangements. Trudy Ukr. nauch.-issl. inst. met. no.7:133-142 '61. (MIRA 14:11)

(Continuous casting--Equipment and supplies)

YELISEOF, A.Ye.; OFENGENDEN, A.M.

Helical method of laying steel-pouring ladles. Metallurg 8 no.2:21-22 F '63. (MIRA 16:2)

1. Donetskiy metallurgicheskiy zavod.
(Open-hearth furnaces—Equipment and supplies)

REPKIN, B.Ya.[Riepkin, B.IA.]; YELIOSOV, V.I.[Eliosov, V.I.]

Additional cotter for the loop forming mechanism of the MSP1-16 machine. Leh.prom. no.3:55 Je - Ag '62. (MIRA 16:2)

1. Lvovskaya trikotazhnaya fabrika.
(Knitting machines)

YELIOSOV, V.I. [Eliosov, V.I.]; NEPKIN, B.Ya. [Riepkin, B.IA.]

Improved electric stop for the MSPN-16 knitting machine in case of broken platen and needle butts. Tekh.prom. no.1:43-44 Ja-Mr '63. (MIRA 16:4)

1. L'vovskaya trikotazhnaya fabrika.

YELISAFENKO, I. I.

15-1957-7-8970

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 7, p 14 (USSR)

AUTHOR: Yelisafenko, I. I.

TITLE: Mesozoic of the Northern Continuation of the Kuzbass (Mezozoy severnogo prodolzheniya Kuzbassa)

PERIODICAL: V sb. Vopr. geol. Kuzbassa, 1, Moscow, Ugletekhizdat, 1956, pp 234-240

ABSTRACT: Data is presented on the stratigraphy of Jurassic and Cretaceous rocks of the region of the Katatskiy brown-coal field at Voznesenka, in the northern continuation of the Kuzbass. Jurassic beds lie on fossiliferous Middle Devonian rocks, filling a gently sloping basin (the Ushakovskiy depression). Two groups are differentiated, called Makarovskiy and Itatskiy because of their similarity to the section at the Itat deposit. Three series are distinguished at this site, the upper one corresponding to the Itatskiy formation and the lower two to the Makarovskiy. The Makarovskiy beds

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Mesozoic of the Northern Continuation of the Kuzbass (Cont.)

are conglomerates and various sandstones, and do not contain economic deposits of coal. Upper Triassic and Lower Cretaceous spores and pollen occur in them. The Itatskiy group is composed of conglomerates and sandstones interbedded with horizons of argillites, siltstones, and layers of brown coal (4 layers of workable thickness 3.5-41.7 m). At the Itat field similar beds are covered by rocks containing abundant plant imprints of the upper horizon of the Middle Jurassic; the Itatskiy group is therefore considered to be Middle Jurassic. The total thickness of Jurassic rocks at the Katatskiy field is 481 m. The Cretaceous rocks are divided into two groups. The lower is composed of red and variegated sands and siltstone, and is correlated with the Ilekskiy series of the Chulym-Yenisey basin. The upper group, belonging to the Upper Cretaceous, is represented by light gray, fine-grained sandstones, siltstones, and clays. The Upper Cretaceous age of this sequence is established by leaf prints of Viburnum sibiricum Krysht. The author doubts the accuracy of dividing

Mesozoic of the Northern Continuation of the Kuzbass 15-1957-8970 (Cont.)

the Cretaceous rocks of this region into two groups and has proposed to unite them into one Voznesenskiy group belonging to the Upper Cretaceous.

Card 3/3

I. N. Krylov

GORDON, S.B., inzh.; YELISAVETSKAYA, I.S., inzh.; BUTENKO, V.L., inzh.

General practice of underground bunkering in the Krivoy Rog Basin. Gor. zhur. no.10:32-36 O '63. (MIRA 16:11)

1. Krivorozhskiy filial Ukrainskogo nauchno-issledovatel'skogo instituta organizatsii i mekhanizatsii shakhtnogo stroitel'stva.

YELISAVETSKAYA, N.A.

Bibliography on weathering surface; Russian and foreign literature, 1956-1960. Kora vyvetr. no.5:404-451 '63. (MIRA 16:7)

1. Biblioteka Otdeleniya geologo-geograficheskikh nauk AN SSSR.

(Weathering—Bibliography)

FREYDIN, Z.; FROLOV, A.; YELISAVETSKIY, E.; VOLKOVA, N.

Precast diaphragms for span structures. Avt.dor. 23 no.7: 32-3 of cover Jl '60. (MIRA 13:7)
(Viaducts)
(Precast concrete construction)

WE YELISEYEV, Subsidiary Apparatus and Materials

1339 A RATIONAL CONSTRUCTION OF THE ELECTROMAGNETS FOR REGULATORS AND RELAYS. -- Eliseev. (Automatics & Telemechanics (in Russian), No. 2, 1941, pp. 109-130.)

The operation of relays and of various types of continuous regulators employing electromagnets is discussed in detail, with a number of graphs. On the basis of this discussion, a method is proposed for designing electromagnets with a view to effecting full use of their energy. Tables 2 and 3 are prepared, for d.c. and a. c. electromagnets respectively, giving the design formulae depending on the type of operation required and various constructions of electromagnets with corresponding constants are shown in Fig. 8. The suspension of the armature is considered separately. The law of similitude for electromagnets is also discussed. In conclusion, a complete design of a d.c. electromagnet for a carbon-pile regulator is given.

KLYKOV, Ya.L., inzh.; GORDON, S.B., inzh.; YELISAVETSKAYA, I.S., inzh.
BUTENKO, V.L., inzh.

Lining a crusher chamber with the help of a hanging scaffold.
Shakht. stroi. 7 no.3:20-21 Mr'63 (MIRA 17:7)

1. Shakhtoprokhodcheskoye upravleniya No.1. Krivobasshakhtoprokhodka (for Klykov). 2. Krivorozhskiy filial Ukrainskogo nauchno-issledovatel'skogo instituta organizatsii i mekhanizatsii shakhtnogo stroitel'stva (for Butenko).

YES'KOV, A.S., inzh.; GORDON, S.B., inzh.; YELISAVETSKAYA, I.S., inzh.

Efficient flowsheets for Krivoy Rog shaft deepening. Shakht. stroi. 4 no.7:9-11 Jl '60. (MIRA 13:7)

1. Krivorozhskiy filial Ukrainskiy nauchno-issledovatel'skiy institut organizatsii i mekhanizatsii shakhtnogo stroitel'stva.
(Krivoy Rog--Shaft sinking)

GORDON, S.B., inzh.; YELISAVETSKAYA, I.S., inzh.; BUTENKO, V.L., inzh.

Efficient work technology in the construction of underground bunkers in the Krivoy Rog Basin. Shakht.stroi. 6 no.9:8-13 S '62. (MIRA 15:9)

1. Krivorozhskiy filial Ukrainskogo nauchno-issledovatel'skogo instituta organizatsii i mekhanizatsii shakhtnogo stroitel'stva.
(Krivoy Rog Basin—Mining engineering)

YELISAVETSKAYA, N.A.

Bibliography on weathered surface. Kora vyvetr. no. 3:373-394 '60. (MIRA 13:12)
(Bibliography--Weathering)

ZHED', V.P., kand. tekhn. nauk, Prinimali uchastiye: BASS, G.S., inzh.; VOROB'YEV, I.I., kand. tekhn. nauk; YELISAVETSKIY, A.G., inzh.; PAVLOVA, M.A., st. inzh.; SHEYNBERG, S.A., doktor tekhn. nauk; LUK'YANOV, A.K., red.; VIKTOROVA, Z.N., tekhn. nauk

[Units and mechanisms of machine tools; survey of foreign design] Uzly i mekhanizmy metallorezhushchikh stankov; obzor zarubezhnykh konstruktsii. Moskva, TSentr. in-t nauchno-tekhn. informatsii, 1961. 53 p. (MIRA 14:11)
(Machine tools--Design and construction)

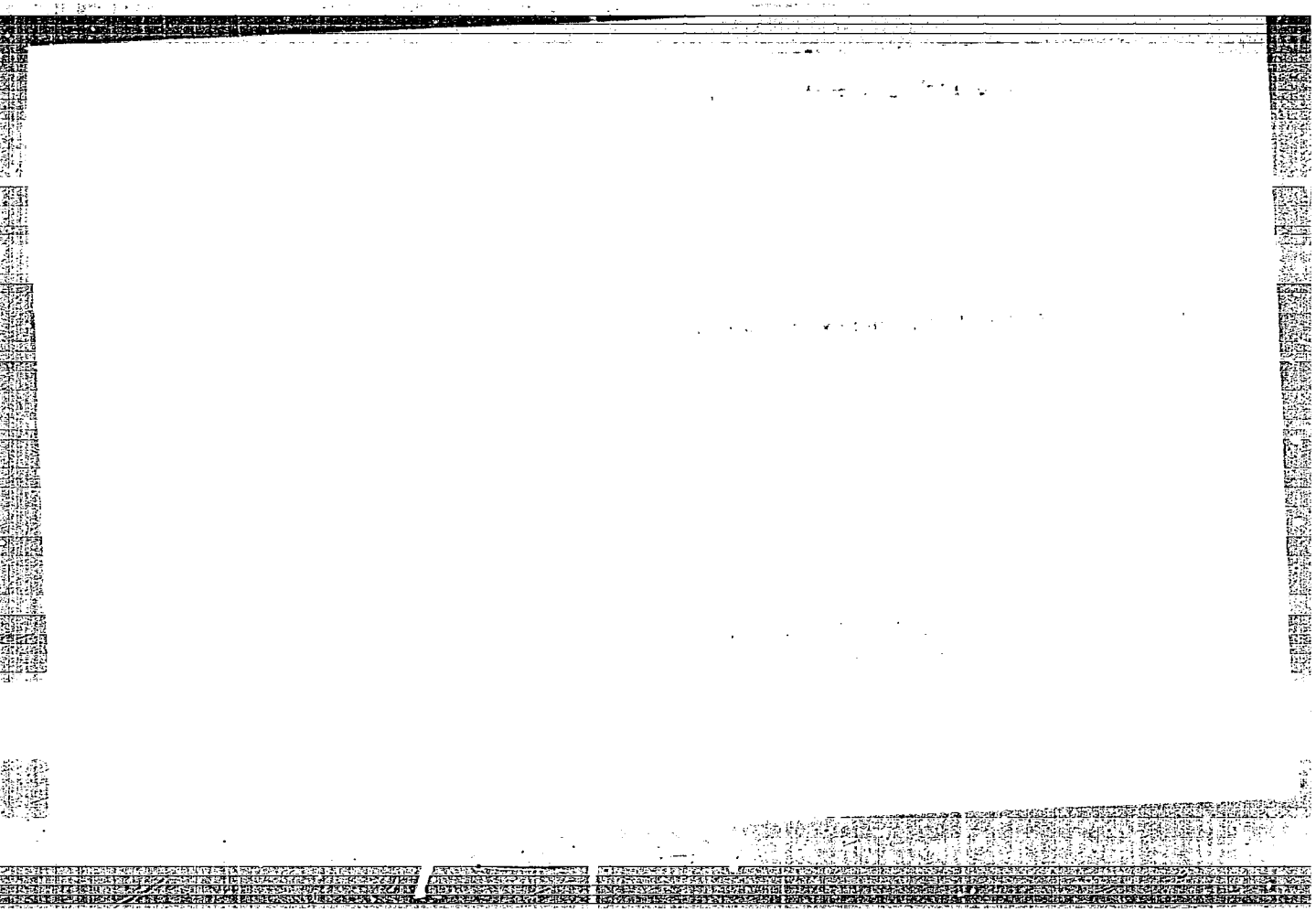
NIBERG, N.Ya.; YELISAVETSKIY, A.G.; BASS, G.S.

Disk-type friction clutches with remote control. Stan.i instr. 33 no.9:30-38 S '62. (MIRA 15:9)
(Clutches (Machinery))

SHKABARNYA, N.G., aspirant; YELISEYENKO, L.A.

Concerning the interpretation of vertical electric sounding curves on an electronic computer. Izv. vys. ucheb. zav.; geol. i razv. 7 no.11:94-97 N '64. (MIRA 18:5)

1. Permskiy gosudarstvennyy universitet im. A.M. Gor'kogo.



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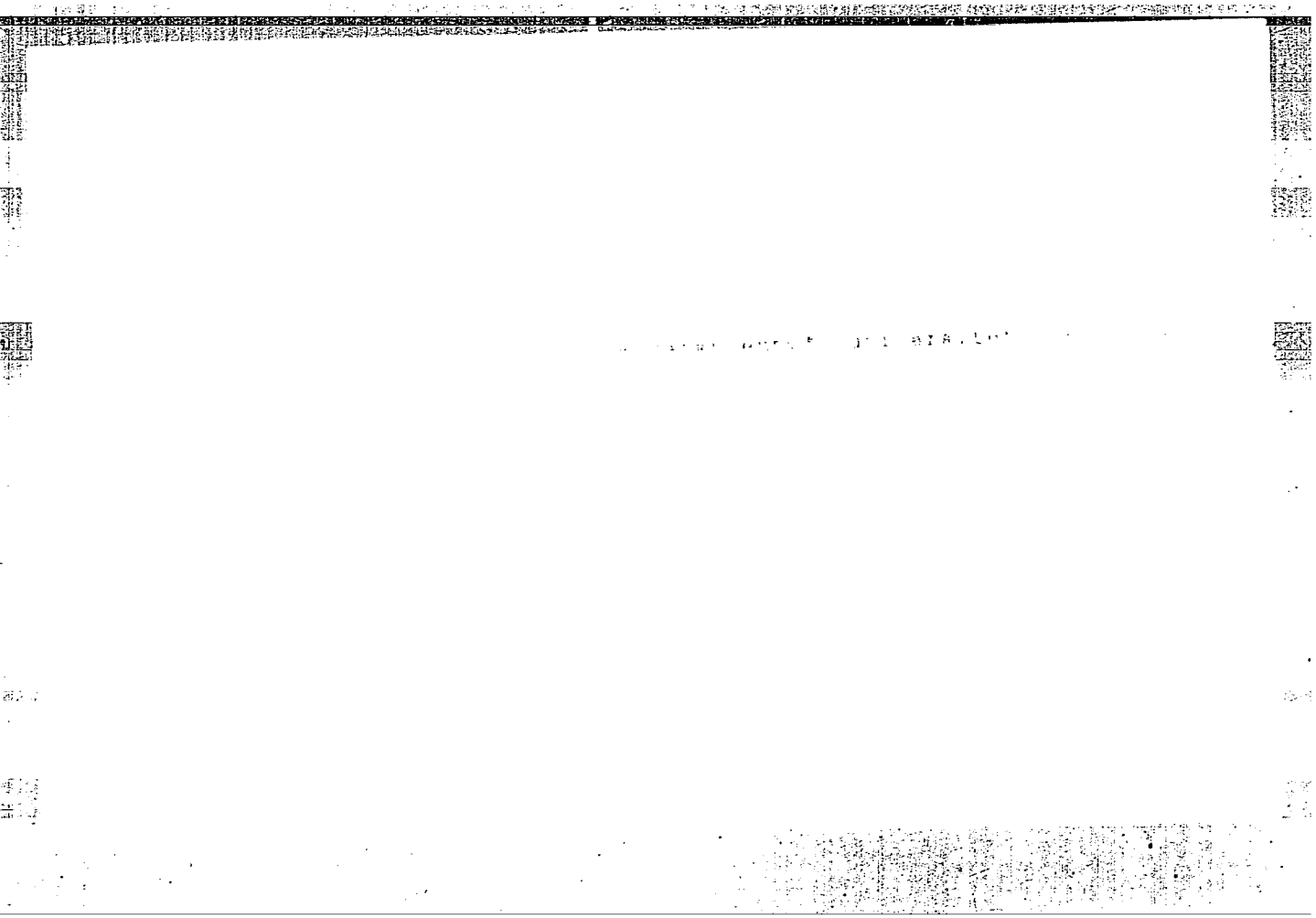

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R001962530002-3"

SOURCE: Fizika tverdogo tela, [illegible]

TOPIC TAGS: x ray effect, photoeffect, photocathode, electron emission

ABSTRACT: By plotting the experimental spectrum of the x-ray photo- [illegible] cathode and comparing the plot with the [illegible] strument previously described by some of the authors [illegible]

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L 16339-65

ACCESSION NR: AP5000678

67, 1960) by a procedure described elsewhere (FTT v. 6, 2574, 1964). For Al, Ti, Fe, Ni, and Cu the respective values of n are 1.3, 1.3, 1.4, 1.35, and 1.44 and the values of C_2 are 100, 65, 42, 43, and 36. The values obtained for n agree well with the exponents ob- [illegible] the mean free paths of the materials. It is shown that a formula previously proposed by two of the authors (Rumsh and Shchemelev, ZhETF, v. 42, 727, 1962) does [illegible] owing to the use of the original Lenard formula in the latter case. Orig. art. has: 1 figure, 1 table, and 4 formulas.

ASSOCIATION: Leningradskiy gosudarstvenny*y universitet (Leningrad State University)

SUBMITTED: 06Jul64 ENCL: 00

SUB CODE: SS, OP NR REF SOV: 007 OTHER: 002

Card 2/2

SHCHEGELEV, V.N.; YELISEYENKO, L.G.; DENISOV, Ye.P.; RUMSH, M.A.

Measuring X-ray photoemission from metals by means of open type secondary-electron multipliers. Prib. i tekh. eksp. 9 no.6:114-118 N-D '64. (MIRA 18:3)

1. Leningradskiy gosudarstvennyy universitet.

L 14207-66 EWT(1) LJP(c) AT
ACC NR: AP6003613 SOURCE CODE: UR/0054/65/000/003/0069/0073

AUTHOR: Yeliseyenko, L. G.; Shchemelev, V. N.; Rumsh, M. A. 63 B

ORG: Leningrad State University (Leningradskiy gosudarstvennyy universitet)

TITLE: X-ray photoemission study of the passage of medium energy electrons through materials

SOURCE: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii, no. 3, 1965, 69-73

TOPIC TAGS: photoelectric effect, copper, aluminum, iron, nickel, titanium, x ray emission, photoelectron, photocathode

ABSTRACT: The x-ray photoelectric yield 21,44,55 was studied in Cu, Al, Fe, Ni, and Ti films used as photocathodes. For Cu, Al, and Fe, thickness curves representing the variation of the quantum yield coefficient χ with film thickness x were determined for various wavelengths, and from these cruves, $r = AE^n$ was determined, where r is the depth

UDC: 535.215

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ACC NR: AP6003613

of formation of the x-ray photoelectric effect, A and n are constants dependent on the medium, and E is the electron energy. The spectral variation was determined for all five elements, and thus B and n' in the formula $1/a = BE^{n'}$ (where a is a constant dependent on the medium and electron energy) could be obtained. It was found that the effective depth of formation of the x-ray photoelectric effect is less than the effective electron path. Orig. art. has: 3 figures, 2 formulas.

SUB CODE: 20/ SUBM DATE: 02Jul64/ ORIG REF: 008/ OTH REF: 001

TS
Card 2/2

ACC NR: AP7005863 SOURCE CODE: UR/0181/66/008/012/3649/3652

AUTHOR: Yeliseyenko, L.G.; Shchemelev, V.N.; Rumsh, M.A.

ORG: Leningrad State University im. A.A. Zhdanov (Leningradskiy gosudarstvennyy universitet)

TITLE: The absorption of electron fluxes of kilovolt energy during their penetration of a solid body

SOURCE: Fizika tverdogo tela, v. 8, no. 12, 1966, 3649-3652

TOPIC TAGS: x ray absorption, electron beam, electron capture, electron flux, electron loss

ABSTRACT: Two factors are responsible for a decrease in the number of electrons which can penetrate thin film: scattering, and retardation. To determine which process is predominant at a given film thickness, an investigation was made of the penetration of electron fluxes through a solid body. The study was based on the x-ray photoeffect of large cathodes. The theoretical quantum yield (X_r) of the photoeffect was calculated by means of a formula whose derivation was based on a spherically symmetric representation. A quasi-spherical analyzer was used to obtain the quantum yield (X_r (50)) experimentally under conditions of a 50-volt retardation. The theoretical and experimental values were in good

UDC: none

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ACC NR: AP7005863

agreement, from which it follows that the mean free path and the practical path in the spherically symmetric experiment virtually coincide and are equal to the free path as determined experimentally in a thin film. This in turn shows that the attenuation at film thicknesses smaller than the practical path is associated with scattering by angles close to and larger than 90°, which results in reflected electrons and electrons which escape along the layer where they are retarded. The authors thank A. A. Lebedev for his interest in the work and for discussing the results. Orig. art. has: 2 formulas and 1 table. [JA]

SUB CODE: 20/ SUBM DATE: none/ ATD PRESS: 5116

Card 2/2

ACC NR: AP7005862 SOURCE CODE: UR/0181/66/008/012/3647/3649

AUTHOR: Yeliseyenko, L. G.; Shchemelev, V. N.; Rumsh, M. A.

ORG: Leningrad State University im. A. A. Zhdanov (Leningradskiy gosudarstvennyy universitet)

TITLE: Ratio of directional and diffusion parts of the free path of kilovolt electrons in a solid

SOURCE: Fizika tverdogo tela, v. 8, no. 12, 1966, 3647-3649

TOPIC TAGS: free path, physical diffusion, electron emission, photoelectron, x ray effect, electron energy

ABSTRACT: Using apparatus described in an earlier paper (Opt. i spektr. v. 9, 653, 1960), the authors determine the distribution of the electron emission direction in the case when the photoelectrons are primarily of the Auger type. The secondary electrons were suppressed. The varied parameter was the angle between the x-ray beam and the emitter plane. In the case of the Auger electrons, it was found that the emission in a narrow solid angle, whose axis makes an angle α with the normal to the plane boundary of the cathode, is proportional to $\cos\alpha$. In the case of x-ray photoelectrons, a cosinusoidal variation of the emitting volume was also observed, although this is not quite evident from the theory. Measurement of the energy distribution of the emission in two different directions shows that the relation between the number of photoelectrons and Auger electrons is approximately constant, confirming the cosinu-

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ACC NR: AP7005862

soidal law obtained in the other measurements. This demonstrates that the energy composition of the integral emission can be obtained by investigating the energy distribution (by plotting the delay curves) in a narrow solid angle. The authors thank A. A. Lebedev for interest in the work and a discussion of the results. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 10Jun66/ ORIG REF: 003/ OTH REF: 001

Card 2/2

ACC NR: AP7005342 SOURCE CODE: UR/0181/67/009/001/0171/0174

AUTHOR: Yeliseyenko, L. G.; Shchemelev, V. N.; Rumsh, M. A.

ORG: Leningrad State University im. A. A. Zhdanov (Leningradskiy gosudarstvennyy universitet)

TITLE: On the ratio of the mean free paths of fast and slow electrons in alkali-halide compounds

SOURCE: Fizika tverdogo tela, v. 9, no. 1, 1967, 171-174

TOPIC TAGS: alkali halide, cathode, photoeffect, quantum yield, x ray effect, free path, electron energy

ABSTRACT: This is a continuation of earlier work (FTT v. 8, 3049, 1966 and earlier) dealing with the x-ray photoeffect of bulky cathodes. In the present investigation, by comparing the pulsed quantum yields and the quantum yields of the x-ray photoeffect proper (these quantities were defined in the earlier work) in the x-ray wavelength range 1.5 - 10 Å, and the thickness dependence of the pulsed quantum yields in the case of a CsI photocathode, the authors show that the mean free paths of the fast x-ray electrons in alkali-halide compounds can be much lower than the paths of the secondary electrons produced by them. In the experiments on the thickness dependence, the CsI was sputtered on aluminum substrates. The test results show that at low thicknesses, all the absorption events are converted into photoemission, and that with increasing thickness the number of registered photoemission events becomes smaller

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ACC NR: AP7005342

than that of the absorption events. The absolute values of the quantum yields for a number of alkali-halide compounds are summarized for quantum energies ranging from 1200 to 8070 ev. The authors thank A. A. Lebedev for a discussion of the results. Orig. art. has: 1 figure and 1 table.

SUB CODE: 20/ SUBM DATE: 10Jun66/ ORIG REF: 005/ OTH REF: 002

Card 2/2

L 35323-66 EWT(m)/EWP(j) RM

ACC NR: AP6026893 SOURCE CODE: UR/0062/65/000/012/2128/2132

AUTHOR: Yeliseyenkov, V. N.; Khayrullin, V. K.

ORG: Institute of Organic Chemistry, AN SSSR, Kazan' (Institut organicheskoy khimii AN SSSR)

TITLE: Synthesis and rearrangement of mixed esters of ter (1,1,1-trichloro)amyl-2-phosphorous acid

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 12, 1965, 2128-2132

TOPIC TAGS: chemical synthesis, ester, phosphorous acid, alcohol, triethylamine, vacuum distillation, organic solvent, solubility, phosphinic acid, chemical separation

ABSTRACT: The corresponding mixed esters were synthesized by reaction of ter. (1,1,1-trichloro)amyl-2-phosphorous acid chloride with primary alcohols of normal and iso-structure, secondary alcohols, and phenol in the presence of triethylamine. All of the prepared esters are colorless, syrupy fluids that can be vacuum-distilled without decomposing; they dissolve in organic solvents (ether, acetone, benzene, alcohol) but are water-insoluble. The rearrangement of these esters by means of allyl bromide involves the separation of the nonsubstituted alkyl radical and results in the formation of mixed esters of allylphosphinic acid. Orig. art. has: 3 tables. [JPRS: 36,455]

SUB CODE: 07 / SUBM DATE: 22Jul63 / ORIG REF: 006 / OTH REF: 002

Card 1/1 UDC: 542.91+542.952.1+661.718.1

2185 Yelisevev, A.

Za Pervenstvo Vo Vsesoyuznom Sorevnovanii Molodezhnykh Traktorny Kh Brigad. (Glinyan. Mts. Slobodzeyskogo Rayona). Kishinev, Moldayvgiz, 1954. 16 s. s Ill. 16sm. (Glav. Upr. S.-Kh. Propagandy I Nauki MSKH MSSR. B-Chka Kolkhoznika). 3.000 EKZ. 10k.
(54-55855)p 631.37:629.114.2st (47.75)

YELISEYEV, A.

Proteins

Apparatus for straining protein albumin. Mias. ind. SSSR 23 no. 3, 1952.

9. Monthly List of Russian Accessions, Library of Congress, September 1952, Uncl.

1. YELISEYEV, A.

2. USSR (600)

4. Packing (Mechanical Engineering)

7. Pump cup from rubberized cloth. Mias. ind., SSSR, 23 no. 6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

GORSKIY, Fedor Konstantinovich; SAKEVICH, Nikolay Maksimovich; YELISEYEV, A.A., red.; FOTIYENKO, M., red.

[Laboratory manual on physics for students of medical institutes] Rukovodstvo k laboratornym rabotam po fizike dlia studentov meditsinskikh institutov. Minsk, Izd-vo "Belarus'," 1963. 214 p. (MIRA 17:8)

BLINCHEVSKIY, Ya.; YELISEYEV, A.

Collecting and processing blood for industrial purposes on a mechanized production line. Miss. ind. SSSR 32 no.4:23-24 '61. (MIRA 14:9)

1. Rostovskiy-na-Donu myasokombinat.
(Rostov-on-Don--Packing houses--Equipment and supplies)

YELISEYEV, A.

Over-all mechanization of the production of dried feeds. Mias. ind.S.S.S.R. 33 no.6:18-20 '62. (MIRA 16:1)

1. Rostovskiy-na-Donu myasokombinat.
(Rostov-on-Don—Feeds)

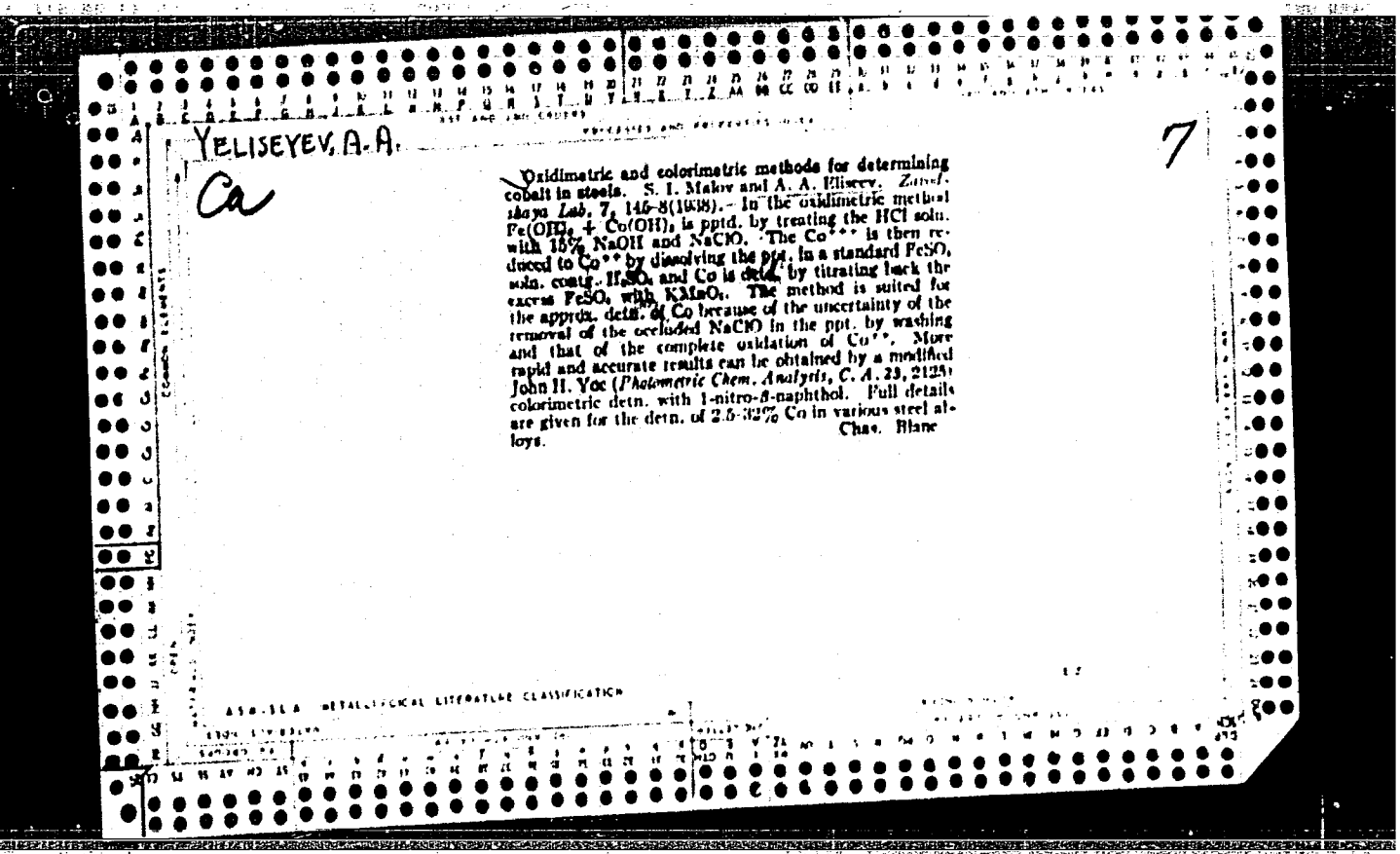
BABAYEV, Mikhail Vasil'yevich; YELISEYEV, A.A., red.; BUYANOV, N.V., red.; VENETSKIY, S.I., red.izd-va; DOBUZHINSKAYA, L.V., tekhn.red.

[Rapid method of analysis at ferroalloy plants] Uskorennye metody analiza na ferrosplavnykh zavodakh. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 325 p. (MIRA 14:3)

(Iron alloys--Analysis)

YELISEYEV, A.A., inzh.

The GN-1200-400 hydraulic pump. Elek. sta. 33 no.10:83-85 O '62. (MIRA 16:1)
(Electric power plants--Hydraulic machinery)
(Pumping machinery)



YELISEYEV, A. A.

Ca

7

Oxidimetric and colorimetric methods for determining cobalt in steels. S. I. Makov and A. A. Eliseev. *Zavod. skaya Lab.* 7, 146-8(1938).— In the oxidimetric method $Fe(OH)_3 + Co(OH)_3$ is pptd. by treating the HCl soln. with 15% NaOH and NaClO. The Co^{+++} is then reduced to Co^{++} by dissolving the ppt. in a standard $FeSO_4$ soln. contg. H_2SO_4 and Co is detd. by titrating back the excess $FeSO_4$ with $KMnO_4$. The method is suited for the approx. detn. of Co because of the uncertainty of the removal of the occluded NaClO in the ppt. by washing and that of the complete oxidation of Co^{++}. More rapid and accurate results can be obtained by a modified John H. Yoe (*Photometric Chem. Analysis*, C. A. 23, 2125) colorimetric detn. with 1-nitro-2-naphthol. Full details are given for the detn. of 2.5-32% Co in various steel alloys.

Chas. Blanc

A50-51A METALLURGICAL LITERATURE CLASSIFICATION