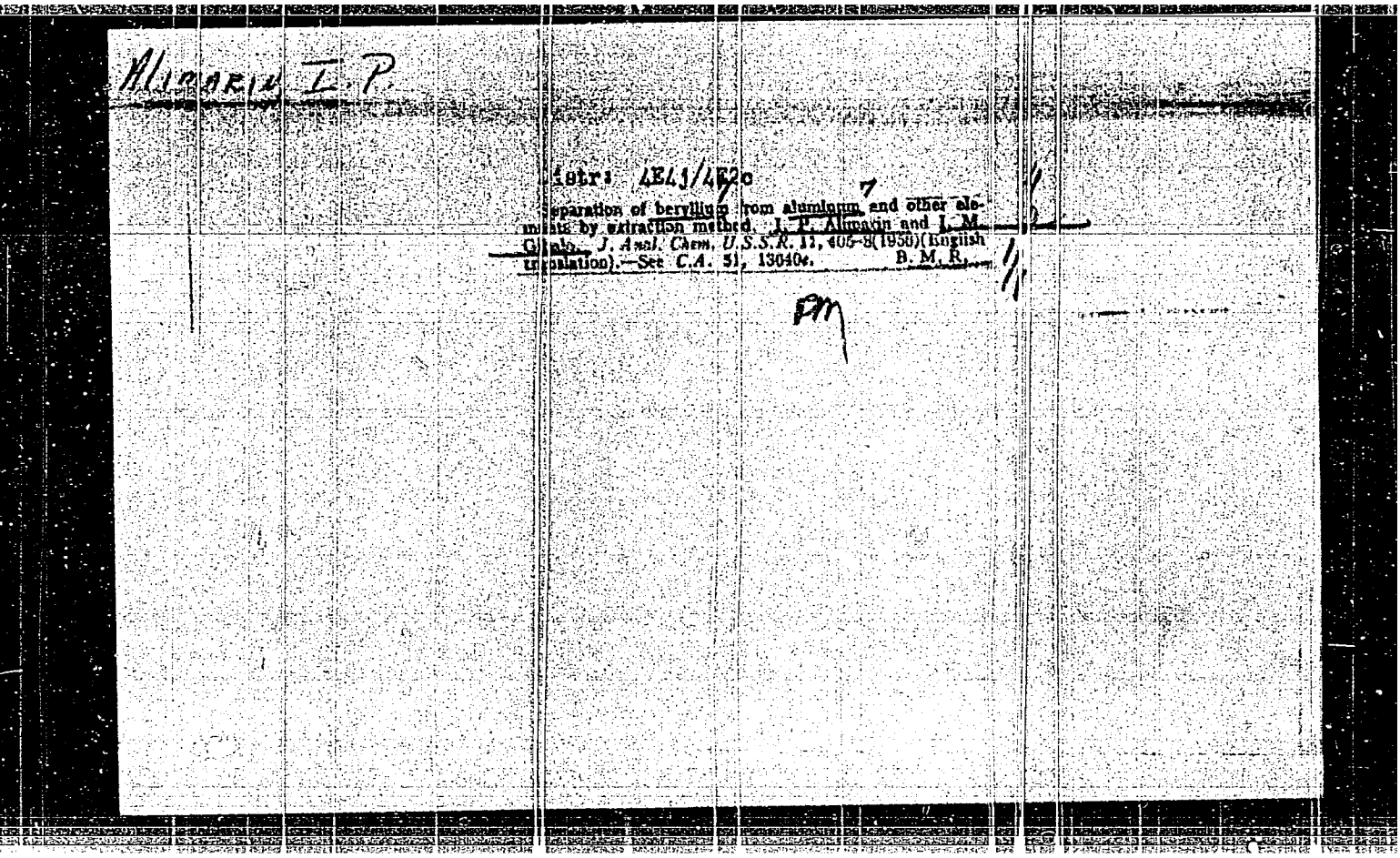
ALIMARIN I.P.

TOPCHIYEVA, K.V.; PESHKOVA, V.M.; SHAIKHOVA, Z.F.; ALIMARIN, I.P.; NOVOSELOVA, A.V.; SPITSYN, V.I.; LUTSENKO, I.F.; GERASIMOV, Ya.I.; NESMEYANOV, A.N.; TERENT'YEV, A.P.; POTAPOV, V.M.; GIBALO, I.M.

E.S. Przheval'skii; obituary. Vest. Mosk. un. Ser. mat. mekh., astron., fiz., khim. 11 no.2:205-207 '56. (MIRA 10:12)
(Przheval'skii, Evgenii Stepanovich, 1879-1956)



Almarin L. P.

Separation of beryllium from aluminum and other elements by extraction method. L. P. Almarin and I. M. Gibalo. *J. Anal. Chem. U.S.S.R.* 11, 405-8(1956)(English translation).—See *C.A.* 51, 13040e. B. M. R.

ALIMARIN, I. P.

Category: USSR/Analytical Chemistry - Analysis of inorganic substances. G-2

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 30988

Author : Alimarin I. P., Tsintsevich Ye. P.
Inst : not given
Title : Use of Chromatographic Method for the Separation of Gallium from other Elements. Separation of Gallium and Zinc.

Orig Pub: Zavod. laboratoriya, 1956, 22, No 11, 1276-1279

Abstract: Description of a method for quantitative separation of Ga from Zn by means of ion-exchange (SBS resin), which is based on utilization of complex compounds of Ga and Zn. of different degree of stability (with Complexon III, tartaric, oxalic and sulfo-salicylic acid); separation of Ga and Zn from Fe and Cu has been carried out.

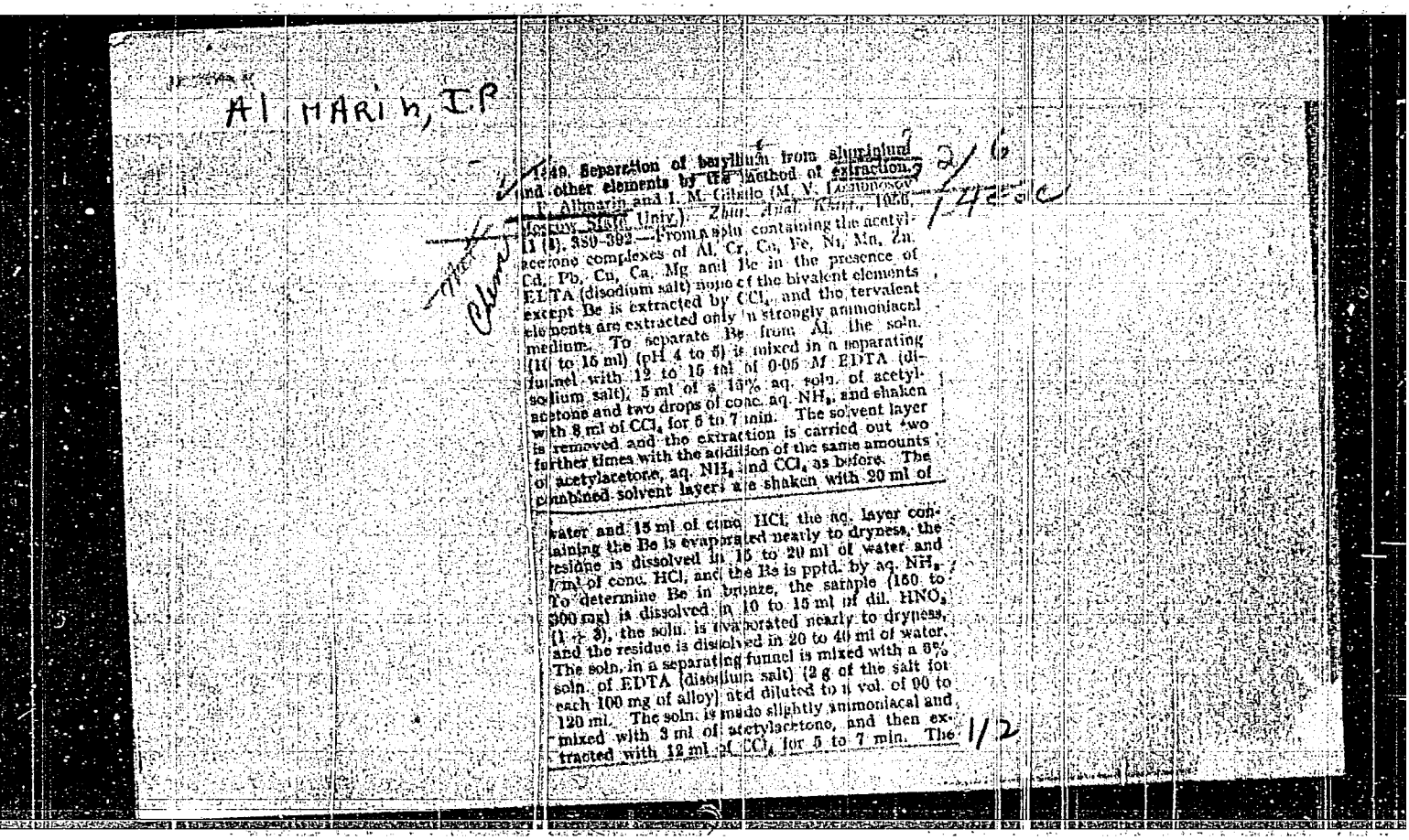
Card : 1/1

-23-

Alimarin, I. P.

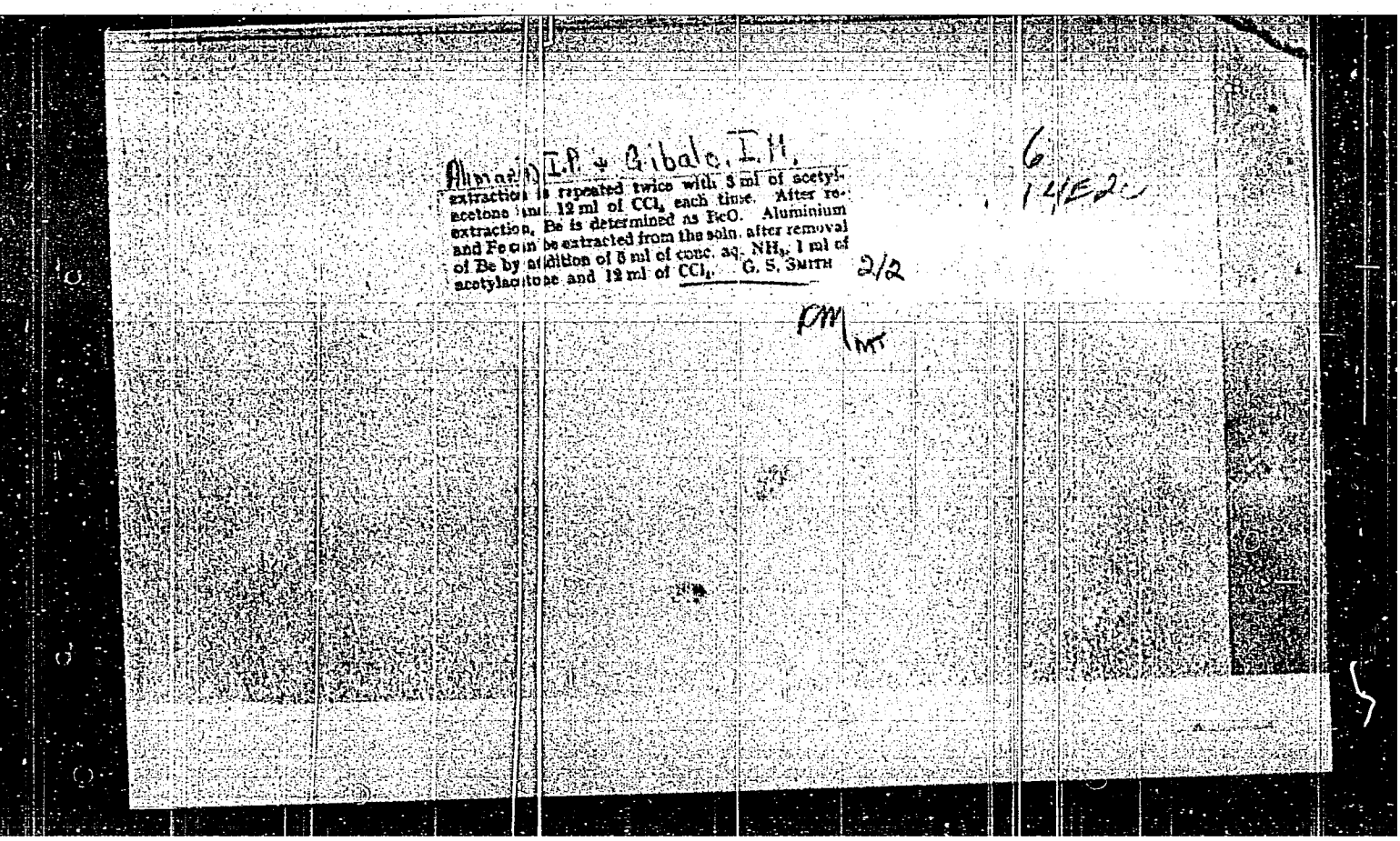
Quantitative separation of zirconium from iron and nickel by the method of ion-exchange chromatography. I. P. Alimarin, T. A. Belyavskaya, and N. M. Kostovskaya. *Vestnik Moskov. Univ.* 11, No. 3, Ser. Fiz.-Mat. i Estestven. Nauk No. 2, 67-71(1956).—Zr in HNO_3 soln. was filtered through different cation exchange resins; it was not adsorbed on 2 of them in the pH interval 0.5-1.95, partially adsorbed on the 3rd, and totally adsorbed on the 4th. Mixts. of $Zr(NO_3)_4$ with $Fe(NO_3)_3$, $FeCl_3$, $Fe_2(SO_4)_3$, $Ni(NO_3)_2$, or $NiCl_2$ were passed through one of the cationic resins that did not adsorb Zr. Fe and Ni were totally adsorbed; however, in this case some Zr was also adsorbed, but could be removed from the chromatographic column by elution with $(NH_4)_2CO_3$ because of the formation of a sol. Zr complex. S. Pakswer

Chair Analytical Chem



ALIMARIN, I.P.

1149. Separation of beryllium from aluminium and other elements by the method of extraction. I. Altmarin and I. M. Gibalo (M. V. Lomonosov Moscow State Univ.). *Zhur. Anal. Khim.*, 1956, 11 (3), 380–382.—From a soln containing the acetylacetone complexes of Al, Cr, Co, Fe, Ni, Mn, Zn, Cd, Pb, Cu, Ca, Mg and Be in the presence of EDTA (disodium salt) none of the bivalent elements except Be is extracted by CCl_4, and the tervalent elements are extracted only in strongly ammoniacal medium. To separate Be from Al, the soln. (10 to 15 ml) (pH 4 to 5) is mixed in a separating funnel with 12 to 15 ml of 0·05 *M* EDTA (disodium salt), 5 ml of a 15% aq. soln. of acetylacetone and two drops of conc. aq. NH_3, and shaken with 8 ml of CCl_4 for 6 to 7 min. The solvent layer is removed and the extraction is carried out two further times with the addition of the same amounts of acetylacetone, aq. NH_3 and CCl_4 as before. The combined solvent layers are shaken with 20 ml of water and 15 ml of conc. HCl, the aq. layer containing the Be is evaporated nearly to dryness, the residue is dissolved in 15 to 20 ml of water and 1 ml of conc. HCl, and the Be is pptd. by aq. NH_3. To determine Be in bronze, the sample (150 to 300 mg) is dissolved in 10 to 15 ml of dil. HNO_3 (1 + 3), the soln. is evaporated nearly to dryness, and the residue is dissolved in 20 to 40 ml of water. The soln. in a separating funnel is mixed with a 6% soln. of EDTA (disodium salt) (2 g of the salt for each 100 mg of alloy) and diluted to a vol. of 90 to 120 ml. The soln. is made slightly ammoniacal and mixed with 3 ml of acetylacetone, and then extracted with 12 ml of CCl_4 for 5 to 7 min. The



Ahmad, I.P. & Gibala, E.H.

extraction is repeated twice with 5 ml of acetyl-
acetone and 12 ml of CCl_4 each time. After re-
extraction, Be is determined as BeO. Aluminium
and Fe can be extracted from the soln. after removal
of Be by addition of 5 ml of conc. aq. NH_3, 1 ml of
acetylacetone and 12 ml of CCl_4. G. S. Smith

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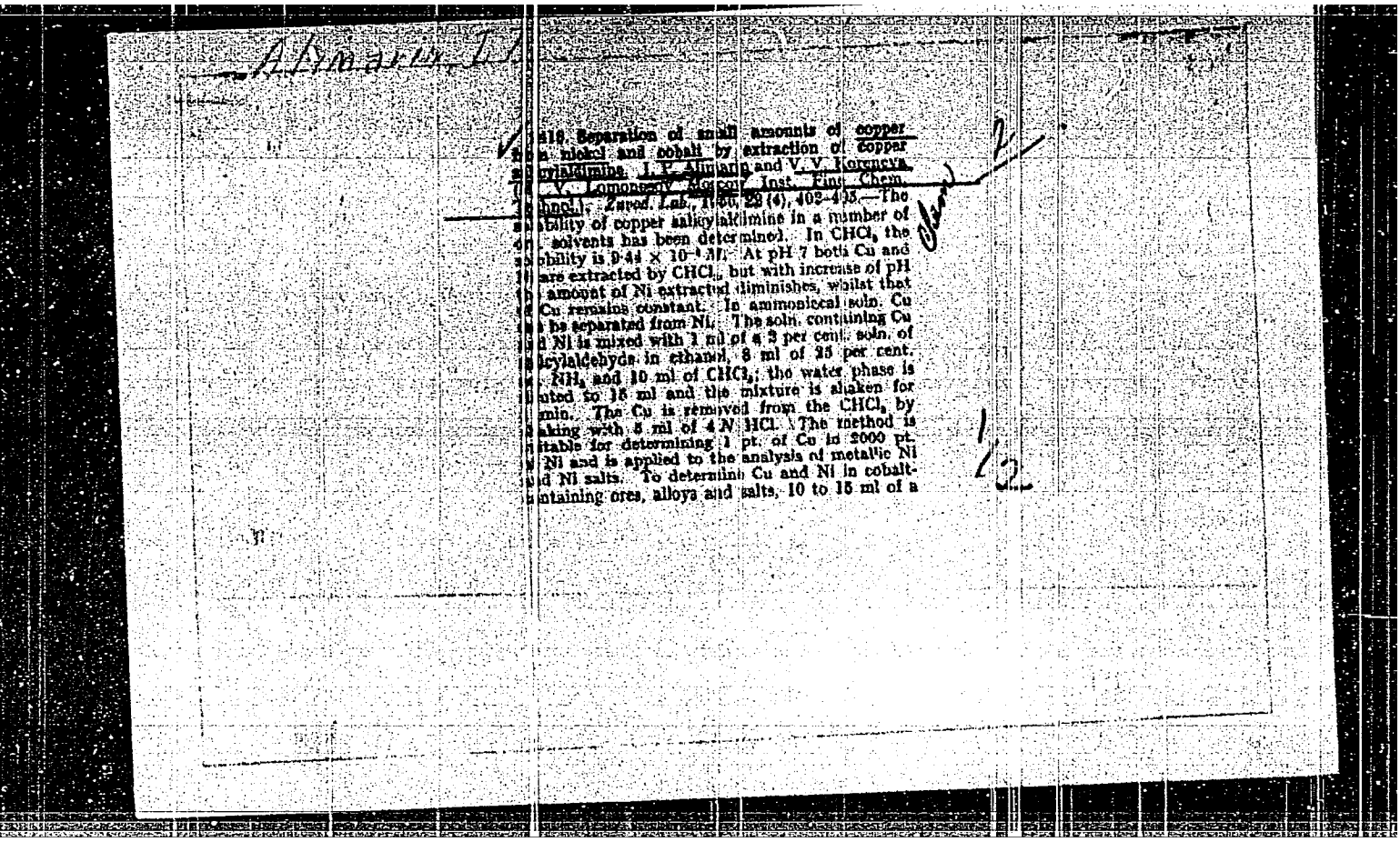
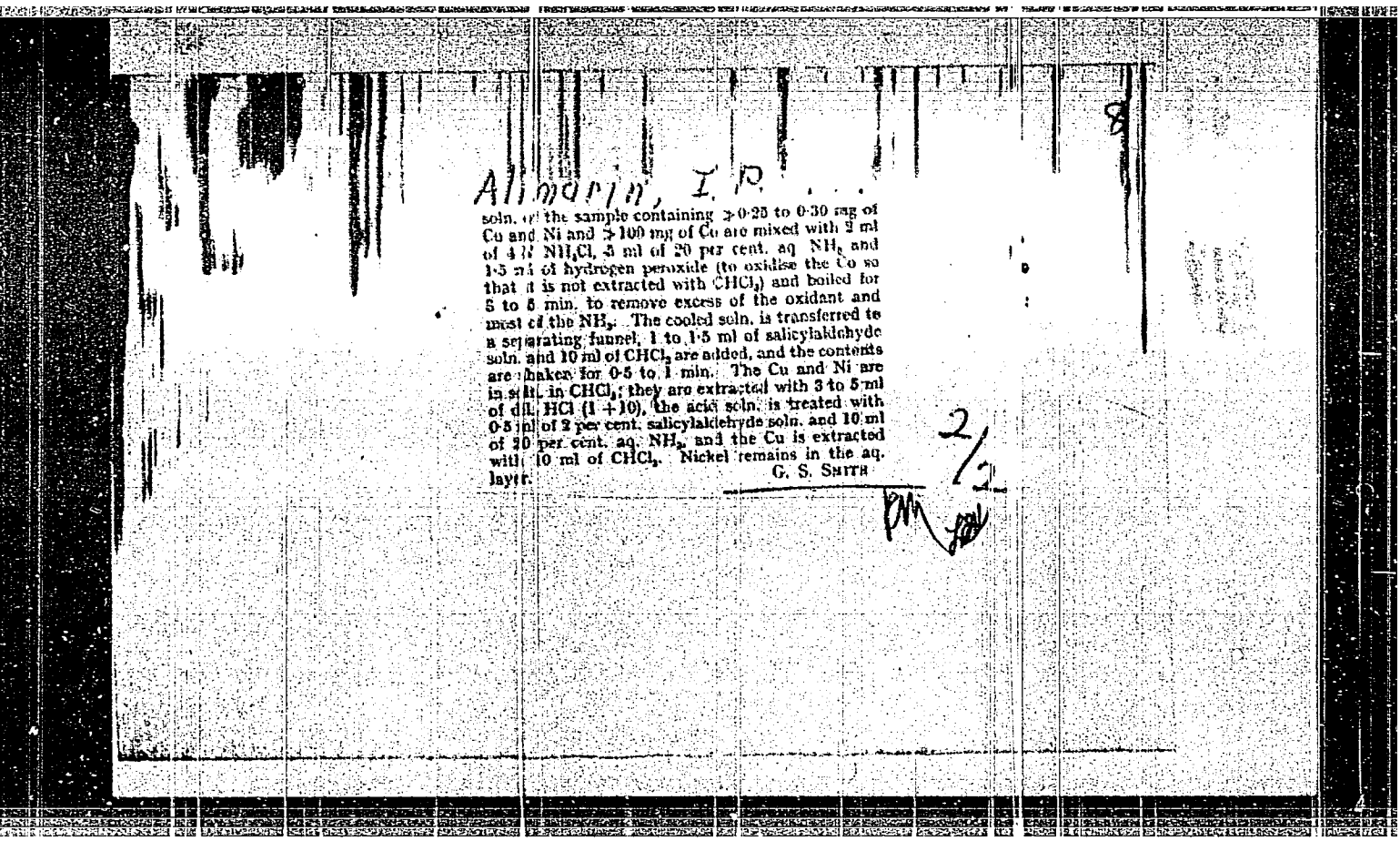
ALIMARIN, I.P., professor; TARASEVICH, N.I., dotsent.

Instruments and laboratory vessels for micro- and semimicro-analyses. Zav.lab. 22 no.3:368 '56. (MLRA 10:5)

1.Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
2.Chlen-korrespondent Akademii nauk SSSR (for Alimarin)
(Chemical laboratories--Apparatus and supplies)



a19. Separation of small amounts of copper
n nickel and cobalt by extraction of copper
ylaldimine. I. P. Alimarin and V. V. Fomenova.
V. Lomonosov Moscow Inst. Fine Chem.
nol., Zavod. Lab., 1956, 22 (4), 402–405.—The
bility of copper salicylaldimine in a number of
solvents has been determined. In $CHCl_3$ the
bility is $9{\cdot}44 \times 10^{-9}$ M. At pH 7 both Cu and
are extracted by $CHCl_3$, but with increase of pH
amount of Ni extracted diminishes, whilst that
Cu remains constant. In ammoniacal soln. Cu
be separated from Ni. The soln. containing Cu
d Ni is mixed with 1 ml of a 3 per cent. soln. of
licylaldehyde in ethanol, 8 ml of 25 per cent.
NH_3, and 10 ml of $CHCl_3$; the water phase is
uted to 15 ml and the mixture is shaken for
min. The Cu is removed from the $CHCl_3$ by
aking with 5 ml of 4 *N* HCl. The method is
itable for determining 1 pt. of Cu in 2000 pt.
Ni and is applied to the analysis of metallic Ni
d Ni salts. To determine Cu and Ni in cobalt-
ntaining ores, alloys and salts, 10 to 15 ml of a



Almarin, I. P.

soln. of the sample containing 0·25 to 0·30 mg of Cu and Ni and > 100 mg of Co are mixed with 2 ml of 4 N NH_4Cl, 5 ml of 20 per cent. aq NH_3 and 1·5 ml of hydrogen peroxide (to oxidise the Co so that it is not extracted with $CHCl_3$) and boiled for 5 to 8 min. to remove excess of the oxidant and most of the NH_3. The cooled soln. is transferred to a separating funnel, 1 to 1·5 ml of salicylaldehyde soln. and 10 ml of $CHCl_3$ are added, and the contents are shaken for 0·5 to 1 min. The Cu and Ni are in soln. in $CHCl_3$; they are extracted with 3 to 5 ml of dil. HCl (1 + 10), the acid soln. is treated with 0·5 ml of 2 per cent. salicylaldehyde soln. and 10 ml of 20 per cent. aq NH_3, and the Cu is extracted with 10 ml of $CHCl_3$. Nickel remains in the aq. layer.

G. S. Smith

2/2

ALIMARIN, I.P.

12199* (Russian.) Determination of Zirconium in Alloys by the Radiometric Titration Method. Opredelenie tsirkoniia v splavakh metodom radiometricheskogo titrovaniia. I. P. Alimarin and I. M. Gibalo. *Zavodskaia Laboratoriia*, v. [illegible], no. 6, June 1956, p. 635-636.

Procedures of Zr determination in pure solutions and in alloys in the presence of other elements, by radiometric titration with phosphoric acid.

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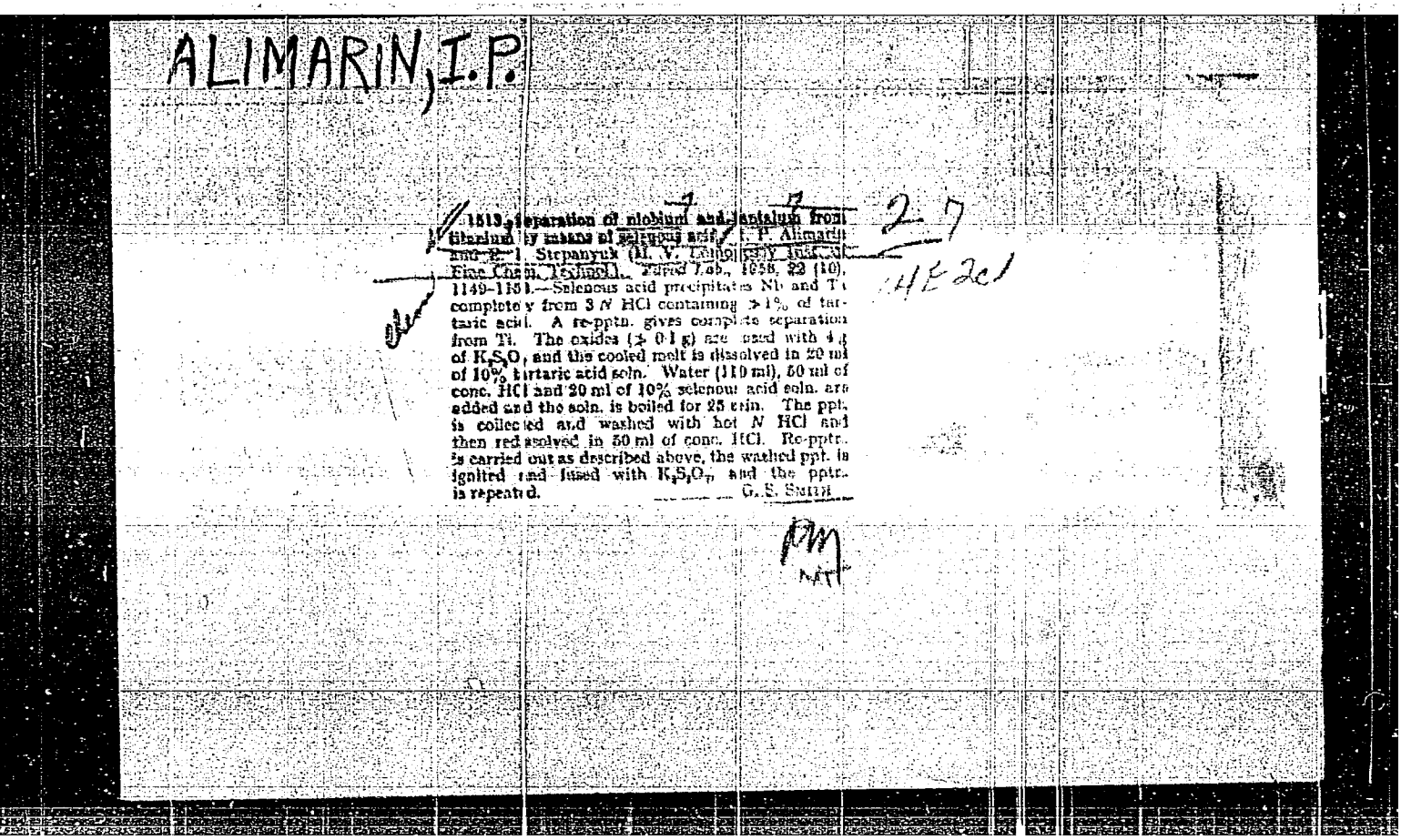
ALIMARIN, I.P.

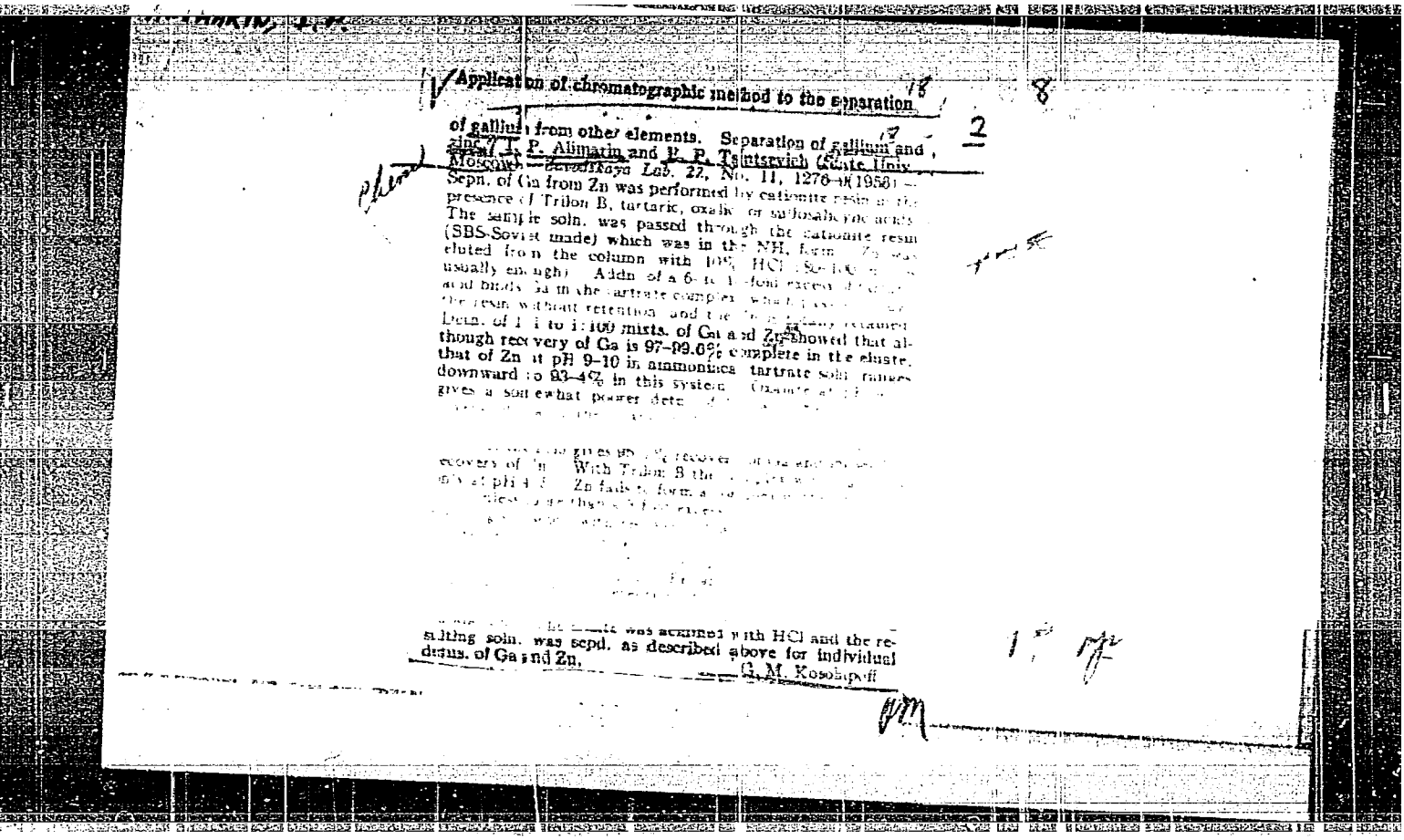
VINOGRADOV, A.P.; ALIMARIN, I.P.; KLYACHKO, Yu.A.; RYABCHIKOV, D.I.; HUDNEV, N.A.; HUDENKO, N.P.; TOROPOVA, V.F.; SHIFRIN, Kh.V.

Alekseĭ Mikhailovich Vasil'eyv. Zav.lab. 22 no.7:887 '56. (MIRA 9:12)
(Vasil'ev, Alekseĭ Mikhailovich, 1882-1956)



ALIMARIN, I.P.

1819. Separation of niobium and tantalum from titanium by means of selenous acid. I. P. Alimarin and P. I. Stepanyuk (N. V. Lomonosov Inst. of Fine Chem. Technol.). Zavod. Lab., 1956, 22 (10), 1149–1151.—Selenous acid precipitates Nb and Ta completely from 3 *N* HCl containing >1% of tartaric acid. A re-pptn. gives complete separation from Ti. The oxides (> 0·1 g) are fused with 4 g of $K_2S_2O_7$ and the cooled melt is dissolved in 20 ml of 10% tartaric acid soln. Water (110 ml), 50 ml of conc. HCl and 20 ml of 10% selenous acid soln. are added and the soln. is boiled for 25 min. The ppt. is collected and washed with hot *N* HCl and then redissolved in 50 ml of conc. HCl. Re-pptn. is carried out as described above, the washed ppt. is ignited and fused with $K_2S_2O_7$, and the pptn. is repeated. G. S. Smith



Application of chromatographic method to the separation of gallium from other elements. Separation of gallium and zinc. T. P. Alimarin and E. P. Tsintsevich (State Univ., Moscow). *Zavodskaya Lab.* 22, No. 11, 1278–9(1956).—Sepn. of Ga from Zn was performed by cationite resin in the presence of Trilon B, tartaric, oxalic or sulfosalicylic acids. The sample soln. was passed through the cationite resin (SBS-Soviet made) which was in the NH_4 form. Zn was eluted from the column with 10% HCl. Sufficient ... usually enough. Addn of a 6- to 10-fold excess ... acid binds Ga in the tartrate complex which ... the resin without retention and the ... Detn. of 1:1 to 1:100 mixts. of Ga and Zn showed that although recovery of Ga is 97–99.0% complete in the eluate, that of Zn at pH 9–10 in ammonium tartrate soln. ... downward to 93–4% in this system. ... gives a somewhat poorer det... recovery of ... With Trilon B the ... at pH 4–5 Zn fails to form a ... The ... was acidified with HCl and the resulting soln. was sepd. as described above for individual detns. of Ga and Zn.

G. M. Kosolapoff

ALIMARIN, I.P.; PESHKOVA, V.M., doktor khimicheskikh nauk.

Spectrophotometric and colorimetric analytical methods; all-Union conference. Vest. AN SSSR 26 no.3:133-135 Mr '56. (MLRA 9:6)

1.Chlen-korrespondent AN SSSR (for Alimarin).
(Colorimetry) (Spectrophotometry)

ALIMARIN, I. P.

USSR/Chemistry - Analytical chemistry

Card 1/2 Pub. 22 - 16/43

Authors : Alimarin, I. P., Memb. Corresp., AN SSSR; Shakhova, E. F.; and Moiorkina, R. K.

Title : Investigation of blue Ge-heteropolyacid reduction products

Periodical : Dok. AN SSSR 106/1, 61-64, Jan 1, 1956

Abstract : The oxidation-reduction potential of a Ge-Mo-heteropoly-acid/blue system and the composition of a Ge-Mo polyblue compound were determined through titration with $K_2Cr_2O_7$ and $CrSO_4$ solutions. It was found that Ge-Mo-hetero-polyblue contains $\approx$ 1/4 of the total Mo in valence because Mo of lower valences forms only after the entire Mo is reduced to a penta-valent. It

Institution : Moscow State University, im. M. V. Lomonosov

Submitted : July 9, 1955

Card 2/2 Pub. 22 - 16/43

Periodical : Dok. AN SSSR 106/1, 61-64, Jan 1, 1956

Abstract : was established that the heteropoly-complex exists only with the blue. It decomposes during further reduction. The introduction of V into the hetero-poly-anion has considerably increased the oxidation reduction of the latter. Fourteen references: 3 USSR, 4 Germ., 1 Ital., 5 USA and 1 French (1934-1955). Table; graph.

ALIMARIN, I. P

Category: USSR/Analytical Chemistry - General Questions. G-1

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 30939

Author : Alimarin I. P., Gibalo I. M.
Inst : Academy of Sciences USSR
Title : Extraction of the Cupferonates of Niobium, Tantalum and Titanium.

Orig Pub: Dokl. AN SSSR, 1956, 109, No 6, 1137-1139

Abstract: Experiments with Nb have shown that Nb-cupferonate (0.6-0.9 mg/ml Nb_2O_5) is extracted most completely, from solutions in 2% ammonium oxalate, tartrate and citrate, HCl and H_2SO_4 acidified with HCl, by means of chloroform, ethyl acetate, ether and iso-butyric aldehyde (amount of the organic solvent 2 ml, volume of aqueous phase 13.5 ml). Alkali metals, NH_4^+, NO_3^-, SO_4^{2-} and increase of temperature up to 25-30° do not affect the extent of extraction. By analogous experiments it was shown that the Ta-cupferonate is readily extracted by organic solvents from acid solutions. A study has been made of the extraction of the cupfer-

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Card : 2/2

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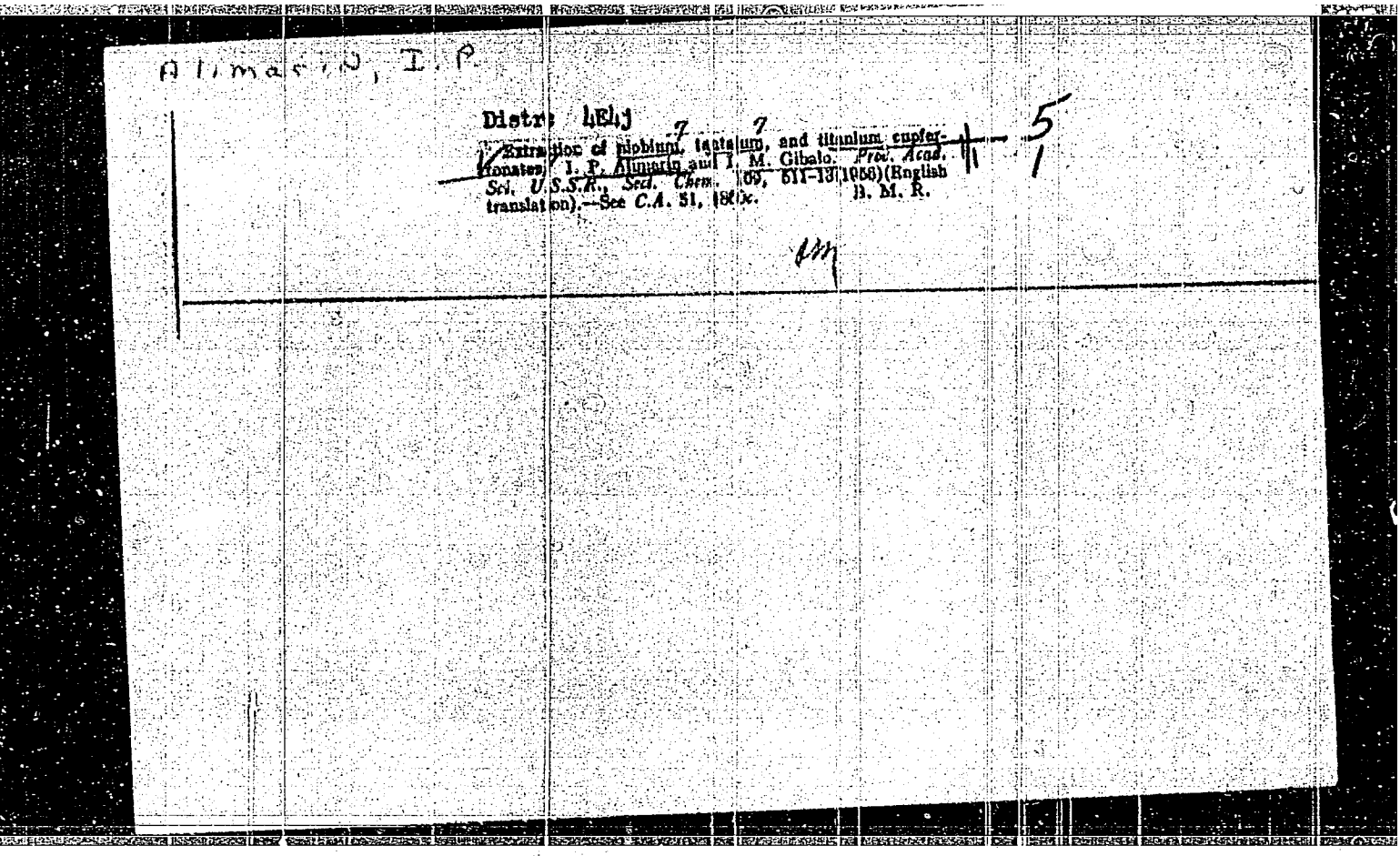

Almarin, I. P.

Distr: 4E4j

Extraction of niobium, tantalum, and titanium cupferronates, I. P. Almarin and I. M. Gibalo. *Proc. Acad. Sci. U.S.S.R., Sect. Chem.* 105, 511-13 (1956)(English translation).—See *C.A.* 51, 18(0)x. B. M. R.

Alimarin, I.P.

5(2) PHASE I BOOK EXPLOITATION SOV/2252

Akademiya nauk SSSR. Institut obshchey i neorganicheskoy khimii

Khimiya redkikh elementov, vyp. 3 (Chemistry of Rare Elements, Nr 3) Moscow, Izd-vo AN SSSR, 1957. 135 p. 4,500 copies printed. Errata slip inserted.

Ed. of Publishing House: Ya. S. Sklyarenko; Tech. Ed.: A. A. Pavlovskiy; Editorial Board: I. V. Tananayev (Resp. Ed.), S. A. Pogodin, Ye. Ya. Rode, V. G. Tronev, and O. F. Bogush (Secretary).

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

COVERAGE: The book is a collection of papers on investigations in the chemistry of rare elements conducted at the Institut obshchey i neorganicheskoy khimii imeni N. S. Kurnakova (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov). No personalities are mentioned. There are 143 references: 59 Soviet, 23 English, 41 German, 15 French, 4 Italian, and 1 Japanese.

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ALIMARIN, I. P

TSYUHUPA, M.G.; ALIMARIN, I.P.

D.I.Mendeleyev and analytical chemistry on the 50th anniversary of his death. Khim.nauka i prom. 2 no.1:117-119 '57. (MLRA 10:4)

1. Chlen-korrespondent Akademii nauk SSSR (for Alimarin).
(Chemistry, Analytical)
(Mendeleev, Dimitrii Ivanovich, 1834-1907)

POLAND/Analytical Chemistry. General. E

Abs Jour: Ref Zhur-Khim., No 24, 1958, 81249.

Author : Alimarin I.
Inst :
Title : Use of Radiochemical Methods in the Analytical Chemistry.

Orig Pub: Chem. analit., 1957, 2, No 3, 209-221.

Abstract: Review. Bibliography of 24 names. -- A. Busev.

Card : 1/1

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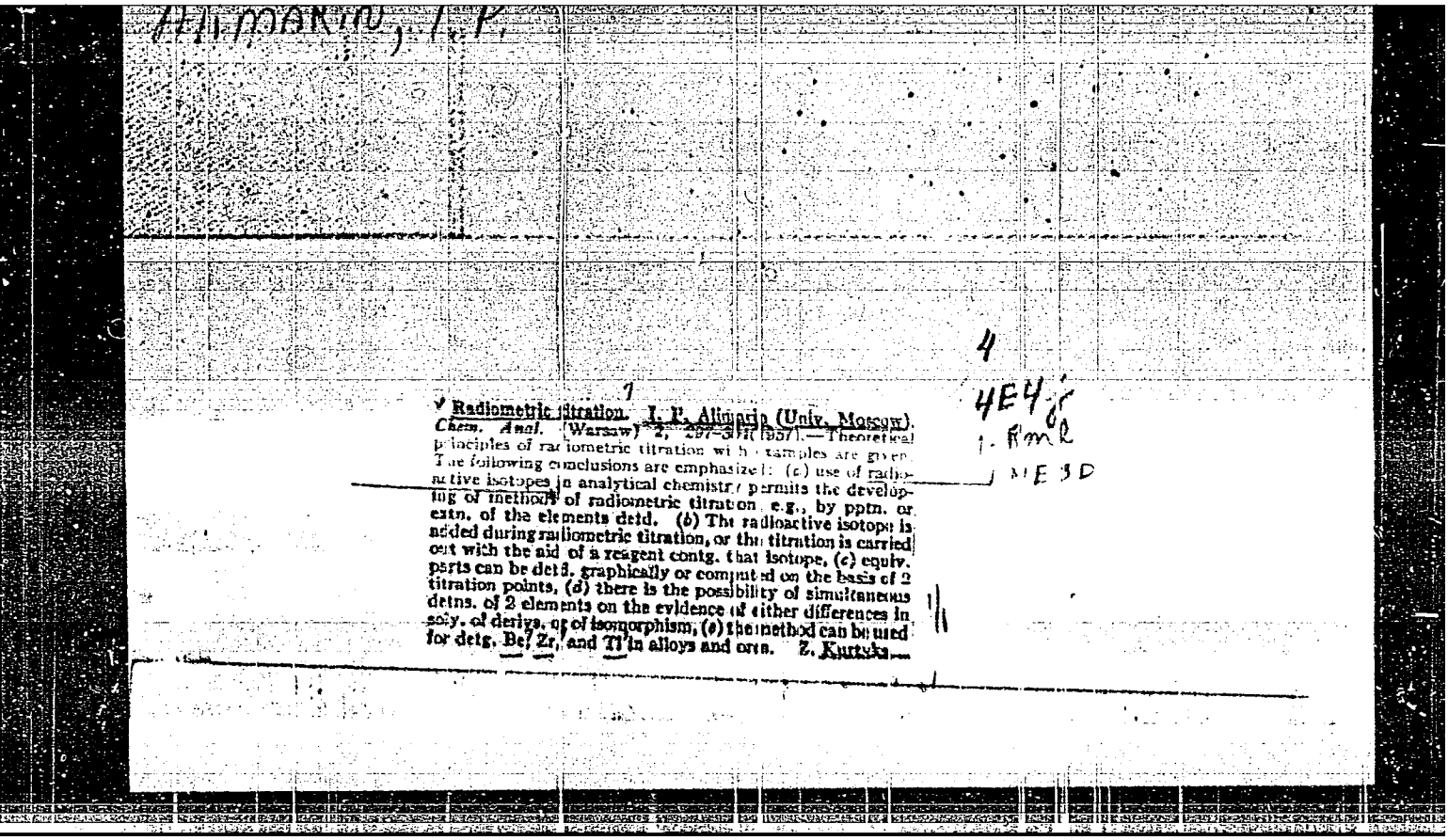

Alimarin, I. P.

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Radiometric titration. I. P. Alimarin (Univ., Moscow). *Chem. Anal.* (Warsaw) 2, 297–311 (1957).—Theoretical principles of radiometric titration with examples are given. The following conclusions are emphasized: (a) use of radioactive isotopes in analytical chemistry permits the developing of methods of radiometric titration, e.g., by pptn. or extn. of the elements detd. (b) The radioactive isotope is added during radiometric titration, or the titration is carried out with the aid of a reagent contg. that isotope, (c) equiv. parts can be detd. graphically or computed on the basis of 2 titration points, (d) there is the possibility of simultaneous detns. of 2 elements on the evidence of either differences in solv. of derivs. or of isomorphism, (e) the method can be used for detg. Be, Zr, and Tl in alloys and ores. Z. Kurtyka

137-58-2-4389

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 299 (USSR)

AUTHORS: Alimarin, I.P., Kozel', L.Z.

TITLE: Using Phytin for Quantitative Determination of Zirconium (Kolichestvennoye opredeleniye tsirkoniya fitinom)

PERIODICAL: Khimiya redkikh elementov, 1957, Nr 3, pp 114-118

ABSTRACT: Up to 6 N HCl was added to a Zr-salt solution, and the Zr was precipitated out by heating it with a 2% phytin solution in an 0.5N HNO_3. To wash the Zr-phytate precipitate, 30 cc of (1:1) HCl were decanted over it; it was then filtered through 50 cc of (1:4) HCl, and finally was filtered through H_2O. After calcination at 1000-1050°C the Zr-metatriphosphate was weighed. The conversion factor used was $ZrO_2/2ZrO_2 \cdot 3P_2O_5 = 0.3932$. To determine the Zr content of the steels, an 0.5-1.0 gram portion of each was dissolved during heating in 80 cc of (1:1) HCl, after which the Zr was precipitated out with phytin. To reprecipitate it, the precipitate was dissolved in H_2O containing 2 grams of $H_2C_2O_4$, to which up to 6N HCl was added, and the Zr was precipitated with 10 cc of a 2% phytin solution. Sometimes a three-stage reprecipitation procedure is necessary. The relative error was ±3%. P.K.

Card 1/1

1. Steel alloys 2. Zirconium--Determination 3. Phytin --Applications

SOV/137-58-8-18100

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 270 (USSR)

AUTHORS: Tsyurupa, M. G., Alimarin, I. P.

TITLE: Works of Russian Scientists of the First Half of the XIX Century on the Analytical Chemistry of Platinum and Metals of the Platinum Group (Raboty russkikh uchenykh pervoy poloviny XIX veka po analiticheskoy khimii platiny i platinovykh metallov)

PERIODICAL: V sb.: Vopr. istorii yestestvozn. i tekhn. Nr 5. Moscow, AN SSSR, 1957, pp 56-65

ABSTRACT: A historical review of the works on the analysis of Pt ores and the separated metals of the Pt group. The research work of Klaus relative to his discovery of Ru is described in detail.

1. Platinum ores--Chemical analysis
2. Scientific research--USSR

Z. G.

Card 1/1

26-10-7/44

AUTHORS: Alimarin, I.P. and Saukov, A.A., Corresponding Members of the USSR Academy of Sciences, and Baranov, V.I. and Koval'skiy, V.V., Professors

TITLE: Problems of Contemporary Geochemistry (Problemy sovremennoy geokhimii)

PERIODICAL: Priroda, October 1957, No 10, pp 53-62 (USSR)

ABSTRACT: The article deals with the activities of the Institute of Geochemistry and Analytical Chemistry Imeni V.I. Vernadskiy of the AN USSR (Moscow). Contemporary geochemistry researches the distribution and reactions of chemical elements in the various strata of our planet, the origin and absolute age of rocks and deposits and the migration and concentration of elements under the influence of organisms. This young science is closely related to its initiators, Academicians V.I. Vernadskiy and A.E. Fersman. The Institute has 12 laboratories in isotopes, radiochemistry, biogeochemistry, radiogeochemistry, rare elements, geochemistry of single elements, magmatogenic processes, mineralogical structures, organic reagents, spectral analyses, sedimentary rocks and crystallo-chemistry.

Card 1/2

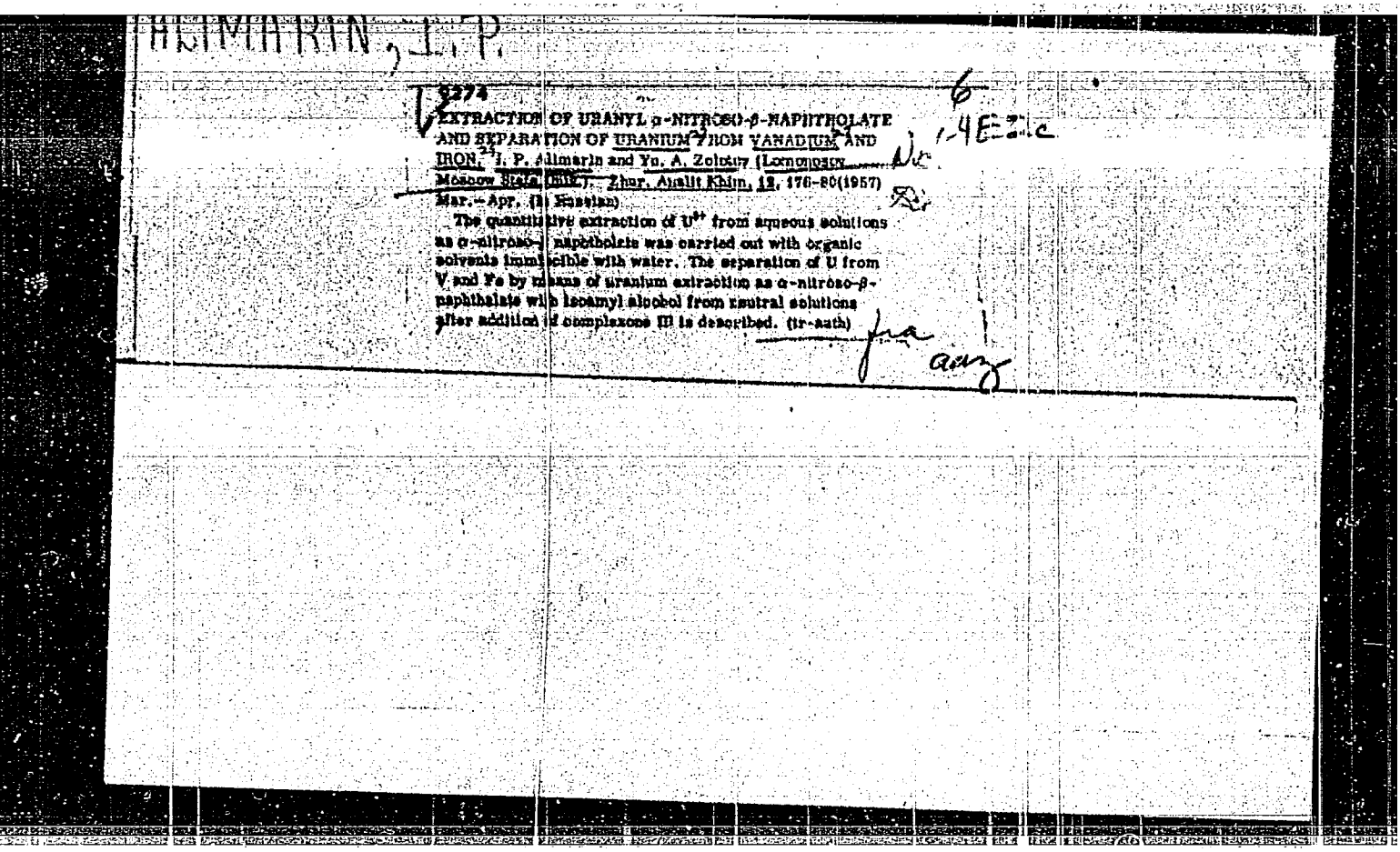
Problems of Contemporary Geochemistry 26-10-7/44

Geochemistry of isotopes is the latest field of research and is making rapid progress, as the use of isotopic shifts enables the establishment of the history and conditions of formation of natural objects with great exactness. Other objects investigated by the Institute are the distribution of especially rare and scattered seas, the influence of chemical elements of the environment on organisms in areas lacking or abounding in certain elements, and diseases of plant and animal organisms resulting therefrom.
The article contains 6 photos, 2 graphs, 1 schematic map.

ASSOCIATION: Institute of Geochemistry and Analytical Chemistry Imeni V.I. Vernadskiy of the USSR Academy of Sciences (Institut geokhimii i analiticheskoy khimii imeni V.I. Vernadskogo AN SSSR) Moscow

AVAILABLE: Library of Congress

Card 2/2



ALIMARIN, I. P.

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V-2274

EXTRACTION OF URANYL α-NITROSO-β-NAPHTHOLATE AND SEPARATION OF URANIUM FROM VANADIUM AND IRON. I. P. Alimarin and Yu. A. Zolotov (Lomonosov Moscow State Univ.). Zhur. Analit Khim. 12, 176-80(1957) Mar.-Apr. (In Russian)

The quantitative extraction of U^{4+} from aqueous solutions as α-nitroso-β-naphtholate was carried out with organic solvents immiscible with water. The separation of U from V and Fe by means of uranium extraction as α-nitroso-β-naphthalate with isoamyl alcohol from neutral solutions after addition of complexone III is described. (tr-auth)

ALIMARIN, I.P.

GOLOVINA, A.P.; ALIMARIN, I.P.

Using 8-oxyquinoline derivatives for the determination of some elements. Report No.1. Vest.Mosk.un.Ser.mat., mekh., astron., fiz., khim. 12 no.3:211-216 '57. (MIRA 11:3)

1.Kafedra analiticheskoy khimii Moskovskogo gosudarstvennogo universiteta.

(Gallium) (Colorimetry) (Quinoline)

Alimarin, I. P.

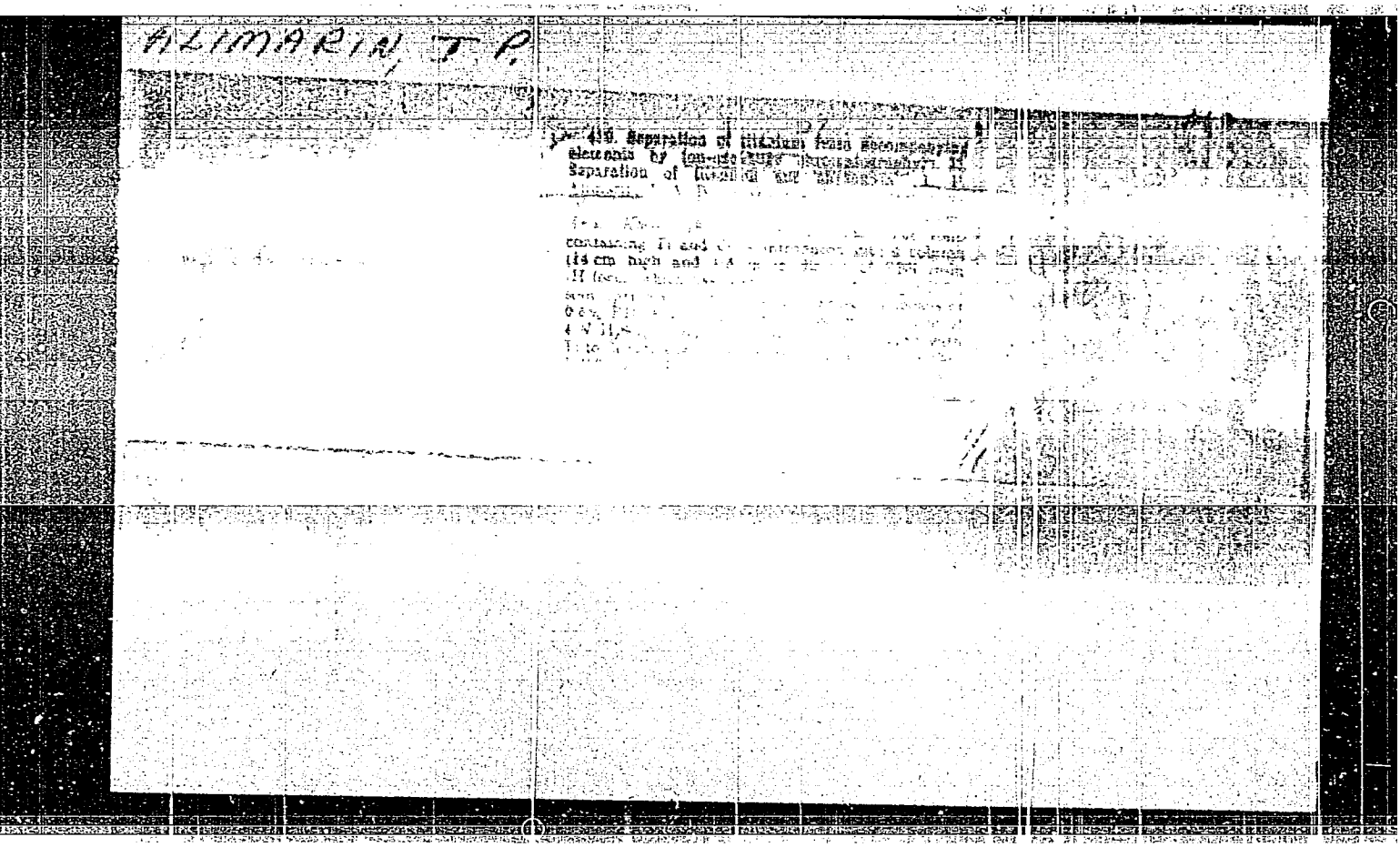
Determination of univalent thallium by radiometric titration with sodium tetraphenylborate. I. A. Shotin and I. P. Alimarin (V. I. Vernadskii Inst. Geochem. and Anal. Chem., Acad. Sci. U.S.S.R., Moscow). *Zhur. Anal. Khim.* 12, 367–71(1957).—The titration was carried out in special app. with Tl^{204} as indicator. To a soln. contg. $TlNO_3$ and 0.05 ml. of the indicator was added the titrant. The soln. was then drawn by means of a syringe through a microfilter into a glass tube for measuring the radioactivity. The tube had an enlarged portion into which the soln. was drawn and which was facing an end-window counter. After a reading was taken, the soln. in the glass tube was returned to the beaker for further titration. The sensitivity of the method was 9 γ/ml. The titration was carried out in a vol. of 2–2.6 ml. at pH 4–6. Interfering elements can be fixed with complexon III.

M. Hosch

4E2c

4E3d

4E4j



ALIMARIN, I.P.

PETRIKOVA, M.N.; ALIMARIN, I.P.

Ultramicro-method of chemical analysis. Amperometric titration [with summary in English]. Zhur.anal.khim. 12 no.4:462-465 Jl-Ag '57. (MIRA 10:10)

1.Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo AN SSSR, Moskva.
(Microchemistry)
(Electrochemical analysis)

GOLOVINA, A.P.; ALIMARIN, I.P., KUZNETSOV, D.I.

Uses of 8-oxyquinoline derivatives for determination of various elements. Report No. 2: Spectrophotometric determination of cobalt by quinoline-5, 8-dioxime. Vest. Mosk. un. Ser. mat., mekh., astron. fiz. khim., 12 no.5:187-191 '57. (MIRA 11:9)

1.Kafedra analiticheskoy khimii Moskovskogo gosudarstvennogo universiteta.
(Cobalt) (Spectrophotometry) (Quinoline)

Alimarin I.P.

ALIMARIN, I.P.; RUDNEV, N.A.

Utilization of radioactive isotopes in analytical chemistry.
Zhur. anal. khim. 12 no.5:587-592 S-O '57. (MIRA 10:11)
(Radioisotopes)

ALIMARIN, I.P.; SOTNIKOV, V.S.

Use of organic derivatives of selenious and telluric acids in analysis. Vest. Mosk. un. Ser. mat., mekh., astron. fiz., khim. 12 no. 6:137-145 '57. (MIRA 11:10)

1. Kafedra analiticheskoy khimii Moskovskogo gosudarstvennogo universiteta.

(Selenious acid)
(Telluric acid)

ALIMARIN I. P.

AUTHORS: Bilimovich, G. N., Alimarin, I. P. 75-6-3/23

TITLE: The Technique of the Method of Dilution With Radioactive Isotopes (Tekhnika opredeleniy metodom izotopnogo razbavleniya).

PERIODICAL: Zhurnal Analiticheskoy Khimii, 1957, Vol. 12, Nr 6, pp. 685-689 (USSR).

ABSTRACT: The experimental material on the technique and methodology of the dilution of isotopes with radioactive indicators is described in the present report. Bi^{210} and Pb^{212} were used as indicators. The accuracy of this method depends on:
1 - The content of the element in the initial material. The optimum results were obtained with experiments with 8 to 10 mg of initial material.
2 - The specific activity of the used indicator. At least 400 Im/Min/mg are required for achieving maximum accuracy.
3 - The ratio of the quantity of the material to be investigated to the indicator.
Ra E/Bi^{210} and ThB/Pb^{212} were isolated in pure radioactive form. Bismuth was determined in the form of phosphate and pyrogalate. Bismuth and lead were also precipitated from sulphinate of benzene with sulphinate of ammonium benzene.

Card 1/2

The Technique of the Method of Dilution With Radioactive Isotopes. 75-4-3/23

There are 4 figures, 4 tables, and 7 Slavic references.

ASSOCIATION: Institute for Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy, Moscow (Institut geokhimii i analiticheskoy khimii imeni V. I. Vernadskogo AN SSSR - Moskva)

SUBMITTED: November 15, 1956.

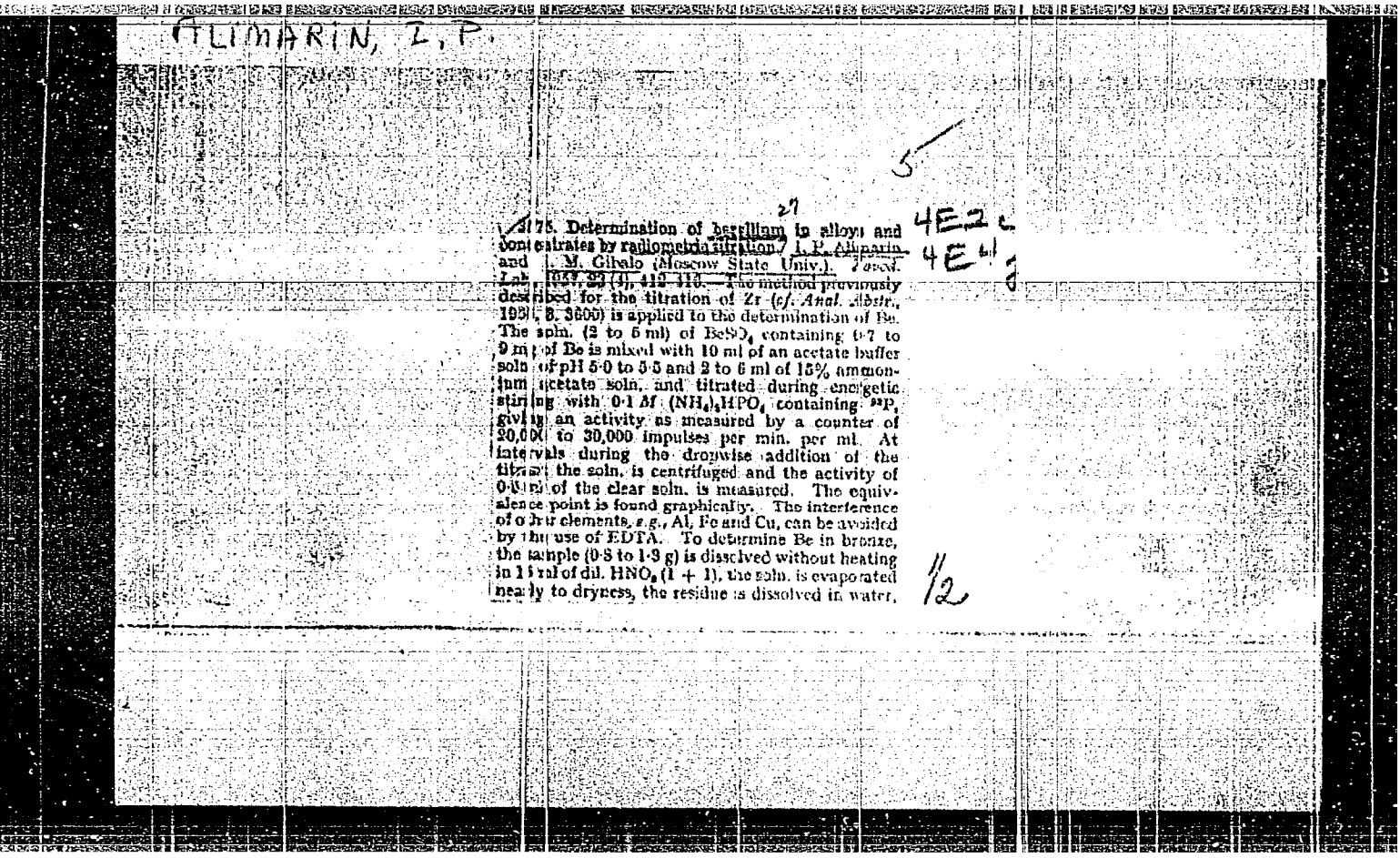
AVAILABLE: Library of Congress.

1. Isotopes-Dilution 2. Radioactive indicators-Applications

Card 2/2

ALIMARIN, I.P.

Modern achievements and problems in analytical chemistry. Zav.lab.23 no.2:131-135 '57. (MLRA 10:3)
(Chemistry, Analytical)



ELIMARIN, I. P.

5

27

4E2 c
4E4 g

1/2

375. Determination of beryllium in alloys and concentrates by radiometric titration. I. P. Alimarin and L. M. Gibalo (Moscow State Univ.). *Zavod. Lab.* 1957, 23 (1), 113–115.—The method previously described for the titration of Zr (*cf. Anal. Abstr.*, 1956, 3, 3600) is applied to the determination of Be. The soln. (2 to 5 ml) of $BeSO_4$ containing 0·7 to 9 mg of Be is mixed with 10 ml of an acetate buffer soln. of pH 5·0 to 5·5 and 2 to 6 ml of 15% ammonium acetate soln. and titrated during energetic stirring with 0·1 *M* $(NH_4)_2HPO_4$ containing ^{32}P, giving an activity as measured by a counter of 20,000 to 30,000 impulses per min. per ml. At intervals during the dropwise addition of the titrant the soln. is centrifuged and the activity of 0·5 ml of the clear soln. is measured. The equivalence point is found graphically. The interference of other elements, *e.g.*, Al, Fe and Cu, can be avoided by the use of EDTA. To determine Be in bronze, the sample (0·8 to 1·3 g) is dissolved without heating in 15 ml of dil. HNO_3 (1 + 1), the soln. is evaporated nearly to dryness, the residue is dissolved in water,

ALIMARIN, I.P., GIBALO, I.M.

the soln. is cooled, then neutralised with 2% aq. NH_3, and diluted to 25 ml; a 5-ml aliquot is taken for the titration, which is carried out after addition of 25 ml of 7·5% EDTA soln., 30 ml of the acetate buffer soln., and 15 to 25 ml of 15% ammonium acetate soln. To determine Be in concentrates, the sample (0·5 to 0·7 g) (1 part) is fused with NaF (4 parts) in a platinum crucible at 1000° to 1100° for 40 to 50 min., the cooled melt is heated with conc. H_2SO_4 to remove Si and F, the residue is dissolved in water, the soln. is neutralised with aq. NH_3 and dil. H_2SO_4, and then diluted to 50 ml. A 5-ml aliquot is mixed with 10 to 12 ml of 7·5% EDTA soln., 25 ml of the acetate buffer soln. and 15 ml of 15% ammonium acetate soln., and the titration is carried out as described above. It is shown that in all cases the establishment of only two points on the titration curve is required.

G. S. SMITH

AUTHOR: ALIMARIN, I.P., ALIKBEROV, S.S.

TITLE: The Application of Benzol Sulphidine Acids for the Determination of Zirconium. (Primeneniye byenzolsulfinovoy kisloty dlya opredeleniya tsirkoniya, Russian)

32-6-5/54

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol 23, Nr 6, pp 658-660, (U.S.S.R.)

ABSTRACT: The fact is stressed that the application of benzol sulphine acid $C_6H_5SO_2H_2$ is of great importance in analytical chemistry because of its good precipitation properties. Though FAIGL pointed out the possibility of the precipitation of quadrivalent cations Th, U, Zr, Ti, Sn by means of benzol sulphine acid, he says nothing about a method for quantitative determination or separation of elements. The present paper draws a parallel between the reactions of benzol sulphine acid and other acids, in which connection he gives preference to benzol sulphine acid in connection with zirconium reaction, because other elements are not affected and also because sodium benzol sulphinate is produced in great quantities by the Soviet chemical industry and is, therefore, easily available for being used as a reagent.

Under the effect of benzol sulphine acid or of its sodium salt zirconium has a precipitation in form of a flaky white substance which can be described by the formula $/ZrO(C_6H_5SO_2)_2/$ when in a

Card 1/2

The Application of Benzol Sulphidine Acids for the Determination of Zirconium. 32-6-5/54

dry state.
In conclusion it is said that benzol sulphine acid has good selective properties. The reaction of sodium benzol sulphinate with zirconium is very sensitive and not easily soluble. (2 Diagrams, 5 Tables).

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED:
AVAILABLE: Library of Congress

Card 2/2

32-10-4/32

AUTHOR: Alimarin, I. P., Corresponding Member, Academy of Sciences, USSR

TITLE: Radiochemical analyses in the USSR (Radiokhimicheskiye metody analiza v SSSR)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol 23, Nr 10, pp. 1168-1171 (USSR).

ABSTRACT: The first work carried out for the purpose of investigating the radioactivity of minerals, rock, and natural waters was begun in Russia in 1918 at the initiative of V. I. Benadskiy in the Russian AN and at Moscow University (by Professor A. P. Sokolov). Particular impetus was given to this work in 1944, when Soviet scientists had a large assortment of radioactive isotopes and high-precision apparatus for the measuring of , β, , π at their disposal. Particular value must be attached to these methods by their application in practice, above all with respect to the determination of the ultramicro components in semiconductors, luminescent and refractory solutions, but above all of the material for the construction of nuclear reactors. The application of marked atoms made it possible to follow the processes of the chemical-analytical separation of elements, which, in connection with making use of correlation, made the most accurate analyses possible. Considerable difficulties arising in connection with the analyses of rare elements and their alloys could be removed

Card 1/4

by the application of radio-isotopes. The application of the method of isotopes was of particularly great importance in connection with the geochemical determination of the rules governing the deposits of microelements contained in minerals and rocks, and this application is of particularly great importance in connection with the investigation of the products of atomic reactions. For this purpose the Soviet synchrocyclotron, the largest of the world, was put into operation in 195o, by means of which the Soviet scientists (A. P. Vinogradov, V. I. Baranov, I. P. Alimarin, A. K. Lavrukhina and others) were able to follow processes of atomic reactions at high energies (of 68o MeV) and to determine new rules and new radioisotopes. Considerable success was achieved by research work carried out by the radio institute of the AN USSR (by N. A. Perfilov, A. P. Murin and others). The newest method of adsorption and description of radio colloids appears to be very promising. Interesting investigations were carried out by N. P. Rudenko with carriers in a radiochemically pure state (as e. g.. In 113 m, Nb-95, Zn-95 and others). A number of Soviet scientists investigated several processes of co-precipitation in order to work out a suitable method of determination microcomponent concentrations and their losses in separation processes. V. I. Kuznetsov developed new methods in which organic reagents are used in co-precipitation processes. By the simultaneous use of

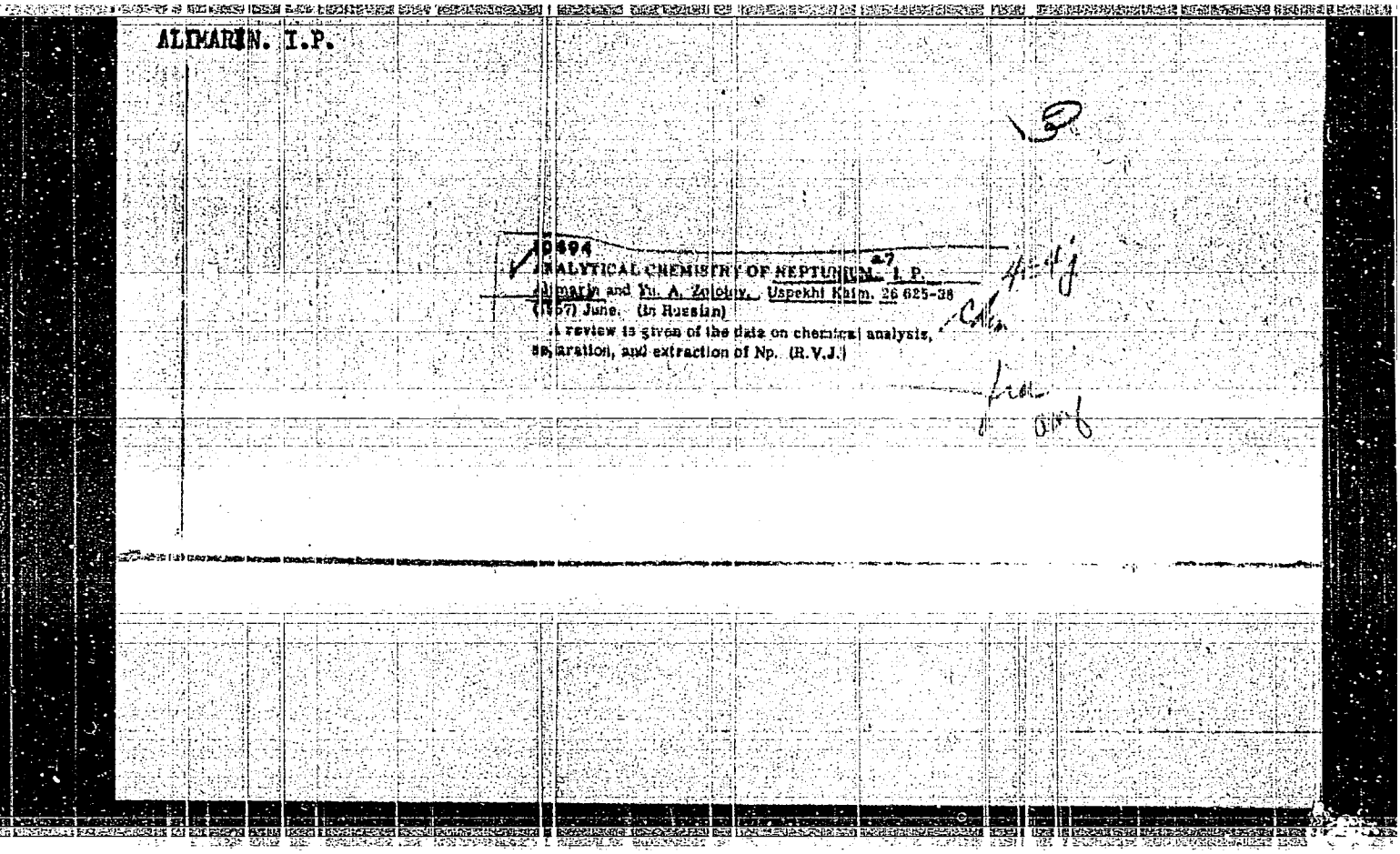
radioisotopes he achieved a quantitative sorting out of the element in a 1:10 solution. The application of radioactive isotopes gave good results in connection with the investigation of the equilibria in solutions in the physical-chemical analysis according to Kurnakov. Recently A. A. Grinberg, V. I. Spitsyn and others were able to make good use of isotopic interaction in the investigation of the structure of complex platinum compounds, heteropolar compounds and also in determining instability constants. A great number of works by Soviet scientists is at present devoted to the investigation of the methods of separating elements, in which extraction is carried out by means of organic solvents. Radioactive isotopes were widely used for the checking of working methods. By the admixture of isotopes to the sample spectral analysis results of particular accuracy could be attained. (Thus the isotopes U^{235} and U^{233} considerably increase the accuracy of spectral analysis). Much attention is finally paid in the USSR to the method of radiometric titration with isotopic and non-isotopic indicators, as well as to the use of isotopes as radiation sources in analytical chemistry. Finally, the radioactivation analysis with application of thermal neutrons was developed successfully in connection with the putting into operation of nuclear reactors in the USSR. For this purpose new constructions of radiometric

apparatus for the exact and rapid determination of radioisotopes in solid substances and solutions are provided.

ASSOCIATION: Akademiya nauk SSSR (Academy of Sciences of the USSR)

AVAILABLE: Library of Congress

1. Minerals (Radioactive)-Analysis 2. Water (Radioactive)-Analysis 3. Radiochemical analysis



ALIMARIN, I.P.

10494
ANALYTICAL CHEMISTRY OF NEPTUNIUM. I. P. Alimarin and Yu. A. Zolotov. Uspekhi Khim. 26 625-38 (1957) June. (In Russian)
A review is given of the data on chemical analysis, separation, and extraction of Np. (R.V.J.)

ALIMARIN, I. P.

AUTHOR: Alimarin, I. P., (Moscow) 74-11-7/7

TITLE: Progresses of Analytical Chemistry Since 40 Years (Uspekhi analiticheskoy khimii za 40 let).

PERIODICAL: Uspekhi Khimii, 1957, Vol. 26, Nr 11, pp. 1343-1354 (USSR)

ABSTRACT: The development of analytic chemistry is closely connected with politic economy also in the USSR, so that the analysts too range in the first ranks of the glorious army of scientists. Immediately after the October revolution a chemical institute was founded under the direction of L. Ya. Karpov to which an analytical laboratory was attached. It was followed by others. 526 analyses were carried out within the first six months of 1923. In view of becoming independent from foreign supplies, the reagents, preparations, and vessels had to be produced at home. Besides the practical analytic questions the chemists paid their attention also to the scientific theoretical problems in which case the investigations of N. A. Tananayev and V. G. Khlopin (who wrote text-books of analytical chemistry and discovered new methods, though temporary ones, as the drop-method) were of importance. Khlopin was the founder of the Soviet

Card 1/2

radioindustry. He also developed the method of separation of radium and radioactive substances from Russian minerals and springs. The analytical chemistry was charged with important tasks during the first five-years-schemes. The first Union-conference at which both the results and future tasks were discussed, was convened especially for the analytical chemistry in 1939. The application of the physical-chemical analysis of the systems according to Kurnakov allowed to explain the mechanism of many analytical reactions. The quantitative analysis was catalytically further developed and the radioactive isotopes were used in it.
There are 90 references, all of which are Slavic.

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ALIMARIN, I.P.; SAUKOV, A.A.; BARANOV, V.I. prof.; KOVAL'SKIY, V.V., prof.

Problems of modern geochemistry; work at the V.I.Vernadskii Institute of Geochemistry and Analytical Chemistry of the Academy of Sciences of the U.S.S.R. Priroda 46 no.10:53-62 O '57. (MIRA 10:10)

1. Chlen-korrespondent AN SSSR (for Alimorin, Saukov).
(Geochemistry)

AUTHOR ALIMARIN I.P., SOTNIKOV V.S. PA - 2912

TITLE Investigations of Organic Derivatives of Selenic Acid And Telluric Acid as Analytic Reagents.
(Issledovaniya organicheskikh proizvodnykh selenistoy i telluristoy kislot kak analiticheskikh reaktivov -Russian)

PERIODICAL Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 1, pp 105-108, (U.S.S.R.)
Received 6/1957 Reviewed 7/1957

ABSTRACT Investigations hitherto extended only in a small degree to organic reagents which contain As, S and especially P. Compounds of Se and Te were not investigated at all with respect to their application for quantitative analysis. Feigl's statement is said to be wrong according to which only in the case of reagents with a sulphin -or selenin group where the acid rest is immediately bound to the aromatic nucleus quadrivalent metals are precipitated. This capacity was noticed in both cases of reagent types. Furthermore it is Feigl's opinion that the benzol-sulphin-acid is able to bring about a tautomeric conversion. Against this, investigations show that the rot transformed form reacts, and that the resulting compounds represent typical salts of corresponding acids which are not soluble in organic solution-media. Also Feigl's final conclusions turned out to be wrong i.e. that Cer (IV) is able to form a precipitation in an acid solution with berozol-sulphin-acid. We succeeded in proving that in realty an oxidizing-reducing reaction takes place as a consequence of which Cer (IV) is reduced to Cer (III), whereas benzol-sulphin acid ($R-SO_2H$) is oxidized to benzol-sulphon acid. Furthermore, disulphon

Card 1/2

Investigations of Organic Derivatives of Selenic Acid And Telluric Acid as Analytic Reagents. PA -2912

a white flaky precipitation is formed. For the first time the class of those organic derivatives of selenic acid was produced and investigated synthetically which contain a functional-analytical group SeO_3H. New physical-chemical methods with respect to weight were worked out for the determination of quadrivalent elements as well as of bismuth and iron (III) in the presence of other elements in natural and industrial substances. The possibility of radiometric titration with the application of radioisotopes of the elements to be determined or of the organic reagents which contain radioisotops of selenium or tellurium must further be mentioned.
(5 tables, 18 literature quotations)

ASSOCIATION Moscow State University M.V.Lomonosovs
PRESENTED BY
SUBMITTED 24.9.1956
AVAILABLE Library of Congress
Card 2/2

TARASEVICH, Nikolay Ivanovich; ALIMARIN, I.P., prof., red.; KONDRASHKOVA, S.F., red.; GEORGIYEVA, G.I., tekhn.red.

[Manual of practical work in gravimetric analysis] Rukovodstvo k praktikumu po vesovomu analizu. Izd-vo Mosk. univ., 1958. 239 p. (MIRA 12:6)

1. Chlen-korrespondent AN SSSR; kafedra analiticheskoy khimii Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova (for Alimarin).
(Chemistry, Analytical--Quantitative)

ALIMARIN, I. P.

PHASE I BOOK EXPLOITATION SOV/3850

SOV/9-M-8(11)

Akademiya nauk SSSR. Institut geokhimii i analiticheskoy khimii imeni V. I. Vernadskogo. Komissiya po analiticheskoy khimii

Spektrofotometricheskiye i kolorimetricheskiye metody analiza (Spectrophotometric and Colorimetric Methods of Analysis) Moscow, 1958. [illegible] p. (Series: Its: Trudy, tom. 8 (11) Errata slip inserted. 3,000 copies printed.

Resp. Ed.: I. P. Alimarin, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: V. M. Peshkova; Tech. Ed.: [illegible]

PURPOSE: This publication is intended for chemists, particularly analytical chemists and geochemists.

COVERAGE: This collection of 29 articles is published as Volume VIII (XI) of the Transactions of the Committee on Analytical Chemistry at the Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy, Academy of Sciences USSR. The general subject of the volume is the investigation of spectrophotometric and colorimetric analysis. Individual articles on the following topics may deserve special attention: the present state of light absorption analysis, the sensitivity of the colorimetric methods of inorganic analysis, the basic variations of the kinetic method of analysis, spectrophotometric investigation of heteropolyacids of germanium, a new colorimetric method of determining small quantities of thallium, a fluorimetric method of determining uranium, spectrophotometric investigation of the behavior of oxidation-reduction indicators, a photometric optical-acoustical method of gas analysis, and a description of an automatic spectrophotometric gas analyzer. No personalities are mentioned. References are given at the end of each article.

TABLE OF CONTENTS:

2/

FLAGMAN, Z.R.

5(2) PHASE I BOOK EXPLOITATION SOV/1727

Akademiya nauk SSSR. Institut geokhimii i analiticheskoy khimii

Redkozemel'nyye elementy; polucheniye, analiz, primeneniye (Rare Earth Elements; Extraction, Analysis and Application) Moscow, Izd-vo AN SSSR, 1958. 331 p. 2,200 copies printed.

Resp. Ed.: D. I. Ryabchikov, Professor; Editorial Board: I. P. Alimarin, Corresponding Member, USSR Academy of Sciences, I. N. Zaozerskiy, Doctor of Chemical Sciences, R. V. Koglyarov, Candidate of Technical Sciences, V. I. Kuznetsov, Doctor of Chemical Sciences, M. M. Senyavin, Candidate of Chemical Sciences, and Ya. S. Shlyarenko, Candidate of Chemical Sciences; Eds. of Publishing House: D. N. Trifonov and T. G. Levi; Tech. Ed.: S. G. Markovich.

PURPOSE: This book is intended for scientists, chemists, teachers and students of higher educational institutions, chemical and industrial engineers and other persons concerned with the extraction, preparation, use, or study of rare earth elements.

COVERAGE: This collection contains reports presented at the June 1956 Conference on Rare Earth Elements at the Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy of the Academy of Sciences USSR. The articles treat chemical methods of separating rare earth mixtures, methods of processing rare earth ores, ion exchange chromatography, chemical analysis, and some industrial applications of rare earths. Aside from contributing authors, the editors mention the following Soviet scientists, who are studying rare earth elements, rare earth deposits, extraction methods, and the preparation of oxides and salts: Martynov, Mel'nikov, Khrushchev, Melikov, Pisarzhevskiy, Chernyak, Tananaev, [illegible], [illegible] and especially, N. A. Orlov, who first obtained the majority of rare earth elements in the pure state, separated many complex molecular compounds of these elements, and determined their specific properties. References are given at the end of each article.

TABLE OF CONTENTS:

Card 7/11

2(2); 2(5) PHASE I BOOK EXPLOITATION SOV/1900

Akademiya nauk SSSR. Komissiya po analiticheskoy khimii

Primeneniye radioaktivnykh izotopov v analiticheskoy khimii (Use of Radioactive Isotopes in Analytical Chemistry) Moscow Izd-vo An SSSR, 1958. 366 p. (Series: Its: Trudy, t. 9 (12)) Errata slip inserted. 3,000 copies printed.

Resp. Ed.: I.P. Alimarin, Corresponding Member, USSR Academy of Sciences; Ed. of Publishing House: A.N. Yermakov; Tech. Ed.: T.V. Polyakova.

PURPOSE: The book is intended for chemists and chemical engineers concerned with work in analytical chemistry.

COVERAGE: The book is a collection of the principal papers presented in Moscow at the Second Conference on the Use of Radioactive Isotopes. The problems discussed at the Conference included coprecipitation, aging, and solubility of precipitates, determination of the instability constants of complex compounds, separation of rare earth metals, and ion-exchange chromatography. No personalities are mentioned. There are 351 references, 175 of which are Soviet, 33 German, 19 French, 8 Swedish, 2 Hungarian, and 2 Czech.

Card 1/10

TABLE OF CONTENTS:

ALIMARIN, I. P.

PHASE I BOOK EXPLOITATION 978

Vsesoyuznaya nauchno-tekhnicheskaya konferentsiya po primeneniyu radioaktivnykh i stabel'nykh izotopov i izlucheniy v narodnom khozyaystve i nauke. 2d, Moscow, 1957.

Izotopy i izlucheniya v khimii; [sbornik dokladov...] (Isotopes and Radiation in Chemistry; Collection of Papers of the Second All-Union Scientific Technical Conference on the Use of Radioactive and Stable Isotopes and Radiation in the National Economy and Science) Moscow, Izd-vo AN SSSR, 1958. 380 p. 5,000 copies printed.

Sponsoring Agencies: Akademiya nauk SSSR, and [illegible] SSSR. Glavnoye upravleniye po ispol'zovaniyu atomnoy energii.

Editorial Board: Vinogradov, A.P., Academician (Resp. Ed.), Kondrat'yev, V.N., Academician, Alimarin, I.P., Corresponding Member, USSR Academy of Sciences, Bakh, N.A., Dr. of Chemical Sciences, Nikolayev, A.V., Dr. of Chemical Sciences, Nekrasova, G.A., Candidate of Technical Sciences (Secretary); Tech. Ed.: Makuni, Ye.V.

PURPOSE: This book is intended for scientists and technicians engaged in research

Card 1/13

which involves the use of radioactive isotopes or the chemistry of radioactive substances.

COVERAGE: This volume publishes the reports of the Chemistry Section of the Second All-Union Scientific and Technical Conference on the Use of Radioactive and Stable Isotopes and Radiation in Science and the National Economy, sponsored by the Academy of Sciences of the USSR and the Main Administration for the Utilization of Atomic Energy under the Council of Ministers of the USSR. The conference was held in Moscow on April 4-12, 1957. Over fifty reports are included, mainly on radiochemistry, radiation chemistry, methods of obtaining tagged compounds and the use of isotopes in the study of the kinetics and mechanism of chemical reactions in analytical chemistry, physicochemical analysis, etc.

TABLE OF CONTENTS:

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Card 13/13

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ALIMARIN, I. P.

30-2-40/49

AUTHOR: Rodin, S. S.

TITLE: The Use of Radioactive Isotopes in Analytical Chemistry (Primeneniye radioaktivnykh izotopov v analiticheskoy khimii). Conference in Moscow (Konferentsiya v Moskve)

PERIODICAL: Vestnik Akademii Nauk SSSR, 1950, , Nr 2, pp 108-110 (USSR)

ABSTRACT: This conference took place from December 2 to December 4, 1957. It was called by the Commission for Analytical Chemistry of the Institute for Geochemistry and Analytical Chemistry imeni V.I. Vernadskiy of the AN USSR. About 450 scientists from 40 cities of the USSR took part as well as some foreign scientists: Shu Chuan-lyan, En Zhen-in, Lyu Tsin-i (China); I. Kol'tgov (USA); G. Irving (Great Britain); R. Prshibl, I. Kerbl, Ya. Malyy, I. Vodegnal, V. Bezdek (Czechoslovakia); Yu. G. Mänchevskiy (Poland); L. Erdei, A. Schner (Hungary); L. S. Tutundzhich, M. V. Shushich (Yugoslavia); N. I. Petrov (Bulgaria); K. Dragulesku (Roumania);

Card 1/4 Some reports dealt with the working out of radioisotopic meth-

The Use of Radioactive Isotopes in Analytical Chemistry. Conference in Moscow

ods of analysis:

1) I. P. Alimarin reported on the method of diluting isotopes (the Nb^{95}, Zr^{95}, and Ta^{182} radioisotopes were used);
2) M. B. Neyman, V. Ya. Yefremov, V. N. Panfiliv reported on the determination of the alcohol content in the oxidation products of propylene and butane (C^{14} was used);
3) G. S. Rozhavskiy, I. Ye. Zimakov reported on the method of repeated radioactive dilution for the determination of small admixtures (of the order of 10^{-4} to 10^{-7} %);
4) A. I. Kulak reported on the determination of the quantity of micro admixtures of nickel, cobalt, copper, tellurium, and antimony;
5) V. B. Gaydadymov, L. I. Il'ina reported on the possibility of analyzinh tantalum-niobium alloy samples in different physical states by the reflection of rays;
6) I. Ye. Starik reported on the method of the perfect separation of micro quantities of uranium from weighable quantities of iron by means of the isotope U^{233};
7) V. I. Kuznetsov , T. G. Akimov recommended a method for precipitating uranium;

The Use of Radioactive Isotopes in Analytical Chemistry. Conference in Moscow

8) Professor Irving reported on the determination of indium by radioactivation analysis in rocks and minerals;

9) K. B. Yatsimirskiy reported on the determination of phosphate, sulfate and molybdate;

10) K. V. Troitskiy described two new methods of the determination of metal traces;

11) A. K. Lavrukhina reported on some peculiarities of radiochemical analysis;

12) I. M. Kol'tgof reported on the use of the radioactive isotope ThB(Pb^{212}) for the investigation of the aging of crystalline sediments;

13) M. M. Senyavin reported on the use of radioactive isotopes in chromatography;

14) A. M. Yermakov, V. K. Belyayeva , I. N. Marov showed the possibilities of using anionites for the calculation of the constants of the stability of charged ions;

15) N. A. Izmaylova, V. S. Chernyy gave data of the investigation of the solubility of salts;

The Use of Radioactive Isotopes in Analytical Chemistry. Conference in Moscow

30-2-40/49

16)A. K. Lavrukhina, S. S. Rodin investigated the co-precipitation of francium with different sediments by the short-lived radioactive isotope Fr^{212};
17)I. V. Tananayev showed the possibility of separating francium from cesium;
18)Yu. I. Bykovskaya, A. A. Grizik, N. I. Marunina investigated the use and the methodology of radioactive indicators;
19)M. I. Tsekhanskiy, N. I. Shishkin, K. V. Khudoyarov and G. D. Susloparov described the use of Ca^{45};
20)P. V. Zimakov, and L. A. Krasnousov described the use of Cl^{36};
21)K. I. Karasev reported on the use of the marked-atom method.

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1. Isotopes (Radioactive)-Applications 2. Scientific research-Chemistry 3. Chemistry-USSR

Card 4/4

5(2)

AUTHORS: Puzdrenkova, T.V., Alimarin, I.P., and Frolkina, V.A. SOV/55-58-2-24/35

TITLE: Determination of Cerium by Means of Potassiumperiodate (Opredeleniye tseriya periodatom kaliya)

PERIODICAL: Vestnik Moskovskogo Universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1958, Nr 2, pp 183-186 (USSR)

ABSTRACT: The authors investigated the interaction of the 3- and 4-valent cerium with potassiumperiodate in an acid medium. The periodation often appeared in the form JO_6^{-5}.

The authors developed methods for the determination of cerium in salts and sand with the aid of potassiumperiodate. They used gravimetric as well as calorimetric methods. There are 11 references, 5 of which are Soviet, 2 Indian, 1 Finnish, 1 German, 1 American, and 1 Swedish.

ASSOCIATION: Kafedra analiticheskoy khimii (Chair of Analytic Chemistry)

SUBMITTED: April 20, 1957

Card 1/1

5(2)

AUTHORS: Alimarin, I.P., Golovina, A.P. Kuteynikov, A.F., Stepanov, N.F. SOV/55-58-2-27/35

TITLE: Investigation of the Absorption Spectra of the Combinations of Some Elements With Quercetin. 1. Determination of Thorium in Monazite-Sand (Izucheniye spektrov svetopogloshcheniya soyedineniy nekotorykh elementov s kvertsetinom. 1.Opredeleniye toriya v monatsitovom peske)

PERIODICAL: Vestnik Moskovskogo Universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1958, Nr 2, pp 203-206 (USSR)

ABSTRACT: The authors investigated the absorption spectra of quercetin with Th, Zr, Ti, U(VI), Ce(III), Fe(III), Ga, La, Al, Be, Cu(II), Sn(IV). They propose a new photometric method for the proof of thorium in monazite - sand with quercetin. A former paper of A.L. Davydov and V.S. Devekki [Ref 11] is used. There are 4 figures, 1 table, and 14 references, 6 of which are Soviet, 3 American, 3 German, and 2 Czech.

ASSOCIATION: Kafedra analiticheskoy khimii (Chair of Analytic Chemistry)

SUBMITTED: May 29, 1957

Card 1/1

5(2)

AUTHORS: Savostin,A.P. and Alimarin,I.P. SOV/55-58-2-29/35

TITLE: Separation of Small Quantities of Tantalum from Titanium With the Aid of Pyrogallic Acid (Otdeleniye malykh kolichestv tantala ot titana pirogallovoy kislotoy)

PERIODICAL: Vestnik Moskovskogo Universiteta,Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1958,Nr 2,pp 211-216 (USSR)

ABSTRACT: The authors propose to precipitate small quantities of tantalum under existing 100- and 1000-fold quantity of titanium by pyrogallic acid in presence of a ftorion. The radiometric control showed that by threefold repetition of the precipitation on an average 70-80% of the tantalum can be separated. In the residual precipitate the ratio Ta : Ti was on an average 1 : 0,2 - 0,4 .
There are 2 figures, 3 tables, and 2 references, 1 of which is Soviet, and 1 English.

ASSOCIATION: Kafedra analiticheskoy khimii (Chair of Analytic Chemistry)
SUBMITTED: June 8, 1957

Card 1/1

AUTHORS: Golovina, A. P., Alimarin, I. P., Stepanov, N. F. SOV/156-58-2-20/48

TITLE: Use of Oxyflavones in Analytical Chemistry (Primeneniye oksiflavonov v analiticheskoy khimii) Photometrical Determination of Titanium by Means of Quercetine (Fotometricheskoye opredeleniye titana kvertsetinom)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 2, pp. 285-289 (USSR)

ABSTRACT: The flavones belong to the γ-benzopyrone-derivatives. Their oxyderivatives (oxyflavones) form a large group of natural dyes which are found in plants mostly as glucosides. Quercetine, morin, fisetin, and lutcolin are mostly found in nature (Refs 1-5). Synthetic oxyflavones are rarely used because their synthesis is rather complicated (methods: Refs 9-12). Some properties and constants of the oxyflavones are given. They are white up to yellow crystalline substances which in the course of time oxidize in the air and become brown. Morin and quercetine are described more in detail. In the present paper the authors describe the results obtained by the experimental investigation of quercetine as analytical reagent. Table 1 shows these results.

Card 1/3

Use of Oxyflavones in Analytical Chemistry. Photometrical Determination of Titanium by Means of Quercetine

SOV/156-58-2-20/48

The dyeing of quercetine with single elements both in ultraviolet and visible light can be seen from this. Tetravalent titanium forms an intensely brown-red compound with it which can be used for the photometric determination of this element. Figure 1 shows that the maximum of light absorption of this compound is at 425 mμ. Titanium is, however, more properly determined at 440 to 450 mμ, where practically no absorption by the reagent itself takes place. The influence exercised by the pH-value of the medium on the dyeing-intensity was investigated in glycolic- and acetate-buffer solutions. It follows from figure 2 that the optic density of the solution preserves a rather constant value within the range of pH 3.3 to 6.0. The complex begins to decolorize at pH$<$3.3. The dyeing vanishes almost completely at pH$<$1.0. At pH$>$6.0 the optic density increases rapidly since the solution converts from a real one into a colloidal one. At pH = 9.0, a red-brown deposit precipitates. The solutions can be stabilized by addition of 20 volume-% of methanol, ethanol, or acetone. The increase in temperature does not influence the dyeing-intensity. The optic density is maintained for 4 to 6 hours. Ber's law may be applied within the

Card 2/3

Use of Oxyflavones in Analytical Chemistry. Photometrical Determination of Titanium by Means of Quercetine

range of concentration of from 0.5 to 1.0 g/ml with the dyed solutions (Fig 3). Figure 4 shows that the position of the climaxes is independent of the length of the wave if a measurement is carried out according to the method of isomolar series. There are 4 figures, 1 table, and 45 references, 5 of which are Soviet.

ASSOCIATION: Kafedra analiticheskoy khimii Moskovskogo gosudarstvennogo universiteta im. M. V. Lomonosova (Chair of Analytical Chemistry of Moscow State University imeni M. V. Lomonosov)

SUBMITTED: December 6, 1957

5(2)

AUTHORS: Tsintsevich, Ye.P., Alimarin, I.P. and Marchenkova, L.F. SOV/55-58-3-27/30

TITLE: The Behavior of Gallium and Aluminum Under Ion Exchange in Presence of Some Complex-Forming Substances (Povedeniye galliya i alyuminiya v usloviyakh ionnogo obmena v prisutstvii nekotorykh kompleksoobrazuyushchikh veshchestv)

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya matematiki, mekhaniki, astronomii, fiziki, khimii ,1958,Nr 3,pp 221-227 (USSR)

ABSTRACT: The authors investigated the behavior of Ga^{3+} and Al^{3+} in presence of tartaric acid and malic acid under static conditions for acid pH - values. It was stated that the separation of them is not possible in presence of the mentioned acids. A separation of gallium and aluminum by ion exchange proved to be possible in presence of oxalic acid for pH 4.0 as well as in some other cases.

Card 1/2

The Behavior of Gallium and Aluminum Under Ion Exchange in Presence of Some Complex-Forming Substances SOV/55-58-3-27/30

There are 4 figures, 6 tables, and 5 references, 3 of which are Soviet, 1 German, and 1 Swiss.

ASSOCIATION: Kafedra analiticheskoy khimii (Chair of Analytical Chemistry)

SUBMITTED: July 6, 1957

Card 2/2

ALIMARIN, I.; Jen-Yun, E.; Puzdrenkowa, I.

Utilization of periodic acid for the quantitative determination of some rare metals. In Russian. p. 244.

CHEMIA ANALITYCZNA. (Komisja Analityczna Polaskiej Akademii Nauk i Naczelan Organizacja Techniczna) Warszawa, Poland, Vol. 3, no. 3/4 1958

Monthly List of East European Accessions (EEAI) LC, Vol. 8, no. 7, July 1959

Uncl.

AUTHORS: Alimarin, I.P., Sirotina, I.A. SOV/ 78-3-7-41/44

TITLE: Investigation of Co-Precipitations by the Method of Radiometric Titration (Issledovaniye soosazhdeniya s pomoshch'yu metoda radiometricheskogo titrovaniya)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 7, pp 1709-1713 (USSR)

ABSTRACT: The mechanism of co-precipitations was investigated by the method of radiometric titration. Precipitations of silver, thallium, and lead with different anions as chlorine, iodine, thiocyanate, chromate, and sulfide were investigated by means of the radioactive isotopes Tl^{204}, Ag^{110} and ThB.
The application of non-isotopic indicators in radiometric titration is possible not only in the case of precipitations in which isomorphic mixtures are formed, but also in the formation of anomalous mixed crystals.
The possibility of determining silver and thallium as iodides and of lead and silver as chromates by means of radiometric titration with non-isotopic indicators was mentioned. There are 5 figures, 5 tables, and 9 references, 5 of which are Soviet.

Card 1/2

Investigation of Co-Precipitations by the Method of Radiometric Titration

SOV/ 78-3-7-41/44

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V.I.Vernadskogo, Akademii nauk SSSR (Institute of Geochemistry and Analytical Chemistry Imeni V.I.Vernadskiy, AS USSR)

SUBMITTED: June 15, 1957

1. Metals--Precipitation 2. Metals--Titration 3. Ions --Chemical effects 4. Isotopes(Radioactive)--Applications 5. Titration--Test results

Card 2/2

5(2)

AUTHORS: Savostin, A. P., Alimarin, I. P., SOV/153-58-4-5/22

TITLE: On the Problem of the Precipitation Process of Small Tantalum Quantities According to the Method of Co-Precipitation (K voprosu o mekhanizme vydeleniya malykh kolichestv tantala metodom soosazhdeniya)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 4, pp 29-34 (USSR)

ABSTRACT: Since tantalum and titanium have similar chemical properties (Refs 1, 2), microquantities of tantalum can be co-precipitated from the solution with titanium selenite. As is known, selenic acid precipitates white precipitates of selenites of Ti, Ta, Nb, Cr, V (III), Pb, Ag and Hg from mineral acid solutions, whereas no precipitates are formed by Al, Cu, Zn, Mg, Co, W, M and V(V) (Ref 3). Thus Ta, Nb and Ti can be separated by selenic acid from a whole group of elements. The authors tried hard to remove most of the carrier and to obtain tantalum in a more or less pure state. In tartaric acids containing HCl, Ta and Ni are quantitatively precipitated by selenic acid (Ref 4). It is necessary to precipitate twice, because titanium is not precipitated by selenic acid under these conditions, and is

Card 1/4

co-precipitated in the presence of Ta and Nb. The authors intended to investigate into the behavior of microquantities of tantalum in the presence of large titanium quantities. A hydrochloric titanium solution and an oxalic tantalum solution containing tantalum-182 were used in the experiments. Table 1 shows data on the influence exerted by the nature of the acid and the acidity upon the separation of tantalum with a precipitation of titanium selenite. As may be seen from it, titanium is better separated from nitric acid solutions and hydrochloric acid solutions (the same acidity given), in spite of almost the same character of precipitation. Thus, selenic acid separates titanium and tantalum insufficiently from highly acid solutions. Solutions of ammonium oxalate, tartaric acid and sodium fluoride were used in the investigation of the influence exercised by complex-forming reagents upon the complete separation of titanium and tantalum. The precipitations were subjected to similar operations as mentioned above, after they had been stored overnight. The results are presented in table 2, from which it may be seen that the authors did not sufficiently succeed in maintaining most of the carrier as an

oxalate or tartrate complex in the solution, with the whole microcomponent to be separated into the precipitate. Better results would be obtained by using sodium fluoride or different quantities of the precipitant (Table 3). Additional experiments were carried out to clarify the problem whether the co-precipitation is of adsorption or isomorphous character. According to the results (Table 4), the authors arrived at the conclusion that the co-precipitation process of tantalum with titanium selenite has no adsorption character. From table 5 it may be seen that approximately an average quantity of the microcomponent is carried along by the precipitate. That carrying along is, under the corresponding conditions, explained by the fact that titanium selenite possesses a certain degree of solubility at increased temperature, which decreases when it is cooled, so that part of the titanium selenite is precipitated into the precipitate carrying along tantalum with it. It results from this that selenic acid makes the separation of tantalum microquantities on the carrier (titanium selenite) possible,

On the Problem of the Precipitation Process of Small Tantalum Quantities According to the Method of Co-Precipitation

but does not secure the separation of these two elements. There are 6 tables and 4 references, 2 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov) Kafedra analiticheskoy khimii (Chair of Analytic Chemistry)

SUBMITTED: October 25, 1957

SOV/75-13-4-16/29

AUTHORS: Alimarin, I. P., Nikolayeva, Ye. R., Malofeyeva, G. I.

TITLE: An Analytical Investigation of the Precipitation of Tetravalent Uranium With Sodium Hexametaphosphate (Analiticheskoye izucheniye reaktsii osazhdeniya chetyrekhvalentnogo urana geksametafosfatom natriya)

PERIODICAL: Zhurnal analiticheskoy khimii, 1958, Vol. 13, Nr 4, pp. 464-468 (USSR)

ABSTRACT: Methods are known for the precipitation of uranium with salts of the ortho- and pyrophosphoric acid as well as of the phosphorous acid (Refs 1-3). A considerable disadvantage of the gravimetric determination of uranium after the annealing of its orthophosphate to the pyrophosphate consists of the fact that the compounds formed do not have a constant composition. In the present paper the use of the compound of sodium hexametaphosphate with tetravalent uranium, which is difficult to dissolve, is considered for the separation of small amounts of uranium. Aqueous solutions of sodium hexametaphosphate are considerably stable in the cold. By heating or acidifying the solution it was, however, hydrolysed (Refs 7, 10). In the freshly

Card 1/4

An Analytical Investigation of the Precipitation of Tetravalent Uranium With Sodium Hexametaphosphate

prepared solution of the reagent pyro- and orthophosphate are practically not present, they form, however, gradually in storing the solution. In order to separate uranium as quantitatively as possible a sulfuric acid or perchloric acid solution must be heated to 60-70° prior to the precipitation. After the precipitation the solution must be heated with the precipitate for another 10-15 minutes in the water bath. Tetravalent uranium precipitates quantitatively from perchloric acid solution only in a narrow concentration interval, viz. from 3n $HClO_4$. In the case of higher and lower acidity the amount of the precipitated uranium is quickly reduced, which obviously is connected with an increase of the solubility of the compound at the expense of the hydrolysis of hexametaphosphate, or that it is connected with the possibility of the formation of complex compounds of uranium. Uranium cannot be quantitatively precipitated from sulfuric acid solutions by means of hexametaphosphates. This fact was also found in the precipitation with orthophosphate (Refs 6, 11) and it is explained by the formation of complex sulfates of uranium. The conditions for the quantitative separation of uranium with sodium hexameta-phos-

An Analytical Investigation of the Precipitation of Tetravalent Uranium With Sodium Hexametaphosphate

phate are the following: 3n perchloric acid solution, and in the case of an amount of more than 2 mg uranium a final concentration of the reagent of 0,30-0,35%. For lower amounts of uranium thorium is used as collector. Thus, also traces of uranium are co-precipitated. The molar ratio between thorium and PO_3^- must not exceed 1:5, as otherwise too low results are obtained. As washing liquid for the precipitate diluted perchloric acid is suited. The determination of uranium according to the precipitation is carried out vanadometrically. Tri- and tetravalent vanadium (2-20 mg), iron, and copper (of up to 200 mg each) and other bivalent elements do not exert a disturbing influence. Spectrophotometric investigations showed that in the case of an excess of reagent complex compounds of uranium with hexametaphosphate are formed (the measurements were carried out by means of a spectrophotometer of the type SF-4). The method elaborated for the determination of uranium is described in detail. There are 3 figures, 5 tables, and 12 references, 7 of which are Soviet.

Card 3/4

SOV/75-13-4-16/29

An Analytical Investigation of the Precipitation of Tetravalent Uranium With Sodium Hexametaphosphate

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: May 30, 1957

1. Uranium---Precipitation 2. Urnaium---Chemical reactions 3. Sodium phosphates---Properties 4. Sodium phosphates---Chemical reactions

Card 4/4

AUTHORS: Alimarin, I. P., Svoboda, K. F. SOV/89-5-1-11/28

TITLE: Some Characteristic Features of the Yields of the Szilard-Chalmers Process in Alkyl Compounds of Iodine (Nekotoryye osobennosti vykhodov protsessa Stsillarda-Chalmers alkilproizvodnykh yoda)

PERIODICAL: Atomnaya energiya, 1958, Vol. 5, Nr 1, pp. 73-75 (USSR)

ABSTRACT: The total retardation R in the Szilard-Chalmers process is composed of at least 4 partial retardation processes the last of which is connected especially with the delay which is due to the presence of a γ-base (background). The total retardation of methyl-ethyl-propyl and butyl iodide was investigated on a strong polonium-beryllium source. The γ-intensity attained with this preparation amounted to about 0,5 r/h. The chemical preparations used were supplied either by the Soviet firm of "Soyuzreaktiv", by the Czechoslovakian firm of "Lakhema", or they were the product of synthetization carried out by the authors themselves. The following yields obtained by the Szilard-Chalmers reaction were measured:

Card 1/2

Some Characteristic Features of the Yields of the Szilard-Chalmers Process in Alkyl Compounds of Iodine

Neutron Source	Neutron Current $cm^2 \cdot sec^{-1}$	Order of Magnitude of the γ (background) r/h	R in %				Irradiation Period
			CH_3J	C_2H_5J	C_3H_7J	C_4H_9J	
Po+Be	10^4-10^5	0,1 - 1	100(100)	95	55	43	2h (244)
Ra+Be	10^4-10^5	10^2-10^3	100(65)	42	40	42	2h (244)
Nuclear Reactor	10^7-10^8	10^2-10^3	89(60)	42	41	42	5m (14)

There are 1 table and 5 references, 2 of which are Soviet.

SUBMITTED: February 7, 1958

1. Iodine compounds--Effects of radiation 2. Radioactivity--Measurement

Card 2/2

5 (2)

AUTHORS: Savostin, A. P., Alimarin, I. P. SOV/55-58-6-15/31

TITLE: The Separation of Small Quantities of Niobium From Titanium by Means of Pyrogallic Acid (Otdeleniye malykh kolichestv niobiya ot titana pirogallovoy kislotoy)

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1958, Nr 6, pp 111-119 (USSR)

ABSTRACT: This article is a continuation of a paper which was published in this periodical 1958, Nr 2. The separation of niobium from titanium was attained by leaching out the pyrosulphate alloy of the two oxides by means of an aqueous solution of pyrogallic acid with a small addition of ammonia and sodium fluoride, heating this solution to boiling point, and following neutralization of the basic solution by means of hydrochloric acid. The quantity of the separated titanium was colorimetrically determined from its reaction with H_2O_2 by means of photoelectric colori- and nephelometer FEK-52, and the quantity of niobium by measuring γ-radiation (For these investigations the radioactive isotope Nb^{95} was used). It was

Card 1/3

found that separation depends in a high degree on the large quantity of excess potassium pyrosulphate and sodium fluoride, because SO_4^{2-} keeps titanium dissolved under complex formation, whereas it hardly influences Nb at all. By triple precipitation it was possible to separate 60-70 % of the niobium by means of this method (Table 1). Further, this method of separation was investigated in the presence of other elements (Ta) and at various ratios Ti : Nb (Tables 2-6). With an increase of the Ti-content in the alloy, the excess potassium pyrosulphate (Table 4) had also to be increased correspondingly, but this at the same time led to a complex formation of Nb with H_2SO_4 and thus to the dissolution of the Nb. In further investigations only the concentration of NaF was therefore increased (Table 5). Also investigations were carried out in which other acids were used (HCl) (Table 7), and sodium carbonate was also used instead of the potassium sulfate used in the alloy. The last-mentioned investigations were found to be more favorable for the separation of larger quantities of Ti from smaller quantities of Nb than the method used first,

because by the increase of the quantity of sodium carbonate, the Nb is not dissolved by complex formation in the further course of the separation process. Corresponding data may be found in the last tables (8-14). There are 1 figure, 14 tables, and 6 Soviet references.

ASSOCIATION: Kafedra analiticheskoy khimii (Chair for Analytical Chemistry)

SUBMITTED: September 9, 1957

5 (2)

AUTHORS: Alimarin, I. P., Borzenkova, N. P. SOV/55-58-6-24/31

TITLE: Separation of Niobium and Titanium by the Method of Ion Exchange Chromatography (Razdeleniye niobiya i titana metodom ionoobmennoy khromatografii)

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1958, Nr 6, pp 191 - 199 (USSR)

ABSTRACT: Publications contain a small number of articles on the possibility of separating niobium and titanium by ion exchangers in various acid solvents (Refs 1-15). In this connection the present paper deals with the possibility of separating the above elements, considering their various absorption, by means of ion-exchangers from sulphuric acid and citric acid. The absorption of the Ti and Nb by means of the ion exchangers SBS and EDE-10 from the acids mentioned was carried out under static conditions. The Ti absorption was checked colorimetrically out of its reaction with H_2O_2, whilst the Nb absorption is checked radiometrically out of the γ radiation of the Nb^{95}. The mode of preparing the solutions and the preparations of the ionites are described. The investigation of the absorption of the Nb

Card 1/3

and the Ti by means of the anion- and the cation exchanger from sulphuric acid proved (Fig 1) that the separation of the two is not possible by means of the cation exchanger (SBS) (the anion exchanger for Nb was not investigated), as their absorption is very similar. The condition of these two elements in the solution is colloidal and their absorption is a physical one. Also the absorption of the Nb and the Ti from citric acid solutions (investigations at various concentrations) is not suitable for a separation by means of the cation exchangers SBS owing to the analogy of the absorption at the various degrees of concentrations. (Fig 2). Ti and Nb are present in the solution in the form of little stable citrate complexes which are easily destroyed by the addition of mineral acids. Former investigations had shown the possibility of a separation from citric acid by adding sulphuric acid. The most favorable conditions for the separation, as ascertained by the authors, were attained with a 5% citric acid solution to which 0.3-0.4 n of sulphuric acid had been added. (Figs 3 and 4). The data concerning the separation under various Ti:Nb ratios in the solutions are compiled in a table, and depicted in

Separation of Niobium and Titanium by the Method of Ion Exchange Chromatography SOV/55-58-6-24/31

Fig 6. Additional experiments were made to obtain a separation from a 5% citric acid solution by means of $HClO_4$; these experiments failed (Fig 5) as Ti and Nb were present in that solution in the colloidal state. There are 6 figures, 1 table, and 16 references, 12 of which are Soviet.

ASSOCIATION: Kafedra analiticheskoy khimii (Chair for Analytical Chemistry)

SUBMITTED: June 21, 1958

Card 3/3

5(2)

AUTHORS: Alimarin, I. P., Tseng Yun-ch'i, Puzdrenkova, I. V. SOV/55-58-6-25/31

TITLE: Use of Periodic Acid for the Quantitative Determination of Some Rare Elements (Primeneniye yodnoy kisloty dlya kolichestvennogo opredeleniya nekotorykh redkikh elementov)

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1958, Nr 6, pp 201 - 206 (USSR)

ABSTRACT: Hitherto not all properties of the periodic acid were known in its aspect as an analytical reagent. This paper reveals some new data on the use of periodic acid for the quantitative determination of some rare elements. One of the tables contains the results of an earlier investigation, concerning the precipitation reaction in a neutral or slightly acid medium under the action of potassium periodate (Ref 1). A short description then follows of the method introduced by the authors for determining cerium, zirconium, thorium, thallium and antimony. For the determination of cerium a precipitation reaction was employed, described already in the year 1874 in paper Ref 7. According to this method the trivalent cerium is oxidized into the quadrivalent cerium by means of potassium periodate, the quadrivalent cerium forming with the periodate a precipitate in an acid medium. The composition of that

Card 1/3

substance, when dried in air, was found to be $CeHJO_6 \cdot 3H_2O$, and after being dried at 120°, was found to be $CeHJO_6$. The determination of the cerium according to a weight- and colorimetrical method in the presence of great quantities of rare earth elements was successful, the error amounting only to ± 1.25%. Zirconium and thorium were determined amperometrically. The most favorable conditions for the determination of zirconium were found at a pH-value of 2.5 and with a voltage of the saturated calomel electrode of -1.0 v, whilst the respective values for thorium were pH 2.5 and 0.8 v. The results of the determination are shown in tables 2 and 3. Zr could only be determined by way of indirect titration, i.e. titration of the excess of potassium periodate. Thallium was determined once potentiometrically with potassium-periodate. The potentiometrical titration was carried out in the presence of 6-9n hydrochloric acid. The respective data are compiled in table 4. Furthermore complex compounds of the periodic acid have been employed for the determination of thallium and antimony viz. $K_7 Cu(JO_6)_2$ in a basic medium (data in tables 5 and 6), in which connection it should be mentioned that the rare earth elements will form complex compounds

Use of Periodic Acid for the Quantitative Determination of Some Rare Elements SOV/55-58-6-25/31

with potassium periodate in a basic medium, a fact which can be made use of for their analytical determination and separation. There are 1 figure, 6 tables, and 12 references, 7 of which are Soviet.

ASSOCIATION: Kafedra analiticheskoy khimii (Chair for Analytical Chemistry)

SUBMITTED: June 25, 1958

Card 3/3

SOV/137-59-1-2197

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 289 (USSR)

AUTHORS: Alimarin, I. P., Przheval'skiy, Ye. S., Puzdrenkova, I. V., Golovina, A. P.

TITLE: Study of the Absorption Spectra of Oxyquinolinates of Some Rare Elements (Izucheniye spektrov pogloshcheniya oksikhinolinatov nekotorykh redkikh elementov)

PERIODICAL: Tr. Komis. po analit. khimii AN SSSR, 1958, Vol 8 (11), pp 152-160

ABSTRACT: The authors examined the relationship between the oxyquinolinates (I) of Ce^{3+}, Ce^{4+}, Ti^{4+}, Zr^{4+}, Th^{4+}, and Ta^{5+} and organic solvents. 1 mg/cc solutions of the metals were used for this work. It was established that I of metal are extractable with chloroform (II) at various pH; thus, Ti I is extracted at 1.5-2.5; Ce^{4+} I at 9.9-10.6; Zr I, Th I, and U I at 4.6; Nb I at 6-9; and Ta I at 6-7 pH. Maximum light absorptions of I of metals are the following (in mμ): Zr 393, Th and Ce^{3+} 383, Ti 385-400, Nb 385-389, Ta 388, and Ce^{4+} 495. A method was developed for absorptiometric determination of Ce I in the presence of Th, La, Nd, Pr, and Ti. It was established

Card 1/2

Study of the Absorption Spectra of Oxyquinolinates of Some Rare Elements

that the organic solvents can be arranged into the following sequence according to the intensity of the color of Ce I dissolved in them: CCl_4 < C_6H_6 < $C_2H_2Cl_2$ < < $CHCl_3$. The acid solution of Ce salt (20 - 300 γ Ce in 10 cc) is placed in a separating funnel, 1 cc of 1% alcoholic oxine solution and 2-3 drops of phenolphthalein are added, it is alkalized with concentrated NH_4OH to a pink color, and 1-1.5 cc excess of 5% NH_4OH is added (pH of the solution is 9.9-10.6). Ce I formed is removed by a double extraction with 5 cc II each. Extraction time is 5 min. The absorptiometric determination is performed at 495 mμ . The sensitivity is 1 γ/cc Ce. The solutions follow the Bouguer-Lambert-Beer law in the concentration range of 20-300 γ Ce. Sodium-versenate solution is added in the presence of Ti. The completeness of extraction was verified with the aid of Ce^{141} [C^{141} in Russian text. Trans.Note] radioactive isotope.

Z. G.

Card 2/2

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