KUZNETSOV, V. I., UL'YANOVAYA, Ye. S.

"Radiation-Kinetic Determination of Polonium"

submitted at the Conference on Kinetic Methods of Analysis, Ivanovo, 14-16 June 1960

So: Izvestiya Vysshikh Uchebnykh Zavedeniy SSSR, Khimiya i Khimicheskaya Technologiya, Vol III, No 6 Ivanovo, 1960, pages 1113-1116.

KUZNETSOV, V.I.; AKIMOVA, T.G.

Organic coprecipitants. Part 13: Coprecipitation of tetravalent plutonium. Radiokhimiia 2 no.3:357-363 '60. (MIRA 13:10)
(Plutonium compounds)

KUZNETSOV, V. I.; AKIMOVA, T.O.

Organic coprecipitants. Part 14: Improved method of coprecipitating uranium from natural waters. Radiokhimiia 2 no.4:426-430 '60. (MIRA 13:9)
(Uranium) (Precipitation (Chemistry))

S/186/60/002/006/009/026
A051/A129

AUTHORS: Kuznetsov, V.I.; Savvin, S. B.

TITLE: The extraction-photometric method for the determination of uranium with arsenazo III

PERIODICAL: Radiokhimiya, v. 2, no. 6, 1960, 682 - 686

TEXT: The authors have shown that under certain conditions the UO_2^{2+} complexes with reagents of the arsenazo group can be extracted and photometry is possible directly in the organic phase without reextraction. The determination of microquantities of uranium can thus, be carried out simultaneously with its separation from most of the other elements. The suggested method is based on the extraction of the diphenylguanidine salt of the UO_2^2-arsenazo III complex with butyl alcohol from a solution saturated with complex III and by its subsequent photometry in the extract at λ = 660 mμ. The method is said to enable one to determine 1 - 50 of uranium in combination with the simultaneous separation from other elements. Phosphates, fluorides, sulfates, Fe, Al and other elements do not interfere. In order to extract most of the ele-

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The extraction-photometric method for A051/A129

ments in addition to the diphenylguanidine salts, it is necessary to introduce certain anions into the solution, such as mono- or tri-chloroacetates, the role of the latter being the compensation of the excess positive charge of the element forming part of the complex, if its valency is 2. Elements forming two--charge cations at pH = 3 in the presence of complexon III with arsenazo III do not interact. The working method is described as follows: A few milligrams of the investigated substance assumingly containing 1 to 50γ of uranium are placed into a test tube and decomposed according to a method corresponding to the mineral composition of the sample and ensuring complete dissolution of uranium. For a thoroughly ground sample this is accomplished by boiling with $HCl + H_2O_2$ or with $HCl + HNO_3$. Without filtering off the non-dissolved part and placing the test tube in a boiling bath, the solution is evaporated until dry, passing air through, and the residue is processed with 2.0 ml of 0.05n HCl. 2.5 ml of a 5 %-solution of disodium salt of complexon III is introduced. 1.00 ml of a 0.5 % aqueous solution of arsenazo III is added, 0.5 ml of a 20 %-solution of diphenylguanidine chloride and 5 ml of butyl alcohol are also added. This is extracted, well shaken, and part of the upper colored layer is removed with a pipette and transferred to a 10 mm cuvette. The optical density is measured

The extraction-photometric method for S/186/60/002/006/009/026
A051/A129

against water on a spectrophotometer at 660 mμ or on a photocolorimeter with a red light filter. The uranium content is determined from a calibration curve, which is plotted in the same way. Several practical suggestions for improving the method are listed. There are 2 figures, 1 table and 14 references: 9 Soviet-bloc and 5 non-Soviet-bloc. The references to the four most recent English-language publications read as follows: J. Clinch, M. Guy, Analist, 82, 80, 1957, J. H. John, F. Will, R. A. Black, Analyt. Chem., 25, 8, 1200, 1953; T. S. West, Chem. Age. 80, 943, 1958; P. C. Cates, R. Laran, R.E. Williams, Th. F. Moore, J. Am. Chem. Soc., 75, 9, 2212, 1953.

SUBMITTED: February 6, 1960.

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5(3)

S/026/60/000/05/026/068
D034/D007

AUTHOR: Kuznetsov, V.I.

TITLE: The Greatest Researcher Into Polymer Synthesis. On the 100th Birthday of A.Ye.Favorskiy

PERIODICAL: Priroda, 1960, Nr 5, pp 83-84 (USSR)

ABSTRACT: This article is written in commemoration of the chemist A.Ye. Favorskiy (1860-1945). The article mentions some of his followers, the academicians S.V.Lebedev, I.N.Nazarov, A.Ye.Poray-Koshits, and Corresponding Member of the AS USSR S.N.Danilov. There is 1 photograph.

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S/078/60/005/06/25/030
B004/B014

AUTHORS: Kuznetsov, V. I., Fan Min-e

TITLE: Extraction of Thorium and Zirconium in the Form of Chelate Compounds

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 6, pp. 1375 - 1382

TEXT: The authors describe the structure of organic compounds suited for the extraction of Th and Zr, and point out that this process is complicated by the formation of polymeric hydroxy-oxo ions. This is avoided by the formation of complex compounds in strongly acid media. Compounds containing several nitro groups are suited for this purpose. Such compounds can be synthesized more easily than other extraction solvents suggested so far. Sixteen compounds are enumerated (Table 1), which were obtained by azo binding of the diazonium of picramic acid or dinitroaniline with β-naphthol, salicylic acid, 8-hydroxyquinoline, and other phenols. By means of these compounds dissolved in cyclohexane it is possible to extract Th quantitatively at pH > 1.5 to 2.5. Zirconium is

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Extraction of Thorium and Zirconium in the Form of Chelate Compounds

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quantitatively extracted at pH > 3 by means of cyclohexane solutions of azo compounds of the diazonium of picramic acid with β-naphthol, 5-bromo-8-hydroxyquinoline, or 2,4'-dinitro-4'-hydroxyazobenzene-3'-carboxylic acid. Table 2 lists the pH values at which the various compounds extract 50% of the quantity of Th or Zr that is extracted at optimum pH. The reagents were used in a ratio of 10 molecules to 1 Th- or Zr atom. Experimental results obtained with 4 : 1 are shown in Table 3. Figs. 1-4 show the influence of pH on the extraction of Th and Zr. The synthesis of the sixteen compounds is described. There are 4 figures, 3 tables, and 22 references: 6 Soviet, 5 American, 2 British, 3 German, 4 Swedish, 1 Swiss, and 1 Czech.

√C

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

SUBMITTED: July 10, 1959

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77250
SOV/89-8-2-15/30

AUTHORS: Kuznetsov, V. I., Akimova, T. G.

TITLE: Pu (IV) Coprecipitation With Organic Coprecipitants. Letter to the Editor

PERIODICAL: Atomnaya energiya, 1960, Vol 8, Nr 2, pp 148-150 (USSR)

ABSTRACT: Plutonium, like any other element of the periodic table, can be coprecipitated by a convenient choice of coprecipitant. The "Nitrate" Method. In acid solutions containing nitrate ion, Pu(IV) forms a typically weakly ionized complex anion $Pu(NO_3)_6^{2-}$. Consequently, such Pu can be precipitated in the form of salts of this nitrate anion with precipitates of nitrates of heavy organic cations; e.g., the butyl ester of rhodamine B. Since such analogous weakly ionized nitrate anions are produced by, besides Pu(IV), only a few other elements [U(IV), Th(5), Ce(IV)], the above method is highly selective. To coprecipitate, one adds to a 200 ml solution of 3 N HNO_3 containing Pu(IV) approximately 130 g NH_4NO_3, 1 gm

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Pu (IV) Coprecipitation With Organic Coprecipitants. Letter to the Editor

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phenolphthalein powder (it facilitates the filtration of the precipitate which has a tendency to stick to the walls), and 40 ml of a slightly warmed 1% solution of rhodamine butyl ester. Crimson-colored precipitate, with entrained Pu is now filtered off and washed with an approximately 50% solution of NH_4NO_3 in approximately 1.8 N HNO_3, to which one adds sufficient rhodamine butyl ester to obtain a not too large, but easily noticeable precipitate, which is then put together with the paper filter in the crucible. One adds 2 ml of a saturated solution of $(NH_4)_2SO_4$ slowly dries, and ignites, raising the temperature slowly to 500° C. (If $(NH_4)_2SO_4$ is not added, ignition can be accompanied by flashing.) The residue contains coprecipitated plutonium. Table 1 presents the degree of precipitation.

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Pu (IV) Coprecipitation With Organic Coprecipitants. Letter to the Editor

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Table 1. Coprecipitation of Pu(IV) using the nitrate of rhodamine butyl ester.

DILUTION OF Pu	COPRECIPATION OF Pu, %
$1:2\cdot10^{8}$	100
$1:1\cdot10^{9}$	100
$1:2\cdot10^{9}$	97; 100
$1:1\cdot10^{10}$	89; 90
$1:2\cdot10^{10}$	76; 82

Table 2 contains results of coprecipitation of Pu(IV) with simultaneous separation from other elements.

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TABLE 2

OTHER ELEMENTS PRESENT		WT OF IGNITED PRECIPITATE, MG	COPRECIPITATION OF Pu, %
No other elements added		--	99; 100
Me (I):	Li + Na + K + Rb + Cs	1	95
Me (II):	Cu; Be($BeSO_4$); Mg; Ca	everywhere < 1–2	93; 100; 100; 80
	Sr + Ba; Zn + Cd; Pb; Mn; Co + Ni	everywhere 1–2	95; 92; 90; 98; 97
Me (III):	Rare earth elements ; Bi; Sb ($SbCl_3$)	< 1; ~7; ~15	101; 103; 98
	B($Na_2B_4O_7$); Al; Cr; Fe	everywhere < 1–2	90; 85; 93; 95
Me (IV):	Ce; Th; U (UCl_4)	~20, ~43, ~43	87; 55; 54
	Zr; Sn($SnCl_4$); V($VOSO_4$)	everywhere < 1–2	92; 90; 100
Me (V):	P(Na_2HPO_4)	< 1	86
Me (VI):	U; Mo[$(NH_4)_6Mo_7O_{24}$]	~7; ≪ 1	94; 90

Caption on next card

Pu (IV) Coprecipitation With Organic Coprecipitants. Letter to the Editor

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Caption to Table 2.

Table 2. Coprecipitation of Pu(IV) with simultaneous separation from other elements.

Coprecipitation of Pu(IV) in Form of Cyclic Salts. At appropriate pH values Pu(IV) forms soluble cyclic salts with many organic reagents containing the sulfo group. An aqueous solution of 100 mg of the complex-forming agent is added to 200 ml of an acidified solution containing Pu; the pH is adjusted to the required value and the solution is aged for 10-20 mm. After that, with stirrring, one adds 5 to 7 ml of a 1% solution of methyl violet or methylene blue. Precipitate is slowly dried and ignited at approximately 500° C. Starting with a $1:2 \cdot 10^9$ dilution of Pu(IV) (0.1 γ in 200 ml) and pH from 1 to 4, Pu is coprecipitated to the extent of 95-100%, if one uses arsenazo; stilbazo, chromotrope 2B, and others. The coprecipitation is, in general, more complete but less selective than with the nitrate method. Using this last method

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Pu (IV) Coprecipitation With Organic Coprecipitants. Letter to the Editor

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at pH approximately 5 to 7, one can also coprecipitate Pu(III), but the selectivity is smaller than in the Pu(IV) case. There are 2 tables; and 5 references, 3 Soviet, 2 U.K. The U.K. references are: D. Carswell, J. Lawrence, J. Inorg. and Nucl. Chem., 11, 69 (1959); J. Brothers, R. Hart, W. Mathers, J. Inorg. and Nucl. Chem., 7, 85 (1958).

SUBMITTED: November 24, 1959

Card 6/6

Kuznetsov, V. I.

5.4000,16.7100

78337
SOV/89-8-3-22/32

AUTHOR: Seryakova, I. V.

TITLE: Symposium on Extraction Theory. News in Science and Technology

PERIODICAL: Atomnaya energiya, 1960, Vol 8, Nr 3, pp 269-270 (USSR)

ABSTRACT: The symposium on theory of extraction processes was held on December 3-4, 1959, at the (Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy AS USSR (Institut geokhimii i analiticheskoy khimii imeni V. I. Vernadskiy AN SSSR). The aim was to evaluate the most important problems of the extraction theory. There were five papers on questions of chemistry and thermodynamics of extraction equilibria, on the influence of the nature of extragents and salting-out agents, on the composition of the extracted compounds and their interaction with molecules of water and the extragent. V. I. Kuznetsov reported on "The Chemistry of Extraction Processes," based on the theory of action analytical organic reagents. He attempted to compare

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the tendency of ions to form extracting compounds with the quantity z/n of that ion, where z is the charge of the ion, and n is the number of atoms in that ion K. B. Yatsimirskiy and M. M. Senyavin were critical of such an oversimplified approach. V. V. Fomin presented a paper on "Extraction Equilibria," in which the investigated those chemical reactions in which the extragent participates in both phases. He notes that an element during the extraction process need not lose its hydrophilic nature. A. A. Lipovskiy and V. A. Mikhaylov together with the author discussed the merits of the accepted view of the oxonium mechanism of extraction of elements. The paper by A. V. Nikolayev, N. M. Sinitsyn, and A. M. Shubina, "Donor-Acceptor Properties of Extragents," dealt with the influence of the nature of organic solvent on extraction. According to their data, an increase in dipole moments augments the degree of element extraction. N. N. Basargin pointed out in the discussion that in the case of elements having a tendency to build covalent bonds, the result may be just the opposite.

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V. G. Timoshev discussed the decisive role of donor-acceptor properties of phosphorus-containing extragents. The salting out in extraction processes was investigated in the paper by O. Ya. Samoylov and V. I. Tikhomirov using statistical inquiry into the thermal motion of molecules. Basically, the explanation given took into account the dehydrating properties of salting-out cathions. A. A. Nemodruk pointed out during discussion that one should take into account also the anion concentration of the salting-out agent and other factors. A. M. Rozen presented in his paper the use of thermodynamics in describing the extraction equilibria. It was noted during discussion that many thermodynamic quantities should be measured in tests at different temperatures. V. M. Vdovenko, A. K. Babko, D. D. Suglobov, I. R. Krichevskiy, and A. A. Chaykhorskiy participated also in the general discussion. The symposium determined the main course of future investigations of the theory of extracting processes, in particular: to explain the reasons for the selectivity of the solubility of anorganic and organic compounds in various solvents; to

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expend the investigations of solvation, and particularly, hydration of ions and molecules, to study further the chemism and thermodynamics of extraction equilibria; and to expand inquiries determining the composition and nature of the extracting compounds. The symposium recommended the establishment of a permanent seminar dealing with the theory of extraction. The basic materials of this symposium will be published in 1960 by Atomizdat.

Card 4/4

KUZNETSOV, V.I.

Mechanism of the acid decomposition of complex salts. Trudy kom. anal. khim. 11:13-27 '60. (MIRA 13:10)

1. Institut geokhimii i analiticheskoy khimii im. V.I.Vernadskogo
(Complex compounds)

KUZNETSOV, V.I.

Mechanism of color reactions between boron and hydroxyanthraquinones.
Trudy kom. anal. khim. 11:35-43 '60. (MIRA 13:10)

1. Institut geokhimii i analiticheskoy khimii im. V.I.Vernadskogo
AN SSSR.
(Boron compounds) (Anthraquinone)

KUZNETSOV, V.I.; SAVVIN, S.B.

Photometric determination of thorium in monazites with arsenazo II. Zhur.anala.khim. 15 no.2:175-179 Mr-Ap '60. (MIRA 13:7)

1. Institut geokhimii i analiticheskoy khimii im. V.I.Vernadskogo AN SSSR, Moskva.
(Thorium--Analysis)

KUZNETOV, V. [Kuznetsov, V.I.]

Increasing the sensitivity of the colorimetric methods applied to inorganic analysis and color reactions. Analele chimie 15 no.2: 188-205 Ap-Je '60. (EEAI 9:11)
(Colorimetry)
(Chemistry, Inorganic)
(Color reactions)

KUZNETSOV, V.I.; NIKOL'SKAYA, I.V.

Photometric determination of small amounts of thorium with arsenazo. Zhur.anal.khim. 15 no.3:299-305 My-Je '60.
(MIRA 13:7)

1. Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo AN SSSR, Moskva.
(Thorium--Analysis) (Arsenazo)

~~KUZNETOV, V.I.~~ [Kuznetsov, V.I.]; SAVVIN, S.B.; MIHAILOV, V.A. [Mikhaylov, V.A.]

Realizations in the field of the analytic chemistry of uranium, thorium, and plutonium. Analele chimie 15 no.4:74-126 O-D '60.
(EEAI 10:3)

(Uranium) (Thorium) (Plutonium)

KUZNETSOV, V.I.; BOL'SHAKOVA, L.I.

Butyl rhodamine - a new reagent for photometric determinations, and for the extraction, precipitation and coprecipitation of elements. Zhur. anal. khim. 15 no.5:523-527 S-O '60. (MIRA 13:10)

1. Vernadsky Institute of Geochemistry and Analytical Chemistry, Academy of Sciences, U.S.S.R., Moscow.
(Rhodamine) (Chemical tests and reagents)

KUZNETSOV, V.I.; NIKOL'SKAYA, I.V.

Photometric determination of uranium by the reagent arsenazo. Zav. lab. 26 no.3:266-269 '60. (MIRA 13:6)

1. Institut geokhimii i analiticheskoy khimii Akademii nauk SSSR. (Uranium--Analysis)

S/032/60/026/012/004/036
B020/B056

AUTHORS: Kuznetsov, V. I., Kukisheva, T. N.

TITLE: Photometric Determination of Uranium by Means of the Reagent Arsenazo

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 12, pp. 1344-1346

TEXT: Among the well-known reagents to uranium (VI), arsenazo, which, with uranium, gives an intensive yellow complex, is the most sensitive. In the present paper, a rapid method of determining uranium in substances of complex composition is described, which is based upon a single extraction of uranium by means of methylethyl ketone and the photometric recording of the uranium complex with arsenazo. As extracting agents, n-butyl alcohol, ethyl acetate, methylethyl ketone and cyclohexanone, and as desalinating agents, ammonium, magnesium, and calcium nitrates of different concentrations in 0.5 N HNO_3 were investigated. From saturated $Ca(NO_3)_2$- or $MgCO_3$-solutions in 0.5 N HNO_3, uranium is extracted by means of ethylacetate, cyclohexanone, and methylethyl ketone with distribution coefficients

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Photometric Determination of Uranium by Means of the Reagent Arsenazo

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B020/B056

of 170, 230, and 700. The distribution coefficients for Cu, Al, V(IV), and Fe(III) vary between 0.03 and 0.14. When using methylethyl ketone, the concentration coefficient of uranium may be increased to about 23.000, which is further improved by the introduction of complexon III into the solution extracted. Cu, Al, V(IV), Ti, Fe, and Bi do not disturb at a ratio of U:Me of 1:400, 1:500, 1:70, 1:80, 1:600, and 1:500. Uranyl arsenazate decomposes immediately under the action of H_2O_2, whereas the arsenazates of the other elements, with the exception of vanadium and partly also of thorium, remain unchanged. Titanium does not turn yellow with H_2O_2 at pH $\approx$ 5. The effect produced by a 30-fold excess of zirconium may be removed by precipitation in form of its phosphate with a pH $\approx$ 2. Orthophosphoric acid in quantities of up to 3 g/l exerts no essential influence upon the extraction of uranium. During extraction from 0.1-0.2 N HNO_3 in the presence of complexon III, a 200-fold excess of thorium does not disturb. In the case of beryllium excesses of up to 1 : 200, the sample must be opened up with a mixture of nitric acid and hydrofluoric acid, and must be concentrated by evaporation until it dries. Sulfates, chlorides, phosphates, and fluorides at concentrations of up to

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Photometric Determination of Uranium by Means of the Reagent Arsenazo

S/032/60/026/012/004/036
B020/B056

5, 15, 3 and 0.5 g/l relative to free acids do not disturb. The method described was checked on several samples, which contained different quantities of uranium. The results are given in a table. There are 1 table and 11 references: 7 Soviet, 2 Japanese, 1 Dutch, and 1 US.

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KUZNETSOV, V.I.; SAVVIN, S.B.; MIKHAYLOV, V.A.

Progress in the analytical chemistry of uranium, thorium, and plutonium. Usp. khim. 29 no.4:525-567 Ap '60. (MIRA 14:4)

1. Institut geokhimii i analiticheskoy khimii imeni V.I.Vernadskogo AN SSSR.
(Uranium--Analysis) (Thorium--Analysis)
(Plutonium--Analysis)

KUZNETSOV, V.I.

Development of studies of monomers for the synthesis of rubber.
Trudy Inst.ist.est.i tekh.30:195-220 '60. (MIRA 13:8)
(Rubber, Artificial)

KUZNETSOV, V.I.

Role of Zh.Iotsich's research in the development of the chemistry of acetylene compounds. Trudy Inst.ist.est.i tekh.30:221-240 '60. (MIRA 13:8)

(Acetylene)
(Iotsich, Zhivoin Il'ich, 1870-1914)

TERENT'YEV, A.P., otv.red.; ALIMARIN, I.P., red.; GEL'MAN, N.E., red.;
KLIMOVA, V.A., red.; KRESHKOV, A.P., red.; KUZNETSOV, V.I., red.;
LEVIN, E.S., red.; PODGAYSKAYA, Z.I., red.; RUKHADZE, Ye.G., red.;
TAL'ROZE, V.L., red.; TSUKERMAN, A.M., red.; SHEMYAKIN, F.M., red.;
SHEYNKER, Yu.N., red.; YERMAKOV, M.S., tekhn.red.

[Conference on organic analysis] Soveshchanie po organicheskomu analizu. Tezisy dokladov. Moskva, Izd-vo Mosk.univ., 1961. 170 p. (MIRA 14:4)

1. Soveshchaniye po organicheskomu analizu. 1961.
(Chemistry, Analytical--Congresses)
(Chemistry, Organic--Congresses)

KUZNETSOV, V. I.

report to be submitted for the IUPAC 21st Conference and 18th Intl. Congress of Pure and Applied Chemistry, Montreal, Canada, 2-12 August 1961

GORODYSKIY, A. V., Academy of Sciences UkSSR, Kiev - "The oscillographic investigation of the electrochemical kinetics in fused salts" (Section A.3,e.2 - Session I, 11 Aug 61, afternoon)

GURVICH, L. V., Academy of Sciences USSR, Moscow - "The calculation of thermodynamic functions of gases in a wide temperature range" (Section A.3,c,(1), Session IX - 8 Aug 61, afternoon)

KARGIN, V. A., Physico-Chemical Institute imeni L. Ya. Karpov, Moscow - "Vitrificatic phenomena in crystallin polymers" (Section B.4 - 7 Aug 61, afternoon)

KISELEV, A. V., Moscow State University imeni M. V. Lomonosov - "The influence of surface heterogeneity and adsorbate-adsorbate interaction on the adsorption properties of solid surfaces" (Joint Session, Sections A.2 and B.1 - 8 Aug 61, morning)

KONDRAT'YEV, V. N., Institute of Chemical Physics, Academy of Sciences USSR, Moscow - "The HO$_2$ radical" (Section A.1, Session I - 11 Aug 61, morning) (Also, Section A.1, Chairman, Session I - 8 Aug 61, morning)

KUZNETSOV, V. I., Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy, Academy of Sciences USSR - "A novelty in the use of organic coprecipitants for concentration of small amounts of the elements" (To be presented in Russian) (Section C.2 - 11 Aug 61, morning)

LAVRUKHINA, A. K., RAKOVSKIY, E. E., and MOSKALEVA, L. P., Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy, Academy of Sciences USSR - "New data on radiochemical investigations of the processes of fission and fragmentation induced by high energy protons" (Section A.4 - 8 Aug 61, afternoon)

LOVACHEV, L. A., Academy of Sciences USSR, Moscow - "Determination of rate constants of elementary processes from flame velocities as a function of temperature, pressure, and molecular transfer coefficients" (Section A.3,b,(2) - 7 Aug 61, afternoon)

MIKOIATSE, S. (Probably MIKELADZE, S.) and GERASIMOV, Ya. I., Moscow State University imeni M. V. Lomonosov - "Study of the thermodynamic properties of the system iron-latinum" (Section A.3,e,(3), Session II(A) - 11 Aug 61, morning)

PANCHENKOV, G. M., ZOLOTOV, A. K., KALACHEV, V. P., and SMIRNOV, Ya., Moscow State University imeni M. V. Lomonosov - "Emission of complex ions in solid-phase reactions" (Joint Session, Sections A.2 and B.1, 8 Aug 61, morning)

SEMENOV, N. N., Institute of Chemical Physics, Academy of Sciences USSR, Moscow - "Certain chemical reactions at reduced temperatures and related problems of energy transfer" (To be presented in Russian) (Plenary Lecture - Saturday, 12 Aug 61)

SHILOV, Ye. A., Academy of Sciences UkSSR, Kiev - "The active agents and the intermediary complexes in the heterolytic reactions of halogenation of the organic compounds" (Section A.1, Session IX - 11 Aug 61, morning)

SMIRNOV, M. V., Electrochemistry Institute, Sverdlovsk - "The equilibrium between the titanium subgroup metals and the salt melts" (Section B.3 - 7 Aug 61, afternoon)

TAL'ROZE, V. L., Institute of Chemical Physics, Academy of Sciences USSR - "Reactions of ions and molecules in the gas phase" (Section A.1, Session I - 9 Aug 61, afternoon)

TERENIN, Aleksandr N., Leningrad State University imeni A. A. Zhdanov - (Section A.1, Chairman, Session I - 8 Aug 61, afternoon Session) (Also on program for Section A.1, Session I - 9 Aug 61, afternoon)

TERENIN, Aleksandr N., VILESOV, F. I., KURBATOV, B. L., and DODONOVA, N. Ya., Leningrad State University imeni A. A. Zhdanov - "Mass-spectrometry and luminescence of radicals in the photodissociation and photoionization of molecules by vacuum ultra-violet radiation" (Section A.1, Session I - 9 Aug 61 - afternoon)

TUNITSKIY, N. N., Scientific Research Physico-Chemical Institute imeni L. Ya. Karpov - "On the dissociation of molecules on electron impact and the early states of radiation-chemical processes" (Section A.1, Session I - 8 Aug 61, afternoon)

VAYNSHTEYN, Emmanuil Ye., and KOROLEV, V. V., Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy, Moscow - "The plasma generator and its use for spectral analysis of alloys and rocks" (Section C.1 - 8 Aug 61, morning)

VINOGRADOV, A. P., LAVRUKHINA, A. K., and REVINA, L. D., Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy, Academy of Sciences USSR - "The study of nuclear reactions in iron meteorites under the action of high energy protons" (Section A.4 - 8 Aug 61, afternoon)

YAKOVLEV, Yu. V., and ALIMARIN, I. P., Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy, Academy of Sciences USSR - "The determination of trace impurities in some materials for semiconductor techniques by radioactivation analysis" (To be presented in Russian) (Section C.1 - 8 Aug 61, afternoon)

YEROFEYEV, Boris V., Institute of Physical-Organic Chemistry, Minsk - "The effect of donor and acceptor admixtures on the decomposition rate of salids" (Section A.2 - 8 Aug 61, afternoon)

23881

S/186/61/003/001/014/020
A051/A129

5.5300 (1282, 1273, 1227)

AUTHORS: Kuznetsov, V.I., Savvin, S.B.

TITLE: The sensitive photometric determination of thorium using the arsenazo-III reagent

PERIODICAL: Radiokhimiya, v 3, no 1, 1961, 79-86

TEXT: The authors recommend a sensitive photometric method for determining thorium using the arsenazo-III reagent, whereby 0.05γ Th can be detected. They show that 10-100-fold quantities of sulfates, phosphates and other complex-forming substances in addition to zirconium and uranium do not interfere with the determination of thorium. An extraction-photometric method is developed for determining thorium and another method is suggested for concentrating thorium by coprecipitation in the form of a Th-arsenazo-III complex on a colorless precipitate formed by diphenylguanidine salt - anthracene -α- sulfoacids. The high stability of arsenazo-III complexes is explained by the non-coplanar nature of the molecule. Arsenazo-III is said to include

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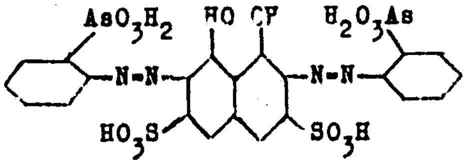
the same groups as arsenazo-I and II (Ref 12, 13, 14). The high sensitivity of the reaction is combined with a satisfactory selectivity.

Structure of arsenazo-III



Arsenazo-III is synthesized by azo-combination of diazo- O- aminophenylarsonic acid with chromotropic acid adding CaO (Ref 11). It differs from other reagents by its high sensitivity of reaction and by a lesser effect upon the conditions of the environment: acidity, sulfate concentration, phosphates and other thorium-binding substances. These characteristics of the reagents are said to be connected with the extremely high stability of the complex compounds formed by arsenazo-III and Th, Zr, $U^{(IV)}$, $U^{(VI)}$, rare-earth elements, etc. Arsenazo-III forms an intense emerald-green-coloring with thorium (Fig 1). Cations such as Zr, Hf, $U^{(IV)}$, Sc and $Fe^{(III)}$ partially, Bi, $U^{(VI)}$ and high concentrations of rare-earth elements affect the complex

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formation of the reagent with thorium, but these effects can be eliminated through various chemical reactions. The same principle applies to the anode effect. The high sensitivity of the color reaction is said to be explained by the following factors: 1) the presence of a sharp peak on the curve of light-absorption of the arsenazo-III-thorium complex; 2) a significant shift of this peak on the curve of light-absorption of the complex as compared to the reagent, which easily eliminates the light-absorption of the reagent proper; 3) a high stability of the complex, which enables thorium to become completely bound to arsenazo-III. The concentration of thorium from diluted solutions carried out by coprecipitation of the diphenylguanidine salt of the thorium-arsenazo-III complex accompanied by the simultaneous precipitation of a base, such as the salt of diphenylguanidine with a suitable anion-sulfate, perchlorate, trichlorate, arylsulfonate, etc., is comparable to the method of extraction. The distinctive feature of the given method is the use of a colorless base (coprecipitant) instead of an intensively-colored methyl violet salt, which is an obstacle to the subsequent direct photometry of the solution obtained. The authors point out that arsenazo-III present in the solution does not pass completely into the precipitate (only 20%) in the

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case of complete thorium recovery. The thorium content in a given solution is determined according to the formula:

$$\text{Th } (B\gamma) = \frac{2(E_1-E_3)}{E_2-E_1}$$

Table 2 lists examples of results obtained under the given experimental conditions. Introducing even a simple phenylazo-group into the arsenazo-I molecule, the stability of the complex will increase as compared to that of arsenazo-I without this introduction, if the phenylazo-group does not contain any salt-forming substitutes. Arsenazo-III is suitable for a very selective and sensitive determination of uranium in the tetra-valent state, when its behavior is similar to that of thorium. There are 3 tables, 4 graphs, 1 diagram and 20 references: 12 Soviet-bloc, 8 non-Soviet-bloc.

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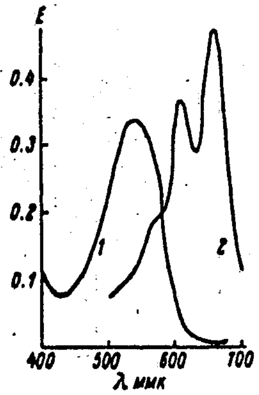
The sensitive photometric determination ...

Figure 1:

Light-absorption of arsenazo-III (1) and its thorium complex (2).

Concentrations:
1- arsenazo-III $0.9 \cdot 10^{-5}$M, HCl 4n,
2- arsenazo-III $0.9 \cdot 10^{-5}$M, $Th(NO_3)_4$ $2.5 \cdot 10^{-5}$M, HCl 4n.
Cuvette 10 mm, taken against water.



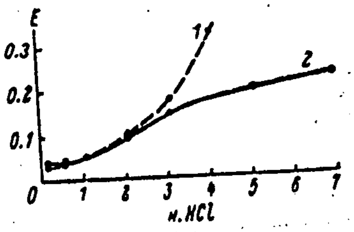


Figure 3: Masking thorium and zirconium by oxalic acid.

In 25 ml there are: arsenazo-III 0.5 mg, $H_2C_2O_4 \cdot 2H_2O$ 0.4 g. Cuvette 50 ml,
λ= 665 m , taken against the reagent.
1- 1γ Th + 1,000γ Zr,
2- 1γ Th.

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Table 2: Photometric determination of thorium in diluted solutions with arsenazo-III in combination with coprecipitation on a colorless organic coprecipitant (anthracene- α-sulfonate diphenylguanidine)

Dilution of thorium	thorium	
	taken (in γ)	found (in γ)
$1:1\cdot10^8$	10	9.0
$1:2\cdot10^8$	5.0	4.5
$1:5\cdot10^8$	2.0	1.8; 2.5; 1.7
$1:1\cdot10^9$	1.0	0.9; 1.4; 0.8

KUZNETSOV, V.I.; AKIMOVA, T.G.

Organic coprecipitators. Part 15: Coprecipitation of americium.
Radiokhimiia 3 no.6:737-742 '61. (MIRA 14:12)
(Americium)
(Precipitation(Chemistry)

KUZNETSOV, V.I.

Rapid method of determining the relative instability of complex compounds. Zhur.neorg.khim. 6 no.5:1042-1049 My '61.
(MIRA 14:4)

(Complex compounds)

KUZNETSOV, V.I.

Significance of J. Berzelius' generalizations in the field of catalysis. Vop.ist.est. i tekh. no.11:82-88 '61. (MIRA 14:11)
(Catalysis)

KUZNETSOV, V.I.; BASARGIN, N.N.

2,7-Dichlorochromotropic acid, a new reagent for the photometric determination of titanium. Zhur.anal.khim. 16 no.5:573-577 S-O '61. (MIRA 14:9)

1. Vernadsky Institute of Geochemistry and Analytical Chemistry, Academy of Sciences U.S.S.R., Moscow.
(Titanium--Analysis) (Naphthalenedisulfonic acid)

KUZNETSOV, V. I.; BLEKHTA [Blechta], V.

Extraction of uranyl nitrate by means of mixture of methyl ethyl ketone and tetrachloromethane. Coll Cz Chem 26 no.4:1092-1098 Ap '61.

1. Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo, Akademiya nauk SSSR, Moskva.

(Uranyl nitrate) (Ketone) (Methane)

21497

21,3100

S/020/61/137/004/021/031
B103/B208

AUTHORS: Kuznetsov, V.I., and Ul'yanova, Ye. S.

TITLE: A radiation-kinetic method of determining ultrasmall quantities of polonium

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 4, 1961, 869 - 872

TEXT: The authors use the differences between periodide and iodide ions which give color reactions of varying brightness in the solid phase, to determine extremely small polonium quantities (tetravalent, Po^{210}). The periodide ions exceed the iodide ions in this respect. This is possible by combining four processes: a) co-precipitation of polonium; b) accelerated local radiolysis of iodides initiated by a); c) formation of periodide anions; and d) color reaction of the solid phase of these anions with the butyl rhodamine cation (n-butyl ester of rhodamine B (BRh), synthesized by L. I. Bol'shakova). Also at such concentrations of iodides and butyl rhodamine, which develop the above color reaction (due to formation of a suspension of insoluble iodide of the butyl rhodamine anion) only to a low extent, the tetravalent polonium will be precipitated in the

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A radiation-kinetic method of ...

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form of penta- or hexaiodo-polonite of BRh on the nascent microcrystals of BRh iodide. This local increase of polonium concentration gives rise to an increased local radiolysis of iodide ions. Subsequently, elementary iodine and also periodide are formed. Periodide renders additional BRh quantities insoluble, which intensifies the color reaction because BRh-periodide is now formed. Owing to its microcrystals, additional polonium quantities are co-precipitated, so that a self-accelerating process occurs. Simultaneously with the increase of the local polonium concentration also that of the periodide increases in the crystals of BRh periodide. The radiolysis taking place in the resulting heterogeneous system is more intense than in a similar homogeneous system. This is of high significance to the sensitivity and, particularly, to the selectivity of the reaction. Polonium may thus be determined on the background of preponderant quantities of other α-emitters. Selectivity of the reaction. Although elements that form iodide anions, such as Te^{IV}, Cd, Hg, Bi, Sb, and others, and elements appearing in another form, e.g., heavy oxygen ions, are capable of similar reactions, these will be simple,reactions without self-acceleration. These elements can also be co-precipitated with BRh iodide. If radioac-

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A radiation-kinetic method of ...

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tive isotopes of the afore-mentioned elements are present whose radiation effects a marked radiolysis of the iodides, a similar reaction as in the case of polonium will result. The sensitivity of the reactions is depending on the intensity of radiolysis. <u>Sensitivity of the reaction</u>. It is the higher the longer is the time available for radiolysis, and the higher are the concentrations of the iodide in the medium and of BRh. Above a certain limit of these concentrations, also the blank test gives a positive reaction owing to the formation of a suspension of BRh-iodide crystals. In order to have a more reliable reaction, substances are introduced which bind elementary iodine (resorcinol). To increase the sensitivity of the reaction, the authors recommend addition of elementary iodine in a small quantity, i.e., such a quantity that the resultant BRh periodide crystallizes immediately after mixing the ingredients. Here, the periodide should give a distinct, but not too intense positive reaction. In this case, the coprecipitation of polonium will set in at once. Table 1 gives data on the effect of the discussed factors upon the sensitivity of the reaction at 20°C. The result was observable after 3 min. The sensitivity for other polonium isotopes is different. The authors present an instruction for

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A radiation-kinetic method of ... S/020/61/137/004/021/031
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the reaction in pure polonium solutions and for plutonium-containing solutions (Table 2). They point out that the procedure described may also be used for the development of highly sensitive, radiation-kinetic reactions for other elements whose isotopes have a sufficiently high α-activity, and whose ions may be co-precipitated with organic co-precipitants. This holds for elements that form solid nitrate complex anions (according to the mechanism nitrate → nitrite) and for elements that may be co-precipitated with organic perchlorates (perchlorate → chlorate → easily oxidizable organic perchlorates). These and other combinations will be later discussed. The present paper was read at the Conference on Kinetic Methods of Analysis, Ivanovo, June 14 - 16, 1960. There are 2 tables and 6 references: 4 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English language publication reads as follows: Ref. 2, V.I. Kuznetsov, The Application of Radioactive Isotopes for Developing New Methods in Anal. Chemistry. Organ. Co-precipitants. Int. Conf. on Radioisot. in Sci. Research, Paris, 1957.

PRESENTED: November 16, 1960 by I.V. Tananayev, Academician

SUBMITTED: November 14, 1960

Card 4/7

KUZNETSOV, V.I.; SAVVIN, S.B.

Extraction of stained complex compounds fromed by reagents of the arsenazo-thoron group. Dokl. AN SSSR 140 no.1:125-128 S-0 '61. (MIRA 14:9)

1. Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo. Predstavleno akademikom A.P.Vinogradovym.
(Complex compounds) (Arsenazo)

UDAL'TSOVA, N.I.; SAVVIN, S.B.; NEMODRUK, A.A.; NOVIKOV, Yu.P.;
DOBROLYUBSKAYA, T.S.; SINYAKOVA, S.I.; BILIMOVICH, G.N.;
SERDYUKOVA, A.S.; BELYAYEV, Yu.I.; YAKOVLEV, Yu.V.;
NEMODRUK, A.A.; CHMUTOVA, M.K.; GUSEV, N.I.; PALEY, P.N.;
VINOGRADOV, A.P., akademik, glav. red.; ALIMARIN, I.P.,
red.; BABKO, A.K., red.; BUSEV, A.I., red.; VAYNSHTEYN, E.Ye.,
red.; YERMAKOV, A.N., red.; KUZNETSOV, V.I., red.; RYABCHIKOV,
D.I., red. toma; TANANAYEV, I.V., red.; CHERNIKHOV, Yu.A., red.;
SENYAVIN, M.M., red. toma; VOLYNETS, M.P., red.; NOVICHKOVA, N.D.,
tekhn. red.; GUS'KOVA, O.M., tekhn. red.

[Analytical chemistry of uranium] Analiticheskaia khimiia urana.
Moskva, Izd-vo Akad.nauk SSSR, 1962. 430 p. (MIRA 15:7)

1. Akademiya nauk SSSR. Institut geokhimii i analiticheskoy
khimii.

(Uranium—Analysis)

KUZNETSOV, V.I.

Chemical mechanism of extraction processes. Ekstr., teor., prim., app. no.2:3-18 '62. (MIRA 15:9)

(Extraction (Chemistry))

S/830/62/000/001/003/012
E071/E192

AUTHORS: Kuznetsov, V.I., and Seryakova, I.V.

TITLE: On the mechanism of extraction of elements with oxygen-containing solvents

SOURCE: Ekstraktsiya; teoriya, primeneniye, apparatura.
Ed. by A.P. Zefirov and M.M. Senyavin.
Moscow, Gosatomizdat, 1962. 104-111

TEXT: Using as an example the extraction of chloride anion of iron (III) with dimethylpyrone and cyclohexanine, the authors confirmed the oxonium mechanism of extraction of elements. Iron was determined radiometrically using Fe^{59} and at higher concentration photometrically with sulphosalicylic acid, the concentration of chloride ion by the Folgard method, and of cyclohexanone by the hydroxylamine method. The experimental procedure consisted of shaking a solution of iron containing a given amount of hydrochloric acid and lithium chloride (total 1 ml) with a solution of the extracting agent in chloroform or toluene (1 ml) and subsequent re-extraction of iron from the organic phase with water. By comparing the increase in the solubility of cyclohexanone in the

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On the mechanism of extraction of ... S/830/62/000/001/003/012
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aqueous phase with the degree of extractability of iron, it was found that the more extracting agent transferred into the acid phase, the higher was the degree of iron extraction. The limit of this process was determined by the fraction of dissolved cyclohexanone which is not the same for various conditions. The maximum degree of extraction and the maximum solubility of cyclohexanone were shifted towards higher acid concentrations in the aqueous phase. Such relationship between the degree of extraction of iron and the transfer of the extracting agent into the aqueous phase was explained by the oxonium cations, forming during the interaction between the extracting agent and acid, and participating in the extraction. On extraction of iron, from solutions practically free from hydrochloric acid but containing a high concentration of lithium chloride, iron was extracted by oxygen containing solvents in the form of $LiFeCl_4$. When a part of the lithium chloride is replaced by hydrochloric acid (with the retention of chloride ion concentration), oxonium cation of the extracting agent is formed and part of the iron is extracted in the form of oxonium salt. This was confirmed by determining the dependence of the Li/Fe
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On the mechanism of extraction ... S/830/62/000/001/003/012
E071/E192

ratio in the extract on the acidity of the starting solution. A comparison of the dependence of the extracting ability of dimethylpyrone and diethylether on the acidity of the aqueous phase indicated that oxygen in dimethylpyrone possessed a higher ability to coordination as it began to extract iron well at a lower acid concentration. It was concluded that with oxygen containing substances iron can be extracted in the form of oxonium salts. This is possible at such acidity, at which the extracting agent used is able to form the necessary concentration of oxonium cations. Of the extracting agents investigated, dimethylpyrone formed oxonium salts at the lowest acidity.
There are 4 figures and 1 table.

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KUZNETSOV, V.I.; SERYAKOVA, I.V.

Extraction separation of vanadium and uranium. Ekstr.; teor., prim.,app. no.2:227-234 '62. (MIRA 15:9)

(Uranium--Analysis) (Vanadium--Analysis)
(Extraction (Chemistry))

KUZNETSOV, V.I.; ROZINA, D.Sh.

O-Nitrophenylarsonic acid. Metod.poluch.khim.reak.i prepar. no.4/5:97-100 '62.

O-Aminophenylarsonic acid. Ibid.:100-103 (MIRA 17:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv.

KUZNETSOV, V.I.; FAN MIN-E [Fang Ming-ê]

Extraction of zirconium in the presence of weak complexing agents.
Zhur.neorg.khim. 7 no.2:422-424 F '62. (MIRA 15:3)

1. Institut geokhimii i analiticheskoy khimii AN SSSR.
(Zirconium compounds)

KUZNETSOV, V.I.; FAN MIN-E [Fang Ming-8]

Extraction of zirconium in the form of complexes formed by organic reagents with one or two salt-forming groupings. Zhur.neorg.khim. 7 no.2:425-430 F '62. (MIRA 15:3)

1. Institut geokhimii i analiticheskoy khimii AN SSSR.
(Zirconium compounds)

KUZNETSOV, V.I.; BASARGIN, N.N.

Stability of complexes of trivalent metal ions with substitution derivatives of salicylic acid. Zhur.neorg.khim. 7 no.4:814-821 Ap '62. (MIRA 15:4)

1. Institut geokhimii i analiticheskoy khimii im. V.I.Vernadskogo.
(Complex compounds) (Salicylic acid)

KUZNETSOV, V.I.; GAGARINA, M.I.

Photometric determination of 2,4-dichlorophenoxyacetic acid with butyl rhodamine. Zhur.anal.khim. 17 no.2:235-238 Mr-Ap '62.
(MIRA 15:4)

1. V.I.Vernadsky Institute of Geochemistry and Analytical Chemistry, Academy of Sciences, U.S.S.R., and Scientific Research Institute of Fertilizers and Insectofungicides, Moscow.
(Acetic acid) (Rhodamine)

S/075/62/017/004/004/006
I017/I242

AUTHORS: Kuznetsov, V.I., Basargin, N.N. and Kukisheva, T.N.

TITLE: Photometric determination of titanium in the presence of uranium using dichlorochromotropic acid

PERIODICAL: Zhurnal analyticheskoy khimii, v. 17, no. 4, 1962, 457-459

TEXT: A method is proposed for the determination of traces of titanium in the presence of large amounts of uranium. The colorimetric properties of solutions of uranium and titanium dichlorochromotropic complexes were studied at various pH's. The direct separation is based on the fact that at pH 1-2 titanium

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S/075/62/017/004/004/006
I017/I242

Photometric determination...

forms a characteristic red complex with dichlorochromotropic acid. The selectivity of the dichlorochromotropic acid is based on the difference in pH's for optimal reaction, the ratio of sensitivities between the titanium and the uranium complexing reactions, and the differences in the absorption spectra. In the determination of 0.01-0.1% titanium in uranium the experimental error does not exceed 4%. There are 2 figures and 2 tables. ✓

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo AN SSSR (Institute of Geochemistry and Analytical Chemistry, im V.I. Vernadsky AS USSR) Moscow

SUBMITTED: September 16, 1961

Card 2/2

KUZNETSOV, V.I.; DRUYANOV, V.A., red.izd-va; SHMAKOVA, T.M., tekhn. red.

[Chemical principles of the extraction-photometric methods of analysis] Khimicheskie osnovy ekstraktsionno-fotometricheskikh metodov analiza. Moskva, Gosgeoltekhizdat, 1963. 41 p. (MIRA 16:4)
(Extraction (Chemistry)) (Photometry)

KUZNETSOV, V.I.; GORSHKOV, V.V.

Organic coprecipitating agents. Part 17: Coprecipitation of uranium as 8-hydroxyquinolinate with indifferent coprecipitating agents. Radiokhimiia 5 no.1:93-97 '63. (MIRA 16:2)

(Uranium compounds)
(Quinolinol)
(Precipitation (Chemistry))

KUZNETSOV, V.I.; BOL'SHAKOVA, L.I.; FAN MIN-E [Fang Ming-ê]

Comparative study of some reagents for the photometric determination of beryllium. Zhur. anal. khim. 18 no.2:160-165 F '63.
(MIRA 17:10)

1. Vernadsky Institute of Geochemistry and Analytical Chemistry Academy of Sciences, U.S.S.R., Moscow.

L 18299-63 FCS(f)/EWT(m)/BDS ESD-3 RM

ACCESSION NR: AP3004942 S/0075/63/018/008/0915/0919

56

55

AUTHORS: Kuznetsov, V. I.; Chao-Ai, N. I.

TITLE: Composition of extractable inner complex compounds

SOURCE: Zhurnal analiticheskoy khimii, v. 18, no. 8, 1963, 915-919.

TOPIC TAGS: picrate anion, diphenylguanidine, Cu, La, Yb, Th, extractable inner complex compound, complex salt

ABSTRACT: Water-insoluble inner complex compounds of simple composition may be extracted as such after solvation by molecules of the solvent. No method has conclusively shown the best extracting inner complex salts of such a complex composition. The effect of CH_2C1OO-, CCl_3COO-and picrate anions on extraction by chloroform of water-insoluble complexes formed by Cu, La, Yb and Th with 2-hydroxynaphthalene-<1-azo-1>-benzene-2-carboxylic acid and 2-hydroxynaphthalene-<1-azo-1>-benzene-2-arsonic acid has been studied. When MeR and MeR_2 salts are formed, they are extracted and the above anions do not affect completion of extraction. In other cases extraction is not possible without the above or other extractable anions; compounds of MeR Anion are extracted in the presence of anions. Fluoride anions can also improve the extraction. When fluorides are added, the percent

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L 18299-63

ACCESSION NR: AP3004942

extraction of thorium arsenazo complex with butanol in the presence of diphenylguanidine chloride at first increases, and then decreases due to complex decomposition. Orig. art. has: 3 figures, 1 table.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo AN SSSR, Moscow (Institute of geochemistry and analytical chemistry, Academy of sciences, SSSR)

SUBMITTED: 15Dec62 DATE ACQ: 06Sep63 ENCL: 00

SUB CODE: CH NO REF SOV: 001 OTHER: 001

Card 2/2

L 01295-66 EWT(m)/EWP(t)/EWP(b) IJP(c) JD/GS

ACCESSION NR: AT5020463 UR/0000/64/000/000/0177/0184

AUTHOR: Fedorov, D. P.; Shchevelev, M. I.; Kuznetsov, V. I. 36 B+1

TITLE: Effect of leakage on the stability of germanium 21 transistor parameters

SOURCE: Mezhvuzovskaya nauchno-tekhnicheskaya konferentsiya po fizike poluprovodnikov (poverkhnostnyye i kontaktnyye yavleniya). Tomsk, 1962. Poverkhnostnyye i kontaktnyye yavleniya v poluprovodnikakh (Surface and contact phenomena in semiconductors). Tomsk, Izd-vo Tomskogo univ., 1964, 177-184

TOPIC TAGS: collector emitter junction, germanium transistor/ P4 germanium transistor

ABSTRACT: The authors study the effect of leakage in the collector junction on the stability of the collector current and the amplification factor in P4A-P4D germanium alloyed-junction transistors. The studies showed that the form of the current-voltage curve for the collector junction depends on the nature of the function $I_{leak}(V_{col})$ (see fig. 1 of the Enclosure). Investigation of the nature of collector current instability in type P4 transistors showed various forms of changes in the collector current with a definite collector voltage at room temperature. In one

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ACCESSION NR: AT5020463

group of transistors, only a reduction in current was observed (negative current creep), in another--only an increase (positive current creep). In a third group of transistors, the collector current first decreased and then increased. The ratio between the two sections of the curve which correspond to negative and positive creep varies with the voltage on the collector. All samples aged in a humid atmosphere have a positive collector current creep. In the overwhelming majority of transistors which have a positive current creep at room temperature, there is a reversal in this creep when the temperature is reduced to -20°C. A transition from positive creep to negative is also observed after the specimens are dried in vacuum at 100°C for 5 hours. There is a transition from negative to positive creep when the temperature is increased. However, there were specimens which kept their negative current creep up to temperatures of 60°C. The various types of instability in the reverse currents of these *p-n-p* germanium transistors is attributed to differences in the adsorption of water vapor on the germanium surface. Orig. art. has: 4 figures, 5 formulas

ASSOCIATION: Voronezhskiy politekhnicheskiy institut (Voronezh Polytechnic Institute)

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L 01295-66

ACCESSION NR: AT5020463

SUBMITTED: 06Oct64	ENCL: 01	SUB CODE: EC
NO REF SOV: 002	OTHER: 001	

Card 3/4

L 01295-66

ACCESSION NR: AT5020463

ENCLOSURE: 01

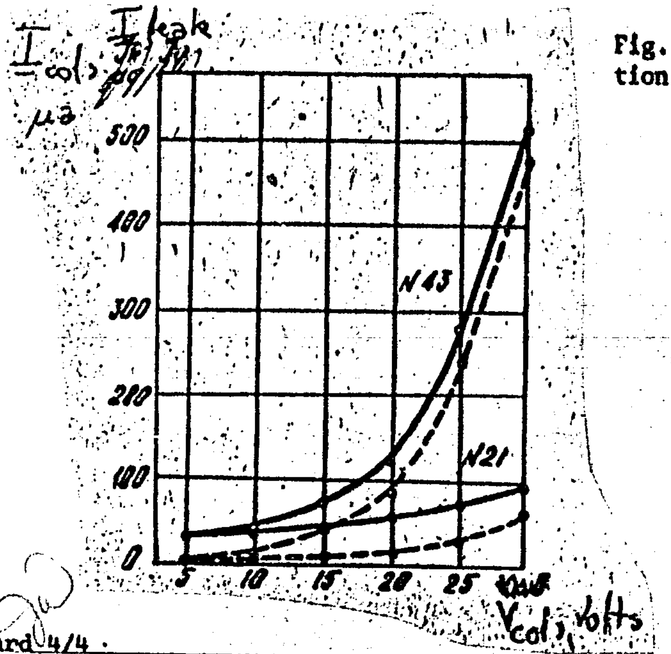

Fig. 1. Collector voltage as a function of leakage current

L 1133-66 EWT(1)/EEC(k)-2/T/EWA(h) IJP(c) GS

ACCESSION NR: AT5020479 UR/0000/64/000/000/0328/0334

AUTHORS: Kuznetsov, V. I.; Shchevelev, M. I.; Fedorov, D. P.
55,44 55,44 55,44

50
B+1

TITLE: Temperature dependence of parameters of plane silicon diodes
27

SOURCE: Mezhvuzovskaya nauchno-tekhnicheskaya konferentsiya po fizike poluprovodnikov (poverkhnostnyye i kontaktnyye yavleniya). Tomsk, 1962. 44,55 Poverkhnostnyye i kontaktnyye yavleniya v poluprovodnikakh (Surface and contact phenomena in semiconductors). Tomsk, Izd-vo Tomskogo univ., 1964, 328-334
55,44

TOPIC TAGS: volt ampere characteristic, silicon diode, electric current / D202 diode, D205 diode
55,44

ABSTRACT: Results from experimental investigation of the temperature dependence of the back volt-ampere characteristics and break-through voltage of plane silicon high-voltage diodes of the type D202-D205 are reported. Parameters of the diodes were measured in the temperature interval of 20-170C. At low return voltages the current increases with the temperature, while at high voltages the opposite takes place, leading to the increase of the break-through voltage of the diode. Figure 1 on the Enclosure shows characteristic curves for the temperature dependence of the break-through voltage. It is concluded that two processes occur in silicon diodes, one of which leads to an increase in the return current with temperature,

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ACCESSION NR: AT5020479

the other to a decrease. The first process is related to the generation of heat in the current carriers and is practically independent of the voltage on the transitions. The second process is connected with the surface changes occurring on the silicon oxide, due to the changes in concentration of chemisorbed moisture with temperature. To support this latter assumption, temperature dependence of 30 silicon transitions on the break-down voltage was recorded. The transitions were then dried for 8 hours in vacuum at 120C, then maintained in moist atmosphere for 5 days, each time recording $V_T(T)$. A detailed chemical explanation of the process is given. Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 06Oct64 ENCL: 01 SUB CODE: EC

NO REF SOV: 003 OTHER: 003

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L 1133-66
ACCESSION NR: AT5020479

ENCLOSURE: 01

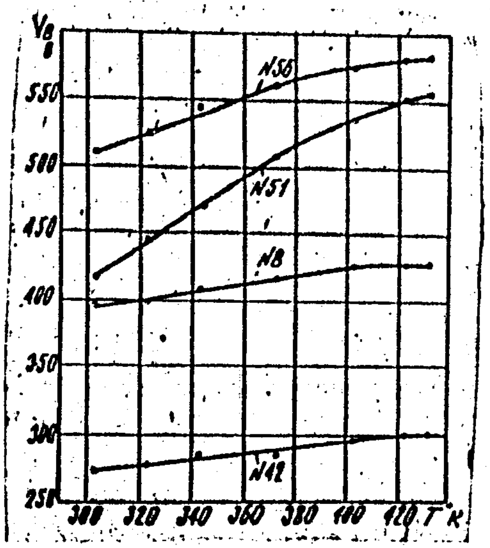

Fig. 1.

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KUZNETSOV, V.I.; MOSEYEV, L.I.

Effect of the value of ionic charges on extraction. Part 1: Extraction of salts of 1:1, 1:2, 1:3 composition. Radiokhimiia 6 no.3:280-286 '64. (MIRA 18:3)

KUZNETSOV, V.I.; MOSEYEV, L.I.

Effect of the magnitude of ionic charges on extraction. Part 2: Concentrated and dispersed charges. Radiokhimiia 6 no.4:433-439 '64.
(MIRA 18:4)

yakova, S. P.; Plotko, V. M.

fission with a half-life of 1500 seconds, the authors developed a and phosphate glasses. The distribution of the tracks over the de- [illegible] yields information on the [illegible] synthesized

TOPCHIYEV, Aleksandr Vasil'yevich, akademik[deceased]; KARGIN, V.A., akademik, otv. red.; SHTERN, V.Ya., doktor khim. nauk, otv. red.; SEMENOV, N.N., akademik, red.; ZHAVORONKOV, N.M., akademik, red.; NAMETKIN, N.S., red.; SHUYKIN, N.I., red.; LIKHTENSHTEYN, Ye.S., kand. filol. nauk, red.; KUZNETSOV, V.I., red.

[Selected works] Izbrannye trudy. Moskva, Nauka. [Book 1] 1965. 427 p. (MIRA 18:8)

1. Chlen-korrespondent AN SSSR (for Nametkin, Shuykin).

KUZNETSOV, V.I.

Innovation in organic coprecipitants. Trudy Kom. anal. khim. 15:279-295 '65. (MIRA 18:7)

[illegible]

[illegible] is washed once with a KCl + HCl buffer solution at pH $\simeq$ 1. In

KUZNETSOV, V.I.; BASARGIN, N.N.

Synthesis of halo-substituted chromotropic acids and their azo compounds. Zhur. ob. khim. 35 no.5:879-883 My '65. (MIRA 18:6)

1. Institut geokhimii i analiticheskoy khimii imeni Vernadskogo AN SSSR.

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)

ACC NR: AP7013698 SOURCE CODE: UR/0367/67/005/002/0271/0273

AUTHOR: Kuznetsov, V. I.; Skobelev, N. K.; Flerov, G. N.

ORG: Joint Institute for Nuclear Research (Ob"yedinennyy institut yadernykh issledovaniy)

TITLE: Study of spontaneously fissionable products in the nuclear reactions $Th^{230} + B^{10}$ and $Th^{230} + B^{11}$

SOURCE: Yadernaya fizika, v. 5, no. 2, 1967, 271-273

TOPIC TAGS: nuclear fission, nuclear cross section, radioactive decay, half life, nuclear isomer, cyclotron, fission product / U-300 cyclotron

SUB CODE: 20,18

ABSTRACT: Spontaneous fission with the half-life $T_{1/2} = 2.6 \pm 0.2$ min was detected in the nuclear reactions $Th^{230} + B^{10}$ and $Th^{230} + B^{11}$. The excitation functions and formation cross sections of this product were studied. Spontaneous fission with a different half-life $T_{1/2} = 1.4 + 0.25$ min was observed when Th^{230} was bombarded by B^{10} ions with the energy 82 MeV and higher. A hypothesis is advanced that the 2.6 min decay is due to the spontaneous decay of Am^{234} in an isomer state. The experiments

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ACC NR: AP7013698

were performed on the internal beam of the U-300 cyclotron. The authors thank B. A. Gvozdev and Yu. S. Korotkin for preparing the targets. They also thank V. P. Perelygin and coworkers of his group for preparing and processing the detectors, and A. G. Pil'kov and B. V. Shchitov for help in the work. Orig. art. has: 3 figures and 2 formulas. [Based on authors' Eng. Abst.] [JPRS: 40,570]

KUZNETSOV, V.I.

Oxygen in peripheral and mixed venous blood in anemia; compensatory mechanism. Ter. arkh., Moskva 24 no.1:83-92 Jan-Feb 52. (CIML 21:4)

1. Candidate Medical Sciences. 2. Of the Military Medical Academy imeni S.M. Kirov.

KUZNETSOV, V.I., polkovnik med. sluzhby; BARONOV, V.A., polkovnik med. sluzhby; TITOV, A.I., polkovnik med. sluzhby, dots.; FIALKOVSKIY, V.V., polkovnik med. sluzhby; SMIRNOV, K.K., polkovnik med. sluzhby, kand. med. nauk; DOVZHENKO, G.I., polkovnik med. sluzhby; DIVNENKO, P.G., polkovnik med. sluzhby; GORYUSHIN, G.S., podpolkovnik med. sluzhby; SHCHERBEKOV, N.I. podpolkovnik med. sluzhby; ZHUK, Ye. G., podpolkovnik med. sluzhby; BUTOMO, N.V., mayor med. sluzhby; PREOBRAZNENSKIY, P.V., mayor med. sluzhby; TIKHONOV, K.B., mayor med. sluzhby

Clinical manifestations in subjects exposed to prolonged ionizing irradiation. Voen. med. zhur. no.2:40-43 F '57 (MIRA 12:7)

(RADIATIONS, effects,
clin. manifest. in subjects exposed to prolonged ionizing irradiation (Rus))

USSR / Human and Animal Physiology. The Effect of Physical Factors. Ionizing Irradiations. T

Abs Jour: Ref Zhur-Biol., No 22, 1958, 102371.

Author : Kuznetsov, V. I.; Luk'yanov, G. A.
Inst : Not given.
Title : The Condition of the Cardio-Vascular System Under Chronic Effect of Ionizing Radiation.

Orig Pub: Voyen.-med. zh., 1957, No 5, 15-17.

Abstract: More than 300 people were clinically examined who were subjected to long-term irradiation in connection with their occupations. Discovered as basic were neurocirculatory dystonia of the hypotonic type with bradycardia and certain functional changes from the side of the cardiac muscle, neuroses with vasomotor reactions and leucopenia (5000 leucocytes in 1 mm^3). Among those who were periodically sub-

Card 1/2

USSR / Human and Animal Physiology. The Effect of Physical Factors. Ionizing Irradiations. T

Abs Jour: Ref Zhur-Biol., No 22, 1958, 102371.

Abstract: jected to alpha, beta, and gamma-rays in doses which exceeded 5-10 times the maximum allowable, pathologic effects were noted 2-2-1/2 times as frequently as among those who were irradiated with the maximum allowable doses. -- E. B. Glikson.

Card 2/2

KUZNETSOV, V.I., Cand Med Sci -- (diss) " Data for the problem of anesthesia in arteriography of the lower extremities." Ufa, 1958, 15 pp (Bashkir State Med Inst im 15th Anniversary of the Komsomol) 200 copies (KL, 29-58, 137)

IL'INSKIY, D.A., KUZNETSOV, V.I. (Leningrad)

Method for determining certain hemodynamic indicators dogs in chronic experiments. Fiziol.zhur. 44 no.6:586-589 Je '58 (MIRA 11:7)
(BLOOD PRESSURE, determination,
in dogs in chronic exper. (Rus))
(PULSE, determination,
same (Rus))

KUZNETSOV, V.I.

Functional status of arterial vessels in acute radiation sickness. Med.rad. 4 no.7:36-40 Jl '59. (MIRA 12:9)

1. Iz Nauchno-issledovatel'skoy laboratorii Voyenno-meditsinskoy ordena Lenina akademii imeni S.M.Kirova.
(RADIATION INJURY exper.)
(ARTERIES radiation eff.)

KUZNETSOV, V.I., dotsent, polkovnik meditsinskoy sluzhby

Hemodynamic changes during chronic radiation sickness. Voen. med. zhur. no.4:47-48 Ap '59. (MIRA 12:8)
(RADIATION, inj. eff.
radiation sickness, hemodynamic aspects (Rus))
(BLOOD PRESSURE, in var. dis.
radiation sickness (Rus))