

RUDENKO, N.P.; PASTUKHOVA, Z.V.

Methods of separating radioactive isotopes without a carrier.
Part 8: Separation of the radioactive isotope Tc^{99m} by means
of an electric field and investigation of the possibility of
separating the radioactive isotopes Nb^{97} and Nb^{95} by this method.
Radiokhimiia 1 no.3:277-282 '59. (MIRA 12:10)
(Niobium--Isotopes) (Technetium--Isotopes)

RUDENKO, N.P.; SEVAST'YANOV, A.I.

Preparation of the beryllium-7 radioactive isotope as a result of a secondary nuclear reaction in a nuclear reactor.
Radiokhimiia 1 no.6:691-693 '59. (MIRA 13:4)
(Beryllium--Isotopes) (Lithium--Isotopes)

RUDENKO, N.P.; STARY, I.

Methods of separating radioactive isotopes without a carrier. Part 9: Separation of radioactive isotopes by extracting them in the form of β -diketonates. Radiokhimiia 1 no.6:700-705 '59. (MIRA 13:4)
(Ketones) (Radioisotopes) (Extraction(Chemistry))

Rudenko, N.P.

21(8) 5(0)

AUTHOR:

Lapitskiy, A.V.

SOV/55-59-3-29/32

TITLE:

The First All-Union Conference of Universities and Colleges
on Radiochemistry

PERIODICAL:

Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki,
astronomii, fiziki, khimii, 1959, Nr 3, pp 221-223 (USSR)

ABSTRACT:

This conference was convened by the initiative of the laboratoriya radiokhimii khimicheskogo fakul'teta MGU (Laboratory of Radiochemistry of the Department of Chemistry of Moscow State University) and was held in Moscow from April 20 to April 25, 1959. It was attended by professors, teachers, and scientific collaborators of 32 universities and colleges of the Soviet Union. In his opening address, An.N.Nesmeyanov, Doctor of Chemical Sciences, stressed the importance of radiochemistry. 30 lectures were delivered by members of Moscow State University: Laboratoriya yadernoy fiziki (Laboratory of Nuclear Physics): N.P.Rudenko, A.I.Sevast'yanov: Production of Beryllium-7 by the Reaction (T,2n): I.Stary, N.P.Rudenko: Production of Radioactive Isotopes by Extraction as β -Diketonates. Laboratoriya radichimii (Laboratory of Radiochemistry): An.N.

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and Colleges on Radiochemistry

SOV/55-59-3-29/32

Nesmeyanov, B.M. Korolev, L.A.Sazonov: Separation of Radioactive Isotopes in the Irradiation of Colloids; Ann.Nesmeyanov, Ye.A.Borisov, E.S.Filatov, V.Kondratenko, Chzhan Tsze-syan, K.Panek, B.Shukla: Secondary Reactions of the Recoil Atoms ^{80}Br and ^{82}Br in Methyl Bromides; B.G.Dzantiyev, I.M.Barkalov, V.V.Khrapov: Reactions of "Hot" Sulfur- and Nitrogen Atoms With Hydrocarbons; B.Z.Iofa, L.V.Bobrov, A.N.Ratov: The State of Radioactive Isotopes in Extremely Dilute Solutions; M.S. Meruklova, I.V.Melikhov: General Theory of the Coprecipitation of Radioactive Elements With Non-isomorphous Crystalline Precipitates; A.V.Lapitskiy, I.A.Savich, Chzhan Ya-uy: Coprecipitation of Protactinium With Complex Compounds of Ti, Nb, and Ta; V.M.Fedoseyev, V.V.Ivanenkov, V.N.Bochkarev: Application of Radioactive Paper Chromatography"; K.B. Zabrenko, A.M.Babeshkin, M.S.Aul'chenko: Accumulation and Separation of Recoil Atoms on the Basis of the Example Ra^{224} and Ra^{228} ; K.B.Zabrenko, A.M.Babeshkin, V.A.Beyeyskaya, L.L.Melikhov: Application of the Emanation Method for the ✓

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The First All-Union Conference of Universities
and Colleges on Radiochemistry

SOV/55-59-3-29/32

Investigation of the Transformation of Solids; V.I.Spitsyn, K.B.Zaborenko, A.M.Babeshkin, M.A.Radicheva: Transformation of Heteropoly-compounds; K.B.Zaborenko, A.M.Babeshkin, I.V. Kovalenko: Geochemistry of Radium; K.B.Zaborenko, V.I. Korobkov: Microanalytical Determination of Uranium by Means of Nuclear Emulsions. An.N.Nesmeyanov, De Dyk-Man: Partial Vapor Pressure of Co in Alloys With Ni; Yu.A.Priselkov, Yu.A. Sapozhnikov, A.V.Tseplyayeva, V.V.Karelin: The Behavior of a Molecular Metal Beam in the High-frequency Field; I.V.Golubtsov, A.V.Lapitskiy, V.K.Shiryayev: Vapor Pressure of Niobium Dioxide; I.V.Golubtsov, Yu.A.Likhachev, Ye.K.Bakov: Various Constructions of the Scintillation Attachment to the Apparatus of the Type B. Kafedra analiticheskoy khimii (Chair of Analytical Chemistry): I.P.Alimarin, N.P.Borzenkova: Niobium⁹⁵ as a Radioactive Tracers; I.P.Alimarin, T.A.Belyavskaya, Mu Bin-ven': Scruption of Zr by Ion Exchangers; A.I.Busev, V.M. Byr'ko: The Use of Complex Pyrazolindithiocarbamates in Radio-metry. Kafedra neorganicheskoy khimii (Chair of Inorganic Chemistry): Ye.A. Ippolitova, Yu.P.Simanov, L.M.Kovba, G.P. Polunina, I.A. Bereznikova: Uranates of Some Bivalent Metals;

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and Colleges on Radiochemistry

SOV/55-59-3-29/32

V.G.Knyagina, O.G. Nemkova: Uranium Compounds¹ With Acids of
Low-valence P; V.I. Spitsyn: The Influence of the Radioactive
Radiation of Solids on Their Physico-chemical Properties;
I.Ye.Mikhaylenko, V.I.Spitsyn: Isotope Exchange in the System
 $K_2SO_4 - SO_3$ at High Temperature. Kafedra khimicheskoy kinetiki
(Chair of Chemical Kinetics): I.V.Berezin, V.L.Antonovskiy,
N.F.Kazanskaya: Application of Tritium for the Purpose of
Determining the Velocity Constants of the Separation of Organo-
hydrogen Compounds. An.N.Nesmeyanov delivered a detailed
lecture on the Methodology of Radiochemical Instruction at
the chemical departments of universities. ✓

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SOV/78-4-1-37/48

5(2), 21(1)
AUTHOR:

Rudenko, N. P.

TITLE:

IV. The Separation of Yttrium⁹⁰ in Radio-Chemically Pure
Form Without Co-Precipitant (IV. Polucheniye bez nositelya
ittriya⁹⁰ v radiokhimicheski chistom sostoyanii)

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 1,
pp 220-224 (USSR)

ABSTRACT:

An extracting method for the production of pure Y⁹⁰ from solutions containing strontium has been worked out. Yttrium-8-oxyquinolate is extracted with chloroform. The extraction done once of yttrium-8-oxyquinolate with chloroform from acetate solutions and other buffer solutions depending on the pH value of the solution, the yttrium concentration in the solution and the concentration of 8-oxyquinoline were investigated. Acetate buffer solutions are more suitable for extracting yttrium than citrate buffer solutions. The extraction is complete at pH 7-9. The method of separating yttrium in radio-chemically pure condition is based on the extraction of its inner complex by 8-oxyquinoline at a pH value at which strontium does not form a complex with 8-oxy-

Card 1, 2

IV. The Preparation of Yttrium⁹⁰ in Radio-Chemically Pure State Without
Co-Precipitant

SOV/78-4-1-37/48

quinoline. The re-extraction of radioactive yttrium from the chloroform phase is achieved by diluting the solution by weak hydrochloric acid or weak acetic acid. Detailed directions for extracting yttrium in the form of its 8-oxyquinoline complex are given. The method suggested is simpler and quicker than the chromatographic and the electrolytic method and that of separating strontium in the form of nitrate. G. Nesmeyanova, R. N. Maslova and N. I. Merts also participated in the investigations. There are 3 figures and 43 references, 9 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy institut yadernoy fiziki
Moskovskogo gosudarstvennogo universiteta im. M. V. Lomonosova
(Scientific Research Institute of Nuclear Physics of the
Moscow State University imeni M. V. Lomonosov)

SUBMITTED: August 10, 1957

Card 2/2

L 25318-65

EWT(m)/EWP(j)/T/EWP(t)/EWP(b) IJP(c) JD/RM

8/0189/64/000/006/0014/0012

ACCESSION NR: AP5001694

AUTHORS: Vavra, S.; Rudenko, N. P.

TITLE: Sorption of indium by cationite KU-2 and stability constants of chloride-indium complexes in water-ethanol solutions

SOURCE: Moscow. Universitet. Vestnik. Seriya 2. Khimiya, no. 6, 1964, 14-17

TOPIC TAGS: indium, indium compound, sorption, sorption kinetics/ KU 2 cationite

ABSTRACT: The sorption of indium by cationite KU-2 from water-ethanol solutions of muriatic acid was experimentally investigated using isotope indium-114m and calculating the degree of sorption from the activity of the solution before and after stirring. The indium sorption as a function of hydrochloric acid and ethanol content is shown in Figs. 1-3 on the Enclosures. The equilibrium constants

$\beta_n = \frac{[InCl_n^{3-n}]}{[In^{3+}][Cl^-]^n}$ of the chloride complexes were determined in water solutions and

water solutions with 20 and 40% ethanol by the Froncus method described by V. V. Fomin ("Uspekhi khimii," 24, 8, 1010, 1955) and are shown on Fig. 4 on the Enclosures. Using the relation

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L 25318-65

ACCESSION NR: AP5001694

$\alpha_n = \frac{\beta_n [Cl^-]^n}{1 + \sum_{i=1}^n \beta_i [Cl^-]^i}$ and the obtained stability constants, the regimes of different

complexes were determined as shown in Fig. 5 on the Enclosures. It shows that in the investigated concentrations of hydrochloric acid the complex $InCl_2^+$ predominates, while the addition of alcohol increases the content of the complex $InCl_2^+$. Orig. art. has: 5 figures and 2 formulas.

ASSOCIATION: Laboratoriya radiokhimii NII yadernoy fiziki (Radiochemistry
Laboratory of the NII of Nuclear Physics)

SUBMITTED: 20Apr64

ENCL: 03

SUB CODE: 10

NO REF SOV: 002

OTHER: 007

Card 2/5

L 25300-65

S/0189/64/000/006/0018/0021

65 B

ACCESSION NR: AP5001695

AUTHORS: Rudenko, N. P.; Vavra, S.

TITLE: Sorption of indium by cationite KU-2 from water-ethanol solutions containing 8-hydroxyquinoline

SOURCE: Moscow. Universitet. Vestnik. Seriya 2. Khimiya, no. 6, 1964, 18-21

TOPIC TAGS: indium, indium compound, sorption, hydroxyquinoline, oxine/ KU 2 cationite

ABSTRACT: This paper presents the experimental results on the sorption of indium by cationite KU-2 from water-ethanol solutions containing 8-hydroxyquinoline and the indium desorption by several water-organic solutions containing oxine. The experiments were performed as previously described by N. P. Rudenko, S. Vavra, and I. Duda (Sb. "Trudy po khromatografii." Izd-vo AN SSSR, M., 1964, and S. Vavra and N. P. Rudenko "Vestn. Mosk. un-ta," ser. khimii, No. 6, 14, 1964). The indium sorption and partition coefficients as a function of oxine and ethanol content are shown in Figs. 1 and 2 on the Enclosures. Desorption solutions of water-acetone, water-methanol, water-ethanol and water-ethanol-chloroform containing oxine were compared with the desorption effectiyeness of 1-normal hydrochloric acid taken as 100%.

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L 25300-65

ACCESSION NR: AP5001695

Figures 4 and 5 on the Enclosures show the desorption as a function of time and ethanol content with $5 \times 10^{-3}M$ oxine. Desorption appears most effective with 60-80% ethanol. The desorption kinetics of the various desorption solutions are shown in Fig. 6 on the Enclosures. Orig. art. has: 6 figures.

ASSOCIATION: Laboratoriya radiokhimii NII yadernoy fiziki (Radiochemistry Laboratory of the NII of Nuclear Physics)

SUBMITTED: 20Apr64

ENCL: 03

SUB CODE: IC

NO REF SOV: 002

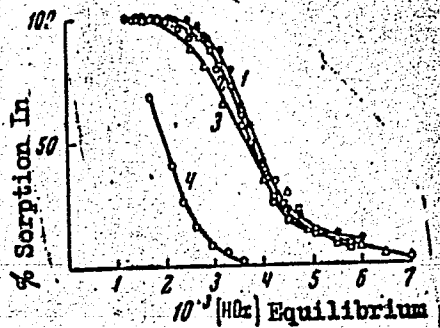
OTHER: 001

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L 25300-65
ACCESSION NR: AP5001695

ENCLOSURE: 01

Fig. 1. Indium sorption as a function of oxine and ethanol content; H₂O: C₂H₅OH = 1-5:5; 2-3:7; 3-1:9; 4-0:10



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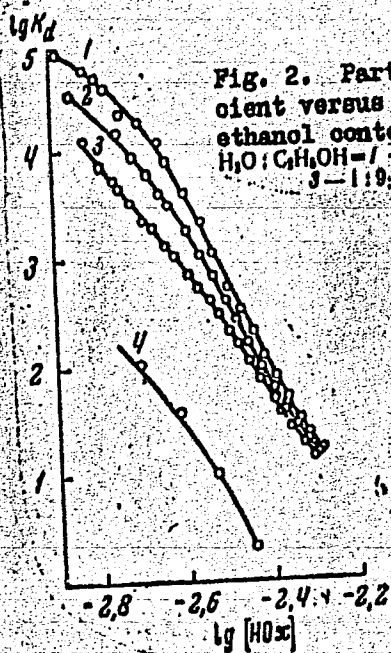


Fig. 2. Partition coefficient versus oxine and ethanol content; H₂O: C₂H₅OH = 1-5:5; 2-3:7; 3-1:9; 4-0:10

L 25300-65
ACCESSION NR: AP5001695

ENCLOSURE: 02

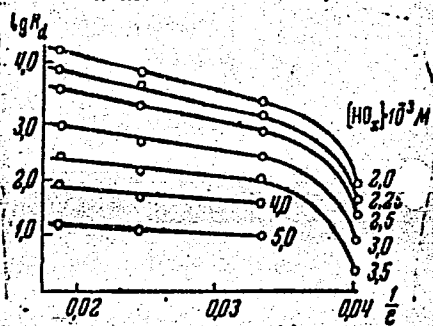


Fig. 3. Partition coefficient versus $1/\epsilon$ (dielectric constant) and ethanol content

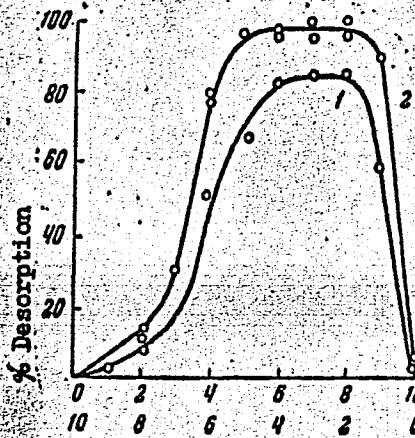


Fig. 4. Indium desorption by water-alcohol solutions with oxine: 1- 8 hour desorption, 2- 22 hour desorption

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L 25300-65
 ACCESSION NR: AP5001695

ENCLOSURE: 03

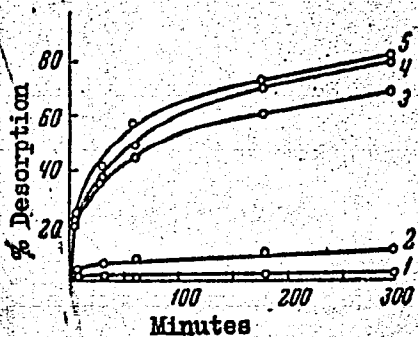


Fig. 5. Desorption kinetics in water-alcohol-oxine solution:
 $H_2O:C_2H_5OH = 1-9:1; 2-8:2;$
 $3-5:5; 4-2:8; 5-3:7$

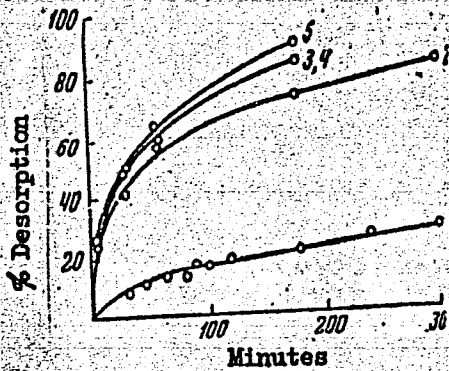


Fig. 6. Indium desorption by water-organic solutions of oxine.
 H_2O -organic solvent = 3:7:1-acetone, 2- ethanol, 3- methanol, 4 and 5
 $H_2O:C_2H_5OH:CHCl_3 = 4-3:6:1; 5-2:6:2$

Card 5/5

RUBENKO, Nikolay Pavlovich; KOVTUN, Lyudmila Vasil'yevna;
ANDREYENKO, Z.B., red.

[Germanium radioisotopes] Radiosktivnye izotopy germania.
Moskva, Atomizdat, 1964. 24 p. (MIRA 17:11)

RUDENKO, N.P., kand.khimicheskikh nauk

Methods of separating radioisotopes without a carrier. Khim.nauka
i prom. 4 no.4:441-448 '59. (MIRA 13:8)
(Isotope separation)

SOV/78-4-10-37/49

AUTHORS: Stary, I., Rudenko, N. P.

TITLE: Benzoyl Acetonates of Yttrium and Strontium and a Method of Extractive Separation of Yttrium by Means of Benzoyl Acetone

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 10, pp 2405 - 2409 (USSR)

ABSTRACT: In previous papers (Refs 1,2) the authors were the first to point out the possibility of predicting the conditions for the extraction of metals in the form of complexes with organic reagents. They established the equation $(pH_1)_{1.0} =$

$$= (pK_{HA} + \log q_{HA}) - \frac{1}{N} \log Q - \frac{1}{N} K_N = - \frac{1}{N} \log K (1) \left[\frac{pH_1}{2} \right]_{1.0} = pH$$

for the extraction of 50% of the metal by an monomolar solution of the reagent in the organic solvent; K_{HA} = dissociation constant of the reagent; q_{HA} = partition coefficient of the reagent between water and organic phase; Q = partition coefficient of the non-charged complex compound between organic and aqueous phase,

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Benzoyl Acetonates of Yttrium and Strontium and a Method SOV/78-4-10-37/40
of Extractive Separation of Yttrium by Means of Benzoyl Acetone

K_N = stability constant of the non-charged complex; K = extraction constant of the cation]. In the present paper the correctness of the predicted value of $\frac{(pH_1)^2}{2}$ 1.0 for the extraction

without carrier of yttrium⁹⁰ is confirmed. The formation of inner complex Y-salts with benzoyl acetone and their extraction with carbon tetrachloride, benzene and chloroform was investigated. The yttrium chloride was labelled with Y⁹⁰ or Y⁹¹. Figure 1 gives the experimentally obtained data for log q , figure 2 the degree of the extraction in dependence on the pH. The complex compound extracted by the organic solvent corresponds to the formula $Y(C_6H_5COCHCOCH_3)_3$. According to the method of D. Dyrssen and Sillen (Ref 3) the stability constants of the yttrium-benzoyl acetonate were determined (Table 2). On the basis of these data a method could be devised to separate the radioactive Y⁹⁰ without carrier. As can be seen from figure 2, more than 99.9% Y can be extracted by means of

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Benzoyl Acetonates of Yttrium and Strontium and a Method SOV/78-4-10-37/40
of Extractive Separation of Yttrium by Means of Benzoyl Acetone

0.100 mole benzoyl acetone, dissolved in CHCl_3 , C_6H_6 or CCl_4
at pH ≈ 9 . As is shown in figure 5, the decomposition of the
extracted yttrium⁹⁰ corresponds to a high purity of the prepa-
ration (more than 99.99%). There are 5 figures, 2 tables, and
12 references, 4 of which are Soviet.

SUBMITTED: September 24, 1958

Card 3/3

S/081/61/000/023/003/061
B108/B147

AUTHOR: Rudenko, N. P.

TITLE: Production of pure carrier-free radioactive isotopes

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 23, 1961, 38, abstract
23B268 (Tr. Tashkentsk. konferentsii po mirn. ispol'zovaniyu
atomn. energii. v. 2. Tashkent, AN UzSSR, 1960, 317 - 324)

TEXT: This is a survey on nuclear reactions yielding radioactive isotopes without a carrier substance, and on methods of separating these isotopes from the targets. It is shown that, by irradiation in a nuclear reactor, radioactive isotopes of 64 elements to be used as tracers can be obtained and separated without a carrier substance. The advantages and restrictions of the most promising methods of separating and purifying radioactive isotopes without a carrier substance, namely extraction and chromatography, and also of less frequently applied methods (distillation and sublimation, electrolysis, adsorption in the form of ions and/or radiocolloids, precipitation and leaching out) are described. There are 10 references.

Card 1/2

Sci Res Inst. Nuclear Physics Moscow State U.

Production of pure carrier-free ...

S/081/61/000/023/003/061
B108/B147

[Abstracter's note: Complete translation.]



Card 2/2

VASIL'YEV, S.S.; MIKHALEVA, T.N.; RUDENKO, N.P.; SEVAST'YANOV, A.I.;
ZAZULIN, V.S.

Long-lived isotope Al²⁶ in structural aluminum used in a nuclear
reactor. Atom. energ. 11 no.4:401-403 O '61. (MIRA 14:9)
(Aluminum--Isotopes) (Nuclear reactors)

RUDENKO, Nikolay Pavlovich; PASTUKHOVA, Zinaida Vasil'yevna;
SOLDATENKOVA, T.A., red.

[Radioactive molybdenum isotopes] Radioaktivnye izo-
topy molibdena. Moskva, Atomizdat, 1965. 46 p.
(MIRA 18:12)

L 15177-66 EWT(m) DIAAP

ACC NR: AP6001143 SOURCE CODE: UR/0367/65/002/003/0402/0408

AUTHOR: Baskova, K. A.; Vasil'yev, S. S.; Rudenko, N. P.; Sevast'yanov, A. I.; Khamo-Leyla, M. A.; Shavtvalov, L. Ya. 42
BORG: Institute of Nuclear Physics, Moscow State University (Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta)TITLE: Investigation of the ^{19,44,55}radiation of $_{48}^{117}\text{Cd}$

SOURCE: Yadernaya fizika, v. 2, no. 3, 1965, 402-408

TOPIC TAGS: cadmium, beta spectrum, half life, isotope separation, indium

ABSTRACT: Cd^{117} was obtained from the reaction $\text{Cd}^{116}(\text{d}, \text{p})$. As a result of the investigations conducted it is shown that the half-life of Cd^{117} is about three hours. The half-life of 50 min previously ascribed erroneously to Cd^{117} is, apparently, that of In^{116} obtained from the reaction $\text{Cd}^{116}(\text{d}, 2\text{n})$. The beta-spectrum of Cd^{117} (3 hr) was investigated on a beta-spectrometer with a magnetic lens. The upper boundaries of the partial beta-spectra have the energy of 670; 1290; 1800; and 2200 kev. The value of log ft proved to be equal to 4.9; 6.7; 6.9; and 7.6, respectively. The results presented, as well as the investigations of the $\beta\gamma$ -coincidences made it possible to construct a decay scheme of Cd^{117} which differs substantially from that in the literature. Authors express their gratitude to Yu. A. Vorob'yev, V. S. Zazulin, N. S. Kirnichev, and M. R. Akhmed for assistance in the work. Orig. art. has: 7 figures and 1 table.

Card 1/1 SUB CODE: 20, 18 / SUBM DATE: 19Feb65 / ORIG REF: 001 / OTH REF: 012

KURCHATOV, B.V.; BUDENKO, N.P.; PASTUKHOVA, Z.V.

Study of the reaction (d, α) on cadmium isotopes. Vest. Mosk.
un. Ser. 2: Khim. 20 no. 6: 17-23 N-6 '65. (MIRA 19:1)

1. laboratoriya radiokhimii Nauchno-issledovatel'skogo instituta
yadernoy fiziki Moskovskogo universiteta. Submitted May 29, 1965.

FUDENKO, N.P.; KALINKINA, O.M.

Preparation of some radioactive indicators. Vest. Mosk. un. Ser. 2:
Khim. 20 no.6:83-85 N-D '65. (MIRA 19:1)

1. Laboratoriya radiokhimii Nauchno-issledovatel'skogo instituta
yadernoy fiziki Moskovskogo universiteta. Submitted Jan. 13, 1965.

RUDENKO, N.P.; KORDYUKOVICH, V.O.

Reaction of gold with 8-mercaptoquinoline and its gravimetric
determination. Zhur. anal. khim. 21 no.1:18-22 '66
(MIRA 19:1)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

L 22392-66 EWT(m)/EWG(m) DIAAP DS/RM
ACC NR: AP6013976 SOURCE CODE: UR/0189/65/000/001/0018/0021

46
B

AUTHOR: Rudenko, N. P.; Vavra, S.; Duda, I.

ORG: Laboratory of Radiochemistry, NII of Nuclear Physics, Moscow State University
(Laboratoriya radiokhimii NII yadernoy fiziki Moskovskogo gosudarstvennogo universi-
teta)

TITLE: Sorption of cadmium by the cation exchange resin¹ KU-2 from aqueous-organic
solutions and method of separating radioactive indium and cadmium¹⁹

SOURCE: Moscow. Universitet. Vestnik. Seriya II. Khimiya, no. 1, 1965, 18-21.

TOPIC TAGS: sorption, cadmium, ion exchange resin, indium, radiation chemistry,
radioisotope, isotope separation

ABSTRACT: The sorption of cadmium from aqueous ethanol solutions was
studied for the cation exchange resin KU-2 in the hydrogen, ammonium,
and 8-hydroxyquinoline forms. Cadmium containing the radioactive isotope
Cd^{115m}, free of the radioactive isotopes Cd¹¹⁵ and In^{115m}, was used.
The greatest sorption was observed in the case of the ammonium form of the
ion exchange resin, at any ethanol content in solution, and the least for
the hydroxyquinoline form, except in the absence of ethanol, in which the
least sorption was observed for the hydrogen form. The greatest sorption
was observed from solutions with the smallest (10%) content of one of the
two components (water or ethanol). The capacity of the cation exchange
resin with respect to cadmium from aqueous solutions was 3.30-3.20 milli-
gram equivalents per gram of KU-2 for the ammonium and hydrogen forms.

Card 1/2

2

L 22392-66

ACC NR: AP6013976

A method is proposed for the separation of radioactive indium from cadmium: irradiated metallic cadmium is dissolved in hydrochloric acid, evaporated to dryness, and the residue dissolved in 1N hydrochloric acid. The solution obtained after the addition of aqueous ethanolic 8-hydroxyquinoline is subjected to chromatographic partitioning. Optimum composition of solutions: ratio $H_2O:C_2H_5OH = 3:7$, concentrations: $HCl 10^{-2}-10^{-3} M$, $H_2Ox 5 \cdot 10^{-3}-10^{-2} M$, cadmium $10^{-4} M$. Radioactive indium was successfully isolated from irradiated cadmium by this method. Orig. art. has: 3 figures and 1 table. [JPRS]

SUB CODE: 18, 07 / SUBM DATE: 20Apr64 / ORIG REF: 003

Card 2/2 dda

L 22393-66 EWT(m)/EPF(n)-2/EWP(t) IJP(c) JD/WW/JG

ACC NR: AP6013975

SOURCE CODE: UR/0189/65/000/002/0025/0029

AUTHOR: Lapitskiy, A. V. (Deceased); Rudenko, N. P.; Sayed, Abdel' Gavad

ORG: Department of Radiochemistry, Moscow State University (Kafedra radiokhimii Moskovskogo gosudarstvennogo universiteta)

TITLE: Extraction of thorium, protactinium, uranium, and neptunium with the aid of hydroxylamine derivatives

SOURCE: Moscow. Universitet. Vestnik. Seriya II. Khimiya, no. 2, 1965, 25-29

TOPIC TAGS: thorium, protactinium, uranium, neptunium, hydroxylamine, nonmetallic organic derivative

ABSTRACT: A description is given of the results of investigations on the extraction of thorium, protactinium, uranium and neptunium with the aid of hydroxylamine derivatives. Benzoyl hydroxylamine, N-benzoylphenyl hydroxylamine and N-nitrosophthyl hydroxylamine were used. Thorium-234, protactinium-233, neptunium 239 and uranium in its natural isotope mixture were used. Hexanol and chloroform were used as the organic phase. It was found that the behaviour of the elements in extraction under the experimental conditions was different. Their reactions to changing solution pH varied considerably. Orig. art. has: 3 figures. [JPRS]

SUB CODE: 07 / SUEM DATE: 06Jun64 / ORIG REF: 004 / OTH REF: 005

Card 1/1^{da}

L. 45105-56
ACC NR: AR6000456

10
6
SOURCE CODE: UR/0137/65/000

AUTHORS: Vavra, I.; Rudenko, N. P.

TITLE: Sorption of indium from certain aqua-organic solutions by cation exchanger KU-2

SOURCE: Ref. zh. Metallurgiya, Abs. 96173

REF SOURCE: Sb. konobmen. tekhnologiya. M., Nauka, 1965, 80-83

TOPIC TAGS: ion exchange, indium, sorption

ABSTRACT: The sorption of In from aqueous, aqua-acetone, aqua-ethanol, and aqua-ethanol-chloroform solutions by the cation exchanger KU-2 was investigated. Practically no absorption of In by KU-2 occurs in nonaqueous acetone solution. Addition of small quantities of H₂O to acetone causes a sharp increase in the degree of sorption. Maximum sorption for the hydrogen form of the ion exchanger (~99%) is reached at 15 vol % H₂O. The ammonium form of the cation exchanger sorbs In somewhat less effectively. Increasing the amount of water decreases sorption (in pure water, it did not exceed ~80%). In pure acetone, which has a low dielectric constant, the In salt is considerably less dissociated as compared with the dissociation in the presence of small amounts of water. Maximum sorption in the presence of small amounts of water in solution may occur for sorption of neutral

UDC: 669.872.09

Card 1/2

Card 2/

L 36249-66 ENT(M)/ENP(1)/ETL REF(C) 30/33

ACC NR: AP6005419

(N)

SOURCE CODE: UR/0289/65/000/003/0028/0032

57
55
B

AUTHOR: Rudenko, N. P.; Zhukovskaya, A. S.

ORG: Scientific Research Institute of Nuclear Physics, Moscow State University
(Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo gosudarstvennogo
universiteta); ~~Electrophysical Laboratory, Ural Polytechnic Institute im. S. M. Kirov~~
(Elektro-fizicheskaya laboratoriya Ural'skogo politekhnicheskogo instituta)

TITLE: Use of nonaqueous solvents for separating radioisotopes by precipitation and leaching

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya khimicheskikh nauk, no. 3, 1965, 28-32

TOPIC TAGS: adsorption, beryllium, lithium, sodium, magnesium, radioisotope, chemical precipitation

ABSTRACT: A method was developed for separating the radioisotopes sodium-22 and beryllium-7 without a carrier by precipitating the target element (magnesium in the case

UDC: 541.15+542.6.621.039.554

Card 1/2

L 34085-66 EWT(m)

ACC NR: AP6025487

SOURCE CODE: UR/0186/66/008/001/0063/0066

AUTHOR: Rudenko, N. P.; Zhukovskaya, A. S.

52
B

ORG: none

19

TITLE: Use of nonaqueous solvents for isolation of radioactive Na sup 22 from irradiated magnesium

SOURCE: Radiokhimiya, v. 8, no. 1, 1966, 63-66

TOPIC TAGS: sodium, magnesium, stoichiometric mixture, radiation chemistry, chemical separation, chemical precipitation, organic solvent, solubility, desorption

ABSTRACT: A method is proposed for recovering Na²² without using a carrier. Irradiated magnesium was dissolved in almost a stoichiometric amount of sulfuric acid. The solution was evaporated until a film began to form and an equal or somewhat larger volume of ethanol was added. The solution was carefully stirred and the liquid with the crystalline precipitate of magnesium sulfate was decanted onto a glass filter. For more complete isolation of Na²², the precipitate was washed five to six times with small portions of ethanol. The extent of Na²² recovery was 95-97%. Separation of sodium from small amounts of magnesium passing into the water-ethanol solution was achieved by ion-exchange on the KU-2 cation exchange resin directly from the water-alcohol

Card 1/2

UDC: 541.123.33:546.33.02:546.46

1976 0865

L 3477 -66

ACC NR: AP6025487

filtrate. An 0.1 N HCl solution was used in eluting the Na²². In the present report, the authors examine the possibility of using organic solvents other than ethanol, e.g. acetone and dioxane. It was shown that the nature of the organic solvent added to precipitate magnesium sulfate does not affect the composition of the crystal hydrate formed. The solubility of magnesium sulfate in ethanol, acetone, and dioxane, and in their mixtures with water at 20°C was determined. The desorption of Na²² from the surface of crystalline magnesium sulfate by these solvents was studied. It was established that solutions of acetone and dioxane containing 10 - 20% water exceed ethanol in desorptive capacity and are preferred for recovering radioactive Na²² from a magnesium target. Orig. art. has: 3 tables. [JPRS: 35,728]

SUB CODE: 07 / SUBM DATE: 26Jan65 / ORIG REF: 003 / OTH REF: 006

Card 2/2

PAKHOVA, K.A., VASILYISA, N.S., RUBENKO, N.I., SEVASTYANOV, A.I.;
SHANO-LEVIN, M.A., SHAVTVALOV, L.Ya.

Studying the radiation from $^{238}\text{Pu}^{241}$. Izv. 112. 2 no.3:402-
408 S '65. (MIRA 18:9)

Institute of nuclear physics Moskovskogo gosudarstvennogo
universiteta.

LAPITSKIY, A.V. [deceased]; RUDENKO, N.P.; ABDEL' GAVAD SAYED

Extraction of thorium, protactinium, uranium, and neptunium by means
of hydroxylamine derivatives. Vest. Mosk. un. Ser. 2: Khim. 20 no.2:
25-29 Mr-Apr '65. (MIRA 18:7)

1. Kafedra radiokhimii Moskovskogo universiteta.

KRYUKOVA, L.N.; KORDYUKEVICH, V.O.; SOROKIN, A.A.; RUDENKO, N.P.

Lifetime of the 55Kev. state in the Ir¹⁸⁸ nucleus. Izv. AN SSSR, Ser.
fiz. 29 no.7:1089-1091 J1 '65. (MIRA 18:7)

I. Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo
gosudarstvennogo universiteta im. M.V.Lomonosova.

DZIAMKO, V.M.; RUDENKO, N.P.; KREMENSKAYA, I.N.

Mixed cyclocomplex formation in the system thorium (IV) -
cupferron - 4'-nitro-2,2'-dihydroxy-4-methyl-5-isopropyl-
zobenzene. Trudy IREA no.25:172-182 '63.

(MIRA 18:6)

RUDENKO, N.F.; KREMENSKAYA, I.N.; AVILINA, V.N.

Complex formation of thorium with 8-hydroxyquinaldoxime and
caproic acid. Zhur. neorg. khim. 10 no.5:1160-1165 My '65.
(MIRA 18:6)

RUDENKO, N.F.; DZIOMKO, V.M.; KHEMENSKAYA, I.N.

Use of mixed chelate formation for concentrating thorium traces.
Trudy Kem. anal. khim. 15:96-100 '65. (MIRA 18:7)

RUDEFENKO, N.F.; ABDUL' GAVAD SAYFD; LAPITSKIY, A.V.

Extraction separation of thorium and protactinium. Radiokhimiya
7 no.1:32-33 '65. (MIRA 18:6)

LAPITSSEY, A.V. (deceased); RUDENKO, N.P.; ARBELE, GAYAD SAYED

Extraction of thorium, protactinium, and uranium by means of neocupferron. Radiokhimiya 7 no.2:139-142 '65.

Behavior of thorium, protactinium, and uranium during extraction by means of benzhydroxamic acid and N-benzoylphenylhydroxylamine. Ibid.:142-145 (MIRA 18:6)

L 639/44-65 EWT(m) DIAAP DM
ACCESSION NR: AP5022496

UR/0089/65/018/006/0649/0650

AUTHOR: Rudenko, N. P.; Sevast'yanov, A. M.

TITLE: Certain possible methods for producing radioactive isotopes 19

SOURCE: Atomnaya energiya, v. 18, no. 6, 1965, 649-650

TOPIC TAGS: radioisotope, boron, lithium, beryllium, magnesium, aluminum

ABSTRACT: Production of ^7Be , ^{28}Mg , and ^{26}Al in nuclear reactors as a result of secondary reactions of $^6\text{Li}(t,2n)^7\text{Be}$, $^{26}\text{Mg}(t,p)^{28}\text{Mg}$, and $^{24}\text{Mg}(t,n)^{26}\text{Al}$ is described. The ampoules containing metallic lithium or lithium compounds (for preparing ^7B) and lithium with magnesium (for preparing ^{26}Al and ^{28}Mg) were irradiated by integral neutron flux (10^{20} neutr/cm² for ^{26}Al and ^7Be and 6.5×10^{16} neutr/cm² for ^{28}Mg). The spectrum is given of gamma emission from irradiated Li-Mg recorded in a 50 channel amplitude analyzer. Another method of production of ^{10}Be and ^{26}Al

Card 1/2

L 639uh-65

ACCESSION NR: AP5022496

by irradiation of Be, B, Mg, and Al by fast neutrons and for boron and magnesium
by thermal neutrons is described. The identification of ¹⁰Be was achieved by beta
emission energy. Orig. art, has: 2 graphs, 1 table.

ASSOCIATION: none

SUBMITTED: 02Jul64

ENCL: 00

SUB CODE: 67NP

NR REF/ SOV: 006

OTHER: 004

NA

487
Card 2/2

RUDENKO, H.P.; VAVRA, S.; DUDA, I.

Absorption of cadmium by the KI-2 cation exchanger from aqueous-organic solutions and the method of separating radioactive indium and cadmium. Vest. Mosk. un. Ser. 2: Khim. 20 no.1:18-21 Ja-F 1965. (MIRA 18:3)

1. Laboratoriya radiokhimii Nauchno-issledovatel'skogo instituta yadernoy fiziki Moskovskogo universiteta.

L: 61058-65 EWT(m)/EWG(m) RM/DS/GS

UR/0000/65/000/000/0080/0083

ACCESSION NR: AT5014247

20
3+1

AUTHORS: Vavra, S.; Rudenko, N. P.

TITLE: Sorption of indium from several organoaqueous solutions by cationic exchanger KU-2

SOURCE: AN SSSR. Institut fizicheskoy khimii. Ionoobmennaya tekhnologiya (Ion exchange technology). Moscow, Izd-vo Nauka, 1965, 80-83

TOPIC TAGS: ion exchange, ion exchange resin, chromatography, indium/ KU 2 cation exchanger

ABSTRACT: The sorption of In by cationic exchanger KU-2 from organoaqueous solutions was studied with the aim of extending currently available information on the sorption of ions by cation exchangers from aqueous solution to organoaqueous solutions. The solutions studied were: water-acetone, water-ethanol, and water-ethanol-chloroform. The experimental results for water-acetone mixtures are shown graphically (see Fig. 1 on the Enclosure). The sorption process was found to follow a first order rate law. It is concluded that the magnitude of ion exchange constants decreases with decreasing dielectric penetration of the

Card 1/3

L 61058-65

ACCESSION NR: AT5014247

solution. Orig. art. has: 1 table, 3 graphs, and 3 equations.

ASSOCIATION: none

SUBMITTED: 26Feb65

ENCL: 01

SUB CODE: OC, GC

NO REF SOV: 006

OTHER: 009

Card 2/3

L 61058-65

ACCESSION NR: AT5014247

ENCLOSURE: 01

0

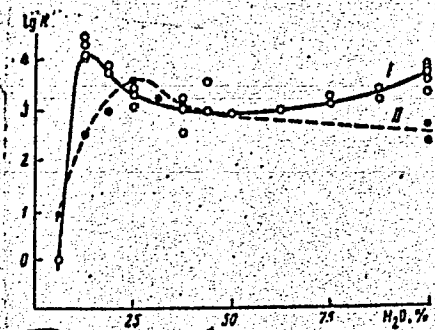


Fig. 1. Dependence of the distribution coefficient of indium on the amount of water in the acetone. I- H form of KU-2; II- NH_4 form of KU-2.

Card ^{PC} 3/3

L 52980-65 EWT(m) Feb DIAAP

ACCESSION NR AM5010307

BOOK EXPLOITATION

13 8/
B+1

Rudenko, Nikolay Pavlovich; Kovtun, Lyudmila Vasil'yevna

Radioactive isotopes of germanium ¹⁹ (Radioaktivnyye izotopy germaniya), Moscow, Atomizdat, 1964, 24 p. illus., biblio. 1,600 copies printed.

TOPIC TAGS: radioactive isotope, germanium, nuclear physics

PURPOSE AND COVERAGE: This booklet presents information on the radiochemistry of germanium, the nuclear processes of the formation of its radioactive isotopes, methods of separating them from irradiated material, and measurement methods. The use of radioactive isotopes of germanium in various types of research are examined. The booklet is intended for readers with fundamental knowledge of nuclear physics and chemistry interested in the radiochemistry and problems of the use of radioactive isotopes. It can be useful also to specialists working in the chemistry of germanium, its compounds and alloys.

TABLE OF CONTENTS [abridged]:

Introduction -- 3
Ch. I, Isotopes of germanium -- 4
Card 1/2

L 52980-65

ACCESSION NR AM5010307

- Ch. II. Brief information on the chemistry of germanium used in radiochemistry
-- 6
- Ch. III. Methods of obtaining and separating radioactive isotopes of germanium
-- 10
- Ch. IV. Use of radioactive germanium -- 15
- Ch. V. Safety when working with radioactive germanium -- 21
- Bibliography -- 24 ;

SUBMITTED: 14 Aug 64

SUB CODE: NP, GC

NR REF SOV: 012

OTHER: 009

Card ^{LL} 2/2

BUENHO, N.I. (BUENHOVA, I.M.), MEXICO, M.I.

Chemical forms of the radioactive isotope As^{76} formed in the neutron irradiation of phenylarsonic acid, and the production of enriched As^{76} preparations. Radiokhimiya 6 no.3:329-335 '64.
(MIRA 18:3)

SEVAST'YANOV, A.I.; RUDENKO, H.P.

Coprecipitation of the indicator amounts of beryllium with
iron hydroxide. Vest. Mosk. un. Ser. 2: Khim. 20 no.1:22-24
Ja-F '65. (MIRA 18:3)

1. Laboratoriya radiokhimii Nauchno-issledovatel'skogo instituta
yadernoy fiziki Moskovskogo universiteta.

L 54468-65 EWT(m)/EPF(n)-2/ENP(t)/ENP(b) Pub/Pu-4 DIAAF/IJP(a) JD/WV/

ACCESSION NR: AT5013645

JG/GS

UR/0000/65/000/000/0113/0118

543.21:546.831+546.641

28
27
B+1

AUTHOR: Rudenko, N. P.; Kuznetsov, V. I.

TITLE: Zirconium and yttrium cupferronates and a method of separating zirconium-89 from irradiated yttrium without a carrier

SOURCE: AN SSSR. Otdeleniye obshchey i tekhnicheskoy khimii. Radiokhimicheskiye metody opredeleniya mikroelementov (Radiochemical methods for determining trace elements); sbornik statey. Moscow, Izd-vo Nauka, 1965, 113-118

TOPIC TAGS: zirconium separation, yttrium separation, Beta spectroscopy, Gamma spectroscopy, cupferron, radioisotope extraction, deuteron bombardment

ABSTRACT: The purpose of this work was to develop a simple and rapid technique for obtaining zirconium-89 preparations without a carrier in a radiochemically pure state. After calculating the stability constants of the complexes of Zr and Y with cupferron and using these constants to calculate the relative concentrations of the various forms of Zr and Y cupferronates versus the concentration of the cupferron anion, the authors determined the optimum conditions for the

Card 1/2

L 54468-65

ACCESSION NR: AT5013645

extraction of zirconium: a freshly prepared chloroform solution of cupferron is used to extract Zr from an aqueous solution containing 0.1 - 2 N HCl, then the organic phase is washed once with a KCl + HCl buffer solution at $pH \approx 1$. In the experiments, yttrium oxide irradiated with deuterons was dissolved in HCl with heating, the solution was evaporated, and the residue was dissolved in 1 N HCl. Zr was extracted with a 0.005 M solution of cupferron, and the organic phase was washed with the above-mentioned buffer. The first wash water contained a negligible amount of Y-90 formed by the reaction $Y^{89} (d, p) Y^{90}$, and the second one was completely free of this isotope. Zr was reextracted with 10 N HNO_3 . The degree of extraction of zirconium and the purity of the isotopes obtained were determined by measuring the half-life and recording β and γ spectra. "The authors express their thanks to K. A. Baskova for recording the β -spectra of the preparations." Orig. art. has: 9 figures, 12 formulas and 1 table.

ASSOCIATION: None

SUBMITTED: 05Mar64

ENCL: 00

SUB CODE: IC, GC

NO REF SOV: 004

OTHER: 003

B.B.B
Card 2/2

VAVRA, S., ROZKAROV, M.

Sorption of iodine by the KU-2 cation exchanger and the stability constants of iodine chloride complexes in water-ethanol solutions. Vest. Mosk. univ. Ser. 2: Khim. 19 no. 6:24-27. Nov 1964.

Sorption of iodine by the KU-2 cation exchanger from water-ethanol solutions containing 8-hydroxyquinoline. Izv. AN SSSR (MIRA 18:3)

1. Laboratoriya radioaktivnoi Nezhno-izotopnoi'eksp. instituta yadernoi fiziki Moskovskogo universiteta.

L 52979-65 EWT(m) Pub. DIAAP

ACCESSION NR AM5009853

BOOK EXPLOITATION

8/

Rudenko, Nikolay Pavlovich; Kalinkina, Ol'ga Mikhaylovna

218+1

Radioactive isotopes of zirconium and niobium; ⁹⁵Zr - Nb⁹⁵ and ⁹⁷Zr - Nb⁹⁷
(Radioaktivnyye izotopy tsirkoniya i niobiya; ⁹⁵Zr - Nb⁹⁵ i ⁹⁷Zr - Nb⁹⁷),
Moscow, Atomizdat, 1964, 24 p. illus., bibio. 1,600 copies printed.

TOPIC TAGS: radioactive isotope, zirconium, niobium, hafnium, tantalum, nuclear physics

PURPOSE AND COVERAGE: The radioactive isotopes of Zr⁹⁵ and Nb⁹⁵ are widely used in the chemical and engineering research on these elements. The isotopes of Zr⁹⁷ and Nb⁹⁷ can also be used, but for short-term research. This booklet gives a compact presentation of the examples of their more successful use. Radioactive isotopes can be used in similar research with other elements (mainly hafnium and tantalum). Therefore, the booklet will be useful to specialists in the chemistry and engineering of other chemical elements. The booklet is intended for readers familiar with the fundamentals of nuclear physics and chemistry.

TABLE OF CONTENTS [abridged]:

Card 1/2

L 52979-65

ACCESSION NR AM5009853

Introduction -- 3
Ch. I. Radioactive and stable isotopes of zirconium and niobium and their
radiometry -- 5

SUBMITTED: 14 Jul 64

SUB CODE: NP, GC

NR REF SOV: 012

OTHER: 007

Card

LL
2/2

LAPITSKIY, A.V.; RUDENKO, N.P.; ABDEL' GAVAD SAYED

Extraction of neptunium by means of hydroxylamine derivatives.
Radiokhimiya 6 no.5:617-619 '64.

(MIRA 18:1)

L 44279-65 EWT(m)/EPF(n)-2/EWP(t)/EWF(b) Pu-4 IJP(c) JD/WW/JG

ACCESSION NR: AP5008003

S/0186/65/007/001/0032/0033

AUTHOR: Rudenko, N. P.; Sayed, A. G.; Lapitskiy, A. V.

TITLE: Separation of ²³²thorium and ²³¹protactinium by extraction

SOURCE: Radiokhimiya, v. 7, no. 1, 1965, 32-33

TOPIC TAGS: protactinium, thorium, uranium, chemical separation, N-benzoylphenylhydroxylamine, neocupferron

ABSTRACT: The purpose of the present work was to develop separation methods for thorium and protactinium by extraction of the latter with the cupferron analogs: N-benzoylphenylhydroxylamine and neocupferron. Under the conditions employed protactinium is completely extracted by 0.1 M benzoylphenylhydroxylamine while thorium and uranium are completely retained in the aqueous phase (see fig. 1 of the Enclosure). Protactinium is reextracted from benzoylphenylhydroxylamine with a 0.5 M solution of hydrofluoric acid. Neocupferron solution in chloroform extracts 90% of the protactinium from 2 M hydrochloric acid while thorium and uranium remain in the aqueous phase under these conditions. Protactinium is reextracted with 10 M HCl.

Card 1/3

L 44279-65

ACCESSION NR: AP5008003

Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 14Feb64

NO REF SOV: 002

ENCL: 01

OTHER: 002

SUB CODE: IC, OC

0

Card 2/3

СЕРГЕЕВ, Николай Павлович; ЛЕВИН, Ольга Викторовна;
ИЗДАТЕЛЬСТВО, ГИИ, Москва.

[medicative isotopes of zirconium and niobium

Zr⁹⁵ - Nb⁹⁵ and Zr⁹⁷ - Nb⁹⁷] Radioaktivnye izotopy
tsirkonia i niobia Zr⁹⁵ - Nb⁹⁵ i Zr⁹⁷ - Nb⁹⁷. Moskva,
Atomizdat, 1967. 24 p. (MIRA 17:10)

NUDE KO, Nikolay Pavlovich; SEVAST'YANOV, Aleksandr Ivanovich;
KARFOVA, T.V., red.

[Radioactive beryllium isotopes Be^7 and Be^{10}] Radio-
aktivnye izotopy berillia Be^7 i Be^{10} . Moskva, Atomizdat,
1964. 22 p. (MIRA 17:6)

RUDENKO, N.P.; KOVTUN, L.V.

Compounds of germanium with 8-hydroxyquinoline. Trudy Kom.
anal.khim. 14:209-217 '63. (MIRA 16:11)

RUDEMKO, N.P.

Isolation of carrier-free radioisotopes by extraction with organic solvents. Trudy Kom.anal.khim. 14:11-23 '63.(MIRA 16:11)

ABDEL' GAVAD SAYED; LAPITSKIY, A.V.; RUDENKO, N.P.

Extraction of thorium by means of benzhydroxamic acid;
Radiokhimiia 5 no.3:290-294 '63. (MIRA 16:10)

(Thorium) (Benzohydroxamic acid)

KALINKINA, O.M.; RUDENKO, N.P.

Preparation of hafnium 8-hydroxyquinolate of a definite composition. Zhur.anal.khim. 17 no.9:1120-1121 D '62.

(MIRA 16:2)

1. Institute of Nuclear Physics, M.V. Lomonosov Moscow State University.

(Hafnium compounds)
(Quinolinol)

DZIOUKO, V.M.; RUDENKO, N.P.; KREMENSKAYA, I.N.

Mixed thorium complex with cupferron and 4'-nitroso-2,2'-dihydroxy-4-methyl-5-isopropylazobenzene. Zhur.neorg.khim. 8 no.3:655-659 Mr '63.
(MIRA 16:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i laboratoriya radiokhimii Nauchno-issledovatel'skogo instituta yadernoy fiziki Moskovskogo gosudarstvennogo universiteta.
(Thorium compounds) (Cupferron) (Azobenzene)

RUDENKO, N. P.

Moscow State University imeni M. V. Lomonosov. "Use of radioactive isotopes and radioactive radiation in analytical chemistry."
Lecture Session B

Report submitted for the General Meeting on Modern Methods of Analytical Chemistry. Merseburg, East Germany, 24-25 Oct 63

L 14961-63

EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JG

ACCESSION NR: AP3003680

8/0186/63/005/003/0290/0294

AUTHORS: Sayed, Abdel' Gavad; Lapitskiy, A. V.; Rudenko, N. P. 56TITLE: Analysis of thorium extraction by benzohydroxamic acid.

SOURCE: Radiokhimiya, v. 5, no. 3, 1963, 290-294

TOPIC TAGS: thorium, benzohydroxamic acid, hexanol

ABSTRACT: The extraction of thorium with hexanol in the presence of benzohydroxamic acid has been studied. It was shown that the maximum extraction was possible at a pH of 5.2 with a yield of about 96%. The formed compound of thorium and benzohydroxamic acid $\text{Th}(\text{NO}_3)_4 \cdot 2\text{HR}$ was determined by extraction method with hexanol. For the comparison with the above extraction, thorium-benzohydroxamic acid compound was precipitated and extracted from an aqueous solution at a pH of about 7. The formed compound is confirmed by thermogravimetric analysis. The kinetics of its thermal decomposition have been established. A colorimetric method has been developed for the determination of benzohydroxamic acid by means of sodium vanadate which forms a colored complex with VO_3^- . "The authors express their gratitude to L. G. Vlasov for his help and valuable suggestions." Orig. art. has: 6 graphs.

Card 1/2/

DZIAMKO, V.M.; RUDENKO, N.P.; KREMENSKAYA, I.N.

Determination of the composition of the complex thorium^(IV)-
cupferron-4'-nitro-2,2'-dihydroxy-4-methyl-~~4~~-isopropylazobenzene.
Zhur.neorg.khim. 8 no.5:1278-1280 My '65. (MIRA 16:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh
reaktivov i Nauchno-issledovatel'skiy institut yadernoy fiziki
Moskovskogo gosudarstvennogo universiteta, laboratoriya radiokhimi.
(Thorium compounds) (Cupferron)
(Azobenzene)

S/075/62/017/009/006/006
E071/E436

AUTHORS: Kalinkina, O.M., Rudenko, N.P.
TITLE: On the problem of preparation of hafnium 8-hydroxy-quinolate of a definite composition

PERIODICAL: Zhurnal analiticheskoy khimii, v.17, no.9, 1962, 1120-1121

TEXT: The precipitation of hafnium 8-hydroxyquinolate using a nascent reagent is carried out by adding an alcoholic solution of 8-hydroxyquinoline to a solution of hafnium nitrate containing oxalic acid. An increase in the pH of the solution was obtained by the decomposition of urea on heating. On the basis of chemical and thermogravimetric analysis the composition of the precipitate was hafnium β -hydroxyquinolate $Hf(C_9H_6NO)_4$. There is 1 figure.

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

SUBMITTED: April 20, 1962
Card 1/1

L 16319-65 EWT(m)/EPF(n)=2/EMP(t)/EMP(b) Pu-4 IJP(c) JD/MA/JG
ACCESSION NR: AP4047845 S/0186/64/006/005/0617/0619

AUTHOR: Lapitskiy, A. V.; Rudenko, N. P.; Abdel' Gavad Sayed

TITLE: The extraction of neptunium by means of hydroxylamine derivatives *B*

SOURCE: Radiokhimiya, v. 6, no. 5, 1964, 617-619

TOPIC TAGS: neptunium extraction, hydroxylamine, butylamine, neocupferron

ABSTRACT: Noting that the study of the behavior of actinoids during their extraction is of great importance in radiochemistry, the authors report an investigation of the extraction of neptunium by means of several hydroxylamine derivatives (benzohydroxamic acid, benzoyl phenylhydroxylamine and neocupferron) as well as the effect of butylamine on this process. Neptunium-239 was obtained by irradiating 30 mg of uranium in the form of U₃O₈ for 48 hours in a reactor with $0.87 \cdot 10^{13}$ neutrons/cm²·sec. The separated neptunium isotope was oxidized to the pentavalent state by a sodium nitrite solution. The radiochemical purity of the isotope was checked by a measurement of its halflife, which was found to equal 2.3 days. During the extraction studies, the neptunium was placed in a test tube with the buffer solution, and shaken in a thermostat at 25C for 30 minutes with the extracting agent. After this period of shaking, measurements were made of the activity of the aqueous and organic phases, while the pH of the

Card 1/2

L 16319-65

ACCESSION NR: AP4047845

2.

solutions was determined on an LP-58 potentiometer. The study of neptunium extraction by several cupferron analogs showed that of the reagents studied only benzohydroxamic acid failed to extract neptunium under the conditions described in this paper. Extraction by means of neocupferron took place at lower pH values than in the case of benzoyl phenylhydroxylamine. It was discovered that complete extraction of neptunium requires the presence of butylamine in the water phase. The authors also found that neocupferron, while it does have a large dissociation constant, is inferior to benzoyl phenylhydroxylamine because of its poor solubility and its instability. "The authors wish to express their gratitude to M. P. Mefod'yeva and L. G. Vlasov for their friendly advice and assistance." Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 17Feb64

ENCL: 00

SUB CODE: IC

NO REF SOV: 005

OTHER: 003

Card 2/2

I 7750-66 EWT(1)/EPA(s)-2 IJP(e) GG SOURCE CODE: UR/0057/65/035/010/1840/1843

ACC NR: AP5025897

AUTHOR: Rudenko, N.S.; Tsvetkov, V.I.

ORG: Tomsk Polytechnic Institute im. S.M.Kirov (Tomskiy politekhnicheskiy institut)

TITLE: Investigation of the dielectric strength of some liquids under the action of nanosecond voltage pulses

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 10, 1965, 1840-1843

TOPIC TAGS: dielectric breakdown, water, transformer oil, nanosecond pulse

ABSTRACT: The breakdown of 50 to 500 μ gaps between 2 mm diameter stainless steel electrodes in transformer oil, doubly distilled water, and "technical" water (conductivity approximately 5 x 10⁻⁶ mho/cm) was investigated with up to 500 kV pulses with 2 nanosec rise time and 30 nanosec duration. The gap was made part of the central conductor of a coaxial line and the breakdown was observed with an oscilloscope. The electrodes were cleaned and examined after every 3-5 pulses, and the maximum error in measuring the gap was 10 % for the 50 μ gap and 2 % for the 500 μ gap. The results are presented as curves of mean breakdown time versus pulse voltage; breakdowns that occurred during the rise of the pulse were excluded from the average. The shape of these curves is briefly discussed and it is concluded that the discharge mechanism is electronic in nature. The technical water was found to have as high a dielectric strength in the nanosecond range as transformer oil. Water can therefore be employed

Card 1/2

UDC: 537.528

L 7750-66

ACC NR: AP5025897

6

as a high voltage pulse insulator in those applications where its high dielectric constant would be advantageous. The author thanks Professor of Technical Sciences G.A. Vozh'nev⁴⁴⁵⁵ for proposing the study and for discussion of the results, and V.P. Grafov for assistance in some of the experiments. Orig. art. has: 4 figures.

⁴⁴⁵⁵
SUB CODE: EE, EC, ME/ SUBM DATE: 14Dec64/ ORIG REF: 002/ OTH REF: 002

Card 2/2

RUDENKO, N.S.; KONAREVA, V.G.

Viscosity of liquid pH_2 and OH_2 . Zhur. eksp. i teor. fiz. 48
no.2:769-770 F '65. (MIRA 18:11)

GRIGOR'YEV, V.N.; RUDENKO, N.S.

Surface tension of liquid hydrogen isotopes and H₂ - D₂
solutions. Zhur. eksp. i teor. fiz. 47 no.1:92-96 J1 '64.
(MIRA 17:9)

1ST AND 2ND GROUPS PROCESSES AND PROPERTIES INDEX 100 AND 11th GROUPS

2

Viscosity of liquid nitrogen, carbon monoxide, argon and oxygen and its dependence on temperature. N. S. Rudenko and L. V. Shubnikov *Fizich. Z. Sovetskion* 6, 407-7(1934).--The viscosity in m. p. and b. p. was measured in a special app. calibrated with ether at 203°K. (2.448 millipoises) as primary, and O₂ at 90.1°K. (1.9 millipoises) as secondary standard. The points fall on smooth curves. The following figures are no. of points on curve, temp. range, viscosity range. N₂: 8, 69-77.3°, 2.92-1.58. CO: 7, 68.55-80.9°, 2.87-1.70. A: 4, 84.2-87.3°, 2.90-2.52. O₂: 10, 54.4-90.1°, 8.73-1.90. C. DeL. West

ASB. 31.4 METALLURGICAL LITERATURE CLASSIFICATION

ALPHABETIC INDEX

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

1ST AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX

5N

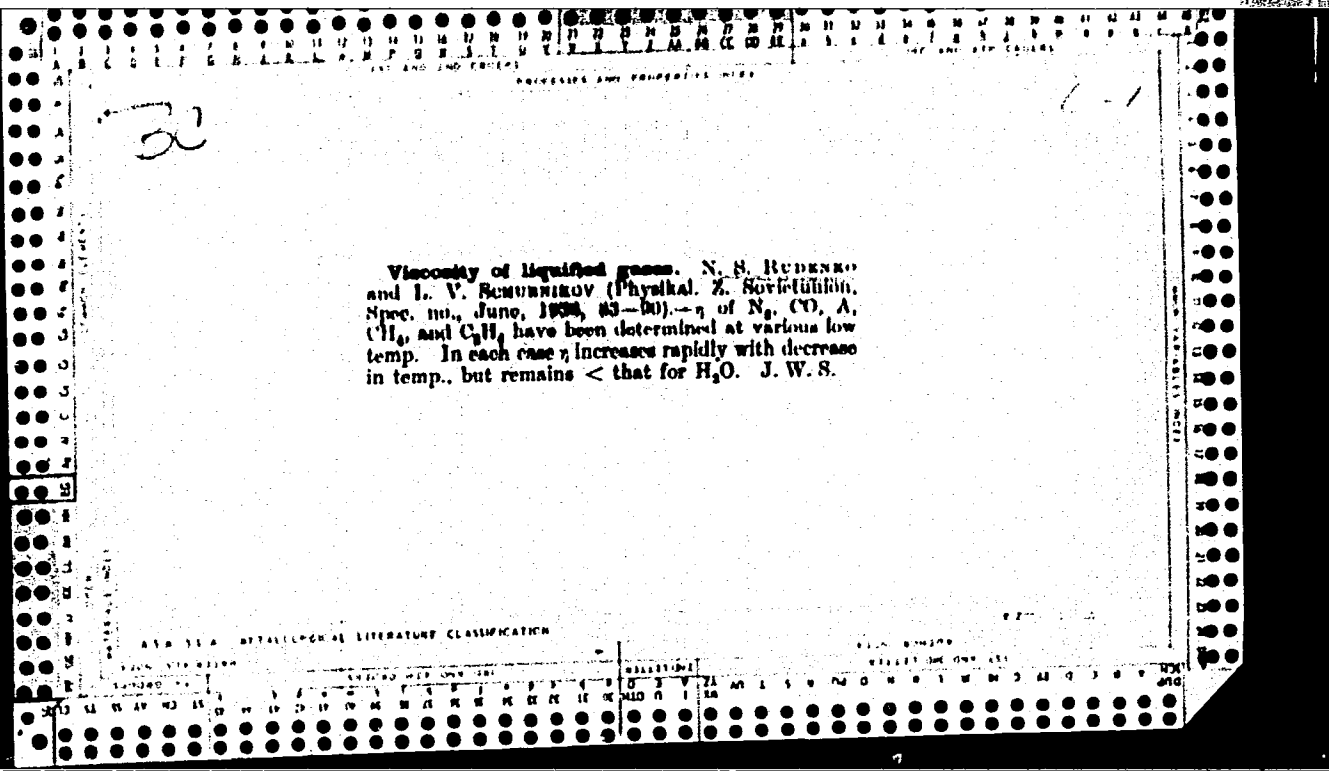
AS3

4887. Viscosities of Liquid Methane and Ethylene. N. S. Rudenko and L. W. Schebnikow. *Phys. Zeits. d. Sowjetunion*, 8. 2. pp. 179-184, 1938. *In German.*—A method previously used for the determination of the viscosities of liquid N₂, O₂, A, and CO [see Abstract 617 (1935)] is now applied to liquid CH₄ and liquid C₂H₆. The results for the six liquids are shown graphically. The viscosity of CH₄ varies from 0.00210 to 0.00098 c.g.s. units, over the temperature range 90° K. to 111° K., whilst that of C₂H₆ varies from 0.00522 to 0.00178 over the range 110° K. to 169° K. R. W. P.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX

1ST AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX



PROCESSES AND PROPERTIES INDEX

17-1

BC

**Preparation of pure gases and of pentane for
cryostats. N. S. RUDENKO (J. Phys. Chem. Russ.,
1038, 12, 668—676).—The prep. of pure O₂ from
KMnO₄, N₂ from NH₄NO₃, CO from HCO₂H + H₂SO₄,
C₂H₂ from C₂H₂Br₂ + Zn, and of CH₄ from NaOAc
and NaOH is described. C₃H₁₂ can be purified by
repeated freezing out. J. J. B.**

METALLURGICAL LITERATURE CLASSIFICATION

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
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Viscosity of liquid oxygen, nitrogen, methane, ethylene and air. N. S. Rudenko. *J. Exptl. Theoret. Phys.* (U. S. S. R.) 9, 1078-80(1939).—By means of a suspended rotating cylinder the viscosities of gases were measured at temps. from the normal b. p. nearly to the crit. temp. Some values found for $\eta \times 10^6$ are: O₂, 19.0 at 90.1°K.; 9.15 at 184.2°K.; N₂, 15.8, 77.4°, 7.4, 111.7°; CH₄, 9.8, 111.2°, 6.25, 168.4°; C₂H₆, 10.7, 169.3°, 6.25, 240.9°; air, 13.2, 90.1°, 8.05, 125.4°. The η -temp. curves are semi-hyperbolic with respect to the axes.
F. H. Rathmann ✓

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

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

2

Phyg. Tech. Inst.
U.S.S.R.

Compressibility of hydrogen at low temperatures. S. A. Zhuritsyn and N. S. Rudenko, *J. Exptl. Theoret. Phys. (U.S.S.R.)* 16, 776-0(1946). Measurements were made on H purified by freezing and with pressures accurate within 0.02 kg./sq. cm. and temp. const. within 0.1°. On the compressibilities of $P/P_0 V_0/V$ (I) the error is not over 2.3%. Details of I are tabulated and plotted in terms of the pressure P up to 1000 kg./sq. cm., at three temps. 65.0, 77.7, and 90.0°K.; all three isotherms have a min. I at 70, 68, and 50 atm., resp.; the corresponding values (from graph) are 0.38, 0.60, and 0.80, resp. Beyond the min., the isotherms rise very nearly linearly, with different slopes, indicating shifts in the ratio of intermolecular repulsion and attraction. Selected data: at 65.0°K. $P = 0.1, 50.1, 87.0, 106.5, 426.0, 999.0$ kg./sq. cm., $I = 0.97131, 0.8721, 0.8641, 0.9270, 2.1031, 1.0620$; at 77.7°K. $P = 0.1, 63.5, 125.4, 403.0, 951.0$, $I = 0.9857, 0.9270, 0.9642, 1.2033, 3.4320$; at 90.0°K. $P = 7.1, 49.5, 74.9, 120.5, 405.0, 1001.0$, $I = 1.0031, 0.9607, 0.9727, 1.0405, 1.7475, 3.2887$. The three isotherms intersect one another. The departure from ideal-gas behavior is most pronounced at 65.0°K. at which temp. the H is far from homogeneous in phase. N. Thon

ASA-SLA METALLURGICAL LITERATURE CLASSIFICATION

E-2

RUDENKO, N. S.

PA32/49T104

USSR/Physics
Gases, Liquefied
Viscosity

Sep 48

"Molecular Weight, Density and Viscosity of Liquefied Gases," N. S. Rudenko, Phys Tech Inst, Acad Sci USSR, 3 3/4 pp

"Zhur Tekh Fiz" Vol XVIII, No 9

Shows that viscosity of liquefied gas varies with temperature according to a linear law. The ratio $\frac{\eta}{M} = \text{const}$ holds good at various reduced temperatures. Introduces concept of "critical viscosity" and obtains empirical equation connecting reduced temperature

32/49T104

USSR/Physics (Contd)

Sep 48

and reduced viscosity. Establishes that connection between density and viscosity is linear only within narrow temperature interval near the boiling point. Submitted 14 Apr 48.

32/49T104

RUDENKO, N. S.

Magnetic properties of tin at low temperatures. B.I. Verkin, P.G. Lazarev, and N.S. Rudenko. Doklady Akad. Nauk S.S.S.R. 69, 773-6 (1949), - Single crystals of Sn at 4.2°K show very strongly the de Haas-van Alphen effect of periodic variation of the diamagnetic moment with the magnetic field, originally established for Bi, but subsequently observed also for Zn (Marcus, C.A. 41, 4018c). This behavior of Sn is closely related to the anomalies of the variation of the elec. resistance in a magnetic field (cf. preceding abstr.) and to the Schubnikow-de Haas effect of periodic variation of the elec. resistance in a magnetic field. By measurements of the couple acting on a crystal placed in a homogeneous magnetic field, the difference of the magnetic susceptibilities along the main axis and perpendicular thereto, for a crystal with its quaternary axis lying in the plane of the field, decreases by a factor of 3 between 293 and 20°K. A complex periodicity of these susceptibilities appeared at 4.2°. The effect is max. when the magnetic vector is close to the quaternary axis. The period and the amplitude of the oscillations increase with H, as for Bi and Zn. In the range of H= 8000-12000, the frequency of the oscillations is much greater for Sn than Bi or Zn. By analysis of the frequencies, the no. of free electrons per atom, responsible for the de Haas-van Alphen effect, is about 100 times greater than in Bi or Zn. For Bi, periodicity of the magnetic susceptibility was observed also in the case of the trigonal axis perpendicular to the magnetic field, contrary to Schoenberg (C.A. 33, 4837^b). A magnetic periodicity effect was observed also in single crystals of Be.

N. Thon

RU DENKO, N. S.

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539.214

3624. Periodic field-dependence of the magnetic susceptibilities of metals at low temperatures. B. L. YERMIN, B. G. LAZAROV AND N. S. RUDENKO. Letter in *J. Exp. Theor. Phys., USSR*, 20, 934 (Jul. 1950) in Russian.

[This abstract supplements Abstr. 486 (1951)].

The de Haas-van Alphen effect has been found in Be, Mg, In and Cd. For Be the period of oscillation is 1000 G at 12 000 G, and the effect is observable at 2° K. For Mg the period is 280 G at 14 000 G and the effect is marked at 4-2° K and below. For In and Cd the periods are only of order 40 G at 14 000 G and the effect becomes marked only below 2° K. [See also Dingle and Shoenberg, Abstr. 1176 (1951)].

D. SHOENBERG

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RUDEKNO, N. S.

Jun 50

USSR/Physics-Viscosity
Nitrogen

"Temperature Dependence of Viscosity of Liquefied Nitrogen and Argon for Constant Density," B. I. Berkin, N. S. Rudenko, Physicotech Inst, Acad Sci Ukrainian SSR

"Zhur Eksper i Teoret Fiz" Vol XX, No 6, pp 523-526

Viscosimeter for measuring viscosity of liquids and gases at constant density for wide range of temperatures has been developed and constructed. Measures viscosity of N_2 and A between solidification point and 300° K. Establishes complex relation between their viscosities and temperature for constant density. Submitted 26 Dec 49.

PA 163T90

RUDENKO, N. S.

Verkin, B. I., Lazarev, B. G. and Rudenko, N. S. Magnetic properties of metals at low temperatures I. The periodic change in the magnetic susceptibility of monocrystals of cadmium, beryllium, magnesium, tin and indium depending on the tension of the magnetic field. Page 995.

Physico-Technical Inst.
Acad. of Sci., Ukr. SSR.
March 30, 1950.

SO: Journal of Experimental and Theoretical Physics, Vol. 20, No. 13. November 1950.

RUDEKNO, N. S.

USSR/Physics - crystals
Magnetic Properties

1 Jul 50

"Crystallographic Anisotropy of the de Haas-van Alphen Effect," B. I. Berkin,
B. G. Lazarev, N. S. Rudenko, Physicotech Inst, Acad Scu Ukrainian SSR, Khar'kov

"Dok Ak Nauk SSSR," Vol LXXIII, No 1, pp 59-62

Studied anisotropy of magnetic properties in base plane of Zn and Be monocrystals at low temperatures of liquid H and He in field of 3,000 to 14,500 oersteds. Established new properties of de Haas-van Alphen Effect in these metals. Graphs show couple acting on monocrystal versus axes of crystal. Submitted 3 May 50 by Acad S. I. Vavilov.

166T98

RUDENKO, N. S.

Magnetic properties of antimony at low temperatures. B. I. Verkin, B. G. Lazarev, and N. S. Rudenko (Phys. Tech. Inst. Acad. Sci. Ukr. S.S.R., Kharkov), Zhur. Eksptl. Teoret. Fiz. 21, 658-9(1951); cf. C.A. 45, 9318i.— In single crystals of Sb, suspended with the 3rd-order symmetry axis perpendicular to the suspension axis, and one of the binary axes along the suspension, periodic variation of $\Delta\chi = \chi_{\parallel} - \chi_{\perp}$ (difference of magnetic susceptibilities parallel and perpendicular to the trigonal axis) with the magnetic field H (measured by the couple acting on the suspended crystal in a homogeneous magnetic field, forming an angle φ with the 3rd-order symmetry axis in the horizontal plane) manifests itself only weakly at 4.2°K., but is distinct at 2.04° K.; at $\varphi = 53^{\circ}$, the effect begins to appear at $H \sim 9500$ oersteds, and the amplitude of the oscillations increases with H, becoming 150 oersteds at $H = 11,000$, and 250 oersteds at $H = 14,000$. At const. $H = 13,400$ the oscillations of the couple are large around $\varphi = 45^{\circ}$, and diminish towards $\varphi = 0^{\circ}$ and 90° . Shoenberg's (C.A. 44, 5165g) repeated failure to detect the effect in Sb at 1.4°K, could be due either to insufficient H or to too large intervals.

N. Thon

RUDEENKO, N. S.

USSR/Physics - Low-Temperature Studies

1 Sep 51

"Magnetic Properties of Mercury at Low Temperatures," E. I. Verkin, D. G. Lazarev,
N. S. Rudenko, Phys-Tech Inst, Acad Sci Ukrainian SSR, Khar'kov

"Dok Ak Nauk SSSR" Vol LXXX, No 1, pp 25, 46

Discusses the periodic character of the dependence of the difference of the main specific susceptibilities of Hg monocrystals upon the external field strength H for various low temps. States that foreign authors have failed to note this periodicity in their expts despite their attaining low enough temps, and high field strengths. Submitted 21 Jun 51 by Acad H. A. Leontovich

PA 221734

RUDENKO, N.S.

AUTHORS: Grigor'yev, V.N., Kan, Ya.S., Rudenko, N.S., 56-3-4/59
Safronov, B.G.

TITLE: Variation of Isotopic Composition of Evaporated Mercury.
(Izmeneniye izotopicheskogo sostava rtuti pri isparenii)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 3,
pp. 576-580 (USSR)

ABSTRACT: The variation of the isotopic ratio of the isotopes Hg-198 to
Hg-204 was determined in the most different evaporation para-
meters (e.g. from 70 to 270° C) by means of the mass spectrometers
MC-2 and MC-4. It was determined that a low evaporation velocity
exercises a special influence on the evaporation kinetics.

The relative vapor pressure difference between the isotopes
Hg-198 and Hg-204 can be given from the results:
for $t = -20^{\circ} \text{C}$ $\Delta p/p \leq 2 \cdot 10^{-3}$
for $t = 200^{\circ} \text{C}$ $\Delta p/p \leq 8 \cdot 10^{-4}$

There are 4 figures, 3 tables, and 4 Slavic references.

ASSOCIATION: Physical-Technical Institute AN of the Ukrainian SSR
(Fiziko-tekhnicheskii institut Akademii nauk Ukrainiskoy SSR)

SUBMITTED: March 13, 1957

AVAILABLE: Library of Congress

Card 1/1

RUDENKO, N.S.

AUTHORS: Bogoyavlenskiy, I.V., Grigor'yev, V.N., Rudenko, N.S., 56-3-5/59
Dolgoplov, D.G.

TITLE: Modification of the Mercury Isotope Composition in the Electric Field of a Constant Current. (Izmeneniye izotopicheskogo sostava rtuti v elektricheskom pole postoyannogo toka)

PERIODICAL: Zhurnal Eksperim.i Teoret.Fiziki, 1957, Vol. 33, Nr 3, pp. 581-587 (USSR)

ABSTRACT: In a capillary the dependence in the isotopic composition of liquid Hg on the time needed for the passage of a constant current at $41 \pm 2^\circ\text{C}$ and $-10 \pm 3^\circ\text{C}$ is investigated. The time of current passage varied from a minimum of 340 h to a maximum of 1800 h. Further, the concentration of isotopes along the electric field and the dependence of isotope composition at the cathode upon the amounts of the applied voltage were investigated.

The following was found for the ion mobility $\Delta\mu/\mu$:

T in °C	$\Delta\mu/\mu$	($B = \Delta\mu/\mu \cdot m/\Delta m$)
45	$1,1 \cdot 10^{-3}$	$0,73 \cdot 10^{-1}$
115	$1,3 \cdot 10^{-3}$	$0,86 \cdot 10^{-1}$

There are 5 figures, 1 table and 4 Slavic references.

Card 1/2

Modification of the Mercury ¹⁹⁹isotope Composition in the Electric Field of a Constant Current. 56-3-5/59

ASSOCIATION: Physical-Technical Institute AN of the Ukrainian SSR (Fiziko-tekhnicheskii institut Akademii nauk Ukrainiskoy SSR)

SUBMITTED: March 13, 1957

AVAILABLE: Library of Congress.

Card 2/2

L 24777-65 EWT(m)/EPF(c)/EWP(t)/EWP(b) Pr-l IJP(c) JD

ACCESSION NR: AP4049613

S/0076/64/038/011/2700/2701

AUTHOR: Rudenko, N. S.; Konareva, V. G.

90
13

TITLE: Viscosity of hydrogen-deuterium solutions

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 11, 1964, 2700-2701

TOPIC TAGS: liquid hydrogen viscosity, liquid deuterium viscosity, hydrogen
deuterium solution viscosity 27 27

ABSTRACT: The existing data concerning the density, saturated vapor pressure, surface tension, liquid-solid diagram indicate that there is a deviation from the ideal state of solution of the hydrogen isotopes. In order to increase the knowledge of the properties of the latter, the authors measured the viscosity coefficients of the isotopes and the mixtures of H_2-D_2 . The method and apparatus were the same as previously used (Zh. fiz. khimii 37, 2761 (1963)) for the study of liquid hydrogen and deuterium. It was found that the viscosity of the H_2-D_2 solutions depends nonlinearly on concentration. The deviation from additivity is

Card 1/2

L 24777-65

ACCESSION NR: AP4049613

asymmetric with respect to concentration. The complexity of the liquid-solid diagram is, apparently, connected with the dependence of viscosity on concentration. Orig. art. has: 2 figures

ASSOCIATION: None

SUBMITTED: 18Nov63

ENCL: 00

SUB CODE: GC, ME

NO REF SOV: 004

OTHER: 001

Card 2/2

PHASE I BOOK EXTRACTOR

80V/4012

Abstracts and Bibliography. Oldenkyr, G. G. (Moscow). *Abstracts of the Proceedings of the 1958 International Symposium on Atomic Energy*, Kiev, 1958. 2,900 copies printed.

Trudy (Transactions) of the Section on Practical Uses of Atomic Energy, Kiev, 1958. 2,900 copies printed.

Kepp, K. I., N. Y. Paschenko, Doctor of Physics and Mathematics; Editorial Board: A. K. Valtov, Academician, Academy of Sciences, Ukrainian SSR, O.J. Smets, Candidate of Physics and Mathematics, M. V. Paschenko, Doctor of Physics and Mathematics; Ed. of Publishing House: Z. K. Paschenko; Tech. Ed.: I. P. Rudnik.

INDEX: This collection of articles is intended for physicists and scientific personnel working in nuclear research.

CONTENTS: The articles in this collection discuss linear proton accelerators, electron accelerators, electrostatic accelerators, magnetron lenses, the interaction of charged particles and neutrons with nuclei, the applications of charged beams in physics research and experimental methods. Some of the articles describe the construction of accelerators, installations and experimental methods. The articles are arranged in the following order: 1. A bibliography of articles and monographs; 2. A bibliography of articles.

Authors: O.J. Smets, Scientific Superintendent for Charged Particles; 185

Editors: I. I. V. D. Borshchik, and N. D. Orlovskaya, Multichannel Film Analyser; 184

Contributors: N. D. Borshchik, and I. G. Kolomo, Multichannel Amplitude Analyser with Magnetic Drum Memory Unit; 181

Authors: I. G. Kolomo, and V. Yu. Gontchar, Multichannel Amplitude Analyser with Ultrasonic Memory and Stabilization Spectrometer; 169

Authors: A. A. Kishin, D. A. Kishin, and L. Ya. Krasovskiy, Ultragigacycle and Electron Resonance in Resonant Transitions in the Microwave Band; 180

Authors: I. G. Kolomo, V. N. Orlovskiy, D. G. Dolgovskiy, and I. V. Bogoyavlenskiy, Change in the Ionospheric Composition of Mercury in a D Electrode; 183

SOV/139-58-6-23/29

AUTHORS: Blagoy, Yu.P. and Rudenko, N.S.

TITLE: Density of the Liquefied Gas Solutions N_2-O_2 , $Ar-O_2$
(Plotnost' rastvorov ozhizhennykh gazov
 N_2-O_2 , $Ar-O_2$)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika,
1958, Nr 6, pp 145-151 (USSR)

ABSTRACT: Densities of solutions of liquid oxygen, nitrogen, argon, etc are of great interest, since liquefied gases and their solutions are structurally the simplest liquids. The apparatus used to measure liquefied gas densities is shown in Fig 1. A quartz pycnometer (1) with a long narrow tube (2) was placed in a Dewar vessel with a window. The pycnometer was connected by a narrow tube to a thermostatted bulb (3), a mercury manometer (4) and an auxiliary bulb (5). The density was measured by filling the apparatus with one of the components at a pressure P_1 and adding the second component at a pressure P_2 . The mixture composition was obtained from the values of P_1 and P_2 . To mix the two gases very thoroughly the authors condensed and re-evaporated them

Card 1/4