SOV/78-4-10-39/40

5(2).

AUTHOR: Stary, I.

TITLE: Investigation of the Extraction of Metal Salts by Solutions of Benzoyl Acetone in Benzene

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 10, pp 2412 - 2413 (USSR)

ABSTRACT: In previous papers (Refs 1-3) it was proved that it is possible to predict the extraction conditions for metal salts. For the determination of the pH which must be maintained for the extraction of 50% metal by a 0.1-molar solution of benzoyl acetone in benzene, the formula $(pH_{\frac{1}{2}})_{0.1} = 12.9 - \frac{1}{N} \log K_N Q$ is established (N=charge of the metal cation, K_N= stability constant of the non-charged complex compound, Q= partition coefficient of the complex compound between organic and aqueous phase). The correctness of the values predicted for $(pH_{\frac{1}{2}})_{0.1}$ is now confirmed in the extraction of La, Eu, Sc, and Fe with benzoyl acetone from acetate buffer solution. The metals to be extracted were

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Investigation of the Extraction of Metal Salts by Solutions of Benzoyl Acetone in Benzene

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labelled with La^{140}, Eu^{152}, Sc^{46}, Fe^{56}. The results and the previous data of the extraction of Y, In, Cd, Sr, and Ba are given in figure 1. They are in good agreement with the calculated values in the cases of La and Eu and show small deviations in Sc and Fe. Since the organic phase of Fe-benzoyl acetonate is of orange color, whereas most of the metal-benzoyl acetonates are colorless, the extraction of Fe with this reagent could be used for the colorimetric determination of Fe in the presence of other metals. There are 1 figure and 7 references, 3 of which are Soviet.

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

SUBMITTED: October 9, 1958

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S/0000/63/000/000/0265/0274

ACCESSION NR: AT4035418

AUTHOR: Stary*, I.

TITLE: An integrating magnetic amplifier

SOURCE: Vsesoyuznoye soveshchaniye po ferritam i po beskontaktny*m magnitny*m elementam avtomatiki. 3d, Minsk. Ferrity* i beskontaktny*ye elementy* (Ferrites and noncontract elements); doklady* soveshchaniya. Minsk, Izd-vo AN BSSR, 1963, 265-274

TOPIC TAGS: amplifier, magnetic amplifier, integration, positive feedback, negative feedback, multicascade amplifier

ABSTRACT: The author discusses the theory and uses of a magnetic amplifier employed as an integrator. All three basic varieties of integration: direct integration, integration with compensation parameters (with positive feedback), and integration with negative feedback, can be accomplished with the use of a magnetic amplifier. By introducing a positive feedback, an ideal integrator can be obtained which possesses an infinite current amplification and preserves a beneficial integral value as long as the input equals zero. Employing a negative capacity feedback, another type of integrating magnetic amplifier may be obtained

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L 23365-66 EWT(m)/ETC(f)/EWG(m)/T/EWP(t) DIAAP/IJP(c) DS/JD/JG

ACC NR: AP6008695 SOURCE CODE: UR/0075/65/020/011/1160/1163

52

51

AUTHOR: Knoblokh, V.; Stary, I.

ORG: Joint Institute of Nuclear Research, Dubna (Ob"yedinennyy institut yadernykh issledovaniy) B

17

TITLE: Use of complexon III in the radiometric determination of metal traces by means of electrophoresis 27

SOURCE: Zhurnal analiticheskoy khimii, v. 20, no. 11, 1965, 1160-1163

TOPIC TAGS: yttrium, europium, trace analysis, electrophoresis, radiometry, radioisotope

ABSTRACT: Experiments were carried out on traces of radioyttrium (Y^{91}) and europium in order to demonstrate the applicability of complexon III to the determination of traces of radioactive and inactive isotopes by means of electrophoresis. Complexon III was added to the yttrium salt in acetate buffer solutions and subjected to electrophoresis. The results showed that radioactive yttrium could be determined in amounts as low as 10^{-10} g/μl. The sensitivity of the proposed method far exceeds that of chemical methods for determining traces and approaches the sensitivity of activation analysis. The method is simple and rapid and can be used for the determination of all metals forming stable, negatively charged complexes with complexon III. The method is of particular importance in the determination of the carrier content in

2.

UDC: 543.53 : 543545

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L 23365-66

ACC NR: AP6008695

small volumes of radioactive preparations, where the application of other methods is very difficult. For example, analysis of commercial preparations of europium showed that 1 μl of the analyzed solution contained 0.04 μg of europium; this value is in agreement with data obtained by the substoichiometric method. Orig. art. has: 2 figures, 2 tables, 2 formulas.

SUB CODE: 07/ SUBM DATE: 24Jul64/ ORIG REF: 000/ OTH REF: 004

Card 2/2

TSUKERMAN, V.A.; LYUBIN, V.M.; STARYY, I.B.; VAYNSHTEYN, E.Ye.

Photosensitivity of some semiconductor layers in the X-ray region of spectrum. Izv. SO AN SSSR no.3 Ser. khim. nauk no.1:124-125 '65. (MIRA 18:8)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR, Novosibirsk.

STARYY, I.I.

K-8

Category : USSR/Optics - X-rays

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 2576

Author : Vaynshteyn, E.Ye., Staryy, I.B., Bril', M.N.

Inst : Inst. of Geochemistry and Analyt. Chem, Acad. of Sciences USSR, Odessa Pedagogical Inst., USSR

Title : Fine Structure of the Fundamental X-Ray K Absorption Spectrum of Titanium in Certain Dielectric Materials

Orig Pub : Dokl. AN SSSR, 1955, 105, No 5, 943-946

Abstract : A focusing vacuum spectrograph of high resolution was used to study the fine structure of the X-ray K absorption edge of Ti in rutile, brookite, anatase, perovskite, ilmenite, and metallic Ti. A quartz analyzer was used. The reflecting planes were (10II). The bending radius of the crystal was 2545. The crystal was bent at four points. The dispersion of the instrument was 2.5 X / mm. The current was 50 ma at 11 kv. The anode was gold. The density of the material in the absorbers was 6 -- 13 mg/cm^2. The exposure was 4 - 12 hours. The experimentally-observed difference in the fine structure of the edge of Ti absorption in the metal and in the compounds is interpreted on the basis of the theoretical concepts developed by one of the authors in an earlier work (Barinskiy R.L., Vaynshteyn, E.Ye., Narbutt, D.I., Dokl. AN SSSR, 1952, 83, 199; Vaynshteyn E.Ye., Narbutt, K.I., Barinskiy, R.L., Dokl. AN SSSR, 1952, 82. 701).

Card : 1/1

USSR/Physical Chemistry - Crystals, B-5

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 60906

Abstract: basis of theoretical notions developed previously (Barinskiy, R. L., Vaynshteyn, E. Ye., Narbut, K. I., Dokl. AN SSSR, 1952, 83, 199; Dokl. AN SSSR, 1952, 82, 701).

Card 2/2

STARYY, I-B.

1/
NO 7

A universal x-ray vacuum-tube spectrograph. I. B. Staryi (K.D. Ushinskii Pedagog. Inst., Odessa). *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 20, 798-800(1956).—The spectrograph consists of a cylindrical chamber contg. a demountable x-ray tube and a crystal bent by compression between 2 metal plates with holes 12 × 6 mm. A tubular extension contains the bent holder of a photographic plate. The radius of curvature R is connected to the distance between crystal and plate l by $l = 2R \sin \alpha$ (α—Bragg angle). An attachment permits adaption of the spectrograph to fluorescence analysis.

S. Pakswer

~~STARYY, I. B.~~

STARYY, I. B.

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K-Series emission lines in the x-ray spectrum of titanium in the metal and in some dielectric materials. E. E. Vainshtein, I. B. Staryi, and M. N. Bril. Izvest. Akad. Nauk S.S.S.R., Ser. Fiz. 20, 784-9(1956); cf. C.A. 50, 6140f. The fine structure of the K lines was investigated in Ti metal, in TiO_2 (anatase, rutile, and brookite), in perovskite, and in [illegible]. The investigated [illegible] $K\beta$ and $K\beta'$. The [illegible] $K\beta_1$, $K\beta_5$ and the satellite lines [illegible] unchanged. The index of a[illegible] of the $K\alpha$ line remains unchanged [illegible] in compds. The [illegible] metry is 1.42 for the metal and 1.19 in compds. and the asymmetry of the $K\alpha_1$ line is 30% greater in compds. and the asymmetry is equal to 1.0 in the metal and perovskite and 1.10-1.29 in other compds. The $K\beta_5$ line is asym. in the metal, [illegible] in compds. [illegible] displaced up to 2 e.v. in compds. [illegible] It is $K\beta''$ is absent in the metal and present in compds. It is attributed to transitions from [illegible] levels to free K levels of the Ti atom. $K\beta'$ is a band of low intensity, present in the metal and in compds. S. Pakswer

SH

BOB

Inst. Geochemistry and Analytical Chem. im. Vernadskiy; Odessa Pedagogical Inst. im. Ushinskiy

STARYY, I. B.

Vaynshteyn, E. Ye., Bril', M. N., Staryy, I. B. 20-4-14/52

AUTHORS: Vaynshteyn, E. Ye., Bril', M. N., Staryy, I. B.

TITLE: On Some Rules Governing the Structure of the X-ray K-emission Spectra of Titanium in Titanates (O nekotorykh zakonomernostyakh v strukture rentgenovskikh K-spektrov ispuskaniya titana v titanatakh)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 4, pp. 597-600 (USSR)

ABSTRACT: The authors investigated the lines of the K_{β}-group of titanium in the X-ray emission spectra of this element in brookite, anatase and in titanates of Mg, Ca, Sr, Ba, Fe, and Zn. From the barium titanates the monotitanates and tetratitanates ($BaO.TiO_2$ and $BaO.4\ TiO_2$) were investigated. Brief reference is made to the structure of the various titanates. The investigations were carried out by means of a focussing X-ray tube spectrograph with a quartz crystal as analyzer. The prism faces served as reflecting surfaces. The spectra were photographically registered. The authors investigated the position, the form, and the relative intensities of the lines K_{β_1}, K_{β_5}, $K_{\beta'}$, and $K_{\beta''}$ of titanium

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On Some Rules Governing the Structure of the X-ray K - emission Spectra of Titanium in Titanates

in the above-mentioned compounds. The maxima of the lines K_{β_1} and K_{β_5} of titanium were slightly displaced towards the longwave side with all compounds compared with their position in the spectrum of the metal. The energetic position, the width and the index of asymmetry of the emission-lines of titanium do not suffer any substantial changes in the various compounds. The same holds also for the satellites $K_{\beta'}$ and $K_{\beta''}$. There are 2 figures, 2 tables, and 8 references, 6 of which are Slavic.

ASSOCIATION: Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy AN USSR (Institut geokhimii i analiticheskoy khimii imeni V. I. Vernadskogo Akademii nauk SSSR)Pedagogical Institute imeni K. D. Ushinskiy, Odessa (Odesskiy pedagogicheskiy institut imeni K. D. Ushinskogo)

PRESENTED: June 27, 1957, by A. P. Vinogradov, Academician.

SUBMITTED: June 11, 1957

Card 2/3

20-4-14/52

On Some Rules Governing the Structure of the X-ray K - emission Spectra of Titanium in Titanates

AVAILABLE: Library of Congress

Card 3/3

STARY, Ir~~A~~zhi, Cand Chem Sci -- (diss) "Extraction of Radio Active Isotopes in the form of Complexes with Beta--Diketon~~s~~e." Mos, 1958. 8 pp, (Mos State Univ im M. V. Lomonosov), 150 copies (KL 40-58, 113)

Beta-diketones

[illegible] I.

5(2); 21(5) PHASE I BOOK EXPLOITATION SOV/1900

Akademiya nauk SSSR. Komissiya po analiticheskoy khimii

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

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

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

COVERAGE: The book is a collection of the principal papers presented in Moscow at the Second Conference on the Use of Radioactive Isotopes. The problems discussed at the Conference included coprecipitation, aging, and solubility of precipitates, determination of the instability constants

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Use of Radioactive Isotopes (Cont.) SOV/1900

of complex compounds, separation of rare earth metals, and ion-exchange chromatography. No personalities are mentioned. There are 351 references, 175 of which are Soviet, 33 German, 19 French, 8 Swedish, 2 Hungarian, and 2 Czech.

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Use of Radioactive Isotopes (Cont.)

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Use of Radioactive Isotopes (Cont.) SOV/1900

Card 8/10

AUTHORS: Stary, I., Rudenko, N. P. SOV/156-58-4-4/49

TITLE: The Dissociation Constant of Benzoyl Acetone and Its Distribution Coefficient Between Some Organic Solvents and the Aqueous Phase (Konstanta dissotsiatsii benzoilatsetona i koeffitsiyenty raspredeleniya yego mezhdu nekotorymi organicheskimi rastvoritelyami i vodnoy fazoy)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 4, pp 624-629 (USSR)

ABSTRACT: The dissociation constant of benzoyl acetone and its distribution coefficient between benzene, chloroform and carbon tetrachloride (organic phase) and the acetate buffer solutions (aqueous phase) were determined at 20 ± 0.1°. The optical density and the spectra of benzoyl acetone were measured by means of the spectrophotometer SF-4 with hydrogen lamp. The dissociation constant of benzoyl acetone, as determined according to the spectrophotometric method, is $pK_{HA}=8.74$. The dissociation constant according to the solubility method is $pK_{HA}=8.725$. The distribution coefficients of benzoyl acetone between chloroform, benzene,

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The Dissociation Constant of Benzoyl Acetone and Its Distribution Coefficient Between Some Organic Solvents and the Aqueous Phase SOV/156-58-4-4/49

carbon tetrachloride and acetate buffer solutions at $pH < 6$ are given in table 3. The dependence of the distribution coefficient of benzoyl acetone between benzene and the aqueous phase on the pH-value shows that in the range of pH=1,5 to 6 the quantity q_{HA} is constant. At $pH > 6$ the quantity q_{HA} decreases. The decrease of the quantity q_{HA} is caused by the dissociation of benzoyl acetone. The dissociation constant of benzoyl acetone is calculated by varying q_{HA} : $pK_{HA} = 8.7$.
There are 2 figures, 3 tables, and 10 references, 1 of which is Soviet.

ASSOCIATION: Institut yadernoy fiziki pri Moskovskom gosudarstvennom universitete im. M. V. Lomonosova (Institute of Nuclear Physics at the Moscow State University imeni M. V. Lomonosov)

SUBMITTED: April 1, 1958

Card 2/2

RUDENKO, N.P.; STARY, I.

Extraction method for determining constant of complexing of indium acetylacetonate. Trudy kom.anal.khim. 9:28-43 '58.
(MIRA 11:11)

(Extraction (Chemistry)) (Indium organic compounds) (Complex compounds)

S/123/61/000/014/045/045
A004/A101

AUTHOR: Staryy, I.B.

TITLE: New vacuum cock design

PERIODICAL: Referativnyy zhurnal. Mashinostroyeniye, no. 14, 1961, 21, abstract 14Kh134 ("Nauchn. zap. Fiz.-matem. fak. Odessk. gos. ped. in-t", 1958, v. 22, no. 1, 95 - 96)

TEXT: The author describes the design of a two-position bellowless vacuum valve which ensures a good sealing and a high capacity at a practically unlimited service life. The advancing displacement of the rod of the given design is not limited by bellows, as it is the case with the prevailing valves. Therefore, the new valve possesses a considerable capacity. The cocks were tested at the X-ray spectrum laboratory of the Odesskiy pedagogicheskiy institut (Odessa Pedagogical Institute) and the results were fully satisfactory. There are 2 figures.

O. Tolkova

[Abstracter's note: Complete translation]

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SOV/20-122-2-10/42

24(7)

AUTHORS: Vaynshteyn, E. Ye., Bril', M. N., Staryy, I. B.

TITLE: The Fine Structure of the X-Ray Absorption K-Spectra of Titanium in Titanates (Tonkaya struktura rentgenovskikh K-spektrov pogloshcheniya titana v titanatakh)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 2, pp 201-203 (USSR)

ABSTRACT: In a previous paper the fine structure of the X-ray emission K-spectra of titanium in the titanates of Mg, Ca, Ba, Sr, Fe, Zn was investigated. This paper gives results concerning the absorption K-spectra of titanium in the same titanates. These spectra were investigated by means of a focussing X-ray tube spectrograph with a curved quartz crystal. The investigations were carried out by means of absorbers of various thickness (3 - 14 mg/cm^2). The short-wave structure of the edge appears most clearly and without distortions in the spectra of thin absorbers. The intensity then decreases and the structure of the long-wave group of the absorption lines appears, but only faintly. In the spectra of thick absorbers, the succession is reversed. The most favorable thick-

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ness of the absorbers was ~5 mg/cm^2. The absorption spectra found for titanium, for the above mentioned titanates, and for rutile (TiO_2) are represented in some diagrams. From these experimental results the following conclusions may be drawn: 1) The X-ray absorption spectra of titanium in titanates are characterized by a distinct fine structure which has many fluctuations. The shape of this fine structure depends on the type of the crystal structure, on the characteristic features of the chemical bonds in the compound, and on the polarization state of the titanium atoms and oxygen atoms in this compound. The edge of the absorption of titanium in $ZnTiO_3$ has the simplest shape. 2) In the X-ray absorption spectra of titanium in compounds which have a crystal stucture of the ilmenite type ($FeTiO_3$, $MgTiO_3$), the shape of the long wave absorption band and the point of its maximum (with respect to the energy) remain the same as in the spectra of $ZnTiO_3$. However, the fine structure of the short-wave region of the absorption edge has a more complicated structure. 3) In the absorption spectra of titanium in rutile and in compounds of the structure of the perkovskite type, a splitting

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The Fine Structure of the X-Ray Absorption K-Spectra of Titanium in Titanates

up of the long wave band into a doublet is observed. The structure of the principal absorption edge of titanium in compounds of the perovskite type only slightly depends on the nature and on the dimensions of the kation, but it depends to a considerable extent on the polarization of the atoms in the investigated compound. The positions of the centers of gravity of the complicated (with respect to the structure) absorption bands of titanium in $BaTiO_3$ corresponds approximately to the position of the absorption maxima of the spectrum of titanium in barium tetratitanate. Finally, the authors compare their interpetation of the above-discussed facts with the interpretation given by M. A. Blokhin (Ref 4). There are 4 figures and 4 references, 4 of which are Soviet.

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

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SOV/20-122-2-10/42

The Fine Structure of the X-Ray Absorption K-Spectra of Titanium in Titanates

Odesskiy pedagogicheskiy institut im. K. D. Ushinskogo
(Odessa Pedagogical Institute imeni K. D. Ushinskiy)

PRESENTED: May 19, 1958, by A. P. Vinogradov, Academician

SUBMITTED: May 15, 1958

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24(7) SOV/20-122-3-11/57

AUTHORS: Vaynshteyn, E. Ye., Staryy, I. B., Zhurakovskiy, Ye. A.

TITLE: The Fine Structure of the X-Ray Absorption K-Spectra of Titanium in Carbides (Tonkaya struktura rentgenovskikh K-spektrov pogloshcheniya titana v karbidakh)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 3, pp 365-366 (USSR)

ABSTRACT: In the papers hitherto published, the fine structure of the X-ray K-emission spectrum of titanium, and of the L-absorption spectrum of molybdenum in carbides and in some other compounds were investigated. This paper gives data on the absorption K-spectra of titanium in alloys of the system Ti-C which contain 12 - 24 weight % of carbon. The measurements were carried out by means of a focusing X-ray tube spectrograph, and the spectra were recorded photographically. The found spectra (which are the average results of 6 independent measurements) are shown by a diagram. The same figure shows the positions of the last K_{β_3} and $K_{\beta''}$ emission lines of

Card 1/2 titanium in the same alloys, and also the position and the

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The Fine Structure of the X-Ray Absorption K-Spectra of Titanium in Carbides

shape of the long-wave absorption band. In the second diagram the X-ray absorption spectrum of titanium in carbide is compared with the spectrum of this element in dioxide (rutile). The fine structure of the absorption spectra of titanium in carbides remains constant in the entire interval of the carbon concentrations in which there is a one-phase region with a face-centered cubic lattice of metal atoms. Also the position and the shape of the long-wave band in the absorption spectrum of titanium in the investigated group of alloys remain constant. There are 2 figures and 7 references, 7 of which are Soviet.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo Akademii nauk SSSR (Institute of Geochemistry and Analytical Chemistry imeni V.I.Vernadskiy, Academy of Sciences, USSR) Odesskiy pedagogicheskiy institut im. K.D. Ushinskogo (Odessa Pedagogic Institute imeni K. D. Ushinskiy)

PRESENTED: May 19, 1958, by A. P. Vinogradov, Academician

SUBMITTED: May 15, 1958

Card 2/2

RUDENKO, N.P.; STARY, I.

Method for separating radioactive isotopes without a carrier. Part 5: Indium and cadmium benzoylacetates and the extraction method for separating radioactive isotopes of indium by means of benzoylacetate. Radiokhimiia 1 no.1:52-59 '59.

(MIRA 12:4)

(Indium--Isotopes) (Cadmium--Isotopes) (Acetic acid)

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))

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 (γ,2n); I.Stary, N.P.Rudenko: Production of Radioactive Isotopes by Extraction as β-Diketonates. Laboratoriya radiokhimii (Laboratory of Radiochemistry): An.N.Nesmeyanov, B.M.Korolev, L.A.Smirnov: Separation of Radioactive Isotopes in the Irradiation of Colloids; An.N.Nesmeyanov, Ye.A.Borisov, S.S.Filatov, V.Kondratenko, Chzhan Tszun-syan, K.Panek, B.Shukla: Secondary Reactions of the Recoil Atoms ^{80}Br and ^{82}Br in Methyl Bromide; 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.M.Ratov: The State of Radioactive Isotopes in Extremely Dilute Solutions; M.S.Merkulova, I.V.Mel'ikhov: General Theory of the Coprecipitation of Radioactive Elements With Non-isomorphous Crystalline Precipitates; A.V.Lapitskiy, Z.A.Savich, Chzhuan 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.Zaborenko, A.M.Babeshkin, M.S.Aul'chenko: Accumulation and Separation of Recoil Atoms on the Basis of the Example Ra^{224} and Ra^{223}; K.B.Zaborenko, A.M.Babeshkin, V.A.Beyevskaya, L.L.Mel'ikhov: Application of the Emanation Method for the 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: Niobium^{95} as a Radioactive Tracer; I.P.Alimarin, T.A.Belyavskaya, Hu Bin-ven': Sorption of Zr by Ion Exchangers; A.I.Busev, V.M.Byr'ko: The Use of Complex Pyrazolinedithiocarbamates in Radiometry. 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; V.G.Knyagina, O.G.Nezkova: Uranium Compounds 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/78-4-1-47/48

18(7)

AUTHORS: Vaynshteyn, E. Ye., Zhurakovskiy, Ye. A., Staryy, I. B.

TITLE: On Some Results of the X-Ray Spectral Analysis of the Physical Nature of the Intrusion Phases (O nekotorykh rezul'tatakh rentgenospektral'nogo issledovaniya fizicheskoy prirody faz vnedreniya)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 1, pp 245-246 (USSR)

ABSTRACT: The X-ray-K-absorption spectra of titanium in nitrides, in alloys of the system Ti-C with carbon contents of 9 to 24 wt %, in three hydrides with a hydrogen content of 1, 2, and more than 3 wt %, and in titanium diboride (TiB_2) were investigated. Some of the results are shown in figures 1 and 2. The X-ray absorption spectra of titanium in hydrides of various hydrogen contents have a different fine structure. The reciprocal effect of the transition metal and the nonmetal in hydrides differs qualitatively from the reciprocal effect in carbides and nitrides. The X-ray absorption spectra of titanium in titanium diboride are very complicated; this is probably caused by the complicated crystalline structure of this compound. In order

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On Some Results of the X-Ray Spectral Analysis of the Physical Nature of the Intrusion Phases

to explain the physical nature of the binding forces in the borides, further systematic investigations are required. There are 2 figures and 12 references, 7 of which are Soviet.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo Akademii nauk SSSR; Odesskiy pedagogicheskiy institut im. K. D. Ushinskogo (Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy of the Academy of Sciences, USSR; Odessa Pedagogical Institute imeni K. D. Ushinskiy)

SUBMITTED: June 4, 1958

Card 2/2

(2) SOV/78-4-10-37/40

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 $(pH_{\frac{1}{2}})_{1.0} =$

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

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 $(pH_{\frac{1}{2}})_{1.0}$ for the extraction without carrier of yttrium^{90} 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 Y^{90} or Y^{91}. Figure 1 gives the experimentally obtained data for logq, 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 Y^{90} 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/78-4-1o-37/4o
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 $\sim$9. As is shown in figure 5, the decomposition of the extracted yttrium^{90} corresponds to a high purity of the preparation (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

STARYY, I.B.; TSUKERMAN, V.G.; VAYNSHTEYN, E.Ye.

Study of the dark background of cadmium sulfide photoresistors used as transducers in recording weak X rays. Nauch. zap. Od. ped. inst. 25 no.2:71-73 '61.

(MIRA 18:2)

STARYY, I.B.; ANDRZHIYEVSKIY, G.K.

Crystal holder for precision bending of crystalline plates.
Nauch. zap. Od. ped. inst. 25 no.2:105-107 '61.
(MIRA 18:2)

86047

181215 1521,1449

S/020/60/135/003/033/039
B004/B060

AUTHORS: Vaynshteyn, Z. Ye., Zhurakovskiy, Ye. A., and Staryy, I. B.

TITLE: X-Ray Spectrum Analysis of Titanium Beryllides 21

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 3, pp. 642 - 644

TEXT: The authors refer to the obscure points found in literature concerning atomic interaction in beryllides of transition metals. They wanted to clarify this problem by studying the fine structure of X-ray spectra of titanium beryllides. The specimens were, besides pure titanium metal, TiBe and $TiBe_2$ prepared by the Institut metallokeramiki i spetssplavov AN USSR (Institute of Powder Metallurgy and Special Alloys of the AS UkrSSR) and placed at the authors' disposal by G. V. Samsonov. The apparatus used for the X-ray spectrum analysis had been described in Refs. 8,9. Both the fine structure of the absorption spectrum (exposure 4-6 h at 15 kv, 40 ma) and the fluorescence spectrum (fine structure of the $K\beta_5$ line) (exposure 20-40 h, 15 kv, 70 μa) were photographed. A shift

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X-Ray Spectrum Analysis of Titanium Beryllides

S/020/60/135/003/033/039
B004/B060

of the $K\beta_5$ line, as well as of points m and A of the edge of the absorption band was observed in beryllides, as against the Ti spectrum. Fig.1 illustrates this shift, taking the position of the $K\beta_5$ line in pure titanium as the zero point of graduation. The relative position of these points on the energy scale (ev) is shown in Table 2:

$K\beta_{5max}$	m	A
Ti 0	6.7 0.2	17.8 0.5
TiBe 3.8 0.2	7.5 0.2	23.0 0.3
$TiBe_2$ 3.8 0.2	7.2 0.2	22.6 0.3

The experimental data are indicative of a metallic character of titanium beryllides, the valence electrons being common to both atoms. The donor-acceptor interaction between 3d electrons of Ti and 2s electrons of beryllium is bound to be small. There are 1 figure, 2 tables, and 9 references: 5 Soviet and 4 German.

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86047

X-Ray Spectrum Analysis of Titanium Beryllides

S/020/60/135/003/033/039
B004/B060

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). Odesskiy pedagogicheskiy institut im. K. D. Ushinskogo (Odessa Pedagogical Institute imeni K. D. Ushinskiy)

PRESENTED: June 16, 1960, by A. P. Vinogradov, Academician

SUBMITTED: June 8, 1960

Card 3/4

25280

S/200/61/000/007/004/006
D238/D302

9,6150

AUTHORS: Vaynshteyn, E.Ye., Staryy, I.B., and Tsukerman, V.G.

TITLE: The use of CdS single crystals for low intensity X-ray spectral analysis

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Sibirskoye otdeleniye, no. 7, 1961, 48 - 54

TEXT: The aim was to study the use of photo-cell resistance of CdS single crystals in low intensity X-ray spectrum analysis. Previous work had revealed the sensitivity, durability, stability and convenience of these crystals but it had nearly all been carried out with high intensity radiation. The experiments reported here were carried out with standard photo-cell resistances, type FSKM2. Fig. 1 shows experimental scheme. A diagnostic X-ray tube, type 2-BDM-75, was placed 15 cm from the photo-cell resistance, and a roentgen quanta counter (nx 64 imp/min) 60 cm from the tube, thereby allowing direct and indirect measurement of intensity. The tube

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S/200/61/000/007/004/006
D238/D302

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was fed from a high-voltage rectifier with a capacitive filter at a constant voltage of 30 kw. The current passing through the tube never exceeded 150 microamps, and copper and aluminum absorbers of various thicknesses were placed in the path of the rays. The voltage on the photo-cell was provided by a potentiometer and measured by a voltmeter. The current (I_F) passing through the photo-cell resistance was measured by a special vacuum tube apparatus, built on a bridge circuit which could measure to orders of 10^{-10} amps. All parts of the apparatus were carefully screened against interference. The photo-cell resistance voltage was determined experimentally for each data unit to guarantee the maximal signal background ratio (I_F/I_T) which gives the optimal feeding regime for each photo-cell resistance ($20 < U_F < 40$ v). This regime is distinct from that used to measure high intensity radiation or when these instruments are used in the visible portion of the spectrum and is independent of the radiation recorded by the photo-cell resistance. Results in these experiments agreed with previous reports and confirmed the li-

The use of CdS single ... 25280 S/200/61/000/007/004/006
D238/D302

near relation between photo current strength and the radiation intensity on the resistances for all specimen of CdS crystals studied. The volt-ampere curve of the photo-cell resistance did not obey Ohm's law the discrepancy growing with increase in voltage and photometric intensity. Important complicating factors in using photocell resistances for recording weak radiation are their sluggishness and the effect of the specimen's previous history on the photo-cell current, which factors become more important as intensity diminishes. It has been reported that brightening of CdS photo-cell resistance was useful and this was studied here. The photo current strength, evoked by the effect of the illumination, on the resistance was excluded. Illumination influences not only the sensitivity to X-rays, but also the time taken to reach a constant photo-cell current value. The exact nature of the influence depends on the spectral composition of the illumination, visible light of low intensity giving better results than ultra-violet light both as regards overcoming sluggishness and for decreasing the time for photo-cell current fall-off when radiation stops. For more accurate

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The use of CdS single ...

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results it is better to use a special measuring cell in which the photo-cell resistance is mounted with some fluorescent material both being irradiated simultaneously. Work with such a cell is to be reported. Conclusions: 1) CdS photo-cell resistance can be used to register low intensity radiation. 2) The sluggishness of the photo-cell resistance rises as the radiation intensity falls and may be counteracted by preliminary irradiation of the resistance. 3) The effect of brightening on sensitivity and inertia depends on the spectral composition of the illumination. As a supplementary means of decreasing inertia low intensity visible light is most effective. There are 10 figures, 1 table and 9 references: 7 Soviet-bloc and 2 non-Soviet-bloc. The references to English-language publications read as follows: J. Fassbender, Annd. Phys. 5, 33, 1949; H. Simon, Annd. Phys. 12, 45, 1958.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. Vernadskogo AN SSSR; Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR; Odesskiy pedagogicheskiy institut im. K.D. Ushinskogo (Institute of Geochemistry

Card 4/5

L 8379-65 EWT(1)/T/EEC(b)-2 IJP(c)/AEDC(b)/ASD(a)-5/RAEM(t)

S/0058/63/000/011/A026/A026

ACCESSION NR: AR4044022

B

SOURCE: Ref. zh. Fizika, Abs. 11A262

AUTHOR: Stary*y, I. B., Andrizhiyevskiy, G. K.

TITLE: A crystal holder for precision bending of crystal plates

CITED SOURCE: Nauchn. zap. kafedr matem., fiz. i yestestvozn. Odessk. gos. ped. in-t, v. 25, no. 2, 1961, 105-107

TOPIC TAGS: crystal holder, crystal plate, precision bending, spectrometer, x ray spectrograph

TRANSLATION: The quality of x-ray spectra obtained with the aid of x-ray spectrographs depends to a great extent on the perfection of the bending of crystal plates. There is described an improved model crystal holder. The material is Dural (low coefficient of thermal expansion, weak secondary radiation). There is described the technology of preparing a Dural plate, and its dimensions. Before insertion

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ACCESSION NR: AR4044022

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into the x-ray spectrometer or spectrograph the crystal is aligned optically. The final phase of the alignment of the crystal is done using x-rays.

SUB CODE: SS, OP ENCL: 00

Card 2/2

S/849/62/000/000/003/016
A006/A101

AUTHORS: Vaynshteyn, E. Ye., Zhurakovskiy, Ye. A., Staryy, I. B.

TITLE: Roentgenospectral analysis of the force of chemical bond in hydrides of refractory metals on the example of titanium and vanadium compounds

SOURCE: Vysokotemperaturnyye metallokeramicheskiye materialy. Inst. metalloker. i spets. spl. AN Ukr.SSR. Kiev, Izd-vo AN Ukr.SSR, 1962, 19 - 28

TEXT: There are only indirect data available on the type of interatomic interaction in hydrides. The authors attempted for the first time to obtain direct information on the density of electron distribution over the energies in titanium and vanadium hydrides and to check by means of spectroscopy the hypothesis on the presence of a metallic bond between metal and hydrogen atoms in hydrides. For this purpose the authors investigated the fine structure of X-ray absorption K-spectra of titanium in hydrides with 1.2 and about 3 weight % H, and of vanadium in hydrides with 0.12; 0.28; 0.475; 0.75; 1.1 and 1.45 weight % H.

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S/849/62/000/000/003/016
A006/A101

Roentgenospectral analysis of the.. .

Absorption edges of initial metals were also studied. To eliminate undesirable consequences of heating the specimen during the experiments, the emission spectra of Ti in hydrides of various chemical composition were analyzed with the use of the fluorescence method. All the tests were performed on a high-intensity vacuum tube-spectrograph with Johann focusing. The titanium hydrides were prepared and analyzed by V. M. Mikheyeva, and the vanadium hydrides by T. V. Dubovik and G. V. Samsonov. The experiments proved the hypothesis on the "metallization" of the metal-hydrogen bond in the aforementioned compounds and the penetration of 1s-electrons of hydrogen into the vacant 3d-band of the transition metal. This is manifested in the gradual decrease (in comparison with the metal) of intensity of the long wavelength maximum, within the range of the basic edge of the hydride absorption band, and its displacement to the short wavelength side with increasing hydrogen content in the hydrides until this maximum vanishes entirely. A further increase of the hydrogen content in the hydrides does not cause changes in the absorption edge structure of the metal in hydrides. As expected, the long wavelength maximum of absorption in the spectrum of the transition metal in vanadium hydrides vanishes at lesser hydrogen contents in the alloy, than in titanium hydrides. Investigations of the fine structure of the K_{β_5}-band of titanium

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in the hydrides confirm fully the conclusions on the nature of the chemical bond forces in these compounds. The conclusions were drawn from the analysis of experimental data on the absorption spectra of elements in these compounds. However, the peculiarities of the fine structure of Ti emission bands in the hydrides and its changes, depending on the composition of the compounds, may indicate changes in the nature of forces of chemical interaction between hydrogen and metal in the alloys, which differ in the degree of completeness of the transition metal 3d-band. It can also be considered that 1s-electrons of hydrogen do not completely lose their "individual" nature when a generalized sd-band is formed in the hydrides and that the effective hydrogen charge is not equal to 1 and can be different for hydrides rich or poor in hydrogen. This explains also the incomplete vanishing of the $K_{\beta''}$-satellite in the emission spectra of titanium in the hydrides. There are 5 figures.

S/192/62/003/002/002/004
D267/D301

The X-ray absorption spectra ...

by reducing the respective very pure oxides with B or boron carbide, were found to contain only the hexaboride phase. The absorption spectra of metals in oxides and hexaborides were obtained with the aid of a focusing tube_spectrographs in the second order of reflection from the plane $(10\bar{1}1)$ of a bent quartz crystal. A very strong resemblance was found to exist for the L_{II} and L_{III} absorption edges between the oxides and the hexaborides in the case of Ba and La, and there even exists an analogy between Ba and La. On the contrary, the curves for CeO_2 differ strongly from those for CeB_6, and from the curves for Ba and La compounds. The fine structure of the L absorption spectra of Ba, La and Ce in oxide and hexaborides can be interpreted quite satisfactorily as a result of superposition of continuous absorption and of a group of selective lines which arise mainly due to the transition of the 2p-electrons of metals on the d-symmetry energy levels. There are 8 figures. The most important English-language references read as follows: B. Post, D. Moskowitz, F. Glaser, J. Amer. chem. Soc., 81, 1800, 1956; H. Longuet-Higgins, M. Roberts, Proc. Roy. Soc., 224, 336, 1954.

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The X-ray absorption spectra ...

S/192/62/003/002/002/004
D267/D301

ASSOCIATION: Institut neorganicheskoy khimii SO AN SSSR, Institut metallokeramiki i spetsial'nykh splavov AN USSR, Odesskiy pedagogicheskiy institut im. K.D. Ushinskogo (Institute of Inorganic Chemistry, Siberian Branch, AS USSR; Institute of Powder Metallurgy and Special Alloys, AS UkrSSR; Odessa Pedagogical Institute im. K.D. Ushinskiy)

SUBMITTED: July 24, 1961

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S/032/62/028/005/005/009
B163/B102

AUTHORS: Tsukerman, V. G., Staryy, I. B., and Vaynshteyn, E. Ye.

TITLE: Reduction of the time lag of cadmium sulfide photoresistors when weak X-ray intensities are recorded

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 5, 1962, 592-594

TEXT: The CdS photoresistor ФСКМ (FSKM) is a valuable tool for recording the radiation intensity in X-ray spectroscopy and dosimetry, but for low X-ray intensities time lags of several minutes may occur. The resistors are fed with direct current, and the dependence of the signal-to-noise ratio on the applied voltage and the intensity of irradiation is studied. It varies from resistor to resistor but there is always a distinct maximum at about 20-40 volts. The reduction of the time lag by pre-irradiation with X-rays is shown in Fig. 3. Before curve 1 was measured the resistor was kept in the dark for a long time. The following curves 2, 3, and 4 show the results of subsequent measurement series with the same resistor under the same conditions where after each series of measurements the resistor was kept in the dark for one hour. The pre-irradiation remains effective

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for about 5 to 6 hours. Pre-illumination with visible or ultraviolet light has a similar effect; with infrared pre-illumination sensitivity is lower and the time-lag longer than without pre-irradiation. There are 4 figures.

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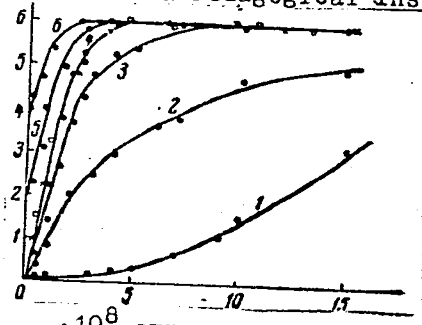

Fig. 3. Variation of the time Δt necessary for the establishment of a stationary value of the photocurrent with X-ray pre-irradiation of a photoresistor (Curves 1-4) and for different values of the dark current (Curves 4-6). For the curves 4-6: • - Δt = 45 min; x - Δt = 60 min; o - Δt = 120 min.

Legend: Abscissa t in minutes, ordinate $I_{phot} \cdot 10^8$ amp.

L 13011-63 EWT(1)/EWP(q)/EWT(m)/BDS AFFTC/ASD WW/JD
ACCESSION NR: AP3002906 S/0289/63/000/001/0096/0105

AUTHOR: Tsukerman, V. G.; Vaynshteyn, E. Ye.; Stary*y, I. B. 59 52

TITLE: Utilization of monocrystalline photoresistance of CdS in x-ray spectral analysis 27

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya khimicheskikh nauk, no. 1, 1963, 96-105

TOPIC TAGS: CdS photoresistance, x-ray spectroscopy, x-ray dose measurement, x-ray irradiation

ABSTRACT: The present study is a continuation of the investigation of the peculiarity of CdS monocrystal. The results of analysis of the photo-resistance of CdS during its subjection to a variable voltage of a varied frequency is described, and the description of a special dosimetric construction used in the measurement of the intensity and the dose of x-ray irradiation is given. The effect of various factors such as the frequency of variable voltage which is fed into the photoresistance, the dose of preliminary x-ray irradiation, the size of crystals and the automatic illumination with a visible light were studied. These factors were compared with the sensitivity and inertness of the monocrystalline CdS-

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ACCESSION NR: AP3002906

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photoresistance during its use in the spectral analysis for the registration of the weak intensities of the x-ray radiation. An experimental model for measuring the photoresistance has been proposed which has been experimentally tested and which allows the increase of sensitivity of the apparatus up to 20 to 40 times as compared to the existing ones. A method is given for the improvement of the transmitter. The dosimetric construction described in this paper can also be used successfully as a monitor and as a discriminator in the devices for measuring impulses. Orig. art. has: 12 figures, 7 formulas, and 1 table.

ASSOCIATION: Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR, Novosibirsk (Institute of Inorganic Chemistry, Siberian Department AN SSSR); Odesskiy pedagogicheskiy institut (Odessa Pedagogical Institute)

SUBMITTED: 14Feb62 DATE ACQ: 24Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 004 OTHER: 000

Card 2/2

L 13704-63

ACCESSION NR: AP3003515 S/0020/63/151/001/0120/0121

44

AUTHORS: Vaynshteyn, E. Ye.; Stary*y, I. B.; Bril', M. N.

TITLE: X-ray L-absorption spectra for lanthanum, praseodymium, neodymium, and samarium in oxides and fluorides

SOURCE: AN SSSR. Doklady*, v. 151, no. 1, 1963, 120-121

TOPIC TAGS: X-rays, absorption spectrum, lanthanum, praseodymium, neodymium, samarium

ABSTRACT: Authors obtained absorption spectra of rare-earth elements in compounds of peroxides, oxides, oxyfluorides, and fluorides with a focusing tube spectrograph. Results are shown in a figure and are discussed. "The authors express their gratitude to L. V. Soboleva and L. R. Batsanova for the presentation of some of the compounds which were analyzed in this work." The paper was presented by Academician A. P. Vinogradov on 9 March 1963. Orig. art. has: 1 figure.

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L 18963-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JG

S/0020/63/151/006/1360/1363 62 59

ACCESSION NR: AP3006598

AUTHORS: Vaynshteyn, E. Ye.; Bril', M. N.; Stary*y, I. B.; Kost, M. Ye.

TITLE: Some results of X-ray study of cerium 21 and lanthanum 21 hydrides 21

SOURCE: AN SSSR. Doklady*, v. 151, no. 6, 1963, 1360-1363

TOPIC TAGS: electron bond, valence, hydrogen bond, metallic bond, La, Ce, X-ray spectra, hydride preparation, hydride storage

ABSTRACT: Use of hydrides of rare earth elements in metallurgy, vacuum technique, and synthesis created interest for additional information concerning the physico-chemical properties of these compounds. Authors studied the hydrides $LaH_{1.97}$, $LaH_{2.28}$, $LaH_{2.66}$, CeH_2, $CeH_{2.34}$, and $CeH_{2.86}$ by X-ray spectrometry. Samples for investigation were prepared by

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ACCESSION NR: AP3006598

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direct reaction of hydrogen and metals at room temperature. Hydrides with lower hydrogen content were prepared by heating high hydrogen-content hydrides. Hydrides were impregnated on silk cloth and sealed in polyethylene envelopes. Preparation was accomplished in a dry chamber, filled with CO_2 and operated from outside. Prepared samples were kept in a container under vacuum. Results of investigation indicate that cerium and lanthanum in hydride form have three valences and valence energy only partly used in formation of ionic bonds with hydrogen, while the rest of it is used to produce metallic bonds. This fact has a direct bearing on decrease of electrical conductivity with an increase of hydrogen content. Orig. art. has: 4 figures.

ASSOCIATION: Institut neorganicheskoy khimii Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Inorganic Chemistry, Siberian Division, Academy of Sciences, SSSR), Institut neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of Inorganic Chemistry, Academy of

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L 34497-65 EWP(e)/EWT(m)/EWP(t)/EWP(b) IJP(c) JD/JG
ACCESSION NR: AP5002800 S/0078/65/010/001/0121/0126 22
19

AUTHOR: Vaynshteyn, E. Ye.; Blokhin, S. M.; Bril', M. N.; Staryy, I. B.; B
Paderno, Yu. B.

TITLE: X-ray spectral investigation of the valency state of rare earth element atoms in the hexaborides

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 1, 1965, 121-126

TOPIC TAGS: rare earth hexaboride, 7 rare earth element valence, valence determination, x ray absorption spectrum 27

ABSTRACT: The X-ray L-absorption spectra of the rare earth element hexaborides and oxides were compared to determine the valency state of the rare earth element in the hexaborides. The L_{III} absorption spectra of the Ce, Nd, Pr and Gd oxides and hexaborides were analogous, with coinciding long wave absorption line maxima, indicating the hexaborides were trivalent, as were the oxides. Differences in the short wave maxima were ascribed to differences in the crystal structure of the oxides and hexaborides. In the case of Eu and Yb, the shift of the absorption edge toward the long wave by the hexaborides in comparison to the

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ACCESSION NR: AP5002800

oxides indicated the valency was less than 3. The spectra of Sm in SmB_6 were interpreted to indicate the presence of 35-40% divalent Sm distributed among the trivalent Sm. The effect of temperature (-100 to +600C) on the role of divalent Sm is being studied. Orig. art. has: 9 figures and 1 table.

ASSOCIATION: Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR (Institute of Inorganic Chemistry, Siberian Branch, AN SSSR); Institut metallokeramiki i spetssplavov AN UkrSSR (Institute of Powder Metallurgy and Special Alloys AN UkrSSR); Odesskiy pedagogicheskiy institut im. K.D. Ushinskogo (Odessa Pedagogical Institute)

SUBMITTED: 11Jun63 ENCL: 00 SUB CODE: IC, GC

NR REF SOV: 007 OTHER: 001

Card 2/2

L 58906-65 EWT(l)/EWT(m)/EWP(i)/T/EWP(t)/EWP(b)/EWA(h) Pz-6/Peb IJP(c)
JD/AT

ACCESSION NR: AP5017061 UR/0289/65/000/001/0124/0125 33
535.215.4:621.315.592:537.531 32

AUTHOR: Tsukerman, V. G.; Lyubin, V. M.; Staryy, L. B.; Vaynshteyn, E. Ye. B

TITLE: Photosensitivity of certain semiconducting films in the X-ray region of the spectrum A

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya khimicheskikh nauk, no. 1, 1965, 124-125

TOPIC TAGS: cadmium sulfide, tellurium sulfide, arsenic selenide, thallium arsenic selenide, semiconducting film, photosensitive film 21

ABSTRACT: Semiconducting films of CdSe, CdTe (crystalline structure) and Sb_2Se_3, As_2Se_3, $Tl_2Se.As_2Se_3$ (amorphous structure), 1-5 microns thick, were investigated. Photosensitivity to X-rays was measured chiefly across the film, and the intensity of the x irradiation was varied. The specific dark resistance of the materials ρ_d and their sensitivity

$$\alpha = \frac{I_\phi}{I_d}$$

(where I_ϕ is the stationary value of the photocurrent for the given illumination intensity

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and I_d is the dark current) are tabulated. Dosimetric characteristics of the materials, obtained in the region of low X-ray intensities, are also given. It was found that the best parameters for use in X-ray vidicons are displayed by $Tl_2Se.As_2Se_3$ films, which have a large dark resistance, a high sensitivity, and a linear dosimetric characteristic. Typical lux - ampere characteristics of $Tl_2Se.As_2Se_3$ films excited by visible light were determined, and are expressed by the relation $I_d = A.E^n$, where n depends on the illumination intensity. In the range of weak illumination values, n is close to unity, and the course of the lux - ampere characteristics is similar to the dosimetric characteristic of the $Tl_2Se.As_2Se_3$ film in the X-ray region at low radiation intensities. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR, Novosibirsk (Institute of Inorganic Chemistry, Siberian Branch, AN SSSR)

SUBMITTED: 27Jun63 ENCL: 00 SUB CODE: IC

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Card 2/2 dap

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X-ray spectral study of the valence state of atoms of rare-earth elements in hexaborides. Zhur. neorg. khim. 10 no.1: 121-126 Ja '65. (MIRA 18:11)

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SDELOVACI TECHNIKA. Praha, Czechoslovakia. Vol. 7, no. 3, Mar. 1959.

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Automatic Control of Thermal Processes in the Open-Hearth Furnace. J. Starý. (*Hutnické Listy*, 1954, 9, Dec., Supplement 10-25). [In Czech]. The theory and practice of the principal automatic control systems (e.g. for the control of the fuel/air ratio and the pressure in the furnace) are considered.—P. F.

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Examining the extraction of a lanthanum benzoyl-acetone complex.
Coll Cz Chem 25 no.1:86-92 Ja '60. (EEAI 9:12)

1. Institut fur Kernchemie, Fakultat fur technische Physik und Kernphysik, Tschechische technische Hochschule, Prag.
(Extraction (Chemistry))
(Phenylbutanedione)
(Complex compounds)

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Research concerning extraction of U(VI)-complex with benzoylacetone.
Coll Cz chem 25 no.3:890-896 Mr '60. (EEAI 9:12)

1. Institut fur Kernchemie, Fakultat fur technische Physik und Kernphysik, Tschechische technische Hochschule, Prag.
(Uranium) (Phenylbutanedione)
(Extraction (Chemistry))

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Determination of composition and stability constants of metal complexes by the extraction method. Coll Cz chem 25 no.10:2630-2641 O '60. (EEAI 10:9)

1. Institut fur Kernchemie, Fakultat fur technische Physik und Kernphysik, Prag.

(Metals) (Exgraction(Chemistry))

S/275/63/000/002/032/032
D405/D301

AUTHOR: Stary, J.

TITLE: Trigger circuit of transistor converters

PERIODICAL: Referativnyy zhurnal, Elektronika i eye primeneniye, no. 2, 1963, 39, abstract 2V244 P (Chekhosl. pat., kl. 21d^2, 12/03, 21a^4, 35/01, no. 101465, 15.11.61 (Czech patent))

TEXT: In order to extend the temperature range of a transistor converter whose displacement voltage is given by a divider connected to a d.c. source, it is suggested to utilize in the emitter-base circuit a semiconductor-triode trigger circuit consisting of a thermistor in parallel with a semiconductor diode. The appropriate design of the trigger circuit can ensure temperature stability of the converter under overloads; it gives a low resistance to the emitter-base circuit and such a low displacement voltage of the semiconductor triode, that the current which arises in the emitter-collector circuit will be $< I_{co}$. Even in the case of short breaks

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Trigger circuit ...

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in the supply voltage the triggering does not reduce the efficiency of the converter.
/ Abstracter's note: Complete translation /

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S/081/62/000/001/010/067
B156/B101

2/4700

AUTHORS: Moučka, V., Starý, J.

TITLE: The extraction of a hexavalent uranium complex by dibenzoyl methane

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 1, 1962, 107, abstract 1V56 (Collect. Czechosl. Chem. Communs, v. 26, no. 3, 1961, 763-771)

TEXT: The dissociation constant,distribution coefficient and solubility of dibenzoyl methane (HA) in water, benzene, $CHCl_3$ and CCl_4 are determined. The relationship between the extraction of U^{6+} by solutions of HA in benzene, $CHCl_3$ and CCl_4 to the pH and the concentration of U and HA is studied. It is established that a type $UO_2A_n(OH)_p - (HA)_r$ complex is formed in the aqueous phase, and that extraction follows the equation $UO_2^{2+} + 3(HA)(org.) = (UO_2A_2HA)(org.) + 2H^+$. The equilibrium constant of this reaction is

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equal to $3.30 \cdot 10^{-5}$ in the case of CCl_4, $7.57 \cdot 10^{-5}$ for C_6H_6, and $9.55 \cdot 10^{-5}$ for $CHCl_3$. An approximate value is computed for the coefficient of distribution of the neutral complex $UO_2 \cdot A_2 \cdot HA$, and a direct relationship established between this value and the distribution ratio of HA. [Abstracter's note: Complete translation.]

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Prague, Collection of Czechoslovak Chemical Communications, Vol 27, No 4, April 1962.

1. "Polarography of Nonbenzenoid Aromatic and Related Substances. Part VIII. Adsorption Processes During the Electroreduction of the Tropylium Ion," P. ZUMAN of the Polarographic Institute of the Czechoslovak Academy of Sciences, Prague, and J. CHODKOWSKI of the Institute of Physicochemical Analytical Methods, at the Polish Academy of Sciences, Warsaw (original-language institutional names not given); pp 759-774 (English article).

2. "Substitution of Ligands in Macrocomplexes. Part IV. Formamidate of Ferric Metahydroxide," V. FREI of the Institute of Inorganic Chemistry at Charles University, Pregue; pp 775-781.

3. "Substitution of Ligands in Macrocomplexes. Part V. Hydrated Ferric Oxyfluoride," V. FREI of the Institute of Inorganic Chemistry at Charles University, Prague; pp 782-787.

4. "On Protein Interactions. Part XXXII. A Study, by the Light Scattering Isochronous Interpolation Method, of the Effect of Conditions Upon the Aggregation of Heat-Denaturated Human Serum Albumin," P. KRATOCHVIL, P. MUNK and B. SEDLACEK, Institute of Macromolecular Chemistry at the Czechoslovak Academy of Sciences, Prague; pp 788-801 (English article).

5. "On Protein Interactions. Part XXXIII. Degradation, by Urea Solutions, of Aggregates of Heat-Denaturated Human Serum Albumin," P. KRATOCHVIL, P. MUNK and B. SEDLACEK, Institute of Macromolecular Chemistry at the Czechoslovak Academy of Sciences, Prague; pp 802-808 (English article).

6. "A Study, with the Aid of the Extraction Method, of the Complexes That Hexavalent Uranium Forms with Alpha-Hydroxy Acids," J. STARY and V. BALEK of the Nuclear Chemistry Institute, Faculty of Industrial and Nuclear Physics, Czech Institute of Technology, Prague; pp 809-815.

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8. "Separation Methods for Natural Products. Part I. New Countercurrent Distribution Procedure," V. PROCHAZKA, J. PITRA and Z. CEKAN, Research Institute for Natural Drugs, Prague; pp 823-831 (English article).

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1. Cheshskoye vyssheye tekhnicheskoye uchilishche, Praga, Chekhoslovakiya. 2. Ob"yedinennyy institut yadernykh issledovaniy, Dubna (for Stary).

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Cesk. otolaryng. 14 no.4:240-242 Ag '65.

1. Otolaryngologicke oddeleni Krajske nemocnice s poliklinikou v Ceskych Budejovicich (vedouci MUDr. H. Venclik, CSc.).

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(OTITIS MEDIA, in inf. & child
incidence of penicillin-resist. Micrococcus pyogenes in infect. (Cz))

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(UTERUS, dis.
prolapse, surg., indic. & technic (Cz))
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incontinence, surg., indic. & technic (Cz))

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(INDUSTRIAL HYGIENE
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1. Czechoslovak Entomological Society affiliated with the Czechoslovak Academy of Sciences, Prague.