LAPITSKIY, A.V.

C.

USSR/Inorganic Chemistry - Complex Compounds.

Abs Jour : Ref Zhur - Khimiya, No 9, 1957, 30328

Author : Spitsyn Vikt. I., Lapitskiy, A.V.

Inst :

Title : Thermographic Study of the Process of Interaction of Niobium Pentoxide with Caustic Soda.

Orig Pub : Zh. neorgan. khimii, 1956, 1, No 8, 1771-1775

Abst : By a thermographic study of mixtures of Nb_2O_5-(I) and NaOH (II), taken in different proportions by weight, it was ascertained that I reacts with II at 130 to form Na_5NbO_5-(III), which is present in the alkali melt in equilibrium with the excess of II. It is shown that the niobates: $NaNbO_3 \cdot 3.5H_2O$, $Na_{14}Nb_{12}O_{37} \cdot 32H_2O$ (IV) and $NaNbO_3$ interact at above 100° with II to form III. Thus III is formed in melts containing excess II. The authors assume that the process of interaction of Na-niobates with II takes place with a slight exothermic effect but the latter is masked by the endothermic effect of the

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USSR/Inorganic Chemistry - Complex Compounds.

C.

Abs Jour : Ref Zhur - Khimiya, No 9, 1957, 30328

process of dehydration of the niobate and fusion of the excess II. On action of water on the investigated alkali melts, there is formed IV, as a result of hydrolysis of III.

Card 2/2

LAPITSKIY, A.V.

USSR/Inorganic Chemistry - Complex Compounds. C.

Abs Jour : Ref Zhur - Khimiya, No 9, 1957, 30329

Author : Lapitskiy, A.V., Spitsyn Vikt.I., Pchelkin, V.A., Simanov, Yu.P.

Inst :

Title : Thermographic and Roentgenographic Study of the Process of Dehydration of the Niobates of Sodium and Potassium.

Orig Pub : Zh. neorgan. khimii, 1956, 1, No 8, 1776-1783

Abst : Study of the process of dehydration of hexa- and metaniobates: $Na_{14}Nb_{12}O_{37}.32H_2O$ (I), $K_{14}Nb_{12}O_{37}.27H_2O$ (II), $NaNbO_3.3.5H_2O$ (III) and $KNbO_3.2H_2O$ (IV), by means of a continuous operation balance, a McBain balance and a Kurnakov pyrometer. The existence of the following hydrates was confirmed: of I with 6, 4 and 2 molecules of H_2O, in the respective temperature ranges, 80-115°,

Card 1/2

PCHELKIN, V.A.; LAPITSKIY, A.V.; SPITSYN, Vikt.I.; SIMANOV, Yu.P.

Thermography and radiography of the dehydration of hexaniobates of certain bivalent metals. Zhur.neorg.khim. 1 no.8:1784-1793 Ag '56. (MLRA 9:11)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova, Kafedra neorganicheskoy khimii.
(Dehydration) (Niobates)

LAPITSKIY, A.V. Doc Chem Sci -- (diss) "Study of niobates and tantalates". Mos,1957. 22 pp 22 cm. (Mos State Univ im M.V. Lomonosov) 100 copies (KL,9-57, 100)

A.V. LAPIT[illegible]Y, YU.P. [illegible]MAN[illegible]V, E.P. ARTAMON[illegible]

The reduction of Ta_2O_5 with C in a H atmosphere at 1100° proceeds to the formation of the monoxide. It was found that the heating of Nb_2O_5 with C at 1200° in vacuo is not accompanied by the formation of niobium carbide. On the basis of comparing the heats of formation and the heats of decomposition of the oxides and carbides of Nb and Ta, it was concluded that it is impossible to form the carbides under the experimental conditions used. It was established that at 1100° metallic Nb and Ta are oxidized by CO_2 to their higher oxides. Carbon monoxide oxidizes Nb and Ta at the same temperature to their monoxides. (auth)

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1- 4E4g
1- 4E3d

Ferrous metaniobate and metatantalate. A. V. Lapitskii and B. D. Nebylitsyn. Vestnik. Moskov. Univ. 12, Ser. Mat., Mekh., Astron., Fiz. Khim. No. 2, 199-207(1957).—Equimolar mixts. of ferrous oxalate and Nb_2O_5 or Ta_2O_5, when heated at 1150-1200° and 3000°, resp., form black powd. salts. $Fe(NbO_3)_2$ is rhombic; m. 1200-50° (lower than Ca, Sr, and Ba niobates), and $Fe(TaO_3)_2$ is tetragonal. Both are stable and nonvolatile at 1200°. Their respective solubilities in H_2O ($s \times 10^{-6}$ g./l.) at different pH values are: pH 1, s = 22.80, 2.43; pH 4.94, s = 8.35, 3.17; pH 6.10, s = 5.72, 3.55; pH 8.58, s = 3.70, 4.35; pH 12.37, s = 4.07, 7.63. These values, detd. with Nb^{95} and Ta^{182}, are for the most part lower than those detd. with Fe^{59}. The molar soly. of $Fe(NbO_3)_2$ in K_2CO_3 and oxalate solns. is about 10 times that of $Fe(TaO_3)_2$. X-ray powder patterns are given.

Malcolm Anderson

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Reduction of the metaniobates and metatantalates of the alkali metals with hydrogen. A. V. Lapitskii and E. P. Artamonova (M. V. Lomonosov State Univ., Moscow). Zhur. Neorg. Khim. 2, [illegible] (1957)

MT

Ion exchange between the potassium niobates and sodium tantalates. A. V. Lapitskii, D. Nishanov, V. M. Dmitriev, and A. Z. Kozorezov (M. V. Lomonosov State Univ., Moscow). *Zhur. Neorg. Khim.* 2, 982-8(1957).—The isotopic exchange between potassium metaniobate ($KNbO_3 \cdot 2H_2O$), anhyd. $KNbO_3$, sodium hexatantalate, and anhyd. potassium metatantalate was studied at 20°, 35°, and 50°. The exchange between the anhyd. salts and their satd. soln. is only slight and completely independent of temp. The degree of exchange between $KNb^*O_3 \cdot H_2O$ and $Na_8Ta_6O_{19} \cdot 24H_2O$ and its satd. soln. is directly proportional to soly. and temp.

LAPITSKIY, A.V.

LAPITSKIY, A.V.; NISHANOV, D.

Studying the dehydration process of sodium tantalate and potassium tantalate. Zhur.neorg.khim. 2 no.7:1516-1521 Jl '57. (MIRA 10:11)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova, kafedra neorganicheskoy khimii.
(Dehydration (Chemistry)) (Sodium tantalate)
(Potassium tantalates)

LAPITSKIY, A.V

LAPITSKIY, A.V.; NEBYLITSYN, B.D.

Metaniobate and metatantalate of iron (II). Vest.Mosk.un.Ser. mat.,mekh., astron., fiz.,khim. 12 no.2:199-207 '57. (MIRA 10:12)

1.Kafedra neorganicheskoy khimii Moskovskogo universiteta.
(Iron niobate) (Iron tantalate)

AUTHORS: Nishanov, D., Lapitskiy, A. V.

SOV/156 58-1-12/46

TITLE: Some Properties ~~of the Aqueous~~ Solutions of Tantalates and Niobates (Nekotoryye svoystva vodnykh rastvorov tantalatov i niobatov)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 1, pp. 46 - 50 (USSR)

ABSTRACT: In the case of the decomposition of alkaline and carbonate melts which contain tantalum and niobium by water hexa- and penta-tantalates and hexa-niobates of sodium and potassium are formed. Several physical and chemical data are still lacking for the solutions of these salts. This was the reason for the present investigation. The authors define precisely the method of synthesis of sodium and potassium aqueous tantalates and give their analyses. The pH-values were measured by means of a glass electrode on the apparatus LP -5. The electric conductivity of the solution was determined at a slide wire bridge of the type R-38. The results are shown in tables 1-5 and figures 1 and 2 is the average of two parallel measurements. The figures show that the specific electric conductivity of

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the solutions rises linearly and has a higher value than expected for such compounds. This may probably be explained by the fact that the conductivity of the hydrolysis products of the salt was measured. The specific conductivity of the sodium-hexa-niobate solution is lower than that of the potassium hexa-niobate of analogous concentration. This is apparently to be led back to the difference of the mobility of the sodium- and potassium ions. The authors assumed already earlier a chemical interaction between the sodium hexa-tantalate and the niobates in the aqueous solutions. With respect to this circumstance as well as in view of the lacking data in the publications on the absorption spectra of the solutions of the salts in question, the authors measured their optical densities for different wave lengths in the ultraviolet range at the spectrophotometer SF -4 with a hydrogen lamp. This was carried out for single components as well as for solutions with a niobate hexa-tantalate mixture. Figures 3-5 show the values found of the optical densities. It is shown that the values in the case of mixtures (Diagram 3) are lower than the expected values which were calculated from the additivity

Some Properties of the Aqueous Solutions of Tantalates and Niobates

SOV/156-58-1-12/46

(additivnost') properties (Diagram 4). This behaviour of the sodium hexa-tantalate and of the -niobates indicates a chemical interaction between them. The extent of the process is in the case of the meta-niobate greater than in the case of hexa-niobate. There are 5 figures, 5 tablos, and 8 references.

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

SUBMITTED: September 27, 1957

Card 3/3

SOV/156-58-1-13/46

AUTHORS: Nishanov, D., Lapitskiy, A. V.

TITLE: Investigation of the Exchange Between Sodium Hexa-Tantalate and Some Niobates (Izucheniye obmena mezhdu geksatantalatom natriya i nekotorymi niobatami)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 1, pp. 51 - 53 (USSR)

ABSTRACT: The aqueous niobates and -tantalates are isopoly-compounds. The problem of their structure is not yet settled. The authors try in the present paper to determine a similarity in the structure of the niobates and tantalates. For this purpose sodium- and potassium hexa-niobates were chosen as well as aqueous potassium metaniobate and sodium hexatantalate. One of the sodium hexatantalate preparations was labelled by means of the radioactive tantalum isotope Ta^{182}. For the calculation of the effectiveness of the exchange between hexatantalate and niobate first the amount of the isotopic exchange between the saturated solution of the sodium hexatantalate and its precipitation had to be determined, which contains the radioactive isotope. The obtained results yielded an exchange

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Investigation of the Exchange Between Sodium Hexa-Tantalate and Some Niobates

degree of approximately 10%. This value remains practically constant even if the solution was stirred during 8 hours. The isotopic exchange takes place here probably only in the surface layer of the crystals. The velocity of the exchange is limited by the velocity of the recrystallization of the bottom sediments. It is, however, also possible that various tantalum atoms in the salt molecules are not equivalent. Table 2 shows the experimental results of the exchange between the aqueous potassium metaniobate (concentration 3,97 mg/ml) and the sodium hexatantalate (3,42 mg/ml). These results show that a complete substitution of the niobium by the tantalum of the precipitation takes place in the solution. In the case of an exchange between sodium hexaniobate and sodium hexatantalate (concentrations recalculated for pentaoxides = 2,79, 4,05 mg/ml, respectively) a similar complete exchange was observed (Table 3). Table 4 gives the results for the exchange between potassium hexaniobate and sodium hexatantalate. In contrast to the two above mentioned cases the substitution of niobium by tantalum is considerable, it is, however, imperfect. These

Investigation of the Exchange Between Sodium Hexa-Tantalate and Some Niobates SOV/156-58-1-13/46

results are apparently somewhat unusual. They may, however, be explained by an assumed interaction between the niobates and the tantalates under formation of complex ions. There are 4 tables and 4 references, 2 of which are Soviet.

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

SUBMITTED: September 27, 1957

Card 3/3

5 (2) SOV/55-58-6-16/31

AUTHOR: Lapitskiy, A. V.

TITLE: On the Reaction Products of Niobium Oxide and of Tantalum Pentoxide With Caustic Alkalies (O produktakh vzaimodeystviya pyatiokisi niobiya i pyatiokisi tantala s yedkimi shchelochami)

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1958, Nr 6, pp 121-126 (USSR)

ABSTRACT: The separation of the elements mentioned is brought about usually by melting with caustic alkalies and leaching out the alloys in water. The products formed during this process have as yet been only little investigated. In this paper the composition of the products formed by this process are investigated. In earlier papers by V. I. Spitsyn (Ref 1) and by the latter and N. N. Shavrova (Ref 3) compounds of the composition Na_5TaO_5 had already been found. In continuation of these works, new knowledge of the interaction between the oxides mentioned and caustic soda and caustic potash could be acquired. Obtaining of the initial products was described by reference 1. The data obtained by analysis are given. The

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On the Reaction Products of Niobium Oxide and of Tantalum Pentoxide With Caustic Alkalies

SOV/55-58-6-16/31

description of individual investigations (experiments with various concentrations of caustic alkali solutions) is rather detailed. Investigations showed that in the interaction of tantalum pentoxide with caustic soda solution, various aqueous tantalates are formed (orthotantalate, pentatantalate, and hexatantalate of Na) in dependence on the concentration of caustic alkali initial solutions. Further, the refraction index for penta- and hexatantalate was exactly determined. The process of decomposition in the leaching-out waters of tantalum and niobium is investigated and for the mechanism of the hydrolytic separation of the highly-basic niobates and tantalates the following scheme is given (Tables 1, 2):

$$Me_5NbO_5+H_2O=Me_3NbO_4+2MeOH$$
$$6Me_3NbO_4+H_2O=Me_8Nb_6O_{19}+10\,MeOH$$
$$2Me_8Nb_6O_{16}+H_2O=Me_{14}Nb_{12}O_{37}+2MeOH$$

$$Me_5TaO_5+H_2O=Me_3TaO_4+2MeOH$$
$$10\,Me_3TaO_4+8H_2O=Me_{14}Ta_{10}O_{32}+16MeOH$$
$$3Me_{14}Ta_{10}O_{32}+H_2O=5Me_8Ta_6O_{19}+2MeOH$$

The crystals of these compounds were investigated under the microscope and were confirmed by general chemical analysis. Hexaniobate and hexatantalate are fully separated in the

On the Reaction Products of Niobium Oxide and of Tantalum Pentoxide With Caustic Alkalies SOV/55-58-6-16/31

presence of free alkalies, which is of importance for the separation of ore inclusions. There are 2 tables and 12 references, 7 of which are Soviet.

ASSOCIATION: Kafedra neorganicheskoy khimii (Chair for Inorganic Chemistry)

SUBMITTED: September 25, 1957

Llappickij, A.V.

AIBANIA / Cosmochemistry. Geochemistry. Hydrochemistry. D

Abs Jour : Ref Zhur - Khimiya, No 14, 1959, No. 49013

Author : Llappickij, A. V. and Nebilicin, V. D.
Inst : Tirana University
Title : Note on the Geochemical Properties of Niobium and Tantalum

Orig Pub : Bul Univ shtetor Tiranes Ser shkenc Natyr, 12, No 2, 127-131 (1958)

Abstract : Nb and Ta possess a weak tendency to geochemical migration which is explained by the very low solubility of their compounds and by the thermal stability of these compounds. Both of the above facts are in agreement with published data on the lattice energies of Nb- and Ta-minerals.
-- N. Borling

Card 1/1

AUTHORS: ~~Lapitskiy, A.V.~~, Nesmeyanov, An.N., Alekhin, S.P.

SOV/32-24-9-38/53

TITLE: Thermostat With Inset for Determining the Solubility (Termostaty s nasadkoy dlya opredeleniya rastvorimosti)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 9, pp 1150-1151 (USSR)

ABSTRACT: To determine the solubility under isothermal conditions some parallel experiments must be carried out simultaneously, for which purpose the usual thermostat TS - 15 is not suited. For this reason a thermostat with a special inset was constructed, the design of which is given. In principle this inset consists of a metallic heat-insulated container in which six vessels are located. The latter have one stirrer each whereas a seventh stirrer stirs the container. The stirrers are driven by an electromotor by way of a mechanism which secures a simultaneous, equal revolution. A schematic representation of the thermostat plant, as constructed by the Engineers P.I. Mishkin and A.I. Natman, is given. The temperature control within the range 20° - 180° could be maintained to ± 0.1°. There are 2 figures.

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Thermostat With Inset for Determining the Solubility SOV/32-24-9-38/53

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

LAPITSKIY, A.V.

AUTHORS: Spitsyn, Vikt. I., Corresponding Member of the AN USSR, 20-1-30/58
Lapitskiy, A. V., Aistova, R. I., Nishanov, D., Pchelkin, V. A.

TITLE: Studies of the: Isotopic Exchange of Oxygen Between Heavy-Oxygen Water and Some Niobates and Tantalates (Izucheniye izotopnogo obmena kisloroda mezhdu tyazhelokislorodnoy vodoy i nekotorymi niobatami i tantalatami).

PERIODICAL: Doklady AN SSSR, 1958, Vol. 118, Nr 1, pp. 107-109 (USSR).

ABSTRACT: Individual authors (references 1-8) ascribe different structures to the niobates and tantalates. In several cases the part played by the water and the position of the water are not taken into account. All pertinent papers except references 9,10 deal with the character of the binding between the central atom and the oxygen atoms. In the paper by Spitsyn, Aistova and Vasil'yev (reference 12) the method of isotopic exchange which was also employed by the authors in the present paper was employed in the investigation of another binding. In the tests they used water enriched with O^{18}(1,28 atom-% O^{18}). The exchange was carried out at 95°C in saturated solutions of these salts: sodium-penta- and -hexa-tantalate, as well as potassium-hexa- and -meta-niobate. The duration of test was 5 hours. By hydrolysis the solutions had an alkaline reaction (pH = 11-12). The method was described in the above-mentioned paper (reference 12). Table 1 records

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Studies of the:
Isotopic Exchange of Oxygen Between Heavy-Oxygen Water and Some Niobates and Tantalates. 20-1-30/58

the test results together with the calculated values of the O^{18}-content in the solvent after the completed exchange. From this may be seen that not only the oxygen of the water bound in the tantalates enters into the isotopic exchange, but also the entire oxygen from their anions. Further all experimental values of O -content in water were much smaller than the calculated ones. These deviations lie outside the experimental error. These results may be explained by the fractionation of the oxygen-isotope which proceeds in the direction of the enrichment of the salt with heavy isotope (references 12,14). As follows from table 2, a complete exchange of oxygen from the water, as solvent, and from the anions of these salts also takes place in the case of potassium-hexy- and -meta-niobate. But no enrichment of the salt with heavy oxygen-isotope takes place here. This difference is apparently brought about due to a higher molecular weight of the niobates as compared with the tantalates. As regards the tantalates investigated, in this respect they approach the aquo-poly-tungstates. Thus all oxygen atoms of the above-mentioned 4 salts and combined water are accessible to the isotopic exchange with water as a solvent. The equilibrium is comparatively early attained (within 5 hours).

Card 2/3 There are 2 tables, and 14 references, 7 of which are Slavic.

20-1-30/58

Studies of the:
Isotopic Exchange of Oxygen Between Heavy-Oxygen Water and Some Niobates and Tantalates.

ASSOCIATION: Institute for Physical Chemistry AN USSR (Institut fizicheskoy khimii Akademii nauk SSSR).
Moscow State University imeni M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet imeni M. V. Lomonosova).

SUBMITTED: July 25, 1957.

AVAILABLE: Library of Congress.

Card 3/3

5(3) PHASE I BOOK EXPLOITATION SOV/1648

Nemkova, O.G., Ye. I. Burova (Deceased), O.I. Vorob'yeva, Ye.A. Ippolitova, and A.V. Lapitskiy.

Rukovodstvo k prakticheskim zanyatiyam po neorganicheskoy khimii (Handbook for Laboratory Work in Inorganic Chemistry) [Moscow] Izd-vo Mosk. univ., 1959. 299 p. 15,000 copies printed.

Ed. (Title page): V.I. Spitsyn, Academician; Ed. (Inside book): S.F. Kondrashkova; Tech. Ed.: L.V. Lazareva.

PURPOSE: This handbook is intended for beginning students in chemistry departments of state universities.

COVERAGE: The book consisting of 35 chapters deals with the most important aspects of general and inorganic chemistry. The authors attempt to cover the properties of elements and their compounds as well as the synthesis of various inorganic compounds. The handbook should inculcate in students the habit of assembling and using modern laboratory equipment. Second semester students are expected

Card 1/2

21(8) 5(0) SOV/55-59-3-29/32

AUTHOR: Lapitskiy, A.V.

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 radiokhimii (Laboratory of Radiochemistry): An.N.

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The First All-Union Conference of Universities 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, 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^{228}; K.B.Zaborenko, A.M.Babeshkin, V.A.Beyevskaya, 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: Niobium^{95} as a Radioactive Tracers; I.P.Alimarin, T.A.Belyavskaya, Mu Bin-ven': Sorption of Zr by Ion Exchangers; A.I.Busev, V.M. Byr'ko: The Use of Complex Pyrazolindithiocarbamates 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;

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The First All-Union Conference of Universities and Colleges on Radiochemistry SOV/55-59-3-29/32

V.G.Knyagina, O.G., Nemkova: 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.

Card 4/4

21(5),21(0)
AUTHORS: Lapitskiy, A.V., Nesmeyanov, An.N. S/153/59/002/06/028/029
B115/B000

TITLE: First All-Union Conference of the Institutions of Higher
Learning of the USSR on Radiochemistry

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya
tekhnologiya, 1959, Vol 2, Nr 6, pp 974-977 (USSR)

ABSTRACT:

The first All-Union Conference of the Institutions of Higher
Learning on Radiochemistry organized on the occasion of the
lectures held at the MGU on Lomonosov to celebrate the 50th
anniversary of the book on "Materialism and Empiriocriticism"
by Lenin took place from April 20 to 25, 1959 in Moscow. 83 lectures
were held by lecturers from 17 institutions of higher learning.
About 400 persons from 32 institutions of higher learning of
the USSR took part in the Conference. The inaugural address
was held by the chairman of the organization committee An.N.
Nesmeyanov. The lectures dealt with methods used to isolate
and concentrate radioactive isotopes, chemism of radioactive
elements occurring in nature, chemical properties of "hot"
atoms, synthesis of tagged compounds, state of micro-components
of radioactive elements in solid solutions, coprecipitation of

Card 1/4

——, K.Panek, B.G.Dzantiyev,

First All-Union Conference of the Institutions of Higher Learning of the USSR on Radiochemistry S/153/59/002/06/028/029
B115/B000

N.M.Barkalov, V.V.Khrapov, M.S.Aul'chenko, V.I.Spitsyn, I.Ye. Mikhaylenko, Yu.Ya.Fialkov, Ye.N.Sinotova, V.D.Trenin, I.A. Korshunov, A.P.Batalov, A.A.Orlova, M.Vobetskiy, L.N.Yevtikheyev, Yu.N.Loginov, O.K.Skarre, V.F.Grechanovskiy, V.L.Antonovskiy, I.V.Berezin, N.F.Kazanskaya, V.M.Fedoseyev, V.A.Beyevski, L.L. Melekhov, M.A.Rodicheva, B.M.Korolev, L.A.Sazonov, A.I.Shafiyev, L.V.Bobrov, A.P.Ratov, I.P.Alimarin, T.A.Belyavskaya, Mu-Bin-Ven', A.S.Koreyokuk, B.A.Shishlyakova, A.V.Lapitskiy, Chzhuan-Ya-Uy, I.A.Savich, V.P.Shvedov, S.G.Strizhov, Chin-Tsze-Khou, M.S.Merkulova, L.L.Makarov, I.V.Melekhov, G.S.Popov, A.N.Popkov, D.Yu.Stupin, Yu.G.Vlasov, B.G.Lur'ye, A.N.Murin, A.V.Stepanov, Yu.V.Morachevskiy, V.N.Zaytsev, A.P.Taranov, Chzhan-Kho, A.I. Novikov, Kh.Ya.Kuus, I.M.Korenman, Ya.D.Zel'venskiy, V.A. Shalygin, A.P.Muskin, G.A.Skorobogatov, De Dyk-man, Yu.A. Priselkov, Yu.A.Sapozhnikov, A.V.Tseplyayeva, V.V.Karelin, I.V.Golubtsov, V.K.Shiryayev, D.K.Belashchenko, A.D.Sotskov, Gao-I-Shan', A.A.Zhukhovitskiy, G.B.Fedorov, Yu.F.Babikov, P.L.Gruzin, F.I.Zhomov, G.G.Ryabov, S.M.Kochergin, G.R. Pobedimskiy, V.I.Shamayev, A.I.Busev, V.M.Byr'ko, V.I.Korobkov, N.P.Borzenkova, Yu.A.Likhachev, Ye.K.Bakov, K.A.Petrzhak, and

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First All-Union Conference of the Institutions of Higher Learning of the USSR on Radiochemistry S/153/59/002/06/028/029 B115/B000

R.V.Sedletskiy. The lecturers mentioned were deputies of the following institutions of higher learning and institutes: MGU, MKhTI im.Mendeleyeva, Ural'skiy politekhnicheskiy institut (Ural Polytechnic Institute), LGU, Voronezhskiy gosudarstvennyy universitet (Voronezh State University), Kazanskiy aviatsionnyy institut (Kazan' Institute of Aviation), Kiyevskiy meditsinskiy institut (Kiyev Medical Institute), Kazakhskiy gosudarstvennyy universitet (Kazakhskiy State University), Kiyevskiy politekhnicheskiy institut (Kiyev Polytechnic Institute), Gor'kovskiy gosudarstvennyy universitet (Gor'kiy State University), Leningradskiy tekhnologicheskiy institut (Leningrad Technological Institute), Tadzhikskiy gosudarstvennyy universitet (Tadzhikskiy State University), Tartuskiy gosudarstvennyy universitet (Tartu State University), Moskovskiy institut stali (Moscow Institute of Steel), Moskovskiy inzhenerno-fizicheskiy institut (Moscow Institute of Technical Physics), and Kazanskiy khimiko-tekhnologicheskiy institut (Kazan' Institute of Chemical Engineering). The lectures held on the Conference will be published in the periodical "Radiokhimiya" and in this periodical.

05124

S/189/60/000/003/009/013/XX
B003/B067

5.3700 2209, 1273, 1274

AUTHORS: Chzuan Ya - uy, Savich, I. A., Lapitskiy, A. V., Samorukov, V. R., Titov, L. G.

TITLE: Inner Complex Compounds of Titanium, Zirconium, Niobium, and Tantalum With Certain Schiff Bases

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya 2, khimiya, 1960, No. 3, pp. 40-45

TEXT: The present paper describes the complex compounds of the elements Ti, Zr, Nb and Ta with Schiff bases. The initial substances were: titanium tetrachloride, zirconium oxychloride (produced from zirconium sulfate), the pentachlorides of niobium and of tantalum (produced from the pentoxides (Ref. 4)) and the Schiff bases disalicylal dianisidine, di-(3-methyl-2-hydroxy-benzal)-dianisidine, di(5-bromo-2-hydroxy-benzal)-dianisidine (these compounds were synthetized by the author for the first time) (Table 2) and 12 further substances (Table 1). Carbon tetrachloride and chloroform (both purified, dehydrated, and distilled above phosphorous pentoxide were used as solvents). Titanium complexes:

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85754

Inner Complex Compounds of Titanium, Zirconium, Niobium, and Tantalum With Certain Schiff Bases

S/189/60/000/003/009/013/XX
B003/B067

CCl_4-solutions of $TiCl_4$ and the Schiff basis concerned were mixed at a molar ratio of 1:2 and 1:1, respectively. The precipitates obtained were washed with absolute ether for three to four hours in the Soxhlet apparatus and dried at 90°C. The analysis of the compounds obtained was made by determining titanium (as TiO_2), nitrogen (according to Dumas), chlorine (as AgCl). Table 3 shows the results of the analyses and the properties of the compound. The following was obtained: Ti-salicylal metanitroanilinate, Ti-salicylal aminopyridinate, Ti-salicylal para-iodoanilinate, Ti-2-(4-methyl-2-hydroxybenzalamino)-pyridinate, Ti-3,5-dibromo-2-salicylal aminopyridinate, Ti-5-bromo-2-hydroxybenzal anilinate, Ti-3,5-dichloro-2-salicylal aminopyridinate, Ti-5-chloro-2-(5-bromo-2-hydroxybenzal aminopyridinate, Ti-5-chloro-2-salicylal aminopyridinate), Ti-5-bromo-2-hydroxybenzal metanitroanilinate, Ti-disalicylal ethylene-diiminate, Ti-2,6-disalicylal aminopyridinate, Ti-disalicylal-o,o-dianisidinate. Zirconium complexes: Well definable compounds could be obtained only under the action of solutions of disalicylal dianisidine in dioxane on a 90% zirconium oxychloride solution. The analysis was the same as for

Card 2/3

LAPITSKIY, A.V.; STRIZHKOV, B.V.; VLASOV, L.G.

Some thermodynamic constants of alkali metal metaniobates and metatantalates. Vest. Mosk un. Ser. 2:Khim. 15 no.4:25-27 Jl-Ag '60.
(MIRA 13:9)

1. Kafedra radiokhimii Moskovskogo universiteta.
(Alkali metal niobates) (Alkali metal tantalates)

CHZHUAN YA-UY [Chuang Ya-wui]; LAPITSKIY, A.V.; SAVICH, I.A.

Some properties of solutions of complex compounds formed by titanium with Schiff bases. Vest. Mosk un Ser. 2: Khim. 15 no.4:43-45 Jl-Ag '60. (MIRA 13:9)

1. Kafedra radiokhimii Moskovskogo universiteta.
(Titanium compounds) (Schiff bases)

21128

S/189/60/000/005/006/006
B110/B207

5.3700 2209

AUTHORS: Lapitskiy, A. V., Chuang Ya-Wui, Savich, I. A.

TITLE: Disalicylal ethylene diiminates of titanium, niobium, tantalum, and protactinium

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya 2, khimiya, no. 5, 1960, 78-79

TEXT: The disalicylal ethylene diiminates, DSED of titanium, niobium and tantalum are soluble in organic solvents, the stability of the solutions decreasing with increasing dielectric constant of the solvent. The solubility of the DSED of Ti, Nb, Ta in CCl_4 was studied (Table 1), partly with tracer atoms (Nb^{95}, Ta^{182}) which were measured with a front counter. The solubility of the Ti compound was calorimetrically determined. The compounds dissolve congruently which is confirmed by the unchanged composition of the solid phases (by chemical and X-ray analysis). With a low dielectric constant of carbon tetrachloride, the compounds are likely to be molecularly dissolved. The solutions may be regarded as ideal since

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Disalicylal ethylene... S/189/60/000/005/006/006
B110/B207

their solubility is low. Disregarding the change of the heat of dissolution, it is possible to use the formula for ideal solutions: $\lg N = \lambda/4.575T + A$, for the calculation of the heat of dissolution where λ = the heat of dissolution, N = molar ratio of the dissolved substance, A = a constant. Accordingly, λ was calculated to be 8.3 kcal/mole for the niobium compound and 6.9 kcal/mole for the tantalum compound. Pa^{233} was studied by V. G. Khlopin's method (Ref. 5: Radiokhimiya (sbornik rabot) Izdatel'stvo MGU, 1952, 115. (Radiochemistry (collection of publications) Moscow University Publishing House)) to investigate the distribution of the microcomponent between the precipitates and the saturated solutions of the DSED of Nb, Ta and Ti at 20±0.1°C. Even after 20 days of continuous stirring, no constant values were found for D and λ in the system of the Ti - Pa compounds. Thus, no isomorphic distribution exists between liquid and solid phase. In the systems Nb - Pa and Ta - Pa, however, there are constant values for D and λ (Table 2) which indicates an isomorphic protactinium distribution in the crystals of the macrocomponent. The compound PaR_2Cl_3 thus formed in soluble in CCl_4 at 20°C to $\sim 10^{-7}$ mole/l, the heat of dissolution is approximately 6 kcal/mole [Abstracter's note: This is an almost complete translation of the original.] There are 2 tables and 5 Soviet-bloc references.

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21128

S/189/60/000/005/006/006
B110/B207

Disalicylal ethylene ...

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova Kafedra radiokhimii (Moscow State University imeni M. V. Lomonosov Department of Radiochemistry)

SUBMITTED: April 16, 1960

Legend to Table 1: 1) Compound; 2) DSED; 3) g/1; 4) M/1.

TABLE 1

Таблица 1

1 Соединение	0°		20°		45°	
	3) г/л	4) м/л	3) г/л	4) м/л	3) г/л	4) м/л
2 ДСЭД—Ti	—	—	$4{,}0 \cdot 10^{-4}$	$1{,}0 \cdot 10^{-6}$	—	—
2 ДСЭД—Nb	$1{,}2 \cdot 10^{-4}$	$2{,}6 \cdot 10^{-7}$	$3{,}0 \cdot 10^{-4}$	$6{,}5 \cdot 10^{-7}$	$1{,}1 \cdot 10^{-3}$	$2{,}4 \cdot 10^{-6}$
2 ДСЭД—Ta	$1{,}3 \cdot 10^{-4}$	$2{,}5 \cdot 10^{-7}$	$2{,}3 \cdot 10^{-4}$	$4{,}2 \cdot 10^{-7}$	$7{,}6 \cdot 10^{-4}$	$1{,}4 \cdot 10^{-6}$

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21128

S/189/60/000/005/006/006
B110/B207

Disalicylal ethylene ...

Legend to Table 2: 1) Microcomponent; 2) time of equilibrium adjustment in days; 3) Nb-DSED; 4) TA-DSED.

TABLE2.

Таблица 2

1 Микрокомпонент	D	λ	2 Время установления равновесия (сутки)
3 Дисалицилалэтилендииминат ниобия	1,2	1,0	27
4 Дисалицилалэтилендииминат тантала	1,5	1,2	10

Card 4/4

S/189/60/000/006/002/004
B130/B229

AUTHORS: Lapitskiy, A. V., Nishanov, D., Pchelkin, V. A.

TITLE: Structure of niobates and tantalates

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya 2, khimiya, no. 6, 1960, 18-23

TEXT: The possibility of setting up a general structural formula for polyaqua compounds of niobium and tantalum is discussed. Water is able to form hydrogen or hydroxyl bonds in crystals. The thermal dehydration of salts was studied by the authors, and they found that a great part of the water, (approximately 75%) splits off at 80-120°C. The residual amounts can be removed only very slowly, and a complete dehydration can only be obtained at a sufficiently high temperature: 300-400°C for tantalates, 400-500°C for niobates. The thermograms of all salts show that thermal dehydration is accompanied by endothermic or exothermic effects. The Debye patterns of the salts dehydrated to different degrees differ from each other. The Debye patterns of air-dried salts are characterized by lines of different intensity; those of partly dehydrated salts show a distinct diffusion picture,

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whilst completely dehydrated salts show the simple lines of meta salts. This indicates that in the course of dehydration, the crystal lattice of the initial salt is destroyed and a lattice of the dehydrated meta salt is formed. The data given by the authors, and also by Ye. I. Krylov and Yu. I. Alekseyev in ZhOKh, 24, 1921, 1954; and ZhOKh, 25, 1052, 1955 on the dehydration of different niobates and tantalates show that by an increase of the number of central atoms (niobium and tantalum), the bonding strength of water in the anion is increased. The number of molecules remaining bound in the salt above 100°C is constant, and half a molecule of water goes to one atom of niobium (tantalum) in the anion. According to A. F. Kapustinskiy and A. A. Shidlovskiy (Izv. Sektora plat. blagor. metallov, No. 30, 44, 1955), the water also forms an outer layer around the metal atoms. Bridges are formed between the O-atoms of the water and the O-atoms of the metal (molybdenum) by means of the H-bond. The water bound in the polyaqua compounds is bound not only to the cations but also to the anions. The water molecules surrounding the cations form polyhedra. The amount of water depends on the ionic radius and the polarizing effect of the cation. The water which is split off most easily belongs to the outer sphere of the salt. The firmly bound water is bound in the anions. The bond between the whilst completely dehydrated salts show the simple lines of meta salts. This indicates that in the course of dehydration, the crystal lattice of the initial salt is destroyed and a lattice of the dehydrated meta salt is formed. The data given by the authors, and also by Ye. I. Krylov and Yu. I. Alekseyev in ZhOKh, 24, 1921, 1954; and ZhOKh, 25, 1052, 1955 on the dehydration of different niobates and tantalates show that by an increase of the number of central atoms (niobium and tantalum), the bonding strength of water in the anion is increased. The number of molecules remaining bound in the salt above 100°C is constant, and half a molecule of water goes to one atom of niobium (tantalum) in the anion. According to A. F. Kapustinskiy and A. A. Shidlovskiy (Izv. Sektora plat. blagor. metallov, No. 30, 44, 1955), the water also forms an outer layer around the metal atoms. Bridges are formed between the O-atoms of the water and the O-atoms of the metal (molybdenum) by means of the H-bond. The water bound in the polyaqua compounds is bound not only to the cations but also to the anions. The water molecules surrounding the cations form polyhedra. The amount of water depends on the ionic radius and the polarizing effect of the cation. The water which is split off most easily belongs to the outer sphere of the salt. The firmly bound water is bound in the anions. The bond between the

Structure of ...

S/189/60/000/006/002/004
B130/B229

atoms of the metals (Nb; Ta) results from H-bonding. The structure of the analyzed niobates or tantalates can be explained by the behavior of water in dehydration. The general formula reads: $Me_x\left[(HЭ_6O_{19})_2 \cdot nH_2O\right] \cdot mH_2O$, where Э = Nb, Ta; Me = Li, Na, K etc; n = 1-5; x = 14, 16; mH_2O is the part of water which coordinates around the cations. V. I. Spitsyn, M. L. Fridman, S. S. Babanov, and A. Ye. Von-Arkel' are mentioned. There are 5 tables and 26 references: 14 Soviet-bloc and 12 non-Soviet-bloc.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet, Kafedra radiokhimii (Moscow State University, Department of Radiochemistry)

SUBMITTED: April 29, 1959

Card 3/3

83067
S/153/60/003/004/001/006
B004/B058

21.3000
5.2100

AUTHORS: Golubtsov, I. V., Lapitskiy, A. V., Shiryayev, V. K.

TITLE: The Problem of the Volatility of Niobium Oxides 21

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1960, Vol. 3, No. 4, pp. 571-574

TEXT: This paper was read at the 1st Intercollegiate Conference on Radiochemistry, Moscow, April 20-25, 1959. It was the aim of the authors to measure the pressure of saturated vapors of Nb_2O_5 and NbO_2 in the temperature range of 1489 - 1905^{0}K by using Nb^{95}. A vacuum furnace of the type МВП-3М (MVP-3M) and a Knudsen effusion chamber (Fig. 1), the aperture and container of which were interchangeable and could consist of molybdenum, tungsten or ceramics, served as testing apparatus. The scheme of the absorption apparatus made of quartz and tungsten is shown in Fig.2. The temperature of the effusion chamber was measured with an optical ОПИИР-09 (OPIIR-09) pyrometer. In addition to the Knudsen method, the vapor pressure of N_2O_5 was also measured by the flow method. The apparatus

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The Problem of the Volatility of Niobium Oxides

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B004/B058

used consisted of the MVP-3M furnace, the reaction tube, the installation for air drying, and a gasometer of the Patrikeyev system, type УГСП-1 (UGSP-1). Niobium metal was dissolved, converted into the oxalate complex, precipitated with tannic acid after the addition of Nb^{95}, and annealed to Nb_2O_5. NbO_2 was obtained from $Nb + Nb_2O_5$ in the ТГВ-1 (TGV-1) furnace at 10^{-4} torr by heating up to 1250°C. The specific activity of the preparations was determined by means of a gamma tube of a Б-2 (B-2) apparatus. The data for NbO_2 are listed in Table 1, Fig. 3, those for Nb_2O_5 in Table 2, Fig. 3. X-ray examinations showed that NbO_2 was stable under the experimental conditions, and that the container material (molybdenum, tungsten, ceramics) had no influence on the results. For Nb_2O_5, the X-ray picture showed the appearance of NbO_2 above 1150°C. A thermal dissociation, therefore, takes place in vacuum at high temperatures: $Nb_2O_5 = 2NbO_2 + \frac{1}{2}O_2$. The authors thank Yu. P. Simanov for his advice, and L. P. Belykh, V. A. Galushkin, and V. G. Pakhomov for assembling the

Card 2/3

TSALETKA, R., LAPITSKIY, A.V.

Presence of transuranium elements in nature. Usp. khim. 29 no.12: 1487-1497 D '60. (MIRA 13:12)

1. Khimicheskiy fakul'tet, kafedra radiokhimii Moskovskogo gosudarstvennogo universiteta imeni M.V. Lomonosova.
(Transuranium elements)

83975

S/080/60/033/009/007/021
A003/A001

5.4700

AUTHORS: Strizhkov, B.V., Lapitskiy, A.V., Vlasov, L.G.

TITLE: The Physical-Chemical Study of the Decomposition of the Barium Titanyl Oxalate Binary Salt

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol. 33, No. 9, pp. 2009-2014

TEXT: $BaTiO(C_2O_4)\cdot 4H_2O$ and the products of its thermal decomposition were investigated. It was subjected to complex thermographic and thermogravitation analysis within the temperature range from 20 to 1,400°C. The investigation was carried out in the Gosudarstvennyy issledovatel'skiy elektrokeramicheskiy institut (State Electroceramic Research Institute) on a Voronkov's apparatus (Ref. 4). The weight of the batch was 0.15 g. The temperature was raised at the rate of 8 degrees/min. The first endothermic process was observed at 175°C and was accompanied by a weight loss of 16.7% corresponding to a loss of 4 molecules of crystallization water. The second process took place at 345°C. It was accompanied by a weight loss of 20% due to the decomposition of the oxalate ion and liberation of two molecules of carbon dioxide. The third effect, at 670°C, was due to the liberation of another two molecules of carbon dioxide resulting

X

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86378
S/020/60/133/006/029/031XX
B016/B054

5.3700 2209,1236,1273

AUTHORS: Strizhkov, B. V., Lapitskiy, A. V., Vlasov, L. G., and Tsvetkov, A. I.

TITLE: Production of Titanyl Oxalates of Bivalent Metals, and a Physico-chemical Study of Their Thermal Decomposition

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 6, pp. 1347-1349

TEXT: The authors report on the synthesis of the salts of titanyl oxalic acid $H_2(TiO(C_2O_4)_2) \cdot 2H_2O$ with bivalent cations, and on the physico-chemical study of the decomposition of these salts on heating. For this purpose, the authors developed special methods, and produced, with their aid, barium-, strontium-, lead-, and calcium-titanyl oxalates. For the first three salts, they used the following procedure: Concentrated solution of oxalic acid was added, under continuous stirring, to the aqueous solution of $TiCl_4$ (concentration 0.2-0.3 g/ml) which had been prepared by the method described in Ref. 3. Aqueous solutions of barium

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chloride, strontium chloride, or lead nitrate were added to the resulting solution of titanyl oxalate at room temperature. The resulting complex salts yielded a white precipitate. Calcium-titanyl oxalate could only be obtained in acetonic solution. An analysis of the compounds produced showed the following compositions: $BaTiO(C_2O_4)_2 \cdot 4H_2O$; $SrTiO(C_2O_4)_2 \cdot 5.5\,H_2O$; $PbTiO(C_2O_4)_3 \cdot 4H_2O$, and $CaTiO(C_2O_4)_2 \cdot 5H_2O$. By an X-ray phase analysis and a crystal-optical investigation, the authors proved that the complex salts obtained consist of small isotropic crystals. A comprehensive thermographic and thermogravimetric investigation showed that the thermal decomposition of the said four titanyl oxalates proceeds by steps, and is accompanied by several endo- and exothermic processes (Fig. 1). From the character of decomposition, the authors conclude that the oxalate groups are mainly bound to the titanyl ion; the cation has no noticeable effect on the strength of this bond. The process of thermal decomposition is concluded at about 800°C. The end products are meta-titanates of the corresponding metals. Table 1 gives the specific gravities of the salts used and of the products of thermal decomposition. As was expected, the

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Production of Titanyl Oxalates of Bivalent Metals, and a Physico-chemical Study of Their Thermal Decomposition

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B016/B054

specific gravity increases with rising roasting temperature up to a maximum which corresponds to the specific gravities of barium-, strontium-, calcium-, and lead titanate, respectively. There are 1 figure, 1 table, and 3 non-Soviet references.

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

PRESENTED: April 7, 1960, by I. I. Chernyayev, Academician

SUBMITTED: April 4, 1960

Card 3/3

LAPITSKIY, A.V.

Conference on the grouping of elements in Mendeleev's periodic system. Izv. AN SSSR. Otd.khim.nauk no.9:1719-1720 S '61. (MIRA 14:9)
(Periodic law--Congresses)

22483

21.3100

S/186/61/003/003/001/018
E071/E435

AUTHORS: Lapitskiy, A.V., Chuang Ya-Wuy and Savich, I.A.

TITLE: A Study of the Process of Cocrystallization of Protactinium With Complex Compounds of Titanium, Niobium and Tantalum

PERIODICAL: Radiokhimiya, 1961, Vol.3, No.3, pp.241-245

TEXT: The authors studied coprecipitation of protactinium with complex compounds of titanium, zirconium, niobium and tantalum in order to determine if there were any chemical analogues. They were unsuccessful in synthesizing complex compounds of zirconium and titanium with Schiff's bases of the same composition. (The methods of producing such compounds are the subject of a separate paper.) Therefore, the study was limited to salicylaletylenediiminates of niobium, tantalum and titanium which were similar to each other in respect of their stability and solubility. The method of synthesis of the above compounds was the same as described in a previous paper (Ref.4: Chuang Ya-Wuy, I.A.Savich, A.V.Lapitskiy, V.R.Samorukov, L.G.Titov, Vestn.MGU, seriya II, 4, 40 (1960). The compounds were marked with radioactive niobium -95,

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S/186/61/003/003/001/018
E071/E435

A Study of the Process of ...

tantalum - 182 and protactinium - 233, the purity of which was confirmed by the half-life period and energy of β-radiation. The solubilities of the above complexes in carbon tetrachloride (which was used as a solvent in all experiments) were determined at 0, 20 and 45°C (titanium complex only at 20°C) and are given in the paper. Assuming that the solutions are ideal, the heats of solution of niobium and tantalum complexes were calculated as 8.3 and 6.9 k/cal/mole respectively. The distribution of protactinium between precipitates and saturated solutions of niobium, tantalum and titanium complexes was studied using the attainment of the equilibrium "from above". The authors possessed indicator quantities of protactinium - 233 which permitted varying the quantities of the microcomponent only by two orders. The total activity of the microcomponent in the solid phase was 10^6 to 10^7 impulses/min. Weighed samples of salts containing protactinium - 233 as a microcomponent were placed in glass ampules to which saturated solutions of the same (but not radioactive) salts in carbon tetrachloride were added. The ampules were then sealed and shaken for long periods in a thermostat. After a given period of recrystallization, the ampules

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were centrifuged at 6000 r.p.m. for 1 hour, opened and the radioactivity of samples of the liquid phase determined (β radiation). The experimental results are tabulated. It was found that in the system niobium disalicylalethylenediiminate - protactinium, the recrystallization takes place slowly and in the system tantalum complex - protactinium the equilibrium is established much faster. It appears from the constancy of the observed values of D and λ that in the above two systems an isomorphic coprecipitation takes place, while in the system titanium complex - protactinium this phenomenon was not observed. As the tendency of protactinium to the formation of complexes is similar to that of niobium and tantalum, it is assumed that protactinium forms with Schiff's bases, intercomplex compounds of a composition PaR_2Cl_3, i.e. similar to niobium and tantalum disalicylalethylenediiminates. The solubility of this compound in carbon tetrachloride at 20°C should be about 10^{-7} mole/l and the heat of solution about 6 kcal/mole. Acknowledgments are expressed to M.S.Merkulova for her advice. There are 5 tables and 12 references: 7 Soviet-bloc and 5 non-Soviet-bloc. The 3 references to English language publications read as follows:

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A Study of the Process of ...

S/186/61/003/003/001/018
E071/E435

M.Bachelet, J.Chem.Phys., 43, 106 (1946; A.G.Maddock, G.Miles, J.Chem. Soc., 253 (1949); G.Boissieres, M.Haissinsky, J.Chem. Soc., 256 (1949).

SUBMITTED: May 26, 1960

Card 4/4

STRIZHKOV, B.V.; LAPITSKIY, A.V.; VLASOV, L.G.

Preparation of calcium titanyl oxalate. Zhur. neorg. khim. 6 no.1: 238-239 '61. (MIRA 14:2)

(Calcium titanyl oxalate)

89903

S/078/61/006/003/015/022
B121/B208

S.3700 2209

AUTHORS: Lapitskiy, A. V., Chu Ang Ya-ui, Savich, I. A.

TITLE: Studies of some physico-chemical properties of disalicylalethylene diiminates of titanium, niobium, and tantalum

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 3, 1961, 653-658

TEXT: Apparent molecular weight, electrical conductivity, absorption spectra, refractive indices and other porperties of the disalicylalethylene diiminates of titanium, niobium, and tantalum both in solid state and in solutions were studied by several physico-chemical methods. These compounds are sparingly soluble, fine-crystalline complexes. The apparent molecular weights were determined by dissolving them in acetanilide, and the following values were found: $N_p = 1.726 \pm 0.002$, for the titanium compound, $N_p = 1.762 \pm 0.002$ for the niobium compound, and $N_p = 1.746 \pm 0.002$ for the tantalum compound. The refractive indices were: 125 for the titanium compound; 90 for the niobium compound; and 106 for the tantalum

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Studies of some physico-chemical...

S/078/61/006/003/015/022
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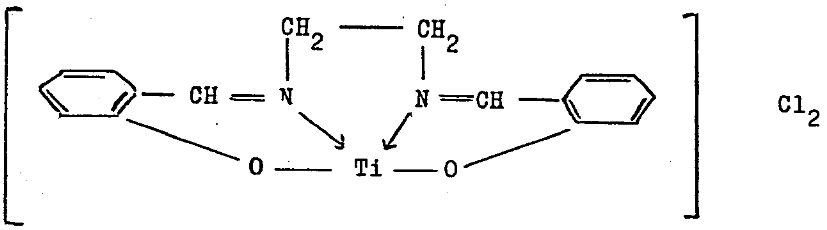
compound. Determination of molecular electrical conductivities disclosed that these complexes dissociate into three ions when dissolved in methyl alcohol. The following structural formulas were obtained on the basis of molecular weights and electrical conductivities:



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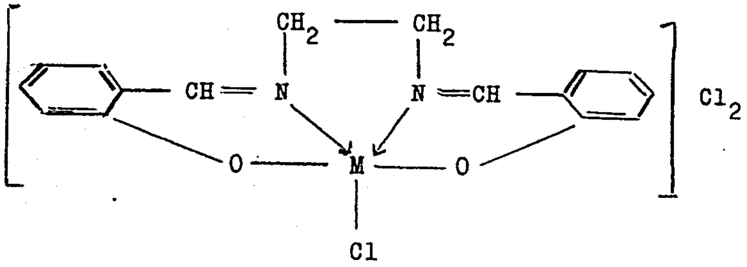
89903

Studies of some physico-chemical...

S/078/61/006/003/015/022
B121/B208



M = Nb, Ta

Spectrophotometric determinations in a wavelength range of 250-600 $m\mu$ indicated that the resultant chelates are of low stability. There is no dependence of the absorption spectra on the radius of the central ion. The titanium chelate is more stable than the corresponding niobium and tantalum compounds. There are 2 figures, 4 tables and 10 references: 4 Soviet-bloc and 6 non-Soviet-bloc.

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Studies of some physico-chemical... S/078/61/006/003/015/022
B121/B208

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova Laboratoriya radiokhimii (Moscow State University imeni M. V. Lomonosov, Radiochemical Laboratory)

SUBMITTED: December 14, 1959

Card 4/4

LAPITSKIY, A.V., prof.

Conference on the structure of D.I.Mendeleev's periodic system.
Zhur.VKHO 6 no.4:464-465 '61. (MIRA 14:7)
(Periodic law--Congresses)

21338

15 2210 4016, 1273, 1145

S/078/61/006/004/010/018
B107/B218

AUTHORS: Lapitskiy, A. V., Artamonova, Ye. P.

TITLE: Products of the reduction of metaniobates of bivalent metals by hydrogen

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 4, 1961, 904-908

TEXT: The reduction of the following metaniobates by hydrogen between 400 and 1200°C was studied: $Be(NbO_3)_2$, $Mg(NbO_3)_2$, $Ca(NbO_3)_2$, $Sr(NbO_3)_2$, $Ba(NbO_3)_2$, $Fe(NbO_3)_2$, and $Pb(NbO_3)_2$. All compounds had been prepared and analyzed in the authors' laboratory. The experimental technique is described in an earlier paper (Ref. 1: A. V. Lapitskiy, Ye. P. Artamonova. Zh. neorgan. khimii, 2, 820 (1957)). The samples were first annealed at 1200°C in the open air. X-ray pictures show that this did not lead to any change in the crystal structure. Reduction in a hydrogen atmosphere was carried out for 5 to 20 hr until a constant weight was attained. The strongest change in weight was exhibited by niobates of beryllium (Fig. 1), iron (Fig. 1), and lead (Fig. 3). The reduction product of beryllium

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metaniobate is a pure niobium oxide. X-ray analysis yielded NbO_2 with a = 4.84 A and c = 2.99 A. Under these conditions, BeO is volatile because of the formation of an aerosol of beryllium hydroxide, as was proved by a special test series. A second experiment (30 hr at 1200°C) yielded NbO and NbO_2 in a ratio of 4:1. The following reactions are most likely to occur in the reduction of lead metaniobate: $Pb(NbO_3)_2 = PbO + Nb_2O_5$; $Nb_2O_5 + H_2 = 2NbO_2 + H_2O$; $PbO + H_2 = Pb + H_2O$. Lead evaporates, and NbO_2 is left behind. The volatility of elementary lead was studied separately (Fig. 3, curve 2). Ferroniobate decomposes at 600°C, and Nb_2O_5 (high-temperature form) is formed. At 1200°C, metallic iron, NbO, and NbO_2 are found in the powder pattern. Under the above conditions, the reduction of alkaline-earth metaniobates proceeds less readily (Fig. 2). The reduction products were treated with dilute HCl, after which Mg, Ca, Sr, and Ba were microchemically determined in the solution. This is, however, impossible when metaniobates are treated with HCl. Weak lines in the powder patterns indicate the formation of NbO_2 and alkaline-earth oxides. The authors thank A. P. Golovina, P. K. Agasyan, and L. P. Reshetnikova who assisted

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S/078/61/006/004/010/018
B107/B218

Products of the reduction of...

in the experiments, and Vikt. I. Spitsyn and Yu. P. Simanov for discussions. There are 4 figures and 13 references: 9 Soviet-bloc. The three references to English-language publications read as follows: J. Elston, Proc. 2 United Nations Intern. Confer. of Peaceful uses of Atom. Energ. 5, 334 (1958); N. D. Ervey, R. L. Seifert. J. Electrochem. Soc., 98, 83 (1951); L. I. Grossweiner, R. L. Seifert, J. Amer. Chem. Soc., 74, 2701 (1952).

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova Laboratoriya radiokhimii (Moscow State University imeni M. V. Lomonosov, Laboratory for Radiochemistry)

X

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S/078/61/006/004/010/018
B107/B218

Products of the reduction of...

Fig. 1: Reduction by hydrogen. Legend: 1) $Be(NbO_3)_2$; 2) $Fe(NbO_3)_2$; y) loss in weight, %.

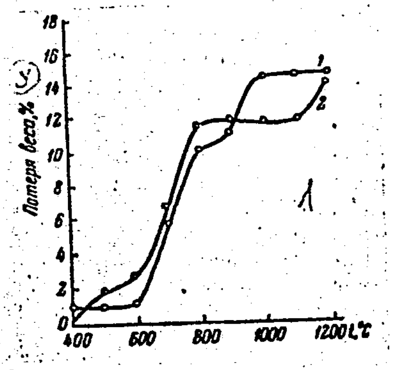
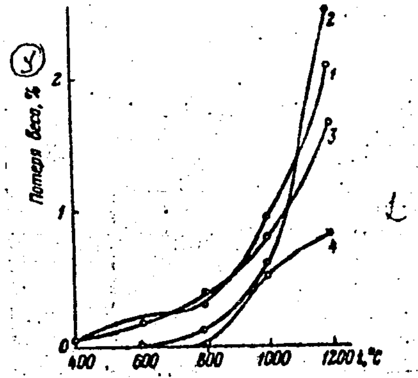


Fig. 2: Reduction by hydrogen. Legend: 1) $Mg(NbO_3)_2$; 2) $Ca(NbO_3)_2$; 3) $Sr(NbO_3)_2$; 4) $Ba(NbO_3)_2$; y) loss in weight, %.



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Products of the reduction of...

Legend to Fig. 3: 1) Reduction of $Pb(NbO_3)_2$ by hydrogen; 2) evaporation of lead in a hydrogen atmosphere; y) loss in weight, %.

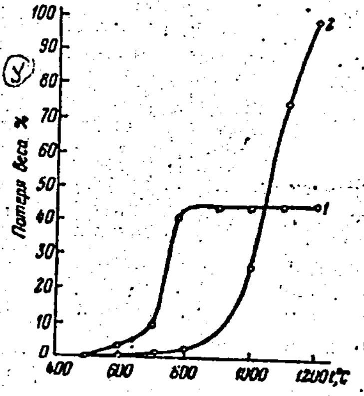

Рис. 3.

Card 5/5

VLASOV, L.G.; LAPITSKIY, A.V.

Physicochemical study of the system aqueous potassium metaniobate - oxalic acid. Zhur.neorg.khim. 6 no.6:1418-1423 Je '61.
(MIRA 14:11)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova, Kafedra radiokhimii.
(Potassium niobate) (Oxalic acid)

VLASOV, L.G.; LAPITSKIY, A.V.; STRIZHKOV, B.V.

Thermographic and thermogravimetric study of oxalatoniobates. Vest. Mosk. un. Ser. 2: Khim. 16 no.1:57-58 Ja-F '61.
(MIRA 14:4)

1. Kafedra radiokhimii Moskovskogo universiteta.
(Oxalatoniobates)

LAPITSKIY, A.V.; NEBYLITSYN, B.D.

Causes of geochemical peculiarities of niobium and tantalum. Vest. Mosk. un. Ser. 4: Geol. 16 no.2:70-74 Mr-Ap '61. (MIRA 14:4)

1. Kafedra radiokhimii Moskovskogo universiteta.
(Columbium) (Tantalum)

VLASOV, L.G.; LAPITSKIY, A.V.

Complex compounds of niobium with oxalic acid. Vest.Mosk.Un.Ser.2: khim. 16 no.6:38-40 N-D '61. (MIRA 14:11)

1. Moskovskiy gosudarstvennyy universitet. Kafedra radiokhimii.
(Niobium compounds) (Oxalic acid)

LAPITSKIY, A.V.

Conference on the arrangement of the D.I.Mendeleev periodic system. Vest.Mosk.Un.Ser.2: khim. 16 no.6:77 N-D '61. (MIRA 14:11)

1. Kafedra radiokhimii Moskovskogo gosudarstvennogo universiteta.
(Periodic law--Congresses)

STRIZHKOV, B.V.; LAPITSKIY, A.V.; VLASOV, L.G.

Preparation and thermographic study of barium, lead and strontium titanyl oxalates. Zhur.prikl.khim. 34 no.3:673-674 Mr '61. (MIRA 14:5)

(Barium titanyl oxalate) (Lead titanyl oxalate)
(Strontium titanyl oxalate)

S/020/61/141/001/012/021
B103/B147

AUTHORS: Lapitskiy, A. V., Vlasov, L. G., Artamonova, Ye. P., and Zyulkovskiy, Yu.

TITLE: Study of interaction of aqueous potassium metaniobate with oxalic acid

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 141, no. 1, 1961, 101 - 103

TEXT: The authors studied, by means of physicochemical analysis, the system $KNbO_3 - H_2C_2O_4 - H_2O$ both in isomolar series and in series with constant $KNbO_3$ concentration. They measured: electrical conductivity, optical density, transparency, lowering of the freezing point, viscosity, pH, and diffusion coefficient. When measuring the latter, they used Nb^{95} as a label. The composition - property curves usually show two extrema: (a) at a molar ratio $KNbO_3 : H_2C_2O_4 = 1 : 0.5$, and (b) at a ratio of 1:1. At the ratio of 1:1, the interaction may take place: $KNbO_3 + H_2C_2O_4 = KHC_2O_4 + HNbO_3$ (1); $KNbO_3 + H_2C_2O_4 = K[NbO_2C_2O_4] + H_2O$ (2);

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S/020/61/141/001/012/021
B103/B147

Study of interaction of aqueous...

✓

$2KNbO_3 + 2H_2C_2O_4 = (NbO_2)_2C_2O_4 + K_2C_2O_4 + 2H_2O$ (3). On the basis of experimental data, only (2) is applicable to the interaction of the two components. The first stage of interaction proceeds as follows: $2KNbO_3 + H_2C_2O_4 = K_2C_2O_4 + 2HNbO_3$. The largest precipitate is formed at a ratio of 1 : 0.5, which is confirmed by data of pH measurements. At 1:1, the solution remained as clear as water. Reaction according to Eq. (3) could not be verified experimentally (pH measurements). By means of electrophoresis it was found that the entire Nb passed to the anode according to Eq. (1). Thus, Nb is in the negatively charged particles whereas, according to Eq. (3), it constitutes a component of the positively charged particles. Since no interaction was found at 1:1, but only at about 1:2, results were checked by computation. The coefficient of self-diffusion of $KNbO_3$ was additionally measured at 25^oC; it was $1.478 \cdot 10^{-5}$ cm^2/sec (concentration about 0.03 moles/liter). The molecular weight approximately calculated for the resulting complex ion was 199.7 which is close to 213 (the value theoretically calculated for the $[NbO_2C_2O_4]^-$ ion). Thus, the composition of the resulting compound was confirmed by the coefficient of self-diffusion. Its composition remains unchanged up to the ratio of

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Study of interaction of aqueous... S/020/61/141/001/012/021
B103/B147

1:10. At a pH < 2, the complex is in solution in a strongly hydrolyzed state since the coefficient of self-diffusion is strongly reduced. At a pH of 1.8, it remained constant for various ratios between 1:1 and 1:10. Thus, only one compound, $K[NbO_2C_2O_4]$, is formed. The instability constant of the complex ion was found to be $8 \cdot 10^{-4}$. A compound with a ratio Nb : $H_2C_2O_4$ = 1:3 could not be found by the authors (contrary to F. Russ, Zs. anorg. Chem., 31, 42 (1902)). There are 3 figures and 4 references: 1 Soviet and 3 non-Soviet. The reference to the English-language publication reads as follows: C. G. Fink, L. G. Jenness, Am. Inst. of Min. and Met. Eng., Technical Publ., 1931, p. 147.

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

PRESENTED: April 22, 1961, by I. I. Chernyayev, Academician

SUBMITTED: April 14, 1961

Card 3/3

GELETSEANU, I.; LAPITSKIY, A.V.

Complex formation of protactinium with mono-, di-, and polycarboxylic acids. Part 1: Complex formation of protactinium with lactic acid. Radiokhimia 4 no.4:421-426 '62. (MIRA 15:11)

(Protactinium compounds)
(Lactic acid)

S/189/62/000/006/003/006
D214/D307

AUTHORS: Vlasov, L.G., Sychev, Yu.N. and Lapitskiy, A.V.

TITLE: Preparative separation of titanium and iron chlorides by vapor phase chromatography

PERIODICAL: Moscow. Universitet. Vestnik. Seriya II. Khimiya, no. 6, 1962, 55-57

TEXT: Separation of the chlorides (95% $TiCl_4$; 5% $FeCl_3$) was conducted on a silica gel column at 380 ± 1°C using Cl_2 as the carrier gas. The Fe content of the emerging $TiCl_4$, found radiometrically (^{59}Fe), was $< 5.10^{-8}\%$ (limit of detection). After 4-5 hrs, 10-15 g of Fe-free $TiCl_4$ were obtained. The adsorption of $FeCl_3$ on silica gel follows the Langmuir equation. The authors point out the value of gas chromatography both in analytical and in preparative inorganic chemistry. There is 1 figure.

ASSOCIATION: Kafedra radiokhimii (Department of Radiochemistry)

SUBMITTED: March 30, 1961

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LAPITSKIY, A.V.; GELETSEANU, I.; BERAN, M.

Complex formation of thorium with some hydroxycarboxylic acids. Radiokhimiia 4 no.6:672-677 '62. (MIRA 16:1)
(Thorium compounds) (Acids, Organic) (Ion exchange)

BERDONOSOV, S.S.; LAPITSKIY, A.V.; VLASOV, L.G.; BERDONOSOVA, D.G.

X-ray study of zirconium tetrabromide. Zhur.neorg.khim. 7 no.6:1465-1466 Je '62. (MIRA 15:6)
(Zirconium bromides) (X rays--Crystallography)

S/078/62/007/008/003/008
B101/B138

AUTHORS: Lapitskiy, A. V., Artamonova, Ye. P.

TITLE: Hydrogen reduction of metatantalates of various metals

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 8, 1962, 1908-1912

TEXT: The metatantalates $LiTaO_3$, $NaTaO_3$, $KTaO_3$, $RbTaO_3$, $CsTaO_3$, $Be(TaO_3)_2$, $Mg(TaO_3)_2$, $Ca(TaO_3)_2$, $Sr(TaO_3)_2$, $Ba(TaO_3)_2$, $Fe(TaO_3)_2$, and $Pb(TaO_3)_2$ were heated in a hydrogen atmosphere at 400 - 1200°C and the constant weight reached was determined. For apparatus and methods see Zh. neorgan. khimii, 2, 820 (1957). Weight became constant after 4 - 80 hrs, depending on the metatantalate. Results: (1) Alkali metatantalates showed maximum loss in weight above 600 - 700°C. Chemical analysis showed that the reaction $2MeTaO_3 = Me_2O + Ta_2O_5$; $Ta_2O_5 + H_2 = 2TaO_2 + H_2O$ must have occurred. The metal oxide is volatilized. Na and K compounds were more stable than Li, Rb, and Cs. (2) Except for $Be(TaO_3)_2$, the metatantalates of the alkaline earth metals showed high thermal stability. The Be

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Hydrogen reduction of metatantalates ... S/078/62/007/008/003/008
B101/B138

compound was reduced the most intensively and BeO was volatilized. The reduction product had the ratio BeO : $Ta_2O_5 \sim 0.6$. (3) Powder patterns of heated $Fe(TaO_3)_2$ showed the (011), (002), (112), and (022) lines of α-Fe, and, very faintly, those of FeO. The process follows the reaction: $Fe(TaO_3)_2 = FeO + Ta_2O_5$; $FeO + H_2 = Fe + H_2O$. As the loss in weight is only 4.28%, the reaction is not completed. (4) In $Pb(TaO_3)_2$ most of the reduced lead volatilizes (loss in weight: 31.02%). Conclusions: At high temperatures hydrogen reduction of metatantalates can only occur if cations with marked polarizing effect are present. There are 4 figures and 2 tables. ✓

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova, Kafedra radiokhimii (Moscow State University imeni M. V. Lomonosov, Department of Radiochemistry)

SUBMITTED: September 13, 1961

Card 2/2

BERDONOSOV, S.S; LAPITSKIY, A.V.; VLASOV, L.G.

Mechanism and products of reduction of tantalum and niobium pentabromides. Zhur.neorg.khim. 7 no.9:2173-2180 S '62. (MIRA 15:9)

1. Moskovskiy gosudarstvennyy universitet.
(Tantalum bromide) (Niobium bromide)
(Reduction, Chemical)

STRIZHKOV, B.V.; LAPITSKIY, A.V.; SIMANOV, Yu.P.; VLASOV, L.G.

Complex titanium oxalates. Zhur.neorg.khim. 7 no.9:2181-2184
S '62. (MIRA 15:9)
(Titanium oxalate)

STRIZHKOV, B.V.; LAPITSKIY, A.V.; VLASOV, L.G.

Thermal decomposition of oxalic acid and bivalent metal oxalates. Zhur.neorg.khim. 7 no.10:2352-2356 O '62. (MIRA 15:10)

1. Moskovskiy gosudarsvennyy universitet imeni Lomonsova i Akusticheskiy institut AN SSSR.
(Oxalic acid) (Oxalates) (Thermochemistry)

VLASOV, L.G.; LAPITSKIY, A.V.; SALIMOV, M.A.; STRIZHKOV, B.V.

Structure of complex niobium oxalates. Zhur.neorg.khim. 7 no.11:2534-2536 N '62. (MIRA 15:12)

(Niobium compounds) (Niobium oxalate)

VLASOV, L. G.; SYCHEV, Yu. N.; LAPITSKIY, A. V.

Preparative partition of titanium and iron chlorides by gas adsorption chromatography. Vest. Mosk. un. Ser. 2: Khim. 16 [i.e.17], no.6:55-57 N-D '62. (MIRA 16:1)

1. Kafedra radiokhimii Moskovskogo universiteta.

(Titanium chloride) (Iron chloride)
(Gas chromatography)

LAPITSKIY, A.V.

New scale of atomic mass (atomic weights). Vest.Mosk. un. Ser.2: khim. 17 no.1:78-79 Ja-F '62. (MIRA 15:1)

1. Moskovskiy gosudarstvennyy universitet, kafedra radiokhimii.
(Atomic mass)

ZYULKOVSKIY, Yu.; VLASOV, L.G.; LAPITSKIY, A.V.

Self-diffusion coefficients of aqueous potassium metaniobate and products of its interaction with oxalic acid. Vest.Mosk.un.Ser.2: Khim. 17 no.2:42-46 Mr-Ap '62. (MIRA 15:4)

1. Kafedra radiokhimii Moskovskogo universiteta.
(Potassium niobate) (Oxalic acid) (Diffusion)

LAPITSKIY, A.V.

Viktor Ivanovich Spitsyn; on the 60th anniversary of his birthday.
Vest.Mosk.un.Ser.2: Khim. 17 no.2:78-80 Mr-Ap '62. (MIRA 15:4)
(Spitsyn, Viktor Ivanovich, 1902-)

LAPITSKIY, A.V., doktor khimicheskikh nauk, prof.

Unified scale of atomic weights. Khim. v shkole 17 no.3:89-90 My-Je '62. (MIRA 15:6)

(Atomic weights)

S/020/62/144/003/021/030
B119/B101

AUTHORS: Gălățeanu, I., and Lapitskiy, A. V.

TITLE: Study of the complex formation of thorium using ion exchange, infrared spectroscopy, and nuclear magnetic resonance

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 3, 1962, 573-575

TEXT: The complex formation of Th with organic acids was studied. The compounds formed with trioxyglutaric acid (2), tartaric acid, α-hydroxy isobutyric acid (3), malic acid (1), and mandelic acid (4) were investigated by ion exchange, those with 1, 2, 3, 4, acetic acid (5), thiosalicylic acid (6), and p-aminosalicylic acid (7) by infrared spectroscopy. The spectrum of nuclear magnetic resonance (proton resonance) of thorium acetate was taken and compared with that of magnesium acetate (at the Institute of Atomic Physics, Bucharest). The constants of instability (between $8.34 \cdot 10^{-9}$ and $1.14 \cdot 10^{-3}$) and the mean effective charge

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S/020/62/144/003/021/030
B119/B101

Study of the...

(z = +0.4 to +10.8) of complex ions were determined from the ion-exchange experiment. In malic acid solution, polymeric association occurs in the presence of Th (H-bridges). On the basis of infrared spectroscopy, thorium forms the following complexes with acids 1-7: $ThA_2 \cdot 1\text{-}2H_2O$, $ThA_2 \cdot H_2O$, $ThA_4 \cdot x\,H_2O$, $ThA_4 \cdot x\,H_2O$, $Th(OH)_2A_2 \cdot H_2O$, $Th_2(OH)_2A_3 \cdot H_2O$, $Th(OH)_3A \cdot 3\,H_2O$ (where A = acid). The investigation of proton resonance showed that the mean width δH was 0.7485 gauss with thorium acetate (δH = 5.250 gauss with magnesium acetate). The secondary moment ΔH_2^2 calculated from experimental data was 0.14 gauss^2 for thorium acetate and 6.89 gauss^2 for magnesium acetate. This proves the occurrence of polymeric association in the case of thorium acetate. There are 3 tables.

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

PRESENTED: January 17, 1962, by S. I. Vol'fkovich, Academician

Card 2/3

40101

S/020/62/145/005/011/020
B106/B144

AUTHORS: Vlasov, L. G., Strizhkov, B. V., Lapitskiy, A. V., and
Salimov, M. A.

TITLE: Infrared absorption spectra of titanium and niobium oxalates

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 145, no. 5, 1962, 1055-1057

TEXT: The complex nature of titanium and niobium oxalates has not hitherto been clearly explained. Therefore, the authors studied the infrared spectra of the following oxalates previously synthesized: $(NH_4)_3[NbO(C_2O_4)_3]\cdot 2H_2O$, $Na_3[NbO(C_2O_4)_3]\cdot 2H_2O$; $K_3[NbO(C_2O_4)_3]\cdot 2H_2O$, $Ba[TiO(C_2O_4)_2]\cdot 4H_2O$. The $Ca[TiO(C_2O_4)_2]\cdot 4H_2O$, $Sr[TiO(C_2O_4)_2]\cdot 5.5H_2O$, spectra of oxalates containing Na, K, NH_4, Ca, Sr, or Ba were taken for comparison. Titanyl and alkaline-earth metal oxalates were investigated by the powder method, the other oxalates in the form of pastes. The spectra of the simple oxalates showed one sharp absorption maximum of 900 - 750 cm^{-1} range, and two such maxima in the 1600 - 1100 cm^{-1} range. The spectra of

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