KOVACS, Gabor, Dr.; KOVACS, Bertalan, Dr.; KOVATS, Tibor, Dr.; KOVACS, Kalman, Dr.
PETRI, Gabor, Dr.

Effect of neuroplegia on the surgical antidiuresis of dogs. Orv. hetil. 99 no.6:186-189 9 Feb 58.

1. A Szegedi Orvostudomanyi Egyetem Sebeszeti Mutettani Intezetenek (igazgato: Petri Gabor dr. egyet. tanar) es I. sz. Belgyogyaszati Klinikajanak (igazgato: Hetenyi Geza dr. egyet. tanar) kozlemenye.

(SURGERY, OPERATIVE, compl.
  postop. oliguria in exper. surg. of dogs, prev. by artif. hibernation (Hun))
(ANURIA, exper.
  same)
(HIBERNATION, ARTIFICIAL, eff.
  prev. of postop. oliguria in exper. surg. of dogs (Hun))

KOVATS, Tibor György; **REÖK**, Andor; **LAZAR**, György; **TAKATS**, Istvan

Changes in the total fat, cholesterol, phosphatides and fat depot in Shwartzman phenomenon. Kiserletes Orvostudomany 11 no.6:615-620 D '59.

1\. Szegedi Orvostudomanyi Egyetem Gyogyszertani Intezete.
(ALLERGY exper.)
(FATS metab.)
(CHOLESTEROL metab.)
(PHOSPHOLIPIDS metab.)

KOVATS, Tibor Gyorgy; LAZAR, Gyorgy; REOK, Andor; VEGH, Pal

Glycoprotein changes in Shwartzman phenomenon. Kiserletes Orvostudomany 12 no.1:30-34 F '60.

1. Szegedi Orvostudomanyi Egyetem Gyogyszertani Intezete.
(ALLERGY exper)
(GLYCOPROTEINS blood)

KOVATS,T.G.; LAZAR,G.; RECK,A.; VEGH,P.

Glycoprotein changes in the course of Shwartzman phenomenon.
Acta physiol.hung. 17 no.3:343-348 '60.

1. Institute of Pharmacology, Medical University, Szeged.
(ALLERGY exper)
(GLYCOPROTEINS blood)

REOK,A.; LAZAR,G.; KOVATS,T.G.

The role of indogenous heparin in the pathomechanism of Shwartzman phenomenon. Acta physiol.hung. 17 no.3:349-354 '60.

1. Institute of Pharmacology, Medical University, Szeged.
(ALLERGY exper)
(HEPARIN blood)

KOVATS, Tibor Gyorgy; LAZAR, Gyorgy; VEGH, Pal

Endotoxin hypersensitivity and relation of this phenomenon to Shwartzman phenomenon. Kiserl. orvostud. 14 no.1:12-27 Mr '62.

1. Orvostudomanyi Egyetem Gyogyszertani Intezete, Szeged.
(ALLERGY exper) (TOXINS AND ANTITOXINS)

HUNGARY

KOVATS, Tibor Gyorgy, LAZAR, Gyorgy, and VEGH, Pal, of the Institute for Pharmacology at the Medical University (Orvostudomanyi Egyetem Gyogyszertani Intezete) in Szeged.

"The Phenomenon of Endotoxin Hypersensitivity and Its Relation to the Shwartzman Phenomenon"

Budapest, Acta Physiologica Academiae Scientiarum Hungaricae, Vol 23, No 2, 1963, pp. 169-187.

Abstract: [English article; authors' English summary, abbreviated] The authors succeeded in eliciting a generalized Schwartzman phenomenon-like kidney lesion in guinea-pigs by a single intravenous endotoxin dose under reticuloendothelical blockade. The reaction following the injection into the skin of rabbits displays the gross and microscopic picture of the delayed type of hypersensitivity reaction. The phenomenon of endotoxin hypersensitivity is probably a natural hypersensitivity which exists in every mammal in symbiosis with endotoxin-producing microorganisms. Thirty-four references, including 1 German and 33 Western.

1/1

BALAZS, A.; KOVATS, Z.; BURG, M.

Biochemical analysis of premortal involution processes on aphagus imagines.
Acta biol. acad. sci. hung. 13 no.2:169-176 '62.

1. Second Institute of Pathology, Medical University, Budapest
(Head: L. Haranghy).

(AGING) (NUCLEIC ACIDS) (AMINO ACIDS) (NITROGEN)
(LIPIDS) (POLYSACCHARIDES)

HARANGHY, L.; KOVATS, Z.

Water-soluble melanin preparation. Acta biol. acad. sci. Hung. 14 no.4:265-272 '64.

1. Second institute of pathological anatomy, Medical University, Budapest. (Head: L. Haranghy).

KOVÁTS, Z.

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Biological Chemistry

5

Biuret test of proteins. II. The copper complex of edestin. J. Nyilasi and Z. Kováts (Eötvos Univ., Budapest). *Acta Chim. Acad. Sci. Hung.* 3, 273-80(1953)(in German); cf. *C.A.* 47, 5469*f*.—Solns. of edestin (I) (concn. not given) in 1.0 and 0.1 *N* NaOH, in the presence and absence of sufficient Cu for complex formation, were kept at 25° for 357 hrs. while the following observations were made: The rate of formation of NH_3 and of amino N in the absence of Cu was much greater than in the presence of Cu (data presented only graphically). Paper chromatograms of the 0.1 *N* NaOH soln. of I showed the presence of free aspartic acid (II) and glycine (III) after 164 hrs. and of free leucine (IV) and alanine (V) after 330 hrs. Chromatograms of the *N* NaOH soln. of I showed the presence of traces of free II and III after 17 hrs. and of IV, V, serine, threonine, proline, and valine after 330 hrs. J. P. Danehy

Kovats, Z.

HUNG,

5. Biuret reactions of proteins. III. Studies on the nickel and cobalt complexes of gelatin — *A fehérjék biuretreakciójáról III. A zselatin nikkel- és kobaltkomplexeinek vizsgálata* — I. Nyilasi and Z. Kováts. (Hungarian Journal of Chemistry — *Magyar Kémiai Folyóirat* — Vol. 59, 1953, No. 10, pp. 300—304, 3 figs., 3 tabs.)

Investigations formerly made on the copper complexes of proteins were extended to the nickel and cobalt complexes of gelatin. By measuring the hydrolysis rate it was established that complex formation — generally a slow process depending on the experimental conditions — is accompanied by the desamidation of glycocoll. Experiments carried out to measure the rate of the liberation of amino groups and to detect the free amino acids led to the conclusion that copper exercises the most powerful protective action followed by nickel and then by cobalt. Microbiological investigations showed that nickel and cobalt bound in a complex form inhibit the racemization of the amino acids — similarly to copper — and hence the configuration of the asymmetric carbon atoms remain uniform. The following conclusion can be drawn: Nickel and cobalt are bound primarily to the nitrogen atoms of the enolized peptide links in the

The following conclusion can be drawn: Nickel and cobalt are bound primarily to the nitrogen atoms of the enolized peptide links in the same manner as copper. All amino acids which show a tendency to racemization in the absence of metals take part in the complex formation. The rate of combination of the metals with single amino acid parts is at least of the same magnitude as the enolization rate of the -CH-(R)-CO- bonds in the case of pure proteins.

KOVATS, Z.

1

34. The biuret reaction of proteins, V. Z. Kovats. *Magyar Kémiai Folyóirat* Vol. 61, 1955. No. 7. pp. 208–209, 4 figs., 1 tab.

A kinetic study of the hydrolysis of 1% gelatin solutions. The solutions contained copper in fractional amounts (0.5, 0.25 and 0.1) of the quantity necessary for the saturation of gelatin (119.2 mg of copper per g of gelatin). These solutions contained at the same time sodium hydroxide in excess over the equivalent quantity of copper sulphate present to attain a concentration of 1 N with respect to the base. The process of hydrolysis in these solutions was investigated at 25 °C (a) by measuring the rate of alpha-amino nitrogen evolution, (b) by qualitative determination of the amino acids set free and (c) by measuring the rate of ammonia cleavage. Measurement of (a) was made by the manometric Van Slyke method modified by Kendrick and Hanke after previous removal of ammonia from the sample. For the identification of the amino acids (b) the sample evaporated to dryness was extracted by means of an acetone-hydrochloric acid mixture (100 : 1) and the concentrated extract was examined by paper chromatographic methods. A two-dimensional ascending paper chromatographic technique was employed using the following solvent mixtures: (1) phenol saturated with water, (2) butanol — glacial acetic acid — water (4 : 1 : 5). The spots were made visible by spraying with ninhydrin. The rate of ammonia cleavage (c) was determined in connection with the evaporations neces-

Chem

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KOVÁTS, V.Z.

sary to carry out determinations (a) and (b) in the following manner; the ammonia liberated was absorbed into a known volume of N/70 sulphuric acid solution and the excess acid was backtitrated. Based on the experimental data it was found that under the conditions investigated the rate of the alpha-amino nitrogen liberation decreased proportionally with increasing copper concentrations. The rate of the alkaline hydrolysis decreased in the presence of copper and the cleavage of the peptide bonds was found to take place between other amino acids as in the case of copper-free gelatin solutions. Ammonia was liberated in amounts exceeding the quantity of acid-amide nitrogen present from those solutions which contained only a fraction of the copper necessary for the saturation of the gelatin-biuret complex. Accordingly it was assumed that the presence of cupric hydroxide or cupric oxide in a heterogeneous phase was unimportant with respect to the deamidation process. Presumably this ammonia found in excess was furnished by the glycocoll molecules.

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KOVATS, Z.

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1-9il(NB)

V The oxidizing effect of the periodate complex of trivalent copper on alkaline glycine solutions. Zoltán Kováts (Eötvös Loránd Tudományegyetem Általános Szervetlen Kém. Intézete, Budapest, Hung.). *Magyar Kém. Folyóirat* 65, 192-5(1959).—The initial phase of the oxidative deamination of glycine (I) is accelerated by the presence of Cu^{+++}. To study the mechanism of this effect the deamination rate of I, in *N* KOH, at 100°, in the presence of moving air, and in the presence of $K_5(Cu(IO_6)_2)$ was detd. As in the course of and following the $Cu^{+++} \rightarrow Cu^{++}$ transformation other oxidative processes also take place which result in NH_3 formation; the amt. of N evolved from NH_3 also was detd., as a function of time, in the Cu^{++}/I, IO_6^{5-}/I, and $Cu^{++}\ 2IO_6^{5-}/I$ systems. It was concluded that the oxidn. of I takes place in the form of a Cu^{+++} complex. There was no evidence of intermediate formamide formation, which contradicted the theory of Beck (*CA* 45, 5058*f*, 6539*b*). G. J. ~~Brnyei~~

KCVATS, Zoltan (Budapest)

Dataon the oxidation of alkaline glycocoll sulutions carried out by periodate and catalyzed by copper. Acta chimica Hung 22 no.3:313-329 '60. (EEAI 9:11)

1. Institute of General and Inorganic Chemistry, Lorand Eotvos University, Budapest.
(Solutions) (Glycine) (Glycocoll)
(Periodates) (Catalysts) (Copper)

KOVATS, ZOLTAN

3
JAS(HG)

The copper-catalyzed oxidation of alkaline glycine solutions by periodates. Zoltán Kováts (Eötvös Lóránd Univ., Budapest, Hung.). *Magyar Kém. Folyóirat* 66, 181-7 (1960).—Glycine in the presence of *N* KOH and Cu was oxidatively deaminated at 100°. The oxidizing agent was KIO_4 which behaves like H_2O_2 under the circumstances. H_2O_2 is formed in alk. soln. according to Albrecht (*CA* 23, 4889) and Erdey (*Magyar Tudományos Akad. Kém. Tudományok Osztályának Közleményei* 2, 425(1952)). In the process first the H_2O_2 which is loosely attached to the Cu(II)-glycine complex strips the Cu^{++} of its ninth 3d electron. A red-brown ephemeral Cu(III) complex forms which decays by deaminating the glycine ligand. By-product is NH_3, through which the rate of the reaction can which decays by deaminating the glycine ligand. By-product is NH_3, through which the rate of the reaction can be measured. A Cu(III) → Cu(II) process is set forth as opposed to Goudot's theory (*CA* 52, 3894i) which explains the mechanism by a Cu(III) → Cu(I) process.

Peter Marcel Barna

HAJOS, Erno; KOVATS, Zsolt

Conference of the building industry on the organization of production. Epites szemle 5 no.3:89-91 '61.

KOVATS, Zoltan

Periodate oxidationof alkali glycocoll catalyzed by copper. Magy kem folyoir 66 no.5:181-187 My '60.

1. Eotvos Lorand Tudomanyegyetem Altalanos es Szervetlen Kemiai Intezete, Budapest.

KOVATS, Zoltan

Correlation between the structure and catalytic activity of copper complexes. Magy kem folyoir 69 no.3:98-103 Mr '63.

1. Budapesti Orvostudomanyi Egyetem II.sz. Korbonctani Intezete.

KOVATS, Zoltan

Answer to Mihaly Beck for his remarks about my paper entitled "Correlation between the structure and catalytic activity of copper complexes." Magy kem folyoir 69 no.12: 562-563 D'63.

1. Vegyipari Egyetem Fizikai-Kemiai Tanszeke, Veszprem.

ANFILOGOV, A.D.; BELOSTOTSKIY, N.B.; KOVATSENKO, Ye.G.; KOZYREV, Yu.M.;
KURACHENKO, Yu.P.; MAL'TSEV, V.M.

Measuring equipment in the service of technological development.
Izm.tekh. no.12:48-50 D '62. (MIRA 15:12)
(Measuring instruments)

GAL, Erno, chemical engineer; KOVATSITS, Katalin, chemical engineer

New methods for investigating the mineral content of Hungary's coals. Izvestiia Bany KI no.3/4:53-57 '59/60.

KOVATSITS, MÁTÉ

6

Synthesis of compounds of β-haloethylamine type with Adrenaline-blocking action. Károly Nádor, Máté Kovatsits and László Gyermek (Med. Univ., Budapest). *Acta Chim. Acad. Sci. Hung.* 2, 163-01(1952)(in English).—With the object of finding compds. with Adrenaline-blocking effects, various ArOCH$_2$CH$_2$NRCH$_2$CH$_2$X.HX (I.HX) were synthesized. RN(CH$_2$CH$_2$OH)$_2$ were converted to hemieffects, various $ArOCH_2CH_2NRCH_2CH_2X.HX$ (I.HX) were synthesized. $RN(CH_2CH_2OH)_2$ were converted to hemialcoholates and then treated with aralkyl halides to give $ArOCH_2CH_2NRCH_2CH_2OH$. These were converted with $SOCl_2$ or $SOBr_2$ to the corresponding Cl or Br derivs. The following I were prepd. [R, Ar, X, m.p., Adrenaline-blocking effect (the effect of Dibenamine = 1) given]: Me, $PhCH_2$, Br, —, 0.6; $PhCH_2$, $PhCH_2$, Cl, 120°, 0.5; $PhCH_2$, $PhCH_2$, Br, 98°, 1.5; 1-naphthylmethyl, $PhCH_2$, Cl, 180°, 1.5; $PhCH_2$, 1-naphthylmethyl, Cl, 195° (decompn.), 1.0; Me, 1,4-benzodioxan-2-ylmethyl (A), Cl, 120°, 0.2; $PhCH_2$, A, Cl, 130°, 1.0; $PhCH_2$, A, Br, 119-21°, 3.0. The I were readily sol. in H_2O. The last compd. caused complete adreno-sympathic paralysis with a dose of 3-4 mg./kg. and showed LD_{50} for mice on intraperitoneal application of 60 mg./kg.

István Pálfy

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GYERMEK, L.;NADOR, K.;KOVATSITS, M.

New adrenaline-blocking compounds. Acta physiol. hung. 3 no.1:175-182 1952. (CIML 24:3)

1. Of the Institute of Pharmacology of Budapest University.

ZEMPLE, Bela, dr.,; EIDUS, Laszlo, dr.,; KOVATSITS, Mate.

Studies on a testosterone preparation with lasting effects
Orv. hetil. 96 no.51:1409-1411 18 Dec 55.

1. A Kobanyai Gyogyszerarugyar Biologiai Laboratoriumanak (vezeto: Zemplen Bela dr.) es a Budapesti Orvostudoamnyi Egyetem Tudogyogyaszati Kliniakajanak (igazgato: Kovats Ferenc dr. egyet. tanar) kozlemenye.

(TESTOSTERONE, deriv.
phenylpropionate, evaluation in castrated rats, long lasting eff. (Hun))

KOVATSOVA, Z.

CZECH

The effect of Myon on kidney function. E. Neubauer, Z. Kovátsová, and E. Menčíková (Interná klin., Košice, Czech.). *Časopis Lékařů Českých* 93, 677-81(1954)(in Slovakian).—The influence of Myon (I) (a prepn. contg. nucleic acid and choline) on the kidney function was studied in 8 cases of hypertensive disease. Inulin and 4-aminohippuric acid clearances were measured. The decrease of blood pressure on intramuscular administration of I was variable, insignificant, and transitory. Plasma flow through kidneys decreases, filtration fraction and renal resistance increases, diuresis falls gradually. It is concluded that the therapy of hypertension by means of I lacks rational basis. I. M. H.

(2)

KOVAZHENKO, A.

34025 KOVAZHENKO, A. Bor'ba S
Pyl'yu Na Khlopkozavodakh. Tyek-
stil Prom-st'; 1949, No, 10, S. 10-11

SO: Letopis' Zhurnal'nykh Statey, Vol. 42, Moskva, 1949

KOVAZHENKO, A. F.

35447* Kvoprosv o sanitarnoy effentivnosti tsiklonov s vodyanoy plenko y
pri ulavlivanii khlopkovoy pyli na khlopkoochictitel'nyh zavodakh
Gigiyena i sanitariya, 1949, No. 11, S. 29-33.

So; Letopis' Zhurnal'nykh Statey, Vol. 48, Moskva, 1949

KOVAZHENKO, A.V.	Deceased
Mining	See ILC

BAGOTSKAYA, I.A.; KOVBA, I.A.; OSHE, A.I.

Effect of diffusing atomic hydrogen on the kinetics of its electrochemical evolution. Part 1. Zhur.fiz.khim. 34 no.7:1508-1516 Jl '60. (MIRA 13:7)

1. Akademiya nauk SSSR, Institut elektrokhimii.
(Hydrogen) (Diffusion)

KOVBA L. D.

KOVBA, L. D.

5(4) PHASE I BOOK EXPLOITATION SOV/2216

Soveshchaniye po elektrokhimii. 4th, Moscow, 1956.

Trudy...; [sbornik] (Transactions of the Fourth Conference on Electrochemistry; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 868 p. Errata slip inserted. 2,500 copies printed.
Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk.

Editorial Board: A.N. Frumkin (Resp. Ed.) Academician, O.A. Yesin, Professor; S.I. Zhdanov (Resp. Secretary), B.N. Kabanov, Professor, S.I. Zhdanov (Resp. Secretary); B.N. Kabanov, Professor; Ya. M. Kolotyrkin, Doctor of Chemical Sciences; V.V. Losev, P.D. Lukovtsev, Professor; Z.A. Solov'yeva; V.V. Stender, Professor; and G.M. Florianovich; Ed. of Publishing House: N.G. Yegorov; Tech. Ed.: T.A. Prusakova.

PURPOSE: This book is intended for chemical and electrical engineers, physicists, metallurgists and researchers interested in various aspects of electrochemistry.

COVERAGE: The book contains 127 of the 138 reports presented at the Fourth Conference on Electrochemistry sponsored by the Department of Chemical Sciences and the Institute of Physical Chemistry, Academy of Sciences, USSR. The collection pertains to different branches of electrochemical kinetics, double layer theories and galvanic processes in metal electrodepositon and industrial electrolysis. Abridged discussions are given at the end of each division. The majority of reports not included here have been published in periodical literature. No personalities are mentioned. References are given at the end of most of the articles.

Card 31/34

Card 32/ 34

5(4), 5(2) SOV/78-4-1-38/48

AUTHORS: Kovba, L. D., Balashova, N. A.

TITLE: The Determination of the Solubility of Silver Oxides in Alkaline Solutions by the Method of Radioactive Indicators (Opredeleniye rastvorimosti okislov serebra v shchelochnykh rastvorakh metodom radioaktivnykh indikatorov)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 1, pp 225-226 (USSR)

ABSTRACT: The solubility temperature dependence of silver oxides in highly concentrated alkali solutions was determined by radioactive indicators. The radioactive isotope of silver Ag^{110} was used as indicator. On determining the solubility at 25° it was found that saturated solutions can be obtained only after 70-80 hours. At higher temperatures saturation is obtained after 10-15 hours. The solubility of Ag_2O in alkaline solutions of various concentrations is in good agreement with the data by Johnston and Laue. The dependence of the solubility of Ag_2O on the concentration of alkali lye at 25° is shown in figure 1. The solubility of Ag_2O increases

Card 1/2

SOV/78-4-1-38/48

The Determination of the Solubility of Silver Oxides in Alkaline Solutions by the Method of Radioactive Indicators

considerably with a rise of the concentration of lye of from 1 to 5 n. In 10 n KOH the solubility of Ag_2O is $6.0 \cdot 10^{-4}$ equiv./1000 g H_2O. With rising temperature the solubility of Ag_2O increases. At 78° the solubility is four times higher than at 25°. The increase of solubility is not proportional to the rise of temperature. The presence of zinc ions does not influence the solubility of AgO and Ag_2O. Experiments of the solubility of AgO in alkali solutions did not yield any quantitative results. The authors thank B. N. Kabanov for his assistance.
There are 2 figures and 5 references, 1 of which is Soviet.

SUBMITTED: October 20, 1957

Card 2/2

S/076/60/034/007/020/042/XX
B004/B068

AUTHORS: Bagotskaya, I. A., Kovba, L. D., and Oshe, A. I.

TITLE: Study of the Effect of Diffusing Atomic Hydrogen on the Kinetics of Its Electrochemical Evolution

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 7, pp. 1508-1516

TEXT: The effect of hydrogen diffusion on the kinetics of its electrochemical evolution was studied in Refs. 1-4 using an iron membrane fixed between two vessels and sealed with vacuum grease. Since a disturbing effect of the vacuum grease on the overvoltage η was suspected, the authors repeated their experiments with a new device shown in Fig. 1. A dish made of Armco iron (2 cm in diameter; about 1 cm high; wall thickness: 0.1 to 0.07 mm) was connected to a platinum contact by means of an iron clamp. The outside surface of the dish was polarized, and the inside surface was exposed to diffusion. Cell 1 contained hydrogen gas. The dish was filled from containers 2 and 3 with 1 N NaOH saturated with H_2 to a height of 2 to 3 mm. The inside surface of the dish was cathodically polarized with

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Study of the Effect of Diffusing Atomic Hydrogen on the Kinetics of Its Electrochemical Evolution

S/076/60/034/007/020/042/XX
B004/B068

the platinum anode 4, and the diffusion potential φ_d was measured with respect to the reference anode 5. As soon as φ_d had reached a constant value, 2 N H_2SO_4 saturated with H_2 and containing traces of $Pb(NO_3)_2$ was pumped from container 8 into cell 1 such that it touched the bottom of the dish. The dish was temporarily polarized anodically. Hydrogen diffusion was discontinued by using hydrogen-saturated NaOH from container 11 instead of the acid solution. These experiments were performed with pure Armco iron, mercury-poisoned iron, and zinc-plated iron. The results were in agreement with the ones obtained previously. Overvoltage η was increased on non-poisoned iron and lowered on Hg-poisoned iron by hydrogen diffusion. The increase in Δi of the rate of electrochemical hydrogen evolution in the presence of diffusing atomic hydrogen was determined on Hg-poisoned iron and zinc-plated iron with η = const. For a given rate of diffusion i', the amperage i was measured. For $\Delta i/i'$, the following values were found:

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Study of the Effect of Diffusing Atomic Hydrogen on the Kinetics of Its Electrochemical Evolution

S/076/60/034/007/020/042/XX
B004/B068

Electrode	Electrolyte	η	$(\Delta i/i')$
Fe + Hg	3 N NaOH	0.800	1.72
Fe + Hg	0.5 N NaOH	0.790-0.875	1.37
Fe + Zn	4 N NaOH	0.610	0.24
Fe + Zn	0.5 N NaOH	0.690	0.1

✓

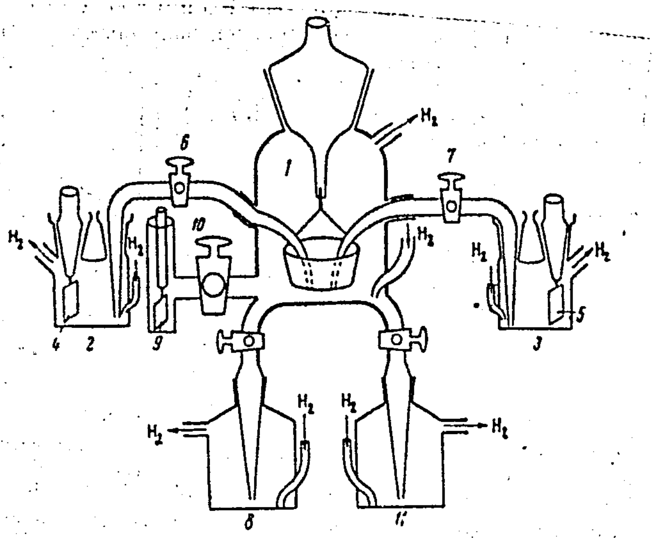
Moreover, the effect of i', of the cathodic polarization of the electrode, and of the pH of the solution on $\Delta\eta$ was examined on Armco iron and nickel-plated iron. With constant cathodic polarization of the electrode $\Delta\eta$ increased with i' and approached a limit. Increase of η and decrease of pH led to a decrease of $\Delta\eta$. A. N. Frumkin is thanked for a discussion. There are 7 figures, 1 table, and 6 Soviet references.

ASSOCIATION: Akademiya nauk SSSR, Institut elektrokhimii (Academy of Sciences USSR, Institute of Electrochemistry)

SUBMITTED: September 25, 1958

Card 3/4

S/076/60/034/007/020/042/XX
B004/B068



Card 4/4

BAGOTSKAYA, I.A.; KOVBA, L.D.

Rate of diffusion of electrolytic hydrogen, as affected by the condition of that side of an iron membrane where the diffusion begins. Dokl.AN SSSR 133 no.4:862-865 Ag '60.
(MIRA 13:7)

1. Institut elektrokhimii Akademii nauk SSSR. Predstavleno akademikom A.N. Frumkinym.
(Diffusion) (Hydrogen)

44895

S/076/63/037/001/016/029
B144/B186

26.2510

AUTHORS: Kovba, L. D., Bagotskaya, I. A.

TITLE: Effect of the composition of the solution on the diffusion rate of electrolytic hydrogen through metal diaphragms. II. Hydrogen diffusion through palladium diaphragms

PERIODICAL: Zhurnal fizicheskoy khimii, v. 37, no. 1, 1963, 161 - 168

TEXT: The separate and combined effect of the I^- and $(C_4H_9)_4N^+$ ions on the hydrogen diffusion through Pd diaphragms was studied in 1 N H_2SO_4 (a), 1 N H_2SO_4 + 0.03 N KI (b), 1 N H_2SO_4 + $5\cdot10^{-3}$ M $[(C_4H_9)_4N]_2SO_4$ (c), and 1 N H_2SO_4 + 0.03 N KI + saturated $(C_4H_9)_4NI$ (d) solutions with and without addition of Hg. After pretreatment of the diaphragm in (a) with $2\cdot10^{-3}$ a/cm^2 current, the polarization was stopped at the diffusion side and continued with $5\cdot10^{-3}$ a/cm^2 current at the polarization side until a constant H_2 diffusion rate was established. The potential at the diffusion side was 50 - 60 mv. About half of the H_2 forming diffused through the diaphragm.

X

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Effect of the composition ... S/076/63/037/001/016/029
B144/B186

The effect of additions and Hg-poisoning of the diaphragm was studied in cathodic polarization, the respective current strengths being $i_{pol} = 5 \cdot 10^{-3}$ a/cm^2 and $i_{dif} = 0$. If I^- and Hg are introduced at the polarization side they increase the diffusion rate v_{dif}, whereas introduction at the diffusion side has the contrary effect. On KI addition at the polarization side, the overvoltage η increased to ~80 mv and 5/6 of the hydrogen formed diffused through the diaphragm. This is in agreement with the negative effect of I^- and Hg on the energy of the metal - H_{ads} bond and on the hydrogen overvoltage retarding the discharge and removal of the adsorbed H. In further tests the action of I^- on v_{dif} and η was investigated after the electrode had been kept for some time in (b) without cathodic polarization. Here η increased steadily while v_{dif} decreased. This observed inconsistency implies the probable existence of two types of Pd poisoning by I^-: a weak type with increasing v_{dif} and η, in which only the active centers of the Pd surface take part in the hydrogen discharge

X

Card 2/3

KOVBA, L.D.; BAGOTSKAYA, I.A.

Effect of the composition of the solution on the rate of diffusion of electrolytic hydrogen through metallic membranes. Part 2. Zhur. fiz.khim. 37 no.1:161-168 Ja '63. (MIRA 17:3)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

KOVBA, L.D.; BAGOTSKAYA, I.A.

Behavior of atomic hydrogen on a pure iron surface. Zhur. fiz. khim. 38 no.1:217-219 Ja'64. (MIRA 17:2)

1. Institut elektrokhimii AN SSSR.

BALASHOVA, N.A.; KABANOV, B.N.; KOVBA, L.D.

Lead transfer in a positive electrode of a load accumulator. Zhur. prikl. khim. 37 no. 4:906-908 Ap '64. (MIRA 17:5)

KOVBA L.M.

SIMANOV, Yu.P.; BATSANOVA, L.R.; KOVBA, L.M.

X-ray analysis of binary fluorides of bivalent manganese. Zhur.
neorg. khim. 2 10:2410-2415 O '57. (MIRA 11:3)
(Manganese fluorides--Spectra)

SOV/20-120-5-31/

AUTHORS: Kovba, L. M., Ippolitova, Ye. A., Simanov, Yu. P., Spitsyn, Vikt. I., Corresponding Member, Academy of Sciences, USSR

TITLE: An X-Ray Investigation of Alkali Metal Uranates (Rentgenograficheskoye issledovaniye uranatov shchelochnykh elementov)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 5, pp. 1042-1044 (USSR)

ABSTRACT: A survey of publications is given at the beginning (Refs 1-5). Experimental data on the structure of the diuranates are lacking. The authors obtained monocrystals of the normal lithium uranates (α-modification), sodium (β-modification), furthermore of the diuranates of sodium, potassium, and rubidium. Table 1 gives the lattice parameters of the investigated uranates, their density and other data. They were calculated from X-ray diffraction patterns and determined by means of a pycnometer. The calculation of the intensities confirms the structures which are described below. Tetragonal or pseudotetragonal layers $(UO_2)O_4$ were found in the structures of α-Li_2UO_4, β-Na_2UO_4, K_2UO_4, Rb_2UO_4 and Cs_2UO_4 which were

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analogous to those of the $BaUO_4$- and β-$UO_2(OH)_2$ structures (Refs 3, 4). The atoms of the alkaline elements are placed between the layers. The normal potassium-, rubidium-, and caesium uranates are isostructural. The values of the parameters Z_{Me}^{I} (where Me^{I} is an alkaline element) and Z_{O_I} are given in table 2 as well as the interatomic distances U-O, Me^{I}-O and of the shortest distances from O to O. The structures of the mentioned compounds are described in detail. The structures of the lithium-, sodium-, and potassium monouranates are different from those described by Zachariasen (Zakhariasen, Ref 5). The structures of the diuranates of Na, K and Rb are defective structures. The parameters X_{O_I} and $X_{O_{II}}$ are given in table 3. Hexagonal layers of a composition $UO_{3,5}$ were found in the structures. The oxygen atoms may partly be substituted by fluorine under formation of a fluoro uranate. The authors obtained uranates (V) of these metals by reduction of Na- and K-diuranates at 450-500°. They both belong to the structural type of the perovskite. They are normally soluble in nitric acid, however, only slowly in acetic acid. Thus they are no analogues of "tungsten

An X-Ray Investigation of Alkali Metal Uranates SOV/20-120-5-31/67

bronzes". There are 5 tables and 7 references.

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

SUBMITTED: February 11, 1958

1. Alkali metal uranates--Structural analysis 2. X-ray diffraction analysis--Applications 3. Alkali metal uranates--Properties 4. Single crystals--Analysis

Card 3/3

IPPOLITOVA, Ye.A.; SIMANOV, Yu.P.; KOVBA, L.M.; POLUNINA, G.P.;
BEREZNIKOVA, I.A.

Chemistry of the uranates of some divalent elements. Radiokhimiia 1 no.6:660-664 '59. (MIRA 13:4)
(Uranates)

Kouba, L.M.

21(8) 5(0)

AUTHOR: Lapitskiy, A.V. SOV/55-59-3-29/32

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

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

ABSTRACT: This conference was convened by the initiative of the laboratoriya radiokhimii khimicheskogo fakul'teta MGU (Laboratory of Radiochemistry of the Department of Chemistry of Moscow State University) and was held in Moscow from April 20 to April 25, 1959. It was attended by professors, teachers, and scientific collaborators of 32 universities and colleges of the Soviet Union. In his opening address, An.N.Nesmeyanov, Doctor of Chemical Sciences, stressed the importance of radiochemistry. 30 lectures were delivered by members of Moscow State University: Laboratoriya yadernoy fiziki (Laboratory of Nuclear Physics): N.P Rudenko. A.I.Sevast'yanov: Production of Beryllium-7 by the Reaction (T,2n); I.Starý, 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.Sazonov: Separation of Radioactive Isotopes in the Irradiation of Colloids; An.N.Nesmeyanov, Ye.A.Borisov, E.S.Filatov, V.Kondratenko, Chzhan Tszo-yuan, 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.Patov: The State of Radioactive Isotopes in Extremely Dilute Solutions; M.S. Merkulova, I.V.Melikhov: General Theory of the Coprecipitation of Radioactive Elements With Non-isomorphous Crystalline Precipitates; A.V.Lapitskiy, I.A.Savich, Chzhuan Ya-yuy: Coprecipitation of Protactinium With Complex Compounds of Zr, Nb, and Ta; V.K.Fadeyev, V.V.Ivanenkov, V.V.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^{220}; K.B.Zaborenko, A.M.Babeshkin, V.A.Beyevskaya, L.L.Melikhov: Application of the Emanation Method for the

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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, Du 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.Barsukova: Niobium^{95} as a Radioactive Tracer; I.P.Alimarin, T.A.Belyavskaya, Ku Bin-yan': 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. Sereznikova: Uranates of Some Bivalent Metals; V.G.Knyazina, O.G. Neskova: 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 Organohydrogen Compounds. An.N.Nesmeyanov delivered a detailed lecture on the Methodology of Radiochemical Instruction at the chemical departments of universities.

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5 (2)

AUTHORS: Novoselova, A. V., Corresponding Member AS USSR, Orlova, Yu. V., Simanov, Yu. P., Kovba, L. M. SOV/20-126-1-25/62

TITLE: A New Series of Polymorphous Transformations of Na_2BeF_4 (O novom ryade polimorfnykh prevrashcheniy Na_2BeF_4)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 1, pp 93 - 96 (USSR)

ABSTRACT: After a survey of publications (Refs 1-8) concerning sodium-fluoro-beryllate the authors found that the needlelike Na_2BeF_4 crystals obtained from an aqueous solution represent an independent modification of this compound. They call the latter δ-Na_2BeF_4. The authors drew this conclusion on the strength of a thermographic and X-ray investigation. Figure 1 shows the radiogram at 20,360,410,470 and 510°, figure 2 the heating-thermogram and figure 3 the thermogram of the mentioned modification. The diffraction class of the crystals could not be determined since the latter is not complete. The comparison of all "cold"

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A New Series of Polymorphous Transformations of Na_2BeF_4 SOV/20-126-1-25/62

and "hot" radiograms confirms the phase transformations shown in figure 2, furthermore their irreversibility. The δ-phase can be considered as an initial phase of a series of polymorphous varieties formed by it. These latter do not agree with those of the series γ-Na_2BeF_4 (Table 1). The transformation series described here is not similar at all to the transformations of Ca_2SiO_4. There are 3 figures, 1 table, and 12 references, 3 of which are Soviet.

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

SUBMITTED: January 21, 1959

Card 2/2

KOVBA, L.M.; GOLUBENKO, A.N.

Lithium (V) uranate, $LiUO_3$. Zhur. strukt. khim. 1 no.3:390-392
S-O '60.
(MIRA 14:1)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Lithium uranate)

80653

S/153/60/003/02/01/034
B011/B003

5.2600

AUTHOR: Kovba, L. M.

TITLE: Some Laws Governing the Structure of Uranates and Their Relations to the Properties of Uranates

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1960, Vol. 3, No. 2, pp. 219 - 222

TEXT: The author discusses the structure of monouranates of alkali- and some bivalent elements. The structure of the uranates is determined by the type of the uranyl-oxygen lattice groups. Three such types were found in monouranates: I. Hexagonal or pseudohexagonal layers of $(UO_2)O_2$ consisting of $(UO_2)O_6$-cubes which are connected by common corners; II. tetragonal or pseudotetragonal $(UO_2)O_2$ layers of $(UO_2)O_2$-octahedrons which are connected by means of common corners; III. infinite $(UO_2)O_2$-chains of octahedrons having some edges in common (Fig. 1). In octahedrons and cubes two U-O-distances are shorter than

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Some Laws Governing the Structure of Uranates and Their Relations to the Properties of Uranates

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B011/B003

the remaining U-O-distances. The symmetry of the uranate is determined by the symmetry of the uranyl-oxygen lattice group. A separate range of the shortest U-U-distances corresponds to each type (Table 1). The type of the uranyl-oxygen lattice group is rather regularly modified with the modification of the cation radius (Table 2). This phenomenon is distinctly exhibited by the uranates of bivalent metals. However, the modifications with tetragonal or pseudotetragonal layers are known in all uranates of alkali metals, but other modifications are known only in Na and Li. The cubic modification of the potassium uranate deviates from the general structural scheme of the monouranates. The influence of the cation size on the type of the uranyl-oxygen lattice group is related with the increase of the coordination number of the cation. The uranates with a cubic coordination of the oxygen around the uranium have a smaller molecular volume. The oxygen ions are here more strongly compressed. Therefore, the smallest distance is short between the oxygen ions (about 2.5 A in structures of type $CaUO_4$). If, e.g. a part of the oxygen is lost in the reduction of uranates, the compression

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Some Laws Governing the Structure of
Uranates and Their Relations to the
Properties of Uranates

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mentioned is reduced, resulting in a defective structure. The diuranates of the alkali elements (Ref. 3) also fit into the indicated structural scheme of the uranates, since they also possess a defective structure. A positional order of the defects may also take place without a distortion of the hexagonal cell, if a sequence of hexagonal layers differing in their structure is assumed (Fig. 1). The uranyl-oxygen lattice group $(UO_2)O$ (Fig. 2) was not observed in any uranate since it is only found in hitherto poorly investigated polyuranates. The author proved that the water-containing uranates are closely related to anhydrous uranates with respect to their structure. The reason for the poor solubility and the difficult meltability of the uranates is to be found in the absence of distinct uranyl-oxygen ions. The thermal decomposition of the uranates occurs without destruction of the uranyl-oxygen lattice group. Therefore decomposition takes place much earlier than melting. The article under review was read at the 1. Mezhvuzovskaya konferentsiya po radiokhimii (Interuniversity Conference of Radiochemistry) in Moscow on April 20 - 25, 1959. There are 2 figures, 3

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S/081/62/000/010/017/085
B138/B101

AUTHORS: Vidavskiy, L. M., Kovba, L. M., Ippolitova, Ye. A.

TITLE: Interaction between uranoso-uranic oxide and the sulfates of sodium and potassium

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 10, 1962, 92 - 93, abstract 10V15 (Sb. "Issled. v obl. khimii urana". M., Mosk. un-t, 1961, 63 - 64)

TEXT: Using the methods of thermal and X-ray phase analysis, studies have been made of the reaction of U_3O_8 with Na and K sulfates. The reaction between U_3O_8 and Na_2SO_4 begins at 500°C. As a result of this reaction sodium di-uranate and UO_2SO_4 are formed which enter into reaction at a higher temperature, resulting in the formation of the di-uranate. The reaction between K_2SO_4 and U_3O_8, which begins at 580°C, is accompanied by the formation of the potassium tri-uranate and UO_2SO_4. When the temperature is raised both these products react with K_2SO_4 to form the di-uranate.

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Card 1/1

S/656/61/000/000/001/007
D244/D304

AUTHORS: Ippolitova, Ye.A., Simanov, Yu.P., ~~Kovba, L.M.,~~ Murav'yeva, I.A., and Krasnoyarskaya, A.A.

TITLE: Reduction of uranates of the alkali elements with hydrogen

SOURCE: Spitsyn, V.I., ed. Issledovaniya v oblasti khimii urana; sbornik statey (Moscow) 1961, 131 - 140

TEXT: The authors investigated the reduction of alkali metal uranates with hydrogen. The salts were prepared by baking U_3O_8 with the corresponding alkali metal carbonates (ratio 1 : 3) and for Li, by the fusion of U_3O_8 with LiCl. Reduction was conducted in a tubular oven. Dried uranates were heated in the current of purified and dried hydrogen, flowing at the rate of 12 l/h. The temperatures of reduction was increased in steps of 100°C, from 100° to 1200°C, the reduction process at each temperature continuing for 1 hour. The various stages of reduction were characterized by changes in weight and color of the original uranates. The results indicate that the

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Reduction of uranates of the ... S/656/61/000/000/001/007
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reduction of the uranates begins at 400° - 500°C, with a rapid loss of weight at 600 - 800°C due to evaporation of metal hydroxides. The final product of reduction is UO_2. For lithium, sodium and cesium uranates, UO_2 is the first product of reduction. For potassium uranate KUO_3 is formed (having a structure of $CaTiO_3$) as an intermediate phase, followed by the formation of UO_2. Similar behaviour is shown by rubidium uranate which gives an intermediate phase $Rb_xUO_3 (x \sim 1)$. The author postulate that the process of reduction proceeds by (1) $Na_2UO_4 + H_2 = 2NaOH + UO_2$; $Na_2UO_4 + H_2 = Na_2O + UO_2 + H_2O$; $2Na_2O + H_2 = 2NaOH + 2Na$; and (2) $K_2UO_4 + H_2 = 2KUO_3 + 2KOH$; $2K_2UO_4 + H_2 = K_2O + 2KUO_3 + H_2O$. The reduction of Na, K and Rb diuranates was also investigated. The diuranates were prepared by precipitation from solutions of uranyl nitrates with the corresponding alkali hydroxides, or by fusion of the alkali metal chlorides with U_3O_8. The latter were used for X-ray examination. Reduction of $Na_2U_2O_7$ begins at 300°C. Between 380° and 440°C various phases are formed which have similar composition to the original diuranate,

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KOVBA, L.M.; CHURBAKOVA, T.I.

X-ray investigation of potassium polyuranates. Zhur.strukt. khim. 2 no.5:585-590 S-O '61. (MIRA 14:11)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Potassium uranate)

S/076/61/035/003/007/023
B121/B203

AUTHORS: Kovba, L. M., Ippolitova, Ye. A., Simanov, Yu. P., and Spitsyn, Vikt. I.

TITLE: Study of the crystalline structure of uranates. I. Uranates with tetragonal $(UO_2)O_2$ layers

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 3, 1961, 563-568

TEXT: The authors produced single crystals of α-Li_2UO_4 and β-Na_2UO_4, and determined the periods of their unit cells. It was not possible to produce K-, Rb-, and Cs monouranates in the form of single crystals; therefore, they were studied by the powder method only. The studies were made with РКОП (RKOP) and РКД (RKD) X-ray cameras of the NIIF MGU (NIIF MGU (Scientific Research Institute of Physics of Moscow State University)). α-Li_2UO_4 single crystals were obtained by fusing U_3O_8 together with anhydrous lithium chloride, and β-Na_2UO_4 single crystals by fusing U_3O_8 with a mixture of sodium carbonate and sodium chloride. It was found that α-Li_2UO_4 and

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Study of the ...

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β-Na_2UO_4 crystallized rhombically and had the following lattice parameters:
α-Li_2UO_4: a = 6.06; b = 5.13; c = 10.52;
β-Na_2UO_4: a = 5.97; b = 5.795; c = 11.68. Potassium-, rubidium-, and cesium monouranates belong to the structural type K_2NiF_4 (tetragonally body-centered), β-Na_2UO_4 may be regarded as a rhombically distorted K_2NiF_4 structure. The authors discussed the arrangement of alkali metals in monouranate single crystals. The uranyl oxide lattice of β-Na_2UO_4 is maintained in α-Li_2UO_4, but a different arrangement of alkali metal atoms is more likely in α-Li_2UO_4. The structures of lithium, sodium, and potassium monouranates determined are not identical with those indicated by W. H. Zachariasen (Ref. 4: Manch. Pr. Report CP-2611, p. 14). The authors explain this disagreement with the polymorphous properties of uranates. There are 3 tables and 11 non-Soviet-bloc references. The two references to English-language publications read as follows: W. H. Zachariasen, Manch. Pr. Report CP-2611, p. 14; W. Wait, J. Inorgan. and Nucl. Chem., 1, 309, 1955.

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Study of the ... S/076/61/035/003/007/023
B121/B203

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

SUBMITTED: June 23, 1959

Card 3/3

KOVBA, L.M.; POLUNINA, G.P.; IPPOLITOVA, Ye.A.; SIMANOV, Yu.P.;
SPITSYN, Vikt.I.

Study of the crystalline structure of uranates. Part 2: Uranates containing uranyl oxygen chains. Zhur. fiz. khim. 35 no. 4:719-722 Ap '61. (MIRA 14:5)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova, kafedra neorganicheskoy khimii.
(Uranates)

IPPOLITOVA, Ye.A.; KOVBA, L.M.

Structure of uranates. Dokl.AN SSSR 138 no.2:377-380 My '61.
(MIRA 14:5)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova. Predstavleno akademikom V.I.Spitsynym.
(Uranates)

IPPOLITOVA, Ye.A.; KOVBA, L.M.

Composition and properties of uranates. Dokl.AN SSSR 138 no.3:605-607 My '61. (MIRA 14:5)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
Predstavleno akademikom V.I.Spitsynym.
(Uranates)

30030
S/020/61/141/001/014/021
B103/B147

21.2100

AUTHORS: Trunov, V. K., Kovba, L. M., and Spitsyn, Vikt. I., Academician

TITLE: Double oxides in the system uranium - tungsten - oxygen

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 141, no. 1, 1961, 114-116

TEXT: The authors investigated oxides formed by interaction of uranium and tungsten oxides, as well as by thermal decomposition and reduction of uranyl tungstate by hydrogen. They used H_2WO_4 and $(UO_2)NO_3$ (chemically pure, for analysis) as initial substances from which they produced WO_2, W, UO_2, U_3O_8, and UO_3. An РКД-57(RKD-57) camera was used for the X-ray phase analysis. Samples in the system UO_3 - WO_3 were produced from aqueous suspensions of H_2WO_4 and $UO_2(OH)_2$ by prolonged boiling, subsequent evaporating, and 45 hr roasting at 900°C. It was found that only one compound, UO_2WO_4, was formed in the system UO_3 - WO_3. Uranyl chromate and molybdate were synthesized for comparison. The X-ray patterns of the three compounds were

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Double oxides in the system ...

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very similar, which speaks in favor of their isostructure. Uranium and tungsten oxides of lower valencies were produced from UO_2WO_4: by thermal decomposition in vacuo at 600 - 900°C, by reduction of uranyl tungstate at 300 - 800°C, and by sintering various uranium and tungsten oxides in evacuated ampuls at 1250 and 900°C (Table 1). Two new phases appeared in these oxides. One was similar in structure to U_3O_8 and corresponded to UWO_{5+x}. An analogous phase was obtained by thermal decomposition of UO_2WO_4 in vacuo at 800°C (total formula $UWO_{5.5}$) and at 900°C ($UWO_{5.01}$). The other phase showed a Debye powder pattern with cubic syngony, parameter of the primitive elementary cell $a = 3.805 \pm 0.001$ kX. This compound was synthesized by sintering UO_2 and WO_3 at ratios 1:1 and 1:10. At ratios 1:25 and 1:50, the cubic cell was tetragonally distorted. When sintering WO_3 and WO_2 at ratios 15:1, 25:1, and 50:1, no cubic phase was formed, and the cell was rhombically distorted. Consequently, the cubic phase only forms in the presence of U. It is similar to WO_3 but probably contains less oxygen, ($(W,U)O_{3-x}$). The sample of $UO_2 + 10WO_3$ contains a phase of the UO_2 type

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B103/B147

Double oxides in the system...

which probably contains some W; a = 5.461±0.001 kX. The cubic phase is not yet formed in the sample of UO_2 + $25WO_3$. Conclusions: The ratio U:W in the cubic phase lies close to 1:15-20, x = 1/15-1/20. At higher temperature (above 1250°C), the phase UWO_{5+x} disproportionates. Up to 1250°C, there is no interaction between UO_2 and WO_2. In sintering, the lattice parameters of the initial phases do not change, i. e., no solid solutions are apparently formed. Yu. P. Simanov is thanked for advice. There are 2 figures, 1 table, and 4 references: 1 Soviet and 3 non-Soviet.

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

SUBMITTED: June 12, 1961

Table 1. Results of X-ray phase analysis. Legend: (1) Initial preparation, (2) mode of treatment, (3) phases observed, (4) glow annealing, (5) decomposition in vacuo, (6) ditto.

X

Card 3/4

S/189/62/000/005/005/006
D204/D307

AUTHORS: Wang Shih-hua, and Kovba, L. M.

TITLE: The reduction of uranyl vanadates with hydrogen

PERIODICAL: Moscow. Universitet. Vestnik. Seriya II, Khimiya, no. 5, 1962, 63-65

TEXT: $UO_3 \cdot VO_{2.5}$, $UO_3 \cdot V_2O_5$, and $2UO_3 \cdot 3V_2O_5$ (I, II and III) were reduced with H_2 in the region 400 - 900°C. The reduction products and specimens produced by a heating treatment in sealed, evacuated tubes for 15 hrs at the reduction temperature were phase-analyzed by X-ray diffraction with a РКД (RKD) camera using CuK radiation. The specimens were preheated at 260°C and were then held at each temperature in a current of H_2 to constant weight. The final products of the reduction (which was already appreciable at 400°C) were UO_2 and V_2O_3. The

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The reduction of... S/189/62/000/005/005/006
D204/D307

absence of intermediate compounds between these two oxides was confirmed. Intermediate phases $UV_2O_{6.1}$ and $UV_3O_{6.7}$ were found respectively in the reduction of II and III. UO_2 formed by the reduction process from the vanadates exhibited considerably broader lines than that synthesized from U_3O_8 under analogous conditions, but in the absence of vanadium.

ASSOCIATION: Kafedra neorganicheskoy khimii (Department of Inorganic Chemistry)

SUBMITTED: May 11, 1962

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Card 2/2

S/081/62/000/018/003/059
B101/B186

AUTHORS: Pechurova, N. I., Kovba, L. M., Ippolitova, Ye. A.

TITLE: Isotope and ion exchange between uranate precipitates and the ions of alkali elements

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 18, 1962, 37 - 38, abstract 18B243 (In collection: Issled. v obl. khimii urana. M., Mosk. un-t, 1961, 108 - 120)

TEXT: The isotope and ion exchange between uranates precipitated from the solution at 22 - 85.6°C and the ions of alkali metals reaches equilibrium within 30 min. The isotope exchange between uranates of Na, K, Rb, and Cs with the equivalent quantity of the corresponding chlorides from the solutions is 21.68 - 83.38 % and 28 %, respectively. The degree of isotope exchange increases with increasing temperature. The ion exchange of lithium uranate with Na^+, Rb^+, and Cs^+ drops in this order from 8 to 2% which, in the authors' opinion, is associated with the increasing difference of the ion radii. The ion exchange of sodium uranate with K^+, Rb^+, and Cs^+ is 30, 20, and 30 %, respectively; that of potassium uranate with Na^+ and
Card 1/2

Isotope and ion exchange ...

S/081/62/000/018/003/059
B101/B186

Cs^+ is 40 and 30; and that of cesium uranate with Na^+ and Rb^+ is 20 and 64 %, respectively. [Abstracter's note: Complete translation.]

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36149

24,7/00

S/070/62/007/002/018/022
E132/E160

AUTHORS: Pashinkin, A.S., and Kovba, L.M.

TITLE: On the polytypic modifications of crystals of CdS and CdSe

PERIODICAL: Kristallografiya, v.7, no.2, 1962, 316-318

TEXT: The aim of the work was to elucidate the existence of the polytypic forms of CdS and CdSe. For both CdS and CdSe 24-layer structures were found (24H type) with c = 80.8 ± 0.7 Å and 84.3 ± 0.5 Å, respectively. The usual 2-layer structures have c = 6.73 ± 0.02 and 7.03 ± 0.03 Å. Crystals were prepared by the method of R. Frerichs (Ref.7: Phys.Rev., v.72, 1947, 594-602). There is 1 table.

X

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

SUBMITTED: June 9, 1961

Card 1/1

S/020/62/147/003/023/027
B101/B186

AUTHORS: Kovba, L. M., Trunov, V. K.

TITLE: Study of binary oxides containing tungsten, tantalum, or niobium

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 147, no. 3, 1962, 622-624

TEXT: The phase composition of sintered mixtures of ThO_2, UO_2, or CeO_2 with either Ta_2O_5 or Nb_2O_5, and of Ta_2O_5 with WO_3, was determined by x-ray analysis. The following data were obtained:

Initial mixture	sintered at	phases observed
$UO_2 + 2Ta_2O_5$	1600°C in N_2	$U(TaO_3)_4$
$UO_2 + 2Nb_2O_5$	1200°C in vacuo	$U(NbO_3)_4$
$UO_2 + Ta_2O_5$	1800°C in N_2	$UO_2 + U(TaO_3)_4$
$CeO_2 + 2Nb_2O_5$	1100°C	$Ce(NbO_3)_4$

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B101/B186

Study of binary oxides ...

Initial mixture	sintered at	phases observed
$ThO_2 + 2Ta_2O_5$	1750°C in N_2	$Th(TaO_3)_4$
$ThO_2 + 2Nb_2O_5$	1200°C	$Th(NbO_3)_4$
$UO_2WO_4 + 3WO_2$	1200°C	$(U, W)O_3 + WO_2$
$UO_2 + 6WO_3 + 2WO_2$	1200°C	$U_{1/8}WO_3$
$UO_2 + 10WO_3 + 2WO_2$	1200°C	$U_{1/12}WO_3$
$3WO_3 + Ta_2O_5$	1100 - 1150°C	$3WO_3 \cdot Ta_2O_5$
$4WO_3 + 3Ta_2O_5$	1100 - 1150°C	$4WO_3 \cdot 3Ta_2O_5$
$3WO_3 + Nb_2O_5$	1100 - 1150°C	$3WO_3 \cdot Nb_2O_5$

Results: (1) Compounds having the general formula $M(EO_3)_4$ with a structure similar to perovskite are formed by the dioxides of U, Th, and Ce with Ta and Nb pentoxides. The lattice constants of these compounds are: for $U(TaO_3)_4$ a = 7.720 ± 0.005 Å; c = 3.860 ± 0.02 Å; c/a = 1/2; for

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ary oxides ...

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$NbO_3)_4$ a = 7.773 ± 0.003 Å; c = 3.900 ± 0.001 Å; c/a = 0.502; for $Th(NbO_3)_4$ a = 3.855 ± 0.003 Å; c = 7.783 ± 0.003 Å; c/a = 2.019; for $Ce(NbO_3)_4$ a = 3.878 ± 0.002 Å; c = 7.820 ± 0.003 Å; c/a = 2.016; for $_3)_4$ a = 3.881 ± 0.002 Å; b = 3.897 ± 0.002 Å; c = 7.843 ± 0.002 Å; c/a = 2.021; c/b = 2.013. (2) $U(WO_3)_4$ is a mixture of the perovskite phase with WO_2. The x-ray pictures of $U_{1/8}WO_3$ and $U_{1/12}WO_3$ showed only the lines of the perovskite phase. The constants of the cubic lattice are 3.813 kX for $U_{1/8}WO_3$, 3.804 ± 0.001 kX for $U_{1/12}WO_3$. (3) Two new phases, $3WO_3 \cdot Ta_2O_5$ and $3Ta_2O_5 \cdot 4WO_3$ were found in the system Ta_2O_5 - WO_3. The x-ray pattern of $3WO_3 \cdot Ta_2O_5$ is similar to that of $3WO_3 \cdot Nb_2O_5$ described by H. J. Goldschmidt (Metallurgia, 62, 373 (1960)). The constants of the tetragonal lattice are: a = 12.166 ± 0.003 kX, c = 3.9265 ± 0.0004 kX for $3WO_3 \cdot Nb_2O_5$, and a = 12.25 ± 0.01 kX, c = 3.873 ± 0.002 kX for $3WO_3 \cdot Ta_2O_5$. Each cell contains two $3WO_3 \cdot M_2O_5$ units. There are 4 tables.

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S/020/62/147/003/023/027
B101/B186

Study of binary oxides ...

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

PRESENTED: July 17, 1962, by V. I. Spitsyn, Academician

SUBMITTED: July 14, 1962

Card 4/4

ACCESSION NR: AP3001609 S/0189/63/000/003/0060/0063

AUTHORS: Trunov, V. K.; Kovba, L. M.

TITLE: X-ray analysis of thorium tungstate and thorium molybdate

SOURCE: Moscow. Universitet. Vestnik. Seriya 2. Khimiya, no. 3, 1963, 60-63

TOPIC TAGS: thorium, thorium tungstate, thorium molybdate, thorium compound structure, thorium compound roentgen analysis, thorium lattice structure, tungstate phase analysis, molybdate phase analysis

ABSTRACT: It was the purpose of this work to obtain and analyze the structures of thorium tungstates and molybdates. Mixtures of the stoichiometric quantities of the initial oxides were baked at 750-1000C. The x-ray photographs were made by using CuK_α radiation in the Guignet chamber with a Ge crystal monochromator. The x-ray analysis showed only the presence of $Th(MoO_4)_2$ and $Th(WO_4)_2$. The transformation:

$$\beta\text{-}Th(MoO_4)_2 \xrightarrow{\sim 900} \alpha\text{-}Th(MoO_4)_2.$$

was irreversible, and alpha-$Th(MoO_4)_2$ was not produced when the amount of Mo

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ACCESSION NR: AP3001609

trioxide was excessive. The x-ray pattern indications of beta-$Th(MoO_4)_2$ are shown in a table which also presents the interplanar distances for alpha-$Th(MoO_4)_2$. It was determined that alpha-$Th(MoO_4)_2$ did not belong to the structural type of scheelite or to the molybdates of the rare earth elements. The Th_xWO_3 compounds were prepared by baking stoichiometric quantities of ThO_2 WO_3 and W. The x-ray analysis of $Th_{1/8}WO_3$, $Th_{1/12}WO_3$ and $Th_{1/16}WO_3$ showed only the presence of the perovskite phase, while analysis of $Th_{1/30}WO_3$ disclosed the tetragonal distortion of cubic cells, and analysis of $Th_{1/4}WO_3$ showed the presence of three phases: $Th(WO_4)$, $Th_{1/8}WO_3$ and WO_2. Orig. art. has: 1 table.

ASSOCIATION: Moskovskiy universitet. Kafedra neorganicheskoy khimii (Moscow University, Department of Inorganic Chemistry)

SUBMITTED: 14Sep62	DATE ACQ: 09Jul63	ENCL: 00
SUB CODE: CH	NO REF SOV: 001	OTHER: 000

Card 2/2

TRUNOV, V.K.; SIMANOV, Yu.P. [deceased]; KOVBA, L.M.

Double oxides of uranium, tantalum, and tin. Zhur.strukt.khim. 4 no.2:277-279 Mr-Ap '63. (MIRA 16:5)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Uranium oxides) (Tantalum oxides) (Tin oxides)

KOVBA, L.M.; VIDAVSKIY, L.M.; LAVUT, E.G.

Study of ε-UO_3. Zhur.strukt.khim. 4 no.4:627-629 Jl-Ag '63.
(MIRA 16:9)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Uranium oxide crystals)

VAN SHI-KHUA [Wang Shih-hua]; KOVBA, L.M.; SPITSYN, V.I.

X-ray study of some binary oxides of uranium and vanadium. Zhur.strukt.khim. 4 no.5:714-718 S-O '63. (MIRA 16:11)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.

KOVBA, L. M.

TITLE: Seminar on refractory metals, compounds, and alloys (Kiev, April 1963).
SOURCE: Atomnaya energiya, v. 15, no. 3, 1963, 266-267.
ACCESSION NR: AP3008085

5a metals and carbon; mutual solubility of transition metals.

L. N. Komissarova and others. Investigation of the physical properties of scandium and its compounds.

L. M. Kovba, V. K. Trunov. Investigation of the composition and structure of transition-metal oxide compounds.

A. P. Epik. Laws governing the change of the activation energy in the reaction diffusion of nonmetals in refractory transition metals.

B. N. Oshcherin. New formulas for calculating the activation energy of self-diffusion.

The special equipment used in the investigation of refractory materials such as Nb, Mo, Ta, W, and monocarbides at temperatures above 2000—2500C was described by A. Ye. Sheyndin (metals), A. Novitskiy (hard materials), and D. L. Timrot (alloys and compounds).

Card 7/11

TRUNOV, V.K.; KOVBA, L.M.

Uranyl tungstates and molybdates. Vest.Mosk.un. Ser.2:Khim. 18 no.6:34-35 N-D '63.
(MIRA 17:4)

1. Kafedra neorganicheskoy khimii Moskovskogo universiteta.

S/020/63/148/001/023/032
B106/B186

AUTHORS: Kovba, L. M., Wang Shih-hua, Sirotkina, Ye. I.

TITLE: Reaction of uranium oxides with vanadium and niobium oxides

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 148, no. 1, 1963, 113-115

TEXT: By means of thermal and x-ray phase analyses, the reactions of uranyl hydroxide with V_2O_5 and Nb_2O_5 were studied by boiling their aqueous suspensions for 85-100 hrs. In the composition range of U:V between 1:1 and 2:3, uranyl pyrovanadate (I) (m.p. 790°C) is the only phase; at U:V ratios between 1:2 and 1:3 uranyl hexavanadate (II) exists. Preparations with U:V = 3:2 have two phases (I and α-$UO_2(OH)_2$). Anhydrous uranyl orthovanadate (m.p. 805-810°C, decomposing in I and U_3O_8) is obtained by heating I with uranyl hydroxide to 575°C; β-$(UO_2)_2V_2O_7$ is formed at 330°C, and α-$(UO_2)_2V_2O_7$ at >500°C (the latter conversion is irreversible). In the dehydration of II, β-$(UO_2)_2V_6O_{17}$ is formed at

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Reaction of uranium oxides ... S/020/63/148/001/023/032
B106/B186

260°C, which passes over into the α-modification at 550°C (rhombic; a = 10.40; b = 11.90; c = 5.69 kX; z = 2; most probable space group p222). U_3O_8 reacts completely with V_2O_5 at 550-650°C. Depending on the quantitative ratios, orthovanadate is formed (at 700-800°C), as is I (α-modification), and II (both modifications). The new phases UV_3O_{10} and UVO_5 are formed at 600-1000°C by heating V_2O_5 in vacuo with a mixture of UO_2 and U_3O_8 of the total composition U_2O_5. V_2O_4 is dissolved at about 0.5 mole% in UO_2 with formation of the compound UV_2O_6 (trigonal; type $PbSb_2O_6$; a = 4.986; c = 4.755 kX; space group p312, z = 1). V_2O_3 does not react with UO_2 up to 2300°C. Reduction of uranyl vanadates with hydrogen at 400-900°C yields the new phases $UV_2O_{6.1}$ and $UV_3O_{8.03}$. The end product of the reduction is a mixture of UO_2 and V_2O_3. β-$(UO_2)_2V_6O_{17}$, UV_3O_{10}, UVO_5, $UV_2O_{6.1}$, and hydrous II are structurally closely related compounds with hexagonal subcells (a between 3.46 and 3.64 kX; c between

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Reaction of uranium oxides ...

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B106/B186

4.05 and 4.27 kX; V between 42.04 and 49 kX^3). The periods a are doubled and c quadrupled in the real cells of anhydrous II and of UV_3O_{10}. This superlattice is formed by alternation of uranium and vanadium atoms at the subcell interstices. The third-order axes are lost by the alternation of layers, and the cell becomes rhombic (space group Fddd; $a/b = \sqrt{3}$). No structural element corresponding to an anion was found in the hydrous II. It is, therefore, a double salt of uranyl hydroxide with vanadium hydroxide. Unlike V_2O_5, Nb_2O_5 forms no compounds with uranium oxides at temperatures up to $> 1000°C$. There is 1 table. The English-language references are: B.W. King, L.I. Suber, J. Am. Ceram. Soc., 38, 306 (1955); S.M. Lang, F.P. Knudsen et al., Natl. Bur. Stand., Circ. 566 (1956).

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

PRESENTED: August 7, 1962, by V.I. Spitsyn, Academician

SUBMITTED: July 3, 1962

Card 3/3

TRUNOV, V.K.; KOVBA, L.M.; SIROTKINA, Ye.I.

X-ray study of the double oxides of some transition metals.
Dokl. AN SSSR 153 no.5:1085-1088 D '63. (MIRA 17:1)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
Predstavleno akademikom V.I. Spitsynym.

KHARI DEV BKHARGAVA; KOVBA, L.M.; MARTYNENKO, L.I.; SPITSYN, Vikt. I.,
akademik

Interaction between oxides of rare-earth and alkaline earth metals. Dokl. AN SSSR 153 no.6:1318-1320 D '63.
(MIRA 17:1)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.

KOVBA, L.M.; TRUNOV, V.K.

Binary oxides of transition metals. Vest. Mosk. un. Ser. 2: Khim. 19 no.6:32-33 N-D '64. (MIRA 18:3)

1. Kafedra neorganicheskoy khimii Moskovskogo universiteta.

VIDAVSKIY, L.M.; LAVUT, E.G.; KOVBA, L.M.; IPPOLITOVA, Ye.A.

Conditions of the formation of various modifications of uranium trioxide. Dokl. AN SSSR 154 no.6:1371-1373 F '64. (MIRA 17:2)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova. Predstavleno akademikom V.I.Spitsynym.

L 1557-66 EWT(m)/EPF(n)-2/T/EWP(t)/EWP(b)/EWA(c) IJP(c) JD/WW/JG

ACCESSION NR: AP5022267 UR/0363/65/001/007/1152/1154
546.831+546.882

23
B

AUTHOR: Trunov, V. K.; Vladimirova, Z. A.; Kovba, L. M.; Komissarova, L. N.

TITLE: Binary oxides in the ZrO sub 2-Nb sub 2 0 sub 5 system

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 7, 1965, 1152-1154

TOPIC TAGS: zirconium 17 compound, niobium 27 compound

18

ABSTRACT: The formation of compounds in the ZrO_2-Nb_2O_5 system was studied by x-ray phase analysis. Two methods were used to prepare the compounds: coprecipitation of hydroxides followed by annealing at 1000 and 1300C, and annealing of stoichiometric mixtures of oxides. Formation of the phase of variable composition $Zr_{1-n}Nb_nO_{2+n/2}$ was observed and its unit cell constants were determined for various compositions. Three new phases were identified in the region rich in niobium pentoxide: $ZrO_2 \cdot 5NB_2O_5$, $ZrO_2 \cdot 7Nb_2O_5$, and $ZrO_2 \cdot nNb_2O_5$ $(5 < n \leq 7-8)$. Interplanar distances of these compounds are tabulated. It is shown that the phase $ZrO_2 \cdot nNb_2O_5$ is formed only when coprecipitated niobium and zirconium hydroxide are annealed. Orig. art. has: 4 tables.

Card 1/2

L 1557-66

ACCESSION NR: AP5022267

ASSOCIATION: Khimicheskiy fakul'tet, Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Chemistry Department, Moscow State University)

SUBMITTED: 27Feb65 ENCL: 00 SUB CODE: IC, SS

NO REF SOV: 001 OTHER: 002

Card 2/2

2

L 51816-65 EWT(m) ES
ACCESSION NR: AP5011852 UR/0189/65/000/002/0039/0043

AUTHORS: Kus'micheva, Ye. U.; Rozanova, O. N.; Kovba, L. M.; Ippolitova, Ye. A.

14
13
B

TITLE: The investigation of U_2O_5

SOURCE: Moscow. Universitet. Vestnik. Seriya 2. Khimiya, no. 2, 1965, 39-43

TOPIC TAGS: uranium compound, lattice parameter, thermal stability/ RKD 57 camera, RKU 86 camera

ABSTRACT: A phase of uranium oxide obtained from sulfuric acid solution was studied for the purpose of determining composition more precisely, discovering the structure and thermal stability, and refining the conditions of synthesis. The test material was obtained from ammonium dihydrate and hydrated uranium peroxide. The material was dissolved at 1000, and CO gas was passed through the solution for 2-40 hours. The total uranium content was determined by the ammonia method. Tetravalent uranium was determined by the vanadate or iodate method. Phase analysis was carried out with RKD-57 and RKU-86 cameras with CuK

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L 51816-65

ACCESSION NR: AP5011852

radiation (Ni filter). Results show that U_2O_5, the phase sought, crystallizes in the hexagonal system. The lattice parameters at 20, 100, and 175C are, respectively (giving a(kX) first, c(kX) second): 3.935 ± 0.002 and 4.118 ± 0.001, 3.9375 ± 0.002 and 4.117 ± 0.002, and 3.938 ± 0.003 and 4.121 ± 0.003. The corresponding ratios (c/a) are 1.047, 1.045, and 1.047. It is seen that rise in temperature causes some expansion of the lattice but no appreciable change in parameter ratios. At 200C, however, U_2O_5 disappears. It appears to be stable only below this temperature. The fact that U_2O_5 forms from a solution of U_3O_8 in sulfuric acid is not considered proof of any particular structure of the oxides or that the formula of U_3O_8 ought to be $UO_3 \cdot U_2O_5$. It is an intermediate phase. The oxides U_3O_7, U_4O_9, or UO_2 are not formed during solution of U_3O_8 because of the failure of crystallizing centers of the cubic and tetragonal phases to form. There is no such difficulty for U_2O_5 since the conversion from U_3O_8 to U_2O_5 is accompanied merely by the migration of some oxygen into the U_3O_8 lattice. Orig. art. has: 6 tables.

ASSOCIATION: Moskovskiy universitet, Kafedra neorganicheskoy khimii (Moscow University, Department of Inorganic Chemistry)

SUBMITTED: 17Jun64 ENCL: 00 SUB CODE: GC, SS

NO REF SOV: 006 OTHER: 002

Card 2/2 gal

KOVBA, L.M.; TRUNOV, V.B.

X-ray diffraction study of the binary niobium and tantalum oxides. Zhur. strukt. khim. 6 no.2:244-247 Mr-Ap '65. (MIRA 18:7)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

KOVBA, L.M.; TRUNOV, V.K.

X-ray diffraction study of binary oxides in the system UO_2-MoO_2 - MoO_3.
Radiokhimiia 7 no.3:316-319 '65. (MIRA 18:7)