APPROVED FOR RELEASE: Tuesday, September 17, 2002 CIA-RDP86-00513R0005

Hydroxylamine and hydrazine compounds of Pt and Pd. IV. Bromides of hydroxylamine compounds of Pt. V. I. Goremykin and K. A. Gladyshevskaya. *J. Gen. Chem.* (U. S. S. R.) 13, 762-79(1943)(English summary); cf. preceding abstr.—Double decompn. between compds. of the type $[Pt(NH_3)_2X_4]$ and KBr was investigated and optimum conditions were detd. for cleavage of cis-$[Pt(NH_2OH)_4]X_2$ by HBr to give high yields of $[Pt(NH_2OH)_2X_2]$. This reaction with concd. HBr gave, besides the normal products, the H_2NOH complexes of Pt(IV). Thiourea (T) was successfully used for detn. of structures of the NH_2OH-Pt complexes. Reactions with pyridine (Py) and 2-aminopyridine (NH_2Py) and $[Pt(NH_2OH)_2Br_2]$ were studied. The following trans compds. were isolated: $[Pt(NH_2OH)_2Br_2]\cdot 2H_2O$, $[Pt(NH_2OH)_4]Br_2$, $[Pt(NH_2OH)_2Py_2]Br_2$, $[Pt(NH_2OH)_2T_2]Br_2$, $[Pt(NH_2OH)(NH_3)Br_2]$, $[Pt(NH_2OH)_2(NH_2Py)_2]Br_2$, $[Pt(NH_2OH)(NH_3)Py_2]Br_2$, $[Pt(NH_2OH)(NH_3)T_2]Br_2$, $[Pt(NH_2OH)PyBr_2]$, $[Pt(NH_2OH)(NH_3)(NH_2Py)_2]Br_2$, $[Pt(NH_2OH)Py_3]Br_2$, $[Pt(NH_2OH)PyT_2]Br_2$, $[Pt(NH_2OH)Py(NH_2Py)_2]Br_2$, and $[Pt(NH_3)PyT_2]Br_2$.

Chlorides and bromides of hydrazine compounds of Pt and Pd. V. I. Goremykin. *Ibid.* **14,** 13-30(1944)(English summary).—The introduction of solns. or solid forms of K_2PtCl_4 or K_2PdCl_4 into satd. or dil. solns. of $N_2H_4\cdot HCl$ or $N_2H_4\cdot HBr$ leads to the formation of complex N_2H_4 compds. of Pt or Pd; the salts are not reduced to the metals. The order of addn. of the reagents is important in relation to the compn. of the final products; N_2H_4 is capable of taking one or two coordinate positions in Pt and Pd compds. The following compds., all of which were assigned the cis configuration, have been prepd. for the first time: $[PtCl_2(N_2H_4)_2]Cl_2\cdot 2H_2O$, $[PtCl_2(N_2H_4)_2]$, $[PtCl_2(N_2H_4)N_2H_5]Cl$, [illegible], $[PtBr_2(N_2H_4)N_2H_5]Br\cdot 2H_2O$, $[PtBr_2(N_2H_4)]$, [illegible], $[PtBr_2(N_2H_4)_2]$, $[PtBr_2(N_2H_4)_2]Cl_2\cdot 2H_2O$, $[PtCl_2(N_2H_4)_2]$, $(N_2H_5)_2[PtBr_4]\cdot H_2O$, $[PdCl_2(N_2H_4)_2]\cdot H_2O$, $[PdCl_2(N_2H_4)_2]$, $NH_4(N_2H_5)Cl_2[Cl]$, $[PdCl_2(N_2H_4)_2]\cdot H_2O$, $[PdBr_2(N_2H_4)]$, $(N_2H_5)N_2H_5]Cl$, $[PdBr_2(N_2H_4)_2]Br_2\cdot 4H_2O$, $[PtCl_2(N_2H_4)]$, $(N_2H_5)_2[\ldots]\cdot H_2O$ and $[PdBr_2(N_2H_4)]$.

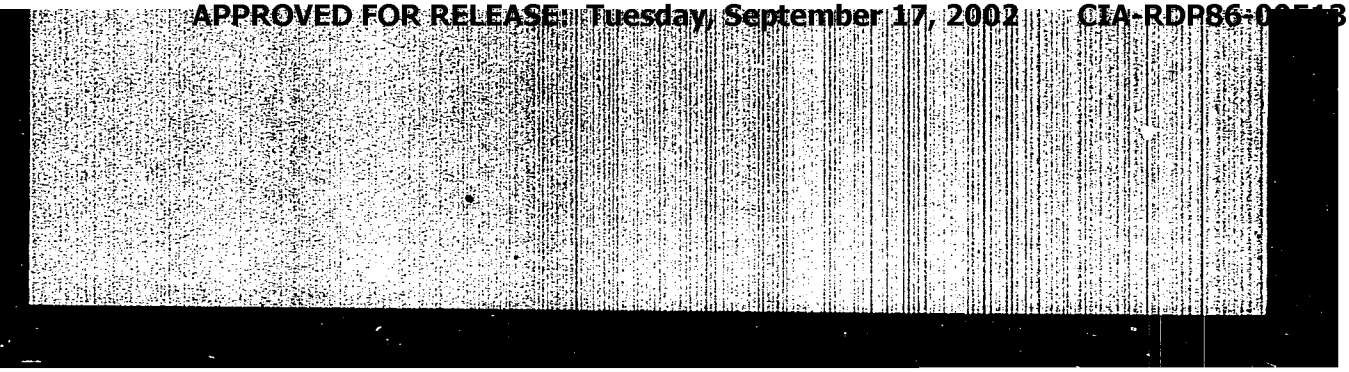
G. M. K.

CA

Determination of the sum of platinum and palladium in copper-nickel slimes and concentrates by simultaneous precipitation of ammonium chloroplatinate and ammonium chloropalladate N. K. Pshenitsyn and K. A. Gladyshevskaya. *Tsvet. Metally i Zoloto* [*Nonferrous Metals and Gold*] *Metall. Inst. Otdelenii i Akad. Nauk S.S.S.R.* No. 22, 65-80 (1948). Dissolve approx. 0.5 g. of sample in aqua regia, heat to drive off HNO_3, treat the dry residue with concd. HCl, evap., and dissolve in hot H_2O. Filter, and wash the residue with hot acidified H_2O. Reduce the residue in H, dissolve in aqua regia, and proceed as before. Repeat if necessary. Ordinarily after the 2nd or 3rd time nothing more is dissolved. Combine the filtrates, add 5 ml. of satd. NH_4Cl soln., and evap. until 1-2 ml. of liquid remains. Pass Cl or add 0.5-1 ml. of HNO_3 to oxidize Pd. Filter, wash with a satd. NH_4Cl soln., while still wet transfer to a crucible, dry, ash, ignite, reduce in H, and weigh. M. Hosch

PSHENITSYN, N.K.; GLADYSHEVSKAYA, K.A.

Use of silver iodide for the determination and separation of platinum metals. Izv.Sekt.plat.i blag.met. no.27:5-19 '52. (MLRA 7:5)
(Platinum group) (Silver iodide)



GLADYSHEVSKAYA, K. A. Cand Chem Sci -- (diss) "Application of the method of ionic exchange in the analysis of platinum metals." Mos, 1953. 9 pp (Acad Sci USSR. Inst of General and Inorganic Chem im N. S. Kurnakov), 100 copies. (KL, 44-59, 135)

18(6) PHASE I BOOK EXPLOITATION SOV/3199

Akademiya nauk SSSR. Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova

Analiz blagorodnykh metallov (Analysis of Noble Metals) Moscow, 1959. 193 p. Errata slip inserted. 2,700 copies printed.

Resp. Ed.: N. K. Pshenitsyn, USSR Academy of Sciences, Corresponding Member; and O. Ye. Zvyagintsev, Doctor of Chemical Sciences; Eds. of Publishing Houses: T. G . Levi, and D. N. Trifonov; Tech. Ed.: I. N. Guseva.

PURPOSE: This collection of articles is for scientists engaged in the study and analysis of the noble metals.

COVERAGE: This is a collection of articles on the analysis of the noble metals. It includes studies carried out by the Institute of General and Inorganic Chemistry im. N. S. Kurnakov (AN SSSR), as well as reports presented by scientific research organizations and by industrial enterprises at the Third and Fourth Conference on Noble Metals held in 1954 and 1957, respectively. The

Card 1/7

studies and reports describe new organic reagents for gravimetric determination of platinum metals, and physicochemical methods of analysis (spectrophotometric, polarographic and potentiometric). Special attention is given to spectral analysis for the determination of admixtures in alloys of platinum metals, silver, and gold, as well as in refined noble metals. The collection also includes analytical methods, tables and charts for materials containing metals of the platinum group, as well as a review of the literature on the analysis of platinum metals published in the last five years. No personalities are mentioned. References follow each chapter.

TABLE OF CONTENTS

Foreword 3

Pshenitsyn, N. K., S. I. Ginzburg and K. A. Gladyshevskaya.
New Methods for the Analysis of Platinum Metals 5

Pshenitsyn, N. K., I. V. Prokof'yev and A. Ye. Kalinina.

Use of Thiourea for the Concentration of Platinum Metals 15

Pshenitsyn, N. K. and N. V. Fedorenko. Use of Nitrogen Substituted Salts of Dithiocarbamic Acids for the Determination of Platinum Metals 23

Pshenitsyn, N. K., M. I. Yuz'ko and L. G. Sal'skaya. Determination of Platinum, Palladium and Gold in Refined Silver 29

Pshenitsyn, N. K. and M. I. Yuz'ko. Spectrophotometric Determination of Rhodium With the Aid of Potassium Iodide 37

Pshenitsyn, N. K., S.I. Ginzburg and L. G. Sal'skaya. Determination of Iridium in Sulfuric Acid Solutions by Spectrophotometric and Potentiometric Methods 48

Aleksandrov, V. A. Photocolorimetric Method for the Determination of Rhodium in the Presence of Platinum 59

Levian, B. G. and T. P. Yufa. Photocolorimetric Methods Used in the Analysis of Platinum Metals 65

Pshenitsyn, N. K., N. A. Yezerskaya and V. D. Ratnikova. Polarographic Determination of Base Metal Admixtures in Refined Iridium 70

Muromtsev, B. A. (Deceased) and V. D. Ratnikova. Determination of Base Metals in Refined Silver Bardin, M. B., Yu. S. Lyalikov and V. S. Temyanko. Polarographic Determination of Certain Noble Metals by Using Platinum Electrodes 80

Anisimov, S. M., P. G. Shulakov, V. N. Alyanchikova, V. M. Klypenkov and P. A. Gurin. Chemical and Polarographic Methods for the Determination of Copper, Nickel, Iron, Zinc and Lead by Using a Cationite in Products Containing Platinum Metals 88

Pshenitsyn, N. K., K. A. Gladyshevskaya and L. M. Ryakhova.

Use of the Ion Exchange Method in the Analysis of Platinum Metals. Report 2. Separation of Rhodium from Iridium 103

Anisimov, S. M., Ye. I. Nikitina and V. N. Alyamovskikova. Methods of Preparing Poor Industrial Solutions and Obtaining From Them Cemented Substances for the Determination of Platinum Metals by Spectral Analysis 115

Khrapay, V. P. Spectral Method for the Determination of Platinum, Palladium, and Tellurium in Silver-gold Alloys 128

Pankratova, N. I. and A. D. Gut'ko. Spectral Method of Analysis for Refined Iridium and Ruthenium 133

Kuranov, A. A., N. P. Ruksha and M. M. Svirid[illegible]va. Spectral Determination of Admixtures in Gold, Silver and Alloys 139

Kuranov, A. A. Spectral Analysis of Platinum Alloys Containing Three Components 143

Adakhovskiy, A. P. and V. M. Karpelin. Determining the Chemical Composition of Binary Alloys by the Thermoelectromotive Force 145

Avilov, V. B. Effect of Complexation and of the Acid-alkali Balance in the Medium on the Potential of the Au^{III}/Au^{0}, Au^{I}/Au^{0}, Au^{III}/Au^{I}, and Ag^{I}/Ag^{0} Systems 150

Avilov, V. B. and V. V. Kosova. Chromatometric Determination of Gold 156

Anisimov, S. M., V. M. Klypenkov and V. P. Tsymbal. Electrometric Method for the Determination of Silver in Silver and Lead Alloys Containing Platinum Metals 163

Yur'a, T. P. and M. A. Chentsova. Dissolving Platinum Metals and Their Alloys With the Aid of an Alternating Current 176

Chentsova, M. A., T. P. Yufa and V. G. Levian. New Method for the Analysis of Palladium-silver Alloys 181

Ruzhnikov, M. S. and K. S. Sheina. Methods of Testing Palladium Alloys and Their Products on a Touchstone and by Chemical Means 184

AVAILABLE: Library of Congress

TM/mmh
3-4-60

GLADYSHEVSKAYA, K. A., PYAKHOV, L. M.

"Separation of Rhodium and Iridium by an Ion-Exchange Method with the Aid of Complex Compounds of These Metals with Pyridine"

paper submitted to the Fifth Conference on the Analysis of Nobel Metals, Novosibirsk, 20-23 September 1960

So: Zhurnal analiticheskoy khimii, Vol XVI, No. 1, 1961, page 119

GLADYSHEVSKAYA, L. I.

GLADYSHEVSKAYA, L. I.: "The agglutination reaction in the diagnosis of scleroma." L'vov State Medical Inst. L'vov, 1950. (Dissertation for the Degree of Candidate in Medical Science)

So: Knizhnaya Letopis, No 17, 1955

G... [illegible]; KVYATKOVSKIY, Ye...; SOSCHUK, B.A.

Quantitative spectrophotometric determination of hemoglobin in Soret's spectrum [with summary in English]. Ukr.biokhim.zhur. 29 no.3:321-374 '57. (MLRA 10:9)

1. Kafedra biokhimii [illegible] meditsinskogo gosudarstvennogo [illegible] institute.
(HEMOGLOBIN--SPECTRA)

SOBCHUK, B.A.; DOLOSHITSKIY, L.M. [Doloshyts'kyi, L.M.]; GLADYSHEVSKAYA T.N. [Hladyshevs'ka, T.M.]

Carboxymyoglobin in rats during acute carbon monoxide poisoning. Ukr. biokhim. zhur. 33 no.6:848-855 '61. (MIRA 14:12)

1. Department of Biochemistry and Department of General Hygiene of Lvov Medical Institute.
(CARBON MONOXIDE--PHYSIOLOGICAL EFFECT) (MYOGLOBIN)

MISKIDZH'YAN, S.P.; GLADYSHEVSKAYA, T.N.

Spectrophotometric investigation of the products of reaction between allyl mustard oil and amines. Zhur.fiz.khim. 36 no.5: 1045-1049 My '62. (MIRA 15:8)

1. L'vovskiy gosudarstvennyy meditsinskiy institut.
(Mustard oils) (Amines) (Spectrophotometry)

SOBCHUK, V.A.; VLADYSHEVSKAYA, T.I.

Spectrophotometric determination of carboxypeptidase. Ukr. biokhim. zhur. 36 no.3:462-463 '64. (MIRA 17:10)

1. Kafedra biokhimii L'vovskogo meditsinskogo instituta.

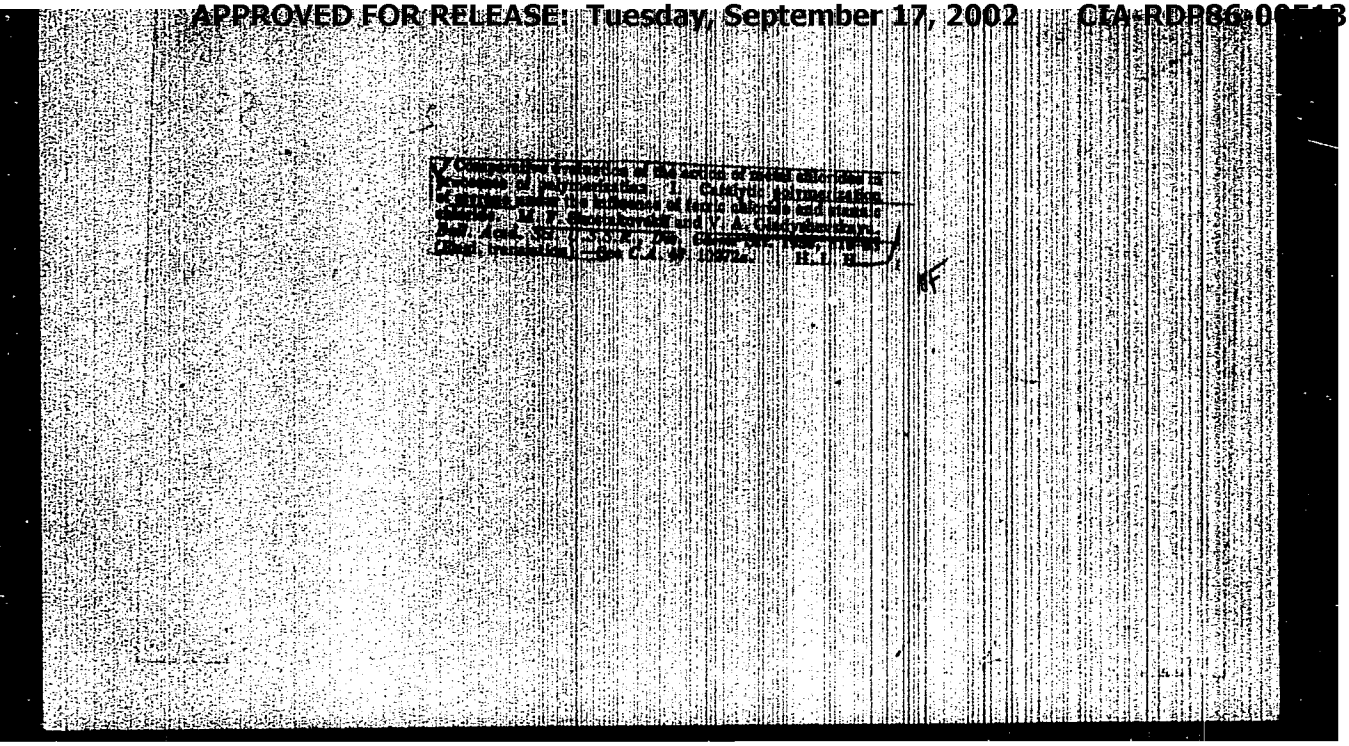
GLADYSHEVSKAYA, V. A.

Plastics: Resins; Paints; Surface coatings

(3)

Synthesis and properties of vinyl ethyl ether polymer. M. P. Shostakovskiy, F. P. Sidel'kovskaya, and V. A. Gladyshevskaya. *Zh. prikl. Khim.* USSR, 1952, 25: The [illegible] vinyl ethyl ether was obtained by stirring [illegible] of the ether [illegible] with a 5% solution of $FeCl_3 \cdot 6H_2O$ in EtOH or BuOH, the temperature to 36–38° and the mixture [illegible]. The rest of I was then added and the mixture heated to 45°. [illegible] polymerization and the [illegible] affected by the purity of I. [illegible] obtained if I has been [illegible] dried over KOH and [illegible] n_D^{20} 1.4520 [illegible] n_D^{20} 1.43–1.520 [illegible] falls.

MF 9-20-54



GLADYSHEVSKAYA, V. A.

6

Comparison of the action of metallic chlorides on polymerisation. I. Catalysis of polymerisation of styrene by ferric and stannic chlorides. M. F. Shostakovskiĭ and V. A. Gladyshevskaya (*Izvestia*, 1953, No. 2, 351—356).—In the presence of $FeCl_3.6H_2O$, styrene does not polymerise in N_2, and forms *poly*styrene and benzaldehyde in air, whereas in presence of $SnCl_4$ it polymerises in both N_2 and air.

R. C. MURRAY

Inst. Org. Chemistry, AS USSR

GLADYSHEVSKAYA, V. A.

USSR / Some reactions which proceed during the processes of polymerization of vinyl butyl ether. M. F. Shostakovskii and V. A. Gladyshevskaya. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.*, 1954, 203-7(Engl. translation).—See *C.A.* 49, 4508a.

H. L. H.

GLADYSHEVSKAYA, V.A.

USSR/Chemistry - Polymerization

Card 1/2 Pub. 40 - 18/27

Authors : Shostakovskiy, M. F., and Gladyshevskaya, V. A.

Title : Polymerization of vinyl compounds. Part 1. Multistage synthesis of polyvinylbutyl ether.

Periodical : Izv. AN SSSR. Otd. khim. nauk 1, 140-145, Jan-Feb 1955

Abstract : Experimental data are presented regarding the multistage synthesis of individual products of various complexity and closely related to polyvinylbutyl ether. The distinguishable characteristics of chain free-radical and ion reactions, resulting in the formation of only high molecular compounds regardless of reaction time, are analyzed.

Institution : Acad. of Sc., USSR, The N. D. Zelinskiy Inst. of Org. Chem.

Submitted : December 23, 1953

Card 2/2 Pub. 40 - 18/27

Periodical : Izv. AN SSSR. Otd. khim. nauk 1, 140-145, Jan-Feb 1955

Abstract : It is pointed out that free-radical chain polymerization occurs as result of opening the double bonds and consequent addition of molecules. The mechanism of ion-chain polymerization of vinyl compounds is explained. Some products obtained from multistage synthesis are described. Ten references: 1 USA and 9 USSR (1935-1954). Table

USSR/ Chemistry - Organic chemistry

Card 1/1 Pub. 40 - 20/26

Authors : Shostakovskiy, M. F., and Gladyshevskaya, V. A.

Title : Polymerization of vinyl compounds. Part 2. Multistage synthesis of polyvinylethyl ether

Periodical : Izv. AN SSSR. Otd. khim. nauk 2, 344 - 349, Mar-Apr 1955

Abstract : The accomplishment of a multistage synthesis of numerous ethoxy compounds including the dimer and hexamer is announced. It is pointed out that the multistage synthesis was not concluded with the formation of above mentioned ethoxy compound; after the formation of the hexamer the reaction mixture was found to contain products with a molecular weight much higher than that of the hexamer. However, these compounds could not be separated in individual form because they decomposed during distillation. Eight references: 6 USSR and 2 USA (1935-1955). Table.

Institution : Acad. of Sc., USSR, The N. D. Zelinskiy Inst. of Organ. Chem.

Submitted : December 30, 1953

SHOSTAKOVSKIY, M.F.; GLADYSHEVSKAYA, V.A.

Studies in the field of polymerization of vinyl compounds. Soob.o nuach.rab.chl.VKHO no.3:25-27 '55. (MIRA 10:10)
(Polymerization) (Vinyl compounds)

5(3)

AUTHORS: Shostakovskiy, M. F., Gladyshevskaya, [illegible] A., Chekulayeva, I. A. [illegible]

TITLE: Synthesis and Transformations of Vinyl Ethers of Ethanol Amines (Sintez i prevrashcheniya vinilovykh efirov etanol-aminov) Communication [illegible]. Some Features of Copolymerization of Vinyl Ethers of the β-Aminoethanol and Methyl Esters of Methacrylic Acid (Soobshcheniye [illegible] copolimerizatsii vinilovogo efira [illegible] i metilovogo efira metakrilovoy kisloty)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 1, pp 13[illegible] (USSR)

ABSTRACT: Since the dinitrile of the azoisobutyric acid, [illegible] peroxide, includes not only methyl methacrylate but also the vinyl ether of β-aminoethanol in the polymerization (Ref 2) the authors investigated the copolymerization of these substances under the effect of dinitrile of the azo-isobutyric acid. It was shown that the interaction of the components mentioned in [illegible] the compounds participate in [illegible] vinyl ether

Card 1/3

Tuesday, September 17, 2002 CIA-RDP86 [illegible] R0005

Synthesis and Transformations of Vinyl [illegible] of [illegible] of Vinyl Amines. Communication 1[illegible] Some [illegible] Ethers of the β-Aminoeth[illegible]ol and [illegible]

of β-aminoethanol. [illegible] of their interaction, [illegible] vinyl oxy-ethyl) [illegible] according to the [illegible]

CH_2=CHOC[illegible]NH$_2$ [illegible]

→ CH_2=CHOCH$_2$CH$_2$NHCH [illegible]

so that its concentration in the [illegible] in the copoly- [illegible] The participation of the [illegible] of the merization leads to the formation of 2 fractions [illegible] (Table [illegible]) copolymer for each ratio of the initial [illegible] by the fact that The process investigated is [illegible] and addition [illegible] besides copolymerization and addition [illegible] takes place. This is a result of the fact that besides [illegible] of the initial multiple bonds also other functional groups of the [illegible] components participate in the reaction, which leads to [illegible] the formation of copolymers with [illegible] In addition, the polymerization of [illegible] ester of [illegible] vinyl oxy-ethyl)aminoisobutyric acid and its copolymeriza-

Card 2/3

Synthesis and Transformations of Vinyl Ethers of Ethanol SOV/62-59-1-22/38
Amines. Communication 11. Some Features of Copolymerization of Vinyl Ethers
of the β-Aminoethanol and Methyl Esters of Methacrylic Acid

tion with methyl methacrylate under the influence of dinitrile of azoisobutyric acid (Table 3) were carried out. There are 3 tables and 6 references, 2 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: May 6, 1957

Card 3/3

APPROVED FOR RELEASE: Tuesday, September 17, 2002 CIA-RDP86-00513R0005

[illegible]

[illegible]-12-[illegible]

AUTHORS: Shostakovskiy, M. F., Gladyshevskaya, V. A., Barkova, R. I.

TITLE: The Viscosity Constant for Vinyl Ether Polymers

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, [illegible], Nr 1, pp [illegible] (USSR)

ABSTRACT: Staudinger's equation $\eta_{sp}/C = K_m M$ allows one to determine the viscosity constant only in the molecular weight range from [illegible] to [illegible]. High-molecular-weight compounds consisting of a mixture of polymeric homologs give on fractionation narrow polymer fractions but not individual polymers, and this influences the value of K_m obtained with this equation for polymers above [illegible] molecular weight. The authors suggested therefore a method for determining the viscosity of poly(vinyl alkyl ethers) based on the study of low-molecular (di-, tri-, tetramer, [illegible]) compounds obtained in the [illegible] synthesis previously described (this journal, 1956, p [illegible]; ibid., p [illegible]) such as, -1,1,3-triethoxybutane-1,1,3,[illegible]-tetra-

Card 1/3

APPROVED FOR RELEASE: Tuesday, September 17, 2002 CIA-RDP86-00513R0005

ethoxyhexane, etc., etc. This method allows one to establish the most exact relationship between structure, composition, viscosity, and molecular weight of polymers. The viscosity and $K_m \cdot 10^4$ of individual compounds and, for comparative purposes, those of the corresponding ether fractions, were determined and tabulated. The following were investigated: 10% solutions of 1,1,3-triethoxybutane; 1,1,3,5-tetraethoxyhexane; 1,1,3,5,7-pentaethoxyoctane; 1,1,3,5,7,9-hexaethoxydecane; 1,1,3,5,7,9,11-heptaethoxydodecane; and 1% solutions of poly(vinyl ethyl ether) fractions (in acetone, heptane, and CCl_4); 10% solutions of 1,1,3-triisopropoxybutane; 1,1,3,5-tetraisopropoxyhexane; 1,1,3,5,7-pentaisopropoxyoctane (in acetone and heptane); 1,1,3-tributoxybutane; 1,1,3,5-tetrabutoxyhexane; 1,1,3,5,7-pentabutoxyoctane; and 1% solutions of poly (vinyl butyl ether) (in acetone, heptane, and CCl_4).

It was found that there was no bond formation between the molecules of the investigated compounds and solvents, as evidenced by the time of outflow of the solutions

Viscosity Constant for Vinyl Ether Polymers

SOV/32-24-12-25/43

Which was governed in all cases by a definite rule, and as evidenced by the coinciding values of the viscosity constants for the individual alkoxy compounds and fractions of a given vinyl alkyl ether. The only deviation was observed in triethoxybutane (dimer) and tetraethoxyhexane (trimer) caused probably by the influence of the terminal group. The mechanism of vinyl ether polymerization, and the influence of the chemical structure of the polymers alkoxy groups on the viscosity constant K_m is discussed. Generally speaking, the constant increases with increasing radical size of the alkoxy group. There are 2 tables; and 5 references, 3 U.S., 1 Swiss, 1 Soviet. The U.S. references is: K. Fajajans, H. Hilter, J. Amer. Chem. Soc., 61, 1912 (1939). Abbreviations Note: Staudinger's equation appears in the article also in the form: $\eta_{sp/c} = K_m M$.

AUTHOR: N. D. Zelinskiy Institute of Organic Chemistry, Academy of Sciences, USSR (Institut organicheskoy khimii imeni N. D. Zelinskogo Akademii nauk SSSR)

SUBMITTED: April 15, 1958

Card 3/3

CHEKULAYEVA, I.A.; SHOSTAKOVSKIY, M.F.; GLADYSHEVSKAYA, V.A.; LIPOVICH, I.V.

Synthesis and transformations of vinyl ethanolamine ethers. Part 13: Copolymerization of some vinyl ethanolamine ethers with methacrylate. Vysokom.soed. 3 no.6:901-907 Je '61. (MIRA 14:6)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo.
(Ethanol) (Methacrylic acid) (Polymerization)

S/062/62/000/003/012/014
B110/B101

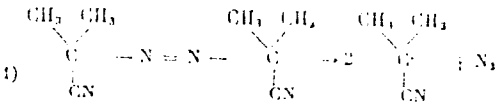
AUTHORS: Shostakovskiy, M. F., Glukhovskaya, V. A., and Knomutov, A. M.

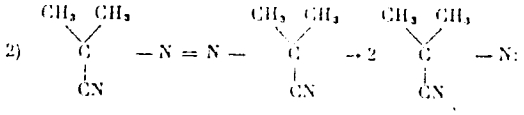
TITLE: Decomposition of azoisobutyric dinitrile in vinylbutyl ether

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 3, 1962, 494-497

TEXT: The products formed in the reaction of azoisobutyric dinitrile (A) with vinylbutyl ether (B) by recombination, disproportionation, breaking off of the H atom and chain growth were studied. On the basis of the molecular weights, the following compounds formed by recombination are presumed: R-M-M-R, R-M-M-M-R (molecular weight 450), where M = monomer link. By radical combination during the decomposition of azoisobutyric dinitrile (R-R), tetramethyl succinic dinitrile (melting point 167°C) is formed: $2(CH_3)_2\overset{1}{C}(CN) \rightarrow (CH_3)_2\overset{2}{C}(CN)-\overset{2}{C}(CN)(CH_3)_2$ (I). The decomposition of A is supposed to occur according to

Card 1/4

1)  (II)

2)  (III)

The investigation of the infrared spectra of a substance with the melting point of 72-73°C proved it to be isobutylene azo isobutyronitrile $(CH_3)_2C{=}CH{-}N{=}N{-}C(CH_3)_2CN$ (IV). By recombination of radicals (II) and (III) arise under participation of free hydrogen, according to

Decomposition of azoisobutyric...

1) $(CH_3)_2C(CN)-(CH_3)_2C-C\equiv N$ (V)

2) $(CH_3)_2C=C-N=H \rightarrow (CH_3)_2C=C=NH$

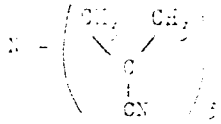
3) $(CH_3)_2C=C=NH + (CH_3)_2C=C=N \rightarrow (CH_3)_2C=C=N-NHC(CH_3)_2CN$ (VI)

VI isomerizes to IV. At a ratio of 50 % B : 50 % A it was found after heating for 1 hr at 60°C that the greater part of A did not decompose and only small amounts of IV were formed. Heating for 4 hr increased decomposition of A, polymer yield and formation of IV. Longer heating produced complete decomposition of A, increasing polymer yield and constant amount of IV. At 4 < 6-hr heating, I was formed. The formation of I, taking place on 4 hr heating, indicates the decomposition of IV ⟶ I, which was proved experimentally. Heating for 6 hr at 60°C of 50 mole% A and 50 mole% B produced I, small amounts of IV and low-molecular polymer. 33.3 mole% A and 66.6 mole% B produced large amounts of IV and compounds melting at 89°C, identified by elementary analysis and infrared spectroscopy as triisobutyronitrile amines.

Card 3/4

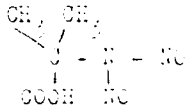
S/062/62/000/005/012/014
B110/B101

Decomposition of aminobutyric...



(VII).

when heated for 6 hr at 240°C, VII decomposes under formation of I. For 1 mole, A and 3 mole, B. only low-molecular polymer was formed. During the effect of thionyl chloride, benzosulfochloride, nitrous acid and hydrochloric acid on IV, it decomposes. HCl action produced A. This confirms the reaction III. HNO_2, with IV, produced a nitro compound melting at 120°C:



There are 2 tables.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: September 19, 1961

Card 4/4

SHOSTAKOVSKIY, M.F.; GLADYSHEVSKAYA, V.A.; KHOMUTOV, A.M.

Decomposition of dinitrile of azoisobutyric acid in vinyl-butyl ether. Izv.AN SSSR.Otd.khim.nauk no.3:499-505 Mr '62. (MIRA 15:3)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Butyronitrile) (Ethers)

GLADYSHEVSKAYA, Ye.I.

MALINOVSKIY, M.S.; GLADYSHEVSKAYA, Ye.I.

Thermal decomposition of aromatic hydrocarbons in the presence of ethylene oxide. Zhur. Priklad. Khim. 25, 218-24 '52. (MLRA 5:5)
(CA 47 no.22:12276 '53)

1. I.Franko State Univ., Lvov.

GLADYSHEVSKIY, M. K.

"One Hundred and Thirty Years of Experience in Shelterbelt Cultivation in Mokhovo (Orlov Province)," Les. khoz., 5, No.2 (41), 1952

1. GLADYSHEVSKIY, M. K.
2. USSR (600)
4. Oak
7. Growing shelterbelts by planting oak seedlings. Les. Khoz. 6 No. 3, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953. Uncl.

GLADYSHEVSKIY, M.K.

4680. Vkhod ZV Polezashchitnymi Lesnymi Polosami. M., Sel'khozgiz, 1954, 70 S.S. Ill 20Sm. 5000 Ekz 90K--Bibliogr: S. 67-68-(54-58124)--634.956.584f(o16.3)

GLADYSHEVSKIY, N., polkovnik

Antiaircraft battery during an attack. Voen.vest. 38 no.11: 17-23 N '58. (MIRA 11:12)
(Anti-aircraft guns)

GLADYSHEVSKIY, N.

Dictation attachment for a tape recorder. Voen.vest. 39 no.6:83-85 Je '60. (MIRA 14:2)
(Magnetic recorders and recording)

5.3400

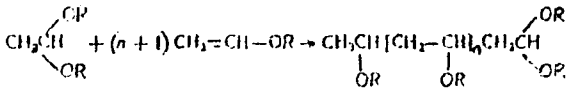
78083
SOV/62-60-1-29/37

AUTHORS: Shostakovskiy, M. F., Gladyshevskiy, V. A., Baykova, R. I.

TITLE: Brief Communications. Stepwise Synthesis of Poly(Vinyl Isopropyl Ether)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, Nr 1, pp 138-139 (USSR)

ABSTRACT: Stepwise polymerization of vinyl isopropyl ether was studied. The reaction proceeds as follows:



where n = 0,1,2,3,etc. 1,1,3-Triisopropoxybutane (I) (95%), bp 77.5-78° (4 mm), d_4^{20} 0.8600, was obtained at

Card 1/2

CHERKASHIN, Ye.Ye.; GLADISHEVS'KIY, Ye.I.

Chemical activity of aluminum-magnesium alloys. Nauk.zap.L'viv.un. 9:81-92 '48. (MLRA 10:5)

1.Kafedra obshchey i neorganicheskoy khimii.
(Aluminum-Magnesium alloys)

CHERKASHIN, Ye.Ye. [Cherkashyn, IE.IE.]; GLADYSHEVSKIY, Ye.I. [Hladyshevs'kyi, IE.I.]

Chemical properties of intermetallic phases. Part 3: Chemical reactions in the γ-phase of Al-Mg alloys. Nauk. zap. L'viv. un. 13:63-68 '49. (MIRA 12:10)

1.Kafedra obshchey i neorganicheskoy khimii L'vovskog gosudarstvennogo universiteta imeni I. Franko.
(Aluminum-magnesium alloys)

CHERKASHIN, Ye.Ye. [Cherkashyn, IE.IE.]; GLADYSHEVSKIY, Ye.I. [Hladyshevs'kyi, IE.I.]; KRYP'IAKEVICH, P.I. [Kryp'iakevych, P.I.]

Chemical properties of intermetallic phases. Part 4: X-ray studies of extraction residues. Nauk zap. L'viv. un. 13:69-76 '49. (MIRA 12:10)

1.Kafedra obshchey i neorganicheskoy khimii L'vovskogo gosudarstvennogo universiteta imeni I. Franko.
(Phase rule and equilibrium) (Alloys--Metallography)

USSR/Metals- Alloys, CuMgSn 11 Nov 50
Physics - Crystals, Powdered
X-Ray, Roentgenograms

"Crystallic Structure of the Ternary CuMgSn Phase," P. I. Kripyakevich, Ye. I. Gladyshevskiy, Ye. Ye. Cherkashin, L'vov State U imeni Ivan Franko.

"Dok Ak Nauk SSSR" Vol LXXV, No 2, pp 205-207

Roentgenograms of the powder of the CuMgSn phase. Description of the system Cu-Mg-Sn, their compositions and phases. Submitted 17 Sep 50 by Acad D. S. Belyankin.

178T84

GLADISHEVS'KIY, E.I., assistant.

Solid solutions as the base of binary intermetallic phases.
Dop.ta pov.L'viv.un. no.3 pt.2:28-30 '52. (MLRA 9:11)

(Solutions, Solid)

GLADISHEVS'KIY, Ye.I.; KRIP'YAKEVICH, P.I.; CHERKASHIN, Ye.Ye.

Chemical properties of the intermetallic phases. Part 5: Analysis of the residue after extraction of magnesiu, from alloys with copper and nickel. Nauk.zap.L'viv.un. 21:83-88 '52. (MLRA 10:7)

1. Kafedra neorganichnoi khimii.
(Magnesium alloys)

GLADISHEVS'KIY, Ye.I., ABLITSOVA, R.I., student III kursu; VASIL'YEVA, M.P., student III kursu.

Kinetics of substitution reaction of nickel and copper powders. Nauk.zap.L'viv.un. 21:105-109 '52. (MLRA 10:7)

1. Kafedra neorganichnoi khimii.
(Substitution (Chemistry)) (Nickel) (Copper)

APPROVED FOR RELEASE: Tuesday, September 17, 2002 CIA-RDP86-00513R0005

*Crystal Structure of the Cu_2Cd Phase. [illegible], E. I. Gladyshevsky, and [illegible] Cherkashin ([illegible], 32, (3), 203–205; [illegible], 1952, 85, (8), 324).—(In Russian). Specimens of the Cu_2Cd phase were prepared by melting electrolytic Cu and pure Cd in a Kryptol elect. resistance furnace under [illegible], then heated for 24 hr. at ~500° C. and slowly cooled. The X-ray powder photographs of this phase contained a great number of lines (data tabulated). The lattice const. are a = 4·95 and c = 7·07 kX. The absence of lines 00l and hhl (where l is an odd number) show that the space-group may be D^4_{6h} = $C6/mmc$, C^4_{6v} = $C6mc$, or D^4_{3h} = $H\bar{6}2$. Since the ρ of the alloy contg. 46·8 wt.-% Cd (near to Cu_2Cd) is 8·073 (cf. Masy, *Z. physikal. Chem.*, 1905, 50, 208), there are 12 atoms in the unit cell. The dimensions and symmetry of the unit cell, the const. compn. of the phase and the distribution of lines on the X-ray photograph indicate that Cu_2Cd possesses a structure of the Zn_2Mg type, i.e. that the atoms in the unit cell occupy the following positions in the space-group D^4_{6h} = $C6/mmc$: 4 Cd in (f) at z ≈ 1/16, 2 Cu in (a), 6 Cu in (h) at x ≈ 5/6. Values of $\sin^2\theta$ and the intensities of the lines calculated from these co-ordinates agree well with the observed values. Thus Cu_2Cd belongs to the group of Laves inter-metallic phases. The binary systems between elements of the 12th Sub-Group and those of the 7th–11th Sub-Groups can be divided into the following three types, according to the value of k, the ratio of the atomic radii of the components: (i) k = 1·00–1·11, systems with electron phases but not the phases of the Zn_2Mg group (e.g. Cu–Zn, Ag–Mg); (ii) k = 1·12–1·22, systems with phases of both groups (Cu–Be, Cu–Cd); (iii) k > 1·22, systems with [illegible]

GLADYSHEVSKIY, YE. I.

USSR/Physics - Crystallography, Cu_4MgSn 1 Jul 52

"Crystalline Structure of the Ternary Phase Cu_4MgSn," Ye. I. Gladyshevskiy, P. I. Kr[illegible]ewich, M. Yu. Teslyuk, L'vov State U imeni I. [illegible]anko

"Dok Ak Nauk SSSR" Vol LXXXV, No 1, pp 61-64

With the purpose of investigating the relation of the ternary phase Cu_4MgSn (found by Gladyshevskiy, Kripyakevich, and Ye. Ye. Cherkashin in 1950) to the other phases of the system Cu-Mg-Sn, the authors conducted thermal and roentgenological phase analyses, and also investigations of the microstructure of alloys for the series Cu_4MgSn-Cu, to find that the liquidus curve of these alloys pass through the max in the case of

224T100

a compn close to Cu_4MgSn and temp 750±10°, shown to be homogeneous according to the microstructure. Gave results of roentgenographic studies of powdered Cu_4MgSn. Submitted by Acad D. S. Belyankin 23 Apr 50.

224T100

APPROVED FOR RELEASE: Tuesday, September 17, 2002 CIA-RDP86-00513R0005

GLADYSH

Corrections to "Crystal Structure of the Ternary Phase Cu_4MgSn" [illegible] E. I. Gladyshevskii, P. I. Kripyakevich [illegible] M. Yu. Teslyuk [illegible]

(41, 516). [illegible] 20, [illegible]

GLADYSHEVSKIY, Ye. I.

Dissertation: "Solid Solutions as Bases of Metal Compounds." Cand Chem Sci, L'vov State U, L'vov 1953

W-30928

SO: Referativnyy Zhurnal, No. 5, De: 1953, Moscow, AN USSR (XXXXXX)

GLADYSHEVSKIY, Ye. I.

*The Crystal Structure of the Compounds Co_2MnSn and Ni_2MnSn. P. I. Krypyakevich, E. I. Gladyshevskiy and O. S. Zarechnyuk (*Doklady Akad. Nauk S.S.S.R.*, 1954, 95, (3), 525–528).—[In Russian]. Specimens of compn. Me_2MnSn, where Me = Co or Ni, were prepared from electrolytic Co, Ni, and Mn, and from analytically pure Sn, and examined by the X-ray-diffraction method. The dimensions of the elementary cells of Me_2MnSn were of the same order as those of Cu_2MnSn, and the most probable structure was that of the BiF_3 type. The cell const. $a = 5{\cdot}991 \pm 0{\cdot}002$ and $6{\cdot}045 \pm 0{\cdot}002$ kX for Co_2MnSn and Ni_2MnSn, resp. As these types of cubic lattice are not found in Co and Ni solid solns. ($a \sim 3{\cdot}5$–$3{\cdot}6$ kX), it was concluded that both Co_2MnSn and Ni_2MnSn are ternary compounds belonging to the class of interstitial phases. Although the atomic radius of Co > Ni, the const. $a_{Co_2MnSn} < a_{Ni_2MnSn}$, as in the case of $CeCo_2$ and $CeNi_2$, and of $CoSi_2$ and $NiSi_2$.—S. K. L.

GLADYSHEVSKIY, Ye. I.

USSR/ Physical Chemistry - Thermosynamics. Thermochemistry. Equilibrium. Physicochemical analysis. Phase transitions B-8

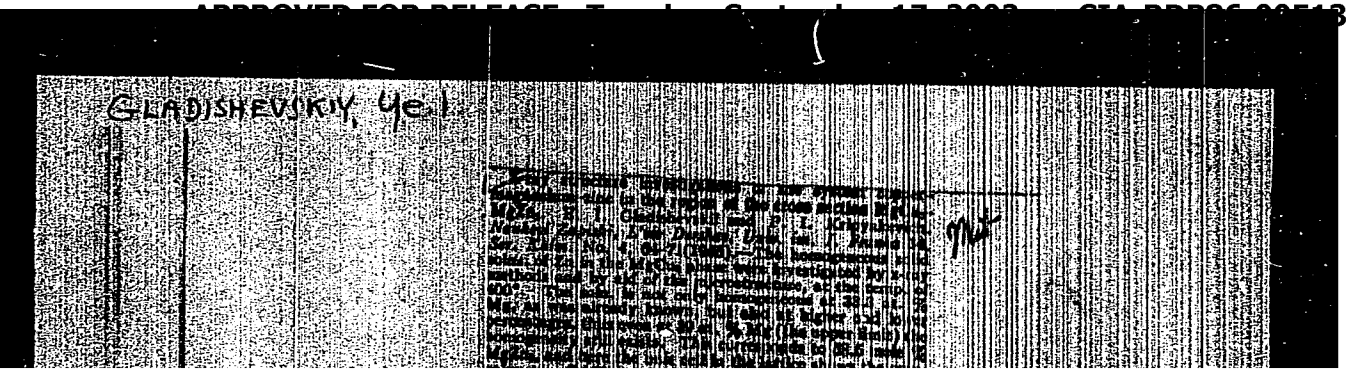
Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11182

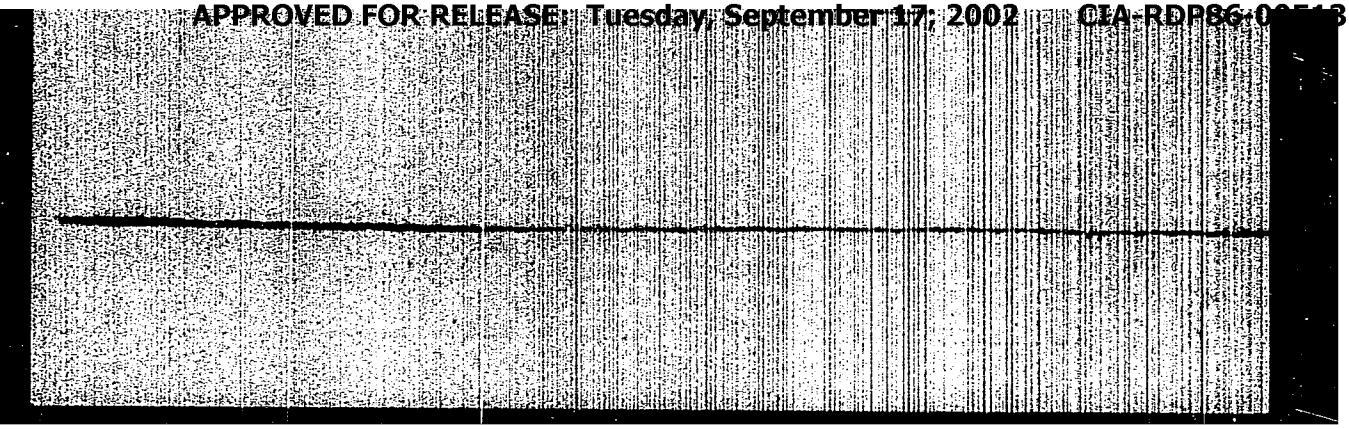
Author : Gladyshevskiy Ye.I., Cherkashin Ye.Ye.
Inst : L'vov University
Title : Mutual Solubities of Nickelarsenide Compounds NiSb and Ni_3Sn_2.

Orig Pub : Nauk. zap. L'vivs'k. un-ta, 1955, 34, 51-55

Abstract : Using the microstructure method, x-ray phase structure analysis and precision measurements of identicity periods, the authors have investigated the system NiSb-Ni_3Sn_2, characterized, in contrast to the previously investigated γ -compounds, by different content of transition metal and absence of continuous solid solutions of the metals being substituted (Sb and Sn) in the binary system. Alloys were produced from Ni, Sb and Sn and were then annealed for 40 hours at 600° followed by hardening in cold water. There was ascertained the formation of a continuous series of solid solutions with replacement of all Sb atoms by Sn atoms and additional incorporation of Ni atoms in the NiSb structure.

Card 1/1





USSR/Chemistry - Crystallography

Card 1/1 Pub. 22 - 24/53

Authors : Gladyshevskiy, Ye. I., and Kripyakevich, P. I.

Title : Arrangements of Cu and Mg atoms in the CuMgSn structure

Periodical : Dok. AN SSSR 102/4, 743-746, Jun 1, 1955

Abstract : It was established experimentally that the triple metallic CuMgSn compound belongs to the CaF_2 structural type and that the Pb atoms in this compound occupy the cubical more dense shells and the Cu and Mg atoms are arranged in the tetrahedral vacuum. The determination of the atom positions in the structure of CuMgSn was made for the purpose of comparing with the structural ABC types which are derivatives of CaF_2. In addition to the atom arrangement the authors also determined the life span of the crystal lattice for the CuMgSn system. Six references: 4 German, 1 English and 1 USSR (1937-1952). Tables; diagrams.

Institution : The Iv. Franko State University, L'vov

Presented by : Academician N. V. Belov, December 24, 1954

KRIPYAKEVICH, P.I.; GLADYSHEVSKIY, Ye.I.

Crystal structure of $CrBe_{12}$, VBe_{12} and $NbBe_{12}$. Dokl.AN SSSR 104 no.1:82-84 S '55. (MLRA 9:2)

1.L'vovskiy gosudarstvennyy universitet imeni Iv.Franko. Predstavlene akademikom N.V.Belovym.
(Chromium-beryllium alloys)(Vanadium-beryllium alloys)(Niobium-beryllium alloys)

USSR/Physical Chemistry, Thermodynamics, Thermochemistry, B-6
Equilibriums, Phys-Chem. Anal. Phase-Transitions.

Abs Jour : Ref Zhur - Khimiya, No 7, 1957, 22,14.

Author : E. I. Gladyshevskiy, S. E. Cherkashin.
Inst : Not given
Title : Solid Solutions on the Base of Metallic Compounds.

Orig Pub : Zh. neorgan. khimii, 1956, 1, No 5, 1,94-1401.

Abstract : Formation conditions of solid solutions of the 3rd component in binary metallic compounds are examined on the basis of literary material and experimental data furnished by recent thermostructural and microstructural analyses. Solubility of metals was studied in metallic compounds of the group Mg_2Me_2 (structure of $MgNi_2$, $MgZn_2$ and $MgCu_2$ type), in electronic compounds (structure of α -, β -, and γ -brasses type), in nickel-arsenide compounds (structure of CdI_2, NiAs and Ni_2In), in silicides and in some ternary alloys. A series of new continuous solid solutions between metallic alloys was found and their structure was studied. Solubility of Zn, Al, Si, Sn and Sb in $MgCu_2$ is limited by a maximum electronic concentration, which is necessary for filling the first energy zone of $MgCu_2$ struc-

Card 1/2

GLADYSHEVSKIY, Ye.

USSR/Physical Chemistry. Thermodynamics, Thermochemistry, B-8
Equilibria, Physical-Chemical Analysis, Phase Transitions.

Abs Jour: Ref Zhur-Khimiya, No 5, 1957, 14682

Author : Ye. I. Gladyshevskiy, P. I. Kripyakevich
Inst : Institute of Organic and Inorganic Chemistry, Academy of Sciences of USSR
Title : Solubility of Zinc in Metallic Compounds Cu_2Mg and Cu_2Cd.

Orig Pub: Izv. Sektora Fiz.-Khim. analize IONKh AN SSSR, 1956, 27, 209-211

Abstract: The solubility of zinc in Cu_2Mg and Cu_2Cd was studied by the roentgenographic method in specimens annealed at 400° and tempered. The solubility of Zn in Cu_2Mg, agreeing with data obtained earlier (Mikheyeva V. I., Kryukova G. N., Izv. sektora fiz.-khim. analiza, 1950, 20, 76), is from 2 to 6 at. percent, the lattice period changing from 7.020 to 7.182 kilocycles. The solubility of zinc in Cu_2Cd is considerably lower. It is about 3 percent and the lattice period changes from 5.013 to 5.016 kilocycles.

USSR/Thermodynamics - Thermochemistry. Equilibria.
Physical-Chemical Analysis. Phase Transitions.

Abs Jour : Referat Zhur - Khimiya, No 6, 1957, 18505

Author : Ye.Ye. Cherkashin, Ye.I. Gladyshevskiy, M.Yu. Teslyuk.
Inst : Institute of Organic and Inorganic Chemistry of Academy of Sciences of USSR.

Title : Study of System Copper - Magnesium - Tin in Range of Cu - Cu_2Mg - CuMgSn.

Orig Pub : Izv. Sektora fiz.-khim. analiza IONKh AN SSSR, 1956, 27, 212-216

Abstract : The structure of alloys pertaining to the system Cu - Mg - Sn was studied microscopically and roentgenographically. Alloys of the cross-section Cu_2Mg - CuMgSn are homogeneous in the range of 0 to 15 at.% of Sn; along the cross-section Cu_2Mg - Sn the maximum solubility is 12 at.% of Sn. The lattice spacing rises in the first case from 7.020 to 7.248 kX and to 7.157 kX in the second.

Category : USSR/Solid State Physics - Systems E-4

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6604

Author : Kripyakevich, P.I., Gladyshevskiy, Ye.I.
Title : Crystalline Structure of the Compounds $CrBe_{12}$, VBe_{12}, and $NbBe_{12}$.

Orig Pub : Dokl. AN SSSR, 1956, 104, No 1, 82-84

Abstract : The R-Be systems (R = Cr, B, Nb) was found to include compounds of composition RBe_{12} with a structure of the type $ThMn_{12}$ (Fedorov Group $I4/mmm$) with atom positions: 2 R in (a), $Be_{(1)}$ in 8(f), $Be_{(2)}$ in 8(i) with x = 0.361 and $Be_{(3)}$ in 8(j) with x = 0.277. The lattice periods are : $CrBe_{12}$ -- a-7.219, c-4.168; VBe_{12} -- a-7.251, c-4.186; $NbBe_{12}$ -- a-7.357, c-4247 kX; in all the structures c/a = 0.577. The R atom is surrounded by $8Be_{(1)} + 4Be_{(2)} + 8 Be_{(3)}$ (20 vertex figure), the atom $Be_{(1)}$ is surrounded by $2Be_{(1)} + 4 Be_{(2)} + 4 Be_{(3)} + 2$ R (deformed icosahedron) the $Be_{(2)}$ atom by $1 Be_{(2)} + 4 Be_{(2)} + 2 Be_{(3)} + 2 Be_{(3)} + 4 Be_{(1)} + 1$ R (14-vertex figure), and the $Be_{(3)}$ atom by $2 Be_{(3)} + 2 Be_{(2)} + 2 Be_{(2)} + 1 Be_{(1)} +$

Card : 1/2

AUTHOR: Gladyshevskiy, Ye.I. and Kripyakevich, P.I. 78-6-6/12

TITLE: The Crystal Structures of the Compounds $MoBe_{12}$, WBe_{12} and $TaBe_{12}$. (Kristallicheskaya struktura soyedineniy $MoBe_{12}$, WBe_{12} and $TaBe_{12}$.)

PERIODICAL: Kristallografiya, 1957, Vol.2, No.6, pp. 742 - 745 (USSR).

ABSTRACT: Be forms compounds of the $ThMn_{12}$ type with Cr, V and Nb. An investigation to see whether there were analogous compounds with Mo, W and Ta has been made. The existence of a compound of Mo and Be with a composition about $MoBe_{13}$ and a tetragonal unit cell (space group P42) with a=10.27 and c=4.29 KX and Z=4 (S.G. Gordon et al., J. Metals, 3, 897, 1951) was known. The compound $MoBe_{12}$ with a=7.557 and c=4.247 KX was also known (Dokl.Ak.Nauk SSSR, 104, 62, 1955). Mo was melted with Be in a BeO crucible under argon in an H.F. furnace and the resulting alloy was found to contain 92.3 atomic % of Be. It was annealed at 400° and on quenching was found to have a homogeneous microstructure. Measurements of an X-ray powder photograph (57.4 mm dia. camera, unfiltered Cr radiation) are given. Comparison with measurements of $ThMn_{12}$ shows it to have this

Card1/2

The Crystal Structures of the Compounds $MoBe_{12}$, WBe_{12} and $TaBe_{12}$. 18-6-6/12

structure and therefore the formula $MoBe_{12}$. The cell dimensions are a=7.237 ± 0.004 and c = 4.253 ± 0.002 KX. Intensities were calculated for a structure of the $ThMn_{12}$ type with space group I4/mmm with 2 Mo in (a), 8 Be in (f), 8 Be in (i) with x=0.361 and 8 Be in (j) with x=0.277 and very good agreement with the experimental data was found. Since this work was done, Raeuchle and Batchelder (Acta Crystallography, 8, 691, 1955) were found to have obtained exactly similar results. The compound WBe_{12} was similarly prepared as was $TaBe_{12}$ and their unit cells were found to be a=7.220 ± 0.004, c=4.224 ± 0.002 KX and a=7.322 ± 0.004, c=4.247 ± 0.002 KX, respectively. The $ThMn_{12}$ structure is thus found for the compounds of V, Nb, Ta, Cr, Mo and W with Be. In the Mo-Be and W-Be systems new compounds richer in Be than $MoBe_{12}$ (about 98 at.% Be) have been found which have cubic-face centred cells with a=11.60 and 11.59 KX respectively. I.V. Smol'yaninov participated in the work. There are 2 tables and 4 references, 1 of which is Slavic.

ASSOCIATION: Ivan Franko State University, Lvov.
(L'vovskiy Gosudarstvennyy Universitet im. I. Franko)

Card 2/2

GLADYSHEVSKIY, Ye. I.

137-58-5-10528

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 235 (USSR)

AUTHOR: Gladyshevskiy, Ye. I.

TITLE: Mutual Solubility of Electronic Compounds in Silver Alloys with Cadmium and Zinc (Vzaimnaya rastvorimost' elektronnykh soyedineniy v splavakh serebra s kadmiyem i tsinkom)

PERIODICAL: Dopovidi ta povidomlennya, L'vivs'k. un-t, 1957, Nr 7, Part 3, pp 190-195

ABSTRACT: Metallographic and X-ray methods are employed to investigate the mutual solubility of 3 pairs of isostructural metallic compounds, AgZn-AgCd, Ag_5Zn_8-Ag_5Cd_8, and Ag_3Zn_3-$AgCd_3$ obtaining in an Ag-Cd-Zn system. Examination is made of cross sections of the system at compositions corresponding to the theoretical values of electronic concentrations at 500 and 400°C. The alloys were made of chemically pure metals in ceramic crucibles under carnallite, and were annealed for 100 hours at 500 and 400° with subsequent quenching in water. Phase analysis was performed by the powder method, with Fe irradiation. At 500° there is a continuous solid solution between the β electronic compounds of AgZn-AgCd. When temperature was reduced to

Card 1/2

137-58-5-10528

Mutual Solubility of Electron (cont.)

400° cubic AgCd transforms to hexagonal, and instead of the continuous solution there appears a limited one (appx. to 30 atomic % Cd) of Cd in AgZn. The solubility of Zn in hexagonal AgCd is slightly smaller. Between Ag_5Zn_8 and Ag_5Cd_8 there is a continuous solid solution at both temperatures, and this is confirmed by smooth variation of the regions of identity. All alloys of the $AgZn_3$-$AgCd_3$ section are homogeneous, and there is no ordinate solid solution involving these two compounds. The regularities found agree with the literature data. Bibliography: 20 references.

A F

1. Intermetallic compounds--Solubility
2. X-ray--Application

Card 2/2

137-58-5-10414

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 218 (USSR)

AUTHORS: Cherkashin, Gladyshevskiy, Kripyakevich [Cherkashyn Ye. Ye. Gladyshevs'kyy, Ye. I., Kryp"yakevych, P. I.]

TITLE: Compounds of the Transition Metals With Beryllium Silicon Germanium, and Tin (Soyedineniya perekhodnykh metallov s berilliyem, kremniyem, germaniyem i olovom) | Spoluky perekhidnykh metaliv z beryliyem kremniyem, germaniyem i olovom |

PERIODICAL: Dopovidi ta povidomlennya. L'vivs'k. un-t. 1957, Nr 7, Part 1, pp 180-183 (in Ukrainian)

ABSTRACT: An investigation is made of binary and ternary systems (Mn Cr, V, Nb, Mo, and W with Be; Co+Si, Ni+Si, Co+Ge, Ni+Ge, Co+Sn, and Ni+Sn with Mn). X-ray and microstructural analyses were made, resulting in the discovery of 17 new compounds and determination of the crystal structures of 12 of these. (See Table on Card 2)

Card 1/2

Compounds of the Transition (cont.)

Compound	Structural Type	Syngony	Lattice periods, kx
$MnBe_{3-13}$	$MdCu_2$	Cubic	α = 5.91
$GrBe_{12}$	$ThMn_{12}$	Tetragonal	α = 7.219, c = 4.168
$MoBe_{12}$	"		7.240 4.180
VBe_{12}	"		7.251 4.186
$NbBe_{12}$	"		7.357 4.247
Co_2MnSi	CsCl	Cubic	a = 2.827
Co_2MnGe	Cu_2MnAl	"	5.72
Ni_2MnGe	"	"	5.68
Co_2MnSn	"	"	5.99[illegible]
Ni_2MnSn	"	"	6.045
$Mn_3Co_3Si_2$	$MdZn_2$	Hexagonal	α 4.738 c = 7.452
$Mn_3Ni_3Si_2$	"	"	4.752 7.492

Mn and Be form coupounds of variable composition $MnBe_{3 \rightarrow 13}$ with a wide interval of homogeneity. The compounds Co_2MnSn and Ni_2MnSn have melting points of 950 and 1050°C, respectively, and are ferromagnetic. [illegible]

1 Chemical compounds--Production 2. Chemical compounds--Mi[illegible] structure

Card 2/2

KRIP'YAKEVICH, P.I. [Kryp'yakevych, P.I.]; GLADYSHEVSKIY, Ye.I. [Hladyshevs'kyi, E.I.]

X-ray analysis of chromium-beryllium alloys with a high percentage of beryllium. Dop. ta pov. L'viv. un. no.7 pt.3; 183-187 '57. (MIRA 11:2)

(Chromium-beryllium alloys--Spectra)

CHERKASHIN, Yevgeniy Yevgeniyevich; GLADYSHEVSKIY, Ye.I., dotsent, otv. red.; ZEVSKOV, V.S., red.; SARANYUK, T.V., tekhred.

[Metric analysis of chemical equilibrium diagrams of systems containing associated components] Metrika ravnovesnoi khimicheskoi diagrammy sistem s assotsiirovannymi komponentami. Izd-vo L'vovskogo univ., 1958. 106 p. (MIRA 11:12)
(Systems (Chemistry))

AUTHOR: Gladyshevskiy, Ye. I.

TITLE: Discussion on Lectures (Obsuzhdeniye doklados)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol 3, Nr 3, pp. 683-684 (USSR)

ABSTRACT: The speaker reports that I. I. Kornilov and Ye. I. Rylayeva offered himself and P. I. Krypyakevich the possibility of investigating the alloys $NbNi_3$-$TaNi_3$ by means of the method of x-ray structural analysis. These investigations proved completely the results obtained by means of other methods. Their aim was to check the data by Karlsson on the structure $TaNi_3$ and to investigate the structure of $NbNi_3$. Besides they had to investigate the solid solutions of the section $NbNi_3$-$TaNi_3$ as well as of the quaternary alloy the composition of which is to be found in the section $NbNi_3$-$TaNi_3$-$TiNi_3$. These alloys were produced by means of fusion in a high-frequency stove. Thermal treatment consisted of a 200 hours homogenizing burning at 1200°. The chips produced from the homogenized alloy were burned for 1 hour in a vacuum-quartz ampoule at 1000° and then sieved. The powders obtained this way were investigated by means of the x-ray structural

Card 1/3

analysis The radiogram of the powder of the $TaNi_3$ compound do not indicate in the hexagonal syngeny Therefore the compound does not belong to the type Mg_2Ni_2Sn or $TiNi_3$. The arrangement of lines on the radiogram as well as their intensity correspond to those calculated for the structural type β-$TiCu_3$ (with ordered atomic distribution) Thus the data by Karlsson are proved. The compounds $NbNi_3$ and $TaNi_3$ are of the same structure and belong to the type $TiCu_3$ (rhombic syngeny) just as well as the quaternary alloys Finally the problem of the structure of the $TaNi_3$ compound and its relation to $NbNi_3$ and $TaNi_3$ were to be discussed. When the data existing in technical references on the structure of $TiNi_3$ are right the formation of a continuous series of solid solutions $NbNi_3$-$TiNi_3$ and $TaNi_3$ $TiNi_3$ seems little probable and should be checked There possibly exists a narrow heterogenous domain between them. Cases are known where the heterogenous domain could not be found by means of the method of microstructure but where it was possible by means of the x-ray structure; e.g. $MgCu_2$-$MgNi_2$. The speaker hopes that it will be possible to him to continue the x-ray structural investigations of the quaternary system Ni-Ti-Ta-Nb in the alloys produced by I.I. Kornilov and

Discussion on Lectures

78-3-24/47

Ye.N. Pylayeva.

ASSOCIATION: Gosudarstvennyy universitet im. Franko, L'vov
(L'vov, State University imeni Franko)

Card 3/3

3-17/47

AUTHORS: Cherkashin, Ye. Ye., Gladyshevskiy, Ye. I., Kripyakevich, P. I., Kuz'ma, Yu. B.

TITLE: X-Ray Structural Investigations of Some Systems of Transition Metals (Rentgenostrukturnoye issledovaniye nekotorykh sistem perekhodnykh metallov)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 3, pp. 650-653 (USSR)

ABSTRACT: By the X-ray structural method alloys in the following systems were investigated: Mn-Be, Cr-Be, V-Be, Mo-Be, W-Be, Ta-Be, Nb-Be, Mn-Fe-Si, Mn-Fe-Sn, Mn-Co-Si, Mn-Co-Ge, Mn-Co-Ni, Mn-Ni-Si, Mn-Ni-Ge, Mn-Ni-Sn, Mn-Cu-Si, Zr-V-Ni, Zr-Cr-Ni, Zr-Mn-Ni, Zr-Fe-Ni, Zr-Co-Ni.
By the investiagtions of the systems the following new compounds were determined which occur at 400°C: $MnBe_8$ (at t = 1100°C, the composition is $MnBe_{5.3}$ of the type $MgCu_2$), $CrBe_{12}$ ($ThMn_{12}$), VBe_{12} ($ThMn_{12}$), $NbBe_{12}$ ($ThMn_{12}$), $NbBe_2$, $NbBe_5$, $MoBe_{12+x}$, WBe_{12+x}, Co_2MnSi (CsCl), $Mn_3Co_3Si_2$

Card 1/2

X-Ray Structural Investigations of Some Systems of Transition Metals

($MgZn_2$), MnCoSi, $Mn_{12}CO_3Si_5$, $Mn_3Ni_3Si_2$ ($MgZn_2$) MnNiSi
CO_2MnGe (Cu_2MnAl), Ni_2MnGe (Cu_2MnAl) Co_2MnSn (Cu_2MnAl)
Ni_2MnSn (Cu_2MnAl) ZrMnNi ($MgCu_2$) $ZrV_{0.5}Ni_{1.5}$ ($MgCu_2$)

In the systems Mo-Be, W-Be and Ta-Be compounds with a tetragonal structure occur. The composition determined for the first time is the following: $MoBe_{12}$, WBe_{12} and $TaBe_{12}$. All these compounds belong to the type $ThMn_{12}$. In the system Mn-Fe-Si the following solid solutions occur: Mn_3Si and Fe_3Si. In the system Mn-Co-Si solid solutions of cobalt and silicon in β Mn occur and solutions of cobalt in Mn_5Si_3 and Co in MnSi. In the system Zr-Fe-Ni a solid solution of Ni in $ZrCo_2$ occurs. In the system Zr-Co-Ni a solid solution of Ni in $ZrCo_2$ occurs. There are figure and 11 references, 5 of which are Soviet.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. I. Franko
(L'vov State University imeni I. Franko)

SUBMITTED: June 25, 1957

AUTHORS: Pylayeva, Ye.N., Gladyshevskiy, Y.I., SOV/ 78-3-7-28/44
Krypyakevich, P.I.

TITLE: The Crystalline Structure of the Compounds Ni_3Nb and Ni_3Ta (Kristallicheskaya struktura soyedineniy Ni_3Nb i Ni_3Ta)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 7, pp 1626-1631 (USSR)

ABSTRACT: The metallic compounds Ni_3Nb and Ni_3Ta and 9 binary alloys of the series Ni_3Nb-Ni_3Ta were investigated with respect to their structure by the X-ray method. The results obtained showed that the compounds Ni_3Nb and Ni_3Ta belong to the structural type β-Cu_3Ti. The atomic arrangement of atoms is the following: 2 Nb (or Ta) in (a) with Z_a 2/3
2 Ni in (b) with Z_b [illegible], 4 Ni in (f) with x = 1/4; Z_f = 1/6.
The lattice constants for the compound Ni_3Nb are the following:
a = 5.0[illegible] [illegible]
The ratio a : b : c = 2 : [illegible] : 1.78
For the compound Ni_3Ta the lattice constants are as follows:

Card 1/2

The Crystalline Structure of the Compounds Ni_4Nb and Ni_7Ta SOV/ 78-3-7-28/44

a 5.09 b 4.73 c 2.51 ; a : b : c = 2 : 1.66 : 1.77. The compounds Ni_4Nb and Ni_7Ta together form continuous series of solid solutions. There are 2 figures, 2 tables and 5 references, 3 of which are Soviet.

ASSOCIATION: Institut metallurgii im. A.A.Baykova Akademii nauk SSSR i L'vovskiy gosudarstvennyy universitet im. I.Franko
(Institute of Metallurgy imeni A.A.Baykov AS USSR and L'vov State University imeni I.Franko)

SUBMITTED: June 19, 1957

1. Intermetallic compounds--Crystal structure 2. Intermetallic compounds--Atomic structure 3. Intermetallic compounds--X-ray analysis 4. Intermetallic compounds--Lattices

Card 2/2

AUTHORS: Gladyshevskiy, Ye.I. and Kuz'ma, Yu.B. 307/21-58-11-13/28

TITLE: A Roentgenographic Structural Investigation of Vanadium - Germanium Alloys (Rentgenostrukturnoye issledovaniye splavov vanadiya s germaniyem)

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1958, Nr 11, pp 1208-1211 (USSR)

ABSTRACT: The authors carried out roentgenographic and metallographic investigations of the seven alloys of vanadium with germanium containing from 29.1 to 83.3 atomic per cent of vanadium. The alloys were obtained out of 99.9% pure vanadium and 99.7% pure germanium. The existence of a new compound, V_5Ge_3, was established. This compound has a structure of the Mn_5Si_3 (lattice constants and other characteristics are as follows: $a = 7.280 \pm 0.002$ kX; $c = 4.960 \pm 0.002$ kX; $\frac{c}{a} = 0.676$; $x_V = 0.25$; $x_{Ge} = 0.61$). In quickly cooled alloys, the compound V_5Ge_3 exists in equilibrium with germanium and the compound V_3Ge. P.I. Kripyakevich participated in the discussion of the problems raised during this investigation. There are 3 tables, 1 graph and 4 references, 2 of which are Soviet, 1 German and 1 unidentified.

Card 1/2

SOV/21-58-11-13/28

A Roentgenographic Structural Investigation of Vanadium - Germanium Alloys

ASSOCIATION: L'vovskiy gosudarstvennyy universitet imeni Iv. Franko (L'vov State University imeni Iv. Franko)

PRESENTED: By Member of the AS UkrSSR, V.N. Svechnikov

SUBMITTED: May 19, 1958

NOTE: Russian title and Russian names of individuals and institutions appearing in this article have been used in the transliteration.

Card 2/2

GLADYSHEVSKIY, Ye.I. [Hladyshevs'kyi, IE.I.]; KOZ'MA, Yu.B.

Crystal structure of ternary compounds in the systems Co - Mn - Ge and Ni - Mn - Ge. Nauk.zap.L'viv.un. 46:115-117 '58. (MIRA 12:7)

(Systems (Chemistry))

KRIPYAKEVICH, P.I. [Kryp'iakevych, P.I.]; GLADYSHEVSKIY, Ye.I. [Hladyshevs'kyi, E.I.]; ZALUTSKIY, I.I. [Zaluts'kyi, I.I.] pri uchastii studentok; YEVDOKIMENKO, V.I. [Evdokymenko, V.I.]; BORUSEVICH, L.K. [Borusevych, L.K.]

Crystal structure of the compounds $ZrNi_4$, ZrMnNi, and $ZrV_{0.5}Ni_{1.5}$. Nauk.zap.L'viv.un. 46:118-123 '58. (MIRA 12:7)
(Systems (Chemistry))

GLADYSHEVSKIY, Ye. I.; KRIPYAKEVICH, P. I.; KUZ'MA, Yu. B.

"The Crystal Structure of Ternary Compounds in the Systems Cr--Ni--Si and Cr--Co--Si"

a report presented at Symposium of the International Union of Crystallography Leningrad, 21-27 May 1959

5

AUTHOR: Gladyshevskiy Ye.I.

TITLE: The Crystalline Structure of the Compounds $BaSi_2$ and $CeGe_2$ (Kristallicheskaya struktura soyedineniy $BaSi_2$ i $CeGe_2$)

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1958, Nr 3, pp 294-297 (USSR)

ABSTRACT: The author examines the crystalline structure of the compound $BaSi_2$ and establishes the existence and the structure of the compound $CeGe_2$. The x-ray and the metallographic examinations of five alloys of barium and silicon, smelted in an electric furnace in porcelain crucibles with BaCl-KCl flux of 99,9% pure barium and 99,99% pure silicon confirmed the existence of compound $BaSi_2$. This compound is gray, has a metallic shimmer and easily oxidizes in the air. Grid constants are as follows: a = 4,38 ± 0,01 kX; c = 4,42 ± 0,01 kX. Accord- ing to specific weight 3,87 gr per cubic cm, the number of atomic pairs in an elementary cell is N=3.

Card 1/3

The Crystalline Structure of the Compounds $BaSi_2$ and $CeGe_2$

Upon this factor, the author presumes that compound $BaSi_2$ has a structure of $A^1B_2^4$. The coordinate and atomic data are shown in figure 2. The existence of the intermetallic compound $CeGe_2$ has also been proved. It is in equilibrium with Ge, having a structure of the a-$ThSi_2$ type, where a = 4.309 ± 0.002 kX, c = 14.153 ± 0.005 kX, ca = 3.32, Z_{Ce} = 0.416. The position of its atoms are 4 Ce in (a), 4 Ge in (e) ZGe = 416. Compounds $CeGe_2$ form eutectic structures with germanium. Interatom distances in the examined structures indicate formation of covalent connections with silicon atoms in $BaSi_2$ and with atoms of germanium in $CeGe_2$. At the end of article the author presents his thanks to P. I. Kripyakevich for his contribution to this study. There are 4 tables and 5 references, 3 of which are Soviet and 2 German.

Card 2/3

SOV/21-59-7-15/27

The Crystalline Structure of the Compounds BaSi... and CaSi2

ASSOCIATION: L'vovskiy gosudarstvennyy universitet imeni Ivana Franka (L'vov State University imeni Ivan Franko)

PRESENTED: October 11, 1958 by V. N. Svechnikov, Member of the AS UkrSSR

Card 3/3

82505

24.7100

S/070/60/005/004/005/012
E132/E360

AUTHORS: Gladyshevskiy, Ye.I. and Kripyakevich, P.I.

TITLE: The Crystal Structure of the Compound $Li_{15}Ge_4$

PERIODICAL: Kristallografiya, 1960, Vol. 5, No. 4, pp. 574 - 576

TEXT: Two compounds in the Li-Ge system were discovered by Pell (J. Phys. Chem. Solids, 3, 1-2, 74-7, 1957) - "Li_4Ge" and Li_3Ge with m.p. 750 ° ± 10 ° and 800 ° ± 10 °, respectively. Crystallographic considerations show the correct formula of the former compound to be $Li_{15}Ge_4$. X-ray powder photographs were taken of alloys containing 14, 17, 20, 23 and 25 at. % Ge. The compound with 20% Ge was shown to be a mixture of Ge and "Li_4Ge".

This compound was cubic with a = 10.761 ± 0.002 KX and invited comparison with $Cu_{15}Si_4$ (a = 9.694 KX) and $Na_{15}Pb_4$ (a = 15.29KX). Intensities were calculated with this structure and compared well with those observed. The structure is then one with Z = 4 and space groups $I\bar{4}3d = T_d^6$ having 12 Li in 12(a)

Card 1/2

82506

S/070/60/005/004/006/012
E132/E360

5.2610

AUTHORS: Kripyakevich, P.I. and Gladyshevskiy, Ye.I.

TITLE: The Crystal Structures of Certain Compounds of Palladium with Magnesium

PERIODICAL: Kristallografiya, 1960, Vol. 5, No. 4, pp. 577 - 579

TEXT: No compounds of Pd and Mg have been found hitherto. Alloys were prepared by fusing Pd and Mg under argon in a corundum crucible with an H.F. furnace. The thermal treatment was concluded with 250 hours annealing at 400 °C. X-ray powder photographs were taken with Cr radiation. Two compounds were found. PdMg is cubic with a = 3.16 ± 0.01 KX and a primitive lattice. Intensities calculated for a CsCl type structure ($Pm3m - O_h^1$) agreed well. An alloy with 45 at. % Mg contained neither PdMg nor Pd. It was tetragonal with a = 3.02 ± 0.01 KX and c = 3.41 ± 0.01 KX. These values suggest an AuCu type structure and intensity calculations confirmed this. For the composition $Pd_{1.1}Mg_{0.9}$ this gives.

Card 1/2

82506

S/070/60/005/004/006/012
E132/E360

The Crystal Structures of Certain Compounds of Palladium with Magnesium

In the space group $P4/mmm$, 1Pd in 1(a) positions and 0.9Mg + 0.1Pd in 1(d) positions. In an alloy with 65 at. % Mg lines of PdMg and of a further unidentified compound were observed. Similar compounds have been found in the Pd-Zn and Pd-Cd systems.
There are 3 tables and 7 references: 4 German and 3 English.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. I. Franko (L'vov State University im. I. Franko)

SUBMITTED: January 29, 1960

Card 2/2

E780

S/070/60/005/006/002/009
E032/E314

21.1320

AUTHORS: Gladyshevskiy, Ye.I., Tylkina, M.A. and Savitskiy, Ye.M.

TITLE: X-ray and Microscopic Study of Hf-Re Alloys

PERIODICAL: Kristallografiya, 1960, Vol. 5, No. 6, pp. 877 - 881

TEXT: A study is reported of phase equilibria in alloys of rhenium and hafnium containing 66% of Hf by weight. The existence of four compounds has been established and the crystal structure of two of them has been determined (Hf_5Re_{24}, structural type: Ti_5Re_{24}, $a = 9.713 \pm 0.005$ Å; $HfRe_2$, structural type: $MgZn_2$, $a = 5.248 \pm 0.001$ Å, $c = 8.592 \pm 0.002$ Å, $c/a = 1.637$). The compound He_5Re_{24} (microhardness measured with a load of 100 g to an accuracy of 40 kg/mm^2 was $H_\mu = 1130$ kg/mm^2) in cast specimens is

Card 1/7

57864
S/070/60/005/006/002/009
E032/E314

X-ray and Microscopic Study of Hf-Re Alloys

found to be in equilibrium with rhenium (H_μ = 760 kg/mm^2).

X-ray data for annealed alloys with a large concentration of rhenium indicate the presence of a phase "A" of unknown composition of structure. The microhardness of $HfRe_2$ was found to be 1 460 kg/mm^2. In cast alloys containing 33 and 50 at.% Re in equilibrium with the solid solution based on the cubic body-centred modification of hafnium (β-Hf) a further phase of unknown structure (B) was detected. The latter phase is probably Hf_2Re and its microhardness is 1980 kg/mm^2. Table 1 gives the phase composition of the HfRe alloys

Card 2/7

8780

S/070/60/005/006/002/009
E032/E314

X-ray and Microscopic Study of Hf-Re Alloys

Concentration of rhenium		Microhardness (cast alloys)	Phase Composition of alloys	
			Cast	Annealed at 1000°C for 150 hrs
% by wt.	at. %			
99	99.0	Heterogeneous	Re+trace Hf_5Re_{24}	Re+A
97	96.8	"	Re+Hf_5Re_{24}	A+Re
93	92.7	"	Hf_5Re_{24}+Re	A
83.5	82.9	Homogeneous, trace 2nd phase	Hf_5Re_{24}	Hf_5Re_{24}
67.5	66.6	-ditto-	$HfRe_2$	$HfRe_2$
51.3	50.2	Heterogeneous	β-Hf+B	B+trace α-Hf
34.0	33.1	"	δ-Hf+trace B	α-Hf+trace B

Table 2 gives the lattice constants of the two modifications of hafnium and $HfRe_{24}$ and $HfRe_2$

Card 3/7

S/070/60/005/006/002/009
E032/E314

X-ray and Microscopic Study of Hf-Re Alloys

No. of alloy and heat treatmt.	Phase	Lattice constants A a	c	c/a
4. Annealed at 1000 °C	Hf_5Re_{24}	9.713±0.005		
5. -do-	$HfRe_2$	5.248±0.001	8.598±0.002	1.637
6. -do-	α-Hf	3.20 ± 0.01	5.08 ± 0.01	1.58
7. Cast	β-Hf	3.50 ± 0.01		

Table 4 gives the interatomic distances in $HfRe_{24}$.

Card 4/7

S/070/60/005/006/002/009
E032/E314

X ray and Microscopic Study of Hf-Re Alloys

	Hf (a)	Hf (c)	Re (g_1)	Re (g_2)	Coordination No. (total)
Hf (a)	-	3.08 (4)	-	2.95 (12)	16
Hf (c)	3.08 (1)	-	2.71 (3) 3.21 (3)	2.93 (6) 3.15 (3)	16
Re (g_1)		2.71 (1) 3.21 (1)	2.91 (6)	2.67 (1) 2.73 (2) 2.90 (2)	13
Re (g_2)	2.95 (1)	2.93 (2) 3.15 (1)	2.67 (1) 2.73 (2) 2.90 (2)	2.44 (1) 2.61 (2)	12

Card 5/7

S/070/60/005/006/002/009
E032/E314

X-ray and Microscopic Study of Hf-Re Alloys

The numbers in brackets in the above table refer to the coordination numbers. Table 6 gives the interatomic distances in $HfRe_2$

	Hf	$Re^{(1)}$	$Re^{(2)}$	Coordination No. (Cole)
Hf	3.22_3 (3) 3.23 (1)	3.07_6 (3)	3.07_8 (3) 3.08 (6)	16
$Re^{(1)}$	3.07_6 (6)		2.62_8 (6)	12
$Re^{(2)}$	3.07_8 (2) 3.08_3 (4)	2.62_8 (2)	2.62_3 (4)	12

Card 6/7

S/070/60/005/006/002/009
E032/E314

X-ray and Microscopic Study of Hf-Re Alloys

There are 6 tables and 9 references 2 Soviet and 7 non-Soviet.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet imeni I. Franko (Lvov State University imeni I. Franko)
Institut metallurgii imeni A.A. Baykova AN SSSR (Institute of Metallurgy imeni A.A. Baykov AS USSR)

SUBMITTED: February 29, 1960 (initially)
June 2, 1960 (after revision)

Card 7/7

KRIPYAKEVICH, P.I.; GLADYSHEVSKIY, Ye.I.

Structure type $Cu_{17}Si_4$. Zhur.strukt.khim. 2 no.5:573-577 S-O '61.
(MIRA 14:11)

1. L'vovskiy gosudarstvennyy universitet imeni Iv.Franko.
(Crystallography)