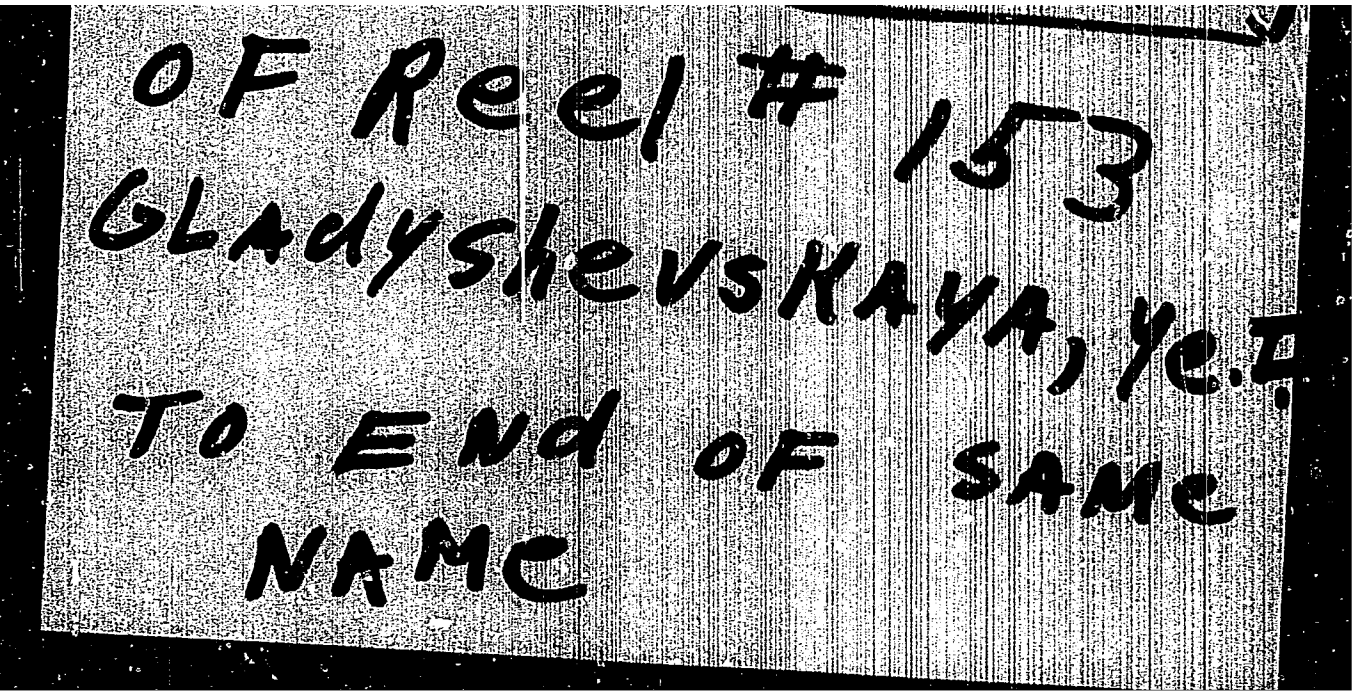


GLADYSHEVSKAYA, Ye.I.

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

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

1. I.Franko State Univ., Lvov.

GLADYSHEVS'KIY, YE. I.

CHERKASHIN, Ye.Ye.; GLADYSHEVS'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.]

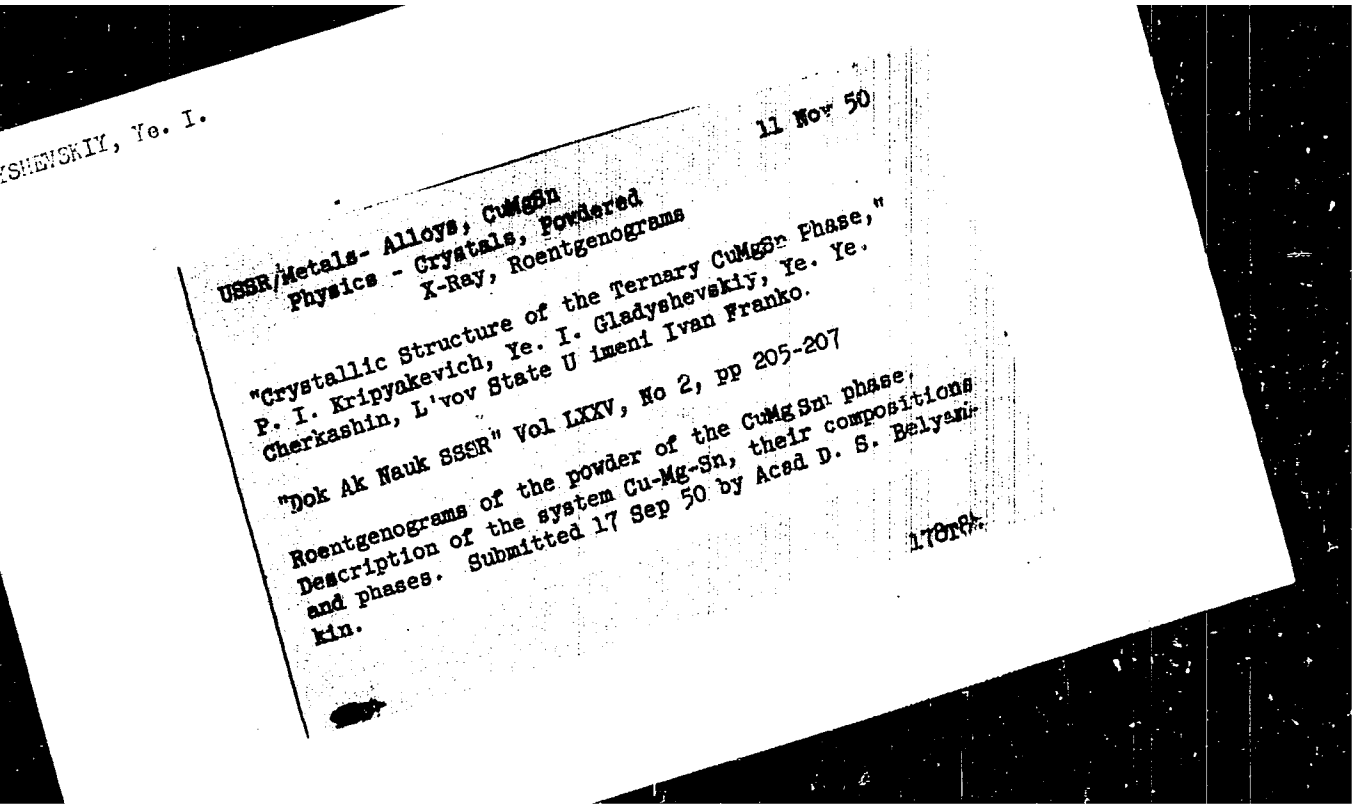
Chemical properties of intermetallic phases. Part 3: Chemical reactions in the γ-phase of Al-Mg alloys. Nauk. zap. L'viv. un. 13:63-68 '49. (MIRA 12:10)

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.]; KRYPYAKEVICH, 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)



YSHEVSKIY, Ye. I.

11 Nov 50

USSR/Metals- Alloys, CuMgSn
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. Belyan-
kin.

17Or50.

GLADISHEVS'KIY, E.I., assistent.

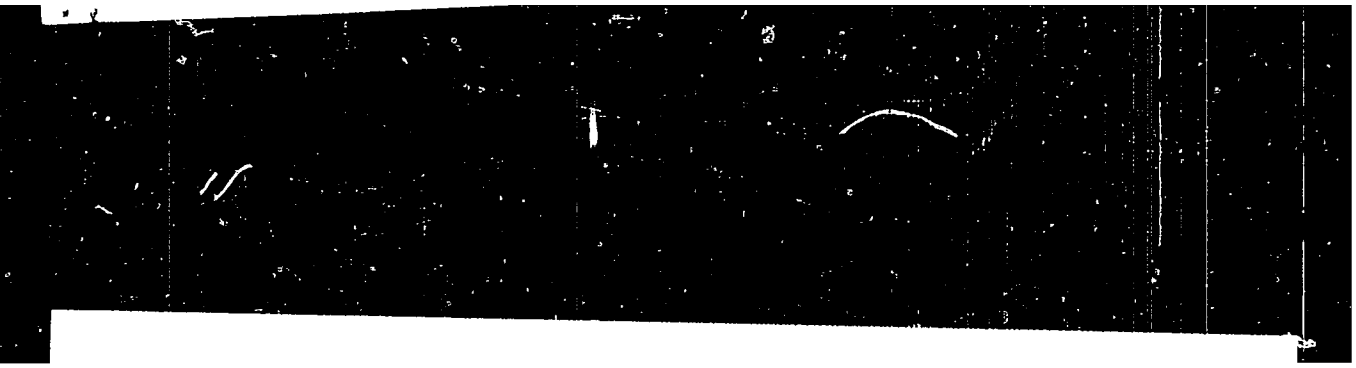
Solid solutions as the base of binary intermetallic phases. (MLRA 9:11)
Dop.ta pov.L'viv.un. no.3 pt.2:28-30 '52.

(Solutions, Solid)

GLADISHEVSKIY, Ye.I.; [illegible], Yo.Ye.

Chemical properties of the intermetallic phases. Part 4: Analysis of the residue after extraction of magnesium from alloys with copper and nickel. [illegible] (MLRA 10:7)

1. Kafedra neorganicheskoy khimii.
(Magnesium alloys)



APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000500010001-4"

USSR/Physics - Crystallography, Cu_4MgSn 1 Jul 52

"Crystalline Structure of the Ternary Phase Cu_4MgSn," Ye. I. Gladyshevskiy, P. I. Kripyakevich, M. Yu. Teslyuk, L'vov State U imeni I. Franko

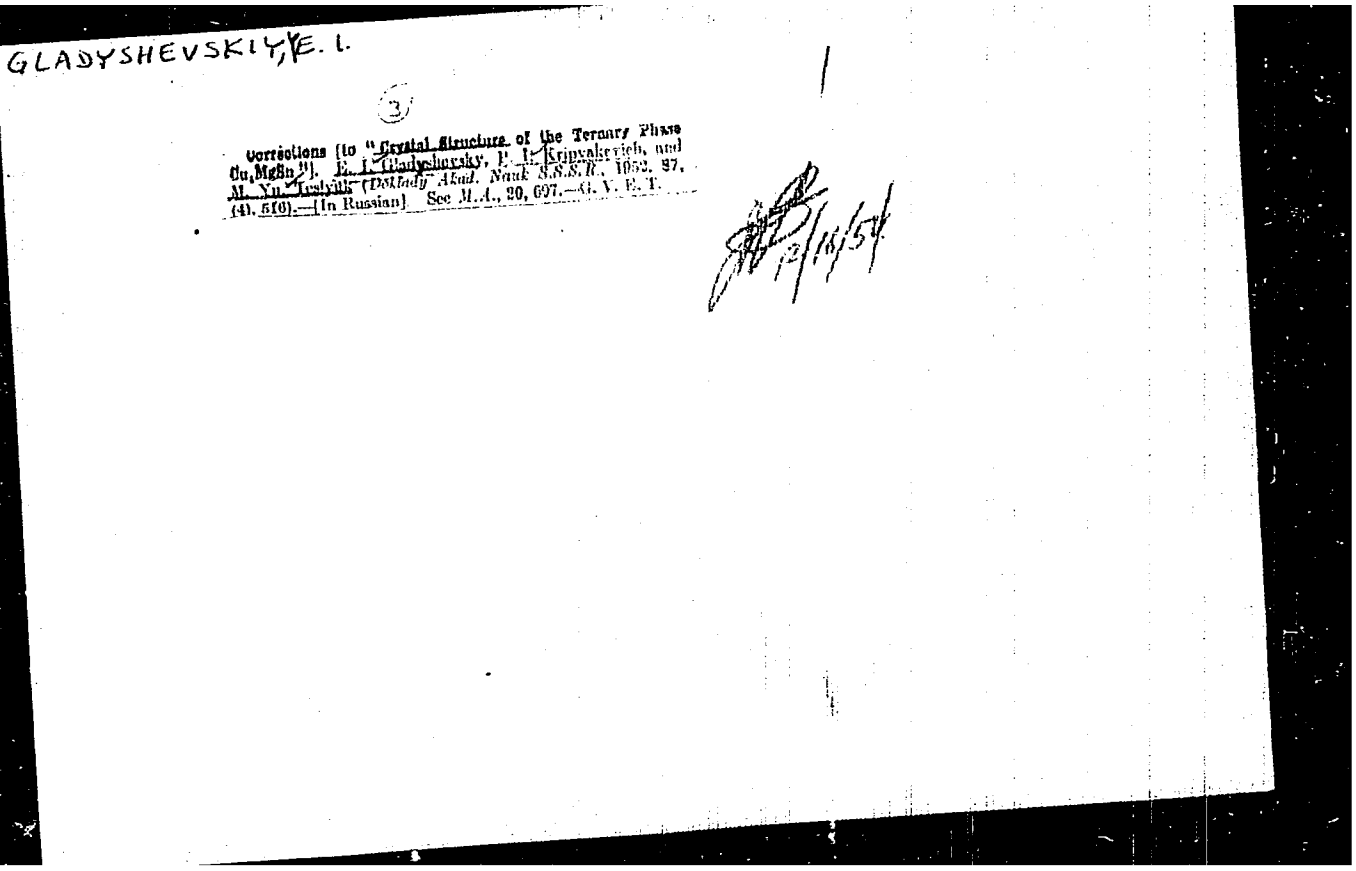
"Dok Ak Nauk SSSR" Vol LXXXV, No 1, pp 81-84

With the purpose of investigating the relation of the ternary phase Cu_2MgSn (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_2MgSn-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. Give results of roentgenographic studies of powdered Cu_4MgSn. Submitted by Acad D. S. Belyankin 23 Apr 50.

224T100

GLADYSHEVSKIY, YE. I.



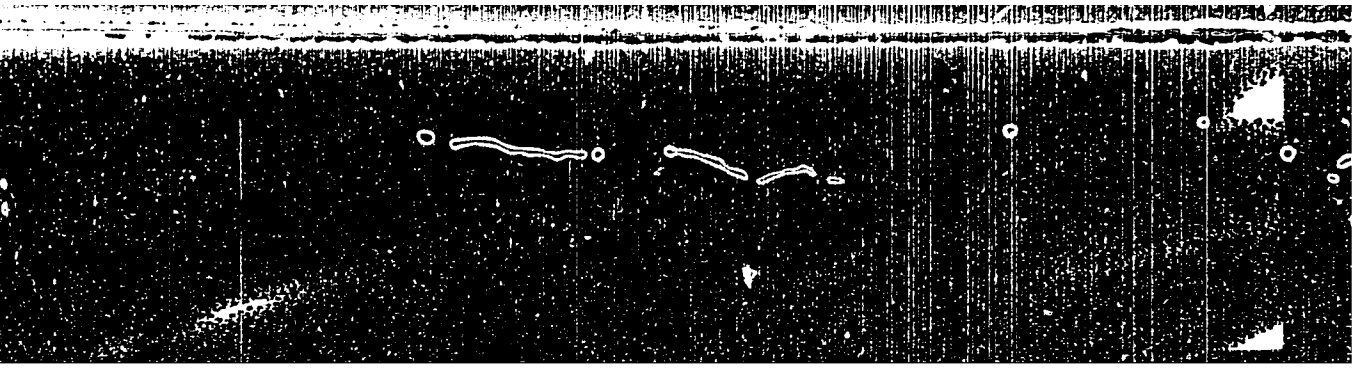
GLADYSHEVSKIY, E. I.

(3)

Corrections [to "Crystal Structure of the Ternary Phase Cu_2MgSn"]. E. I. Gladyshevsky, P. I. Kripyakevich, and M. Yu. Teslyuk. *Doklady Akad. Nauk S.S.S.R.*, 1952, 87, (4), 610.—[In Russian] See *M.A.*, 20, 697.—G. V. R. T.

1

12/16/54



APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000500010001-4"

GLADYSHEVSKIY, Ye. I.

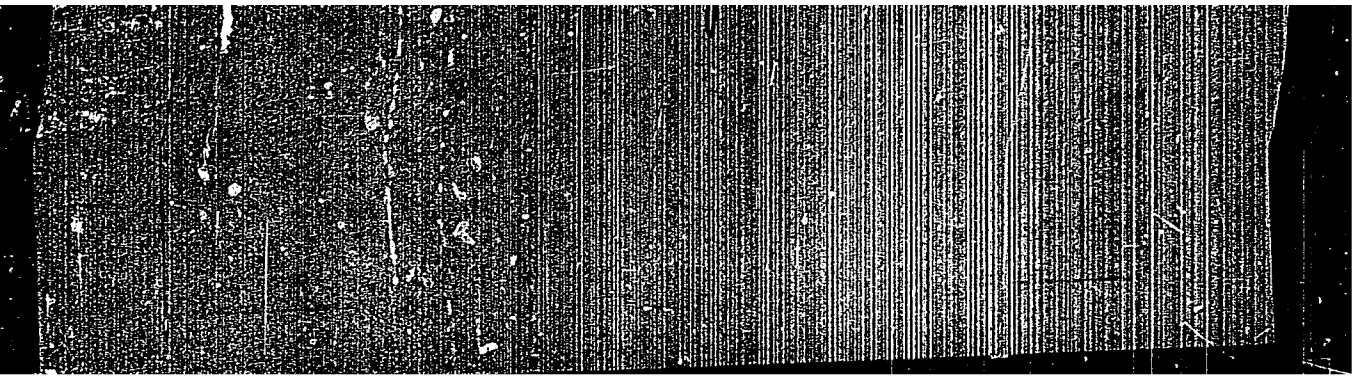
Dissertation: "Solid Solutions as Bases of Metal Compounds." Cand Chem Sci, L'vov State U, L'vov 1953

W-30928

SO: Referativnyy Zhurnal, No. 5, Dec 1953, Moscow, AN USSR (XXXXXXX)

GLADYSHEVSKIY, Ye. I.

*The Crystal Structure of the Compounds Co_2MnSn and Ni_2MnSn. P. I. Kripyakevich, E. I. Gladyshevsky, 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 Ni_2MnSn were of the same order as those of Cu_2MnIn, and the most probable structure was that of the BiF_3 type. The cell const. a = 6·001 ± 0·002 and 6·045 ± 0·002 kX for Co_2MnSn and Ni_2MnSn, resp. As these types of cubic lattice are not found in Co and Ni solid soln. (a ~ 3·5–3·6 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.



APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000500010001-4"

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.

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.
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Card 1/1

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.

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Card 1/1

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

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Card 1/1

GLADYSHEVSKIY, Ye. I.

USSR/ Physical Chemistry - Thermosynamics. Thermochemistry. Equilibrium. Physicochemical analysis. Phase transditions 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

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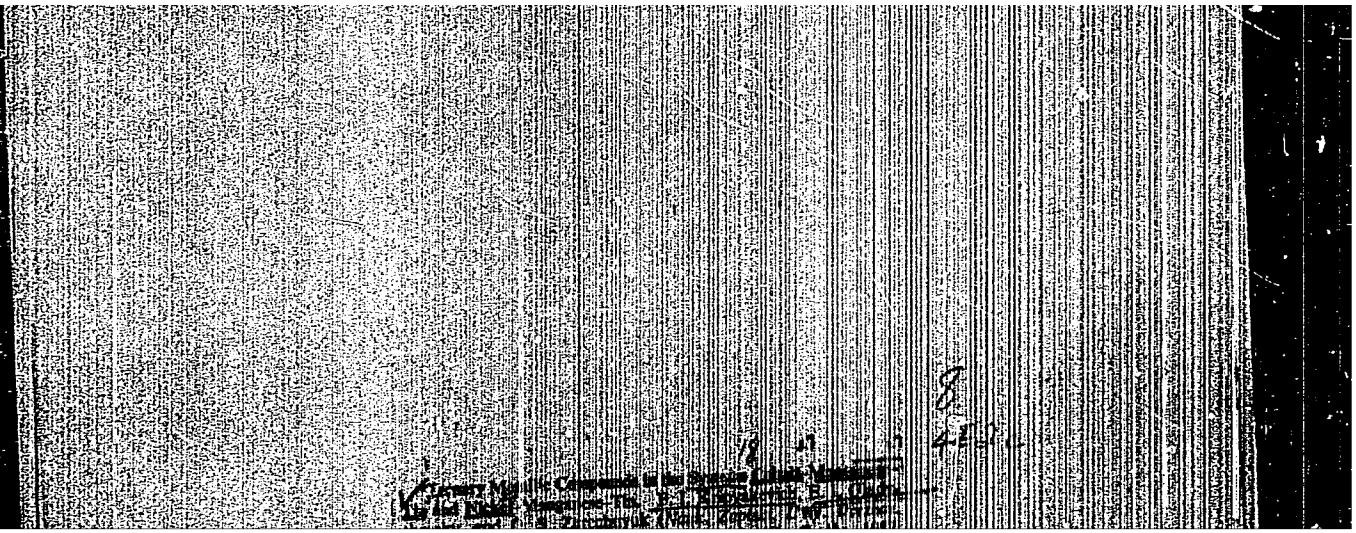
Card 1/1

GLADISHEVSKIY, Ye.I.

X-ray structure investigations of the system copper-magnesium-zinc in the region of the cross section $MgCu_2$-$MgZn_2$. E. I. Gladishevskii and P. I. Kripyakevich. *Naukovi Zapiski, L'vov Derzhav. Univ.*, [illegible] *Ser. Khim.* No. 4, 64-73 (1955). — The homogeneous solid soln. of Zn in the $MgCu_2$ phase were investigated by x-ray methods and by aid of the microhardness at the temp. of 400°. The soln. is not only homogeneous at 33.3 at. % Mg, as was already known, but also at higher and lower percentages; thus, at 30 at. % Mg (the upper limit) the homogeneity still exists. This corresponds to 58.5 mole % $MgZn_2$, and here the unit cell in the lattice shows the max. value a = 7.[illegible] A. Otherwise the findings agree with the structures derived by Mikheeva, *et al.* (*C.A.* 48, [illegible]). Special attention was devoted to phase V of the system Cu-Mg-Zn, i.e. the compd. $Mg_2Cu_3Zn_3$, which has the same structure as $MgNi_2$ with the lattice consts. a = 5.11, c = 16.86 A., c/a = 3.3[illegible]. Werner Jacobson

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000500010001-4"



GLADYSHEVSKIY, Ye. I.

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. Predstavleno akademikom N.V.Belovym.
(Chromium-beryllium alloys)(Vanadium-beryllium alloys)(Niobium-beryllium alloys)

USSR/Physical Chemistry, Thermodynamics, Thermochemistry, Equilibriums, Phys-Chem. Anal. Phase-Transitions. B-8

Abs Jour : Ref Zhur - Khimiya, No 7, 1957, 22514.

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

Orig Pub : Zh. neorgan. khimii, 1956, 1, No 6, 1394-1401.

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 roentgenostructural and microstructural analyses. Solubility of metals was studied in metallic compounds of the group $MgZn_2$ (structure of $MgZn_2$, $MgNi_2$ 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 Mg_2In), in silicides and in some quadruple alloys. A series of new continuous solid solutions between metallic alloys was found and their structure was studied. Solubility of Au, 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 -109-

Card 2/2 -110-

GLADYSHEVSKIY, Ye. I.

X-ray study of several alloys of transition metals with silicon. E. I. Gladyshevskii, P. I. Kripyakevich, and Yu. B. Kuz'ma (Ivan Franko State Univ., Lvov). *Fiz. Metal. i Metalloved.* 2, 454-6 (1956).—Ternary alloys across the sections: (1) Mn_3Si-Co_3Si, (2) Mn_3Si-Ni_3Si, (3) Mn_3Si-Cu_3Si, and (4) Mn_3Si-Fe_3Si were studied to see if compds. occurred similar to the compds. M_2MnSn (M = Co, Ni, Cu) found with Sn in the place of Si. In each system 7 alloys were prepd. covering the range M_3MnSi, $M_{2.5}Mn_{0.5}Si$, ... MMn_2Si in steps of 0.5. The alloys were melted in a Kryptol furnace under a slag of KCl + NaCl. Powder x-ray patterns were obtained from powder samples quenched after being held at 400° for 12 days. In (4) a complete series of solid solns. was formed with the identity period changing from 2.818 kX for Fe_3Si to 2.855 for Mn_3Si. In (1) the compd. Co_2MnSi was formed. It was cubic of the CsCl type with a = 2.827 but did not form solid solns. with Mn_3Si. In (2) and (3) no trace was found of a ternary compd. of the type Cu_2MnAl, CsCl, or BiF_3. However, the x-ray patterns were similar for the $M_{1.5}Mn_{1.5}Si$ compds. in these 2 cases, and perhaps a new ternary compd. was present. A. G. Guy

GLADYSHEVSKIY, Ye. I.

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

Gladyshevskiy

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

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.

Card 1/2

USSR/Thermodynamics - [illegible]

Gladyshevskiy Ye.I.

AUTHOR: Gladyshevskiy, Ye.I. and Kripyakevich, P.I. 70-6-6/12

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, 637, 1951) was known. The compound $NbBe_{12}$ with a=7.357 and c=4.247 KX was also known (Dokl.Ak.Nauk SSSR, 104, 82, 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 $TaBe_{12}$.

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 95 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, L'vov.
(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-Ag_3Cd_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 3 electronic compounds of AgZn-AgCd. When temperature was reduced to

Card 1/2

137-58-5-10528

Mutual Solubility of Electronic (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 significantly 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 inhomogeneous and there is no continuous solid solution involving these two compounds. The regularities found agree with the literature data. Bibliography: 20 references.

A. F.

1. Intermetallic compounds--Solubility 2. Intermetallic compounds--Phase diagrams
3. 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 3, 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

137-58-5-10414

Compounds of the Transition (cont.)

Compound	Structural Type	Syngony	Lattice periods, kx
$MnBe_{3-13}$	$MdCu_2$	Cubic	a = 5.91
$GrBe_{12}$	$ThMn_{12}$	Tetragonal	a = 7.219, c = 4.168
$MoBe_{12}$	"	"	7.240 4.180
VBe_{12}	"	"	7.251 4.186
$NbBe_{12}$	"	"	7.357 4.247
Go_2MnSi	CsCl	Cubic	a = 2.827
Co_2MnGe	Cu_2MnAl	"	5.72
Ni_2MnGe	"	"	5.68
Go_2MnSn	"	"	5.991
Ni_2MnSn	"	"	6.045
$Mn_3Go_3Si_2$	$Md\ Zn_2$	Hexagonal	a = 4.738, c = 7.452
$Mn_3Ni_3Si_2$	"	"	4.752 7.492

Mn and Be form coupounds of variable composition $MnBe_{3-13}$ 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. G. L.

1 Chemical compounds--Production 2. Chemical compounds--Microstructure

Card 2/2

GLADYSHEVSKIY, Ye.I.

KRIP'YAKEVICH, P.I. [Kryp'yakovych, 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. (MIA 11:4)

(Chromium-beryllium alloys--Spectra)

CHERKASHIN, Yevgeniy Yevgeniyevich; GLADYSHEVSKIY, Ye.I., dotsent, otv. red.; ZEMSKOV, 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 dokladov)

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

ABSTRACT: The speaker reports that I.I. Kornilov and Ye.N. Bylayeva 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

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analysis The radiogram of the powder of the $TaNi_3$ compound do not indicate in the hexagonal syngony. Therefore the compound does not belong to the type Mg_2Ni_3Sn 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 syngony) just as well as the quaternary alloys. Finally the problem of the structure of the $TiNi_3$ 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. Mg_2Cu_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

TB-3-3-24/47

Ye.N. Pylayeva.

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

Card 3/3

78-3-17/47

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 issledovaniya 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 $MnBe_{13}$ 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), $Mn_3Co_3Si_2$

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78-3 3 17/47

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 ($MgCu_2$) $ZrV_{0.5}Ni_{.5}$ ($MgCu_2$).

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 1 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

Card 2/2

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

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 ternary 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 structural arrangement of atoms is the following: 2 Nb (or Ta) in (a) with $Z_a = 2/3$
2 Ni in (b) with $Z_b = 1/3$, 1 Ni in (f) with $x = 1/4$; $Z_f = 1/6$.
The lattice constant for the compound Ni_3Nb are the following:
a = 5,0 b = 4,24, c = 4,53
The ratio a : b : c = 2 : 1,69 : 1,78
For the compound Ni_3Ta the lattice constants are as follows:

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The Crystalline Structures of the Compounds Ni_3Nb and Ni_3Ta SOV/ 78-3-?-28/44

a : 5.09, b : 4.23, c : 4.51 Å; a : b : c = 2 : 1.66 : 1.77. The compounds Ni_3Nb and Ni_3Ta 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 28, 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. SOV/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 ± 0.002 kX; c = 4.960 ± 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.

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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.]; KUZ'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, IE.I.]; ZALUTSKIY, I.I. [Zaluts'kyi, I.I.] pri uchastii studentok; YEVDOKIMENKO, V.I. [IEvdokymenko, 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.; KRIP'YAKEVICH, 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

507/21-59-3-15/27

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 1959 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 cruibles with NaCl-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 constance are as follows: $a = 4.38 \pm 0.01$ kX; $c = 4.82 \pm 0.01$ kX, $c/a = 1.10$. According to specific weight 3.87 gr per cubic cm, the number of atomic parts in an elementary cell is N=3.

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SOV/21-59-7-25/27

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 AlB_2. 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 = 4.203 ± 0.002 kX, c = 14.153 ± 0.005 kX, ca = 3.37, Z_{Ge} = 0.415. The position of its atoms are 4 Ge in (d), 4 Ge in (e) Z_{Ge} = 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.

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The Crystalline Structure of the Compounds $BaSi_2$ and $CaGe_2$

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

32505

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

24.7100

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 °C ± 10 °C and 800 °C ± 10 °C, 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 = 13.29KX). 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

82505
S/070/60/005/004/005/012
E132/E360

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

positions; 48 Li in 48(e) positions with (x,y,z) = = (0.12, 0.16, 0.06); and 16 Ge in 16(c) positions with x = 0.208. The Ge atoms are 12-coordinated with a polyhedron intermediated between an icosahedron and the hexagonal analogue of a cubo-octahedron. Li_I are surrounded by a deformed cubo-octahedron; Li_{II} atoms are surrounded by a 15-gon similar to the configuration around $Mn^{(5)}$ in alpha-Mn. The structure is close packed. There are 2 tables and 3 references: 2 English and 1 German.

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

SUBMITTED: January 25, 1960

Card 2/2

92506

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 $a = 3.16 \pm 0.01$ 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 $a = 3.02 \pm 0.01$ KX and $c = 3.41 \pm 0.01$ KX. These values suggest an AuCu type structure and intensity calculations confirmed this. For the composition $Pd_{1.1}Mg_{0.9}$ this gives.

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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

87801

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

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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

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87801

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	"	β-Hf+trace B	α-Hf+trace B

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

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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 Å a	c	c/a
4. Annealed at 1000 °C	Hf_5Re_{24}	9.713±0.005		
5. -do-	$HfRe_2$	5.248±0.001	8.592±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 $HfRe_{24}$:

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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

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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. (total)
Hf	3.22_3 (3) 3.23_1 (1)	3.07_6 (3)	3.07_8 (3) 3.08_6 (6)	15
$Re^{(1)}$	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

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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 (L'vov 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 $Cu_{15}Si_4$. Zhur.strukt.khim. 2 no.5:573-577 S-O '61. (MIRA 14:11)

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

GLADYSHEVSKIY, Ye.I.; KRIPYAKEVICH, P.I.; TESLYUK, M.Yu.; ZARECHNYUK, O.S.; KUZ'MA, Yu.B.

Crystalline structures of certain intermetallic compounds. Kristallografiia 6 no.2:267-268 Mr-Ap '61. (MIRA 14:9)

1. L'vovskiy gosudarstvennyy universitet im. I.Franko.
(Intermetallic compounds) (Crystal lattices)

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

New representatives of the structural types $Mg_6Cu_{16}Si_7$ and Th_6Mn_{23}. Kristallografiia 6 no.5:769-770 S-O '61. (MIRA 14:10)

1. L'vovskiy gosudarstvennyy universitet imeni I.Franko.
(X-ray crystallography)

26284
S/078/61/006/009/003/010
B107/B101

18.1210 2408, 1413, 2808, 2208.

AUTHORS: Gladyshevskiy, Ye. I., Kolobnev, I. F., Zarechnyuk, O. S.

TITLE: Investigation of high-aluminum alloys of the system Al - Cu - Ce

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 9, 1961, 2103 - 2108

TEXT: Two isothermal sections (at 400 and at 500°C) in the high-aluminum part of the system Al - Cu - Ce were investigated. The alloys were prepared from aluminum-000 (99.98% Al), electrolytic copper (99.9% Cu) and cerium (98.6% Ce), and analyzed by V. V. Oshchapovskiy and O. M. Pasichnyk. The specimens were kept at 500°C for five days and at 400°C (± 2°C) for ten days, respectively, and subsequently quenched in toluene. A total of 130 alloys was investigated. On 55 specimens in the range from 0 to 5% by weight of Ce and 0 to 12% by weight of Cu, the lattice constant of the solid solution in Al (ω-phase) was measured with an accuracy of ± 0.0001 kX (back-reflection camera with thermostat) (Figs. 1 and 2). Polished sections were prepared of all alloys, and the microhardness was determined with an instrument of the ПМТ-3 (PMT-3) type at 50 g load. Fig. 3 shows the isothermal section at 500°C in the aluminum corner of the system. For the isothermal section at 400°C, alloys with a higher cerium content (up to 65% by weight) and

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copper content (up to 60% by weight) were also investigated (Fig 4). Three ternary compounds were studied more closely: T_1 lies close to Al_9Cu_4Ce; the narrow range of its homogeneity corresponds to 19.3% by weight of Ce, 42.5% by weight of Cu and 38.3% by weight of Al. The microhardness amounts to 386 ± 10 kg/mm^2. The compound is in equilibrium with the ω-phase, Al_2Cu, T_2, T_3 and other compounds not closely investigated. The T_2 compound corresponds to Al_4CuCe, its homogeneity range lies at 43.7 to 47.2% by weight of Ce, 19.0 to 23.9% by weight of Cu and 30.5 to 37.0% by weight of Al. The microhardness amounts to 317 ± 10 kg/mm^2. T_2 is in equilibrium with the ω-phase, Al_4Ce, Al_2Ce, T_1, T_3 and other phases not closely investigated. The T_3 compound is in equilibrium with T_1 and T_2. The composition lies close to T_1: 25.6% by weight of Ce, 44.2% by weight of Cu and 30.2% by weight of Al. There are 5 figures and 4 references: 3 Soviet and 1 non-Soviet. The reference to English-language publication reads as follows: M. Hansen, K. Anderko. Constitution of binary alloys, 1958.

S/021/62/000/004/010/012
D299/D302

AUTHORS: Hladyshevs'kyy, Ye.I., Markiv, V.Ya., and Kuz'ma, Yu.B.

TITLE: New ternary compounds with $Mg_6Cu_{16}Si_7$-type structure

PERIODICAL: Akademiya nauk UkrRSR. Dopovidi, no. 4, 1962, 481-483

TEXT: A number of ternary systems of transition metals with Si and Ge, as well as the systems Li-Ni-Si and Li-Cu-Si, were investigated by the method of X-ray structural analysis. The existence of 16 new ternary compounds with $Mg_6Cu_{16}Si_7$ structure, was established. The alloys were prepared by melting pure metals in crucibles of aluminum oxide, in a Tammann furnace (hydrogen- or argon atmosphere). The X-ray structural analysis was carried out in Debye- and Preston chambers. The $Mg_6Cu_{16}Si_7$ type structure (the space group $Fm3M$-O_h^5) belongs to a class of structures with large coordination-number. The lattice constant of the alloy $Sc_6Ni_{16}Si_7$ (of face-centered cubic structure) was found to be 11.46 Å. The symmetry of the lattice, the

Card 1/3

Investigation of high-aluminum alloys ...

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

SUBMITTED: July 26, 1960

Fig. 1: Lattice constant of the solid solution of copper and cerium in aluminum with 1% by weight of Ce.
Fig. 2: Lattice constant of the solid solution of copper and cerium in aluminum. Legend: a) For alloys with 5% by weight of Ce; б) for alloys with 5% by weight of Cu.
Fig. 3: Isothermal section through the Al-corner of the Al - Cu - Ce system at 500°C (% by weight). Legend: 1) Monophase alloys; 2) diphase alloys; 3) triphase alloys.
Fig. 4: Composition of the alloys produced and results of the phase analysis in the Al - Cu - Ce system at 400°C (% by weight). Legend: 1) Monophase alloys; 2) diphase alloys; 3) triphase alloys.

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composition of the alloy, and the lattice constant, are characteristic of structures of $Mg_6Cu_{16}Si_7$-type. This shows that a ternary compound of such structure is formed in the system Sc-Ni-Si. Isostructural ternary compounds were also found in the systems R-Ni-Ge (R = Sc, Ti, Zr, Nb, Hf, Ta), R-Co-Si (R = Ti, Zr, Nb, Hf, Ta), R-Co-Ge (R = Zr, Nb, Hf, Ta), with the composition $R_6X'_{16}X''_7$ (where X' = Ni, Co; X'' = Si, Ge). The composition and the lattice constants of the compounds are listed in a table. Investigation of these compounds is still continuing. In view of the composition of the compounds, it can be assumed that the atoms of the R-component (R = Sc, Ti, Zr, Nb, Hf, Ta) occupy the position of Mg in structures of $Mg_6Cu_{16}Si_7$-type, (coordination number 7). If the atomic radius of the R-component is larger than 1.64 Å, no compounds of $Mg_6Cu_{16}Si_7$-structure, are formed. In the systems R-Ni-Si (R = Y, La, Ce), R-Ni-Ge (R = V, Cr, Y, Mo, La, W, Re), Sc-Co-Si, Sc-Co-Ge, Ti-Co-Ge, Li-Ni-Si and Li-Cu-Si, no ternary compounds of $Mg_6Cu_{16}Si_7$-type were found. There are 1 table and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc.

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S/021/62/000/004/010/012
D299/D302

New ternary compounds with ...

ASSOCIATION: L'vivs'kyy derzhavnyy universytet (L'viv State University)

PRESENTED: by Academician I.M. Frantsevych, AS UkrSSR

SUBMITTED: August 12, 1961

Card 3/3

S/192/62/003/002/001/004
D267/D301

AUTHOR: Kuz'ma, Yu.B., Teslyuk, M.Yu., and Gladyshevskiy, Ye.I.

TITLE: The Laves three-component phases in the system Mn - Ni - Ge

PERIODICAL: Zhurnal strukturnoy khimii, v. 3, no. 2, 1962, 156 - 158

TEXT: In view of crystal-chemical likeness between Si and Ge the authors assumed that, when the Mn content amounts to 33.3 at.%, the system Mn - Ni - Ge contains ternary compounds possessing the Laves phase structure, just as this was found for the system Mn - Ni - Si; to verify this assumption they studied six ternary alloys containing 25, 22.5, 20, 16.7, 15 and 12 at.% of Ge, obtained by direct fusion of very pure metals in 'korundiz' crucibles in the hydrogen atmosphere, using the Tammann furnace. After annealing and hardening, the alloys were subjected to X-ray analysis (powder method). The

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S/192/62/003/002/001/004
D267/D301

The Laves three-component phases ...

existence and crystal structure of two intermetallic compounds were determined: (1) $MnNi_{1.3}Ge_{0.7}$ (structure of the $MgZn_2$ type, a = 4.856 ± 0.002 Å, c = 7.635 ± 0.003 Å, $\frac{c}{a}$ = 1.572) and (2) $MnNi_{1.55}Ge_{0.45}$ (structure of the $MgCu_2$ type, a = 6.762 ± 0.001 Å). There are 3 tables.

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

SUBMITTED: May 8, 1961

Card 2/2

3773

S/078/62/007/005/011/014
B101/B110

18.9200

AUTHORS: Savitskiy, Ye. M., Baron, V. V., Yefimov, Yu. V., Gladyshevskiy, Ye. I.

TITLE: Investigation of the system vanadium - molybdenum - silicon

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 5, 1962, 1117-1125

TEXT: The ternary phase diagram of the system V - Mo - Si was plotted by means of x-ray analysis, microstructural analysis, and microhardness measurement (Fig.9). Results: (1) No new ternary compounds are formed with a structure deviating from that of binary V and Mo silicides. (2) Between the isostructural compounds V_3Si and Mo_3Si, as well as V_5Si_3 and Mo_5Si_3, continuous series of solid solutions are formed in which the Si content varies by 1 to 2%. The range of the homogeneous ternary solid solution $(V,Mo)_5Si_3$ extends above 1500°C toward higher Si contents. (3) The ternary eutectic $(V,Mo)_5Si_3$ - $(Mo,V)Si_2$ - $(V,Mo)Si_2$

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Investigation of the system...

forms at 1600°C. At 800°C, the solubility of V in $MoSi_2$ is below 1 at%. (4) The phase $(V,Mo)_5Si_3$ melts congruently, the phase $(V,Mo)_3Si$ forms by peritectic reaction. (5) The unlimited solubility of Mo in V is much reduced by introduction of Si. With about 2 at% Si in V-Mo alloys rich in V, a solid solution on the basis of $(V,Mo)_3Si$ is observed as second phase. (6) Alloying with Si improves greatly the stability of V to oxidation, but reduces considerably its plasticity. With 0% Si, the plasticity on compression ε = 30%; with 20 at% Mo + Si, $\varepsilon \sim 6\%$. There are 9 figures and 1 table.

ASSOCIATION: Institut metallurgii im. A. A. Baykova (Institute of Metallurgy imeni A. A. Baykov); L'vovskiy gosudarstvennyy universitet (L'vov State University)

SUBMITTED: June 12, 1961

Fig. 9. Isothermal section of the system V-Mo-Si at 800°C.
Legend: Am.% = at%.

Investigation of the system...

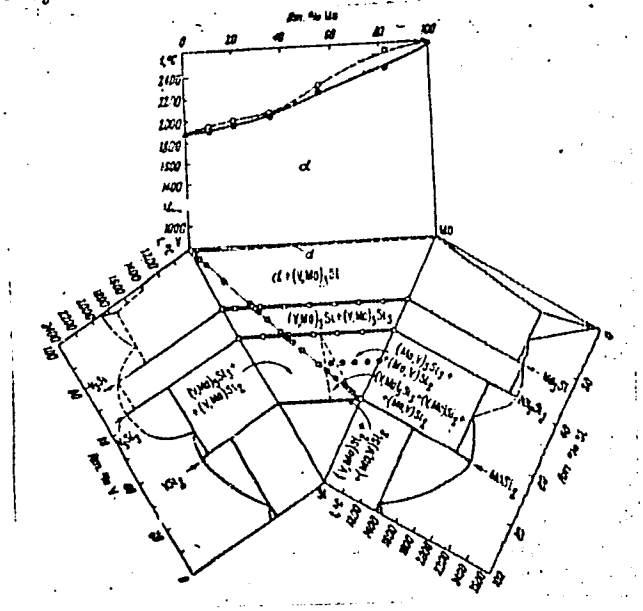

Fig. 9

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

AUTHOR: Gladyshevskiy, Ye. I., Kripyakevich, P. I.

TITLE: Intermetallic compounds with a β-uranium type (sigma-phase) structure

SOURCE: Vysokotemperaturnyye metallokeramicheskiye materialy. Inst. metalloker. 1 spets. spl. AN Ukr.SSR, Kiev, Izd-vo AN Ukr.SSR, 1962, 148 - 150)

TEXT: There are 31 systems of intermetallic compounds with a β-uranium type structure, the so called sigma-phase. The components of these systems are on the one hand elements of sub-groups 4 - 6 of the periodic system, and on the other hand sub-groups 7 - 10. A similar distribution of components is also shown by type α-Mn and Cr_3Si compounds. Considering the similar structure of Cr_3Si and sigma phases, it can be expected that the latter will also be formed by elements of sub-groups 11 - 15. This hypothesis was confirmed by the authors who discovered a compound with a sigma phase structure in ternary system Cr-Ni--Si. None of its binary systems contains a sigma phase, but system Cr-Ni shows a tendency for the formation of such phases, and in system Cr-Si a Cr_3Si type

compound is being formed. The discovered sigma phase composition is $Cr_{13}Ni_5Si_2$; its constants are: a = 8.769, c = 4.561 kX, c/a = 0.52. A second compound was revealed in Nb alloys with Al, obtained at the Institute of Metallurgy AS USSR by Ye. M. Savitskiy and V. V. Baron. A radiographical analysis shows that the Nb_2Al compound belongs to the sigma phase type. Its constants are: a = 9.95; c = 5.18 kX; c/a = 0.52. This is the first sigma phase containing Al. The distribution of atoms in its structure corresponds to a complete order (the Nb atoms are in locations with coordination number 15 and 14 and Al-atoms with coordination number 12). Crystallochemically the compounds approach the Nb_3Al (Cr_2Si type) compounds and sigma phases in systems Nb-Re and Nb-Pt. Moreover, the authors have discovered a number of ternary systems whose radiographs resemble those of sigma phases but are not identical with them.

S/125/62/000/00 /005/012
D003/D203

AUTHOR: Gladyshevskiy, Ye.I.

TITLE: The crystal structures between two transition metals and silicon of the compounds and the phase equilibria in their ternary systems

PERIODICAL: Poroshkovaya metallurgiya, no.4, 1962, 46-47

ABST.: Thirty nine ternary intermetallic compounds were discovered during this investigation of phase equilibria in a number of ternary systems. The latter may be divided into two groups: the first contains systems in which ternary intermetallic compounds with close-packed crystal lattices are formed. These systems contain either iron, nickel or cobalt. All other systems belong to the second group and form continuous solid solutions but no ternary intermetallic compounds. Some physical properties of the above compounds are given. There are 3 tables.

ASSOCIATION: L'vovskiy gosuniversitet im. I. Ya. Franko (The Lvov Government

Card 1/2

S/2 0/62/000/004/006/012
1003/1203

The crystal structures...

University [illegible]

SUBMITTED: January 15, 1962

Card 2/2

S/192/62/003/004/002/002
1042/1242

AUTHORS: Gladyshevskiy, E.I., Kripyakevich, P.I., and Kuz'ma, Yu.B.

TITLE: Crystal structures of ternary compounds with low silicon content in the systems Cr - Ni - Si and Cr - Co - Si

PERIODICAL: Zhurnal strukturnoy khimii, v. 3, no.4, 1962, 414-423

TEXT: This investigation is a follow up of a previous work by the authors where ternary compounds were obtained in similar systems with Mn in place of Cr. It is also intended to clarify the conditions of formation of phases with the β-U structure. The 148 alloys in the two systems, containing no more than 25 mole % Si, were heated in vacuum at 800°C for 150 hrs or at 1100°C for 30 hrs. They were then studied with the aid of a Debye and Preston X-ray powder cameras and an МИМ-6 (MIM-6) microscope. In the Cr - Ni - Si system at 800°C a new phase was found with the approximate formula $Cr_6Ni_{2.8}Si_{1.2}$ and a powder pattern consistent with the β-U

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S/192/62/003/004/002/002
I042/I242

Crystal structures of ternary compounds...

structure of $Cr_{4.25}Fe_{4.25}Si_{1.5}$. None of the compounds studied had the Laves (i.e., $MgZn_2$, $MgCu_2$, or $MgNi_2$) structure. At 1100°C the the compound $Cr_{6.5}Ni_{2.5}Si$ was observed, with space group P4/mnm and lattice constants a = 8.769, c = 4.561 kX, c/a = 0.520. The structure was found by comparing the observed intensities with those of several possible atomic distributions. Another compound with the formula $Cr_3Ni_5Si_2$ and the β-Mn structure or the Au_4Al superstructure was observed at 800°C. It has the space group $P2_13$ and a = 6.108 kX. In the Cr - Co - Si system two ternary compounds were found at 800°C. One, $Cr_3Co_5Si_2$, has the α-Mn structure or a Ti_5Re_{24} superstructure, space group $I\bar{4}3d$, a = 8.687 kX. The other is $Cr_{3.5}Co_{4.0}Si_{2.5}$ with a structure related to that of β-U. Again no Laves phases were encountered. There are 9 tables.

Card 2/3

S/122/62/003/004/002/002
I042/I242

Crystal structures of ternary compounds...

ASSOCIATION: Lvovskiy gosudarstvennyy universitet im. Iv. Franko
(Lvov State University im. Iv. Franko)

SUBMITTED: June 26, 1961

Card 3/3

SAVITSKIY, Ye.M.; BARON, V.V.; YEFIMOV, Yu.V.; GLADYSHEVSKIY, Ye.I.

System vanadium - molybdenum - silicon. Zhur.neorg.khim. 7 no.5:1117-1125 My '62. (MIRA 15:7)

1. Institut metallurgii imeni A.A.Baykova i L'vovskiy gosudarstvennyy universitet.
(Vanadium-molybdenum-silicon alloys)

SAVITSKIY, Ye.M.; TYLKINA, M.A.; TSYGANOVA, I.A.; GLADYSHEVSKIY, Ye.I.; MULYAVA, M.P.

Phase diagram of the hafnium - rhenium system. Zhur.neorg.khim. 7 no.7: 1608-1610 Jl '62. (MIRA 16:3)

1. Institut metallurgii imeni A.A.Baykova i L'vovskiy gosudarstvennyy universitet imeni I.Franko.
(Hafnium-rhenium alloys)

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

"Some regularities of the crystal chemistry of the rare-earth intermetallic compounds."

report submitted for 6th Gen Assembly, Intl Union of Crystallography, Rome, 3 Sep 63.

Lab of Inorganic Chemistry, L'vov I. Franko State Univ.

S/021/62/000/010/007/008
D251/D307

AUTHORS: Markiv, V.Ya., Hladyshevs'kyy, Ye.I., and Kuz'ma, Yu.B.

TITLE: New ternary compounds with a structure of the type $MnCu_2Al$

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 10, 1962, 1329 - 1331

TEXT: The authors discuss ternary systems A-B-C, where A and B are transition metals and C are elements of the IIIB, IVB and VB groups of the periodic table. The aim of the present work is to investigate analogous systems in which C is gallium. Compounds of this type are found, where A = Ti, V and B = Fe, Co, Ni. The structure of the compounds resembles that of $MnCu_2Al$, and the lattice constants are given in tabular form. The space group is $Fm_3m - O_h^5$. It is shown that in the systems Ta(Nb, Mo) - Fe(Co, Ni) - Ga, and Sc(Zr) - Ni - Ga, similar compounds do not exist. The results are obtained using x-ray methods on alloys of metals of purity not less than 99.9 %, fused in an atmosphere of inert gas at 600°C. There are 5 tables.
Card 1/2

S/021/62/000/010/007/008
D251/D307

New ternary compounds with a ...

ASSOCIATION: L'vivs'kyy derzhavnyy universytet (L'viv State University)

PRESENTED: by I.M. Frantsevych, Academician

SUBMITTED: January 15, 1962

Card 2/2

L 19908-63 EWP(q)/EWT(m)/EWP(B)/BDS AFFTC/ASD JD/JG

ACCESSION NR: AP3005811 S/0226/63/000/004/0040/0048

AUTHORS: Kuz'ma, Yu. B. ; Lakh, V. I. ; Markiv, V. Ya; Stadnyk, B. I. ; Glady*shevskiy, Yo. I.

63
62

TITLE: X-ray diffraction analysis of the W-Re-C system

SOURCE: Poroshkovaya metallurgiya, no. 4, 1963, 40-48

TOPIC TAGS: W-Re-C, x-ray diffraction

ABSTRACT: Thirty-four alloys of the W-Re-C system containing 1-20 atomic % of C were investigated by x-ray diffraction. The effect of C content on the composition and properties of W-Re thermocouples was studied. Alloy samples weighing 30 g were prepared from the following powdered materials: tungsten carbide (6.09 at. % of C), tungsten - 99.98%, rhenium - 99.8%, and carbon (lampblack) 99.9%. The phase equilibriums of cast alloys and of the alloys annealed at 2000, 1500, 1000 and 800C were determined. It was established that Re and alpha-W_2C form a continuous series of solid solutions. Two new compounds were found: a ternary compound W_3Re_2C with a cubic lattice akin to that of beta-Mn (space group $P4_132-O^7$, a = 6.859 ± 0.002 A); and a ternary carbide (WRe)C formed at temperatures above 2500C with a cubic face-centered lattice of the type NaCl (space group $Fm3m - O_h^5$, a = 4.063 ± 0.001 A).

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L 19908-63

ACCESSION NR: AP3005811

Preliminary data concerning the existence of a rhombic low-temperature version of W_2C were obtained. Orig. art. has: 4 tables and 5 figures.

ASSOCIATION: Lvovskiy ordena Lenina gosuniversitet im. I. Ya. Franko (Lvov State University)

SUBMITTED: 24May62 DATE ACQ: 06Sep63 ENCL: 00

SUB CODE: ML NO REF SOV: 006 OTHER: 009

Card 2/2

L 18650-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JG/JXT(IJP)
ACCESSION NR: AP3004864 S/0021/63/000/007/0886/0888 69 68

AUTHOR: Glady*shevs'ky*y, Ye. I.

TITLE: Crystal structures of silicon-rich silicides of rare-earth elements of the yttrium group

SOURCE: AN UkrSSR. Dopovidi, no. 7, 1963, 886-888

TOPIC TAGS: silicon-rich rare-earth silicide, rare-earth silicide, terbium silicide, holmium silicide, erbium silicide, thulium silicide, lutetium silicide, dysprosium silicide, ytterbium silicide, crystal structure, lattice constant, cell volume

ABSTRACT: The crystal structures of Si-rich alloys containing 33.3, 40.0, and 50.0 at% R, where R is Tb, Dy, Ho, Er, Tm, Yb, or Lu, have been studied. The alloys, vacuum melted from components 94.9 to 99.99% pure, were brittle, gray in color, and had a metallic luster. Microscopic examination showed alloys containing 40.0 at% rare-earth elements to be the nearest to homogeneous alloys. X-ray diffraction pattern examination established the existence of Tb-Si, Ho-Si, Er-Si, Tm-Si, and Lu-Si compounds with a hexagonal

Card 1/2

L 18650-63
ACCESSION NR: AP3004864

structure of the $AlBi_2$ type and confirmed the existence of Dy-Si and Yb-Si compounds with a similar structure. All the compounds most probably have defective structures (designated RSi_{2-n}) with an Si content close to 60 at%. The lattice constants of RSi_{2-n} compounds vary: a, from 3.745 to 3.847 Å and c, from 4.050 to 4.146 Å for $LuSi_{2-n}$ and $TbSi_{2-n}$, respectively. Accordingly the elementary cell volume decreases monotonically from 53.1 to 49.2 $Å^3$ as the atomic number of the rare-earth metal increases; an exception — a Yb cell volume slightly larger than that of Tm (50.5 and 50.2, respectively) — is associated with the tendency of Yb to form compounds in which it is a bivalent element. In alloys containing 33.3% R, most of the RSi_{2-n} compounds are in equilibrium with Si. The $Dy\text{-}Si_{2-n}$ and $Ho\text{-}Si_{2-n}$ compounds are in equilibrium with the more Si-rich compounds of the $\alpha\text{-}GdSi_{2-n}$ type (a = 4.03 Å, b = 3.92 Å, c = 13.29 Å). The article was presented by Academician I. M. Frantsevy*ch of the Academy of Sciences URSR. Orig. art. has: 2 tables.

ASSOCIATION: L'vivsky*y derzhavny*y universy*tet (Lvov State University)

SUBMITTED: 02Jul62 DATE ACQ: 20Aug63 ENCL: 00

SUB CODE: MA NO REF SOV: 001 OTHER: 009

Card 2/2

ACCESSION NR: AT4035160 S/0000/63/000/000/0067/0070

AUTHOR: Glady*shevskiy, Ye. I.; Kripyakevich, P. I.; Cherkashin, Ye. Ye.; Zarechnyuk, O. S.; Zalutskiy, I. I.; Yevdokimenko, V. I.

TITLE: Crystalline structure of intermetallic compounds of rare-earth elements

SOURCE: AN SSSR. Institut geokhimii i analiticheskoy khimii. Redkozemel'ny*ye elementy* (Rare-earth elements). Moscow, Izd-vo AN SSSR, 1963, 67-70

TOPIC TAGS: rare earth, transition element, geochemistry, binary alloy, ternary alloy, intermetallic compound, alloy crystal structure, zinc, aluminum, germanium

ABSTRACT: The existence of compounds of the rare-earth elements with metals, their composition and the type of crystalline structure were investigated, with particular attention to the similarities and differences between the various rare-earth elements, as well as between these elements and their neighbors in the periodic table. The systems of La, Ce, Pr, Nd, Dy, Er, Gd, Tu and Y with magnesium were investigated first. It was found that there are no complete analogies in these systems, but that the system Y/Mg is closer to Er/Mg than to the La/Ce system. In the systems of rare-earth elements with zinc, aluminum and germanium, new compounds were found, the structural parameters of which are given. It is interesting that the system Y/Al differs from the system Er/Al and is similar to the system with

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ACCESSION NR: AT4035160

La, Ce, Pr and Nd. Compounds of La and Ce with Ge have rhombic modifications in addition to the tetragonal one. Systems with cobalt and iron were also investigated and their parameters are given. In the La/Fe system no compounds are formed. A weakening tendency to form compounds with a decreasing order number of rare-earth elements is also found in many systems with manganese. Finally, the ternary systems cerium-transition metal (or copper)-aluminum and cerium-aluminum-silicon were investigated and their lattice constants are given. Orig.art.has: no graphics.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii AN SSSR (Institute of Geochemistry and Analytical Chemistry, AN SSSR)

SUBMITTED: 31Oct63	DATE ACQ: 30Apr64	ENCL: 00
SUB CODE: IC, ES	NO REF SOV: 000	OTHER: 001

Card 2/2

GLADYSHEVSKIY, Ye.I.; MARKIV, V.Ya.; KUZ'MA, Yu.B.; CHERKASHIN, Ye.Ye.

Crystal structure of certain ternary intermetallic titanium compounds.
Titan i ego splavy no.10:71-73 '63. (MIRA 17:1)

ACCESSION NR: AP4017725 S/0294/63/001/003/0449/0455

AUTHORS: Fedorov, T. F.; Glady*shevskiy, Ye. I.

TITLE: Interaction of transition metals of groups 4, 5, and 6 of the periodic system with carbon

SOURCE: Teplofizika vy*sokikh temperatur, v. 1, no. 3, 1963, 449-455

TOPIC TAGS: carbide, transition metal, titanium zirconium, hafnium vanadium, niobium, tantalum, chromium, molybdenum, tungsten, group 4 metal, group 5 metal, group 6 metal, atomic radius, binary system, ternary system, quaternary system, carbide structure, solid solution, crystal structure, thermodynamic properties

ABSTRACT: Binary, ternary, and quaternary systems whose components are Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, and W with carbon are considered on the basis of published data and research carried out by the authors. Tables listing the various structures of carbides of these

Card 1/3

ACCESSION NR: AP4017725

metals and solid solutions of carbides of these metals (both continuous and limited) are presented. Phase equilibrium states of ternary systems of the metals of these groups and carbon are also given. All the data show that the phase equilibriums in the systems of transition metals of groups 4--6 and carbon, with three and more components, are due to the crystal structures and thermodynamic properties of the carbides produced in the metal-carbon binary systems, and also to interactions of the transition metals with one another (primarily their mutual solubility). The ratio of the dimensions of the atoms plays a major role in the properties of the systems. In view of the similar chemical properties of the transition metals of groups 4--6, carbon-containing ternary systems and systems with more components have low probability, with the exception of systems in which one of the components is vanadium or chromium, whose atomic radii are the smallest. Orig. art. has: 2 figures and 3 tables.

Card 2/3

ACCESSION NR: AP4017725

ASSOCIATION: Institut metallurgii im. A. A. Baykova (Metallurgy Institute); L'vovskiy universitet im. Iv. Franko (L'vov University)

SUBMITTED: 17May63 DATE ACQ: 23Mar64 ENCL: 00

SUB CODE: ML, PH NR REF SOV: 010 OTHER: 024

Card 3/3

KUZ'MA, Yu.B.; LAKH, V.I.; MARKIV, V.Ya.; STADNYK, B.I.; GLADYSHEVSKIY, Ye.I.

X-ray investigation of the system tungsten - rhenium - carbon.
Porosh. met. 3 no.4:40-48 Jl-Ag '63. (MIRA 16:10)

1. L'vovskiy ordena Lenina gosudarstvennyy universitet im. I.Ya. Franko.
(Tungsten-rhenium alloys--Metallography)
(Phase rule and equilibrium)

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

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(Nickel-silicon alloys) (Crystallography)

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