9,4300 (and 1035,1143)

S/181/61/003/002/021/030
B102/B212

AUTHORS: Mirgalovskaya, M. S. and Strel'nikova, I. A.

TITLE: Production of alloyed single-crystals and of p-n junctions in aluminum antimonide

PERIODICAL: Fizika tverdogo tela, v. 3, no. 2, 1961, 456-458

TEXT: Among semiconducting compounds of type $A^{III}B^{V}$, AlSb is of special importance for the production of diodes, thermistors, infrared filters, solar batteries, etc. because of its great forbidden-band width (1.65 ev). Investigations have been performed repeatedly will alloys of AlSb and other elements and it has been found that Ge, Cu, Ag, Au, Li, Be, and Sb do not change the type of conductivity; Zn and Cd function as acceptors, and Sn, Pb, As, Bi, Te, and Se as donors At present there are no data on the influence of sulphur available. The authors have investigated the influence of S, Te, and Se on the electric properties and also the properties of p-n junctions of AlSb Antimony with less than 10^{-3}% of As has been used as starting material, and also Zn and Al of type AB-000 (AV-000) after recrystallizing the material 15 times it had less than

Card 1/4

Production of alloyed

S/18[illegible]/61/003/002/021/05[illegible]
B102/B212

10^{-3}% impurities. The single-crystals have been grown according to the method of Chokhral'skiy (growth rate 0.7 mm/min). They were 40-60 mm long with a diameter of 10-18 mm. They showed p-type conductivity and their Mg, Si, Cu, and Fe content was less than $1 \cdot 10^{-3}$%. Tellurium and selenium impurities and also sulphur in form of Sb_2S_3 have been added in portions of 10^{-2}% (see Table). The electric properties have been investigated at room temperature and the results are given in a table. It can be seen that the transition of the p-type AlSb into the n-type takes place with 0.05% Te, 0.07% Se, and 0.09% S. Results of these investigations can be summed up as follows: Highly resistant p-type AlSb single-crystals have been obtained with additions of 0.03% S (ρ = 300 ohm·cm, μ = 900 $cm^2/v \cdot sec$, n = 10^{12} cm^{-3}) and 0.07% S (ρ = 2000 ohm·cm); additions of 0.07% Se (ρ = 6 ohm·cm, μ = 906 $cm^2/v \cdot sec$, n = $2.2 \cdot 10^{14}$ cm^{-3}, τ = 40 m·sec, V_{rev} = 7 v) and 0.09% S (ρ = 600 ohm·cm) resulted in highly resistant n-type AlSb single-crystals. The most distinct p-n junction has been established for 0.09 % by weight of Se. Static volt-ampere characteristics of a large p-n junction are an indication of its rectifying properties, and such large p-n junctions can be used to make plane surface

Card 2/4

20123

Production of alloyed...

S/181/61/003/002/021/050
B102/B212

Легирующая добавка, % 1)	Тип проводимости 2)	ρ, ом · см.	R_X, см.³/кул.	μ_p, см²/в	μ_n, см² · в · сек.	n, см$^{-3}$	τ, сек.	$V_{обр.}$, в
—	p	0.264	—	670	—	$3.5 \cdot 10^{16}$	0.2	6—7
0.02Te	p	0.246	18.0	65	—	—	12	7
0.05Te	n	0.45	—180	—	340	$4.1 \cdot 10^{16}$	5	2
0.07Te	n	0.1	—4	—	68	$1.84 \cdot 10^{18}$	—	1
0.05Se	p	0.1	20	200		$4 \cdot 10^{17}$	—	1
0.07Se	n	6	—400	—	906	$2.2 \cdot 10^{14}$	40	7
0.07Se	n	0.33	—330	—	850	$2.2 \cdot 10^{16}$	15	8
0.03S	p	300	$6 \cdot 10^5$	900	—	10^{12}	—	—
0.07S	p	2000	—	—	—	—	—	—
0.09S	n	600	—	—	—	—	—	—

Legend to Table: 1) Addition to AlSb; 2) type of conductivity.

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rectifiers. The curved shape of a p-n junction can be changed into a more plane one by choosing a suitable temperature ratio (with a minimum temperature gradient in radial direction). V. A. Kokoshkin assisted during the measurements. There are 3 figures, 1 table, and 10 references: 2 Soviet-bloc and 7 non-Soviet-bloc.

ASSOCIATION: Institut metallurgii im. A. A. Baykova AN SSSR Moskva
(Institute of Metallurgy imeni A. A. Baykov AS USSR, Moscow)

SUBMITTED: May 10, 1960 (initially)
August 19, 1960 (after revision)

4

SKUDNOVA, Ye.V.; MIRGALOVSKAYA, M.S.

Effective coefficient of distribution of tellurium in aluminum antimonide. Zhur.neorg.khim. 7 no.11:2568-2571 N '62. (MIRA 15:12)

(Aluminum antimonide)
(Tellurium)

SKUDNOVA, Ye.V.; MIRGALOVSKAYA, M.S.; ANNAMAMEDOV, R.

Distribution coefficient of zinc in indium antimonide. Zhur.neorg.khim. 8 no.3:685-688 Mr '63. (MIRA 16:4)
(Indium antimonides) (Zinc) (Crystallography)

S/078/63/008/004/007/013
A059/A126

AUTHORS: Mirgalovskaya, M.S., Strel'nikova, I.A.

TITLE: On the interaction of aluminum antimonide with sulfur

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 8, no. 4, 1963, 950 - 953

TEXT: The influence of the polarity of the directions <111> of growth on the effective distribution coefficient K_{eff} for sulfur in aluminum antimonide, pure and sulfur-doped, has been studied; at first, the influence of the growth-direction polarity on the structure of the rod grown has been determined. Non-doped AlSb single crystals and sulfur-doped AlSb single crystals were obtained by the Czochralski method in purified helium, at 1.5 at. The doping substance, Sb_2S_3, was introduced through a special-type hopper. It has been found experimentally that the growth of AlSb single crystals in the direction A [111] is inhibited. The influence of the speed of rotation of the seeding substance on the character of sulfur uptake has been investigated in order to establish optimum conditions. An infrared microscope sensitive to the 0.8 - 1.3 μ wave band was used to determine sulfur distribution in the single crystals obtained. The de-

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S/078/63/008/004/007/013
A059/A126

On the interaction of aluminum antimonide with sulfur

gree of mixing of the melt influences the sulfur distribution in AlSb. The following conditions of melting were chosen: drawing rate of 0,6 mm/min, speed of rotation of the seed of 23 rpm, and a speed of rotation of the crucible of 2 rpm. The value of K_{eff} for S in AlSb was found to depend on the polarity of growth of the rod, with a value of -1.9 ± 0.23 for the growth of S-doped AlSb single crystals in the direction B [111], and of -0.55 ± 0.6 in the direction A [111]. There are 5 figures and 3 tables.

SUBMITTED: January 27, 1962

Card 2/2

L 12877-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD
ACCESSION NR: AP3000516 S/0020/63/150/002/0297/0300 56

AUTHOR: Dashevskiy, M. Ya.; Mirgalovskaya, M. S.

TITLE: Some structural peculiarities of indium antimonide dendrites

SOURCE: AN SSSR. Doklady, v. 150, no. 2, 1963, 297-300

TOPIC TAGS: indium antimonide dendrites, crystal structure, twin crystals

ABSTRACT: The indium antimonide dendrites studies were grown by vertical pulling at 4-6 cm per min. from a melt cooled 7-10 degrees below crystallization temperature, seeding with crystals oriented in one of the [211] directions. A detailed description of the three types of structures of these twin-crystals is given. "In conclusion the authors express thanks to N. Ye. Il'in for assistance in conducting the experimental part of the work. Orig. art. has: 4 figures.

ASSOCIATION: Institut metallurgii im. A. A. Baykova (Institute of Metallurgy)

SUBMITTED: 030ct62 DATE ACQ: 12Jun63 ENCL: 00

SUB CODE: ML NO REF SOV: 001 OTHER: 012

Card 1/1

ACCESSION NR: AP4012441 S/0078/64/009/002/0367/0371

AUTHOR: Skudnova, Ye. V.; Karaseva, T. P.; Mirgalovskaya, M. S.

TITLE: Investigation of the In-Sb-Zn system

SOURCE: Zhurnal neorg. khim. v. 9, no. 2, 1964, 367-371

TOPIC TAGS: indium antimony zinc system, system phase diagram, indium antimonide, zinc antimonide, zinc sub 3 antimony sub 2, zinc sub 4 antimony sub 3, indium antimonide zinc solution

ABSTRACT: The InSb-Zn, InSb-Zn_3Sb_2, InSb-Zn_4Sb_3, and InSb-ZnSb sections of the In-Sb-Zn system were subjected to thermal and microscopic analysis. The InSb-Zn_3Sb_2 section was found to be a quasibinary section of the eutectic type. The other sections are not quasibinary. In the Zn-InSb system the two components are in equilibrium only in the solid state. The InSb phase is in equilibrium with all phases of the system. At 280C, solubility of Zn in InSb is 0.2 wt. % (0.72 at. %), of Zn_3Sb_2, 0.6 wt. % (0.33 mol. %), and

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ACCESSION NR: AP4012441

of ZnSb, 0.6 wt.% (0.78 mol.%). The relatively small area of ternary solid solutions based on InSb is explained by the differences in the crystalline structures of the InSb solvent and the Zn, ZnSb, and Zn_3Sb_2. A diagram, (Fig. 1 of the Enclosure) of the positions of the fields of primary crystallization in the In-Sb-Zn system shows 7 phases: In, Zn, InSb, Zn_3Sb_2, Zn_4Sb_3, and ZnSb. No ternary phase was found. Orig. art. has: 7 figures, 1 table, and 2 formulas.

ASSOCIATION: none

SUBMITTED: 21Jan63 ATD PRESS: 3068 ENCL: 01

SUB CODE: IC, MM NO REF SOV: 006 OTHER: 004

Card 2/3

ACCESSION NR: AP4012441

ENCLOSURE: 01

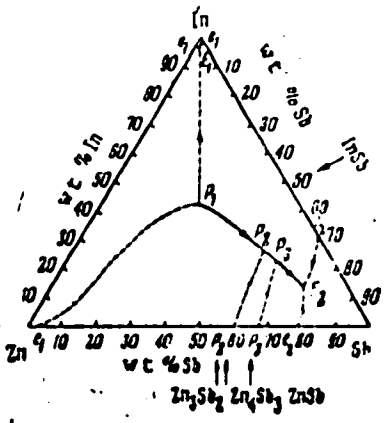

Fig. 1. Fields of primary crystallization of phases in the In-Sb-Zn system

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L 35587-65 EPR/EWA(c)/EWT(m)/EWP(b)/T/EWA(d)/EWP(t) Ps-4 IJP(c) MJW/JD/JXT(CZ)

ACCESSION NR: AP5007613 S/0363/65/001/001/0091/0095

AUTHOR: Strel'nikova, I. A.; Mirgalovskaya, M. S.

TITLE: The distribution coefficient of zinc in aluminum antimonide

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 1, 1965, 91-95

TOPIC TAGS: aluminum antimonide, zinc distribution, zinc diffusion, single crystal, solid solution

ABSTRACT: Since work analogous to that done on the diffusion of sulfur in aluminum antimonide has not been done on the zinc-aluminum antimonide system, the authors studied the effect of the polarity of direction (111) on the coefficient of diffusion of zinc (impurities no more than 0.0004%) in AlSb made of aluminum AV-000 and antimony SU-000, all of which were tested for purity by spectral analysis. The AlSb single crystals to be alloyed with zinc were obtained by Chokhral'skiy's method, which the authors had used in a previous work. The orientation of surfaces A(111) and B(111) was determined by a photomicrographic procedure (method of Laue) in an RKSO chamber after etching. No real difference was noted in the development of coalescence in the A(111) and B(111) directions. The polarity of directions of

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L 35587-65

ACCESSION NR: AP5007613

growth A(111) and B(111) was found to have an effect on the value of K_{ef} (coefficient of diffusivity) of zinc in aluminum antimonide. K_{ef}Zn in AlSb is 0.45 ±0.06 and 1.2± 0.14 for the A(111) and B(111) directions, respectively, when crystals are grown by Chokhral'skiy's method. Orig. art. has: 2 tables, 1 formula and 2 figures.

ASSOCIATION: Institut metallurgii im. A. A. Baykova (Metallurgical institute)

SUBMITTED: 24Jul63 ENCL: 00 SUB CODE: MM, SS

NO REF SOV: 005 OTHER: 006

Card 2/2

L 41283-65 EWT(m)/EWA(d)/EWP(t)/EWP(z)/EWP(b) Pi-4 IJP(c) RWH/MJW/JD

ACCESSION NR: AP5007614 S/0363/65/001/001/0096/0099

24
23
B

AUTHOR: Strel'nikova, I. A.; Mirgalovskaya, M. S.

TITLE: A study of phase equilibria in the Al-Sb-S system

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 1, 1965, 96-99

TOPIC TAGS: phase diagram, solid solution, aluminum antimonide, sulfur distribution, antimony alloy

ABSTRACT: The fact that sulfur, in the process of alloying with AlSb, produces changes in the semiconductor characteristics of the latter, indicates a need for further study. Data on the Al-Sb, Al-S, and Sb-S systems was taken from the literature and aluminum AV000 with spectroscopically determined traces of Mg, Cu, Si, and Fe, antimony Su-000, and sulfur containing traces of Mg and As were used as raw materials. The components were mixed, fused in quartz ampoules, heated in an argon atmosphere at a pressure of 550 mm Hg for 4-6 hours to 1100C (producing $AlSb-Sb_2S_3$) and 1200C (for the alloys $AlSb-Al_2S_3$ and AlSb-AlS), held there for 1 hour while stirring by electric current, cooled to 500 or 700C for 2-3 hours under vibration, and homogenized by being held at 750C for 1.5 months. All samples

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ACCESSION NR: AP5007614

were then subjected to thermal analysis by Stepanov's method, the recording of cooling curves by Kurnakov's pyrometer, microstructural analysis, and microhardness analysis by a PMT-3 apparatus. Certain samples of the first alloy were also subjected to X-ray analysis. The resultant phase diagram is shown in Fig. 1 of the Enclosure. It was determined that sulfur is not found in equilibrium with AlSb. The quasibinary equilibria formed are AlSb-Al_2S_3, Al_2S_3-Sb_2S_3, and Al_2S_3-Sb. The first system forms an almost insignificant region of solid solutions based on AlSb. The solubility of Al_2S_3 in AlSb was found to be ~ 0.1% by wt. Orig. art. has: 1 table and 6 figures.

ASSOCIATION: Institut metallurgii im. A. A. Baykova (Metallurgical institute)

SUBMITTED: 16Nov63 ENCL: 01 SUB CODE: MM

NO REF SOV: 002 OTHER: 007

Card 2/3

L 41283-65

ACCESSION NR: AP5007614

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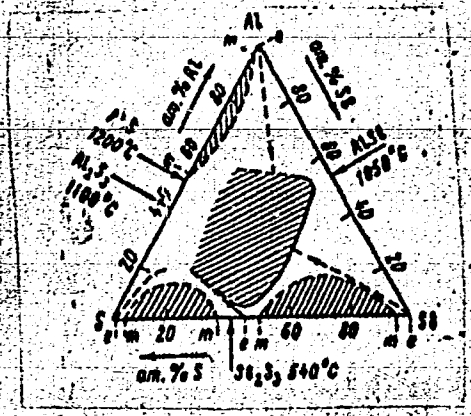

Fig. 1. The system Al-Sb-S

Card 3/3

L 39309-65 EWT(1)/EWT(m)/T/EEC(b)-2/EWP(t)/EWP(b)/EWA(c) Pi-4 IJP(c)
JD/JG/3G

ACCESSION NR: AP5009364 S/0363/65/001/002/0181/0183

AUTHOR: Kukuladze, G. V.; Mirgalovskaya, M. S.

TITLE: Growth of gallium antimonide single crystals in the <111> polarized crystallographic direction

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 2, 1965, 181-183

TOPIC TAGS: gallium antimonide, single crystal growth, melt growth, oriented crystallization, crystallographic direction polarization, crystal semiconductor property

ABSTRACT: Gallium antimonide single crystals have been grown by the Czochralski technique in the A <111> or B <111> directions in order to study the effect of the polarity of <111> directions and to evaluate the relative development of A and B faces. Gallium antimonide was synthesized and single crystals were grown in a graphite crucible, in helium atmosphere, in the same hermetically sealed apparatus. Both stoichiometric and nonstoichiometric GaSb crystals were grown. Hall effect and resistivity of the crystals were measured by d-c compensation method at room or liquid nitrogen temperature. All single crystals were p-type with carrier

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L 39309-65
ACCESSION NR: AP5009364

(holes) concentration of 1.5×10^{17} cm^{-3} at room temperature and one order of magnitude lower at the liquid nitrogen temperature. The concentration of holes was higher in crystals with an excess of gallium and lower in crystals with an excess of antimony over the stoichiometric ratio. The polarity of the <111> direction had no noticeable effect on the growth of single crystals of given purity. Some GaSb single crystals were grown without continuous pulling simply by keeping the seed crystal in the melt until the crystal reached certain specified dimensions, then removing it quickly from the melt. A comparative study of the morphology of the GaSb, InSb, and Ge crystals grown by this method revealed similarity of development of the (111) and ($\bar{1}\bar{1}\bar{1}$) faces between GaSb and Ge and disparity of development of the same faces between GaSb and InSb. The GaSb crystals, unlike InSb and GaAs, grew with the same facility in the B <111> and A <111> directions. The presence of an undetected acceptor impurity in the melt was suspected to be the cause of this equalization of the polarity effect. Orig. art. has: 4 figures. [JK]

ASSOCIATION: Institut metallurgii im. A. A. Baykova (Institute of Metallurgy)

SUBMITTED: 29Oct64 ENCL: 00 SUB CODE: SS

NO REF SOV: 000 OTHER: 009 ATD PRESS: 3226

Card 2/2

L 38562-65 EWT(m)/EWP(t)/EWP(b) LIP(c) JD

ACCESSION NR: AP5009365 S/0363/65/001/002/0184/0187

AUTHOR: Skudnova, Ye. V.; Mirgalovskaya, M. S.

TITLE: Distribution coefficient of sulfur in indium antimonide

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 2, 1965, 184-187

TOPIC TAGS: indium antimonide, single crystal growth, sulfur doped crystal, melt growth, oriented crystallization, sulfur distribution coefficient, semiconductor crystal

ABSTRACT: The effective distribution coefficient K_{eff} as a function of polarity of the growth direction <111> of sulfur-doped indium antimonide single crystals has been determined. Previously, the effect of polarity on the growth of $A^{III}B^{V}$ semiconductor crystals was studied only in zinc-doped InSb crystals and was assumed to be dependent on the nature of the impurity. The InSb single crystals were grown from an Sb_2S_3-doped melt by the Czochralski technique in a helium atmosphere under conditions of superheating, which excluded the possibility of the face effect. The distribution coefficient K_{eff} of sulfur was determined only in single crystals, which were pulled along [111] or [$\bar{1}\bar{1}\bar{1}$] directions, on the basis of the impurity

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L 38562-65
ACCESSION NR: AP5009365

concentration in the melt before pulling the crystal and in the initial, homogeneous portion of the ingot. The [III] ingot could not be made single crystalline full length. The single crystals grew readily in the [111] direction but with great difficulty in the [$\bar{1}\bar{1}\bar{1}$] direction. The sulfur concentrations were determined iodometrically. K_{eff} (S) in InSb was found to be 1.2 ± 0.18 for the [111] growth direction and 0.4 ± 0.06 for the [$\bar{1}\bar{1}\bar{1}$] direction. Thus, the effect of polarity of the growth direction <111> on the growth process and on the magnitude of K_{eff}(S) was confirmed for sulfur-doped InSb single crystals. The growth of the S-doped crystals in the [$\bar{1}\bar{1}\bar{1}$] direction presented an additional difficulty, as compared to that of the pure InSb crystals. The difference in the K_{eff} of the two growth directions was explained as a result of a greater adsorption of S by the ($\bar{1}\bar{1}\bar{1}$) face than by the (111) face of the crystal. The S adsorption on the surface is believed to be activated to a different degree by different atoms forming the (111) and ($\bar{1}\bar{1}\bar{1}$) faces. Orig. art. has: 2 figures and 1 table. [JK]

ASSOCIATION: Institut metallurgii im. A. A. Baykova (Institute of Metallurgy)

SUBMITTED: 18Dec63 ENCL: 00 SUB CODE: SS

NO REF SOV: 003 OTHER: 009 ATD PRESS: 3225

Card 2/2

L 55129-65 EWT(m)/EWP(t)/EWP(b) IJP(c) JD

ACCESSION NR: AP5009367 UR/0363/65/001/002/0193/0200

541.123.4

14

13

B

AUTHOR: Mirgalovskaya, M. S.; Alekseyeva, A. M.

TITLE: Gallium-antimony-cadmium system

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 2, 1965, 193-200

TOPIC TAGS: gallium, antimony, cadmium, phase diagram, phase equilibrium

ABSTRACT: The Ga-Sb-Cd system was studied for the first time. The purpose of this investigation was to determine the nature of the interaction of cadmium with gallium antimonide. Alloys were produced by fusion either of elements or of the appropriate alloy in evacuated quartz ampules. The synthesis was done in a muffle furnace at 850°C for 1-1.5 hours. The alloys were furnace cooled from 850°C to 350°C at a rate of 100°C per hour. The alloys were kept at 350°C for 100 hours, after which they were tempered in air. The alloys were investigated in the cast as well as in the annealed state. Microstructural and thermal analysis were used and the microhardness was measured. It was found that GaSb is in equilibrium with

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L 55129-65
ACCESSION NR: AP5009367

Ga, Cd, Cd_3Sb_2, Cd_4Sb_3, CdSb and Sb. Ternary solid solution regions exist on the GaSb-Cd, GaSb-CdSb and GaSb-Cd_4Sb_3 cross sections. It was found that elemental cadmium has the greatest solubility in GdSb reaching 0.23 wt %. The maximum concentration of current carriers in the cadmium-doped GaSb was $\sim 1.10^9$ cm^{-3}. The GaSb may be alloyed with cadmium as well as with CdSb, since the concentration of current carriers and their mobility in the alloyed GaSb samples is approximately the same in bo' cases. The greatest solubility of Cd_4Sb_3 in GaSb at 300°C (0.05 wt % Cd) is obtained on the GaSb-CdSb cross section. The solubility of Cd_4Sb_3 in GaSb along the GaSb-Cd_4Sb_3 cross section at 300°C is 0.02 wt % Cd. Orig. art. has: 2 tables and 11 figures.

ASSOCIATION: Institut metallurgii im. A. A. Baykova (Institute of Metallurgy)

SUBMITTED: 12Sep64 ENCL: 00 SUB CODE: MM, MT

NO REF SOV: 003 OTHER: 006

Card 2/2

L 44133-65 EWT(1)/T/EEC(b)-2 Pi-4 IJP(c) JG

ACCESSION NR: AP5011928 UR/0363/65/001/003/0340/0342

AUTHOR: Mirsalovskaya, M. S.; Kokoshkin, V. A.; Smirnov, V. Ya. 33 32 B

TITLE: Crystal face effect in doped indium antimonide 21 27

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 3, 1965, 340-342

TOPIC TAGS: indium antimonide, single crystal, doped semiconductor crystal, single crystal growth, crystal face effect, impurity distribution

ABSTRACT: The face effect R in the R<111> growth direction of indium antimonide single crystals doped with sulfur, selenium, or zinc has been studied in order to establish a correlation between R and the concentrations of the three impurities. R was defined as the ratio $K_a : K_b$, where K_a and K_b are the distribution coefficients "at the crystal face," i.e. in the central region of the crystal where an impurity incorporated by tangential growth of the face, and "beyond the face," i.e. in the peripheral region of normal incorporations of an impurity. The crystals were grown by the Czochralski technique

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L 44133-65
ACCESSION NR: AP5011928

under standard conditions. The average carrier (impurity) concentrations "beyond the face," (N_b), as determined from the experimental Hall constant at liquid nitrogen temperature, were in the (1—4) x 10^{17} cm^{-3} range for Se and S and in the (0,9—3) x 10^{19} cm^{-3} range for Zn. The $K_a : K_b$ ratio was assumed to be equal to the $(N_a : N_b)_\alpha$ ratio, where N_a and N_b are the carrier concentrations "at" and "beyond the face" of preferential growth, and α is thermoelectric power. The α values were measured by means of hot probe equidistant points along the diameters of polished cross sections cut from a single crystal. Thus, the ratios $\alpha_b : \alpha_a$ were established and $(N_a : N_b)_\alpha$ ratios, i.e., R, were calculated on the basis of the $\alpha(n)$ dependence established by calibration. The experimental $(N_a : N_b)_\alpha$ data were found to be in good agreement with the previously published data for R(111). It was shown that: 1) R for a given impurity varied significantly along the entire length of the crystal as the average impurity concentration N_b increased or decreased even slightly; and 2) for impurities with $K_b(111) < 1$ (S,Se) R decreased and for impurities with $K_b(111) > 1$ (Zn) R remained nearly constant with increasing N_b within the concentration ranges indicated. Orig. art. has: 1 figure and 1 table. [JK]

Card 2/3

L 58713-65 EWT(1)/T/EEC(b)-2 Pi-4 IJP(c) GG

ACCESSION NR: AP5016581 UR/0363/65/001/005/0668/0674
546.682'861-162.2

37
34
B

AUTHOR: Koknshkin, V.A.; Mirgalovskaya, M.S.; Bezborodova, V.M.

TITLE: The degree of homogeneity of doped inidum antimonide crystals

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 5, 1965, 668-674

TOPIC TAGS: indium antimonide, crystal growth, zinc doping, cadmium doping, thermoelectromotive force, Hall mobility

ABSTRACT: By using the method of thermo-emf measurements, the authors attempted to determine the inhomogeneities which may arise in indium antimonide crystals doped with acceptor impurities. It was found that indium antimonide ingots doped with zinc as well as cadmium up to concentrations of $4 \times 10^{17} - 2 \times 10^{18}$ cm^{-3}, prepared by the Czochralski method at $v = (0.7\text{-}1.3)\ 10^{-5}$ m/sec and $n_1 = 0.8\text{-}1$ rps, may have appreciable inhomogeneities in the longitudinal and transverse distribution of the impurity. Variations in the distribution of the thermo-emf may reach + 20% in some parts of the ingots. Doping with zinc produces a more homogeneous material. An ingot containing zinc is relatively homogeneous over most of its body, and the variations in distribution are + (4-5)%. The nonuniform layered trapping of zinc and cadmium during crystallization is primarily

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L 58713-65

ACCESSION NR: AP5016581

3

helical in character, and is determined by the conditions of growth. A 50-100% increase in growth rate (to 1.3 x 10^{-5} m/sec) impairs the homogeneity of the ingots. The observed inhomogeneities significantly affect the Hall mobility. A definite correlation was observed between the change in the degree of homogeneity of p-type InSb samples with a carrier concentration of 10^{18} cm^{-3} and the deviation of the experimental value of the hole mobility from the calculated value. "The authors thank V. Ya. Smirnov and L. S. Bryzgalov for assistance in the experimental work." Orig. art. has: 6 figures and 1 table.

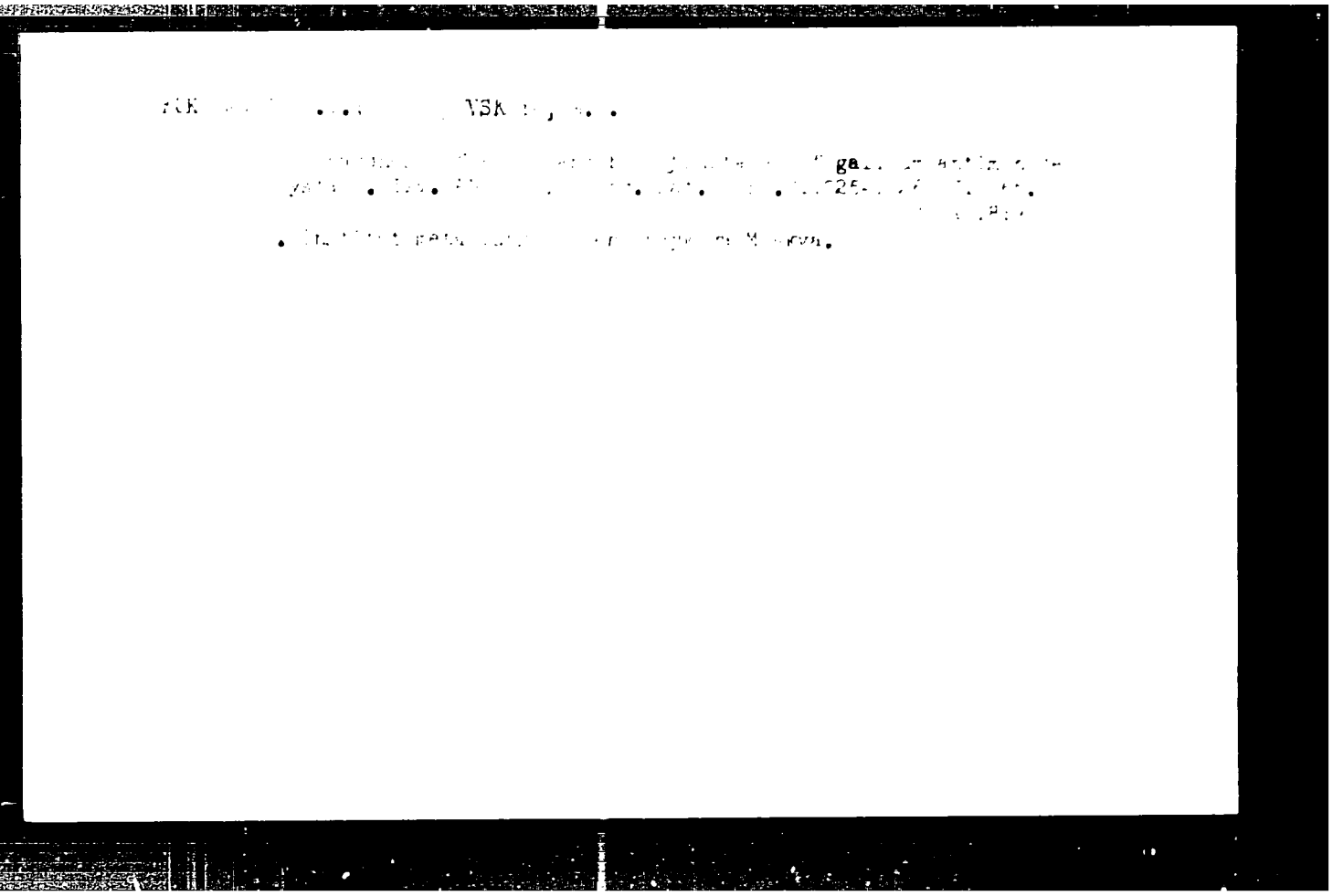
ASSOCIATION: Institut metallurgii im. A. A. Baykova (Institute of Metallurgy)

SUBMITTED: 27Mar64 ENCL: 00 SUB CODE: IC

NO REF SOV: 008 OTHER: 008

dm

Card 2/2



L 26759-66 FBD/EWT(1)/EWT(m)/EEC(k)-2/T/EWP(k)/EWA(h) IJP(c) WG/JD/JG

ACC NR: AP6012457 SOURCE CODE: UR/0181/66/008/004/1028/1034

AUTHOR: Kryukova, I. V.; Mirgalovskaya, M. S.; Karnaukhov, V. G.; Baranova, A. M.; Strel'nikova, I. A.

63

ORG: none

27 27 60

TITLE: Some features of coherent emission of gallium antimonide laser diodes

SOURCE: Fizika tverdogo tela, v. 8, no. 4, 1966, 1028-1034

TOPIC TAGS: gallium antimonide, laser emission, pn junction, laser, laser diode

ABSTRACT: This is a continuation of an earlier study of laser effects in diffusion GaSb p-n junctions (FTT v. 7, 342, 1965). The present study was made with drawn p-n junctions with the aim of determining in greater detail the features of their emission and to explain why diffusion p-n junctions have a lower efficiency than drawn junctions. The junctions were produced in a crystal grown by the Czochralski method. The p-n junction plane was perpendicular to the crystallographic ⟨111⟩ direction and the Fabry-Perot diode structure was produced by optical polishing. The diode dimensions were 0.4 x 0.5 x 0.5 mm. The measurements were made at 77K with the radiation produced both at large current densities (pulsed mode, pulse duration 1 μsec) and at low densities (dc). At low current densities the emission spectra of the investigated p-n junctions consisted of a single broad line with a maximum noticeably shifted toward the long wave length side compared with the width of the forbidden band of GaSb (0.80 ev). At larger currents, the radiation peak shifted toward the short wave length side

Card 1/2

L 26759-66

ACC NR: AP6012457 3

(0.76—0.78 ev), with a maximum half-width of the spectral line of 0.5×10^{-3} ev and threshold current densities of 3×10^{3}--1.2×10^{4} amp/cm^2. Although the results indicate conclusively that a laser action was produced in these junctions, the low resolution of the apparatus did not make it possible to observe the possible oscillation modes. Reduction of the temperature (to that of liquid helium) did not produce a noticeable change in the radiation parameters. Several arguments are advanced in favor of the hypothesis that states situated in the forbidden band participate in the stimulated transitions. The dependence of the shift of the radiation peak and of the width of the spectral line at different injection levels is analyzed and it is indicated that the reason why the previously investigated diffusion p-n junction had worse laser parameters is due to the lower degree of doping attained by the diffusion process and to a different character of the impurity distribution in the two types of junctions. There is also a difference in the recombination mechanism in the two junctions. The authors thank B. M. Vul for a discussion of the results and P. G. Yeliseyev and V. I. Shveykin for useful advice. Orig. art. has: 6 figures. [02]

SUB CODE: 20/ SUBM DATE: 07Aug65/ ORIG REF: 003/ OTH REF: 013/
ATD PRESS: 4258

Card 2/2 FV

L 01928-67 EWT(m)/T/EWP(t)/ETI IJP(c) JD

ACC NR: AR6031853 SOURCE CODE: UR/0058/66/000/006/A066/A066

AUTHOR: Mirgalovskaya, M. S.; Sakharov, V. V.; Karpinskiy, O. G.

TITLE: Deviation from stoichiometry in gallium antimonide 55 B

SOURCE: Ref. zh. Fizika, Abs. 6A601

REF SOURCE: Sb. Simpozium. Protsessy sinteza i rosta kristallov i plenok poluprovodnik. materialov, 1965. Tezisy dokl. Novosibirsk, 1965, 22

TOPIC TAGS: crystal property, stoichiometry, crystallography, x ray analysis, x ray crystallography, x ray investigation, gallium antimonide, crystal vacancy, crystal lattice

ABSTRACT: A study was made of the effect of high vacuum on the basic properties of crystals. Results of density and precision x-ray measurements of a solid solution of gallium antimonide are presented. Assumptions are made regarding the effect of defects (vacancies) in the GaSb lattice on the basic properties of crystals. [Translation of abstract] [SP]

SUB CODE: 20/

Card 1/1

ACC NR [illegible]0039419 SOURCE CODE: UR/0137/66/000/009/[illegible]

AUTHOR: [illegible]evskiy, M. Ya.; Mirgalovskaya, M. S.; Lazarev, V. [illegible]

TITLE: Grow[illegible] of [illegible] antimonide crystals fr[illegible] melts doped with surface-active and surface-inactive additives

SOURCE: Ref. zh. Metallurgiya, Abs. 9G364

REF SOURCE: [illegible] Poverkhnostn. yavleniya v rasplavakh i voznikayushchikh iz [illegible]kh tverd. fazakh. Nal'chik, 1965, 579-58[illegible]

TOPIC TAGS: [illegible] compound, anti[illegible], surface active agent, single crys[illegible] growing, surface tension, dendrite

ABSTRACT: A [illegible]scription is [illegible] [illegible] tals [illegible] melt and [illegible] tension [illegible] of the [illegible] of a melt [illegible] surface[illegible] is adsorbed while [illegible] surface [illegible] single crystals [illegible] range 0.05 - [illegible] the melt, [illegible] the growth of the [illegible] grown, [illegible] were noted between [illegible] The dependence of the supercooling of the [illegible]

Card [illegible]

ACC NR: AR6035419

centration shows that at these concentrations the Ge and Se have little influence on the value of the supercooling. (From RZh Fiz.) [Translation of abstract]

SUB CODE: 20

Card 2/2

ACC NR: AP7005591 SOURCE CODE: UR/0020/67/172/002/0403/0406

AUTHOR: Dashevskiy, M. Ya; Kukuladze, G. V.; Lazarev, V. B.; Mirgalovskaya, M. S.

ORG: Metallurgy Institute im. A. A. Baykov, Academy of Sciences, SSSR (Institut metallurgii Akademii nauk SSSR); Institute of General and Inorganic Chemistry im. N. S. Kurnakov, Academy of Sciences, SSSR (Institut obshchey i neorganicheskoy khimii Akademii nauk SSSR)

TITLE: Surface phenomena and crystallization processes in gallium antimonide melts

SOURCE: AN SSSR. Doklady, v. 172, no. 2, 1967, 403-406

TOPIC TAGS: surface tension, gallium compound, antimonide, crystallization

ABSTRACT: In order to determine the general applicability of the regularities characterizing the relationship between surface phenomena and crystallization processes in indium antimonide melts, the following phenomena were investigated: surface tension of melts of the gallium-antimony system, influence of zinc and tellurium on the surface tension of gallium antimonide, and influence of these admixtures on the supercooling of Ga-Sb melts and on the growth of crystals from the melts. It is suggested that the behavior of the impurities in the solvent melt can be predicted from the difference of surface tensions in the case of type $A^{III}Sb$ antimonides. In $A^{III}B^{V}$ compounds which crystallize in a zinc-blende-type lattice, a correlation exists between the mean atomic number of the compound and the surface tension at the

Card 1/2 UDC: 546.682'861:532.6

ACC NR: AP7005591

melting point: the higher the mean atomic number, the lower the surface tension of the compound. Data on the effect of Te on the supercooling of indium antimonide indicate that surface-active admixtures increase the probability of formation of a solid phase nucleus. At a certain concentration of Te, the growth of lamellar dendrites of gallium antimonide was hindered, causing distorted dendrites to grow, then was stopped altogether as the Te content increased further. The introduction of zinc in appreciable amounts did not interfere with the growth of lamellar dendrites of gallium antimonide. The regularities found by studying the role of surface phenomena in the crystallization of indium antimonide melts were found to apply to gallium antimonide as well, and are therefore thought to cover at least all compounds of type $A^{III}B^{V}$ which crystallize in a zinc-blende-type lattice. The paper was presented by Academician Sazhin, N. P., 4 Apr 66. Orig. art. has: 3 figures and 1 table.

SUB CODE: 11,20/ SUBM DATE: 04Apr66/ ORIG REF: 009/ OTH REF: 001

2/2

ACC NR: AR7000837 SOURCE CODE: UR/0058/66/000/009/A049/A049

AUTHOR: Dashevskiy, M. Ya.; Mirgalovskaya, M. S.; Lazarev, V. B.

TITLE: Growing single indium antimonide crystals from melts doped with surface-active and surface-inactive impurities

SOURCE: Ref. zh. Fizika, Abs. 9A415

REF SOURCE: Sb. Poverkhnostn. yavleniya v rasplavakh i voznikayushchikh iz nikh tverd. fazakh. Nal'chik, 1965, 579-584

TOPIC TAGS: crystal, crystal growth, crystal impurity, indium antimonide, crystallography, surface active alloy, surface inactive alloy, surface active impurity, surface inactive impurity, impurity, semiconductor crystal, germanium alloy, selenium alloy, doping

ABSTRACT: A description is given of a device for growing monocrystals (C) by pulling them from a melt (M), and for measuring surface tension of M. Measurements of surface tension of M in InSb doped with Ge and Se showed that Se is a surface-active impurity, and that Ge is a surface-inactive impurity. Monocrystals

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ACC NR: AR7000837

and dendrites from M [sec] were grown, alloyed with Ge in the amount of 0.05—2.5 at % and with Se in the amount of 0.0024—0.25 at %. An increase in the concentration of Ge in the M was accompanied by a decrease in the width of dendrite strips. No particular effect of Ge on the growth of C was noted. No success was achieved in growing dendrites containing large amounts of Se, since at 0.25 at % of Se their growth ceases. No morphological differences were noted between C grown from M and alloyed with Se and K grown from P and alloyed with Ge. It was shown that within the given range of concentrations, Ge and Se affect the process of supercooling only slightly. G. Volkov. [Translation of abstract] [SP]

SUB CODE: 20/

Card 2/2

MIRGANIYEV, Sh.

Oncology

Dissertation -- "Roentgenological Diagnosis of Tumors of the Organs of the Mediastinum." Dr Med Sci, Second Moscow Medical Inst imeni I. V. Stalin, 12 Apr 54. ("editsinskiy Rabotnik, Moscow, 30 Mar 54).

SO: SUM 213, 20 Sep 1954

MIRGANIYEV, SH.

USSR/Medicine - Roentgenology FD-711

Card 1/1 : Pub 132 22/22

Author : Lipkovich, A. M., Candidate Medical Sciences; Mirganiyev, Sh., Aspirant

Title : X-ray diagnosis of mediastinum neuroma

Periodical : Vest. Rent. i Rad., 91-93, May/June 1954

Abstract : Changes in the thoracic vertebra and ribs in the region of the tumor during mediastinum neuroma are important and frequent symptoms which should not be neglected during X-ray examination. Lung angiography frequently yields valuable indications regarding the localization of new formations. Since the vessels in the upper right part are full, it is possible to arrive at the erroneous conclusion that the tumor is localized in the lung. Three photographs (X-rays).

Institution : Chair of Roentgenology II Moscow Medical Institute imeni I. V. Stalin (Chief - Professor V. A. D'yachenko).

Submitted : --

MIRGANIYEV, Sh.M., kandidat meditsinskikh nauk

A case of diaphragmatic hernia with prolapse of the omentum into the mediastinum. Vest.rent. i rad. 31 no.5:89-90 S-O '56. (MLRA 10:1)

1. Iz Kafedry rentgenologii (zav. V.A.D'yachenko) II Moskovskogo meditsinskogo instituta im. I.V.Stalina.

(HERNIA, DIAPHRAGMATIC, compl.
prolapse of omentum into mediastinum)
(OMENTUM
prolapse into mediastinum in diaphragmatic hernia)

MIRGANIYEV, Sh.M., kand.med.nauk

X-ray diagnosis of intrathoracic neurinoma. Med.zhur.Uzb.
no.12:29-38 D '58. (MIRA 13:7)

1. Iz kafedry rentgenologii (zav. - prof. V.A. D'yachenko) II moskovskogo gosudarstvennogo meditsinskogo instituta i kafedry rentgenologii i meditsinskoy radiologii (zav. - prof. D.M. Abdurasulov) Tashkentskogo gosudarstvennogo instituta usovershenstvovaniya vrachey.
(CHEST--DISEASES) (NERVOUS SYSTEM--TUMORS)

MIRGANIYEV, Sh.M., kand.med.nauk

Clinical and roentgenological characteristics of tumors of lymph nodes of the mediastinum. Med. zhur. Uzb. no.4:60-63 Ap '60. (MIRA 15:3)

1. Iz kafedry rentgenologii i meditsinskoy radiologii (zav. - prof. D.M. Abdurasulov) Tashkentskogo gosudarstvennogo instituta usovershenstvovaniya vrachey.

(MEDIASTINUM—TUMORS)
(LYMPHATICS—TUMORS)

MIRGANIYEV, Sh.M., kand.med.nauk

"Diagnosis of tumors and cysts of the mediastinum" by B.IA. Luk'ianchenko. Reviewed by Sh.M. Mirganiev. Vest.rent.i rad. 35 no.1:75-76 Ja-F '60. (MIRA 13:6)
(MEDIASTINUM--TUMORS) (LUK'IANCHENKO, B.IA.)

MIRGANIYEV, Sh.M.; KOLOSKOVA, L.A., red.; AGZAMOV, K., tekhn.red.

[Clinical X-ray diagnosis of neoplastic diseases of the mediastinum] Kliniko-rentgenologicheskoe raspoznavanie opukholevykh zabolevanii sredostenilia. Tashkent, Gos.med. izd-vo M-va zdravookhraneniia UzSSR, 1961. 136 p.
(MIRA 15:5)

(MEDIASTINUM—TUMORS)

MIRGANIYEV, Sh.M., kand.med.nauk

X-ray diagnosis of extragastric neoplasms. Med. zhur. Uzb. no.6: 53-56 Je '61. (MIRA 15:1)

1. Iz kafedry rentgenologii i meditsinskoy radiologii (zav. - prof. D.M.Abdurasulov) Tashkentskogo gosudarstvennogo instituta usovershenstvovaniya vrachey.
(DIAGNOSIS, RADIOSCOPIC) (TUMORS)

MIRGANIYEV, Sh.M., kand. med. nauk

Roentgenological observations on the so-called lower esophageal ring. Vest. rent. i rad. 38 no.5:40-42 S-O'63 (MIRA 16:12)

1. Iz 1-y kafedry rentgenologii i radiologii (zav. - zasluzhennyy deyatel' nauki prof. S.A. Reynberg) TSentral'nogo instituta usovershenstvovaniya vrachey.

MIRGANIYEV, Sh.M., kand. med. nauk (Moskva)

Roentgenocinematographic observations of the esophagocardial junction. Klin. med. 41 no.4:8-18 Ap '63.

(MIRA 17:2)

1. Iz pervoy kafedry rentgenologii i radiologii (zav. - zasluzhennyy deyatel' nauki prof. S.A. Reynberg) TSentral'nogo instituta usovershenstvovaniya vrachey v Moskve.

MIRGANIYEV, Sh.M.

[Anatomical and functional fundamentals of the X-ray picture of the cardiac region] Anatomo-funktsional'nye osnovy rentgenologicheskogo izobrazheniia oblasti kardii. Tashkent, Meditsina, 1965. 134 p. (MIRA 18:8)

MIRGANIYEV, Sh.M. (Tashkent, 65, Massiv Chilanzar, d.105, kv. 35)

Valvular mechanism of closure of the cardia. Grud. khir. 6 no.1:83-86 Ja-F '64. (MIRA 18:11)

1. Pervaya kafedra rentgenologii i radiologii (zav. - zasluzhennyy deyatel' nauki prof. S.A. Reynberg) TSentral'nogo instituta usovershenstvovaniya vrachey, Moskva. Submitted April 25, 1963.

ACC NR: AR6028907 SOURCE CODE: UR/0299/66/000/007/B087/B087

AUTHOR: Mirganiyeva, M. V.

TITLE: Nutrient medium for determining the activity of actinomycetes antagonists of wilt diseases in cotton

SOURCE: Ref. zh. Biologiya, Part I, Abs. 7B600

REF SOURCE: Sb. Vopr. mikrobiologii. Tashkent, Nauka, 1966, 80-83

TOPIC TAGS: antibiotic [redacted], actinomycetes, wilt antagonist, plant disease, agriculture crop

ABSTRACT:

To determine the antibiotic activity of an actinomycetes culture fluid, a medium of the following composition has been suggested (in %): glucose 1, Peptone 1, NaCl 0.05, $(NH_4)_2SO_4$ 0.3, K_2HPO_4 0.1, agar-agar 2, tap water 1 liter, pH 7.3—7.5. Test organism - *Vertioillium dahliae*. [WA-50; CBE No. 11]

SUB CODE: 06/ SUBM DATE: none/

Card 1/1 UDC: 615.779.90

MIRGANTSEV, Sh, aspirant

X-ray diagnosis of lipoma of the mediastinum. Vest.rent. i rad. no.5:95 S-O '55. (MLRA 9:1)
(MEDIASTINUM--TUMORS)

MIRGIN, [illegible]. A.

Artillery gunpowders and charges. ARTILLERIYSKIYE POROKHA I ZARYADY. Translation from the German by [illegible].A. MIRGIN, edited by K. K. SMITYO. Moscow. State Publ. of the Defense Ind. 19[illegible]0. pp 19[illegible].

MIRGIRENKO, G.

21(2) PHASE I BOOK EXPLOITATION SOV/2708

Atomnaya energiya i flot; sbornik statey (Atomic Energy and the Navy; Collection of Articles) Moscow, Voyenizdat, 1959. 232 p. (Series: Nauchno-populyarnaya biblioteka) Number of copies printed not given.

Ed.: Yu. N. Ender; Tech. Ed.: A.M. Gavrilova; Ed. and Compiler: L. D. Chernous'ko, Engineer, Captain.

PURPOSE: This book is intended for the general reader.

COVERAGE: The papers in this collection discuss in popular style, and on the basis of data published in the Soviet and non-Soviet press, problems of the use of atomic and hydrogen weapons in combat operations at sea. The collection includes reports on the damaging factors of a nuclear explosion and on the immense power of this weapon of mass destruction. A number of articles are devoted to the antinuclear defense of ships and of shore objects, and to the introduction of nuclear power plants in naval vessels. Also included in the collection are papers dealing with the future prospects for naval use of nuclear energy, and with the construction of the world's first atomic icebreaker, the "Lenin", which is expected to play an important part in the further conquest of the Arctic regions. The collection also contains papers published in the journal Sovetskiy flot in 1955 - 1958, in revised and supplemented form.

AVAILABLE: Library of Congress (UF767.C39)

MIRGOROD, V.; KRAVETS, P.

Mechanized transportation of sugar beets according to an hour schedule. Avt. transp. 43 no.9:15-16 S '65. (MIRA 18:9)

1. Tambovskoye avtomobil'noye upravleniye.

TEPLITSKAYA, Ye.S.; MALAYA, L.P.; MIRGORODSKAYA, A.K.; SHEYKO, Z.A.; KOGAN, TS.I.; OSIPOVA, Ye.S.; GIRGORASH, N.G.; PANKRATOVA, V.S.; GORBACHEVA, L.Ye.

Species of dysentery pathogens encountered in 1959 in certain regions of Dnepropetrovsk Province and their sensitivity to the dysentery bacteriophage and antibiotics. Vrach. delo no.9:116-118 S '61. (MIRA 14:12)

(DNEPROPETROVSK PROVINCE--SHIGELLA)
(BACTERIOPHAGE) (ANTIBIOTICS)

Mirgorodskaya N.A

AUTHORS: Shargorodskiy, I.I., Mirgorodskaya, N.A. 32-11-12/60

TITLE: Short Reports (1) (Korotkiye soobshcheniya)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 11, pp. 1308-1308 (USSR)

ABSTRACT: A new method for the determination of the zinc content in nonferrous metals is suggested in this paper. This method consists in the fact that at potentiometric titration of zinc by potassium ferrocyanide the components of the solution are precipitated not one after another, but simultaneously. For example: zinc and antimony - as metal acids, lead - as sulphate, and copper - as sulphide. After removal of the precipitation by means of filtration, iron and nickel are precipitated by ammonia. The zinc remaining in the filtration is titrated potentiometrically.

ASSOCIATION: Metallurgical Plant imeni Dzerzhinskiy (Metallurgicheskiy zavod im. Dzerzhinskogo)

AVAILABLE: Library of Congress

Card 1/1

MIRGORODSKAYA, Nina Markovna; SEMENOVA, Ye.I., red.; KOROLEV, A.V., tekhn. red.

[Nurse's work in the newborn infants ward] Rabota sestry v palate novorozhdennykh. Moskva, Medgiz, 1963. 171 p. (MIRA 17:2)

137-58-6-12799

Translation from Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 230 (USSR)

AUTHOR Mirgorodskaya, S.I.

TITLE An Experiment in the Sulfidizing of Parts (Opyt vnedreniya sul - fidirovaniya detaley

PERIODICAL V sb Ufimsk. gor. nauchno-tekhn. konferentsiya, posvyashch. vypolneniyu direktiv XX s"yezda KPSS po tekhn. progressu v prom-sti. Ufa, 1957, pp 91-92

ABSTRACT Sulfidizing (S) of metals, during which a film of FeS (sometimes with the oxidation products of the Fe present) forms on the surface, lowers the friction coefficient, and raises the wear resistance of machine parts or tools (T). At the machinery-building plant the process of sulfidizing high-speed steel T is included in the technological process of its production. The S of T in the final form is performed in a bath having a capacity of 300-350 kg and consisting (in %) of: NaCl 17, $BaCl_2$ 25, $CaCl_2$ 38 (neutral salts, to be melted first), FeS 13.2, Na_2SO_4 3.4 (active salts, added to the melt of the neutral ones), and K-ferrocyanide 3.4 (accelerator). When all the salts are melted, the temperature of the bath is raised to 900 ± 10°C

Card 1/2

An Experiment in the Sulfidizing of Parts

for 10-15 min, whereupon the working temperature of the bath is established at 560 ± 10°. The holding time in the bath is 45 min to 3 hours (depending on the size of the P... Upon exhaustion of the bath, active salts are added. Control of the bath is performed either by chemical analysis (the content of sulfides should be ≥ 0.5%, or by way of scoring tests of the sulfidized sample (which should not permit any scoring).

A. P.

Card 2/2

L 00962-66

ACCESSION NR: AP5019305 UR/0333/65/000/007/0022/0024
637.3:677.494.7

AUTHOR: Mirgorodskiy, B. (Engineer)

TITLE: Saran film for packaging blended cheese

SOURCE: Molochnaya promyshlennost', no. 7, 1965, 22-24

TOPIC TAGS: food technology, packaging machinery/ Saran

ABSTRACT: In view of its good physical and chemical properties, the thermoset Saran film is suitable for shrink-packaging of blended cheese. Due to the orientation of its molecules, Saran undergoes uniform shrinkage (30-80%), depending on the manufacturing conditions, the degree of orientation, temperature, and polymer composition. It must be stored at a temperature below 25C, but it endures 60C during prolonged heating, 93C periodically, and 166C for a short time. The temperature dependence of shrinkage is tabulated. The ultrasonic equipment described by John Radford (Package Engng. 1963, No. 10) is used for sealing the film, but the thermal pulse method is also suitable. For vacuum-packaging in Saran film, the standard packaging machines can be equipped with a vacuum chamber. For shrink-packaging, a temperature near 100C must be maintained, and semi-automatic electric paraffiners may be used with paraffin replaced by water. However, the

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L 00962-66

ACCESSION NR: AP5019305

process may be conducted more efficiently in tunnels heated by boiling water or by hot air. Tunnel temperature should be 260C. The results of the investigation of the surface of cheese packed in Saran film as a function of the temperature of the surrounding water and of the exposure time to high temperature are tabulated. It was found that a package should not remain at 100C for longer than 3 seconds. Orig. art. has: 2 figures and 2 tables.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut maslodel'noy i syrodel'noy promyshlennosti (All-Union Scientific Research Institute of the Butter and Cheese Industry)

SUBMITTED: 00 ENCL: 00 SUB CODE: LS, 00

NO REF SOV: 002 OTHER: 002

Card 2/2

MIRGORODSKIY B.

USSR/Electronics - Television Jan 53

Long-Distance Reception

"Long-Distance Reception of the Sound Accompaniment of the Kiev Television Center,"

B. Mirgorodskiy, Sumy

"Radio," No 1, p 43

Reception of Kiev sound at Sumy (300 km) using a supergenerative receiver was improved by the addition of a reflector to the dipole antenna elevating the latter from 8 m to 15 m, and adding an USW adapter with one rf amplifier stage. Author believes that experiments with picture reception should begin now at Sumy.

POKROVSKIY, A.A., kand.pedagog.nauk, starshiy nauchnyy sotrudnik; BUROV, V.A., uchitel'; GLAZYRIN, A.I., starshiy nauchnyy sotrudnik, pensioner; DUBOV, A.G., starshiy nauchnyy sotrudnik; ZVORYKIN, B.S., nauchnyy sotrudnik; KAMENETSKIY, S.Ye., uchitel'; KOSTIN, G.N., prepodavatel'; MIRGORODSKIY, B.Yu., uchitel'; OREKHOV, V.P., prepodavatel'; ORLOV, P.P., prepodavatel'; RAZUMOVSKIY, V.G., aspirant; RUMYANTSEV, I.M., aspirant; TERENT'YEV, M.M., prepodavatel'; KHOLYAPIN, V.G., prepodavatel'; SHAKHMAYEV, N.M., nauchnyy sotrudnik, uchitel'; VOYTENKO, I.A., uchitel' sredney shkoly, pensioner; STAROSTIN, I.I., prepodavatel'; MOGILKO, A.D., aspirant; SEMAKIN, N.K.; KOPTEKOVA, L.A., red.; LAUT, V.G., tekhn.red.

[New school equipment for use in physics and astronomy] Novye shkol'nye pribory po fizike i astronomii. Pod red. A.A.Pokrovskogo. Moskva, Izd-vo Akad.pedagog.nauk RSFSR, 1959. 161 p. (MIRA 12:11)

1. Akademiya pedagogicheskikh nauk RSFSR, Moscow. Institut metodov obucheniya. 2. Laboratoriya metodiki fiziki Instituta metodov obucheniya Akademii pedagogicheskikh nauk RSFSR (for Pokrovskiy). 3. Srednyaya zheleznodorozhnaya shkola st.Kratovo, Moskovskoy oblasti (for Burov). 4. Institut metodov obucheniya Akademii pedagogicheskikh nauk (for Glazyrin, Dubov, Razumovskiy, Rumyantsev).

(Continued on next card)

POKROVSKIY, A.A.---(continued) Card 2.

5. Institut metodov obucheniya Akademii pedagog.nauk; srednyaya shkola No.315 Moskvy (for Zvorykin). 6. Srednyaya shkola No.212 Moskvy (for Kamenetskiy). 7. Krasnodarskiy pedinstitut (for Kostin). 8. Srednyaya shkola No.18 g.Sumy (for Mirgorodskiy). 9. Ryazanskiy pedinstitut (for Orekhov). 10. Stalingradskiy pedinstitut (for Orlov). 11. Moskovskiy gorodskoy pedinstitut; srednyaya shkola No.443 Moskvy (for Tarant'yev). 12. Balashevskiy pedinstitut (for Kholyapin). 13. Institut metodov obucheniya Akademii pedagog.nauk; srednyaya shkola No.215 Moskvy (for Shakhmayev). 14. Moskovskiy pedinstitut im. V.I.Lenina (for Starostin). 15. Pedinstitut im. V.I.Lenina v Moskve (for Mogilko). 16. Zaveduyushchiy narodnoy astronomicheskoy observatoriyey Dvortsa kul'tury Moskovskogo avtozavoda im. Likhacheva (for Semakin).

(Physical instruments)

MIRGORODSKIY, B.Yu.

Simple electronic stroboscope. Politekh.obuch. no.9:42-44 S '59. (MIRA 12:12)

1. Srednyaya shkola No.18 g.Sumy.
(Stroboscope)

MIRGORODSKIY, B. Yu.

Universal accessory for an oscillograph. Fiz. v shkole 20 no.3:75-78 My-Je '60. (MIRA 13:11)

1. 18-ya srednyaya shkola, g. Sumy.
(Oscillograph)

MIRGORODSKIY, B.Yu. (g. Sumy); STETSENKO, Yu.T. (g. Sumy)

Demonstrating the interference of sound. Fiz.v shkole 22 no.6: 50-51 N-D '62. (MIRA 16:2)
(Interference (Sound)—Experiments)

MIKOROVSKIY, L.M.

PHASE I BOOK EXPLOITATION SOV/3421

Akademiya nauk UkrSSR, Kiyev, Institut elektrosvarki imeni akademika Ye.O. Patona

Vnedreniye novykh sposobov svarki v promyshlennost', vyp. 2 (Introduction of New Welding Methods in Industry; Collection of Articles, No. 2) Kiyev, Gos. izd-vo tekhn. lit-ry Ukrainskoy SSR, 1959. 194 p. Errata slip inserted. 3,000 copies printed.

Ed.: V. Gartsuska; Tech. Ed.: S. Matusevich.

PURPOSE: This book is intended for workers in the welding industry.

COVERAGE: The book contains a discussion of welding technique and problems by groups of scientists and welders. Much attention is given to problems in the application of new methods of mechanized welding and electro-slag welding. This is the second collection of articles under the same title prepared and published by the Institut elektrosvarki imeni Ye.O. Patona (Institute of Electric Welding imeni Ye.O. Paton). The preface is written by B.Ye. Paton, Academician of the Ukrainian Academy of Sciences and Winner of the Lenin Prize. There are no references.

Kazimirov, A. A. [Candidate of Technical Sciences; Institut elektrosvarki imeni Ye. O. Patona (Electric Welding Institute imeni Ye. O. Paton)], and V. P. Zabotin [Chief Engineer; Khersonskiy sudostroitel'nyy zavod (Kherson Shipbuilding Plant)]. Automatic Welding in Shipbuilding 128

Vakhnin, Yu. N. [Engineer], B. I. Kasatkin [Candidate of Technical Sciences], N. I. Kakhovskiy [Candidate of Technical Sciences], A. M. Ponizovtsev [Engineer; Institut elektrosvarki imeni Ye. O. Patona (Electric Welding Institute imeni Ye. O. Paton)], A. I. Dergun [Candidate of Technical Sciences, Chief of Welding Laboratory; Khar'kovskiy turbinnyy zavod imeni S. M. Kirova (Khar'kov Turbine Plant imeni S. M. Kirov)], and I. L. Klimovitskiy, Chief of Welding Section; Bryanskiy mashinostroitel'nyy zavod (Bryansk Machinery Plant)]. Carbon-dioxide Shielded Welding in Production of Steam Turbines 137

Zaruba, I. I. [Candidate of Technical Sciences], and A. S. Potap'yevskiy [Senior Engineer; Institut elektrosvarki imeni Ye. O. Patona (Electric Welding Institute imeni Ye. O. Paton)]. Introduction of Automatic and Semi-automatic Carbon-dioxide Shielded Welding 145

Medovar, B. I. [Candidate of Technical Sciences], A. G. Potap'yevskiy [Senior Engineer; Institut elektrosvarki imeni Ye. O. Patona (Electric Welding Institute imeni Ye. O. Paton)], F. A. Battis [Senior Engineer], S. V. Tangar, Supervisor of the Welding Laboratory; Stalingradskiy filial Giproneftemash (Stalingrad Branch of State Design and Scientific Research Institute for Petroleum Machinery)], and S. A. Landberg [Chief of Welding Office; Stalingradskiy mashinostroitel'nyy zavod imeni Petrova (Stalingrad Machinery Plant imeni Petrov)]. Development and Introduction of New Technique in Automatic Submerged-arc Welding of Two-ply Steel With Stainless Chromium Facing 157

Zvonkov, M.I. [Engineer] D. M. Rabkin [Candidate of Technical Sciences; Institut elektrosvarki imeni Ye. O. Patona (Electric Welding Institute imeni Ye. O. Paton)], V. A. Verchenko, [Engineer; trest "Prodmontazh" (Production Assembly Trust)], and I. M. Mikorovskiy [Chief Engineer; zavod "Bol'shevik" ("Bol'shevik" Plant)]. Experience Gained in Welding Containers Made of Aluminum and Its Alloys 173

Asnis, A. Ye. [Candidate of Technical Sciences; Institut elektrosvarki imeni Ye. O. Patona (Electric Welding Institute imeni Ye. O. Paton)], S. A. Zavriiecha [Engineer], A. V. Prokhorov [Engineer, Zhdanovskiy zavod imeni Il'icha (Plant imeni Il'ich in Zhdanov)], and S. V. Yanger [Engineer; Stalingradskiy filial Giproneftemash (Stalingrad Branch of State Design and Scientific Research Institute for Petroleum Machinery)]. High-strength Steels for Weldments 185

AVAILABLE: Library of Congress (TS 227.A353)

Card 7/7

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MIRGORODSKIY, I.M

PHASE I BOOK EXPLOITATION SOV/5078

Akademiya nauk UkSSR, Kiyev. Instytut elektrozvaryuvannya

Vnedreniye novykh sposobov svarki v promyshlennost'; sbornik sta y. vyp. 3. (Introduction of New Welding Methods in Industry; Collection of Articles. v. 3) Kiyev, Gos. izd-vo tekhn. lit-ry UkrSSR, 1960. 207 p. 5,000 copies printed.

Sponsoring Agency: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki imeni akademika Ye. O. Patona Akademii nauk Ukrainskoy SSR.

Ed.: M. Pisarenko; Tech. Ed.: S. Matusevich.

PURPOSE: This collection of articles is intended for personnel in the welding industry.

COVERAGE: The articles deal with the combined experiences of the Institut elektrosvarki imeni Ye. O. Patona (Electric Welding Institute imeni Ye. O. Paton) and several industrial enterprises in solving scientific and engineering problems in welding technology. Problems in the application of new methods of mechanized welding and electroslag welding in industry are discussed. This is the third collection of articles published under the same title. The Foreword was written by B. Ye. Paton, Academician of the Academy of Sciences Ukrainian SSR and Lenin prize winner. There are no references.

TABLE OF CONTENTS:

MIRGORODSKIY, M.I.

New methods of the treatment of deep trichophytosis and parasitic sycosis. Vest.vener. No.1:59-60 Jan-Feb 51. (CLML 20:6)

1. Treatment using a mixture of honey and acetic acid.

MIRGORODSKIY, N.

Change an outmoded regulation. Fin. SSSR 18 no.12:73 D '57.
(MIRA 11:1)

1.Starshiy inshener Roseleavmyasomolenaba.
(Employment management)

L 2013-66 ewf(1)/f JK

ACCESSION NR: AP5011269 UR/0016/65/000/004/0012/0013

AUTHOR: Khvoshchenko, Ye. N.; Padalko, Z. F.; Dovyatova, A. P.; Rodionova, A. P.; Miretvortsov, Yu. I.; Mirgorodskiy, N. T.

TITLE: Tularemia detection in Primorskiy kray

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 4, 1965, 12-13

TOPIC TAGS: man, tularemia, Primorskiy kray, serologic test, natural focus, rodent, tick

ABSTRACT: The first case of tularemia in Primorskiy Kray was reported in 1963 in the Ussuriak district, but no evidence of tularemia in natural foci has been found to date by the Primorskiy Anti-plague Station. On the basis of clinical symptoms, the case of a 56 yr old patient, a native of the area, was diagnosed as an oyo-bubonic form of tularemia. The patient's tularin intradermal test proved positive and agglutination reaction was markedly positive with a titer of 1:400. A tularemia culture was not isolated. The patient was hospitalized in an infectious disease hospital and treated with

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ACCESSION NR: AP5011269

streptomycin. The patient was reexamined 3 mos after recovery at which time the agglutination reaction titer was 1:3200. It is assumed that the infection was transmitted through the water of the Lyuchikheza River in which the patient frequently washed. Intradermal tularin tests administered to village residents disclosed positive reactions in 18 persons, two of whom may be considered infected. The presence of various rodents and ticks in the area indicate that the extensive bacteriological investigation of the Antiplague Station should be continued to determine the natural foci of tularemia. Orig. art. has: None.

ASSOCIATION: Primorskaya krayevaya protivochumnaya stantsiya (Primorskiy Kray Antiplague Station)

SUBMITTED: 02Mar64 ENCL: 00 SUB CODE: LS

NR REF SOV: 000 OTHER: 000

Card 2/2 BK

L 32207-65 EWT(m)/EPF(c)/EPR/T/EWP(t)/EWP(b) Pr-4/Ps-4 LJP(c) RDW/JD/GS

ACCESSION NR: AT5005415 S/0000/64/000/001/0026/0026

AUTHOR: Manovets, L. M.; Mirgorodskiy, V. M.

TITLE: A study of the electrical properties of some solid solutions based on indium arsenide

SOURCE: Nauchnaya konferentsiya molodykh uchenykh Moldavii, 3d. Trudy, no. 1: Yestestvenno-tekhnicheskiye nauki (Natural and technical sciences). Kishinev, Gosizdat Kartya Moldovenyaske, 1964, 26

TOPIC TAGS: solid solution, indium arsenide alloy, tellurium alloy, electrical conductivity, carrier concentration, carrier mobility, selenium alloy, thermoelectromotive force

ABSTRACT: The electrical properties of solid solutions of defective In_2Te_3 and In_2Se_3 compounds with indium arsenide were studied in the liquid nitrogen-800K temperature range using a simple compensation method. The results cover the electrical conductivity, carrier concentration (from Hall effect studies), carrier mobility, and differential thermal emf. The above-mentioned electrical properties showed a behavior similar to the one found in indium arsenotelluride systems. In both cases, one observes extrema near InAs, which indicates that the solution

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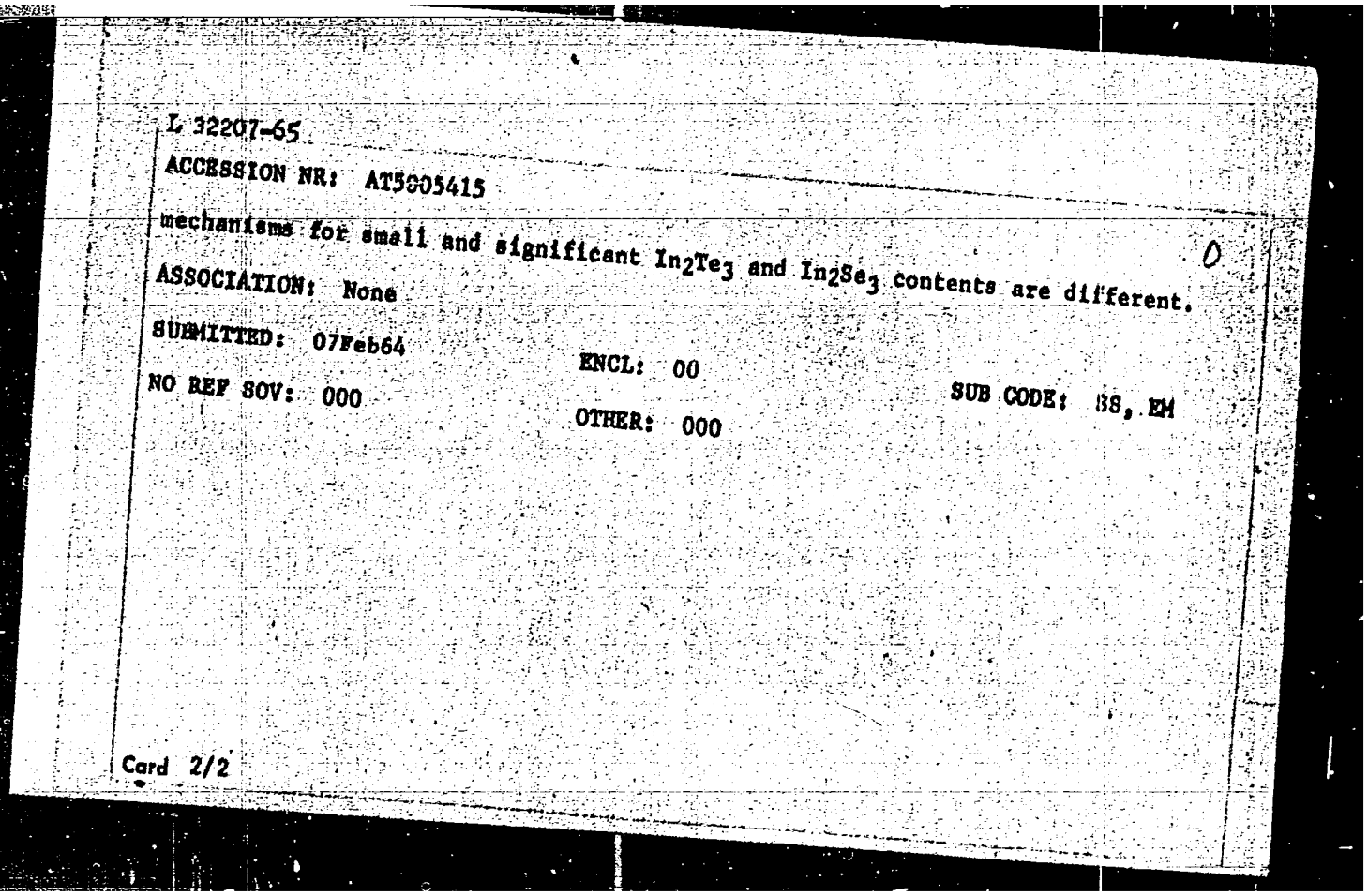

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ACCESSION NR: AT5005415

mechanisms for small and significant In_2Te_3 and In_2Se_3 contents are different. 0

ASSOCIATION: None

SUBMITTED: 07Feb64 ENCL: 00 SUB CODE: SS, EM

NO REF SOV: 000 OTHER: 000

Card 2/2

ACCESSION NR: AP4041378

S/0048/64/028/006/1053/1056

AUTHOR: Derid, O.P.; Radautsan, S.I.; Mirgorodskiy, V.M.; Markus, M.M.

TITLE: Physical and chemical properties of some alloys of the indium-selenium-tellurium-cadmium system /Report, Third Conference on Semiconductor Compounds held in Kishinev 16 to 21 Sep 1963/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.6, 1964, 1053-1056

TOPIC TAGS: alloy system, semiconductor property, solid solution, indium, selenium, tellurium, cadmium

ABSTRACT: Those alloys of the In-Se-Te-Cd system were investigated, the compositions of which are represented by points in the CdTe-CdSe-In_2Te_3-In_2Se_3 plane of the tetrahedral diagram between the In_2Te_3-In_2Se_3 and $CdIn_2Te_4$-$CdIn_2Se_4$ traverses. Solid solutions were formed over a wide range of composition, as shown by the shaded portion of the diagram in Figure 1 of the Enclosure 01. All these solid solutions crystallized with the sincblende structure. The solid solutions with small cadmium content exhibited superstructure lines characteristic of In_2Te_3; those with large cadmium content (except the solutions very close in composition to $CdIn_2Se_4$)

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ACCESSION NR: AP4041378

were ordered similarly to $CdIn_2Te_4$; and the solid solutions with intermediate cadmium content formed disordered crystals. The solid solutions with compositions $(In_2Te_3)_x(In_2Se_3)_{1-x}$ and $(CdIn_2Te_4)_x(CdIn_2Se_4)_{1-x}$ were investigated in more detail than the others. Liquidus and solidus curves are given for these systems, and the lattice constant was found to vary smoothly with composition in accord with Vegard's law in both systems. The electric conductivity of the $(In_2Te_3)_x(In_2Se_3)_{1-x}$ solutions increased by a factor 100 as x decreased from 1 to 0.93 and decreased to approximately its value for In_2Te_3 as x decreased to 0.80. The temperature dependence of the conductivity was that characteristic of semiconductors. It is suggested that the formation of solid solutions by simultaneous iso- and heterovalent substitution should be possible also in other complex semiconductor systems. "The authors express their deep gratitude to Professor N.A.Goryunova for her great interest in the work and for valuable advice proffered during discussions of it, and also to N.A. Malyenko of the Institute of Physics and Mathematics of the Academy of Sciences of the Moldavian SSR for her participation in the experimental work." Orig.art.has: 4 figures.

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L 08324-67 EWT(m)/EWP(w)/EWP(t)/ETI IJP(c) JD
ACC NR: AR6033786 SOURCE CODE: UR/0058/66/000/007/E065/E065

AUTHOR: Mirgorodskiy, V. M.

TITLE: Some electrical properties of indium phosphide selenide solutions

SOURCE: Ref. zh. Fizika, Abs. 7E492

REF SOURCE: Sb. Materialy IV Konferentsii molodykh uchenykh Moldavii, 1964. Sekts. fiz.-matem. Kishinev, 1965, 27-28

TOPIC TAGS: indium, selenide phosphide, thermoelectromotive force, Hall effect, mobility, current carrier, magnetic field, alloy, polycrystal, solid solution

ABSTRACT: The dependence on temperature of electric conductivity σ, thermoelectromotive force α, Hall effect R, mobility μ, and current carrier concentration n in polycrystalline samples of solid solutions in the system $(InP)_{3x}-(In_2Se_3)_{1-x}$ was investigated. Measurements were made in vacuo in the temperature range from room temperature to 300C. The Hall effect was studied in a magnetic field of ~1500 erg at a current of 40 ma passing through the sample. It was found that at room temperature an addition of In_2Se_3 to InP results in an increase of α from 20 μv/C at x = 0.6 to 152 μv/C at x = 0.3. Electric conductivity

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ACC NR: AR6033786

σ changes from 51 $ohm^{-1} \cdot cm^{-1}$ at x = 0.3 to 150 $ohm^{-1} \cdot cm^{-1}$ at x = 0.7. Mobility μ and current carrier n were found to depend only slightly on temperature. The large n values ($7 \cdot 10^{18}$—$3 \cdot 10^{19}$ cm^{-3}) and the slight effect of temperature on σ and R indicate a degeneration of the electron gas in the alloys. The effect of thermal treatment on the electrical properties of the alloys was also investigated. [Translation of abstract]

SUBE CODE: 20

Card 2/2 nat

BONDAR', A.G., kand.tekhn.nauk; MIRGORODSKIY, V.T., inzh.

Estimation of the amount of material needed for ammonia synthesis.
Izv. KPI 20:161-173 '57. (MIRA 11:3)
(Ammonia)

BONDAR', A.G., kand.tekhn.nauk; MIRGORODSKIY, V.T., inzh.

Calculation of the amount of material necessary for preliminary catalysis in the manufacture of ammonia. Izv. KPI 20:174-185 '57. (MIRA 11:3)

(Ammonia) (Catalysis)

CHERNOBYL'SKIY, Iosif Il'ich, prof., doktor tekhn.nauk; BONDAR', Alla Grigor'yevna, dotsent, kand.tekhn.nauk; GAYEVSKIY, Boris Antonovich, dotsent, kand.tekhn.nauk; GORODINSKAYA, Sarra Abramovna, dotsent, kand.tekhn.nauk; LADIYEV, Rostislav Yakovlevich, kand. tekhn.nauk; TAMAMAYKO, Yuriy Martir'yevich, kand.tekhn.nauk; MIRGORODSKIY, Vasiliy Timofeyevich, insh.; STABNIKOV, V.N., prof., doktor tekhn.nauk, retsenzent; FURER, P.Ya., red.

[Machinery and equipment of chemical industries; principles of theory and design] Mashiny i apparaty khimicheskikh proizvodstv; osnovy teorii i rascheta. Pod red. I.I.Chernobyl'skogo. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 462 p. (MIRA 13:2)

(Chemical industries--Equipment and supplies)

CHERNOBYL'SKIY, Iosif Il'ich, doktor tekhn. nauk, prof.; BONDAR', Alla Grigor'yevna, kand. tekhn. nauk, dots.; GAYEVSKIY, Boris Antonovich, kand. tekhn. nauk, dots.; GORODINSKAYA, Sara Abramovna, kand. tekhn. nauk, dots.; LADIYEV, Rostislav Yakovlevich, kand. tekhn. nauk; TANANAYKO, Yuriy Martir'yevich, kand. tekhn. nauk, dots.; MIRGORODSKIY, Vasiliy Timofeyevich, inzh.; GURER, P.Ya., red.; GORNOSTAYPOL'SKAYA, M.S., tekhn. red.

[Machinery and apparatus for the chemical industries; principles of theory and design] Mashiny i apparaty khimicheskikh proizvodstv; osnovy teorii i rascheta. Izd.2., ispr. i dop. Moskva, Mashgiz, 1961. 491 p. (MIRA 14:10)

(Chemical industries--Equipment and supplies)

CHERNOBYL'SKIY, Iosif Il'ich, doktor tekhn. nauk, prof.; BONDAR', Alla Grigor'yevna, kand. tekhn. nauk, dots.; GAYEVSKIY, Boris Antonovich, kand. tekhn. nauk, dots.; GNATOVSKIY, Vasiliy Ivanovich, kand. tekhn. nauk, dots.; GORODINSKAYA, Sara Abramovna, kand. tekhn. nauk, dots.; LADIYEV, Rostislav Yakovlevich, kand. tekhn. nauk; TANANAYKO, Yuriy Marter'yevich, kand. tekhn. nauk, dots.; MIRGORODSKIY, Vasiliy Timofeyevich, inzh.; STABNIKOV, V.N., doktor tekhn. nauk, prof., retsenzent; SOROKA, M.S., red.; GORNOSTAYPOL'SKAYA, M.S., tekhn. red.

[Machinery and apparatus of the chemical industry]Mashiny i apparaty khimicheskoi promyshlennosti. Pod red. I.I.Chernob yl'skogo. Moskva, Mashgiz, 1962. 521 p. (MIRA 16:2)
(Chemical engineering--Equipment and supplies)

ACCESSION NR: AP4018303 S/0137/64/000/001/A006/A006

SOURCE: RZh. Metallurgiya, Abs. 1A27

AUTHOR: Mirianashvili, B. M.; Bereshiani, V. M.

TITLE: Solubility of nitrogen in liquid chromium and melts of chromium and silicon

CITED SOURCE: Tr. In-ta metallurgii. AN GruzSSR, v. 13, 1962(1963), 265-270

TOPIC TAGS: nitrogen, chromium, silicon, chromium alloy, silicon alloy

TRANSLATION: The solubility of N in Cr and Cr-Si melts was determined by the dynamic equilibrium method. A mixture of purified N_2(600-650 ml/min) and H_2(40-60 ml/min) was passed over a melt weighing 50 g after the latter had been kept in a stream of H_2. Equilibrium was reached after an exposure of 2-3 hr. Electrolytic Cr and crystalline Si were used to prepare the alloys. The solubility of N in liquid Cr, both during nitriding and denitriding with a rise in temperature from 1730 to 1900° drops from 5.42 to 3.95%. It becomes 4.0% around the melting point. For liquid Cr log 1; for the melt of Cr with 0.90% Si log 2, and for the melt of Cr with 4.5% Si log 3. P. Arsent'yev

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ACCESSION NR: AP4018303

SUB CODE: IC, MM ENCL: 00

Card 2/2

ACCESSION NR: AR4027023

S/0137/64/000/002/A004/A004

SOURCE: Ref. Metallurgiya, Abs. 2A16

AUTHOR: Miriamashvili, B. M.; Berezhiani, V. M.

TITLE: Solubility of nitrogen in melts of chromium and manganese and chromium and carbon

CITED SOURCE: Tr. In-ta metallurgii. AN GruzSSR, v. 13, 1962(1963), 271-273

TOPIC TAGS: nitrogen solubility, chromium, manganese, carbon, nitrogen activity coefficient

TRANSLATION: Cr-C and Cr-Mn melts were prepared from pure electrolytic Cr, Mn, and c. p. C in an atmosphere of H_2. It was found that the solubility (S) of N in Cr-C melts drops sharply with rising temperature. When [C] increases (to 1.5%), the S of N decreases. The influence of temperature on the S of N in Cr-Mn melts is less than in Cr-C melts. A change in [Mn] from [illegible] to 35.6% in Cr-Mn melts had relatively little effect on the S of N. Whereas at [Mn] = 3% the S of N was 5.75% at 1700°, at [Mn] = 35.6% it was 3.96%. The thermodynamic functions of the reaction of Cr,-Cr-C, and Cr-Mn melts with N were determined. The temperature dependence of log

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ACCESSION NR: AR4027923

[% N] for the melts studied is as follows: for liquid Cr, 2920/T-0.755; for Cr with 6.1% Mn, 3120/T-0.804; for Cr with 23.2% Mn, 3800/T-1.278; for Cr with 0.16% C, 2820/T-0.662, and for Cr with 1.5% C, 4180/T-0.440. Activity coefficients of N in liquid Cr and its melts with Mn and C, log f_N = log [% N] Cr-log [% N] Cr-Mn(C) were calculated, and are expressed by the following equations: for melts with 6.1% Mn, -200/T-0.129, with 23.2% Mn, -800/T-0.523, with 0.16% C, -300/K-0.093, and with 1.50% C, -1260 K-0.315. P. Arsent'yev

DATE ACQ: 19Mar64

SUB CODE: CH, ML

ENCL: 00

Card 2/2

L 42961-66 EWT(m)/T/EWT(t)/ETI IJP(c) JD/WW/JG

ACC NR: AR6024986 SOURCE CODE: UR/0081/66/000/007/B038/B038

AUTHOR: Berezhiani, V. M.; Mirianashvili, B. M.

TITLE: Solubility of nitrogen in liquid and solid chromium at an elevated pressure of the gaseous phase

SOURCE: Ref. zh. Khimiya, Part I, Abs. 7B647

REF SOURCE: Tr. Gruz. in-t metallurgii, v. 14, 1965, 163-166

TOPIC TAGS: nitrogen, chromium, nitridation, liquid metal

ABSTRACT: The solubility limits of N_2 were determined in liquid and solid Cr at pressures up to 10 atm, and the kinetics of nitridation were studied. At a high N_2 pressure and a constant temperature, the solubility of N_2 in solid Cr increases, and in solutions a chemical compound is formed which dissolves in the metal. In the liquid, CrN_2 also forms a chemical compound on dissolution. D. Kashayeva. [Translation of abstract]

SUB CODE: 11

Card 1/1

ACC NR: AR6020938

SOURCE CODE: UR/0137/66/000/002/V031/V031

AUTHOR: Berezhiani, V. M.; Mirianashvili, B. M.

TITLE: A study of processes for the production of highly nitrided chromalloy additions

SOURCE: Ref. zh. Metallurg, Abs. 2V206

REF SOURCE: Tr. Gruz. in-t metallurgii, v. 18, 1965, 149-156

TOPIC TAGS: chromium alloy, nitride, high frequency furnace

TRANSLATION: Various nitriding techniques were studied at the [illegible] of developing methods for obtaining highly nitrided Cr and of determining [illegible] physicochemical properties. Electrolytic Cr containing 99.8% Cr from the Chiatura [illegible] used in plate form 5-50 mm wide and 1-3 mm thick and in powder with [illegible] O_2, H_2 and N contents of the electrolytic Cr extended to 1.50, among [illegible] Nitriding of Cr by ammonia was done in the solid state at temperatures of [illegible] The [N] content in the product was 0.01-0.25% depending on the temperature [illegible] range. Nitriding with N_2 was done in a crucible of a special high frequency furnace at temperatures of 1000-1450°C. The oxide layer on the Cr surface was [illegible] found to have a negative effect on the degree of nitriding. Metal with 29 N was obtained. To prevent loss of powdered alloy in the melting of steel, further nitriding

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UDC: 669.168.001

ACC NR: AR6020938

was done in a crucible of a LGP-30 furnace at temperatures to 2000°C and pressures of 0-4 atm. Depending on the value of temperature, [N] rose and even at 1450°C it built up to 4%, while at 1500°C it reached 8%. With a further increase, [N] dropped. The flow rate of N_2 was 75-120 l/hr. The duration of nitriding was 5 hr at 1450 ± 50°C. The assimilation coefficient was 69-81%. Upon obtaining the nitride addition with 4.1% N, a melt of Fe-Cr with 2.1-2.4$ N was made. A stainless steel with 0.31-0.35% N was melted using the Cr-Mn-N addition with 7.9% N. The assimilation coefficient of N was 0.8-0.9 independent of the composition of the product and [N] in the addition.
A. Sergeyev.

SUB CODE: 11,13

Card 2/2

MIRIANASHVILI, G., arkhitektor

Height of rooms in southern regions. Zhil.stroi. no.12:30 '59. (MIRA 13:4)
(Russia, Southern--Dwellings--Heating and ventilation)

MIRIANASHVILI, G., arkhitektor; TSIBADZE, O., kand. arkhitektury

Exterior walls of apartment houses and architectural details to be used as a protection from the sun. Zhil. stroi. no.10:16-19 '60.
(MIRA 13:9)

(Walls) (Georgia--Architecture and climate)

MIRIANASHVILI, G. M.

Def. at
Tbilisi State U.

таната бария и термодинамическая теория сегнето-электрических явлений. 1950. 90 с.

Защ. 1951, 30.6.

756. Кевладзе Давид Васильевич. Связь между нормальной вторично-электронной эмиссией и эмиссией, вызванной полем. 1944. 64 с.

Защ. 1945, 6.5.

757. Каракося Зефира Абрамовна. Исследование протонной и П-мезонной компонент космического излучения на высоте 3200 метров над уровнем моря. 1957. 98 с.

Защ. 1957, 14.9.

758. Кереселидзе Ираклий Давидович. К вопросу выражения поверхности диэлектриков. 1940. 33 с., с рис.

Защ. 1940, 23.6.

759. Керес Владимир Спиридонович. Об определении энергии взаимодействия двух частиц по рассеянию и об одном методе решения конечных уравнений. 1954. 66 с.

Защ. 1954, 23.11.

760. Кобиашвили Михаил Яковлевич. Электродезинтеграция ядер согласно оболочечной модели. 1956. 68 с.

Защ. 1957, 21.5.

761. Копалейшвили Теймураз Исаакович. Исследование реакций на некоторых легких ядрах с участием дейтонов и тритонов. 1957. 90, [2] с., 23 рис.

Защ. 1957, 21.9.

762. Мгебров Оганес Иосифович. К теории склерометрического метода измерения твердости. 70 с., 3 л. табл., 6 рис.

Защ. 1945, 5.7.

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Защ. 1944, 19.4.

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Dissertation for degree of

Candidate Physico-Mathematical Sciences

MIRIANASHVILI, G.M., ALIKHANOV, A.I., and ALIKHANIAN, A.I.

"Measurement of the Angle-Independent Intensity of the Soft and Hard Component of Cosmic Rays at 3250-Meter Altitude," Soobshcheniia Akademii Nauk Gruzinskoi S.S.R., Vol. 4, No. 7, pp. 637-640, 1943.

Fiziko-Tekhnicheskii Institut, Leningrad.

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1007 1207

AUTHORS Mirianashvili, G and Burchuladze, A

TITLE High-pressure proportional counter for low-activity measurements

PERIODICAL Referativnyy zhurnal, otdel'nyy vypusk 32 Izmeritel'naya tekhnika, no 9, 1962, 56, abstract 32 9 395 (Tbilisis universitetis shromebi, Tr Tbilisk un-ta), v 86, 1960, 305 312

TEXT The design and construction of a detachable proportional counter for measuring low-activity radiations (e g of C^{14} are described) The counter housing is 60 cm copper tube having an external diameter od 12 5 cm and a wall thickness of 0 5 cm A 0 035 mm tungsten wire forms the anode, the working volume of the counter is 6200 cm^3 The block diagram of the unit for testing the counter is described and the counting characteristics are outlined The counter is filled with carbon dioxide at a pressure of 1 5 or 3 2 atm. There are 9 references

[Abstractor's note Complete translation]

Card 1 1

MIRIANASHVILI, G.M.; BURCHULADZE, A.A.; KIRIKASHVILI, N.Ya.; BAAZOV, D.I.

Effect of changes in the concentration of atmospheric C^{14} on radiocarbon dating. Soob. AN Gruz. SSR 27 no.5:537-540 N '61. (MIRA 15:1)

1. Tbilisskiy gosudarstvennyy universitet imeni Stalina. Predstavleno chlenom-korrespondentom Akademii nauk GruzSSR M.N. Mirianashvili.

(Radiocarbon dating)

S/120/62/000/006/007/029
E032/E114

AUTHORS: Kokochashvili, V.I., Mirianashvili, G.M., Burchuladze, A.A., and Dzhaparidze, K.G.

TITLE: A proportional counter and shielding system for radiocarbon dating

PERIODICAL: Pribory i tekhnika eksperimenta, no.6, 1962, 52-54

TEXT: A new proportional counter is described. It has a working volume of 4.5 litres and can withstand pressures of 10-15 atm. It is illustrated in Fig.1, in which 7 is a copper cylinder 60 cm long (outer diameter 12.5 cm, wall thickness 0.5 cm). Copper was chosen on the basis of minimum radioactive contamination. The central wire is kept under tension by the copper piston 1 which lies inside a perspex insulator 2 which is 22 cm long and has a corrugated surface designed to minimise leakage currents. The anode is in the form of a tungsten wire surrounded by a guard ring 4. One end of the wire is taken out through the insulator 2 and the other is held in position by a spring 8 attached to a teflon holder which is supported by the porcelain tubes 6. This method of attachment ensures that high voltages up to 25 kV

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A proportional counter and shielding... S/120/62/000/006/007/029
E032/E114

can be applied and the tension in the wire can be conveniently regulated. The evacuation and filling of the counter are carried out through the valve 10. The working gas for the counter was prepared in a special installation in which the specimen under investigation was first burned in a stream of oxygen flowing through a stainless steel tube at a temperature about 500 °C. This was followed by chemical conversion and final drying of the resulting CO_2. In order to reduce the background of the counter it was surrounded by a Geiger counter screen in anti-coincidence with the proportional counter. At a pressure of 2 atm the counting rate for contemporary carbon was found to be 68.4 p.p.m. at a background (under similar conditions) of 27.3 p.p.m. This should ensure dating measurements of up to 13 000 years (48 hour counting interval). There are 4 figures.

ASSOCIATION: Tbilisskiy gosudarstvennyy universitet
(Tbilisi State University)

SUBMITTED: September 30, 1961

Card 2/3

MIRIANASHVILI, G.M.; BURCHULADZE, A.A.; KIRIKASHVILI, N.Ya.; BAAZOV, D.I.

No-noise apparatus for measuring slight radioactivity. Soob. AN Gruz. SSR 31 no.1:31-35 Jl '63. (MIRA 17:7)

1. Tbilisskiy gosudarstvennyy universitet. Predstavleno chlenom korrespondentom akademii M.M. Mirianashvili.