"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

ZUYEV, Yu.S.; BORSHCHEVSKAYA, A.Z.

Methods for testing stressed rubber in aggressive media. Kauch. i rez. 22 no.10:23-27 O '63. (MIRA 16:11)

1. Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti.

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MNUSHKIN, A.S.; BORSHCHEVSKAYA, L.M.

Clinical significance of electrocardiography in acute and chronic hepatitis. Klin. med., Moskva 29 no.12:81. Dec 51. (CLML 21:4)

1. Prof. Mnushkin and Docent Borshchevskaya. 2. Of the Therapeutic Clinic, Tashkent Institute for the Advanced Training of Physicians.

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L 12008-66 EWT(m)/EWP(t)/EWP(b) JD/WW/WB/RM

ACC NR: AP5028899 SOURCE CODE: UR/0138/65/000/011/0010/0013

AUTHOR: Zuyev, Yu. S.; Borshchevskaya, A. Z.

ORG: Scientific Research Institute of the Rubber Industry (Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti)

TITLE: Relationship between the failure and creep of rubbers in corrosive media

SOURCE: Kauchuk i rezina, no. 11, 1965, 10-13

TOPIC TAGS: rubber, creep, material failure, material deformation

ABSTRACT: In the interaction between rubbers and corrosive media under conditions of constant stress, the processes of failure and deformation are related by the formula $\tau_w m = A$. Parameter m characterizes the relationship between the change in the rates of failure and the creep rate of rubbers over a certain range of concentrations of the medium, stress, or temperature. As the process of failure shifts toward a more "brittle" rupture of the rubber, $m > 1$, and A decreases; in the case of a more "plastic" rupture, $m < 1$, and A increases. A shift toward a more "brittle" rupture is observed when the concentration threshold of the corrosive medium drops, and when there is an increase in the intermolecular interactions due to molecular orientation at high deformations or when active fillers are introduced. Certain antiozonants decrease the failure and creep rates without affecting their ratio both at different ozone concentrations and different stresses. The ratio of the rates of the two processes may change in the same medium ($m \neq$ const) at a constant

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ACC NR: AP5028899

stress and temperature when the nature of the chemical interaction changes at certain concentrations of the medium. In the absence of this phenomenon, when m = const, the method of calculating the durability from the measured creep rate can be used. Orig. art. has: 2 tables and 5 formulas.

SUB CODE: 11 / SUBM DATE: none / ORIG REF: 006

jw

Card 2/2

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

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BORSHCHEVSKAYA, S.I.

MATROSOV, Ivan Nikolayevich; BORSHCHEVSKAYA, S.I., red.; LEVONEVSKAYA, L.G., tekhn. red.

[Specialized production areas] Zamkmutyi proizvodstvennyi uchastok. [Leningrad] Lenizdat, 1956. 43 p. (MIRA 12:7)
(Machine-shop practice)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

SIDOROV, Andrey Aleksandrovich; BORSHCHEVSKAYA, S.I., red.; RODCHENKO, N.I., tekhn. red.

[Study electric welding] Skorostnaia elektrosvarka. [Leningrad] Lenizdat, 1956. 46 p. (MIRA 11:7)

(Electric welding)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

TATEVOSOV, K.G.; LIPKIND, L.M.; PETROV, V.A.; ZEYDA, N.I.; SLIZHIS, M.U., nauchnyy redaktor; BORSHCHEVSKAYA, S.I., redaktor; RODCHENKO, N.I., tekhnicheskiy redaktor

[Smoothly organized work in a machine manufacturing plant; collaboration of the V.M.Molotov Institute of Engineering and Economics in Leningrad with the "Pnevmatika" plant] Organizatsiia ritmichnoi raboty mashinostroitel'nogo zavoda; iz opyta sodruzhestva Leningradskogo inzhenerno-ekonomicheskogo instituta imeni V.M.Molotova s zavodom "Pnevmatika" [Leningrad] Lenizdat, 1956. 175 p. (MLRA 10:7)
(Efficiency, Industrial)

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BORSHCHEVSKAYA, S.I.

KOCHERGIN, Konstantin Alekseyevich; BORSHCHEVSKAYA, S.I., red.; LEVONEVSKAYA, L.G., tekhn. red.

[Improving welding techniques] Usovershenstvovanie tekhnolgii svarochnogo proizvodstva. [Leningad] Lenizdat, 1957. 92 p.
(Welding) (MIRA 11:7)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

BORSHCHEVSKAYA, S.I.

GUSHCHIN, Viktor Fedorovich; BORSHCHEVSKAYA, S.I., red.; LEVONEVSKAYA, L.G., tekhn.red.

[Increasing the productivity of turret lathes] Povyshenie proizvoditel'nosti truda na revol'vernykh stankakh. [Leningrad] Lenizdat, 1957. 106 p. (MIRA 10:12)

(Lathes)

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BORSHCHEVSKAYA, S.I.

BLYUMBERG, V.A.; SERGEYEV, M.A.; BORSHCHEVSKAYA, S.I., redaktor; LEVONEVSKAYA, L.G., tekhnicheskiy redaktor

[Increasing productivity in work with boring machinery] Povyshenie proizvoditel'nosti pri rabote na rastochnykh stankakh. [Leningrad] Lenisdat, 1957. 129 p. (MLRA 10:9)
(Drilling and boring)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

DEMIDKIN, Aleksey Sergeyevich; BORSHCHEVSKAYA, S.I., red.; LEVONEVSKAYA, L.G., tekhn.red.

[Large-panel construction] Iz opyta krupnopanel'nogo stroitel'stva. Leningrad, Lenizdat, 1959. 54 p. (MIRA 13:6)

1. Brigadir montazhnikov 30-go stroitel'nogo upravleniya 3-go tresta Glavleningradstroya (for Demidkin).
(Leningrad--Precast concrete construction)

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MEOS, Aleksandr Ivanovich, doktor tekhn.nauk; BORSHCHEVSKAYA, S.I., red.; SMIRNOV, P.S., tekhn.red.

[How and from what artificial and synthetic fibers are produced] Iz chego i kak poluchaiut iskusstvennye i sinteticheskie volokna. Leningrad, Lenizdat, 1959. 85 p. (MIRA 13:2)
(Textile fibers, Synthetic)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

VOLOSATOV, V.A.; VYDRIN, A.I.; GAMUS, M.Z.; BORSHCHEVSKAYA, S.I., red.; SHERMUSHENKO, T.A., tekhn.red.

[Complex plan for every worker] Kompleksnyi plan - na kazhdoe rabochee mesto. Leningrad, Lenizdat, 1959. 161 p. (MIRA 13:5)
(Machine-shop practice--Technological innovations)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

VOLOSATOV, Viktor Alekseyevich; BORSHCHEVSKAYA, S.I., red.; LEVONEVSKAYA, L.G., tekhn.red.

[Designs of all-purpose pneumatic devices] Konstruktsii universal'nykh pnevmaticheskikh prisposoblenii. Lenizdat, 1959. 190 p. (Machine tools--Pneumatic driving) (MIRA 12:5)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

POPILOV, L.Ya., red.; BORSHCHEVSKAYA, S.I., red.; SMIRNOV, P.S., tekhn.red.

[New developments in electric and ultrasonic machining of metals] Novoe v elektricheskoi i ul'trazvukovoi obrabotke materialov. Leningrad, Lenizdat, 1959. 281 p. (MIRA 13:3)
(Ultrasonic waves--Industrial applications)
(Electric metal cutting)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

KOSMACHEV, I.G.; BORSHCHEVSKAYA, S.I., red.; POL'SKAYA, R.G., tekhn. red.

[Innovations in the manufacture of metal-cutting tools] Novoe v instrumental'nom proizvodstve. Leningrad, Lenizdat, 1960. 210 p. (MIRA 14:5)
(Metal-cutting tools--Technological innovations)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

DEMIN, Yevgeniy Nikolayevich; KOSMACHEV, I.G., red.; BORSHCHEVSKAYA, S.I., red.; ONOSHKO, N.G., tekhn.red.

[Design and construction of press molds for plastics] Konstruirovanie pressform dlia plasticheskikh materialov. Pod red. I.G. Kosmacheva. Leningrad, Lenizdat, 1960. 331 p. (MIRA 13:7)

(Plastics--Molding)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

PODGORNAYA, Yelena Aleksandrovna, kand.khim.nauk; BORSHCHEVSKAYA, S.I., red.; ONOSHKO, N.G., tekhn.red.

[What we get out of "black gold"; chemical products from petroleum] Chto daet nam "chernoe zoloto"; khimicheskie produkty iz nefti. Leningrad, Lenizdat, 1960. 53 p. (MIRA 13:11)

(Petroleum products) (Petroleum chemicals)

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SHUMARIN, Petr Mikhaylovich, kadrovyy leningradskiy stroitel', brigadir; BORSHCHEVSKAYA, S.I., red.; POL'SKAYA, R.G., tekhn. red.

[Comfortable and warm apartments for the people of Leningrad] Blagoustroennye teplye kvartiry - leningradtsam. Leningrad, Lenizdat, 1960. 66 p. (MIRA 15:3)

1. Brigada sanitarnykh tekhnikov v UNR-525 tresta "Santekhmontazh-62" Glavnogo Leningradskogo upravleniya po zhilishchnomu i grazhdanskomu stroitel'stvu (for Shumarin).
(Leningrad—Plumbing)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

KOZLOV, Aleksey Il'ich; GOLYGIN, Konstantin Nikolayevich; BORSHCHEVSKAYA, S.I., red.; PRESNOVA, V.A., tekhn.red.

[District changes its appearance] Raion meniaet oblik. Leningrad, Lenizdat, 1961. 39 p. (MIRA 15:2)

1. Sekretar' Nevskogo rayonnogo komiteta Kommunisticheskoy partii Sovetskogo Soyuza, g. Leningrad (for Kozlov). 2. Predsedatel' Nevskogo rayonnogo ispolnitel'nogo komiteta, g. Leningrad (for Golygin).
(Leningrad--Description)

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GRIGOR'YEV, Aleksandr Aleksandrovich; BORSHCHEVSKAYA, S.I., red.; ONOSHKO, N.G., tekhn. red.

[In response to a challenge]Tam gde trudnee. Leningrad, Lenizdat, 1961. 76 p. (MIRA 15:11)
(Leningrad—Textile workers)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

KOCHERGIN, Konstantin Alekseyevich; BORSHCHEVSKAYA, S.I., red.; TIKHONOVA, I.M., tekhn. red.

[Pulsation resistance welding] Impul'snaia kontaktnaia svarka. Leningrad, Lenizdat, 1961. 126 p. (MIRA 14:10)
(Electric welding)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

ORLOVSKIY, Emmanuil Il'ich; BORSHCHEVSKAYA, S.I., red.; LEVONEVSKAYA, L.G., tekhn. red.

[Goods with a Leningrad trademark] Tovary s leningradskoi fabrichnoi markoi. Leningrad, Lenizdat, 1961. 138 p. (MIRA 14:9)
(Leningrad—Manufactures)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

KOSMACHEV, Ivan Georgiyevich; BORSHCHEVSKAYA, S.I., red.; PRESNOVA, V.A., tekhn. red.

[Electrolytically assisted machining] Rabota na anodno-mekhanicheskikh stankakh. Leningrad, Lenizdat, 1961. 161 p. (MIRA 15:6)

(Electric metal cutting)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

VOLOSATOV, Viktor Alekseyevich; BORSHCHEVSKAYA, S.I., red.; POL'SKAYA, R.G., tekhn.red.

[Pneumatic attachments for machine tools] Pnevmaticheskie prisposobleniia k metallorezhushchim stankam. Leningrad, Lenizdat, 1961. 182 p. (MIRA 14:6)
(Machine tools—Attachments)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

LEVINSON, Yevgeniy Maksimovich; BORSHCHEVSKAYA, S.I., red.; POL'SKAYA, R.G., tekhn. red.

[Electric spark machining of metals] Elektroerozionnaia obrabotka metallov. Leningrad, Lenizdat, 1961. 183 p. (MIRA 15:4)

(Electric metal cutting)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

DEMIN, Yevgeniy Nikolayevich; BORSHCHEVSKAYA, S.I., red.; ONOSHKO, N.G., tekhn. red.

[Mechanization and automation of the compression molding of articles from plastic materials]Mekhanizatsiia i avtomatizatsiia pressovaniia izdelii iz plastmass. Leningrad, Lenizdat, 1962. 192 p. (MIRA 16:2)
(Plastics--Molding) (Automation)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

ANDEREG, Georgiy Ferdinandovich; BARBANEL', Solomon Rafailovich; KACHURIN, I.K., red.; BORSHCHEVSKAYA, S.I., red.; LEVONEVSKAYA, L.G., tekhn. red.

[Handbook on the equipment of motion-picture theaters] Spravochnaia kniga po tekhnike kinoustanovok. Leningrad, Lenizdat, 1964. 479 p. (MIRA 17:2)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

KOCHERGIN, Konstantin Alekseyevich; KONSTANTINOV, B.P., akademik, red.; BORSHCHEVSKAYA, S.I., red.

[New welding processes] Novye protsessy svarki. Leningrad, Lenizdat, 1964. 122 p. (MIRA 18:2)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

ORLOVSKIY, Emmanuil Il'ich; BORSHCHEVSKAYA, S.I., red.

[Synthetic products in everyday life; synthetic materials and goods manufactured from them] Sintetika v bytu; sinteticheskie materialy i tovary iz nikh. Leningrad, Lenizdat, 1964. 141 p. (MIRA 18:6)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

BOKIN, Mikhail Nikolayevich; BORSHCHEVSKAYA, S.I., red.

[Interchangeability, control, and technical measurements in the manufacture of machinery] Vzaimozameniaemost', kontrol' i tekhnicheskie izmereniia v mashinostroenii. Leningrad, Lenizdat, 1965. 255 p. (MIRA 18:7)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

KOSENKO, B.F.; TYURKIN, B.P.; RASTEGAYEV, L.G., red.; BORSHCHEVSKAYA, S.I., red.

[Handbook on motorcycles, motor scooters and motorbikes; design, maintenance and repair] Spravochnaia kniga po mototsiklam, motorolleram i mopedam; ustroistvo, obsluzhivanie i remont. Leningrad, Lenizdat, 1965. 450 p. (MIRA 18:7)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

YETS, A.G.; DUDKEVICH, G.A.; ZIL'BERBORD, B.Sh.; BORSHCHEVSKAYA, V.A

Potential local anesthesia in thyrotoxic goiter surgery. Sov. med. 28 no.4:45-48 Ap '64. (MIRA 17:12)

1. Klinika obshchey khirurgii (zav. - dotsent G.A. Dudkevich) Yaroslavskogo meditsinskogo instituta.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

BORSHCHEVSKAYA, V. S.

VOLYNSKIY, S.M., dotsent; BORSHCHEVSKAYA, V.S., dotsent

Clinical observations on the action of mineral water of the Ray-Yelenovka spring. Vrach.delo no.2:201 F '57. (MLRA 10:6)

1. Kafedra vnutrennikh bolezney (zav. - prof. P.F.Frolov) Khar'kovskogo meditsinskogo stomatologicheskogo instituta i sanatoriy Ray-Yelenovka.
(RAY-YELENOVKA--MINERAL WATERS)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

YERMOLAYEV, V.G.;BORSHCHEVSKAYA, Ye.A.

Electrocardiographic changes in chronic tonsillitis. Vest. otorinolar., Moskva 14 no.6:40-45 Nov-Dec 1952. (CIML 23:4)

1. Professor for Yermolayev; Candidate Medical Sciences for Borshchevskaya. 2. Of the Department for Ear, Throat, and Nose Diseases (Head -- Prof. V. G. Yermolayev) of Leningrad Order of Lenin Institute for the Advanced Training of Physicians imeni S. M. Kirov.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

VOVSI, A.M., inzh.; GRINBLAT, M.M., inzh.; BORSHCHEVSKAYA, Ye.R., inzh.

Determining phosphorus in ferrotungsten and molybdenum in ferromolybdenum. Trudy LMZ no.9:264-267 '62. (MIRA 16:6)
(Iron-Tungsten alloys--Analysis) (Tungsten--Analysis)
(Iron-molybdenum alloys--Analysis) (Molybdenum--Analysis)

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1. BORSHCHEVSKIY, A. ENG.

2. USSR (600)

4. Wood - Preservation

7. How to control rotting of wood in buildings. Sel'Stroi. 2 no.1. 1947.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

1. BORSHCHEVSKIY, A.

2. USSR (600)

4. Beetles

7. How to control the long-horned beetle. Sel'. stroi. 2 no. 6, 1947

9. Monthly List of Russian Accessions, Library of Congress, March 1953, Unclassified

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

1. BORSHCHEVSKIY, A., Eng.

2. USSR (600)

4. Farm Produce-Storage

7. Two questions on practices. Sel'. stroi. 2 no. 8 1947

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

BORSHCHEVSKIY, A.A.; VARTANYAN, R.A.

The S-378 electromagnetic vibrator. Stroi. i dor. mashinostr. 2 no.6:32-34 Je '57. (MLRA 10:6)

(Vibrators)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

SKORCHELETTI, V.V.; BORSHCHEVSKIY, A.M.

"Investigation of the Passive State of Metals by the Method of Cathodic Polarization--The Bismuth-Antimony Alloy System."

Report presented at the 14th meeting CITCE, Intl. Comm. of Electrochemical Thermodynamics and Kinetics, Moscow, 19-25 Aug 63.

Polytechnical Institute, Leningrad.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

SKORCHELLETTI, V.V.; BORSHCHEVSKIY, A.M.

Study of the passive state of the system of bismuth-antimony alloys by the method of cathodic polarization. Zhur.prikl.khim. 37 no.1:87-94 Ja '64. (MIRA 17:2)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

BORSHCHEVSKIY, A.M.; SKORCHELLETTI, V.V.

Studying oxidized metal surfaces by recording cathodic charge curves. Part 1: Bismuth. Zasech.met. 1 no.6:624-629 N-D '65.

Studying oxidized metal surfaces by recording cathodic charge curves. Part 2: Antimony. Tam.:630-635

(MIRA 18:11)

1. Leningradskiy politekhnicheskiy institut imeni M.I.Kalinina.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

BORSHCHEVSKIY, A.M.; SKORCHELLETTI, V.V.

Studying oxidized metal surfaces by recording cathodic charging curves. Part 3: Alloys in the system Bi - Sb. Zashch. met. 2 no.1:46-51 Ja-F '66. (MIRA 19:1)

1. Leningradskiy politekhnicheskiy institut imeni M.I. Kalinina. Submitted July 5, 1965.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

1. BORSHCHEVSKIY, A.N.

2. USSR (600)

4. Wood - Decaying Fungi

7. Timber-destroying fungus (Merulius lacrimans) and measures for controlling it. Priroda 41, No. 10, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

BORSHCHEVSKIY, A.N., kandidat tekhnicheskikh nauk, Moskva.

Wood destroying insects. Priroda 45 no.10:104-107 O '56.
(Insects, Injurious and beneficial) (MLRA 9:11)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

PITERSKOV, N.I.; BORSHCHEVSKIY, A.N., nauchnyy red.; CHEKHOVSKAYA, T.P., red. izd-va; BOROVNEV, N.K., tekhn. red.

[Pamphlet on safety measures for wood preservation workers] Pamiatka po tekhnike bezopasnosti dlia rabochikh po antiseptirovaniiu drevesiny. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit. materialam, 1961. 23 p. (MIRA 14:6)
(Wood preservatives—Safety measures)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

BORSHCHEVSKIY, A.N.

Contemporary state of heat engineering in the construction industry. Inzh.-fiz. zhur. 4 no.4:129-140 Ap '61. (MIRA 14:5)
(Building research) (Heat engineering)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

[illegible], A. S.

[illegible], A. S.: "Experimental cortical hypertonia." Khar'kov Medical Inst, Khar'kov, 1956. (Dissertation for the Degree of Doctor in Medical Sciences)

So: Knizhnaya letopis' No 38, 1956. Moscow

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

BORSHCHEVSKIY A.S.

57-27-7-2/40

AUTHORS: Borshchevskiy, A. S., Goryunova, N. A., Takhtareva, N. K.

TITLE: An Investigation of the Microhardness of Some Semiconductors With a Zinc Blende Structure (Issledovaniye mikrotverdosti nekotorykh poluprovodnikov so strukturoy tsinkovoy obmanki).

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1957, Vol. 27, Nr 7, pp. 1408-1415 (USSR)

ABSTRACT: The microhardness of semiconductors comprised in a crystallochemical group according to the principle of a common type of linkage and a common structure was investigated, the obtained data were compared with the other physico-chemical properties and the correlation with the electric parameters of the semiconductors of this group was determined. The data of the first tests with some semiconductors with Wurtzit-, zincblende- and diamond-structure are given here. The microhardness-values of these semiconductors were determined. When gallium arsenide was crystallized in a narrow tube it showed a hermaphroditic (twin-crystal) formation and the microhardness increased. But also under conservation of the same crystallization-conditions the greatest variations were found to occur in this compound by measuring the microhardness. The authors could not yet determine the reasons for this. A certain dependence of the microhardness on the purity of the applied materials was observed in the tellurides (Ga_2Te_3), In_2Te_3,

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An Investigation of the Microhardness of Some Semiconductors With a Zinc Blende Structure. 57-27-7-2/40

ZnTe). It is shown that the microhardness becomes smaller in the isoelectron-compound -series with strengthening of the ion-bound, which corresponds to the character of variation of the hardness according to V. M. Gol'dshmidt, UFN, 9(6), 811, 1929,. There are 4 figures, 2 tables and 5 references, 4 of which are Soviet.

ASSOCIATION: Physico-Technical Institute AS USSR, Leningrad. (Fiziko-tekhnicheskiy institut AN SSSR, Leningrad)

SUBMITTED: March 11, 1957

AVAILABLE: Library of Congress

1. Semiconductors-Hardness-Determination 2. Zinc blende-Applications

Card 2/2

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

24(6) SOV/57-58-12-5/15

AUTHORS: Burdiyan, I. I., Borshchevskiy, A. S.

TITLE: Preparation and Some Properties of Solid Solutions of an AlSb-GaSb System (Polucheniye i nekotoryye svoystva tverdykh rastvorov sistemy AlSb-GaSb)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Nr 12, pp 2684-2688 (USSR)

ABSTRACT: In the present paper the method and the results of the investigation of a pseudobinary section of a ternary system Al-Sb-Ga are presented. The paper cited by reference 1 contains information concerning the formation of the solid solutions in this system. The following methods were employed to investigate the character of the interaction of the substances: Examination of the microstructure and of the microhardness, thermal analysis, and investigation of the distribution of the electric conductivity. The x-ray analysis of the structure was not employed for the experiments showed that this method is not effective because the identity periods of the lattices of the binary source compounds are very close (AlSb - 6.10 Å, GaSb - 6.09 Å). Substances of the following degree of purity were employed: Al 99.99%, Ga 99.98%,

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

Preparation and Some Properties of Solid Solutions of an AlSb-GaSb System SOV/57-58-12-5/15

Sb 99.98%. The zonal fusion method was employed to render the alloys obtained homogeneous after the synthesis. The chemical orientation analysis of the substances after the zonal fusion which has been carried out by T. V. Cherkashina (Giredmet) showed that the 6 to 8 cm long middle part of the ingot is the part which most approximates the original composition. The thermal analysis of the alloys of the system was carried out with the usual Kurnakov pyrometer. The measurement of the distribution of the electric conductivity was made according to the usual compensation method. During the homogeneization by the zonal fusion method solid substitution solutions were obtained in the quasibinary section AlSb-GaSb of the ternary system Al-Sb-Ga. The existence of the solid solutions is proved by the information provided by the thermal and the microstructure analysis as well as by the measurement of the microhardness. The work was carried out in the laboratory of B. T. Kolomiyyets, Professor. B. T. Kolomiyyets and N. A. Goryunova advised the authors. N. K. Takhtareva assisted in the investigation of the microstructure.

Card 2/3

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

Production and Some Properties of Solid Solutions in the AlSb-GaSb System SOV/57-58-12-5/15

There are 7 figures and 7 references, 6 of which are Soviet.

ASSOCIATION: Leningradskiy fiziko - tekhnicheskiy institut AN SSSR (Leningrad Physical-Technical Institute AS USSR)

SUBMITTED: May 5, 1958

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67407

SOV/181-1-9-31/31

AUTHORS: Borshchevskiy, A. S., Tret'yakov, D. N.

TITLE: The Synthesis of Semiconductor Materials by the Application of Vibration Intermixing

PERIODICAL: Fizika tverdogo tela, 1959, Vol 1, Nr 9, pp 1483 - 1485 (USSR)

ABSTRACT: In the synthesis by direct melting of the elements in a soldered ampul, a solid product is formed in the reaction zone; thus, much time is wasted, and the diffusion of the reacting components into this zone is rendered more difficult. Therefore, the authors accelerated the synthesis by intensive intermixing, and selected the vibration as the most effective and simplest procedure for carrying out this intermixing. In this manner they investigated the binary compounds InAs, GaAs, InPb, Ga_2S_3, ZnSe, and CdSe as well as the ternary alloys 3InAs.InSb, 3GaAs.GaSb, 4GaAs.InAs, 4GaAs.ZnSe. Furthermore, several more alloys of the pseudobinary section InAs-AlAs were investigated, in which solid solutions were observed for the first time. The authors were also able to extend the applicability of the direct melting and in this

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SOV/181-1-9-31/31

The Synthesis of Semiconductor Materials by the Application of Vibration Intermixing

manner they obtained the interesting binary compounds GaP and AlAs. In all their syntheses the authors used initial material cut into pieces and without pretreatment, only Zn being pickled preliminarily in hydrochloric acid. The synthesis occurred in a silite heating rod furnace of the type ShP-1. The authors' results are compared in a table with those obtained by the laboratoriya poluprovodnikov FTI (Laboratory of Semiconductors of the Institute of Physics and Technology). In the synthesis by vibration intermixing the samples were for some time kept at a temperature corresponding to a vapor pressure of 1 atmosphere of the liquid component. This, however, was not done with most of the vibration intermixing syntheses. The syntheses made without vibrator took a very long time. The outer form, the microstructure, and microhardness of the samples prepared after the old and the new procedure did not differ noticeably under the same cooling technique. The electric properties of the GaS samples prepared after the two procedures were in good mutual agreement. By the use of the vibration synthesis it was possible to shorten the duration of synthesis by the 4fold to the 25fold, moreover, it was

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

The Synthesis of Semiconductor Materials by the Application of Vibration Intermixing

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SOV/181-1-9-31/31

still possible to increase the weighed portion. The authors suggest that the capacity of the vibrator be increased in order to permit the synthesis of large amounts of materials. Furthermore, they want to increase the frequency of the vibrator up to ultrasonic frequency. Intermixing by vibration would also be suitable, in the authors' opinion, to accelerate the two-temperature procedure considerably. The application of vibration in the cooling process of the sample eliminated the porosity of the castings. By vibration intermixing it was possible to produce compounds at high temperatures, that had not been obtained before. A. D. Smirnova and N.K.Takhtareva took part in the experimental operations. The authors thank N. A. Goryunov for his continuous interest. There are 1 table and 3 references.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut AN SSSR (Leningrad Institute of Physics and Technology of the AS USSR)

SUBMITTED: April 18, 1959

Card 3/3

4

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S/054/62/000/001/005/011
B121/B138

26.2420

AUTHORS: Kozhina, I. I., Tolkachev, S. S., Borshchevskiy, A. S., Goryunova, N. A.

TITLE: Examination of the system GaAs - Ga_2S_3

PERIODICAL: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii, no.1, 1962, 122-127

TEXT: To study the interactions thoroughly, the intermediate stages were examined by X-ray, thermal, and microstructural analyses. The alloys were produced by direct fusion of gallium, arsenic, and sulfur in evacuated quartz ampoules between 1260 and 1300°C. Homogenization of the alloys was reached by annealing the samples at 900°C in evacuated quartz ampoules in a ТГ-3 (TG-3) crucible furnace. X-ray structural analyses were conducted in a РПК-2 (RPK-2) chamber 57.3 mm in diameter by the asymmetrical method. The microhardness of the alloys was determined with a ПМТ-3 (PMT-3) device. An ФПК-55 (FPK-55) device was used for differential thermal analysis. [illegible] 17 alloys of varying compositions were studied in the section [illegible]. Their coloring changed from gray with a metallic luster

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(GaAs) to light yellow (Ga_2S_3). The heating and cooling curves of Ga_2S_3 showed three thermal effects at 997-1010° and 1085-1104°C, and a very weak effect at 1130°C. X-ray structural analyses showed the pure Ga_2S_3 phase to have a wurtzite lattice with the constants a = 3.68 Å and c = 6.01 Å; the interatomic distance of Ga - S is 2.00 Å. The wurtzite structure of Ga_2S_3 changes into a sphalerite structure by a GaAs addition of 3-4%. Further GaAs additions to Ga_2S_3 cause expansion of the sphalerite lattice structure. Orientation tests showed the alloys of gallium arsenide and gallium sulfide to be photosensitive. Non-homogeneous alloys, however, are more photosensitive than homogeneous ones. Equilibrium in the system Ga - Se - S is difficult to reach. If the alloys are sufficiently homogenized, they behave like systems with continuously solid solutions. There are 6 figures, 1 table, and 11 references: 8 Soviet and 3 non-Soviet.

SUBMITTED: May 23, 1961

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

KOZHINA, I.I.; TOLKACHEV, S.S.; BORSHCHEVSKIY, A.S.; GORYUNOVA, N.A.

Study of the GaAs - Ga_2S_3 system. Vest.LGU 17 no.4:122-127 '62. (MIRA 15:3)

(Gallium arsenide)(Gallium sulfide)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

ACCESSION NR: AP4041359 S/0048/64/028/006/0985/0988

AUTHOR: Borshchevskiy, A.S.; Kalyuzhnaya, G.A.; Smirnova, A.D.; Takhtareva, N.K.; Tret'yakov, D.N.

TITLE: Morphological characteristics of laminar gallium phosphide crystals /Report, Third Conference on Semiconductor Compounds held in Kishinev 16-21 Sep 1963/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.6, 1964, 985-988, and insert facing p. 968

TOPIC TAGS: crystal structure, crystal growth, gallium compound

ABSTRACT: Gallium phosphide crystals were obtained by slowly cooling dilute solutions of phosphorus in gallium and subsequently separating the precipitated crystals from the excess gallium, as proposed by G.Wolff, P.H.Keck and J.D.Broder (Bull. Amer.Phys.Soc.29,116,1954). The crystals thus obtained had the zincblende structure, were laminar in form with the (111) faces developed, and ranged in size from 15 x 10 x 1 mm^3 to a few hundred microns. The pure crystals were light orange in color and uniformly transparent. The crystal plates had the form of equilateral triangles, 60° rhombi, regular hexagons, or were of mixed shape. A drawing showing the faceting of the simplest rhombic crystals is given in Fig.1 of the Enclosure. The two

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ACCESSION NR: AP4041359

well developed (111) faces reacted differently to etching with HCl: one face retained its initial specular luster, and the other acquired a mat surface. This polarity is attributed to the regular alternation of planes consisting of gallium or phosphorus atoms respectively. Triangular etch pits marking dislocations were observed on the (111) faces. The dislocation density varied greatly even from place to place on the same crystal, and the total variation among the crystals was from 10^3 to 10^6 cm^{-2}. Twinning planes parallel to the developed (111) faces were found; the twinning appeared to involve rotation of the two portions of the crystal about the ⟨111⟩ axis. Dark lines were also observed marking the long diagonal of the rhombic plates; these are believed to mark the central portion of the dendritic structure. The growth of the crystals is discussed at some length in rather general terms. It is concluded that the laminar form is a consequence of the non-equilibrium conditions and the excess of one component, that more than one growth mechanism is involved, and that growth probably proceeds differently in the ⟨111⟩ and the ⟨$\overline{111}$⟩ directions. Orig.art.has: 3 figures.

ASSOCIATION: none

SUBMITTED: 00

SUB CODE: SS,IC

NR REF SOV: 001

ENCL: 01

OTHER: 002

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

ACCESSION NR: AP4041359

ENCLOSURE: 01

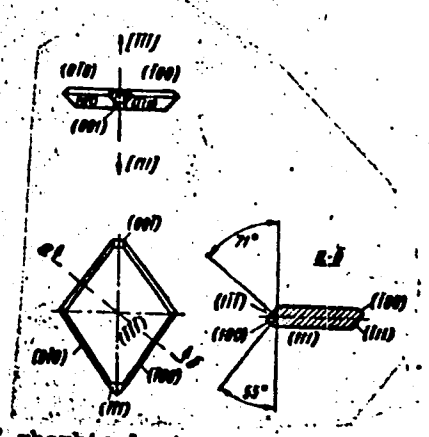

Fig.1. Faceting of rhombic laminar gallium phosphide crystals.

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L 15492-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JG

ACCESSION NR: AR3003749 S/0137/63/000/005/0041/0041

58

SOURCE: RZh. Metallurgiya, Abs. 5G252

AUTHOR: Borshchevskiy, A. S., Tret'yakov, D. N.

TITLE: Solid solutions among semiconductor compounds -- arsenides of indium and aluminum

CITED SOURCE: Sb. Fizika, L., 1962, 14-18

TOPIC TAGS: indium arsenide, aluminum arsenide, semiconductor, X-ray diffraction, thermal analysis, microhardness, substitutional solution, lattice constant

TRANSLATION: The compounds InAs and AlAs and their alloys (3:1, 1:1, 1:3) were prepared by means of vibrational mixing, followed by diffusion annealing at 850°. The alloys rich in InAs were homogenized for a longer period of time than the alloys richer in AlAs (4440 hours at 3:1 and 1560 hours at 1:3), according to the greater liquation inhomogeneity. An investigation by the X-ray method, method of thermalanalysis, and measurement of the microhardness of the prepared

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ACCESSION NR: AR3003749

alloys showed that InAs and AlAs form solid substitutional solutions within a broad concentration range. The lattice constant varies linearly as a function of the composition. The microhardness increases when AlAs is introduced into InAs and InAs into AlAs. Bibliography of six titles. V. Vigdorovich.

DATE ACQ: 21 Jun 63 SUB CODE: ML ENCL: 00

Card 2/2

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

Morphological features of crystals of GaP. G. V. Averkiyeva, A. S. Borshchevskiy, G. K. Kalyuzhnaya, A. D. Smirnova, D. N. Tret'yakov, N. K. Takhtareva (10 minutes).

Features of the growth of crystals of silicon carbide of the cubic modification from the gaseous phase. A. A. Pletyushkin, S. N. Gorin, L. M. Ivanova (10 minutes).

Investigation of the physical properties of semiconducting compounds with the lattice of ZnS and NaCl in the melting region and liquid state. V. M. Glazov, S. N. Chizhevskaya, N. N. Glagoleva (10 minutes).

Report presented at the 3rd National Conference on Semiconductor Compounds, Kishinev, 16-21 Sept 1963

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

SHEARTSEV, Yuriy Vasil'yevich; VALOV, Yuriy Aleksandrovich; BORSHCHEVSKIY, Aleksandr Semenovich; GORYUNOVA, N.A., doktor khim. nauk, prof., red.; NASLEDOV, D.N., doktor fiz.-mat. nauk prof., red.

[Diamond-like semiconductors with high melting point] Tugoplavkie almazopodobnye poluprovodniki. Moskva, Metallurgiia, 1964. 207 p. (MIRA 18:1)

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L 12890-65 EWT(m)/EWP(t)/EWP(b) IJP(c)/SSD/AFWL/RAEM(a)/ESD(t) JD/MLK

ACCESSION NR: AT4044566 S/0000/64/000/000/0123/0130

AUTHOR: Kalyuzhnaya, G. A., Tret'yakov, D. N., Borshchevskiy, A. S., Vaypolin, A. A.

TITLE: The problem of the crystallization of semiconductors from molten solutions

SOURCE: AN MolSSR. Institut fiziki i matematiki. Issledovaniya po poluprovodnikam; novy*ye poluprovodnikovy*ye materialy* (Semiconductor research; new semiconductor materials). Kishinev, Gos. izd-vo Kartya Moldovenyaske, 1964, 123-130

TOPIC TAGS: semiconductor crystallization, gallium phosphide, binary solid solution, gallium antimonide, gallium arsenide

ABSTRACT: Using the previously described Borshchevskiy-Tret'yakov procedure (FTT, 1, 1483, 1959), the authors prepared some gallium-based binary compounds and solid solutions and subjected them to x-ray analysis in an effort to extend the scope of previous semiconductor studies to materials of new types. GaSb, GaAs, GaP, AlSb, AlAs, AlP, ZnSe, ZnS, and CdS were the binary components from which, by coupling one of the Ga-containing components with one of the others, a large variety of solid solutions were prepared. Single crystals of n- and p- GaP, a little studied but promising semiconductor material, were prepared in the form of orange-colored, transparent plates (9 x 5 x 0.6) with an electron concentration and density of 2 x 10^{17}/cm and 130 cm/v. sec, respectively, a microhardness

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of 960 ± 20 gk/mm^2, a density of 4.10 g/cm^3, and a lattice parameter (measured with Cu$_K$ radiation) of 5.439 ± 0.001 kx. Ga was used as the solvent for the crystallization of the solid solutions, classed into isovalent-anion-substitution, isovalent-cation-substitution and heterovalent-hybrid-substitution types. The results are preliminary and further studies are suggested. Orig. art. has: 1 table.

ASSOCIATION: Institut fiziki i matematiki AN Mol SSR (Institute of Physics and Mathematics, AN Mol SSR)

SUBMITTED: 13Dec63 ENCL: 00 SUB CODE: IC, EC

NO REF SOV: 009 OTHER: 013

Card 2/2

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

BORSHCHEVSKIY, A.S.; KALYUZHNAYA, G.A.; SMIRNOVA, A.D.; TAKHTAREVA, N.K.; TRET'YAKOV, D.N.

Morphological characteristics of laminar gallium phosphide crystals. Izv. AN SSSR. Ser. fiz. 28 no.6:985-988 Je '64. (MIRA 17:7)

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L 32211-65 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(b) IJP(c) RDW/JD/GS

ACCESSION NR: AT5005411 S/0000/64/000/001/0010/0010

AUTHOR: Borshchevskiy, A. S.; Takhtareva, N. K.; Tret'yakov, D. N.

34
B+1

TITLE: Microhardness of some complex diamond-like semiconductors

SOURCE: Nauchnaya konferentsiay molodykh uchenykh Moldavii, 3d. Trudy, no. 1: Yestestvenno-tekhnicheskiye nauki (Natural and technical sciences). Kishinev, Gosizdat Kartya Moldovenyaske, 1964, 10

TOPIC TAGS: semiconductor, diamondlike semiconductor, heterovalent semiconductor, semiconductor hardness

ABSTRACT: Fifty heterovalent semiconducting compounds (with two or three components) were prepared, representing five open isoelectron series derived from germanium, selenium, antimony, gallium, arsenic, indium, tellurium and other elements. A study of the quantitative dependence of microhardness on the composition of the isovalent solid solution of diamondlike substances yielded the formula

$$H^* = (H_a^* - H_b^*) N_a + H_b^* + EN_a(1-N_a),$$

where H_a^* and H_b^* are the microhardnesses of the starting components "a" and "b", reduced to an equal number of bonds; N_a = molar portion of the "a" component

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ACCESSION NR: AT5005411

within the alloy; K=α constant; and H* = reduced microhardness of the alloy. Orig. art. has: 1 formula and 1 table.

ASSOCIATION: None

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

NO REF SOV: 000 OTHER: 000

Card 2/2

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L 44537-65 EWT(1)/EWP(e)/EWT(m)/EPF(n)-2/EWG(m)/EPR/T/EWP(t)/EWP(b)/EWA(h)
Pz-6/Ps-4/Peb/Pu-4 IJP(c) JD/JG/AT 56 B+1 UR/
ACCESSION NR AM5012950 BOOK EXPLOITATION

Shmartsev, YUriy Vasil'yevich; Valov, YUriy Aleksandrovich; Borshchevskiy, Aleksandr Semanovich

Refractory adamantine semiconductors (Tugoplavkiye almazopodobnyye poluprovodniki) [Moscow] Izd-vo "Metallurgiya", 64. 0207 p. illus., biblio. Errata slip inserted. 3,570 copies printed.

TOPIC TAGS: semiconducting material, semiconductor device, high temperatue metal, diamond, boron, aluminum, gallium, indium

PURPOSE AND COVERAGE: This book acquaints the reader with a series of perspectives dealing with the radioelectronics of semiconducting materials belonging to the broadest group of semiconductors, the diamond-like group. The semiconductors examined in this book are those whose production has been described in our own and in foreign literature. Detailed descriptions of these materials are given in individual chapters. These chapters contain the fundamental principles of physics, chemistry and technology of semiconductors. This book is intended for scientists, engineers and technicians, working in the field of semiconducting materials production, production and use of semiconductor apparatus and for students enrolled in advanced courses at the institutions of higher education.

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SUBMITTED: 17Oct64 SUB CODE: EC

NO REF SOV: 062 OTHER: 260

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L 35355-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AR6017804 SOURCE CODE: UR/0058/66/000/001/A065/A065

AUTHOR: Borshchevskiy, A. S.; Kalyuzhnaya, G. A.; Smirnova, A. D.; Takhtareva, N. K.

TITLE: Influence of impurities on the crystallization of gallium arsenide and phosphide from metallic solutions

SOURCE: Ref. zh. Fizika, Abs. 1A552

REF SOURCE: Sb. Materialy dokl. 1-y Nauchno-tekhn. konferentsii Kishinevsk. politekhn. in-ta. Kishinev, 1965, 65-66

TOPIC TAGS: gallium compound, gallium arsenide, crystallization, crystal impurity

ABSTRACT: The authors investigated the influence of Cu, Zn, Cd, Si, Ge, Sn, Se, Te, and rare-earth metals (Me) as contained in the gallium as impurities on the crystallization of GaAs and GaP from liquid solutions. The amounts of impurities and the crystallization conditions varied over a wide range. Estimates are given of the chemical activity of the obtained crystals, their electric conductivity, hardness, and thermal-emf coefficients. The coefficients of effective distribution in GaP crystallized from a dilute solution is $K_{eff}Zn = 0.02$, $K_{eff}Te = 0.4$, and $K_{eff}S = 1.3$. Plate-like GaP and GaAs crystals with prescribed impurity content were obtained. A. Rabin'kin. [Translation of abstract]

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L 43681-66 EWT(1)/EWT(m)/EWP(t)/ETI LJP(c) JD/JG
ACC NR: AP6015459 (A) SOURCE CODE: UR/0181/66/008/005/1428/1433

AUTHOR: Borshchevskiy, A. S.; Oksman, Ya. A.; Smirnov, V. N.

ORG: none

TITLE: High frequency electroluminescence of gallium arsenide and gallium selenide

SOURCE: Fizika tverdogo tela, v. 8, no. 5, 1966, 1428-1433

TOPIC TAGS: electroluminescence, gallium arsenide, selenide, photoconductivity

ABSTRACT: Measurements were made of the internal HF electroluminescence of powdered polycrystalline GaAs and GaSe n-type specimens compensated by random impurities, e.g., oxygen, and in some cases, Ni and Co. Resistance of most compensated samples did not exceed 10 ohm·cm and the frequency and amplitude functions of the brightness luminescence of GaAs and GaSe were similar. The energy luminescence of GaAs reached 100 μw·cm^{-2} at 77°K; this is in agreement with the assumption regarding the shock nature of the excitation. Study of photoconductivity of GaSe with dc indicates that it is of a jump nature. The possibility of multistage ionization in semiconductors with a high density of point defects is discussed. The authors thank I. S. Aver'yanov, M. M. Mikhaylov and B. V. Korobitsyn for making the compensated polycrystalline GaAs samples available. Orig. art. has: 4 figures.

SUB CODE: 20/ SUBM DATE: 20Sep65/ ORIG REF: 012/ OTH REF: [illegible]

Card 1/1 mjs

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

ACC NR: AP7001892

SOURCE CODE: UR/0020/66/171/004/0830/0832

AUTHOR: Borshchevskiy, A. S.; Goryunova, N. A.; Sikharulidze, G. A.; Tuchkevich, V. M.; Shmartsev, Yu. V.

ORG: Physicomathematical Institute im. A. F. Ioffe, Akademii nauk SSSR (Fiziko-matematicheskiy institut im. A. F. Ioffe, Akademii nauk SSSR)

TITLE: Preparation and some properties of $CdSnAs_2$ semiconductor compound

SOURCE: AN SSSR. Doklady, v. 171, no. 4, 1966, 830-832

TOPIC TAGS: cadmium tin arsenide, arsenide single crystal, single crystal growing, single crystal property, zone refining

ABSTRACT: A method for growing crack-free $CdSnAs_2$ single crystals is described. The synthesis was carried out in a quartz ampoule and pure-argon atmosphere at a stoichiometric proportion of components and a temperature of 750C. The obtained compound was then zone refined. Crystals up to 7 cm long and about 1 cm in diameter were grown from the zone-refined ingot by zone melting at 585—589C with a molten zone speed of 0.8 cm/hr. The respective properties of the specimens cut from the middle and end portions of the single crystal were: Hall constant 80 and 3.7 cm^3/coulomb,

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resistivity $5 \cdot 10^{-3}$ and $4.9 \cdot 10^{-4}$ ohm·cm, electron concentration $7.8 \cdot 10^{16}$ and $1.7 \cdot 10^{18}/cm^3$, and mobility 16,000 and 7,650 $cm^2/v \cdot sec$. Orig. art. has: 1 figure and 1 table.

SUB CODE: 20/ SUBM DATE: 20Dec65/ ORIG REF: 003/ OTH REF: 006/ ATD PRESS: 5111

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

ACC NR: AP7006211 (A) SOURCE CODE: UR/0363/67/003/001/0180/0181

AUTHOR: Goryunova, N. A.; Borshchevskiy, A. S.; Venkrbets, Ya. Ya.; Korshak, N. M.

ORG: Physicotechnical Institute im. A. F. Ioffe, Academy of Sciences, SSSR (Fiziko-tekhnicheskiy institut Akademii nauk SSSR); Department of Solid State Physics, Prague Polytechnic Institute (Kafedra fiziki tverdogo tela, Prazhskiy politekhnicheskiy institut)

TITLE: Growing of $CdSnAs_2$ single crystals

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 3, no. 1, 1967, 180-181

TOPIC TAGS: cadmium compound, tin compound, arsenide, single crystal growing, zone melting

ABSTRACT: A single-crystal ingot of the semiconducting compound $CdSnAs_2$ was prepared by zone melting. The zone temperature was 600°C, and the gradient at the crystallization front, 20 deg/cm. After one pass of the zone at a rate of 8 mm/hr, an ingot was obtained whose first half was a single crystal, whose middle portion contained twins, and whose end was macrocrystalline and contained cracks. The mechanism of formation of cracks is explained. The ingot had an n-type conductivity. The electrical conductivity σ, carrier concentration $n = 1/eR$ and Hall mobility $U = R\sigma$, where R is the Hall coefficient, were measured at 100 and 300°K. It is shown that the chief mechanism of electron scattering in n-$CdSnAs_2$ with $n \geqslant 1 \times 10^{18}$ cm^{-3} at

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ACC NR: AP7006211

low temperatures is scattering on impurity ions. During zone recrystallization, the impurities are separated, as indicated by the measured mobilities of the charge carriers. The zone melting method is thought to be effective for growing pure $CdSnAs_2$ single crystals with high electron mobilities. By carrying out the zone melting repeatedly and using a single crystal seed, the authors obtained $CdSnAs_2$ ingots in which individual single crystal grains were up to 50 mm in size. The $CdSnAs_2$ single crystals obtained had an electron concentration from 7×10^{16} to 5×10^{18} cm^{-3} at 300°K. Orig. art. has: 1 figure and 1 table.

SUB CODE: 20/ SUBM DATE: 20Dec65/ ORIG REF: 004/ OTH REF: 005

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BORSHCHEVSKIY, G.

The second voluntary profession. Avt.transp. 40 no.10:9 O '62. (MIRA 15:11)

(Automobile drivers)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

BARS, Ye.A.; BORSHCHEVSKIY, G.A.; BROD, I.O.; OVCHINNIKOV, A.M.

Genetic association of oil- and gas-bearing basins with enclosing basins of underground waters. Geol. nefti i gaza 5 no.11:27-34 N '61. (MIRA 14:11)

1. Institut geologii i razrabotki goryuchikh iskopayemykh; NIINeftegaz Glavnogo geologo-razvedochnogo upravleniya RSFSR; Moskovskiy gosudarstvennyy universitet; Moskovskiy geologorazvedochnyy institut.
(Petroleum geology) (Gas, Natural--Geology)

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GEODEKLYAN, Artem Aramovich; DENISEVICH, Vladimir Vladimirovich; ANTSYFOROV, Aleksandr Ivanovich; BORSHCHEVSKIY, Gol'dfrid Adol'fovich; VIKTOROV, Dmitriy Nikolayevich; NIKOLENKO, Vladimir Antonovich; STROGANOV, Vladimir Aleksandrovich; ULIZLO, Boris Mikhaylovich; USHKO, Konstantin Aleksandrovich. Prinimali uchastiye: DZHIBUTI, S.S.; DOBROV, Yu.V.; KORABEL'NIKOV, M.A.; SAMSONOV, L.G.; SABBATOVSKIY, G.A.; CHERNYSHEVA, A.A.; SHNEYDER, G.F.; BROD, I.O., otv.red.; PERSHINA, Ye.G., red.izd-va; KOVAL'SKAYA, I.F., tekhn.red.

[Geology and oil and gas potentials of uplifts in the Balkhan region] Geologicheskoe stroenie i neftegazonosnost' Pribalkhanskoi zony podniatii. Moskva, Izd-vo Akad.nauk SSSR, 1960. 107 p. (MIRA 14:2)

(Balkhan Range--Petroleum geology)
(Balkhan Range--Gas, Natural--Geology)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

BARS,Ye.A.; BORSHCHEVSKIY, G.A.; BROD,I.O.; OVCHINNIKOV, A.M.

Method of setting up boundaries for artesian and oil-and gas-bearing basins. Izv.vyz.ucheb.zav.; geol. i razv. 4 no.11: 95-101 N '61. (MIRA 15:2)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova, Moskovskiy geologorazvedochnyy institut imeni Ordzhonikidze i Institut geologii i razrabotki goryuchikh iskopayemykh AN SSSR.
(Petroleum geology)(Gas,Natural--Geology)(Water,Underground)

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BORSHCHEVSKIY, I.Ya., polkovnik med.sluzhby, kand.med.nauk

Effect of vestibular stimulation on marksmanship. Voen.med.zhur. no.9:61-65 S '57. (MIRA 11:3)

(AVIATORS,
eff. of vestibular stimulation on marksmanship (Rus)
(VESTIBULAR APPARATUS, physiology,
eff. of stimulation on marksmanship in aviators (Rus)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

S/123/59/000/11/70/077

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1959, No. 11, p. 291, # 43778

AUTHOR: Borshchevskiy, I. Ya.

TITLE: Fighting the Noise of Modern Aircraft

PERIODICAL: Vestn. otorinolaringologii, 1958, No. 4, pp. 37-41

TEXT: Modern turbo-jet engines are sources of noise of highest degree, which is sometimes dangerous to human health. The use of individual ear protectors (anti-noise devices) is not sufficient under conditions of noise reaching 140 decibels or more. The author points out that the greatest attention should be given to silencers.

S. B. K.

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27(2)

SOV/177-58-1-18/25

AUTHORS: Borshchevskiy, I.Ya., Colonel of the Medical Corps, Candidate of Medical Sciences; Koreshkov, A.A., Colonel of the Medical Corps, Candidate of Medical Sciences; Markaryan, S.S., Major of the Medical Corps, Candidate of Medical Sciences; Preobrazhenskiy, V.V., Lieutenent-Colonel of the Medical Corps, Candidate of Medical Sciences; Terent'yev, V.G., Lieutenant-Colonel of the Medical Corps

TITLE: The Effect of the Vibrations of Certain Modern Helicopter and Aircraft Types on the Human Body (Vliyaniye na organizm cheloveka vibratsiy nekotorykh tipov sovremennykh vertoletov i samoletov)

PERIODICAL: Voyenno-meditsinskiy zhurnal, Nr 1, 1958, pp 74 - 77 (USSR)

ABSTRACT: The author reports on his examinations of persons tested by a type VP-70 vibration stand (Figure 1) which produces a single-component vertical vibration.

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SOV/177-58-1-18/25

The Effect of the Vibrations of Certain Modern Helicopter and Aircraft Types on the Human Body

By a special adjustment, vibrations reached a frequency of 10 to 70 hz and an amplitude of 0.2 - 2.5 mm. Four series of 3 tests each were performed. During the first two tests of each series, the person to be tested was subjected only to vibration and during the third test simultaneously to vibration and to a 105 to 110-decibel noise. Between tests there were intervals of 3 - 7 days. The data obtained have proved that vibrations with low frequencies and large amplitudes may disturb the pilot's visual orientation during flight and also negatively influence his ability to hit the target. The reactivity of the vestibular analyzer had noticeably increased. Hearing was impaired only by simultaneous vibration and noise effects. Vibrations with frequencies of 40 and 70 hz and amplitudes of 0.8 and 0.4 mm over periods of 4 and

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SOV/177-58-1-18/25

The Effect of the Vibrations of Certain Modern Helicopter and Aircraft Types on the Human Body

8 hours, caused insignificant functional changes in the human organism. Vibrations with a frequency of 10 hz and an amplitude of 1.8 and 2.4 mm result in pronounced and permanent functional changes and cannot be recommended as physiologically permissible for the cockpits of helicopters and other aircraft. There is 1 photograph.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

BORSHCHEVSKIY, I.Ya., kand.med.nauk (Moskva)

Some peculiarities of hearing and speech in reduced atmospheric pressure. Vest.otorin. 20 no.2:9-14 Mr-Ap '58. (MIRA 12:11)

(ATMOSPHERIC PRESSURE, eff.
rarified, on hearing acuity & speech (Rus))
(HEARING
acuity, eff. of rarified atmospheric pressure (Rus))
(SPEECH
eff. of rarified atmospheric pressure (Rus))

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BORSHCHEVSKIY, I.Ya., kand.med.nauk (Moskva)

Control of modern aviation noises [with summary in English].
Vest.oto.-rin. 20 no.4:37-41 Jl-Ag '58 (MIRA 11:7)
(NOISE, prev. & control
aviation noises (Rus))
(AVIATION,
noises, prev. (Rus))

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520017-8

BORSHCHEVSKIY, I. YA.

PHASE I BOOK EXPLOITATION SOV/4163

Moscow. Tsentral'nyy aero-gidrodinamicheskiy institut

Shumoglusheniye (Noise Suppression) Moscow, Oborongiz, 1959. 128 p. (Series: Promyshlennaya aerodinamika, sbornik, no. 14) Errata slip inserted. 1,100 copies printed.

Ed. (Title page): Ye. Ya. Yudin; Ed. (Inside book): A. S. Ginevskiy, Candidate of Technical Sciences; Ed. of Publishing House: T. A. Valedinskaya; Tech. Ed.: N. A. Pukhlikova; Managing Ed.: A. S. Zaymovskaya, Engineer.

PURPOSE: This collection of articles is intended for engineers, technicians, and scientific workers specializing in industrial aerodynamics and noise suppression of aerodynamic installations.

COVERAGE: The collection contains papers on problems associated with noise suppression of aerodynamic installations. The subjects covered include: the basic parameters of noise suppressors, jet noise, the aerodynamic noise of rotating rods, noise suppressors for large ventilating systems, and methods used in acoustical research. No personalities are mentioned. All articles but one are accompanied by references most of which are Soviet.

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8. Verevkin, N. N., and A. I. Lashkov. Investigation of Several Flow Distribution Schemes for Suppressors 65

9. Bochkova, T. G. Some Methods for Investigating Sound-Absorbing Materials 80

10. Naumenko, Z. N. Acoustic Properties of Slag Wool 99

11. Yudin, Ye. Ya., and I. A. Grafskiy. Investigations on Building Anechoic Chambers 109

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BORSHCHEVSKIY, I.Ya., kand.med.nauk (Moskva)

Influence of large and rapid changes in atomspheric pressure on certain functions of the ear, nose and throat. Vop.otorin. 21 no.6:19-24 N-D '59. (MIRA 13:4)

(ATOMSPHERIC PRESSURE, effects)
(EAR, physiol.)
(NOSE, physiol.)
(THROAT, physiol.)

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S/865/62/002/000/021/042
D405/D301

AUTHORS: Borshchevskiy, I.Ya., Belyakov, G.M., Gurovskiy, N.N., Kuznetsov, V.S. and Yuganov, Ye.M.

TITLE: Estimating the quality of speech reception and transmission under weightlessness conditions

SOURCE: Problemy kosmicheskoy biologii. v. 2. Ed. by N. Sisakyan and V. Yazdovskiy. Moscow, Izd-vo AN SSSR, 1962, 215-217

TEXT: The investigations were conducted during periods of weightlessness ranging from 30 to 40 seconds on aircraft following a parabolic course. Four pilots participated in the experiments; 28 speech records were made during 23 flights. Ultra-shortwave ground and air radiostations were used. A tape-recorder was connected to the output of the ground station receiver; it recorded the entire cycle of speech reception and transmission. The quality of the speech was determined from a standard sentence (of 5 words) with subsequent frequency-spectrum analysis. The relative quality was assess-

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ed with reference to the pertinent experimental data prior to and after weightlessness. Conclusions: Weightlessness does not appreciably affect the quality of reception of speech ground signals. The quality of speech transmitted under conditions of weightlessness differs somewhat from that transmitted under normal flight conditions: the pronunciation is somehow forced, with an increase in vowel intensity. The frequency spectrum of speech under weightlessness conditions is analogous to that under normal flight conditions; at frequencies of 100-500 and 1000-2000 cycles the spectral components show a relative increase of 2-4 and 2-6 db respectively. The quality of speech changes but insignificantly under weightlessness conditions; thus it should be possible in principle to maintain good communications under such conditions. Further studies of the physiological characteristics of speech are necessary, in particular under more prolonged weightlessness conditions. There are 2 figures.

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BORSHCHEVSKIY, I.Ya., kand. med. nauk; LAPAYEV, E.V.

Effect of aviation noises of various intensity and duration. Voen.-med. zhur. no.2:64-68 '65. (MIRA 18:11)

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L 58967-65 EEO-2/EWB(a)-2/EWG(e)/EWG(j)/EWG(h)/EEC(k)-2/EWG(v)/EWT(1)/FS(v)-3/
EWA(d)/FSS-2 Pe-5/Ph-4/Po-4/Pq-4/Pac-4/Pae-2 TT/DD/AM
ACCESSION NR: AP5017038 UR/0209/65/000/007/0075/0077

AUTHOR: Borshchevskiy, I. (Candidate of medical sciences); Lapayev, E. (Major of medical service)

66
65
B

TITLE: The noise problem

SOURCE: Aviatsiya i kosmonavtika, no. 7, 1965, 75-77

TOPIC TAGS: noise, high frequency noise, biological effect, life support system, earplug, earphone, noise control, manned space flight

ABSTRACT: Depending on the duration and level, noise has more or less severe deleterious effect on man. In some people, auditory disruptions occur as a result of minor but repeated chronic irritations of the auditory system. Depending on conditions and the individual stability of the organism, noise can sometimes decrease the ability to hear. The long-term effects of noise can disrupt the vestibular apparatus: there have been cases where noise has affected visual acuity, respiratory rhythm, cardiac activity, blood pressure, the volume of the kidneys and spleen, and the amplitude of stomach contractions. Some workers complain of headache, fatigue, and poor appetite following prolonged exposure to noise. According to publications dealing with the problem of noise in rockets and spacecraft, rocket-en-

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ACCESSION NR: AP5017036

gine noise can exceed 170 db at a frequency of 300—600 cps. The general noise level on the surface of the nose of a rocket at take-off is a steady 145—150 db. The main sources of noise in a spacecraft are aerodynamics, when passing through atmospheric turbulence, and various life-support systems during orbital flight. The latter is not regarded as a serious danger to cosmonauts. Moreover, it is proposed that the noise factor during space flight need not be dangerous if the resonant characteristics of the cabin are compensated for by the use of modern acoustic materials. In addition, various types of earphones and earplugs are available which minimize the biological effects of noise in and around spacecraft, aircraft, and ground installations serving them. Orig. art. has: 3 figures. [CD]

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: LS

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4048

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