"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

VUL'FSON, N.S.; ZHURINA, F.G.; SENYAVINA, L.B.

Interaction of bromocyanoacetic ester with aromatic aldehyces in the Reformatskii and Widequist reactions. Dokl. AN SSSR 157 no.3:603-606 Jl '64. (MIRA 17:7)

1. Institut khimii prirodnykh soyedineniy AN SSSR i Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley. Predstavleno akademikom M.M. Shemyakinym.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

PROCESSES AND PROPERTIES INDEX

Aging of rag and sulfate cellulose condenser papers. L. I. Zhurina. *Vestnik Elektroprom.* 1938, No. 6, 33 (1). *Chem. Zentr.* 1939, I, 486.—Condenser papers from sulfate cellulose behave better upon aging than papers from rags.

The aging is more rapid in pentachlorobiphenyl than in air. It is most rapid in transformer oils. M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

GORN, L.S.; ZHURINA, L.S.; KHAZANOV, B.I.

Spectrometric amplifier with semiconductor triodes. Prib. i tekh. eksp. 6 no.2:89-90 Mr-Ap '61. (MIRA 14:9)
(Amplifiers (Electronics))

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

L 35369-66 EWT(1)

ACC NR: AR6017792 SOURCE CODE: UR/0058/66/000/001/A044/A044

39

B

AUTHOR: Gorn, L. S.; Zhurina, L. S.; Ivanov, I. D.

TITLE: Circuits for m-fold coincidences of signals from K detectors

SOURCE: Ref. zh. Fizika, Abs. 1A398

REF SOURCE: Tr. 6-y Nauchno-tekhn. konferentsii po yadern. radioelektron. T. 1. M., Atomizdat, 1964, 127-132

TOPIC TAGS: coincidence circuit, computer circuit, pulse amplitude, particle detector adder

ABSTRACT: It is noted that the many practical cases, when registering coincidences of signals from several pickups (for example, using K detectors), it is of interest to construct a system that registers separately cases of coincidences of different multiplicity, i.e., operation of all K detectors, and also of arbitrary combinations of K-1, K-2, etc. detectors, and in the general case the operation of an arbitrary number (m) out of K detectors. A description of such a system is presented. Its construction is based on the principle of a summing mixer, when the signals from each of the detectors are normalized in amplitude and duration, and are then summed. The amplitude of the signal after addition turns out to be proportional to the number of detectors operating after a time τ, where τ is the duration of the normalized signals and the resolving time of the coincidence circuits. The main units of the proposed system are signal shapers and a summing mixer; amplitude discriminators and registers

Card 1/2

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L 35369-66

ACC NR: AR6017792

in the channels constitute stages which are not specific for the coincidence circuit. Schematic diagrams are presented and the operation of the shaping stages and adders of different types is analyzed. M. L. [Translation of abstract]

SUB CODE: 20, 09

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURINA, M.I.; KARMAZINA, L.N.; DITKIN, V.A., prof., otv. red.; ORLOVA, I.A., red.; KORKINA, A.I., tekhn. red.

[Tables and formulas for the spherical functions $P^m_{-1/2+i\tau}(z)$

Tablitsy i formuly dlia sfericheskikh funktsii $P^m_{-1/2+i\tau}(z)$

Moskva, Vychislitel'nyi tsentr AN SSSR, 1962. 55 p. (MIRA 15:12)

(Functions) (Mathematics—Tables, etc.)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURINA, M.I.; KARMAZINA, L.N.; DITKIN, V.A., prof., otv. red.; ORLOVA, I.A., red.; POPOVA, N.S., tekhn. red.

[Tables of Legendre's functions $P^{1}_{-1/2+i\tau}(x)$]
Tablitsy funktsii Lezhandra $P^{1}_{1/2+i\tau}(x)$.
Moskva, Vychislitel'nyi tsentr AN SSSR, 1963. 404 p.
(Legendre's functions) (MIRA 16:7)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURINA, Mariya Ivanovna; KARMAZINA, Lena Nikolayevna; DITKIN, V.A., prof., otv.red.; YAKOVKIN, M.V., red.; VOLKOVA, V.V., tekhn.red.

[Tables of the Legendre functions $P_{-\frac{1}{2}+i\tau}(x)$] Tablitsy funktsii Lezhandra $P_{-\frac{1}{2}-i\tau}(x)$. Moskva, Izd-vo Akad.nauk SSSR. Vol.1. 1960. 318 p. (MIRA 14:5)

(Legendre's functions--Tables, etc)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURINA, M.I.; OSIPOVA, L.N.; DITKIN, V.A., prof., otv. red.; ORLOVA, I.A., red.

[Tables of degenerate hypergeometric functions] Tablitsy vyrozhdennoi gipergeometricheskoi funktsii. Moskva, Vychislitel'nyi tsentr AN SSSR, 1964. 243 p. (MIRA 18:1)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURINA, M. N.

USSR/Physics of High - Molecular Substances D-9

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 11544
Author : Zhurina, M.N., Trapeznikova, O.N.
Inst : Leningrad University

Title : Rotation of Molecular Groups and Temperature Dependence of the Photoelastic Coefficient of Certain Polymers.

Orig Pub : Zh. fiz. khimii, 1956, 30, No 10, 2190-2203

Abstract : A measurement is made of the dependence of the photoelastic coefficients of polymers of ethylmetacrylate, butyl metacrylate, methyl metacrylate, and vinyl acetate from -10 to + 150°, and the temperature variation of the birefringence of previously-oriented specimens from -10 to -180°. The time curves of loading and unloading were investigated, as was the dependence of the photoelastic coefficient and the stress in the highly-elastic state.

Card 1/1

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURINA M. N.

USSR/Chemistry - Photoelasticity Dec 50

"Molecular Rotation and the Temperature Dependence of the Photoelastic Coefficient of Polymethylmetacrylate," O. N. Trapeznikova, M. N. Zhurina, Leningrad State U imeni A. A. Zhdanov

"Zhur Fiz Khim" Vol XXIV, No 12, pp 1471-1485

Temperature dependence of photoelastic coefficient of polymethylmetacrylate from 30-190°C suggests the $COOCH_3$ group rotates and its anisotropy falls as temperature increases. Then, when motion of the $COOCH_3$ group is "frozen," this dependence characterizes mobility

170T19

USSR/Chemistry - Photoelasticity (Contd) Dec 50

of the carbon chain. Resemblance between this "frozen" dependence and temperature dependence of photoelastic coefficient of polystyrene points to absence of motion of benzene rings in polystyrene. "Frozen" photoelastic coefficient always has negative sign, this agreeing with the large anisotropy of the $COOCH_3$ group as compared with the CH_3. There is evidence of simultaneous existence of negative and positive double refractions in polymethylmetacrylate. Dependence of photoelastic coefficient on stress suggests the $COOCH_3$ groups interact, preventing deformation of the carbon chain.

170T19

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURINA, V.S.; KUZNETSOVA, L.Ye., [illegible], N.N.

Structural strength of aqueous dispersions of clay minerals as dependent on the degree of waterproofing of the surface of particles. Koll. zhur. 26 no.4:441-446 Jl-Ag '64. (MIRA 17:9)

1. Institut Fizicheskoy khimii AN SSSR, Moskva.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURINA, V.S.

SERB-SERBINA, N.N.; SAVVINA, Yu.A.; ZHURINA, V.S.

Formation of calcium hydrochloro-aluminates and its action on the structure of hardened cement. Dokl. AN SSSR 111 no.3: 659-662 N '56. (MLRA 10:2)

1. Institut fizicheskoy khimii Akademii nauk SSSR. Predstavleno akademikom P.A. Rebinderom.
(Calcium chloride) (Portland cement)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

Zhurke, V.A.

LIVYY, G.V.; ZHURKE, V.A.; LANDA, I.M.; TUGOV, I.I.

[redacted]

Effect of rubber dust on properties of vulcanizates. Leg. prom. 16 no.8:28-30 Ag '56. (MIRA 10:12)

(Rubber)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

KILIUSKIY, Ye.L.; KECHKER, M.I.; ZHURK, Ye.A.

Diagnosis of myocardial infarct in left bundle branch block. Terap. arkh. 31 no.2: 77-83 F '59. (MIRA 12:1)

1. Iz 1-y kafedry terapii (zav. - deystvitel'nyy chlen AMN SSSR prof. M.S. Vovsi) TSentral'nogo instituta usovershenstvovaniya vrachey.
(MYOCARDIAL INFARCT, compl.
bundle branch block, diag. (Rus))
(HEART BLOCK, compl.
bundle branch block in myocardial infarct, diag. (Rus))

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKIN, B.G.

PHASE I BOOK EXPLOITATION SOV/4358
SOV/16-8-5

Akademiya nauk SSSR. Institut metallurgii

Metallurgiya, metallovedeniye, fiziko-khimicheskiye metody issledovaniya (Physicochemical Research Methods in Metallurgy and Metal Science) Moscow, Izd-vo AN SSSR, 1960. 251 p. (Series: Its: Trudy, vyp. 5) Errata slip inserted. 2,800 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni A.A. Baykova.

Resp. Ed.: I.P. Bardin, Academician (Deceased); Ed. of Publishing House: V.A. Klimov; Tech. Ed.: T.P. Polenova.

PURPOSE: This collection of articles is intended for metallurgists and metal researchers.

COVERAGE: The collection contains articles on metallurgy, metal science, and physicochemical research methods. Separate articles discuss the structure and properties of some metals and alloys. The effect of cold treatment and inclusions on the properties of alloys are analyzed, and instruments and

Kalinina, A.A., and F.I. Shamray. Physicochemical Study of the SiC-B_4C Section of the Si-B-C System 151

Savitskiy, Ye. M., and V.V. Baron. Study of the Structure and of the Physicochemical Properties of Molybdenum Disilicide Alloys Containing Nickel, Cobalt, Vanadium, and Niobium 156

Fedorov, T.F., and F.I. Shamray. On the Equilibrium of the Reaction of Thermal Reduction of Lithium Oxide by Silicon in the Presence of Calcium Oxide 162

Savitskiy, Ye. M., V.V. Baron, and Yu. V. Yefimov. State Diagram of the Y-La System 166

Petrov, D.A. Problems of Solubility and State of Impurities in Semiconductors 174

Zharkin, B.G., N.O. Kozma, and I.N. Belokurova. Study of the Electrical Properties of Ge-Si Alloys 178

Svet, D. Ya., and O.N. Tolmachev. Photoelectric Method and Experimental Unit for Determining the Radiation Capacity of Molten Metal 183

Sipriko, I.V. Study of the Process of Continuous Secondary Electron Amplification in a Single-Channel Multiplier 189

Golubtsova, N.B. Rapid Method for the Determination of Iron in Alloys 193

Nagibin, V.S., and A.V. Arkhipova. Determination of Metallic Manganese in Slags 196

Melent'yev, B.N., and N.S. Gertsova. Polarography of Large Quantities of Uranium 198

Ignatov, D.V. Principal Methods and Apparatus for Studying the Processes of Oxidation of Metals and Alloys 202

Lyubitov, Yu. N. On the Use of Mass Spectrometric Methods of Analysis in Metallophysics 258

Grigorovich, V. K. Mechanical Principles of Hardness Tests 264

Card 6/7

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHUHKIN, B.G.; KEKUA, M.G.; BELOKUROVA, I.N.

Investigating the electrical properties of Ge-Si alloys. Trudy Inst. met. no.5:178-182 '60. (MIRA 13:6)
(Germanium-silicon alloys--Electric properties)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

30753
S/181/61/003/011/038/056
B104/B102

24,7700 (1035,1043,1055)

AUTHORS: Zhurkin, B. G., Zemskov, V. S., and Yurkina, K. V.

TITLE: Hall mobility of electrons in highly alloyed n-type germanium

PERIODICAL: Fizika tverdogo tela, v. 3, no. 11, 1961, 3509 - 3513

TEXT: The Hall mobility of electrons in n-type germanium monocrystals alloyed with antimony (up to $2.5 \cdot 10^{19}$ cm^{-3}) and arsenic (up to $6.0 \cdot 10^{19}$ cm^{-3}) was studied. Specimens cut from monocrystal ingots were used for measurements carried out at room temperature. The specimens had the dimensions 7·3·1 mm, the ingots had been produced by crystal pulling. The method of manufacturing strongly alloyed germanium was described in previous papers (B. G. Zhurkin et al., Izv. AN SSSR, OTN, no. 5, p. 86, 1959; V. S. Zemskov et al., Tezisy dokl. na konf. po udarnoy ionizatsii i tunnel'nomu effektu v poluprovodnikakh, Baku, 14 - 17, 1960). Electron-electron collisions were not taken into account because of degeneration in alloyed germanium. The Hall mobility was computed by the relation

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

30793

S/181/61/003/011/038/056
B104/B102

Hall mobility of electrons in highly...

$\mu = R/\rho$, where R is the Hall constant and ρ the resistivity. The two latter quantities were measured with the use of a PPTN-1 (PPTN-1) voltmeter and an M25/3 (M25/3) galvanometer by a d-c compensation method. Magnetic fields of 3800-4200 oe were employed to measure R. The measuring error of ρ was $\pm$ 5 %, that of the Hall-emf $\pm$ (10-20)%. The results showed that the Hall mobility of the electrons in germanium alloyed with antimony (10^{18} - 10^{19} cm^{-3}) by far exceeds that of germanium of equal arsenic concentration. At an impurity concentration of about 10^{19} cm^{-3} the Hall mobility of electrons in germanium alloyed with antimony is almost twice that in germanium alloyed with arsenic. It is assumed that this difference is due to a change in effective electron mass m_n with the impurity. When electron scattering from impurity atoms and lattice vibrations was taken into account, an estimation of the effective masses $m_{n(Sb)}$ and $m_{n(As)}$ showed that within the concentration range of $5 \cdot 10^{17}$ - $2.5 \cdot 10^{19}$ cm^{-3} $m_{n(Sb)}$ was changed from 0.19 m to 0.30 m. In the range of arsenic concentration

Card 2/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

30793

Hall mobility of electrons in highly... S/181/61/003/011/038/056
B104/B102

of $5.10^{17} - 5 \cdot 10^{19}$ cm^{-3}, $m_{n(As)}$ was changed from 0.195 m to 0.52 m. The authors thank B. M. Vul', L. V. Keldysh, and V. A. Chuyenkov for discussions. There are 1 figure, 2 tables, and 10 references: 3 Soviet and 7 non-Soviet. The three most recent references to English-language publications read as follows: W. Waring, D. Pitman, S. Steele, J. Appl. Phys., 29, no. 6, 1002, 1958; W. E. Baker, D. M. Compton. J. B. M. J. Res. and Develop., 4, no. 3, 275, 1960; M. Cardona, W. Paul, H. Brooks. Helv. phys. acta, 33, no. 5, p. 329, 1960.

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

SUBMITTED: March 3, 1961 (initially) July 3, 1961 (after revision)

Card 3/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

S/120/62/000/001/030/061
E140/E463

AUTHORS: Anufriyev, B.F., Dokhnovskiy, S.B., Zhurkin, B.G., Kopylovskiy, B.D., Penin, N.A.

TITLE: Transistor current regulator for electromagnets

PERIODICAL: Pribory i tekhnika eksperimenta, no.1, 1962, 129-131

TEXT: A classical current regulator is described using transistor circuitry for stabilizing currents 0 to 30 A for electromagnets used in physical experiments. The voltage reference is the drop across a manganin tape in an oil bath, cooled by circulating water. This voltage drop is compared with that from a dry battery. The stabilization factor per °C is 3.03×10^4. The bandwidth of the regulator is 20 kc. There are 2 figures.

ASSOCIATION: Fizicheskiy institut AN SSSR (Physics Institute AS USSR)

SUBMITTED: May 8, 1961

Card 1/1

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

37735

S/180/62/000/002/014/018
E039/E435

18.8100

AUTHORS: Zemskov, V.S., Suchkova, A.D., Zhurkin, B.G., Wang Kuei-Hua (Moscow)

TITLE: The solubility of aluminium in germanium and the influence of aluminium on some electrical properties of germanium

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo. no.2, 1962, 131-134

TEXT: The initial materials used were electron type germanium with a specific resistance of 50 ohm cm and aluminium purified by zone melting containing Fe $< 7 \times 10^{-4}$%, Mg 2×10^{-4}%, Si 4×10^{-4}%, Cu 5×10^{-5}% and Zn $< 1 \times 10^{-4}$%. Alloys were prepared by the extraction method and all the investigated samples were single phase. The region of solid solution was investigated at 675°C. It is shown that the concentration of Al in solid solution varied from 9.97×10^{-3} at.% at a concentration of Al of 0.1 at.%, to 1.544 at.% at 46.2 at.% Al. A solidus curve is plotted on which is included results from earlier papers. Good agreement is obtained at 850°C but the earlier results

Card 1/2

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

give rather lower values of Al concentration at temperatures less than 850°C. The concentration of current carriers was determined by measuring the Hall constant in a magnetic field of 4000 oersted and using the formula $n = A/Re$ where A is a coefficient, dependent on the diffusion mechanism of the current carriers, R is the Hall constant and e is the electronic charge. There are no accurate data for the change in A with concentration of acceptor atoms. However, estimated values are shown to give results within the limits of experimental error. The dependence of the specific resistance ρ on the concentration of Al atoms n is also determined and shown to fall on the same line as values for In and for In, Al, Ga obtained previously. ρ varies from 5×10^{-2} to 2×10^{-4} ohm cm for n varying from 10^{17} to 10^{21} cm^{-3}. Values of the Hall mobility are calculated and shown to agree with earlier results. A weak dependence of μ on the concentration of acceptors is found at a concentration of Al atoms $\geqslant 10^{18}$ cm^{-3} which appears to be dependent on screening. There are 3 figures and 1 table.

SUBMITTED: May 31, 1961

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

37736

S/180/62/000/002/015/018
E040/E535

18.1200

AUTHORS: Zemskov, V.S., Zhurkin, B.G. and Yurkina, K.V. (Moscow)

TITLE: The solubility of arsenic in germanium

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo, no.2, 1962, 134-135

TEXT: Arsenic is one of the most commonly used alloying elements of germanium but, in spite of this, the available technical data for the solubility of arsenic in germanium are incomplete and often conflicting. The present investigation was carried out using a technique involving the extraction of samples from molten germanium solution containing various concentrations of arsenic and subsequent investigation, of the specimens thus obtained, by X-ray structural and microscopic analyses, determination of the quantity of current carriers from measurements of the Hall constant and measurement of the specimen resistivity at room temperature. The starting materials for the investigations were germanium with the resistivity ρ = 35-40 ohm·cm and diffusion length of the minority current carriers of not less than 2-2.5 mm.

Card 1/2

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E040/E535

The arsenic contained calcium and magnesium impurities in concentrations not exceeding 10^{-3} and 10^{-4}%, respectively. A partial phase composition diagram for the As-Ge system is constructed in semi-logarithmic coordinates in the temperature range 700 - 937°C and the solidus line is drawn in, together with the liquidus line quoted on the basis of data reported by H. Stöhr and W. Klemm (Ref.6: Z.anorgan.und allgem.Chem., 1940, 244, p.205). It was established that the highest solubility of arsenic in germanium does not exceed 0.12 at.%. The above figure for the maximum solubility of arsenic in germanium-base solid solution agrees well with the value recently reported in the paper by P. L. Moody and A. J. Strauss (Ref.9: J. Electrochem.Soc., 1960, v.107, p.64). There are 1 figure and 1 table.

SUBMITTED: May 31, 1961

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZEMSKOV, V.S.; SUCHKOVA, A.D.; ZHURKIN, B.G.

Heterogeneous equilibrium in the system Ge - In - Sb. Zhur. fiz. khim. 36 no.9:1914-1918 S '62. (MIRA 17:6)

1. Institut metallurgii imeni A.A. Boykova, Moskva.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

S/0181/64/006/004/1141/1144

ACCESSION NR: AP4028443

AUTHORS: Zhurkin, B. G.; Penin, N. A.

TITLE: The effect of concentration of impurity atoms on the spectrum of electron paramagnetic resonance of donors in silicon

SOURCE: Fizika tverdogo tela, v. 6, no. 4, 1964, 1141-1144

TOPIC TAGS: electron paramagnetic resonance, silicon, impurity atom, doped semiconductor, Czochralski method, impurity concentration

ABSTRACT: The authors describe the results of studying changes in the EPR spectrum in single crystals of Si doped with various concentrations of P or As. Measurements were made in the temperature interval 2-20K. The crystals were grown by the Czochralski method, and impurity concentrations were determined by measuring the Hall coefficient at room temperature. These concentrations ranged from 10^{17}-$3 \cdot 10^{18}$ cm^{-3}. It was found that increase in donor concentration leads to gradual disappearance of lines representing hyperfine interaction in the EPR spectrum and results in the appearance of a single line, the width decreasing with increase in concentration

Card 1/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

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ACCESSION NR: AP4028443

and in temperature, within the limits of the experimental ranges of these two factors. The observed changes in the EPR spectrum are explained by delocalization of electrons as the impurity band develops and as metallic conductivity begins to appear. Compression of the single EPR line with increasing concentration of As was found to take place at higher concentrations than with P. The nature of the spectral change also indicates chaotic interaction of the impurity atoms. The EPR spectrum shows lines of isolated atoms, lines due to different grouping of atoms associated with exchange interaction, and also lines of mobile electrons. The chaotic distribution of impurities (in forming an impurity band) gives rise to set of energy levels near the conduction band, each at a different depth and corresponding to different groups of atoms, with wave functions of the donor electrons overlapping to various extents. "In conclusion, the authors express their thanks to M. G. Mil'vidskiy for preparing the single crystals of silica doped with phosphorus and arsenic." Orig. art. has: 4 figures.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR, Moscow (Physical Institute AN SSSR)

Card 2/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ACCESSION NR: AP4028443

SUBMITTED: 01Nov63 DATE ACQ: 27Apr64 ENCL: 00

SUB CODE: EC, SS NO REF SOV: 000 OTHER: 005

Card 3/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ACCESSION NR: AP4043402 S/0181/64/006/008/2558/2560

AUTHORS: Zhurkin, B. G.; Penin, N. A.; Volkov, V. A.

TITLE: Influence of compensation on the form of the epr spectra in n-type silicon

SOURCE: Fizika tverdogo tela, v. 6, no. 8, 1964, 2558-2560

TOPIC TAGS: electron paramagnetic resonance, line broadening, phosphorus, silicon, boron, crystal growth, spectrometry, impurity content, spin balance

ABSTRACT: In view of the confusion still existing with respect to the distribution of the energy states in the impurity band, the authors experimented with phosphorus-doped n-silicon. The measurements were made for three values of the phosphorus concentration: 2.3×10^{17}, 6.0×10^{17}, and 1.0×10^{18} cm^{-3}, with the phosphorus concentration in the compensated samples being equal to the concen-

Card 1/4

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ACCESSION NR: AP4043402

tration in the corresponding uncompensated samples. The compensation was effected by introducing boron in crystals grown by the Czochralski method. The samples for the measurements were cut from compensated and uncompensated parts of the same single crystal. The experiments were carried out with a superheterodyne EPR spectrometer at 9.4 Gc and 2K. The results show that at 2.3×10^{17} cm^{-3} the width of the impurity band is still narrow and probably does not exceed kT (1.74×10^{-4} eV). At 6.0×10^{17} cm^{-3} apparently at least 90% of the states of the impurity band lie above the level corresponding to the isolated impurity atoms. This was in contradiction with the theoretical predictions which call for the states of the impurity band to be symmetrical with respect to this energy level. At 1×10^{18} cm^{-3}, the compensation decreases the spin concentration by approximately a factor 5 and broadens the EPR line to 8 Oe. This indicates that the electrons of the lower states in the impurity band are more strongly localized than the electrons of the higher states. "In conclusion the authors are grateful to A. N.

Card 2/4

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ACCESSION NR: AP4043402

Nelyubova for preparing the compensated samples of silicon." Orig. art. has: 1 figure.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Physics Institute, AN SSSR)

SUBMITTED: 06Apr64 ENCL: 01

SUB CODE: SS NR REF SOV: 003 OTHER: 003

Card 3/4

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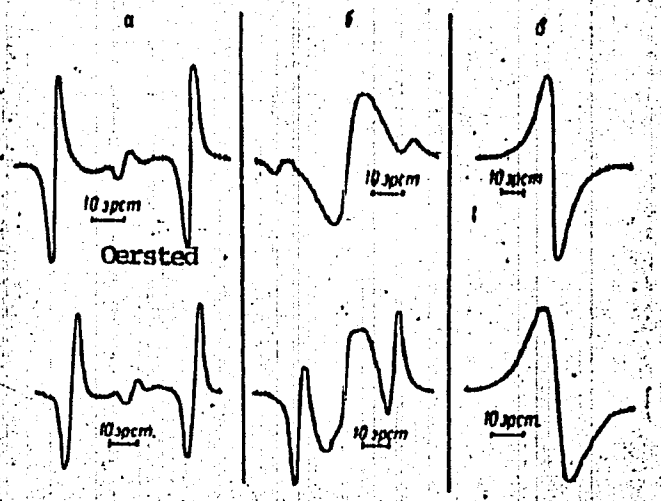
"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ACCESSION NR: AP4043402

ENCLOSURE: 01

EPR spectra in silicon doped with phosphorus at varying concentrations

Upper row - uncompensated samples
lower row - compensated



Card 4/4

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

L 4439-66 EWT(m)/EWP(t)/EWP(b) IJP(c) JD

ACC NR: AP5021143 UR/0386/65/002/001/0021/0023

AUTHOR: Zhurkin, B. G.; Penin, N. A.

50
49
B

TITLE: Temperature dependence of hyperfine interaction lines in EPR spectra of phosphorus in silicon

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 2, no. 1, 1965, 21-23

TOPIC TAGS: EPR spectrum, silicon, hyperfine structure, impurity center, wave function

ABSTRACT: The authors investigated the temperature dependence of the spectra of electron paramagnetic resonance in n-type silicon doped with phosphorus, and observed that the hyperfine interaction lines behaved differently in spectra of samples with different phosphorus concentrations. The measurements were made at two temperatures (2 and 20K) for samples with donor concentration 2, 4.5, and 6 x 10^{17} cm^{-3}. In the last two samples the intensity of the hyperfine interaction lines decreased rapidly with increasing temperature. This difference is attributed to the different nature of the paramagnetic centers which make the main contribution to these lines at different phosphorus concentrations. At 2 x 10^{17} cm^{-3} the hyperfine interaction lines are due principally to the isolated atoms of the phosphorus, since the overlap of the wave functions is insignificant at this concentration. At higher concentrations there is considerable overlapping of the wave functions, and the hyperfine interaction lines

Card 1/2

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L 4439-66

ACC NR: AP5021143

are then due to groups of interacting atoms. An increase in temperature causes an increase in the frequency of the jump between the atoms, i.e., an intensification of the delocalization of the electrons, and is therefore accompanied by a decrease in the hyperfine-interaction intensity. Orig. art. has: 1 figure.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute, Academy of Sciences, SSSR)

SUBMITTED: 19May65 ENCL: 00 SUB CODE: SS, OP

NR REF SOV: 001 OTHER: 001

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

L 5039-66 EWT(1)/EWT(m)/EWP(t)/EWP(b) IJP(c) JD

ACC NR: AP5027391 SOURCE CODE: UR/0181/65/007/011/3188/3193

AUTHOR: Penin, N. A.; Zhurkin, B. G.; Volkov, B. A.

ORG: Physics Institute im. P. N. Lebedev, AN SSSR, Moscow (Fizicheskiy institut AN SSSR)

TITLE: The influence of concentrations of donors and acceptors on the electric conductivity of high-alloyed n-type silicon

SOURCE: Fizika tverdogo tela, v. 7, no. 11, 1965, 3188-3193

TOPIC TAGS: electric conductivity, impurity conductivity, crystal impurity, impurity band, silicon alloy

ABSTRACT: An investigation was made of the influence of the concentration of phosphorus and the degree of compensation by boron on the electric conductivity of a high-alloyed n-type silicon with weak and strong compensation in a range of temperatures from 4.2 to 78K. The activation energy ε_1 of the impurity conductivity and the activation energy ε_3 of the hopping conductivity were measured. The measurements were performed on weakly and strongly compensated silicon specimens with basic impurity concentrations N_D of 2×10^{17}, 6×10^{17}, and 1×10^{18} atoms of phosphorus per cm^3. Specimens were cut from noncompensated and compensated parts of the same silicon single crystal. Compensation was accomplished by introducing boron into the melt during the growth of the crystals. The degree of compensation $K = N_A/N_D$ in the specimens was determined by measuring both the tempera-

Card 1/2

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L 5039-66

ACC NR: AP5027391

ture of the Hall effect and the electroconductivity. An increase in the compensating impurity (boron) in silicon alloyed with phosphorus changed the activation energy ε_1 of the impurity conductivity more strongly than the corresponding increase in the phosphorus concentration. A decrease of the activation energy ε_1 with the concentration of phosphorus was observed at concentrations at which a substantial overlap of wave functions of impurity atoms occurred. This overlap caused the bottom of the conductivity zone to decrease. The strong influence of a minor impurity on the activation energy ε_1 is limited by the electric fields of charged atoms of minor impurity, which are effective at large distances. With an increased concentration of phosphorus atoms at a small degree of compensation, the activation energy ε_3 of the hopping conductivity increased initially and then at a concentration above 6×10^{17} cm^{-3} began to decrease. At a small degree of compensation, the dependence of conductivity on temperature has definite values for the activation energies ε_1 and ε_2. For instance, at a strong compensation in specimens with a high concentration of donors, the activation energies ε_1 and ε_3 depend on temperature. This can be attributed to the emergence of a strongly fluctuating electric field generated by the charged donors and acceptors. Orig. art. has: 3 figures, 6 formulas, and 1 table. [JA]

SUB CODE: SS/ SUBM DATE: 16Apr65/ ORIG REF: 002/ OTH REF: 008/ ATD PRESS: 4132

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

L 5400-66 EWT(m)/T/EWP(t)/EWP(b)/EWA(h) IJP(c) JD/JG/AT

ACC NR: AP5027394 SOURCE CODE: UR/0181/65/007/011/3204/3208

AUTHOR: Zhurkin, B. G.; Penin, N. A.

ORG: Physics Institute AN SSSR, Moscow (Fizicheskiy institut im. P. N. Lebedeva AN SSSR)

TITLE: Effect of compensation on the exchange interaction of donors in heavily doped n-silicon

SOURCE: Fizika tverdogo tela, v. 7, no. 11, 1965, 3204-3208

TOPIC TAGS: semiconductor theory, silicon semiconductor, epr spectrometry

ABSTRACT: Analysis of electron paramagnetic resonance spectra of compensated silicon shows a new compensation effect which occurs in heavily doped semiconductors: the exchange interaction of the majority impurity atoms is interrupted in the electrical fields of minority impurity charge centers. The authors give experimental data on this effect observed by the electron paramagnetic resonance method in heavily doped n-silicon with a phosphorus concentration of 10^{17}-10^{18} cm^{-3}, compensated with boron. Both weakly and heavily compensated specimens were studied. The boron was added to the melt while the specimens were being grown by the Czochralski method.

Card 1/2

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L 5400-66

ACC NR: AP5027394

3

The degree of compensation was determined from the relationship between temperature and electrical conductivity in weakly compensated specimens, and by measuring the Hall effect and electrical conductivity at room temperature for heavily compensated specimens. The electron paramagnetic resonance spectrum for a weakly compensated specimen with a phosphorus concentration of 10^{16} cm^{-3} at 2°K is an isolated line with a width of 6 oe and no traces of hyperfine interaction. The spin density in this specimen was reduced by a factor of ~5 after 80% compensation while the line width increased to 8 oe. The greatest change in the form of the electron paramagnetic resonance spectrum was observed in a specimen with a phosphorus concentration of $6 \cdot 10^{17}$ cm^{-3}. In this case, 90% compensation reduced the total spin density by a factor of ~10, while the intensity of lines for hyperfine structure was approximately doubled. A theoretical explanation of these phenomena is given based on attenuation of the volume interaction of phosphorus atoms in the electric fields of the negatively charged acceptors. In conclusion, the authors express their gratitude to L. V. Keldysh for discussion of the results. Orig. art. has: 2 figures, 1 table.

44,55

SUB CODE: SS/ SUBM DATE: 28Apr65/ ORIG REF: 003/ OTH REF: 006

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Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ACC NR: AP6037022 (A,N) SOURCE CODE: UR/0181/66/008/011/3445/3447

AUTHOR: Zhurkin, B. G.; Kucherenko, I. V.; Penin, N. A.

ORG: Physics Institute im. P. N. Lebedev, AN SSSR, Moscow (Fizicheskiy institut AN SSSR)

TITLE: Influence of uniaxial compression on the jump conductivity in p-Si

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3445-3447

TOPIC TAGS: silicon semiconductor, semiconductor conductivity, pressure effect, activation energy, temperature dependence

ABSTRACT: The purpose of the investigation was to determine the dependence of the activation energies ϵ_2 and ϵ_3 on the pressure in p-Si. The measurements of the electric conductivity were made in a sample with boron impurity 1.6×10^{18} cm^{-3} at pressures 0.37 kg/mm^2 and temperature 4.2 - 77K. The pressure and the current through the sample were both parallel to the [110] direction. The tests showed that the temperature dependence of the conductivity can be represented as a sum of exponentials in the activation energy,

$$\sigma = \sum_{i=1}^{3} \sigma_i \exp\left(-\frac{\epsilon_i}{kT}\right).$$

The conductivity with activation energy ϵ_1 corresponds to transition of holes from

Card 1/2

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ACC NR: AP6037022

the acceptor states to the valence band, and remains practically unchanged with pressure. The conductivities with activation energies ϵ_2 and ϵ_3 correspond to the jump conductivity, and increase with pressure. The relation between the change in the values of ϵ_2 and ϵ_3 and the distortion of the spherical form of the acceptor wave function are discussed, and the resultant addition to the Coulomb-interaction energy is evaluated. The results are discussed from the point of view that the ϵ_2 process is connected with the ionization of the acceptor atoms (change from states A^2 to states A^+), and the ϵ_3 process represents negative ionization of the acceptor atoms (transition from A^0 to A^-). It is suggested that the effective Bohr radius of the states A^+ and A^0 increase with increasing uniaxial compression. The authors thank B. M. Vul for a discussion of the results. Orig. art. has: 2 figures and 1 formula.

SUB CODE: 20/ SUBM DATE: 17Jun66/ OTH REF: 005

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ACC NR: AP7005840 SOURCE CODE: UR/0181/66/008/012/3550/3554

AUTHOR: Zhurkin, B. G.; Penin, N. A.; Svarup, P.

ORG: Physics Institute im. P. N. Lebedev, AN SSSR, Moscow (Fizicheskiy institut AN SSSR)

TITLE: Influence of jumplike motion of the electrons on the EPR spectrum of phosphorus in strongly doped n-type silicon

SOURCE: Fizika tverdogo tela, v. 8, no. 12, 1966, 3550-3554

TOPIC TAGS: electron motion, epr spectrum, phosphorus, silicon semiconductor, semiconductor impurity, spectral line, line width

ABSTRACT: This is a continuation of earlier work (FTT v. 7, 3204, 1965 and elsewhere) where a strong dependence of the EPR spectra of phosphorus in n-Si on the impurity-atom concentration, temperature, and degree of compensation was established. The present article reports results of research on the shape and width of the central line in strongly doped samples as functions of the concentration of the phosphorus atom, the temperature, and the degree of compensation by boron. The samples were grown by the Czochralski method and the EPR spectra were measured in the interval 2 - 20K with a superheterodyne spectrometer operating at 9.4 GHz. The line shape was analyzed by comparison with standard Lorentz and Gaussian curves. The results show that an increase of the phosphorus concentration from 4×10^{17} to 1×10^{18} cm^{-3} and of the temperature from 2 to 20K produces narrowing of the line, which has a Lorentz shape at

Card 1/2

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ACC NR: AP7005840

these concentrations and temperatures. It was found further that strong compensation ($K \approx 0.8 - 0.9$) causes line broadening and a change in the line shape on the edges from Lorentz to Gaussian. The Bohr radius is estimated at 18 ± 2 Å and this is in good agreement with the theoretical value. The causes of the observed line narrowing and broadening are discussed and certain discrepancies with results by others are explained. Orig. art. has: 3 figures, 2 formulas, and 1 table.

SUB CODE: 20/ SUBM DATE: 03May66/ ORIG REF: 005/ OTH REF: 008

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

S/058/63/000/002/045/070
A062/A101

AUTHOR: Zemskov, V. S., Zhurkin, B. G., Suchkova, A. D., Yurkina, K. V.

TITLE: Production and properties of strongly alloyed germanium

PERIODICAL: Referativnyy zhurnal, Fizika, no. 2, 1963, 71, abstract 2E473 ("Tr. Soveshchaniya po udarn. ionizatsii i tunnel'n. effektu v poluprovodnikakh, 1960". Baku, AN AzerbSSR, 1962, 130 - 150)

TEXT: By the method of extracting the solid phase from a smelt with a large content of alloying admixture, single crystals of Ge were obtained with a concentration of Al up to $1.0 \cdot 10^{21}$ cm^{-3}, with a concentration of As up to $6.0 \cdot 10^{19}$ cm^{-3}, with a concentration of Sb up to $2.5 \cdot 10^{19}$ cm^{-3} and with a concentration in In up to $2.0 \cdot 10^{19}$ cm^{-3}. It is established that there is an increase of solubility of In and Sb in Ge at a combined alloying, and this is explained on the basis of the electron-hole interaction in the solid phase. Applying the method of quantitative radiography and measuring the Hall effect made it possible to determine separately the concentration of In and Sb in the solid phase of Ge, while the data on the Hall mobility show an absence of neutral ion pairs $[In^- Sb^+]^o$. It was found that

Card 1/2

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A062/A101

Production and properties of...

at room temperature the Hall mobility in Ge with Sb, in the range of Sb concentrations from $2 \cdot 10^{18}$ to $5 \cdot 10^{19}$, is about twice as high as the Hall mobility in Ge with As at equal concentrations of the admixtures.

[Abstracter's note: Complete translation]

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZEMSKOV, V.S. (Moskva); SUCHKOVA, A.D. (Moskva); ZHURKIN, B.G. (Moskva)
VAN GUY-KHUA [Wang Kuei-hua] (Moskva)

Aluminum solubility in germanium and the effect of aluminum on certain electric properties of germanium. Izv. AN SSSR. Otd. tekh. nauk. Met. i topl. no.2:131-134 Mr-Ap '62. (MIRA 15:4)
(Aluminum-germanium alloys--Electric properties)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZEMSKOV, V.S. (Moskva); ZHURKIN, B.G. (Moskva); YURKINA, K.V. (Moskva)

Arsenic solubility in germanium. Izv. AN SSSR, Otd. tekh. nauk. Met. i topl. no.2:134-135 Mr-Ap '62. (MIRA 15:4)
(Germanium-arsenic alloys)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ANUFRIYEV, B.F.; DOKHNOVSKIY, S.B.; ZHURKIN, B.G.; KOPYLOVSKIY, B.D.; PENIN, N.A.

Transistor current regulator for electromagnets. Prib.i tekh.eksp. 7 no.1:129-131 Ja-F '62. (MIRA 15:3)

1. Fizicheskiy institut AN SSSR.
(Transistor circuits)(Voltage regulators)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

S/076/62/036/009/003/011
B101/B102

AUTHORS: Zemskov, V. S., Suchkova, A. D., and Zhurkin, B. G. (Moscow)

TITLE: Study of the heterogeneous equilibrium in the system Ge-In-Sb

PERIODICAL: Zhurnal fizicheskoy khimii, v. 36, no. 9, 1962, 1914 - 1918

TEXT: The equilibrium between the solid and liquid phases was determined on three cross sections passing through the Ge-InSb cross section. The a - a cross section corresponded to a Ge content of 86.7 atom%, equilibrium temperature 860°C, the b - b cross section to a Ge content of 71 atom%, equilibrium temperature 812°C, and the c - c cross section to a Ge content of 41.2 atom%, equilibrium temperature 672°C. The concentration of admixtures (In, Sb) was determined in the Ge crystal pulled at 0.4 mm/min. n-type Ge was used, resistivity 30 ohm.cm, electron mobility 3600 cm/v·sec, diffusion length of minority carriers >2 mm. The crystals were examined radiographically, the number of carriers and the Hall constant were determined, and the macro- and microstructures were investigated. The Sb concentration was determined with the aid of Sb^{124}, the In concentration on the basis of the number of current carriers. Results:

Card 1/2

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

Study of the heterogeneous ... S/076/62/036/009/003/011
B101/B102

(Fig.): Solid phases containing more Sb than In are in equilibrium with the Ge-InSb cross section. Thus, the Ge - InSb cross section is not a quasibinary system as it does not reproduce the true equilibrium between the solid and liquid phases. The increased solubility of In and Sb jointly present in Ge is explained by an electron - hole equilibrium in the solid phase, since the formation of $[In^{-}Sb^{+}]^{0}$ complexes is improbable at the experimental temperature. There is 1 figure.

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

SUBMITTED: January 7, 1961

Fig. Variation of the Sb and In contents in the solid phases as a function of their concentrations in the liquid phase. (а) = a - a cross section; (б) = b - b cross section; (в) = c - c cross section; (1) Sb in the solid phase; (2) In in the solid phase; a.m% = atom%; dotted line = theoretical solubility.

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ANISTRATOV, Yu.I., inzh.; IL'IN, S.A., inzh.; ZHURKIN, G.V., inzh.

Exploitation of truck transportation in open pits under conditions of poor visibility. Gor. zhur. no.5:20-23 My '63. (MIRA 16:5)
(Mine haulage)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKIN, G.V., inzh.

Tractor signals for highways. Trakt. i sel'khozmash. 30 no.6:14 Je '60. (MIRA 13:11)

1. Nauchno-issledovatel'skiy institut Avtopribor.
(Signals and signaling, Tractor)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKIN, Ivan Alekseyevich; ZARUBIN, V.; KATAGOSHCHIN, B.

[Mikhaylov]Mikhailov. Riazan' Riazanskoe knizhnoe izd-vo, 1961. 52 p. (MIRA 15:8)

(Mikhaylov)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

S/2984/63/000/000/0013/0016

ACCESSION NR: AP3008536

AUTHORS: Zhurkin, N. S.; Konshin, V. M.; Bruk, G. L.

TITLE: Control system for the 2.6 m telescope

SOURCE: Novaya tekhnika v astronomii; materialy* soveshch. Komissii priborostroyen. pri Astronom. sovete AN SSSR, Moskva, 18-20 apr. 1961 g. Moscow, Izd-vo AN SSSR, 1963, 13-16

TOPIC TAGS: control system, automatic control, telescope, EMU 12A motor, MI 32T motor

ABSTRACT: The basic problems of this system were worked out in 1959 at the Krymskaya astrofizicheskaya observatoriya AN SSSR (Crimean Astrophysical Observatory AN SSSR). The system involves the following devices: 1) a central panel for automatic and semiautomatic control, 2) a computer for refraction correction, coordinate computation, conversion of equatorial to altazimuth coordinates, and final determination of corrected position, 3) generator of stable frequency for controlling hour-angle rotation, 4) auxiliary panel for semiautomatic control of dome, and 5) auxiliary control apparatus for directing observer's platform. Movement of the telescope for automatic orientation is effected by means

Card 1/2

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ACCESSION NR: AP3008536

of EMU-12A and MI-32T DC motors at a rate of 1 deg/sec with a positioning accuracy of ± 15 seconds of arc. For semiautomatic orientation, coarse adjustment is made at the same rate, finer adjustment may be varied smoothly from 600 down to 12 seconds of arc per second, and the finest correction may be varied from 12 down to 0.5 seconds of arc per second. The observer's platform permits any part of the telescope to be reached easily, the movements being controlled by the operator through the semiautomatic panel. All controls may be handled by a single operator. The computer is completely automatic, and the main panel, auxiliary panel, and observer's platform are interconnected by a telephone system.

ASSOCIATION: GOMZ

SUBMITTED: 00

DATE ACQ: 16Oct63

SUB CODE: AA, IE

NO REF SOV: 000

ENCL: 00

OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

TIMCHIN, V. I.; ZHUPKIN, P.G., elektromekhanik

Attachment to the commutator of subscriber's telegraph apparatus. Avtom. telem. i sviaz' 5 no.9:37-38 S '61. (MIRA 14:10)

1. Smennyy inzh. telegrafa upravlencheskoy distantsii signalizatsii i svyazi Severo-Kavkazskoy dorogi (for Timchin).
(Railroads--Communication systems)
(Telegraph--Equipment and supplies)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKIN, S.

The second birth of "Toida." Sov. profsoiuzy 18 no.17:11-13 S '62. (MIRA 15:8)

1. Predsedatel' rabochego komiteta sovkhoza "Toyda" Voronezhskoy oblasti.
(Voronezh Province--State farms--Management)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

PAKHALUYEV, K.M.; KOROLEV, N.M.; ZHUREKV, V.S.; SOBOLEV, A.A.

Experience in the operation of a holding furnace with uncooled hearth supports. Stal' 22 no.12:1135-1136 D '62. (MIRA 15:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut metallurgicheskoy teplotekhniki i zavod "Krasnyy Oktyabr'."
(Furnaces, Heating)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKOV, S.N.; SANFIROVA, T.P.; TOMASHEVSKIY, E.Ye.

Mechanical properties of rubbers at high stretching velocities.
Vysokom.soed. 4 no.2:196-200 F '62. (MIRA 15:4)

1. Fiziko-tekhnicheskiy institut AN SSSR.
(Rubber—Testing)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKOV, S.N.; MARIKHIN, V.A.; ROMANKOVA, L.P.; SLUTSKER, A.I.

Electron microscopic study of the structure of oriented polymethylmethacrylate. Vysokom.soed. 4 no.2:282-284 F '62. (MIRA 15:4)

1. Leningradskiy fiziko-tekhnicheskiy institut im. A.F.Ioffe.
(Methacrylic acid) (Electron microscopy)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

39976

S/181/62/004/008/021/041
B102/B104

15.8080

AUTHORS: Zhurkov, S. N., and Abasov, S. A.

TITLE: The dependence of the strength of polymers on their molecular weights

PERIODICAL: Fizika tverdogo tela, v. 4, no. 8, 1962, 2184 - 2192

TEXT: The relation between strength and molecular weight M of polymers is well known, but only in a qualitative way. To determine quantitative regularities the authors studied the dependence of strength on the degree of polymerization, p, in oriented and disoriented caprone fibers. The molecular weight of the fibers was changed by UV irradiation. The load-longevity curves ($\tau(\sigma)$) and $\sigma(p)$ of irradiated samples were measured at different temperatures. Using the relation $\tau = \tau_0 \exp[(U_0 - \sigma)/kT]$ this enabled the activation energy U_0, the structural coefficient γ, and the time factor τ_0 to be determined. Results: log τ decreases linearly with increasing σ; the lower temperature the faster it does so. The strength is rapidly reduced when M decreases. U_0 of oriented non-irradiated fibers

Card 1/3

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(M = 14700) was 45 kcal/mole, $\tau_0 \simeq 10^{-12}$ sec, γ = 0.29 kcal/mole·mm^2/kg, σ = 152 kg/mm^2 (at 77°K). After 20-hrs irradiation M dropped to 3400, σ to 37 kg/mm^2 and γ = 1.23. In the case of nonoriented fibers M changes, between 0 and 20 hrs irradiation, from 16950 to 3700, σ from 24.7 to 9.8 kg/mm^2 and γ from 1.82 to 4.60. At constant temperature log τ is a linear function of σ, and with different M a bundle of straight lines is obtained. Since these lines converge to a point on the ordinate the factor $A = \tau_0 \exp(U_0/kT)$ is constant for a given temperature; i.e. τ_0 and U_0 do not depend on the length of the polymer chain but only on γ, and $\gamma \sim 1/\sigma$. γ however is itself a function of the chain length. The physical meaning of the factor γ is discussed by reference to fluctuation mechanism governing the strength of polymers (Zhurkov and Abasov, Vysokomolek. soyed. 1962), assuming that destruction is due to the effects of thermal fluctuations. The results obtained here and also those of other authors show good agreement with this theory. There are 6 figures and 1 table.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR Leningrad (Physicotechnical Institute imeni A. F. Ioffe AS USSR, Leningrad)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

The dependence of the strength of...

S/181/62/004/008/021/041
B102/B104

SUBMITTED: March 23, 1962

Card 3/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

FEDOSEYEV, B.V., kand. tekhn. nauk; ZHURKIN, V.K., inzh.; NIKOLAYEV, G.S., inzh.

Investigating the air-cleaning of legume seeds in a vertical channel. Trakt. i sel'khozmash. 33 no.11:35-37 N '63. (MIRA 17:9)

1. Nauchno-issledovatel'skiy institut sel'skogo khozyaystva tsentral'nykh rayonov nechernozemnoy zony.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKIN, V.K.

Germinating capacity of red clover seeds in relation to operating conditions of the combine. Zemledelie 7 no.8:81 Ag '59. (MIRA 12:10)

1. Vsesoyuznyy nauchno-issledovatel'sky institut kormov imeni V.R. Vil'yamsa.
(Red clover) (Germination)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKIN, V. M.

Geological Prospecting Work 1936-1938 in the coal bearing regions of the N-E Pay-Khoy.
Trudy Gorno-Geol. Upr. Vol 8, 1941.

SO: Trudy Arkticheskogo Nauchno-Issledovatel'skogo Instituta, GUSMP, Council of Ministers, Vol 201, 1948

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

L 33253-66 EWT(1) GW

ACC NR: AT6012785 (N) SOURCE CODE: UR/3175/66/000/027/0043/0050

3/
B+1

AUTHOR: Shaub, Yu.B.; Zhurkin, Yu. F.

ORG: VIRG

TITLE: Simulation of inertial distortions in aerogeophysical anomalies 12

SOURCE: USSR. Gosudarstvennyy geologicheskiy komitet. Osoboye konstruktorskoye byuro. Geofizicheskaya apparatura, no. 27, 1966, 43-50

TOPIC TAGS: prospecting, geophysic instrument, aerial survey, signal distortion

ABSTRACT: This paper discusses the distortion of geophysical anomaly signals by airborne prospecting instruments. Velocity, altitude and instrument time constant create a distorting inertial lag, which depends upon the system's inertial parameter $B = v\tau/h$, where τ - time constant (adjustable) of the instrumentation, v - flight velocity, h - altitude. Simulation of the distorted anomalies was desired to plan optimum values of the inertial parameter B, and select a suitable instrument time constant. Simulation showed the decrease in recorded anomaly intensity, the shift of the anomaly center, and the shape of the distorted typical anomalies. Three typical undisturbed anomaly functions, ϕ_1, ϕ_2, ϕ_3 were selected, Fig. 1. The simulator produced the disturbed anomaly functions by analogue circuitry from the internally generated undistorted anomaly functions, applying their signals to to an inertia simulating block connected to

Card 1/2

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ACC NR: AT6012785

an oscilloscope. The results were photographed. The distorted curves of the ϕ_2 anomaly function are shown in Fig. 2 for several magnitudes of the inertial parameter B.

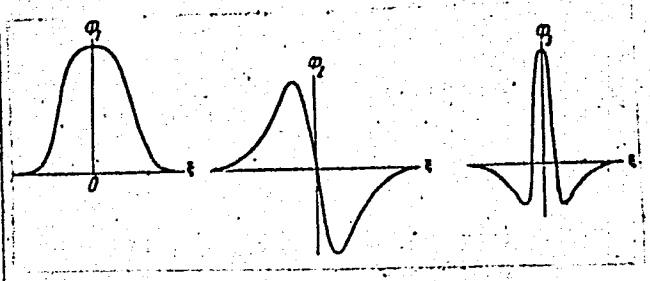

Fig. 1. Typical undistorted anomaly functions.

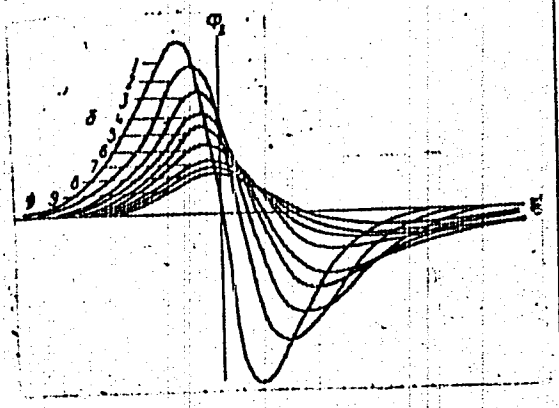

Fig. 2. Simulated distorted anomaly functions for: 1 - B= 0; 4 - B= .8; 6 - B= 1.5; 8 - B= 2.5; 9 - B= 3.0

Orig. art. has 5 figures.

SUB CODE: 08/ SUBM DATE: 00/ ORIG REF: 003

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

KHRAMOY, A.V.; ZHURKINA, E.G.

[Russian-English and English-Russian dictionary of automatic control] Russko-angliiskii i anglo-russkii slovar' po avtomaticheskomu regulirovaniiu i upravleniiu. Moskva, Izd-vo Akad.nauk, 1960. 97 p. (MIRA 14:1)
(Automatic control--Dictionaries)
(English language--Dictionaries--Russian language)
(Russian language--Dictionaries--English language)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

BIRYUKOV, N.O.; ZHURKINA, E.G.; KRUG, Ye.K.; KULEMIN, V.I.; PCHELINTSEVA, M.D.; KHRAMOY, A.V.; SHORINA, A.A.; SEMENOVA, A.A., red.izd-va; SHEVCHENKO, G.N., tekhn.red.

[Russian-English-German-French dictionary of terms on automatic control] Russko-anglo-nemetsko-frantsuzskii slovar' terminov po avtomaticheskomu upravleniiu. Pod red. A.V. Khramogo. Moskva, Izd-vo AN SSSR, 1963. 229 p. (MIRA 16:9)

1. Akademiya nauk SSSR. Institut avtomatiki i telemekhaniki.
(Automatic control--Dictionaries)
(Russian language--Dictionaries--Polyglot)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKINA, V.V.

Fresh-water algae of the Maritime Territory. Komar.chten.(DVFAN) no.7:3-17 '59. (MIRA 14:4)
(Maritime Territory--Algae)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKINA, V.V.

Phytoplankton of Lake Khanka. Soob.DVFAN SSSR no.11:85-90 '59.
(MIRA 13:11)

1. Dal'nevostochnyy filial imeni V.L.Komarova Sibirskogo otdeleniya AN SSSR.

(Khanka, Lake--Phytoplankton)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKINA, V.V.

Hydrobiological characteristics of Lake Presnoye. Soob.DVFAN SSSR no.11:90-92 '59. (MIRA 13:11)

1. Dal'nevostochnyy filial imeni V.L.Komarova Sibirskogo otdeleniya AN SSSR.

(Presnoye, Lake (Maritime Territory)--Algae)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKINA,V,V.

Blue-green and desmidiaceous algae of the Maritime Territory (Ad floram algarum Cyanophycearum Desmidiarumque e regione Primorskensi URSS). Bot.mat.Otd.spor.rast. 10:30-35 Ja '55. (MLRA 8:7)

(Maritime Territory--Algae)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKINA, V.V.

Phytoplankton of Lake Lebekhe. Soob.DVFAN SSSR no.12:103-105 '60. (MIRA 13:11)

1. Dal'nevostochnyy filial imeni V.L.Komarova Sibirskogo otdeleniya AN SSSR.

(Lebekhe, Lake--Phytoplankton)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKINA, V.V.

Freshwater algae in the Vladivostok region. Trudy DVFAN SSSR. Ser. bot. 5:127-154 '62. (MIRA 17:12)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKINA, V.V.

Plankton of Suchan Reservoir and the first attempts at biological control measures against the "flowering" of bodies of water in the Maritime Territory. Soob. DVFAN SSSR no.17:73-77 '63. (MIRA 17:9)

1. Dal'nevostochnyy filial im. V.L. Komarova Sibirskogo otdeleniya AN SSSR.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

Structure of protein gels. II. Deformation of concentrated gels. P. I. Zubov, Z. N. Zhurkina, and V. A. Kargin. *Kolloid. Zhur.* 9, 367-71(1947); cf. *ibid.* 9, 103(1947).—The deformation E of a 10% gelatin gel (in % of air-dry gelatin with ~ 13% moisture) first becomes noticeable at about 0° and increases linearly with rising temp., remaining independent of the mech. frequency ν (1-1000 oscillations per min.) up to about 30°; above that temp., E becomes dependent on ν, and the curve fans out with higher E corresponding to lower ν. It indicates that, above 30°, links between chains are ruptured and the network structure of the gel is broken up. With a 30% gel, the curves corresponding to ν = 1, 10, 100, and 1000/min. are split up from the very lowest (−10°) temp., but E remains low up to 30°, and rupture of the network occurs only at 30°. Relaxation is still more pronounced in a 50% gel, melting at 25°. Further increase of the concn. results in increasing frequency dependence of E, the curves fanning out increasingly with rising temp. An 80% gel is sufficiently strong to permit measurements of E up to 60°. Thus, relaxation effects in gels increase with the concn. in the same way as in soln. Tanning of a 30% gel with 1% quinone results in curves showing completion of rupture of structure at about 40°, followed by branches of very nearly const. E; tanned 70% gels show the same pattern, whereas in the 80% gel, E continues to increase even at 90°, with the curves for different ν fanning out very widely. The effect of aging is illustrated by a 60% gel which, at ν = 1, after 10 months' storage, showed rupture of structure at 60°, as against 45° for a young gel of the same concn. and at the same ν; if, however, the aged gel is kept at the temp. of the expt. for several hrs. (instead of 30 min.) its behavior reverts to that of the young gel. The melting temp. of highly oxied. gels varies also with the rate of heating or cooling. In analogy with mech. relaxation, such gels exhibit a temp. relaxation, detd. by stresses produced by local linkages. N. Thon

ASM-EL4 METALLURGICAL LITERATURE CLASSIFICATION

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Structure of gels. Preparation of globular gelatin. P. I. Zubov, Z. N. Zhurkina, and V. A. Kargin. *Doklady Akad. Nauk S.S.S.R.* 67, 659-61(1949); cf. *C.A.* 43, 3270g.—The formation of bonds between polar groups of a gel-forming substance should proceed more and more by intramol. process in long chains as the concn. is reduced. Vacuum evapn. of 0.8% aq. gelatin at 5° gave a product that dissolved gradually in H_2O at 10-15°, in contrast to 30° required by the usual gelatin. On heating 2-3% solns. of the product a sharp transformation to gel occurs at 20-22°. The globular gelatin has a neg. temp. coeff. of viscosity; hence, the globules must be particles or aggregates of mols. destroyed by high temps. Each mol. of the globular gelatin may be regarded as a miniature of gel structure. Treatment of gelatin soln. before evapn. with 5.0% quinone yields a non-gelling product with a low temp. coeff. of viscosity. O. M. Kosolapoff

Karpov Phys. Chem Inst, Moscow

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZUBOV, P.I.; ZHURKINA, Z.N.; KARGIN, V.A.

Structure of gels. Part 4. Effect of various additions on mechanical properties of gels and gelatin solutions. Koll.zhur. 16 no.2:109-114 Mr-Ap '54. (MLRA 7:3)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova Moskva.
(Colloids) (Gelatin)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKINA, Z.N.

USSR.

Gel structure. IV. Effect of various additions on the mechanical properties of gels and solutions of gelatin. P. I. Zubov, Z. N. Zhurkina, and V. A. Kargin. Colloid J. U.S.S.R. 14, [illegible] (1954) (Engl. translation).—See C.A. 48, 8325i. V. Preparation of globular casein. Ibid. [illegible]—See C.A. 48, 11870. H. L. H.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

Z.N. ZHURKINA

5

Gel structure. V. Preparation of globular casein. P. T. Zubov, Z. N. Zhurkina, and V. A. Kargin (Ivan Kargin Inst. Phys. Chemistry, Moscow). Kolloid Zhur. 16, 179-83(1954); cf. C.A. 44, 407a.—Ordinary casein was dissolved in 0.1 *N* $Ba(OH)_2$ at 50°, the soln. was dist. to 0.2%, kept at 50° for 15 min., cooled to 0-5°, and ppt. with 0.1 *N* H_2SO_4; then $BaSO_4$ was removed by centrifugation and the liquid evapd. in a vacuum. The casein (II) thus obtained was sol. in cold H_2O. Films from H_2O glycerol soln. of II had a smaller tensile strength and a much smaller total elongation than films from I. The viscosity of aq. soln. of II (up to 6%) was comparable to that of H_2O. I and II sorbed H_2O vapor equally well. The isoelec. point of II (from titration) showed that some basic groups disappeared in the formation of globular protein. J. J. Bikerman

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

Gel structure. VII. Preparation of rods and plates or structures from rubbers by volcanoscopy [illegible]

[illegible] heating and a moderate [illegible] of rubber, of all gelatines was slightly lowered by heating with $SiCl_4$ and almost unaffected by heating in air or in a vacuum, without $SiCl_4$. A viscometer for measurements in a vacuum is described.

J. J. B.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKINA, Z. N.

USSR.

Gel structure. VII. Globulization of rubbers by halogenation of dilute solutions. P. I. Zubov, Z. N. Zhurkina, and V. A. Kargin (L. Ya. Karpov Sci. Research Inst. Phys. Chem., Moscow). *Kolloid. Zhur.* 17, 31-3(1955); cf. 49, 7233e.—The viscosity, η, of solns. (e.g., 0.10%) of natural rubber (I) in $CHCl_3$ or CH_2Cl_2 was lowered, e.g., tenfold, when 30 wt. % I_2 was added, while further addns. of I_2 had no effect on η. In the absence of air, the dependence of η by I_2 was smaller. I_2 had little or no effect on the η of butadiene rubber, with or without air. As it was believed that the decrease of η was caused by globulization of I, electron micrographs were taken; they showed aggregates of about 1 μ in I and dense particles of about 0.01 μ in I + I_2.

J. J. Bikerman

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

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Gel structure. VI. Preparation of gels and globular structures from rubbers by vulcanization of solutions. P. I. Zubov, Z. N. Zhurkina, and V. A. Kargin (Karpov Inst. Phys. Chem. [illegible]). *Rubber Chem. and Technol.* 29, 290-301(1956).—See C.A. 49, 7283e. C. C. Davis

(3)

Reprint of 1954 article

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZUBOV, P.I.; ZHURKINA, Z.N.; KARGIN, V.A.

The structure of gels. Part 10: Globulization of rubbers under the influence of nonsolvent additions to the solution [with summary in English]. Koll.zhur. 19 no.4:430-434 Jl-Ag '57. (MIRA 10:10)

1.Nauchno-issledovatel'skiy fiziko-khimicheskiy institut im. L. Ya. Karpova.

(Rubber)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

Chur Kina, L. N.

[illegible]

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

Gel structure. I. Gelatination of gelatines by additions of constituents to solutions. [illegible]

[illegible]

[illegible] was independent of the [illegible] and was smaller [illegible] thicker the film and the [illegible] the initial [illegible] was [illegible] and [illegible] and 3 and 5 [illegible] for 18% [illegible] 6% solu[illegible] and [illegible] which [illegible] strength [illegible]

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKINA, Z. N.

ZHURKINA, Z. N. -- "Obtaining Globular Structures From Linear Polymers." Sub 3 Jul 52, Order of the Labor Red Banner Sci Res Physicochemical Inst imeni L. Ya. Karpov. (Dissertation for the Degree of Candidate in Chemical Sciences).

SO: Vechernaya Moskva January-December 1952

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKO, I.A.

Electrolytic dull finishing of parts. Mashinostroitel' no.5:34-35 My '61. (MIRA 14:5)

(Electroplating)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

ZHURKO, N.G.

Stone of the palatine tonsil. Zhur.ush., nos.i gorl.bol. 21 no.6:66-67 N-D '61. (MIRA 15:11)

1. Iz kliniki bolezney ukha, gorla i nosa (zav. - zasluzhennyy deyatel' nauki prof. A.I.Kolomiychenko) Kiyevskogo instituta usovershenstvovaniya vrachey.
(CALCULI) (TONSILS--DISEASES)

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ZHURKO, V.;LANDA, I;RABINOVICH, Z.

"Stretching Short Lengths of Fabrics on Printing Tables; Rationalization Suggestion by Stefka Popova, Printer in the December 23 State Industrial Enterprise at Knyazhevo." p. 34,
(LEKA PROMISHLENOST, Vol. 3, No. 1, 1954, Sofiya, Bulgaria)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4
No. 5, May 1955, Uncl.

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ZHURKO, V.;LANDA,I;RABINOVICH, Z.

"Using Zinc Stearate as a Powdering Material." p. 31,
(LEKA PROMISHLENOST, Vol. 3, No. 1, 1954, Sofiya, Bulgaria)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4
No. 5, May 1955, Uncl.

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Zhurko, V.A.

AID Nr. 980-17 31 May

EFFECT OF IONIZING RADIATION ON THE STRUCTURAL CHANGES IN RUBBER-PLASTIC SYSTEMS (USSR)

Blokh, G. A., V. A. Zhurko, M. A. Vyazankina, M. A. Vas'kovskaya, A. P. Meleshevich, F. V. Bronshteyn, and E. V. Tsipenyuk. Vysokomolekulyarnyye soyedineniya, v. 5, no. 4, Apr 1963, 605-613.
S/190/63/005/004/019/020

Structural changes produced by ionizing radiation in doses of 1 to 100 Mr in rubber-plastic systems have been studied at the Dnepropetrovsk Institute of Chemical Technology. The changes in properties were evaluated from thermomechanical curves in the range from about 60 to 220°C and from swelling data. The experiments were conducted with systems of sodium butadiene (CKB), butadiene-styrene (CKC-30), or natural rubber and low- or high-pressure polyethylene or polystyrene (rubber:plastic ratios, 80:20, 50:50, and 20:80) irradiated in air without heating. The thermomechanical curves of individual nonirradiated and irradiated systems differ sharply from one another.

Card 1/2

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AID Nr. 980-17 31 May

EFFECT OF IONIZING RADIATION [Cont'd] S/190/63/005/004/019/020

At a given temperature and radiation dose, network structure formation, indicated by a loss of deformability and by the absence of viscous flow, was shown to be induced by irradiation. The density of cross links in individual systems, determined by Flory's swelling method, was shown to increase with an increase of the dose and to depend on the nature of the rubber and the rubber-to-plastic ratio. In polymers containing phenyl groups radiation-induced structural changes proceeded slower and required higher radiation doses. Analysis of the results of the study indicates that ionizing radiation apparently causes a covulcanization of the rubber and the plastic and is accompanied by a change in the physical and mechanical properties of the system: a sharp decrease in plasticity, a decrease in swelling, and increases in hardness, tensile strength, and wear resistance. It is concluded that irradiation of combinations of rubbers and plastics in predetermined ratios makes possible the production of materials with the desired improved properties. [BAO]

Card 2/2

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L 13537-63 EWP(j)/EWT(m)/BDS AFFTC/ASD Pc-4 RM

ACCESSION NR: AP3003287 S/0138/63/000/006/0010/0013

63
60

AUTHOR: Dinzburg, B. N.; Safray, B. A.; Tsipenyuk, E. V.; Zhunko, V. A.

TITLE: Modification of rubbers by thermoreactive rubber-resin master batches

SOURCE: Kauchuk i rezina, no. 6, 1963, 10-13

TOPIC TAGS: thermoreactive phenolic resin, modification of rubber, rubber-resin master batche, bakelite resin

ABSTRACT: A method was developed to reinforce nonpolar rubbers by the incorporation of comminuted bakelite resin into a film of rubber on heated rollers, beginning at 40-60C and ending at over 140C. When the mixture was compounded of 100 parts rubber, 30 parts bakelite, and 30 parts powdered silica gel, the optimal duration of the process was 10-25 minutes. The resulting product is a solid nonsticky mass which can be handled like ordinary rubber and can be used for various kinds of rubber compounds. It keeps for several days but must be reworked if used after prolonged storage. The most effective bakelite type resin

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is the one containing an imino group. The new varnish resins are effective irrespective of composition, providing hexamethylenetetramine was used as the polymerizing agent. The obtained master batches produced colored vulcanizates with satisfactory strength, as well as higher elasticity and resistance to freezing. Orig art. has: 1 picture, 2 charts, and 1 table.

ASSOCIATION: Vsesoyuzny*y nauchno-issledovatel'skiy institut plenochny*kh mater'yalov i iskusstvennoy kozhi. Kiyevskiy regeneratno-rezinovy*y zavod (All-Union Scientific Research Institute of Layered Materials and Artificial Leather. Kiev Rubber-Reclamation Plant)

SUBMITTED: 00 DATE ACQ: 10Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 006 OTHER: 000

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R002065030007-8

S/081/63/000/004/049/051
B156/B180

AUTHORS: Blokh, G. A., Zhurko, Y. A., Zayonchkovskiy, A. D., Kiriyenko, N. V., Karpov, V. L., Broger, A. Kh., Tsipenyuk, E. Y., Vyazankina, M. A., Bronshteyn, F. V., Bernshteyn, M. Kh., Yabko, Ya. K.

TITLE: The radiation vulcanization of rubbers and reclaimed rubbers together with plastics

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 4, 1963, 648 - 649, abstract 4T349 (Kozhevenno-obuvn. prom-st', no. 5, 1962, 17 - 20)

TEXT: The effects of exposure to radiation were studied on the physical, mechanical and chemical properties of the following combined systems of polymers: rubber СКС-30 (SKS-30), СКБ (SKB), НК (NK) - thermoplastics (low and high molecular-weight polyethylene, and polystyrene); ratios of thermoplastics to rubber of 0 - 100 % were used. The radiation dose (Co^{60}) was 1 - 100 Mrad. The plasticity, hardness, wear-resistance, strength, percentage, elongation, permanent set etc. were determined, and

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plotted versus temperature in the 40 - 200°C range. The effect of irradiation on mixtures of rubbers with polyethylene or polystyrene is that cross-linking occurs between the two polymers, to form substances with valuable physical and mechanical properties: the plasticity is greatly reduced, while the strength, wear-resistance and heat-resistance are improved. Abstracter's note: Complete translation.

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