"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR UDC 546.834'185:541.183.12

LAPITSKIY, A. N., and TIKAVYY, V. F., Belorussian State University imeni V. I. Lenin

"The Effects of Heat Treatment on the Ion-Exchange Properties of Zirconium Antimonate"

Minsk, Vestsi Akademii Navuk BSSR, Seryya Khimichnykh Navuk, No 5, 1971, pp 57-60

Abstract: The effects of heat treatment in the 60-1300° range on the ion-exchange properties of zirconium antimonate (ZS) with Sb/Zr = 0.53-4.13 were studied. ZS was prepared as described by the authors in earlier work (Vestn. BGU, No 3, 19, 1969). It was subjected to heat treatment in its H-form. As established by potentiometric titration with 0.1 N solutions of NaOH + NaCl, KOH + KCl, and CsOH + CsCl and determinations of exchange on contact with an 0.5 N $AgNO_3$ solution, the exchange capacity of ZS decreased with increasing temperatures of heat treatment, decreasing to the greatest extent after treatment at temperatures $> 300°$ and reaching zero after treatment at 900°. The selectivity of ZS towards Ag, Tl, NH_4, Li, Na, K, Rb, and Cs cations increased after heat treatment at temperatures $< 300°$ and decreased after heat treat-

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LAPITSKIY, A. N., and TIKAVYY, V. F., Vestsi Akademii Navuk BSSR, Seryya Khimichnykh Navuk, No 5, 1971, pp 57-60

ment at temperatures $> 300^{\circ}$. At temperatures $< 300^{\circ}$ weakly acidic ionogenic groups of ZS condensed, whereas at temperatures $> 300^{\circ}$ both weakly and strongly acidic ionogenic groups underwent condensation.

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/2 015 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--JET TYPE ELEMENTS OF THE VOLGA SYSTEM AND THEIR APPLICATION -U-

AUTHOR-(03)-KRIVOSHEYEV, G.YA., CHERNYSHEVA, M.A., TROSHKIN, A.K., SHMELEV, L.F., TIKEDZHE, B.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, PRIBORY I SISTEMY UPRAVLENIYA, NO 5, 1970, PP 19-21

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--AUTOMATIC CONTROL SYSTEM, FLUIDIC LOGIC DEVICE, FLUIDIC CONTROL DEVICE, FLUIDIC AMPLIFIER, PLASTIC/(U)VOLGA FLUIDIC CONTROL SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605040/F06 STEP NO--UR/0445/70/000/005/0019/0021

AIRC ACCESSION NO--AP0142709

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

2/2 . 015 UNCLASSIFIED PROCESSING DATE--11DEC70
IRC ACCESSION NO--AP0142709
BSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DEALS WITH THE DEVELOPMENT OF JET TYPE ELEMENTS AND THE INTRODUCTION OF PNEUMONIC CONTROL SYSTEMS IN INDUSTRY. THE PNEUMATIC AND HYDRAULIC AUTOMATION LABORATORY OF THE VOLGA BRANCH, ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF ABRASIVES AND GRINDING, HAS DEVELOPED AND IS ENGAGED IN THE SERIES PRODUCTION OF TWO TYPES OF JET TYPE ELEMENTS: A TRIGGER WITH SEPARATE INPUTS AND A OR-NOT-OR ELEMENT FOR TWO INPUTS WITH INHIBITION. THE TRIGGER IS A BISTABLE FLUIDIC AMPLIFIER WITH TWO INPUTS, TWO OUTPUTS, A SUPPLY CHANNEL AND A MIXING CHAMBER. THE TECHNICAL SPECIFICATIONS OF THE TRIGGER ARE GIVEN. THE OR-NOT-OR ELEMENT IS A MONOSTABLE FLUIDIC AMPLIFIER WITH THREE INPUTS, TWO OF THEM CONTROLLING AND ONE INHIBITING. THE OPERATING PRINCIPLE IS THE SAME AS FOR THE TRIGGER. THE TECHNICAL SPECIFICATIONS ARE GIVEN. THE FLUIDIC ELEMENTS DISCUSSED HERE HAVE BEEN PRODUCED FROM PLASTIC BY MEANS OF PRESSURE CASTING ACCORDING TO A SPECIFIED SEQUENCE OF TECHNOLOGICAL OPERATIONS. A FLUIDIC CONTROL SYSTEM IS BASED UPON A LOGICAL UNIT, CONSISTING OF LOGICAL ELEMENTS PLUGGED INTO A BASE ACCORDING TO THE TYPE OF UNIT DESIRED.

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USSR UDC 621.372.061

TIKHANOV, M. G.

"Device for Simulating a PCM-Signal for Investigation and Adjustment of VLS [Waveguide Communication Channel] Video Regenerators"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi. Vyp. 2 (Materials of the Scientific and Technical Conference. Leningrad Electrotechnical Communications Institute. Vyp. 2), Leningrad, 1970, pp 128-131 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A165)

Translation: This article contains an investigation of the problem of investigating VLS video regenerators with the help of a periodic signal which simulates a group PCM-signal. A description of the test PCM signal generator and a basis for its parameters are presented.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--SOME PROBLEMS OF TREATMENT OF PSORIASIS WITH DONETSK HYDROGEN SULFIDE MINERAL BATHS -U-

AUTHOR--TIKHAYA, S.K.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 6, PP 112-115

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HYDROGEN SULFIDE, SKIN DISEASE, MORPHOLOGY, HISTOCHEMISTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1753 STEP NO--UR/0475/70/000/006/0112/0115

CIRC ACCESSION NO--AP0129121

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

2/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129121

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF INCLUSION OF HYDROGEN SULFIDE BATHS OF THE DONETSK MINERAL SOURCE IN THE COMPLEX TREATMENT OF 123 PATIENTS WITH PSORIASIS ARE DESCRIBED. CLINICAL RECOVERY WAS SEEN IN 50 PATIENTS, SIGNIFICANT IMPROVEMENT IN 49 AND IMPROVEMENT IN 19. THERE WAS NO EFFECT IN FIVE PATIENTS WITH THE SUMMER FORM OF DERMATOSIS. BUT DESPITE DISAPPEARANCE OF CLINICAL MANIFESTATIONS OF THE DISEASE ONE COULD FIND MORPHOLOGICAL AND HISTOCHEMICAL CHANGES WHICH MIGHT BECOME THE BASIS FOR RECURRENCE OF THE DISEASE. IT IS CONCLUDED THAT ANTIRELAPSING TREATMENT SHOULD BE CARRIED OUT EVEN IN CASES OF COMPLETE CLINICAL REMISSION. FACILITY: KAFEDRA KOZHNYKH I VENERICHESKIKH BOLEZNEY DONETSKOGO MEDITSINSKOGO INSTITUTA.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--EXPERIENCE OF COMPLEX THERAPY OF PATIENTS WITH PSORIASIS USING HYDROGEN SULFIDE WATER BATHS OF THE DONETSK MINERAL SPRING -U-

AUTHOR-(02)-TIKHAYA, S.K., BUKHAROVICH, A.M.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK DERMATOLOGII I VENEROLOGII, 1970, NR 4, PP 29-32

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SKIN DISEASE, BATH UNIT, WATER, HYDROGEN SULFIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0564 STEP NO--UR/0206/70/000/004/0029/0032

CIRC ACCESSION NO--AP0108779

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

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UNCLASSIFIED

CIRC ACCESSION NO--AP0108779 PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TREATMENT OF 103 PATIENTS WITH PSORIASIS WAS CARRIED OUT USING HYDROGEN SULFIDE WATER BATHS OF THE DONETSK MINERAL SPRING IN COMBINATION IWTH ULTRAVIOLET IRRADIATION AND VITAMIN THERAPY. CLINICAL RECOVERY WAS ATTAINED IN 43 PATIENTS, SIGNIFICANT IMPROVEMENT, IN 38, IMPROVEMENT, IN 17. NO THERAPEUTIC EFFECT WAS OBSERVED IN 5 PATIENTS WITH THE SUMMER FORM OF THE DISEASE. DESPITE DISAPPEARANCE OF CLINICAL MANIFESTATIONS OF THE DISEASE, CERTAIN DISORDERS OF THERMOREGULATION REFLEXES TO COLD AND HEAT, AS WELL AS OF ELECTRICAL PERMEABILITY OF THE SKIN AND SOME HISTOLOGICAL AND NEUROMORPHOLOGICAL CHANGES WERE DISCOVERED. THE DETECTED FUNCTIONAL AND PATHOMORPHOLUGICA CHANGES IN THE SKIN AFTER DISAPPEARANCE OF RASH MAY INDICATE THE FAILURE OF THE TREATMENT GIVEN TO ELIMINATE FACTORS CONDUCIVE TO THE DEVELOPMENT OF PSORIASIS, AND THEREFORE IT IS NECESSARY TO CARRY OUT THERAPY AGAINST RELAPSES. OUR OBSERVATIONS SUGGEST THAT IT IS POSSIBLE TO USE BALNEOTHERAPY WITH HYDROGEN SULFIDE WATERS OF THE DONETSK MINERAL SPRING FOR TREATMENT OF PSORIASIS UNDER LOCAL CONDITIONS. FACILITY: KAFEDRA KOZHNYKH I VENERICHESKIKH BOLEZNEY DONETSKOGO MEDITS. INSTITUTA IM. A. M. GOR'KOGO.

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Microbiology

USSR

UDC: 576.851.553+576.851.553].098.31

BLAGOVESHCHENSKIY, V. A., TIKHAZE, A. K., and BORISHPOLETS, Z. I., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences, USSR, Moscow

"Lipase and Tweenase Activity of Cl. Perfringens and Cl. Botulinum"

Moscow, Byulleten' eksperimental'noy biologii i meditsiny, No 8, 1972, pp 74-77

Abstract: Enzymes of lipid metabolism in Cl. perfringens and Cl. botulinum were studied in connection with toxin formation in the bacterial cell. The experiments were performed with toxigenic BP6K No 28 and SR-12, weakly toxigenic 2836, 2910, and No 1, and practically nontoxigenic strain A-27 Cl. perfringens type A. Cl. botulinum, types A, B, and F were also used. It was found that the lipase activity is more strongly expressed in the toxin than in the cells, and exceeds the activity of the lipase in weakly toxic strains. Tweenases were divided into tweens 40 and 65. It was found also that the lipase activity appears in the first 24-hour period of culture growth in cells as well as in the toxins, and reaches a maximum during the second 24-hour period of growth.

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USSR

UDC: 51

DEDIKOV, E. A., PANISHEV, A. V., TIKHENKO, A. Yu., FEDOROV, A. A.

"Method of Ordering and Analysis of the Structure of an Information Model of Data Processing"

Pribory i Sistemy Avtomatiki. Resp. Mezhved. Temat. Nauch.-tekhn. Sb. (Automation Devices and Systems. Republic Interdepartmental Thematic Scientific and Technical Collection], 1972, No 24, pp 45-51 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V479, by the authors)

Translation: A formal analysis is presented of the structure of an information model of data processing. The apparatus of graph theory is used to represent the structure. The problem of ordering and analysis of the structure is stated. Algorithms and block diagrams are developed for the solution of a number of problems of structural analysis, and examples are presented.

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USSR UDC 51

DEDIKOV, E. A., PANISHEV, A. V., TIKHENKO, A. Yu., FEDOROV, A. A.

"On One Method for the Ordering and Analysis of the Structure of an Information Model for Data Processing"

Pribory i sistemy avtomatiki. Resp. mezhved. temat. nauch.-tekhn. sb. (Automation Devices and Systems. Republic Interdepartmental Thematic Scientific-Technical Collection), 1972, No. 24, pp 45-51 (from RZh-Matematika, No 11, Nov 72, Abstract No 11V479)

Translation: A formal analysis is given of the structure of an information model for data processing. The apparatus of the theory of graphs is used to represent the structure. The problem of ordering and analysis of the structure is formulated. Algorithms and block diagrams are developed for solving many problems in the analysis of the structure, and examples are given. Authors abstract.

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USSR

DEDIKOV, E. A., PANYSHEV, A. V. and TIKHENKO, A. Yu.

"The Statement of the Problem of Ordering of the Structure of an Information Model of Data Processing"

Obshch. Teoriya Sistem [General Systems Theory -- Collection of Works], Kiev, 1972, pp 37-42 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V753).

Translation: The task of ordering of the structure of an information model of data processing on the basis of graph G' = (X, M), called an ordered graph of graph G, is stated. Graph G is defined as the graph of the structure of the information flows in the set of indicators X. The task of ordering is reduced to production of an isomorphic graph $G' = (X^0X^1X^2,\ldots, X^m, M)$ from graph G = (X, M). An algorithm is suggested to order graph G, using the matrix of incidences of graph G. An example is presented, illustrating the operation of the algorithm. Based on the definition of an ordered graph, the following statements are proven: 1) all points in the same layer of graph G' have the same order, 2) based on the property of transitiveness, the relationship < and the absence of closed paths in graph G', there is a layer X^m,

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Dedikov, E. A., Panyshev, A. V. and Tikhenko, A. Yu., Obshch. Teoriya Sistem, Kiev, 1972, pp 37-42.

consisting of at least one point with the maximum order in relationship to the other points of the graph.

T. Sidorova

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

UDC 51:330.115

DEDIKOV, E. A., TIKHENKO, A. Yu., CHERNINA, L. P.

"A Heuristic Algorithm for the Problem of Optimal Loading of Equipment Considering Reloading Time"

Tekhn. Kibernetika. Vyp. 11 [Engineering Cybernetics, No 11 -- Collection of Works], Kiev, 1970, pp 28-36, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V558).

NO ABSTRACT.

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USSR

UDC 616.981.42-092:615.365.018.24

TIKHENKO, N. I. and TARAN, I. F., Antiplague Institute of the Caucasus and Transcaucasus, Stavropol

"Effect of Antireticular Cytotoxic Serum on the Pathogenesis of Brucellosis and Immunity Production"

Moscow, Zhurnal Mikrobiologii, Epidemiologii,i Immunobiologii, No 5, 1973, pp 65-71

Abstract: Experiments were performed on laboratory animals differing in sensitivity to brucellosis (rats, guinea pigs, mice) to study the effect of large doses of antireticular cytotoxic serum (ACS) on the development of the infectious process and production of postvaccinal immunity and in treatment of the disease. Rats repeatedly injected with ACS (0.2 ml in 0.8 ml of physiologic saline) became highly sensitive to the pathogen of brucellosis. Administration of ACS (0.3 ml) of guinea pigs 10 days before they were inoculated with a virulent Br. melitensis 565 culture resulted in earlier elimination of the pathogen than in the control. Administration of the same dose of ACS to mice had no significant effect on the course of the infection and brucella cultures were isolated from various organs as long as 180 days afterward. In guinea pigs vaccinated with a culture of Br. abortus 19 and then given doses of ACS,

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

TIKHENKO, N. I. and TARAN, I. F., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 5, 1973, pp 65-71

the level of immunity was no higher than in the untreated control. The therapeutic efficacy of ACS combine with oxytetracyline was markedly greater than that of either ACS or the antibiotic alone.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

DEDIKOV, E. A., TIKHENKO, A. Yu.

"Determination of the Contours of Oriented Graphs"

Pribory i sistemy avtomatiki. Resp. mezhved. temat. nauch.-tekhn. sb. [Automation Devices and Systems. Republic Interdepartmental Thematic Scientific and Technical Collection], 1973, No 27, pp 18-20 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V359 by the authors)

Translation: The problem of determination of the contours of oriented graphs is studied. A classification is presented of possible types of contours. Determination of the contours is based on a procedure of ordering of the initial graph on the basis of the available matrix of incidences. Using the estimates presented, a certain number of lines is removed, breaking up the contours, and the graph is ordered. Determination of paths in an ordered graph between points incidental to the lines removed allows the contours of the oriented graph to be defined.

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Single Crystals

USSR

UDC 669.725:621.785.78

GINDIN, I. A., LAPTEV, I. N., NEKLYUDOV, I. M., PAPIROV, I. I., and TIKHINSKIY, G. F., Physicotechnical Institute of the Academy of Sciences UkrSSR

"Change of the Anisotropy of the Resistance to Plastic Deformation of Beryllium Single Crystals After Program Loading"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 4, Oct 73, pp 808-814

Abstract: A study was made of the effect of preliminary programmed loading along the c-axis on the crystal shear stresses in different crystallographic planes of beryllium single crystals. Results of the investigation of the influence of annealing under continuously progressive loading on the anisotropy of the resistance to plastic deformation indicate that program loading lowers the strength of crystals in their tests along the c-axis; but the critical shear stresses on the basal planes, on the other hand, increase approximately by 50%. As a result of the non-additive reaction of the program loading on the shear stresses in different crystallographic planes, the anisotropy of the resistance

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

GINDIN, I. A., et al., Fizika Metallov i Metallovedeniye, Vol 36, No 4, Oct 73, pp 808-814

to plastic deformation of beryllium single crystals decreases. The process of disproportionation of point defects, which is assumed to take place in single crystals by annealing under continuously increasing loading applied along the c-axis, goes in two directions: a) diffusion of admixed and internodal atoms with their separation along basal planes and on a-dislocations, and b) diffusion of vacancies generatable by creeping of a-dislocations with formation of prismatic loops of c-dislocations. Three figures, 13 bibliographic references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

Beryllium

USSR

UDC 669.72.620.17

TIKHINSKIY, G. F., and KHRISTENKO, I. N., Physicotechnical Institute, Academy of Sciences Ukrainian SSR

"Temperature-Yield Strength Relationship in Textured Beryllium"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 4, 1973, pp 865-867

Abstract: The temperature-yield strength of high-purity (~99.95%) textured beryllium was studied as well as the effect of grain size and strain rate on metal flow stress. Beryllium ingots were deformed by sequential upsetting, extrusion, radial upsetting, and transverse rolling with intermediate annealings. Tensile testing was conducted at strain rates of 0.02-20 mm/min after the samples had been given a recrystallizing anneal. At -200°C sample yield strength was approximately 18.5 kG/mm^2, dropping to 14 kG/mm^2 at -70°C, then reaching a maximum of 17 kG/mm^2 at 70°C. A change in the strain rate from 0.02 to 20 mm/min causes the yield strength maximum to shift to the side of higher temperatures at 30°C. Position of the minimum on the curve of yield strength vs temperature depends on the concentration of impurities and additives in the beryllium. However, since the impurities and additives affect both the dissociation process and fixing of dislocations, one can assume that the position of the minimum can be shifted to the side of higher temperatures. V. MIKHAYLOV conducted the beryllium texture studies. 2 figures, 9 bibliographic references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

UDC 669.725:539.374

IVANOV, V. YE., TIKHINSKIY, G. F., SHPAGIN, I.V., KORNIYENKO, L.A., KHRISTENKO, I.N., and NIKOLAYENKO, A.A., Physicotechnical Institute of the Academy of Sciences USSR

"The Effect of Admixtures on the Cold Brittleness of Beryllium"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 31, No 6, Jun 71, pp 1286-1292

Abstract: The dependence of the transition temperature of beryllium from the brittle into the plastic state on the metal purity is investigated. This dependence is very sharply expressed at low concentrations (~0.05%) of the admixtures. By the replica method and the transmitting electron-microscopy method, the deformation mechanism and the desintegration character of beryllium at temperatures corresponding to the brittle and plastic states was studied. The contribution of turning to deformation and the potential to brittle failure on cleavage elements decrease with increasing purity; further, in the pure metal there appears the possibility of a light slipping on grain boundaries. The strength of beryllium increases with increasing bending test temperature up to the transition temperature from there brittle to the plastic state, which is connected with the decreased tendency of beryllium to brittle failure on cleavage elemtns. Six illustr., one table, 21 biblio. refs.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

UDC 569.725: 539.292

IVANOV, V. Ye., TIKHINSKIY, G. F., SHPAGIN, I. V., and KHRISTENKO, I. N.,
Physicotechnical Institute of the Academy of Sciences, Ukrainian SSR

"The Effect of Grain Size on Cold Brittleness of Beryllium"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 31, No 6, Jun 71, pp 1281-1285

Abstract: An investigation was made of the dependence of the brittle-plastic transition temperature (T_b) of high-purity beryllium (99.95%), determined from bending test results, on the grain size d. In the scope of the theory of R.W. Armstrong this dependence is characterized by the equation $T_b = A - B\, d^{\frac{1}{2}}$, where A and B are constants. The limiting possibility of lowering T_b for the metal under consideration by a decrease of the grain size is analyzed. The cross-breaking strength and the yield point near T_b change in relation to the grain size in accordance with presented functions. The coefficients of these functions are determined for three types of the metal, the distilled, hot-pressed, and hot-pressed deformed types. On the basis of calculations and the analysis of results, an attempt is made to determine the deformation mechanism and the breakdown c..aracte of p re beryllium. The bending strain of beryllium is brought about principally as a result of realization of the mechanism characterized by high breaking stresses. Three illustr., one table, four formulas, 15 biblio. refs.
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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

Beryllium

UDC 669.725:539.377

AVOTIN, S. S., PAPIROV, I. I., TIKHINSKIY, G. F., KORNIYENKO, L. A., and NIKOLAYENKO, A. A., Physicotechnical Institute, Academy of Sciences, Ukrainian SSR

"Bend Tests on High-Purity Beryllium"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 32, No 1, Jul 71, pp 123-130

Abstract: An investigation of beryllium single crystal plastic deformation was carried out by bending in the temperature region of 77-300°K. The nature of the stressed state in bend depends essentially on the ratio of sample width to thickness (b/h) and on the geometrical conditions of testing. Single crystals of beryllium with b/h = 2 with three orientations (force parallel to a-axis, force parallel to b-axis, and force parallel to c-axis for hexagonal beryllium) were subjected to a force with a load rate of 0.2 mm/min; the distance between supports was 10 mm. The crystals were produced by zone melting and cut by a electric arc. Relative residual electrical resistance of a single crystal was $\rho_{4.2K}/\rho_{300K}$ = 0.005-0.006 and for polycrystalline beryllium--0.004. The samples were mechanically polished, and annealed in a vacuum of 10^{-6} torr at 700°C (polycrystals) and at 1200°C (single crystals) for 20 minutes. This study permitted explanation of the slip of screw dislocations with a Burgers vector c and dislocation type (c+a). For

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

AVOTIN, S. S., et al., Sverdlovks, Fizika Metallov i Metallovedeniye, Vol 32, No 1, Jul 71, pp 123-130

ordinary forms of strain (tension and compression) and low temperatures the indicated forms of strain were not previously observed. A study of the temperature relationship of bending ductility showed that single crystals with a b-axis orientation of force (force parallel to b-axis) have a bend angle greater than 90° down to 77°K while the most ductile single crystals were those with the force applied along the a-axis. An anomaly was observed in the temperature relationship of yield strength in single crystals with the force applied along the c-axis. On the basis of the change in strain with temperature, the conclusion was made that there is a change in transverse slip with temperature. Six figures, 24 bibliographic references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

1/2 032 UNCLASSIFIED

TITLE--FORMATION OF A POLYGONIZED AND A CELLULAR STRUCTURE IN BERYLLIUM -U- PROCESSING DATE--20NOV70

AUTHOR-(05)-KORNIYENKO, L.A., TARANENKO, I.A., TIKHINSKIY, G.F., NIKOLAYENKO, A.A., PAPIROV, I.I.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, VOL. 29, MAR. 1970, P. 619-624

DATE PUBLISHED----MAR70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--BERYLLIUM ALLOY, METAL MICROSTRUCTURE, BIBLIOGRAPHY, HIGH PURITY METAL, METAL DEFORMATION, ANNEALING, THERMAL EFFECT, STRAIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0070 STEP NO--UR/0126/70/029/000/0619/0624

CIRC ACCESSION NO--AP0125905

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

2/2 032 UNCLASSIFIED

CIRC ACCESSION NO--AP0125905 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE EFFECTS OF TEMPERATURE, DEGREE OF STRAIN, ANNEALING CONDITIONS, AND MATERIAL PURITY ON THE FORMATION OF POLYGONIZED AND CELLULAR STRUCTURES OF BERYLLIUM. IT IS FOUND THAT THE POLYGONIZATION OF BERYLLIUM IS MOST PRONOUNCED IN METAL ROLLED AT A SMALL REDUCTION AT TEMPERATURES RANGING FROM 600 TO 700 DEG C. FOR OBTAINING A CELLULAR STRUCTURE, HEAVILY DEFORMED BERYLLIUM SHOULD BE ANNEALED FOR ABOUT 1 MIN AT TEMPERATURES RANGING FROM 850 TO 900 DEG C. FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, FIZIKO-TEKHNICHESKII INSTITUT, KHARKOV, UKRAINIAN SSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

1/2 030 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--EFFECT OF PRIOR PLASTIC DEFORMATION ON THE DEFORMED FINE GRAIN BERYLLIUM -U-

AUTHOR-(02)-PAPIROV, I.I., TIKHINSKIY, G.F.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, VOL. 29, MAY 1970, P. 1057-1060

DATE PUBLISHED----MAY70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PLASTIC DEFORMATION, BERYLLIUM, THERMAL EFFECT, METAL MECHANICAL PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605002/D06 STEP NO--UR/0126/70/029/000/1057/1060

CIRC ACCESSION NO--AP0139454

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

2/2 030 UNCLASSIFIED

CIRC ACCESSION NO--AP0139454 PROCESSING DATE--11DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF EXPERIMENTS IN WHICH FINE GRAINED BERYLLIUM WAS OBTAINED BY PROGRAMMED VARIOUSLY DIRECTED DEFORMATION OF PURE CAST BERYLLIUM. THE MECHANICAL PROPERTIES OF THE FINE GRAINED BERYLLIUM ARE DETERMINED UNDER TENSION AT TEMPERATURES FROM 20 TO 1000 C. A TENSILE STRENGTH OF 56.5 KGF-SQ MM WITH 7.5PERCENT ELONGATION, AND A COMPRESSION STRENGTH OF UP TO 150 KGF-SQ MM ARE OBTAINED AT ROOM TEMPERATURE, WITHOUT THE OCCURRENCE OF BREAKDOWN WHEN DEFORMATION AMOUNTS TO ABOUT 50PERCENT. THE HIGHLY ATTRACTIVE MECHANICAL PROPERTIES OF THE BERYLLIUM ARE LINKED TO THE SMALL SIZE OF THE GRAINS AND A LOW IMPURITY CONTENT. FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, FIZIKO-TEKHNICHESKII INSTITUT, KHARKOV, UKRAINIAN SSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

1/2 03C UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--EFFECT OF PRIOR PLASTIC DEFORMATION ON THE DEFORMED FINE GRAIN BERYLLIUM -U-

AUTHOR-(02)-PAPIROV, I.I., TIKHINSKIY, G.F.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, VOL. 29, MAY 1970, P. 1057-1060

DATE PUBLISHED----MAY70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PLASTIC DEFORMATION, BERYLLIUM, TENSION, THERMAL EFFECT, METAL MECHANICAL PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/6050C2/F01 STEP NO--UR/0126/70/029/000/1057/1060

CIRC ACCESSION NO--AP0139489

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

2/2 030 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0139489

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF EXPERIMENTS IN WHICH FINE GRAINED BERYLLIUM WAS OBTAINED BY PROGRAMMED VARIOUSLY DIRECTED DEFORMATION OF PURE CAST BERYLLIUM. THE MECHANICAL PROPERTIES OF THE FINE GRAINED BERYLLIUM ARE DETERMINED UNDER TENSION AT TEMPERATURES FROM 20 TO 1000 C. A TENSILE STRENGTH OF 56.5 KGF-SQ MM WITH 7.5PERCENT ELONGATION, AND A COMPRESSION STRENGTH OF UP TO 150 KGF-SQ MM ARE OBTAINED AT ROOM TEMPERATURE, WITHOUT THE OCCURRENCE OF BREAKDOWN WHEN DEFORMATION AMOUNTS TO ABOUT 50PERCENT. THE HIGHLY ATTRACTIVE MECHANICAL PROPERTIES OF THE BERYLLIUM ARE LINKED TO THE SMALL SIZE OF THE GRAINS AND A LOW IMPURITY CONTENT. FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, FIZIKO-TEKHNICHESKII INSTITUT, KHARKOV, UKRAINIAN SSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

1/2 024 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--RECRYSTALLIZATION OF ROLLED BERYLLIUM -U-

AUTHOR-(04)-KORNIYENKO, L.A., NIKOLAYENKO, A.A., PAPIROV, I.I., TIKHINSKIY, G.F.

COUNTRY OF INFO--USSR

SOURCE--FIZ. METAL. METALLOVED. 1970, 29(1) 138-42

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL RECRYSTALLIZATION, BERYLLIUM ALLOY, METAL ROLLING, CRYSTAL DISLOCATION, METAL DEFORMATION, GRAIN GROWTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0689 STEP NO--UR/0126/70/029/001/0138/0142

CIRC ACCESSION NO--AP0105665

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1"

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CIRC ACCESSION NO--AP0105665 PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF RECRYSTN. AND GRAIN GROWTH WERE STUDIED IN DEFORMED BE AS RELATED TO THIN STRUCTURE. INVESTIGATED WAS THE DISLOCATION STRUCTURE OF BE ROLLED AT 400, 600, AND 800DEGREES WITH THE DEGREE OF DEFORMATION OF 88PERCENT, AS WELL AS OF BE ANNEALED AT 700-1000DEGREES FOR 15 SEC TO 24 HR. THE ACTIVATION ENERGIES OF NEW GRAIN FORMATION AND THEIR GROWTH WERE 75 AND 51 KCAL-G-MOLE, RESP. THE HIGH ACTIVATION ENERGY VALUES ARE EXPLAINED ON THE BASIS OF THE DISLOCATION STRUCTURE OF THE DEFORMED METAL. THE FUNDAMENTAL ELEMENT OF THE DISLOCATION STRUCTURE IS THE PILING UP OF DISLOCATIONS INTO WALLS OR CLOUDS, FORMED BY COMPLEX INTERLACING OF LINEAR DEFECTS. THE CELLULAR STRUCTURE APPEARS BUT RARELY. DISLOCATION NETWORKS ARE FORMED ESP. AT HIGH DEFORMATION TEMPS. (800DEGREES). NEAR THESE NETWORKS THERE ARE FREQUENTLY SEEN CHARACTERISTIC INDIVIDUAL DISLOCATIONS. BESIDES SUCH CLUSTERS OF DISLOCATIONS, MATRIX SECTIONS 10 20 MU IN SIZE ARE OBSD. WHICH DO NOT CONTAIN A LARGE NO. OF IMPERFECTIONS PRESENT, WITH THE EXCEPTION OF PERHAPS A FEW DISLOCATION LOOPS. THE KINETICS OF THE PROCESSES TAKING PLACE DURING ANNEALING OF BE IS DETD. BY THE STRUCTURE OF THE DEFORMED METAL, WHICH IN TURN DEPENDS ON THE TEMP. AND THE DEGREE OF DEFORMATION.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

1/2 040 UNCLASSIFIED

TITLE--PROPERTIES OF IRRADIATED BERYLLIUM -U- PROCESSING DATE--23OCT71

AUTHOR-(04)-KORNIYENKO, L.A., PAPIROV, I.I., TIKHINSKIY, G.F., DAVIDENKO, A.S.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(2), 155-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--BERYLLIUM, MECHANICAL PROPERTY, NEUTRON IRRADIATION, ANNEALING, COMPRESSIVE STRENGTH, GRAIN SIZE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1544 STEP NO--UR/0089/70/028/002/0155/0157

CIRC ACCESSION NO--AP0120323

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

2/2 040 UNCLASSIFIED

CIRC ACCESSION NO--AP0120323 PROCESSING DATE--23OCT7

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NEUTRON (N) IRRADN. OF BE (WITH A MEAN GRAIN SIZE OF 120 MU AND A BEO CONTENT OF 0.1-0.3PERCENT) WITH AN INTEGRATED FAST N (LARGER THAN 1 MEV) FLUX OF 1.2 TIMES 10 PRIME20 N-CM PRIME2 AT 280DEGREES INCREASED THE HARDNESS H SUBGAMMA FROM 130 TO 160 KG-MM PRIME2 BUT REDUCED THE COMPRESSIVE STRENGTH SIGMA SUBLIM FROM 106 TO 90 KG-MM PRIME2; SUBSEQUENT ANNEALING AT 850DEGREES REDUCE H SUBGAMM TO 130 KG-MM PRIME2 AND INCREASED SIGMA SUBLIM TO 98 KG-MM PRIME2. THE H SUBGAMMA AND SIGMA SUBLIM INCREASED (FOR BOTH IRRADIATED AND NONIRRADIATED SAMPLES) WHEN THE GRAIN SIZE WAS REDUCED TO 25 MU AND THE BEO CONTENT WAS INCREASED TO 1-5PERCENT; MOREOVER, SAMPLES OF LOWER GRAIN SIZE AND HIGHER BEO CONTENT WERE AFFECTED TO A LESSER EXTENT BY THE IRRADN. THE IRRADN. AND SUBSEQUENT ANNEALING AT 600-850DEGREES CAUSED NO CHANGE IN THE D. OF THE SAMPLES, WHILE ANNEALING AT 1000DEGREES INCREASED THE VOL BY 0.15-1PERCENT (THE SWELLING WAS LESS PRONOUNCED IN SAMPLES OF SMALLER GRAIN SIZE). DISLOCATION LOOPS OF SIZ 200-500 ANGSTROM AND AAT A D. OF 5 TIMES 10 PRIME13-10 PRIME14 LOOPS-CM PRIME3 WERE OBSD. AFTER THE N IRRADN., WHILE SUBSEQUENT ANNEALING AT 600DEGREES ANNIHILATED THE LOOPS AND LED TO THE FORMATION OF 150-200 ANGSTROM BUBBLES (LOCATED ON THE DISLOCATION LINES) WHOSE SIZE INCREASE WITH INCREASING ANNEALING TEMP., E.G., TO 1000-1500 ANGSTROM AT 850DEGREES AND 1-2 MU AT 1000DEGREES.

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USSR

UDC 669.72.620.17

PAPIROV, I. I., and TIKHINSKIY, G. F., Physicotechnical Institute, Academy of Sciences Ukrainian SSR

"Structure and Mechanical Properties of Fine-Grained Formed Beryllium"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 29, No 5, May 70, pp 1057-1060

Abstract: The method of programmed variably directed forming of cast beryllium with a purity of over 99.9% (0.004 wt.% Fe; 0.004 Mn; 0.005 Mg; 0.002 Ni; 0.01 Al; 0.003 Cu; 0.002 Ca and 0.004 Cr) was used to produce a metal with a grain size of 13 micron. The mechanical properties during elongation in the temperature range from 20 to 1000°C were determined. At room temperature the tensile strength was 56.5 kg/mm^2 and the relative elongation 7.5%. In compression tests the strength reached 150 kg/mm^2 and no rupture took place at a deformation of ~50%. The high mechanical properties of the beryllium are explained by its small grain size and low impurity content. Its mechanical properties over a wide temperature range surpass the characterisitcs of a technically quasiisotropic metal.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

Beryllium

USSR

UDC 669.725:548.53

KORNIYENKO, L.A., NIKOLAYENKO, A.A., PAPIROV, I.I., and TIKHINSKIY, G.F.,
Physicotechnical Institute, Academy of Sciences, Ukr SSR

"Recrystallization of Rolled Beryllium"

Sverdlovsk, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 29, No 1, Jan 70, pp 138-142

Abstract: An investigation was made of the kinetics of recrystallization and growth of grains in strained beryllium as a function of its thin structure. The procedure for the preparation of the experimental samples is described. The dislocation structure of strained beryllium hot rolled at 400, 600, and 800°C, with 88% deformation was investigated by optical and electron microscopy. Photographs of the dislocation structures of strained beryllium at various temperatures are presented and analyzed. The kinetics of new grain formation at primary recrystallization and their growth with collective recrystallization are studied. The results show that at high annealing temperature (950-1000°C) the growth rate slows down, and that the time prior to recrystallization depends exponentially on the inverse value of the annealing temperature.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

KORNIYENKO, L.A., et al, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 29, No 1, Jan 70, pp 138-142

The activation energies of the primary recrystallization of grains and their growth with collective recrystallization are 75±5 and 51±4 Kcal/g x mol, respectively. The dependence of the average grain size on annealing time with collective recrystallization is satisfactorily described by the formula $D = D_0 \tau^n$ and is presented in graphs for various rolling temperatures. The values of n for definite temperatures are given in a table. The high values of activation energies are explained on the basis of the dislocation structure of the deformed metal.
Orig. art. has: 4 figures, 3 formulas, and 1 table.

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USSR

Single Crystals

UDC 669.72.548.55.539.4

GINDIN, I. A., LAPTEV, I. V., NEKLYUDOV, I. M., TIKHINSKIY, G. F.

"Change in Anisotropy of Plastic Deformation of Beryllium Single Crystals Following Programmed Loading"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 34, No 1, Jul 72, pp 160-165

Abstract: The influence of preliminary programmed loading on the critical stresses of the beginning of twinning and slipping in beryllium single crystals of various orientations was studied. The single crystals were grown by the method of slow cooling of a melt in a vacuum. Programmed loading was conducted at 400°C for 30 hours using stresses not exceeding the critical stress of the beginning of twinning of crystals of the orientations used. The studies showed that extended annealing under smoothly increasing load increases the flow stress for the base planes by approximately 25% and significantly reduces the splitting stress in the other planes. It is concluded that this non-additive effect of programmed loading on shear stress in the different planes results from oriented redistribution of impurities in the volume of the crystal.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

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UNCLASSIFIED

TITLE--USING DEIONIZED WATER AS A DIELECTRIC FLUID FOR ELECTROEROSION MACHINE TOOLS -U-

PROCESSING DATE--30OCT70

AUTHOR-(02)-TIKHIY, V.A., MURASHCHENKOV, I.I.

COUNTRY OF INFO--USSR

SOURCE--KIEV, TEKHNOLOGIYA I ORGANIZATSIYA PROIZVODSTVA, NO 1, 1970, PP 67-68

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ION EXCHANGE RESIN, ELECTROEROSION MACHINE TOOL, DIELECTRIC MATERIAL, FILTRATION, CUTTING FLUID, DEIONIZED WATER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1317

STEP NO--UR/0418/70/000/001/0067/0068

CIRC ACCESSION NO--AP0123276

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

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UNCLASSIFIED

CIRC ACCESSION NO--AP0123276 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DATA IS GIVEN ON THE EFFECTIVENESS OF USING WATER CLEANED BY ION EXCHANGE RESIN AS THE DIELECTRIC FLUID USED IN ELECTROEROSION MACHINE TOOLS. THE USE OF ION EXCHANGE FILTERS IS COMPARED TO OTHER METHODS FOR OBTAINING DEIONIZED WATER. A DIAGRAM IS GIVEN FOR AN ION EXCHANGE FILTER.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

UDC 621.314.58

TIKHMENEV, B. N., KAMENEV, A. V., GOMOLA, G. G.

"Thyristor Pulse Converter for Electrical Rolling Stock With Dual Feed"

Tr. VNII zh.-d. transp. (Works of the All-Union Scientific-Research Institute of Railroad Transportation), 1970, Issue 416, pp 137-163 (from RZh-Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2B560)

Translation: A description and analysis is presented of the operation of a thyristor pulse converter which can maintain normal operation of a-c electric rolling stock, powered from a d-c catenary net, by using the same equipment and by maintaining the same power and traction properties as with an a-c net. The results are presented of an experimental investigation with the d-c and a-c supplies. The converter described satisfies the requirement for dual supply and assures a number of advantages over existing design. 22 illustrations, 2 tables, 3 references.
I.R.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

TIKHOMIROV A.A.

Acc. Nr.: AP0042379

Ref. Code: UR0203
JPRS 50162

Anomalous Secular Variation on Kamchatka

(Abstract: "Anomalous Nature of Secular Variation on Kamchatka," by I. M. Pudovkin, A. A. Tanichev, T. A. Shadrina, Ye. E. Blagoveshchenskaya and A. A. Tikhomirov, Leningrad Department, Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation; Moscow, Geomagnetizm i Aeronomiya, Vol X, No 1, 1970, pp 173-175)

This is the second part of this study of secular variation on Kamchatka (for part I, see Geomagnetizm i Aeronomiya, Vol X, No 1, 1970, pp 170-173). Geomagnetic measurements were made in a network of stations in southern Kamchatka separated by an average distance of 10-15 km. Repeated observations were made on the assumption that during the stage of formation of volcanic lavas deep processes can create localized and shallow high-temperature hearths. The magnetic properties of rocks involved in these processes can change relatively rapidly, which should cause changes in the geomagnetic field and thereby give the dynamic magnetic characteristics of deep processes. Observations were made at 24 stations with 2 to 5 observations at each. The results of observations, reduced to the middle of the year, show that the nature of field changes is similar to that observed throughout the regional network. However, the field changes at different

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AP0042379

stations vary. Over a five-year period H changes from -31 to -41 γ (the mean error in observing this component is 8 γ). During this same period D varies from -9.0 to 6.0' (observation error 2.0'). The structure of the field of anomalies of secular variation Δf_a is extremely complex. The regions of decrease in all magnetic elements are found in a relatively small region (diagrammatic maps of field components accompany the text). The results of observations at stations in the local net were reduced using data for the Yuzhno-Sakhalinsk Observatory and field variation stations. The configuration of the δf_a isopors for annual periods indicates that the nature of this field changes somewhat from year to year but the sites of the anomalies persist. Judging from the map of structural geology of southern Kamchatka, there is a definite relationship between structural elements and anomalies of secular variation. There is also some relationship between the nature of the δf_a field and solar activity. Since the secular variation anomalies on Kamchatka correlate with the elements of its structural-tectonic structure and with solar activity, it can be assumed that the causal relationship is of a double nature: 1) a change in the magnetic properties of rocks involved in deep processes and 2) presence of nonuniformity of electrical conductivity of deep layers in the crust and upper mantle.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

Ecology

USSR

UDC 919.8(252.6)

TIKHOMIROV, B. A., Professor, Botanical Institute, Academy of Sciences USSR

"Characteristics of the Biosphere in the Far North"

Moscow, Priroda, No 11, 1971, pp 30-42

Abstract: The tundra zone (including the forest tundra and polar deserts) occupies an area of over 3 million square kilometers in the USSR, or about 15 percent of the land mass of the country. Despite the harshness of the climate, the flora and fauna are extremely rich. For example, study of a section of tundra (100 km^2) in Western Taymyr (72°30' N. lat.) revealed a great many species of vascular plants (239), lichens (112), mosses (250), water algae (237), soil algae (150), fungi (300), mammals (10), birds (61), invertebrates (more than 1000), and soil bacteria (500,000 to 3,500,000 cells/g of soil). Plants, animals, insects, microorganisms, soil, and water are closely related and interdependent. They form a highly fragile biogeocenosis vulnerable to change in any of the components. Moreover, any disturbance may take decades to correct. Thus, great care based on thorough knowledge must be exercised if man is to exploit the natural resources of the Far North without doing irreparable harm in the process.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

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15

UDC 621.396.6--181.5 (088.8)

BARANOV, A.I., BATSKIAURI, V.D., VOSKOBOYNIKOV, I.I., GAVRILOV, R.A., GALYATKIN, V.P., GOLUBTSOV, M.S., ZAMIKHOVSKIY, M.B., ZALIPSKIY, A.I., ZLOTIK, V.A., KAZATSKER, L.I., LAGUTKIN, G.V., LARIONOV, YU. S., PREOBRAZHENSKIY, S.P., MAIMIN, D.L., RAMENSKIY, I.V., SIMEONOVA, I.S., TIKHONOVOV, B.G., FISHEL', I.SH., SHUBERT, M.M.

"Device For Deposition Of Multilayer Coverings In A Vacuum"

USSR Author's Certificate No 279291, filed 15 June 68, published 30 Nov 70 (from RZh--Radiotekhnika, No 9, Sep 1971, Abstract No 9V272P)

Translation: A device proposed for deposition of multilayer coverings in a vacuum is fulfilled in the form of a number of successively mounted independent operating chambers supplied with evaporators, heaters, and an exhaust system. The device contains a mechanism for transporting substrates, a mechanism for loading and unloading, and a drive mechanism. With the object of increasing the reliability of the device and improving the quality and reproducibility of the coverings deposited, outside of the area of the arrangement of operating chambers and parallel to it a supplementary vacuum chamber is installed, which serves for the deposition in it of the transporting mechanism, and which communicates with each of the operating chambers by means of vacuum-overlapping transfer windows located on the side wall

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

BARANOV, A. I., et al., USSR Author's Certificate No 279291, filed 16 June 68, published 30 Nov 70 (from RZh--Radiotekhnika, No 9, Sep 1971, Abstract No 9V272P)

of the supplementary chamber at places for connection to it of the operating chambers. Each of the operating chambers or a group of them is provided with an individual system of high-vacuum pumping.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

UNCLASSIFIED

TITLE--MODIFICATION OF UNSATURATED POLYMERS AND COPOLYMERS OF 1,3,BUTADIENE -U-

PROCESSING DATE--13NOV70

AUTHOR-(03)-TIKHOMIROV, B.I., KLOPOTOVA, I.A., YAKUBCHIK, A.I.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,432

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--09MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--BUTADIENE, CHEMICAL PATENT, POLYMER, COPOLYMER, CATALYTIC HYDROGENATION, ORGANIC PHOSPHORUS COMPOUND, RHODIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1426

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128825

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

2/2 025 UNCLASSIFIED

CIRC ACCESSION NO--AA0128825 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNSATD. POLYMERS AND COPOLYMERS OF 1,3,BUTADIENE ARE MODIFIED BY HOMOGENEOUS HYDROGENATION IN A HYDROCARBON SOLVENT IN THE PRESENCE OF A CATALYST, I.E. TRIS(TRIPHENYLPHOSPHINE)CHLORORHODIUM.

A., STATE UNIVERSITY, LENINGRAD. FACILITY: ZHDANOV, A.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

KOVALENCHIK, D. I., LEONT'YEV, A. I., TIKHOMIROV, D. A., ZHMUROVA, S. V., and YURCHENKO, A. I.

UDC: None

"Memory Device"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 14, 1973, p 145, No 373717

Abstract: This analog-type memory device using a selsyn pickup has the distinguishing feature of having the program carrier fixed to the selsyn shaft, with the perforator and counting element on the opposite side of the carrier disc. The effect of this arrangement is to simplify the device.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

TIKHOMIROV, D. L., PAVLOV, I. S., GRIGOR'YEVA, G. A. UDC: 681.3:519.2

"A Device for Analyzing Pseudorandom Test Sequences"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 6, Feb 72, Author's Certificate No 328469, Division G, filed 9 Jun 70, published 2 Feb 72, p 159

Translation: This Author's Certificate introduces a device for analyzing pseudorandom test sequences. The device contains a recurrent code ring register, half-adders, frequency dividers, a control flip-flop, AND and OR circuits, and inverters. As a distinguishing feature of the patent, the effectiveness of analyzing pseudorandom test sequences is improved by connecting one of the inputs of the first OR circuit to an input of the first AND circuit and also through an inverter to the output of the first half-adder. The second input of the OR circuit is connected to an input terminal of the device and also through a second inverter to another input of the first AND circuit. The output of the first OR circuit is connected through a third inverter to the input of the second OR circuit. A third input of the first AND circuit and a second input of the second AND circuit

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

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TIKHOMIROV, D. L. et al., USSR Author's Certificate No 328469

are connected through the second OR circuit to the input of the first frequency divider. This frequency divider is connected through decoders to the inputs of the control flip-flop, whose outputs are connected to the first inputs of the third and fourth AND circuits. The second input of the third AND circuit is connected to the output of the second half-adder. This half-adder is connected to one of the inputs of the first half-adder, whose second input is connected to the second input of the fourth AND circuit and to the other input terminal of the device. The reset line of the first frequency divider is connected to the output of the second frequency divider. The second frequency divider is connected to a cadence pulse source.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

UDC 621.316.727:621.9.503.9.55(088.8)(47)

ZUSMAN, V. G., TIKHOMIROV, E. L., LEBEDEV, A. M., SEMENOV, A. A., NALETOV, S. P., LAPIS, I. V., and KUZIN, V. YE.

"Pulse-Phase Device for Programmed Control of Metal-Cutting Tools"

USSR Author's Certificate No 230247, filed 4/10/67, published 18/03/69 (from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tehhnika, No 2, 1970, Abstract No 2A593P by Yu. T.)

Translation: A device is suggested which allows a reduction in the level of pulsations of the control signal in the transient made and increases the reliability of operation of programmed control. One illustration.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

(18)

BALOSHIN, O. N., BLAGORODOV, A. M., BOLONKIN, B. V., VLADIMIRSKIY, V. Y., GORIN, YU. P., GRIGOR'YEV, V. K., GRISHIN, A. P., YEROFEYEV, I. A., KOROL'KOV, I. YA., LUZIN, V. N., MILLER, V. V., NIKOLAYEVSKIY, YE. S., PETRUKHIN, V. N., PLIGIN, YU. S., PONOMAREV, L. A., SIROTKIN, S. M., SOKOLOVSKIY, V. V., TARASOV, YE. K., TIKHOMIROV, G. D., TROSTINA, K. A., TURCHANOVICH, L. K., and SHKURENKO, YU. P., Institute of Theoretical and Experimental Physics GKI AE (State Committee for the Use of Atomic Energy)

"The $K^- p \rightarrow \bar{K}^0 n$ Charge Exchange Reaction at a Pulse of 39 Gev/sec"

Moscow, Yadernaya Fizika, Vol 18, No 3, Sep 73, pp 542-544

Abstract: The authors present the measurement results from studying the charge exchange reaction of K^--mesons on protons ($K^- p \rightarrow \bar{K}^0 n$) at a pulse of 39 Gev/sec. The study was carried out using the ITEF 6-m magnetic track spectrometer. The working volume of the magnetic field of the spectrometer was 1.0 x 1.5 x 6 m . Twelve optical spark chambers were located inside the magnet, with each chamber having eight spark gaps (10 mm each). The chamber electrodes consisted of two layers of aluminum foil 14 microns thick. The photographs were taken through a special slit in the magnet yoke. A mirror system made it possible to obtain three stereoprojections of all of the chambers

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

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BALOSHIN, O. N., et al., Yadernaya Fizika, Vol 18, No 3, Sep 73, pp 542-544

with one camera. The reaction was studied on the negative particle beam of the IFVE accelerator. The K^--mesons were distinguished by a differential Cerenkov counter. The beam was focused on a liquid hydrogen target 40 cm long which was set approximately three meters from the first chamber of the spectrometer. Approximately $5 \cdot 10^7$ K^--mesons were passed through the equipment and 1020 photographs taken. Pairs of uniformly charged tracks were measured on the computer. The measurement results were then processed on the Razdan-3 computer. Only 270 intersecting tracks were found. A graph is given for the differential cross section of the reaction. The results show that the cross section value of 7.4 ± 1.2 microbarns obtained by the authors in comparison to data obtained for lower energies elsewhere shows the logarithmic dependence of the charge exchange cross section on the pulse, equal to -1.58 ± 0.05. The authors thank K. G. Boreskov, A. M. Lapidus, S. T. Sukhorukov, and K. A. Ter-Martirosyan for their presentation of the computational results as the dependence of the differential cross section onpulse transfer (do/dt). This dependence is compared with predictions of the Regge pole model.

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RAN/ /R-760 /5-ARP-73
Du.072

(5)

Semenova, V. I. Electromagnetic wave reflection during oblique incidence on a moving ionization front. IVUZ Radiofiz, no. 5, 1972, 665-674.

An extensive theoretical analysis is given of the interaction of a monochromatic wave with a plasma boundary. The particular case considered is of inclined incidence of monochromatic TE and TM waves upon a sharply defined boundary of a plasma half-space, where the plasma is generated by ionizing radiation acting on a neutral gas. For simplicity the incident pulse is assumed arbitrarity narrow and the dielectric constant outside the plasma is taken to be unity. It is shown that when the E-field normal to plane of incidence, the solution for the inclined incidence case is essentially the same as for normal incidence. With the TM wave, however, inclined incidence is shown to generate two axial waves in addition to the transverse ones, at any given frequency of the incident wave. Formulas for the reflection and transmission of the latter are obtained and analyzed in terms of the idealized plasma parameters.

Kuznetsov, A. Ya., I. S. Varnasheva, A. A. Poplavskiy, and G. P. Tikhomirov. Destruction of reflective dielectric coatings by laser radiation. OMP, no. 3, 1972, 39-42.

The resistance of reflective coatings to laser radiation was studied using zinc sulfide and magnesium fluoride coatings. The coatings were applied by thermal evaporation in a vacuum, and the reflection factor was R = 90% at $\lambda = 0.7\mu$. The flux falling upon the specimen was controlled

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TIKHOMIROV GP

Acc. Nr: AP0047607 Abstracting Service: CHEMICAL ABST. 5/70

Ref. Code: UR0057 3

105059r Breakdown of dielectric reflecting coatings under the influence of laser radiation. Kuznetsov, A. Ya.; Poplavskii, A. A.; Bonch-Bruevich, A. M.; Imas, Ya. A.; Rozhdestvenskii, Y. N.; Tikhomirov, G. P.; Tsikeva, E. I. (USSR). Zh. Tekh. Fiz. 1970, 40(1), 170-2 (Russ). The threshold of breakdown of coatings was measured as a function of the direction of the effect, the no. of coating layers, the temp. of the base during the application, the purity and structure of the starting materials, the degree of orientation of microcrystals in the layer, the presence of defects, and the structure of the layer. The breakdown threshold of vacuum dielec. coatings on K-8 glass depended on the degree of orientation and the structure of crystals in the ZnS layer, and on the compn. of the surface of the coatings.
M. Tichy

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

UNCLASSIFIED

PROCESSING DATE--30OCT70

--THEORY OF ISOTOPE SEPARATION DURING ELECTRODIALYSIS USING ION EXCHANGE MEMBRANES -U-

AUTHOR-(04)-TIKHOMIROV, I.A., DURONIN, V.T., VERGUN, A.P., LARIONOV, V.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 751-5

DATE PUBLISHED--------70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, CHEMISTRY

TOPIC TAGS--ISOTOPE SEPARATION, ELECTRODIALYSIS, ION EXCHANGE MEMBRANE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1629

STEP NO--UR/0076/70/044/003/0751/0755

CIRC ACCESSION NO--AP0125251

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

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CIRC ACCESSION NO--AP0125251 UNCLASSIFIED PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SEPN. OF 2 ISOTOPIC IONS IS TREATED AS IF OCCURRING IN 2 STEPS, I.E. BY EQUILIBRIUM DISTRIBUTION OF THE MIXT. THROUGHOUT THE ELECTRODIALYZER AND SEPN. OF COMPONENTS WITHIN THIS GENERAL DISTRIBUTION PATTERN. THE FINAL FORM OF THE EQUATION DESCRIBING PARTITIONING OF A BINARY SYSTEM OF ISOTOPES IN ELECTRODIALYZERS USING ION EXCHANGER MEMBRANES IS GIVEN.

FACILITY: TOMSK. POLITEKH. INST., TOMSK, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

1/2 009 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--ELECTRICAL CONDUCTIVITY AND COEFFICIENTS OF SELF DIFFUSION OF THE LITHIUM CHLORIDE KU-2 (CATION EXCHANGER) SYSTEM IN RELATION TO

AUTHOR-(03)-MALTSEV, G.I., KURIN, M.N., TIKHOMIROV, I.A.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(2), 258-61

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRIC CONDUCTIVITY, LITHIUM CHLORIDE, CATION EXCHANGE RESIN, DIFFUSION COEFFICIENT, CALCULATION/(U)KU2 CATION EXCHANGER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/0198 STEP NO--UR/0364/70/006/002/0258/0261

CIRC ACCESSION NO--AP0114584

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

2/2 009 UNCLASSIFIED

CIRC ACCESSION NO--AP0114584 PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A TABLE OF THE COND. OF THE SYSTEM WITH LICL CONCNS. OF 0.1-6N AT 10DEGREES INTERVALS AT 10-90DEGREES IS PRESENTED. COND. AT VARIOUS CONCNS. AND TEMPS. DIFFERED LITTLE FOR 3 DIFFERENT RANGES OF PARTICLE SIZE OF THE CATION EXCHANGER. SELF DIFFUSION COEFFS. FOR THE SYSTEM WERE CALCD. BY USING THE NERNST EINSTEIN EQUATION, AND AGREED WITH LITERATURE VALUES. FACILITY: TOMSK. POLITEKH. INST. IM. KIROVA, TOMSK, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

UDC 541.183

TIKHOMIROV, I. A., TIKHONOV, G. S., and GOFMAN, E. R., Tomsk Polytechnical Institute

"Swelling of the Cation Exchange Resin KU-2 in Alcohols and Aqueous Alcohol Solutions"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 46, No 5, May 72, pp 1202-1204

Abstract: It has been shown that addition of alcohol to water, with a concentration of less than 20 g per 100 g water, had no effect on the degree of swelling of ion exchange resin, since this insignificant content of alcohol in water changed but little its dielectric permeability. On the other hand, swelling of the ion exchange resin in alcohols and in alcohols to which small quantities of water were added differed considerably from the cation exchange resin swelling in water. This is explained by the fact that even though with low solubility of water in alcohol the dielectric permeability is changed, the degree of this change is too small to affect the swelling. In case of alcohols soluble in water, the degree of cation exchange resin swelling decreases sharply with increasing concentration of the alcohol.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR UDC 612.015.3.014.43(99)

TIKHOMIROV, I. I., Moscow Institute of Medical Stomatology

"Nature of the Metabolic Processes in Explorers of the Central Antarctic"

Moscow, Voprosy Pitaniya, No 2, 1973, pp 37-40

Abstract: Dynamic observation of scientists at the Vostok station in the Antarctic revealed a lowering of metabolism throughout the year. It was most depressed during the polar night when it averaged 80 to 85% of the expected values. In the summer months, however, it rose to 94% on the average. Since neither subzero temperatures nor hypoxia by themselves usually have this effect, the causes are probably the harsh living conditions, insufficiency of ultraviolet light, absence of daylight during the polar night, inadequate nutrition, lack of vitamins and minerals, hypodynamia, etc., which gradually exhaust the central nervous system and weaken the metabolic processes. Improvement of the life support system, especially suitable diet, would facilitate and accelerate acclimatization. Metabolic disorders are least frequent at the stations where favorable living and working conditions have been created.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

UDC 613.2-058:910.4(99)

TIKHOMIROV, I. I., Chair of General Hygiene, Moscow Medical Stomatology Institute

"Characteristics of Food Rations for the Winter Inhabitants of Antarctic Stations"

Moscow, Voprosy Pitaniya, No 6, Nov/Dec 73, pp 31-37

Abstract: The particular living conditions to which arctic explorers are accustomed prior to their trips to the arctic influence their metabolic rates during acclimatization. The information obtained may be used to plan diets which would minimize the trauma associated with the adjustments. A number of recommendations have been made on the amount and types of food required most in the neighborhood of 3700 to 4470 calories/day with a ratio of protein:fat:carbohydrate of 12:39:49 by calories and 1:1.4:4.2 by weight. The suggested doses of individual vitamens A, B, C, and others which are mandatory in this area and minerals such as Ca, Mg, Na and the anions HCO_3^-, Cl^-, and $SO_4^=$, I^- and others are listed.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

1/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--THERMAL THERMOAESTHESIOMETER -U-

AUTHOR-(02)-KURILOVA, L.M., TIKHOMIROV, I.I.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 49, NR 6, PP 123-124

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SKIN PHYSIOLOGY, TEMPERATURE MEASUREMENT, MEDICAL APPARATUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0577 STEP NO--UR/0219/70/049/006/0123/0124

CIRC ACCESSION NO--AP0131200

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

2/2 020 UNCLASSIFIED

CIRC ACCESSION NO--AP0131200 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERMAL THERMOAESTHESIOMETER PERMITS TO STUDY THE THERMAL RECEPTION OF THE SKIN BY USING THE METHOD OF FUNCTIONAL MOBILITY. ITS PORTABILITY AND RELATIVE INDEPENDENCE AS IT WORKS FROM A BATTERY GIVES IT DEVINITE ADVANTAGES AS COMPARED TO THE USUAL MODELS OF THERMOAESTESIOMETERS. FACILITY: INSTITUTE OF NORMAL AND PATHOLOGICAL PHYSIOLOGY, ACADEMY OF MEDICAL SCIENCES OF THE USSR MOSCOW.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR UDC: 624.042.8

ISKHAKOV, Ya. Sh., Candidate of Technical Sciences and TIKHOMIROV, I. V., Engineer

"Dynamic Parameters and Seismic Stability of Reinforced Concrete Shell Panel Roofing"

Beton i Zhelezobeton, No 9, 1972, pp 14-16.

Abstract: Dushanbe plant No. 1 has begun producing precast, prestressed reinforced concrete curved roofing panels measuring 3 by 18 m in plan. These panels are designed to be used as roofing over one-story commercial buildings. The panels were tested for strength and impact resistance. The impact loading, imitating a seismic loading, was applied 11 times, four times corresponding to a seismic loading of 7 and 8 points, three times corresponding to a loading of 9 points. The panels withstood the load applied in the most unfavorable direction. The panels are recommended for use in construction.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

UDC 621.397.332

TIKHOMIROV, L. M., LOBAN, V. I., SAVINA, V. A.

"Line Scanning Generator"

USSR Author's Certificate No 274156, Filed 8 Jun 66, Published 1 Oct 70 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4G91P)

Translation: The schematic of a line scanning output cascade is patented. In this device a thyratron anode is connected to the auxiliary winding of the transformer via a capacitance, and the controlling electrode of the auxiliary winding is connected via a capacitive divider. The scheme is distinguished by the fact that in order to improve the degree of stabilization, the preparatory electrode of the mentioned thyratron is connected via a resistor to the power supply, and the anode of the thyratron is connected via a resistive divider and an integrating circuit to the control grid of the amplifying tube.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

Controls

USSR UDC: 621.373.43:621.397.62(088.8)

TIKHOMIROV, L. M., BELYAYEV, R. P., LOBAN, V. I., KUBAREV, N. S.

"A Device for Automatic Frequency and Phase Control"

USSR Author's Certificate No 265962, filed 8 Jun 66, published 1 Jul 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1D74 P)

Translation: This Author's Certificate introduces a device for automatic frequency and phase control based on a cold-cathode tube. The tube has a discharge preparation electrode connected through a resistor to a voltage source, and a controlling electrode connected through a capacitor to a source of synchronization pulses. The plate circuit is connected through a capacitor to a sawtooth voltage source and through an RC filter to the output. The discharge preparation electrode is connected through a resistor to the filter capacitor.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR UDC: 621.397.332.1

TIKHOMIROV, L. M., LOBAN, V. I., SAVINA, V. A.

"A Line Scanning Oscillator"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 21, 1970, Author's Certificate No 274156, filed 8 Jun 66, p 40

Abstract: This author's certificate introduces a line scanning oscillator for a television receiver. The device contains an amplifier tube, a damper diode, and an output transformer which has an additional winding to which a device is connected for stabilizing the line scanning parameters. This device is based on a nonlinear element such as a thyratron. The anode of the thyratron is connected through a capacitor to the auxiliary winding of the output transformer, while the control electrode of the tube is connected through a capacitive divider to the same winding. As a distinguishing feature of the patent, the degree of stabilization of the scanning oscillator parameters is improved by connecting the preparatory electrode of the thyratron through a resistor to the power supply, while the anode is connected through a resistor divider and an integrating circuit to the control grid of the amplifier tube.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

UDC:538.566+621.371

USSR

MAKAROV, G. I., TIKHOMIROV, N. P.

"Tropospheric Refraction of Radio Waves"

Probl. Difraktsii i Rasprostr. Voln [Problems of Diffraction and Propagation of Waves -- Collection of Works], No. 10, Leningrad University Press, 1970, pp. 116-131 (Translated from Referativnyy Zhurnal Fizika, No. 11, 1970, Abstract No. 11 Zh226 by V. A. Andrianov)

Abstract: The influence of tropospheric refraction on the propagation of low-frequency radio waves is studied from the standpoint of the possibility of solving the reverse problem (determination of impedence as a function of frequency of field received). The field of a vertical electric dipole on an impedance sphere of large radius is studied. The sphere is assumed to be a rounded heterogeneous medium with dielectric permeability ε, depending only on radius ε (r) and the corresponding exponential profile of atmospheric heterogeneity. The solution of the

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USSR

UDC:538.566+621.371

MAKAROV, G. I., TIKHOMIROV, N. P., Probl. Difraktsii i Rasprostr. Voln [Problems of Diffraction and Propagation of Waves -- Collection of Works], No. 10, Leningrad University Press, 1970, pp. 116-131 (Translated from Referativnyy Zhurnal Fizika, No. 11, 1970, Abstract No. 11 Zh226 by V. A. Andrianov)

problem is obtained by the method of normalized waves. In order to produce simple analytic variations of the natural numbers of the problem ν_s with impedence δ_g, frequency ω, and the heterogeneity parameters of the atmosphere, the first approximation of the Galerkin method is used. The condition of acceptability of the concept of equivalent radius of the earth for low and high frequencies is formulated. An analytic solution of the reverse problem is obtained from taking into consideration exponential profile-type atmospheric heterogeneity.

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TIKHOMIROV O.K.

INTERACTION BETWEEN MAN AND AN ELECTRONIC COMPUTER IN OPERATIONAL PLANNING

[Article by A. G. Bryzhatyy, (Moscow Machine Building Plant Krasnyy Oktyabr) and V. A. Yerekhov and O. K. Tikhomirov (Psychology Faculty Moscow State University); Moscow, Voprosy Psikhologii, Russian, No 6, 1972, pp 94-102]

It is well known that under modern conditions there is a considerable increase in the importance of improving control of the national economy. In one of his reports L. I. Brezhnev, noting the importance of control for development of the economy, speaks of the need for "raising the level of all work in control matters, bringing it into accordance with modern scientific requirements..." [2].

A thorough formulation of scientific control principles must include a psychological study of man's activity in the control sphere. This article is devoted to this problem.

1. Some Peculiarities in Designing Automated Control Systems

One of the ways for improving control methods is construction of automated control systems (ACS) by enterprises on the basis of electronic computers using the methods employed in economics and mathematics. Such control systems are usually called man-machine systems, since in production control in addition to functioning of an electronic computer man also performs definite functions and solves specific control problems.

In most cases controlling and controlled subsystems are distinguished in ACS. The controlled subsystem of an ACS at an enterprise includes such components as the individual work place (lathe), production sector and workshops. In this case the controlling subsystem will include the factory directors and the different services associated with the enterprise's administration. Despite the fact that the two subsystems are re-

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sponsible for different and diverse characteristic functions in the ACS, the principal functions of the ACS are the collection, sorting and grouping of information and the formulation of optimum solutions for the purpose of safeguarding objects.

Taking into account those principal functions in the designing and introduction of ACS it is customary to solve problems associated with functioning of electronic computers: mathematical models of the production process are being formulated, in particular, those determine the form of representation of information in electronic computers and the methods of its processing. Also involved are the problems in creating information models of an enterprise: computer or automatical principles of calendar planning of the initiation of parts in production and the turning out of the finished product or unit. Tasks in the formulation of a production program, etc. are formulated. With respect to activity in another link in the man-machine system, man himself, this factor is virtually neglected and the effectiveness in functioning of the ACS (including man) is assessed in dependence on operation of the electronic computer. For example, K. S. Gorbov and P. D. Chernikova /3/ write: "The central place in automated control systems in production is occupied by electronic computers. The quality of operation of the entire system and its productivity in processing production information are dependent specifically on the parameters of the electronic computer." From this point of view man is involved only as an appendage to the machine and work productivity of the system is determined, for example, by such a parameter of the electronic computer as the speed in processing information.

As a result, when one solves the problem of the effectiveness of operation of an ACS, it is not rare to meet with the following situation: the electronic computer feeds out an appropriate amount of information in such a way that it is used by man in control work, but this information is completely unsuitable for analysis and man's adoption of a corresponding solution.

In this connection a problem which assumes fundamental importance is how to distribute functions between man and machine in an ACS and how to construct new forms of human activity on a rational basis (this problem must be solved in the stage of planning the system). Analysis of data in the literature and material obtained in an investigation of functioning systems revealed that the distribution and "coupling" of functions between man and machine cannot be successful without a study of man's activity in this kind of systems.

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USSR

UDC 550.831

YEFREMOV, V. V., GORIN, V. P., TIKHOMIROV, Ye. M., KHITROV, S. I.

"A Gravimeter"

USSR Author's Certificate No 347721, Filed 26/01/71, Otkrytiya, Izobreteniya Promyshlennye Obraztsy Tovarnye Znaki, No 24, Moscow, 1972, p 152.

Translation: A gravimeter, containing a pendulum on an elastic suspension, fastened to the pendulum of a vertical plate of a dielectric, two nonmoving vertical metal plates, rigidly connected to the body, a control panel, including a supply oscillator, a capacitive bridge, one of the diagonals of which contains an indicator galvinometer, and a voltage divider with a reading device, differing in that in order to simplify the process of operation of the gravimeter, the nonmoving plates are connected into one arm of the capacitive bridge, while the supply generator is connected to another arm of this bridge by means of a voltage divider.

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1/4 019 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--PSYCHOLOGY OF SCIENTIFIC CREATIVITY -U-

AUTHOR--TIKHONIROV, O.K.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, "NAUKA" PUBLISHING HOUSE, 1969, 446 PP

DATE PUBLISHED--------70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--SCIENTIFIC PERSONNEL, MOTIVATION, HEURISTIC MODEL, ALGORITHM, EDUCATION, MONOGRAPH, PSYCHOLOGY, SYMPOSIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0547 STEP NO--UR/0000/70/000/001/0001/0446

CIRC ACCESSION NO--AM0104120

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

2/4 019 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AM0104120

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REVIEWED COLLECTION INCLUDES THE ANNOTATED TEXTS OF REPORTS GIVEN AT THE FIRST ALL UNION SYMPOSIUM ON THE PSYCHOLOGY OF SCIENTIFIC AND ENGINEERING CREATIVITY HELD IN JUNE 1967, AT THE INSTITUTE OF NATURAL HISTORY AND ENGINEERING OF THE USSR ACADEMY OF SCIENCES. THE PRIMARY PLACE IN THE COLLECTION IS GIVEN TO THE PSYCHOLOGICAL ASPECTS OF CREATIVITY INVESTIGATED IN CONNECTION WITH LOGICAL, HISTORICAL AND PEDAGOGICAL PROBLEMS. THE INTRODUCTION CONTAINS A DISCUSSION OF THE RELATIONS BETWEEN THE PSYCHOLOGY OF SCIENTIFIC CREATIVITY AND SCIENTOLOGY. THE CHARACTERISTICS OF THE PSYCHOLOGY OF SCIENCE AS AN INCIPIENT SPECIAL BRANCH OF KNOWLEDGE ARE GIVEN. THE STRUCTURE, AND MECHANISMS OF CREATIVE ACITVITY, SCIENTIFIC DISCOVERY, PRINCIPLES OF SIMULATION, MOTIVATION, PERSONALITY OF THE SCIENTIST, AGE DYNAMICS OF CREATIVITY, AND SMALL GROUPS IN SCIENCE, THESE ARE THE PROBLEMS OF THE PSYCHOLOGY OF SCIENCE DISCUSSED. THE FIRST SECTION OF THE COLLECTION CONTAINS ARTICLES IN WHICH THE GENERAL PROBLEMS OF THE THEORY OF SCIENTIFIC DISCOVERY AND THREE METHODS OF INTERPRETATING SCIENTIFIC CREATIVITY CONNECTED WITH THE CONCEPT OF INTUITION ARE DISCUSSED. THE CENTRAL CONCEPT OF THE FIRST SECTION IS THE CONCEPT OF COMBINING LOGICAL, HISTORICAL AND PSYCHOLOGICAL APPROACHES.

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3/4 019 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AM0104120

ABSTRACT/EXTRACT--THE SECOND DIVISION OF THE COLLECTION ENTITLED "PROCEDURAL AND HISTORICAL SCIENTIFIC RESEARCH," INCLUDES ARTICLES ON ASPECTS OF THE PROBLEM OF SCIENTIFIC DISCOVERIES, CREATIVE THOUGHT AS THE SUBJECT OF LOGIC, THE ROLE OF CONTACT DURING THE PROCESS OF CREATIVITY, STRUCTURAL STATISTICAL APPROACH TO SCIENTIFIC CREATIVITY, THE PROBLEM OF INFORMATION EXCHANGE IN THE GROUP, FUNCTIONS OF THE LEADER OF A SCIENTIFIC COLLECTIVE, COORDINATION AND PLANNING, AND THE CONDITIONS UNDER WHICH THE COLLECTIVE REINFORCES CREATIVE MOTIVATION OF ITS MEMBERS, THE EFFECT OF QUALITIES OF PERSONALITY AND DYNAMICS OF CONDITIONS ON CREATIVITY ACTIVITY, THE CONTRADICTORY NATURE OF SCIENTIFIC CREATIVITY, THE NECESSITY OF SPECIFIC KNOWLEDGE AND ITS POSSIBLE NEGATIVE FUNCTION, THE NECESSITY OF STATING SPECIFIC PROBLEMS AND THE RESTRICTION OF RESEARCH CONNECTED WITH THIS, POSITIVE AND NEGATIVE ASPECTS OF "MECHANIZATION" OF SCIENTIFIC RESEARCH, AND A PSYCHOLOGICAL PORTRAIT OF THE SCIENTIST IN THE MIDDLE AGES. THE THIRD SECTION OF THE COLLECTION INCLUDES PAPERS DEVOTED TO PSYCHOLOGICAL RESEARCH, PSYCHOLOGICAL SIMULATION OF SCIENTIFIC CREATIVITY, IMAGINATION AND CREATIVITY, HEURISTIC METHODS IN CYBERNETICS AND THE PROBLEMS OF THE PSYCHOLOGY OF PRODUCTIVE THOUGHT, ANALYSIS OF THE RELATION BETWEEN HEURISTIC AND ALGORITHMIC PROCESSES, THE NECESSITY OF ANALYSIS NOT ONLY OF "CORRECT" BUT ALSO "ERRONEOUS" THOUGHT THE MECHANISM OF WHICH IS THE SAME AND INCLUDES, IN PARTICULAR, SUBJECTIVE EVALUATION, OVERCOMING ONE SIDEDNESS OF THE EMPIRICAL APPROACH TO THE INVESTIGATION OF THOUGHT, A SPECIAL FORM OF THE PROBLEM SITUATION MODEL.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

4/4 019 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AM0104120

ABSTRACT/EXTRACT--THE REVIEWER FEELS THAT THERE IS INSUFFICIENT DIFFERENTIATION BETWEEN THE SECTION ON PROCEDURAL AND HISTORICAL SCIENTIFIC RESEARCH AND THE SECTIONS ON GENERAL PROBLEMS AND PSYCHOLOGICAL RESEARCH. THE FOURTH SECTION OF THE COLLECTION IS DEVOTED TO STATEMENT OF PROBLEMS CONNECTED WITH INVESTIGATING SO CALLED PROBLEM TRAINING, INVESTIGATION OF CREATIVITY IN SCIENCE AND TEACHING CREATIVITY IN SCHOOL, THE NECESSITY OF PROVIDING FOR THE FORMATION OF SUCH SKILLS AS DIFFERENTIATION BETWEEN SOLVABLE AND UNSOLVABLE PROBLEMS, SEPARATION OF THE CONDITIONS OF THE PROBLEM FROM REDUNDANT INFORMATION, AND SO ON WHEN CONSTRUCTING PROBLEM TRAINING, RESEARCH PROBLEMS IN TRAINING AS A MEANS OF DEVELOPING CREATIVE CAPACITIES, A REVIEW OF VARIOUS APPROACHES TO THE PROBLEM OF CAPACITY, AND THE USE OF PSYCHOLOGICAL TESTS, COMBINED WITH OTHER TECHNIQUES. THE BOOK IS CONSIDERED TO BE A HIGHLY USEFUL PAPER REPRESENTING A GREAT DEAL OF WORK. IT LEADS TO THE CONCLUSION THAT THE PSYCHOLOGY OF SCIENCE IN THE SOVIET UNION HAS ALREADY BEEN SHAPED.

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Vector Studies

USSR

UDC 599.323.4:577.9(470.311)

SUDEYKIN, V. A., LYAPUNOVA, K. L., and TIKHOMIROV, S. I., Central Control-Research Laboratory of the Moscow City Disinfection Station

"Multiplication of the Ordinary Hamster (Cricetus cricetus) in the Territory of the City of Moscow"

Moscow, Zoologicheskiy zhurnal, Vol 51, No 8, 1972, pp 1,258-1,259

Abstract: Evidence has reached the Control-Research Laboratory of the Moscow Municipal Disinfection System of the multiplication of the hamster population in the city. In 1971, burrows of the animals were found throughout the fields from the banks of the Moscow River to the city limits. The territory occupied by the animals is at most 25 square kilometers, limited by the bends of the river and the houses of the city. It is estimated that, at the present time, hamsters have an uneven population distribution over the Lyublinskiy fields; the probability is that in the course of a long period of time the population will sink to an unnoticeable level.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

1/2 023

UNCLASSIFIED

TITLE--OPTIMIZATION OF DIPPING AND DRYING TO IMPROVE THE DISTRIBUTION OF A BINDER IN NONWOVEN MATERIALS -U-

PROCESSING DATE--30OCT70

AUTHOR-(03)-TIKHOMIROV, V.B., KAN, G.E., SAMOYLOVA, L.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., TEKHNOL. TEKST. PROM. 1970, (1), 84-7

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--RAYON, NATURAL FIBER, RUBBER ADHESIVE, FABRIC, BONDING MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0945

STEP NO--UR/0324/70/000/001/0084/0087

CIRC ACCESSION NO--AP0124605

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

2/2 023 UNCLASSIFIED

CIRC ACCESSION NO--AP0124605 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROPERTIES OF THE NONWOVEN FABRICS, BASED ON COTTON OR RAYON FIBERS BONDED WITH RUBBER LATEXES, DEPEND CONSIDERABLY ON THE AMT. OF THE BINDER (C) AND THE MOISTURE CONTENT (W) AFTER DRYING; A STATISTICAL EXPT. WAS CARRIED OUT TO OPTIMIZE C AND W. THE FOLLOWING 8 VARIABLES WERE STUDIED: THE DISTANCE TRAVELED IN THE IMPREGNATING BINDER BATH, THE PRESSURE EXERTED BY THE TAKE UP ROLLERS, THE RATE OF FABRIC TRAVEL, LATEX CONCN., BATH SIZE, FIBER TYPE, CONCN. OF METAZIN IN THE BATH, CONCN. OF NEKAL IN THE LATEX.

FACILITY: MOSK. TEKST. INST., MOSCOW, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

UDC 621.382.5

SUPOSTAT, S. A., TIKHOMIROV, V. G.

"Device for Measurement of the Thermoelectric and Thermomagnetic Efficiency of Semiconductor Substances"

V sb. Nizkotemperaturn. termoelektrich. materialy (Low-Temperature Thermoelectric Materials--Collection of Works), Kishinev, 1970, pp 35-38 (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5B194)

Translation: The paper describes a device based on the Harman method for direct measurement of thermoelectric and thermomagnetic efficiency, which makes it possible to conduct a study in the temperature range 100-400°K. 2 ill. 1 ref. Summary.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--REGENERATION OF TREATED ACTIVATED CARBON -U-

AUTHOR-(03)-FERTMAN, G.I., TIKHOMIROV, V.G., SAVCHENKO, N.YA.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,316
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970 47(9)
DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATALYST REGENERATION, ACTIVATED CARBON, CHEMICAL PATENT, WATER PURIFICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0830 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136264

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

2/2 013

CIRC ACCESSION NO--AA0136264 UNCLASSIFIED PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TREATED ACTIVATED C, USABLE FOR PURIFYING H SUB2 O, ALC. MIXTS., WITH NO VOLATILE COMPONENTS AND INCREASED ADSORPTION ACTIVITY, IS PREPD. BY ALKALIZING IT WITH A SOLN. OF CAUSTIC SODA TO PH 8.2-8.8, PASSING A SOLN. OF NACL THROUGH A LAYER OF IT TO PURIFY IT FROM ABSORBED INORG. SALTS AND ORG. SUBSTANCES, AND TREATING IT WITH H SUB2 O VAPOR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

UDC 669.295.548.526

TIKHOMIROV, V. I., and D'YACHKOV, V. I., Leningrad State University imeni A. A. Zhdanov

"The Oxidation of Metals in a Nonstationary (Transitional) Region at High Temperatures. Part 3. Method for Calculating the Diffusion Factor of Oxygen in a Metal (Titanium)"

Sverdlovsk, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 30, No 1, Jul 70, pp 111-115

Abstract: On the basis of an analysis of equations of the phenomenological system of metal oxidation in a nonstationary region, a method for calculating the diffusion factor of oxygen in the metallic phase is presented. The method takes into account the relocation of the oxidation process on the boundary of the phase separation. Results of titanium oxidation dynamics previously obtained by the method of continuous weighing were used for the deduction of a formula for calculating the diffusion factor. Calculated diffusion factors of oxygen in titanium at various temperatures (750-1050° C) and in the α-phase of titanium at 900° C and various O_2-pressures are presented. The magnitude of the diffusion activation energy is approximately evaluated.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

UDC 669.094.3

D'YACHKOV, V. I., and TIKHOMIROV, V. I., Leningrad State University imeni A. A. Zhdanov

"The Effect of Oxidation Conditions of Titanium on the Temperature Regime of Its Initial (Nonisothermal) Period"

Sverdlovsk, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 30, No 1, Jul 70, pp 97-104

Abstract: An investigation was made of the effect of temperature, partial pressure of oxygen, specific surface and character of preliminary treatment of the investigated specimens, and the composition and conditions (static or dynamic) of the oxidizing atmosphere on the temperature regime of the initial stage of oxidation of titanium. It was found that the initial stage is often complicated, due to a considerable overheating of the specimen's surface which causes a deviation of the oxidation kinetics from the established rule. Oxygen saturation of the metal's surface layer prevents overheating, and a prolonged vacuum annealing with prior surface etching decreases the degree of overheating considerably. It is assumed that a significant overheating of the specimen's surface is principally related to an intensive oxygen dissolution in the metal. Probable sources affecting the temperature conditions are discussed.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

UNCLASSIFIED

TITLE--KINETICS OF TITANIUM OXIDATION AT HIGH TEMPERATURES IN A MIXTURE OF CARBON DIOXIDE WITH CARBON MONOXIDE -U-

PROCESSING DATE--02OCT70

AUTHOR-(02)-TIKHOMIROV, V.I., RYABOV, YE.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(2), 432-4

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--OXIDATION KINETICS, TITANIUM, CARBON DIOXIDE, CARBON MONOXIDE, CRYSTAL STRUCTURE, DIFFUSION COEFFICIENT, HIGH TEMPERATURE OXIDATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0850

STEP NO--UR/0080/70/043/002/0432/0434

CIRC ACCESSION NO--AP0104286

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

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CIRC ACCESSION NO--AP0104286 UNCLASSIFIED PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF THE OXIDN. OF COM. TI, GRADE BT1-1 IN FORM OF PLATES 15 TIMES 7 TIMES 2 MM, AT 850-1150DEGREES FOR 2-3 HR, IN MIXTS. CONTG. AIR, CO, OR CO SUB2, WAS STUDIED IN LAB. EXPTS. THE OXIDIZED PLATES WERE INVESTIGATED BY USING X RAY, METALLOGRAPHIC, AND CHEM. METHODS. THE REACTION RATE FOLLOWED THE EVANS EQUATIONS Q PRIME2 PLUS K SUBP Q-K SUBL EQUALS K SUBP T, WHERE Q IS THE WT. INCREASE OF THE PLATE, T IS TIME, AND K SUBP AND K SUBL ARE THE PARABOLIC AND LINEAR RATE CONSTS., RESP. AT 850-900DEGREES, A MONOLAYER AND AT HIGHER TEMPS. 2 LAYER SCALES WERE FORMED. IN ALL CASES THE SCALE CONSISTED OF RUTILE. THE HARDNESS OF THE OXIDIZED PLATES DID NOT DEPEND ON THE OXIDN. TIME. THE CALCD. DIFFUSION COEFFS. OF O IN TI WERE 0.023 AND 0.030, 0.068 AND 0.14, AND 0.092 AND 0.51 TIMES 10 PRIME NEGATIVE8 CM PRIME2-SEC. FOR THE OXIDN. WITH O, CO SUB2 PLUS CO, AND CO SUB2, AND 900 AND 1000DEGREES, RESP. THE OXIDN. OF TI OCCURS IN AN INTERMEDIATE REGION. AT SMALLER THAN 950DEGREES THE OXIDN. OCCURS STOICHIOMETRICALLY ON THE INTERFACE SCALE-METAL. AT HIGHER TEMPS. SOME CHEMISORPTION ON THE INTERFACE SCALE-GAS TAKES PLACE.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

UDC 66.074.7:546.81

TIKHOMIROV, V. K., and PETRUKHIN, N. V.

"Use of Strongly Basic AV-17 Anion Exchange Resin for Separation and Purification of Thorium. II"

Leningrad, Radiokhimiya, Vol XIII, No 2, 1971, pp 318-320

Abstract: The experimental procedure and data from a study of the behavior of micro amounts of thorium during its separation from solutions with significant salt content are discussed. Micro amounts of thorium-234 were separated from samples of the indicated type by sorption on AV-17 anion exchange resin from 11 normal nitric acid. It was found expedient to introduce the thorium-232 carrier into the sample. The method can also be used for analyzing uranium (235 and 238) isotope samples by the measured β-activity of thorium-231 and thorium-234.

The experimental data are plotted for separation of micro amounts of thorium-234 by means of the AV-17 anion-exchange resin, micro amounts of thorium-234 in the presence of thorium-232 carrier and separation of thorium-232 all in the presence of large amounts of soluble salts. The results of washing the fission products (with nitric acid solution irradiated by

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

TIKHOMIROV, V. K., and PETRUKHIN, N. V., Radiokhimiya, Vol XIII, No 2, 1971, pp 318-320

mixed uranium oxide aged for eight months) in the presence of the same salts are also plotted. No sorption of the fission products was observed.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310009-1

USSR

UDC: 621.317.73(088.8)

TIKHOMIROV, V. P., LEVINSON, B. A., KISELEV, I. B., SHELKOVNIKOV, A. A., and DVORYANCHIKOV, I. A.

"Automatic Device for Measuring the Input Resistance of a Long Line"

/N.-i. in-t teploenerg. priborostr./ Avt. sv. USSR (Scientific Research Institute of Thermal Energy and Instrument Manufacture, Author's Certificate USSR) Class 21a4, 74, (G01 r 27/04), No. 270842, Application 21.08.68, Publication 20.08.70 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3A388P)

Translation: An automatic device is proposed for measuring the input resistance of a long line, containing a UHF oscillator, a modulator, a detector, an amplifier, a phase-sensitive rectifier, and a compensating parametric controlling element. The proposed measuring device is distinguished in that, with the purpose of improving the accuracy of measurement, a parametric controlling element is connected in series with the measured section of the line. E. L.

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USSR

UDC 911.3.613.11 (98)

BOBROV, N. I., and TIKHOMIROV, V. P.

"Some Functional Shifts During Acclimitization to Far North Conditions"

V sb. Akklimatiz. i krayev. patol. cheloveka na Severe (Acclimatization and Regional Pathology of Man in the Far North--collection of works), Arkhangel'sk, 1970, pp 35-37 (from RZh-36. Meditsinskaya Geografiya, No 1, Jan 71, Abstract No 1.36.44)

Translation: It was found that people living in the Far North for 5-6 months, in comparison with new arrivals, had increased blood content of reduced fractions of Shaw substance complex, which indicates shifts in the functional state and increase in tonus in the sympathetic-adrenal system in response to the unfavorable conditions of the Far North. The blood of people living in the Far North for more than two years shows an increase in the content of reverse-oxidation Shaw forms. The dyspnea occurring under Northern conditions is more evident during the first stages of acclimatization. One of the probable causes of dyspnea is the significant decrease of oxygen in arterial blood as a result of decrease in the partial oxygen pressure in inhaled air because of low atmospheric pressure.

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Mechanical Properties

USSR

UDC 669.14.018.2:620.17

TIKHOMIROV, V. V., SHAKHNAZAROV, YU. V., PANKOV, A. G., and POPOV, V. D.

"Mechanical Properties and the Breaking Strength of Steel N18K9M5T After Different Aging Methods"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 4, 1971, pp 6-8

Abstract: The effect of the temperature and the aging period on mechanical properties of N18K9M5T martensitic-aging steel melted down in a 0.5-ton vacuum-induction furnace was investigated. The breaking strength was rated by the specific work of impact bending of specimens with a fatigue crack and the factor K_c characterizing the intensity of stresses in plane stress condition. It was found that low-temperature aging at 425-450°C ensures high strength properties than high-temperature aging at 480-500°C. The factor K_c was found to represent a more responsive characteristic in rating the tendency of steel to brittle failure than the energy to fracture determined on an impact specimen with a preliminarily applied fatigue crack. Four illustrations, six biblio, refs.

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Thermomechanical Treatment

USSR

UDC: 539.4.011

SHAKHNAZAROV, Yu. V., TIKHOMIROV, V. V., ORLOV, Ye. D., and VOROB'YEVA, N. I., Leningrad

"Combined Effect of Alloying and High-Temperature Thermomechanical Treatment on the Resistance of Low-Tempered Martensite to Brittle Failure"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, no 6, Nov-Dec 70, pp 124-127

Abstract: This study involved arc furnace-melted steels 40, 40Kh, 40KhS, 40KhSN, and 40KhSNMF. The steels were quenched from 870°C (heating in a salt bath for 6 minutes, oil). The high-temperature thermomechanical treatment (HTTMT) was effected by rolling in shaped rolls at 900°C with deformation of about 50%. The tempering temperature was such as to insure a tensile strength of 190-215 kg/mm^2. HTTMT is shown to increase the resistance of low-tempered steels (varying in degree of alloying) to brittle failure; it was also found to level off the differences in notch and crack sensitivity. HTTMT increases the crack-propagation resistance

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SHAKHNAZAROV, Yu. V., et al, Izvestiya Akademii Nauk SSSR, Metally, no 6, Nov-Dec 70, pp 124-127

of low-tempered martensite through changes in the macrostructure of the fracture. The tangible differences in the values of the pair coefficients of correlation between the notch sensitivity characteristics demonstrate that the latter are not interchangeable in evaluating the resistance of low-tempered martensite to brittle failure.

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USSR

UDC 621.396.4(088.8)

POLISHCHUK, Ya. L., TIKHOMIROV, Ye. V., OSTAPENKO, V. A., DAVIDENKO, V. I.

"A Device for Eliminating and Introducing Communications Channels"

USSR Author's Certificate No 259188, Filed 19 Aug 68, Published 28 Apr 70 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D416 P)

Translation: This Author's Certificate introduces a device for eliminating and adding IF communications channels in radio relay systems. The device contains an IF amplifier, a frequency and pulse-position modulator, a frequency-modulated oscillator and a synchronization module. To reduce transient interferences from channel to channel when pulse-position relative FM is used with elimination of the nonstationary processes which arise at the beginning and end of the temporarily added interval, keying stages are connected respectively between the IF power amplifier, the FM oscillator and the IF amplifier. The control circuits of these keying stages are connected to the outputs of the synchronizing module for coherent pedestal pulses, and the phase AFC circuit connected between the IF amplifier and the outputs of the synchronization module and FM oscillator is matched by actuation to time periods a little greater than the duration of the leading and trailing fronts of the blocking pedestal pulses. V. P.

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Juridical Science

JPRS 5577
21 Apr 72

LEGAL ASPECTS OF PRODUCTION MANAGEMENT ARE DISCUSSED

/Article by Yu. A. Tikhomirov, Doctor of Juridical Sciences, "Legal Foundations for Production Management", Moscow, Sotsialisticheskaya Industriya, Russian, 10 March 1972, p 3/

In the context of the scientific and technological revolution the improvement of management requires further development of law. It is not coincidental, therefore, that legal questions were prominent in the resolutions of the 24th CPSU Congress. At issue were the necessity to observe strictly the legality and rights of enterprises and organizations, the motivation and responsibility of management workers, and the raising of their efficiency. This is all very important since quite often many areas of management act, so to say, in a "legal" shell. Without the consideration of definite norms confirmed in law, it is impossible to regulate organization, the system of links, and the administrative and production process.

What then is such law? It is, generally speaking, a system of compulsory norms and rules of conduct established by the state and guaranteed through measures of persuasion and organization as well as of compulsion. When applied to economics it means the regulation of the activity of individual citizens, of production and management collectives, of large groups of workers, and of the whole population of the country. The law may introduce new technical norms which define the relationship of people to technology, make scientific and methodological recommendations, and so forth. In any case it is obligatory that they be observed.

It is necessary to say that each organ has a right to issue only those acts that are juristically confirmed for them. On a statewide scale a system of law must be in force. All acts must be coordinated. They cannot contradict each other, for otherwise a violation of legality is inevitable. Another aspect is no less essential. Legal acts must be organically combined according to their content. A ministry must not issue on one and the same question a series of orders without internal ties between them. They must be sequential in content as well as in time of issuance. Workers in the management system must know the norms of the

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TIKHOMIROV, YU. A.

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USSR

UDC 621.398.694.7-531.7

GROKHOL'SKIY, A. L., SALOV, G. V., TIKHOMIROV, Yu. F., and YAKOVLEV, L. G.
(Kiev)

"Measuring a Mass of a Substance by Natural Vibration Frequency of the Object"

Novosibirsk, Avtometriya No 3, May-Jun 72, pp 54-60

Abstract: This article is an extension of a earlier investigation by two of the authors on the use of a control object as a primary measuring converter for obtaining data on the value of a controlled parameter. It presents an analysis of experimental data on the method of measuring a mass of a substance by natural vibration frequency of a dynamic system formed by container-filler. Characteristics of the control object being simultaneously a sensitive element of a pickup with variable filler quantity are considered. The mechanical sensitive element is considered as an oscillator in the generating circuits and as resonator in selective circuits. The anti-interference characteristics of such a measuring system are evaluated. The experimental data presented confirms the possibility of obtaining the results of measurements in a wide range of temperatures with inaccuracy of the order of 1% or less, depending on the objects design characteristics.

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