

USSR

UDC 681.326.75

SOLONCHUK, V. A., NOSOV, YE. N., DROZDOV, P. I.

"Device for Monitoring the Elements of Automatic Control Systems"

USSR Author's Certificate No 304587, filed 12 Jan 70, published 7 Jul 71 (from RZh--Avtomatika, Telenekhanika i vychislitel'naya tekhnika, No 4, Apr 72, Abstract No 4A550P)

Translation: A device is proposed for monitoring the elements of automatic control systems. The device is redundant with respect to an odd number of elements. It contains a level selector connected to the outputs of the monitored elements and comparison circuits the first inputs of which are connected to the outputs of the corresponding monitored elements and the second inputs of which are connected to the output of the level selector. To increase the monitoring reliability, each comparison circuit is executed, for example, from a magnetic amplifier and it is encompassed by a positive feedback circuit containing a circuit with a variable magnitude of the dead zone the control input of which is connected to the output of the level selector.

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USSR

UDC 621.382.2

KASATKIN, A.I., SEMKINA, O.I., NOSOV, YU.P.

"Concerning Statistical Regularity Of Distribution With Respect To Principal Electrical Parameters Of Germanium Diodes With Gold Bonds"

Elektron.tekhnika. Nauch.-tekhn.sb. Poluprovodn.pribory (Electronics Technology. Scientific-Technical Collection. Semiconductor Devices), 1972, Issue 4(68), pp 126-130 (from RZh:Elektronika i yeye primeneniye, No 11, Nov 1972, Abstract No 11E169)

Translation: The paper carries out a study and a comparison of the statistical regularities which describe the distribution with respect to the parameters of semiconductors with gold bands, and of point semiconductor diodes. Summary.

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UDC: 621.396.6-181.48

NOSOV, Yu. R.

"Complex Miniaturization of Electronic Radio Devices"

Elektron. prom-st'. Nauch.-tekhn. sb. (The Electronics Industry. Scientific and Technical Collection), 1972, No 1, pp 112-116 (from RZh-Radiotekhnika, No 8, Aug 72, Abstract No 8V238)

Translation: The article reviews the results of a contest for the best paper on complex miniaturization of electronic radio devices conducted in 1971 by the Central and Moscow Boards of the Scientific and Technical Society of Radio Engineering and Telecommunications imeni A. S. Popov. Resumé.

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Transformation and Structure

USSR

UDC 539.89

KUTSAR, A. R., GERMAN, V. N., and NOSOVA, G. I., Institute of Physical Metallurgy and Metal Physics, Central Scientific Research Institute of Ferrous Metallurgy imeni A. P. Bardin

"Alpha-Omega-Transformation in Titanium and Zirconium from Shock Waves"

Moscow, Doklady Akademii Nauk SSSR, Vol 213, No 1, Nov-Dec 73, pp 81-83

Abstract: Experiments were conducted to check out the possibility that an alpha-omega-transformation takes place in titanium and zirconium and the omega-phase is preserved after impact of a plane shock wave. Tests were made using titanium and zirconium iodide which were subjected to shock waves of varying amplitude by placing the samples in an ampule which was detonated with an explosive charge from a firing pin in the ampule. Pressure magnitude was determined by experimental measurement of the mass velocity u of the ampule surface, directly adjoining the sample, using known $D-u$ relationships for the ampule material (steel Kh18N10T). A small amount of omega-phase was noted in titanium after exposure to a 350-kbar pressure shock wave at 293° K. At this pressure the residual temperature exceeds the omega-alpha-transformation temperature. To decrease the residual temperature of the ampule with the sample, the ampule was cooled with liquid nitrogen to 120° K where, after a test, the

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KUTSAR, A. R., et al., Doklady Akademii Nauk SSSR, Vol 213, No 1, Nov/Dec 73, pp 81-83

sample contained 60-70% omega-phase when subjected to the same shock-wave pressure of 350 kbar. The same effect was noted when zirconium was tested by the same method with approximately 80% omega-phase being produced. The conclusion was made that the omega-phase is formed at 200-300° K from a shock-wave front of approximately 5-microsecond duration in titanium and zirconium and the transformation has an athermal martensite nature. Two figures, 19 bibliographic references.

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USSR

UDC 669.24.548.313.3 539.4

NOSOVA, G. I., and POLYAKOVA, N. A., Institute of Metal Science and Physics of Metals, Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"The Effect of Ordering in an Ni₃Mn Alloy on Critical Shear Stresses"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 3, 1973, pp 542-546

Abstract: The effect of ordering (S) produced by a low-temperature isothermal tempering (at 400°C for 25-300 hours) of Ni₃Mn samples (single crystals) on critical shear stresses (τ_c) which appear in samples subjected to mechanical tests at -196 to +400°C was studied. All samples were deformed at a rate from 0.2 to 20 mm/min during mechanical tests. Values of τ_c gradually increased from 0.2 to 0.8 kg/mm² for samples with a low degree of ordering, $S=0.13$ to 0.5, and it remained almost without any changes up to $S=0.90$ at room temperature. An electron microscope study showed that singular dislocations dominate in a sample with $S=0.22$, but paired dislocations were dominant in samples with $S=0.90$. The antiphase boundary energy was the only strengthening mechanism in the Ni₃Mn alloy with $S=0.4$ in the presence of singular dislocations. When the ordering of the alloy was much higher, the deformation was produced by a paired dislocation. The temperature dependence of τ_c was similar to that observed in metals with a face-centered cubic lattice. The activation energy of Ni₃Mn alloys with $S=0.22$ and low τ_c was ~ 0.8 eV; it was higher for samples with $S=0.90$.

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USSR

UDC 536.424.1:539.89:546.8

ZIL'BERSHTEYN, V. A., NOSOVA, G. I., and ESTRIN, E. I., Institute of Metal Science and Physics of Metals, Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Alpha - Omega Transformation in Titanium and Zirconium"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 3, 1973, pp 584-589

Abstract: An attempt was made to determine the positions of the thermodynamic equilibrium of the α - and ω phases in Ti and Zr. Titanium and zirconium iodides were studied by the following methods: electrical resistance, x-ray diffraction analysis of phases, dilatometry, and shear strength. The electrical resistance (given in arbitrary units) of Ti and Zr as a function of pressure (up to 90 kbar) at room temperature with a constantly changing pressure by 3 kbar/min increased constantly when the pressure was decreased to ~ 10 kbar. The breaking point for the electrical resistance increase due to α - ω transformation for Ti was a pressure of 63 kbar. A sharp decrease in the electrical resistance for Zr took place at 38 kbar. No significant changes in the electrical resistance of both metals were observed during the second cycle of compression. This indicated that the phase transformation was absent. A sharp increase in the electrical resistance of samples at $\sim 250^{\circ}\text{C}$ was a good

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ZIL'BERSHTEYN, V. A., et al, Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 3, 1973, pp 584-589

sign that the $\alpha - \omega$ transformation took place at this temperature. Samples subjected to pressure at room temperature also showed the presence of the $\alpha - \omega$ transformation. The x-ray diffraction analysis of these samples indicated that they consisted almost entirely of ω phase at 100 kbar pressure. Only a scant amount of α phase was present in them. The x-ray diffraction analysis data were used for calculating the lattice parameters for both metals (parameters are given). Dilatograms showed that an $\omega - \alpha$ transformation in zirconium took place at 205°C and continued to 255°C. Data on the shear strength of Ti samples indicated the presence of $\alpha - \omega$ and $\omega - \alpha$ transformations at 20 kbar pressure. This means that appearance of the ω phase in Ti at room temperature and pressure of > 20 kbar is thermodynamically possible. Temperature - pressure diagrams were plotted for both metals on the basis of obtained data.

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UDC 669.24 539.4 .

USSR

NOSOVA, G. I., and POLYAKOVA, N. A., Institute of Metal Science and Physics of Metals of the Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Investigation of the Temperature Dependence of Hardening Characteristics of Single Crystals of Nimonic Aging Alloy"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 34, No 2, Aug 72, pp 638-643

Abstract: An experimental investigation was made of the temperature dependence τ_c of the magnitude of critical shearing stresses of the Nimonic aging alloy and of the strain hardening characteristics of this alloy with various sized particles of the ordered precipitation phase (γ' -phase) and different volumetric shares of the particles. The effects of the temperature of investigations and the crystallographic orientation of flat samples of the alloy containing (in at%) 72.2 Ni, 22.5 Cr, 3.2 Ti, and 1.6 Al on the strain hardening characteristics were investigated. The experimental results are shown in diagrams of strain hardening curves, the correlation of measured and calculated Δl data, and the temperature dependence of reduced hardening coefficients of Nimonic. The share of primary and

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NOSOVA, G. I., and POLYAKOVA, N. A., Fizika Metallov i Metallovedeniye,
Vol 34, No 2, Aug 72, pp 638-643

conjugated systems of sliding in the deformation of samples of different orientations is discussed. By analogy with the yield point, the hardening at the expense of the ordered precipitation phase must comprise the principal part of the athermic hardening component during deformation. Four figures, one table, twelve bibliographic references.

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USSR

UDC: 669.24:548.313.3

NOSOVA, G. I. and POLYAKOVA, N. A., Institute of Metal Studies and Physics of Metals; Central Scientific Research Institute imeni I. P. Bardin (TsNIICM)

"Effect of Ordering on the Critical Shearing Stresses in the Ni₂Cr Alloys"

Sverdlovsk, Fizika metallov i metallovedeniye, Vol 32, No 4, Oct 71, pp 825-830

Abstract: The nature of the motion of dislocations in an ordered alloy determines their behavior in the stress field and governs the course of dislocation reactions affecting the principal mechanisms of plastic deformation which, in turn, results in property changes. A more accurate definition of the effect of ordering on the properties of alloys necessitates the study of the mechanical properties of single crystals in ordered alloys along with a study of their structure. This study concerns the effect of ordering on the magnitude of critical shearing stresses of single crystals in the Ni₂Cr alloy. It is shown that an increase in the power of the order of magnitude increases the shearing stresses of the alloy as high as 2.5

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NOSOVA, G. I., et al, Fizika metallov i metallovedeniye, Vol 32, No 4,
Oct 71, pp 825-830

times those of a disordered solid solution. The ordering reveals the slight dependence of shearing stresses on orientation. Analysis of the experimental data gives rise to the conclusion that the deformation of the experimental alloy at all stages of ordering is accomplished through the motion of single dislocations. (3 illustrations, 12 bibliographic references).

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1/2 040 UNCLASSIFIED PROCESSING DATE—20NOV70
 TITLE—EFFECT OF HARDENING PHASE REGION DIMENSIONS AND DISTRIBUTION ON
 CRITICAL STRESSES IN NICKEL ALUMINUM AND NIMONIC ALLOYS -U-
 AUTHDR—(C2)—TRAVINA, N.T., NOSOVA, G.I. N
 CCOUNTRY OF INFC—USSR
 SOURCE—FIZ. METALMETALLOVED. 1970, 29(3), 564-8
 DATE PUBLISHED-----70
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 TOPIC TAGS--NIMONIC ALLOY, METAL SINGLE CRYSTAL, METALLURGIC RESEARCH
 FACILITY, NICKEL ALLOY, ALUMINUM CONTAINING ALLOY, CRYSTAL DISLOCATION,
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CIRC ACCESSION NO--AP0126091
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. SINGLE CRYSTALS OF NI,AL (12.5, AL 14.0, AND 19.0 AT. PERCENT AL) AND NIMONIC ALLOY (CR 20.6, TI 3.2, AND AL 1.6 AT. PERCENT), WERE STUDIED AS TO THE TITLE EFFECT IN WHICH THE GAMMA PRIME PHASE WAS THE HARDENING PHASE. AFTER AN INITIAL SHARP INCREASE IN SHEAR STRESS TAU SUBS CHANGES DURING THE DECOMP. IN AGING, TAU SUBS WAS CONST. IN A FAIRLY WIDE RANGE OF SIZES OF THE HARDENING PHASE FORMATIONS; E.G. IN NI,AL ALLOYS THE HARDENING PHASE FORMATIONS INCREASED FROM 160 TO 500-600 ANGSTROM, AND IN THE NIMONIC ALLOY FROM 220-40 TO 800 ANGSTROM, WHILE THE VALUES OF TAU SUBS REMAINED CONST. THESE EFFECTS ARE EXPLAINED BY MOVEMENT OF PAIRED DISLOCATIONS AS FOLLOWS: DURING THE INITIAL STAGES OF DECOMP. DURING AGING NOT ONLY THE SIZE OF FORMATIONS BUT ALSO THEIR VOL. FRACTION AND DEGREE OF ORDERING UNDERGO CHANGES. AS THE RESULT, THE TOTAL LENGTH OF THE ANTIPHASIC BOUNDARIES AND THEIR ENERGY INCREASED SHARPLY, AS DID THE RESISTANCE TO DISLOCATION MOVEMENT AND THE TAU SUBS. DURING SUBSEQUENT AGING FOR 2-3 HR AT 750DEGREES, THE ENERGY OF THE ANTIPHASIC BOUNDARIES REACHED EQUIL. VALUES, AND WITH FURTHER AGING THE TOTAL LENGTH OF THE ANTIPHASIC BOUNDARIES ALONG DISLOCATION LINES AND THEIR WIDTH DID NOT CHANGE, THUS THE TAU SUBS WERE CONST. IN FAIRLY WIDE RANGES OF SIZE CHANGES OF GAMMA PRIME PHASE FORMATIONS.

FACILITY: TSNIICHM IM.
BARDINA, MOSCOW, USSR.

UNCLASSIFIED

UDC 659.24:539.37/38

USSR

NOSOVA, G. I., and TRAVINA, N. T., Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin (TsNIIChM)

"The Effect of Structural Characteristics on Strain Hardening of Single Crystals of Nickel Base Alloys at Room Temperature"

Sverdlovsk, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 10, No 1, Jul 70, pp 150-156

Abstract: An experimental investigation was made of the effect of the grade and volume of separations of the δ -phase on various aging stages and of the effect of crystallographic orientation of single crystals relative to the elongation axis on the strain-hardening characteristics. The length of the various stages of the strain-hardening curve and the pertinent hardening factors were determined. Structural and strain-hardening characteristics were specified for Ni-Ni alloys with 14-19 at% of Al and the Nimonic alloy (22.5 at% Cr; 3.2 at% Ti; 1.6 at% Al; the rest Ni). Some suggestions on the mechanism of the processes in various stages of strain hardening can be made on the basis of an analogy of the investigated alloys with pure metals.

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AP0046700

Abstracting Service: SMO
INTERNAT. AEROSPACE ABST.

Ref. Code:

UR 0185

A70-23195 # Effect of ordering in the structure of the gamma prime-phase on the critical shear stresses of aging nickel base alloys (Vpliv uporiadkuvannia u strukturi fazi vidilannia na krit chni skoliuuchi napruzhenia stariuichikh splaviv na nikel'ovii osnovi. N. T. Travina and G. I. Nosov. Tsentral'nyi Nauchno-Issledovatel'skii Institut Chernoi Metallurgii, Moscow, USSR). *Ukrains'kii Fizicheskii Zhurnal*, vol. 15, Jan. 1970, p. 129-131. 6 refs. In Ukrainian.

Summary of experimental data on the effect of a gamma prime-phase with an ordered structure of Ni3Al type on the critical shear stresses of single crystals of aging Ni-Al alloys and nimonick. In conformity with various dislocation models of aging alloy strengthening, the theoretical estimates are made of the critical shear stresses for different structural states of the investigated alloys. On the basis of the experimentally measured and calculated values of the critical shear stresses it is concluded that the energy and length of the antiphase boundaries arising as a result of crossing by dislocations of gamma prime-phase ordered precipitates plays a decisive role in the strengthening of these alloys.

(Author)

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NOSOVA, L. M. V. N. Sukachev Laboratory of Biogeocenology

"A Conference on Current Problems in Biogeocenology and Results of the Activity of Biogeocenological Stations"

Sverdlovsk, Ekologiya, No 3, 1973, pp 107-109

Abstract: Among the subjects discussed in the papers read at the above conference (held from November 30 to December 3, 1971 in Leningrad) were: role of microorganisms in the breakdown of minerals and in soil formation (T. V. Aristovskaya), migration of substances in biogeocenoses (M. S. Gilyarov), effect of biological factors and human activity on the climate (M. I. Budyko), relations between biogeocenoses (N. V. Dylis), need to standardize concepts and terms in the study of the biosphere (V. D. Aleksandrova), and proposed standardization of terms relating to primary productivity of communities (V. G. Gortinskiy et al.). Survey reports were also presented on the status of biocenological research on tundras (B. A. Tikhomirov), forests (N.V. Dylis), bogs (N. I. P'yavchenko), meadows (T. A. Rabotnov), steppes (T. A. Rabotnov and K. S. Khodashova) and deserts (N. T. Nechayeva).

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NO5DVA, L.M.

DISPOSAL OF RADIOACTIVE WASTES

JPRS 50764
17 April 1973

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Collection of papers sponsored by the State Committee for the Use of Atomic Energy of the USSR, 1972, Moscow

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[X - USSR - X]

TECHNICAL AND ECONOMIC ASPECTS OF HANDLING LIQUID WASTE WITH INTERMEDIATE AND HIGH LEVELS OF RADIOACTIVITY

Paper by V. L. Saltygin, A. A. Khonkheychik, V. D. Balakova, L. M. Nosova, and N. A. Rukov, State Committee for the Use of Atomic Energy of the USSR, IAEA publication SM-163/10, Vienna, Russian, pp. 1-20

In this paper problems of handling wastes of high and intermediate levels of radioactivity, obtained in the regeneration of TVEL (fuel elements) of the VVER (water-cooled water-moderated power reactor) type are considered. Some data are given with respect to the chemical and radiochemical compositions of the wastes. For highly active wastes it is advisable to extract the strontium, cesium, and possibly also other isotopes. For the remaining part of the waste, the following ways of rendering them harmless are considered:

- 1) holding them in special depositories for a prolonged period of time, necessary for reduction of the general activity of the fission products contained in the waste;
 - 2) solidification of highly active wastes by one of the well-known methods tested in experimental plants;
 - 3) burial of highly active wastes in geological water-bearing strata similar to underground burial of wastes of intermediate activity as developed in the Soviet Union.
- Since in this case the concentration of fission products in the soils and the gas and heat liberation associated with this as a result of the radiation processes presents the greatest hazard, the basic attention is underground burial of highly active wastes is devoted to the preparation of the wastes for burial. The preparation lies either in separating

the precipitating substances from the waste, or by converting them into complex compounds which are stable in the conditions of the geological bed.

In the paper certain calculated technical and economic data on the storage of liquid highly active wastes are given, also concerning underground burial of wastes of high and intermediate levels of activity, and also a comparison of these methods with other methods of the storage and processing of radioactive wastes is made.

In the processing of used nuclear fuel, more than ninety-nine percent of the radioactive isotopes arriving at a radiochemical plant are concentrated in liquid wastes.

In the USSR liquid wastes with a specific activity of more than 1 curie per liter are called highly active wastes, those with from 1×10^{-5} to 10^{-3} curies per liter are wastes of intermediate activity, those with 1×10^{-5} and below are wastes with a low level of activity. The greatest potential hazard is presented by wastes with a high level of activity. At the present time in the entire world, with the exception of China, more than 300 thousand cubic meters of concentrated highly active wastes have been accumulated (17). Naturally, normal operation of a plant for regeneration of nuclear fuel depends upon the successful solution of the problem of handling highly active wastes.

The use of water-cooled water-moderated reactors is provided in a considerable part of the program for the development of atomic power engineering in the USSR. In this paper certain basic principles with respect to rendering wastes from the regeneration of VVER TVEL harnesses are considered, and the basic attention is devoted to wastes with a high level of activity. Out of methods of processing and burial of wastes of an intermediate level of activity, only those which may partially be used also for highly active wastes are given.

Nuclear fuel of reactors of the VVER type is sintered uranium dioxide enriched with uranium-235 up to 3.5%. The average life of the fuel is about three calendar years, and the depth of burn-up reaches 30,000 megawatt-dynes per ton (27). The holding of used VVER TVEL before regeneration at a radiochemical plant may vary--from half a year to three years depending upon the necessity of the fastest return of uranium to the fuel cycle. However, we should consider that a longer holding will lead to a decrease in the general activity of the TVEL and, consequently, the technological scheme of the regeneration plant may be simplified.

Ecology

USSR

UDC 938-943

NCISOVA, L. M., and MAL'TSEVA, N. B.

"On Biogeocenology Problems in the Soviet Union"

Moscow, Izvestiya Akademii Nauk, SSSR, Seriya Biologicheskaya, No 6, Nov/Dec 71, pp 938-940

Abstract: A Directive was issued by the Presidium of the Academy of Sciences USSR for a general session of its division of chemico-technological and biological sciences in January 1971. General Problems of Biogeocenology were discussed. LAVRENKO stressed the need for studying the fluxes of energy and matter in biogeocenoses and the metabolic processes, including those of solar radiation and its distribution in the structural parts of biogeocenoses. SHWARTZ, S. S. called attention to the importance of the study of the population structure of biogeocenoses in order to improve their productivity and their stability. NICHIPOROVICH, A. A. discussed the importance of the photosynthetic activity of the cenoses in relation to both their high productivity and their resistance. ARISTOVSKAYA, T. V. and NIKITIN, D. I. reported on the important role that the biomass of microorganisms plays in soil. They recommended study of relationships between microorganisms and high species of plants as well as relationships between microflora and microfauna. NISHUSTIN, YE. N. pointed out that, to increase soil fertility, a detailed analysis of the symbiological activity of the microbiological activity of

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NOSOVA, L. M., and MAL'TSEVA, N. B., Izvestiya Akademii Nauk, SSSR, Seriya Biologicheskaya, No 6, Nov/Dec 71, pp 938-940

the soil to determine the optimal dosage of fertilizers must be completed. CYLIS, N. V. stated that knowledge of the structural and functional organization of the biogeocenosis system is indispensable in order to forecast performance during different types of human intervention. TYURYUKANOV, A. N. advocated systems analysis and mathematical experimentation for dealing with biogeocenosis, especially when man-made biogeocenosis are created. This is particularly important in view of the changes that take place in our planet's biosphere. Other stressed the need for further research on biogeocenosis and their processes to promote a rational utilization of natural resources and an increase in their productivity. TIKHOMIROV, B. A. pointed out that fact that there are just five stations at the present time conducting biogeocenotic research in the tundra area. POSDNYAKOV, L. K. reported research done on forest biogeocenoses, on controlling their development, on exchange between the components of forest biogeocenosis, on the impact of the forest on the surrounding environment, on the methods used in controlling the number of living organisms, and on the biological measures of controlling the harmful fauna in Eastern Siberia and Ikutiya. PAAVCHENKO, N. I. discussed a plan to reclaim 17 to 18 million hectares or marshland and develop it into agricultural and wooded areas. Such a project will necessitate a complex bio-

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NCSOVA, L. M., and MAL'TSEVA, N. B., Izvestiya Akademii Nauk, SSSR, Seriya Biologicheskaya, No 6, Nov/Dec 71, pp 938-940

geocenological investigation of marshes conducted at specialized stations. VINBERG, G. G. talked about specific differences between water and land biogeocenosis. KAMSHILOV, M. M. stressed the importance of using methods of biogeocenology to develop means to increase biological productivity of reservoirs and for the biological purification of water. Basing its decision of these reports, the section of Chemical Technological and Biological Sciences assigned different tasks in the field of biogeocenology to its various branch institutes across the nation, according to their respective fields of activity. It was recommended to all these institutes to hire mathematics specialists to help them conduct research on mathematical modeling of biogeocenosis systems or their units, and also to conduct research on biogeocenological processes. The number of biogeocenological stations is also to be increased across the country in the period 1971 to 1975. Instructions were given to the departments of biogeocenology of the Botanic Institute, the Laboratory of Forestry, the Institute of Forestry and Timber of Northern Regions, and the Institute of Plant and Animal Ecology of the Ural Center. Preparation of material for maps of the biogeocenological cover of the USSR should be started. The maps will be on a 1/250,000 scale. For this reason completion of the 1/250,000 vegetation maps of the USSR is urgently recommended so they can serve as a basis for the biogeocenological maps. It was also

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NOSOVA, L. M. and MAL'TSEVA, N. B., Izvestiya Akademii Nauk, SSSR, Seriya Biologicheskaya, No 6, Nov/Dec 71, pp 938-940

recommended to the republics to create special biogeocenological laboratories and departments.

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UDC 577.386:002.704.31

NOSOVA, L. M.

"Current Tasks of Biogeocenology and Accomplishments of the Biogeocenological Stations"

Moscow, Zhurnal Obshchey Biologii, No 4, 1972, pp 514-519

Abstract: An all-union conference was held in Leningrad in December 1971 to discuss the subjects indicated in the title of the article. The directors of the various field stations reported on the results of the recent work carried out under their supervision and other scientists presented review papers on the status of biogeocenological investigations of tundras (B. A. Tikhomirov), forests (N. V. Dylis), swamps (N. I. P'yavchenko), meadows (T. A. Rabotnov), steppes (T. A. Rabotnov and K. S. Khodashova), and deserts (N. T. Nechayeva). The various stations came into being largely in random fashion with the result that some parts of the country are underrepresented or have no stations at all (Far North, forest zone of Siberia, steppe and in part desert zones). Besides urging corrective action in this respect, the conference agreed on the need to standardize the usage of a number of terms such as "biosphere," "biogeocenosis," and "ecosystem." The conference urged continued elaboration of the general theory of biogeocenology in addition to intensified study for practical purposes
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NOSOVA, L. M., Zhurnal Obshchey Biologii, No 4, 1972, pp 514-519

of natural biogeocenoses, ecological systems disrupted by human activity, and artificially created meadow and forest biogeocenoses.

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172 020 UNCLASSIFIED PROCESSING DATE—30OCT70
 TITLE—EFFECT OF RADIAL AND LINEAR COMPRESSION ON SCME PROPERTIES OF HIGH
 BULK CRIMPED YARN -U-
 AUTHOR—(05)—SMIRNOV, L.S., ZAGORODNYAYA, S.S., POZDNIKINA, L.A., TSYBENKO,
 L.I., NOSOVA, L.V.
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 PROXY REEL/FRA--2000/C880 STEP NO—UR/0518/70/000/001/0019/0022
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UNCLASSIFIED

PROCESSING DATE—30OCT70

CIRC ACCESSION NO--AP0124543

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INFLUENCE WAS STUDIED OF THE TITLE COMPRESSIONS, OCCURRING DURING THE YARN MANUF., UPON THE PROPERTIES OF THE HIGH BULK CRIMPED GOFRON, MADE FROM A SMOOTH KAPRON YARN (10 TEX) COMPRISING 12-39 ELEMENTAL FIBERS. THE COMPRESSION INDUCED FIBER DEFECTS AND CHANGES WERE CLASSIFIED, CHARACTERIZED, AND DISCUSSED. WITH AN INCREASE OF BOTH COMPRESSIONS THE LENGTH OF THE DEFECTIVE FIBER PART INCREASED AND ITS TOTAL MOL. ORIENTATION DECREASED. THE DEPENDENCE OF THE BREAKING STRENGTH OF A DEFECTIVE FIBER ON ITS ELONGATION WAS DETD. THE BREAKING STRENGTH INCREASED WITH INCREASING RADIAL AND LINEAR COMPRESSIONS, AND THE BREAKING ELONGATION OF GOFRON (CONTG. DEFECTIVE FIBERS), AS COMPARED WITH THAT OF THE PARENT YARN, INCREASED BY 2.6PERCENT.

UNCLASSIFIED

UDC 612.013-0647.015.3

USSR

GAYEVSKAYA, M. S., NOSOVA, YE. A., BELITSKAYA, R. A., and KURKINA, L. M.,

"Metabolism in Rat Tissues During Prolonged Artificial Hypobiosis"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 4, 1971, pp 53-55

Translation: Prolongation of artificial hypobiosis in rats from 24 to 29 hours by combining premedication with external chilling did not result in significant shifts in carbohydrate-phosphorus metabolism in the brain, but intensified conformational changes in brain proteins. The glycogen content of the liver and muscles during 24 to 29 hours of hypobiosis was very low, but hyperglycemia persisted. After 29 hours of hypobiosis, some of the animals exhibited a sharp decrease in the content of nonesterified fatty acids in the blood.

Mortality among nonhibernating homoiothermic animals in a state of artificial hypobiosis (maintenance of lowered vital activity against a background of hypothermia) is known to increase when this state is sustained for more than one day. There are indications that death of animals is related to the development of noncoordination of the metabolic processes in the tissues (14, 22).

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USSR

CAYEVSKAYA, M. S., et al., Byulleten' Eksperimental'noy Biologii i Meditsiny
No 4, 1971, pp 53-55

Metabolic changes in the tissues of rats kept in a state of hypobiosis for up to one day were investigated by us in earlier studies (3, 5, 9, 11). The purpose of this work was to study metabolic shifts in the brain, liver, muscles, and blood of rats when the state of hypobiosis is lengthened from 24 to 29 hours.

Procedure

Experiments were performed on male rats weighing 150 to 250 g. Artificial hypobiosis was induced by Timofeyev's method (8, 12). After injection of a lytic mixture and tubocurarine, the rats were placed in a ventilated chamber at -10°C where their body temperature dropped to 18 to 20°C . The animals were then transferred to a chamber where the temperature was 16 to 18°C and their body temperature was maintained at 18 to 22°C for 24 to 29 hours.

After the animals were decapitated, the electrophoretic motility of soluble proteins (7) in brain tissues and their ultraviolet absorption spectra (13) were determined. Blood sugar was determined by the Hagedorn-Jensen method; ketone bodies (2) and nonesterified fatty acids (19) were also determined. Other studies were conducted in tissues after they were frozen in situ in liquid nitrogen. Total amide groups of proteins (6), total content of ATP and ADP (from readily hydrolyzable phosphorus), content of creatine

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GAYEVSKAYA, M. S., et al., Byulleten' Eksperimental'noy Biologii i Meditsiny No 4, 1971, pp 53-55

phosphate (1), inorganic phosphorus (21), glucose (10), glycogen (18), and lactic acid (15) were determined in brain tissue. Glycogen was determined in the liver and muscles (4) and the content of glucose (10) and of lipids (16) was determined in the liver.

Results

Prolongation of the period of hypobiosis from 24 to 29 hours did not produce any significant shifts in carbohydrate-phosphorus metabolism in the brain.

Such shifts as occurred indicated that conformational changes in brain proteins intensified as hypobiosis continued. However, the insignificance of the shifts noted both in carbohydrate-phosphorus metabolism and in brain proteins suggest that they could hardly have been a major factor in the death of animals with the given duration of hypobiosis.

Extension of hypobiosis from 24 to 29 hours did not produce significant shifts in the amount of glucose or glycogen in the liver. There was a slight but significant decrease in the amount of lipids. The glycogen content of the muscles after 29 hours of hypobiosis remained as low as after 24 hours.

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USSR

GAYEVSKAYA, M. S., et al., Byulleten' Eksperimental'noy Biologii i Meditsiny
No 4, 1971, pp 53-55

Hyperglycemia persisted after the period of hypobiosis was lengthened. It could have been caused either by glyconeogenesis or by the very low utilization of glucose by the tissues, which changed after chilling to the preferential utilization of fat, as is the case in supercooling and hibernation (17, 20). Other investigators (22) detected hypoglycemia when they tried to prolong hypobiosis in rats, but we did not. After 29 hours of hypobiosis, the blood content of ketone bodies remained high, a phenomenon consistent with the idea of preferential utilization of fat during hypothermia.

The content of nonesterified fatty acids in blood plasma after 29 hours was little different from that found at the end of 24 hours of hypobiosis in 7 rats but was sharply lower in 3. These particular rats were in the most serious condition: respiration was infrequent, barely perceptible, and muscle tone was very weak.

Thus, of the indices of metabolism studied, only the insufficiency of nonesterified fatty acids in the blood could be directly related to the death of the rats following the prolongation of hypobiosis for more than one day.

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1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ROENTGEN RADIOLOGICAL EXAMINATION OF DIFFUSE LIVER LESIONS -U-
AUTHOR--(03)-NOSOVA, YE.T., TAYTS, N.S., LUKASH, L.K.
COUNTRY OF INFO--USSR
SOURCE--VRACHEBNOYE DELO, 1970, NR 6, PP 84-87
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--GOLD ISOTOPE, LIVER, HEPATITIS, CIRRHOSIS, RADIOLOGY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3002/1756 STEP NO--UR/0475/70/000/006/0084/0087
CIRC ACCESSION NO--AP0129124

UNCLASSIFIED

Z/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129124

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS ARE REPORTED OF THE USE OF CHOLEGRAPHY AND AU PRIME196 LIVER SCANNING IN 73 PATIENTS SUFFERING OF CHRONIC HEPATITIS AND LIVER CIRRHOSIS. IT IS CONCLUDED THAT SUCH COMPLEX EXAMINATION WIDENS THE POSSIBILITIES OF A MORE THOROUGH STUDY OF LIVER PATHOLOGY. FACILITY: OTEL LECHEBNOGO PITANIYA INSTITUTA PITANIYA AMN SSSR.

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--INFLUENCE OF THE SOLUBILITY OF TABLETED SUBSTANCES ON THE
EFFECTIVENESS OF THE DISINTEGRATING ABILITY OF STARCH -U-
AUTHOR-(04)-SHTEYNGART, M.V., OSIPOVA, I.O., NOSOVITSKAYA, S.A., BORZUNOV,
YE.YE.
CCOUNTRY OF INFO--USSR
SOURCE--FARMATSIYA (MOSCOW) 1970, 19(1), 17-20
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--DRUG INDUSTRY, STARCH, SOLUBILITY, AQUEOUS SOLUTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0171 STEP NO--UR/0466/70/019/001/0017/0020
CIRC ACCESSION NO--AP0119167
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119167

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. IN COMPARATIVE INVESTIGATIONS IT WAS SHOWN THAT TABLETS PREPD. FROM VARIOUS DRUGS WITH STARCH SHOW DIFFERENT DISINTEGRATION RATES, WHEN IMMERSSED IN WATER. TABLETS WITH WATER INSOL. DRUGS DISINTEGRATE WELL AND QUICKLY. WATER SOL. DRUGS FORM MORE DURABLE TABLETS WITH STARCH, APPARENTLY BECAUSE OF THE DIMINISHING SORPTION CAPACITY OF STARCH. TABLETS OF STARCH WITH SUBSTANCES CAUSING GLUEING OF STARCH (IODIDES, CHLORIDES, BROMIDES, BENZDATES), DISINTEGRATE POORLY. TO FORM TABLETS FROM WATER SOL. AND STARCH GLUEING SUBSTANCES, NO STARCH SHOULD BE USED. FACILITY: KHAR'KOV. NAUCH.-ISSLED KHIM. FARM. INST., HARKOV, USSR.

UNCLASSIFIED

UDC 621.165:621.928.1.001.5

USSR

NOSOVITSKIY, A. I.

"On the Question of the Construction of a Water-Draining Device in Turbine Stages"

Leningrad, Tr. Leningr. politekhn. in-ta (Transactions of the Leningrad Polytechnic Institute) No 323, 1972, pp 54-57. (from Referativnyy Zhurnal -- Turbostroyeniye, No 7, 1972, abstract No 7.49.27)

Translation: Results of an experiment on the possibility of peripheral water recovery in the experimental PT LPI with model stages are presented. (The average diameter of the pump unit was 594.8 mm, that of the working wheel, 595.2 mm). It is demonstrated that the use of a chamber with an inclined partition 2 (see figure) raises the effectiveness of water recovery approximately two times.

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1/2 050 UNCLASSIFIED PROCESSING DATE--20NOV70
 TITLE--EFFECT OF OXYGEN ON THE CHANGE IN WEAR MODES -U-
 AUTHOR--NOSEVSKIY, I.G. N
 COUNTRY OF INFO--USSR
 SOURCE--FIZIKO KHIMICHESKAIA MEKHANIKA MATERIALOV VOL 6, NO. 2, 1970, P.
 68-71
 DATE PUBLISHED-----70
 SUBJECT AREAS--CHEMISTRY, MATERIALS
 TOPIC TAGS--WEAR RESISTANCE, BIBLIOGRAPHY, OXYGEN, ARGON, GAS DIFFUSION,
 METAL FRICTION, METAL DEFORMATION, ALLOY DESIGNATION, MEDIUM CARBON
 STEEL/(U)ST45 MEDIUM CARBON STEEL
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--3001/0061 STEP NO--UR/C369/70/006/002/0068/0071
 CIRC ACCESSION NO--AP0125896
 UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2 050

CIRC ACCESSION NO--AP0125896

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. STUDY OF THE EFFECT OF GASEOUS MEDIA ON THE WEAR DURING GLIDING FRICTION OF NORMALIZED SAMPLES OF THE 45 STEEL GRADE. THE TESTS WERE CARRIED OUT IN AIR, CHEMICALLY PURE ARGON, OXYGEN, AND VACUUM. IT IS FOUND THAT THE BASIC FACTOR AFFECTING THE WEAR MODE AND WEAR MECHANISM IS THE PROCESS OF OXYGEN DIFFUSION INTO THE METAL LAYER SUBJECTED TO DEFORMATION DURING FRICTION.

FACILITY: KIEVSKOE VYSSHEE INNZHENERNO AVIATSIONNOE VOENNOE UCHILISHCHE, KIEV UKRAINIAN SSR.

UNCLASSIFIED

USSR

N
UDC 620.192.47

GRIGOR'YEVA, G. M., POPOV, K. V., and NOSYREVA, Ye. S., Institute of Petroleum and Coal Chemical Synthesis, Angarsk

"Specifics of Formation and Development of Cracks During Rupture of Hydrogenated Iron"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 3, Sep 70, pp 637-639

Abstract: Technical iron was studied in the annealed state. Specimens 4 mm in diameter were hydrogenated electrolytically to a content of 3 ml/100 g, then tested at -196 to $+20^{\circ}$ C at a rate of extension of $6 \cdot 10^{-4}$ sec $^{-1}$. After rupture, the structure of the metal near the rupture surfaces was studied. The specifics of the structure and location of cracks in the hydrogenated iron indicated that under the temperature-rate conditions of formation of reversible hydrogen embrittlement, the formation of the principal crack occurs by formation of a large number of seed cracks, their development, and subsequent combination upon viscous rupture of the bridges between them. This is confirmed by fractographic analysis.

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USSR

UDC 669.295:539.214

PERTSOVSKIY, N. Z., SHAKHANOVA, G. V., BRUN, M. YA., and NOTKIN, A. B.,
All-Union Institute of Light Metals

"On the Influence of the β -Phase on the Plasticity of Two-Phase Titanium Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 4, Apr 72,
pp 887-890

Abstract: The influence of the β -phase on the microstructural deformation of titanium alloys was investigated on hot-rolled bars of VT9 alloys possessing a grained and lamellar α -phase and an initial fine fibrous structure, very similar to the structure of the previously (Ibid., Vol 30, 1970, p 1047) investigated VTZ-1 alloy. The results of mechanical investigations of both alloys, containing 15-20% of β -phase in the annealed state, are discussed by reference to tabulated data and microstructural deformation pictures of the VT9 alloy. The sharply decreased plasticity of the VT9 alloy in comparison with the VTZ-1 alloy explains the observed plasticity decrease by other authors of two-phase titanium alloys with lamellar-type structure with increased content of stabilizers. The presence of the β -phase increases 1/2

USSR

PERTSOVSKIY, N. Z., et al., Fizika Metallov i Metallovedeniye, Vol 33, No 4, Apr 72, pp 887-890

the microinhomogeneity of deformation regardless of the type of the structure, contributing to a plasticity decrease of two-phase titanium alloys at room temperature. Two illustrations, one table, three bibliographic references.

2/2

USSR

UDC 537.525.1

VASILENKO, L. S., LISITSYN, V. N., NOTKIN, G. YE., and CHEBOTAYEV,
V. P.

"Disintegration of the 2^1P and 2^3P Levels of He in a Glow Discharge"

Leningrad, Optika i Spektroskopiya, Vol 28, No 6, Jun 70, pp 1085-1093

Abstract: The article describes results of a study of the cross-sections for the disintegration of the 2^1P and 2^3P levels of helium in a dc discharge by atomic collisions. The purpose was to ascertain the channel over which excitation transfer from singlet levels to triplet levels occurs. The study was based on the method of selective optical excitation. It was found that the levels 2^1P and 2^3P of He have a cross-section for disintegration by interatomic collisions of $< 10^{-16}$ sq cm. A study of the magnitude and sign for the modulation of the population of a number of levels, resulting from selective optical excitation of the level 2^1P , indicates the following general pattern for the excitation of helium levels:

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USSR

GERASIMOV, F. M., et al., Optika i Spektroskopiya, Vol 28, No 6, Jun 70, pp 1196-1203

a differential. During tests of the ruling engine about 40 diffraction gratings were made with 600, 300, and 200 lines/mm. In most cases the gratings, when studied by the interference method, displayed straight interference fringes and gave high-quality spectral lines in the spectral unit.

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USSR

UDC: 621.397.61(088.8)

NOTKIN, L. R., MITEL'MAN, L. V.

"A Device for Shaping and Monitoring a Code Combination of Radio Pulses"

USSR Author's Certificate No 275120, filed 21 Nov 67, published 4 Nov 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D306 P)

Translation: A device is proposed for shaping and monitoring a code combination of radio pulses. The device contains high-frequency oscillators, adders, a detector, and an oscilloscope display. To simplify the process and the circuit when monitoring appreciably different amplitudes of the radio pulses in the code combination, the above-mentioned adders are grouped in such a way that radio pulses of similar amplitude are sent to the inputs of each of them. The outputs of the adders are connected to the inputs of a multiple-input balancing module which is connected at the output directly to the network comprising the detector and the oscilloscope display. One of the outputs of the balancing module on which the code combination of the required form appears is connected to the load. V. P.

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USSR

UDC: 621.391.14

NOTKIN, L. R. and ZEFIROV, V. Ye.

"Analyzing the Complex Spectra of Pulse Signals"

Moscow, Radiotekhnika, Vol. 25, No. 11, 1970, pp 25-28

Abstract: A method of analyzing complex spectra is given in this article which is not subject to the defects of simultaneous and successive analytical methods. In this method, the basic operation for determining the components of the amplitude and phase spectra of the signal involves summation of the vectors to which the input signal is transformed. The authors offer two variants of apparatus for realizing the spectrum analysis with oscillographs using circular scanning. The block diagrams of both setups are given together with illustrative diagrams of the type of figure these systems yield and their interpretation. Much less work is involved in the methods suggested by the article since the basic computations are automated, and the arduousness of point-by-point plotting is avoided. The authors assert that the method and its variants may be used in the solution of practical problems in the various branches of electronics.

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USSR

UDC 613(470)(091)

SHITSKOVA, A. P., AKSYUK, A. F., BEYLKHS, G. A., GHOYEVAYA, V. L., GUSEV, M. I.,
ZHILIN, P. N., NOTKIN, Ye. L., PAL'TSEV, Yu. P., and YASTREPOV, G. G.

"Coping With Current Health Problems in the RSFSR"

Moscow, Gigiyena i Sanitariya, No 12, 1972, pp 8-16

Abstract: Health problems were a major concern of the communist leaders after the revolution who swiftly organized agencies and services to deal with epidemics and famines. As these were brought under control, health officials became involved in city planning, design and building of houses, etc. The increasing tempo of industrialization led the authorities by the 1930's to study atmospheric pollution and the disposal of municipal and industrial sewage. Water pollution and suitable use of water resources were major interests by the 1940's. Following the war, industrial hygiene and occupational diseases along with food poisonings became the center of attention. In the 1960's research was focused on the problems created by the chemicalization of agriculture, the use of pesticides in particular. The effects of exposure to ultrasound, radiation, microwaves, and other technological advances are now under study. Much stress is placed on preventive medicine, with frequent mass check-ups of the population, particularly children and adolescents. The importance of

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USSR

SHITSKOVA, A. P., Gigiyena i Sanitariya, No 12, 1972, pp 8-16

comprehensive, accurate health statistics was recognized in the 1920's and they are constantly being refined and improved as an indispensable basis for planning and taking effective action.

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USSR

UDC 614.3/.4.07:311.17

NOTKIN, Ye. L., and IVAKINA, V. N.

"Improving the Statistical Reports of Sanitary-Epidemiological Stations"

Moscow, Zdravookhraneniye Rossiyskoy Federatsii, No 10, 1971, pp 15-18

Abstract: Sanitary-epidemiological stations are the advance posts of prophylactic medicine. Their function is to carry out general health and epidemic-control measures to prevent disease and improve sanitary conditions in industry, agriculture, and daily life. For many years (1954 to 1970) their work was evaluated from form 36 (report of the activity of sanitary-epidemiological/disinfection stations) which remained unchanged during this time. The main shortcoming of this report form was that it did not provide for the inclusion of information useful in assessing the effectiveness and quality of these health agencies. Dissatisfaction with this state of affairs led the USSR Ministry of Health to appoint a special commission to revise form 36 and correct its inadequacies. The commission completed its task at the end of 1970 and the draft of a proposed form, somewhat shortened and modified, was approved by the Central Statistical Administration and put into effect shortly thereafter by the USSR Ministry of Health. The new elements introduced into form 36 by the commission are analyzed.

1/1

USSR

UDC:621.762.4.04

ZHIVOV, L. I., SKORNYAKOV, YU. N. and NOTYCH, A. A., Zaporozhye Machine Building Institute imeni V. YA. Chubar

"Study of the Process of Hot Extrusion of Sintered Materials"

Kiev, Poroshkovaya Metallurgiya, No 2, Feb 74, pp 23-28

Abstract: The fact that not only dimensions but also volume change when porous sintered materials are deformed makes the nature of shape change and force mode somewhat different in comparison to the deformation of monolithic metals and alloys. This article studies the process of even deformation of a porous cylindrical briquette compacted in a container. The theory of plastic flow is used to analyze the process of compacting of the porous material. As a second phase of the process of hot extrusion, the ejection of the compacted material through the extrusion aperture is studied. The study establishes the relationship between the degree of deformation during extrusion and the residual porosity of the extruded piece.

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USSR

VOLKOV, A. S., GUTKIN, A. A., IL'MENKOV, G. V., NOVAK, I. I., Physico-technical Institute imeni A. F. Ioffe, USSR Academy of Sciences, Leningrad

"Quantum Yield of the Photoconductive Effect in Germanium"

Leningrad, Fizika Tverdogo Tela, Vol 15, No 9, Sep 73, pp 2796-2797

Abstract: To explain the contradictions in previous experimental data on the quantum yield of the photoconductive effect in germanium, the authors investigate the spectrum for this semiconductor at room temperature in the photon energy region of 1-1.9 ev. The results show that within limits of experimental error of $\pm 3\%$ the quantum yield of the photoconductive effect of germanium in this energy region remains constant. The authors thank A. N. Imenkov, D. N. Nasledov, A. A. Pogachev, and E. V. Tsarenkov for taking part in discussion of the experimental results.

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1/2 041 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--CONFORMATIONAL TRANSITIONS DURING THE DEFORMATION OF ORIENTED
POLYETHYLENE FIBERS -U-
AUTHOR--(02)-GAFUROV, U.G., NOVAK, I.I. ✓
COUNTRY OF INFO--USSR
SOURCE--MEKH. POLIM. 1970, 6(1), 170-2
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ELASTIC DEFORMATION, POLYETHYLENE, SYNTHETIC FIBER, IR
SPECTRUM, ISOMER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/0344 STEP NO--UR/0374/70/006/001/0170/0172
CIRC ACCESSION NO--AP0111538
UNCLASSIFIED

2/2 041

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0111538

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHANGES IN THE CONTENT OF COILED ISOMERS DURING ELASTIC DEFORMATION, OF ORIENTED LOW PRESSURE POLYETHYLENE (I) FIBERS WERE STUDIED BY IR SPECTROSCOPY AT 1200-400 CM PRIME NEGATIVE1. ABSORPTION BAND MAX. AT 1270, 1305, 1350, AND 1379 CM PRIME NEGATIVE1 INDICATED A LINEAR DECREASE IN THE CONTENT OF ALL COILED GAUCHE ISOMERS IN THE AMORPHOUS REGION OF I. THE RELATIVE CONTENT OF GAUCHE AND TRANS CONFORMATIONS WAS EVALUATED AS A FUNCTION OF TEMP. AND DEFORMATION FROM STATISTICAL CONSIDERATIONS. THE DATA AGREED WITH THE RESULTS OF EARLIER STUDIES.

UNCLASSIFIED

USSR

UDC [537.226+537.311.33]:[537+535]

GUBKIN, A. N., NOVAK, M. M.

"Electric Fields of Electrets of Various Dielectrics"

Tr. Mosk. in-ta elektron. mashinostr. (Works of Moscow Institute of Electronic Machine Building), 1970, No. 8, pp 96-107 (from RZh Fizika, No 12, Dec 71, Abstract No 12Ye1154)

Translation: External electric fields of disc electrets of nine materials with different physicochemical and structural properties are investigated. A simple model of an electret is proposed on the basis of which the axial electric field is calculated and the results are compared with experimental results. A relationship was observed between the external field of the electret and the dielectric permeability of the material. It was shown that one can obtain fairly stable electric fields up to 1 kv/cm² at the surface of the sample with the aid of electrets in the form of a disc. Conclusions are made concerning the possibility of the practical application of electrets as electric field sources. 15 ref. Resume.

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USSR

UDC: 669.546.77

NOVAK, V. P., BOGOVINA, V. I., BEDOVIK, S. S. and MAL'TSEV, V. F., All-Union Scientific Research, Design and Technological Institute of the Pipe Industry

"Photometric Determination of Molybdenum in Nickel-Base Alloys in the Form of a Molybdenum-Unithiol Complex"

Moscow, Zavodskaya laboratoriya, Vol 37, No 10, 1971, pp 1170-1171

Abstract: Discussed is the use of unithiol as a reagent for the photometric determination of molybdenum in steels without the separation of accompanying elements. The optimal conditions for the complex formation are: 0.5 n. hydrochloric acid, maximum light absorption -- 345 nm, color intensifies with time and maximum color is achieved after 5 mins. The presence of Fe(II), Cr(III), Ni and Co in ratios (to molybdenum) of 1:80, 1:40, 1:40 and 1:10, respectively, will not interfere with the analysis. Maximum optical density of the solution is achieved after prolonged standing. The reaction rate increases with temperature. An excess of the reagent promotes intensifi-

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USSR

NOVAK, V. P., et al, Zavodskaya laboratoriya, Vol 37, No 10, 1971, pp 1170-1171

cation of color in the molybdenum-unithiol complex. An analytical procedure for molybdenum determination in EI-844B and EI-929 steel grades is described. The relative error is 3%. (3 illustrations, 1 table).

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NOVAK, YE. N., Chair of Pharmacology, Kuban' Medical Institute imeni Red Army, Krasnodar

"Effect of Chlorpromazine (Aminarine) on Blood Coagulation"

Moscow, Farmakologiya i Toksikologiya, No 6, 1972, pp 717-720

Abstract: Subcutaneous injection of dogs with chlorpromazine (10 mg/kg) accelerated blood coagulation, plasma recalcification time, and reaction time without altering the maximum amplitude of the thromboelastogram, increasing plasma tolerance for heparin, or decreasing the antithromboplastin and fibrinolytic activity of the blood and the amount of factor VIII. The changes which were most pronounced 60 to 120 min after the administration of chlorpromazine followed a period of hypocoagulation (5 to 10 min after administration of the drug.). The two-phase action did not occur after intramuscular injection of chlorpromazine. The initial phase of chlorpromazine action is ascribed to hemolysis of red blood cells.

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1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--EFFECT OF VACUUM ANNEALING SYSTEMS ON SOME PHYSICOCHEMICAL
PROPERTIES OF STEEL 08KP -U-
AUTHOR--(02)-LITVINOVA, YE.I., NOVAKOVSKAYA, E.P. *N*
COUNTRY OF INFO--USSR
SOURCE--FIZ.-KHIM. MEKH. MATER. 1970, 6(1), 91-3
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ALLOY DESIGNATION, LOW CARBON STEEL, GRAIN SIZE, KILLED STEEL,
VACUUM ANNEALING, HYDROGEN, PERMEABILITY, GAS CONTAINING METAL, METAL
CONTAINING GAS/(U)08KP STEEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3001/0326 STEP NO--UR/0369/70/006/001/0091/0093
CIRC ACCESSION NO--AP0126082
UNCLASSIFIED

272 018

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0126082

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VACUUM ANNEALING AT SMALLER THAN OR EQUAL TO 1050DEGREES INITIALLY LOWERED THE H PERMEABILITY, AND AFTERWARDS INCREASED IT, MORE THAN COULD BE ACCOUNTED FOR FROM GRAIN SIZE INCREASE. A REPEATED ANNEALING IN VACUUM WITH GRAIN FRAGMENTATION CAUSED THE H PERMEABILITY TO INCREASE BY A FACTOR OF 3-4 MORE THAN IN THE SAME STEEL AFTER THE 1ST ANNEALING. AFTER ANNEALING AT 900-1050DEGREES, THE ETCH ABILITY OF THE STEEL IS IN DIRECT RELATION TO THE H PERMEABILITY; HOWEVER AFTER ANNEALING AT 1100DEGREES THE RATE OF ETCHING AND THE H PERMEABILITY INCREASED SHARPLY MORE THAN THE GRAIN SIZE INCREASE. FACILITY: LENI GRAD, TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 621.355.8.035.2

NOVAKOVSKIY, A. M., and VROBYSHEVSKIY, V. N.

"Longevity and Reasons for Failure of the Truck Iron-Nickel Batteries"

Sb. rabot no khim. istochnikam toka. Vses. n.-n akkumulyator. in-t (Collection of Work on the Chemical Source of Current. All-Union Scientific Study Institute for Storage Batteries). Vyp 7, 1972, pp 155-160 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L238)

Translation: A study was made of the reasons for the failure of systems in Ni-Fe batteries used in trucks. It was shown that the basic reason for the loss of power from the batteries were the following: the passivity of the iron electrode; the formation of surface short circuiting; and the poisoning of the electrode by harmful impurities.

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USSR

UDC 621.355.8.035.2

TEPLINSKAYA, T. K., KOCHETOVA, Y. I., and NOVAKOVSKIY, A. M.

"The Influence of Aluminum Dissolved in an Alkali Electrolyte on the Behavior of a Powdered Iron Electrode"

Sb. rabot no khim. istochnikam toka. Vses. n.-n akkumulyator. in-t (Collection of Works on the Chemical Source of Current. All-Union Scientific Study Institute for Storage Batteries) Vyp 7, 1972, pp 149-155 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 81239 by V. S. Levinson)

Translation: A study was made of the influence of aluminum dissolved in 5 N KOH in concentration of 0.5 to 20. grams/l on the behavior during charging and discharging of powdered iron electrodes and on the nature and properties of the product formed. The poisoning of the electrode by aluminum caused a strong inhibition on the process of the cathode reduction of $\text{Fe}(\text{OH})_2$ to metallic iron. Most harmful was the presence in the electrolyte of small quantities of aluminum (0.5 to 1.0 grams/l), insufficient for the formation of the mixed iron-aluminum hydrates and therefore strongly interfering with reduction of $\text{Fe}(\text{OH})_2$ during the discharge of the electrode.

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- 7 -

USSR

UDC: 621.397.62:535.67

NOVAKOVSKIY, S. V.

"Development of Television Reception Technology"

V sb. Televizion. tekhnika (Television Technology--collection of works),
Moscow, "Svyaz", 1971, pp 327-362 (from RZh-Radiotekhnika, No 6, Jun 71,
Abstract No 6G230)

Translation: The paper reports figures which characterize the state of
the Soviet TV reception network, and the output of equipment, kinescopes
and radio tubes. The problems of normalization, standardization and uni-
fication of television receivers are discussed. Tables are given for the
parameters of new monochrome and color television sets. Ten tables. N. S.

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AA0043319

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

242957 T.V. CHANNEL AMPLITUDE/FREQUENCY CORRECTION

Synchronizing pulses of frequencies e.g. $f_1 = 2 \text{ Mcp}$, $f_2 = 3 \text{ Mcp}$, $f_3 = 4 \text{ Mcp}$ as shown in fig. 2 are injected. Amplitudes of the pulses must be equal. In the colour T.V. these pulses are injected along the sub-carrier frequency (f_0). Signal 11 is passed to the correcting system (1), its output is passed by strob to the resonant circuits f_1 , f_2 , f_3 where bursts of frequencies are separated. Synchronizing pulses are separated by (4) and passed to the comparators. Its output produces error signal which is applied to the correcting system (1) and to the signal distortion recording system (6).

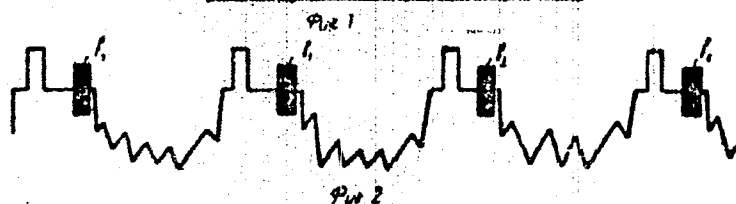
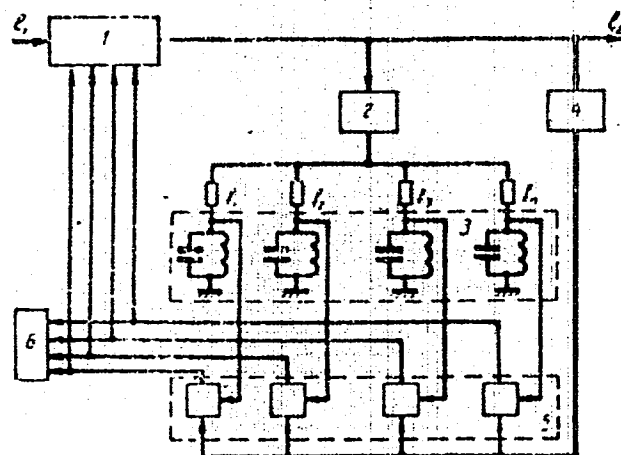
22.2.68 as 1221483/26-9. S.V. NOVAKOVSKI. (17.9.69) Bul 16/5.5.69. Class 21a¹. Int.Cl.H 04n.

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USSR

UDC 620.193.01

KUZNETSOVA, YE. G., SOKOLOV, A. A., NOVAKOVSKIY, V. M., KOLOTYRKIN, YE. M.,
Scientific-Research Physico-Chemical Institute imeni L. Ya. Karpov

"The Influence of Oxidation-Reduction Systems on the Rate of Dissolution of
Passive Titanium"

Moscow, Zashchita Metallov, No 4, 1972, pp 409-414.

Abstract: Data are presented and discussed on changes in the dissolution rate of passive titanium, potentiostatically polarized in dilute sulfuric acid upon introduction of the Fe^{2+}/Fe^{3+} redox system to the acid, and also upon introduction of Ti^{3+} ions. The radiometric method is used to show that when titanium is maintained in the anode-passive state, the introduction of Fe^{2+} ions causes only an increase in the external anode current, while the introduction of Ti^{3+} ions causes a simultaneous inhibition of dissolution of the titanium, explained by the anode deposition of TiO_2 from the solution.

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1/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CHARACTERISTICS OF THE LOCKING LAYER ON PASSIVE TITANIUM -U-
AUTHOR--(02)-OVCHARENKO, V.I., NOVAKOVSKIY, V.M.
COUNTRY OF INFO--USSR
SOURCE--ZASHCH. METAL. 1970, 6(3), 320-4
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--TITANIUM, METAL PASSIVATION, NITRIC ACID, ELECTRIC IMPEDANCE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/1044 STEP NO--UR/0365/70/006/003/0320/0324
CIRC ACCESSION NO--AP0138066

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0138066

ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. A STUDY WAS MADE ON THE FUNCTIONAL CONNECTION OF BOTH IMPEDANCE COMPONENTS OF PASSIVE TI WITH THE MEASURING POTENTIAL AND THE FREQUENCY OF THE ALTERNATING EMF. THE PASSIVE TI FILM WAS POTENTIOSTATICALLY FORMED DIRECTLY IN A SOLN. OF 2N NA SUB2 SO SUB4 PLUS 0.1N H SUB2 SO SUB4 AFTER THE CLEANED AND DECREASED ELECTRODE WAS SUBJECTED TO CHEM. PASSIVATION IN 50PERCENT HNO SUB3. AT EACH MEASURING POTENTIAL BOTH IMPEDANCE COMPONENTS WERE DETD. AT SEVERAL FIXED FREQUENCIES 0.3-10 KHZ. EQUATIONS DERIVED FOR THE ACTIVE COMPONENT AND ITS OVERALL FUNCTIONAL CONNECTION OF IMPEDANCE WITH FREQUENCY AND MEASURING POTENTIALS, THE RECIPROCAL CELL CAPACITY, AND THE TAN DELTA SHOW THAT ALL THE FACTS OBTAINED IN THE EXPTS. RELATE TO THE LOCKING LAYER IN THE OVERALL PASSIVE FILM AND ARE EVIDENTLY DUE TO SOME SPECIFIC CHARACTERISTIC MATERIAL IN THAT LAYER. FACILITY: NAUCH.--ISSLED. FIZ.-KHIM. INST. IM. KARPOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--POTENTIOSTATIC PASSIVATION OF ZIRCONIUM IN SULFATE SOLUTIONS -U-
AUTHOR--(02)-BONDAREVA, T.P., NOVAKOVSKIY, V.M. N
COUNTRY OF INFO--USSR
SOURCE--ZASHCH. METAL. 1970, 6(2), 207-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--ZIRCONIUM ALLOY, SULFATE, METAL PASSIVATION, DIELECTRIC
CONSTANT, METAL ELECTRODE, SHEET METAL, METAL CLEANING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1909 STEP NO--UR/0365/70/006/002/0207/0209
CIRC ACCESSION NO--AP0118871
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118871

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ZR ELECTRODES MADE OF ROLLED ZR SHEETS WERE MECH. AND CHEM. CLEANED AND THEN STUDIED IN 0.1 AND 15N H SUB2 SO SUB4 SOLNS. POLARIZATION WAS EFFECTED POTENTIOSTATICALLY AND THE CURRENT WAS AUTOMATICALLY RECORDED. BY GOING FROM A INITIAL POTENTIAL OF 0.0 OR 0.3 V MAINTAINED FOR SOME TIME TO MORE POS. POTENTIALS, SUCH AS 0.5, 0.7, OR 1.0 V, THE EXTERNAL ANODIC CURRENT INCREASED AND THEN DIMINISHED GRADUALLY WITH TIME. THE INCREASED AMT. OF ANODIC CURRENT I FLOWING THROUGH THE ELECTRODE IS EXPRESSED BY THE EQUATION: I EQUALS A PLUS $(B-TAU)$, WHICH IN ITS INTEGRAL FORM EXPRESSES THE LOGARITHMIC LAW OF THIS INCREASE (TAU IS TIME). THE INCREASE OF RECIPROCAL OF THE ELECTRODE CAPACITANCE $1-C$, WHICH IS PROPORTIONAL TO THE CURRENT CONSUMED IN THE FORMATION OF THE PASSIVATING FILM, IS ALSO SUBJECT TO SAME TYPE OF LAW. THE AMT. OF CURRENT (QF) CONSUMED IN THE FORMATION OF THIS FILM IS OBTAINED QF EQUALS $EPSILON$ $EPSILON$ $SUBO$ $SIGMA$ $SUB2$ $PRIME2$ $F-V$, WHERE $EPSILON$ IS THE DIELEC. CONST. OF THE FILM, $EPSILON$ $SUBO$ EQUALS 8.85 TIMES 10 PRIMENEGATIVE8 MUF-CM AND IS THE DIELEC. CONST. OF A VACUUM, $SIGMA$ IS THE COEFF. OF ROUGHNESS OF THE ELECTRODE, AND V IS THE MOLAR VOL. OF THE SUBSTANCE OF THE FILM WHICH IN THE CASE OF ZRO SUB2 IS 21.7 CM PRIME3-MOLE. LITERATURE VALUES FOR THE COEFF. OF ROUGHNESS OF ZR ARE GIVEN AS 1.1-1.3 AND FOR THE DIELEC. CONST. OF ZRO SUB2 AS 20-27. FACILITY: NAUCH.-ISSLED. FIZ.-KHIM. INST. IM. KARPOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

N
UDC 620.193.01

KOSSYY, G. G., NOVAKOVSKIY, V. M., and KOLOTYRKIN, YA. M.

"Excess Oxygen in an Oxide Film on Passive Titanium"

Moscow, Zashchita Metallov, Vol 6, No 3, May-Jun 70, pp 317-320

Abstract: The stationary rate of potentiostatic solution of passive titanium is appreciably higher than the mean solution rate of its passivating oxide observed after cessation of polarization. This article contains a discussion of additional information about the properties of the passivating film on titanium obtained as a result of more detailed observations of the process of spontaneous activation of a d-energized electrode in the presence of HF. The experiments were performed in solutions of three normal HCl + xHF on a rotating ($n = 1,500$ rpm) disk electrode made of VT-1 titanium at 40° . The potentials everywhere were given with respect to a saturated calomel comparison electrode at room temperature. The oxygen was not removed from the solution. The experimental data provide a basis for proposing that the oxidizing properties of passive titanium are connected with the presence of an oxide film on its surface. As the oxide film becomes thicker, the process of which begins after cessation of polarization, layers of it closer and closer to the metal come into contact with the electrolyte. The gradual reduction in potential accompanying this process is explained by a drop in the concentration
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USSR

KOSSYY, G. G., et al., Zashchita Metallov, Vol 6, No 3, May-Jun 70, pp 317-320

of excess oxygen in the direction from the outer surface of the oxide to its interface with the metal.

It is shown that within the framework of the concepts of the adsorption nature of inertness, the smooth potential drop could be explained by the gradual restoration of oxygen adsorbed in a single layer whose bond energy and reduction potential vary with the degree of filling. However, this proposition is refuted by the experimental data. The forced short-term potential bias of the electrode in the negative direction which should cause partial reduction of the oxygen, contrary to expectations, does not accelerate but inhibits activation. The sooner the cathode pulse is applied after cessation of polarization, the greater the amount of electricity it carries through the electrode and the greater the inhibition of activation.

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USSR

N UDC 620.193.01

OVCHARENKO, V. I., and NOVAKOVSKIY, V. M.

"Some Characteristics of the Barrier Layer on Passive Titanium"

Moscow, Zashchita Metallov, Vol 6, No 3, May-Jun 70, pp 320-324

Abstract: An investigation was made of the functional relations between both components of the impedance of passive titanium to the measurement potential and the alternating emf frequency. The investigated film was formed potentiostatically directly in the working solution (two normal Na_2SO_4 + 0.1 normal H_2SO_4) in two hours with a potential of 2 volts after the cleaned and degreased electrode was subjected to two-hour chemical passivation in 50% distilled nitric acid. For each measurement potential both impedance components (in a series circuit) were determined for several fixed frequencies from 0.3 to 10 kilohertz. The active components of the cell impedance and the inverse capacitance of the cell corresponding to the reactive measurement components are expressed mathematically in terms of frequency. Tabulated data are presented which demonstrate the independence of the loss angle tangent with respect to the measurement potential. The significance of the empirical laws found is discussed in terms of the following: 1) the total thickness of the oxide film on the titanium surface can be considered practically identical for all measurements; nevertheless, with a drop in the measurement

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USSR

OVCHARENKO, V. I., and NOVAKOVSKIY, V. M.

potential the inverse capacitance and active component of the electrode impedance (at constant frequency) decrease by one and the same power law, vanishing on extrapolation to one and the same potential v_0 (~ 0.1 volt) where the latter does not depend on the measurement frequency even though the frequency has different effects on the angular coefficients in the equations for R and $1/C$; 2) the significant dependence of the values of \bar{C} found and, especially, \bar{R} on the measurement frequency, clearly demonstrate that the true equivalent electrode circuit is very far from simple series inclusion of constant capacitances and resistances; 3) the independence of the ratio of \bar{R} and $1/\bar{C}$ with respect to the measurement frequency found with a constant frequency indicates that the apparent product $\bar{R}\bar{C}$ is basically determined by certain specific characteristics of the substance in the barrier layer which under the given conditions of formation of the film change little with respect to its thickness. It is pointed out that a deeper study of the frequency characteristics of both components of the impedance of the passive electrode and discovery of the mechanisms of these relations can be an important means of obtaining information about the properties and structure of passivating films and layers.

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1/2 016 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--CAPACITANCE OF A PASSIVE TITANIUM ELECTRODE -U-
AUTHOR--(U2)-GVCHARENKO, V.I., NOVAKOVSKIY, V.M.
COUNTRY OF INFO--USSR
SOURCE--ZASCH. METAL. 1970, 6(2), 201-3
DATE PUBLISHED-----70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--METAL ELECTRODE, TITANIUM, ELECTRICAL CONDUCTIVITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1804 STEP NO--UR/0365/70/006/002/0201/0203
CIRC ACCESSION NO--AP0112790
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112790

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE C.D. VARIATIONS AND THE CAPACITANCE WERE STUDIED OF A PASSIVE TI ELECTRODE WITH INTERMITTENT CHANGES IN POTENTIAL IN A SOLN. OF 2N NA SUB2 SO SUB4 PLUS 0.1N H SUB2 SO SUB4 AT ROOM TEMP. THE RESULTS INDICATED THAT THE SEMICONDUCTOR CHARACTERISTICS OF THE BULK TIO SUB2 COULD NOT BE USED AS A GUIDE IN EVALUATING THE ELEC. FIELDS EXISTING IN PASSIVATING FILMS OF TI. AT VERY LOW ANODE POTENTIALS, WHEN THE THICKNESS OF THE SEALANT LAYER BECOMES VANISHINGLY SMALL, CAPACITATIVE MEASUREMENTS ARE INCAPABLE EITHER OF CONFIRMING OR REFUTING THE EXISTENCE OF A PASSIVATING FILM OF TI, WHICH THUS ACTS LIKE A CONDUCTOR.

UNCLASSIFIED

USSR

N
UDC 620.193.01

BONDAREVA, T. P., and NOVAKOVSKIY, V. M., Scientific Research Physicochemical
Institute imeni L. Ya. Karpov

"Regularities of Potentiostatic Passivation of Zirconium in Sulfuric Acid Solutions"
Moscow, Zashchita Metallov, Vol 6, No 2, Mar-Apr 70, pp 207-209

Abstract: A study was made of the potentiostatic conditions of passivation permitting constancy of the motive power of the process and equivalent (in this respect) to oxidation with the pressure of the oxidizing component in the gas phase being constant. The selected potential region eliminated the possibility of anodic separation of molecular oxygen. The experiment involved zirconium "iodide" foil cleaned with fine emery paper and treated with a mixture of 70% nitric and 40% hydrofluoric acids and doubly distilled water at a 9:1:10 ratio for 10 seconds followed by rinsing in boiling doubly distilled water. 0.1 and 15 N H₂SO₄ solutions served as working electrolytes. The polarization was produced by a P3B potentiostat and the electrode impedance was measured with a phase-sensitive FV-1 voltmeter. The diagram of the experimental unit is given in the original article. The results of the experiment may be regarded as additional proof that the logarithmic law reflects the significant characteristics of the potentiostatic growth of passive films on barrier-layer metals. This, of course, does not exclude some possible deviations due to dissolution processes, rearrangement of changes in the electrophysical properties of the film, etc.

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USSR

UDC: 681.327.12

NOVANKEVICH, Ye. V., BUCHIK, M. I., Central Scientific Research Laboratory

"A Device for Graphic Data Input Into Analog Computers"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 29, 1970, Soviet Patent No 281906, Class 42, filed 7 Oct 68, p 133

Abstract: This Author's Certificate introduces a device for graphic data input into analog computers. The device contains a trigger pulse oscillator connected to a thyatron pulse shaper-distributor. Connected to the outputs of the shaper-distributor are linear potentiometers which are connected through operational amplifiers and keys to summing amplifiers. As a distinguishing feature of the patent, the functional possibilities of the device are extended by connecting the linear potentiometers i. a pot array which is in contact with jumpers fastened to the reverse side of the graphic input medium.

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UDC 632.96

USSR

NOVEK-KHLEBNIKOV, P. A., and IVASHCHENKO, YA. N.

"A Herbicidal Compound"

USSR Author's Certificate No 327912, filed 17 Aug 70, published 29 Mar 72
(from RZh-Khimiya, No 22, Nov 72, Abstract No 22N483P)

Translation: A herbicidal compound is proposed which is based on chlorobenzoic acids. In order to obtain a synergic effect and reduce the aftereffect on crops, trichloroaminopicolinic acid is added in amounts of 2-5% of the chlorobenzoic acids. The results of tests of the chlorobenzoic acids, trichloroaminopicolinic acid and mixtures of the compounds on an experimental field infested with pink gentian are given. The aftereffect of the herbicide was checked out on perennial woad and on winter wheat.
T. A. Belyayeva.

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AA0040657

UR 0482

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Soviet Inventions Illustrated, Section I Chemical, Derwent,

741017 THERMAL TREATMENT OF OBJECTS MADE OF REFRACTORY ALLOYS, involving heating, quenching and tempering is characterized in that in order to increase the ultimate strength at bending, by 10-30% the refractory alloys are subjected to ultrasonic treatment during the tempering stage. The proposed method is especially effective in the treatment of objects made of refractory alloys containing 6% and

more by weight of cobalt.

16.9.66 as 1114589/22-1. N.K. ROMANENKO et al.
(18.8.69) Bul 13/1.4.69. Class 40b, 40d. Int.Cl.
C 22c, C22 f.

LD

18

AUTHORS: Romanenko, N. K.; Pogodin-Alekseyev, G. I.; Gavrilov, V. M.; Leshchenko, F. G.; Kartashev, Yu. G. and Novgorodov, A. S.

19750246

USSR

UDC: 621.378.385

NOVGORODOV, M. Z., SVIRIDOV, A. G., SOBOLEV, N. N., and SHVARTS, P.

"The Energy of the Electrons in a CO Laser Discharge"

Leningrad, Zhurnal tekhnicheskoy fiziki, No 10, 1972, pp 2190-2197

Abstract: To understand and optimize the operation of CO lasers, one must know the characteristics of the plasma discharge electron component, particularly parameters like the full electron concentration and the electron energy distribution. With this assertion the authors present the results of their measurements of the distribution function of electron energies in CO-O₂-He laser in terms of the discharge current, pressure, and channel. The measurement method, involving the second derivative of the plasma probe current with respect to the voltage by the so-called second-harmonic method, is basically the same as that used in an earlier paper (M. Z. Novgorodov, et al, IEEE J., QE-7, No 11, 1971, p 508). Data is given for the CO-O₂-He combination in the proportions of 1:0.1:10 and 1:0.1:30, curves for the electron energy distribution are plotted, and the effects of adding Xe to the mixture are discussed. It is noted that computations of the distribution function from the

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USSR

UDC: 621.378.385

NOVGORODOV, M. Z., et al, Zhurnal tekhnicheskoy fiziki, No 10,
1972, pp 2190-2197

formula for elastic collisions give misleading results; an exact
solution of the kinetic equation with the correction of all pos-
sible processes taken into account is necessary.

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USSR

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NOVGORODOV, M. Z., OCHKIN, V. N., SOBOLEV, N. N. (Lebedev
Physics Institute, USSR Academy of Sciences, Moscow)

"Measurements of the Oscillatory Temperatures in CO₂ Lasers"
Leningrad, Journal of Technical Physics, June 1970, pp 1268-
1275

Abstract: The authors suggest a method for determining the oscillatory levels of N₂, CO₂, and CO molecules in their ground electron states by measuring the relative intensities of the electron oscillation bands (0.2) 2⁺ of nitrogen. A comparison of the distribution functions of the nitrogen molecules with respect to the oscillation levels in the ground state X¹E_g⁺ and in the electron-excited state C²I_u is made. The dependence of the oscillatory temperatures of the ground state in the discharge in various mixtures of CO₂, N₂, and He on the discharge current and gas pressure is found. Variations in the band intensity as a function of these same parameters are determined.

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USSR

UDC: 621.378.385

~~NOVGORODOV, M. Z.~~, SVIRIDOV, A. G., and SOBOLEV, N. N.

"Electrical Characteristics of a CO Laser Discharge Plasma"

Leningrad, Zhurnal tekhnicheskoy fiziki, vol 42, No 7, 1972,
pp 1471-1478

Abstract: The experiments described in this paper are aimed at measuring the electronic concentration in the plasma of a carbon monoxide laser discharge and investigating the characteristics of the plasma. It is assumed that, as in the CO₂ laser, the process providing the pumping to the oscillatory level of CO is basically electronic shock. This hypothesis can only be verified if the concentrations and distribution functions of the electron energy are known. The experiments were conducted by the microwave method using cylindrical resonators, with the discharge realized with d-c current in quartz tubes of 3.4 or 2.0 cm diameter. A description of the experimental procedure is given, and the experimental results are presented in the form of curves for the electron concentration as a function of the discharge current in CO and He in various mixture proportions. The electron concentration is a direct linear function of the discharge current density, and a table of the proportionality constant for various combinations of 1/2

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UDC: 621.378.385

NOVGORODOV, M. Z., et al, Zhurnal tekhnicheskoy fiziki, vol 42,
No 7, 1972, pp 1471-1478

CO and He is presented. Curves are also given for the electric field intensity as a function of the discharge current with mixtures of CO + O₂ + He and CO + N₂. The authors, members of the P. N. Lebedev Physics Institute at Moscow, express their gratitude to V. Ya. Cherkasov and O. I. Baranova for their assistance with the experiments, and to A. A. Mikaberidze for assisting with the computations.

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Acc. Nr:

AP0048822

Abstracting Service:
CHEMICAL ABST.

4170

Ref. Code:

URO366

90127k Propionylation of 2-methoxynaphthalene. Zemzina,
 I. N.; Tsukervanik, I. P.; Novgorodova, N. Yu. (Tashkent,
 Gos. Univ. im. Lenina, Tashkent, USSR). *Zh. Org. Khim.*
 1970, 6(1), 132-5 (Russ). Heating 2-methoxynaphthalene (I)
 with 1/3 equiv. $(EtCO)_2O$ and approx. 2×10^{-4} equiv. $FeCl_3$
 followed by fractionation gave 80% ketones contg. 85% 1-pro-
 pionyl deriv. (II) of I and 5% 6-propionyl deriv. (III) of I. The
 reaction of I with $PrCl$ in the presence of $FeCl_3$ gave 56% ketones
 (compn. not given). In both cases, besides II and III, also I and
 β -naphthol were detected by thin layer chromatog. and uv spec-
 troscopy.
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Pharmacology and Toxicology

USSR

UDC 577.153

NOVGORODSKAYA, A. M., ROZENGART, V. I., and SHCHERBAK, I. G., Chair of Biochemistry, First Medical Institute imeni Akad. I. P. Pavlov, Leningrad

"In vivo Inhibition of Cholinesterase Activity by the Organophosphorus Compound LG-63"

Moscow, Biokhimiya, No 1, 1971, pp 72-80

Abstract: The inhibitory effect of LG-63 (O-ethyl-S-hexy methylthiophosphonate) on cholinesterase activity was studied in various tissues (small intestine, myocardium, skeletal muscle, brain, blood hemolysate, gastric wall, lung, kidney, liver) of rats injected intraperitoneally or intramuscularly with different doses of the compound. A sublethal dose (5 mg/kg) markedly inhibited the enzyme in all the tissues studied except the kidneys regardless of the mode of administration. A much smaller dose (0.25 mg/kg), on the other hand, altered the distribution of LG-63 considerably and the mode of administration was a major factor. For example, cholinesterase activity in the liver and gastric wall was inhibited more by intraperitoneal injection of LG-63 than by intramuscular injection. The highest concentrations of LG-63 were invariably found in the liver, whereas no significant amounts could be detected in the kidneys. The latter phenomenon suggests that either the

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USSR

NOVGORODSKAYA, A. M., et al., *Biokhimiya*, No 1, 1971, pp 72-80

kidneys take no part in the elimination of unchanged LG-63 molecules from the body or the inhibitor bypasses the site of cholinesterase localization in the organ. No relationship was observed between the distribution of LG-63 and the original level of cholinesterase activity or tissue sensitivity to the substance.

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172 033 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--THE STABILITY OF WELDED PIPE CONNECTIONS OF HEATING SURFACES IN THE
CASE OF ACID RINSES BY A AMMONIUM MONOCITRATE AND TRILON B -U-
AUTHOR--(03)--ANTIKAYN, P.A., NOVI, YU.O., TARATUTA, V.A.
COUNTRY OF INFO--USSR
SOURCE--LENINGRAD, ENERGMASHINOSTROYENIYE, NO 3, 1970, PP 31-34
DATE PUBLISHED-----70

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

TOPIC TAGS--PIPE WELDING, STEAM BOILER, METAL CLEANING, HYDROCHLORIC ACID,
RESEARCH FACILITY, ALLOY DESIGNATION, STAINLESS STEEL, LOW ALLJY STEEL,
CARBON STEEL, COMPLEX COMPOUND, THERMAL STABILITY, METALLOGRAPHY/(U)ST20
CARBON STEEL, (U)12KH1MF LOW ALLOY STEEL, (U)KH18N12T STAINLESS STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1993/0879

STEP NO--UR/0114/70/000/003/0031/0034

CIRC ACCESSION NO--AP0113727

UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0113727

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. IN THE USSR AND ABROAD, FOR THE REMOVAL OF DEPOSITS FORMED ON THE HEATING SURFACES OF BOILERS, SOLUTIONS OF COMPLEX FORMING REAGENTS ARE USED. DATA UPON THE EFFECT OF THESE SOLUTIONS, IN PARTICULAR AMMONIUM MONOCITRATE AND TRILON B, UPON THE STABILITY OF THE WELDED PIPE JOINTS OF HEATING SURFACES ARE PRACTICALLY ABSENT. IT IS MERELY KNOWN THAT WHEN CHEMICAL CLEANINGS ARE CARRIED OUT PRIOR TO THE START OF OPERATIONS, THERE ARE PRACTICALLY NO SPECIFIC DIFFICULTIES CONNECTED WITH IMPAIRMENT OF THE DENSITY AT THE WELDING SITES. NEVERTHELESS, AS HAS BEEN SHOWN BY STUDIES OF THE ALL UNION INSTITUTE OF HEAT ENGINEERING (MEND F. E. DZERZHINSKIY, WHEN THE PIPES ARE RINSED BY A WEAK SOLUTION OF INHIBITED HYDROCHLORIC ACID THE WELDED SEAMS ARE THE MOST VULNERABLE POINTS OF THE WATER AND STEAM CHANNEL. IN THIS CONNECTION, A STUDY WAS CARRIED OUT AT THE MOSCOW BRANCH OF THE CENTRAL SCIENTIFIC RESEARCH, PLANNING ADD DESIGN BOILER AND TURBINE INSTITUTE, WHICH HAS MADE IT POSSIBLE TO CLEAR UP THE QUESTION CONCERNING THE BEHAVIOR OF WELDED PIPE CONNECTIONS UNDER CONDITIONS OF REPEATED CLEANING OF BOILERS WITH THE USE OF COMPLEX FORMING REAGENTS. INCLUDED IN THE INVESTIGATION WERE X RAY, MICROSTRUCTURE, AND METALLOGRAPHIC TESTS. AS A RESULT OF THE WORK PERFORMED, IT MAY BE CONSIDERED AS ESTABLISHED THAT WELDED JOINTS OF STEELS 20, 12KH1MF AND KH18N12T, MADE BY CONTACT, ELECTRIC ARC, AND GAS WELDING, DO NOT IMPOSE ANY RESTRICTIONS ON THE CONDUCT OF OPERATIONAL CHEMICAL CLEANINGS OF THE UNIFLOW BOILERS WITH THE USE OF COMPLEX FORMING REAGENTS (AMMONIUM MONOCITRATE MIXED WITH TRILON B).

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Agriculture

USSR

UDC 632.4:582.285.1

BABCHUK, I. V., Director of the Plant Protection Administration,
Ministry of Agriculture Ukrainian SSR and NOVICHENKO, L. G., Senior
Agronomist

"Controlling Smut in the Ukraine"

Moscow, Zashchita Rasteniy, No 1, 1970, pp 11-12

Abstract: Measures used to control covered smut of barley and wheat in the Ukraine in 1969 are described. A 0.3-1.2% incidence of covered smut was reported in the area, with an insignificant degree of damage on farms in six oblasts, and complete absence of the disease in two oblasts. Two other oblasts had rayons without any sign of disease. The majority of farms in the Ukraine have switched to seed treatment with suspensions and moistening. It is noted that the kolkhozes and sovhozes must be better equipped with all-purpose machinery to improve covered smut control. Measures are now being taken for broader introduction of thermal decontamination at farms of scientific research institutes and experimental stations equipping the kolkhozes and sovhozes with high-quality seed to improve control
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BABCHUK, I. V., et al., Moscow, Zashchita Rasteniy, No 1, 1970,
pp 11-12

of loose smut. This led to reduction in development of the disease in 1969, although more radical measures are required. The 40 installations in the republic for decontaminating seeds with respect to loose smut are inadequate. In view of the fact that the All-Union Corn Institute has been most successful in controlling smut, the Ukrainian SSR Ministry of Agriculture held a three-day seminar on smut at this institute in 1969. Special recommendations were prepared for heat treatment of seeds, which will be published in early 1970.

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Miscellaneous

USSR

UDC 669.35'26'296:621.78

REVINA, N. I., NOVIKOV, A. I., NIKOLAYEV, A. K., and
ROZENBERG, V. M., State Scientific Research and Planning
Institute of Alloys and Nonferrous Metal Processing

"Investigation of the Properties of Low Alloys of Cu - Cr - Zr
System"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy,
Tsvetnaya Metallurgiya, No 6, 1973, pp 106-110

Abstract: A study was made of the properties of alloys of the
Cu - Cr - Zr system with different correlation of alloying com-
ponents at their total content of 0.4 mass%. Test results on
wire (1.5 mm in diam.) and thin-plate (0.15 mm thick) specimens
are discussed by reference to diagrams showing the change of
mechanical properties after different treatments, the annealing
effect at different temperatures, and the testing temperature
effect on strength and plasticity. Anomalous property changes
at Cr and Zr concentrations corresponding to the formation of
ZrCr₂ were not observed. The highest strengthening after strain-

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USSR

REVINA, N. I., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 6, 1973, pp 106-110

-hardening and aging was attained in Cu - Cr alloys with up to 0.1 wt% Zr. The ultimate strength of Cu alloy with 0.33 % Cr and 0.07 % Zr, after strain-hardening and aging, was 60 kg/mm² at not less than 90 % of Cu electroconductivity. The plasticity of ternary alloys remained high in the whole temperature interval of tests. Four figures, one table, six bibliographic references.

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USSR

UDC[537.226+537.311.33]:[537+535]

YERASOVA, N. A., KAYDANOV, V. I., NOVICHKOV, A. I., and KURONSKIY, A. B.

"Apparatus for High-Speed Measurement of Thermoelectric Parameters of Semiconductor Materials in 150-500° K Temperature Range"

Tr. Leningr. politekhn. in-t (Works of Leningrad Polytechnic Institute), 1971, No 325, pp 10-16 (from RZh-Fizika, No 1, Jan 72, Abstract No 1.YE1469 by authors)

Translation: The apparatus is intended for simultaneous determination of specific electrical and thermal conductivity and the coefficient of thermoelectromotive force in a wide temperature range. Changes have been made in the construction of the device, as compared with the " λ " calorimeter, which permit reduction to the minimum of the influence of parasitic heat exchange and contact thermal resistances. An evaluation of the errors shows that in the determination of the thermoelectric coefficient of the materials studied the error connected with the accuracy of the measurements, thermocouple calibration, and geometry of the samples does not exceed 4-5%.

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- 40 -

USSR

UDC 621.317.799:537.311.3

YERASOVA, N.A., KAYDANOV, V.I., NOVICHKOV, A.I., NURCHIKOV, A.B.

"Equipment For High-Speed Measurement Of the Thermoelectric Parameters Of Semiconductor Materials In The Temperature Range 150-500° K"

Tr. Leningr. politekh. in-t (Works Of The Leningrad Polytechnical Institute), 1971, No 325, pp 10-16 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2B77)

Translation: The equipment, in which a normal regime of the second kind is used, is intended for simultaneous determination of the thermal conductivity, the specific electrical conductance, and the coefficient of thermo-emf over a wide range of temperature. The error in determining the thermoelectric coefficient does not exceed 4-5 percent. 2 ill. 4 ref. Summary.

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UNCLASSIFIED PROCESSING DATE 23 OCT 70
 /2 009
 TITLE--WASPIING OF SUSPENSION POLYMERS IN A ROTOR PULSATION APPARATUS -U-
 AUTHOR--(05)-MAYOROV, B.A., GARBUZOVA, G.L., SVICHAR, L.I., DERKO, P.P.,
 NOVICHKOV, A.N.
 COUNTRY OF INFO--USSR
 SOURCE--PLAST. MASSY 1970, (3), 59-60
 DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
 TOPIC TAGS--POLYVINYL ACETAL RESIN, CELLULOSE RESIN, CHEMICAL SUSPENSION,
 MANUFACTURING METHOD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1997/0579

STEP NO--UR/0191/70/000/003/0059/0060

IRC ACCESSION NO--AP0119497
 UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--Z3OCT70

IRC ACCESSION NO--AP0119497

BSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE WASHING PROCESS OF POLY(VINYL BUTYRAL) AND ET CELLULOSE IN A ROTOR PULSATION APP. WAS STUDIED ANAL. TO DET. THE OPTIMUM NO. OF WASHING CYLCES UNDER MANUFG. CONDITIONS. THE WASHING WAS EFFICIENT, REQUIRED LESSER AMTS. OF WASHING AGENTS, AND COULD BE USED AS A CONTINUOUS PROCESS.

UNCLASSIFIED

USSR

UDC 533.915

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NOVICHKOV, D. N. and GLEBOV, V. V.

"Experimental Investigation of Nonstationary Processes in an Unbalanced Plasma of Mixed Cesium and Argon"

Moscow, Teplofizika Vysokikh Temperatur, Vol 8, No 4, 1970, pp 695-706

Abstract: The authors present a system of equations describing the behavior of a plasma, and they state that although an analytical solution cannot be directly obtained, a type of solution is available if certain assumptions are made. Most researchers have made the assumption that in this system of equations the time derivatives for practically all the states can be neglected, since the concentration in those states varies in only a quasi-stationary way. The path taken by the remainder of this type of solution depends on the atomic model the theorizer adopts. The authors examine a number of these models and describe experiments they have performed to aid in determining the proper choice of model. The specific aim of the experiments is to determine the mechanism of ionization development. A stationary discharge in the argon and cesium mixture is used as the preliminary ionization source. Further details of the experimental equipment and procedure are given. Gratitude is expressed to K. N. Ul'yanov.
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AA0047094

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

241555 ELECTRICAL CONDUCTIVITY OF GAS in magneto-
 hydrodynamic generators is increased. Gas
 heated to 1000°K is admitted to an ionisation cham-
 ber where voltage signals are applied to the ion-
 ised particles to accelerate the electrons which
 result in further ionisation. The voltage is rem-
 oved when n_e reaches $10^{12} - 10^{13} / \text{cm}^3$. This is
 achieved by $10^{-7} - 10^{-8}$ sec. long pulses. A pinch
 developed then passes through a magnetic field by
 which an emf that is proportional to the magnetic
 field and speed of gas is induced in the plasma.
 The interval between ionising pulses is determined
 by the development time to pinch. 15.7.64. as
 912030/26-25. V.L.GRANOVSKIĬ, D.N.NOVIKHOV.
Lenin Electrotechnical Institute (28.8.69.)
 Bul.14/18.4.69. Class 21g. Int.Cl. H05h.

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Vsesoyuznyy Ordena Lenina Elektrotekhnicheskii Institut
im. V. I. Lenina

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USSR

UDC 669.15.018.44

NOVICHKOV, P. V., POSTNIKOV, V. S., and RYASKOV, S. A.

"A Study of Ways of Increasing the Low-Temperature Relaxation Stability of Steels of the Austenitic Class"

V sb. Strukturn. i razmern. stabiliz. met. i detaley mashin (Structural and Dimensional Stabilization of Metals and Machine Parts -- Collection of Works), Moscow, 1970, pp 82-91 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3I616 by V. Olenicheva)

Translation: A study was made of the relaxation stability and low-temperature creep of Kh12N2T2 (EP452) and Kh12N22T3MR (EI696M) austenitic steels with intermetallide strengthening which were subjected to thermomechanical treatment (TMT), as well as austenitic steel with carbide strengthening Kh18N10T after deformation and aging. The elastic aftereffect method was used to obtain numerical criteria characterizing relaxation stability. The optimum relaxation stability was shown by the following treatment regimes: for steel EP452 -- two-time TMT (hardening +1.5% deformation X 10 hr X 650° + 1.5% deformation X 10 hr X 650°; for steel EI696 M -- three-time TMT (hardening +1.5% deformation X 10 hr X 650° +1.5% deformation X 10 hr X 650° +1.0% deformation X 10 hr X 650°); for steel Kh18N10T -- strain aging (hardening + 51% deformation +600° X 1 hr). Four illustrations. Bibliography with 26 titles. Five tables.
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