"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

USSR

UDC 615.281.875:615.385.3.011.17

PIGAREVSKIY, V. YE., SOROKIN, A. V., YEFREMOV, O. M., MOSHKIN, S. A., and TOLYBEKOV, A. S., Institute of Experimental Medicine, Academy of Medical Sciences USSR, Leningrad

"Antiinfluenza Antitoxic Activity of Leucocytic Pyrogen"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 72, pp 439-444

Abstract: The prophylactic effect of pyrogen obtained from rabbit leucocytes in peritoneal exudate was studied by injecting pyrogen intravenously into rabbits subsequently infected with A0/32 influenza virus. When injected 24 hours prior to viral infection, pyrogen prevented death and the tissue and vascular destruction typical of influenza intoxication. (The pyrogen also altered the body temperature pattern in response to influenza virus infection, causing disappearance of an early hypothermic phase, and development of a rapid temperature reaction.) A similar reaction was observed with injection of Newcastle disease virus prior to infection. This virus induced formation of interferon and pyrogens in rabbits. Though the mechanisms by which pyrogen increases resistance to virus in toxication are unknown and require further study, there is now an obvious connection between leucocyte products, including pyrogen, released during intoxication or infection and the increase in body resistance to virus toxin. The possibility of employing leucocytic pyrogen as a prophylactic or therapeutic agent against influenza must be studied.

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UDC: 616.24-002-022.6-02:616.988.73-092.9792

TOLYBEKOV, A. S., MARGOLINA, F. A., and VISHNYAKOVA, L. A., Laboratory of Pyrogens and Nonspecific Resistance, Division of General Pathology, Laboratory of Infectious Pathology, Division of Pathological Anatomy, Institute of Experimental Medicine, Academy of Medical Sciences USSR, and Division of Especially Dangerous Infections, Leningrad Institute imeni Pasteur

"Morphogenesis of Experimental Ornithosis Pneumonia"

Moscow, Arkhiv Patologii, Vol 32, No 11, 1970, pp 26-29

Abstract: Within 24 hours of intranasal infection of mice with the agent of ornithosis, the virus was found in the alveolar phagocytes, where it multiplied to form microcolonies of elementary particles. The virus was also found in the epithelial cells of the bronchi. The virus-containing cells at first showed no signs of degeneration, and there was no reaction in the adjacent cells. The polymorphonuclear leukocytes reacted only after the virus-filled macrophages were destroyed. They engulfed the viral particles released from the macrophages and then died themselves. The repeated cycles of viral growth in the macrophages and phagocytosis by the polynuclear leukocytes accounts for the protracted course of ornithosis pneumonia.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

USSR

UDC 621.317.74;:621.317.742

KULESHOV, E. M., LITVINOV, D. D., TOMACHEV, N. I., YANOVSKIY, M. S.

"Direct Reading Meter for the Standing Wave Coefficient in the Millimeter Range"

Radiotekhnika, Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1969, vyp. 11, pp 83-88 (from RZh-Radiotekhnika, No 1, Jan 70, Abstract No 1A318, Resume)

Translation: This article contains a description of a new direct reading meter for the standing wave coefficient in the millimeter range using an original version of the comparison method. The instrument errors and results of testing it are analyzed. The error in measuring the standing wave coefficient does not exceed 6-8 percent in the entire millimeter range. Means of decreasing the measurement errors are pointed out. There are two illustrations and two entries in the bibliography.

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USSR

UDC 539.385

SHABALIN, V. I., ABABKOV, G. V., YEVSEYEV, V. V., and TOMANOVA, R. A.

"Investigation of the Laws Governing the Fatigue Failure of Aviation Alloys"

Sb. Nauch. Tr. Kiyev. In-t Inzh. Grazhd. Aviatsii (Collection of Works of the Kiev Institute of Civil Aviation Engineers), No 4, 1971, pp 57-61 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2V1360 by L. M. Shkol'nik)

Translation: A study was made of the influence of the width and length of the working part of a sample upon the rate of growth of fatigue cracks, as well as of scattering of the test results with respect to the moment of appearance of the first macroscopic cracks and the moment of total failure of the sample. The tests were conducted on flat samples of aluminum alloys D16T and V95 with a central aperture, for repeated cyclical elongation with a frequency of 435 cycles per minute. It was established that the length of the samples does not affect their longevity and rate of crack growth. With a width increase of the samples and a length increase of the crack, the growth rate of the cracks increases. Increasing the width of the samples also brings about a decrease of the fatigue-failure stage and of the relative crack length at the moment of failure. With an increase of sample width, the coefficient of stress concentration at the end of a fatigue crack increases. The greatest scattering is

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

UNCLASSIFIED

TITLE--LATTICE DYNAMICS AND FOURIER COMPONENTS OF THE INERTIA FREE DIELECTRIC CONSTANT OF A SODIUM IODIDE CRYSTAL -U-

PROCESSING DATE--18SEP70

AUTHOR-(02)-KUCKER, T.I., TOMASEVICH, O.F.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(2) 553-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--SODIUM COMPOUND, IODIDE, FOURIER ANALYSIS, CRYSTAL LATTICS, DIELECTRIC CONSTANT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0141

STEP NO--UR/0181/70/012/002/0553/0556

CIRC ACCESSION NO--AP0054937

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

UNCLASSIFIED

CIRC ACCESSION NO--AP0054937 PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FREQUENCY AND AMPLITUDE OF THE NORMAL LATTICE VIBRATIONS OF NACl WERE CALCD. BY USING THE POLARIZING ION APPROXN. TAKING INTO ACCOUNT THE 2ND NEIGHBOR INTERACTION. DISPERSION CURVES IN SYM. K LEADS TO SPACE DIRECTIONS, THE DEBYE TEMP., AND THE FOURIER COMPONENTS EPSILON(K) LEADS TO OF THE INERTIA FREE DIELEC. CONST. ARE GIVEN. CALCD. AND EXPTL. RESULTS ARE IN AGREEMENT.

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USSR

UDC 621.382.5

SEMENYUK, V. A., TOMASHEVICH, N. M., SHALENYY, E. G.

"Use of Semiconductor Materials in Thermopiles With New System of Commutation"

V sb. Nizkotemperaturn. termoelektrich. materialy (Low-Temperature Thermoelectric Materials--Collection of Works), Kishinev, 1970, pp 168-172 (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5B188)

Translation: Problems connected with reduction of the cost of producing semiconductor thermopiles are considered. An equation is found for the minimum height of the thermoelement, taking account of the waste of semiconductor materials during cutting and polishing. A new method is proposed for commutation of the thermopile without soldering, by means of a clip with a preliminary galvanic covering of the surfaces being joined. 1 ill. 3 ref. Author's Abstract.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

UNCLASSIFIED

...IMIZATION OF DESIGN OF THERMOELECTRIC COOLING BATTERIES -U-

PROCESSING DATE--11SEP70

AUTHOR--MARTYNOVSKIY, V.S., SEMENYUK, V.A., TOMASHEVICH, M.N.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, KHOLODIL'NAYA TEKHNIKA, NO 2, 1970, PP 31-35

DATE PUBLISHED--------70

SUBJECT AREAS--ENERGY CONVERSION (NON-PROPULSIVE), PHYSICS

TOPIC TAGS--THERMOELECTRIC COOLING, THERMO BATTERY, HEAT TRANSFER THEORY, CONVECTIVE HEAT TRANSFER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1408

STEP NO--UR/0066/70/000/002/0031/0035

CIRC ACCESSION NO--AP0104722

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

CIRC ACCESSION NO--AP0104722 UNCLASSIFIED PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS SHOWN THAT ONE OF THE POSSIBILITIES FOR INTENSIFICATION OF HEAT EXCHANGE IS A DISPERSAL OF THERMOELEMENTS WHICH CONSIDERABLY INCREASES THE AREA OF THE RIBBING BASE AND DECREASES HARMFUL TEMPERATURE DROPS BETWEEN JUNCTIONS AND MEDIA. DESIGN RATIOS ARE GIVEN FOR DENSITIES OF HEAT CURRENTS ON JUNCTIONS OF THERMOBATTERIES. SINCE THE OPTIMUM DEGREE OF DISPERSAL OF THERMOELEMENTS CANNOT BE DETERMINED THEORECTICALLY IN A GENERAL FORM, A METHOD OF EXPERIMENTAL DETERMINATION OF THE OPTIMUM DENSITY OF PACKING FOR THE CASE OF NATURAL CONVECTION WAS USED. AN OPTIMUM DESIGN OF THE MODULE FOR A REFRIGERATOR WITH CONVECTIVE COOLING OF HOT JUNCTIONS WAS FOUND. ONE TABLE. THREE ILLUSTRATIONS. SEVEN REFERENCES.

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Acc. Nr.: AP0045878

Ref. Code: UR0387

JPRS 52052

Rock Density at High Pressures

(Abstract: "Study of Density of Rocks from Central Kazakhstan Under High Pressures," by M. P. Volarovich, A. K. Kurskeyev, A. I. Levykin, I. S. Tomashevskaya, I. L. Tuzova and B. M. Urazayev, Institute of Physics of the Earth, Academy of Sciences USSR, and Institute of Geological Sciences, Academy of Sciences Kazakh SSR; Moscow, Izvestiya Akademii Nauk SSR, Fizika Zemli, No. 1, 1970, pp. 46-51)

The density of rocks of various composition from Central Kazakhstan was determined at high pressures in the laboratory. Rock tests were at quasihydrostatic pressures up to 15 kb. The apparatus used made it possible to measure the velocities of elastic waves. The sample was compressed by hard-alloy pistons. Change in volume (from displacement of the piston) was determined simultaneously with measurements of the velocity of longitudinal waves. Change in density at different pressures was computed using the formula

$$\rho = \frac{\rho_0}{1 - \Delta V/V},$$

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where ρ_0 is the initial density of the sample in g/cm^3, $\Delta V/V$ is the volume decrement. Change in density was determined with an error of about 5 percent. Samples were selected along two deep seismic sounding profiles. Under the applied pressure density of all rocks increased. Density changes were greatest in the initial phase to 4 kb. Later the changes became less and the density-pressure curves flattened out. The greatest density changes were observed in samples of ancient metamorphosed rocks: schists, gneisses and porphyroids of more acidic composition for which the density changes at 15 kb attain 3.5 percent. The density of granites also changes rather sharply and increases continue to 15 kb. Relative density changes are dependent on initial density: the lesser the density at atmospheric pressure, the greater is the change when pressure is applied. The maximum changes in density for rocks of acidic composition are evidently caused by their greater inhomogeneity than for rocks of basic composition. Acidic rocks are also poorly preserved. Defects in the rock, largely microfissures, close under pressure and density at the attained pressures approaches an identical value for rocks of similar composition. For rocks of basic and ultrabasic composition the density change at pressures up to 15 kb does not exceed 2 percent, that is, the compressibility of rocks of acidic composition is greater than for basic

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rocks by approximately a factor of 1.5. Density is dependent primarily on chemical and mineralogical composition. Differentiation of rocks by density corresponds to their basicity. The density of sandstones at high pressures approaches the density of granodiorites. Tuff-diorites approach the density of diorites. The density of eclogites from northern Kazakhstan is less than the density of eclogites from other regions. The low density of eclogites in northern Kazakhstan can be attributed to the fact that they contain quartz (up to 15-20 percent). The results of studies of rock densities at high pressures can be used in the geological interpretation of geophysical data. The authors used such data in constructing a density cross section of the crust in central Kazakhstan.

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USSR

VOLAROVICH, M. P., TOMASHEVSKAYA, I. S.

UDC: 622.001.43

"On the Velocities of Elastic Waves When Rock Specimens are Dedormed and Destroyed by Uniaxial Compression at Hydrostatic Pressures of up to $10,000 \cdot 10^5$ N/m^2"

V sb. Probl. reologii gorn. porod (Problems of the Rheology of Rocks--collection of works), Kiev, "Nauk. dumka", 1970, pp 38-41 (from RZh-Mekhanika, No 9, Sep 70, Abstract No 9V680)

Translation: The paper describes a high-pressure installation in which tests may be conducted on compression and on measuring the velocities of ultrasonic longitudinal waves along and across the application of a uniaxial load, as well as determining the axial force and longitudinal deformation of a specimen in the course of an experiment using resistance strain gauges. Bibliography of six titles. Authors' abstract.

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USSR

UDC 612.1-06:612.865/.867

NAVAKATIKYAN, A. O., KUNDIYEV, Yu. I., LYSINA, G. G., TOMASHEVSKAYA, L. I., DERKACH, V. S., KAPSHUK, A. P., KOVALEVA, A. I., STANISLAVSKAYA, TS. D., OSINSKAYA, L. S., and PARLYUK, A. F., Kiev Institute of Industrial Hygiene and Occupational Diseases

(6)

"Effect of Mental Work Accompanied by Nervous and Emotional Stress of Varying Degrees on the Cardiovascular System"

Moscow, Kardiologiya, No 3, 1973, pp 50-56

Abstract: In addition to making a statistical analysis of 1,585 cases of myocardial infarction among Kiev workers, the authors ran physiological studies on engineers, typesetters, mathematicians, and neurosurgeons. They found that the effects of mental work on the cardiovascular system vary with the degree of nervous tension and some other factors. The manifestations range from incipient functional disturbances of regulation to severe pathology. Moderate tension elevates blood pressure, the increase in systolic and diastolic pressures being related. Great tension, however, tends to disrupt the relationship probably because the centers regulating vascular tonus become uncoordinated. Intense nervous and emotional strain increases the heart beat as well as the "slow" waves among the periodic constituents of the correlation function of

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USSR

NAVAKATIKYAN, A. O., et al., Kardiologiya, No 3, 1973, pp 50-56

(6)

the cardiac rhythm, an indication of an intensification of central neuroendocrine influences on cardiac activity. As the tempo of work and degree of emotional stress increase, the amount of catecholamines and 17-hydroxycorticoids excreted with urine also gradually increases. Thus, tense mental work markedly affects the cardiovascular system. The resulting changes correlate with the functions of the sympathico-adrenalin system and adrenal cortex.

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USSR

UDC 616.153.96/616.1:612.825.8:616.8-008.615

TOMASHEVSKAYA, L. I., Kiev Scientific Research Institute of Labor Hygiene and Occupational Diseases, Kiev

"Catecholamines and Their Relationship to Cardiovascular Shifts in Mental Work Involving Different Degrees of Nervous and Emotional Tension"

Kiev, Vrachebnoye Delo, No 8, Aug 72, pp 135-138

Abstract: The degree of secretion of catecholamines in relation to cardiovascular shifts in various types of mental work differing with respect to nervous and emotional strain was studied on engineers, type setters, and neurosurgeons. Under high emotional strain (e.g., that to which neurosurgeons are subjected), the rate of excretion of adrenaline and noradrenaline, particularly that of noradrenaline, increased significantly. Activation of the sympathic-adrenal system, accompanied by an increased formation of catecholamines, may have a harmful effect on cardiac activity, increasing the requirement of coronary vessels for oxygen and producing hypoxia. A high incidence of hypertension, coronary atherosclerosis, and myocardial infarction in persons whose mental work involves a high degree of emotional strain (e.g., leading engineers of industrial enterprises) has been established. Observation by cardiologists of the state of the cardiovascular system in mental workers whose activity involves a great amount of neuro-emotional strain is advisable.

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UDC 613.6:612.766.1

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NAVAKATIKYAN, A. O., KUNDIYEV, Yu. I., AKHRIMENKO, A. P., MAKSIMOVA, O. F., VASILENKO, Yu. I., SAVENKO, N. P., BUZUNOV, V. A., TOMASHEVSKAYA, L. I., and DERKACH, V. S., Institute of Industrial Hygiene and Occupational Diseases, Kiev

"Principles for Quantitative Evaluation of the Difficulty and Strenuousness of Work on the Basis of Physiological Data"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, 1971, pp 3-9

Abstract: A four-level classification of jobs by difficulty and stress is proposed on the basis of research conducted by the Institute and the literature data. The criteria used to measure the amount of effort involved as well as the changes therein during the course of the workday include energy consumption (ranging from under 150 kcal/hour for class 1 work, e.g., computer programming, to 351 kcal/hour or more for class 4 work, e.g., steel casting), muscular, cardiovascular, central nervous, and endocrine functions. A table lists average values of several physiological functions in different kinds of work while another evaluates the difficulty and strenuousness of different kinds of jobs (e.g., operation of office machines is classified as class 1 in difficulty and class 2 in strenuousness, lathework 2 and 2, steel casting 4

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AVAKATIKYAN, A. O., et al., Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, 1971, pp 3-9

and 3). The article also discusses some of the theoretical and practical problems in establishing adequate criteria and in applying them to specific jobs, work conditions, and various groups of people (e.g., adolescents, females, elderly workers).

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USSR

DRACHEV, G. G., MATVEYEVA, M. I., and TOMASHEVSKIY, E. F.

UDC 621.355.8

"Cobalt as a Trace Element in the Anode Part of Alkali Batteries"

Sb. rabot po khim. istachnikam 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 118-123 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L240 by V. S. Levinson)

Translation: The influence was determined of traces of cobalt in the form of a metallic powder and as different compounds in the positive working terminal on the capacity of alkaline batteries of the type TZHNK-300. The greatest effect was shown by the compound $CoSO_4$ in the form of a saturated solution, approximately 3%. Under these conditions, the capacity of the batteries increased approximately 20% with a concommitant improvement in its power at higher temperatures (40°C) for conditions of a small reduction in the discharge current. The actual specific energy of batteries having cobalt additions with unlaminated negative and laminated positive electrodes was 73.5 watt hours/l and 34 watt hours/kg. Such batteries are recommended for application for loading machines.

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TOMASHEVSKIY, L. M.

SO: JPRS 53402
18 JUN 71

UDC: 362.147:616-036.8

METHODS OF EVALUATING THE EFFECTIVENESS OF DISPENSARY CARE

[Article* by L. M. Tomashevskiy, First Polyclinic, Bel'tsy Republic Hospital (Chief Physician: V. A. Popa), Bel'tsy, Moldavian SSR; Moscow, Sovetskoye Zdravookhranenive, Russian, No 5, 1971, submitted 1 December 1970, pp 44-45]

We concur with the author of the article in question with regard to the need for unification of the system of keeping records of and evaluating the indices of effectiveness of dispensary services. They should be developed with consideration of data already published in the press as well as of the experience of different medical institutions.

The three groups of indices submitted in the article do, in essence, correctly reflect the work of a dispensary. They are used by many medical institutions. The first group of indices, volume of work (extent of dispensary care) should be enlarged, and it should be called "volume and quality of dispensary care." In addition to data about general patient coverage by dispensary care, a number of other indices should be included. They can be obtained from the information contained in the new form, No 271 (summary list of diseases subject to dispensary care) approved on 25 December 1969. Such indices include: coverage of patients subject to dispensary care by such care as well as of patients on whom a diagnosis was made for the first time in their life. It is important to take into consideration prompt detection of patients subject to dispensary care.

The article lists the third group of indices: "effectiveness of dispensary work." They are well formulated. The index in this group, entitled "dispensary patients with temporary disability" is used in reporting form No 3-1 (development of morbidity involving temporary disability). It is determined by the number of forms submitted by employed patients unable to work. In our opinion, this index should be replaced by another, and it should be called "cases of exacerbation (recurrence) of illness." It

*Published for the purpose of discussion.

**(With Reference to the Article by Ya. I. Dreyerman) Sovetskoye Zdravookhranenive, No 9, 1970, pp 22-25

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

USSR

UDC 616.282.7-073

LIMAR, B. YA., Candidate of Medical Sciences, and TOMASHEVSKIY, P. S., Engineer of the Sourdo-Acoustic Laboratory of the Kiev Scientific Research Institute of Otolarynology

"Diagnostic Significance of the Sensation of Frequency Changes in the Modulation of Sound Intensity"

Kiev, Zhurnal Ushnykh, Nosovykh, i Gorlovykh Bolezney, No 5, Sep/Oct 71, pp 30-38

Abstract: Thresholds of differentiation of sound itensity modulation frequencies were studied in five persons with normal hearing and 39 persons with functional auditory disorders. Tests were made with threshold tonal audiometry, speech audiometry, and noise audiometry. Apparently, a lowering of the threshold of differentiation of sound intensity with impaired reception, regardless of modulation frequency, under certain conditions raises the apperception of speech as a result of physiological recruitment. With progressive auditory impairment, however, such recruitment disappears and apperception deteriorates. Comparison of thresholds of differentiation of sound intensity at different modulation frequencies was found to be of diagnostic significance, helping to determine the cause of disruption of speech apperception in certain forms of cochlear neurites.

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LEYKIN, A. Ya., ROVINSKIY, V. Z., TOMASHKO, I. V., FERTIK, N. S.

UDC: 529.78

"Use of Passive Rubidium Frequency Measures as Storage Devices in the Time and Frequency Service Operated by the Khar'kov State Institute of Measures and Measuring Instruments"

Tr. Metrol. In-tov SSSR. Khar'kov. NII Metrol. [Works of Metrological Institutes of the USSR. Khar'kov. Scientific Research Institute for Metrology], 1972, No 7, pp 360-374 (Translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 4, 1973, Abstract No 4.32.538, from the Resume).

Translation: The primary characteristics of passive rubidium frequency measures which have been developed and the first results of their use as storage devices in the time and frequency service by the Khar'kov State Institute of Measures and Measuring Instruments are reported. The long-term frequency instability of the rubidium storage devices is $(1.5\text{-}2)\cdot 10^{-11}$. The mean square relative random frequency deviation from its mean value with a time interval measurement of one day. No systematic drift of the devices exceeding the measurement of error was discovered over the measurement time (two months). The short-term frequency instability of the devices is

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

LEYKIN, A. Ya., et al., Tr. Metrol. In-tov SSSR. NII Metrol., 1972, No 7, pp 360-374

$1.5 \cdot 10^{-10}$	with a time measurement interval of	0.1	sec
$5 \cdot 10^{-11}$	"	"	1 sec
$1.5 \cdot 10^{-11}$	"	"	10 sec
$3 \cdot 10^{-12}$	"	"	100 sec
$2.5 \cdot 10^{-12}$	"	"	1 hr

The values of relative mean square random frequency variation are presented. 3 figures, 2 biblio. refs.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

USSR

TOMASHOV, N. D., ANOSHKIN, N. F., MOROZNIKOVA, S. V., OGINSKAYA, YE. I., RUSKOL, YU. S., and CHERNOVA, G. P., Institute of Physical Chemistry, Academy of Sciences USSR

UDC 620.193.1:669.295

"Investigation of the Effect of Palladium on the Engineering, Mechanical and Corrosion Properties of Titanium Alloys OT4 and VT14"

Moscow, Zashchita Metallov, Vol 9, No 6, 1973, pp 672-675

Abstract: The possibility of increasing the corrosion resistance of titanium alloys OT4 and VT14 by means of alloying with 0.2% Pd was studied. The alloys were produced in a vacuum-arc furnace with the palladium added in the form of powder. Structure of OT4 and OT4+0.2% Pd was the alpha-solid solution, and VT14 and VT14+0.2% Pd--fine grains of the alpha- and alpha"-phases inside a beta-matrix. Strength properties of the titanium alloys were improved somewhat with the addition of palladium while ductility was lowered. The add tion of 2.0% Pd significantly lowered the oxidation tendency of the alloys at 600 and 800°C, and especially at 1000°C. 3 figures, 4 tables, 6 bibliographic references.

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USSR

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TOMASHOV, N. D., RUSKOL, YU. S., AYUYAN, G. A., IVANOV, YU. M., PLAVNIK, G. M., and NAZAROVA, R. I., Academy of Sciences USSR, Institute of Physical Chemistry

"The Effect of Alloying Elements on the Corrosion Behavior of Titanium"

Moscow, Zashchita Metallov, Vol 9, No 1, Jan-Feb 73, pp 10-15

Abstract: The method of potentiostatic polarization curves, corrosion tests, and electron diffraction investigations were applied to investigate the corrosion and electrochemical properties of alloys based on titanium iodide with small additions of chromium, molybdenum, niobium, aluminum, manganese, and tin in a 40% H_2SO_4 solution at 80° under natural aeration, conditions. The structure of the anodic oxide films developing on these alloys was analyzed. The passivation and full passivation potentials were found to be practically independent of the nature and concentration of the alloying addition, whereas the critical passivation currents and the currents in the passive zone varied significantly. Aluminum inpairs the corrosion properties of titanium both in the active and passive states. Manganese and chromium increase the rate of corrosion in the active state and decrease it in the passive state. Niobium, on the other hand, reduces titanium corrosion rate in the active state and increases it in the passive state. One figure, three tables, thirteen bibliographic references.

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TOMASHOV, N. D., MATVEYEVA, T. V. and IVANOV, YU. M., Institute of Physical Chemistry, Academy of Sciences USSR

"Effect of Ruthenium on the Corrosion Behavior of Titanium"

Moscow, Zashchita metallov, Vol 8, No 2, Mar-Apr 72, pp 174-177

Abstract: This paper deals with the effect of ruthenium on the passivation and corrosion resistance of titanium as compared to the passivation effectiveness of palladium. The marked difference between the corrosion behavior of Ti alloys with Ru and Pd is explained by the difference of hydrogenation and cathodic polarization. Added in small amounts to Ti, Ru hydrogenates to a lesser degree than Pd and is therefore a more effective cathode capable of converting Ti to the passive state. It is essential that unlike Pd, even minimal Ru additions (0.01 - 0.05%), while insufficient to

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TOMASHOV, N. D., et al, Zashchita metallov, Vol 8, No 2, Mar-Apr 72 pp 174-177

provide complete passivation of the alloy, will not increase its corrosion rate as compared to pure Ti. At higher contents (above 0.1%) the difference in the cathodic effects of Ru and Pd levels off. It appears that Ti alloys inoculated with very small amounts of Ru (0.05 - 0.1%) may be of practical interest under certain corrosion conditions (4 illustr., 12 biblio. ref)

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TOMASHOV, N. D., CHUKALOVSKAYA, T. V., CHERNOVA, G. P., BUDBERG, P. B., and GAVZE, A. L., Institute of Physical Chemistry, Academy of Sciences USSR

UDC 620.193.013:669.295

"Study of the Corrosion Resistance of Alloys of the Titanium-Tantalum--Niobium System"

Moscow, Zashchita metallov, Vol 8, No 1, Jan-Feb 72, pp 3-7

Abstract: Tantalum effectively raises the corrosion resistance of titanium-base alloys; its use, however, is limited due to cost factors and scarcity. The study of the ternary Ti-Ta-Nb system is essential for determining the feasibility of partial replacement of tantalum with the more readily available niobium. The corrosion and electrochemical behavior of the alloys was studied as annealed and quenched in a 5% HCl solution at 100°C. Analysis of the phase transformation and microstructure of the alloy indicates an isothermal section at 600°C which is characterized by a narrow region of α-solid solution, a wide two-phase (α+β) region, and a wide region of α-solid solution. At about the same average compositions, Ti-Ta-Nb alloys with single-phase structures exhibit corrosion resistance values which are one or two orders of magnitude higher than those shown by two-phase alloys. The higher resistance is characteristic of annealed Ti-Ta-Nb alloys with

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TOMASHOV, N. D., et al., Zashchita metallov, Vol 8, No 1, Jan-Feb 72, pp 3-7

a more stable β-phase. Alloying of Ti with Nb and, specifically, with Ta results in a considerable increase in corrosion resistance, the total content of alloying elements, ranging from 20-40% for annealed and 10% for quenched alloys. The study demonstrates the feasibility of replacing tantalum with niobium without reducing markedly the corrosion resistance of the above alloys. (3 illustrations, 1 table, 9 bibliographic references).

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UZBEKOV, A. A., RISKIN, I. V., LADOZHINA, Z. I. and TOMASHOV, N. D.

"Study on the Corrosion of Titanium Alloyed With 0.2% Palladium in Hydrochloric Acid Using the Radioactive Tracer Method"

Moscow, Zashchita metallov, Vol 8, No 1, Jan-Feb 72, pp 8-14

Abstract: The study of palladium dissolution rate at various stages of corrosion conducted on a titanium alloy with 0.2% palladium in both aerated and deaerated 20% solutions of hydrochloric acid using the radioactive tracer method indicates that the transfer of palladium into the solution takes place at room temperatures. Rotating the specimen increases the transfer rate of palladium into solution and decreases its amount on the surface which is apparently related to the mechanical removal of some of the palladium from the specimen's surface. The study of the kinetics of palladium transfer to both aerated and deaerated solutions indicates that palladium transfer to the aerated solution ceases on passivation while the transfer to a deaerated solution continues for the entire period of active dissolution of the alloy. It is suggested that the ionization of palladium

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UZBEKOV, A. A., et al, Zashchita metallov, Vol 8, No 1, Jan-Feb 72, pp 8-14

from the Ti-0.2% Pd alloy begins only with the loss of contact of the palladium particles (or Ti_2Pd intermetallides) with the surface of the alloy and the subsequent displacement of their potential toward the positive side. A schematic diagram of the experimental equipment is presented. (4 illustrations, 1 table, 14 bibliographic references).

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RISKIN, I. V., LADOZHINA, Z. I. and TOMASHOV, N. D.

"Crevice Corrosion of Titanium and its Alloy with 0.2% Palladium in Hydrochloric Solutions"

Moscow, Zashchita metallov, Vol 8, No 2, Mar-Apr 72, pp 177-181

Abstract: Described are the results of corrosion tests on specimens of VT-1 titanium and Ti alloys with 0.2% palladium under crevice corrosion conditions in both aerated and deaerated hydrochloric solutions using argon. The test results indicate that Ti alloy with 0.2% Pd -- as compared to pure Ti -- not only is capable of maintaining a higher corrosion resistance in the crevice than in the bulk of the solution but will also promote the passivation of pure Ti provided the crevice is formed by the specimen pair Ti-Ti alloy with 0.2% Pd in the state of electric contact. (1 illus. 1 table, 12 biblio. ref.)

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USSR Titanium

UDC 620.193.01

TOMASHOV, N. D., CHERNOVA, G. P., and MANSKIY, YE. G., Institute of Physical Chemistry, Academy of Sciences USSR

"The Electrochemical Behavior of Metal Ceramic Titanium"

Moscow, Zashchita Metallov, Vol 10, No 1, Jan-Feb 74, pp 22-27

Abstract: The electrochemical behavior of specimens of titanium produced by powder metallurgy methods in 20% HCl is studied. The cathodic and anodic behavior of specimens and the change in potential of inner layers upon polarization of the surface are studied. The true surface of the specimens is defined by measurement of the capacitance of the binary layer. Cylindrical specimens 22 mm in diameter and 6 mm high were pressed from electrochemical titanium powder with particle sizes of 100-180 μ with microdendritic structure at pressures of 12-60 t/cm^2 with subsequent sintering in a vacuum at 1100°. It is established that the decrease in active surface is more intensive than the decrease in porosity, apparently related to the decrease in depth of penetration

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TOMASHOV, N. D., et al., Zashchita Metallov, Vol 10, No 1, Jan/Feb 74, pp 22-27

of the electrochemical process for specimens with lower porosity. The primary difference in electrochemical behavior of an electrode of porous titanium from that of compact titanium electrodes is the possiblity of occurrence of the process not only on the surface, but also in the volume of the specimen.

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USSR

Corrosion

UDC:620.193.01

RISKIN, P. V., KOLOSOV, M. G. and TOMASHOV, N. D.

"Corrosion Behavior of Titanium and Its Alloys with Palladium During Heat Transfer in Moving Solutions"

Moscow, Zashchita Metallov, Vol 10, No 1, Jan-Feb 74, pp 28-32

Abstract: The influence of heat transfer and motion of hydrochloric acid on the corrosion behavior of titanium and its alloy with 0.2% Pd is studied using a rotating heat transmitting disc electrode designed by the Ukrainian Scientific Research Institute for Chemistry. The saturation of solutions of hydrochloric acid with air causes an increase in the temperature boundary of corrosion stability of titanium and its alloys with 0.2% palladium. The boundaries of corrosion stability of titanium and its palladium alloy in solutions of hydrochloric acid depend on the wall and medium temperature, the temperature drop and the direction of the heat flux. Upon transition of laminar flow mode around a disc to turbulent flow, the temperature boundaries of corrosion stability in aerated solutions of hydrochloric acid increase.

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Corrosion

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TOMASHOV, N. D., and CHERNOVA, G. P.

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Korroziya i Korrozionnostoykiye Splavy (Corrosion and Corrosion-Resistant Alloys), Moscow, "Metallurgiya," 1973, 232 pp

Translation of Annotation: This book considers the theories of corrosion processes, localized corrosion (such as pitting, intercrystallite corrosion, fractures), and corrosion during the simultaneous action of mechanical loading (corrosion cracking, corrosion fatigue, and cavitation). Scientific principles are given for making metal alloys having high passivity and corrosion resistance. The properties of the major contemporary corrosion-resistant alloys used in construction are described.

This monograph is of interest to both scientific and engineering personnel, and builders dealing with problems of corrosion, anticorrosion protection, and the application of alloys to increase corrosion resistance. 76 Illustrations, 12 Tables, and 138 references.

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TOMASHOV, N. D., RUSKOL, Yu. S., VLASOV, V. I., Institute of Physical Chemistry, Academy of Sciences of the USSR

"Oscillographic Study of the Self-Passivation of Titanium After Surface Dressing in NaCl Solutions"

Moscow, Zashchita Metallov, Vol 9, No 3, May/Jun 73, pp 250-255

Abstract: The authors studied oscillographic curves for the potential drop of a titanium electrode after its surface had been cleaned under a sodium chloride solution. The experiments were done on specimens of iodide titanium (TsMTU 05-18-67, HB 66.5) which was remelted in an arc furnace with consumable electrode in a helium atmosphere, forged and annealed in a vacuum (10^{-4} mm Hg) at 650°C for 40 minutes. Specimens 6 mm in diameter were pressed into Teflon holders so that only one end surface was exposed. Before the experiments, the specimens were cleaned with M-28 abrasive paper, degreased with acetone and rinsed with distilled water. The installation used for cleaning the surface under sodium chloride was described in a previous paper (N. D. Tomashov, R. M. Al'tovskiy, G. P. Chernova, "A Device for Electrochemical Study of Metals During Surface Cleaning Under a Solu-

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TOMASHOV, N. D. et al., Zashchita Metallov, Vol 9, No 3, May/Jun 73, pp 250-253

tion", Moscow, VINITI, theme No 13, No M-58-94/7, 1958). The rate of rotation of the Corundum disc was 1320 rpm (linear velocity of grinding with respect to the center of the specimen 3.11 m/s), and the speed of reciprocating motion of the disc was 2.15 mm/hr (600 nm/s), corundum grain size was 57-76 μm. After 15 minutes of surface dressing, the wheel was removed from the specimen and the change in potential of the specimen with time was measured. For the first five seconds the measurements were made on the S1-19A CRT oscilloscope, after which an N-39 chart-recording millivoltmeter was used in some cases. The LPU-01 pH meter was used as a high-impedance amplifier. Cathode polarization curves were plotted at a rate of 1.2 V/hr using the P-5827 potentiostat in a three-electrode cell. A saturated calomel comparison electrode was used. It was found that the self-passivation of titanium is slowed down considerably in neutral solutions by increasing the concentration of chlorine anions and reducing the concentration of dissolved oxygen. In dilute aerated sodium chloride solutions, titanium is covered to a considerable extent by a chemosorption layer of oxygen even with continuous mechanical surface cleaning under solution.

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TOMASHOV, N. D., CHERNOVA, G. P.

UDC: 669.017:620.193.4(02)

"Corrosion and Corrosion-Resistant Alloys"

Korroziya i Korrozionnostoykiye Splavy. [English version above], Moscow, Metallurgiya Press, 1973, 232 pp (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8I698K, by O. Pimenova).

Translation: This monograph presents the most important statements from the theory of corrosion processes. Particular attention is given to the most dangerous types of corrosion damage (pitting and intercrystalline corrosion) and the influence of mechanical factors on corrosion processes, as well as the basic principles of creation of corrosion-resistant alloys. The principle and possibilities of cathode modification of alloys in order to increase their corrosion resistance are described in detail. A brief review and primary characteristics are presented from the most important modern corrosion-resistant alloys, primarily those based on Fe.

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TOMASHOV, N. D., CHUKALOVSKAYA, T. V., CHERNOVA, G. P., PLAVNIK, G. M., NAZAROVA, M. I., ZAKHAROV, A. P., and SHESHENINA, Z. YE., Academy of Sciences USSR, Institute of Physical Chemistry

UDC 620.193.01

"Structural Study of Surface Layer on Ti-Pd Alloys"

Moscow, Zashchita Metallov, Vol 8, No 3, May-Jun 72, pp 291-294

Abstract: The article describes results of an electron microscopic, electron diffraction, and X-ray study of the surface layer forming on Ti-Pd alloy (Ti-0.2 percent Pd and Ti-1 percent Pd) during corrosion in 40 percent H_2SO_4 and 20 percent HCl at 100°. The electron microscopic study of the surface of Ti-Pd alloys after their corrosion confirms the supposition as to the accumulation of palladium on the surface in the form of very finely dispersed crystalline formations. After treatment of the surface with hot concentrated HNO_3, which dissolves Pd, the electron microphotographs show no particles. In the case of Ti-1 percent Pd palladium mainly forms very fine particles on the surface. The Pd accumulations on Ti-0.2 percent Pd alloy reveal a tendency towards the branched growth of primary crystallization centers.

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TOMASHOV, N. D., et al., Zashchita Metallov, Vol 8, No 3, May-Jun 72, pp 291-294

The results of the electron diffraction study of the surface of Ti-1 percent Pd alloy show that after corrosion in 20 percent HCl at 100° there are strong lines characteristic of Pd and very weak lines characteristic of TiO_2 and TiH_2. After treatment of the alloy in HNO_3 the lines characteristic of Pd disappear, and only TiH_2 and TiO_2 are found on the surface. The relative intensity of the reflections characteristic of Pd increases with an increase in the corrosion time, while it decreases for TiH_2 and TiO_2. After corrosion in 40 percent H_2SO_4 at 100° reflections characteristic of Pd, TiH_2, and TiO_2 are observed. However, the intensity of the Pd-characteristic lines is considerably weaker than after corrosion in 20 percent HCl at 100°, and they are of a diffuse character, while the intensity of the reflections characteristic of TiH_2 and TiO_2 is stronger.

X-ray analysis of the powdered surface layer that forms on Ti-1 percent Pd alloy shows that after corrosion in 20 percent HCl at 100° the alloy

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TOMASHOV, N. D., et al., Zashchita Metallov, Vol 8, No 3, May-Jun 72, pp 291-294

preferentially contains metallic palladium. After corrosion of the alloy in 40 percent H_2SO_4 at 100°, along with the strongest Pd lines, considerably weaker lines characteristic of Ti_2N are observed.

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Corrosion

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TOMASHOV, N. D., CHERNOVA, G. P., KALNINA, G. S., BUDBERG, P. B., and GAVZE, A. L., Institute of Physical Chemistry, Academy of Sciences USSR

"Investigation of the Structure and Corrosion Behavior of Alloys of the System Ti - Ta - Cr "

Moscow, Zashchita Metallov, Vol 7, No. 4, Jul-Aug 71, pp 387 -391

Abstract : The structure and corrosion behavior of alloys of the system Ti - Ta - Cr , containing Cr from 2.5 -20 % and Ta up to 30 %, were investigated, using for the analysis of the phase equilibrium the microstructure, roentgenophase, differential-thermal, and dilatometry methods and characteristic diagrams of the alloys subjected to hot plastic deformations in the temperature interval of 1,000 -600 deg. and subsequent hardening (1,200 -600 deg.). Depending on the temperature of heat treatment, these alloys can

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TOMASHOV, N. D., et al., Zashchita Metallov, Vol 7, No 4, Jul-Aug 71, pp 387-391

have a homogeneous structure of a β-solid solution or a heterogeneous structure $\alpha + \beta + \gamma$. The investigation results are discussed by reference to the shown microstructure and diagrams of polythermal cuts of the alloys by different correlation of their components and effects of the alloying components on the corrosion rate. It was found that the stability region of the β-phase on the state diagram increases and the beginning eutectoid transformation $\beta \rightarrow \alpha + \gamma$ shifts into the region of higher contents of alloying elements and lower temperatures by increasing the relative content of Ta to Cr relations of 1:3 , 1:1 , and 3;1 . The corrosion rate of alloys with homogeneous structure is lower than that of alloys with heterogeneous structure by 2 —10 times and more. The Ti - Ta - Cr alloys with Ta:Cr=3:1 and the Ti - Ta alloys with a Ta-content of 20 % and higher are corrosion-resistant in 5 % HCl at 100 deg. The Cr-alloying of Ti decreases its corrosion properties in the HCl-solution and the corrosion rate increases with increasing Cr-content, particularly for alloys with heterogeneous structure. Four illustr., eight biblio. refs.

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TOMASHOV, N. D., RUSKOL, YU. S., IVANOV, YU. M., and PLAVNIK, G. M.,
Institute of Physical Chemistry, Academy of Sciences USSR

"The Effect of Phase Composition of Ti-15% Mo alloys on Its Corrosion Behavior in the Active State"

Moscow, Zashchita Metallov, Vol 7, No 5, 1971, pp 507-513

Abstract: The corrosion behavior of Ti alloys with 15.1% Mo with a β structure was studied. The alloy was prepared from titanium iodide with the addition of molybdenum, first subjecting it to crucibleless electron-radiation zone smelting. The smelting was carried out in an arc furnace with non-consumed tungsten electrodes in the holes of a water cooled copper tray in an atmosphere of spectrally pure helium. At the same time a control with titanium iodide was run in one of the holes. If the hardness of the titanium as a result of smelting was increased due to gas adsorption much more than 10 units on the Vickers scale, the melt was discarded. The 50 g ingots obtained were forged at 900° into rods and sheets. Finally, after removing the scale and surfaces defects, it was rolled into strips.

Thermal processing of the samples was carried out by heating evacuated and sealed ampules in a muffle furnace for 30 min. at 950°. They were then

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TOMASHOV, D. N., et al., Zashchita Metallov, Vol 7, No 5, 1971, pp 507-513

transferred to a water bath and fast mixing the ampule was broken. The samples prepared in this fashion had a Vickers hardness H_v of 10/30 - 190.

Before the electrochemical studies, the samples were cleaned with sand-paper, degreased with acetone, washed with distilled water, and dried in a dessicator for not more than 1 day over $CaCl_2$. The tests were carried out with natural aeration in 40% sulfuric acid solutions at different temperatures.

Since samples with a β and $\beta + \omega$ structure with a spontaneous natural air oxide film are not activated at temperatures below 85°, and with a $\beta + \alpha$ structure below 70°, a preliminary activation (½ min. in the same acid) of the alloys with a β and $\beta + \omega$ structure at 90° and with a $\beta + \alpha$ structure at 75° was carried out. Without activation the melt remained in the passive state, having a positive stationary potential (e.g., 0.1 v at 80° for alloys β and $\beta + \omega$) and a lower velocity of corrosion ($\sim$0.09 g/m^2 · hr). After activation the alloy was steadily dissolved in an active state with significant velocity.

A significant effect is shown by the phase composition of Ti - 15% Mo alloy on its corrosion in the activated condition. A much higher corrosion resistance is observed with the single phase β alloy, the least with the two phase $\beta + \alpha$ alloy. This was determined by the much higher resistance

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TOMASHOV, N. D., et al., Zashchita Metallov, Vol 7, No 5, 1971, pp 507-513

of the β-phase containing, in comparison to the α and ω phases, a higher Mo content. Thus, for maximum increase in the resistance of titanium alloys, alloys with a β-stabilizer (e.g., Mo, Nb, V) it follows that it is possible to apply a thermal processing which will promote the conservation of a single phase β state.

It was also shown that a significant deterioration in the corrosion properties of Ti-Mo alloy occurred in the presence of the metastable ω-phase. In the diffusion of two phase $\beta + \alpha$ and $\beta + \omega$ alloys in the activated state in the region of a potential of 0.260-0.140 v, a concentrated Mo phase accumulates on the surface.

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Corrosion

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IVANOV, Yu. M., TOMASHOV, N. D.

"Influence of Metallurgical Factors on Corrosion Resistance of Titanium and Titanium Alloy With 0.2% Palladium"

Nauchn. Tr. N-i. i Proyektn. In-t Redkomet. Prom-sti [Scientific Works of Scientific Research and Planning Institute for the Rare Metals Industry], 1971, Vol. 32, pp. 130-144. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I741 by the authors).

Translation: A review of the literature is presented and it is demonstrated that interstitial impurities with contents of up to 0.2-0.3% increase the corrosion resistance of Ti, N increasing the resistance even with higher contents. Additions of Fe and Cu > 0.3% significantly decrease corrosion resistance of Ti. Cold rolling decreases the rate of general and pitting corrosion of Ti, while annealing of deformed sheets causes an increase in the rate of corrosion. Welding of non-annealed sheets causes an increase in the width of corrosion of welded seams. 5 figs; 2 tables; 22 biblio refs.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

USSR UDC 669.295.5'28'234:620.193.41

CHERNOVA, G. P., KOSHECHKIN, K. I., and TOMASHOV, N. D.

"Corrosive and Electrochemical Behavior of Ti-Mo-Pd Alloys in Solutions of Hydrochloric Acid at 100° C"

V sb. Korroziya i zashchita met. (Metal Corrosion and Protection -- Collection of Works), Moscow, "Nauka," 1970, pp 40-43 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 I831 by the authors)

Translation: A study was made of the corrosion resistance of Ti-Mo alloys (5, 10, 27%) and of the same alloys supplementally doped with 0.2 and 0.5% Pd in 3-20% HCl at 100°. Alloys of Ti with 5 and 10% Mo and 0.2% Pd in 3-10% HCl at 100° approach Ti-27% Mo alloys with regard to corrosion resistance. On the addition of Fe^{3+} or Cu^{2+} ions to 20% HCl, Ti-Mo and Ti-Mo-Pd alloys have a corrosion rate > 10 mm/year. This is due to the shift of the corrosion potentials of these alloys in the Mo transpassivation region. One illustration. One table. Bibliography of 10 titles.

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UDC 669.295.5'28'26.018.8:669.234

TOMASHOV, N. D., IGNATOV, N. N., and CHERNOVA, G. P.

"Investigation of the Corrosion Resistance of Ti-Mo-Cr-Pd Alloys"

V sb. Korroziya i zashchita met. (Metal Corrosion and Protection -- Collection of Works), Moscow, "Nauka," 1970, pp 44-49 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 I832 by the authors)

Translation: A study was made of the corrosion resistance of Ti-Mo-Cr alloys (5-30% Mo and 1-10% Cr) and certain ternary alloys supplementarily doped with 0.2 and 0.5% Pd in solutions of H_2SO_4 (5-40%) and HCl (5-25%) at 20, 60, and 100°. Supplementary doping of Ti-Mo alloys with chromium lessens the corrosion rate of the alloys in proportion to the increase of Cr concentration. The doping of Ti-Mo-Cr alloys with palladium raises their corrosion resistance 10-100 times. Two illustrations. Three tables. Bibliography of 11 titles.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

USSR

UDC: 669.018.8

TOMASHOV, N. D., RUSKOL, Yu. S., FILIPPOV, A. F., BELYANCHIKOV, L. N., PLAVNIK, G. M., and FEDOROVA, G. M., Institute of Physical Chemistry, Academy of Sciences USSR

"Corrosion Behavior of Titanium-Molybdenum-Chromium Alloys"

Moscow, Zashchita Metallov, Vol 6, No 5, Sep-Oct 70, pp 499-504

Abstract: This paper deals with the effect of chromium on the corrosion resistance of titanium alloys containing 5 and 10% molybdenum. The electrochemical and corrosion behavior of the alloys was studied by potentiometry, both the current and weight losses being the indicators of the corrosion rate. It has been shown that the β-phase of titanium alloys containing a stable (under the testing conditions) component such as molybdenum, possesses elevated corrosion resistance. In the active dissolution of two-phase α+β--alloys of titanium with molybdenum, predominantly the α-phase goes into solution, while the β-phase remains at the surface in the form of a finely disperse layer. In the active

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USSR

TOMASHOV, N. D., et al, Zashchita Metallov, Vol 6, No 5, Sep-Oct 70, pp 499-504

dissolution in nonoxidizing media, the corrosion rate of Ti-Mo-Cr alloys markedly decreases only on addition of chromium in an amount sufficient for producing single-phase β-alloys (Ti-5Mo-10Cr and Ti-10Mo-10Cr); however, if the alloys have an α+β-structure, then the corrosion rate remains about the same (as compared to Ti-Mo alloys). Chromium addition reduces the tendency of alloys to over-passivation, which is caused by the presence of Mo, and the Ti-5Mo-10Cr alloy exhibits the same low corrosion rate within 0.15 to 1.2 v as titanium or Ti-10Cr alloy. At potentials which are more positive than 1.2 v, the corrosion rate of Ti-Mo-Cr alloys begins to increase owing to the tendency of chromium to over-passivation.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

Corrosion

USSR

UDC 620.197(075.8)

TOMASHOV, N. D., ZHUK, N. P., TITOV, V. A., and VEDENEYEVA, M. A.

"Laboratornyye raboty po korrozii i zashchite metallov" (Laboratory Studies on Corrosion and Protection of Metals), Moscow, Izd-vo "Metallurgiya," 1971, 280 pp

Translation of Annotation: An account is given of 34 laboratory works on the course of corrosion and protection of metals. Each work contains a brief theoretical introduction, a description of equipment and work methods, and a discussion of methods of data processing. The reference data necessary for calculations and a recommended bibliography are presented at the end.

The book is intended for students at schools of higher technical education as a handbook of laboratory studies, and may be used by corrosion laboratory personnel. 72 figures, 50 tables, 10 references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

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TOMASHOV, N. D., et al., "Laboratornyye raboty po korrozii i zashchite metallov" (Laboratory Studies on Corrosion and Protection of Metals), Moscow, Izd-vo "Metallurgiya," 1971, 280 pp

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

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TOMASHOV, N. D., et al., "Laboratornyye raboty po korrozii i zashchite metallov" (Laboratory Studies on Corrosion and Protection of Metals), Moscow, Izd-vo "Metallurgiya," 1971, 280 pp

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TOMASHOV, N. D., et al., "Laboratornyye raboty po korrozii i zashchite metallov" (Laboratory Studies on Corrosion and Protection of Metals), Moscow, Izd-vo "Metallurgiya," 1971, 280 pp

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

USSR UDC: 669.018.8

TOMASHOV, N. D., CHERNOVA, G. P., and VOLKOV, L. N., Institute of Physical Chemistry, Academy of Sciences USSR

"Effect of Palladium on the Corrosion and Electrochemical Behavior of OKh25N6T Steel"

Moscow, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 425-427

Abstract: This study concerns the effect of palladium on the corrosion of OKh25N6T steel in 10 and 20% sulfuric acid at 100°C and free access of air. The study shows that in 20% sulfuric acid at 100°C the corrosion rate of OKh25N6T steel alloyed with palladium is lower by one order of magnitude. However, since the corrosion potentials of steels with palladium fail to attain stable passivity, the steels continue to dissolve at a considerable rate. In 10% sulfuric acid at 100°C, a steel with 0.5 palladium after a period of active dissolution is in a completely passive state and the corrosion rate is four orders of magnitude lower than in passive-active state. The obtained data suggest that the passivation of chromium steels alloyed with nickel (6%) and palladium (0.1--0.5%) occurs in two stages. The first one

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TOMASHOV, N. D., et al, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 425-427

(at a potential of -0.22 v) is controlled by the buildup of nickel on the surface of the alloy, while the second (-0.12 v) -- is controlled by the buildup of palladium. The nickel buildup stage is completed by the partial nickel passivation to its stationary potential (-0.12 v); the palladium buildup stage results in a more thorough passivation to potential of +0.01 v which corresponds to the cathodic process of hydrogen liberation on palladium. Steels with 0.5 palladium affected by oxygen depolarization (with free access of air) may even exhibit a more thorough passivation up to potentials of the order of 0.5 v followed by a steep rise in corrosion resistance.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

UNCLASSIFIED

TITLE--KINETICS OF SOME ELECTRODE PROCESSES ON A CONTINUOUSLY RENEWED SURFACE OF SOLID METAL -U-

PROCESSING DATE--13NOV70

AUTHOR-(02)-TOMASHOV, N.D., VERSHININA, L.P.

COUNTRY OF INFO--USSR

SOURCE--ELECTROCHIM. ACTA 1970, 15(4), 501-17

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--METAL ELECTRODE, METAL DIFFUSION, ELECTROCHEMISTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1099

STEP NO--UK/0000/70/015/004/0501/0517

CIRC ACCESSION NO--AP0123091

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

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CIRC ACCESSION NO--AP0123091 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD OF CONTINUOUS MECH. RENEWAL (SCOURING) OF THE WHOLE REACTION SURFACE OF A SOLID METAL ELECTRODE WAS USED FOR INVESTIGATION OF THE KINETICS OF VARIOUS CHARACTERISTIC ELECTRODE PROCESSES. CATHODIC PROCESSES OF H EVOLUTION ON PD, NI, FE, PB, SN, O IONIZATION ON PD, ACTIVE ANODIC DISSOLN. (FE, NI, PB, SN), ANODIC PASSIVITY (TI, CR, NI), AS WELL AS THE EFFECT OF ADSORPTION OF SURFACE ACTIVE ANIONS ON THE KINETICS OF ELECTRODE AND CORROSION PROCESSES ON FE AND NI, WERE STUDIED. DIFFUSION INHIBITION OF AN ELECTRODE PROCESS IS ELMINATED BY VIGOROUS STIRRING OF THE SOLN. ADSORPTION INHIBITION MAY BE COMPLETELY ELIMINATED BY SUFFICIENTLY VIGOROUS MECH. SURFACE RENEWAL DEPENDING ON THE NATURE OF THE IONS BEING ADSORBED, THEIR CONCNS., AND ELECTRODE POTENTIAL. INHIBITION OF THE ELECTRODE REACTION DUE TO THE CHARGE TRANSFER RATE IS NOT ELIMINATED BY MECH. SURFACE SCOURING. COMPARISON OF KINETICS OF ELECTRODE PROCESSES WITH OR WITHOUT CONTINUOUS RENEWAL OF THE METAL ELECTRODE SURFACE ALLOWS A QUANT. EVALUATION OF THE DEGREE OF INHIBITION OF THE TOTAL ELECTRODE PROCESS BY ITS INDIVIDUAL STEPS. FACILITY: INST. PHYS. CHEM., MOSCOW, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

1/2 030 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF THE VOLUME OF A SOLUTION AND THE PRESENCE OF OXYGEN AND TITANYL IONS IN IT ON THE CORROSION OF TITANIUM PALLADIUM AND TITANIUM

AUTHOR-(03)-TOMASHOV, N.D., CHERNOVA, G.P., MATVEYEVA, T.V.

COUNTRY OF INFO--USSR

SOURCE--ZASHCH. METAL. 1970, 6(2), 145-50

DATE PUBLISHED--------70

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

TOPIC TAGS--TITANIUM ALLOY, RUTHENIUM ALLOY, PALLADIUM ALLOY, METAL CORROSION, OXYGEN, ION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1912 STEP NO--UR/0365/70/006/002/0145/0150

CIRC ACCESSION NO--AP0118874

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

2/2 030 UNCLASSIFIED

CIRC ACCESSION NO--AP0118874 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE ON THE EFFECT OF THE SOLN. VOL. TO SURFACE AREA RATIO, CHANGE OF SOLN., ATM. COMPN., AND TI PRIME4POSITIVE ADDN. ON THE CORROSION OF TI-PD AND TI-RU ALLOYS. IN H SUB2 SO SUB4 AND HCL SOLNS. AT ROOM TEMP., TI-0.2PERCENT PD AND TI-(0.2-0.5PERCENT; RU ALLOYS IN AN ATM OF N MAINTAIN THE POTENTIAL OF THE ACTIVE PASSIVE STATE AND CORRODE AT A HIGHER RATE THAN IN AN AIR ATM OR IN THE PRESENCE OF TI IONS IN THE SOLN., THE TI IONS PROMOTING SELF PASSIVATION. CONSEQUENTLY EVEN IN THE PRESENCE OF CATHODIC ADDITIVES THE PROCESS OF H ION DISCHARGE CAN IN SOME CASES BE INSUFFICIENT TO SHIFT THE ALLOY POTENTIAL INTO THE REGION OF TI PASSIVATION. ONLY THE INTRODUCTION OF ADDNL. OXIDIZERS (O SUB2, TIO PRIME2POSITIVE) LEADS TO SELF PASSIVATION OF THE ALLOYS. ALTHOUGH TI IONS HAVE A LESS POS. REDOX POTENTIAL THAN O, THEY ARE MORE SOL. AND WHEN THEY ACCUMULATE IN THE SOLN., THEY ACT AS ACCUMULATORS AND CARRIERS OF THE OXIDIZING FUNCTIONS OF DISSOLVED OXYGEN FROM THE BULK OF THE SOLN. TO THE CORRODING SURFACE. ON INCREASING THE RATIO OF SOLN. VOL. TO THE SURFACE AREA OF THE SPECIMEN OR ON PERIODICALLY CHANGING THE SOLN., THE CORROSION RATE OF TI AND ITS ALLOYS WITH PD CAN INCREASE NOTABLY, DUE NOT TO THE DECREASE IN THE PD ION CONCN. IN SOLN. BUT TO THE TITANYL ION CONCN. WHICH ARE SUPPLEMENTARY OXIDIZERS. FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

1/2 028 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--PREPARATION OF THICK ANODE FILMS ON ALUMINUM ALLOYS IN A COMPOSITE ELECTROLYTE -U-

AUTHOR-(03)-IGNATOV, N.N., ZALIVALOV, F.P., TOMASHOV, N.D.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 554-60

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ALUMINUM ALLOY, ELECTROLYTE, ANODIZATION, MICROHARDNESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1948 STEP NO--UR/0080/70/043/003/0554/0560

CIRC ACCESSION NO--AP0118910

UNCLASSIFIED

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2/2 028 UNCLASSIFIED

CIRC ACCESSION NO--AP0118910 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDIES WERE MADE OF THICK FILM ANODIZING OF INDUSTRIALLY IMPORTANT AL ALLOYS IN H SUB2 SO SUB4 20 PLUS H SUB2 C SUB2 O SUB4 15 G-1. AT 15-18DEGREES, 2.5 AND 5 A.-DM PRIME2 C.D., AND FOR 0.5-3.5 HR. VOLTAGE VS. TIME CURVES ARE OBTAINED AND THEIR CHARACTERISTICS ARE EXPLAINED. THE RATIO ETA OF THE WT. OF ANHYD. AL SUB2 O SUB3 FORMED TO THE WT OF AL REACTED DECREASES WITH TIME FOR MOST CASES DUE TO DISSOLN. OF THE OXIDE FILM. THE QUALITY OF THE ANODIZED FILM DETERIORATES WITH LOWER ETA. THE THICKNESS INCREASES LINEARLY WITH TIME AT THE RATE 0.7-1 MU-MIN. FOR ALLOYS CONTG. NEGLIGIBLE CU, THE MICROHARDNESS IS 480-520 KG-MM PRIME2. CU DECREASES THE MICROHARDNESS AND INCREASES THE POROSITY. AT THE HIGHER C.D. OF 5A-DM PRIME2, THE FILM QUALITY IMPROVES. THE COMPOSITE ELECTROLYTE GIVES FILMS COMPARABLE TO THOSE OBTAINED IN COLD H SUB2 SO SUB4 AND CAN BE USED WIDELY IN PRACTICE. FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

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172 024

UNCLASSIFIED

TITLE--EFFECT OF AMMONIUM IONS ON THE ELECTRODEPOSITION OF CHROMIUM FROM SULFATE SOLUTIONS -U-

PROCESSING DATE--23OCT70

AUTHOR-(02)-TOMASHOVA, G.N., VAGRAMYAN, A.T.

COUNTRY OF INFO--USSR

SOURCE--ZASHCH. METAL. 1970, 6(2), 182-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRODEPOSITION, SULFATE, AMMONIUM COMPOUND, ION, CHROMIUM PLATING, CATHODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1911

STEP NO--UR/0365/70/006/002/0182/0185

CIRC ACCESSION NO--AP0118873

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

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UNCLASSIFIED

CIRC ACCESSION NO--AP0118873 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CR METAL WAS DEPOSITED ON A CR PLATED CATHODE FROM A 0.2M SOLN. OF K CR OXIDES (CR PRIME3POSITIVE) AT PH 1.9 AT 35DEGREES. THE OVERALL ELECTRODE REACTION RATE WAS INCREASED IN THE PRESENCE OF NH SUB4 PRIMEPOSITIVE (FROM NH SUB4) SUB2 SO SUB4) BECAUSE NH SUB4 PRIMEPOSITIVE ACTIVATED THE CATHODE SURFACE BY FREEING IT OF OXIDES AND HYDROXIDES. ADDN. OF 0.5 MOLES NH SUB4 PRIMEPOSITIVE-1. ACCELERATED THE METAL DEPOSITION AT POTENTIALS 1.0-1.2 V AND AT 1.3 V, IT SLOWED THE DEPOSITION. AT ALL POTENTIALS STUDIED 5 MOLES NH SUB4 PRIMEPOSITIVE-1. DISSOLVED THE METAL INSTEAD OF DEPOSITING IT. THE QUALITY OF CR DEPOSITED WAS ENHANCED BY THE PRESENCE OF NH SUB4 PRIMEPOSITIVE.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

USSR

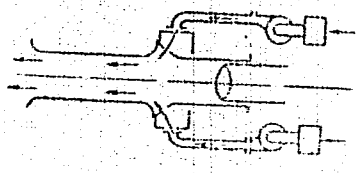
UDC: 621.316.6

SIL'VESTROV, V. M., NOVODEREZHKIN, V. P., TOMASHPOL'SKIY, N. F., DUBOVA, E. S., KISILEV, V. I.

"A Device for Protecting the Front Surface of Optical Systems"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 6, Feb 72, Author's Certificate No 328411, Division G, filed 20 Aug 69, published 2 Feb 72, p 143

Translation: This Author's Certificate introduces a device for protecting the front of optical systems from atmospheric contaminants. The device contains a fitting which mates with the mount of the optical system and has a joint for feeding in compressed gas. As a distinguishing feature of the patent, in order to preserve image quality, the unit for feeding in gas is made in the form of a gas-collecting chamber with guide channels which goes into a blender nozzle.



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

TOMASHPOL'SKIY, Yu. Ya.

"Ferroelectricity in Fine Films"

Elektron. tekhnika. Nauch.-tekhn. sb. Upr. kachestvom i standartiz. (Electron Engineering, Scientific-Technical Collection, Quality and Standardization Control--collection of works) No. 1(7), 1971, pp 3-12 (from RZh-Fizika, No. 11, 1971, Abstract No. 11E917)

Translation: A theory is proposed for the ferroelectric characteristics of $BaTiO_3$ films 1000 Å in thickness; the computed and experimental data are compared; the peculiarities of the emergence of ferroelectricity in thin films are analyzed. Resume

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

172 < 035 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--PHASE TRANSFORMATIONS OF GADOLINIUM MOLYBDATE AND ISOSTRUCTURAL COMPOUNDS -U-

AUTHOR--DROBYSHEV, L.A., FROLKINA, I.T., PONOMAREV, V.I., TOMASHPOLSKIY, YU.YA., VENEVTSEV, YU.N.

COUNTRY OF INFO--USSR

SOURCE--KRISTALLOGRAFIYA 1970, 15(1), 68-74

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--PHASE TRANSFORMATION, X RAY ANALYSIS, MECHANICAL PROPERTY, ELECTRICAL PROPERTY, MOLYBDATE, GADOLINIUM COMPOUND, EUROPIUM, TERBIUM, DYSPROSIUM, HOLMIUM, NEODYMIUM LASER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0117 STEP NO--UR/0070/70/015/001/0068/0074

CIRC ACCESSION NO--AP0054913

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

035

CIRC ACCESSION NO--AP0054913 UNCLASSIFIED PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHASE TRANSFORMATIONS OF THE L MODIFICATION OF GD, EU, TB, DY, AND HO MOLYBDATES USED FOR QUANTUM ELECTRONICS WERE INVESTIGATED BY USING X RAY AND THERMOGRAPHIC MEHTODS. A RELATION WAS ESTABLISHED BETWEEN THE STRUCTURAL CHANGES AND PHYS. PROPERTIES OF THESE COMPDS. THE OCCURENCE OF SEIGNETTE ELEC. PROPERTIES WERE NOTED IN THE TETRAGONAL L MODIFICATIONS OF EU, TB, DY, AND HO MOLYBDATES AT IS LESS THAN 192, 165, 158 AND 134DEGREES, AND ON THIS BASIS, THE POSSIBLILITY WAS CONSIDERED OF USING THESE COMPDS. AS ACTIVE MATERIALS FOR ND ACTIVATED LASERS, THE MAGNETIC ORDERING OF THESE COMPDS. AT DEFINITE TEMPS. WAS ALSO CONSIDERED. THE TEMP. CHANGES OF 2 TYPES OF PHASE TRANSFORMATIONS (SEIGNETTE ELEC. AND TRANSFORMATIONS WITH CRYSTAL DECAY) WERE DEPENDENT ON THE AT. NO. OF THE RARE EARTH ELEMENT. THE EXISTENCE OF A GD SUB2(MOO SUB4) SUB3 TETRAGONAL MODIFICATION WITH ALPHA EQUALS 7.25 AND C EQUALS 10.58 ANGSTROMS WAS ALSO VERIFIED.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

USSR

TOMASHPOL'SKIY, YU. YA., Scientific-Research Physico-Chemical Institute imeni L. Ya. Karpov

"Vacuum Evaporation of Barium Titanate"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, No 8, 1972, pp 1446-1450

Abstract: Vacuum condensates of barium titanate have been studied in a number of works; however, thin ferroelectrical films of barium titanate with optimal properties have not yet been produced. This work studies the microcompositions and structure of films produced by discrete evaporation of barium titanate and estimates the effectiveness of this method for manufacturing thin stoichiometric layers. The films produced are 500-5000 A thick. The possibilities of producing stoichiometric films by the ordinary method of discrete evaporation are limited. In most cases, the films contain an excess of barium oxide, unevenly distributed over the area of the film. Stoichiometry is better maintained on monocrystalline substrates and depends little on their temperature. A modification of the method of discrete evaporation allows barium titanate films to be produced with clear ferroelectric effect. The modification consists in correcting the excess of barium in the condensate, determined primarily by the substrate material and the condensation rate. This modified method produced films with good structural formation, and dielectric permeability with a maximum in the area of 120°C. At room temperature, dielectric hysteresis loops were observed, which disappeared at over 120°C.

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USSR

KAREV, P. B., LAVINSKIY, G. V., TOMASHPOL'SKIY, Yu. V.

"Determination of Probability of Detection of an Object with Two-Stage Search"

Teoriya Optimal'n. Resheniy [The Theory of Optimal Decisions -- Collection of Works], Kiev, 1972, pp 127-130 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V300 by the authors).

Translation: One typical problem in search systems is two-stage search for objects in a region. One variety of this problem is presearch, when the observer is already located in the area of possible positions of the target and goes over to the use of detection methods assuring more precise determination of the location of the target than in the preceding stage of search. One of the basic indicators of effectiveness of solution of this problem is the probability of detection of an object, which depends on the accuracy of determination of the location of the target during the search stage and the characteristics of the detection apparatus used in presearch. An expression is produced for this probability in one natural case.

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USSR

UDC 661.143

GURVICH, A. M., MIKHALEV, A. A., TOMBAK, M. I.

"Effect of the Calcining Temperature of the Charge on the Luminescence of Calcium Tungstenate"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collection of Scientific Works of the All-Union Scientific Research Institute of Luminophors and Materials of Extreme Purity), 1972, vyp. 7, pp 18-26 (from RZh-Khimiya, No 6 (II), 1973, Abstract No 6L161)

Translation: A sharp difference was discovered in the dependence of the photoluminescence and x-ray luminescence of calcium tungstenate on the calcining temperature of the charge. It is explained by the presence during x-ray excitation of an energy migration stage with respect to the crystal. For this reason, at temperatures <400° the intensity of the x-ray luminescence is low as a result of the high concentration of linear and surface defects; the extinguishing of the x-ray luminescence is caused by the introduction of acid complexes of the group V elements, four of which (As, Sb, Ng, Ta) increase the afterglow of the $CaWO_4$, and the fifth (P) decreases it. Above 800° the recombination afterglow increases sharply in connection with the accumulation of CaO. The bibliography has 19 entries.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

USSR

UDC: 661.143:546.47'221

GURVICH, A. M., TOMBAK, M. I., MIKHALEV, A. A., NIKIFOROVA, A. P., BIRMAN, T. A.

"Effect of Deposition Conditions on the Dispersity of Sulfides and Tungstates, and on the Properties of Phosphors Made From Them"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collected Scientific Works of the All-Union Scientific Research Institute of Phosphors and Extra Pure Materials), 1971, vyp. 5, pp 133-143 (from RZh-Khimiya, No 7, Apr 72, Abstract No 7L177)

Translation: Colloidochemical phenomena play an important part in the process of deposition of ZnS and CdS and calcium tungstate. The grain size of the deposit is determined both by the growth of the microcrystals which form the nuclei of the first colloidal particles, and by the process of coagulation leading to formation of larger aggregates. On the basis of these considerations, the authors explain a number of phenomena observed in the course of the study, in particular the formation of large (5-12 microns) spherical granules of ZnS with intense and uniform agitation of the $ZnSO_4$ solution through which H_2S is bubbled, the formation of CdS platelets up to 500-700 microns long in the case

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USSR

GURVICH, A. M., et al, Sb nauch. tr. VNII luminoforov i osobo chist. veshchestv, 1971, vyp 5, pp 133-143

of high initial acidity (3.3-3.6 n.) of the $CdSO_4 + H_2SO_4$ solution, an abrupt increase in the $CaWO_4$ grain size with a reduction in the concentration of $CaCl_2$ to 1%, the absence of a direct relation between the grain sizes of the deposits and the luminescent compositions made from them, etc. The concentration of coprecipitated oxygen-containing impurities can be appreciably reduced and the bulk density of the sulfide can be increased from 1.5-1.6 to 2.8 g/cc by using intense agitation of the solution during zinc sulfide deposition, and also by bubbling H_2S through the rinse water. Bibliography of 16 titles. Resumé.

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1/3 018 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--HETEROCYCLIC SEMICARBAZONES AND THIOSEMICARBAZONES. IX. CYCLIZATION OF N,METHYLISATIN BETA,2,METHYLTHIOSEMICARBAZONE -U-

AUTHOR-(03)-IOFFE, I.S., TOMCHIN, A.B., RUSAKOV, E.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 682-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CYCLIZATION, KETONE, BROMINATED ORGANIC COMPOUND, BENZENE DERIVATIVE, CHEMICAL SYNTHESIS, TRIAZINE, MERCAPTAN, PHOTOEFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1181 STEP NO--UR/0079/70/040/003/0682/0689

CIRC ACCESSION NO--AP0128602

UNCLASSIFIED

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UNCLASSIFIED

CIRC ACCESSION NO--AP0128602 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO 96.5 G O,BRC SUB6 H SUB4 ME WAS ADDED OVER 2 HR AT 90DEGREES UNDER UV LIGHT 29 ML BR TO YIELD O,BRC SUB6 H SUB4 CH SUB2 BR, WHILE FURTHER ADDN. OF 29 ML BR IN 4 HR, HEATING TO 150DEGREES AND REFLUXING THE PRODUCT WITH H SUB2 O AND CACL SUB3 8 HR GAVE 34.5PERCENT O,BRC SUB6 H SUB4 CHO, B SUB9 99.5DEGREES. O,BROMOMANDELIC ACID OXIDIZED WITH KMNO SUB4 IN AQ. NAOH AT 10DEGREE GAVE 23PERCENT O,BRC SUB6 H SUB4 CO SUB2 H AND 43.6PERCENT O,BROMOPHENYLGLYOXYLIC ACID (I), M. 97-102DEGREES. O,BRC SUB6 H SUB4 COCN, M. 64DEGREES, FAILED TO REACT SATISFACTORILY WITH CU SUB2 (CN) SUB2 BUT, KEPT WITH CONCD. HCL 1 DAY THEN HEATED 1 HR, GAVE 42.8PERCENT I; THIOSEMICARBAZONE M. 219DEGREES. THE ACID AND 2,METHYLTHIOSEMICARBAZIDE GAVE THE 2,METHYLTHIOSEMICARBAZONE (II), M. 156DEGREES; SIMILAR DERIV. OF O,NITROPHENYLGLYOXYLIC ACID M. 145DEGREES. II AND M NACH, REFLUXED 10 MIN, GAVE 83PERCENT 2,METHYL,3,MERCAPTO,5,HYDROXY,6,(2,BROMOPHENYL),1,2,4,TRIAZINE, M. 235.5DEGREES, WHICH DID NOT REACT WITH MENH SUB2 ALONE, WHILE WITH CU CATALYST REACTIONS OTHER THAN SUBSTITUTION TOOK PLACE. SIMILARLY WAS PREPD. 55PERCENT 2,METHYL,3,MERCAPTO,5,HYDROXY,6,(2,NITROPHENYL),1,2,4,TRIAZINE, M. 247.5DEGREES, WHICH WITH POWD. FE IN ALC. AQ. HCL GAVE 97.5PERCENT 2,METHYL,3,MERCAPTO,5,HYDROXY,6,(2,AMINOPHENYL),1,2,4,TRIAZINE, M. LARGER THAN 330DEGREES. SIMILARLY WAS PREPD. 3,MERCAPTO,5,HYDROXY,6,(2,AMINOPHENYL),1,2,4,TRIAZINE, M. ABOVE 300DEGREES.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

3/3 016 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128602

ABSTRACT/EXTRACT--TREATMENT OF N,METHYLISATIN BETA,(2,METHYLTHIOSEMICARBAZONE) WITH ALKALI GAVE NOT ONLY 3,9,DIMETHYL,2,3,DEHYDRO,1,3,4,TRIAZACARBAZOLE,2,THIONE, BUT ALSO 2,METHYL,3,MERCAPTO,5,HYDROXY,6,(2,(METHYLAMINO)PHENYL),1,2,4,TRIAZINE, M. 211DEGREES.

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173 007 UNCLASSIFIED

TITLE--SEMICARBAZONES AND THIOSEMICARBAZONES OF HETEROCYCLES. X. MUTUAL REACTIONS OF 1,3,4,TRIAZACARBAZOLES AND PROCESSING DATE--13NOV70

AUTHOR-(02)-IOFFE, I.S., TOMCHIN, A.B.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 859-62

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYNUCLEAR HYDROCARBON, HETEROCYCLIC NITROGEN COMPOUND, MERCAPTAN, TRIAZINE, ORGANIC AZOLE COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1484

STEP NO--UR/0079/70/040/004/0859/0862

CIRC ACCESSION NO--AP0128882

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273 007

UNCLASSIFIED

CIRC ACCESSION NO--AP0128882 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING 5 G 3,9,DIMETHYL,2,3,DIHYDRO 1,3,4,TRIAZACARBAZOLE,2, THIONE (IA) WITH 420 ML N NAOH 40-50 MIN GAVE 25PERCENT 2,METHYL, 3,MERCAPTO,5,HYDROXY,6,(2,METHYLAMINOPHENYL),1,2,4,TRIAZINE (I), M. 210DEGREES. HEATING 2,METHYL,3,MERCAPTO,5,HYDROXY,6,(2, AMINOPHENYL),1,2,4,TRIAZINE WITH MEI IN MEOH IN A SEALED TUBE AT 140DEGREES GAVE A MIXT. FROM WHICH WAS ISOLATED SOME I, AS WELL AS 3,9,DIMETHYL,2,3,DIHYDRO 1,3,4,TRIAZA,2,CARBAZOLENE, M. 255DEGREES. THE YIELDS OF THIS INCREASED WITH PROLONGATION OF THE REACTION AND ELEVATION OF THE TEMP. HEATING 3,5,DIHYDROXY,6,(2,AMINO PHENYL) 1,2,4,TRIAZINE (II) WITH 1:1 HCL IN A SEALED TUBE 5-10 HR AT 160DEGREES GAVE 2,HYDROXY,1,3,4,TRIAZACARBAZOLE, M. SMALLER THAN 320DEGREES. EVIDENTLY IN REACTION OF ALKALI WITH N METHYLISATIN BETA-(2,METHYL)THIOSEMICARBAZONE TO FORM 5-OXO-6,(2,AMINOPHENYL),1,2,4,TRIAZINE, THE CYCLIZATION TAKES PLACE FIRST, THEN OPENING OF THE 1,3,4,TRIAZACARBAZOLE RING; SIMILAR REACTION OF ISATIN BETA SEMICARBAZONE PROCEEDS THROUGH REVERSED ORDER OF THESE STEPS. OPENING OF THE 1,3,4, TRIAZACARBAZOLE RING BY ALKALI OCCURS ONLY IN DERIVS. OF 2,MERCAPTO AND 2,HYDROXY,1,3,4,TRIAZACARBAZOLE, IN WHICH THE QUINOIDAL FORM IS FIXED BY METHYLATION AND MESOMERIC ION FORMATION IS EXCLUDED. ALTHOUGH CYCLIZATION OF 5 OXO 6 (2,AMINOPHENYL),1,2,4, TRIAZINES TO FORM 1,3,4,TRIAZACARBAZOLE DERIVS. FROM REACTION OF AMINO GROUP ON THE BENZENE RING WITH THE CARBONYL GROUP OF THE TRIAZINE RING IS POSSIBLE DURING CLEAVAGE OF 1,3,4,TRIAZACARBAZOLES, THE REACTION PROCEEDS ONLY WITH MUCH DIFFICULTY.

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CIRC ACCESSION NO--AP0128882 UNCLASSIFIED PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--II HEATED IN MECN THF WITH DICYCLOHEXYLCARBODIIMIDE, ZNCL SUB2 OR P SUB2 O SUB5 IN ME SUB2 SO FAILED TO YIELD TRIAZACARBAZOLES.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

USSR

UDC: 539.14+539.143

DZHIBUTI, R. I., KRUPENNIKOVA, N. B., MAMASAKHLISOV, V. I. (Member of the Georgian Academy of Sciences, Deceased), and TOMCHINSKIY, V. Yu.

"Charge Form factors of Li^6, Be^9, and C^{12} Nuclei in a Three-Particle Cluster Model"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, vol 68, No 1, 1972, pp 53-56

Abstract: This paper is the continuation of an earlier article by the same authors in the same journal mentioned above (Programma i tezisy 22-go yezhegodnogo soveshchaniya po yadernoy spektroskopii i strukture atomnogo yadra -- Program and Theses of the 22nd Annual Conference on Nuclear Spectroscopy and Atomic Nucleus Structures -- part 1, Leningrad, 1972, p 216; Soobshcheniya AN GSSR, 66, No 3, 1972, p 565) investigating the development of the K-harmonic method as applied to the nucleon association model. By using formulas developed in the earlier article together with the Reinal and Revai coefficients, the authors obtain in the present article expressions for the charge form factors of Li^6, Be^9, and C^{12} three-particle nuclei. The authors promise a future article comparing the results of the present paper with available experimental data.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

1/2 035 UNCLASSIFIED

TITLE--FLUCTUATIONS IN A NONEQUILIBRIUM SEMICONDUCTOR PLASMA. I. LOW RESISTANCE SEMICONDUCTORS -U- PROCESSING DATE--30OCT70

AUTHOR-(02)-TOMCHUK, P.M., SHENDEROVSKIY, V.A.

COUNTRY OF INFO--USSR

SOURCE--UKRAIN'SKII FIZICHNII ZHURNAL, VOL. 15, APR. 1970, P. 632

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SEMICONDUCTOR PLASMA, SEMICONDUCTOR BAND STRUCTURE, ANISOTROPY, CHARGE DENSITY, PLASMA OSCILLATION, PLASMA WAVE, ELECTRIC FIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1347 STEP NO--UR/0185/70/015/000/0632/0632

CIRC ACCESSION NO--AP0124997

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

2/2 035

UNCLASSIFIED

CIRC ACCESSION NO--AP0124997 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THEORETICAL STUDY OF THE INFLUENCE OF THE SHAPE OF ENERGY BANDS ON THE FLUCTUATION PHENOMENON IN A NONEQUILIBRIUM SEMICONDUCTOR PLASMA. IT IS SHOWN THAT IN SEMICONDUCTORS WITH AN ANISOTROPIC BAND (AS WELL AS IN P TYPE GE AND SI) ANOMALOUS FLUCTUATIONS OF CHARGE DENSITY ARE POSSIBLE WHICH ARE ENTIRELY CAUSED BY THE SHAPE OF THE BAND AND THE ACTION OF A STRONG ELECTRIC FIELD. IN SEMICONDUCTORS WITH A NONPARABOLIC BAND, THE MAXIMUM SPECTRAL DENSITY OF THE CHARGE FLUCTUATIONS SHIFTS WITH A CHANGE IN THE EXTERNAL FIELD STRENGTH. THE EFFECT OF BAND SHAPE ON PLASMA WAVE ATTENUATION IS ALSO CONSIDERED. FACILITY: AKADEMIIA NAUK UKRAINS'KOI RSR, INSTITUT FIZIKI, KIEV, UKRAINIAN SSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

USSR

UDC 546.824'32

BELYAYEV, E. K., PANASENKO, N. M., and TOHENKO, V. H.

"Conditions of Potassium Titanate Formation"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 10, No 3, Mar 74, pp 460-464

Abstract: The interaction of K_2CO_3 with TiO_2 was studied to determine the phase composition products and conditions for the formation of potassium titanates. Different molar ratios of the initial compounds were mixed and roasted for four hours at 800-820° C with the resulting products subjected to chemical and x-ray analysis. The following compounds were formed: $K_2O.TiO_2$, $2K_2O.3TiO_2$, $K_2O.2TiO_2$, $K_2O.4TiO_2$, and $K_2O \cdot 6TiO_2$. Potassium titanates ($12K_2O \cdot 13TiO_2$, $K_2O \cdot 3TiO_2$, and $K_2O \cdot 5TiO_2$), reported in other literature sources, were not detected in the study. It was shown that the formation of potassium titanates proceeds by means of sequential reactions with the initial formation of potassium dititanate with potassium carbonate or TiO_2. Four figures, eight bibliographic references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

USSR

UDC 536.7+66-971+541.124:546.34:546.264+661.882.2

BELYAYEV, E. K., PANASENKO, N. M., and TOMENKO, V. M.

"Thermodynamics and Mechanism of Formation of Titanates in a Mixture of Lithium Carbonate and Titanium Dioxide"

Moscow, Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 648-651.

Abstract: A thermodynamic basis is provided for the primacy of formation of metatitanate in mixtures of lithium carbonate and titanium dioxide. In the system Li_2O-TiO_2, the formation of three titanates was confirmed: lithium metatitanate, dititanate, and trititanate. In mixtures of Li_2CO_3 : TiO_2, metatitanate is first formed. The lithium dititanate is formed by interaction of titanium dioxide with lithium metatitanate. Lithium trititanate is formed by successive reactions of titanium dioxide with the metatitanate and dititanate.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

USSR

UDC 669.14-419:620.17

NAVROTSKIY, I. V., and TOMENKO, Yu. S., Ukrainian Scientific Research Institute of Metals, Khar'kov

"Investigation of the Bending Strength of Layers in Multilayer Steels in Wide Temperature Interval"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 1, 1973, pp 84-87

Abstract: The method and the results of experimental investigations of the resistance to direct pull and of the shearing strength of three-, five-, and seven-layer strips of St.2kp and 1Kh18N10T steels in the +20° to -196° temperature interval are described by reference to diagrams showing the experimental arrangement and the form of investigated specimens. The temperature dependences of the cut-off and ultimate direct pull stresses are shown. The experiments revealed that in multilayer steels, consisting of metals differing by the linear expansion

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

USSR

NAVROTSKIY, I. V., and TOMENKO, YU. S., Zavodskaya Laboratoriya, Vol 39, No 1, 1973, pp 84-87

coefficient and the fracture transition temperature, the resistance to direct pull and the resistance to shear are in the investigated temperature interval on the bonding plane of the layers not lower than the corresponding characteristics of the less durable and more cold short metal component (St.2kp). Six figures, one table, seven bibliographic references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

USSR

UDC 669-419:669.14

NAVROTSKIY, I. V., TOMENKO, YU. S., and DOLZHENKOV, F. YE., Khar'kov

"Rupture of Multilayered Steel During Dynamic and Static Application of Loads"

Moscow, Izvestiya Akademii Nauk SSSR -- Metally, No 5, 1970, pp 132-136

Abstract: This article contains a study of the relation of the number and arrangement of layers of multilayered steel to its ductile properties. The basic factor here is not only the ductility level at room temperature but also the nature of its variation at lower temperatures. It is important that the types of steel selected as the component metal differ essentially with respect to their resistance to cold. Samples of 3-, 5-, and 7-layer material made of St.2kp and 1Kh18N10T steels were tested to study this problem. The test were performed in the temperature range from +20°C to -100°C. The impact toughness was also determined at the boiling point of liquid nitrogen. By comparing the temperature discontinuity of the impact toughness, it is clear that the amount of ductile steel 1Kh18N10T in the multilayered sample is not the defining factor for cold resistance. The number of layers in the strip has a much greater effect. Within the limits of each group, with an increase in the number of layers, the temperature discontinuity of the impact toughness drops noticeably, i.e.,

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USSR

NAVROTSKIY, I. V., et al, Izvestiya Akademii Nauk SSSR -- Metally, No 5, 1970, pp 132-136

the cold resistance of the material increases. High values of impact toughness are noted for very low temperatures.

When testing layered materials using samples with a notch through the outside layer, the crack intersects each layer on being propagated. With a certain combination of metal component properties, the propagation of the crack can take place discontinuously, stopping at the boundary of the ductile layer with generation of a new crack. This nature of rupture requires additional energy absorption, which explains the very high absolute values of the impact toughness obtained when testing such samples. It is pointed out that the more frequently the layers of the tested types of 1Kh18N10T and St2kp steels are alternated and the more layers there are in the sample, the more uniformly the St2kp steel is strained in the multilayer object. The surface of the notch in a 7-layer sample is coated with a network of fine cracks which go from one steel to another. Against the background of this grid, several well-developed cracks are to be seen, and the opening of the cut is appreciably greater than in samples made of 3-layer steel.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

USSR

NAVROTSKIY, I. V., et al, Izvestiya Akademii Nauk SSSR -- Metally, No 5, 1970, pp 132-136

Thus, by creating multilayer compositions it is possible to lower, appreciably, the threshold temperature of cold brittleness of brittle steel. The resistance to brittle fracture of the multilayered sample depends to a significantly greater extent on the number of layers and their arrangement than on the total content of ductile steel. This is connected with variation of the kinetics of formation of the main crack and an increase in the plasticity of the brittle component. Significant savings of nickel steel (up to 50-60%) are possible as a result of formation of interstitial layers in them of ferrite class steel while retaining sufficiently large energy capacity of the metal at low temperatures.

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USSR

UDC: 621.317.799(088.8)

KUPROVICH, V. F., PARKHOMENKO, P. P., KUZNETSOV, V. M., MEREMKOV, A. D., TOMELL'D, D. L., Scientific Research Institute of Machine Building Technology, Institute of Automation and Remote Control (Technical Cybernetics)

"A Device for Automatic Quantitative and Qualitative Monitoring of Electrical and Time Parameters"

USSR Author's Certificate No 264794, filed 27 Dec 67, published 2 Jul 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A327 P)

Translation: A device is proposed for automatic quantitative and qualitative monitoring of electrical and time parameters. As a distinguishing feature of the patent, in order to reduce time and increase accuracy in localizing trouble spots in cable conductors, the device contains a trouble localizing unit in which the control input of the shift register is connected to the output of the data processing module, while the signal and control outputs of the shift register are connected to the control inputs of the block of output devices and the commutation module respectively. The control inputs of the switches of each of the cells of the high-voltage commutation circuits are connected to the outputs of a two-position storage element whose input is connected to the output of the commutation module through the commutation leads of one of the switches.

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1/2 024 UNCLASSIFIED

TITLE--BELYY YAR ATOMIC POWER PLANT -U- PROCESSING DATE--30OCT70

AUTHOR-(02)-DUBININ, N., TOMICHEV, R.

COUNTRY OF INFO--USSR

SOURCE--GUDOK, JULY 15, 1970, P 4, COLS 1-6

DATE PUBLISHED--15JUL70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--NUCLEAR ELECTRIC POWER PLANT, FAST REACTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0774 STEP NO--UR/9002/70/000/000/0004/0004

CIRC ACCESSION NO--AN0126466

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

2/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AN0126466

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS DESCRIBE THEIR VISIT TO THE 300,000 KW ATOMIC POWER PLANT AT BELYY YAR. THE PLANT IS POWERED BY 50 TONS OF URANIUM. ITS FIRST REACTOR IS OF TWO LOOP DESIGN, AND THE SECOND, WHICH WAS COMPLETED SOMETIME LATER, IS A SINGLE LOOP REACTOR. THE THIRD FAST REACTOR, 600,000,KW CAPACITY, IS UNDER CONSTRUCTION.

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019

UNCLASSIFIED

TITLE—THE BLOOD SERUM NEIRAMINIC ACID IN PATIENTS SUFFERING FROM DIFFERENT FORMS IN BRONCHIAL ASTHMA -U-

PROCESSING DATE--30OCT70

AUTHOR-(02)-TOMILETS, V.A., IVANOV, N.P.

COUNTRY OF INFO—USSR

SOURCE—KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 3, PP 104-107

DATE PUBLISHED———70

SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS—RESPIRATORY SYSTEM DISEASE, BLOOD SERUM, ORGANIC ACID, SKIN TEST, ALLERGIC DISEASE

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—3001/0906

STEP NO—UR/0497/70/048/003/0104/0107

CIRC ACCESSION NO—AP0126565

UNCLASSIFIED

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272 019

UNCLASSIFIED

CIRC ACCESSION NO--AP0126565 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEPENDING UPON THE FORM OF BRONCHIAL ASTHMA THE AUTHORS ESTABLISHED BY THE RESULTS OF SKIN ALLERGIC TESTS IN THE BLOOD SERUM OF PATIENTS WITH AN INFECTIOUS ALLERGIC FORM DURING THE INTERPAROXYSMAL PERIOD A GREATER LEVEL OF NEIRAMINIC ACID THAN IN PATIENTS AFFECTED WITH AN ATOPICAL AND MIXED FORMS. DURING BRONCHIAL ASTHMA PAROXYSMS THE BLOOD SERUM CONCENTRATION OF NEIRAMINIC ACID RISES EVEN MORE. FACILITY: NAUCHNO-ISSLED. ALLERGOLOGICHESKAYA LABORATORIYA AMN SSSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

UNCLASSIFIED

TITLE--A METHOD OF EXAMINATION OF THE DIRECT ACTION OF ALLERGENS ON THE FUNCTION OF THE ADRENAL CORTEX UNDER EXPERIMENTAL CONDITIONS -U-

PROCESSING DATE--30OCT70

AUTHOR-(03)-ADO, A.D., PYTSKIY, V.I., TOMILETS, V.A.

COUNTRY OF INFO--USSR

SOURCE--PATOLOGICHESKAYA FIZIOLOGIAY I EKSPERIMENTAL'NAYA TERAPIYA, 1970, VOL. 14, NR 3, PP 55-59

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PITUITARY GLAND, SURGERY, ADRENAL GLAND, CORTICOSTEROID, ACTH, MEDICAL EXPERIMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1959

STEP NO--UR/0396/70/014/003/0055/0059

CIRC ACCESSION NO--AP0127360

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203320007-2

CIRC ACCESSION NO--AP0127360 UNCLASSIFIED PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SECRETION OF CORTIZOL AND CORTICOSTERONE BY ISOLATED ADRENAL GLANDS OF INTACT AND HYPOPHYSECTOMIZED DOGS WAS EXAMINED IN PERFUSION OF THE ADRENAL GLANDS IN SITU WITH A BLOOD SUBSTITUTING SOLUTION. WITHIN 9 TO 15 MINUTES FROM THE ONSET OF PERFUSION SECRETION OF CORTICOSTEROIDS (CS) IN INTACT DOGS WAS MAXIMALLY STIMULATED BY THE OPERATIVE STRESS, AND EXCEEDED THE CS SECRETION IN HYPOPHYSECROMIZED DOGS 4 TO 5 TIMES. THE ACTION OF NATIVE ACTH STOPS 18 TO 36 MINUTES FROM THE BEGINNING OF PERFUSION, AND THE SECRETION OF CS IN INTACT ANIMALS FALLS, REACHING THE LEVEL OF CS SECRETION IN NYPOPHYSECTOMIZED DOGS. ADRENAL GLANDS OF THE ANIMALS OF BOTH GROUPS GIVE THE SAME REACTION IN RESPONSE TO THE ADMINISTRATION OF 0.4 UNITS-ML OF EXOGENOUS ACTH, AND PERMIT TO TEST THE DIRECT ACTION OF THE ALLERGENS AND OF THE OTHER PREPARATIONS ON THE FUNCTION OF THE ADRENAL CORTEX IN PERFUSION WITH A BLOOD SUBSTITUTING SOLUTION IN DOGS, WITHOUT PRELIMINARY HYPOPHYSECTOMY. FACILITY: KAFEDRA PATOLOGICHESKOY FIZIOLOGII II MOSKOVSKOGO MEDITSINSKOGO INSTITUTA IM. N. I. PIROGOVA.

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