USSR

UDC: 620.17

KUZ'MIN, V. S.

"Study of the Processes of Rupture on Models Made of Optically Sensitive Polymers"

Sb. Tr. Mosk. Inzh.-Stroit. In-t [Collected Works of Moscow Institute of Construction Engineering], 1972, No 104, pp 47-49 (Translated from Referativnyy Zhurnal Mekhanika, No 12, 1972, Abstract No 12V1290, by V. D. Kopytov)

Translation: The method of dynamic photoelasticity is used to study the influence of stress intensity in a tensile specimen on the propagation rate of a crack in the initial stage of rupture and the conditions of rupture are analyzed by breaking thin cylindrical rods of a brittle polymer. The first study used tensile specimens of upoxymal. Rupture was initiated by a steel blade, on which a charge of lead azide was detonated. The crack propagation process was recorded by a SFR-1 streak camera. It was found that with slight tensile stresses, the crack propagates for some distance then takes up an equilibrium position. As tensile stresses are increased, the propagation velocity first increases rapidly, then further increases in stress increase crack propagation velocity only slightly. The method of determining the dynamic strength was developed using thin cylindrical specimens of DAF and

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USSR

Kuz'min, V. S., Sb. Tr. Mosk. Inzh.-Stroit. In-t, 1972, No 104, pp 47-49.

DAM polymers. The rods were loaded by exploding a contact charge of lead azide. The tensile pulse formed by reflection of the compressive pulse from the free end causes cleavage of the rod. To determine the dynamic strength under these loading conditions, a rod length and explosive charge weight must be selected such that a single cleavage occurs.

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UDC 532.526

USSR

TUPICHENKOV, A. A., FAFURIN, A. V., KUZ'MIN, V. V.

"Hydrodynamic Characteristics of a Flow in the Initial Sections of Flow-Meter Devices"

Tr. metrol. in-tov SSSR (Works of the Metrology Institutes of the USSR), 1972, No. 135(195), pp 79-87 (from RZh-Mekhanika, No 6, Jun 72, Abstract No 6B764)

Translation: The development of a turbulent boundary layer in the initial section of a tube was studied considering the roughness of the walls. The theoretical study was conducted from the posits of boundary layer theory. Tubes with a natural and artificial roughness were used in the experiments, where the magnitude of the roughness was $k_a/r_0 = 10^{-3}$ and $k_a/r_0 = 1.44 \cdot 10^{-2}$. The Reynolds number varied over the range $5.1 \cdot 10^4 - 3.4 \cdot 10^5$. The computational method proposed is in good agreement with experimental results. 7 ref. Authors abstract.

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USSR UDC 681.121

KUZ'MIN, V. V., FAFURIN, A. V., TUPICHENKOV, A. A., MATVEYEV, Yu. F.

"The Problem of Determination of Optimal Points for Installation of Flow Rate Measuring Devices Considering Wall Roughness"

Tr. Metrol. In-tov SSSR [Works of Metrology Institutes, USSR], 1972, No 135 (195), pp 98-106, (Translated from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, 1972, No 5, Abstract No 5.32.734).

Translation: Results are presented from experimental determination of lengths of sectors of hydrodynamic stabilization with even distribution of velocity at the inlet to a tube. The experiments were performed using water in the range of Reynolds numbers from $5.1 \cdot 10^4$ to $3.4 \cdot 10^5$, both in the smooth flow mode and with natural and artificial roughness

$\left(\frac{k_a}{r_0} = 10^{-3} \text{ и } \frac{k_a}{r_0} = 1{,}44 \cdot 10^{-2}\right)$. and $\frac{k_a}{r_0} = 10^{-1} \text{ и } \frac{k_a}{r_0} = 1{,}44 \cdot 10^{-1}$.

The results show that an increase in roughness causes a decrease in the length of the initial sector. 5 Figures; 18 Biblio. Refs.

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USSR

UDC 532.517.3

KUZ'MIN, V. V., TUNICHENKOV, A. A., FAFURIN, A. V., Kazan'

"Turbulent Boundary Layer in the Initial Sector of a Pipe with Rough Walls"

Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fizika, No 5, 1971, pp 109-116.

ABSTRACT: The development of the turbulent boundary layer in the initial sector of a pipe with rough walls is studied within the framework of boundary layer theory. It is demonstrated that consideration of roughness can be performed by introducing a function to the "standard" rule of friction, considering this factor. The experimental study was performed on an experimental pipe sector with natural roughness, the relative value of which is 10^{-3}. The range of Reynolds numbers was $5.1 \cdot 10^4$-$3.4 \cdot 10^5$.

USSR

UDC 512.25/.26+519.3:330.115

KUZ'MIN, V. V.

"Mathematical Methods of Composition of Plan-Schedules for Series Production of Parts"

Tr. Mosk. Ekon.-statist. In-ta [Works of Moscow Economics and Statistics Institute], No 3, Part 2, 1970, pp 3-17, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V523 by V. Tanayev).

Translation: The problem of planning of the processing of n parts on m machines with fixed technological paths for each part is studied. Conditions are established under which the sequence of processing of parts by each machine does not contradict the technological paths established. Upper estimates for the number of possible schedules are presented. A procedure is suggested for modeling the schedules, continuously distributed in the set of all schedules.

UDC 669.721.472(088.8)

USSR

ZUYEV, N. M., IVANOV, A. B., VUKOLOV, V. V., SHARUNOVA, G. M., KASHKAROV, A. Z., DONSKIKH, P. A., KOLESNIKOV, A. V., GOLUBEV, A. A., SPRYGIN, A. I., KOLESNIKOV, V. A., and KUZ'MIN, V. V., All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry, and Berezniki Titanium-Magnesium Combine.

"Device for Conveying Liquid Electrolyte and Magnesium"

USSR Authors' Certificate No 259396, Cl. 40c, 3/02; 40c, 3/08, (C 22d), filed 21 Oct 68, published 28 Apr 70 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 G250 P)

Translation: In order to utilize the heat of the exothermic reactions taking place during the mixing of reversible electrolyte with $MgCl_2$ and to preclude the consumption of electric energy for heating the main conveyer lines, a pipeline for conveying the reversible electrolyte and metallic magnesium was installed inside a trough-shaped channel to convey a magnesium chloride-enriched electrolyte, the pipeline being connected at one end with the last electrolyzer of the flow line, and at the other with a mixer, while the trough-shaped channel is connected with the lead electrolyzer and the mixer.

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AA0040676

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UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent 4/70

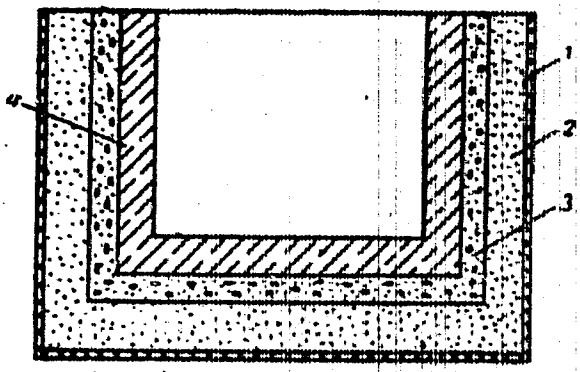
241694 MAGNESIUM ELECTROLYSER LINING is made up of a thin asbestos layer 1, furnace slag 2, heat resistant concrete 3, and firebricks 4. This reduces the liner cost by 8-15 times without adversely affecting thermal insulation.

AUTHORS: Sprygin, A. I.; Kuz'min, V. V.; Bashkatov, V. V.; Volchkov, G. V.; Devyatkin, V. N.; Aleksandrov, V. A.; and Kolesnikov, V. A.

18

19750279

AA0040676



26.2.68 as 1221183/22-1. A.I. SPRYGIN et alia
(25.8.69) Bul 14/18.4.69. Class 40c. Int.Cl.C22d.

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19750280

AA0 044291

Kuzmin, A.I.

UR 0482

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Soviet Inventions Illustrated, Section II Electrical, Derwent,

241105 THE DIODE MATRIX proposed is intended to facilitate the control of the whole assembly and ensure the absence of broken down diodes. When trigger counter 1 (see diagram) is set to the initial condition a test pulse is also given switching over relays 2,3. 2 applies a positive voltage from power supply 5 to the auxiliary line 4, whence through its diode and line 14 the diodes in any selected horizontal line 6, selected by change-switch 7,8 receive the voltage reversely and pass the total reverse current on via 3 to amplifier 9, set to function on some permissible current level. The test signal is also sent from 4 up each vertical to OR gates 11. As there are no signals incoming from 1 (in initial position) the comparison unit 12 functions if all the vertical lines are sound. The vertical line 14 is connected to a relay 15. When any horizontal line is connected to 5 for testing, the relay is shunted by a diode 10, and its contacts (not shown) open; this is a signal attesting the soundness of the horizontal line tested.

28.1.67. as 1102693/26-9. M.S.SLABCHININ et alia. (12.8.69) Bul 13/1.4.69. Class 42m3, Int.Cl.G 06f.

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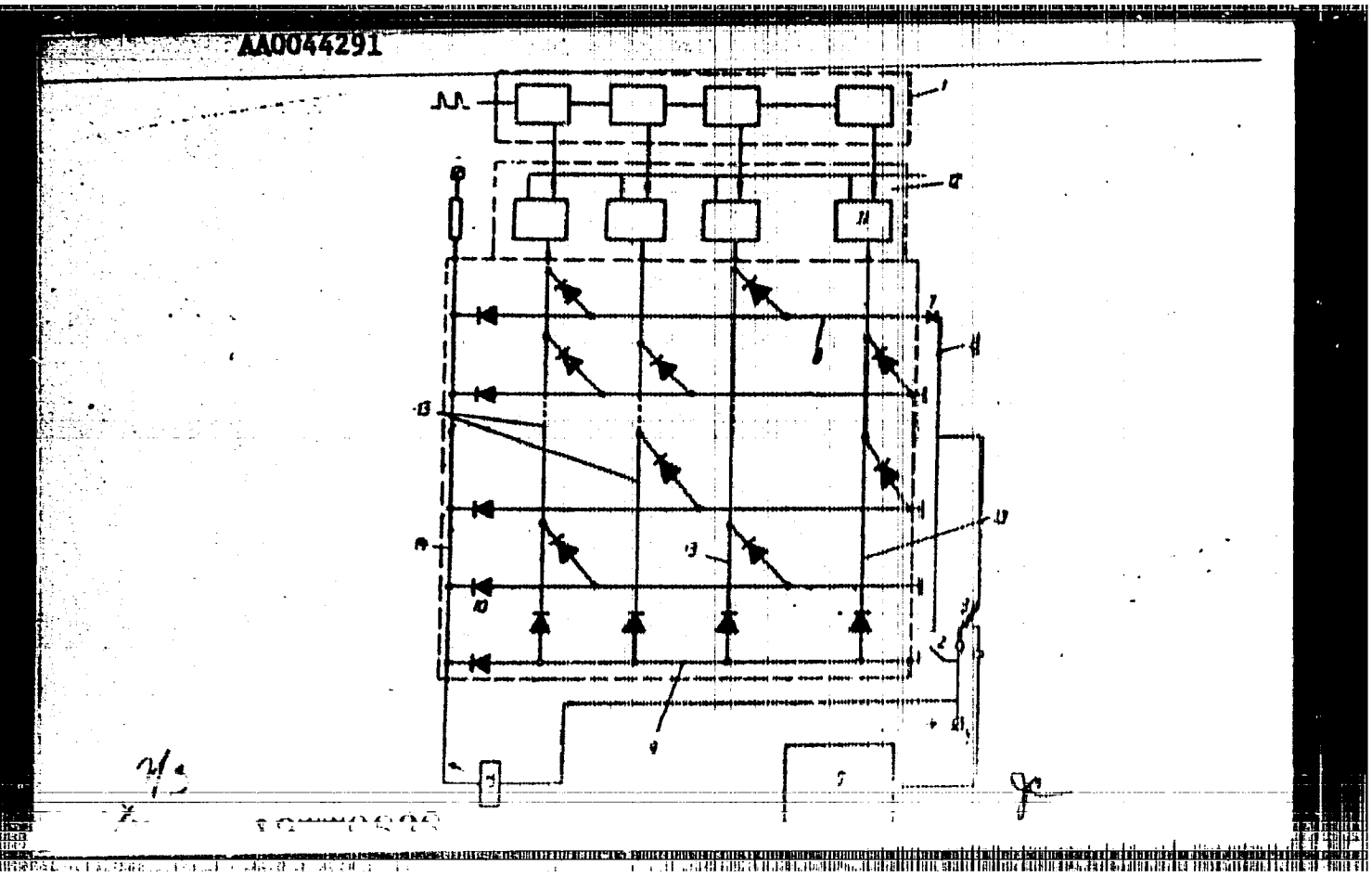
1977083?



AA0044291

AUTHORS: Slashchinin, M. S.; Bonovskiy, M. V.; Kuz'min, Ye. I.

19770839

USSR UDC: 621.315.621.5

FEDCHENKO, Ye. D., IBRAIMOV, N. S., KUZ'MIN, Ye. N., ASHAKHOVA, G. I.

"X-Ray Structural Study of the Process of Aging of Piezoceramic Materials of the TsTS System"

Elektron. tekhnika. Nauch.-tekhn. sb. Radiokomponenty (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 5, pp 92-95 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V479)

Translation: An x-ray study was made of ninety-degree reorientation of domains in the process of natural aging of polarized piezoceramic specimens of the TsTS system. It is found that one of the principal physical mechanisms of aging is ninety-degree motion of the domain wall. It is shown how the number of ninety-degree reorientations of domains depends on the temperature of the specimen during polarization. Resume

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USSR

UDC 621.355.8.035.2

KUZ'MIN, YU. A., MASHEVICH, M., UFLYAND, N. YU., and FROLOVA, F. P.

"The Influence of Cobalt on the Characteristics of the Nickel-Oxygen Laminar Electrodes, Operating in a Zincate Electrolyte"

Sb. rabot no khim. istochnikam toka. Vses. n.-i akkumulyator. in-t (collection of Works on the Chemical Source of Current. All-Union Scientific Study Institute for Storage Batteries), Vyp 7, 1972, pp 163-167 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L245 by V. S. Levinson)

Translation: The possibility was examined for the construction of Nickel-Zinc batteries using a nickel-oxygen electrode having laminated structure with specific characteristics close to those of nickel-cadmium and nickel-iron batteries. The introduction of the 3% impurity of cobalt in the form of a solution of $CoSO_4$ into the active part of the cathode contributes to the increase in depth of discharge, and in long range cycles to the depth of discharge of the electrode, owing to which the time of operation of the batteries reached 70-80 cycles and the average voltage was 40% greater than the voltage of the nickel-cadmium and nickel-iron batteries.

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USSR UDC: 621.375

KUZ'MIN, Yu. G.

"High-Frequency Correction of a Transistor Stage With a Dynamic Load"

Tr. Altaysk. politekhn. in-ta (Works of the Altai Polytechnical Institute), 1970, vyp. 12, pp 121-129 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D67)

Translation: The author considers the properties of a transistor stage with dynamic load on the middle and upper frequencies of the passband. The limiting frequency of the uncorrected r-f amplifier is determined. The possibilities of inductive and RC correction are analyzed. Conditions are given under which a stage with dynamic loading gives a higher Q than an amplifier with a common-emitter circuit. One illustration, bibliography of five titles. N. S.

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UDC: 621.374.4

USSR

KUZ'MIN, Yu. G., SMIRNOV, R. A.

"Low-Frequency Correction of a Transistor Stage With Parallel Control"

Tr. Altaysk politekhn. in-ta (Works of the Altai Polytechnical Institute), 1970, vyp. 12, pp 130-136 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D37)

Translation: The authors consider a stage with parallel control in the long (switching) time region. A formula is derived for the so-called operational gain of the stage. The drop-off of the pulse peak at the output of the stage is determined. The order of calculation of the amplifier with correction is shown. Bibliography of four titles. M. S.

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USSR

UDC 681.332.65

KUZ'MIN, YU. I.

"Pulse Counter"

USSR Author's Certificate No 310404, filed 5 Jan 70, published 13 Oct 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 5, May 72, Abstract No 5B174P)

Translation: Pulse counters are known which contain flip-flops, capacitor accumulator stages, and comparators. The shortcomings of these counters include their low load capacity and operating reliability. The proposed pulse counter differs from known ones in that the accumulator stage capacitors are connected through the diode comparators between an unlike input and output of the flip-flop. This eliminates the shortcomings of the known pulse counters.

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USSR UDC 681.327

IMSHENETSKIY, V. V., KUZ'MIN, Yu. I., and SIKORSKIY, Yu. M.

"Procedure for Recording Information in a Memory with Pulse-Phase Representation of Numbers"

USSR Author's Certificate No 264771, filed 18 Jul 66, published 17 Jun 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6, Jun 71, Abstract No 6B230P)

Translation: The proposed invention belongs to computer engineering and is designed for recording information in memory with pulse-phase representation of numbers. A procedure for recording information in pulse-phase multistable elements is well known. The purpose of the invention is the creation of a procedure which permits reduction of the time required to record the information in the pulse-phase elements and also to simplify it. The proposed procedure is distinguished from the well-known one by the fact that in the initial state the memory input is excited from the source of the first cycle pulse train corresponding to entering a "0"; for entering a number, the source of the first train of cycle pulses is shut off and the memory input is excited from the source of another train of cycle pulses of the

USSR

IMSHENETSKIY, V. V., et al., USSR Author's Certificate No 264771, filed 18 Jul 66, published 17 Jun 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6, Jun 71, Abstract No 6B230P)

same frequency as the first train and shifted relative to the first by a time interval corresponding to the number entered in memory; in the input pulse copy mode, the numbers are entered on the next reference to one of the set of cycle pulse trains sequentially and uniformly shifted in time relative to each other.

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USSR UDC: 621.374(088.8)

DUBITSKIY, L. A., KUZ'MIN, Yu. I.

"An Electronic Commutator"

USSR Author's Certificate No 262958, filed 30 Sep 68, published 3 Jun 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A264)

Translation: This Author's Certificate introduces an electronic commutator which consists of n series-connected groups, each of which contains a pulse--potential coincidence circuit, a storage capacitor, and a limiter amplifier whose output is connected to one input of the coincidence circuit. As a distinguishing feature of the patent, the number of active elements is reduced and reliability is improved by adding an inhibit circuit in the commutator with an interrogation pulse source connected to one input through a differentiating circuit, while the pulse supply source is connected to the other input of this inhibit circuit and its output is connected to the second input of each of the coincidence circuits.

USSR

UDC 681.327.67

INSHENETSKIY, V. V., KUZ'MIN, YU. I., SIKORSKIY, YU. M.

"A Method of Recording Information in a Memory Device with Pulse-Position Number Representation"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 9, 1970, p 127, Patent No 264771, filed 18 Jul 66

Abstract: This Author's Certificate introduces a method of recording information in a memory device with pulse-position number representation. The recorded numbers are distinguished by a time shift in the pulse sequence at the output of the memory device relative to the sequence of reference pulses of the same frequency. As a distinguishing feature of the patent, to cut down recording time and to simplify the recording of information in the pulse-position elements, in the initial state the input of the memory device is excited from the source of the first sequence of phasing pulses corresponding to recording of a zero. To record a number, the source of the first sequence of phasing pulses is cut off and the input of the memory device is excited from the source of the second sequence of phasing pulses of the same frequency as the first.
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USSR

INSHENETSKIY, V. V., et al., Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 9, 1970, p 127
Patent No 264771, filed 18 Jul 66

but shifted with respect to the first by a time interval corresponding to the number to be recorded in the memory device. In the input pulse scaling mode, recording is done by successive reference to one of a set of phasing pulse trains which are uniformly time-shifted in sequence with respect to each other.

USSR

UDC 621.317.757

KOMAROV, V. A., KOROTKOV, A. Z., KUZ'MIN, Yu. I.

"A Device for Analyzing the Checkout Characteristics of an Automatic Monitoring System"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 12, Apr 72, Author's Certificate No 334570, Division G, filed 24 Aug 70, published 30 Mar 72, pp 182-183

Translation: This Author's Certificate introduces a device for analyzing the checkout characteristics of an automatic monitoring system. The device contains checkout characteristic and operation number memory units whose inputs are connected to recording units, while the outputs are connected through readout devices to circuits for comparing the checkout characteristics and operation numbers. Also incorporated in the device are a program unit whose output is connected to the set terminals of the checkout characteristic comparison circuits, and AND and NOT-AND elements. As a distinguishing feature of the patent, The reliability of analysis is improved by adding delay units, an operation number counter, and an adaptive majority element. The output of the operation number counter is connected

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USSR

KOMAROV, V. A. et al., USSR Author's Certificate No 334570

to the program unit, to the unit for recording the operation number, and to the operation number comparison circuit. The inputs of the adaptive majority element are connected to the outputs of the checkout characteristic comparison circuits, the set terminal is connected to the program unit, and the output is connected to one input of the first AND element. A second input of the AND element is connected to the output of the operation number comparison circuit, and the output is connected to the first inputs of the NOT-AND element and the second AND element. The second inputs of these elements are connected through the delay unit to an interrogate line, which is connected through a second delay unit to the inputs of the recording units.

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Acc. Nr: AP0051951 Ref. Code: UR0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 4, pp 357-359

EXPERIENCE WITH LOCAL USE OF GLYCOCYCLINE IN CERTAIN LOR DISEASES

N. V. Gaspodinova, A. I. Kuzmina, V. S. Moshkevich, N. N. Popova, S. I. Edelshtein

F. E. Dzerzhinsky's Polyclinic, Moscow

Acquous solutions of glycocycline at a concentration of 500 to 20000 Units/ml and powders were used locally as ear drops, solutions for washing the sinus cavities and aerosol inhalations in the treatment of 144 lor cases with microflora sensitive to tetracycline. 110 patients suffering from exacerbated chronic pharyngo-laryngitis, sinusitis, chronic otitis and tonsilitis showed satisfactory results. The antibiotic applications were satisfactory tolerated by the patients. No severe side effects were observed.

REEL/FRAME
19820438

1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CURRENT SOURCE WITH AN ALUMINUM ANODE AND CONTAINING PERCHLORIC ACID SOLUTION -U-

AUTHOR--KUZNINA, A.V.

K

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 898-900

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRODE POTENTIAL, ALUMINUM, CURRENT DENSITY, LEAD OXIDE, SULFATE, CHLORIDE, FLUORIDE, PERCHLORIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0974 STEP NO--UR/0080/70/043/004/0898/0900

CIRC ACCESSION NO--AP0131559

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0131559

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANODIC BEHAVIOR OF AL IN HCLO SUB4 SOLNS. WAS STUDIED AT 25DEGREES TO DET. THE FEASIBILITY OF THE BATTERY AL MAGNITUDE OF HCLO SUB4 MAGNITUDE OF PBO SUB2 (OR MNO SUB2). THE CURRENT EFFICIENCY INCREASED WITH C.D. UP TO 50 MA-CM PRIME2 ABOVE WHICH THE EFFICIENCY WAS CONST. THE SELF DISCHARGE RATE OF AL (DUE TO DISSOLN.) INCREASED WITH ACID CONCN. THE ANODIC POTENTIAL OF AL SHOWED ONLY SLIGHT POLARIZATION TO 200 MA-CM PRIME2. OF THE ANIONS, CL PRIME NEGATIVE, F PRIME NEGATIVE, OR SO SUB4 PRIME2NEGATIVE, ONLY CL PRIME NEGATIVE HAD A SIGNIFICANT EFFECT ON THE CURRENT EFFICIENCY, DECREASING IT BY INCREASING THE SELF DISSOLN. OF AL. A CELL AL MAGNITUDE OF HCLO SUB4 (800 G-L.) MINUS HCL (10 G-L.) MAGNITUDE OF PBO SUB2 SHOWED VIRTUALLY NO LOSS IN TERMINAL VOLTAGE (SIMILAR TO 2.1-2.3 V) FOR A 6 MIN DISCHARGE AT C.05. LESS THAN OR EQUAL TO 100 MA-CM PRIME2. METAL UTILIZATION WAS 50-70PERCENT. FACILITY: IVANOV. TEXST. INST. IM. FRUNZE, IVANOVO, USSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--A CHANGE OF ACID BASE BALANCE AND OF ELECTROLYTIC COMPOSITION OF THE CEREBROSPINAL FLUID AND BLOOD IN PRIMARY REACTION IN RESPONSE TO

AUTHOR-(04)-IVANOV, B.M., KUZOVKOV, A.G., KUZMINA, E.V., MEYDNAK, I.M.

COUNTRY OF INFO--USSR

SOURCE--PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA, 1970, VOL 14, NR 3, PP 42-48

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TRAUMATIC SHOCK, CEREBROSPINAL FLUID, BLOOD, ACIDOSIS, ALKALOSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0625 STEP NO--UR/0398/70/014/003/0042/0048

CIRC ACCESSION NO--AP0128166

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

2/2 026

CIRC ACCESSION NO--AP0128166

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT WAS SHOWN IN EXPERIMENTS ON RABBITS WITH THE USE OF THE METHODS OF FLAME PHOTOMETRY AND MICRO ASTHRUP THAT TRAUMATIC SHOCK INDUCED A MARKED METABOLIC ACIDOSIS IN THE BLOOD; THE DEGREE OF THIS ACIDOSIS DEPENDED ON THE PHASE OF SHOCK. AN ELEVATION OF BLOOD AND CEREBROSPINAL FLUID POTASSIUM CONTENT WAS SEEN DURING THE ERECTILE AND TORPID PHASES OF SHOCK. AN INCREASE OF SODIUM CONTENT IN THE CEREBROSPINAL FLUID AND ITS FALL IN THE ARTERIAL BLOOD WAS NOTED DURING THE TORPID PHASE OF SHOCK. THERE IS AN INCREASE OF MIXED RESPIRATORY METABOLIC ALKALOSIS IN THE CEREBROSPINAL FLUID DEPENDING ON THE PHASE OF SHOCK. DURING THE ERECTILE PHASE ALKALOSIS IS MAINTAINED ON ACCOUNT OF INTENSIFIED ACCESS OF CARBON DIOXIDE FROM THE CEREBROSPINAL FLUID SPACES INTO THE BLOOD; DURING THE TORPID PHASE OF ALKALOSIS IN THE CEREBROSPINAL FLUID IS INTENSIFIED AS A RESULT OF INCREASED PERMEABILITY OF THE HEMATO ENCEPHALIC BARRIER AND A FALL OF CARBON DIOXIDE TENSION IN THE BRAIN SYSTEM.' FACILITY: KAFEDRA NORMAL'NOY FIZIOLOGII VOYENNO-MORSKOY KHIRURGII VOYENNO-MEDITSINSKOY AKADEMII, LENINGRAD.

UNCLASSIFIED

USSR UDC 669.71.053.4.094

FESHCHENKO, Z. I., SKOBEYEV, I. K., KUZ'MINA, G. V.

"Study of the Mechanism of Interaction of Alkali with Bauxite Charge Components"

Obogashch. i metallurgiya polezn. iskopayemykh -- V sb. (Beneficiation and Metallurgy of Minerals -- collection of works), Irkutsk, 1970, pp 75-76 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G145)

Translation: The mechanism of interaction of NaOH and the effect of Fe_2O_3 on extraction of Na_2O and Al_2O_3 during leaching of slurry charge cake are studied. The highest extraction of Na_2O was obtained from the charge cakes in which 75% of the Fe_2O_3 content in the slurry is bound in the sodium ferrite. The extraction of Al_2O_3 is constant for all charges. The cause of low extraction of Na_2O from cakes of certain slurry charges is the formation of compounds of the type of $mNa_2O \cdot pCaO \cdot nSiO_2$ from which Na_2O is not extracted in aqueous solution during leaching of the cakes. On treating red slurry with water with lime (in the ratio of CaO : Na_2O = 3), at a

USSR

FESHCHENKO, Z. I., et al., Obogashch. i metallurgiya polezn. iskopaemykh, Irkutsk, 1970, pp 75-76

leaching temperature of 96-98°, with a L : S ratio of 5 : 1 for 8 hours, the degree of regeneration of the Na_2O was 94-95%. The leaching of the Al_2O_3 was 34-35%.

2/2

USSR

UDC: 548.5:535.37

KUZ'MINA, I. P., LOBACHEV, A. N., PREDTECHENSKIY, B. S., STAROSTINA, L. S., STOPACHINSKIY, V. B., KHAYDUKOV, N. M., Institute of Crystallography, Academy of Sciences of the USSR

"Luminescent Crystals of Cuprous Oxide"

Moscow, Kristallografiya, Vol 18, No 3, May/Jun 73, pp 635-637

Abstract: The paper describes a method of growing large perfect crystals of Cu_2O to study bright narrow luminescence lines of recombination of free excitons. A polycrystal like specimen of Cu_2O is treated by zone melting with an electron beam. The resultant specimen usually consists of 2-3 crystals. A single crystal is grown, using one of these crystals as a seed. The result is a transparent cylindrical rod up to 10 mm in diameter and 100 mm long. These large crystals can be used to study many new properties of excitons -- interaction between excitons and the feasibility of making lasers based on cuprous oxide crystals.

1/1

Organometallic Compounds

USSR UDC 548.737

KUZ'MINA, L. G., BOKIY, N. G., STRUCHKOV, YU. T., ARUTYUNYAN, A. V., RYBIN, L. V., and RYBINSKAYA, M. I., Institute of Metalorganic Compounds, Academy of Sciences USSR

"Structure of 3,6-Duphenylpyridazino-diferrum-triphenylphosphine-pentacarbonyl"

Moscow, Zhurnal Strukturnoy Khimii, Vol 12, No 5, Sep-Oct 71, pp 875-882

Abstract: To determine objectively the structure of diarylpyridazine complexes with iron carbonyls, a complete roentgenographic analysis of the monophosphine complex $[(C_6H_5)_2C_4H_2N_1] \cdot [Fe_2P(C_6H_5)_3(CO)_5]$ was carried out. The binuclear molecule contains $Fe(CO)_3$ and $Fe(CO)_2PPh_3$ groups connected with a Fe-Fe bond and two nitrogen bridge atoms of the pyridazine moiety. Fe atoms are of the octahedral coordination, they are highly strained due to the formation of tetrahedral cluster system Fe_2N_2. The crystals are monoclinic with a= 23.98, b = 18.34, c= 8.39 Å β = 107°20', and and N = 4. The structure was obtained by the heavy atom method and refined by the least squares method to R = 12%. The pyridine ring acts as a diazo-bridge between two iron atoms also connected by the metal - metal bond. The most interesting bond lengths are: Fe-Fe = 2.53; N-N = 1.43; Fe-N = 1.92 Å. 1/1

5

STRS 59265
6-73

19-7. SOME METHODS OF LOW TEMPERATURE EPITAXY OF SILICON

[Article by L. N. Mikhaylov, M. Ya. Karrin, A. S. Adonin, V. V. Bondarenko, L. I. Kuz'mina, Moscow; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June, 1972, p 47]

A study was made of the temperature dependence of the growth rate of the epitaxial layers in the chloride system for epitaxy with high temperature inoculation. The decrease in apparent activation energy of the growth process was noted for high temperature inoculation, ultraviolet radiation and preliminary heating of the hydrogen to a value of ~ 5 kcal/mole which is explained by a decrease in the gas adsorption on the substrate surface.

The use of a mixture of monosilane with an inert gas (helium) also led to a significant reduction in the epitaxial growth temperature. The perfect epitaxial layers were obtained for a temperature of 850°C. The reduction in growth temperature is explained by a significant shift of equilibrium of the reaction of the decomposed monosilane in the direction of formation of elementary silicon and a decrease in the adsorption of hydrogen on the substrate surface.

Conclusions were drawn regarding the possibilities of a further reduction in the epitaxy temperature.

KUZ'MINA, L. I.

1/2 030 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--CORRECTION OF THE WATER AND SALT METABOLISM IN PATIENTS BFTER OPERATIONS ON THE STOMACH -U-

AUTHOR-(05)-SHKROB, O.S., DREYZINA, A.M., SOLOMATINA, N.F., KUZMINA, L.N., PARSHENKOVA, O.I.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 4, PP 60-65

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--METABOLISM, SURGERY, STOMACH, DIGESTIVE SYSTEM, ELECTROLYTE, BLOOD CIRCULATION, BLOOD PLASMA, PROTEIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1236 STEP NO--UR/0531/70/000/004/0060/0065

CIRC ACCESSION NO--AP0054131

UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054131

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS REPORT THE RESULTS OF CORRECTION OF WATER IONIC DISTURBANCES IN PATIENTS OPERATED ON THE STOMACH. A TOTAL OF 120 PATIENTS SUBJECTED TO GASTRECTONY, RESECTION OF THE STOMACH AND PALLIATIVE OPERATIONS WERE EXAMINED. CORRECTION OF HYDROIONIC DISTURBANCES WAS CARRIED OUT FROM THE FIRST DAY AFTER THE OPERATION AND CONSISTED IN OBLIGATORY USE OF POLYIONIC SOLUTIONS WITH DUE CONSIDERATION OF THE LOOS OF ELECTROLYTES. DYNAMIC INVESTIGATIONS OF PLASMA AND URINARY ELECTROLYTES, VOLUME OF CIRCULATING BLOOD, PLASMA, CIRCULATING PROTEIN, HEMOGLOBIN, HEMATOCRIT, VOLUME OF INTRACELLULAR AND TOTAL WATER AGAINST THE BACKGROUND OF THE SOLUTIONS ADMINISTERED DURING PARENTERAL NUTRITION REVEALED NO ESSENTIAL FLUCTUATIONS. THIS TESTIFIED TO THE FACT THAT THE EMPLOYED METHOD OF PARENTERAL NUTRITION IN PATIENTS AFTER OPERATIONS ON THE GASTROINTESTINAL TRACT COMPENSATES THE WATER AND SALT DEFICIENCY. AS THE RESULT OF THE ABOVE MENTIONED TREATMENT DURING THE LAST TWO YEARS NO SYMPTOMS OF DEHYDRATION AND DYSELECTROLYTEMIA WERE OBSERVED.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--EVALUATING THE EFFECTIVENESS OF ANTIOXIDANT ADDITIVES TO GASOLINES
-U-
AUTHOR-(04)-GUREYEV, A.A., BOGERUK, L.G., KUZMINA, N.A., DEMIDENKO, K.A.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (2), 2-4

DATE PUBLISHED-------70

SUBJECT AREAS--PROPULSION AND FUELS

TOPIC TAGS--GASOLINE, FUEL ADDITIVE, ANTIOXIDANT ADDITIVE, THERMAL CRACKING, CYCLOHEXENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1520 STEP NO--UR/0318/70/000/002/0002/0004

CIRC ACCESSION NO--AP0118507
UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118507

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CYCLOHEXENE (I) WAS USED AS A STD., INSTEAD OF GASOLINE FOR THERMAL CRACKING, TO DET. THE ANTIOXIDANT EFFECTIVENESS BY AN OXION. TEST AT 100DEGREES. FOR INDUCTION PERIODS OF SMALLER THAN 400 AND LARGER THAN 400 MIN, THE DIFFERENCES BETWEEN 2 DETNS. WERE SMALLER THAN 15 AND SMALLER THAN 30 MIN, RESP. AFTER THE DETN., I WAS RECOVERED BY DISTN. AND REUSED.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ROLE OF ACTIVE CONTRACTILE FUNCITON OF THE ATRIUM IN THE DEVELOPMENT OF THE INTRA ATRIAL PRESSURE CURVE -U-

AUTHOR--KUZMINA, N.B.

COUNTRY OF INFO--USSR

SOURCE--KARDIOLOGIYA 10(1): 92-102. ILLUS. 1970

DATE PUBLISHED--------70

SUBJECT AREAS--BICLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CARDIOVASCULAR SYSTEM, HEART, HUMAN PHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0539 STEP NO--UR/0495/70/010/001/0099/0102

CIRC ACCESSION NO--AP0131152

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--[illegible]OCT70

CIRC ACCESSION NO--AP0131162

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A BRIEF DESCRIPTION OF CURRENT PHYSIOLOGICAL THEORIES ACCOUNTING FOR THE ORIGINATION OF THE ATRIAL C, V AND X WAVES IS GIVEN. EXPERIMENTS WITH REPLACEMENT OF THE MITRAL VALVE SHOW THAT THE GENESIS OF THESE WAVES IS IN NEED OF FURTHER STUDIES AND THAT THE CONTRACTILE FUNCTION OF THE ATRIUM PLAYS AN ACTIVE ROLE IN THEIR ORIGIN. FACILITY: A. N. BAKULEVA INST. CARDIOVASC. SURG., ACAD. MED. SCI. USSR, MOSCOW, USSR.

UNCLASSIFIED

Luminescence

USSR UDC 661.143.(088.8)

MALKES, L. YA., KUZ'MINA, N. V., KRASOVITSKIY, B. M., et al.

"Luminescent Liquid for Defectoscopy"

USSR Author's Certificate No 362860, filed 15 Mar 71, published 1 Feb 73 (from RZh-Khimiya, No 21, Nov 73, Abstract No 21 L 162 P)

Translation: In order to lower the toxicity and fire hazard, the luminescent liquid used in luminescent defectoscopy in aviation, in automobile and ship-building industries contains an organic solvent consisting of 95-99% of dicumylmethane and 1-5% of dimethylformamide (their ratio 40:1). The organic luminescent component of this mixture is 1,8-naphtoylene-1',2'-benzimidazole. The wetting agent OP-7 is added to impart wetting property. The components are mixed at 85-90° and a yellowish-green transparent liquid is obtained with intensive luminescence under UV light. Example. Luminescent liquid composition (in g): dicumylmethane 970, dimethylformamide 24, wetting agent OP-7 1, 1,8-naphtoylene-1',2'-benzimidazole 5. The wetting agent and the organic luminescent component may be replaced by other reagents with similar properties.

1/1

USSR

UDC: 8.74

SIRODZHA, I. B., SALYGA, V. I., MYSHKO, Ye. I., VASILENKO, Yu. A., KARTASHOV, L. N., PRYANITSKIY, A. M., KUZ'MINA, O. I.

"Modeling the Process of Teaching Pattern Recognition by the Method of R-Functions With the Use of a Digital Computer"

Probl. bioniki. Resp. mezhved. temat. nauch.-tekhn. sb. (Problems of Bionics. Republic Interdepartmental Thematic Scientific and Technical Collection), 1971, vyp. 7, pp 106-112 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V582)

Translation: The paper deals with a mathematical model of instruction whose basis is a developed learning algorithm of pattern recognition distinguished by the use of a fundamentally new procedure of predicative description of arbitrary geometric forms in multidimensional spaces with the aid of R-functions. Authors' abstract.

1/1

USSR

UDC: 539.3

KUZ'MINA, R.P., Moscow

"Axisymmetrical Equilibrium of Cylindrical Membrane Under Hydrostatic Pressure"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Tverdogo Tela, No 4 Jul/Aug 72, pp 182-188

Abstract: The axisymmetric equilibrium of a perfectly flexible nonstretchable membrane is investigated. The nondeformed shape of the membrane is a cylinder of radius a and length c. The ends of the membrane are fixed at a distance $b < c$. The membrane contains a liquid whose volume is less than the volume of the nondeformed membrane. The membrane is subject to an external gas pressure. Under these conditions the lower part of the membrane is a cylinder of radius a subject to circumferential tension, the upper part forms meridional folds and has a radius smaller than a. A method is given for obtaining the meridional shape of the membrane by numerical integration solutions for several particular cases are presented.

1/1

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

ZAYEV, N. Ye., and KUZ'MINA, R. P.

"Dependence of the Surface Charge Density of Electrets on Temperature"

Tr. VNII elektromekh. (Works of the All-Union Scientific Research Institute of Electromechanics), 1971, Vol 35, pp 200-209 (from RZh Fizika, No 12, Dec 71, Abstract No 12Ye1157)

Translation: It was found that the surface charge density of homoelectrets increases with an increase in temperature. With a lowering of the temperature, the surface charge density decreases. The experimental data are satisfactorily explained on the basis of the absorption theory of electrets. Resume.

1/1

1/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--MONOAMINE OXIDASE ACTIVITY IN LIVER AND ASCITES HEPATOMA NUCLEAR MEMBRANES -U-

AUTHOR-(03)-GORKIN, V.Z., KUZMINA, S.N., ZBARSKIY, I.B.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(2), 472-3

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RAT, LIVER, OXIDASE, NUCLEUS, TUMOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605006/F01 STEP NO--UR/0020/70/191/002/0472/0473

CIRC ACCESSION NO--AT0139813

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AT0139813
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPECIFIC MONOAMINE OXIDASE ACTIVITY IN RAT LIVER COMPONENTS WAS THE HIGHEST IN NUCLEAR MEMBRANES AND RELATIVELY LOW IN HOMOGENATES AND NUCLEI PROPER; IS ASCITES HEPATOMA IT WAS ALMOST LACKING. IT WAS ALSO SUBSTANTIALLY ABSENT IN HOMOGENATES AND NUCLEI OF OTHER TUMORS SUCH AS MOUSE CARCINOMA AND JENSEN SARCOMA. TWEEN 80 AT CONCN. USED FOR ISOLATION OF NUCLEI DID NOT LOWER THE ACTIVITY OF THIS ENZYME IN HOMOGENATES OR NUCLEI IN HEALTHY RATS.
FACILITY: INST. BIOL. MED. KHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--RESPIRATORY ACTIVITY OF ISOLATED NUCLEAR MEMBRANES AND NUCLEI OF RAT LIVER -U-

AUTHOR-(05)-KUZNINA, S.N., MONAKHOV, N.K., GAYEVSKHOKI, V.S., NEYFAKH, S.A., ZBARSKIY, I.B.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(1), 215-17

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RESPIRATION, RAT, LIVER, DEHYDROGENASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1671 STEP NO--UR/0020/70/191/001/0215/0217

CIRC ACCESSION NO--AT0133576

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT013357o

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESPIRATORY ACTIVITY OF ISOLATED NUCLEI OF RAT LIVER CELLS WAS TABULATED WITH AND WITHOUT ADDED CYTOCHROME C, NADH, AND ADP AS WELL AS GLUTAMATE, SUCCINATE, AND ON PRIME NEGATIVE. THE RESULTS SHOWED THAT OXIDATIVE SYSTEMS ARE PRESENT IN THE CELLS OF LIVER STRUCTURE AND SPECIFICALLY IN THE NUCLEI OF THESE CELLS SO THAT NUCLEAR OXIDATION PROCESS IN VARIOUS CELLS AND IS NOT LIMITED TO LYMPHOIDAL TISSUES ONLY. THE NUCLEAR MEMBRANE AND NUCLEI PER SE ACTIVELY USE NADH AS THE OXION. SUBSTRATE; A LESS INTENSIVE STIMULATION OF RESPIRATION BY NADPH AND A CONSIDERABLE INCREASE OF THIS EFFECT BY ADDED NAD WERE NOTED. THIS INDICATES THAT NADPH IS OXIDIZED MAINLY BY A TRANSHYDROGENASE AND SUBSEQUENT DEHYDROGENATION OF NADH. THE ABSENCE OF A PRONOUNCED EFFECT OF ADDED SUCCINATE OR O SUB2 UPTAKE AGREED WITH THE LACK OF SUCCINATE DEHYDROGENASE IN THE NUCLEAR STRUCTURES OF THESE CELLS. ADDED ADP DID NOT STIMULATE RESPIRATION. HENCE EXOGENOUS ADP EVIDENTLY DID NOT PLAY A ROLE AS PHOSPHATE ACCEPTOR IN THESE SYSTEMS. FACILITY: INST. BIOL. RAZV., MOSCOW, USSR.

UNCLASSIFIED

USSR UDC 576.858.25.083.35

REZEPOVA, A. I., KUZ'MINA, S. V., KULIKOVA, K. S., and UMANOV, S. S., Moscow Scientific Research Institute of Virus Preparations, and Institute of Biophysics, Academy of Sciences USSR

"Propagation of Some Arboviruses in New Transplanted Lines of Mouse Fibroblasts"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 71, pp 704-707

Abstract: Embryonic fibroblasts of mice constitute a useful culture medium for hemagglutinating arboviruses. Though no formation of hemagglutinins occurs in the parent cells, in successive fibroblast lines hemagglutinins are produced in ample amounts by the following encephalomyelitis arbovirus strains: WEE, Sindbis, Semliki Forest, and Chikungunya (group A), and tickborne, Japanese, West Nile, St. Louis, Ntay, Bun'yamwera, and Omsk hemorrhagic fever (group B). These hemagglutinin preparations can be used to test the toxicity of the various arbovirus strains and to identify the arbovirus antibodies which were recently detected in human serum throughout the USSR.

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USSR UDC 612.014.3:/612.6+612.6.051/:576.858.75.081.35:576.8.095.383

KUZ'MINA, S. V., and NEUSTROYEVA, V. V., Institute of Biological Physics, Academy of Sciences USSR, Pushchino-na-Oke, Moscow Oblast', and Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR, Moscow

"Comparative Study of the Mitotic Activity and Chromosome Aberrations in Cell Culture Lines Contaminated With Mycoplasma and Decontaminated"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 72, No 11, Nov 71, pp 101-103

Abstract: A 3-year study was conducted of the mitotic activity and the level of chromosome aberrations in MED-14 and MED-15 mouse fibroblast cell culture lines contaminated with mycoplasma and the same lines decontaminated by means of antibiotics. It was established that the presence of mycoplasma lowered the mitotic activity of the cells and increased the level of chromosome aberrations in them. In recent years it was found that the great majority of normal and tumor cell culture lines were infected with Mycoplasmataceae. The level of chromosome aberrations in uncontaminated MED-14 and MED-15 lines is sufficiently high; it was found that cultures of these lines, on prolonged cultivation in vitro, underwent spontaneous malignization, acquiring the

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USSR

KUZ'MINA, S. V., and NEUSTROYEVA, V. V., Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 72, No 11, Nov 71, pp 101-103

capacity to produce tumors of the sarcoma type in mice of the line from which they were derived.

2/2

Mechanical and Optical

USSR

UDC 53.085.391:778.24:621.385.832.75

KUZ'MINA, T. A.

"Calculation of a Correcting Lens for the Production of Color Picture-Tube Screens"

Leningrad, Optiko-Mekhanicheskaya Promyshlennost', No 1, Jan 72, pp 25-28

Abstract: A procedure is presented for the calculation of correcting lenses for imprinting mosaic screens of color picture tubes with a 90° angle of deflection. Some considerations are presented regarding the derivation of the wave surface of the electron beams, the course of which must be simulated by the lens; also presented are the equations of the equations of the correcting-lens surface, which makes it possible to collect all the beams in at the point where the source must be placed. Four figures, 2 references.

1/1

1/2 030 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--PREPARATION OF FILMS OF ORGANIC MATERIALS AS ANALYZERS FOR THE ULTRASOFT X RAY SPECTRAL REGION -U-

AUTHOR-(03)-SOLOVYEV, A.M., CHERNOBEREZHSKIY, YU.M., MANKEVICH, A.I., KUZMIN, F.A., TOPORKOV, S.A.

COUNTRY OF INFO--USSR

SOURCE--VESTN. LENINGRAD. UNIV., FIZ., KHIM. 1970, (1), 163-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS, MATERIALS

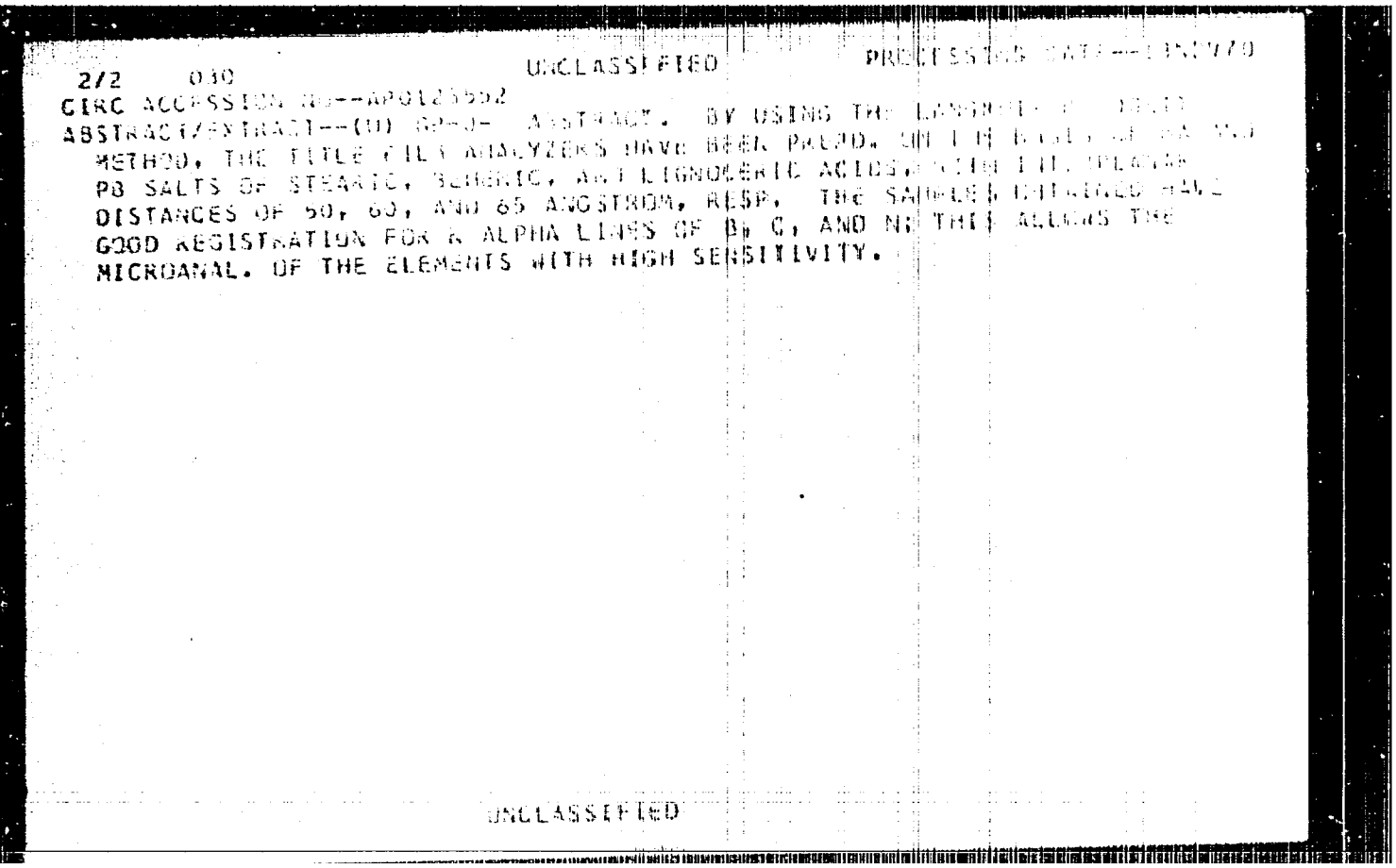
TOPIC TAGS--BARIUM COMPOUND, LEAD COMPOUND, X RAY SPECTRUM, STEARIC ACID, PLASTIC FILM, BORON, CARBON, NITROGEN, MICROCHEMICAL ANALYSIS EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1125 STEP NO--UR/0054/70/000/001/0163/0165

CIRC ACCESSION NO--AP0124552



2/2 030 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125552

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY USING THE LANGMUIR-[illegible] METHOD, THE TITLE FILM ANALYZERS HAVE BEEN PREPD. OF THE BILAYER PB SALTS OF STEARIC, BEHENIC, AND LIGNOCERIC ACIDS, WITH THE SPACING DISTANCES OF 50, 60, AND 65 ANGSTROM, RESP. THE SAMPLES DEPOSITED HAVE GOOD REGISTRATION FOR K ALPHA LINES OF B, C, AND N. THIS ALLOWS THE MICROANAL. OF THE ELEMENTS WITH HIGH SENSITIVITY.

UNCLASSIFIED

USSR

UDC 569.112.227.3

KOROTUSHENKO, G. V., GRIGORKIN, V. I., CHUKHRIN, L. A., MILYAKOV, A. P., KUZ'MINA, T. M., KRIVONOSOVA, L. F., Murmansk Marine Engineering School, Lipetskiy Affiliate of Moscow Institute of Steels and Alloys

"Cavitation-Corrosion Resistance of Chrome-Nickel-Tungsten Austenitic Steel"

Kiev, Fiziko-khimicheskaya Mekhanika Materialov, Vol 8, No 4, 1972, pp 92-95.

Abstract: The author s studied the cavitation-corrosion resistance of type 30Kh14N5V austenitic steels made in a vacuum furnace. The tungsten content was varied between 0.5 and 5%. The tendency of the austenite to form deformation martensite with 50% compression and with cavitation was also studied. The studies were performed in a 3% aqueous NaCl solution. The greater the tendency of the austenite toward the formation of both "volumetric" and "surface" martensite, the higher the cavitation-corrosion resistance. The maximum cavitation-corrosion resistance corresponds to the optimal content of tungsten in the steel, approximately 3%. Further increases to 5% cause the resistance and quantity of "surface" and "volumetric" martensite to decrease significantly. The reason for this maximum on the deformation martensite vs. alloy admixture curve has not been established. The steel with the optimal composition for corrosion-cavitation resistance has com-

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USSR

UDC 569.112.227.3

KOROTUSHENKO, G. V., GRIGORKIN, V. I., et. al., Kiev, Fiziko-khimicheskaya Mekhanika Materialov, Vol 8, No 4, 1972, pp 92-93.

paratively low corrosion rate in sea water. The steel with 3% tungsten therefore has the maximum cavitation-corrosion resistance, superior to that of Kh18N10T steel by more than an order of magnitude.

2/2

USSR

UDC 612.822.3+612.825

KUZ'MINA, T. R., and YANVAREVA, I. N., Chair of Human and Animal Physiology, Leningrad State University

"Spontaneous Pulsating Activity in the Cat Visual Cortex During Asphyxia"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 58, No 11, 1972, pp 1656-1662

Abstract: Action potentials were recorded from the surface of 60 neurons of the visual cortex (trephined occipital bone) in anesthetized and curarized cats. As long as the animals were on artificial respiration, the neurons discharged single or multiple spike potentials at rates of 1-57 impulses/sec. Upon disconnection from the respirator, no changes were observed in the first 5-10 sec. With hypoxia developing, the rate of discharge increased by a factor of 8-10 for a duration of 5-90 sec. Then the rate and amplitude of the spike potential decreased, and all activity ceased in 15-329 sec of asphyxia. Neurons with an initial discharge rate of 11-15 impulses/sec preserved their activity for the longest period, while those with an initial rate of 1-5 were the first to become silent. EEG activity outlasted that of individual visual neurons. It is pointed out that the changes in the discharge rate caused by asphyxia are similar to those caused by cathodic depression: a partial depolarization of the neurilemma by up to 15 mV facilitates generation of action

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USSR

KUZ'MINA, T. R. and YANVAREVA, I. N., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 58, No 11, 1972, pp 1656-1662

potentials, and further depolarization inhibits activity which ceases completely at a 50% depolarization.

2/2

USSR

KUZ'MINA, V. N., and AGRANENKO, V. S., All Union Scientific Research Institute of Physical Culture

"Study of the Functional State of Skilled Gymnasts During Training in Medium-Altitude Mountains"

Moscow, Teoriya i Praktika Fizicheskoy Kul'tury, No 10, Oct 70, pp 30-33

Abstract: A group of 24 male and female gymnasts from Moscow trained on a mountain about 2,000 m above sea level for a competition. Prior to their departure from Moscow and periodically after arrival at the mountain, they underwent a series of examinations which included a general physical exam; neurological, EKG, blood and urine analyses; muscle tone, visual, motor, and vestibular tests; and determination of adaptability to physical loads. Most of the gymnasts voiced various complaints during the first week of acclimatization including fatigue, dyspnea, insomnia, headaches, and poor coordination of movements. The results of the clinical and biochemical tests were far below the base line values. However, by the end of the second week improvement was noted in the coordination tests, muscle tone, CNS function, hematological indices, and adaptability of the cardiovascular system to loads. In the third week the various indices were the same as in Moscow.

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USSR

UDC: 597.0/5-15

SHENTYAKOVA, L.F., SHENTYAKOV, V.A., STEPANOV, V.S., [redacted], V.V., BARONKIN, O.F., BAYEVA, G.D., ZAYTSEVA, K.N., Institute of Biology of Inland Waters Academy of Sciences, USSR

"The Effect of Alternating Current on Fish and Aquatic Invertebrates"

Moscow, Voprosy Ikhtiologiya (Problems of Ichthyology) Vol 10, No 3, 70, pp 506-518

Abstract: This study on the influence of alternating currents on fish in various stages of life and development, in many different inland waters, covers a period of several years, and includes a great variety of fish. Trawl fishing with alternating current, the effect of current on spawning, embryo, larvae and fry and the subsequent condition of varieties of fish and their reproductive capacity, were studied. Results (summarized in five tables and a graph) show that alternating current in doses causing electronarcosis does not harm any fish in any phase of life and that from spawn to adults, fish develop normally. The catch of fish by alternating-current trawl is 125-203% above the normal. Studies on zooplankton and benthos showed that some organisms are not affected by low current intensities. Current of higher intensity stimulates the little animals to a greater activity, and still higher induced electro-narcosis. Plankton and benthos revive rapidly after withdrawal of current. Only in current doses 15-126 times that necessary to induce narcosis does death occur with about 10% of the plankton and benthos surviving.

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KUZMINA, Yu. R.

JPRS
9 MAR 72

UDC 621.762

STUDY OF CONDITIONS OF WETTING TITANIUM AND CHROMIUM BORIDES BY IRON GROUP METALS

[Article by [illegible], Yu. K. Kuz'mina, G. A. Libenson, Moscow Steel and Alloys Institute, Department of Rare, Radioactive Metals and Powder Metallurgy; Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, Russian, No 5, 1971, submitted 10 February 1971, pp 32-35]

In connection with the development of new branches of engineering, a demand has arisen for materials having high-temperature strength, high heat-resistance, high hardness, strength, wear resistance, and so on. These materials include refractory metallike compounds, including borides. The manufacture of products from which by casting methods is complicated as a result of their high melting points, and in a number of cases is impossible as a result of the tendency of many refractory compounds toward decomposition on melting. Accordingly, the methods of powder metallurgy have become widespread for the manufacture of products from refractory compounds.

When creating heat-resistant materials, a quantity of metallic binder is added to the borides which increases the ductility and heat-resistance of the compositions. It is expedient to use metals of the iron group as the binder. Here, the brittleness of the refractory component (the boride) is reduced, and the creep strength of the metal cement is increased without significant embrittlement. The addition of metallic cement is in this case useful also because it permits intensification of the sintering process as a result of the liquid phase formed which accelerates the diffusion processes and penetrates into the pores and spaces between the particles. At the same time, a great deal of volumetric shrinkage is insured along with obtaining high density and low residual porosity and also significant reduction in the sintering temperature of the materials connected with the formation of low-melting eutectics.

The investigation of the conditions of performing the sintering process with the formation of a liquid phase shows that for prevention of its sweating the marginal wetting angle must be less than 90 degrees. At this time, data has been gathered on the wettability of refractory compounds by liquid metal [1, 2].

However, for a number of borides of refractorymetals, which are acquiring greater and significance in modern engineering, the marginal wetting angles

1/2 028 UNCLASSIFIED PROCESSING DATE--18OCT70

TITLE--KINETIC ENERGY OF FRAGMENTS IN THE FISSION OF URANIUM 235 BY NEUTRONS WITH ENERGIES FROM 0 TO 0.6 MEV -U-

AUTHOR-(03)-KUZMINOV, B.D., LAJTAI, A., OYACHENKO, P.P.

COUNTRY OF INFO--USSR

SOURCE--PHYS. LETT. B 1970, 31(3), 122-3

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--KINETIC ENERGY, FISSION PRODUCT, NUCLEAR FISSION, URANIUM, NEUTRON ENERGY DISTRIBUTION, CHARGE DENSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1467 STEP NO--NE/0000/70/031/003/0122/0123

CIRC ACCESSION NO--AP0101553

UNCLASSIFIED

2/2 028 UNCLASSIFIED

CIRC ACCESSION NO--AP0101553 PROCESSING DATE--[illegible]

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MEAN FISSION FRAGMENT KINETIC ENERGY (BAR E SUBK) AND FRAGMENT MASS DISTRIBUTIONS, IN THE PRIMARY U FISSION INDUCED BY MONOENERGETIC N OF E SUBN EQUALS 0-[illegible] MEV, CHANGED VERY LITTLE WITH E SUBN. DELTA BAR E SUBK VS. E SUBN HAS POS. WITH DELTA BAR E SUBK SMALLER THAN OR EQUAL TO 0.3 MEV, WHERE DELTA BAR E SUBK EQUALS BAR E SUBK (U SUBN) MINUS BAR E SUBK(E SUBN EQUALS 0). THERE WAS NO LOCAL CHANGE IN THE BAR E SUBK OF DISTINCT FRAGMENT PAIRS WHICH WOULD BE RESPONSIBLE FOR THE VARIATION OF DELTA BAR E SUBK. FOR THE VALUES OF DELTA BAR E SUBK OBTAINED, THE MAX. CHANGE IN THE MOST PROBABLE CHARGE OF FRAGMENTS WAS SIMILAR TO 0.2. THE AV. NO. OF PROMPT N VS. E SUBN PLOT, CALCD. FROM THE ENERGY BALANCE EQUATION, SHOWED THERE WAS NO VARIATION OF CHARGE DISTRIBUTION BETWEEN INDIVIDUAL FRAGMENTS FOR E SUBN EQUALS 0-0.6 MEV. FACILITY: INST. PHYS. POWER ENG., OBNINSK, USSR.

UNCLASSIFIED

UDC 621.039.5

USSR

VOPOB'YEVA, V. G., D'YACHENKO, P. P., KUZ'MINOV, B. I., SERGACHEVA, A. I., SMIRENKINA, L. L.

"Recommended Power Dependence following from Analysis of the Energy Balance during Fission"

Tr. trekhstoron. Sov.-Bel'g.-Gollandsk. simpoziuma po nekotorym problemam fiziki bystrykh reaktorov (Works of the Three-Way Soviet-Belgian-Dutch Symposium on some Problems of Fast Reactor Physics), 1970, Vol 1, Moscow, 1970, D-24, pp 1-8 (from RZh-Elektrotekhnika i energetika, No 7, Jul 71, Abstract No 7U137)

Translation: The dependence of the number of secondary fission neutrons $\bar{\nu}$ for Th^{232}, U^{235}, U^{238} formed under the effect of neutrons with an energy up to 6 megaelectron volts was established on the basis of analyzing a large number of experimental data. A formula is presented which establishes the energy dependence of $\bar{\nu}$. Experimental data on the fission energy of Np^{237}, U^{235}, Th^{232}, U^{238} under the effect of neutrons with an energy up to 6 megaelectron volts are presented. There are 2 illustrations and a 10-entry bibliography.

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USSR UDC: 681.325.3

KUZ'MINOV, V. A.

"A Threshold Device"

USSR Authors' Certificate No 248760, Filed 27 January 1967, Published 22 January 1970 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 10B281P, unsigned)

Translation: A threshold device with a two-way limit for comparison of constant voltages is described. The device contains three regenerative comparison circuits, two exponential voltage generators, and a flip-flop. The voltage to be measured is compared with two standard voltages, one of which is the maximum tolerance, the other is the minimum tolerance. Two voltages, the measured voltage and one of the standard voltages, are compared simultaneously with the third, exponential voltage using the two regenerative comparison circuits. This is achieved by paired connection of the regenerative comparison circuits by their similar inputs to the outputs of the exponential generators. Two illustrations.

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UDC 621.315.592

USSR

IVLEVA, L.I., KUZ'MINOV, YU.S.

"Determination Of Defects In Crystals Of $LiNbO_3$ By Its Electrical Conductivity"

Kratkiye soobshch. po fiz. (Short Communications On Physics), 1971, No 8, pp 3-8 (from RZh:elektronika i yeye primeneniye, No 2, Feb 72, abstract No 2B72)

Translation: An attempt is made to determine the content of impurities in a $LiNbO_3$ crystal by its electrical conductivity. With this object the current intensity was measured as a function of the temperature with a d-c voltage on the crystal. A chemical-spectral analysis showed that the mole fraction of the impurities amounted to $(2.54 \div 4.71) \cdot 10^{-5}$, and the average valence of the impurity atoms equalled two. As a rule the order of magnitude of the concentration of the monovalence defects determined from the electrical conductivity is below the concentrations at hand in the crystals of the impurities. The density of dislocations was determined for the quality characteristics of the crystals. The density of dislocations in the crystals studied amounted to $\sim 10^4$ cm^{-2} and negligibly changes with respect to the crystal length and also from specimen to specimen. The conclusion is drawn that it is possible from the temperature dependence of the electrical conductivity to estimate the order of magnitude of the impurities at hand in the crystal which have a valence different from the valence of the ions forming $LiNbO_3$. 7 ref. Zh. A.

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UDC 669.14.018.8+621.787.4

USSR

SPIRIDONOV, V. B., KUZ'MINSKAYA, L. N., GORDEYEV, YU. P.,

"Strengthening of Cr-Ni Steels With Unstable Austenite"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 4, Apr 73, pp 2-9

Abstract: A study was made of the effect of several factors promoting the formation of a high-strength state, namely: the martensite transformation, deformation of martensite and austenite, as well as "inheritance" of the defect structure of deformed austenite with the martensite being formed. Kh18N9 and Kh16N6 steels were used. Deformation of austenite without formation of martensite causes increased strength properties with an intensity of 0.7-0.9 kgf/mm^2 per 1% strain. Maximum yield and tensile strengths achieved for Kh18N9 steel were (for 30% strain) 45 and 85 kgf/mm^2, respectively (for initial values of 25 and 60 kgf/mm^2, respectively). Defects of the deformed austenite are inherited by the martensite formed upon subsequent cooling to low temperatures at degrees of strain up to 8-10%. Above the indicated degrees of strain the determining factor for strengthening is stabilization of the austenite, i.e., less tendency to the formation of martensite. Deformation of the austenite by rolling at small degrees of strain stabilizes the austenite to a large degree. Martensite transformation of Kh16N6 steel (cooling down to -196°C) causes an increase in the amount

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USSR

SPIRIDONOV, V. B., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 4, Apr 73, pp 2-9

of martensite from 10 to 70% and leads to a growth in the tensile strength by 30 kgf/mm^2 and tensile strength by 55%. Tensile stamin to 4-6% and 40% deformation by rolling of Kh16K6 steel with a predominantly martensite structure leads to the formation of an additional amount of martensite, up to 20-25%, and to increased tensile strengths by 10 kgf/mm^2 (for tension) and 40 kgf/mm^2 (by rolling) and yield strengths by 80-90 kgf/mm^2. The same values of strength properties can be achieved at 3-4% deformation by tension and 20% deformation by rolling. The martensite transformation and subsequent cold working of martensite are the determining factors in the formation of a high-strength state in Cr-Ni steels with unstable austenite. Seven figures, two tables, thirteen bibliographic references.

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UDC 62-977:669.15-194.3

USSR

CHERKASOV, A. A., KUZ'MINSKAYA, L. N., and BERNSHTEYN, M. L.

"Properties of 23Kh12NVMFA (EP65) Steel After High-Temperature Thermomechanical Working"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 9, 1970, pp 29-33

Abstract: A study was made of the influence of the parameters of high-temperature thermomechanical working on the properties of EP65 electric-slag steel. The chemical composition of the steel is: 0.24% C, 0.41% Mn, 0.28% Si, 0.013% P, 0.006% S, 13.1% Cr, 2.22% Ni, 0.60% Mo, 1.90% W, and 0.46% V. The influence of deformation temperature on properties was studied at 1050-1200°C with 70% deformation in three passes. The results show that the strength properties of EP 65 are higher by 25-30 kg/mm^2 than after ordinary heat treatment, while the plasticity is also higher, allowing tempering to be performed at a lower temperature. High-temperature thermomechanical treatment increases plasticity and viscosity, and also provides high crack propagation resistance with low anisotropy of mechanical properties. Increasing the deformation temperature over

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USSR

CHERKASOV, A. A., et al, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 9, 1970, pp 29-33

1100-1150°C decreases the strength of the steel, due to development of recrystallization. The hardened state produced is stable and is retained with tempering temperatures up to 550°C. Recrystallization at 850°C is slow, probably because of the high degree of alloying of the steel.

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UDC 615.385.7.01(047)

USSR

KHAYKINA, B. I. and KUZ'MINSKAYA, [redacted], Biochemistry Laboratory, All Union Scientific Research Institute of the Hygiene and Toxicology of Pesticides, Polymers, and Plastics

"The Mechanism of Action of Sevin on Warm-Blooded Animals"

Moscow, Voprosy Pitaniya, No 3, 1970, pp 8-14

Abstract: Sevin (N-methylnaphthylcarbamate) is a highly effective insecticide, with contact and intestinal action. Within 5 minutes after entering the body through the gastrointestinal tract, it is found in all the tissues, reaching a peak after 30 minutes, then gradually decreasing to the vanishing point within 48 to 72 hours. It does not have cumulative action. A review of the literature (47 Soviet and 11 foreign titles) and the authors' own experiments show that sevin has a pronounced effect on the main metabolic processes of the cell (respiration, oxidative phosphorylation, glycolysis) and membrane permeability. Despite the lack of cumulative action, prolonged administration of the insecticide in low doses (7.2 mg/kg for 5 months) significantly alters the intensity of glycolysis in cytoplasm, and the degree of its activation by mitochondrial, especially "protein", factors. The main contractile protein of the mitochondria is particularly affected.

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1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--ON THE MODE OF SEVINE ACTION ON THE WORM BLOODED -U-

AUTHOR-(02)-KHAYKINA, B.I., KUZMINSKAYA, U.A.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY PITANIYA, 1970, NR 3, PP 8-14

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PESTICIDE, TOXICITY/(U)SEVINE PESTICIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1181 STEP NO--UR/0244/70/000/003/0008/0014

CIRC ACCESSION NO--AP0123158

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123158

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LITERATURE SOURCES AND THE AUTHORS' PERSONAL DATA THAT ARE CONCERNED WITH THE TOXICITY, METABOLISM AND BASIC BIOCHEMICAL FACTORS UNDERLYING THE SEVINE ACTION UPON THE WORM BLOODED ARE ADDUCED. FACILITY: LABORATORIYA BIOKHIMII VSES. N-I INSTITUTA GIGIYENY I TOKSIKOLOGII PESTITSIDOV, POLIMERNYKH I PLASTICHESKIKH MASS, KIEV.

UNCLASSIFIED

UDC 541.15+678.1

USSR

KUZ'MINSKIY, A. S., FEDOSEYEVA, T. S., and MAKHLIS, F. A.

"Radiation Vulcanization and Modification of Rubbers"

Moscow, Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva imeni D. L. Mendeleyev, Vol 18, No 3, 1973, pp 285-293

Abstract: A review with 54 references analyzing contemporary state of the problem of practical utilization of ionizing radiation in rubber industry. A detailed analysis is carried out of the physico-chemical, technological and economical aspects of the problems. The feasibility and desirability of carrying out radiation modification of rubber materials by means of grafted polymerization of polyfunctional compounds from liquid phase have been demonstrated; optimal doses have been decreased and the properties of radiation vulcanizates have been improved.

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UDC 541.15

USSR

BOL'SHAKOVA, S. I., KUZ'MINSKIY, A. S., Scientific Research Institute of the Rubber Industry, Moscow

"The Role of Charges in Radiochemical Chenges in Rubber"

Moscow, Khimiya Vysokikh Energiy, Vol 5, No 6, Nov-Dec 71, pp 509-514

Abstract: The article describes results of a study of the effect of additives of the electron-donor type (phenyl-β-naphthylamine) and electron-acceptor type (chloranil), as well as their combinations on the radiolysis of some rubbers (polybutadiene-nitrile rubber and cis-polybutadiene rubber). Specimens were irradiated with Co-60 gamma rays at a dose rate of 1 Mrad/hr and temperatures of 77 and 300°K. The principal study of the structure and properties of the stabilized paramagnetic centers was performed by the EPR method. Electron spectra and luminescence excitation spectra of the irradiated specimens were also studied. Structural changes in the material were judged from the formation of molecular bonds, studied by the equilibrium swelling method. In rubbers irradiated at 77°K stabilized electrons and ion radicals of the additives

USSR

BOL'SHAKOVA, S. I., et al, Khimiya Vysokikh Energiy, Vol 5, No 6, Nov-Dec 71, pp 509-514

were observed along with the rubber radicals. Addition of ion acceptors, without changing the total number of stabilized paramagnetic centers, determines chemical changes in rubber as a result of radiolysis. Thus, an electron acceptor and a combination of electron-donor and electron-acceptor additives sensitize the formation of molecular bonds in the rubbers, while an electron donor protects the rubbers against radiation effects. Evidently sensitization of cross-linking in electron capture by the additive molecule is the result of an ion-molecular reaction with the participation of double bonds of the rubber molecule.

The excitation luminescence spectra were studied on the device of the Institute of Chemical Physics, Academy of Sciences USSR, and the authors thank V. V. KULAKOV for staging the experiment. The authors also thank V. G. NIKOL'SKIY for discussing the results.

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UDC 541.15

USSR

BOL'SHAKOVA, S. I., SHASHKOV, A. S., DEGTEVA, T. G., KUZ'MINSKIY, A. S.,
Scientific Research Institute of Rubber Industry, Moscow

"NMR-Study of Structural Changes in Rubber During Low-Temperature Radiolysis"

Moscow, Khimiya Vysokikh Energiy, Vol 5, No 4, Jul-Aug 71, pp 361-362

Abstract: An attempt was made to determine the radiolysis and ion excitation effects of primary reactions occurring during the irradiation and of those of the stabilized portion of active forms which disappear when molecular mobility is restored in the β- or γ-relaxation area. The nuclear magnetic resonance (NMR) method was used to ascertain chemical changes in butadiene-nitrile rubber during low-temperature radiolysis, using a JRM-3 spectrometer at a maximum of 35 Mrad. One table and one figure are used to illustrate the formation of additional chemical bonds leading to closer packing of macromolecules when the test rubber was brought back to room temperature, thus changing the properties of the material.

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1/2 026 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--OPTICAL PROPERTIES OF POLYBUTADIENE ELASTOMERS -U-

AUTHOR-(03)-RISKINA, M.A., SOKOLOV, S.I., KUZMINSKIY, A.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(1) 119

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--OPTIC PROPERTY, POLYBUTADIENE, ELASTOMER, VULCANIZATE, BUTADIENE RUBBER/(U)SKB BUTADIENE RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1414 STEP NO--UR/0063/70/015/001/0119/0119

CIRC ACCESSION NO--AP0112409

2/2 026 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112408

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERMAL VULCANIZATES OF CIS,TRANS-POLYBUTADIENE (I) RUBBER (CONTG. 90-2.5PERCENT DOUBLE BONDS IN THE MAIN CHAIN) AND NA-BUTADIENE RUBBER SKB (CONTG. DOUBLE BONDS MAINLY IN THE SIDE CHAIN) WERE STUDIED BY A COMPENSATION METHOD IN A SYNCHRONIZED POLARIMETER AT 25-200DEGREES. I VULCANIZATES EXHIBITED HIGH POS. OPTICAL SENSITIVITY, THE OPTICAL SENSITIVITY COEFFS. BEING 3500-800 CM PRIME2-KG. PREDOMINANT DISTRIBUTION OF DOUBLE BONDS IN THE MAIN CHAIN CAUSED INCREASED OPTICAL SENSITIVITY.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710010-7"

1/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--THERMAL BREAKDOWN OF SULFUR POLYCHLOROPRENES -U-

AUTHOR-(04)-TAMARKIN, V.F., DEGTEVA, T.G., TIKHONOVA, S.V., KUZMINSKIY, A.S.

COUNTRY OF INFO--USSR

SOURCE--KAUCH. REZINA 1970, 29(3), 11-13

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--THERMAL DEGRADATION, POLYCHLOROPRENE, MECHANICAL FAILURE, ACTIVATION ENERGY, GEL, SULFIDE, CARBON DIOXIDE, CARBON DISULFIDE/(U)NAIRIT A POLYCHLOROPRENE RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0454 STEP NO--UR/0138/70/029/003/0011/0013

CIRC ACCESSION NO--AP0119390

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201710010-7"

2/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119390

ABSTRACT/EXTRACT--(U) GP-0- (S-CONTG. POLYCHLOROPRENE) (I) IS EQUIV. TO ITS THERMOMECH. DESTRUCTION, SUCH AS DURING ROLLING. IT CAUSES EVOLUTION OF CS SUB2, COS, AND CO SUB2 DUE TO BREAKING UP OF I POLYSULFIDE BRIDGES AND THE INTERACTION OF THE RADICALS FORMED WITH O. IN THE 110-50DEGREES RANGE, THE ACTIVATION ENERGY OF I GEL BREAKING IS SIMILAR TO 15 KCAL-MOLE. THE GEL FRACTION CONTENT OF I DECREASES DURING HEATING; AT FIRST IT RAPIDLY INCREASES DUE TO THE FORMATION OF A NEW GEL FRACTION. THE PRESENCE OF ALK. SUBSTANCES IN I INCREASES THE RATE OF GEL DECOMPN. THE DECOMPN. OF I MACROMOLS. IS ACCELERATED BY THIURAM AS SHOWN BY THE INCREASE CO SUB2 AND COS EVOLUTION IN ITS PRESENCE. FACILITY: NAUCH.-ISSLED. INST. REZIN. PROM., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 615.217.4.015

KUZ'MITSKIY, B. B., AKHREM, A. A., UKHOVA, L. I., MAROCHKIN, A. P., and BLUDOVA, G. V., Minsk Medical Institute and Institute of Physical and Organic Chemistry, Academy of Sciences, Belorussian SSR

"Pharmacological Properties of Stereoisomeric 4-Vinylethynyl- and 4-Butyl-Substituted Decahydro-4-quinololes"

Moscow, Farmakologiya i Toksikologiya, No 6, 1972, pp 665-668

Abstract: The spectrum of neurotropic activity of several new decahydroquinoline derivatives (2-methyl- and 1,2-dimethyl-4-vinylethynyldecahydroquinololes-4 and 2-methyl- and 1,2--dimethyl-4-butyldecahydroquinololes-4) was studied in experiments on mice, rats, and cats. The compounds were found to have ganglion-blocking and antinicotinic activity. They inhibited the transmission of excitation mainly in the parasympathetic ganglia of the heart, had little effect on the superior cervical ganglion, and did not significantly alter the sensitivity of the M-cholinoreceptors or noncholinergic neurons. The ganglion-blocking and antinicotinic activity of the compounds varies with their chemical and spatial structure. Large doses intensify the central action of amphetamine sulfate, prolonging stereotypic movements in the rat. The 2a4e isomer, a tertiary amino alcohol, is the most active. There is no correlation between N-choline-blocking activity and toxicity when the configuration of the compounds is changed.

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1/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--ANION RADICALS OF PHOSPHAZO COMPOUNDS. CONDUCTIVITY OF S AND SO BRIDGE GROUPS -U-

AUTHOR-(05)-PENKOVSKIY, V.V., KUZMINSKIY, B.N., YEGOROV, YU.P., ZHNROVA, I.N., MARTYNYUK, A.P.

COUNTRY OF INFO--USSR

SOURCE--TOER. EKSP. KHIM. 1970, 6(1), 94-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRON DENSITY, EPR SPECTRUM, ORGANIC PHOSPHORUS COMPOUND, AZO COMPOUND, SULFUR OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0910 STEP NO--UR/0379/70/006/001/0094/0097

CIRC ACCESSION NO--AP0137938

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137938

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELECTRON D. DISTRIBUTION WAS STUDIED, BY EPR SPECTROSCOPY, IN COMPDS. TREATED ELECTROCHEM. TO PRODUCE ANION RADICALS. THUS TREATED WERE I (R PRIME1, R PRIME2, R PRIME3, AND R PRIME4 GIVEN): N:PPH SUB3, H, H, NO SUB2; SN:PPH SUB3, H, H, NO SUB2; SN:PPH SUB3, NO SUB2, H, H; SN:PPH SUB3, NO SUB2 H, NO SUB2; S(O)N:PPH SUB3, H, H, NO SUB2; SN:PPH SUB3, H, NO SUB2, H; S(O)N:PPH SUB3, NO SUB2, H, H; SNH SUB2, H, H, NO SUB2; SNME SUB2, H, H, NO SUB2. THE COND. OF THE SO BRIDGE IS MUCH LOWER THAN THAT OF THE S BRIDGE. FACILITY: INST. ORG. KHIM., KIEV, USSR.

UNCLASSIFIED

USSR

ALEKSEYEV, M. A., BABUEV, B. F., KUZ'MINSKIY, V. A.

"The Stability of the Laminar Boundary Layer with Supersonic Flow Velocities"

Uch. Zar. Tsentr. Aerogidrodinam., In-ta., [Scientific Writings of the Central Aerohydrodynamic Institute], 1971, 2, No 3, pp 33-41. (Translated from Referativnyy Zhurnal Mekhanika, No 1, 1972, Abstract No 1B779 from the resume).

Translation: The critical values of surface temperature and velocity of air suction distributed over the surface, corresponding to full stabilization of flow in a laminar boundary layer for small, two dimensional perturbations are calculated for the self-similar solutions of the equations of a compressible laminar boundary layer, similar to the solutions of Faulkner and Scan for an incompressible fluid.

1/1

USSR

CHUBINSKIY, O. V., VAGANOV, P. A., GUSTOVA, L. V., GUSHCHIN, M. N., KUZ'MITSKIY, I. V., SEREBROV, A. P., Leningrad State University

"Proton Polarization in Elastic and Inelastic Scattering by Mg-25 at E_p = 6.08 Mev"

Moscow, Yadernaya Fizika, Vol 11, No 1, 1970, pp 29-32

Abstract: Continuing their study of proton polarization in elastic and inelastic scattering by magnesium isotopes, the authors describe results of measurements of the angular dependence of the polarization of 6.08 Mev protons in elastic scattering on Mg-25 in an angle range of from 30° to 150° (laboratory system). This is the first time that results have been obtained for the proton energy range considered. The double scattering method was used for the measurements. At certain angles (θ = 60°, 70°, 80°, 90°, 100°, and 140°) it was possible to obtain the value of the polarization of inelastically scattered protons corresponding to the states 1.614 Mev ($7/2^+$) and 1.960 Mev ($5/2^+$). Since in future the authors intend to make a combined analysis of the data obtained by them on the polarization of 6-Mev protons in elastic and inelastic scattering by the isotopes Mg-24, Mg-25, and Mg-26, including the results of

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USSR

CHUBINSKIY, O. V., et al., Yadernaya Fizika, Vol 11, No 1, 1970, pp 29-32

recent measurements of variation with energy of proton polarization in scattering by Mg-24, the present article is limited to a comparison of experimental results for Mg-25 with calculations according to the optical method.

The authors thank the operations group of the Cyclotron Laboratory of the Scientific Research Institute of Physics, Leningrad State University.

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USSR

UDC 613.6:/678.632:678:046.36

TROITSKIY, S. Yu., KUZ'MINYKH, A. N., ANDREYEVA, T. D., and BUNIMOVICH, G. I., Sverdlovsk Scientific Research Institute of Labor Hygiene and Occupational Diseases

"Hygienic Aspects of Working Conditions in the Production of Phenol-Formaldehyde Plastics With Asbestos Filler"

Moscow, Gigiyena i Sanitariya, No 9, Sep 70, pp 89-91

Abstract: Hygienic conditions at plants producing phenol-formaldehyde plastics with asbestos filler were investigated. Dust concentrations of 3.7-5 mg/m^3 were found in the air. The dust developed in connection with the charging of asbestos in mixers. In those sections of the plants in which the resin is heated, concentrations of phenol vapor in the air exceeded the maximum permissible limit. The concentration of formaldehyde in the air generally did not exceed 1 mg/m^3, but in connection with such operations as the discharging of mixers and drying chambers, the highest concentrations exceeded the maximum permissible level by up to a factor of three. Ventilation systems were improperly designed. A medical examination of 103 workers employed in this type of production showed that 65 had various subjective complaints; 21 who were

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USSR

TROITSKIY, S. Yu., et al, Gigiyena i Sanitariya, No 9, Sep 70, pp 89-91

exposed to the action of phenol and formaldehyde vapors suffered from constant headaches. Pathological changes in the nervous system (neuritis, neurasthenic syndrome, cerebral angiodystonia, etc.) due to exposure to these vapors were found in 19 cases. Of those engaged in polishing and pressing, 12 had skin diseases and 14 had chronic atrophic rhinitis and folliculitis. Three employees in a mechanical workshop showed symptoms of pneumoconiosis. Increased mechanization and automation of operation, including transfer to a continuous process, will improve these working conditions and reduce the impairment of health. Introduction of automated discharge from the bottom of mixers, automatic opening of sacks with asbestos and feeding of asbestos into mixers, enclosed units for certain operations, and improved ventilation systems and local exhausts are important measures which should be taken.

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USSR

UDC 621.396.679:621.372.852.1(008.8)

KUZMINYKH, YE. S., ZAVADOVSKIY, B. D., SELEZNEV, G. YE.

"Separating Transmission and Reception Filter"

USSR Author's Certificate No 248859, Filed 3 Apr 67, Published 22 Jan 70 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B89P)

Translation: The proposed separating filter consists of a basic transmission line, an auxiliary transmission line with a ballast load on the end and traveling wave resonators connecting them with a ring length equal to an even number of halfwaves of the receiver and an odd number of halfwaves of the transmitter. In order to insure the given decoupling between the cross arms, the loaded end of the auxiliary line is connected to the basic line by a directional coupler through which part of the transmitter signal coming to the filter is shunted. There is one illustration.

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USSR UDC 539.8

SAVITSKIY, YE. M., Corresponding Member Academy of Sciences USSR, BURKHANOV, G. S., TETYUYEVA, T. V., and KUZ'MISHCHEV, V. A., Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences USSR, Moscow

"Effects of Thermocycling on Tungsten and Molybdenum Alloy Single Crystals"

Moscow, Doklady Akademii Nauk SSSR, Vol 198, No 2, 1971, pp 373-376

Abstract: A review of data on the thermocycling of single crystals of W and Mo alloys indicates that alloying elements forming with the metal matrix (W or Mo) extensive ranges of solid solutions and increasing the solubility of non-metallic inclusions (particularly C) in the solid phase increase the stability of the structure and characteristics of the alloys in thermocycling. These alloying elements comprise, in addition to Re, the data pertaining to which are reported in detail, the hexagonal metals of the VIII group Ru and Os and possibly also Mn and Tc. On the other hand, alloying elements which decrease the solubility of non-metallic inclusions and increase their amount in an undissolved state in the metal matrix expedite destruction of the single-crystal alloys in thermocycling. These alloying elements include metals of the I - VI groups. The extent to which these regularities apply to polycrystalline W and Mo should be investigated experimentally.
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UDC 669.172:669.28

USSR

SAVITSKIY, Ye. M., BURKHANOV, G. S., TETYUYEVA, T. V., and KUZ'MISHCHEV, V. A.

"Influence of Thermal Cycling Treatment on Fine Structure and Properties of Molybdenum Single Crystals"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 119-124

Translation: The nature of the change in microstructure and properties of molybdenum single crystals as a function of the time of thermal cycling in an atmosphere of helium in the 400-1,600°C temperature interval is studied. It is demonstrated that structural changes are related to the occurrence of two parallel processes: 1) annihilation of dislocations and coalescence of subgrains; 2) multiplication and motion of deformation dislocations, ordering of these dislocations into new subgrains. It is established that during the first stages of thermal cycling, the first process predominates, while later the second predominates. 6 Figures; 5 Bibliographic References.

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USSR

UDC 539.26-548.735.4

SAVITSKIY, Ye. M., BURKHANOV, G. S., OTTENBERG, Ye. V., and KUZ'MISHCHEV, V. A.

"Study of Deformation and Polygonization of Molybdenum Single Crystals"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 112-119

Translation: The metallographic, x-ray, laue, and topographic methods are used to study the influence of certain conditions of deformation in rolling along the (100) plane in direction [110] and annealing modes on the fine structure of molybdenum single crystals.

It is demonstrated that with increasing degree of deformation, blocks are broken up, the dislocation density is increased, and stressed areas arise. An increase in the degree of deformation before heating causes an increase in breakup of blocks during heating and their disorientation. The influence of annealing temperature and deformation on the substructure of molybdenum single crystals is established. 8 Figures; 5 Bibliographic References.

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USSR UDC 541.69 + 547.594.5

KUZ'MITSKIY, B. B., AKHREM, A. A., VAKOVA, L. I., and USKOVA, N. F., Minsk State Medical Institute, Institute of Physico-Organic Chemistry, Academy of Sciences BSSR, and Institute of Organic Chemistry Imeni N. D. Zelinskiy, Academy of Sciences USSR

"Conformational Effects of 1,2,4-Substituted Decahydroquinolol-4 Derivatives on Their Biological Activity"

Moscow, Izvestiya Akademii Nauk, Seriya Khimicheskaya, No 7, Jul 70, pp 1678-1679

Abstract: Cholinolytic activity depends principally on the hydrocarbon substituent in position 4. The most active are compounds with an ethynyl substituent, so with a vinyl, and least active are those with an ethyl or acetyl substituent. As far as the effect of spacial orientation is concerned, compounds with the methyl and alkyl groups in 2-axial, 4-equatorial conformation are most active, those 2e4a-oriented are less active, and 2e4e substituted ones are least active. Toxicity of this type of compounds relates in the opposite direction: the least toxic are those of the 2a4e series, followed by 2e4a and 2e4e compounds in increasing order of toxicity.

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1/2 014 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--PROTON POLARIZATION IN ELASTIC AND INELASTIC SCATTERING OF MAGNESIUM 25 AT E SUBP EQUALS 6.08 MEV -U-

AUTHOR-(05)-CHUBINSKIY, O.V., KUZMITSKIY, I.V., VAGANOV, P.A., GUSTOVA, L.V., GUSHCHIN, V.N.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POLARIZATION ANGULAR DISTRIBUTION OF 6.08-MEV P ELASTICALLY SCATTERED ON PRIME25 MG WAS MEASURED AT 30-150DEGREES IN THE LAB. SYSTEM BY USING THE DOUBLE SCATTERING METHOD. THE 1ST TARGET WAS 2-MG-CM PRIME2 SELF SUPPORTING METALLIC MG FOIL, ENRICHED WITH PRIME25 MG UP TO 91PERCENT, THE 2ND ONE WAS 8-MG-CM PRIME2 GRAPHITE PLATE. THE SCATTERED P WERE REGISTERED WITH A TELESCOPE DETECTOR, CONSISTING OF A PROPORTIONAL COUNTER AND OF A SI-LI DETECTOR, PLACED INSIDE THE PROPORTIONAL COUNTER. THE P BEAM THROUGH MG TARGET WAS 5-6 MUA. THE INSTRUMENT ASYMMETRY WERE MEASURED WITH 11 MG-CM PRIME2 AU FOIL. THE EXPTL. RESULTS ARE COMPARED IN A GRAPH WITH THE CALCNS. BY MEANS OF THE OPTICAL MODEL. THE VALUES OF THE POLARIZATION OF INELASTICALLY SCATTERED P CORRESPONDING TO THE STATES 1.614 MEV (SEVEN HALVES PLUS) AND 1.960 MEV (THREE HALVES PLUS) WERE OBTAINED AT 60, 70, 80, 90, 100, AND 140DEGREES. FACILITY: LENINGRAD. GOS. UNIV., LENINGRAD, USSR.

UNCLASSIFIED

USSR

FEDOROV, F. I.; SOLODUKHIN, A. M.; KUZ'MITSKIY, V. A. (Belorussian State University)

"Application of the Effective Radial Potential to the Calculation of Atomic Levels"

Minsk, Vestsi Akademii Navuk BSSR: Seryya Fizika-Matematychnykh Navuk; May-June, 1972; pp 49-55

ABSTRACT: The effective radial potential, introduced in a previous paper by F. I. Fedorov (Vestsi AN BSSR, Seryya Fizika-Matematychnykh Navuk; No. 3, 129, 1968), is used for the calculation of the energy levels of atoms with several electrons. In the first approximation in perturbation theory an equation with an effective potential is solved for an arbitrary nl-state of an electron in a multielectron atom, taking into account the effect of the remaining electrons. By means of an approximate Hamiltonian the energy of the ground states of the helium, lithium, and beryllium atoms is calculated.

The article includes 46 equations. There are 9 bibliographic references.

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UDC 621.575:536.24.001.5

ROZENFEL'D, L. M., PANIYEV, G. A., KUZ'MITSKIY, Yu. V., and PARKHOMENKO, F. P., Institute of Thermal Physics, Siberian Branch, Academy of Sciences USSR

"Experimental Investigation of Absorption and Desorption of Water Vapors by a Solution of Lithium Bromide"

Moscow, Kholodil'naya Tekhnika, No 10, Oct 72, pp 31-35

Abstract: This work was devoted to an investigation of mass-transfer units with a developed phase--mass-transfer unit contact surface using spraying type mass-transfer units. A schematic and picture of the unit are given for investigating the adiabatic-isobaric processes of absorption and desorption of water vapors by a solution of lithium bromide. Tests were conducted in a steady-state mode of operation of the experimental unit at constant internal and external parameters and observation of thermal balance.

Graphs were plotted for the change of relative saturation of solution and change of temperature of the dispersed liquid flow along the absorber height and the change of relative vaporization of the solution and change of temperature of the dispersed flow of liquid along the generator height. From

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ROZENFEL'D. L. M., et al., Kholodil'naya Tekhnika, No 10, Oct 72, pp 31-35

these graphs an analysis was made which made possible the conclusion that the most intensive process of absorption occurs directly behind the sprayer. The conducted tests show the mass-transfer to have a high efficiency of the studied processes and permitted to establish the characteristic features of absorption and desorption in sprayer type units. 5 figures, 1 table, 5 bibliographical references.

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USSR UDC 54-126+546.73+546.81

NATANSON, E. M. (deceased), KUZ'MOVICH, V. V., CHEGORIAN, V. M., IVKINA, N. A., and SHEVTSOVA, A. F., Institute of Colloidal Chemistry and Chemistry of Water, Acad. Sc. UkrSSR

"Formation of Metallopolymers on the Basis of Silicontungstic Acid"

Kiyev, Ukrainskii Khimicheskii Zhurnal, Vol 39, No 3, Mar 73, pp 249-253

Abstract: The reduction of silicontungstic acid with tin and cobalt has been investigated. Blue forms of silicontungstic acid have been prepared stable towards tin and cobalt. Conditions have been studied for the formation of tin and cobalt metallopolymers starting from the barium salts of silicontungstic acid blues. The heat conductivity and electroconductivity of the metallopolymers obtained have been evaluated. The data obtained indicated that the metallic phase is in highly dispersed state, stable to oxidation; the metallic particles are isolated from each other by a film of the barium salt of silicontungstic acid blues.

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