

USSR

LUPUNOV, I. N., et al, Izvestiya Vysshikh Uchebnykh Zavedeniy, Khimiya i  
Khimicheskaya Tekhnologiya, Vol XII, No 11, 1970, pp 1,607-1,611

the cation losing some of its iogenic groups. In the case of  $\text{HNO}_3$ ,  $\text{H}_2\text{O}_2$  and  $\text{KBrO}_3$  in an acid medium at 50 and  $80^\circ\text{C}$ , there is oxidation of the cation matrix with formation of additional carboxyl groups. Finally, with oxidation by  $\text{K}_2\text{Cr}_2\text{O}_7$  and  $(\text{NH}_4)_2\text{S}_2\text{O}_8$ , there is a sharp increase in swelling of the action.

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USSR

UDC 66.074.7

VINOGRADOV, V. M., KAZANTSEV, YE. I., Ural Polytechnical Institute  
imeni S. M. Kirov

"Interaction of Some Oxidants With AV-17x6 Anion Exchange Resin"

Ivanovo, IVUZ Khimiya i Khimicheskaya Tekhnologiya, Vol 13, No 9,  
1970, pp 1294-1296

Abstract: The authors investigated the differences in interaction of such oxidants as potassium bromate, hydrogen peroxide, ammonium persulfate and nitric acid with the strongly basic anion exchange resin AV-17x6. It was found that when the anion exchange resin is treated with oxidant solutions, there are generally three processes which take place to varying degrees with the participation of ionogenic groups: deamination, degradation and a transition of part of the nitrogen to the "inactive" state. The addition of nitric acid to hydrogen peroxide and potassium bromate solutions leads to a reduction in the deamination process as compared with processes of degradation and transition of nitrogen to the "inactive" state. Raising the temperature has no effect on the type of change in the nature of functional groups. However, in the case of hydrogen peroxide there is an intensification of the process of destruction of the copolymer macromolecule. 1/1

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UDC 66.074.7

KAZANTSEV, YE. I., and VINOGRADOV, V. M., Ural Polytechnical Institute imeni S. M. Kirov, Sverdlovsk, Ministry of Higher and Secondary Specialized Education ARSSR

"Effect of Some Oxidizers on the Properties of the Sulfocation Exchange Resin Ku-2"

Ivanovo, Khimiya i Khimicheskaya Tekhnologiya, Vol 12, No 1, 70, pp 54-59

Abstract: The paper concerns the chemical and physical methods of studying the chemical stability of the KU-2 cationite to oxidizers. The treatment of KU-2 with various oxidizers and its physico-chemical properties after treatment are described. An increase in the temperature of the oxidizer solution induces considerable changes in the basic characteristics of the ionite. Treatment with oxidizers causes a drop in the exchange capacity with respect to sulfo-groups at the expense of both desulfuration and inculcation of oxygen, bromine, and nitrogen into the structure of the resin. The presence of alcohol, ketone, and carboxyl groups in oxidizer-treated cationite specimens was established. It is suspected that oxidizers attack the C-H bonds of methylene groups and tertiary carbon atoms. Of all  
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KAZANTSEV, YE. I., et al, Ivanovo, Khimiya i Khimicheskaya Tekhnologiya, Vol 12, No 1, 70, pp 54-59

tested oxidizers, the highest oxidization capacity at 293°K was demonstrated by potassium bichromate and bromate in nitric acid and ammonium persulfate solutions; hydrogen peroxide and nitric acid solution were the best oxidizers at 353°K.

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1/2 007 UNCLASSIFIED PROCESSING DATE--30OCT70  
 TITLE--EFFECT OF SOME OXIDIZING AGENTS ON THE PROPERTIES OF THE SULFONIC  
 CATION EXCHANGER KU-2 -U-  
 AUTHOR--(02)--KAZANTSEV, YE.I., VINOGRADOV, V.M.  
 COUNTRY OF INFO--USSR  
 SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(1), 54-9  
 DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY  
 TOPIC TAGS--CATION EXCHANGE RESIN, SULFONE, OXIDIZING AGENT/(U)KU2 ION  
 EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRA--2000/0964

STEP NO--UR/0153/70/013/001/0054/0059

CIRC ACCESSION NO--AP0124623

UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124623

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHYS. AND CHEM. ANAL. OF CATION EXCHANGE RESIN KU-2 (I) IN THE PRESENCE OF VARIOUS OXIDIZING AGENTS INDICATED THAT THE EXCHANGE CAPACITY OF I DECLINED DUE TO DESULFONATION AND AS A RESULT OF INCORPORATION OF O, BR, AND N ATOMS INTO THE MACROMOL. THE OXIDIZING AGENTS ATTACKED THE C-H BONDS OF CH SUB2 GROUPS AND TERTIARY C ATOMS. THE STRONGEST OXIDIZING AGENTS (AT 293DEGREEK) WERE: 0.1M K SUB2 CR SUB2 O SUB7 PLUS M HNO SUB3, 0.1M KBR O SUB3 PLUS M HNO SUB3, AND 0.1M (NH SUB4) SUB2 SUB2 SUB8; WHEREAS AT 353DEGREEK, 0.1M KBR O SUB3 PLUS M HNO SUB3 AND 0.1M H SUB2 O SUB2 WERE THE MOST EFFECTIVE. FACILITY: URAL. POLITEKH. INST. IM. KIROVA, SVERDLOVSK, USSR.

UNCLASSIFIED

USSR

UDC: 621.372.8

KAZANTSEV, Yu. N. and UDALOV, V. V., Institute of Radio Engineering and Electronics

"Tubular-Diaphragm Waveguide"

Gor'kiy, Izvestiya VUZ--Radiofizika, No 10, 1972, pp 1561-1566

Abstract: Ordinary metal waveguides cease to be efficient in the millimeter and decimillimeter wavelength ranges. This paper therefore considers a tubular dielectric waveguide in which the attenuation at these wavelengths is reduced through an external additional structure in the form of an absorbing diaphragm. A diagram of this device is shown. A tubular-diaphragm waveguide of this type, representing the combination of a diaphragmed open line and a dielectric tube, has a relatively simple structure and fairly good filtration of extraneous oscillations. The reduction in the attenuation of the desired wave is explained by the fact that that portion of its energy passing through the dielectric wall is not dissipated in the surrounding space but is reflected back into the guide by the diaphragm system. The theory of the waveguide is developed, and the method and results of the attenuation measurement given.

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USSR

UDC 621.378.8

ZYATITSKIY, V. A., KAZANTSEV, YU. N.

"Problems of Exciting Wave Guides of the Dielectric Channel Class"

Gor'kiy, Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, Vol XIV, No 10, 1971, pp 1570-1573

**Abstract:** The effectiveness of exciting dielectric channel wave guides by three different types of exciters -- a metal wave guide, an iris line and a lens line -- is analyzed. The excitation effectiveness,  $\eta$ , is defined as the ratio of the power of the operating wave of the dielectric channel wave guide to the power of the incident wave. It is found to be no less than 0.98 for the basic wave of the dielectric channel wave guide in the case of iris and lens lines. From comparison of the calculated data, preference must be given to the lens line operating under optimal excitation conditions of the dielectric channel wave guide. The purity of the excitation is of the same order in both lines, but the lens line has less rigid tolerances on the ratio of the transverse dimensions of the wave guide-exciter and the dielectric channel wave guide in the vicinity of the extremum of  $\eta$ . The results obtained can be carried over to excitation of dielectric channel wave guides by lasers with flat and spherical reflectors, which corresponds to excitation by means of iris and lens lines.

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USSR

UDC: 621.372.853.1.09

KAZANTSEV, Yu. N., KHARLASHKIN, O. A.

"Wide Waveguides of Rectangular Cross Section With Small Losses"

Moscow, Radiotekhnika i Elektronika, Vol. 16, No 6, Jun 71, pp 1063-1065

Abstract: Strict expressions for normal modes are used to find attenuation in a wide metal waveguide of rectangular cross section in which layers of dielectric with a given permittivity are applied to the opposite inside walls. The dimensions of the inner cavity are many times greater than a wavelength. It is found that the attenuation of LM-waves in such a waveguide decreases as the wavelength becomes shorter. Losses in such a waveguide were experimentally studied by the resonance method in the 2 mm and 8 mm wave bands. The results show that a dielectric coating on the narrow walls of the waveguide reduces attenuation by a factor of 4-5.

1/1

USSR

UDC 542.941.197:546.13'14

SOKOL'SKIY, D. V., DORFMAN, YA. A., KAZANTSEVA, I. A., Institute of Organic Catalysis and Electrochemistry, Acad. Sc. KazSSR, Alma-Ata

"The Use of Oxygen for Catalytic Oxidation of Phosphine in Gases in Presence of Metal Complex Catalyst"

Alma-Ata, Izvestiya Akademii Nauk KazakhskoySSR, Seriya Khimicheskaya, No 2, Mar-Apr 72, pp 36-44

Abstract: A study was carried out of the kinetics of phosphine oxidation with oxygen in the presence of a mixed catalyst  $\text{CuCl}_2\text{-HgCl}_2\text{-HCl-LiCl-H}_2\text{O}$  on a flow apparatus with an ideal mixing reactor. The oxygen oxidation rate depends on the activity of all the components of the system. The process includes the reactions of phosphine oxidation with copper (II) ions, and oxidation of  $\text{Cu}^I$  with oxygen. The reaction goes via several routes, with the following complexes being formed:  $\text{HgCl}_2\text{PH}_3$ ,  $\text{HgCl}_3\text{PH}_3^-$  and  $\text{CuCl}_2\text{PH}_3^-$ . The rate of the reaction is increased appreciably with the use of mixed catalyst. It is further increased due to an exchange reaction between the intermediate products, which takes place ( $\text{HgCl}^-$  and  $\text{CuCl}_2\text{PH}_3^-$ ), accelerating the limiting stage of the formation of  $\text{HgCl}_3\text{PH}_3^-$ . Overall oxidation rate of phosphine with oxygen has been analyzed as a function of the activity of  $\text{Cl}^-$  ions.

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KAZANTSEVA, I. A.

SO:JPKS 54539

23 NOV 71

UDC: 618.146-0006.04-018.13

CHANGES IN THE MITOTIC CYCLE IN THE PRESENCE OF MALIGNIFICATION OF THE EPITHELIUM OF THE CERVIX UTERI *Менструальная циклическая*

Article by I. A. Kazantseva, I. F. Kuzina, Institute of Human Morphology, USSR Academy of Medical Sciences, Moscow; Moscow, *Вестник Академии Медицинских Наук СССР*, Russian, No 10, 1971, pp 80-81

Changes in the mitotic cycle, which are an early sign of malignification have now been experimentally investigated on cell cultures (Levan and Eisele), in transferable tumors (I. A. Alov, 1965), in the process of chemical carcinogenesis (A. P. Vasil'yeva), after treatment with oncogenic virus (I. A. Alov et al.), as well as on some tumors of man (I. A. Kazantseva, 1966, 1968; N. P. Kazantseva).

In spite of the many features common to malignant in the mitotic cycle (increased mitotic activity, increased number of metaphases and number of pathological mitoses), there may be distinctive changes in tumors of different histogenesis. They consist, in particular, of the quantitative predominance of some forms of mitotic pathology. For example, trigroup metaphases which differ from the ordinary ones by the presence of chromosomes in the polar region arise, according to some researchers, the most often at early stages of carcinoma of the cervix uterus and, perhaps, are induced by estrogens (Horvath and Carstner; Hammerl, Kim and Engelberg, and others).

In this investigation we studied mitosis in the multilayer squamous epithelium of the normal cervix uterus, in the presence of benign proliferative processes (epithelization of pseudocarcinoma), and malignification. Special attention was devoted to a comparison of mitotic indices of the epithelium at different stages of the neoplastic process: at the stage of preinvasive carcinoma (in situ) and the stage of invasive carcinoma.

Biopsies of the vaginal portion of the cervix served as our material; they were divided into four groups: the first consisted of multilayer squamous epithelium from the margins of pseudocarcinoma (9 cases; control); the second consisted of proliferating multilayer squamous epithelium invading the erosive islands in the presence of epithelization of pseudocarcinoma (13 cases); the third consisted of carcinoma in situ (11 cases); the fourth was invasive squamous cell carcinoma (22 cases).

1/2 011 UNCLASSIFIED PROCESSING DATE--30DCT70  
TITLE--CATALYTIC SYNTHESIS OF CARBONYL COMPOUNDS FROM ACETYLENE IN THE  
PRESENCE OF PALLADIUM,II, AND IRON,III, COMPLEXES -U-  
AUTHOR--(04)--SOKCLSKIY, D.V., DORFMAN, YA.A., SEGIZBAYEVA, S.S.,  
~~KAZANTSEVA, L.A.~~  
COUNTRY OF INFO--USSR  
SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 98-105  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ACETYLENE, HYDRATION, CARBONYL COMPOUND, PALLADIUM COMPOUND,  
IRON COMPOUND, COMPLEX COMPOUND, CATALYTIC ORGANIC SYNTHESIS, ALDEHYDE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/0874 STEP NO--UR/0076/70/044/001/0098/0105  
CIRC ACCESSION NO--AP0124537  
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124537

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETICS OF HC TRIPLE BOND CH HYDRATION CATALYZED BY PdSO SUB4 AND Fe SUB2(SO SUB4) SUB3 WAS INVESTIGATED IN NONGRADIENT CONDITIONS AT 50-100DEGREES. THE RATES OF HC TRIPLE BOND CH CONSUMPTION AND THAT OF CARBONYL COMPOS. FORMATION ARE NEARLY TEMP. INDEPENDENT. INCREASE OF THE OXIDN. POTENTIAL OF THE SYSTEM (Fe PRIME3 POSITIVE ADDN.) RASIES THE YIELD OF ALDEHYDES AND THE CATALYST STABILITY. THE SELECTIVITY OF THE PROCESS INCREASES WITH TIME. THE RATE OF CARBONYL COMPOS. FORMATION INCREASES WITH INCREASING Pd PRIME2 POSITIVE CONC. UP TO 10 PRIME NEGATIVE3 G ION-L.P FURTHER INCREASE OF THE CONC. HAS NO EFFECT. ALDEHYDES ARE FORMED ABOVE 70DEGREES.

UNCLASSIFIED

USSR

UDC 621.762

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FEDORCHENKO, I. M., OGNEV, R. K., KOLOMOYETS, G. G., ANOKHIN, V. M.,  
REYTSSES, V. B., KAZANTSEVA, N. A., and RUTBERG, V. P.

"The Effect of Aluminum and Molybdenum on the Properties of Sintered  
Titanium at Room and Elevated Temperatures"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya  
Publishing House, Vol 6, 1970, pp 111-116

Translation: Results are given from research on the mechanical properties  
of the alloys titanium-aluminum, titanium-molybdenum, and triple alloys  
titanium-aluminum-molybdenum at room temperature and at temperatures raised  
to 300°C. The alloys were obtained by mechanical blending of powders. After  
compacting and sintering, one time, the alloys studied had a tensile strength  
up to 80 gigacalories/mm<sup>2</sup> and elongation per unit length of 5-16%. Alloy-  
ing aluminum and molybdenum increases the heat resistance of sintered  
titanium alloys; the short-term strength at 300°C increases by more than  
two times. The stress-rupture strength increases significantly during  
alloying. Four illustrations, one table, and four bibliographic entries.

1/1

1/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--CERMET DENSIFYING MATERIAL -U-  
AUTHOR-(03)-FEDORCHENKO, I.M., KAZANTSEVA, N.A., DUBROV, G.L.  
COUNTRY OF INFO--USSR  
SOURCE--U.S.S.R. 263,687  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--10FEB70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, CHEMICAL COMPOSITION, CERMET, COPPER,  
NITRIDE, BORON COMPOUND, NICKEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3004/1817

STEP NO--UR/C482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132082

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70  
CIRC ACCESSION NO--AA0132082  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CERMET CONSOLIDATING MATERIAL HAS  
THE FOLLOWING COMPN.: CU 21.7-28.1, B NITRIDE 3.0-15.0 WT. PERCENT, AND  
NI THE REMAINDER. MGCL.

UNCLASSIFIED



Therapy

UDC 616.988.25-002.395.42-085.355:577.155.2

USSR

TROP, I. YE., KANTER, V. M., KAZANTSEVA, S. I., ALEKSANDROV, V. I., POSTNOVA, L. S., and NIKOLAYEVA, S. P., Khabarovsk Scientific Research Institute of Epidemiology and Microbiology Clinic of Nerve Diseases of the Khabarovsk Medical Institute, Khabarovskiy Kray Hospital, Khabarovsk City Hospital No 3, and City Hospital No 7, Komsomol'sk-on-Amur

"The Use of Ribonuclease in the Treatment of Patients With Tickborne Encephalitis"

Moscow, Sovetskaya Meditsina, No 3, Mar 71, pp 104-107

Abstract: The beneficial effect of RNA-ase in the treatment of tickborne encephalitis has been established at foci of this disease in Western Siberia. In this instance, clinical studies pertaining to treatment with RNA-ase were conducted on 79 cases that originated in the Far East, where the disease occurs in a much more severe form. RNA-ase was administered to the patients intramuscularly, intravenously, or in the endolumbar region in doses of 300-500 mg per day and 3-5 g per course of treatment. The treatment was carried out in the majority of cases in combination with serum therapy that consisted of administration of titrated human placental or fetal gamma-globulin. Comparison of the results obtained with those for a control group of patients treated with gamma-globulin only showed that application of RNA-ase in addi-

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TROP, I. YE., et al., Sovetskaya Meditsina, Vol 34, No 3, Mar 71, pp 104-107

tion to gamma-globulin shortened the length of the fever period, led to a more rapid disappearance of meningeal symptoms, accelerated return of the cerebrospinal fluid to a normal state, and had the effect of bringing about a considerably more favorable outcome of the disease. While treatment with RNA-ase was effective in focal forms of encephalitis, reducing the mortality (8 deaths among 42 patients vs. 13 among 26 in the control group) and the number of cases in which paralysis developed, it was ineffective in two cases of the polyencephalomyelitic form of the disease.

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USSR

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UDC: 62-50.22+621.317.772

VILKOTSKIY, M. A., KAZARIN, A. N. (deceased), KRAVCHENKO, I. T.,  
Belorussian State University imeni V. I. Lenin

"An Automatic Installation for Studying Radomes"

Minsk, Doklady Akademii Nauk BSSR, Vol 14, No 1, 1970, pp 29-32

Abstract: A device is proposed for automatically studying the effect of a radome on the characteristics and parameters of the enclosed antenna. The unit consists of two parts: an amplitude-phase meter which gives an automatic chart recording of the amplitude and phase characteristics of the electromagnetic field, and an electromechanical system which automatically fixes the phase center of the given antenna at a predetermined point in the radome enclosure and rotates the antenna through the required angle. The amplitude-phase meter is based on a bridge circuit with high-frequency tracking phase shifter. The phase shifter is the balancing element in a waveguide bridge, and is connected to  
1/3

USSR

VIL•KOTSKIY, M. A., et al, Doklady Akademii Nauk BSSR, Vol 14,  
No 1, 1970, pp 29-32

a servomotor by a mechanical gear train with an element with free play which can be set from 0 to 50°. A block diagram of the circuit is given as well as a description of the operating principles in the phase-recording and amplitude-recording modes. The electro-mechanical part of the unit consists of a swivel stand on which two servomotors are mounted. The first motor rotates the antenna in the horizontal plane, the second shifts the antenna along the radome radius, and the swivel stand permits rotation of the radome and enclosed antenna about the vertical axis. A system of limit cutoffs connected with the shafts of the servomotors is used for programming the device for automatic measurements depending on predetermined angular limits. When measurements have been completed, the unit automatically shuts itself off and gives a signal indicating completion of the measurement process. Amplitude recording accuracy is 5%, phase recording accuracy is 3%, the angle

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USSR

VIL'KOTSKIY, M. A., et al, Doklady Akademii Nauk BSSR, Vol 14, No 1, 1970, pp 29-32

of turn of the antenna can be set within  $0.5^{\circ}$ , and the distance between the center of the radome and the phase center of the antenna can be set within 0.2 mm.

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USSR

UDC: 519.2

DUBOVITSKAYA, I. M., KAZARIN, I. G.

"Some Problems in the Planning of Active Experiments"

Uch. zap. Tratus. un-ta (Scientific Notes of Tartu University, 1972, vyp. 292, pp 118-134 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V192)

Translation: The paper deals with description of a response surface by means of a linear model and second order equations. If the results of an experiment cannot be adequately described by a linear model, then a quadratic approximation should be used for an exact description of the surface. Descriptions are given of such planning schemes as the complete factor experiment, the fractional factor experiment, and central compositional planning. Authors' abstract.

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USSR

UDC: 621.317.8

KAZARIN, R. N., LEVINA, M. N., MUTSYANKO, Ye. P.

"Miniature Fixed Resistors"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiokomponenty (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 1, pp 25-28 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V305)

Translation: The authors describe type S5-39 fixed wire-wound resistors. Their principal characteristics are given and a method is presented for potting with epoxy compound. Resumé.

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USSR

UDC 620.193.41

KAZARIN, V. I., SIGALOVSKAYA, T. M., and ANDREYEVA, Y. V., All-Union Scientific Research Institute of Light and Textile Machine Building

"The Influence of the Chloride and Antimony Ions on the Behavior of Titanium in Solutions of Hydrochloric Acid"

Moscow, Zashchita Metallov, Vol 10, No 1, Jan-Feb 74, pp 36-39

Abstract: The corrosion behavior of type VT1-0 titanium and AT6 alloy in 1-5% solutions of hydrochloric acid in the presence of sodium chloride and antimony was studied in order to determine the possibility of using titanium and titanium alloys as structural materials for painting and finishing equipment. The results of the studies showed that the presence of ions of antimony, even in relatively small quantities, facilitates passivation of titanium in solutions of hydrochloric acid with high chloride concentration. The results indicate that in hydrochloric acid media containing salts of antimony in quantities of 0.03 g-ion/l and higher, titanium is not activated and should have good corrosion resistance.

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USSR

NISEVICH, N. I., KAZARIN, V. S., GASPARYAN, M. O., and IVANOVA, G. M.

"Comparative Analysis of Some Serologic Reactions in the Diagnosis of Infectious Mononucleosis in Children"

Vopr. Okhrany Materinstva i Detstva (Problems of the Protection of Motherhood and Childhood), 1973, No 7, pp 35-39 (from RZh - Biologicheskaya Khimiya, No 22, Nov 73, Abstract No 1706)

Translation: A comparative analysis has been carried out of the diagnostic value and specificity of 6 serologic tests: reactions of Paul-Bunnell, Paul-Bunnell-Davidson, Tomchik, Lovrik, hemolysis of beef erythrocytes, and agglutination of horse erythrocytes. All of these reactions were tested concurrently on the same patient in the dynamics of the disease. In all 108 patients with infectious mononucleosis and 100 patients with other problems (control group) were studied. It has been established that the best diagnostic value for infectious mononucleosis is obtained from the reactions of Paul-Bunnell-Davidson (92.5%) and from the Tomchik reaction (90.7%). The reaction of the agglutination of horse erythrocytes is recommended as an express diagnostic method.

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USSR

UDC 553.41:546.57:543.422

FISHKOVA, N. L., and KAZARINA, T. M., Central Scientific Research Institute of Prospecting for Nonferrous, Rare, and Noble Metals, Moscow

"Atomic-Absorption Determination of Silver in Ores"

Moscow, Zavodskaya Laboratoriya, Vol 37, No 12, 1971, pp 1447 -1449

Abstract : Two methods of determining low silver contents in ores with the help of atomic-absorption spectrophotometry are suggested. The first method is recommended for low-sulfide quartz, quartz-carbonite, and aluminosilicate ores, the second is recommended for sulfide ores of any composition. The first method is based on extraction of complex silver iodide from the hydrochloride medium, the second is based on selective chromatographic separation of silver with the help of anionite and its following extraction in the form of diethylthiocarbamate from the ammonical medium. Atomic-absorption methods with use of extraction concentration permit to determine silver in ores with  
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FISHKOVA, N. L. and KAZARINA, T. M., Zavodskaya Laboratoriya, Vol 37, No 12, 1971, pp 1447-1449

the sensitivity of 0.1 g/ton. The reproducibility error for the silver concentration interval of 0.5 -10 g/ton is characterized by the coefficient of variation 6 %. Two illustr., one table.

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USSR

UDC 632.954:633.11

PETINOVA, A. A., KAZARINA, YE. M., YAKUBTSOV, S. I., All-Union Scientific Research Institute of Plant Protection

"Resistance of 'Diamant' and 'Zarya' Strains of Spring Wheat to Various Herbicides"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 10 (84), Oct 70, pp 46-49

Abstract: The article is a report on an investigation of the resistance of "Diamant" and "Zarya" strains of spring wheat to herbicides with various types of action applied for three consecutive years (1966-1968). The wheat was treated in the tillering stage with contact herbicides (dinitro-0-cresol, nitraphene, ioxinyl and bromoxinyl) and systemic herbicides (2,4-D, 2M-4Cl, 2,3,6-TB, 2M-4ClM, 2,4-DM, 2M-4ClP and 2,4-DP). The resistance of the grain to the herbicides was determined by plant weight in the early stages, and by grain harvest, protein and starch content and seed quality in later stages. Differences in reactions of the wheat strains to the herbicides were most pronounced in the first days after spraying. The "Zarya" strain proved to be less susceptible to contact chemicals, while the "Diamant" strain was more resistant to systemic herbicides  
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USSR

PETUNOVA, A. A., et al. Khimiya v Sel'skom Khozyaystve, Vol 8, No 10 (84), Oct 70, pp 46-49

(especially 2,4-D). Of the contact chemicals, ioxinyl had the least effect on wheat. "Zarya" wheat was more resistant to derivatives of phenoxypropionic and phenoxybutyric acids. Both strains showed fairly high resistance to 2M-4Cl, and 2,3,6-TB. The differences between the strains leveled off in later stages. However, the harvest of the "Zarya" strain was reduced by the use of 2,4-D and harvests of both strains were reduced by application of derivatives of phenoxypropionic and phenoxybutyric acids. The protein content of "Zarya" wheat was higher when sprayed with 2M-4ClP, 2,4-DM and ioxinyl. In the case of "Daimant" wheat, protein content was increased by spraying with 2,3,6-TB, while ioxinyl treatment reduced protein content. Analysis for residues of the herbicide showed no traces.

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1/2 007 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--USE OF THE FORMATION OF OXIMES FOR DETERMINING THE MOLECULAR WEIGHT  
OF SOME CARDENOLIDES WITH A CARBONYL GROUP AT C,10 -U-  
AUTHOR-(02)-ZATULA, V.V., KAZARINOV, N.A. K

COUNTRY OF INFO--USSR

SOURCE--KHIM. FARM ZH. 1970, 4(2), 52-5

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CARDIOVASCULAR DRUG, CARBOL COMPOUND, MOLECULAR WEIGHT,  
ORGANIC OXIME COMPOUND, CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1993/0540

STEP NO--UR/0450/70/004/002/0052/0055

CIRC ACCESSION NO--AP0113431

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0113431

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MOL. WT. OF SECURIGENIN, SECURIZIDE, AND SECURIDAZIDE WAS D<sub>6</sub>T<sub>D</sub>. AS FOLLOWS: DISSOLVE 0.01-0.03 G OF A COMPD. IN 5 ML MEQH, ADD 5 ML OF A SOLN. PREPD. BY DISSOLVING 3.5 G NH SUB2 OH.HCL AND 0.12 G ET SUB2 NH (HCL ACCEPTOR) IN 100 ML MEQH TO FORM THE OXIME, AND LEAVE THE SOLN. FOR 3 HR. THEN BACK TITRATE AN EXCESS OF ET SUB2 NH WITH 0.02 N HCLD SUB4 USING A 0.3PERCENT THYMOL BLUE SOLN. IN MEQH AS INDICATOR. CARRY OUT A PARALLEL BLANK DETN. WITHOUT GLYCOSIDE AND 3 HR KEEPING. CALC. THE MOL. WT. FROM THE FORMULA: G TIME 1000 TIME NO. OF CO GROUPS-(V SUBK MINUS V SUBR) TIMES 0.02; WHERE G IS SAMPLE WT. IN G, V SUBK AND V SUBR VOLS. IN ML OF 0.002 N HCLD SUB4 CONSUMED FOR TITRN. OF THE BLANK AND ANALYZED SAMPLE, RESP. WITH CARDENOLIDES OF CIS CONFIGURATION OF THE TWO RINGS, SUCH AS CIMARIN, CONVALLATOXIN, AND ERICHROZIDE, THE REACTION IS COMPLETED WITHIN 3-4 HR. WITH THOSE OF TRANS CONFIGURATION THE REACTION DOES NOT GO TO COMPLETION. FACILITY: KHAR'KOV. NAUCH. ISSLED. KHIM. FARM. INST. KHARKOV, USSR.

UNCLASSIFIED

USSR

UDC: 621.315.592

KAZARINOV, R. F., SURIS, R. A., Physicotechnical Institute imeni A. F. Ioffe,  
Academy of Sciences of the USSR, Leningrad

"On the Theory of Electrical Properties of Semiconductors With Superlattices"  
Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 7, No 3, Mar 73, pp 488-493

Abstract: The authors consider the problem of the form of the electron distribution function in a semiconductor with a superlattice as well as the relation between the current through such a structure and the electric field in the neighborhood of a resonance current spike due to tunneling of electrons from the ground state of one cell of the superlattice to the excited state of the next cell. Equations are derived for the diagonal elements of the density matrix. These equations are solved for different limiting relations between the probabilities of processes which arise with the passage of current.

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USSR

UDC: 621.315.592

KAZARINOV R. F. and SURIS, R. A., A. F. Ioffe Physico-Technical  
Institute, Leningrad

"Injection Hetero-Laser With a Diffraction Grating on the Contact  
Surface"

Leningrad, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp  
1359-1365

Abstract: In injection semiconductor lasers, the p-n junction in which the amplification occurs is also used as a plane dielectric waveguide. As a result, the energy flow incident on the crystal faces acting as the mirrors of a Fabry-Pérot resonator is intense, resulting in destruction of the mirrors and the consequent loss in radiation power. The authors of this paper propose and theoretically develop an idea for the injection laser in which this defect is avoided. By way of introducing the idea, they consider the electrodynamic problem of the behavior of a light wave in a fine, plane dielectric waveguide at a known distance from a metal diffraction grating with a definite period. Formulas are developed for the spectrum of characteristic frequencies of the proposed resonator and for its Q.

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USSR

ARTEMENKO, S. N., KAZARINOV, R. F., SURIS, R. A., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences of the USSR, Leningrad

"Possibility of Suppressing Gunn Domains"

Leningrad, Fizika Tverdogo Tela, Vol 14, No 6, Jun 72, pp 1613-1621

Abstract: The authors investigate the possibility of suppressing Gunn instability of the uniform distribution of carriers in a semiconductor with N-shaped current-voltage characteristic by means of impact ionization of impurity centers with deep-lying levels. The generation of carriers by such ionization compensates for the loss of carriers in the high field region due to the drop in the curve for carrier velocity as a function of the field. It is shown that such compensation is possible only if the characteristic rise time of the electric instability is greater than the impurity capture time of the electrons. In this connection, the sign of the conductivity on frequencies exceeding the capture frequency remains negative, which means that microwave emission and amplification is possible in a large volume of the semiconductor.

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USSR

GERGEL', V. A., KAZARINOV, R. F., SURIS, R. A., Physicotechnical Institute  
imeni A. F. Ioffe, Academy of Sciences of the USSR, Leningrad

"Nonlinear Theory of Slow Recombination Waves"

Leningrad, Fizika Tverdogo Tela, Vol 14, No 6, Jun 72, pp 1691-1697

Abstract: The nonlinear problem of propagation of slow recombination waves is considered. The types of solutions are classified, and it is shown that soliton domains are one type of slow recombination waves. The current-voltage characteristic of a specimen with soliton domain is calculated, and the stability of the resultant solutions is analyzed. It is shown that the current-voltage curve for a semiconductor with soliton domain has a negative impedance section.

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Acc. Nr: **AP0043796**

**K**

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy  
Fiziki, 1970, Vol 58, Nr 2, pp 686-698

RAREFIED IMPERFECT BOSE GAS IN THE FIELD  
OF RANDOMLY DISTRIBUTED STATIONARY IMPURITIES

V. A. Gergel, R. F. Kazarinov, R. A. Suris

The behavior of a slightly imperfect Bose gas in the field of randomly distributed impurities is studied. The effect of the impurity atoms on the ground state of the system is determined and found to change the local variation of the condensate density near the impurity atoms. The spectrum and decay of single particle excitations are calculated. The long wave excitation spectrum is found to be acoustic; scattering of the excitations by sound velocity fluctuations induced by the impurity atoms is of the Rayleigh type, i. e. the scattering cross section is proportional to the fourth degree of the excitation wave vector. The results are employed for estimating the light absorption line widths and light amplification due to the Bose - Einstein exciton condensate in semiconductors. For a sufficiently high exciton concentration the width is much smaller than the width of the ordinary exciton absorption line due to scattering of separate excitons by lattice defects imperfections.

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USSR

UDC: 621.396.6.002.72:621.757(088.8)

KAZARINOV, V. L., PANKSEN, Yu. A., TROSHINA, A. G.

"A Device for Spatial Orientation of Modular Elements With Rigid Leads"

USSR Author's Certificate No 263342, filed 26 Feb 69, published 7 Dec 70  
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V325 P)

Translation: This Author's Certificate introduces a device for spatial orientation of modular elements with stiff leads. The device contains a vibration hopper equipped with a spiral chute which has an opening in the wall for rejecting improperly oriented modular elements, and a specially shaped outlet chute for feeding properly oriented modular elements into the working positions. To improve precision in orienting modular elements with short stiff leads, strips are located inside the vibration hopper lengthwise of the outlet chute and further from the bottom of the chute than the height of a module board and closer than the total height of a modular element. In the bottom of the chute is a channel with a width equal to the minimum diameter of the circumscribed circle for the leads of a modular element and a depth greater than the length of the leads.

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USSR

UDC: 621.396.6-181.5(088.8)

KAZARINOV, V. L., PANKSEN, Yu. A.

"A Device for Orienting Modular Elements With Rigid Leads"

USSR Author's Certificate No 277895, filed 26 Feb 69, published 12 Nov 70  
(from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V158 P)

Translation: This Author's Certificate introduces a device for orienting modular elements with rigid leads. The device contains a unit for moving the elements to be oriented, a contact head, and a measurement block. The productivity and operational reliability of the device are improved by fitting it with a rotating base on which contact heads are mounted in a circle. These contact heads are connected by controllable clutches (e. g. electro-magnetic clutches) to motors and indicators which show when the leads of the element being oriented coincide with the contacts of the heads.

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1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--COADSORPTION OF METHANOL AND BROMIDE ANIONS ON A PLATINIZED  
PLATINUM ELECTRODE -U-  
AUTHOR--(03)-PODLOVCHENKO, B.I., KAZARINOV, V.YE., STENIN, V.F.  
COUNTRY OF INFO--USSR  
SOURCE--ELEKTROKIMIYA 1970, 6(2), 252-6 K  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ADSORPTION, METHANOL, BROMIDE, PLATINUM ELECTRODE, CARBON  
ISOTOPE, CHEMISORPTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1994/0197 STEP NO--UR/0364/70/006/002/0252/0256  
CIRC ACCESSION NO--AP0114583  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--A00114583

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROCESS OF SIMULTANEOUS ADSORPTION OF BR PRIME NEGATIVE AND MEQH ON A PT PLATINIZED ELECTRODE, POLARIZED ANODICALLY, WAS INVESTIGATED. THE POSSIBILITY OF DISLODGING THE CHEMISORBED SUBSTANCE BY BR PRIME NEGATIVE WAS CHECKED BY USING THE TRACER ATOM METHOD (PRIME14 C IN MEQH). A STRONG, PRACTICALLY IRREVERSIBLE BONDING OF THE MEQH CHEMISORPTION PRODUCT WITH THE PT WAS OBSERVED AS WELL AS A MARKED INHIBITION OF THE ADSORPTION PROCESS IN THE PRESENCE OF BR PRIME NEGATIVE. IN THE CASE OF LIMITING COVERAGE OF THE ELECTRODE SURFACE WITH ORG. PARTICLES, THE RATE OF BR PRIME NEGATIVE ANIONS EXCHANGE INCREASED SIGNIFICANTLY, GIVING EVIDENCE OF THE WEAKENING OF THE ANION BOND WITH PT SURFACE IN THE PRESENCE OF CHEMISORBED ORG. PARTICLES. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA. MOSCOW, USSR.

UNCLASSIFIED



1/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--MUTUAL EFFECT OF HYDROGEN IONS AND SODIUM AND CESIUM CATIONS DURING  
THEIR ADSORPTION ON PLATINIZED PLATINUM -U-  
AUTHOR--(03)-BALASHOVA, N.A., KAZARINOV, V.YE., KULEZNEVA, M.I.  
COUNTRY OF INFO--USSR  
SOURCE--ELEKTROKIMIYA 1970, 6(3), 398-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--HYDROGEN, SODIUM, CESIUM, ADSORPTION, PLATINUM, ISOTOPE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FAME--1998/1136 STEP NO--UR/0864/70/006/003/0398/0399  
CIRC ACCESSION NO--AP0121695  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

2/2 024

CIRC ACCESSION NO--AP0121695

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

ABSTRACT. THE EFFECT OF H POSITIVE ION CONC. ON THE ADSORPTION OF CS PRIME POSITIVE AND NA PRIME POSITIVE ON PLATINIZED PT WITH A REVERSIBLE H POTENTIAL OF INVESTIGATED. TESTS WERE CONDUCTED IN DIL. SOLNS. OF NA SUB2 SO SUB4 AND CS SUB2 SO SUB4. THE ADSORPTION WAS MEASURED AT PH 0-4, THE AMT. OF ADSORBED CATIONS BEING DETD. BY A RADIOACTIVE TRACER METHOD USING PRIME22 NA AND PRIME134 CS. A MARKED DEPENDENCE OF THE ADSORPTION ON THE H PRIME POSITIVE ION CONC. WAS NOTED. AN ALMOST COMPLETE DISPLACEMENT OF H PRIME POSITIVE IONS FROM THE ELECTRODE SURFACE BY NA PRIME POSITIVE AND CS PRIME POSITIVE IONS OCCURRED WITH A 5-6 FOLD EXCESS OF THE LATTER IN SOLN. FROM THE DIFFERENCES IN THE ADSORPTION OF CS PRIME POSITIVE AND NA PRIME POSITIVE AT EQUAL CONC. RATIOS C SUBCS POSITIVE-C SUBH POSITIVE AND C SUBNA POSITIVE-C SUBH POSITIVE, IT WAS POSSIBLE TO CALC. THE MAGNITUDE OF THE SPECIFIC ADSORPTION OF CS PRIME POSITIVE IN RELATION TO NA PRIME POSITIVE. THE AMT. OF CS PRIME POSITIVE ADSORBED IS 1.5 PRIME POSITIVE -0.2 TIMES MORE THAN THAT OF NA PRIME POSITIVE. FACILITY: INST. ELEKTROKHM., MOSCOW, USSR.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70  
 TITLE--ADSORPTION SHIFTS IN POTENTIAL AND ADSORPTION OF SURFACE ACTIVE  
 CATIONS OF CADMIUM AND THALLIUM ON PLATINUM -U-  
 AUTHOR--(03)-BALASHOVA, N.A., KAZARINOV, V.YE., MANSUROV, G.N.  
 COUNTRY OF INFO--USSR  
 SOURCE--ELEKTROKHIMIYA 1970, 6(1), 22-8  
 DATE PUBLISHED-----70  
 SUBJECT AREAS--CHEMISTRY  
 TOPIC TAGS--ADSORPTION, SURFACE ACTIVE AGENT, CADMIUM, THALLIUM, PLATINUM  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRA--1998/1152 STEP NO--UR/0364/70/006/001/0022/0028  
 CIRC ACCESSION NO--AP0121711  
 UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

2/2 017

CIRC ACCESSION NO--AP0121711

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

ABSTRACT. SPECIFIC CONCLUSIONS REGARDING THE

INFLUENCE OF SURFACE ACTIVE CATIONS ON H AND O ADSORPTION ON P CAN BE

DRAWN, ON THE BASIS OF THE CHARGE CURVES, ONLY IF THE QUANTITY OF ELEC.

CONSUMED IN THE ION ADSORPTION AND DESORPTION PROCESSES IS TAKEN INTO

ACCOUNT. QUANT. RELATIONS ARE ESTABLISHED BETWEEN THE POTENTIAL SHIFT

IN SURFACE ACTIVE ION ADSORPTION AND THE QUANTITY OF ADSORBED GASES.

RELATIONS CANNOT BE ESTABLISHED BETWEEN THE SHIFT VALUES AND THE ION

ADSORPTION VALUES, SINCE THE QUANTITIES OF ADSORBED H AND O CANNOT BE

PRECISELY DETD. SEP., SINCE THEIR ADSORPTION POTENTIALS ON Pt OVERLAP

CONSIDERABLY.

FACILITY: INST. ELEKTROKHM., MOSCOW, USSR.

UNCLASSIFIED

-USSR

UDC 519.9+62-50

ANDREYEV, V. A., KAZARINOV, YU. F., YAKUBOVICH, V. A., Leningrad State University imeni A. A. Zhdanov

"Synthesis of Optimal Controls for Linear Inhomogeneous Systems in the Problem of Minimizing the Mean Value of a Quadratic Functional"

Moscow, Doklady Akademii Nauk SSSR, Vol 202, No 6, 1972, pp 1247-1250

Abstract: A study was made of the control system described by a differential equation of the type

$$\frac{dx}{dt} = Ax + b\sigma + f(t), \quad (1)$$

where  $x$  is the vector (of order  $n$ ) of state of the system,  $\sigma$  is the control vector (of order  $m$ ) of the system,  $A$  is a permanent matrix of dimensionality  $n \times n$ ,  $b$  is a permanent matrix of dimensionality  $n \times m$ , and  $f(t)$  is a vector function of perturbations of order  $n$ . All the matrices and vectors are real. It is assumed that the function  $f(t)$  is measurable and bounded in  $[0, \infty)$  and that the pair  $(A, b)$  is controllable; that is, that among the columns of the matrices  $b, Ab, \dots, A^{n-1}b$  there are  $n$  linearly independent columns. The real vector function  $\sigma(x, t)$  is called the admissible control if equation (1) with  $\sigma = \sigma(x, t)$  under the given initial condition  $x(0) = a$  has the solution  $x = x(t)$  in  $[0, \infty)$ . The set of admissible controls is denoted by  $\mathcal{R}_a$ ;  $c^*x \in \mathcal{R}_a$  if  $1/2$

USSR.

ANDREYEV, V. A., et al., Doklady Akademii Nauk SSSR, Vol 202, No 6, 1972, pp 1247-1250

the matrix  $A + bc^*$  is Hurwitz. The quality criterion of the control  $\sigma \in \mathcal{X}$  is defined by the functional  $J(\sigma) = \lim_{T \rightarrow \infty} T^{-1} J_0^T(\sigma, a)$ . Three theorems are stated and proved in order to study the problem of minimizing the functional  $J(\sigma)$  in the set  $\mathcal{X}_a$ . The control  $\sigma_0 \in \mathcal{X}_a$  is called optimal if  $J(\sigma_0) \leq J(\sigma) \forall \sigma \in \mathcal{X}_a$ . In connection with the fact that if the optimal control exists it is not unique, the concept of a local optimal control is introduced.

USSR

UDC: 621.396.96:681.32

ALEKHIN, V. A., KAZARINOV, Yu. M., KRAMUSHCHENKO, V. I., NOVOSEL'TSEV,  
L. Ya., SMIRNOV, V. N.

"On Designing Devices for Primary Processing of Radar Information"

Izv. Leningr. elektrotekhn. in-ta (News of Leningrad Electrical Engineering  
Institute), 1972, vyp. 102, pp 18-25 (from RZh-Radiotekhnika, No 12, Dec 72,  
abstract No 12G18 [résumé])

Translation: The paper deals with selecting an algorithm for primary pro-  
cessing of a scanning radar signal and modifications of arranging the  
memory of the [corresponding] device. It is shown that it is advisable to  
use weighted summation of quantized signals for short pulse trains, and  
balanced summation for long ones. It is suggested that the memory module  
be made in the form of parallel-operating "long" shift registers. In the  
case of a large number of accumulated pulses, it is recommended that the  
required memory volume be reduced by making the device in accordance with  
the principle of a multichannel queuing system. Three illustrations,  
bibliography of five titles.

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USSR

UDC 621.391.26 + 621.396.98.021

KAZARINOV, YU. M., KATIKOV, V.M.

"Statistical Characteristics Of Optimum Detector Of Randomly Absent Pulse Signals"

Izv. VUZ:Radioelektronika, Vol XV, No 4, April 1972, pp 436-445

Abstract: The paper considers the optimum algorithm of the detection of a non-coherent pulse sequence with the condition that each pulse of this sequence is present in the mixture which is received of signal and noise with a known a priori probability  $p$ , different in the general case from one. The effect is studied of the absence of separate pulse signals on the statistical characteristics of the detector, which includes in itself an envelope detector with amplitude characteristics, optimized for the binary law of signal fluctuations. The results are shown in graphical form of numerical calculations based on various formulas. 4 fig. 6 ref. Received by editors, 10 May 1971.

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USSR

UDC: 539.216.22:546.28 2

LITOVCHENKO, V. G., LYSENKO, V. S., PRIKHODENKO, V. I., SHUL'MAN, A. Ye.,  
KAZAROV, R. Ye., STADNIK, A. V., Institute of Semiconductors, Academy of  
Sciences of the UkrSSR

"Effect of Structural Factors of Single-Crystal Silicon Films on Their Sur-  
face Properties"

Kiev, Poluprovodnikovaya Tekhnika i Mikroelektronika, Resp. Mezhved. Sb.,  
No 7, 1972, pp 38-40

Abstract: A comparative study is made of a number of volumetric charac-  
teristics which depend on the volumetric imperfection of silicon films  
grown on sapphire substrates (mobility of the charge carriers, etc.), as  
well as surface-sensitive characteristics (zone flexure, density of fast  
traps, etc.). It is shown that the electrical properties of the surface  
of strongly imperfect films depend on the volumetric structure.

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USSR

KAZARYAN, E. M., MAILYAN, G. L., ENFIADZHYAN, R. A., Yerevan State University

"Scattering of a Nonlocalized Exciton by Phonons in Thin Quantized Semiconductor Films"

Yerevan, Izvestiya Akademii Nauk Armyanskoy SSR, Fizika, Vol 8, No 1, 1973, pp 47-53

Abstract: The authors compute the relaxation time of a nonlocalized exciton due to scattering by photons in quantized thin-film semiconductors. Cases of acoustic and optical phonons are examined. Relations are found for relaxation time as a function of energy and film thickness for different electron/hole mass ratios. In conclusion, the authors thank P. A. Bezigranyan for continued interest in the work.

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- 30 -

USSR

UDC 621.315.592:546.28 2

LITOVCHENKO, V.G., LYSENKO, V.S., PRIKHODENKO, V.I., SHUL'MAN, A.YE.,  
KAZAROV, R.YE., STADNIK, A.V.

"Effect Of Structural Factors Of Monocrystalline Silicon Films On Their Surface Properties"

Poluprovodn. tekhn. i mikroelektronika. Resp. mezhved. sb. (Semiconductor Technology And Microelectronics. Republic Interdepartmental Collection), 1972, Issue 7, pp 38-40 (from RZh:Elektronika i yeye primeneniye, No 9, Sept 1972, Abstract No 9382)

Translation: A comparative study is made of a number of volumetric characteristics which depend on the defectiveness of the volume of Si films grown on sapphire substrates (mobility of charge carriers and others), and of the surface-sensitive characteristics (bending of zones, density of fast traps, and others). It is shown that the electrical properties of the surface of strongly defective films depend on the volume structure. 4 ref. Summary.

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UDC 622.4+541.12.03

USSR

AFANAS'YEV, G. T., BOBOLEV, V. K., KAZAROVA, YU. A., and KARABANOV, YU. F.  
(Moscow)

"Local Heat Formation During Impact Destruction of Thin Layers"

Novosibirsk, Fizika Goreniya i Vzryva, Vol 8, No 2, Jun 72, pp 299-306

Abstract: The authors studied specimens pressed from ground crystalline iron citrate hydrate for purposes of observing the thin layer destruction pattern in materials mechanically similar to explosives. It was found that after impact destruction, bands appear on the contact surfaces which can be regarded as the lines of intersection of these surfaces. To establish the mechanical similarity between iron citrate and explosives, the pressure was measured during impact with disks of varying thickness. The resultant pressure oscillograms are analogous to those for solid explosives.

A derivatographic study was made of the initial substance and part of a specimen after impact for a qualitative understanding of the chemical processes in iron citrate during heating. The heating rate was 15° per

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1/2 011

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--SYNTHESIS AND REACTIONS OF BETA,GAMMA UNSATURATED AMINES. IX.  
AMINATION OF ISOPRENE AND STYRENE BY PRIMARY MONO AND DIAMINES -U-  
AUTHOR-(04)-MARTIROSYAN, G.T., KAZARYAN, A.TS., GRIGORYAN, E.A., BABAYAN,  
A.T.

K

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(3), 446-9

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, AMINE DERIVATIVE, ISOPRENE, STYRENE,  
BENZENE DERIVATIVE, PRIMARY AMINE, SECONDARY AMINE, TERTIARY AMINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1992/1666

STEP NO--UR/0366/70/006/003/0446/0449

CIRC ACCESSION NO--AP0112660

UNCLASSIFIED

2/2 011

CIRC ACCESSION NO--AP0112660  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. IN THE AMINATION OF H SUB2  
 C=CMECH:CH SUB2 WITH 1 EQUIV. RNH SUB2 (R EQUALS PR OR BU) IN THE  
 PRESENCE OF NA METAL, 56.4PERCNET RN(CH SUB2 CH:CME SUB2) SUB2 (I) AND  
 12.9PERCENT RNHCH SUB2 CH:CME (II) WERE FORMED. WHEN 5 EQUIVS. RNH SUB2  
 WERE USED, THE YIELDS OF I AND II WERE, RESP., 32 AND 35PERCENT. USING  
 PHCH:CH SUB2, THE REACTION WITH 1 EQUIV. RNH SUB2 GAVE 56.2PERCENT RN(CH  
 SUB2 CH SUB2 PH) SUB2 (III) AND 23.9PERCNET RNHCH SUB2 CH SUB2 PH (IV).  
 WHEN 3 EQUIVS. RNH SUB2 WERE USED, THE YIELDS OF III AND IV WERE, RESP.,  
 0 AND 57.2PERCENT. THESE DIFFERNECES ARE DUE TO THE INTRAMOL.  
 TRANSAMINATION OF II LEADING TO INTERMEDIATES, SUCH AS (RN PRIME  
 NEGATIVE CH SUB2-CH:CME SUB2)NA PRIME POSITIVE, WHICH IS IMPOSSIBLE IN  
 THE CASE OF IV. THE REACTION OF II WITH PHCH:CH SUB2 OR IV WITH H SUB2  
 C=CMECH:CH SUB2 GAVE 52.1-94PERCENT RN(CH SUB2 CH SUB2 PH)CH SUB2 CH:CME  
 SUB2.  
 FACILITY: INST. ORG. KHIM., EREVAN, USSR.

UNCLASSIFIED

USSR

UDC 615.373-07:616-003.725(048)

PODOBED, V. A., KAZARYAN, B. M., and KHARLIP, B. V.

"Dependence of Immunogenic Properties of Influenza Vaccine on Its Biological Activity"

Minsk, Zdravookhraneniye Belorussii, No 12, 1972, p 74

Abstract: Immunogenic properties of type A<sub>2</sub> and type B flu vaccines were examined in 1971 during inoculations of 69 watch factory workers. Vaccinations of type A<sub>2</sub> were biologically highly active; of type B, less active. Pronounced antibody increase (double or more) occurred in 85.4% of the type A<sub>2</sub> cases, but in only 47.7% of the type B cases. Biological activity of the virus was determined in chick embryos by the hemagglutination reaction. Immunogenic ability was indicated by antibody titers of paired sera in the hemagglutination inhibition test with 1% chicken erythrocytes. The average titer for type A<sub>2</sub> antibodies was 36.1 and for type B was 11.6 before vaccination; after inoculation it was 130 and 22.9 respectively. The dependence of immunogenic ability of vaccine upon its biological activity is evident. Increases in resistance among some nonvaccinated persons were noted.

1/1

USSR

ARUTYUNYAN, G. M., and KAZARYAN, E. M., (Engineering-Physics Institute, Academy of Sciences, Armenian SSR, and The Yerevan State University)

"Self-Absorption in Thin Semiconductor Films in the Field of an Intense Electromagnetic Wave"

Yerevan, Izvestiya Akademii Nauk Armyanskoy SSR, Fizika, Vol 8, No 5, 1973, pp 339-342

Abstract: The energy spectra of charge carriers contain gaps which are determined by the angle between the direction of the electron impulse and the tension vector of the electric field wave. In the present study it was shown possible to determine the size of the gap from interzonal absorption of a weak electromagnetic wave in the presence of an intense wave in dimensionally quantified semiconductor films. The results showed that the presence of the gap leads to a zero absorption coefficient in the region in which the frequency is changed. Determinations of dimensional quantification make it possible to calculate the size of the gap (by changing film thickness) and the regions of transmitted and amplified frequencies.

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USSR

UDC: 621.315.592

KAZARYAN, E. M. and ENFIADZHYAN, R. L., Yerevan State University

"The Possibility of Forming Complexes of Quasi-Particle Electrons and Holes in Fine Semiconductor Films"

Leningrad, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1375-1376

Abstract: This theoretical article considers a system consisting of two holes and one electron in a two-dimensional semiconductor medium under the condition that the exciton radius exceeds the semiconductor film thickness. The authors start by using the analogy with the ion of the hydrogen molecule, taking the nonadiabaticity term into account. Using the perturbation theory for the bond energy in the state described by the symmetrical wave function, they obtain an expression for the energy of dissociation of the two-hole one-electron complex. This expression contains three terms: the first is the result of the interaction of the electron and the two holes; the second is the result of zero oscillation; the third describes the hole motion. Appreciation is acknowledged to P. A. Bezirganyan for discussing the results of the work, and to G. Gulkanyan for making the numerical computations.

1/1

1/3 010 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--EVALUATIONS OF THE MEAN AGES OF O-B5 STARS BASED ON THEIR  
DISTRIBUTION IN STELLAR ASSOCIATIONS -U-  
AUTHOR--(03)-MIRZUYAN, L.V., KAZARYAN, E.S., CHAVUSHYAN, D.S.

COUNTRY OF INFO--USSR

SOURCE--SOGVSHCHENIYA BYURAKANSKOY OBSERVATORII AKADEMIYA NAUK ARMAVNSKOY  
SSR, 1970, NR 41, PP 69-79  
DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--STAR, STELLAR EVOLUTION, FIRST APPROXIMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1994/0370

STEP NO--UR/2620/70/000/041/0069/0079

CIRC ACCESSION NO--AP0114660

UNCLASSIFIED

2/3 010

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO—AP0114660

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE BASIS OF THE OBSERVATIONAL MATERIAL (TABLE 1) THE SPACE DISTRIBUTIONS OF O-B0, B0.5-61, B1.5-82 AND B2.5-85 STARS IN THE SYNTHETIC STELLAR ASSOCIATION (TABLE 2) HAVE BEEN DETERMINED. BY MEANS OF THE OBTAINED DATA TAKEN WITH THE "HYPERBOLIC" APPROXIMATION (1) (TABLE 3) THE MEAN AGES OF THE STARS FOR EACH OF THE MENTIONED INTERVALS OF SPECTRAL TYPES HAVE BEEN EVALUATED. IT HAS BEEN SUPPOSED THAT ALL STARS HAVE BEEN EJECTED FROM THE NUCLEI OF THE EXPANDING STELLAR ASSOCIATIONS AND THAT THE SYNTHETIC ASSOCIATION REGARDING TO THE PHENOMENON OF STELLAR FORMATION IS IN A STATIONARY STATE. THE STELLAR AGEING FUNCTION  $F(R)$  (16) IS USED, WHICH ACTUALLY PRESENTS THE DEPENDENCE OF THE FLOW OF EXPANDING STARS OF A GIVEN SPECTRAL TYPE FROM THE DISTANCE (2) AND DETERMINES THEIR AGING RATES. TAKING INTO ACCOUNT THAT, ACCORDING TO THE OBSERVATIONAL DATA, THE PROCESS OF O-B STARS AGING HAS, IN A FIRST APPROXIMATION, THE PROPERTIES OF A STATISTICAL PROCESS (3, 16),  $F(R)$  IS PRESENTED BY AN EXPONENTIAL FUNCTION (3). IF THE VELOCITY OF EXPANSION IN THE ASSOCIATION IS CONSTANT, THEN THE DETERMINATION OF THE SLOPE OF THE LINEAR RELATION  $(\lg F(R), R)$  (FIG. 2), OBTAINED ON THE BASIS OF THE OBSERVATIONAL DATA, IS EQUIVALENT TO THE EVALUATION OF THE MEAN AGES OF STARS. IN FACT THE MEAN VELOCITY OF EXPANSION INCREASES WITH THE DISTANCE FROM THE CENTRE OF THE SYNTHETIC ASSOCIATION. THE EVALUATIONS OF O-B5 STARS AGES FOR TWO CASES, OF A CONSTANT VELOCITY OF EXPANSION ( $k$  EQUALS 1) AND OF A VELOCITY, INCREASING LINEARLY WITH THE DISTANCE ( $k$  EQUALS 2), ARE PRESENTED (TABLE 2).

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3/3 010

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0114660

ABSTRACT/EXTRACT--THE OBSERVED DEPENDENCE OF THE MEAN AGES OF O-B5 STARS FROM THE SPECTRAL TYPE (FIG. 3) CORRESPONDS TO THE KNOWN EVALUATIONS OF AGES OBTAINED BY OTHER METHODS AND TESTIFIES THE VALIDITY OF THE USED METHOD.

89

UNCLASSIFIED

USSR

UDC: 621.396.69:621.319.4(088.8)

KAZAR'YAN, G. S., YAKIRIN, R. V., SHVETSOV, A. I., Leningrad Production Union "Radiodetal'"

"A Fixed Capacitor of the Mansbridge Type"

USSR Author's Certificate No 266071, filed 17 Feb 66, published 6 Jul 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1V301 P)

Translation: This Author's Certificate introduces a capacitor equipped with a rectangular metal housing and insulating packing gaskets located between the inner walls of the housing and the outer surface of the capacitor section. As a distinguishing feature of the patent, the assembly process is simplified by making the insulation gaskets in the form of two hollow sections of a thermoplastic material such as polyethylene with edges which fit into each other and side walls fitted with longitudinally arranged extrusions, the protruding elements of these extrusions being directed partly toward the inside of the hollow section and partly toward the outside.

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USSR

UDC 612.017.1.014.46:615.277.3+612.017.1.014.482

KAZARYAN, K. A., FONTALIN, L. N., PEVNITSKIY, L. A., and SOLOV'YEV, V. V.,  
Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of  
Medical Sciences USSR, Moscow, and Institute of Experimental Biology, Academy  
of Sciences Armenian SSR, Yerevan

"Effects of Some Alkylating Agents and of Whole-Body Gamma-Irradiation on the  
Formation and Realization of Immunological Memory"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 72, No 11,  
Nov 71, pp 58-61

Abstract: Mice were immunized twice with  $1 \times 10^6$  sheep erythrocytes at an  
interval of 27-44 days. They were subjected to the action of an alkylating  
agent (sarcolysin, degranol, thioTEP, cyclophosphamide) or gamma-irradiation  
in a dose of 500 R either at the time of the first immunization, in the in-  
terval between immunizations, or at the time of the second immunization, where-  
upon the secondary response was determined by the method of N. K. Jerne and  
A. A. Nordin (Science, Vol 140, p 405, 1963) on the basis of the amount of  
antibody-forming cells in the spleen on the 4th day after the second immuni-  
zation. As shown by this response, all the agents blocked the realization  
of immunological memory and weakened its formation. The alkylating compounds  
had a stronger effect on the process of memory formation than on the already  
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USSR

KAZARYAN, K. A., et al., Byulleten' Eksperimental'noy Biologii i Meditsiny,  
Vol 72, No 11, Nov 71, pp 58-61

formed memory (the secondary response was weaker when agents were applied at the time of the first immunization than between immunizations), whereas the inverse relationship applied to irradiation. The observed phenomena can be explained on the basis of different sensitivities of resting and proliferating lymphoid cells to irradiation as compared with alkylating agents.

2/2

- 70 -

USSR

*K*  
UDC 612.017.1.014.46:615.277.3

~~KAZARYAN, K. A.~~, Laboratory of Immunological Tolerance, Department of General and Radiation Immunology, Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences, USSR, Moscow, and Institute of Experimental Biology, Academy of Sciences Armenian SSR, Yerevan

"The Immunosuppressive Activity of Some Radiomimetics During Immunization of Mice With Sheep Erythrocytes"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 3, 1970, pp 87-91

Abstract: The immunosuppressive activity of sarcolysin, degranol, Thio-TEF and embichin was investigated. Sarcolysin, degranol and Thio-TEF effectively suppressed the formation of antibodies. The most effective period of administration of these radiomimetics was a day before or the same day as immunization in the case of sarcolysin and degranol, while Thio-TEF was best administered on the day of immunization or a day later. Immunosuppressive activity of these agents could be correlated with their ability to suppress lymphopoiesis. After a while immunological reactivity, lymphopoiesis and myelopoiesis were restored.

1/1



Acc. Nr:

AP0051968

Ref. Code: UR 0219

PRIMARY SOURCE: Byulleten' Eksperimental'noy Biologii i Meditsiny, 1970, Vol 69, Nr 3, pp 2791

IMMUNODEPRESSIVE ACTIVITY OF CERTAIN RADIOMIMETICS DURING IMMUNIZATION OF MICE BY SHEEP ERYTHROCYTES

K. A. Kazaryan

Institute of Epidemiology and Microbiology, Academy of Medical Sciences of the USSR, Moscow

Immunodepressive activity of certain radiomimetics has been investigated (Sarcolysin, Degranol, Thio-Tepa, Novembichin). All the above, except Novembichin, intensely depressed the formation of antibody forming cells. The best time for their administration was a day before immunization or on that very day (sarcolysin, degranol) or on the immunization or a day later (Thio-Tepa). Total ionizing radiation is best given a day before immunization. Immunodepressive activity of various agents correlated with their faculty to depress lymphopoiesis. However, immunoreactivity was restored later and lympho- and myelopoiesis.

REEL/FRA  
19820455

*2/22*

UDC 678.048

USSR

MIKHAYLOV, V. V., KOKHANOV, YU. V., KAZARYAN, K. S., MATVEYEVA, YE. N.,  
and KOZODOY, A. A.

"Metal Dialkyldithiophosphates -- Stabilizers of Polymeric Materials"

Moscow, Plasticheskiye Massy, No 9, 1970, pp 23-24

Abstract: Various metal salts of the dodecyl ester of dithiophosphoric acid were studied as light and thermal stabilizers for polyamides and polyolefines: zinc, nickel, copper, and chromium salts. Comparison of the rate of oxygen consumption at 200°C and 200 mm Hg of the polymers PA-68 and PA-12, to which these salts were added, using a proven stabilizer N,N'-di- $\beta$ -naphthyl-p-phenylenediamine (DNPDA) as control, showed that the nickel salt of PA-68 and the copper salt of PA-12 surpass the DNPDA. Both of these compounds leave the polymer colorless, in contrast to DNPDA. The copper and nickel salts show good synergistic activity as light stabilizers for polyolefines when mixed with 2-hydroxy-4-alkoxybenzophenone (benzone OA).

1/2 024 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--ORIENTATION AND CRYSTALLINITY OF POLY(ETHYLENE TEREPHTHALATE)  
STUDIED BY AN ACOUSTICAL METHOD -U-  
AUTHOR--(05)-PEREPECHKO, I.I., GRECHISHKIN, V.A., KAZARYAN, L.G.,  
VASILENKO, ZH.G., BERESTNEV, V.A.  
COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN. SER. A 1970, 12(2), 438-42

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CRYSTALLINE POLYMER, AMORPHOUS POLYMER, POLYETHYLENE  
TEREPHTHALATE, X RAY DIFFRACTION ANALYSIS, ULTRASONIC VELOCITY, POLYMER  
STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1989/0246

STEP NO--UR/0459/70/012/002/0438/0442

CIRC ACCESSION NO--AP0106902

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--02OCT70

2/2 024

CIRC ACCESSION NO--AP0106902

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ORIENTATION FACTOR (ALPHA) (W. MOSELEY, 1960) OF POLY(ETHYLENE TEREPHTHALATE) I CONTG. BOTH CRYST. AND AMORPHOUS REGIONS WAS DETD. BY X RAY DIFFRACTOMETRY. IT WAS DEMONSTRATED THAT MOSELEY'S FORMULA ALPHA SIMILAR TO 1 MINUS (C PRIME2 SUBO2-C PRIME2) (C SUBO2 AND C ARE THE ULTRASOUND VELOCITIES IN 100PERCENT ISOTROPIC MATERIAL AND IN THE SAMPLE, RESP.) MUST BE REPLACED BY ALPHA EQUALS (1 MINUS(C PRIME2 SUBO2-C PRIME2))-(1 MINUS (C PRIME2 SUBO2-C PRIME2 SUBO1), WHERE C SUBO1 IS THE ULTRASOUND VELOCITY IN 100PERCENT CRYST. MATERIAL. C SUBO1 OF I WAS ESTD. FROM THE DIFFRACTOMETRY DATA AND C SUBO2 WAS DETD. EXPTL. USING A FULLY AMORPHOUS I SAMPLE.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--PHYSICOMECHANICAL PROPERTIES OF POLYFORMALDEHYDE DEPENDENT ON THE  
DIMENSIONS OF SPHERULITES AND CRYSTALLITES IN BULK -U-  
AUTHOR--(03)-GUMEN, R.G., KAZARYAN, L.G., KOVRIGA, V.V.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (6), 40-4

K

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POLYFORMALDEHYDE, SPHERULITE, PLASTIC FABRICATION, POLYMER  
STRUCTURE, PLASTIC MECHANICAL PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3007/0731

STEP NO--UR/0191/70/000/066/0040/0044

CIRC ACCESSION NO--AP0136170

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136170

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DISTRIBUTION WAS DETD. OF SPHERULITE SIZES ON THE SURFACE AND IN THE INTERIOR OF POLYFORMALDEHYDE (I) SLABS OBTAINED BY MOLDING UNDER VARIOUS CONDITIONS. RAPID COOLING OF THE MOLD DECREASED THE SPHERULITE SIZE ON THE I SURFACE ONLY. OPTIMUM MECH. PROPERTIES WERE OBTAINED WHEN THE SPHERULITES HAD THE SAME DIMENSIONS ON THE SURFACE AS IN THE INTERIOR AND WERE SIMILAR TO 25 MU IN DIAM. THIS WAS ACCOMPLISHED BY LOWERING THE I MELT TEMP. BEFORE POURING INTO THE MOLD, RAPID POURING, HIGH MOLDING PRESSURE, AND LOW MOLDING TEMPS.

UNCLASSIFIED

USSR

UDC 542.91+542.951.2

KAZARYAN, L. Z., and VARDANYAN, TS. KH., Yerevan Polytechnical Institute  
Imeni K. Marks

"Synthesis of Dialkyl Acetals of  $\beta$ -N,N-Dialkylaminobutyraldehydes"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 24, No 9, 1971, pp 782-785

Abstract: A series of  $\beta$ -N,N-dialkylaminobutyraldehydes was synthesized. A mixture of 17.4 g morpholine, 20.85 g  $\beta$ -chlorobutyraldehyde dipropyl acetal, 15 g anhydrous sodium iodide, and 50 ml propanal was stirred at 90-95° for 30 hrs. The propanal was removed and the solid was filtered off. To the filtrate, 6 g of flacial acetic acid was added, the unreacted  $\beta$ -chlorobutyral was extracted with ether and the residue was then treated with concentrated aqueous base solution. The aminobutyral formed is extracted with ether, dried, and evaporated to yield 11.2 g dipropylacetal of  $\beta$ -morpholinobutyraldehyde, b.p. 160°/8mm,  $d_4^{20}$  0.9304,  $n_D^{20}$  1.4450. Other acetals were prepared in similar manner.

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USSR

UDC 621.373:535(206.3)

ISAYEV, A. A., KAZARYAN, M. A., PETRASH, G. G.

"A Copper-Vapor Pulsed Laser With Repetition Rate of 10 kHz"

Leningrad, Optika i Spektroskopiya, Vol 35, No 3, Sep 73, pp 528-531

Abstract: Emission and superemittance were obtained in copper vapor by using alundum tubes 70 cm long and 0.8 cm in diameter. The copper was applied in pieces over the length of the discharge tube. Pulsed discharge was excited by a capacitor through a thyatron. The resonator was made up of a dielectric mirror with 2-meter radius of curvature and a flat glass substrate. The laser produced emission on lines of 5106 and 5782 Å. The average emission power at a pulse repetition rate of 10 kHz was 2.4 w, which corresponds to a peak emission power of 48 kw for voltage across the capacitor of 20 kv (pulse duration was 5 ns). An appreciable part of the power was concentrated in the green line. The specific peak power in this case is 1.4 kw/cc, which is a record for all gas-discharge lasers with atomic and ionic transitions.

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USSR

UDJ 621.378.325

ISAYEV, A.A., KAZARYAN, M.A., PETRASH, G.G.

"Lead Vapor Pulsed Laser With High Peak And Average Powers"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11), 1972, p 100

Abstract: Previous experiments conducted by the authors show that lasers based on lead, copper, gold, and manganese vapors can operate at a large repetition frequency of pulses which reach 2.5 kHz, and assure significant specific peak powers (order of a hundred watts for 1 cm<sup>2</sup>). These results were obtained with tubes of small active volume, because of which full peak and average powers of generation were limited. In connection with this it was important to investigate whether or not a considerable increase of the active volume is possible without a decrease of the specific power of generation. In the present work a lead vapor laser was chosen as the research object because work with it is simpler as the working temperature (900-1000° C) is not too high. Discharge tubes of aluminum were used in the experiments. With tubes which have an interior diameter of 1.5 cm, a length of the active part of 60 cm, a voltage at the primary winding of a pulse transformer of 17 kv, a pressure of the neon buffer gas of 5 tor, and a recurrence frequency of 2.5 kHz, the maximum average power of generation at a line with  $\lambda = 0.7229$  microns amounted to 0.3 watt. A Peak power of 34 kw and a  
1/2

USSR

ISAYEV, A.A., et al, Kvantovaya elektronika, Moscow, No 5(11), 1972, p 100

specific peak power of  $315 \text{ w/cm}^2$  were obtained. The  $5/4 \text{ kw}$  exceeds by more than an order of magnitude the value ( $2 \text{ kw}$ ) obtained earlier with the same laser. 1 fig. 4 ref. Received by editors, 10 Apr 1972.

2/2

1/2 018 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--SPECTROPHOTOMETRIC INVESTIGATION OF SOME WOLF RAYET AND OF TYPE  
STARS -U-  
AUTHOR--(02)--KAZARYAN, M.A., YARDANYAN, K.V.  
COUNTRY OF INFO--USSR *K*  
SOURCE--SOOBSHCHENIYA BYURAKANSKOY OBSERVATORII AKADEMIYA NUK ARMYANSKOY  
SSR, 1970, NR 41, PP 46-55  
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, ASTRONOMY, ASTROPHYSICS  
TOPIC TAGS--STAR, ELECTRON DENSITY, SPECTROPHOTOMETRIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1994/0076 STEP NO--UR/2620/70/000/041/0046/0055  
CIRC ACCESSION NO--AP0114472  
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0114472

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECTROPHOTOMETRIC INVESTIGATION OF SOME WOLF RAYET AND OF TYPE STARS IN THE ASSOCIATION AROUND P CYG HAVE BEEN MADE. THE SPECTROPHOTOMETRIC TEMPERATURES AND THE RELATIVE INTENSITIES OF EMISSION BANDS OF THESE STARS WERE OBTAINED. THE TRUE TEMPERATURES OF THESE STARS WERE OBTAINED WITH THE COMBINATION OF ZANSTRA'S AND AMBRATZUMIAN'S FORMULAE. THE OPTICAL THICKNESSES OF THE SHELLS FOR L SUBC RADIATION, THE RADIUS OF THE TWICE IONIZED HELIUM ZONE AND THE ELECTRON DENSITIES AT THE BOTTOM OF THE SHELLS HAVE BEEN CALCULATED AS WELL.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--GLUTAMIC ACID DECARBOXYLASE ACTIVITY IN BRAIN VESSELS -U-  
AUTHOR--(03)-MIRZOYAN, S.A., KAZARYAN, B.A., AKOPYAN, V.P.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(5), 1241-1  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--GLUTAMIC ACID, DEHYDROGENASE, ENZYME ACTIVITY, BRAIN,  
AMINO BUTYRIC ACID  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1998/1014 STEP NO--UR/0020/70/190/005/1241/1242  
CIRC ACCESSION NO--AT0121610  
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0121610

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INCUBATION OF A HOMOGENATE OF DOG BRAIN BLOOD VESSELS WITH PYRIDOXAL PHOSPHATE AND GLUTAMATE YIELDED 48 MU G GAMMA AMINOBUTYRIC ACID, G OF FRESH TISSUE IN 30 MIN. SIMILAR EXPTS. WITH DOG AORTAS AND CAROTID ARTERIES YIELDED NO DETECTABLE AMTS. OF THIS COMPD. FACILITY: EREVAN. MED. INST., EREVAN, USSR.

UNCLASSIFIED

USSR

UDC: 621.375.82

KAZARYAN, R. A., MANUCHARYAN, R. G., GASPARYAN, S. S.

"Calculating and Measuring the Probability of Errors in a Binary Optical Communications Channel With Polarization Modulation of Laser Emission"

Moscow, Kvant. elektronika--sbornik (Quantum Electronics--collection of works), No 1(13), "Sov. radio", 1973, pp 90-95 (from RZh-Fizika, No 8, Aug 73, abstract No 8D1170 by the authors)

Translation: The total error probability  $P_{er}$  is calculated for an optical communications channel in the case of light polarization modulation. A general expression is found for  $P_{er}$  from which an expression for  $P_{er}$  with modulation of light intensity is derived as a special case. Measurements are made of  $P_{er}$  in cases of modulation of polarization or intensity. It is shown that the threshold value which ensures a minimum overall error in polarization modulation is constant and equal to zero regardless of the intensity of the laser and background radiation, whereas with intensity modulation the optimum threshold is tracking (sic) in the general case. It is also shown that the laser emission intensity which ensures identical probability of the overall error in the case of polarization modulation is  $\sqrt{2}$  times less than for intensity modulation. Bibliography of 8 titles.

1/1

USSR

UDC 535

VARTANYAN, E. G., VARTANYAN, E. S., KAZARYAN, R. A., MANUCHARYAN, R. G.

"Amplitude Distributions of Laser Radiation Passing Through a Turbulent Atmosphere"

Uch. zap. Yerevan. un-t. Yestestv. n. (Scientific Notes of Yerevan University. Natural Sciences), 1970, No 3(115), pp 140-142 (from RZh-Fizika, No 7, Jul 71, Abstract No 7D884)

Translation: Measurements of the energy fluctuations of laser radiation propagating through a turbulent atmosphere were measured on a track of length 25 km for diameters of the receiving objective from 30 to 50 cm and averaging times of 2, 10, 30, 60, and 120 sec. The measurements were conducted in the spring from 2000 to 2400 hrs. On the basis of the  $\chi^2$  criterion for five degrees of freedom, in the opinion of the authors, the distribution of fluctuations in the energy received agreed with a logarithmically normal and normal law. It was found that, independent of the averaging time for diameters of the receiving objective up to 15 cm, the values of the  $\chi^2$  were less for the logarithmically normal distribution law than for the normal distribution law, and for averaging over an area of the objective of the diameter above 15 cm the  $\chi^2$  was less for a normal law. A. A. Yakovlev.

1/1

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Acc. Nr: **AP0036618** - Abstracting Service:  
 CHEMICAL ABST. 4170

Ref. Code:  
**UR 0366**

K

78301e Chemistry of dienes and their derivatives. III.  
 Addition of tert-butyl chloride to 2,3-dichloro-1,3-butadiene.  
 Synthesis of 1-alkoxy-2,3-dichloro-5,5-dimethyl-2-hexenes.  
 Mkrvan, G. M.; Kazaryan, R. A.; Zakaryan, R. P.; Kaplan-  
 yan, E. E. (Vses. Nauch. Issled. Proekt. Inst. Polim. Prod.,  
 USSR). *Zh. Org. Khim.* 1970; 5(1), 25-6 (Russ). The reaction  
 of  $H_2C:CClCl:CH_2$  with *tert*-BuCl at  $-20^\circ$  in the presence of  
 $AlCl_3$  gave good yields of  $Me_2CCH_2CCl:CClCH_2Cl$  (I). When  
 $ZnCl_2$  was used as the catalyst the reaction rate was slower and  
 only 22% I was obtained. Oxidn. of I with  $KMnO_4$  gave  
 $(CO_2H)_2$  and  $Me_2CCH_2CO_2H$ . The reaction of I with ROH (R  
 is Me, Et, Pr, Bu, or amyl) in alk. soln. gave 78.6-89.9%  $Me_2$   
 $CCH_2CCl:CClCH_2OR$  and  $\leq 1\%$   $Me_2CCH:CClCl:CH_2$ .

CPJR

ACS

REEL/FRA  
 19721472

7

1/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70  
 TITLE--SYNTHESIS OF LACTONES. VIII. REACTIONS OF  
 ALPHA, SUBSTITUTED, DELTA, HYDROXY, GAMMA, CAPROLACTONES -U-  
 AUTHOR--(05)--ZALINYAN, M.G., ARUTYUNYAN, V.S., SARKISYAN, O.A., KAZARYAN,  
 S.H.A., DANGYAN, M.T.  
 COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6 (4), 860-2

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC SYNTHESIS, LACTONE, DEHYDRATION, CHLORINATED ORGANIC  
COMPOUND

CENTREL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/2084

STEP NO--UR/0366/70/006/004/0860/0862

CIRC ACCESSION NO--AP0125671

UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125671

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEHYDRATION OF  
ALPHA, (R, SUBSTITUTED), DELTA, HYDROXY, GAMMA, CAPROLACTONES (I) R EQUALS  
ET, PR, BU, ISO-BU, ISO-AMYL) WITH HPO SUB2 GAVE  
ALPHA, (R, SUBSTITUTED), GAMMA, VINYL BUTYROLACTONES. THE REPLACEMENT OF  
THE OH GROUP OF I BY CL GAVE DELTA, CHLORO ANALOGS OF I WHICH REACTED  
WITH ETGNA TO GIVE DELTA, ETHOXY ANALOGS OF I. FACILITY: EREVAN.  
GOS. UNIV., EREVAN, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--SYNTHESIS OF LACTONES. VII. SELECTIVE REDUCTION OF  
ACETYL BUTYROLACTONES BY ALUMINUM ISOPROPYLATE -U-  
AUTHOR--(05)--ARUTYUNYAN, V.S., SARKISYAN, O.A., KAZARYAN, SH.A., ZALINYAN,  
M.G., DANGYAN, M.T.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ORG. KHIM. 1970, 6(4), 856-60  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ORGANIC SYNTHESIS, LACTONE, CHEMICAL REDUCTION, ORGANALUMINUM  
COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/2083 STEP NO--UR/0366/70/006/004/0856/0860  
CIRC ACCESSION NO--AP0125670  
UNCLASSIFIED

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2/2 014

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125670

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SELECTIVE REDN. OF ALPHA, (R  
 SUBSTITUTED), GAMMA, ACETYLBUTYROLACTONES (R EQUALS ET, PR, ISO-PR, BU,  
 ISO-BU, OSCAMYL) WITH (ISO-PRO) SUB3 AL (I) GAVE ALPHA, (R  
 SUBSTITUTED), GAMMA, (ALPHA, HYDROXYETHYL) BUTYROLACTONES. THE REDN. OF  
 BETA, ACETYL, BETA, CARBETHOXYBURYROLACTONE WITH I GAVE  
 BETA, (ALPHA, PROPOXYETHYL), BETA, CARBETHOXYBUTYROLACTONE WHICH WAS  
 DECARBOXYLATED TO BETA, (ALPHA, PROPOXYETHYL) BUTYROLACTONE (II). THE  
 REDN. OF BETA, ACETYLBUTYROLACTONE WITH I ALSO GAVE II. THE REDN. OF  
 ALPHA, (3, OXOBUTYL) BURYROLACTONE GAVE  
 ALPHA, (3, HYDROXYBUTYL) BUTYROLACTONE. ALPHA, ACETYLBUTYRO, LACTONES COULD  
 NOT BE REDUCED IN THIS WAY. FACILITY: EREVAN. GOS. UNIV.,  
 EREVAN, USSR.

UNCLASSIFIED

USSR

UDC 681.325.65

ARUSTAMYAN, V. YE., GRIGORYAN, L. A., KAZARYAN, S. YE., MOMDZHYAN, I. A.,  
and SARKISYAN, A. YE.

"Transistor-Transistor Logic Circuit"

USSR Authors' Certificate No 314307, Cl. H 03 k 19/08, filed 26 Feb 70, published 26 Oct 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 5, May 72, Abstract No 5B13(P))

Translation: There are well-known devices which contain an input multiemitter transistor (T) connected by the collector to the base of an intermediate T, whose collector and emitter are connected to the bases of two output series-connected Ts. The logic circuit described differs from these in that it contains a complementary T connected by its collector to the emitter of the intermediate T, by its emitter to the collector of the input T, and by its base through the resistor to the base of the input T. This makes it possible to increase the operating speed of the device.

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USSR

UDC: 612.766.2

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KOVALENKO, Ye. A., POPKOV, V. L., KONDRAT'YEV, Yu. I., MALLYAN, E. S., GALUSHKO, Yu. S., PROKHONCHUKOV, A. A., KAZARYAN, V. A., MOROZOVA, R. S., SEROVA, L. V., POTAPOV, A. N., ROMANOV, V. S., and PISHCHIK, V. B.

"Shifts in the Functions of the Organism During Prolonged Hypolinesia"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 14, No 6, Nov/Dec 70, pp 3-9

Abstract: Rats kept immobilized for up to 170 days in special cages showed an increase in general gas exchange and rate of oxygen utilization in the muscles, and a slowing of the rate of tissue metabolism in the liver and myocardium. The level of phosphorylation in the myocardium and, to some extent, in the skeletal muscles and liver dropped. Prolonged hypokinesia also stunted the animals' growth, prevented them from gaining weight, and in some cases caused them to lose weight. Besides disturbing mineral and protein metabolism, immobilization resulted in exhaustion of the hypothalamus - pituitary - adrenal cortex system.

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1/2 017 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--THERMAL CONDUCTIVITY OF LIGHT HYDROCARBONS (PROPYLENE) -U-  
AUTHOR--KAZARYAN, V.A., RYABTSEV, N.I. *K*  
COUNTRY OF INFO--USSR  
SOURCE--GAZOV. PROM. 1970 15(1) 45  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--THERMAL CONDUCTIVITY, PROPYLENE, CRITICAL PRESSURE, LOW  
TEMPERATURE EFFECT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1989/0212 STEP NO--UR/0492/70/015/001/0045/0045  
CIRC ACCESSION NO--AP0106868  
UNCLASSIFIED



2/2 017

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106868

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THERMAL COND. OF LIQ. AND GASEOUS PROPYLENE WAS DETD. WITH AN ACCURACY OF 2PERCENT AT 182.5 TO 425.1DEGREEK AND 0.1-50.6 MN-M PRIME2. AT 359.7, 378.8, AND 399.2DEGREEK, THE THERMAL COND. INCREASES SHARPLY AT PRESSURES CLOSE TO THE CRIT. PRESSURE. AT ALL TEMPS. AND PRESSURES INVESTIGATED, EXCEPT THOSE NEAR THE CRIT. REGION, THE EXCESS THERMAL COND. ( $\lambda$  SUBP, T MINUS  $\lambda$  DAT) IS A MONOTONIC FUNCTION OF THE D.

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USSR

UDC 621.396.6--181.5 (028.8)

BARANOV, A.I., BATEKHAURI, V.D., VOSEBOYMIKOV, I.I., GAVRILOV, R.A., GALIYATKIN, V.P., GOLUBISOV, M.S., ZAMENHOVSKIY, M.B., ZALIFSKIY, A.I., ZLOFIN, V.A., KAZATSKER, L.I., LAGUTAIN, G.V., LARIONOV, YU. S., PRONRAZHENSKIY, S.P., MALKIN, D.L., RAMENSKIY, I.V., SIMONOVA, I.S., TIKHOMIROV, B.G., FISHL', I.SH., SHUBERT, M.M.

"Device For Deposition Of Multilayer Coverings In A Vacuum"

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

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

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

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

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USSR

UDC 621.791.753.9:661.97:629.12

KAZATSKIY, A. I., Engineer

"Use of Automatic Vertical Welding in CO<sub>2</sub> With Forced Seam Formation in the Construction of Ship Hulls"

Moscow, Svarochnoye Proizvodstvo, No 10, Oct 70, pp 48-49

Abstract: Many plants use automatic vertical welding in CO<sub>2</sub> with forced seam formation to weld the vertical joints of the external sheathing and bulkheads of ships made of carbon and low-alloy steel plates 8-20 mm thick. The use of relatively inexpensive welding materials, standard electrode wire, and carbon dioxide makes this method cheaper than other methods of automatic vertical welding. The technology and equipment developed for this method are briefly described. Welding is performed using Sv-08G2S welding wire 1.6 mm in diameter and compressed CO<sub>2</sub>. Welding is performed by the "Ingul" automatic welding machine, which moves along the welded seam. The power supply used is a type PSG-500 converter. The system increases welding productivity by 3.5-4 times in comparison with manual welding.

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MOSKVIN, V. I., and KUZNETS, A. A., Moscow

"The Anodic Process in the Electrolysis of Titanium in Chloride-Fluoride Media"

Moscow, Izvestiya Akademii Nauk SSSR, Metall, No 4, Jul-Aug 70, pp 39-44

Abstract: The anodic process in electrolytes obtained by the interaction of  $TiCl_4$  with a fused mixture of chlorides and fluorides of alkali metals was experimentally investigated. The anodic process is discussed by reference to diagrams based on polarization curves, critical current densities, and the analysis of anodic gases. The gas analyses showed a predominance of  $Cl_2$  when  $F/Ti < 0.9$ . The discharge of  $Cl_2$  and  $F_2$  on the graphite anode can be combined or individual, depending on the conditions. A decrease of the fusion temperature and the relation  $F/Ti$  and an increase of the anodic current density favor a primary discharge of chlorine on the anode.

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Nuclear Science and Technology

USSR

UDC 541.15+621.039.05

DZANTIYEV, B. G., KRASIN, A. K., NICHIPOR, G. V., KAZAZYAN, V. T., and SAVUSHKIN, I. A.

"Calculation of Efficiency and the Optimization of Parameters of Chemo-nuclear Plants"

Moscow, Atomnaya Energiya, Vol 33, No 4, Oct 72, pp 803-808

Abstract: The calculation of the efficiency and the optimization of channel parameters on a loop-like chemonuclear plant are carried out on the basis of a generalized model. The approximate solution of the function characterizing in general the efficiency of any chemoradiative apparatus is reduced to a numerical summation of the efficiencies of individual chemonuclear channels. This method, in combination with physico-neutron calculations makes possible the efficiency determination of various types of chemonuclear plants taking into account the dosage rate, temperature, reagent density, and other factors characterizing the actual conditions of experimental and industrial chemo-nuclear plants. The use of this method for the indicated calculations of the KhYaU-5 chemonuclear plant resulted in optimization of its parameters. The possibility of the organization of an industrial synthesis of hydrazine on the basis of a chemonuclear reactor is analyzed on the example of a

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USSR

DZANTIYEV, B. G., et al., Atomnaya Energiya, Vol 33, No 4, Oct 72, pp 803-808

reactor using chemonuclear fuel in the form of a  $4\mu$  thick  $UO_2$  layer built up on an aluminum base. The plotted caloric power dependence of the channel efficiency shows a linear character. The efficiency of other active zones of chemonuclear reactors can be calculated on the basis of this dependence. Four figures, two tables, nine formulas, twelve bibliographic references.

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USSR

UDC 621.039.524.034.3

KAZAZYAN, V. T., ROGINETS, L. P.

"Heat Transfer Coefficient for a Gas Flow in a Slot Chemonuclear Channel"

Dissotsiiruyushch. gazy kak teplonositeli rab. tela energ. ustanovok -- V sb.  
(Dissociating Gases as Heat Transfer Agents and the Working Medium of Power  
Plants -- Collection of Works), Minsk, Nauka i tekhn. Press, 1970, pp 220-228  
(from RZh-Elektrotehnika i Energetika, No 5, May 1971, Abstract No 5U194)

Translation: A study was made of the problem of the effect of physical-chemical processes occurring in a gas during irradiation of it by fission fragments on heat exchange. It is demonstrated that the primary factor affecting the variation of the heat transfer coefficient is the presence of a defined energy profile of the fission fragments in the width of a channel. This variation has a maximum value for small channel dimensions and for thinner uranium containing layers on its wall. The solution of the problem is presented for the case of laminar flow of gaseous ammonia in a flat slot channel. In this case, even with a relatively thick uranium containing layer (23 microns) and great thickness of the channel (4 mm), the heat exchange coefficient is approximately cut in half. There is 1 illustration, 1 table and a 4-entry bibliography.

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Pharmacology and Toxicology

USSR

RODIONOVA, R. P., IVANOV, N. G., KAZBEKOV, I. M.

"Toxicity of beta-Ethoxypropionitrile"

Sb. "Toksikol. novykh prom. khim. veshchestv" (Toxicology of New Industrial Chemicals--Collection of Works), 1973, vyp. 13, Moscow, "Meditsina," pp 131-138 (from Referativnyy Zhurnal, 30F, Biologicheskaya Khimiya, No 18, 25 September 1973, Abstract No 18F1734)

Translation: The maximum permissible concentration (MPC) of beta-ethoxypropionitrile in the air of a working area was confirmed to be 0.05 mg/liter, which agrees with values calculated from physical-chemical (molecular weight, boiling point, volatility) and biological constants. It is noted that, for other nitriles that release a CN group, the MPC is much lower (0.0005 mg/liter for acrylonitrile).

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USSR

POZDNYAKOV, V. S., IVANOV, N. G., KAZBEROV, I. M.

"Toxicology of Acetylpropyl Alcohol"

Sb. "Toksikol. novykh prom. khim. veshchestv" (Toxicology of New Industrial Chemicals—Collection of Works), 1973, vyp. 13, Moscow, "Meditsina," pp 124-131 (from Referativnyy Zhurnal, 30F, Biologicheskaya Khimiya, No 18, 25 September 1973, Abstract No 18F1757)

Translation: The proposed maximum permissible concentration of acetylpropyl alcohol in air of a work area is 10 mg/liter. The LD-50 is 6400 mg/kg and the cumulative capacity is insignificant.

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USSR

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UDC 620.193.46

VISHKAREV, O. M., and KAZENIN, A. P., Central Scientific Research Institute of Technology and Machine Building

"Stability of Kh18N9 Stainless Steel in Sodium Flow"

Moscow, Zashchita Metallov, Vol 6, No 1, Jan-Feb 70, pp 27-28

Abstract: The effect of the flow rate of sodium coolant in power energy equipment on the corrosion-erosion resistance of steels at relatively low temperatures was studied. The tests involved washers of Kh18N9 austenitic steel. Sodium coolant was passed through washer holes at flow rates of 25, 12.5, and 6.3 m/sec for 1000 hrs. at 450°C. The test data failed to show erosion on the specimens, with the exception of one of the specimens involved. There was neither pitting nor local surface damage. Metallography revealed no damage at the grain boundaries. Specimens with diffusion chromium plating or nitrided specimens showed no appreciable wear. It is concluded that the erosion effect of sodium at temperatures up to 450°C and flow rates up to 25 m/sec on Kh18N9 stainless steels may be ignored in engineering calculations.

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USSR

UDC 539.4

LEVIN, YE.YE., KAZENINA, A.D., KURATOV, P.S., GUREVICH, G.I., GENERSON, I.G.,  
LUBMAN, P.M., Central Scientific Research, Planning, and Design Boiler  
and Turbine Institute imeni I.I. Polzunov

"Some Results of Acceleration Tests of Disk Models Made of Steel EP 631"

Kiev, Problemy Prochnosti, No 2, 1972, pp 113-116

Abstract: The experience of preparing and testing disks with a diameter of 355 x 46 mm, made of ingots weighing 0.8 t, is set forth for the first time. Steel EP631 was melted in a 5-ton electric arc furnace with subsequent vacuum-arc remelting. The heat-treatment regime of the disks is presented, as well as their mechanical properties in various directions. The results of acceleration tests of two models of the disks of one of the turbo machines are presented. Tests were carried out on disks without incisions, as well as on disks with "effective" incisions on the internal diameter, 10 mm deep and with a curvature radius of 0.18 mm. The obtained results testified to the actual possibilities of preparing and using disks of the indicated size from steel EP631. 3 figures, 3 tables, 9 bibliographic entries.

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