USSR

YUROVA, L. N., et al., Fiz. Yadern. Reaktorov, No 2, Moscow, Atomizdat Press 1970, pp 3-10 (from Referativnyy Zhurnal-Yadernyye Reaktory, No 3, 1971, Abstract No 3.50.76)

teristics (introduction of absorbers or scattering agents in homogeneous or discrete form, etc.). In the experiment discussed, the additional possibility is demonstrated of changing the decay constant by changing the position of heterogeneities in the moderator with constant volume ratio. This provides a method for studying the diffusion characteristics of heterogeneous systems or systems with local heterogeneities, since a new experimental dependence appears and, consequently, it can be compared with various calculation methods. 8 figures, 7 biblio. refs.

UDC 621.039.51

USSR

NAUMOV, V. I., and YUROVA, L. N.

"Corrections to the Effective Resonance Integral With Large Steps in a Heterogenous Lattice"

Fiz. Yadern.Reaktorov [Nuclear Reactor Physics -- Collection of works], No 2, Moscow, Atomizdat Press 1970, pp 133-142 (translated from Referativnyy Zhurnal--Yadernyye Reaktory, No 3, 1971, Abstract No 3.50.66)

Translation: In analyzing heterogeneous thermal neutron nuclear reactors it is usually assumed that resonant capture in the block can be described using the effective resonance integral in the Fermi moderation spectrum, this integral being a function only of the composition and size of the block containing the resonent absorber. In actual lattices, due to the heterogeneous placement of blocks which are sources of fission neutrons, the distribution of fast and resonant neutrons may be heterogeneous across each cell, while the spectrum in the block in the high-energy area may differ significantly from the Fermi spectrum. The necessity of special analysis of the area of large lattice steps in the analysis of a resonant capture has been mentioned repeatedly in the literature; however, the approximate estimates of the effect made for heavy water lattices have resulted in relatively slight corrections in the area of actual lattice steps. Later data

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NAUMOV, V. I., and YUROVA, L. N., Fiz. Yadern Reaktorov, No 2, Moscow, Atomizdat Press, 1970, pp 133-142

for uranium-graphite lattices have indicated that there is a considerable effect related to the difference between the neutron spectra and the Fermi spectra for this class of nuclear reactors. In connection with modern trends toward increasing lattice step in uranium-graphite nuclear reactors and the necessity of correct consideration of the number of captures in the uranium, this effect is quite important and requires serious study. Results of calculations on the influence of the spectrum of fast neutrons on the reasonance approximation are presented in this article. 3 figures; 2 tables, 4 biblio. refs.

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USSR

UDC 621.315.592

YUROVA, YE. S., SOLOV'YEVA, YE. V., KISTOVA, YE. M., D'YAKONOV, L. I., IGLITSYN, M. I., KEVORKOV, M. N.

"Autocompensation of Donors in Gallium Arsenide and the $GaAs_{1-x}P_x$ Solid Solution"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 498-501

Abstract: A study was made of the autocompensation phenomenon (constancy of the degree of compensation in a broad alloying range) detected in films of $GaAs_{1-x}P_x$ alloyed with Te and Se and GaAs alloyed with Se. The dependence of the degree of compensation and the concentration of the compensating centers in the neutral state was obtained as a function of the composition of the solid solution. A deep level connected with compensating centers was detected, and the dependence of its activation energy on the composition of the solid solution was determined.

The study was made in the entire composition range of the solid solution and also in films of gallium arsenide alloyed with Se. The temperature range was expanded to 800° K. The degree of compensation in the $GaAs_{1-x}P_x$ close with respect to composition to GaP was determined by the curve for the temperature dependence of the charge carrier concentration by the same procedure as used

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720001-4"

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YUROVA, YE. S., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 498-501

earlier [M. I. Iglitsyn, et al., FTP, No 4, 230, 1970]. Graphs are presented showing the degree of compensation and the concentration of the compensating defects in the neutral state as functions of the composition of $GaAs_{1-x}P_x$ crystals, the concentration of the ionized detectors as a function of the electron concentration in the films of GaAs alloyed with Se, the temperature dependence of the charge carrier concentration in the compensated samples of $GaAs_{1-x}P_x$, and the dependence of the approximate activation energy of the D' level on the composition of the $GaAs_{1-x}P_x$ crystals. The divergence between the degree of compensation observed in the GaAs crystals ($K \approx 0.5$) and the value of K obtained by extrapolating the function K(x) for the solid solution to $x = 0$ is explained by the difference between the growth temperatures of these crystals $\approx 200°$. The calculation of N_v^0 from the value of K in GaAs by the previously obtained formula

$$K = \frac{N_A}{N_D} = \frac{N_v^0}{N_c} e^{E_g - E_a/kT},$$

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YUROVA, YE. S., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 498-501

leads to a value of the same order as the value of N_v^0 in $GaAs_{1-x}P_x$ determined on heat treatment of the crystals at a temperature close to the growth temperature of the GaAs films (N_v^0 is the concentration of the compensating defects in the neutral state, N_c is the effective density of the states of the conduction band, and E_g is the width of the forbidden band).

1/2 028 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--COMPENSATION OF DONORS IN A GAAS SUBO TIMES2 P SUBO TIMES8 SOLID SOLUTION -U-

AUTHOR-(04)-IGLITSYN, M.I., KISTOVA, YE.M., RYTOVA, N.S., YUROVA, YE.S.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(1) 230

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--SOLID SOLUTION, ACTIVATION ENERGY, CRYSTAL LATTICE VACANCY, ZINC, TELLURIUM, SELENIUM, PHOSPHORUS, GALLIUM ARSENIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0449/70/004/001/0230/0230

PROXY REEL/FRAME--1988/0579

CIRC ACCESSION NO--AP0105562 UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--18SEP70

2/2 028

CIRC ACCESSION NO--AP0105562

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEGREE OF COMPENSATION OF A DONOR IMPURITY (K EQUALS N SUBA-N SUBD) IN N-TYPE GAAS SUB1 NEGATIVEX P SUBX SOLID SOLNS. IS CONST. FOR X EQUALS 0.7-0.9 AND N SUBD EQUALS 10 PRIME17 MINUS 10 PRIME19-CM PRIME3 AND DOES NOT DEPEND ON POSSIBLE SMALL SCALE DOPING BY TE, SE, (TE PLUS ZN), OR (SE PLUS ZN). THE COMPENSATING CENTERS ARE SUPPOSED TO BE SINGLY CHARGED LATTICE DEFECTS. THE ANNEALING OF BOTH N TYPE AND P TYPE SAMPLES AT VARIOUS TEMPS. AND AT VARIOUS PARTIAL PRESSURES OF AS SHOWED THAT THE CONCN. OF THESE DEFECTS DEPENDS EXPONENTIALLY ON TEMP. WITH AN ACTIVATION ENERGY OF 1.5 PLUS OR MINUS 0.3 EV AND THAT IT DECREASES WITH INCREASING AS PARTIAL PRESSURE. THE COMPENSATING CENTERS ARE PROBABLY ASSOCD. WITH AS VACANCIES.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CATABOLITE REPRESSION OF ENZYME SYNTHESIS IN MUTANTS OF ESCHERICHIA COLI WITH A DEFECT IN THE CARBOHYDRATE TRANSPORT SYSTEM -U-

AUTHOR-(04)-GERSHANOVICH, V.N., YUROVITSKAYA, N.V., SAPRYKINA, T.P., KLYUCHEVA, V.V.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(5), 1232-4

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BACTERIA MUTATION, ESCHERICHIA COLI, CULTURE MEDIUM, ENZYME, CARBOHYDRATE, BIOLOGIC TRANSPORT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0705 STEP NO--UR/0020/70/190/005/1232/1234

CIRC ACCESSION NO--AT0122791

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--30OCT70

2/2 023

CIRC ACCESSION NO--AT0122791

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SYNTHESIS OF BETA GALACTOSIDASE BY E. COLI MUTANT P-34 GROWN IN A MEDIUM CONTG. ME THIOGALACTOSIDE WAS REDUCED TO WE-33PERCENT OF NORMAL BY GLUCOSE. THIS INDICATES THAT GLUCOSE DIRECTLY REPRESSES THE ENZYME OF THE LAC OPERON AND THAT ITS COMPETITIVE BLOCKING OF GALACTOSE TRANSPORT IS A SECONDARY EFFECT, SINCE THE NORMAL GALACTOSE TRANSPORT SYSTEM IS LACKING IN P-34. GLUCOSE SLIGHTLY STIMULATES THE SYNTHESIS OF TRYPTOPHANASE AND SERINE DEAMINASE BY P-34 GROWN IN MEDIA CONTG. TRYPTOPHAN AND SERINE, RESP., ALTHOUGH IT REPRESSES THE SYNTHESIS OF THESE ENZYMES BY UNMUTATED E. COLI. THUS, THESE ENZYMES ARE LESS SENSITIVE TO GLUCOSE REPRESSION THAN IS BETA GALACTOSIDASE. FACILITY: INST. EPIDEMIOL. MIKROBIOL. IM. GAMALEI, MOSCOW, USSR.

UNCLASSIFIED

USSR

ANDZHAPARIDZE, O. G., LOTTE, V. D., and YUROVSKAYA, G. B.

"The Leukosis-Like Virus in Cell Cultures Transformed by Blood From Leukotic Patients"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 1, 1971, pp 217-219

Abstract: The viral etiology of human leukemia is postulated on the basis of indirect data and analogy with leukemia in mammals and birds. Cultures of human diploid cells (hdc), strain WI-38, were inoculated with blood and blood elements from patients with acute hemocytoblastosis and from healthy donors. In five cases out of nine, inoculations from acutely ill patients transformed the culture; its cells acquired an epitheliol character and lost their capacity for contact growth inhibition. The altered hdc cultures differed from normal ones in higher metabolic activity and higher growth potential. The altered cells lost their former karyotype and changed into heteroploid cells. Karyological analysis showed that cells of all altered lines had two anomalous marker chromosomes: a large submetacentered one, larger than Group A chromosomes; and a large acrocentric, larger than the acrocentric chromosomes of Group D. Transplantation of altered cells into a hamster cheek pouch produced,

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ANDZHAPARIDZE, O. G., et al, Doklady Akademii Nauk SSSR, Vol 196, No 1, 1971, pp 217-219

in 45 cases out of 89, neoplasma of the epidermoid carcinoma type, mixed. The altered cultures consistently showed mycoplasma which, when introduced into a fresh hdc culture, did not alter the new culture. New cultures were frequently transformed by acellular homogenates and ultrafiltrates of the altered cells. Under electron microscopy, cytoplasm of altered cells showed the presence of membrane bodies of complex contour, containing virus-like structures. The bodies tended to localize in the perinuclear area near, or among, the Golgi complex. The bodies resembled mitochondria or lysosome cells, but had one, two, or three double contour sheaths, of which one or two formed internal spiral structures. They also contained formations of one double contour sheath with homogeneous filament material, containing virus-like particles, which are described in detail. At a later stage in the experiments (40 min), the membrane bodies and virus-like particles were replaced by a small number of immature, still-evolving forms and mature forms of leukosis-like virus in the extracellular space and cell surface. The immature cell particles corresponded to type A virus particles; while the mature particles corresponded to type C virus particles. The A-type particles formed on the cell surface,

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ANDZHAPARIDZE, O. G., et al, Doklady Akademii Nauk SSSR, Vol 196, No 1, 1971, pp 217-219

and often later formed two virus particles in an identical area. Type C virus particles are mature virus particles formed from type A particles through inner structural changes. Type C virus particles were found in the extracellular space and often had an irregular form, with an eccentric nucleotide of varying electron-optical density. Examination of controls and experimental cultures revealed no structures of the membranous type. Both cultures showed the presence of many mature and dividing mycoplasmic bodies, as well as elementary bodies 100 mμ in diameter forming on mycoplasmic surface. It was concluded that hdc transformation seems to be associated with inoculation of this culture with formed elements and blood from patients with acute hemocytoblastoma. The nature of membrane bodies and their role in the alteration process remains unclear, despite previous research. The possibility that membrane bodies with virus-like particles could be mycoplasma with elementary bodies is not ruled out. The leukosis-like virus isolated here in altered cells is similar morphologically to those already isolated from mice and birds, as well as those from humans, cats, dogs, and cows. It is possible that one or more agents isolated in transformed cells is responsible for altered cultures of human diploid cells.

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UDC 547.1.3'821

USSR

KOST, A. N., YUROVSKAYA, M. M., MEL'NIKOVA, T. V., and POTANINA, O. I., Moscow State University imeni M. V. Lomonosov

"Chemistry of Indole. XXXIII. Pyridylethylation of the NH Group of Indole Compounds"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 2, Feb 73, pp 207-212

Abstract: Direct pyridylethylation of pyrrole, of a series of indole compounds, of carbazole and carboline was carried out taking advantage of the ability of highly polar aprotonic solvents -- such as dimethylsulfoxide [DMSO] -- to activate the anion forming on the NH group to such an extent that even the relatively poorly polarized bond in 3-vinylpyridine was adequately activated for the reaction to take place. The activation by DMSO is based on the fact that in absence of protonic solvents, when no hydrogen bonds can form, the anions being formed are solvated to a lesser degree and therefore are more reactive. The reaction goes especially well when excess 2-methyl-5-vinyl-pyridine is used, and the reaction mixture is heated to 100-200°. Metallic sodium or sodium ethoxide can be used as the alkaline reagents.

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Acc. Nr. AP0019826 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: UR0467

Y

93943j Recrystallization of powdered graphite from the Botogol deposit. Yurkovskii, I. M.; Pshenichkin, P. A. (USSR). *Khim. Tverd. Topl.* 1970, (1), 124–31 (Russ). The process of recrystn. of powd. native graphite, 7–10% ash contg. oxides of Si, Fe, Ca, Mg, etc., was studied at 2200–3000° by x-ray and microscopic analyses. At 2200–2400° crystals grow by absorption of highly dispersed particles. The crystals are single crystals. Above 2500° crystals grow by coalescence and condensation from the gas phase. Mech. growing together of similarly oriented crystallographic planes also occurs. The dispersion increased above 2700°.

GBJR

BVK

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REEL/FRAME
19801748

7

UDC: 536.581

USSR

YURSHEVICH, V. V., GUTOVSKIY, O. K., RANKIS, G. Zh.

"Laboratory Thermostat for the 68-670° K Range. Methods of Measurement and Stabilization of Temperature"

Vopr. Elektrodinamiki i Teorii Tsepey. Vyp. 6 [Problems of Electrodynamics and the Theory of Circuits. 6th Edition -- Collection of Works], Riga, 1972, pp 103-112 (Translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 3, 1973, Abstract No 3.32.840), by V. S. K.

Translation: Structural diagrams are presented for thermostat for temperatures below -196° C; from +10° to -196° C; from +30 to +400° C, as well as structural diagrams of their parts (evaporator voltage regulator, manostat). A platinum resistance thermometer made in the form of a spiral placed in a capillary of Pyrex glass is used to measure temperatures from -196° C to +400° C. The thermal inertial of the thermometer is not over 0.5-0.8 s. The calibration of the thermometer after aging is based on the melting point of ice and the boiling point of water. The temperature measurement error is not over ±0.02° C. Stabilization of temperature in the -180° C to +10° C interval is achieved by positional regulation and depends on the intensity of the flow of liquid nitrogen vapor, determined by the power dissipated by the evaporator in a standard metal Dewar vessel. Temperatures

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USSR

Yurshevich, V. V., Gutovskiy, O. K., Rankis, G. Zh., Vopr. Elektrodinamiki i Teorii Tsepey. Vyp. 6, Riga, 1972, pp 103-112.

read from the logometer scale of a radio-isotope thermal regulator used for temperature stabilization. Liquid nitrogen is used directly to produce a temperature of about -196° C. Temperatures below -196° C are achieved by evacuation of nitrogen vapors. 4 figures, 7 biblio. refs.

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USSR

UDC: 621.317.411.2

YURSHEVICH, V. V., RANKIS, G. Zh., GUTOVSKIY, O. K.

"Investigation of the Magnetic Spectra of Ferrites Over a Wide Range of Frequencies and Temperatures"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 153-154 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A365)

Translation: A procedure and installation are developed for taking the magnetic spectra of ferrites in the frequency range from 0.1 to 10,000 MHz and at temperatures from -200 to +400°C. Measurements were made on toroidal specimens for 50 Ω coaxial line. A system is described for maintaining temperature with a precision of ±0.5°C. On frequencies above 50 MHz, permeability was measured with respect to the input impedance of a short-circuited section of coaxial line, while a Q-meter was used on frequencies below 50 MHz. It was found that the behavior of the spectrum for nickel-zinc ferrites changes at temperatures below -100°C: the dispersion spectrum changes to a triple dispersion spectrum. E. L.

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Acc. Nr: AP0049804 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: UR0135

Y

101595q **Effect of degradation conditions on the structure, plastoelastic, and physicochemical properties of reclaimed rubber.** Drozdovskii, V. F.; Yurtseva, T. V. (Nauch.-Issled. Inst. Shin. Prom., Moscow, USSR). *Kauch. Rezina* 1970, 29(1), 11-14 (Russ). SKS-30 ARKM-15 (I) tread elastomers (contg. 50 parts HAF carbon black) were subjected to mech., dispersive, thermomech., and aq. degradation, and the structure, plastoelastic, and physicomech. properties of the reclaimed rubber were studied. Ir spectra of the sol. fractions from the reclaimed rubber indicated that the most intensive breakdown of crosslinks resulted from aq. degradation. The physicomech. properties of the reclaimed rubber depended on the crosslink d. and degree of degradation of I. Reclaimed rubber having superior tensile strength and plasticity was obtained by lowering the degradation temp. to 20-60°, reducing degradation time, and by using effective radical acceptors, and proper softeners. CKJR

REEL/FRAME
19801726

UDC: 621.317.757

USSR

YEVTEYEV, Yu. T., YURUKHIN, B. N., Voronezh Polytechnical Institute

"A Device for Automatic Determination of Integral Evaluations of Graphs"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 10, Apr 72, Author's Certificate No 332464, Division G, filed 2 Mar 70, published 14 Mar 72, pp 196-197

Translation: This Author's Certificate introduces: 1. A device for automatic determination of integral evaluations of graphs. The device contains a calibrated pulse frequency generator, a pulse counter, a unit for step-by-step transport of the recording medium, and a program block. The input of the pulse counter is connected to the output of a diode circuit. One of the inputs of the diode circuit is connected to the output of a unit for input of the graph ordinates. As a distinguishing feature of the patent, the device is simplified and its functional possibilities are extended by adding a block of digit decoders, a digit-by-digit division counter, and a time delay circuit. The first group of inputs of the block of digit decoders is connected to the outputs of the program block. The second group of inputs is connected to the outputs of the digit-by-digit

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USSR

YEVTEYEV, Yu. T., YURUKHIN, B. N., USSR Author's Certificate No 332464

division counter whose input is connected to the output of the calibrated pulse frequency generator. The controlling output of the block of digit decoders is connected to the input of the unit for step-by-step transport of the recording medium. The digit-by-digit frequency output is connected to the second input of the diode circuit, and the set terminal is connected to the output of the time delay circuit, which is connected to one of the outputs of the unit for input of the graph ordinates. 2. A modification of this device distinguished by the fact that the digit decoder contains a flip-flop with separate inputs, an inverter, and a coincidence circuit. One input of the flip-flop is connected to the first input of the digit decoder, and the second input is connected to the output of the coincidence circuit. One of the inputs of the coincidence circuit is connected to the set line, and the second input is connected to the shift input of the decoder and to one of the inputs of a three-input coincidence circuit. The second input of this coincidence circuit is connected to the output of the flip-flop and to the input of the inverter. The third input is connected to the second input terminal, and the output of the coincidence circuit is connected to the digit-by-digit frequency line.

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1/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--COMPLEX EQUIPMENT FOR LABORATORY TESTS OF PNEUMATIC AND SOLID TYRES -U-

AUTHOR-(04)-PETKOV, B., VALCEV, K., GALABOV, J., YURUKOV, V.

COUNTRY OF INFO--BULGARIA, USSR

SOURCE--MASHINOSTROENE, 1970, VOL 19, NR 4, 156-158

DATE PUBLISHED--------70

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

TOPIC TAGS--MOTOR VEHICLE TIRE, TEST METHOD, STATIC TEST

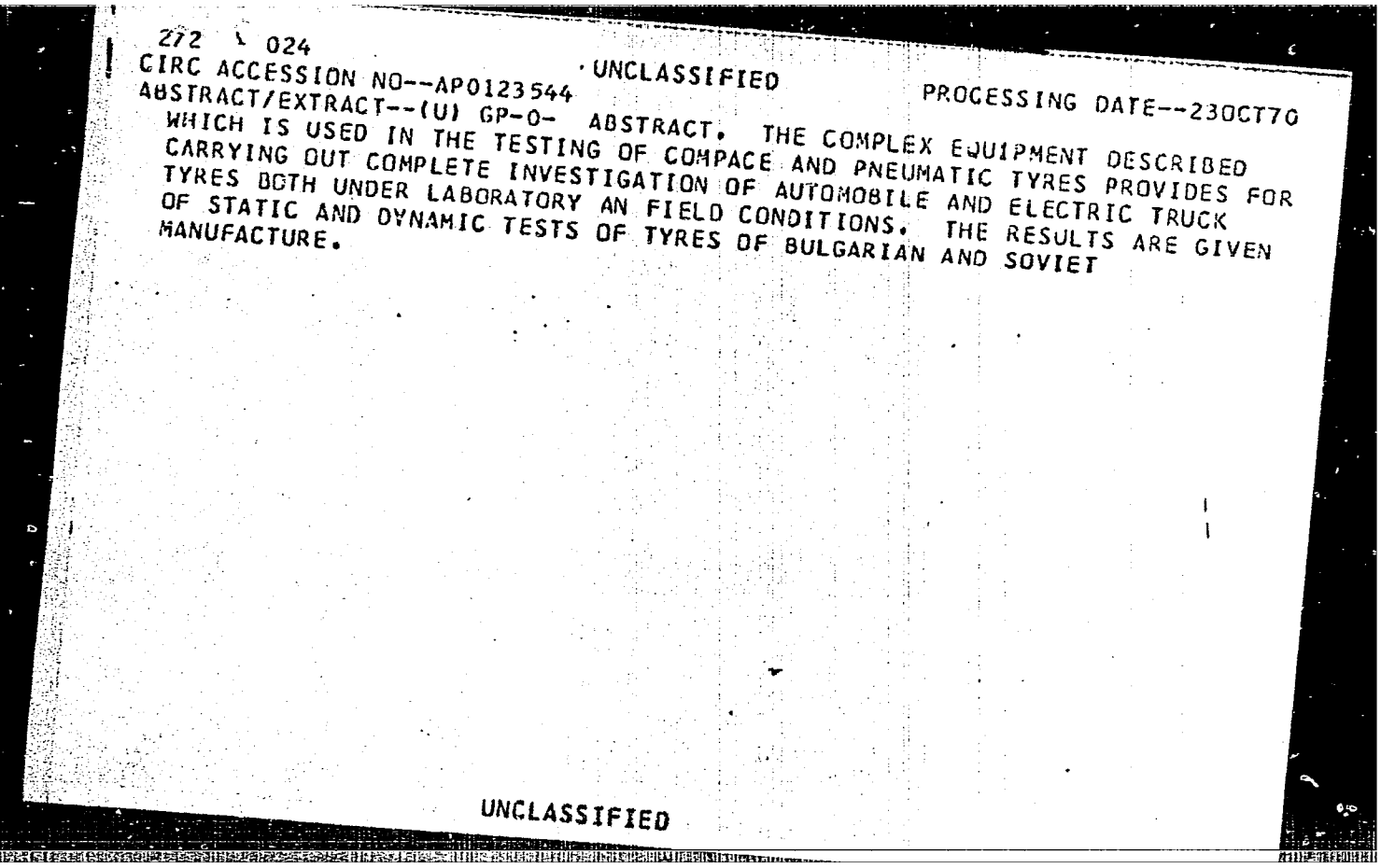
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1743 STEP NO--BU/9002/70/019/004/0156/0158

CIRC ACCESSION NO--AP0123544

UNCLASSIFIED



272 \ 024
UNCLASSIFIED
CIRC ACCESSION NO--AP0123544 PROCESSING DATE--23OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COMPLEX EQUIPMENT DESCRIBED WHICH IS USED IN THE TESTING OF COMPACE AND PNEUMATIC TYRES PROVIDES FOR CARRYING OUT COMPLETE INVESTIGATION OF AUTOMOBILE AND ELECTRIC TRUCK TYRES BOTH UNDER LABORATORY AN FIELD CONDITIONS. THE RESULTS ARE GIVEN OF STATIC AND DYNAMIC TESTS OF TYRES OF BULGARIAN AND SOVIET MANUFACTURE.

UNCLASSIFIED

USSR UDC 621.378.33

BASHKIN, A.S., YURUSHEV, N.N.

"Output Parameters Of $CS_2 + O_2$ Chemical Laser"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11), pp 129-131

Abstract: An investigation was made of the operation of a $CS_2 + O_2$ chemical laser with the object of clarifying the causes which affect its power and energy characteristics. The laser tube with a length of 80 cm and a diameter of 1.5 cm had an output window of CaF_2. The resonator was formed by two gold mirrors with a radius of curvature of 5 m. Output of the radiation was accomplished via an aperture 3 mm in diameter in one of the mirrors. A Ge--Au receiver cooled by liquid nitrogen was used for registration of the form of the laser pulse. Initiation of the reaction was accomplished by an electrical discharge with a duration on the order of 1 microsecond. The effect of the following factors on the output parameters of the laser was investigated: pumping energy, overall pressure, ratio of CS_2 and O_2, and degree of helium dilution. A power of 4 kw at a pulse duration of 4 microsec was obtained. The authors thank A.N. Orayevskiy for interest in the work and useful discussions. 5 fig. 13 ref. Received by editors, 22 May 1972.

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JPRS 59208
6-73

X-12a. AUTOALLOYING IN THE PROCESS OF EPITAXIAL GROWTH OF SILICON ON SUBSTRATES WITH A HIDDEN LAYER ALLOYED WITH ARSENIC

[Article by A. V. Rodionov, A. I. Sidorov, B. I. Yurushkin, Moscow-Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 140]

This paper was devoted to a study of autoalloying in the process of epitaxial growth of silicon on substrates with a hidden layer alloyed with arsenic.

It is demonstrated that the transport of arsenic from the hidden layer introduces a significant contribution into the level of alloying the epitaxial layer (to 10^{16} atoms/cm^3). The transport of the admixture takes place most intensely in the direction of flow of the vapor-gas mixture.

Results are presented from a study of the distribution of the specific resistance with respect to the surface of the epitaxial layer grown on plates located in direct proximity to the plate with a continuous diffusion layer of the n^+-type alloyed with arsenic.

The possible mechanism of autoalloying of the epitaxial layer is discussed. Means of limiting transport of the admixture in the technological process with epitaxial growth of silicon are proposed.

YURUSHKIN, B.I.

UNCLASSIFIED PROCESSING DATE--30OCT70

1/2 026

TITLE--SEMICONDUCTOR PROPERTIES OF CDGEAS SUB2-CDSNAS SUB2 SYSTEM GLASSES -U-

AUTHOR-(04)-AKSENOV, V.V., PETROV, V.M., KHARAKHORIN, F.F., YURUSHKIN, B.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. METER. 1970, 6(4), 826-7

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--SEMICONDUCTOR PROPERTY, ARSENIDE, CADMIUM COMPOUND, TIN COMPOUND, GERMANIUM COMPOUND, PHOTOCONDUCTIVITY, FORBIDDEN BAND, GLASS, DOPED ALLOY, GOLD, OPTIC PROPERTY, ELECTRIC PROPERTY, POLYCRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0363/70/006/004/0826/0827

PROXY REEL/FRAME--2000/1453

CIRC ACCESSION NO--AP0125084

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--30OCT70

2/2 026

CIRC ACCESSION NO--AP0125084

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ATTEMPT WAS MADE TO PREP. CRYST. AND VITREOUS MATERIALS OF THE COMPN. CDSN SUBX GE SUB1-X AS SUB2. THE CRYST. SAMPLES WERE PREPD. BY THE BRIDGMAN METHOD. THE SAMPLES WERE POLYCRYST. FOR THE GIVEN GLASSES. VITRIFICATION OCCURS ONLY AT O SMALLER THAN OR EQUAL TO X SMALLER THAN OR EQUAL TO 0.5. THE TEMP. DEPENDENCE OF THE ELEC. COND. OF SEVERAL SAMPLES AND THE RESP. WIDTH OF THE FORBIDDEN BAND WERE DETD. GLASSES OF THE COMPN. X LARGER THAN OR EQUAL TO 0.20 WERE MEASURED ONLY TO 500DEGREESK, INASMUCH AS AT HIGHER TEMPS. THEY CRYSTD. DURING THE MEASUREMENTS, WHICH RESULTED IN A SHARP DECREASE IN THEIR ELEC. RESISTIVITY. SPECTRAL DISTRIBUTION OF THE ABSORPTION COEFF. FOR SAMPLES OF THICKNESS 150-300 MU WAS MEASURED AT ROOM TEMP. WITHIN THE PHOTON ENERGY RANGE 0.2-0.75 EV. THE SPECTRAL DISTRIBUTION DURVES FOR THE PHOTOCOND. AT ROOM TEMP. WERE DETD. AND FOUND TO BE RATHER DIFFUSE AT 0.5-2.5 MU. NO DIFFERENCE WAS OBSD. FOR SPECTRAL DISTRIBUTION OF PHOTOCOND. OF SAMPLES UNDOPED AND DOPED WITH 5 AT. PERCENT AU. A SLIGHT ADDNL. MAX. OF PHOTOCOND. AT SIMILAR TO 0.8 MU WAS OBSD., WHICH OBVIOUSLY MUST BE ATTRIBUTED TO THE PECULIARITIES IN THE BAND STRUCTURE OF THE MATERIAL. THE WIDTH OF THE FORBIDDEN BAND OF THE VITREOUS MATERIAL CDSN SUBX GE SUB1-X AS SUB2 (ON THE BASIS OF ELEC., OPTICAL, AND PHOTOELEC. MEASUREMENTS) CONSIDERABLY EXCEEDS THE CORRESPONDING VALUE FOR THE CRYSTAL, WHICH APPARENTLY ATTESTS TO A CHANGE IN THE SHORT RANGE ORDER. THE COMPN. DEPENDENCE OF THE WIDTH OF THE FORBIDDEN BAND HAS A MIN. NEAR X EQUALS 0.30.

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UDC 661.1:537.311.33

USSR

AKSENOV, V. V., PETROV, V. M., KHARAKHORIN, F. F., and YURUSHKIN, B. I.

"Semiconductor Properties of $CdGeAs_2$—$CdSnAs_2$ System Glasses"

Moscow, Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 4, Apr 70, pp 826-827

Abstract: The authors attempted to obtain crystalline and vitreous materials of the composition $CdSn_xGe_{1-x}As_2$. The crystalline specimens were prepared by the Bridgman method. Only ternary compounds themselves could be obtained as single crystals. Specimens of mixed composition were polycrystalline. Vitrification takes place only in the interval $0 \leqslant x \leqslant 0.5$. The vitreousness and homogeneity of the specimens underwent metallographic and x-ray phase analyses. The temperature dependence of the electrical conductance of several vitreous specimens was determined, and the spectral distribution of the absorption coefficient of specimens 150-300 microns in width was measured at

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AKSENOV, V. V., et al., Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 4, Apr 70, pp 826-827

room temperature in the photon energy range of 0.2-0.75 ev. The width of the forbidden zone of the vitreous material (according to electrical, optical and photoelectric measurement data) significantly exceeds the corresponding value for the crystal, which apparently indicates a change of short-range order. The width of the forbidden zone obtained from electrical measurement data exceeds the corresponding values obtained from optical and photoelectric measurements.

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USSR

UDC: 669.295:620.1

PROKHODTSEVA, L. V., DROZDOVSKIY, B. A. and YURUSHKINA, N. V.

"Anisotropy of Failure Characteristics of Sheets From OT4 and OT4-1 Alloys"

Moscow, Tsvetnyye metally, No 3, Mar 72, pp 72-73

Abstract: This study concerns the presence of considerable "reverse" anisotropy in sheets from OT4 and OT4-1 titanium alloys on the basis of mechanical properties and failure characteristics. All failure characteristics of lateral specimens from the experimental alloys appear to be much higher than those of longitudinal specimens. Lateral specimens of steel, Al alloys, and a number of Ti ($\alpha+\beta$)- and β-alloys generally have lower failure characteristics than those exhibited by longitudinal specimens. This regularity, termed "reverse" anisotropy, for OT4 and OT4-1 alloys, was also found to be typical of other Ti alloys (VT5-1, VT20, VT14, VT3-1) as annealed. Annealing OT4-1 alloy above polymorphous transformation temperatures to obtain a large uniaxial grain eliminates the "reverse" anisotropy. The anisotropy of OT4 and OT4-1 alloy sheets on the basis of failure (impact bending) is to a large extent related to the substantial difference in deformation values between longitudinal and transverse

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USSR

PROKHODTSEVA, L. V., et al., Tsvetnyye metally, No 3, Mar 72, pp 72-73

specimens during failure (in the presence of a crack). (4 illustrations, 1 table, 6 bibliographic references).

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Radar

UDC: 621.396.677.001.5

USSR

YUR'YEV, A. N.

"Synthesis of Antennas With Minimum Average Level of the Side Lobes in the Polar Diagram"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 11, Nov 72, pp 2249-2260

Abstract: A method is proposed for synthesizing antennas which ensure minimum energy reception on the side lobes of the polar pattern from spatially distributed interference for fixed values of certain parameters of the system which determine its operating quality. The method is based on principles of variational calculus leading to nonhomogeneous integral equations relative to the function which describes the distribution of the field in the antenna aperture. The polar diagram resulting from the synthesis have a minimum average side lobe level, and in a certain sense ensure the best mean-square approximation in the "zone of visibility" to a delta function (additive polar diagrams) or to its derivatives (difference polar diagrams), the degree of approximation being regulated by requirements for reactivity of the system. From the standpoint of the statistical theory of detection, the synthesized systems are optimum in the

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YUR'YEV, A. N., Radiotekhn. i Elektron., No 11, Nov 72, pp 2249-2260

case of operation against a background of a mixture of external normal interference distributed in the region of the side lobes, and uncorrelated thermal noise. Examples are given of synthesis of linear antennas and antennas with a circular aperture which form additive and subtractive polar diagrams.

UDC 621.396.67.061

USSR

YUR'YEV, A. N.

"Problem of Synthesis of Realizable Antennas"

Moscow, Radiotekhnika i Elektronika, Vol XVI, No 5, May 1971, pp 718-725

Abstract: The relation between statistical and deterministic approaches to the problem of synthesizing an antenna system is established, and the variation method of synthesizing realizable antennas the characteristics of which are close to statistically optimal is investigated. The equivalence of statistical synthesis of optimal antenna systems designed for operation under noise conditions and the variation method of synthesis insuring minimum noise intensity with given signal gain is demonstrated. The conditions imposed on the statistical noise properties for which optimal antenna systems are realizable are obtained. For cases where the optimal systems are unrealizable, a method is proposed for synthesizing realizable antennas insuring the best signal/ /noise ratio for the admissible level of reactive power. An example calculation of such a system is presented.

Antenna systems which are optimal against a background of correlated noise have, as a rule, high reactivity. Such systems are related to the time

YUR'YEV, A. N., Radiotekhnika i Elektronika, Vol XVI, No 5, May 1971, pp 718-725

filters which are well-known in radar and are optimal against a background of passive noise. Just as these filters, reactive antenna systems are extremely unstable with respect to uncorrelated noise of the type of internal receiver interference. It is especially important to consider this in discrete systems (phased arrays). A second-type Fredholm integral equation is presented for synthesis of realizable antenna systems. In addition to the solution of this equation presented in the article with an exponential correlation function, tabulated values of the equation are available for a correlation function of the sin x/x type [Slepian, Pollak, Bell System Techn. J., Vol XL, No 1, 1961, page 43].

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USSR

UDC 621.396.677.001.5

YUR'YEV, A. N.

"Minimizing the Level of Side Emission of Antennas With a Circular Aperture"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 7, Jul 71, pp 1144-1151

Abstract: Methods of variational calculus proposed by the author in a previous paper (Radiotekhnika i Elektronika, Vol 12, No 12, 1967, p 2108) for synthesis of linear antennas are applied to minimizing the power of side emission from antennas with a circular aperture. Side emission power is understood to mean the sum of the power radiated in the side lobes of the radiation pattern and the reactive power. Antennas are considered which minimize side emission power when one of the following characteristics is fixed: input power, antenna gain in the direction of the maximum of the radiation pattern, or slope of the direction-finding characteristic of the system. It was found that a system with minimum side emission power having a given input power also satisfies the criterion of minimum side emission power with fixed gain along the antenna axial direction. When the parameter c is greater than 4 (where $c=z_0R$, z_0 is the projection of the space frequency vector on the plane of the antenna, R is the radius of the antenna aperture), the system also satisfies the criterion of minimum side emission power for

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YUR'YEV, A. N., Radiotekhnika i Elektronika, Vol 16, No 7, Jul 71, pp 1144-1151

a given slope of the direction-finding characteristic. The relative level of the side emission power for a system which is optimum in the sense of these criteria at values of the parameter c greater than 4.5 is at least an order of magnitude lower than the level of side emission power of a system with a uniformly distributed field in the aperture. A comparison with analogous results for linear antennas found in the previous paper cited above shows that systems with a circular aperture have a higher relative level of side emission power. On the other hand, the degree of difference between the basic parameters of systems satisfying the given criteria is higher in the case of linear antennas than for antennas with a circular aperture.

Acc. Nr.: AP0040497 Ref. Code: URO105

JPRS 52248

USSR UDC 621.396.677.001.5

YUR'YEV, A. N.

"Synthesis of Antennas with Minimum Side Lobes"

Moscow, AN SSSR, Radiotekhnika i Elektronika Vol 15, Jan 70, No 1, pp 29-37

Abstract: Calculus of variations is used for synthesis of a linear antenna system, which minimizes both the lateral radiation and the reactive power at a given value of one of the following characteristics: input power; field intensity in a given direction, and the shaprness of the DF characteristic. This makes it possible to determine the optimal field distribution in the aperture for a series of criteria. The results obtained at a given input power and field intensity in the given direction are practically identical, and the field intensity in the aperture is described by the elongated wave spheroidal functions of the zero order. At the given DF characteristic sharpness for the case of small values of the

AP0040407

angular sector beyond whose limits the antenna power is minimized, the system has substantial differences. At a given input power the DF characteristic of such a system is 34 percent sharper than the DF characteristic of a system with a uniform field distribution in the aperture. Orig. art. has 6 figures and 17 formulas.

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UDC 621.396.677.001.5

YURIYEV, A. N.

"Synthesis of Antennas with Minimum Side Lobes"

Moscow, AN SSSR, Radiotekhnika i Elektronika Vol 15, Jan 70, No 1, pp 29-37

Abstract: Calculus of variations is used for synthesis of a linear antenna system, which minimizes both the lateral radiation and the reactive power at a given value of one of the following characteristics: input power; field intensity in a given direction, and the shaprness of the DF characteristic. This makes it possible to determine the optimal field distribution in the aperture for a series of criteria. The results obtained at a given input power and field intensity in the given direction are practically identical, and the field intensity in the aperture is described by the elongated wave spheroidal functions of the zero order. At the given DF characteristic sharpness for the case of small values of the angular sector beyond whose limits the antenna power is minimized, the system has substantial differences. At a given input power the DF characteristic of such a system is 34 percent sharper than the DF characteristic of a system with a uniform field distribution in the aperture. Orig. art. has 6 figures and 17 formulas.

USSR

UDC 621.396.67.005.1

YURIYEV, A. N.

"Connection Between Synthesis Of Antennas On The Base Of A Given Directivity Diagram And The Statistical Synthesis Of Systems Of Spatial Processing Of A Signal"

Radiotekhnika i elektronika, Vol XVII, No 6, June 1972, pp 1177-1182

Abstract: An analogy is established between the problems of synthesis of an antenna according to a specified directional diagram and the problem of synthesis of a system, optimum on a background of noise, of special processing of a signal. It is shown that with very common conditions of signal detection, synthesis of a statistically optimum system leads to superdirective antennas. A method is proposed for correction of optimum systems by applying limitations either on the power input or on the reactive power of the system. The findings presented in the paper for the linear aperture of an antenna can easily be extended to the case of an aperture of an arbitrary form. 5 ref. Received by editors, 13 April 1971.

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USSR

UDC 621.762.27

YUR'YEV, B. P., PRIVALOVA, A. M., and ZABELIN, I. V., Leningrad Polytechnic Institute

"The Production of Cobalt-Tungsten Powder by Electrolysis of Aqueous Solutions"

Kiev, Poroshkovaya Metallurgiya, No 11(131), Nov 73, pp 1-5

Abstract: A study was made of the process of electrolytic production of W-Co alloys in powderlike form from citrate solutions containing Na_2WO_4 and $CoSO_4$ with $(NH_4)_2SO_4$ and Na_2SO_4 additions by means of W and Co coreduction on the cathode under conditions of diffusion kinetics. The effects of the current density, the summary concentration, and of the relationship of $CoSO_4$ and Na_2WO_4 concentrations in the solution, of pH, citrate and ammonium sulfate concentrates, and of the current efficiency and the chemical composition of Co-W powder are investigated. The current efficiency increases with increasing total concentration of W and Co salts and decreasing content of citrate in the solution. The correlation of W and Co salt concentrations in the solution influences primarily

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YUR'YEV, B. P., et al., Poroshkovaya Metallurgiya, No 11(131), Nov 73, pp 1-5

the chemical composition of the powder. By changing this correlation, the W-content in the alloy can be changed from 0-20 mass%. The optimum conditions of the electroprecipitation of W-Co powders are determined. According to the X-ray structural analysis, they represent solid solutions of W in hexagonal and cubic Co. Five figures, one bibliographic reference.

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USSR

UDC 621.762.274

GOLUBKOV, L. A., YUR'YEV, B. P.

"Electrolytic Method of Producing Iron-Nickel-Molybdenum Alloy in Dispersed Form"

Kiev, Poroshkovaya Metallurgiya, No 8, Aug, 1972, pp 1-7.

Abstract: This work studies the conditions of production of a three component Fe-Ni-Mo powder alloy. The design of the electrolyzer and electrical circuits are the same in principle as described in earlier works. One difference is that the use of a soluble molybdenum anode was found to be less suitable than the introduction of hexavalent molybdenum to the solution as the salt $(NH_4)_2MoO_4$. The method developed can produce powder alloys with various contents of the components (molybdenum concentration can vary from 0 to 15%, iron and nickel concentration can vary without limit). The electrolyte developed is stable in operation and contains no organic complex-forming agent; this allows electrolysis to be performed using several soluble and insoluble anodes with separate regulation of current passing through them. The influence of the electrolysis conditions (D_k, temperature, pH, solution composition) on cathode current efficiency, chemical composition and alloy structure is studied. It is established that under certain electrolysis conditions, when the process of electrodeposition of all metals

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UDC 621.762.274

GOLUBKOV, L. A., YUR'YEV, B. P., Kiev, Poroshkovaya Metallurgiya, No 8, Aug, 1972, pp 1-7.

occurs according to diffusion kinetics, the composition of the alloy produced depends on the composition of the solution. The following optimal electrolysis conditions were established for the production of a permalloy powder alloy: electrolyte (in mol/l): $FeSO_4$ -- 0.030, $NiSO_4$ -- 0,160, $(NH_4)_2MoO_4$ -- 0.005-0,008, $(NH_4)_2SO_4$ -- 0.15, K_2SO_4 + Na_2SO_4 -- 0.1-0.2. In this case D_c = 2,000-3,000 a/m^2, temperature 20-25°, pH 2.5-2.7; D^{Fe}_a = = 100-200 a/m^2; D^{Ni} = 100-200 a/m^2; D^{Pb}_a = 1,000-2,000 a/m^2; D^{grid}_c = 50-75 a/m^2; $I^{Fe}_a : I^{Ni}_a$ = 5:27. The concentration of Mo(VI) is maintained by periodic addition of a solution of $(NH_4)_2MoO_4$ with pH 6-7.

2/2

YUR'YEV, Leonid Yur'yevich

TECHNICAL TRANSLATION

FSTC-HT-23-1070-72

ENGLISH TITLE: PLASTICS IN TECHNOLOGY

FOREIGN TITLE: PLASTMASSY V TEKHNIKE

AUTHOR: LEONID YUR'YEVICH YUR'YEV

SOURCE: Znaniye Publishing House, Moscow, 1970, pp 1-61

Translated for FSTC by Leo Kanner Associates, Redwood City, Ca.

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FOREWORD

The tremendous growth in plastics output is one hallmark of our time: already chemists are producing greater quantities of plastics than metallurgical workers are smelting nonferrous materials.

Paralleling the greater output of plastics, the attitude of specialists toward plastics applications is also changing. Formerly plastics were viewed only as materials not at all fully valuable as replacements for natural materials in short supply. With improvements in the quality of plastics, it began to be realized that they are not inferior to such materials, and later on their field of economically sound applications greatly broadened. Plastics began to climb to the top rung, not only ahead of rubber, nonferrous and precious metals, and so on, but also strongly displaced cast iron and steel, glass, wood, and clay. For besides low cost and high quality, the use of plastics partially simplifies manufacturing technology and sharply boosts equipment productivity.

Millions of plastic cups, lampshades, soapdishes, pens, telephone sets, and cases of machines, television sets, and radio receivers have displaced wooden and metal articles. But this is not what our book is about.

The author set out to recount mainly about those uses of plastics where they serve not merely as substitutes, even if surpassing metal or wood in quality, but where they are the only material with unique combinations of physical, chemical, and mechanical properties on which a given application depends entirely.

The tendency to demonstrate the most unusual, the most exotic examples of plastics applications has meant a somewhat fragmentary, catalogue type of presentation. It appears that this is inevitable in a book aiming not at probing into detailed descriptions of chemical structure and properties of plastic materials, into specialized questions of their uses in each specific field, but only at demonstrating the immense scope of their potential. So the author deliberately does not examine traditional fields of plastics uses, even though extremely important, since he assumes these uses to be quite fully covered in the specialized and popular-scientific literature.

YURYEV, M. (Lt. Gen.)

M/I

Diagrammatic Method of Planning and Control (DMPC) and Repair Services

By

Lt. Gen. M. Yuryev, Engineering Technical Services

The constant improvement of methods of control and planning is provided for in the draft of the Directive of the 24th Congress of the CPSU for the five year plan of development of the national economy of the USSR for 1971-1975 will contribute to the overall increase of production and will raise production efficiency. Many of the plants that overhaul military service equipment have already made fairly broad use of DMPC methods. The versatility of introducing such methods is dictated by the fact that the total number of operations on certain models of equipment is astronomically large, and finishing runs to several thousand. Several hundred different kinds of units are needed in addition. Rapid completion of repair calls for exceptionally well-coordinated actions at all plant subdivisions.

However, the introduction of DMPC is a laborious and rather complex process, hence certain conditions must first be met at the plant. One of these is to organize a special DMPC service which carried out all the preliminary work and actually introduces the system. Another condition consists in improving the material and technical base, namely, computers, communications equipment, and the like. And, finally, another important condition is to train all personnel in the principles and methods used in drawing up DMPC diagrams.

It goes without saying that the workers involved in the introduction of DMPC should have a broad background of experience, a good understanding of the sequence of the main phases of work in each subunit. They must also know the inter-relationship of the services and sections, as well as the principles of linear programming and mathematical analysis. In addition, they should master the methods of drawing DMPC diagrams and computing their parameters.

Experience shows that plants in which all these conditions are observed successfully overcome the usual difficulties associated with DMPC. Indicative of this is the following experience of introducing this system in one of the repair facilities.

First, they organized training for all personnel in the theory and practice of DMPC. Invited to attend this training session were all the administrative and command personnel of military services, the production experts, technologists, dispatchers, and workers of the technical control departments. Planned as a 16-hour training session the course was conducted during working hours for 15 days. At exercises which were conducted by the specialists of one of the scientific research institutes they showed the main features of the diagrammatic method of planning and control, and the advantages and efficiency of this system.

The training session was concluded with an examination in which each trainee drew up a list of operations for one of the production sections, drew a DMPC diagram, and made different calculations from it.

Following, there was set up at the plant a non-organic DMPC service, consisting of two engineer technologists and two technicians. This service, which was charged with organizing all the preparatory work and introducing a system jointly with the specialists from the scientific research institute, studied the outstanding experiences in this area and, taking into account the specific feature of their own plant, drew a DMPC diagram of the technological process.

At the beginning of the project the assumption was made that only one product was being repaired at the plant. For that special case they indi- cated on the diagram the most laborious operations in dismantling the product, the location of the damage, repair, and assembly, as well as all the finishing operations carried out after the repairs had been made.

Used as a basis in drawing up a IMPC diagram were the heating, hydraulic, air, control, and other systems. To get the necessary initial data use was made of a specially developed form (List of work processes on a system) in which, apart from indicating the name of the technological operation and the name of the system, the scope and duration of the work was indicated. The making of this list was turned over to the production men and technologists who were specialists in particular systems.

First they developed the IMPC diagram for a small unit such as a shop, section, or laboratory, which was nothing more than a detailed model of work performed there. These diagrams were the original documents for a composite diagram.

Combining and coordinating the IMPC diagrams of the small units is one of the most complex phases of the project. The fact that in drawing up a composite IMPC diagram, the technologically proper linking of incoming work from adjoining or contiguous small units determines the effectiveness, in the final analysis, of the entire IMPC system.

It should be mentioned that in drawing up a IMPC diagram one of the very important things is to select the most rational work code. At the plant in question each system of goods is encoded using the first letter of its name. The unit to which the work belonged is designated by an appro- priate code number. The scope of the work is indicated by an ordinal number in the "list of work for the system." For example, T7-3 means the third item on the work list, performed in the seventh sub-unit for repairing fuel systems.

As a result of the analysis of the composite diagram it was revealed that its critical route somewhat exceeds that planned and approved for one item. Hence the diagram had to be optimized with respect to the criteria of "time." For this reason it was drawn on millimeter graph paper in a scale of 1 cm = 1 hour. From it one can easily determine the time that the work begins and when it is completed. Somewhat more complicated are the free reserves, and late beginnings and completions of work processes. From the diagram it is convenient to analyze the technological process, and change, if necessary, the time for the completion of separate operations within the available limits of time reserves, and check on the movement of the work front.

However, the composite diagram initially worked out is valid only if repairs are made of only one kind of product. In a plant, however, the technological process of repairs is so organized that the work is per- formed on an assembly line method simultaneously on several kinds of products.

Hence, it would be necessary to work out a comprehensive IMPC diagram reflecting the real process of repair, and taking into account a uniform flow of incoming products to the plant. For that reason the time parameters of certain basic jobs and phases were determined and entered in the diagram. The remaining jobs, therefore, were restricted to fixed limits. Preserving the established technological sequence they were disposed on a strictly determined section of the IMPC diagram. In this they took into account the uniformity of the load of the production teams. They did not forget to take into account the reserves without which it is practically impos- sible to sustain the schedule and direct the work of the production teams. Assuming that each work team daily should work on several articles of

The document used to set down the dates of assignment of a task to the performer and the date the project was completed is a small steel framed notebook. Since all jobs are listed in a certain order in the notebook, the foreman can, without using the DPC diagram, assign a task to a performer and control the course of fulfillment of the planned projects. Other documents contain lists of assemblies for different systems. In these lists the assemblers note the date the assemblies are turned in for repair and the repairs are completed. The reports of foremen and the decisions of the chief of the small unit concerning it are entered in a special logbook. The section expediter notes the reports received; these are subsequently used to analyze the progress of work envisaged in the work schedule.

Introduction of the DPC system contributed greatly toward improving the organization of production at the plant. The plant managers were released from solving many operational quite incidental problems. Each performer now works strictly by the diagram and the production foreman knows about the total volume of work in his section. Since the DPC diagram clearly indicates the date of delivery of assemblies and parts for assembly, it is no longer necessary to search for them in other shops. The foremen can now devote more attention to production problems, and the actual degree of responsibility on the part of each performer for the matter entrusted to him.

As a result of the first amount of work done by the collective in introducing the DPC system, they successfully completed one of the important tasks assigned to the plant. The total number of articles being processed at any one time was reduced by one-half. In addition, despite a markedly increased repair production plan, the time of stay of articles at the plant was reduced by 30 percent.

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1/2 014 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--VARIATIONAL EVALUATIONS FROM ABOVE AND BELOW FOR LAM SHIFT ENERGY -U-

AUTHOR-(02)-DMITRIYEV, YU.YU., YURYEV, M.S.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(3), 591-2

DATE PUBLISHED-------70

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TOPIC TAGS--PHASE SHIFT, INTEGRAL EQUATION

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CIRC ACCESSION NO--AP0127746

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTEGRAL REPRESENTATION OF THE BETHE LOGARITHM, IN K SUB0, FOR THE NONRELATIVISTIC PART OF THE LAMB SHIFT OF AN AT. LEVEL WAS USED IN THE ESTN. OF THE UPPER AND LOWER LIMIT OF IN K SUB0.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--THE TREATMENT OF OPEN ASSOCIATED INJURIES OF THE HAND AND FINGERS -U-

AUTHOR--YERETSKAYA, M.F., KHARITONOV, R.D., YURYEV, P.V.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 3, PP 63-68

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PLASTIC SURGERY, ORTHOPEDIC SURGERY, MEDICAL CAST, PLASTER, PLASTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0636 STEP NO--UR/0589/70/104/003/0063/0069

CIRC ACCESSION NO--AP0102622

UNCLASSIFIED

2/2 015 UNCLASSIFIED

CIRC ACCESSION NO--AP0102622 PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE PAPER THE STAGES OF TREATMENT, FREQUENCY OF COMPLICATIONS AND RESTORATION OF A PATIENT'S CAPACITY FOR WORK IN 125 PATIENTS WITH OPEN ASSOCIATED HAND INJURIES ARE ANALYSED. THE FREQUENCY OF COMPLICATIONS AFTER PRIMARY TREATMENT OF SUCH INJURIES MADE 46.4PERCENT. THE RESULTS OF TREATMENT WERE STUDIED IN 55 PATIENTS. THE CONCLUSION IS DRAWN ON THE NECESSITY OF REVEALING PATIENTS THAT NEED RECONSTRUCTIVE SURGERY ON THE HAND IN DUE COURSE. IN DESCRIBING THE TECHNIC AND OPTIMUM TERMS OF PHYSICAL THERAPY IN ASSOCIATED HAND INJURIES THE IDEA OF RATIONALITY TO SUBSTITUTE AT CERTAIN STAGES OF TREATMENT BULKY PLASTER SPLINTS IN SUCH PATIENTS BY SMALL PLASTIC SPLINTS IS EMPHASIZED. ALSO GREAT NECESSITY OF PHYSICAL LABOUR THERAPY IS STRESSED THAT RENDERS IT POSSIBLE TO RESTORE PROFESSIONAL SKILL WITH MAXIMUM USE OF ALL THE PRESERVED SEGMENTS OF THE INJURED HAND.

UNCLASSIFIED

USSR

UDC 669.293:541.943:669-977

SOKOLOVA, G. S., YUR'YEV, S. F.

"Interaction of Niobium with Gases at High Temperatures and Low Pressures"

Metallovedenive -- V sb. (Physical Metallurgy -- collection of works), No 14, Leningrad, Sudostroyeniye Press, 1970, pp 204-222 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4I781)

Translation: The results of studying the interaction of niobium with active gases are systematized. The equilibrium conditions in Nb-O, Nb-N, Nb-C, and Nb-H systems are investigated. Problems connected with the kinetics and mechanism of oxidation of niobium at high temperatures and low pressures are discussed. There are 9 illustrations, 3 tables, and a 116-entry bibliography.

1/1

USSR

UDC 621.391.2

YUR'YEV, A. N.

"Accuracy of Joint Estimation of the Carrier Frequency and Direction of Arrival of a Radio Signal"

Moscow, Radiotekhnika, i elektronika, Vol XVII, No 2, 1972, pp 301-306

Abstract: The method of maximum probability of the carrier frequency and direction of arrival of a signal received against a background of normal noise exponentially correlated in time and with respect to the antenna aperture was used to investigate the problems of accuracy of the estimation. The difference in error dispersions of joint and disjoint estimates is especially noticeable when using antennas with a large aperture in the case of significant difference in the direction of arrival of the signal from the normal to the aperture. This situation can occur when using systems with a synthesized aperture when the observed target is located at a small angle to the synthesis trajectory.

1/1

USSR

UDC: 537.525.5

DYUZHEV, G. A., KAPLAN, V. B., MOYZHES, B. Ya., and YUR'YEV, V. G.

"Arc Discharge With a Strongly Ionized Cesium Plasma"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, vol. 41, No. 2, 1971, pp 453-456

Abstract: A description is given of experimentation involving an arc discharge in cesium vapor at a pressure of 0.1 to 2 mm Hg, with a potential difference between electrodes of from 5 to 100 volts, and at high current densities of from 10 to 100 a/cm^2. The purpose of the experimentation was to study the characteristics of plasmas of short, low-voltage arcs with high current densities and to investigate the possibility of getting high discharge current densities with distributed thermoelectronic emission from a cathode without transition to discharges with a cathode spot. The volt-ampere characteristics of the arc are plotted, and the current saturation they evince are discussed. The authors of this brief communication express their gratitude to B. I. Tsirkel' for developing the electric circuit, to V. P. Sachkov for preparing the experimental equipment, to S. M. Shkol'nik for assistance with the measurements, and to F. G. Baksht for his comments. They are connected with the Leningrad Semiconductor Institute.

1/1

1/2 040 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--RADIAL DISTRIBUTION OF THE PARAMETERS OF THE PLASMA IN A PLANE THERMIONIC ENERGY CONVERTER -U-

AUTHOR-(03)-DYUZHEV, G.A., STARTSEV, YE.A., YURYEV, V.G.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL TEKHNICHESKOI FIZIKI, VOL 40, FEB 1970, P 426-428

DATE PUBLISHED----FEB70

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

TOPIC TAGS--DISTRIBUTION THEORY, THERMIONIC ENERGY CONVERSION, RADICAL FLOW, PLASMA DYNAMICS, ELECTRONIC SHIELDING, CURRENT DENSITY, CATHODE, CESIUM PLASMA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1979/1555 STEP NO--UR/0057/70/040/000/0426/0428

CIRC ACCESSION NO--AP0047883

UNCLASSIFIED

2/2 040 UNCLASSIFIED

CIRC ACCESSION NO--AP0047883 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE RADIAL DISTRIBUTION OF PLASMA PARAMETERS FOR THERMIONIC CONVERTERS WITH AND WITHOUT ELECTRODE (CATHODE AND ANODE) SHIELDING BY PLANE SAPPHIRE RINGS. IT IS SHOWN THAT FOR CURRENTS RANGING FROM 2 TO 15 A-SQ CM, THE BOLTZMANN FORMULA HOLDS FOR LOW AND HIGH CESIUM PRESSURES. ELECTRODE SHIELDING DOES NOT EFFECT THE RADIAL DISTRIBUTION OF THE PLASMA PARAMETERS, AND DOES NOT DIMINISH THE EDGE EFFECT ASSOCIATED WITH THE RADIAL DIFFUSION OF CARRIERS FROM THE GAP. HOWEVER, SHIELDING HAS THE EFFECT OF APPRECIABLY REDUCING THE INFLUENCE OF THE LATERAL SURFACE OF THE CATHODE, WHICH OTHERWISE WOULD EMIT ELECTRONS INTO THE PLASMA. THIS MEANS THAT THE TRUE ELECTRON CURRENT DENSITY CANNOT BE RELIABLY DETERMINED WITHOUT ELECTRODE SHIELDING.

UNCLASSIFIED

USSR

UDC: 621.385.633.1.001.5

YUR'YEV, V. I., DOBRYNCHENKO, V. N., SHESTIPEROV, V. A., NIGMATULLIN, U. A.

"Experimental Study of the Interaction Between Synchronous Waves of an Electron Stream and the Traveling Wave of an Electrodynamic Structure"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 4, Apr 72, pp 830-834

Abstract: The paper presents the results of an experimental study of O-type interaction between the synchronous waves of an electron stream and the field of a special electrodynamic structure. An actual gain of 13 dB is attained as well as an electron amplification factor of more than 20 dB. Quantitative agreement is established between the experimental and theoretical curves for linear gain as a function of beam current and magnetic field strength.

1/1

USSR

UDC 632.954:633.17

ZUZA, V. S., Ukrainian Scientific Research Institute of Plant Growing, Selection and Genetics imeni V. YA. YUR'YEV

"Experiment With sym-Triazine Derivatives on Millet Plantings"

Moscow, Khimiya v sel'skom khozyaystve, No 11, 1971, pp 45-46

Abstract: A study of the effect of some sym.-triazine derivatives on the weeds and the crop is described. The soil of the experimental lot was weakly leached deep chernozem with a humus content of 6.2 percent. The predecessors to millet in the area were corn for silage (1967) and summer barley (1968-1969). The millet was sown in wide rows to facilitate weed elimination. The herbicides were applied during presowing cultivation. The estimates have shown Antrazin and Propazin to be most effective when applied in doses of 2-3 kg.ha and 2 kg/ha, respectively. Simazin applied at 1 and 2 kg/ha appears to be fairly effective only with a predominance of young dicotyledonous weed plants. The sodium salt of 2,4-D was effective on dicotyledonous weed only.

1/1

USSR

UDC 621.372.5

TOLKALIN, L. N., KUKOL'NITSKIY, A. F., YUR'YEV, YU. N.

"Phase Filter with Corrected Characteristic"

Vopr. radiotekhniki --V sb(Problems of Radio Engineering -- collection of works), Tula, Tula Polytechnical Institute, 1970, pp 98-105 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A146)

Translation: The possibility of expanding the phase characteristic band of a phase filter is investigated. Methods of practical realization of the filter with a corrected characteristic are proposed, and the circuit elements are presented.

1/1

1/2 018 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--THERMAL DECOMPOSITION OF PRODUCTS OF THE REACTION OF OZONE WITH CYCLOOLEFINS -U-

AUTHOR-(03)-RAZUMOVSKIY, S.D., YURYEV, YU.N., TSYSKOVSKIY, V.K.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(2), 254-60

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL DECOMPOSITION, OZONE, DICARBOXYLIC ACID, ALDEHYDE, HEXENE, CHEMICAL REACTION MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0214 STEP NO--UR/0366/70/006/002/0254/0260

CIRC ACCESSION NO--AP0113163

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0113153

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTTION OF O SUB3 WITH CYCLOHEXENE (I) OR CYCLOOCTENE (II) GAVE POLYMERIC OZONIDES OF I OR II (IA OR IIA, RESP.) IN 95-6PERCENT YIELDS AND 3-4PERCENT MONOMERIC OZONIDES (IB OR IIB, RESP.). IN THE OZONIZATION OF 1,5,CYCLOOCTADIENE, ONLY POLYMERIC OZONIDES WERE FORMED. THERMAL DECOMPN. OF THE MONOMERIC OR POLYMERIC OZONIDES GAVE THE SAME PRODUCTS (DICARBOXYLIC ACIDS, DIALDEHYDES, AND DIALDEHYDE CARBOXYLIC ACIDS), WHICH DEMONSTRATED THE CYCLIC NATURE OF BOTH TYPES OF OZONIDES. THE DECOMPN. OF 1,BUTENE OZONIDE GAVE ONLY MONOFUNCTIONAL PRODUCTS (HCHO, ACH, AND ACOH). THE ACTIVATION ENERGY OF IA AND IB THERMAL DECOMPN. WAS 34 PLUS OR MINUS 1.5 KCAL-MOLE, I.E., CLOSE TO THAT OF I,HEXENE OZONIDE (32 PLUS OR MINUS 2 KCAL-MOLE). THE THERMAL DECOMPN. OF IA AND IB INVOLVED THE FORMATION OF INTERMEDIATE OLIGOMERIC AND POLYMERIC PRODUCTS, SUCH AS OCH(CH SUB2) SUB4 CH(OME)OOH AND OCH(CH SUB2) SUB4 CH(OME)OO(CH(OH)(CH SUB2) SUB4 CH(OME)OO) SUBN. THE MECHANISM OF PRODUCT FORMATION WAS DISCUSSED.

UNCLASSIFIED

YURIYEV, Yu. S.

JPRS 59775

10 August 1973

UDC 621.039.51

APPLICATION OF A MODEL OF A POROUS BODY FOR CALCULATION OF THE FIELD OF VELOCITIES AND TEMPERATURES IN A REACTOR CORE

[Article by A. P. Kolmakov and Yu. S. Yur'yev; Obninsk, Publication FEI-249 of the Physics and Energy Institute, Russian, 1971, 11 pages]

In this work a system of differential equations of hydraulics and heat transfer for a reactor core is considered, as a "porous body" with anisotropic properties, which is solved in a linear approximation for a case of small deviation of the geometry of the channels.

In the calculation of the hydraulic and thermal characteristics of heat exchangers and cores of reactors, which are a system of rod-shaped TVEL (fuel elements) and parallel channels, connected between each other, it is inadequate to consider only one or a few channels. The presence of regular and random deviations in the geometry of the system and in the distribution of heat liberation leads to a redistribution of the coolant throughout the cross-section of the core and to an irregular preheating of the coolant [1,2].

As a consequence of the large number of connected channels, the problem stated in a general form turns out to be quite cumbersome. The methodology of statistical calculation of the effect of deviations of the geometry on the scattering of the flow rate and temperature of the coolant in a case of connected channels gives characteristics of scattering that are common for the entire system, without local variations, without a consideration of the mixing of jets of the coolant and the spreading of heat from the "hot" point [3].

In this work, a system of differential equations of hydraulics is solved for the system as a whole, which makes it possible to perform the analysis in a common form and to obtain

USSR

UDC:621.313.12:539.172.12

BOL'SHOV, V. I., DUBININ, A. A., DMITRIYEV, V. M., KAPCHIGASHEV, S. P., KON'SHIN, V. A., MATUSEVICH, YE. S., POLIVANOV, V. P., TUPKO, V. Ya., REGUSHEVSKIY, V. I., STAVISSKIY, Yu. Ya., and YUR'YEV, Yu. S.

"Physical Investigation of the Target in an Electronuclear Neutron Flux Generator"

Moscow, Atomnaya Energiya, Vol 28, No 5, May 70, pp 388-392

Abstract: Fluxes of thermal neutrons on the order of 10^{17}-10^{18} $n/cm^2 \cdot sec$ open new possibilities for investigations in many areas of science and technology. There is great interest in the study of the possibility for increasing neutron fluxes by using the process of multiple neutron birth upon interaction of nucleons with energies in the hundreds of MeV with heavy nuclei. This article presents the results of experiments and calculations concerning the neutron-physical characteristics

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USSR

BOL'SHOV, V. I., DUBININ, A. A., DMITRIYEV, V. M., KAPCHIGASHEV, S. P., KON'SHIN, V. A., MATUSEVICH, Y. E. S., TOLIVANSKIY, V. P., TUPKO, V. Ya., REGUSHEVSKIY, V. I., STAVISSKIY, Yu. Ya., YUR'YEV, Yu. S., Moscow, Atomnaya Energiya, Vol 28, No 5, May 70, pp 388-392

of the target in an electronuclear device for the generation of neutron fluxes. The yield of neutrons and distribution of the number of reactions in a heavy target and moderator are measured. The space-energy distribution of neutron flux in the moderator is calculated and the accumulation of transuranium elements in a system with high neutron flux is computed.

2/2

1/2 034 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--VAPOR PHASE RADIATION THERMAL OXIDATION OF BENZENE BY MOLECULAR OXYGEN DURING IRRADIATION BY FAST ELECTRONS -U-

AUTHOR-(04)-TIMOFEYEV, V.D., YURYEV, Z.N., KLAPISHEVSKAYA, Z.B., BORISOV, YE.A.

COUNTRY OF INFO--USSR

SOURCE--NEFTEKHIMIYA 1970, 10(1), 42-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--ELECTRON ACCELERATOR, THERMAL OXIDATION, PHENOL, CRESOL, CARBON MONOXIDE, CARBON DIOXIDE, BENZENE, ELECTRON RADIATION, ACTIVATION ENERGY, OXYGEN/(U)RUP400 ELECTRON ACCELERATOR, (U)U16 ELECTRON ACCELERATOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0574 STEP NO--UR/0204/70/010/001/0042/0047

CIRC ACCESSION NO--AP0119492

UNCLASSIFIED

2/2 034 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119492

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TITLE PROCESS WAS STUDIED UNDER DYNAMIC CONDITIONS OF 1 ATM AND 50-3000 ML-HR AT SMALLER THAN OR EQUAL TO 800DEGREES USING ELECTRON ACCELERATORS RUP-400 AND U-16 (1.5 TIMES 10 PRIME15 AND 1.6 TIMES 10 PRIME17 EV-CM PRIME3-SEC, RESP.) FOLLOWED BY THE CHROMATOGRAPHIC ANAL. OF THE PRODUCTS PHOH, PH SUB2, CRESOLS, CO AND CO SUB2. IN RADIATION THERMAL OXIDN. (RTO), THE DEPENDENCE OF PHOH YIELD ON TEMP., C SU86 H SU86: O SUB2 RATIO, TIME OF CONTACT, AND CONCN. OF ADDED CYCLOHEXANE WAS STUDIED AND COMPARED WITH THERMAL OXIDN. (TO) UNDER THE SAME CONDITIONS. THE YIELD OF PHOH IN RTO WAS ALWAYS HIGHER THAN IN TO, THE MAX. PHOH CONCN. BEING 4 WT.PERCENT. THE QUANTUM YIELD WAS 40 MOLS.-100 EV AT MAX. CONCN. EFFECTIVE ACTIVATION ENERGY OF PHOH FORMATION WAS 70 AND 49 KCAL-MOLE FOR RTO AND TO, RESP. (MEASURED IN TEMP. INTERVAL 700-800EGREES). FACILITY: NAUCH.-ISSLED. FIZ.-KHIM. INST. IM. KARPOVA, MOSCOW, USSR. .

UNCLASSIFIED

UDC 547.532-13:542.943:66.085.5

USSR

TIMOFEYEV, V. D., YUR'YEV, Z. N., KLAPISHEVSKAYA, Z. B., and BORISOV, YE. A., Scientific Research Physico-Chemical Institute imeni L. Ya. Karpov, Moscow, State Committee for Chemistry

"Vapor Phase Radiation-Thermal Oxidation of Benzene With Molecular Oxygen Under Fast Electron Irradiation"

Moscow, Neftekhimiya, Vol 10, No 1, Jan-Feb 70, pp 42-47

Abstract: The authors studied the radiation-thermal oxidation of benzene with molecular oxygen in terms of the effect of temperature on the yield of phenol -- the yield increases with temperature increase; the effect of the ratio benzene:oxygen -- a trend towards higher yields with more oxygen was observed; effect of the contact time -- inverse relationship of the yield to contact time. The yield of phenol in this reaction was found to be always higher than in the thermal reaction, maximal yield being 4 weight-%. The radiation-chemical yield of phenol at maximal concentration was 40 molecules per 100 ev of the absorbed radiation energy. The effective energy of activation for the formation of phenol was found to be 70 Kcal/mole for the thermal process and 49 Kcal/mole for the radiation-thermal process at 700-700°.

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1/2 026 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--THERMAL STRESS CONCENTRATION IN AN ORTHOTROPIC PLATE WITH A SQUARE HOLE -U-

AUTHOR--UZDALEV, A.I., YURYEVA, A.A.

COUNTRY OF INFO--USSR

SOURCE--PRIKLADNAIA MEKHANIKA, VOL 6, FEB. 1970, P 86-92

DATE PUBLISHED-------70

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

TOPIC TAGS--STRESS CONCENTRATION, THERMAL STRESS, THERMAL PROPERTY, FLAT PLATE, HOLE IN STRUCTURE, ELASTICITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1328 STEP NO--UR/0198/70/006/000/0086/0092

CIRC ACCESSION NO--AP0106105

UNCLASSIFIED

2/2 026 UNCLASSIFIED

CIRC ACCESSION NO--AP0106105 PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE THERMAL STRESS CONCENTRATION IN AN INFINITE PLATE OF CONSTANT THICKNESS WEAKENED BY A SQUARE HOLE WITH ROUNDED CORNERS. THE PLATE MATERIAL IS ORTHOTROPIC WITH RESPECT TO ITS ELASTIC AND THERMAL PROPERTIES. THE DIMENSIONS OF THE HOLE ARE SMALL COMPARED TO THE AREA OF THE PLATE. THE PLATE IS FREE OF SURFACE AND BODY FORCES. THE STRESSES ARE INDUCED BY HEATING THE EDGES OF THE HOLE. THE TEMPERATURE IS CONSTANT OVER THE PLATE THICKNESS AND IS ZERO AT INFINITY. THE ANALYTIC FUNCTIONS OF COMPLEX VARIABLES DEFINING THE TEMPERATURE AND STRESS DISTRIBUTIONS ARE OBTAINED IN THE FORM OF A SERIES IN POWERS OF A SMALL PARAMETER CHARACTERIZING THE DEVIATION FROM A CIRCULAR HOLE. A FORMULA FOR STRESSES AT POINTS ON THE CONTOUR OF THE HOLE IS PROPOSED. THE RESULTS ARE ILLUSTRATED BY A PRACTICAL EXAMPLE.

UNCLASSIFIED

Acc. Nr:
AT0049879

Abstracting Service:
CHEMICAL ABST. 5/70

Ref. Code:
4R0020

100859s Metalation of dibenzenechromium and some of its homologs. Nesmeyanov, A. N.; Yur'eva, L. P.; Levchenko, S. N. (Inst. Elementoorg. Soedin., Moscow, USSR). *Dokl. Akad. Nauk SSSR* 1970, 190(1), 118–21 (Chem) (Russ). Treating 4.3 g BuLi in $(CH_2NMe_2)_2$-hexane over 1 hr with 0.67 g dibenzenechromium (I), refluxing 2 hr, and adding 16.7 ml MeI with ice cooling gave a small amt. isomeric xylenes, MePh, and 1,2,4- and 1,3,5-$Me_2C_6H_3$; a similar reaction with ditoluenechromium (II) and di-*m*-xylenechromium (III) gave similar results. The 1st Li atom enters only the benzene ring and the Me group is unaffected in reaction of II; the 2nd Li atom enters the benzene ring predominantly also, but some of it does attack the Me group, yielding 1,2,4- and 1,3,5-$Me_2C_6H_3$ as well as isomeric methylethylbenzenes. The Me group directs the Li atom to *m*- and *p*-positions of the ring. In reaction of III the 1,3,5-isomer is formed predominantly also. G. M. Kosolapoff

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REEL/FRAME
19801811

YUR'YEVA, O.P.

JPRS 59268

6-73

VI-4d. CHARACTERISTIC STRUCTURAL DEFECTS IN DIAMOND

[Article by Ye. V. Sobolev, O. P. Yur'yeva, V. Ye. Il'in, V. K. Arsen'ev, Novosibirsk, Novosibirsk, III Simpozium po Prirodnym Kristallov i Plenok, Russian, 12-17 June, 1972, p 74]

Polumeropodnikovykh Kristallov i Plenok, Russian, 12-17 June, 1972, p 74]

A study was made of the role of the characteristic structural defects in the properties of a diamond. It is demonstrated that a vacancy in a diamond is acaic in three charged states; here the effectiveness V^- in the absorption is 20 times greater than V^0. It is established that the dislocations [with the edge component] define the nature of the x-ray and cathode luminescence of the diamond and the color (violet and smoky brown) of the plastically deformed specimens. For the dislocation spectra in contrast to the point centers, broad structureless bands are characteristic which are related to the transitions between the dislocation zones. Nitrogen centers forming the admixture atmosphere of the dislocations were recorded (by electron paramagnetic resonance and luminescence). It was demonstrated that the specific of the interaction of the dislocations with the plugs (N_2 [100]) defines the plastic properties of the diamond. A study was made of the possible role of the dislocations in the formation of the acceptor levels determining the properties of type IIc at low fluxes than 5×10^{16}/cm^3) donor concentrations (N_2 in natural and N in synthetic diamonds).

Structure	Absorption, λ	Luminescence, λ	Electron paramagnetic resonance	Remarks
V^-	5934			
V^0	7414 λ 4200	7414	active (80°K) Inactive	For V^0_K - 2.8 ev under s. conv.
V^+		5750	active	Converts to V^- and V^+ on heating and irradiation (ultraviolet, p-n) $dV^0 = dV^- + dV^+$. Capacity for formation depends on the type of crystal. Mobile at 580°C.

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USSR

YUR'YEVA, V. L.

"One Problem in Longitudinal and Transverse Bending"

Tr. Kazan. Aviats. In-ta [Works of Kazan' Aviation Institute], 1971, No 139, pp 3-15, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 V1123 by the author).

Translation: The strength and rigidity of contact wires of a hyperboloidal electrical plug are calculated. The forces pressing on the wire, stresses and strains in the cross sections of the wire, contact line length between wire and plug, axial force in the wire with fixed geometric dimensions of the hyperboloidal plug are determined. A numerical example is presented.

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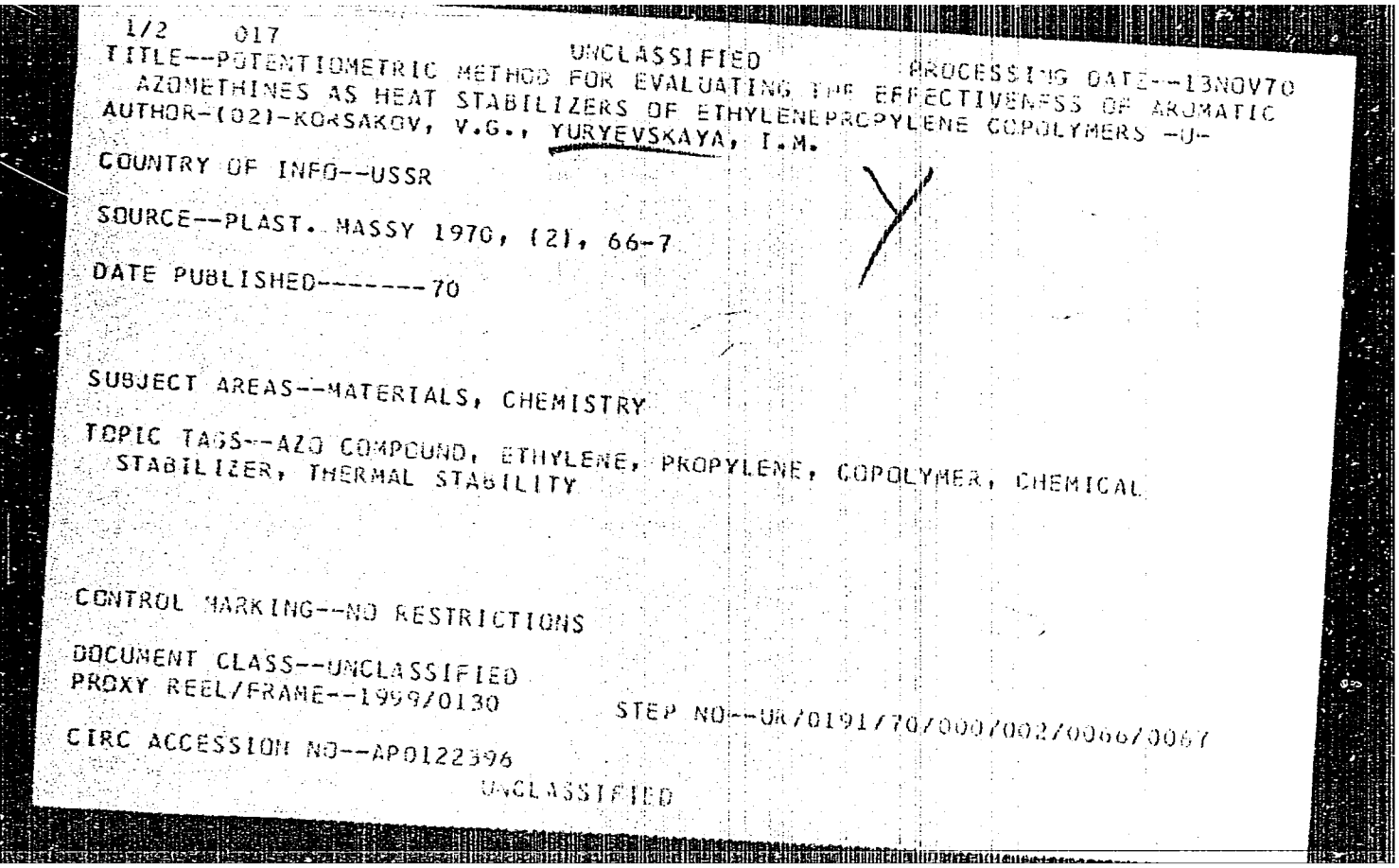


1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--POTENTIOMETRIC METHOD FOR EVALUATING THE EFFECTIVENESS OF AROMATIC AZOMETHINES AS HEAT STABILIZERS OF ETHYLENEPROPYLENE COPOLYMERS -U-

AUTHOR-(02)-KORSAKOV, V.G., YURYEVSKAYA, I.M.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (2), 66-7

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--AZO COMPOUND, ETHYLENE, PROPYLENE, COPOLYMER, CHEMICAL STABILIZER, THERMAL STABILITY

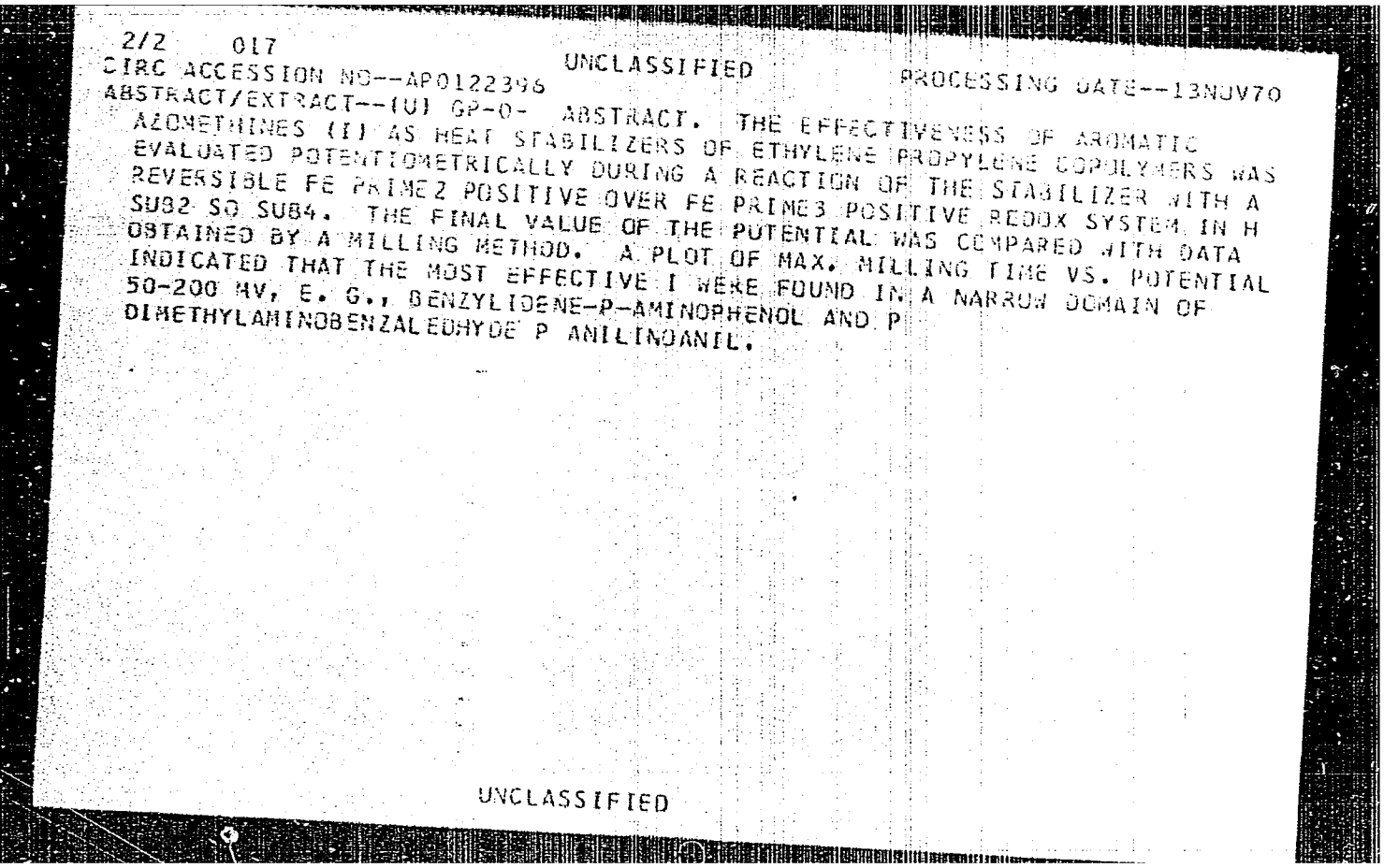
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0130 STEP NO--UR/0191/70/000/002/0066/0067

CIRC ACCESSION NO--AP0122396

UNCLASSIFIED



2/2 017 UNCLASSIFIED

CIRC ACCESSION NO--AP0122396 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTIVENESS OF AROMATIC AZOMETHINES (I) AS HEAT STABILIZERS OF ETHYLENE PROPYLENE COPOLYMERS WAS EVALUATED POTENTIOMETRICALLY DURING A REACTION OF THE STABILIZER WITH A REVERSIBLE FE PRIME2 POSITIVE OVER FE PRIME3 POSITIVE REDOX SYSTEM IN H SU82 SO SU84. THE FINAL VALUE OF THE POTENTIAL WAS COMPARED WITH DATA OBTAINED BY A MILLING METHOD. A PLOT OF MAX. MILLING TIME VS. POTENTIAL INDICATED THAT THE MOST EFFECTIVE I WERE FOUND IN A NARROW DOMAIN OF 50-200 MV, E. G., BENZYLIDENE-P-AMINOPHENOL AND P DIMETHYLAMINOBENZALEDHYDE P ANILINOANIL.

UNCLASSIFIED

USSR

BASOV, N. G., BASHKIN, A. S., IGOSHIN, V. I., ORAYEVSKIY, A. N., and YURYSHEV, N. N.

"Study of Vibrational Energy Transfer From OD to CO_2"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 16, No 10, 20 Nov 72, pp 551-555

Abstract: The article reports the first detection of effective energy transport from the OD radical to CO_2 molecules, resulting in the laser effect in a mixture of O_3, D_2, and CO_2 at a wavelength of 10.6 microns. A simple analytic reaction model and the results of measuring the time characteristics of the laser generation pulse are used to evaluate the rate constant for vibrational-vibrational energy exchange between OD and CO_2. The authors used two measurement methods -- according to the time delay of generation relative to the onset of initiation, and according to attenuation of the chemical laser generation signal. A laser tube 80 cm long and 1.5 cm in diameter was used in the experiment. Pumping was effected by two IFP-20000 lamps.

1/1

YURYSHEV, N.N.

LASERS

TECHNICAL TRANSLATION

FSTC-HT-23-1186-71

ENGLISH TITLE: Specifics of Interaction of Quasistable Laser Radiation with Metals

FOREIGN TITLE: Ob Osobennostyakh Vzaimodeystviya S Metallami Kvazistatsionarnogo Izlucheniya Lazera

AUTHOR: B. M. Zhiryakov, A. K. Fannibo and N. N. Yuryshev

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, No. 3 1968, pp. 126-218

Translated for FSTC by LEO KANNER ASSOCIATES

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This translation was accomplished from a xerox manuscript. The graphics were not reproducible. An attempt to obtain the original graphics yielded negative results. Thus, this document was published as is, in order to make it available on a timely basis.

The radiation of a pulsed laser can be applied to a solid under free generation conditions (without using Q-modulation devices) in two modes, depending on the parameters of the resonator. The first mode, the so-called peak mode, has been described in detail in the literature. The second mode the quasistable (quasicontinuous or pearlessy) mode, has been significantly less fully studied. A characteristic oscillogram of this sort of radiation is shown on Fig. 1.

This article presents results of experiments on the effects of quasistable radiation on metals. Comparative analysis of these results with the results of the actions of peak-type radiation of the same energy and total pulse length but significantly different structure allows us to conclude that there is a qualitative difference in the mechanisms of these interactions. It is promising to use quasistable radiation for welding and melting of metals.

Fig. 1. Oscillogram of Quasistable (Peak List) Radiation of a Pulsed Ruby Laser. Scanning Rate 10^{-4} sec/cm.

1. The radiation of a laser operating according to the traditional plan with a plane-parallel Fabry-Perot resonator has a complex structure with a total length of about 10^{-3} sec, consisting of a large number (on the order of 10^2) of chaotically formed short pulses, so-called "peaks." Their duration is on the order of $5 \cdot 10^{-7}$ sec, the repetition frequency is about 10^6 Hz; therefore, the power carried by each such peak is one to two orders higher than the mean power of the entire pulse as a whole.

1/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--POLYMERIZATION OF VINYL MONOMERS IN LAYER COMPOUNDS OF MONTMORILLONITES -U-

AUTHOR-(04)-ZAYTSEV, YU.S., KISEL, N.G., YENALYEV, V.D., YURZHENKO, A.I.

COUNTRY OF INFO--USSR

SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 2, PP 213-217

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYMERIZATION, MONOMER, VINYL COMPOUND, PEROXIDE, MINERAL, CHEMICAL STABILIZER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0402 STEP NO--UR/0069/70/032/002/0213/0217

CIRC ACCESSION NO--AP0113320

UNCLASSIFIED

2/2 023 UNCLASSIFIED

CIRC ACCESSION NO--AP0113320 PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY HAS BEEN MADE OF THE POLYMERIZATION OF VINYL MONOMERS IN LAYER COMPOUNDS OF MONTMORILLONITE USED AS A STABILIZER OF MONOMER EMULSIONS. THE DEPENDENCE OF THE CHANGE IN THE INTERPLANAR SPACES IN MONTMORILLONITE DURING POLYMERIZATION OF VINYL MONOMERS BETWEEN ITS LAYERS ON THE POLARITY OF MONOMERS AND THE NATURE OF PEROXIDE INITIATORS HAS BEEN STUDIED BY ROENTGENOGRAPHY. APART FROM STABILIZING MONOMER EMULSIONS, BENTONITE CLAYS SERVE AS SITES ONWHICH POLYMERS ARE FORMED ON THE SURFACE AND BETWEEN LAYERS OF MONTMORILLONITE PARTICLES.

UNCLASSIFIED

Acc. Nr: AP0036539

Ref. Code: UR 0069

PRIMARY SOURCE: Kolloidnyy Zhurnal, 1970, Vol 32, Nr 1, pp 130-136

STUDY OF THE COLLOIDAL-CHEMICAL FACTORS OF BEAD POLYMERIZATION OF VINYL MONOMERS

EFFECT OF THE DISPERSING AGENT (POLYMETHACRYLIC ACID) CONCENTRATION AND NEUTRALIZATION DEGREE ON THE STABILIZATION OF STYRENE MACROEMULSION

A. L. Yurzhenko, I. A. Andor

Summary

The study of stabilization of styrene macroemulsion undergoing polymerization in the presence of polymethacrylic acid used as a dispersing agent has shown that the dependence of the stabilizing properties on the neutralization degree and concentration of the polyacid is areadily accounted for by the conformation changes of the dispersing sgent macromolecules in the solution and by the variation of the hydrodynamic conditions under which bead polymerization is carried out.

D.n.

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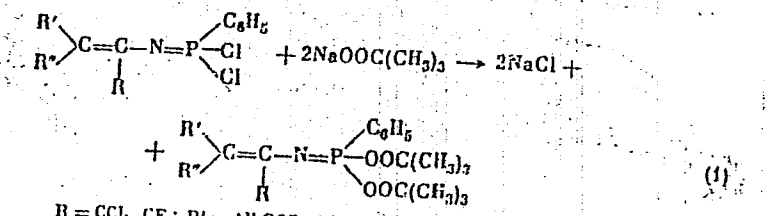
UDC 547.26'118.07

BABYAK, A. G., YURZHENKO, T. I., and BOBNARCHUK, N. D., L'vov Polytechnical Institute and the Institute of Organic Chemistry of the Academy of Sciences of the Ukrainian SSR

"Synthesis and Some Reactions of Substituted Phenylditert.-butylperoxy-phosphazoethylenes"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 3, Mar 72, pp 535-538

Abstract: Substituted phenylditert.-butylperoxyphosphazoethylenes are synthesized by the reaction of the sodium salt of tert.-butyl hydroperoxide with substituted phenyldichlorophosphazoethylenes in an ether solution in the presence of anhydrous sodium sulfite.



$$R'R''C{=}C(R){-}N{=}P(C_6H_5)Cl_2 + 2NaOOC(CH_3)_3 \rightarrow 2NaCl + R'R''C{=}C(R){-}N{=}P(C_6H_5)(OOC(CH_3)_3)_2 \quad (1)$$

$R = CCl_3, CF_3$; $R' = AlkOCO$; $R'' = AlkOCO, CN, AlkCO$.

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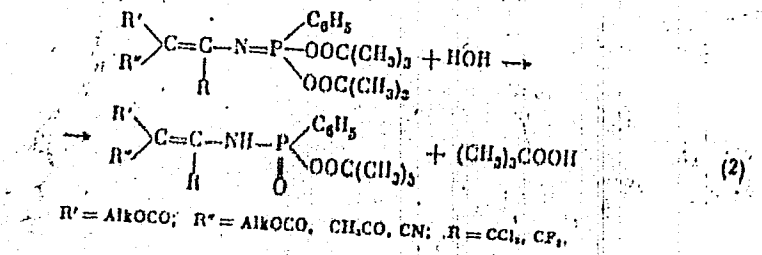
The resultant oils do not distill in a vacuum and are readily soluble in ether, benzene, acetone and chloroform, poorly soluble in petroleum ether. When treated with an equimolar quantity of water in a neutral medium, substituted phenylditert.-butylperoxyphosphazoethylenes hydrolyze yielding tert.-butyl peresters of substituted ethenylamidophenylphosphonic acids and tert.-butylhydroperoxides.



$R' = AlkOCO;\ R'' = AlkOCO,\ CH_3CO,\ CN;\ R = CCl_3,\ CF_3$

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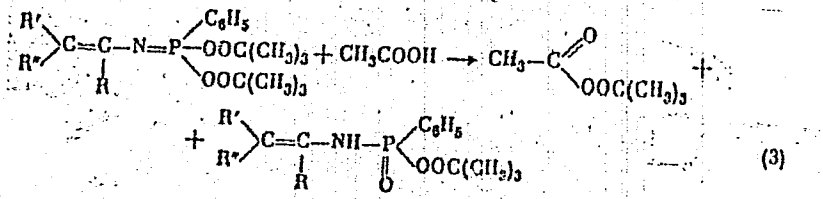
The peresters are thick, colored oils which are readily soluble in acetone and chloroform, moderately soluble in ether and benzene, and poorly soluble in water. Treatment of substituted phenylditert.-butylperoxyphosphazoethylenes with an equimolar quantity of glacial acetic acid produces tert.--butyl peresters of substituted ethenylamidophenylphosphonic acids and tert.-butylperacetate.



(3)

R = CCl_3, CF_3; R′ = R″ = AlkOCO.

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UDC 547.26'118.07

BABYAK, A. G., and YURZHENKO, T. I.

"Investigation of Some Reactions of tert.-Butyl Peroxides of Phosphazosulfonylaryls"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 3, Mar 72, pp 532-535

Abstract: In previous papers, the authors have described synthesis of phenylditert.-butylperoxy- and diphenyltert.-butylperoxyphosphazosulfonylaryls. In this paper, a study is made of reactions of hydrolysis and ammonolysis of the compounds in analogy with the previously studied conversions of phenyldialkoxy- and phenyldiphenoxyphosphazosulfonylaryls. The following compounds of general formulas were studied:

$ArSO_2N{=}P(C_6H_5)[OOC(CH_3)_3]_2$ and $ArSO_2N{=}P(C_6H_5)_2OOC(CH_3)_3$

$Ar = C_6H_5$; $n\text{-}CH_3C_6H_4$.

It is found that when phenylditert.-butylperoxyphosphazosulfonylaryls are hydrolyzed by an equimolar quantity of water, tert.-butyl peresters of arylsulfonylamidophenylphosphonic acids are formed, while an excess of water produces arylsulfamides and phenylphosphonic acid. On both stages of hydrolysis, the peroxide groups are retained and released in the form

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BABYAK, A. G., and YURZHENKO, T. I., Zhurnal Obshchey Khimii, Vol 42(104 , No 3, Mar 72, pp 532-535

of free tert.-butylhydroperoxide. Hydrolysis of diphenyltert.-butylperoxy-phosphazosulfonylaryls leads to the formation of arylsulfonylamidodiphenyl-phosphonic acids and free tert.-butylhydroperoxide. Acidolysis of phenyldi--tert.-butylperoxyphosphazosulfonylaryls by an equimolar quantity of glacial acetic acid produces tert.-butyl peresters of arylsulfonylamidophenylphos-phonic acids, and acidolysis by an excess amount of acetic acid yields N-acetylarylsulfamides and phenylphosphonic acid. During acidolysis, the peroxide groups are isolated in the form of peresters. Moist ammonia reacts with phenylditert.-butylperoxyphosphazosulfonylaryls to form amides of arylsulfonylamidophenylphosphonic acids with release of tert.-butyl hydroperoxide.

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UDC 547.26'118.07

YURZHENKO, T. I., and BABYAK, A. G., L'vov Polytechnic Institute

"Synthesis of Phenyldi-tert-butylperoxyphosphazosulfonylaryls"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70, pp 1662-1663

Abstract: By analogy with the reaction of phenyldichlorophosphazosulfonylaryls with alcoholates and phenolates, the authors used their interaction with the sodium salt of tert-butyl hydroperoxide to synthesize organophosphorus peroxides of a new type, viz. phenyldi-tert-butylperoxyphosphazosulfonylaryls. The solvent was absolute ether, the desiccant was anhydrous sodium sulfate at 8-10°. After filtering of NaCl the solvent was distilled off and the resultant peroxide held in a 2 mm vacuum at 18-20° for 2-3 hours; yield 50-60 percent.

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Acc. Nr. AP0048836 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code UR0459

90905n **Initiating action of some unsaturated peroxides during styrene polymerization in bulk.** Pochin, V. A.; Pokhmurskaya, M. V.; Yurzhenko, T. I.; Krut, A. V. (Lvov. Politekh. Inst., Lvov, USSR). *Vysokomol. Soedin., Ser. A* 1970, 12(1), 248-51 (Russ). The initiating action of several unsatd. peresters during bulk polymn. of styrene was compared with that of their satd. analogs. Peresters studied were *tert*-Bu peracrylate (I), *tert*-Bu perpropionate (II), *tert*-Bu permethacrylate, *tert*-Bu perisobutyrate, *tert*-Bu percrotonate (III), and 2-(vinylethynyl)-2-propyl hydroperoxide (IV). The initiating action was detd. from the rate of polymn. of styrene dilatometers at initiator concn. 0.00565, 0.0281, and 0.0556 mole/l. and 70-90°. The d.p. varied linearly with time (at 20-3% conversion). The unsatd. peresters had greater initiating action than their satd. analogs. Thus, after 2 hr the conversion was 19.3% with I compared with 11.0% with II. The initiating action of IV was intermediate between that of I and III. The unsatd. peresters had lower activation energies (14.5-15 kcal/mole) than their satd. analogs (19.0-23.2 kcal/mole). The mol. wt. of the polystyrenes obtained was inversely proportional to the perester (both satd. and unsatd.) concn., apparently due to intensification of breaking of the growing polymer chains. The unsatd. peresters initiated polymn. of vinyl monomers at comparatively low temps. and gave branched polymers. DBJR

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REEL/FRAME
19800603

1/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--INITIATION OF RADICAL POLYMERIZATION IN EMULSIONS -U-

AUTHOR-(04)-IVANCHEV, S.S., SOLOMKO, N.I., KONOVALENKO, V.V., YURZENKO, V.A.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(3), 593-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--RADICAL POLYMERIZATION, POLYMERIZATION KINETICS, STYRENE, PEROXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0223 STEP NO--UR/0020/70/191/003/0593/0595

CIRC ACCESSION NO--AT0132495

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AT0132495
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EMULSION POLYMN. KINETICS OF STYRENE IN THE PRESENCE OF VARIOUS INITIAORS SUGGESTED THAT COMPDS. HAVING AN OPTIMUM RATIO BETWEEN THE POLAR (PEROXIDE) AND NONPOLAR MOIETIES IN THE MOL. WERE THE MOST EFFECTIVE INITIATORS. THESE INITIATOR MOLS. WERE ORIENTED IN SUCH A WAY THAT THE PEROXIDE BONDS ENETERED THE SPHERE OF INFLUENCE OF THE SURFACE FORCES WHICH FACILITATED ITS CLEAVAGE. FACILITY: ODESS. GOS. UNIV. IM. MECHNIKOVA, ODESSA, USSR.

UNCLASSIFIED

USSR UDC: 621.791.756

YUSHCHENKO, K.A., POKHVOTSEV, A.M., FOMIN, V.V., POBOL', A.A., and SERDYUK, M.A.

"Increase in Electroslag Welding Efficiency"

Kiev, Avtomaticheskaya Svarka, No 5, May 70, pp 72-73

Abstract: A technique was described for increasing electroslag welding efficiency. Experiments were conducted on an A-535 commercial device with a modified neck. The electrode was preheated from a self-contained DC source. Heating was regulated by changing the current value of the source by lowering or increasing the resistance between the contacts of this current supply. The best results were attained by heating the wire to a temperature close to the melting point. In the experiments, 3-mm-diameter 06Kh19N9T welding wire and ANF-14 flux were used to weld plates made of Kh18N10T and Kh17N13M3T steels. The following advantages were established for electroslag welding with preheated electrode: the time for the transition from the arc process to the slag process is shortened considerably; the electrode wire melts in the upper part of the slag bath, even at a high feed rate; the volume of the slag bath can be decreased sharply without disturbing the stability of the process and worsening the seam-forming conditions; welding current can be reduced by 25-30%; and welding efficiency rises 1.5-2.0 times. Mechanical tests of the seam metal showed its high quality. A considerable rise can be expected in electroslag process efficiency upon complementary preheating of the electrode in arc

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YUSHCHENKO, K.A., et al, Avtomaticheskaya Svarka, No 5, May 70, pp 72-73

welding with forced forming under flux or in shielding gas, in welding with wire made of powdered material, and in electroslag or arc plasma remelting.

1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ACIDITY OF FLUORINE CONTAINING CATALYSTS POISONED WITH PYRIDINE STUDIED IN A PULSED MICROCATALYTIC SYSTEM -U-
AUTHOR-(02)-ANTIPINA, T.V., YUSCHENKO, V.V.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(1), 134-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATALYST POISONING, FLUORINE, PYRIDINE, CATALYST ACTIVITY, CUMENE, CATALYTIC CRACKING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0831 STEP NO--UR/0195/70/001/001/0134/0138

CIRC ACCESSION NO--AP0119735
UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119735

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CATALYTIC ACTIVITY AND ACIDITY OF 2 SERIES OF CATALYSTS, DIFFERING IN CHEM. COMPN. AND STRUCTURE (AIF SUB3, AIF SUB3.AIOHF SUB2, ETC.), AS WELL AS HOUDRY CATALYST AND ZEOLITE HY, INCREASED SYMBATICALLY WITH INCREASING CONCN. OF F IN THESE CATALYSTS. THE CATALYTIC ACTIVITY WAS STUDIED FOR THE CRACKING OF CUMENE AT 370-400DEGREES. FACILITY: KHIM. FAK., MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

YUSEVICH, Yu. S.

"Outline of Clinical Electromyography

Meditsina Publishing House, Moscow, 1972

TABLE OF CONTENTS

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1/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--STARTING TEMPERATURE OF A REACTION BETWEEN OXIDES IN THE SOLID PHASE -U-

AUTHOR-(04)-YUSFIN, YU.S., KARABASOV, YU.S., YUSUPKHODZHAYEV, A.A., SUKHININA, V.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (3), 53-5

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--SEMICONDUCTOR MATERIAL, CALCIUM OXIDE, TEMPERATURE EFFECT, CHEMICAL REACTION, ELECTRON DENSITY, STRUCTURAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1872 STEP NO--UR/0370/70/000/003/0053/0055

CIRC ACCESSION NO--AP0137069

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137069

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FOLLOWING SEQUENCE OF REACTIONS IS PROPOSED ON THE BASIS OF DTA, PETROGRAPHIC ANAL., X RAY STRUCTURAL ANAL., AND CONDUCTOMETRIC ANAL.: AT 515-20DEGREES CA(OH) SUB2 EQUALS CAO PLUS H SUB2 O, AT 670-15DEGREES CAO PLUS FE SUB2 O SUB3 EQUALS CAO.FE SUB2 O SUB3, AND AT 750-800DEGREES CAO.FE SUB2 O SUB3 PLUS CAO EQUALS 2CAO.FE SUB2 O SUB3. THE PRIMARY REACTION PRODUCT WAS ALWAYS CAO.FE SUB2 O SUB3 INDEPENDENT OF THE WT. RATIO OF REACTING SUBSTANCES. OXIDE SEMICONDUCTORS BECOME REACTIVE WHEN THE CONCN. OF ELECTRONS IN THE FREE ZONE OF THE SEMICONDUCTOR SHARPLY INCREASES; THIS CORRESPONDS TO THE CHANGE FROM IMPURITY TO INTRINSIC COND. IN THE SEMICONDUCTOR OXIDE.

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