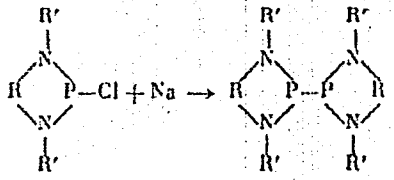
USSR UDC 547.26'118

KOMLEV, I. V., ZAVALISHINA, A. I., CHERNIKEVICH, I. P., PREDVODITELEV, D. A., and NIFANT'YEV, E. YE., Moscow State University imeni M. V. Lomonosov

"Amides of Hypodiphosphorous Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 4, 1972, pp 802-807

Abstract: Metallic sodium was reacted with cyclic amidoacyl chlorides to form the amides and esteramides of the hypodiphosphorous acid as given in the following formula:



The anhydride reactant can be prepared by treating alkylenediamines with PCl_3 in the presence of triethylamine. The structure was confirmed by the NMR spectra of P^{31} and the IR spectra, especially the intense absorption in the region corresponding to the energy of the N-P vibration. The P-P bond is

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USSR

UDC 539.27

NAUMOV, V. A., SEMASHKO, V. N., ZAV'ALOV, A. P., CHERKASOV, R. A., and GRISHINA L. N., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR, Kazan

"An Electron Diffraction Study of the Structure of the Molecules of Ethylene Chlorophosphate and Ethylene Chlorotrithiophosphate"

Moscow, Zhurnal Strukturnoy Khimii, Vol 14, No 5, Sep-Oct 73, pp 787-790

Abstract: On the basis of data obtained by an electron diffraction study carried out on ethylene chlorophosphate and its structural analog ethylene chlorotrithiophosphate (II; 2-thiono-2-chloro-1,3,2-dithiaphospholane) in the vapor state, the molecular structure of these compounds was determined. The five-membered heterocycle had a conformation of the semi-chair type in both cases. The molecular parameters for I were r(C-C) = 1.547 ± 0.020, r(C-O) = 1.488 ± 0.020, r(P=O) = 1.438 ± 0.015, r (P-O) = 1.616 ± 0.010, r(P-Cl) = 2.057 ± 0.010 Å; ∠ O-P-O = 104.7 ± 1.5°, ∠ O=P-Cl = 113.9 ± 2.0°, ∠ O-P-Cl = 101.3 ± 1.0°, ∠ C-C-O = 108.2 ± 1.0°; those for II r(C-C) = 1.525 (assumed), r(C-S) = 1.879 ± 0.010, r(P=S) = 1.885 ± 0.020, r(P-S) = 2.123 ± 0.010, r(P-Cl) = 2.006 ± 0.015 Å; ∠ S-P-S = 98.4 ± 1.5°, ∠ S=P-C = 113.2 ± 2.0°, ∠ S-P-C = 104.2 ± 1.0°, ∠ C-C-S = 112.9 ± 2.5°.

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USSR

UDC 613.693

ZAVALOVA, N. D. and PONOMARENKO, V. A.

"Change in Mental Habits in Shifting to Piloting by Directors"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 9, 1973, pp 54-58

Abstract: To pilot an airplane by manual controls requires different skills and habits from those involved in using directors or on-board computers. Experiments performed under actual flying conditions showed that the transfer from one mode to the other is quite difficult, that special training is essential for this purpose. Without such training fliers tend to rely excessively on the director signals and ignore the readings of various instruments or, in the case of failure of the system, lose all confidence in it.

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UDC 621.382.002(088.8)

USSR

YATSENKO, N.G., SHAPOSHNIK, K.I., NAYDENOVA, T.D., [illegible], YU.P.

"Control And Conditions Of Selective Etching Of Silicon By Anhydrous Hydrogen Chloride"

Elektron. tekhnika. Nauch.-tekhn.sb. Upr.kachestvom i standartiz (Electronics Technology. Scientific-Technical Collection. Quality Control And Standards), 1971, Issue 1(7), pp 91-97 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B451)

Translation: The dependence of the rate of etching of Si by anhydrous HCl at temperatures of 1100--1280° C on the basic thermodynamic and kinetic parameters is obtained. A course of reactions in the diffusion region is possible at temperatures of 1190--1280° C and in the kinetic at 1100--1160° C. The apparent energy activation of the surface of reaction computed from the relation $\lg V = f(1/T)$ is equal to 85 kcal/mole. During selective etching thermal SiO_2 is the most resistant to the effect of the gaseous medium. The surface of Si after processing with anhydrous HCl has a high degree of [illegible] tion. The optimum regime of etching Si is: temperature 1170° C, concentration of HCl in gas carrier (H_2) 0.019 percent, speed of gas flow in chamber 4 l/min. 7 ill. 2 ref. I.M.

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USSR UDC: 621.396.6-~8~.5

UGAY, Ya. A., ZAVAL'SKIY, Yu. P., SHAPOSHNIK, K. I.

"The Problem of Gas Etching the Surface of Semiconductor Materials in Microelectronics"

Elektron. tekhnika. Nauchno-tekhn. sb. Upr. kachestvom i standartiz. (Electronic Technology. Scientific and Technical Collection. Quality Control and Standardization), 1970, vyp. 4, pp 50-57 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V188)

Translation: The authors discuss the timeliness of gas etching as a method of preparing the surface of semiconductor plates in the planar and epitaxial processes. A survey is given of methods of gas etching with the use of halogens, hydrogen halides and water vapor. Conditions are discussed which favor successful realization of gas etching, and a possible mechanism is presented for chemical reactions during etching of silicon by water vapor and hydrogen halides. Resumé.

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Acc. Nr.: AP0042630

Ref. Code: UR9067

JPRS 50162

Conference on Oceanology, Atmospheric Physics, Geography

(Summary: "Session of the Department of Oceanology, Atmospheric Physics and Geography Academy of Sciences USSR in Leningrad," by M. V. Zavarina; Moscow, Izvestiya Akademii Nauk SSSR, Seriya Geograficheskaya, No 1, 1970, p 147)

A scientific session of the Department of Oceanology, Atmospheric Physics and Geography of the Academy of Sciences USSR was held in Leningrad during the period 1-2 July 1969. It was devoted to the most important meteorological problems associated with the study of other natural processes and the use of natural resources in the national economy. D. V. Nalivkin discussed the overall aspects of the study of strong winds in relation to processes in the lithosphere and hydrosphere, emphasizing that their interaction with the atmosphere is most important at the time of catastrophic phenomena. M. I. Yudin gave a review of exceptionally severe dust storms over the European part of the USSR during the last 100 years and devoted much attention to the dust storms of 1969 affecting the Ukraine. The speaker felt that his theory of turbulent diffusion of heavy particles can be applied for studying the mechanics of dust storms. Yudin feels that shelterbelts are the most effective means for protecting soils

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against wind erosion. M. I. Budyko, in a report entitled "Study of Solar Radiation and its Transformations at the Earth's Surface," generalized the research work already done in this field and told of the existing sources of information and the many spheres of its use. He devoted particular attention to the energy processes in the vegetation cover (photosynthesis process). A. F. Treshnikov reported on studies of the Arctic and hydrometeorological servicing of the national economy in the north. The studies made during the last 15-20 years from drifting stations and by air expeditions have yielded much information on bottom relief, formation and circulation of air and water masses and the ice regime of the Arctic Ocean. The physicomechanical properties of ice of different ages have been studied and practical recommendations given on the design and power of engines for icebreakers and other vessels. This report also examined the prospects for further Arctic research. K. Ya. Kondrat'yev told of surveys of natural resources made using artificial earth satellites. He discussed the many aspects of this problem, emphasizing the importance of global surveys, commented on advances in satellite meteorology, advanced the idea of a lunar meteorological station and the desirability and feasibility of using spaceships in geophysical research. He described the work of the Aerospace Methods Laboratory at Leningrad State University. K. S. Shifrin gave a report on "Light Scattering as a Method for Studying the Structure of

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Natural Media"; it dealt with some problems in atmospheric optics of applied importance. The speaker described two methods for determining the size of scattering particles from measurements of the intensity of a scattered parallel beam in the medium: the small angles method and the spectral transparency method. It was emphasized that the theoretical data obtained by solving an integral equation correlate well with experimental data.

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19760679

USSR

UDC: 621.315.592

VUL, B. M., ZAVARITSKAYA, E. I., VORONOVA, I. D., and ROZHDESTVENSKAYA, N. V.

"Hot Electrons at Low Temperatures in Compensated Gallium Arsenide"

Leningrad, Fizika i Tekhnika Poluprovodnikov, No 9, September 1973, pp 1766-1770

Abstract: This paper is a continuation of an earlier article by the same authors and published in the same journal noted above (5, 1971, p 943) investigating the electrical conductivity of compensated GaAs at low temperatures, in a weak electric field with a maximum intensity of 10^{-2} v/cm, when the electron temperature was practically the same as the crystal temperature. The present paper describes experiments designed to broaden this early research to cover stronger electric fields and to clarify the effects of heating up the electrons under conditions of energy boundary distortions. The measurements in this work were conducted at temperatures of 290, 77, 20.4, 4.2, and 1.8° K. To avoid heating the crystal, it was given square pulses of 20 μs duration with a repetition rate of 100-200 pps. The results are given in the form of curves

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USSR

UDC: 621.315.592

VUL, B. M., et al, Fizika i tekhnika poluprovodnikov, No 9, September 1973, pp 1766-1770

of the current density as a function of the electric field intensity for various temperatures, of the electron mobility as a function of the square of the electric field intensity, and of the electron temperature as a function of the square of the electric field intensity. It is found that the described phenomena can be explained by the Boltzmann kinetic energy equation on the assumption that the electrons are scattered in dipoles.

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USSR

UDC: 621.315.592

ZAVARITSKAYA, E. I., VORONOVA, I. D., and ROZHDESTVENSKAYA, N. V.

"Negative Reluctance in Compensated Gallium Arsenide at Low Temperatures"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1945-1953

Abstract: This paper is the continuation of an earlier paper (B. M. Vul, et al, FTP, 5, 1971, p 943) in which it was shown that the distortion of the floor relief of the conductivity zone in heavily doped and compensated GaAs at helium temperatures is sufficient to localize the conductivity electrons. The purpose of the present article is to examine the reluctance of the same GaAs specimens used in the earlier paper's experiments. These specimens had full impurity concentrations of about $5 \cdot 10^{17}/cm^3$ and an electron concentration of from $6 \cdot 10^{15}$ to $5 \cdot 10^{16}$ per cm^3. Specimens with impurity concentrations varying from $2 \cdot 10^{17}$ to $1.5 \cdot 10^{18}/cm^3$ and a constant electron concentration of $1.5 \cdot 10^{16}/cm^3$ served as controls in the measurements, which were conducted in longitudinal and transverse magnetic fields of up to 50 kOe in intensity, in the 0.6-4.2° K temperature interval. The authors promise to process the results

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USSR UDC: 621.315.592

ZAVARITSKAYA, E. I., et al, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1945-1953

of the measurements and interpret them in a future paper. They thank B. M. Vul, L. V. Keldysh, and D. I. Khomskiy for their interest in the work and their discussion of the results.

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UDC 669.71.472

USSR

PODGAYSKAYA, M. N., ZAVARITSKAYA, T. A.

"Structural Characteristics and Surface Properties of Industrial Alumina"

Tr. Vses. n.-i. i proyektn. in-ta alyumin., magn. i elektrodn. prom-sti (Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 172-177 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G169)

Translation: Results are presented from comparative analyses of the structural features and surface properties of industrial Al_2O_3. The following were determined: the granulometric composition of the Al_2O_3 by the method of sedimentation analysis in an aqueous medium with an acid stabilizer (HCl), the dispersion composition of Al_2O_3 of one plant and different plants is not identical; the magnitude of the minimum and maximum bulk weight and also the degree of packing; the natural angles of slope, the friction coefficient and the cohesive strength between the particles on a VAMI [All-Union Institute of Aluminum and Magnesium] design instrument; the specific weight by the pycnometric method in toluene and the specific surface, which permits judgment of the depth of annealing of the Al_2O_3 with sufficient accuracy. The data

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USSR

PODGAYSKAYA, M. N., ZAVARITSKAYA, T. A., Tr. Vses. n.-i. i proyektn. in-ta alyumin., magn. i elektrodn. prom-sti, 1970, No 70, pp 172-177

obtained and also the methods of investigating the structural characteristics and surface properties of Al_2O_3 can be used to solve a number of problems of aluminum production technology and also when manufacturing catalysts, electrical insulating materials, and radioceramics. There are 4 tables and 1 illustration.

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Aluminum and Its Alloys

USSR UDC 669.712:541.183

PASHKEVICH, L. A., GOPIYENKO, G. N., and ZAVARITSKAYA, T. A.

"Effect of the Proportioning of Mineralization Agent on the Transformation of Aluminum Oxide Into α-Modification"

Moscow, Tsvetnyye Metally, No 2, Feb 71, pp 37-39

Translation: Aluminum fluoride in the quantity of 2-10% with vapors of aluminum hydroxide produces hydroxofluoride which is detected on the differential curves by heat effects of formation (570-585°C) and decomposition (1200-1300°C). Increase in the quantity of mineralization agents leads to a decrease of the temperature of α-Al_2O_3 formation. However, boric acid, unlike AlF_3, produces moderate reduction of the temperature of phase transformation of Al_2O_3 into α-Al_2O_3.

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1/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--DEPENDENCE OF THE VOLTAGE CURRENT CHARACTERISTICS OF A TUNNEL DIODE ON THE FERMI LEVELS IN N AND P REGIONS -U-

AUTHOR-(03)-VUL, B.M., ZAVARITSKAYA, E.I., IVANCHIK, I.I.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 329-36

DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS

TOPIC TAGS--VOLT AMPERE CHARACTERISTIC, TUNNEL DIODE, FERMI LEVEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0500 STEP NO--UR/0449/70/004/002/0329/0336

CIRC ACCESSION NO--AP0121174

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--23OCT70

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CIRC ACCESSION NO--AP0121174

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE E-I CHARACTERISTICS OF A TUNNEL DIODE WERE CALCD. IN THE INTERVAL 4 IS SMALLER THAN T IS SMALLER THAN 400DEGREES K (B. M. VUL, ET AL., (1969) FOR THE CASE WHEN THE POSITION OF FERMI LEVEL (F SUBN) OF ELECTRONS IN THE N REGION CHANGES SHARPLY WITH TEMP. WHILE THE POSITION FO THE FERMI LEVEL (F SUBP) OF HOLES IN THE P REGION CHANGES ONLY SLIGHTLY. IN THE TEMP. INTERVAL INDICATED AND OVER A WIDE REGION OF VALUES OF F SUBN AND F SUBP, THE FORM OF THE E-I CURVES CHANGES ONLY SLIGHTLY. FROM CALCD. DATA THE TEMP. DEPENDENCE OF THE RATIO V SUBP-V SUBV WAS ESTABLISHED, WHERE V SUBP IS THE POTENTIAL DIFFERENCE FOR WHICH TUNNEL CURRENT BECOMES MAX. AND V SUBV EQUALS (F SUBN PLUS F SUBP)-Q TIMES V SUBP-V SUBV CHANGES VERY SLOWLY IN THE INTERVAL FROM 0.33 AT T IS LARGER THAN 250DEGREESK TO 0.38 AT T IS SMALLER THAN 500EGREESK. CALCNS. SHOW THAT AS DISTINCT FROM HIGHER TEMPS. AT LOWER TEMPS. THE FORM OF THE E-I CURVES DEPENDS NOT ONLY ON THE SUM BUT ALSO ON THE RATIO OF FERMI ENERGIES OF N AND P PARTS. FACILITY: FIZ. INST. 'IM. LEBEDEVA, MOSCOW, USSR.

UNCLASSIFIED

AN0012919

UR9027

AUTHOR-- RUMYANTSEV, I., DIRECTOR, SCIENTIFIC-RESEARCH INSTITUTE OF CHEMICAL MACHINE CONSTRUCTION /SRICM/

TITLE-- THE EFFECT OF RESEARCH

NEWSPAPER-- VECHERNYAYA MOSKVA, JANUARY 13, 1970, P 2, COLS 2-5

ABSTRACT-- THE ARTICLE IS A VERY BRIEF REVIEW OF THE ACTIVITIES OF THE SRICM. THE INSTITUTE IS THE LEADING ORGANIZATION IN THE FIELD OF MACHINE DESIGN FOR CHEMICAL INDUSTRY. IT GUIDES THE TECHNOLOGICAL POLICIES AND COORDINATES THE EFFORTS OF OTHER INSTITUTES AND PLANTS. THE FOLLOWING STAFF MEMBERS OF THE INSTITUTE ARE MENTIONED AS ACHIEVERS-- R. KAZAKOV, S. GDALIN, V. SEMENOV, YU. KIPRIANOV, YE. CHUVPILO, AND V. ZAVAROV. ALL ARE MEMBERS OF THE COMMUNIST PARTY.

19571886

USSR UDC: 8.74

ZAVARYKIN, V. M.

"Programming on the 'Vega' Computer"

Uch. zap. Kursk. gos. ped. in-t (Scientific Notes. Kursk State Pedagogical Institute), 1971, 61, pp 87-95 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V950 K)

[No abstract]

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USSR

UDC 576.809.4

SAVEL'YEVA, N. D., ZAVARZIN, G. A., and VEDENINA, I. Ya.

"Hydrogen Bacteria"

Uspekhi mikrobiologii (Advances in Microbiology), No 7, 1971

Abstract: A survey of the hydrogen bacteria, microorganisms that synthesize all the cell components from molecular hydrogen, oxygen, and carbon dioxide, is presented. It is suggested that three main species be distinguished: Hydrogenomonas eutropha, H. pantotropha, and H. facilis. There is a discussion of the growth characteristics of hydrogen bacteria in non-flow-type culture and of the prospects for making practical use of them.

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USSR

UDC 632.954

ZAVARZIN, V. I., Candidate of Biological Sciences, Scientific Research Institute of Mountain Horticulture and Floriculture

"Herbicides in Orchards"

Moscow, Zashchita Rasteniy, No 5, 1970, pp 28-29

Abstract: The article is a report of a sectional meeting at the Third All-Union Conference on herbicides. V. S. MONASTYRSKIY (Mleyevskiy Experimental Horticultural Station) reported on the use of dalapone against creeping grass. V. A. ANPALOV (Scientific Research Horticultural Institute imeni I. V. Michuring Michurinsk, Ministry of Agriculture RSFSR) gave results of successful application of simazine, neburone, eptam, falone, and sesone on fields of strawberries. According to A. A. GIGINEYSHVILI (Georgian IZR) repeated treatment of citrus plantations with simazine, monurone or diurone which did not show any accumulation in the ground, and A. S. TRAPAIDZE (All Union Scientific Research Institute of Tea and Subtropical Culture, Anaselli GSSR, All Union Academy of Agricultural Sciences imeni V. I. Lenin) successfully used simazine on

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USSR

ZAVARZIN, V. I., Zashchita Rasteniy, No 5, 1970, pp 28-29

tea plantations. T. KH. SAMOLADAS (Sukhumi Experimental Station of Subtropical Culture, All Union Institute of Plant Cultivation) reported on the use of herbicides at the sweet bay plantations, while M. F. OKSENYUK (Maritime Fruit-Berry Experimental Station) covered the plantations of berries. YE. M. PETOYAN (Academy of Communal Agriculture) and V. P. BEL'KOV (Leningrad NIILKh) discussed the use of herbicides to control weeds in nurseries. T. V. ZASIMOVSKAYA (All Union Scientific Research Institute of Food) gave a report on the application of herbicides on pasture grounds. The use of herbicides and arboricides for meliorative purposes was discussed by G. P. SANNIKOV (Northern Scientific Research Institute of the Hydrotechnics and Melioration, Novocherkassk, State Committee for Water Economy RSFSR), while V. M. BAKHADYROV (Sredaz IZR) and G. G. GALIFANOV (Turkmen SSR) covered the control of drainage channels.

2/2

ZAVARZIN, V. P.

TECHNICAL TRANSLATION

FSTC-HT-23-375-72

ENGLISH TITLE: Symmetrical Heating and Cooling of a Plate in a Direct Flow

FOREIGN TITLE: Simmetrichnyy Nagrev i Okhlazhdeniye Plastiny v Pryamotoke

AUTHOR: A. S. Telegin, V. P. Zavarzin

SOURCE: Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 3, 1970, pp 171-174.

Translated for FSTC by Leo Kanner Associates

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USSR

UDC: 536.24: 532.526

ZAVARZINA, I.F. and VASIL'EV, A.A.

"Experimental Investigation of Local Heat Transfer on Axisymmetrical Bodies with Spherical Ends in Rarefied Gas Flow"

Novosibirsk, Sb. Experim. Issled. i Vopr. Modelir. Techeniy Razrezhen. Gaza i Plazmy (Symposium on Experimental Investigation and Modeling Problems of Rarefied Gas and Plasma Flow), 1971, pp 112-117 (from Referativnyy Zhurnal-Mekhanika, 1973, Abstract No. 2B872 by B. I. Bakum)

Translation: Experimental results are given of heat transfer on the surface of cone and cylinder with spherical ends obtained with $M_{\infty} = 3.7 \div 8$, $R_{\infty} = U_{\infty} S_{\infty} S / \mu_{\infty} \geq 4 \times 10^4$ (S is the curvilinear coordinate along the generatrix with the origin in the center of the spherical surface), angles of attack 0° and 20° and temperature factor $T_w/T_0 = 0.43$. The results obtained are compared with calculated values and with data by other authors. 9 references.

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USSR

UDC 532.529

AVETISYAN, I. A., ZAVARZINA, N. A., LISTROV, A. T.

"Invariant-Group Properties of the Equations of Motion of a Liquid With Bubbles"

Sb. nauch. tr. fak. prikl. mat. i mekh. Voronezh. un-ta (Collection of Scientific Works of the Faculty of Applied Mathematics and Mechanics of Voronezh University), 1971, No. 1, pp 109-117 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3B953)

Translation: The flow of a mixture of liquid and gas bubbles is discussed. Although the initial equations are written in the approximation of a two-velocity continuous medium, subsequently the rates of both phases are considered as coinciding. The equations finally obtained take into account in particular the relaxation effects associated with oscillations in the volume of the bubbles, where pulsations in the bubbles are considered isothermal. Further considered are linearized equations of the quasi-one-dimensional nonstationary flow of the mixture in a tube of variable cross section $F = F(x)$ and the invariant-group properties of the corresponding differential equations are investigated. H-invariant solutions are then obtained and optimal systems of operators are described that are permitted by the initial system of equations in three cases, when the

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USSR

AVETISYAN, I. A., et al, Sb. nauch. tr. fak. prikl. mat. i mekh. Voronezh. un-ta, 1971, No. 1, pp 109-117

following condition is fulfilled:

$$J''+JJ'=0\left(J=\frac{1}{F}\frac{dF}{dx}\right)$$

and when this condition is not fulfilled. The solutions obtained describe in a one-dimensional approximation the flow of the mixture of liquid and bubbles in tubes of varying cross section. The second part of the article discusses under the same assumptions two-dimensional (plane) nonstationary flow. A Laplace transformation with respect to time is applied to the initial equations and then the equation for the representation of pressure is investigated and solved by invariant-group methods. 6 ref. A. N. Krayko.

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UDC 539.23+539.103

USSR

BARIT, I. YA., BALASHKO, YU. G., DUL'KOVA, L. S., and ZAVARZINA, V. P.

"Using Fine Organic Films in Nuclear Physics Experiments"

Moscow, Probory i Tekhnika Eksperimenta, No 1, Jan-Feb 71, pp 57-60

Abstract: The experimental work described in this paper was done in connection with measurements of deuteron polarization in ^{4}He elastic dispersion in the energy range of 1 to 2 Mev. Such organic materials as nitrocellulose, polycaprolactam resin and fiber, and nylon, were subjected to tests for mechanical rigidity and imperviousness to the gas. The most satisfactory materials proved to be polycyromellitymide. Windows of this material were made to enclose helium at a pressure of 140 atmospheres and had to separate this high-pressure gas region from a space with a pressure of less than 10^{-2} atmospheres. The article describes the preparation and testing of the windows and the process of measuring the film thicknesses. There were two such processes: one by passing alpha particles through the film, the other through the shift in maximum (p, $\alpha\gamma$) reaction

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USSR

BARIT, I. YA., et al., Pribory i Tekhnika Eksperimenta, No 1, Jan-Feb 71, pp 57-60

of ^{19}F. A table is given of the change in film thickness, as measured by both these methods, under proton bombardment. There is also a second table comparing the characteristics of films made of various organic substances.

2/2

1/2 070 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--INTERFEROMETRIC STUDIES OF A PLASMA IN A COAXIAL HIGH CURRENT ACCELERATOR, USING A HELIUM NEON LASER -U-

AUTHOR-(02)-ZAVENYAGIN, YU.A., DONTSOV, YU.P.

COUNTRY OF INFO--USSR

SOURCE--Z HURNAL PRIKLADNOI SPEKTROSKOPII, VOL. 12, APR. 1970, P. 622-626

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--INTERFEROMETER, GAS LASER, HELIUM, NEON, LASER APPLICATION, PLASMA DENSITY, PLASMA CONCENTRATION, HIGH ENERGY ACCELERATOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1314 STEP NO--UR/0368/70/012/000/0622/0626

CIRC ACCESSION NO--AP0124965

UNCLASSIFIED

2/2 070 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0124965

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEVELOPMENT OF A METHOD OF MEASURING PLASMA CONCENTRATION USING A GAS LASER AND A MULTIPLE WAVE INTERFEROMETER PLACED IN A VACUUM CHAMBER. THE RADIAL AND TEMPORAL CHARACTERISTICS OF THE PLASMA DENSITY VARIATION ARE OBTAINED FOR ONE OF THE CROSS SECTIONS OF A PLASMA JET GENERATED BY THIS COAXIAL ACCELERATOR. FACILITY: VSESOIUZNAIA KONFERENTSIIA PO FIZIKE NIZKOTEMPERATURNOL PLAZMY, 2ND MINSK, BELORUSSIAN SSR, NO. 18-22, 1968.

UNCLASSIFIED

AP9006826

UR/0343

AUTHORS: Sheruda, S. D.; Zaverbnyy, R. M.; Kobylko, B. P.

TITLE: Investion of the Efficiency of a Unitized Sprayer Pump.

PRIMARY SOURCE: Traktory i Sel'khozmashiny.

ABSTRACT: Tests were made of the efficiency of a UN-4100 triple-action unitized piston pump in replacing standard-type pumps on the OVS-A, OUT-1A and ON-10 sprayers. A complete description of the UN-4100 pump in comparison with other standard pumps and using a variety of solutions is presented. Specification of the pump are also given. The pump is said to be highly reliable and to have a piston service life of 100—200 hr. Additional investigation using different steels to produce parts of the pump is necessary. Orig. art. has: 2 tables and 4 figures. [BC]

1964 0234

UDC: 621.317.757.3

USSR

ZAVERTANNYY, V. V., PIS'MENETSKIY, V. A., KHORUNZHIY, V. A., Khar'kov Polytechnical Institute imeni V. I. Lenin

"Concerning a Method of Spectral Analysis of Isolated Radio Signals"

Leningrad, Izvestiya VUZov, Priborostroyeniye, Vol. 16, No 1, 1973, pp 94-96

Abstract: A method is described for forming the spectral density of isolated radio signals by using a device for preprocessing the signal. This signal processor provides for storage of the signal, reproduction, and frequency displacement of duplicates of the signal by steps. It is shown that the frequency band of a spectrum analyzer can be expanded by a factor of N+1 when N circulations are made in the processor. In a spectrum analyzer with 30-50 filters, a coefficient of panoramism of 900-1500 can be achieved by using preprocessing.

1/1

USSR

UDC 621.762.52:669.018.25

KISLYY, P. S., GOLUBYAK, L. S., and ZAVERUKHA, O. V., Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"Consumable-Electrode Laboratory Furnace and Obtaining Melted Specimens of Titanium Carbide"

Kiev, Poroshkovaya Metallurgiya, No. 9, Sep 70, pp 94-98

Abstract: This paper concerns methods of obtaining cast ingots of titanium carbide in an especially designed consumable-electrode electric arc furnace. The furnace uses two electrodes, one of which is the graphite crucible and the other -- the consumable rod. Two methods of melting are proposed and described in detail. The heat losses in the furnace are low and the operating voltage in melting the titanium carbide is 30 v. An increase in the latter to 40-45 v in the melting chamber produces a space discharge; this disperses the thermal energy of the discharge over the larger area of the electrode and the process of melting is terminated. A decrease to 25 v retards the melting. The composition of the melted specimens is close to stoichiometric. During melting, titanium carbide is decomposed, liberating the free oxygen which dissolves in the carbide on subsequent high-temperature annealing. The furnace described makes it possible to produce almost nonporous parts.

1/1

JPRS 59873

23 August 1973

TECHNOLOGY OF PRODUCING NEW MATERIALS

Translation of Russian-language collection: Tekhnologiya Poluchenilya Novykh Materialov, 1972, Kiev.

ZAVERUKHA, O. V.

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[I - USSR - I]

Technology of Powder Metallurgy and Powder Materials

JPRS 59877

23 July 73

CONTENTS (Continued)

USSR

UDC 669.046.558.28

KISLYY, P. S., GOLUBYAK, L. S., and ZAVERUKHA, O. V., Institute of Problems of the Material Science, Academy of Sciences Ukrainian SSR

"Changes in the Structure and Properties of Melted Titanium Carbide on Annealing"

Kiev, Poroshkovaya Metallurgiya, No. 10, Oct 70, pp 78-82

Abstract: Melted titanium carbide features stable electrophysical properties which makes its use preferable to sintered carbide. However, these properties cannot be reproduced over its volume due to rapid solidification of the melt, impurity liquation and carbon redistribution in the crystallization zone. The objective of this paper was to study changes in both the properties and microstructure of melted titanium carbide on heating for producing a material with both stable and reproducible properties. A dependence is described of the electrophysical properties of titanium carbide on the hold-

USSR

KISLYY, P. S., et al, Poroshkovaya Metallurgiya, No. 10, Oct 70, pp 78-82

ing period at various temperatures. The annealing was performed at 1000, 1400, 1600, 2000, and 2000°C. Under the effect of thermal stresses, and rapid cooling following high-temperature heating, titanium carbide exhibits plastic flow which is manifested in the appearance of slip bands with the release of excess carbon on them. With an increase in annealing time, the number of these bands decreases while their size increases. Annealing at 1400--1600°C brings about the formation of large equilibrium grains of titanium carbide and the release of excess carbon along their boundaries. Annealing at 2000--2200°C produces a microstructure with large equilibrium grains. The stabilization of thermoelectric characteristics takes place after 4 hours of annealing at 1600--2200°C.

2/2

USSR

UDC 621.762.33:661.665

KISLYY, P. S., and ZAVERUKHA, O. V., Institute for Problems of Material Science, Academy of Sciences URR SSR

"Regularities of Titanium Diboride Sintering in Vacuum"

Kiev, Poroshkovaya Metallurgiya, No 7, Jul 70, pp 32-35

Abstract: Titanium diboride holds considerable promise as a refractory material. However, the information on producing high-quality parts from titanium diboride is far from adequate. This paper concerns the regularities of the sintering process of titanium diboride in vacuum at 0.0001 mm Hg. The experiments involved finely disperse powder which comprised: 68.1% Ti, 31.0% B, 0.3% C, and 0.7% Fe. The specimens were sintered in a furnace permitting measurements of electrical resistance up to the sintering temperature, which, in addition to data on shrinkage, provided a comprehensive characteristic of kinetic processes of sintering. The results obtained suggest that the increase in the contact area between titanium diboride particles within the low-temperature region (up to 1100° C) is due to surface diffusion processes. At temperatures above 1300° C the mechanism of vaporization and condensation makes a considerable contribution to mass transfer.

1/1

USSR UDC 669.822:621.039.5

ZAVGORODNIY, A. YA., GOL'TSEV, V. P.

"Study of Gas Swelling of Uranium Under Annealing Conditions"

Radiatsion. fiz. tverd. tela i reaktornoye materialoved. -- V sb. (Radiation Solid State Physics and Reactor Material Science -- collection of works), Moscow, Atomizdat Press, 1970, pp 197-203 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4I826)

Translation: Metallic uranium of industrial purity was irradiated at 300° to 0.2 and 0.45% burn-up. The swelling during post-radiation annealing was studied with the help of a remote dilatometer. After rapid heating to each temperature the sample was held isothermally until the elongation rate as a result of swelling dropped to ~1 micron/hour. The swelling process begins at an annealing temperature of ~425°. The swelling to 700° is insignificant (elongation of 0.4%); the $\alpha \rightarrow \beta$ transition is not accompanied by noticeable swelling. Intense swelling begins at 759° and lasts >13 hours; the volume of the sample increases by 13% in this case. On conversion to the γ-phase, the swelling intensity again increases; however, above 830° the swelling practically stops. The total increase in size of the sample is 19%. There are 6 illustrations and a 3-entry bibliography.

1/1

UDC 669.725:621.039.5

USSR

ZAVGORODNIY, A. YA., GOL'TSEV, V. P., CHECHETKINA, Z. I., SERNYAYEV, G. A.

"Kinetics of Gas Swelling of Irradiated Beryllium"

Radiatsion. fiz. tverd. tela i reaktornoye materialoved. -- V sb. (Radiation Solid State Physics and Reactor Material Science — collection of works), Moscow, Atomizdat Press, 1970, pp 221-231 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4I834)

Translation: Dilatometric and metallographic methods were used to study the kinetics of gas swelling of hot-extruded Be irradiated at 70° with doses of $3.7 \cdot 10^{21}$–$2 \cdot 10^{22}$ neutrons/cm^2 in the temperature range of 100-900°. The presence of three sections on the temperature-swelling curves of irradiated beryllium was detected. The bibliography has 1 entry.

1/1

Nuclear Science and Technology

USSR

UDC 621.039.55:621.039.542.32

RAYETSKIY, V. M., ZAVGORODNIY, A. Ya., and GOMOZOV, L. I.

"Effect of Irradiation on Electrical Resistance of Uranium-Zirconium-Niobium Alloy"

Moscow, Atomnaya Energiya, Vol 29, No 5, Nov 70, pp 379-380

Abstract: Studies were made of uranium-8 at. percent zirconium-12 at. percent niobium alloy, which has a higher equilibrium gamma-state transition temperature (660° C) than an alloy of uranium with 20 at. percent molybdenum. Specimens were placed in ampoules and filled with lead-tin solder (melting point 183° C) at 200° C. Irradiation was carried out in an SM-2 reactor to an integrated flux of $\Phi_1 = 3 \cdot 10^{19}$ thermal neutrons/cm^2 at 70° C and $\Phi_2 = 9 \cdot 10^{20}$ thermal neutrons/cm^2 at 200° C. Electrical resistance was measured by the potentiometric method in the -196 to + 100° C temperature range. Irradiation results in an increase in the mean temperature electrical-resistance coeffi-

USSR

RAYETSKIY, V. M., et al., Atomnaya Energiya, Vol 29, No 5, Nov 70, pp 379-380

cient for uranium-zirconium-niobium alloy (negative for the initial state of the alloy). It becomes positive after irradiation with flux Φ_2. There is a decrease in the electrical resistivity found at -196° C and an increase in the value found at +100° C with irradiation dose. Variations in the temperature dependence of the electrical resistance as a result of changes in the phase state of unirradiated uranium-zirconium-niobium alloy were determined in specimens cooled from the homogeneous state (T = 800° C) at a rate of ~ 300 (water hardening), ~ 3, and 0.1 deg/sec, as well as in specimens annealed at 500° C for 140 hours. Water hardening gave a homogeneous state, annealing at 500° C an equilibrium heterogeneous state. The mean temperature coefficient of the alloy increases with decreased cooling rate, reaching the greatest value after annealing at 500° C.

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USSR

RAYETSKIY, V. M., et al., Atomnaya Energiya, Vol 29, No 5, Nov 70, pp 379-380

A comparison of variations in the mean temperature resistance coefficient for thermal decomposition and irradiation indicates that the uranium-zirconium-niobium alloy decomposes under irradiation. Decomposition of the homogeneous alloy indicates that uranium fission events may promote not only homogenization, but also the initiation of decomposition centers and accelerated decomposition of unstable alloys.

The authors thank S. T. KONOBEYEVSKIY for his interest in and discussion of the work, and V. S. SANDAKOV and L. M. KISELEV for their assistance in the experiments.

3/3

1/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--TWO STAGE PREPARATION OF ALKYL ETHERS OF O AND P,BUTYLPHENOLS -U-

AUTHOR-(02)-SREBRODOLSKAYA, I.I., ZAVGORODNIY, S.V.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,584
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--10FEB70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHLOROPRENE, PHOSPHORIC ACID, CHEMICAL SYNTHESIS, PHENOL,
AROMATIC ETHER, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1588 STEP NO--UR/0482/70/000/000/0000/0000

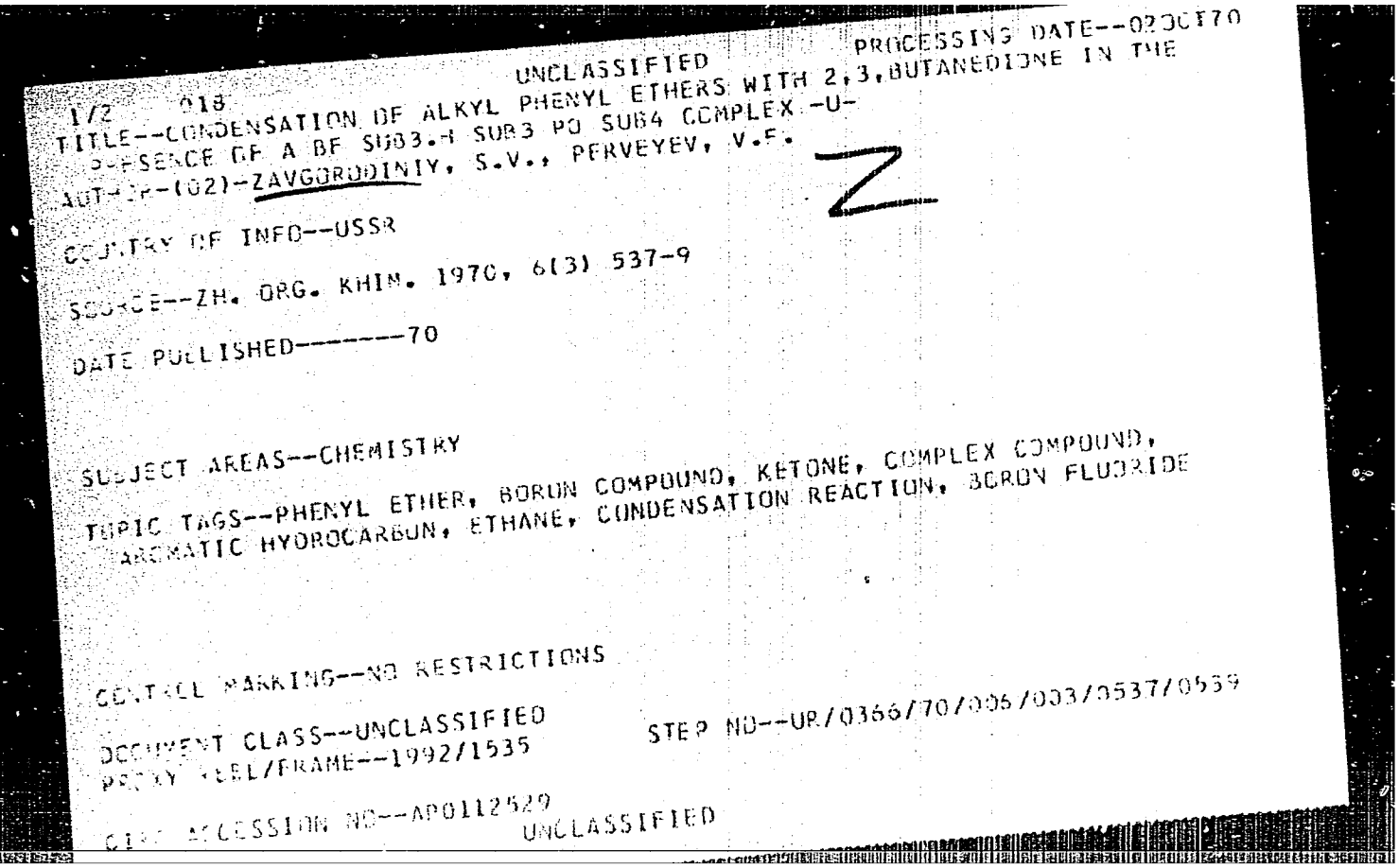
CIRC ACCESSION NO--AA0135229
UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AA0135229

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE COMPDS. ARE PREPD. BY TREATING ALKYL ETHERS OF PHENOL WITH CHLOROPRENE AT SMALLER THAN OR EQUAL TO 70DEGREES IN THE PRESENCE OF AN ACID CATALYST (E.G. ORTHOPHOSPHORIC ACID), WITH SUBSEQUENT REDN. OF THE OBTAINED PRODUCT WITH, E. G., METALLIC NA IN AN ORG. SOLVENT IN THE PRESENCE OF A RANEY NI CATALYST. FACILITY: KIYEVSKIY ORDENA LENINA POLITEKHNICHESKIY INSTITUT IM. 50-LETIYA VELIKOY OKTYABR'SKOY SOTSIALISTICHESKOY REVOLYUTS II.

UNCLASSIFIED



1/2 018 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--CONDENSATION OF ALKYL PHENYL ETHERS WITH 2,3,BUTANEDIONE IN THE PRESENCE OF A BF SUB3-H SUB3 PO SUB4 COMPLEX -U-

AUTHOR-(02)-ZAVGORODNIY, S.V., PERVEYEV, V.F.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(3) 537-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHENYL ETHER, BORON COMPOUND, KETONE, COMPLEX COMPOUND, AROMATIC HYDROCARBON, ETHANE, CONDENSATION REACTION, BORON FLUORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/0366/70/006/003/0537/0539

PROXY REEL/FRAME--1992/1535

CIRC ACCESSION NO--AP0112529 UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203730001-3"

2/2 018 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0112529

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF PHOME OR PHOET WITH AC SUB2 IN THE PRESENCE OF BF SUB3.H SUB3 PO SUB4 COMPLEX GAVE SMALLER THAN OR EQUAL TO 89PERCENT ACCMEIC SUB6 H SUB4 OR-P) SUB2 AND 8-11PERCENT ACCMEIC SUB6 H SUB4 OR-P)C SUB6 H SUB4 OR-O (R EQUALS ME OR ET). THE FUSION OF THESE COMPDS. WITH KOH DEAC ETYLATES THEM TO THE CORRESPONDING DIARYLETHANES.

UNCLASSIFIED

USSR

OSIPOV, V. P., SOROCHENKO, Ya. I., and ZAVGORODNIY, V. I., Chair of Infectious Diseases, Tselinograd Medical Institute

"Recurrence of Typhoid Fever Within a Year"

Alma-Ata, Zdravookhraneniye Kazakhstana, No 8, 1971, p 76

Abstract: A 19-year-old male was admitted to the hospital with a diagnosis of typhoid fever, intestinal bleeding, ascariasis, and trichuriasis. He responded to antibiotic therapy and was discharged in good condition. Follow-up examination showed him to be healthy. But 10 months later he was rehospitalized with similar symptoms. This rare recurrence of typhoid within a year is attributed to the presence of worms which, as in the case of acute dysentery, are believed to weaken the process of immunity formation. The patient did not receive specific anhelminthic therapy because of the lack of effective and safe drugs to treat trichuriasis.

1/1

USSR UDC: None

KHOLOSHA, Ye. G., VOYEVODIN, Yu. M., VERKLOV, B. A., and ZAVGORODNIY, Ye. Kh.

"Safety Valve for Hydraulic Systems"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 27, 1971, p 124, No (11)351027

Abstract: The body of the valve contains a load spring in a gate made of a hollowed cavity containing a two-piston differential plunger. There is also an added cavity with a two-piston plunger containing a stepped bore into which the first cavity fits, thus lending the device compactness and a better structure. The valve is made by cutting slits in the body into which the plungers are inserted. A diagram of the device in cross section is given.

1/1

USSR

UDC 51:621.391

ZAVGORODNIY, Yu. V.

"Probabilities of Events in Oriented Logic Nets Without Memory"

Tekhn. Kibernetika. Vyp. 8, [Engineering Cybernetics, No 8--Collection of Works], Kiev, No 8, 1970, pp 9-14, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V469).

No Abstract.

1/1

1/2 033 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--PROTECTION OF ELECTROLYTIC CADMIUM POWDER FROM OXIDATION DURING WASHING AND DRYING -U-

AUTHOR-(02)-ZAVGORODNYAYA, YE.F., PODOLSKAYA, N.V.

COUNTRY OF INFO--USSR

SOURCE--ZASHCH. METAL. 1970, 6(1), 105-8

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CADMIUM, METAL POWDER, ELECTROLYTIC POWDER METAL, OXIDATION, CORROSION PROTECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1980/1026 STEP NO--UR/0365/70/006/001/0105/0108

CIRC ACCESSION NO--AP0049219

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--20NOV70

2/2 033

CIRC ACCESSION NO--AP0049219

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A WASHING OPERATION WITH DISTD. WATER CAUSED 24PERCENT OXIDN., WHICH WAS ONLY SLIGHTLY IMPROVED BY USING SOAP SOLN. (20-3PERCENT OXIDN.). A SERIES OF 5 SURFACTANTS REDUCED OXIDN. TO 13-17PERCENT, AND "YANTAR" DETERGENT REDUCED OXIDN. TO 12PERCENT. SOME SUCCESS WAS OBTAINED WITH NA SUB2 S OR (NH SUB4(SUB2 SO SUB4, 15 AND 11PERCENT, RESP. BEST RESULTS EMERGED WITH EITHER ETOH OR K SU62 CR SUB2 O SU87, 7PERCENT; OR WITH A CONSECUTIVE TREATMENT, 3PERCENT. AFTER WASHING WITH ALC., AN OPTIMUM AIR DRYING TEMP. OF 60DEGREES-20 MIN PRODUCED 7PERCENT OXIDN. OTHER TEMPS. AND TIMES OF DRYING WERE 40DEGREES-40 MIN, 80DEGREES-12 MIN, AND 100DEGREES-7 MIN WITH CORRESPONDING OXIDNS. OF 11PERCENT, 12PERCENT, 16PERCENT, RESP. VACUUM DRYING AT 20DEGREES REDUCED THE AIR DRYING TIME FROM 8 TO 4 HR, AND THE OXIDN. FROM 9PERCENT TO 3PERCENT.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--SPECTRUM OF PROTONS FROM THE PRIME238 U(T, PF) REACTION -U-

AUTHOR-(05)-ALMAZOV, A.V., ANDREYEV, M.F., ZAVGORODNYY, V.A., SEROV, V.I., SEROV, YU.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(1), 136-7

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--TRITON BOMBARDMENT, NATURAL URANIUM, PROTON SPECTRUM, FISSION CROSS SECTION, EXCITATION ENERGY, OXYGEN ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1980/0238 STEP NO--UR/0048/70/034/001/0136/0137

CIRC ACCESSION NO--AP0105314

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0105314

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTS. WERE PERFORMED WITH 12.4-MEV T GENERATED IN AN ELECTROSTATIC GENERATOR. OWING TO THE LARGE TOTAL CROSS SECTION OF THE (T,F) REACTION AND THE LARGE CONTRIBUTION OF P FROM THE PRIME16 O (T,P) PRIME18 O REACTION TO THE TOTAL P SPECTRUM THE CONTRIBUTION OF ACCIDENTAL COINCIDENCES INCREASED AND GOOD STATISTICAL PRECISION OF RESULTS COULD NOT BE OBTAINED. BY TAKING INTO CONSIDERATION THAT IN THE VICINITY OF THE FISSION THRESHOLD THE FORM OF THE P SPECTRUM IS DETD. ONLY BY THE FISSION PROBABILITY THE FISSION THRESHOLD OF PRIME239 U BY N WAS 0.065 PLUS OR MINUS 0.12 MEV. AS THE FISSION THRESHOLD, THE ENERGY AT THE HALF HEIGHT OF THE DECREASE OF THE P SPECTRUM IS TAKEN. THE FISSION THRESHOLD OF PRIME234 U IN THE REACTION PRIME233 U(T,PF) WAS 0.65 PLUS OR MINUS 0.15 MEV. ALSO, AT LOWER EXCITATION ENERGIES OF THE NUCLEUS PRIME240 U BELOW THE FISSION THRESHOLD THE PRONOUNCED FISSION IS OBSD.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--STUDY OF THE WORKING CAPACITY OF AN OPERATOR UNDER CONDITIONS OF A PROLONGED BED REST -U-

AUTHOR-(04)-ZAVIALOV, YE.S., MELNIK, S.G., CHUGUNOV, G.YA., VORONA, A.A.

COUNTRY OF INFO--USSR

SOURCE--KOSMICHESKAIA BIOLOGIIA I MEDITSINA, VOL. 4, JAN.-FEB. 1970, P. 61-65

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HYPODYNAMIA, AIRCRAFT PERSONNEL, EXERCISE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1963 STEP NO--UR/0453/70/004/000/0061/0065

CIRC ACCESSION NO--AP0120606

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 014
CIRC ACCESSION NO--AP0120606
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE EFFECTS OF HYPOKINESIA ON THE WORKING CAPACITY OF 6 SUBJECTS WHO PERFORMED VARIOUS MANUAL AIRCRAFT CONTROL ASSIGNMENTS DURING A 100 DAY PERIOD OF BED REST, WITH OR WITHOUT PHYSICAL EXERCISES ON A SPECIAL STAND. THE NEGATIVE EFFECTS OF HYPOKINESIA ON THE PERFORMANCE OF THE SUBJECTS ARE NOTED. ROUTINE CONTROL OPERATIONS REQUIRING INSTRUMENT DIAL SCANNING AND WELL COORINATED PRECISION MOTIONS WERE AFFECTED THE MOST.

UNCLASSIFIED

ZAVIDOVSKAYA, G. I.

SO: JPRS 53378
16 June 71

UDC: 616.895.8-091-02:615.214

SOME PROBLEMS DEALING WITH PATHOMORPHOSIS OF SCHIZOPHRENIA AS RELATED TO ADMINISTRATION OF PSYCHOTROPIC DRUGS

All (psychiatry)

[Article by A.B. Smulevich, F.Ye. Vartanyan, G.I. Zavidovskaya, G.V. Rumyantseva, Institute of Psychiatry, USSR Academy of Medical Sciences, Moscow; Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 5, May 1971, pp 79-83]

Problems dealing with therapeutically determined alteration (pathomorphosis) of clinical manifestations and patterns of development of psychoses considered within the framework of schizophrenia are the subject of numerous investigations pertaining mainly to therapeutic pathomorphosis, as well as to the concept of target symptoms, provocation symptoms, intermediate syndromes, etc. One of the most popular pathogenetic conceptions interpreting the heterogeneity of reactions to drugs is the effort to relate the differences in influence of psychotropic agents to the degree of activity of the pathological process (Petrilowitch; Janzarik; Heinrich, and others). According to this view, pharmacogenic pathomorphosis can occur only during activation of the moving forces of the disease, and is almost never observed with a chronic malignant course or at the stabilization stage. In the latter cases, according to this view (Janzarik; Huber; Kranz) psychotropic drugs have only a symptomatic action, i.e. their influence consists only of reducing manifestations of the disease.

Studies pursued at the Institute of Psychiatry, USSR AMS, are indicative of the existence of some bias in this point of view. And we take the liberty to voice the following positions, but strictly in the nature of hypotheses.

Onset of therapeutic pathomorphosis is possible during rational administration of pharmacological agents not only during a period of exacerbation but also during other phases of the pathological process. However, the nature and severity of therapy-related changes in the clinical findings are related to 1) severity of brain function damage; 2) degree of activity or, on the contrary, stabilization of the process.

To substantiate these positions we had to compare the results of prolonged administration of psychotropic agents to at least three groups of

USSR

ZAVILEVICH, M. L., SHTEFAN, Yu. M., ZHUKOVSKAYA, V. N.

"System of Standard Programs for the "Razdan-2" Computer"

Tr. Vses. N.-i i Eksperim.-konstrukt. In-ta Prodovol'stv. Mashinostr [Works of All-Union Scientific Research and Experimental-Design Institute for Food Machine Building], No 26, 1971, pp 117-151, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V697).

NO ABSTRACT.

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1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--BIOSYNTHESIS OF PENICILLIN IN FERMENTING DEVICES OF VARYING CAPACITIES -U-
AUTHOR-(04)-LEVITVO, N.M., LYKYE, L.M., ZAVILEYSKAYA, G.F., SOYFER, R.D.

COUNTRY OF INFO--USSR

SOURCE--KHIM.-FARM. ZH. 1970, 4(3), 41-5

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BIOSYNTHESIS, PENICILLIN, FERMENTATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0517 STEP NO--UR/0450/70/004/003/0041/0045

CIRC ACCESSION NO--AP0126265

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0126265

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AMT. OF BIOSYNTHESIS OF PENICILLIN WAS SIMILAR IN THE FERMENTERS OF ACPACITIES 300),20,000, AND 50,000 L., BUT IN THE FERMENTERS OF CAPACITY 100 L. BIOSYNTHESIS OF THE ANTIBIOTIC WAS 30PERCENT LOWER. FACILITY: VSES. NAUCH.-ISSLED. INST. ANTIBIOT., MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr. AP0048844 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code UR0459

91041q **Determination of the composition of the reaction mixture in the polymerization of organocyclosiloxanes by means of gel chromatography.** Andrianov, K. A.; Zhdanov, A. A.; Zavin, B. G.; Sunekants, T. I. (Inst. Elementoorg. Soedin., Moscow, USSR). *Vysokomol. Soedin., Ser. A* 1970, 12(1), 20-5 (Russ). The contents of high b.p., low mol. wt. organocyclosiloxanes (present in a mixt. with polymers), e.g., octaphenylcyclotetrasiloxane, hexaphenylcyclotrisiloxane, 1,3,5,7-tetramethyl-1,3,5,7-tetraphenylcyclotetrasiloxane (I), 1,1,5,5-tetramethyl-3,3,7,7-tetraphenylcyclotetrasiloxane (II), 1,1,3,5,7-pentamethyl-3,5,7 - triphenylcyclotetrasiloxane, 1,2,3,3,5,5 - hexamethyl-7,7 - diphenylcyclotetrasiloxane, 1,3,5 - trimethyl - 1,3,5 - triphenylcyclotrisiloxane, heptamethylphenylcyclotetrasiloxane, octamethylcyclotetrasiloxane (III), hexamethyltrisiloxane, ferrocene, hexamethyldisiloxane, and SKTV-1 poly(dimethylsiloxane) rubber (mol. wt. 450,000) were studied by gel chromatog. The distribution factors (K_d) were calcd. from elution vols. (V_e) (C_6H_6 eluent). The K_d and V_e were inversely proportional to the mol. wt., e.g., I and II had identical V_e and K_d. Elution of SKTV-1 and III on a 96:4 styrene-divinylbenzene copolymer gave satisfactory results and was highly reproducible. A good correlation was obtained between gel chromatog. and gravimetric anal. of III. A ratio between gel chromatographic peaks gave a good indication of monomer consumption during polymn.

CKJR

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REEL/FRAME
19800611

USSR

UDC 539.293:538.632

ZAVISTANAVICHYUTE, V., REPSHAS, K.

"Electron Thermomagnetic Effect in Germanium"

Vil'nyus, Litovskiy Fizicheskiy Sbornik, Vol XIII, No 2, 1973, pp 255-259

Abstract: An experimental study was made of the emf occurring in samples made of n-and p-type germanium at room temperature under the simultaneous effect of microwaves and an external magnetic field. A qualitative explanation is offered for the causes of this emf.

Experimental curves showing the absolute magnitude of the emf as a function of the intensity of the magnetic field at various microwave powers are given. The signs of the emf are opposite for the n and p germanium samples. In weak magnetic fields a significant increase in the emf is observed with an increase in the magnetic field intensity, and in stronger fields the growth rate of the emf decreases. This is especially noticeable in p-type germanium. The Hall effect is used in explaining the observed phenomena.

1/1

USSR

UDC 621.373.826:772.99

BURYAK, G. V., ZAVITNEVICH, Yu. V., MIROVITSKIY, D. I., NAZAROV, V. L., and SAMSONOV, G. A.

"Some Holographic Investigations of Light Dispersion With Models"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 323-327 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D417)

Translation: A holographic imitator of optical and infrared electronic systems, designed for studying the peculiarities of functional connections and set units, radio lines, and processes and phenomena occurring in radio systems, is described. The imitator contains a laser, a set of holographic or spatial models, a group of shaping and transforming optical elements, holographic imitators of range nonuniformities, and a receiver block. The peculiarities of the range over which the radio waves are propagated are modeled through a set of functional amplitude, phase, or complex filters. Results are given of the determination of dispersion diagrams for various objects for a signal path containing nonuniformities. A method is described which measures the dimensions of the object and the distance to it by forming a three-beam diagram of the radiation in which the direction of two beams are fixed while the third performs angular scanning to sense the contour of the investigated ob-

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USSR

UDC 632.95

NEL'NIKOV, N. N., SOKOLOVA, YE. M., TRUNOV, P. P., VOLODKOVICH, S. D., DYESHAKOVA, G. M., GOLYSHIN, N. M., ABELENTSEV, V. I., UMANETS, N. S., PEDOSEYENKO, L. G., ZAIKIN, B. A., DYUMAYEVSTOV, N. G., VISHEVETSKAYA, A. M., ORLOV, S. I., ZAVIZION, A. P., and TALASH, A. I.

"Polycarbazin"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 95-104 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N503 by T. A. Belyayeva)

Translation: The effectiveness of polycarbazin (I) on apple scab and grape-vine mildew equals that of zineb (II) and polyram-combi, while on cherry-fruit gray rot it equals Bordeaux liquid (III) (1 percent), but is ahead of II. I equals II and III for Clasterosporium infection of the cherry plum and tomato macrosporiosis. The decisive factor which determine the length of action of I is precipitation, which washes thepreparation off plants.

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UDC 632.95

USSR

ORLOV, S. I., ZAVIZION, L. P., and PYATNOVA, Yu. B.

"Determination of Admixtures in Diothiocarbamate Derivatives by Thin-Layer Chromatography"

V sb. Khim. sredstva zashchity rast. (Chemical Protection of Plants -- collection of works), No 3, Moscow, 1973, pp 136-138 (from RZh-Khimiya, No 22, 25 Nov 73, Abstract No 22N551 by G. A. Kosminskaya)

Translation: To identify ethylenedithiocarbamate (EDTC) derivatives by thin-layer chromatography, silicic acid was used as a sorbent and EtOH+$ChCl_3$(1:16.5) as solvents to separate the components. The EDTC derivatives contained ethylenethiourea, ethylenethiuram-monosulfide, ethylenethiuram-disulfide, S, and 2 unidentified substances. The admixtures detected were of the original substance - NH_4 salt of EDTC.

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UDC 547.26'118

USSR

ZAVLIN, P. M. D'YAKONOV, A. N., AL'BITSKAYA, V. M., and BABKINA, E. I., Leningrad Institute of Cinematographic Engineers

"Reaction of Ditioesters of Cyclohexylphosphonous and Thiophosphonic Acids With Decyl Alcohol"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 12, Dec 73, p 2788

Abstract: Heating S-phenyl-SObenzylcyclohexyldithiophosphonite or its trithio homolog with decyl alcohol at 210° for 6 hrs yields the respective thiophenol and O-decyl-S-benzylcyclohexylthiophosphonite. When S-heptyl-S-benzylcyclohexyldithio(trithio)phosphonite is heated with decyl alcohol, the products are heptylmercaptain and O-decyl-S-benzylcyclohexylthiophosphonite.

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UDC 547.26'118

USSR

ZAVLIN, P. M., D'YAKONOV, A. N., AL'BITSKAYA, V. M., and BABKINA, E. I.,
Leningrad Institute of Cinematographic Engineers

"Reaction of Nonsymmetric Diesters of Phosphonous Acids With Nucleophilic Reagents"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 7, Jul 73, p 1651

Abstract: Reactions of nonsymmetric diesters of cyclohexylphosphonous acid with decyl alcohol were studied. In the process of equilibrium transesterification, this equilibrium is shifted in the direction of the low-boiling product. In contrast to the derivatives of phosphonic acids, the phosphonous acids show apparently no effect of the vacant 3d orbitals of tricoordinated phosphorus atom on the direction of transesterification processes.

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UDC 547.26'118

USSR

ZAVILN[redacted], RODNYANSKAYA, E. R., D'YAKONOV, A. I., and AL'BITSKAYA, V. M., Leningrad Institute of Motion-Picture Engineers

"Reaction of Alkylphosphorous Acid Monochlorides With Thioethylene Glycol"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 8, Aug 71, pp 1874-1875

Abstract: In the reaction of alkylphosphorous acid monochlorides with thioethylene glycol in the presence of a hydrogen chloride acceptor -- triethylamine -- first the hydroxy group reacts to give β-mercaptoethyl alkyl phosphites, whose presence in the reaction products is confirmed by IR and PMR spectra. β-Mercaptoethyl alkyl phosphites are converted in the cold to the corresponding 1,3,2-oxathiaphospholane derivatives. The reaction of ethyleneglycolphosphorous acid chloride with thioethylene glycol gives a spiran derivative.

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USSR UDC: 547.26'118.07

SARKISYAN, L. A., KHASKIN, A. N., ZAVLIN, P. M., AYRAPETYAN, S. G., AYVAZYAN, M. K., Leningrad Institute of Motion Picture Engineers

"A Method of Producing Acid Esters of β-Chloroethylphosphorous Acid"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 28, 1970, Soviet Patent No 280474, filed 18 Mar 69, p 25

Abstract: This Author's Certificate introduces: 1. A method of producing acid esters of β-chloroethylphosphorous acid of the general formula

$$\begin{matrix} ClCH_2CH_2-O \\ R-O \end{matrix} \!\!> P \begin{matrix} \nearrow O \\ \searrow H \end{matrix}$$

where R is naphthyl, $-C_6H_4-N\begin{matrix} R_1 \\ R_2 \end{matrix}$, $CH_2CH_2N\begin{matrix} R_1 \\ R_2 \end{matrix}$, R_1 is an alkyl, oxyalkyl, diphenylmethyl, aryl, R_2 is H, an alkyl, oxyalkyl. As a distinguishing feature of the patent, aminophenyl, alkanolamine or hydroxynaphthaline is interacted with ehtyleneglycolphosphorous acid chloride in the presence of hydrogen chloride with subsequent isolation of the [illegible] product by conventional methods. 2. A modification of this method in [illegible] process is carried out in an organic solvent such as ether. 3. A modification [illegible] in which the process is carried [illegible] ing to 150° [illegible].

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1/2 012 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--INTERACTION OF PYROCATECHOL PHOSPHORUS ACID CHLORIDE WITH AMINO ALCOHOLS AND AMINOPHENOLS -U-

AUTHOR-(03)-KHASKIN, A.N., ZAVLIN, P.M., IONIN, B.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2), 298-300

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PYROCATECHOL, PHOSPHORUS ACID, CHLORIDE, AMINO ALCOHOL, HETEROCYCLIC BASE COMPOUND, ORGANIC PHOSPHORUS COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0817 STEP NO--UR/0079/70/040/002/0298/0300

CIRC ACCESSION NO--AP0134550

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134550

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MIXING EQUIMOLAR AMTS. OF HOCH SUB2 CH SUB2 CH SUB2 NH SUB2, ET SUB3 N, AND CATECHYL CYCLOPHOSPHOROCHLORIDITE AT 0-5DEGREES IN ET SUB2 O GAVE ET SUB2 N.HCL AND 72.3PERCENT I (R EQUALS NHCH SUB2 CH SUB2 OH) (II), M. 112-14DEGREES. SIMILARLY WAS PREPD. I (R EQUALS P,HOC SUB6 H SUB4 NH), M. 126-8DEGREES. HOWEVER, WHEN PREPN. OF II WAS ATTEMPTED WITHOUT THE HCL-SCAVENGER THE PRODUCT WAS 81PERCENT 2,AMINOETHYL CATECHYL CYCLOPHOSPHITE (I, R EQUALS OCH SUB2 CH SUB2 NH SUB2); HCL SALT M. 121-2DEGREES. SIMILARLY P,AMINOPHENOL GAVE (I, R EQUALS P,H SUB2 NC SUB6 H SUB4 O); HCL SALT M. 208-9DEGREES. FACILITY: LENINGRAD. INST. KINOINZH., LENINGRAD, USSR.

UNCLASSIFIED

UDC 547.241

USSR

ZAVLIN, P. M., ZAMORA, V. A., and FEDOSEYEVA, A. S., Leningrad Institute of Cinema Engineers

"Thermal Conversion of Unsymmetric Amides of Methylphosphonic Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 2, Feb 71, p 481

Abstract: Investigation of the thermal conversion of unsymmetric amides of methylphosphonic acid showed that a thermal dissociation of the P-N bond takes place with elimination of the group which partakes to a lesser degree in the $p_\pi - d_\pi$ conjugation with vacant d-orbitals of the phosphorus. Heating N-butyl-N'-phenylamide and N-benzyl-N'-phenylamide of phenylphosphonic acid to 250-280° yields aniline and a corresponding phosphorus-containing cyclic diimide. N-p-Chlorophenyl-N'-phenyldiamide of methylphosphonic acid yields p-chloroaniline under similar conditions.

1/1

Organophosphorus Compounds

UDC: 547.183

USSR

KHASKIN, A. N., ZAVLIN, P. M., and IONIN, B. I., Leningrad Institute of Cinema Engineers, Leningrad, Ministry of Culture RSFSR

"Interaction of Catecholphosphorous Acid Chloride With Amino Alcohols and Aminophenols"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 2, Feb 70, pp 298-300

Abstract: The interaction of catecholphosphorous acid chloride with ethanolamine and p-aminophenol both in the presence and in the absence of hydrogen chloride acceptors was studied. It was found that dydroxyethyl(phenyl) amides of catecholphosphorous acid are formed in the presence of hydrogen chloride acceptors and hydrochlorides of aminoethyl(phenyl) esters of catecholphosphorous acid in the absence of hydrogen chloride acceptors.

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UDC: 547.26'118

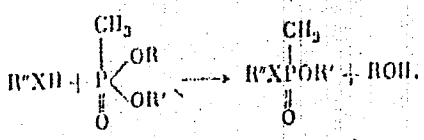
USSR

ZAVLIN, P. M., SHEK, V. M., Leningrad Institute of Motion Picture Engineers

"The Reaction of Asymmetric Diesters of Methylphosphonic Acid With Nucleophilic Reagents"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jun 72, pp 1257-1260

Abstract: Asymmetric alkylated and diaryl esters of methylphosphonic acid reacted with the nucleophilic reagents aniline, hexylamine and decyl alcohol. In the case of asymmetric aryl esters, substitution reactions involving the tetrahedral phosphorus atom were observed in all cases



$R''X = C_6H_5NH,\ C_6H_{13}NH,\ C_{10}H_{21}O.$

In the case of mixed alkyl aryl esters, reactions involving substitution at the tetrahedral phosphorus atom are possible (a and b) as well as substitution reactions involving the tetrahedral carbon atom (c):

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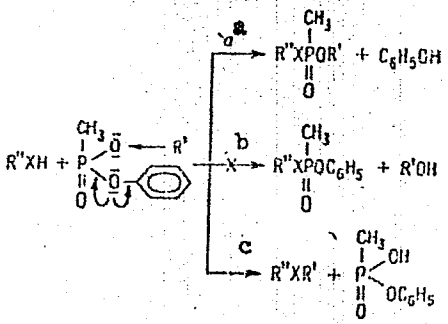
USSR

ZAVLIN, P. M., SHEK, V. M., Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jun 72, pp 1257-1260



Chromatographic analysis of the reaction products showed that the first reaction is favored, with some participation of the third reaction. Thus the aroxy group participates to a lesser extent than alkoxy in p_{π}-d_{π} conjugation with vacant d-orbitals of the phosphorus atom. The introduction of donor substituents in the phenyl ring of the phenoxy group increases the degree of participation of the unshared pair of oxygen electrons of these groups in p_{π}-d_{π} conjugation with the tetrahedral phosphorus atom, while the introduction of acceptor substituents reduces this participation.

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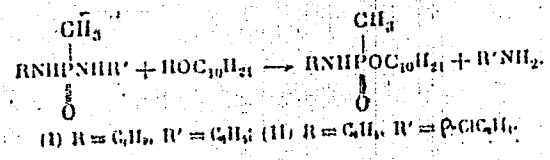
USSR UDC 547.26'118

ZAVLIN, P. M., FEDOSEYEVA, A. S., DUDYAK, N. K., and STUL'NIKOVA, N. A., Leningrad Institute of Motion Picture Engineers

"Nucleophilic Substitution in the Presence of Unsymmetric Diamides of Methylphosphonic Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), Vyp 10, 1972, p 2347

Abstract: Heating of the N-butyl-N'-phenyldiamide (I) and the N-phenyl-N'-P-chlorophenyldiamide (II) of methylphosphonic acid with decyl alcohol at 220-260°C yielded aniline (I) and p-chloraniline, and the corresponding amidoester of methylphosphonic acid according to



(I) R = C_6H_5, R' = C_6H_5; (II) R = C_6H_5, R' = p-ClC_6H_4

The reaction of (I) with decyl alcohol yielded aniline (n_D^{20} 1.5840) and the

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USSR

ZAVLIN, P. M., et al., Zhurnal Obshchey Khimii, Vol 42 (104), Vyp 10, 1972, p 2347

butylamide of decyl methylphosphonate, b.p. 235°C (8 mm), n_D^{20} 1.5080. The reaction of (II) with decyl alcohol yielded p-chloraniline, b.p. 70°C, and the decyl ester anilide of methylphosphonic acid, b. p. 189°C (3 mm). The structure of the initial and end products was verified by IR spectra.

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1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--DENSITY OF TALL OIL PRODUCTS -U-

AUTHOR-(02)-ZAVODCHIKOVA, V.V., ANUCHIN, P.I.

COUNTRY OF INFO--USSR

SOURCE--GIDROLIZ. LESOKHIM. PROM. 1970, 23(2), 8-10

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHEMICAL COMPOSITION, PHYSICAL CHEMISTRY PROPERTY, WOOD CHEMICAL PRODUCT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/2033 STEP NO--UR/0328/70/023/002/0008/0010

CIRC ACCESSION NO--AP0122262

UNCLASSIFIED

2/2 009 UNCLASSIFIED

CIRC ACCESSION NO--AP0122262 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EMPIRICAL FORMULA WAS DERIVED FOR CALCN. OF THE D. OF TALL OILS AS A FUNCTION OF THE TEMP. AND CONTENT OF ROSIN ACIDS (I), AND CONVERSELY, THE CONCN. OF I WAS DETD. WHENEVER THE D. AND TEMP. WERE KNOWN. THE DS. OF TALL OIL PRODUCTS MANUFD. BY THE KOTLASS PULP PAPER MILL AND BRATSK FOREST PRODUCTS ENTERPRISES ARE TABULATED.

UNCLASSIFIED

USSR

KORSUNSKIY, M. I., Academician of the Academy of Sciences of the Kazakh SSR, GENKIN, Ya. Ye., ZAVODINSKIY, V. G., Institute of Nuclear Physics of the Academy of Sciences of the Kazakh SSR, Alma-Ata

"On the Critical Temperature of Superconductivity of Transition Metals of the Yttrium-Palladium Series"

Moscow, Doklady Akademii Nauk SSSR, Vol 204, No 5, Jun 72, pp 1081-1083

Abstract: In a previous paper (Fizika Tverdogo Tela, Vol 13, 1971, p 1241) the authors proposed a model which they call the KLO model from the first letters of the Russian words for "collectivized", "locally binding" and "core" (valence electrons). Successful application of this model to calculation of the phonon spectrum of niobium led the authors to the work covered in this paper, i. e. estimation of the absolute values of the parameters of superconductivity of transition metals in the yttrium-palladium series. Formulas are given for the critical temperature as a function of the parameter of electron-phonon interaction λ, and for λ as a function of the number of collectivized electrons. A comparison with experimental data shows excellent agreement.

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USSR

KORSUNSKIY, M. I., GENKIN, Ya. Ye., ZAVODINSKIY, V. G.

"Theory of Characteristic Energy Losses in Transition Metals"

Leningrad, Fizika Tverdogo Tela, Vol 13, No 10, Oct 71, pp 3043-3048

Abstract: The interaction of quasioptical phonons with collectivized electrons is investigated, the form of the corresponding peak in the spectrum of the characteristic energy losses is discussed, and the effect of crystal deformation on the frequency of the quasioptical oscillations is considered. All these subjects are examined on the basis of a model of collectivized, locally bonded, and shell electrons, proposed specifically to explain the mechanism of the collective excitation of locally bonded electrons forming the electronic sublattice. This model was originally proposed in an earlier article by the above-named authors in the above-named journal (12, 1970, p 3047) when attempts to explain the spectra of the characteristic losses in transition metals using con-

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USSR

KORSUNSKIY, M. I. et al, Fizika Tverdogo Tela, Vol 13, No 10, Oct 71, pp 3043-3048

cepts of plasma oscillations in solids failed. In the present article, the authors begin their analysis with the Hamiltonian of the interaction of the collectivized electron with the lattice of the locally bonded electrons, the exchange effects being neglected. The authors are connected with the Institute of Nuclear Physics, Academy of Sciences, Kaz. SSR, Alma-Ata.

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USSR

GALKIN, A. A., ZAVODSKIY, E. A., Donetsk Physicotechnical Institute, Academy of Sciences of the UkrSSR

"Induction of Magnetic Transformation in Manganese Arsenide by a Strong Magnetic Field"

Leningrad, Fizika Tverdogo Tela, Vol 14, No 6, Jun 72, pp 1752-1755

Abstract: A transition from the ferromagnetic phase α_{FM} to the paramagnetic phase β_{PM} is observed in manganese arsenide at temperature $\Theta_1 \approx 313°K$. It is experimentally found that when $T > \Theta_1$, the transition $\beta_{PM} \rightarrow \alpha_{FM}$ is induced by a considerably higher field than the reverse transition. In the presence of hydrostatic pressure over a wide pressure and temperature range, irreversible $\beta \rightarrow \alpha$ transitions are observed which are induced by a single-acting magnetic pulse field with an intensity of the order of 100,000 oersteds. In order to explain these and other peculiarities of magnetic transformation in MnAs, stable states are computed for various values of H, P, T, and on the basis of the Bean-Rodbell thermodynamic theory. It is concluded that the experimentally observed peculiarities of magnetic transformation at Θ_1 do not contradict the theory.

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1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PHOTOREACTIVATION KINETICS OF ESCHERICHIA COLI B-RWP2 AND B SUBS-1 STRAINS SUCCESSIVELY IRRADIATED WITH ALPHA MINUS AND UV RAYS -U-

AUTHOR--ZAVOLNAYA, YE.S.

COUNTRY OF INFO--USSR

SOURCE--TSITOLOGIYA; 12: 220-32 (FEB 1970)

DATE PUBLISHED----FEB70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ESCHERICHIA COLI, UV RADIATION BIOLOGIC EFFECT, BACTERIA MUTATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0298 STEP NO--UR/9053/70/012/000/0220/0232

CIRC ACCESSION NO--AP0122500

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0122500

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHOTOREACTIVATION KINETICS WAS STUDIED WITH TWO STRAINS OF E. COLI: A RADIORESISTANT MUTANT B-RWP2 AND A HYPERSENSITIVE MUTANT B SUBS-1. THE SPEED OF PHOTOREACTIVATION PROCESS WAS FOUND TO DECREASE WHEN CELLS OF B SUB$-1 WERE PRELIMINARILY IRRADIATED WITH ALPHA RAYS (40 KRAD). HOWEVER, UNDER EQUAL CONDITIONS, THE PHOTOREACTIVATION VELOCITY OF THE STRAIN B-RWP2 INCREASED. AT THE SAME TIME, THE IRREPARABLE COMPONENT OF PHOTOREACTIVATION INCREASED FOR BOTH STRAINS. IT WAS SUPPOSED THAT THE DECREASE IN PHOTOREACTIVATION VELOCITY OF THE STRAIN B SUBS-1 AND THE INCREASE OF IRREPARABLE COMPONENT FOR THE TWO STRAINS MAY BE A SEQUENCE OF A PARTIAL DAMAGE OF PHOTOREACTIVATION SYSTEM BY ALPHA RAYS. THE INCREASE OF PHOTOREACTIVATION VELOCITY AS THE RESULT OF PRELIMINARY ALPHA IRRADIATION FOR THE STRAIN B-RWP2 MAY BE DUE TO THE PRESENCE OF TWO KINDS OF REPAIR MECHANISMS IN THIS STRAIN; PHOTOREACTIVATION AND DARK RESTORATION; THE DARK REPAIR MECHANISM BEING SUPPRESSED WITH ALPHA RAYS, THE CONDITIONS THAT APPEARED IN THE CELL FAVORED A QUICKER PHOTOREACTIVATION. ALTERATIONS IN THE PHOTOREACTIVATION KINETICS OF THE TWO STRAINS FOLLOWING TREATMENT WITH UV ONLY ALLOWED A SUGGESTION THAT PHOTOREACTIVATION ENZYME IS NOT DESTROYED WITH UV. THE INCREASE OF IRREPARABLE COMPONENT IN THIS CASE WAS EXPLAINED BY ACCUMULATION OF NONPHOTOREACTIVABLE DAMAGES. FACILITY: INST. OF CYTOLOGY, LENINGRAD.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203730001-3"

USSR

UDC 579.809.514:612.014.482

ZAVOL'NAYA, YE. S., Laboratory of Space Biology and Laboratory of Radiation Cytology, Institute of Cytology, Academy of Sciences USSR

"Photoreactivation and UV-Sensitivity in Escherichia coli After Alpha-Irradiation"

Leningrad, Tsitologiya, No 1, 1970, pp 64-76

Abstract: Alpha-irradiation decreased the photoreactivation capacity of E. coli (strains B/rWP2, B, and Bs-1), while increasing the UV-sensitivity of the bacteria. The change in UV-sensitivity varied with the inherent radioresistance of the strain, and in some cases with the media on which it was cultured after irradiation. There was no correlation between the magnitude of the decrease in photoreactivation capacity and increase in UV-sensitivity. The injurious effect of alpha-irradiation was dose-dependent, and was pronounced at doses reducing the survival rate five-fold and virtually absent at doses reducing the survival rate by two- or three-fold. These results confirmed the conclusion of an earlier study that only at high doses does alpha-irradiation affect photoreactivation in E. coli.

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USSR

ZAVOROTNYY, V. U., TATARSKIY, V. I. (Institute of the Physics of the Atmosphere, USSR Academy of Sciences

"Quantum Fluctuations of a Photon Flux in Propagation Through Free Space and in the Diffraction Pattern"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, February 1973, pp 453-461

Abstract: Fluctuations in the number of photons, $\nu_{\Sigma T}$, traversing a surface of area Σ during a large time T are considered. The mean values $\langle \nu_{\Sigma T} \rangle$, mean square values $\langle (\Delta \nu_{\Sigma T})^2 \rangle$, and space correlation functions of $\nu_{\Sigma T}$ for a coherent monochromatic source and radiation from a thermal source passing through a narrow filter are found. For light propagating in free space and $\Sigma \gg \lambda^2$ the values obtained coincide with those for photocounts. For a plane wave the transverse correlation radius is of the order of λ if $\ll \lambda^2$ and of the order of $\sqrt{\Sigma}$ if $\Sigma \gg \lambda^2$. The values of $\langle \nu_{\Sigma T} \rangle$ and $\langle (\Delta \nu_{\Sigma T})^2 \rangle$ are calculated in the scalar approximation for the diffraction pattern from an aperture. The transverse correlation radius for $\nu_{\Sigma T}$ in this case is of the order of magnitude of the diffraction lobe; the $\langle (\Delta \nu_{\Sigma T})^2 \rangle / \langle \nu_{\Sigma T} \rangle < 1$ if Σ is small compared to the size of the central diffraction ratio peak.

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USSR

BASOV, N. G., ZAVOROTNYY, S. I., KARKIN, YE. P., NIKITIN, A. I., and ORAYEVSKIY, A. N., Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

"High-Pressure, Pulsed Chemical Laser Using a $D_2+F_2+CO_2$ Mixture"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fizikl, Vol 15, No 3, 5 Feb 72, pp 135-137

Abstract: The idea of obtaining an inverted population by energy transfer from "hot" molecules obtained during a chemical reaction to "cold" molecules was first suggested by the authors with application to chemical lasers. The method of introducing a polyatomic CO_2 molecule into a D_2+F_2 mixture enabled the authors to increase the chemical efficiency and output energy of a pulsed chemical laser approximately 10-fold, and the successful completion of experiments with the mixture at low pressures made it possible for them to undertake experiments at higher reactant pressures. The introduction of CO_2 molecules made it possible to put together a working mixture in which the partial pressures of deuterium and commercially pure fluorine exceeded the

USSR

BASOV, N. G., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 3, 5 Feb 72, pp 135-137

second chain flammability limit of a pure stoichiometric D_2+F_2 mixture. The typical partial pressure ratio of the principal components of the gas mixture -- fluorine, deuterium, carbon dioxide, and helium -- was 1:1 4:11 [sic] respectively, and the total pressure varied within several hundred torr. Experiments were staged in a stainless steel reactor vessel. Initiation of the reaction was effected by the radiation of a linear flash lamp with a brightness temperature of 20,000-25,000° K. It was found that the rate of formation of fluorine atoms during dissociation of fluorine molecules under the action of the radiation of the source being used is insufficient in most cases for the development of oscillation. Therefore, to improve reaction initiation conditions, a readily dissociating fluorine-containing component (molybdenum hexafluoride or other fluorine compound) was added to the mixture. The MoF_6 pressure (several torr) was chosen so that the characteristic chemical reaction time should be about 1-2 microseconds. On a wavelength of about 10.6 microns oscillation as a rule, appears 5 microseconds after the start of the light pulse and lasts 7-10 microseconds. Spikes lasting about 1 microsecond

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USSR

BASOV, N. G., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 3, 5 Feb 72, pp 135-137

are sometimes observed at the top of the pulse. The energy in the radiation pulse varies from 5 to 15 j according to the composition of the gas mixture.

The authors thank A. V. PANKRATOV, V. S. ZUYEV, V. L. TAL'ROZA, P. G. GRIGOR'YEV, L. V. KULAKOV, V. T. GALOCHKIN, V. V. GROMOV, B. L. BOROVICH, and G. K. VASIL'YEV for their assistance in the work.

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UDC 669.046.5

USSR

SOKOLOV, G. A., SERGEYEV, A. G., TSYKIN, L. V., ZAVRAZHIN, V. D., VERKHOVTSEV, E. V., VASIL'YEV, N. Ye., and D'YAKOV, S. I.

"The Effect of Vacuum-Slag and Two-Fold Slag Treatments on Electrical Steel Quality"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS). (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys) Izd-vo "Metallurgiya," No 61, 1970, pp 212-213

Translation of abstract: The effect of various outside-furnace steel treatments on desulfurization, contamination by nonmetallic impurities, and mechanical properties of various steels is considered. Data are given on the improvement of mechanical properties of structural alloy steels. 1 table.

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1/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--EQUILIBRIUMS IN SOLUTIONS OF NITRIC AND PERCHLORIC ACIDS -U-

AUTHOR-(03)-KLYGIN, A.YE., SMIRNOVA, I.D., ZAVRAZHNOVA, O.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(2) 294-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITRIC ACID, PERCHLORIC ACID, AQUEOUS SOLUTION, NMR SPECTRUM, EQUILIBRIUM CONSTANT

PROXY REEL/FRAME--1983/0904 STEP NO--UR/0078/70/015/002/0294/0298

CIRC ACCESSION NO--AP0053820

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203730001-3"

2/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0053828

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EQUIL. OF AQ. HNO SUB3, HCLO SUB4 AND MIXTS. OF HNO SUB3-HCLO SUB4 WERE DETD. BY USING NMR. FOR HNO SUB3, THE EQUIL. CONSTS. (K) AT 0, 25, AND 70DEGREES ARE 3.17 TIMES 10 PRIME NEGATIVE9, 2.36 TIMES 10 PRIME NEGATIVE9, AND 1.46 TIMES 10 PRIME NEGATIVE9, RESP. FOR HCLO SUB4, K IS 2.37 TIMES 10 PRIME NEGATIVE2 AND 2.26 TIMES 10 PRIME NEGATIVE2 AT 0 AND 25DEGREES, RESP. DELTA H AND DELTA S OF ACID DISSOCN. ARE 2.08 TIMES 10 PRIME3 CAL-MOLE AND 46.56 CAL-MOLE DEGREE FOR HNO SUB3 AND 3.02 TIMES 10 PRIME2 CAL-MOLE AND 8.56 CAL-MOLE DEGREE FOR HCLO SUB4, RESP.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--REACTION OF AZO DERIVATIVES OF CHROMOTROPIC ACID WITH PERCHLORIC AND NITRIC ACIDS -U-

AUTHOR-(03)-KLYGIN, A.YE., KOLYADA, N.S., ZAVRAZHNOVA, D.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 384-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AZO COMPOUND, ARSENIC COMPOUND, SULFONIC ACID, NAPHTHALENE, SPECTROPHOTOMETRIC ANALYSIS, COMPLEX COMPOUND, PERCHLORIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1148 STEP NO--UR/0078/70/015/002/0384/0389

CIRC ACCESSION NO--AP0136568

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UNCLASSIFIED PROCESSING DATE--04DEC70

2/2 012

CIRC ACCESSION NO--AP0136568

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTIONS OF HCLO SUB4 AND HNO SUB3 WITH CHROMOTROPIC ACID DERIVS. 2,(2,SULFO,4,NITROPHENYLAZO),1,8,DIHYDROXY, 3,6,NAPHTHALENEDISULFONIC ACID (I), 2,(2,ARSONOPHENYLAZO),1,8, DIHYDROXY(2,SULFOPHENYLAZO),3,6,NAPHTHALENEDISULFONIC ACID (II), 2,7,BIS(2,SULFOPHENYLAZO),1,8,DIHYDROXY,3,6,NAPHTHALENEDISULFONIC (III), OR 2,(2,ARSONOPHENYLAZO),1,8,DIHYDROXY,3,6, NAPHTHALENEDISULFONIC ACID) (IV)) WERE STUDIED SPECTROPHOTOMETRICALLY. IN EACH CASE, UNDISSOCD. ACID MOLS. WERE ADDED TO AZO GROUPS OF I-IV COMPDS. THE MOLAR ABSORPTIVITY (EPSILON) AND COMPLEXING CONSTS. (K SUB1) WERE (COMPD., EPSILON (IN MMU), K) FOR HCLO SUB4 COMPLEXES: SHOWN ON MICROFICHE.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--COMPLEXING OF URANYL AND LANTHANUM IONS WITH ARSENAZO III IN PERCHLORIC ACID SOLUTIONS -U-

AUTHOR-(03)-KLYGIN, A.YE., ZAVRAZHNOVA, D.M., KOLYADA, N.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 739-44

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SPECTOSCOPIC ANALYSIS, METAL COMPLEX COMPOUND, LANTHANUM COMPOUND, URANIUM COMPOUND, PERCHLORIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1611 STEP NO--UR/0078/70/015/003/0739/0744

CIRC ACCESSION NO--AP0112605
UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112605

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECTROSCOPIC STUDY REVEALED THAT UO SUB2 PRIME2 POSITIVE FORM WITH ARSENAZO III (H SUB8 R) TERNARY COMPLEXES (UO SUB2(CLO SUBR)SUB2 H SUB8 R) AND (LA(CLO SUB4)SUB2(H SUB8 R)) PRIME POSITIVE. THESE COMPDS. HAVE COMPLEX FORMATION COSTS. EQUAL TO 3.53 TIMES 10 PRIME3 AND 42.5 RESP., AND, AT 650 MMU, THEY HAVE MOLAR ABSORPTIVITIES 6.67 TIMES 10 PRIME4 AND 6.52 TIMES 10 PRIME4, RESP.

UNCLASSIFIED

USSR

UDC 546.791.6.541.49.546.65.546.137

KLYGIN, A. YE., ZAVRAZHNOVA, D. M., KOLYADA, N. S.

"Complexation of Uranyl and Lanthanum Ions with Arsenazo III in Perchloric Acid Solutions"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 15, No 3, 1970, pp 739-744

Abstract: A spectrophotometric study was made of the complexation of uranyl and lanthanum with arsenazo III in perchloric acid solutions. It was shown that in the system studied ternary complex compounds of composition $UO_2(ClO_4)_2H_8R$ and $La(ClO_4)_2(H_8R)^+$ are formed. These compounds have formation constants $(3.53\pm0.36)\cdot10^3$ and $(4.25\pm0.10)\cdot10^1$ and molar light extinction coefficients $(6.67\pm0.28)\cdot10^4$ and $(6.52\pm0.09)\cdot10^4$ at 650 nanometers, respectively.

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1/2 008 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CONTINUOUS LEVEL MEASUREMENT OF BULK MATERIALS -U-

AUTHOR-(02)-ZAVRAZHNYY, A.I., PRIKHODKO, V.P.

COUNTRY OF INFO--USSR

SOURCE--MEKH. I AVTOMAT. PROIZ. (USSR), NO. 12, P. 17-19, 1969

DATE PUBLISHED-------70

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

TOPIC TAGS--MEASUREMENT, REFRACTORY MATERIAL, POTENTIOMETER, DEPTH INDICATOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1786 STEP NO--UR/0118/70/000/012/0017/0019

CIRC ACCESSION NO--AP0133691

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0133691

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIBES A HOPPER LEVEL GAUGE IN USE IN A REFRACTORY MATERIALS FACTORY WHICH OPERATES SATISFACTORILY WITH MATERIAL HAVING A UNIT SIZE OF UP TO 10 MM AND A MOISTURE CONTENT OF UP TO 12PERCENT AT AMBIENT TEMPERATURES BETWEEN 0 AND 25DEGREESC. IT CONSISTS OF A PROBE, A SUSPENSION SYSTEM, A FAN AND A POTENTIOMETER. THE PROBE COMPRISES TWO LENGTHS OF RUBBERIZED CORD FABRIC PLIES BOLTED TOGETHER AND WITH SOME OF THE CENTRE PLIES REMOVED TO FORM TWO DIAPHRAGMS. A HIGH RESISTANCE WIRE SPIRAL IS WOUND ROUND ONE OF THE DIAPHRAGMS OVER ITS WHOLE LENGTH, AND THE CHANGE IN RESISTANCE IN THE SPIRAL WHEN THE MATERIAL IN THE HOPPER PRESSES THE TWO DIAPHRAGMS TOGETHER ACTS AS THE OUTPUT SIGNAL OF THE GAUGE. THE FAN CREATES A PRESSURE OF 10-15 MM WAT. COL. INSIDE THE PROBE TO MAINTAIN THE SPACE BETWEEN THE DIAPHRAGMS WHEN THEY ARE UNLOADED.

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