USSR

UDC: 536.532

NOVIK, V. K., SAMBURSKIY, A. I., MAGIDIN, S. F., Special Design Office of Biophysical Equipment

"A Method of Determining the Temperature of Rotating Objects Without Making Electrical Contact"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329414, Division G, filed 23 Jun 70, published 9 Feb 72, p 162

Translation: This Author's Certificate introduces a method of determining the temperature of rotating objects without making electrical contact by modulating the parameters of the oscillatory process of a self-synchro oscillator with two heat-sensing elements, transmitting the information through an optical communications channel, and registering the signal by means of a stationary photoreceiver. As a distinguishing feature of the patent, precision is improved by simultaneously determining the period of the oscillator signals modulated by one heat-sensing element, e. g. by a capacitor, and the off-duty factor of the oscillations modulated by the other heat-sensing element, e. g. by a thermocouple, and determining the temperature at two points of the object from the resultant data.

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UDC 621.314.61(088.8)

USSR

SAMCHELEYEV, YU. P., SHEVCHENKO, I.S., ZELENOV, A.B.

"Phase-Shifting Device"

USSR Author's Certificate No 259997, filed 16 Dec 68, published 24 Apr 70 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12B525P)

Translation: A bridge phase-shifting device is proposed, two arms of which are formed by secondary semi-windings of a feed transformer, and the other two by a capacitor and a control element. A counter-series connected source of d-c and a semiconductor diode are used as a control element. The load is connected to the diagonal of the bridge across a supplementary semiconductor diode connected in harmony with the first semiconductor diode. A change in the magnitude of the voltage of the control source of d-c which blocks the semiconductor diode, leads to a change of the equivalent resistance of the bridge arm and to a phase shift of the output voltage. The proposed phase-shifting device assures a measurement range of the output signal phase to 270°. The principal circuit of the device is shown. 1 ill. L.R.

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USSR

FLEROVA, S. A., SAMCHENKO, Yu. I.

"Light Radiation by $BaTiO_3$ Crystals Under Unidimensional Pulse Pressure"

Leningrad, Fizika Tverdogo Tela, Vol 14, No 2, 1972, pp 592-594

Abstract: The authors describe an experiment they performed on $BaTiO_3$ crystals in which the latter emitted light radiation when put in an unbalanced state by the application of mechanical pressure. The evidence thus obtained tends to support conclusions given in an earlier article published in the same journal by Ye. V. Sinyakov, S. A. Flerova, and G. V. Barinov (10, 1968, 529). In the experiment, the mechanical pressure pulses were obtained by the shock of an elastic sphere against a solid hardened cube. The chamber containing the specimen was light-proof except for a light output to an FEU-19 photoelectric amplifier, with the light pulses recorded on an SI-19 oscillograph. The $BaTiO_3$ crystals were grown from a solution in KF and had dimensions of the order of 2X2X0.3 mm. Pressure pulses were always applied along the

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USSR

FLEROVA, S. A. et al, Fizika Tverdogo Tela, Vol 14, No 2, 1972, pp 592-594

/001/ direction, perpendicular to the crystal's major axis, with durations varying from 60 to 600 μs and at an amplitude of 450 kg/cm^2. Oscillograms are shown of the recorded light pulses under pressure pulses of the order of 80 kg/cm^2 and with various durations. The authors are connected with the Dnepropetrovsk State University.

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USSR

UDC 536.664+541.183.12

NEKRYACH, YE. F., GOROKHOVATSKAYA, N. V., SAMCHENKO, Z. A., KURILENKO, O. D.

"Sorption-Thermochemical Study of Hydration of Macroporous KU-23 Sulfocation Exchange Resin"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol XXXVIII, No 6, 1972, pp 581-586

Abstract: The sorption and thermochemical methods were used to study the hydration of macroporous KU-23 sulfocation exchange resin in hydride and four salt forms (Li^+, Na^+, K^+, Ca^{2+}). The thermodynamic functions of the sorbed water were defined on the basis of the data obtained, and study was made of the nature of their variation during the hydration process. On the graphs of the differential entropy, there are three sections corresponding to different hydration mechanisms. The results of the studies are compared with data obtained earlier for the KU-cation exchange resin.

A study was made of the 20° isotherms of the sorption of water vapor taken on a vacuum sorption device with spring-quartz scales, the heats of wetting by water defined in an adiabatic calorimeter and the thermodynamic functions of the water sorbed by the ion forms of the macroporous KU-23 sulfocation exchange resin. The procedure for preparing and performing the measurements was described previously [M. Dubinin, et al., Fiziko-khimicheskiye osnovy protivogazovogo dela, Moscow, 1939; A. V. Dumanskiy, et al., Ukr. khim. zh., No 26, 389, 1960].

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Ion Exchange

USSR

UDC 536.664 + 541.183.12

NEKRYACH, YE. F., GOROKHOVATSKAYA, N. V., SAMCHENKO, Z. A., and KURYLENKO, O. D., Institute of Colloidal Chemistry and Chemistry of Water, Academy of Sciences, UkrSSR

"Hydration Thermodynamics of a Strong Acidic Cation Exchange Resin KU-5"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol 38, No 10, Oct 71, pp 1013-1017

Abstract: Results of sorption-thermochemical determinations and analysis of thermodynamical functions of water adsorbed by the cation exchange resin KU-5 are reported. The K^+, Na^+, Li^+, Ca^{2+}, Mg^{2+}, and Al^{3+} forms of the resin were studied and the data were calculated from sorption and thermochemical determinations carried out at 20^0. It has been established that the graphs of function magnitudes related to the quantity of the adsorbed water reflect the hydration process laws which are connected with the nature of fixed and exchange ions. Analogously to other investigated cation exchange resins, the most informative are the functions $E_a = f(x)$; from them it is possible to get qualitative estimates on the input of various types of interactions to the total hydration energy.

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1/2 017 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--ELECTROTRANSPORT OF SILVER IN MOLTEN ZINC -U-

AUTHOR-(03)-VANYUKOV, A.V., BELASHCHENKO, D.K., SAMEDINOV, U.K.

COUNTRY OF INFO--USSR

SOURCE--FIZ. METAL. METALLOVED. 1970, 29(1), 182-4

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--LIQUID METAL, ZINC, SILVER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0696 STEP NO--UR/0126/70/029/001/0182/0184

CIRC ACCESSION NO--AP0105672

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105672

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. AND CONCN. DEPENDENCES OF THE EFFECTIVE CHARGE OF AG IN A MOLTEN SOLN. OF AG IN ZN WERE STUDIED. THE TESTS WERE CARRIED OUT AT 520, 560, AND 620DEGREES. THE CONTENT OF AG IN THE SPECIMEN WAS 0.003-3.5 AT. PERCENT. THE C.D. WAS 150-180 A.-CM PRIME2. IN THE SOLN. STUDIED, THE EFFECTIVE CHARGE OF AG IN ZN DOES NOT DEPEND EITHER ON THE COMPN. OR THE TEMP. AND IS (1.1 PLUS OR MINUS 0.3)E.

UNCLASSIFIED

USSR UDC 615.779.9

ASHMARIN, I. P., ZHDAN-PUSHKINA, S. M., KOKRYAKOV, V. I., SAMEDOV, A., Sh., and ANTONOVA, S. N., Leningrad State University

"Antibacterial and Antiviral Functions of Basic Cellular Proteins and Prospects for Their Practical Use"

Leningrad, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 4, 1972, pp 502-508

Abstract: After noting the functions of basic proteins in chromatin, ribosomes, lysosomes, etc., the authors review the literature and their own research on the role of these proteins in the mechanism of protection against infection and on their antibiotic activity in vitro and in vivo. Results of studies on the tolerance of animals for the basic proteins following a single or prolonged parenteral administration of various histone fractions are summarized. The use of histones combined with antibacterial and antiviral agents with limited ability to penetrate certain cellular and tissue membranes is regarded as a promising clinical approach. Positive results have been obtained in treating tuberculosis in guinea pigs and mice with isoniazid and histones. The effective doses of isoniazid could be reduced five-fold when combined with certain histone fractions. Histone fractions were also efficacious in the treatment of herpetic keratitis.

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USSR

UDC: 669.15:621.785

BERNSHTEYN, M. L., ZIMI, L. YA., ZAYTOVSKIY, V. A., SAVARI, P. and SAMEDOV, O. V., Moscow Institute of Steel and Alloys

"Inheriting the Thermomechanical Strengthening of 30Kh2GNT Steel"

Sverdlovsk, Fizika metallov i metallovedeniye, Vol 32, No 4, Oct 71, pp 813-818

Abstract: Described is a study of the mechanical properties of 30Kh2GNT steel quenched and tempered following preliminary high-temperature strain hardening with heating the deformed austenite as supercooled. It is shown that repeated quenching following high-temperature mechanical treatment facilitates the inheritance of high mechanical properties. The restoration of the higher properties is the more complete the longer the heating duration of the hot-deformed austenite in the bainite region. The maximum effect is observed when the high-temperature thermomechanical treatment is followed by isothermal decay. The effect of "inheritance" is also observed during repeated quenching following low-temperature thermomechanical treatment with isothermal decay of austenite. The nature of this phenomenon is discussed with regard to the metallographic analysis of the initial austenite grain

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USSR
BERSHTEYN, M. L., et al, Fizika metallov i metallovedeniye, Vol 32, No 4, Oct 71, pp 813-818

in which picric acid has failed to produce an unambiguous etching pattern and has most likely revealed, in addition to large-angle grain boundaries, the boundaries of a substructure. (6 illustrations, 5 bibliographic references)

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1/2 026 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--SUPPLEMENTAL HYDROFINING OF VISCOUS AND HIGHLY VISCOUS OILS FROM BAKU PETROLEUMS -U-

AUTHOR-(03)-KULIYEV, R.SH., SAMEDOVA, F.I., SARKISYAN, V.M.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (5), 22-3

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS

TOPIC TAGS--PETROLEUM DEPOSIT, GEOGRAPHIC LOCATION, FURFURAL, HYDROREFINING, CATALYST, ALUMINUM OXIDE, COBALT, MOLYBDENUM, PETROLEUM DEASPHALTING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1948 STEP NO--UR/0318/70/000/005/0022/0023

CIRC ACCESSION NO--AP0133792

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133792

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OILS, DEASPHALTED AND REFINED WITH FURFURAL, WERE HYDROFINED ON COM. AL SUB2 O SUB3,CO,MO CATALYST AT SPACE VELOCITY 0.5 HR PRIME NEGATIVE1 AND 50 ATM. HYDROFINING AT 350DEGREES GAVE GOOD RESULTS, BUT AT 400DEGREES, A GREAT DECREASE OF VISCOSITY, D., AND FLASH TEMP. OF THE HYDROGENATE WAS PRODUCED. SUPPLEMENTAL TREATMENT BY HYDROFINING YIELDED OILS OF HIGHER QUALITY THAN BY CONTACT REFINING.

UNCLASSIFIED

USSR

UDC 621.357.8(088.8)

SAMETSKIY, B. I., BELOUSOV, V. I., POLYAKOV, A. M., SHOLENTSEV, G. P., KONDRASHKOV, M. P., KUROV, P. YE.

"Solution for Electrochemical Etching of Metals"

USSR Author's Certificate No 308097, filed 7 Apr 69, published 23 Aug 71 (from RZh-Khimiya, No 6 (II), Jun 72, Abstract No 6L286P)

Translation: A solution containing K_2SO_4 is patented for electrochemical etching of metals. It is distinguished by the fact that in order to improve the quality of marking a product made of Cu and its alloys, Na_2CO_3 has been introduced into it. The composition of the solution (in % by weight is as follows): 7.9-8.1% Na_2CO_3, 1.9-2.1 K_2SO_4, and the rest water. Example. When marking with a solution containing 8% Na_2CO_3 by weight, 1.9% K_2SO_4 and the rest water at a voltage of 5 volts on plates made of copper and BRCh-8 bronze, a clear image of the symbols is obtained which is not removed during machining.

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USSR

UDC 632.95

SAMGIN, P. A.

"Comparison of Biological and Chemical Methods of Analysing Residual Quantities of Sodium Trichloroacetate in the Soil"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov i profilakt. zagryazneniya imi produktov pitaniya, kormov i vnesh. sredy (Works of the Second All-Union Conference on Investigation of Residues of Pesticides and Prevention of Pesticide Contamination of Foodstuffs, Fodder and the External Environment), Tallinn, 1971, pp 366-369 (from RZH-Khimiya, No 11, Jun 72, Abstract No 11N452)

Translation: Analyses for determining the concentration of herbicide in the soil were done by the biological method using wheat and oat seedlings, and by the chemical method, by spectrophotometry. The chemical method is considerably more accurate than the biological method, and is easier.

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USSR UDC 539.4.431.3

SAMGIN, V. A., TROYAN, I. A., SEMIROG-ORLIK, V. N., Kiev

"Influence of Processing Technology on Endurance of OT4-1 Sheet Titanium Alloy"

Problemy Prochnosti, No 11, 1971, pp 48-53.

ABSTRACT: Results are presented from studies of the fatigue strength of ten production runs of specimens of OT4-1 sheet titanium alloy in pure, symmetrical bending. It is established that hydraulic sand blasting creates a hardened surface layer, increasing the total fatigue strength, while etching breaks up the surface and thereby decreases the fatigue characteristics. The remaining eight types of processing (various modes of annealing in a vacuum, in argon and in air) have approximately identical influence on fatigue strength of the alloy studied.

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USSR

UDC 539.434

MATOKHNYUK, L. Ye., KASHTALYAN, Yu. A., and SAMGIN, V. A., Kiyev, Institute of the Problems of Strength of the Academy of Sciences of the Ukrainian Soviet Socialist Republic

"Endurance Investigation of the Alloy D16AMO by Acoustic Loading"

Kiyev, Problemy Prochnosti, No 9, Sep 71, pp 116—120

Abstract : Investigation results are presented of the endurance of 0.8 mm-thick specimens of the alloy D16AMO by harmonic loading on an electrodynamic vibration stand and on a special unit where the specimens were subjected to the effect of narrow-band and broad-band high-intensity noise of a siren. The highest value of the endurance limit was found by harmonic loading, the lowest by broad-band acoustic loading. The longevity was calculated by the methods of linear and spectral summations of fatigue damages by all loading conditions. A satisfactory coincidence was found between the experimentally determined and the calculated longevities by the two methods. Twelve formulas, six illustr., five biblio. refs.

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USSR

UDC 547.944/945

SAMIKOV, K., SHAKIROV, R., YUNUSOV, S. Yu., Order of the Red Banner of Labor Institute of the Chemistry of Plant Substances of the Uzbek SSR Academy of Sciences

"Alkaloids from Veratrum Lobelianum. Structure of Germinalin"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 6, 1971, pp 790-793

Abstract: A study was made of the alkaloids of the above-ground part of Veratrum lobelianum grown in Dzhergalan. The bases were extracted from the plant gathered at the beginning of vegetation by the usual chloroform method. The procedure is presented for obtaining a base with the composition $C_{39}H_{61}O_{12}N$ with a melting point of 156-158° from the benzene-ethanol eluate of the fraction with pH 8.0-6.6 identical to the base from the above-ground part of V. lobelianum gathered in Kar-Kara [A. M. Khashimov, et al., KhPS, No 6, 779, 1971]. Veralosin, veralosinine, veratroylzygadenin and the new alkaloid germinalin were also isolated. The new alkaloid was studied by nuclear magnetic resonance and infrared spectra and by acetylation. Its structure was established as 3β(l)-2-methylbutyl, 15α-(d)-2-methyl-2-butyroxy-, 16β acetylgermin.

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USSR UDC: 621.791.7:621.387.143

BASANSKIY, V. V., BALITSKIY, V. M., SAMILOV, V. N., and SUKHENKO, I. V., Electric Welding Institute imeni Ye. O. Paton, Academy of Sciences Ukrainian SSR

"Some Characteristics of Microplasma-Arc Welding of Sheet Materials"

Kiev, Avtomaticheskaya svarka, Sept 71, no 9, pp 40-42

Abstract: A paper on the possibility of controlling the volume of the weldpool using highly concentrated plasma heat sources is presented and the technology of microplasma pulsed-arc welding is detailed. The pulsed arc makes it possible to proportion the heat energy supply to the part being welded. The protective gas is selected so as to afford optimum ionization and maximum plasma jet reduction at the exit from the plasma forming duct and at the anode. Experiments conducted with a specially designed MPU-M microplasma unit on metal with $\delta > 0.3$ mm indicates the possibility of maintaining the welding current component constant. The use of modulated current in the arc enhances the latter's stability with

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BASANSKIY, V. V., et al, Avtomaticheskaya svarka, Sept 71, no 9, pp 40-42

each repeated pulse. The crystallization conditions of the weldpool are practically unaffected. Modulated current specifications are cited in a table. Tests conducted on both the welds and the parent metal of VT1-OM alloy show the same mechanical properties in both.

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USSR

UDC: 661.143

TVERDOKHLEB, I. G., SAMINSKIY, L. A., ZAYDEL', I. N., KUCHEROV, V. G.

"A Photochemical Method of Making Fine-Structured Screens With the Use of Centrifuging"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collected Scientific Works of the All-Union Scientific Research Institute of Phosphors and Extra Pure Materials), 1971, vyp. 5, pp 119-124 (from RZh-Khimiya, No 7, Apr 72, Abstract No 7L179)

Translation: The paper presents the results of a study of fine-structured screens made by photographic exposure of coatings deposited by centrifuging from a suspension of a luminescent composition in a solution of surface-active agent with subsequent application of an organic film of acrylate lacquer by using centrifugal forces before aluminizing. The surface-active agent and organic film are removed from the screen by heating in air. The method ensures a higher technological yield and improves the resolution of the screens as compared with the conventional method of making screens. The method can be readily mechanized and shortens the duration of the technological processes. The procedure can be recommended for use in serial production. Bibl. 5.

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1/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--SYNTHESIS OF POLYLYSINE IN THE CELL FREE SYSTEM FROM E. COLI -U-

AUTHOR-(04)-BRESLER, S.YE, GRAYEVSKAYA, R.A., MERENAA, L.A., SANINSKIY, YE.M.

COUNTRY OF INFO--USSR

SOURCE--MOLEKULYARNAYA BIOLOGIYA, 1970, VOL 4, NR 2, PP 190-200

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ESCHERICHIA COLI, BIOCHEMISTRY, RIBOSOME

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0098 STEP NO--UR/0463/70/004/002/0190/0200

CIRC ACCESSION NO--AP0103778

UNCLASSIFIED

2/2 018 UNCLASSIFIED

CIRC ACCESSION NO--AP0103778 PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYA DIRECTED SYNTHESIS OF POLYLYSINE IN THE CELL FREE SYSTEM FROM E. COLI WAS STUDIED. IT HAS BEEN SHOWN THAT THE MOLECULAR WEIGHT DISTRIBUTION OF THE SYNTHESIZED PRODUCTS IS INDEPENDENT ON INCUBATION TIME AND THE TOTAL NUMBER OF POLYLYSINE CHAINS EXCEEDS THE NUMBER OF RIBOSOMES IN THE INCUBATION MIXTURE. IT MEANS THAT IN THE COURSE OF THE REACTION A CHAIN TERMINATION MECHANISM OF UNKNOWN ORIGIN IS INVOLVED. THIS LEADS TO THE DISSOCIATION OF ACTIVE RIBOSOME COMPLEX AND RELEASE OF THE POLYLYSYL-TRNA WHICH IS INACTIVE IN THE DISPLACEMENT REACTION WITH PUROMYCIN. AFTER THAT THE INITIATION OF A NEW CHAIN ON A FREE RIBOSOME TAKES PLACE. DUE TO THIS THE TIME OF INDIVIDUAL CHAIN GROWTH IS SMALL AS COMPARED TO THE FULL INCUBATION TIME AND THE CHAINS ARE SHORT. THE OVERALL KINETICS OF POLYLYSINE SYNTHESIS REFLECTS KINETICS OF INITIATION OF NEW CHAINS RATHER THAN THAT OF INDIVIDUAL CHAINS GROWTH. THE RATE OF INITIATION DECREASES GRADUALLY WITH THE TIME OF INCUBATION AND CAN BE PARTIALLY RESTORED AFTER NEW ADDITION OF POLYA, ATP, GTP, TRNA.

UNCLASSIFIED

USSR

UDC 547.26'118:541.124

PUDOVIK, A. N., CHERKASOV, R. A., KUTYREV, G. A., SAMITOV, YU. YU., MUSINA, A. A., GOL'DFARB, E. I., Kazan' State University imeni V. I. Ul'yanov-Lenin, Kazan, Ministry of Higher and Secondary Specialized Education RSFSR

"Reactivity of Phosphorus Dithioacids in Reactions With Acrylonitrile"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70, pp 1982-1988

Abstract: This paper is concerned with the effect of substituents A and B in phosphorus dithioacids of the type ADP(S)SH on reaction rates with 1,3-conjugated reagents such as acrylonitrile. It was shown by means of kinetic measurements and differential-thermal analysis that the reactivity of phosphorus dithioacids with acrylonitrile increases in the order dithiophosphinates, dithiophosphonates, and dithiophosphates. A linear correlation lg k to the total values of substituents $\Sigma\sigma_i$ was determined. Through the use of NMR (P^{31}) spectroscopy, it was found that reactivity of

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USSR

PUDOVIK, A. N., et al, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70, pp 1982-1988

dithioacids increases with increase in the total number of electrons in the d orbitals of the phosphorus atom. It was also determined that the dominant role of the effect of the substituent conjugation at the dithioacid phosphorus atom in the transitional state is determined by the reactivity of dithioacids of the phosphate and phosphonate structures.

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USSR

UDC 547.26'118

NESTEROV, L. V., KESSEL', A. Ya., SAMITOV, Yu. Yu., KUSINA, A. A. Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR, and Kazan State University imeni V. I. Ul'yanov Lenin

"Nucleophilicity of the Phosphoryl and Thiophosphoryl Groups"

Leningrad, Zhurnal Obshchei Khimii, Vol 40, No 6, Jun 70, pp 1237-1241

Abstract: A series of compounds of the form $CH_3P(S)XY$ was synthesized. All were alkylated by equivalent amounts of triethyloxonium borofluoride in methylene chloride. Their chemical shifts of the P-bonded methyl group protons exhibited a critical range beyond which no alkylation reaction took place. It was found that the methyl protons in the methylphosphonic acid derivatives are shielded more than those of the corresponding methylthiophonic acid derivatives, due to the greater tendency of the P→O bond to reverse coordination.

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USSR

UDC 541.63:543.422.25:547.879

SAMITOV, Yu. Yu., TAZEYEVA, N. K., CHADAYEVA, N. A., and KAMAY, G. Kh. (deceased), Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR, Kazan'

"The Configuration and Conformation of Substituted 1,3,2-Dioxaarsenanes"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 4, Apr 73, pp 457-463

Abstract: On the basis of paramagnetic resonance spectra of high resolution, the configuration and conformation of ten 1,3,2-dioxaarsenanes substituted in positions 2,4, and 5 were studied. The data obtained indicated inversion of the screening constants of protons in positions 4,6, and 5 and of methyls in position 5, an axial location of the bonds As-Cl and As-OR, an equatorial location of 4-Me, and a chair conformation of the six-membered heterocycle. The anisotropies of diamagnetic susceptibility ($\Delta\chi_{As-O} = 4.67 \times 10^{-6}$ and $\Delta\chi_{As-Cl} = -5.13 \times 10^{-6}$ $cm^3 \cdot mole^{-1}$ in the dipole approximation; $\Delta\chi_{As-O} = 0.9 \times 10^{-6}$ and $\Delta\chi_{As-Cl} = -6.8 \times 10^{-6}$ $cm^3 \cdot mole^{-1}$ in the non-dipole approximation) were estimated for the first time. By applying the R-factor method, a cyclic torsion angle $\psi = 58°$ was found for 2-chloro-1,3,2-diaxaarsenane. A study of the specific influence on the position of the resonance lines of the

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USSR

SAMITOV, Yu. Yu., et al., Khimiya Geterotsiklicheskikh Soyedineniy, No 4, Apr 73, pp 457-463

aromatic solvent on transition from CCl_4 to PhH confirmed the conclusions made on the conformation of the ring and of the substituents in it.

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USSR

UDC 547.26'118

PUDOVIK, A. N., ZIMIN, M. G., SOBANOV, A. A., VINOGRADOV, L. I., and SAMITOV, Yu. Yu., Kazan' State University imeni V. I. Ul'yanov-Lenin

"Reaction of Dialkyl Phosphites With Ethyl Acetoacetate and the Dehydration of Esters of Alpha-hydroxyalkylphosphonic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 10, 1972, pp 2167-2174

Abstract: As a result of the reaction of dimethyl, di-n-propyl, diisopropyl, di-n-butyl phosphites and the partial ethyl ester of phenylphosphorous acid with ethyl acetoacetate in the presence of diethylamine, dialkyl alpha--hydroxy-beta-carbethoxyisopropylphosphonates and the ethyl ester of alpha-hydroxy-beta-carbethoxyphenylisopropylphosphonic acid were formed. The IR and PMR (Proton Magnetic Resonance) spectra of the products were studied and constants recorded. The PMR spectrum of the diethyl ester showed that it had two nonequivalent hydrogen atoms at the beta carbon, said to be due to an internal hydrogen bond. The concentration dependence of the IR spectrum of this compound was reported to indicate intermolecular bonds between the phosphorus-oxygen double bond and the hydroxyl group in the solid state and concentrated solutions. This was confirmed by ebulloscopy and cryoscopy. On heating the esters with a catalytic amount

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PUDOVIK, A. N., et al., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 10, 1972, pp 2167-2174

of piperidine or sodium alkoxide they were dehydrated to dialkyl alpha--methyl-beta-carbethoxyvinylphosphonates. The capacity for this dehydration depends on the presence of a mobile methylene group. Beta-dialkylphospho--beta-butyrolactone was also formed as an impurity from more vigorous thermal action, but could be converted to the vinyl ester by heating with ethanol in the presence of sodium ethoxide. The dehydration was also carried out by heating in the presence of sodium carbonate.

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USSR

UDC 541.63:547.1'118

SHAGIDULLIN, R. R., SAMITOV, YU. YU., MYKHAMETOV, F. S., and RIZPOLOZHENSKIY, N. I., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Acad. Sc. USSR

"Stereochemistry of Organophosphorus Compounds. 1 Communication. Configuration and Conformations of 2-Substituted Oxaphospholanols-3"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 7, Jul 72, pp 1604-1612

Abstract: In continuation of their studies, the reaction of diacid chlorides of phosphorous, amidophosphorous, and alkyl(aryl)phosphonous acids with diacetone alcohol in presence of triethylamine was investigated. In two cases of the reaction of the diacid chlorides of diethylamidophosphorous and phenylphosphonous acids with diacetone alcohol two pairs of products were isolated with sharp melting points 125-126° and 118-119° for one pair, and 135-136° and 164-165° for the other pair. Analytical data showed these pairs to have identical composition. Analysis of IR and NMR spectra showed them to be configurational isomers of

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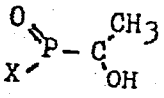
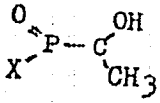
USSR

SHAGIDULLIN, R. R., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 7, Jul 72, pp 1604-1612



and



α-Hydroxylphosphoryl compounds with open chains exist as rotational isomers stabilized by intramolecular H-bond with the oxygen of the phosphoryl group or the heteroatom of the ether group.

2/2

USSR

UDC 542.91:547.1'118

MUKHAMETOV, F. S., RIZPOLOZHENSKIY, and SAMITOV, YU. YU., Institute of Organic and Physical Chemistry imeni A. YE. Arbuzov, USSR Academy of Sciences

"Reactions of Keto-Alcohols with Organophosphorus Compounds. 6. Reaction Between β-Keto-alcohols and Phosphorodichlorides"

Moscow, Izvestiya Akad. Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 72, pp 72-78

Abstract: Reactions between the keto-alcohols and the phosphorodichlorides have occupied several study groups in the past three years; however, the control of the phosphorus component during the reaction with the use of infrared microscopy has proved difficult.

The authors undertook control using the nuclear-magnetic-resonance P^{31} method, in the reaction between diacetone and β-acetoethyl alcohols with phenyldichlorophosphine.

The five-stage character of the reaction was clearly confirmed (reported earlier by B. A. ARBUZOV eta al).

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1/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--CONFIGURATIONS AND CONFORMATIONS OF SUBSTITUTED OXETANES -U-

AUTHOR-(03)-SAMITOV, YU.YU., BOGATSKIY, A.V., FILIP, G.A.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 192(1), 138-41

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--STEREOCHEMISTRY, ISOMER, PROTON MAGNETIC RESONANCE, BUTANE, PROPANE, ORGANIC OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1877 STEP NO--UR/0020/70/192/001/0138/0141

CIRC ACCESSION NO--AT0132139

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

2/2 009

CIRC ACCESSION NO--AT0132139

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PMR SPECTRA WERE SHOWN FOR 2,METHYLOXETANE (I), 2,3,DIMETHYLOXETANE (II), AND 2,METHYL,3,ISOBUTLOXETANE (III) STEREOISOMERS. IT WAS CONCLUDED THAT I EXISTS WITH SOME STABILIZATION OF THE NONPLANAR FORM OWING TO EXISTENCE OF ECLIPSED INTERACTIONS IN THE PLANAR FORM; SINCE THERE IS ALSO A COMPETITION BETWEEN THE SADDLE FORMS WITH VARYING DEGREE OF ANGLE DISTORTION, IT WAS CONCLUDED THAT I HAS PROBABLY THE INTERMEDIATE SADDLE CONFORMATION WITH ABOUT A 150DEGREE ANGLE. IN II THE STABLEST FORM IS THE TRANS ISOMER WITH A SADDLE ANGLE OF 150DEGREES. THE LOWER BOILING ISOMER OF II EXISTS LONGER IN THE DIPSEUDOEQUATORIAL FORM OF DEEPER SADDLE CONFORMATION AND MUST BE THE TRANS ISOMER. THE PSEUDOEQUATORIAL H ATOM IS SHIELDED MORE THAN IS THE PSEUDOXIAL PROTON IN THE CASE OF THE LOWER BOILING ISOMERS OF II AND III; THE SPECTRA OF THE HIGH BOILING ISOMERS OF II AND III INDICATE EQUIVALENCE OF PROTONS H SUBA AND H SUBB, POSSIBLE ONLY FOR THE CIS ISOMERS. FACILITY: INST. ORG. FIZ. KHIM., KAZAN, USSR.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--SOLVENT EFFECT ON SPIN SPIN COUPLING CONSTANTS IN PMR SPECTRA OF ORGANOPHOSPHORUS COMPOUNDS CONTAINING A P-O GROUP. I. GEMINAL CONSTANTS

AUTHOR-(05)-VINOGRADOV, L.I., SAMITOV, YU.YU., KESSEL, A.YA., NESTEROV, L.V., MARDANOVA, V.B.

COUNTRY OF INFO--USSR

SOURCE--TEOR. EKSP. KHIM. 1970, 6(1), 103-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SOLVENT ACTION, MAGNETIC RESONANCE, PROTON, SPECTRUM, ORGANIC PHOSPHORUS COMPOUND, DIELECTRIC EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605013/B04 STEP NO--UR/0379/70/006/001/0103/0107

CIRC ACCESSION NO--AP0140345

UNCLASSIFIED

2/2 018 UNCLASSIFIED

CIRC ACCESSION NO--AP0140345 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. J SUBP-C-H CONSTS. WERE MEASURED FOR MEPOCL SUB2, MEPOCLOPH, MEPO(OPH) SUB2, MEP(O)CINET SUB2, AND MEP(O)(NET SUB2)OPH IN 8 ORG. SOLVENTS. CORRELATIONS J SUBP-C-H VS. (EPSILON MINUS 1)-(EPSILON PLUS N PRIME2-2) ARE DISCUSSED, WHERE EPSILON EQUALS DIELEC. CONST. OF SOLVENT. FACILITY: KAZAN. GOSUNIV., KAZAN, USSR.

UNCLASSIFIED

USSR

UDC 542.938 + 661.718.1

RIZPOLOZHENSKIY, N. I., MUKHAMETOV, F. S., and SAMITOV, YU. YU., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Kazan, Academy of Sciences USSR

"Hydrolysis of Oxaphospholanols"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 70, pp 910-912

Abstract: On the basis of proton magnetic resonance spectral analysis, the authors claim that acid hydrolysis of 2-alkoxy-2-keto-3,5,5-trimethyl-1,2-oxaphospholanol-3 occurs with preservation of cyclic structure, yielding 2-hydroxy-2-keto-3,5,5-trimethyl-1,2-oxaphospholene-3. When the reaction is carried out in basic medium, 2-ethyl-2-keto-3,5,5-trimethyl-1,2-oxaphospholanol-3 yields ethyl-(1,3-dihydroxy-1,3-dimethylbutyl)-phosphinic acid.

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USSR

UDC 538.27

VINOGRADOV, L. I., SAMITOV, YU. YU., KESSEL', A. YA., NESTEROV, L. V., and MARDANOVA, V. B., Kazan' State University, Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR, Kazan'

"Effect of Solvent on Spin-Spin Coupling Constants in PMR Spectra of Some Organophosphorus Compounds Containing P=O Group. I. Geminal Constants J_{P-C-H}"

Kiev, Teoreticheskaya i Eksperimental'naya Khimiya, Vol 6, No 1, Jan-Feb 70, pp 103-107

Abstract: A study was made of the effect of nonaromatic and aromatic solvents on the geminal spin-spin coupling constant of P^{31} and H^1 nuclei in CH_3POCl_2, $CH_3POClOPh$, $CH_3PO(OPh)_2$, $CH_3POClN(C_2H_5)_2$ and $CH_3PON(C_2H_5)_2OPh$. There was found to be a linear decrease in J_{P-C-H} with an increase in the electric field of the reaction, with the decrease being sharper in aromatic solvents. It is concluded that a

1/3

USSR

VINOGRADOV, L. I., et al., Teoreticheskaya i Eksperimental'naya Khimiya, Vol 6, No 1, Jan-Feb 70, pp 103-107

positive sign is likeliest for the spin-spin coupling constant. Two possible mechanisms for the spin-spin interaction through the pi-electron system of the aromatic ring are suggested to explain the increase in J_{P-C-H} as Cl atoms are displaced by OPh:

1. The spin-spin interaction results from the pi-electron current induced by the magnetic moment of the nucleus in the aromatic ring, creating a local field on the second nucleus.

2. The spin-spin interaction occurs through the pi-electron system of the aromatic ring according to the mechanism suggested by H. M. McCONNELL for a long-range proton-proton interaction in aromatic systems. This mechanism is apparently realized in the compounds investigated here.

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USSR

VINOGRADOV, L. I., et al., Teoreticheskaya i Eksperimental'naya Khimiya, Vol 6, No 1, Jan-Feb 70, pp 103-107

An explanation is given for some peculiarities in the variation of the reactivity of the studied compounds.

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USSR

UDC 661.718.1:547.642

ARBUZOV, B. A., MAREYEV, YU. M., VINOGRADOVA, V. S., and SAMITOV, YU. YU., Chemical Institute imeni A. M. Butlerov, Kazan' State University imeni V. I. Ul'yanov-Lenin

"Spirophosphoranes Based on Acrolein and Methyl Esters of Ethylene-glycol- and Butyleneglycol-1,3-phosphorous Acid"

Moscow, Doklady Akademii Nauk SSSR, Vol 205, No 4, Aug 72, pp 843-846

Abstract: The reaction of acrolein with cyclic phosphites was studied. Addition of acrolein to the methyl ester of ethyleneglycolphosphorous acid in absolute ether yielded 1,6,9-trioxa-[(5-methoxy)-5-phosphaspiro-(4,4)] 2-nonene, b.p. 55-56°/10^{-3}mm, n_D^{20} 1.4820, d_4^{20} 1.3016. When butyleneglycol-phosphorous acid methyl ester was used, the product was 1,6,10-trioxa-9 methyl-[(5-methoxy)-5-phosphaspiro-(4,5)]-2-decene, b.p. 61-62°/10^{-3} mm, n_D^{20} 1.4780, d_4^{20} 1.2041. Addition of methyl vinyl ketone to the methyl ester of butyleneglycophosphorous acid yielded, after a somewhat slower reaction, 1,6, 10-trioxa-2,9-dimethyl-[(5-methoxy)-5-phosphaspiro-(4,5)]2-decene, b.p. 73-74°/10^{-3} mm, n_D^{20} 1.4745, d_4^{20} 1.1707. The reactions were carried out with exclusion of moisture, under continuous stirring, keeping the temperature below +25°C. The products were found to hydrolyze easily in air but were stable enough to be distilled under high vacuum.

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USSR

UDC: 538.27+541.67+547.341+547.772

SAMITOV, Yu. Yu., GAREYEV, R. D., STABROVSKAYA, L. A., PUDOVIK, A. N.,
Kazan' State University imeni V. I. Ul'yanov-Lenin

"Stereochemistry of Organophosphorus Compounds. II. NMR Spectra, Conformations of 3- and 5-Phosphorylated Δ^1-and Δ^2-Pyrazolines and Angular Correlation $^3J_{PCCH}$"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104) No 6, Jun 72, pp 1227-1235

Abstract: 3-Methyl-3-dialkoxyphosphinyl-5,5-dimethyl- Δ^1- and 3-phenyl-5-methyl-5-dimethoxyphosphinyl- Δ^2-pyrazolines were synthesized. The paramagnetic resonance spectra of 3- and 5-phosphorylated Δ^1- and Δ^2-pyrazolines were studied, and their preferred conformations were determined. The angular correlation was empirically established for the vicinal constant of spin-spin interaction type $^3J_{PCCH} = f(\phi)$ for the case where the carbon atoms in the P-C-C-H fragment have sp^3 hybridization, and where there is no steric hindrance to rotation of the dimethoxyphosphinyl group about the P-C bond. It was established by ultraviolet and infrared spectroscopy that the tetrahedral phosphorus atom falls behind the phenyl group with respect to ability to enter into conjugation.

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USSR

KARAPETYANTS, N. K.; SANKO, S. G. (Rostov-on-Don State University)

"Singular Integral Operators on a Line with a Fractional Linear Shift and the Noether Theory of Operators with Involution"

Yerevan, Izvestiya Akademii Nauk Armyanskoy SSR: Matematika; January-February, 1972; pp 66-77

Abstract: A general scheme of investigation of the operators $A + Q\beta$ with involution $Q(Q^2 = I)$ in Banach spaces is proposed and applied to the singular integral operator $(K\varphi)(x) = a(x)\varphi(x) + b(x)\varphi[\alpha(x)] + c(x)(S\varphi)(x) + d(x)(S\varphi)[\alpha(x)]$,

where $(S\varphi)(x) = \frac{1}{\pi i}\int_{\Gamma} \varphi(t)(t-x)^{-1}\,dt$ and $\alpha(x)$ is a fractional linear shift of the Carleman type: $\alpha[\alpha(x)] = x$. The weight L_p-space is found in which the Noether theory is valid for operator K. The condition for operator K to be Noetherian as well as the formula for the index are found.

The article includes 17 equations. There are 9 bibliographic references.

1/1

AA0040688

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

240614 PRETREATMENT OF STARCH FOR ELECTROPHORESIS is effected by partial hydrolysis with acids such as, e.g. hydrochloric acid in an aqs. suspension and subsequent neutralisation conditioning at a temp. below the gelation temp. and separation of the purified starch from the resulting liquid phase. 18.3.67. as 1141525/28-13, SCHULTZ, P. et al. (Priority: 19.3.66. East Germ. 116584) (25.8.69) Bul. 12/21.3.69. Class 89k, Int. Cl. C 13 1.

AUTHORS: Schultz, P.; Kruger, G.; and Samland, K.

LD 6

19750302

USSR

UDC: 543.51

SHKURDODA, V. F., Candidate of Technical Sciences; SAMOBROD, V. V., ANDRUSENKO, A. A., and DOLYA, V. N., Engineers

"A Manufactured Monopolar Type MKh-7301 Spectrometer"

Moscow, Pribory i sistemy upravleniya, No 6, 1972, pp 42-43

Abstract: The Sumy Plant for Electronic Microscopes has designed a monopolar mass spectrometer, type MKh-7301, for mass production. N. N. Bagrov, A. A. Guslyakov, and A. G. Furmanskiy were the men primarily responsible for the design of the industrial version of this instrument, which was constructed for dealing with problems involving the analysis of residual gases in vacuum systems, gas separation and the determination of leakages in high vacuum, the efficiency of evacuation in systems, the control of residual gases in technical procedures such as vacuum sputtering of thin films, vacuum alloying, and the like. A block diagram and a photograph of the instrument are presented together with a list of its technical characteristics and a sample mass spectrograph of residual gases. The instrument itself is discussed and its theory explained. The device has both automatic and manual scanning, and its resolving power and mass range can be varied within certain limits.

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USSR

UDC 612.744.2

YAKOVLEVA, N. N., KRASNOVA, A. F., LENKOVA, R. I., SAMODANOVA, G. I., and CHAGOVETS, N. R., Biochemistry Sector, Leningrad Research Institute of Physical Culture

"Restoration After Muscular Activity Under Different Temperature Conditions"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, No 4, 1971, pp 556-561

Abstract: Fifteen minutes swimming in water at 32°C produced in rats previously trained (3 months) for this activity a more economical consumption of glycogen, creatine phosphate, and mitochondrial protein, smaller increase in blood and muscle lactate and blood sugar levels, and less intense enzymic activity compared with untrained controls. Moreover, the biochemical changes occurring in the rest period were indistinct or absent (e.g., no supercompensation of glycogen and creatine phosphate content, hypolactacidemia, decrease in cytochrome oxidase activity) in the trained animals. On the other hand, swimming in water at 22° produced far greater biochemical changes in the muscles of the trained rats than swimming in water at an optimum temperature (32°) did in the untrained animals. And during the recovery period the trained rats 1/2

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YAKOVELVA, N. N., et al., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, No 4, 1971, pp 556-561

exhibited marked supercompensation of the glycogen content of the muscles, mitochondrial protein, and creatine phosphate, distinct hypolactacidemia, decrease in muscle lactic acid below the original level, and increased activity of the redox enzymes.

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S

USSR UDC 612.744

SAKODANOVA, G. I., Sector of Biochemistry, Scientific Research Institute of Physical Culture, Leningrad

"Biochemical Changes in Tissues of White Rats During Systematic Muscular Activity"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 56, No 2, 1970, pp 197-203

Abstract: In experiments with rats, biochemical changes in tissues (muscle, liver, heart, blood) were studied after both relatively short and prolonged training. It was determined that prolonged training results in qualitative and quantitative changes in the chemistry of tissues. With long-lasting training, stabilization of substrate level and increased activity of several enzymes were observed (cytochrom oxidase, phosphorylase, and glycogen-synthetase). Regulation of enzymatic activity changes to some extent. The interconversion of J- and D-form of glycogen-synthetase is limited both during muscular activity and at rest. With extensive training, a more rational regulation of the consumption and resynthesis of glycogen is achieved, accompanied by increased aerobic oxidation processes. Body adaptation to muscular activity occurs in two stages. The first stage is characterized by an increase in energy sources, and the second by an increase in enzymatic activity.

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USSR

S

UDC 612.744

SAMODAKOVA, G. I., Sector of Biochemistry, Scientific Research Institute of Physical Culture, Leningrad

"Biochemical Changes in Tissues of White Rats During Systematic Muscular Activity"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 56, No 2, 1970, pp 197-203

Abstract: In experiments with rats, biochemical changes in tissues (muscle, liver, heart, blood) were studied after both relatively short and prolonged training. It was determined that prolonged training results in qualitative and quantitative changes in the chemistry of tissues. With long-lasting training, stabilization of substrate level and increased activity of several enzymes were observed (cytochrom oxidase, phosphorylase, and glycogen-synthetase). Regulation of enzymatic activity changes to some extent. The interconversion of D- and D-form of glycogen-synthetase is limited both during muscular activity and at rest. With extensive training, a more rational regulation of the consumption and resynthesis of glycogen is achieved, accompanied by increased aerobic oxidation processes. Body adaptation to muscular activity occurs in two stages. The first stage is characterized by an increase in energy sources, and the second by an increase in enzymatic activity.

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Acc. Nr: AP0037009 Ref. Code: UR 0239

PRIMARY SOURCE: Fiziologicheskiy Zhurnal SSSR, 1970, Vol 56, Nr 2, pp 198 - 203

BIOCHEMICAL CHANGES IN THE TISSUES OF THE WHITE RAT DEPENDING ON ADAPTATION TO SYSTEMATIC MUSCULAR ACTIVITY

G. I. Samodanova

Dept. of Biochemistry, Physical Culture Res. Institute, Leningrad

Regular training enriches the energy sources and increases the enzymatic activity in muscles, myocardium and liver. Extensive training leads to stabilization of the level of energy sources and to a further increase in enzymatic activity with following changes in its regulation.

Experimental data demonstrate two stages in the body adaptation to muscular work. The increase in the energy sources appears to be more typical for the first stage, and the increase in enzymatic activity (particularly the activity of enzymes involved in aerobic oxydation) — for the second one.

REEL/FRAME 19721941

Extraction and Refining

USSR

UDC 669.3/6.472(02)

DELIMARSKIY, Yu. K., MIKHAYLOV, V. V., and SAMODELOV, A. P., TsNII [Central Scientific Research Institute] of Information and T.-E. I. [Technical and Economic Indicators] of Nonferrous Metallurgy

"Electrochemical Refining of Heavy Nonferrous Metals in Molten Salts"

Elektrokhimicheskoye rafinirovaniye tyazhelykh tsvetnykh metallov v rasplavlennykh solyakh (cf. English above), Moscow, 1971, 151 pp, ill, 93 k. (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1G194K from summary)

Translation of Abstract: The book examines and systematizes methods for the electrochemical refining of heavy nonferrous metals in melts of salts according to the data of Soviet and foreign literature. A survey is given of the purification of crude metals (Sn, Pb, Zn, Cu, Ni, Ag, Bi, Sb, In, Cd, Ga, Ge) by electrochemical, anodic, and cathodic refining methods. Experimental results are given for Sb and Cu for purification by the method of electroslag refining with the superimposition of direct current in a melt of salts. On the basis of the analysis here made the prospects for the utilization of the specific method of refining for purification of the metals under consideration are assessed. The method of cathodic-anodic refining of metals --

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USSR

DELIMARSKIY, Yu. K., et al., Elektrokhimicheskoye rafinirovaniye tyazhelykh tsvetnykh metallov v rasplavlennykh solyakh, Moscow, 1971, 151 pp, ill, 93 K. (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1G194K from summary)

a new trend in metal purification processes -- is covered in greatest detail. The prospects of industrial use of this method for the refining of Sn, Pb-Sn alloys and the efficiency of its use for the purification of Bi, Cu, Zn, Sb, Ag are shown.

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USSR

UDC 621.396.6-181.48

SAMOFALOV, K. G., BUZOVSKIY, O. V., KANEVSKIY, YU. S.

"Selecting the Case for a Number of Multicrystal Integrated Circuits"

Vestn. Kiev. politekhn. in-ta. Ser. avtomatiki i elektropriborostr. (Vestnik of the Kiev Polytechnic Institute. Automation and Electronic Device Construction Series), 1972, No 9, pp 125-127 (from RZh-Radiotekhnika, No 7, Jul 72, Abstract No 7V277)

Translation: A procedure is proposed for selecting the case for a series of multicrystal integrated circuits designed to construct the regular structural circuits of digital computers. There is 1 illustration and a 2-entry bibliography.

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1/2 008 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--ON ERRORS IN SPLENOPORTOGRAPHY -U-

AUTHOR-(02)-SAMOFALOV, V.P., VOROBYEV, A.F.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 2, PP 91-994

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--APLEEN, DIAGNOSTIC METHODS, X RAY TECHNIQUE, X RAY CONTRAST MEDIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1327 STEP NO--UR/0531/70/000/002/0091/0094

CIRC ACCESSION NO--AP0054211

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054211

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE A. A. POLYANTSEV CLINIC OF GENERAL SURGERY FROM NOVEMBER 1956 TO DECEMBER 1968 A TOTAL OF 115 APLENOPORTOGRAPHIES WERE PERFORMED. THE ARTICLE ANALYZES THE MAIN ERRORS COMMITTED DURING SPLENOPORTOGRAPHY. IN 13 CASES ERRORS CAUSED UNSUCCESSFUL INVESTIGATION. NO COMPLICATIONS WERE OBSERVED. ACCORDING TO THE STAGE OF THE INVESTIGATION THERE ARE ERRORS OF INDICATIONS, PREPARATION TO THE INVESTIGATION, PUNCTURE OF THE SPLEEN, ADMINISTRATION OF THE CONTRAST MEDIUM AND ROENTGENOGRAPHY. AMONG THE CAUSES OF UNSUCCESSFUL SPLENOPORTOGRAPHY THE MOST FREQUENT ARE ERRORS COMMITTED DURING PUNCTURE OF THE SPLEEN, ROENTGENOGRAPHY AND ADMINISTRATION OF THE CONTRAST MEDIUM. LEAVING THE NEEDLE IN THE SPLEEN UNTIL THE RESULTS OF SPLENOPORTOGRAPHY ENABLES WHEN NECESSARY TO REPEAT THE ADMINISTRATION OF THE CONTRAST MEDIUM AND THUS PREVENT SOME FAILURES OF THE INVESTIGATION.

UNCLASSIFIED

1/2 043 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--FORCE COOLED SUPERCONDUCTING SYSTEMS -U-

AUTHOR-(04)-KEILIN, V.E., KLIMENKO, E.YU., KOVALEV, I.A., SANOILOV, B.N.

COUNTRY OF INFO--USSR

SOURCE--CRYOGENICS 1970, 10(3), 224-32

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SUPERCONDUCTING MAGNET, CRYOGENIC LIQUID COOLING, CURRENT DENSITY, PRESSURE EFFECT, TRANSITION TEMPERATURE, FLUID FLOW, CRYOGENIC PUMP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1204 STEP NO--UK/0000/70/010/003/0224/0232

CIRC ACCESSION NO--AP0124858
UNCLASSIFIED

2/2 043 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124858

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTS. WITH A SUPERCONDUCTING COIL (60 MM INSIDE DIAM., 160 MM OUTSIDE DIAM., AND 230 MM LONG) WITH FORCED CIRCULATION OF LIQ. HE SHOWED THAT UNDER FORCED CIRCULATION THE SUPERCOND. WAS DESTROYED AT A COIL CURRENT OF SIMILAR TO 500 A, CORRESPONDING TO A FIELD OF SIMILAR TO 15 KOE. HOWEVER, WITH THE COIL IMMERSED IN LIQ. HE, THE SUPERCOND. WAS DESTROYED AT 600-700 A. THE COOLING CAPACITY OF HE INCREASED WITH DECREASING PRESSURE, AND WITH DECREASING DIFFERENCE BETWEEN THE CRIT. TEMP. OF THE SUPERCONDUCTOR (10.2DEGREESK) AND HE TEMP. FORCED COOLED SUPERCONDUCTING SYSTEMS ARE COMPARED WITH TRADITIONAL "POOL" SYSTEMS. A MODEL FOR DETG. THE STABILITY CRITERIA FOR SUPERCONDUCTING CURRENT IS PROPOSED.

FACILITY: I. V. KURCHATOV AT. ENERGY INST., MOSCOW, USSR.

UNCLASSIFIED

1/2 045 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--FORCE COOLED SUPERCONDUCTING SYSTEMS -U-

AUTHOR-(04)-KEILIN, V.E., LKIMENKO, E.LU., KOVALEV, I.A., SAMOILOV, B.N.

COUNTRY OF INFO--USSR

SOURCE--CRYOGENICS, VOL. 10, JUNE 1970, P. 224-232

DATE PUBLISHED----JUN70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SUPERCONDUCTIVITY, CRYOGENIC LIQUID COOLING, CYROGENIC PUMP, FLUID FLOW, CURRENT STABILIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1275 STEP NO--UK/0000/70/010/000/0224/0232

CIRC ACCESSION NO--AP0124926

UNCLASSIFIED

2/2 045 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124926

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FORCE COOLED SUPERCONDUCTING SYSTEMS (FCSS) ARE COMPARED WITH TRADITIONAL 'POOL' SYSTEMS. A MODEL IS PROPOSED TO DETERMINE THE STABILITY CITERIA FOR CURRENT IN FCSS AND SOME RESULTS OF THE ANALYSIS OF THIS MODEL ARE PRESENTED. A FORCE COOLED SUPERCONDUCTING COIL AND THE APPARATUS TO TEST THE COIL, BUILT IN IV KURCHATOV ATOMIC ENERGY INSTITUTE DURING 1968, ARE DESCRIBED. THE RESULTS OF THE TESTS ON THE COIL ARE ALSO PRESENTED. FACILITY: AKADEMIIA NAUK SSSR, INSTITUT ATOMNOI ENERGII, MOSCOW, USSR.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--16OCT70

1/2 012

TITLE--POSSIBLE PREDICTION OF THE AMINO ACID CONTENT IN BACTERIAL PROTEIN USING THE NUCLEOTIDE COMPOSITION OF DNA -U-

AUTHOR-(05)-SAMOILOV, P.M., KOKURINA, N.A., UAROVA, V.N., VOROBYEVA, L.I., GRISHCHENKO, V.M.

COUNTRY OF INFO--USSR

SOURCE--PRIKL. BIOKHIM. MIKROBIOL. 1970, 6(1), 44-7

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BACTERIA, MYCOBACTERIUM, CHEMICAL COMPOSITION, AMINO ACID, NUCLEOTIDE, DNA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0571 STEP NO--UR/0411/70/006/001/0044/0047

CIRC ACCESSION NO--AP0117801

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117801

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE BETWEEN COMPN. OF DNA AND AMINO ACID CONTENT IN BACTERIAL PROTEIN WAS USED FOR PROVING THE POSSIBILITY OF USING PUBLISHED DATA ON DNA COMPN. FOR PREDICTING AMINO ACIDS CONTENT OF THE BACTERIAL PROTEIN. THE NUCLEOTIDE COMPN. OF DNA AND AMINO ACIDS IN PROTEIN OF LACTOBACTERIUM PLANTARUM AND MYCOBACTERIUM LUTEUM WERE STUDIED. SUBSTANTAIL DIFFERENCES IN THE COMPN. OF PROTEINS IN THESE BACTERIA WERE FOUND, ESP. IN THE CASE OF ASPARTIC ACID, PROLINE, ALANINE, VALINE, METHIONINE, TYROSINE, HISTIDINE, AND ARGININE. THE ANALYSES SHOWED THAT THE RELATION BETWEEN THE NUCLEOTIDE COMPN. OF DNA AND AMINO ACIDS CONTENT OF TOTAL BACTERIAL PROTEIN WAS TRUE AND RESPECT TO 9 AMINO ACIDS OUT OF 16 STUDIED (ASPARTIC ACID, SERINE, GLUTAMIC ACID, PROLINE, GLYCINE, METHIONINE, ISOLEUCINE, TYROSINE, AND ARGININE). IN THE CASE OF ASPARTIC ACID, PROLINE, AND METHIONINE THE EXPTL. FOUND DEVIATIONS IN THE CONTENT OF AMINO ACIDS IN PROTEINS OF L. PLANTARUM IN COMPARISON WITH PROTEINS OF M. LUTEUM WERE HIGHER THAN THEORETICAL DEVIATIONS. THE NUCLEOTIDE COMPNS. OF DNA IN L. PLANTARUM AND M. LUTEUM PROVE THAT DNA OF L. PLANTARUM AND M. LUTEUM IS OF AT AND GC TYPE, RESP. THE CONTENT OF METHIONINE IN THE PROTEIN OF L. PLANTARUM WAS 2.7PERCENT AND THIS WAS HIGHER THAN FOR THE PROTEIN OF M. LUTEUM.

FACILITY: INST. BIOCHEM, PHYSIOL MICROORG., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 624.074.4.04:534.13

SAMOILOV, YU. V.

"Evaluation of Approximate Solution Accuracy in Problems of Non-Linear Vibrations of Shallow Shells"

Moscow, Stroitel'naya Mekhanika i Raschet Sooruzheniy, No 6, Jun 71, pp 37-41

Abstract: From an engineering viewpoint the investigation of non-linear vibrations in plates and shells on a system model with one degree of freedom in comparison with other approaches yields large advantages since it permits easy revelation of the characteristic features of design behavior as a whole.

In this work a computer evaluation of approximations, obtained by the method of harmonic balance (HB), is given for an example of free and forced vibrations of a shallow shell with large amplitudes. Use of a computer for analysis of non-linear vibrations of shallow shell type systems made it possible not only to evaluate results obtained earlier by the HB method but also, for concrete parameters, to obtain solutions which describe ultra- and sub-harmonic vibrations and new phase configurations illustrating snap-buckling processes at a low frequency of the disturbing force; to investigate the effect of initial conditions on the vibration mode; to show the nature of change in time, for non-linear forced vibrations, of the resistance force and

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USSR

SAMOILOV, YU. V., Stroitel'naya Mekhanika i Raschet Sooruzheniy, No 6, Jun 71, pp 37-41

the distrubing and reducing forces and, in addition, to show that the HS method gives qualitatively inaccurate results at low frequency and relatively large amplitude of the disturbing force. 9 figures, 11 bibliographical references.

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USSR

UDC 612.633.81+612.822.3

MNUKHINA, R. S., and SAMOILOVA, L. A.

"The Mechanism of the Inhibiting Influence of Aminazin on the Locking Function of the Brain"

Moscow, Doklady Akademii Nauk SSSR, Bol 191, No 1, 1970, pp 253-256

Abstract: The graphs derived from experiments on rabbits with a micromanipulator implanted in the motor area of the brain are described and changes in the conditioned and unconditioned responses with and without aminazin are discussed. Within 15-20 minutes of introduction of aminazin, retardation of rhythm in a previously developed reflex occurs accompanied by prolongation of reaction time, and reductions of potentials. Aminazin blocks the adrenergic components of the reticular formation, lessening excitability and the responsiveness of the reflex activity. Locking of the time element is located at the dendrites. Aminazin acts on the dendrites, influencing the inhibitors of neural functions.

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1/2 033 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--CALCULATION OF THE SHORT WAVE RADIATION FIELD IN THE SCHEME OF GENERAL ATMOSPHERIC CIRCULATION -U-
AUTHOR-(02)-DMITRIYEVAARRAGO, L.R., SAMOILOVA, L.V.

COUNTRY OF INFO--USSR

SOURCE--I AKADEMIIA NAUK SSSR, IZVESTIIA, FIZIKA ATMOSFERY I OKEANA, VOL 6 JAN 1970, P 29-36
DATE PUBLISHED--------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--ATMOSPHERIC CIRCULATION, SHORT WAVE RADIATION, ATMOSPHERIC MODEL, HYDRODYNAMICS, ATMOSPHERIC RADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1909 STEP NO--UR/0362/70/006/000/0029/0036

CIRC ACCESSION NO--AP0108239
UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0108239

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF PROCEDURES FOR CALCULATING THE SHORT WAVE RADIATION FLUXES TO BE INCLUDED IN A HYDRODYNAMIC MODEL OF GENERAL ATMOSPHERIC CIRCULATION. ESTIMATES ARE MADE OF THE ACCURACY OF RADIATION FLUX CALCULATIONS IN VIEW OF THE INCOMPLETE AND INACCURATE INITIAL DATA FOR THE PARAMETERS INVOLVED. SPECIFICALLY, ATTENTION IS GIVEN TO THE INFLUENCE EXERTED ON THE RADIATION FLUX IN THE 0.7 TO 5 MICRON RANGE BY THE ALBEDO OF THE UNDERLYING SURFACE, THE AVERAGING OF SOLAR ZENITH ANGLES, AND LIMITED KNOWLEDGE OF HUMIDITY. CALCULATIONS WERE BASED ON AIRCRAFT SOUNDING DATA AND ON RESULTS OF AEROSTATIC OBSERVATIONS. TABLES AND CURVES ILLUSTRATE THE SPECIFIC EFFECTS OF THE FACTORS CONSIDERED.

UNCLASSIFIED

1/2 045 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--CAVITATION RESISTANCE OF GRAPHITE MATERIALS -U-

AUTHOR-(03)-SAMOKHIN, I.N., SEMENOV, M.YE., VOLIN, V.E.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(3), 44-5

DATE PUBLISHED--------70

SUBJECT AREAS--METHODS AND EQUIPMENT, MATERIALS

TOPIC TAGS--GRAPHITE, CAVITATION, PHYSICS LABORATORY INSTRUMENT, COKE, COAL, ULTRASONIC TEST APPARATUS/(U)UZM45 ULTRASONIC TEST INSTRUMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2098 STEP NO--UR/0136/70/043/003/0044/0045

CIRC ACCESSION NO--AP0125682
UNCLASSIFIED

2/2 045 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125682

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CAVITATION STABILITY WAS DETD. IN TRIPLICATE FOR 8 GRAPHITE SAMPLES (CYLINDERS 15 TIMES 5 MM.) BY USING THE MAGNETOSTRICTION VIBRATOR OF ULTRASONIC APP. UZM-45 AT 20 KHZ FOR 30 MIN WITH CONTINUOUSLY COOLED H SUB2 O. WT. LOSS WAS MEASURED AND CALCD. TO HEIGHT LOSS. THE GREATER THE HOMOGENEITY OF THE SAMPLE IN CONTENT AND NATURE OF COMPONENTS, THE GREATER IS THE CAVITATION STABILITY. THE MOST HOMOGENEOUS GRAPHITE WAS MADE FROM RAW COKE AND COAL CAKE. WITH SAMPLES OF THE SAME COMPN. THE HEIGHT LOSS DECREASED LINEARLY AS COMPRESSIVE STRENGTH INCREASED, BUT FOR DIFFERENT COMPNS. THESE LINES HAD DIFFERENT SLOPES.

UNCLASSIFIED

USSR

UDC 621.3.035.2

SAMOKHIN, I. N., SEMENOV, M. YE. and VOLIN, V. E.

"Resistance of Graphite Materials to Cavitation"

Moscow, Tsvetnyye Metally, No 3, Mar 70, pp 44-45

Abstract: The complex of phenomena occurring within the clearance of a friction pair and the presence of high pressure in it interfere with the assessment of the efficiency of sealing materials in liquid media with respect to resistance which is determined in dry friction and require new testing methods. The present study deals with the cavitation resistance of commercial graphite brands: AG-500 antifriction graphite with various degrees of sealing, GM2 coarse grained graphite, MG-1 fine-grained graphite, and MG-1U graphite with a high content of small fractions, EEG electroerosion graphite, and MPG-6 experimental fine-grained graphite. The tests were carried out on a magnetostriction vibrator of a UZM-45 ultrasonic unit. The resistance of graphites to cavitation was found to depend on the structural homogeneity of the material; thus, the more homogeneous in content and type of components, the higher its resistance to cavitation. MPG-6 graphite made of raw coke and coal tar pitch exhibited the highest homogeneity. The addition of natural graphite as a third component reduces its resistance.

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USSR

UDC 532.526

SAMOKHIN, V. N., Moscow

"Formation of a Plane-Parallel, Symmetric Boundary Layer Under an External Rise in Pressure"

Moscow, Prikladnaya Matematika i Mekhanika, No. 3, May/Jun 72, pp 471-474

Abstract: The formation of a boundary layer on a body which begins to move instantaneously in an incompressible liquid at rest is studied. The existence and uniqueness of the solution of the appropriation boundary value problems for the system of Prandtl equations are proved under certain conditions for a certain time interval $0 \leq t \leq T$ along the entire body in the flow. A method is given for obtaining approximate solutions, and it is shown that they converge. It is noted that this problem was also considered by Blasius but that his method of solving the problem consisted of finding a flow function in the form of an asymptotic series in terms of powers of time.

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1/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--CONSTANT SPEED D.C. MOTOR -U-

AUTHOR-(04)-TIMOFEYEV, B.V., SAMOKHIN, V.P., BOKOVOY, YU.V., KUROCHKIN, YU.M.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 248039

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI NR 23

DATE PUBLISHED--05JAN70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--DIRECT CURRENT, ELECTRIC MOTOR, PATENT, SPEED REGULATOR, TACHOMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/1523 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0121940

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AA0121940

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ILLUSTRATION SHOWN ON MICROFICHE. CONSTANT SPEED D.C. MOTOR IS SIMPLIFIED IN DESIGN. THE POWER TO THE MOTOR (4) IS SUPPLIED FROM AN INVERTOR (1) THROUGH A GENERATOR AND CONTROLLED RECTIFIERS (3). THE SPEED OF THE MOTOR IS CONTROLLED BY PULSES GENERATED IN THE COMPARISON CIRCUIT (9) BALANCING THE SIGNALS FROM THE STANDARD POTENTIOMETER (14) AGAINST THE PULSES OF THE TACHOGENERATOR (5). TYPICALLY FOR THE SPEED CONTROL SYSTEMS A SELFOSCILLATING ARRANGEMENT IS ESTABLISHED.

UNCLASSIFIED

USSR

UDC: 621.373:530.145.6

LYUTOV, V. I., SAMOKHINA, N. V.

"Investigating the Generation Process in CO_2 Lasers With Pulse Excitation"

Elektron. tekhnika. Nauchno-tekhn. sb. Gazorazryadn. pribory (Electronic Engineering, Scientific-technical Collection, Gas Discharge Devices) 1970, No. 3(19), pp 25-27 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3D249)

Translation: Results are given of an experimental investigation of the dynamics of generation development in CO_2 lasers with a powerful excitation pulse. Estimates are made through which the experimentally observed shape of the radiation pulse is qualitatively explained. Author's abstract

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USSR

UDC 669.15.74

SAMOKHVAL, V. V., and VECHER, A. A., Minsk

"Thermodynamic Properties of Hard Al-Mn Alloys"

Moscow, IAN SSSR, Metally, No 2, Mar-Apr 71, pp 75-77

Abstract: The authors earlier demonstrated the possibility of measurement of the thermodynamic properties of aluminum alloys by the emf method using galvanic elements with calcium fluoride as the electrolyte. This method is used in this work to study the thermodynamic properties of the Al-Mn system in the 0-70 at. % Al concentration range at temperatures of 933-1040°K. The integral free Gibbs energy, enthalpy, and entropy of formation of alloys of liquid aluminum and β Mn at 980°K are calculated.

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1/2 033 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--THERMODYNAMIC PROPERTIES OF ALLOYS OF TITANIUM WITH ALUMINUM -U-

AUTHOR-(02)-SAMOKHVAL, V.V., VECHER, A.A.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK BSSR, DOKLADY, VOL. 14, FEB. 1970, P. 119-121.

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--THERMODYNAMIC PROPERTY, TITANIUM ALLOY, ALUMINUM CONTAINING ALLOY, CALCIUM FLUORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0982 STEP NO--UR/0250/70/014/000/0119/0121

CIRC ACCESSION NO--AT0118147

UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0118147

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DERIVATION OF THERMODYNAMIC DATA FOR THE REACTION OF THE FORMATION OF ALLOYS OF TITANIUM WITH ALUMINUM FROM COMPONENTS IN THE COMPOSITION RANGE FROM 0 TO 50 AT. PERCENT ALUMINUM. THESE DATA ARE OBTAINED ON THE BASIS OF MEASUREMENTS OF THE EMF OF GALVANIC CELLS WITH A SOLID ELECTROLYTE (CALCIUM FLUORIDE) IN THE TEMPERATURE RANGE FROM 890 TO 1010 K. THE RESULTS OF THIS STUDY ARE SHOWN TO CONFIRM THE PRESENCE OF ORDERING IN THE COMPOSITION OF TI3AL AND THE EXISTENCE OF A TWO PHASE REGION BETWEEN 12.6 AND 22.4 AT. PERCENT ALUMINUM AT TEMPERATURES IN THE NEIGHBORHOOD OF 660 C. FACILITY: BELORUSSKII GOSUDARSTEVNNYI UNIVERSITET, MINSK, BELOURSSIAN SSR.

UNCLASSIFIED

USSR

UDC: 621.317.75

SAMOKHVALENKO, A. S.

"On a Method of Measuring the Nonlinearity of Phase-Frequency Characteristics on Superhigh Frequencies"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 105-107 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A392)

Translation: Proposed circuits for measuring the nonlinearity of phase-frequency characteristics have the considerable disadvantage of requiring a standard with definitely linear phase-frequency characteristics with controllable slope. Methods based on determining the dispersion of group delay time, and in particular the Nyquist method, are free of this drawback. To improve sensitivity and ensure the required precision, a double frequency conversion method is proposed with simultaneous multiplication of the measured phase difference with the use of a pulse-phase detector, which permits attaining maximum sensitivity when measuring the dispersion of group delay time by the Nyquist method. A block diagram is given together with a description of the operation of an instrument for measuring the nonlinearity of phase-frequency characteristics by the Nyquist method, using a multiplier

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USSR

SAMOKHVALENKO, A. S., Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2, Novosibirsk, 1970, pp 105-107

based on a pulse-phase detector and an integrator. The advantages of instruments designed on this principle over existing instruments are pointed out. E. L.

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1/2 043 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--FERROMAGNETIC SEMICONDUCTOR WITH EXCHANGE INTERACTION VIA CONDUCTION ELECTRONS -U-

AUTHOR-(03)-VONSOVSKIY, S.V., SAMOKHVALOV, A.A., BERDYSHEV, A.A.

COUNTRY OF INFO--USSR

SOURCE--HELV. PHYS. ACTA 1970, 43(1), 9-16

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FERROMAGNETIC MATERIAL, SEMICONDUCTOR CONDUCTIVITY, MAGNETIZATION, CURIE POINT, PRESSURE EFFECT, FERROMAGNETIC RESONANCE, HALL EFFECT, MAGNETORESISTANCE, ELECTRON PARAMAGNETIC RESONANCE, CHARGE EXCHANGE, EUROPIUM COMPOUND, GADOLINIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1139 STEP NO--SZ/0000/70/043/001/0009/0016

CIRC ACCESSION NO--AP0124794

UNCLASSIFIED

2/2 043 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124794

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SINGLE CRYSTALS OF EU SUB0.01 O WERE INVESTIGATED BY MEASURING THE FOLLOWING PROPERTIES: THE MAGNETIZATION AT 177-300DEGREESK WITH FIELDS UP TO 16 KOE BY USE OF VIBRATING MAGNETOMETER, THE SHIFT IN THE CURIE TEMP. UNDER HYDROSTATIC PRESSURE UP TO 11 KILOBARS, PARAMAGNETIC AND FERROMAGNETIC RESONANCES AT 9.5 GHZ, ELEC. COND., HALL EFFECT, AND MAGNETORESISTANCE. THERE ARE INDICATIONS OF EXCHANGE INTERACTIONS VIA COND. ELECTRONS.

FACILITY: INST. METALLPHYS., SVERDLOVSK, USSR.

UNCLASSIFIED

Acc. Nr: AP0040951 Abstracting Service: CHEMICAL ABST. 4-76 Ref. Code: 4R0181

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84770y Exchange narrowing of paramagnetic resonance lines in ferromagnetic compounds of europium(II). Samokhvalov, A. A.; Babushkin, V. S. (Inst. Fiz. Metal., Sverdlovsk, USSR). *Fiz. Tverd. Tela* 1970, 12(1), 13–15 (Russ). Results are given of the measurements of the width of EPR line in ferromagnetic compds. of divalent Eu, namely: EuS, $EuO_{0.7}F_{0.1}$, EuO, and $Eu_{0.06}Gd_{0.04}O$ at 80–500°K. By using EuO as an example, the effect is discussed of linear thermal expansion on the width of EPR line. In terms of the Anderson-Weiss theory and the theory of mol. field, a calcn. was carried out of the values of energies of exchange interaction with the closest and the next to the closest neighbors for the width of exchange-narrowed line of paramagnetic resonance in the above compds. A. Libackyj

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REEL/FRAME
19750690

USSR

UDC 632.95

ASEYEVA, I. V., GORCHARUK, L. G., ALTUKHOV, M. D., and SAMOKHVALOV, A. N.

"Herbicidal Activity of the Butyl Ether of 2,4-D on the Chemical Properties of Plants"

Nauch. dokl. Vysch. shkoly. Biol. n. (Scientific Institute for Higher Education in the Biological Sciences), No 2, 1973, pp 87-90 (from Referativnyy Zhurnal -- Khimiya, No 13(II), 1973, Abstract No 13N526)

Translation: The concentration of total nitrogen and free amino acids in twisted reed grasses increased after treatment with the butyl ester of 2,4-D. The amount of different amino acids changed but the sum of the total amino acids in the protein remained constant. Under the influence of the butyl ester of 2,4-D the concentration of chlorophyll in the reed grasses increased but the co centration of mono- and disaccarides decreased. The concentration of cells in the plants did not change.

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USSR

UDC 547.415.1+547.298.1

TOLKACHEV, V. N., MIROPOL'SKAYA, M. A., and SAMOKHVALOV, G. I., All-Union Vitamin Scientific Research Institute

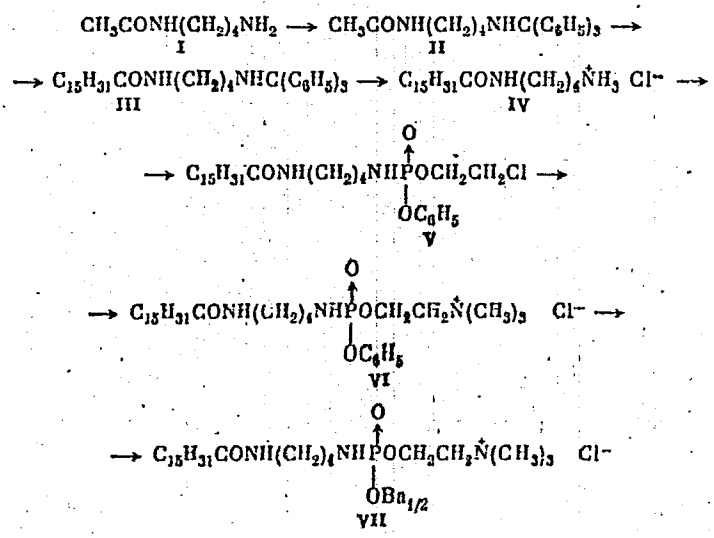
"Lipids With a Phosphamide Bond. II. Synthesis of N-Palmitoyl-N'-(O-β--trimethylammonioethylphosphoryl)putrescine Chloride"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 454-456

Abstract: As a stage in development of a scheme for synthesizing choline phosphamide of monoacetylputrescine, the authors describe synthesis of N-palmitoyl-N'-(O-β-trimethylammonioethylphosphoryl)putrescine chloride, one of the representatives of polyamines which contain the phosphamide bond.

USSR

TOLKACHEV, V. N., et al., Zhurnal Obshchey Khimii, Vol 42(103, No 2, Feb 72, pp 454-456



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USSR

TOLKACHEV, V. N., et al., Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 454-456

The reaction utilizes the monotrityl derivative of putrescine obtained from N-acetylputrescine by a method analogous to that developed for synthesizing subaphilin. Removal of the acetyl radical by alkaline hydrolysis frees one amide group, and subsequent treatment with palmitic acid chloride yields N-palmitoyl-N' -trityl derivative. Removal of the trityl block with 50% acetic acid and condensation of the monopalmitoylputrescine with β-chloroethylphenylphosphoryl chloride and then with trimethylamine leads to a quaternary ammonium salt. Hydrolysis in alkaline conditions yields the end product in the form of a barium salt.

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Free Radicals

USSR

UDC 547.313.2+547.222

AFANAS'YEV, I. B., MAMONTOVA, I. V., and SAMOKHVALOV, G. I., All-Union Scientific Vitamin Research Institute

"Investigation of the Reactions of Free Alkyl Radicals in Liquid Phase by the Method of Competitive Addition. VI. Reactions of sec-Octyl Radicals With Chloromethanes"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 7, No 3, Mar 71, pp 457-463

Abstract: The method of competitive addition of free alkyl radicals was applied to the reactions of 4-octyl radical generated by the reaction of ethyl iodide with hexene-1 at 100° in the liquid phase. Relative constants for the rate of splitting the hydrogen atom (k_7/k_3) from methylene chloride (0.0062), chloroform (0.24), ethyl iodide (0.019), and hexene-1 (0.013) were determined, as well as the rates of chlorine (k_8/k_3) being split off from chloroform (0.055) and carbon tetrachloride (23.3). The k_3 unit represents the constant of the rate of the iodine atom splitting from ethyl iodide. On the basis of the data obtained the constants of chain transfer in the reactions of above compounds with hexene-1 have been computed.

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1/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--NEW SYNTHESIS OF N ACETYLNEURAMINIC ACID -U-

AUTHOR-(03)-MIRZAYANOVA, G.I., DAVYDOVA, L.P., SAMOKHVALOV, G.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 693-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AMINO ACID, AMIDE, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0629 STEP NO--UR/0039/70/040/003/0693/0697

CIRC ACCESSION NO--AP0126168

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0128168
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SHOWN ON MICROFICHE.
FACILITY: VSES. NAUCH.-ISSLED. VITAM. INST., MOSCOW, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--KINETICS OF THE OXIDATION AND STABILIZATION OF POLYUNSATURATED COMPOUNDS. II. AUTOXIDATION OF VITAMIN 1 ACETATE IN THE SOLID STATE -U-

AUTHOR-(03)-FINKELSHTEYN, YE.I., KOZLOV, E.I., SAMOKHVALOV, G.I.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(1), 71-4

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VITAMIN, OXIDATION, SPECTROPHOTOMETRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1648 STEP NO--UR/0195/70/011/001/0071/0074

CIRC ACCESSION NO--AP0101703

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0101703

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETICS OF OXIDN. OF 1 MU THIN VITAMIN A ACETATE FILMS BY ATM. O AT 10, 10, AND 25DEGREES WAS STUDIED SPECTROPHOTOMETRICALLY. THE SOLID STATE OXIDN. PROCEEDS FASTER THAN OXIDN. IN THE LIQ. PHASE. FREE RADICAL SCAVANGERS INHIBIT THE OXIDN. ACTIVATION ENERGY OF THE REACTION IS 28 KCAL-MOLE. THE OXIDN. IS LIMITED BY MOL. MOBILITY IN THE SOLID STATE. FACILITY: VSES. NAUCH. ISSLED. VITAM. INST., MOSCOW, USSR.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT7(

TITLE--SYNTHESIS AND PROPERTIES OF GAMMA (S-(6,MERCAPTOPURYL) ALPHA BENZYL N BENZYLOXYCARBONYL GLUTAMIC ACID AND GAMMA (9,(6,METHYLTHIOPURYL) ALPH/

AUTHOR-(03)-VEYNBERG, A.YA., GRACHEVA, I.N., SAMOKHVALOV, G.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2), 484-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC ACID, GLUTAMIC ACID, BENZENE DERIVATIVE, CARBONYL COMPOUND, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/2016 STEP NO--UR/0079/70/040/002/0484/0487

CIRC ACCESSION NO--AP0120659

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--23OCT7

CIRC ACCESSION NO--AP0120659

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TREATING 1 G 1,BENZYL-N-BENZYLOXYCARBONYL L-GLUTAMIC ACID (I) IN ME SUB2 NCHO WITH 0.4 G 6,MERCAPTOPURINE AND 0.56 G N,N PRIME DICYCLOHEXYLCARBODIIMIDE GAVE IN 1 DAY AT 20DEGREES 57PERCENT 4,(S-(6,MERCAPTOPURYL)) ALPHA-BENZYL-N BENZYLOXYCARBONYL-L-GLUTAMIC ACID, DECOMPG. 204-6DEGREES (ALPHA) PRIME20 SUBD MINUS 8.4DEGREES. TREATING I WITH ETO SUB2 CCL IN ME SUB2 NCHO-ET SUB3 N, FOLLOWED BY 6,(METHYLTHIO)PURINE AT MINUS 10 TO MINUS 15DEGREES INITIALLY, THEN 1 DAY AT MINUS 5DEGREES, GAVE 61PERCENT 4,(9,(6,METHYLTHIOPURYL)),1,BENZYL-N BENZYLOXYCARBONYL-L-GLUTAMIC ACID, M. 112-14DEGREES, (ALPHA) PRIME20 SUBD MINUS 6.1DEGREES. THE FORMER O THE LATTER TREATED WITH DIBENZYL L-GLUTAMATE IN MECN 5-8 HR GAVE DIBEZY 1,BENZYL-N-BENZYLOXYCARBONYL-L-GLUTAMYL-L-GLUTAMATE, M. 238-9DEGREES, ALSO PREPD. IN 41PERCENT YIELD FROM I AND ETO SUB2 CCL IN ET SUB3 N-P-DIOXANE TREATED WITH DIBEZYL GLUTATATE-HCL. FACILITY: VSES NAUCH.-ISSLED. VITAM. INST., MOSCOW, USSR.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--23OCT7C

TITLE--REVERSIBLE ELECTROCHEMICAL REDUCTION OF BETA CAROTENE AND RELATED COMPOUNDS -U-

AUTHOR-(03)-MAYRONOVSKIY, V.G., YENGOVATOV, A.A., SAMOKHVALOV, G.I.

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CIRC ACCESSION NO--AP0120672

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN A SUPPORTING ELECTROLYTE OF 0.027 M ET SUB4 NI SOLN. IN 2:1 HCONME SUB2-C SUB5 H SUB6, B CAROTENE, 15,15 PRIME CIS-BETA-CAROTENE, AND 15,15 PRIME DEHYDRO-BETA-CAROTENE HAVE HALF WAVE POTENTIALS OF MINUS 1.2179, MINUS 1.2147, AND MINUS 1.2323 V (VS. THE ELECTRODE AG(ET SUB4 NI (SATD.), HCONME SUB2 MAGNITUD OF) RESP., CORRESPONDING TO REVERSIBLE ELECTRON TRANSFER AND THE FORMATION OF IONS. THE ABILITY OF THESE CAROTENES TO ADD ELECTRONS REVERSIBLY IS RELATED TO THE HYPOTHESIS OF THEIR PARTICPATION IN PHOTOSYNTHESIS (J. PLATT, 1955). FACILITY: VSES, NAUCH.-ISSLED VITAM, INST., MOSCOW, USSR.

UNCLASSIFIED

USSR

ZAGORUYKO, N. G., SAMOKHVALOV, K. F.

"Recognition of Patterns as Empirical Prediction"

Matematika i Sotsiologiya [Mathematics and Sociology -- Collection of Works], Novosibirsk, 1972, pp 42-53 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V856).

Translation: The problem of recognition of patterns is looked upon as a problem of search for a method of successful prediction of future empirical results, based on study of the preliminary information available on the objects and phenomena contained in past experience (in the study sample).

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USSR

VITYAYEV, Ye. Ye., GAVRILKO, B. P., ZAGORUYKO, N. G., SAMOKHVALOV, K. F.

"Requirements for Prediction Algorithms"

Vychisl. Sistemy [Computer Systems -- Collection of Works], No 50, Novosibirsk, 1972, pp 101-105 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V721 by the authors).

Translation: Certain requirements for algorithms for prediction of empirical regularities are formalized.

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USSR

UDC 541.67+447.31+538.27

SAMITOV, YU. YU., PUDOVIK, M. A., KHAYAROV, A. I., and KIBARDINA, L. K.

"Stereochemistry of Organophosphorus Compounds. III. Nuclear Magnetic Resonance Spectra of ^{1}H and ^{31}P and the Geometric Isomerism in a Series of 1,2,3-oxaazaphospholanes"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 46-51

Abstract: In containing the studies in the field of the stereochemistry of phosphorus-containing hetero cycles, the presence of stereoisomers in the series if substituted 1,3,2-oxaazaphospholanes was detected in which isomerism is caused by the presence of the chiral carbon atom in the ring and the mentioned property of the P^{III} phosphorus atom. The proof of the presence of the stereoisomers was obtained by the method of gas-liquid chromatography and nuclear magnetic resonance, the conformation of the high-element ring was established by analysis of the nuclear magnetic resonance spectra. The series of 5-ethyl-1,3,2-oxaazaphospholanes which are tabulated were synthesized and investigated. The predominant conformation of the 5-number heterocycle is the form of the envelope with the oxygen atom at the top of the vent.

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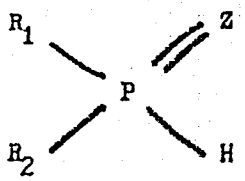
USSR UDC 538.18-547.26'118.541.12

VINOGRADOV, L. I., ZIMIN, M. G., SAMITOV, YU. YU., and PUDOVIK, A. N.,
Kazan State University

"Spin-Spin Interaction of P^{31} Nuclei Directly Bonded to H^1 in Unsaturated Esters of Phosphoric Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 8, 1972, pp 1724-1727

Abstract: The value of the spin-spin coupling constant $^1J_{PH}$ is most influenced by the amount of S-character of the P-H bond. This parameter was measured for 12 compounds having the general formula



for Z=O and S and R_1 and R_2 being various alkyl, alkoxy, or halide-substituted alkyl groups. It was correlated with the orbital symmetries and had values ranging from 734 to 431 hertz. $^1J_{PH}$ is directly proportional to the square

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VINOGRADOV, L. I., et al., Zhurnal Obshchey Khimii, Vol 42(104), No 8, 1972, pp.1724-1727

of the order of the bond P_{Sh}^2 and to the cube of the effective nuclear charge Z_{eff}^3 and thus can be written as:

$$\frac{\Delta\, {}^1J_{PH}}{{}^1J_{PH}} \quad 2 \quad \frac{\Delta P_{Sh}}{P_{Sh}} \quad 3 \quad \frac{\Delta Z_{eff}}{Z_{eff}}$$

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