

1/2 015

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--SELECTION OF ABSORBENTS FOR FLUOROSUBSTITUTED HYDROCARBONS -U-

AUTHOR--SELIVERSTOV, V.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 690-2

DATE PUBLISHED-----70

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

TOPIC TAGS--ADSORPTION, FREON, HYDROGEN BONDING/(U)FREON 22 COOLING SYSTEM FLUID, (U)FREON 21 COOLING SYSTEM FLUID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/2015

STEP NO--UR/0080/70/043/003/0690/0692

CIRC ACCESSION NO--AP0132276

UNCLASSIFIED

2/2 015
CIRC ACCESSION NO--AP0132276
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT. THE EXPTL. DETD. SIGN OF THE DEVIATION FROM RAULT'S LAW FOR SOLNS. OF FREONS IN VARIOUS SOLVENTS IS IN GENERAL PREDICTED BY THE CLASSIFICATION OF SOLVENTS ACCORDING TO THEIR ABILITY TO FORM H BONDS (R. EWELL, 1944). THUS NEW SOLVENTS FOR FREON ABSORPTION IN COOLING SYSTEMS SHOULD BE SOUGHT IN EWELL'S GROUPS III (MOLS. CONTG. ELECTRON DONOR ATOMS) AND IV (MOLS. CONTG. ACTIVE H). FOR SOLNS. OF FREON 21 OR 22, THE EXTENT OF DEVIATION (PSI-PSI SUBIDEAL) FROM RAULT'S LAW DEPENDS ON THE DIELEC. CONST. (D) OF THE SOLVENT, WITH VALUES FOR SOLVENTS ON 2 CURVES HAVING MAX. AT APPROX. THE SAME VALUE OF D, IN A GRAPH OF D VS. PSI-PSI SUBIDEAL. INST. VOD. TRANSP., LENINGRAD, USSR.

FACILITY: LENINGRAD.

UNCLASSIFIED

USSR

UDC 621.3.035.4

SELIVERSTOV, V. P., MEL'NIKOV, A. M., TROFIMENKO, M. I., and KUNIN, T. I.,
(DECEASED)

"On the Question of Constructing Chlorous-Cupri-Magnesium Current Sources"

Ivanovo, Khimiya i Khimicheskaya Tekhnologiya, Vol 15, No 11, 1972, pp 1754-1756

Abstract: It is well known that the use of magnesium current sources with cathodes coated with CuCl is limited by their long period of activation and by not allowing high current densities. This work attempts to improve the characteristics of sources by changing their structure. The negative electrode was made of a magnesium alloy (MA-8), CuCl consisted of not less than 95% of the basic component. In the new current source the perforation of the conductor was increased for coated electrodes, and the position of the electrode in the model was reversed. The period of activation is reduced only to the time needed for the impregnation of the diaphragm. Cathode potential has a sufficiently positive value, and the elements are characterized by a high and stable tension/strain. A/h capacity increases by 18-20%. One condition or the attainment of these favorable electric characteristics is the exclusion of conductive
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USSR

SELIVERSTOV, V. P., et al., Khimiya I khimicheskaya Tekhnologiya, Vol 15, No 11, 1972, pp 1754-1756

impurities from the active material. This variant of current sources allows a further improvement in the technological process of preparing current sources with Cu(1) chloride and significantly broadens the sphere of their use.

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USSR

UDC 621.3.032.21

SELIVERSTOV, V. P., MEL'NIKOV, A. M., PLYUSHKOVA, V. S.,
TIKHOMIROVA, A. N., KUNIN, T. I. (Deceased), Department of
Electrochemical Production Processes, Ivanovo Institute of
Chemical Technology

"Fabrication of Brush-on-Type and Molded Copper Chloride Cathodes
for Magnesium Power Sources"

Ivanovo, Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i
khimicheskaya tekhnologiya, Vol 14, No 11, 1971, pp 1705-1708

Abstract: A new technique described is for making copper chloride-
base active mass for brush-on-type positive electrodes designed
for use in magnesium power sources as well as a method of fab-
ricating molded porous copper-chloride cathodes based on the
reduction of $CuCl_2 \cdot 2H_2O$ with a highly disperse dry copper powder.
The experimental data indicate that the presence of chemical
pure excess copper powder acts favorably on the efficiency of
power sources. The cell voltage is increased by 15-50 mv and the
activation period is decreased. The factors responsible for the
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USSR

SELIVERSTOV, V. P., et al, Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, Vol 14, No 11, 1971, pp 1705-1708

improved cell characteristics, other than the higher conductivity of the active mass, is the much higher dispersion of the copper chloride produced by the dry method. The latter aspect is the basis for making of molded positive porous electrodes. The porosity of the finished electrodes is rated at 55.4 percent against 35.7 percent in factory-made molded electrodes with graphite. The load potential is about the same in both; the cell voltage, however, is considerably higher and more stable with time. The efficiency of copper chloride is 95 percent. The effective utilization of the anodic material is increased by 9 percent. The pickup w/hr capacity at discharge to 1.2 v is increased by 20 percent. A contributing factor is the lower solubility of copper chloride on the electrode in the presence of higher porosity as well as the higher concentration of chloride ions in the electrolyte causing anode activation.

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USSR

UIC 577.3

MEYSEL', M. N., MOKHNACH, V. O., VAKINA, I. P., SELIVERSTOVA, L. A., BORODINA, V. M., and ROMANOVA, L. L., Institute of Microbiology, Academy of Sciences USSR, and Botanical Institute ineni V. L. Komarov, Academy of Sciences USSR

"The Mechanism of the Antimicrobial Action of Biologically Active Iodine Compounds"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 6, Nov/Dec 71, pp 819-829

Abstract: Bacteriological, phase-contrast, fluorescence, and electron microscope investigations revealed that the antimicrobial activity of iodine compounds is due to the positive monovalent iodide ion (I^+) and not to molecular iodine (I_2). The most active substances, such as iodine-potassium iodide and its compound with polyvinyl alcohol (iodinol), as well as oxidized hydroiodic acid and its compound with polyvinyl alcohol, readily penetrate yeast and bacterial cells and by combining with oxidizing the mitochondria, intracellular polysaccharides, and membrane lipoproteins, suppress and eventually completely inhibit the respiration of the cells.

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172 025

TITLE--SOME DATA ON THE OOCYST SHEATH FORMATION IN
SPOROZOA, EIMERIIDAE -U-

UNCLASSIFIED

PROCESSING DATE--27NOV70

AUTHOR--SELIVERSTOVA, V.G.

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COUNTRY OF INFO--USSR

SOURCE--TSITOLOGIYA 12(2): 238-242, 1970

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SPOROZOA, ELECTRON MICROSCOPY, ANATOMY, BIOLOGIC REPRODUCTION.

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/0507

STEP NO--UR/9053/70/012/002/0238/0242

CIRC ACCESSION NO--AP0134275

UNCLASSIFIED

2/2 025

CIRC ACCESSION NO--AP0134275

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY ELECTRON MICROSCOPY, STEPS OF THE FORMATION OF OOCYST SHEATHS WERE FOLLOWED IN E. TENELLA. THE OUTER LAYER OF THE SHEATH IS PRODUCED AT THE EXPENSE OF THE "GRANULAR" BODIES THAT ARE PRODUCTS OF REORGANIZATION OF THE "LABYRYNTH" BODIES DURING THE MACROGAMETE GROWTH. THE "DARK" BODIES ARE ALSO INVOLVED IN THE FORMATION OF THE OUTER LAYER OF THE SHEATH. THE INNER LAYER WHOSE PROGRESSIVE FORMATION WAS NOT ALLOWED IN DETAIL IS LIKELY TO APPEAR AT THE EXPENSE OF THE "LABYRYNTH" BODIES AND THEIR COMPLEXES, THEIR ULTRASTRUCTURE WAS SIMILAR TO THAT OF BODIES INVOLVED IN THE OUTER LAYER FORMATION. THE RESULTING SHEATH AROUND THE OOCYST CONSISTS OF 2 LAYERS: THE OUTER AND INNER ONES ARE SEPARATED FROM EACH OTHER BY AN ELECTRON DENSE SPACE AND BY 5 MEMBRANES LIMITING THESE LAYERS. FACILITY: LAB. MICROSCOP. INST. CYTOL. ACAD. SCI. USSR, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 539.1



VOROB'YEV, A. A., GRACHEV, V. T., KONDUROV, I. A., NIKITIN, A. M., and SELIVESTROV, D. M., Physicotechnical Institute imeni A. F. Ioffe

"The Formation of Light Nuclei in the Thermal-Neutron Induced Fission Reaction of Uranium Isotopes"

Moscow, Problemy Fiziki Elementarnykh Chastits i Atomnogo Yadra [(Problems of the Physics of Elementary Particles and the Atomic Nucleus)], Atomizdat, Vol 2, No 4, 1972, pp 939-958

Abstract: Consideration is given to the results of an experimental study of light nuclei produced in the process of thermal-neutron induced ternary fission of U235 and U233. The experimental installation is described. Instead of using semiconductor-detector $\Delta E - E$ telescopes for identification of the particles, a mass spectrometer was used for simultaneous measurement of the following particle parameters: BP, v, E, $\Delta E/\Delta x$. Data on the yield and energy spectra of hydrogen, helium, lithium, and beryllium isotopes are presented. The yields of all the isotopes were measured with respect to the yield of the alpha-particles. These results are compared with the theoretical data and with data obtained from fission under the action of fast protons. 12 figures, 6 tables, 32 references.

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USSR

UDC 519.217

ALEKSANDROV, Yu. S., KOVSHEL', M. N., SELIVOKHIN, O. S., SOROKIN, A. V.

"Synthesis of Statistically Optimal Automatic Systems"

Nelineyn. i Optimal'n. Sistemy [Nonlinear and Optimal Systems -- Collection of Works], Moscow, Nauka Press, 1971, pp 104-119, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V127).

NO ABSTRACT.

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USSR

UDC 658.383.4:687

SELIVON, S. G., Institute of Biophysics

"The Physiological Basis for the Efficient Design of Combination Suits Made of Both Porous and Nonporous Materials"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 5, 1970, pp 15-19

Abstract: In most persons, 50% of perspiration is excreted from the trunk, the middle and lower regions of the back in particular, with 30% of the total perspiration coming from Michaelis' rhomboid. Tests of suits with porous materials covering five different portions of the back, showed that heat exchange at an ambient temperature of 33-35°C and relative humidity of 25% is most efficient when air- and vapor-permeable cloth covers Michaelis' rhomboid. Disruption of the heat balance and functional shifts are not as marked as when equivalent areas of less intense perspiration are covered. At an ambient temperature of 21° C, when radiation and convection are mostly responsible for heat emission, this relationship between the location of porous cloth and the degree of disruption of the heat balance is not observed.

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TITLE--PHYSIOLOGICAL SACKGROUNDS FOR RATIONAL DESIGNING OF COMBINED SUITS
(MADE OF AIR TIGHT AND IMPERMEABLE FABRICS) -U-
AUTHOR--SELIVON, S.G.

UNCLASSIFIED

PROCESSING DATE--16OCT70

COUNTRY OF INFO--USSR

SOURCE--GIGIYENA TRUDA I PROFESSIONAL'NYYE ZABOLEVANIYA, 1970, NR 5, PP
15-19
DATE PUBLISHED-----70

SUBJECT AREAS--MILITARY SCIENCES

TOPIC TAGS--HEAT TRANSFER, IMPERMEABLE PROTECTIVE CLOTHING, HOMEOSTASIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0411

STEP NO--UR/0391/70/000/005/0015/0019

CIRC ACCESSION NO--AP0116081

UNCLASSIFIED

2/2 031
CIRC ACCESSION NO--AP0116081
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT. HEAT TRANSFER BY EVAPORATION IN THE REGION OF THE BODY TRUNK AND LIMBS WAS STUDIED IN THE EXAMINED PRESENTING DIFFERENT TOPOGRAPHY OF HIDROSIS IN ORDER TO APPRAISE THE PART IT PLAYS IN PRESERVING THE TEMPERATURE HOMEOSTASIS IN MAN AND TO CREATE ON THIS BASIS A MORE RATIONAL DESIGN OF COMBINED SUITS MADE OF AIR TIGHT AND IMPERMEABLE MATERIALS. WHILE DOING WORK WITH THE COMBINED SUIT ON AT AN ENVIRONMENTAL TEMPERATURE OF PLUS 33DEGREES MINUS PLUS 35DEGREES, WHEN EVAPORATION IS THE ONLY WASY OF HEAT TRANSFER, THE EXTENT OF THE THERMAL BALANCE DISRUPTION DEPENDS LARGELY ON THE SITES WHERE PARTS OF THE SUIT MADE OF AIR AND VAPOUR PERMEABLE FABRICS ARE LOCATED. IN THE EVENT OF THEIR LYING OVER THE AREAS WITH THE MOST INTENSIVE PERSPIRATION THE DERANGEMENT OF THERMAL BALANCE AND FUNCTIONAL SHIFTS IN THE ORGANISM ARE LESS SIGNIFICANT THAN WHEN THE AREAS OF EQUAL SIZE LIE ABOVE THE ZONES WITH LESS MARKED HIDROSIS. WITH THE ENVIRONMENTAL TEMPERATURE OF POSITIVE 21DEGREES, WHEN HEAT TRANSFER PROCEEDS MAINLY THROUGH RADIATION AND CONVECTION, NO SUCH DEPENDANCE OF THE THERMAL IMBALANCE ON THE LOCATION OF THE AIR TIGHT FABRIC SECTIONS COULD BE OBSERVED. AT THE SAME TIME, A CLEARCUT RELATION BETWEEN THE DEGREE OF THERMAL IMBALANCE AND THE OVERALL SURFACE AREA OF THE SUIT MADE OF AN AIR TIGHT FABRIC WAS NOTED. DISTURBANCES WERE THE SMALLER, THE GREATER WAS THE AIRTIGHT FABRIC AREA OF THE SUIT. FACILITY: INSTITUT BIOFIZIKI.

UNCLASSIFIED

USSR

UDC None

KARMAZINSKIY, A. N., KOROLEV, M. A., KOSTYCHEV, G. I., and SEL'KOV,
Ye. S.

"Reliability Research on MOS Transistors"

Moscow, Mikroelektronika, No. 1, 1971, pp 141-154

Abstract: The reliability of integrated circuits using MOS transistors is discussed. Experimental investigation has shown that the practical reliability of such integrated circuits is much less than predicted, and is inferior to that of circuits using bipolar transistors. The purpose of this paper is to find the types of breakdown in these circuits and to determine the qualitative indices of MOS transistor reliability, for transistors made by the planar technique with charge stabilization in the oxide through the use of P_2O_5 . A description of the preparation of the transistors under test is given. The types of test performed were: in the switching state, at an ambient temperature of $100^{\circ}C$; for thermal "fatigue," in which the specimens were tested in the switching state with cyclical electrical loading at an ambient temperature of $20^{\circ}C$; with inverse bias applied to the p-n junctions between the diffusion regions of the drain, the source, and the substrate, and for a grounded gate, with a temperature of $100^{\circ}C$. The results of the tests are given fairly exhaustive statistical

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USSR

KARMAZINSKIY, A. N., et al, Mikroelektronika, No. 1, 1971, pp 141-154

treatment, and photographs of transistor breakdowns are shown. The authors concluded that the following must be done to increase the reliability of the transistors: a visual quality check of transistors with oxide and metallization defects; check of transistors whose leakage currents amount to tenths or units of a microampere; preliminary aging. It was also found that the most widespread type of catastrophic breakdown is puncture of the oxide under the gate at the boundary of the drain region.

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Molecular Biology

USSR

DESHCHEREVSKIY, V.I., ZHABOTINSKIY, A.M., SEL'KOV, YE.YE., SIDORENKO, N.P.,
and SHNOL', S.E., Institute of Biophysics, Academy of Sciences USSR

"Oscillating Biological Processes on the Molecular Level"

Moscow, Biofizika, Vol15, No 2, 1970, pp 225-234

Abstract: One important task of modern biophysics is to investigate conditions under which oscillations may occur on various levels. Some oscillations represent a normal functional state of a system (myocardial fibers), while other oscillations represent an abnormal (pathological) state. Oscillating processes have been investigated in single-enzyme, multi-enzyme, and model catalytic systems, in colloidal systems, and in a system with a strict structural organization: striated muscle. A catalytic reaction is a repetitive cyclic process: each enzyme molecule forms a complex with the substrate, induces a reaction, and returns to its initial state. Solutions of actomyosin display configurational oscillations involving reversible shifts in the ATPase activity in the absence of the ATP, which arrests these oscillations. Multi-enzyme systems in cells involve hundreds of biochemical reactions and various control mechanisms, which regulate the activity of enzymes, the speed of their synthesis and destruction, the permeability of biological membranes, and so on. These mechanisms can also disrupt the equilibrium

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USSR

DESHCHEREVSKIY, V.I., et al, Biofizika, Vol 15, No 2, 1970, pp 225-234

of biochemical systems and cause fluctuations in the concentration of reacting substances. Liquid-phase models of enzymatic reactions yield reproducible results and are used to investigate the spatial synchronization of oscillations. A specific situation arises in mechanical chemistry: the enzymatic breakdown of ATP changes the mechanical state of the muscle, which in turn affects the speed of this reaction. Further studies of oscillating processes may contribute to our understanding of the following phenomena: the mechanism of enzymatic catalysis; the nature of control mechanisms in multi-enzyme systems; the molecular kinetic basis of biological motility; and the cause of morphological organization in initially homogeneous systems.

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USSR

PEREDERNIN, L. V., KHRAPOV, A. YA., and SELYANIN, I. F., Siberian Metallurgical Institute

"Investigation of the Properties of a Graphitized Steel"

Novokuznetsk, IVUZ- Chernaya Metallurgiya, No 6, 1971, pp 151-154

Abstract: The properties of graphitized Fe-C alloys depend on the structure of the metallic matrix and the graphite phase. Modification has a considerable effect on the phase parameters and changes both the mechanical and casting properties. A steel (0.9-1.7% C, 0.9-2.3% Si, 0.3-0.6% Mn, 0.043% P (max), 0.04% S (max), and 0.03% Cr (max)) was melted in an induction furnace with an acid lining, heated to 1590-1620°C, and upon tapping treated with 75% ferrosilicon (up to 5%), silicocalcium grade KaSiO (0.3% max), silicocalcium with magnesium grade FTsM-5 (0.4% max), ferrosilicocalcium+magnesium grade FSKM (1.2% max) and aluminum (0.15% max) as well as with the above-mentioned alloys in combination with aluminum and ferrosilicon.

The complex modification of graphitized steel with alloys having globularizing (Mg, Ce, Ca) and graphitizing (Si, Al) elements makes it possible to shorten the heat treatment time and increase both the mechanical

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USSR

PEREDENERNIN, L. V., et al., IVUZ-Chernaya Metallurgiya, No 6, 1971,
pp 151-154

and casting properties. The investigated steel had the best properties when modified with alloys FSKM (0.6% min) or FTsM-5 (2% min) + 0.3% Si75 and heated by normalizing at 980°C and annealed at 760°C. Four figures, one table, five bibliographic references.

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1/2 016

TITLE--PRODUCTION OF COMPACT GRAPHITE IN GRAPHITIZED STEEL WITH GRANULAR PEARLITE -U- PROCESSING DATE--23OCT70

AUTHOR--(03)-PEREDERNIN, L.V., SEL'YANIN, I.F., KHRAPOV, A.YA.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(2), 129-33

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--GRAPHITIC STEEL, GRAPHITIZATION, METAL MELTING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1997/1393

STEP NO--UR/0149/70/013/002/0129/0133

CIRC ACCESSION NO--AT0120186

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0120186

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OPTIMUM CHEM. COMPN. AND HEAT TREATMENT CONDITONS WERE WORKED OUT TO OBTAIN THE STRUCTURE OF GRANULAR PEARLITE WITH FINE, COMPACT, AND UNIFORMLY DISTRIBUTED GRAPHITE INCLUSIONS. SEVEN MELTINGS OF STEEL WERE MADE (C (SUBTOTAL) 0.85-1.41, C (SUBGRAPHITE) 0.28-1.07, SI 1.01-2.47, MN 0.45-0.51, P 0.027-0.045, AND S 0.012-0.028 WT. PERCENT). SPECIMENS WERE CAST INTO GREEN SAND CLAY MOLDS. THE OPTIMUM HEAT TREATMENT CONDITIONS WERE HEATING TO 1000DEGREES IN 2 AND ONE HALF HR, NORMALIZING FOR 1 AND ONE HALF HR AT 950-1050DEGREES, COOLING TO ROOM TEMP., AND ANNEALING FOR 2 AND ONE HALF HR AT 750-80DEGREES. A CONTENT OF SI LARGER THAN 1.5PERCENT DID NOT GIVE PEARLITE IN THE STRUCTURE, WHILE IN ORDER TO OBTAIN GRANULAR PEARLITE, THE SIC, AND MN SHOULD BE WITHIN THE LIMITS 0.9-1.5PERCENT, 1.0-1.5, AND 0.45-0.65PERCENT RESP. AT C CONCNS. LARGER THAN 1.5PERCENT, THE GRAPHITE INCLUSIONS LOST THEIR COMPACT FORM. FACILITY: SIB. MET. INST., NOVOKUZNETSK, USSR.

UNCLASSIFIED

Graphite

USSR

UDC: 669.111

PEREDERNIN, L. V., SELYANIN, I. F., and KHRAPOV, A. YE.

"The Problem of Producing Compact Graphite in Graphitized Steel with Grainy Pearlite"

Izv. VUZ, Chernaya Metallurgiya, No 2, 1970, pp 129-133

Abstract: Charges of rail steel were smelted in a 60-kg induction furnace in an attempt to produce graphitized steel with a structure consisting of grainy pearlite with fine, compact, evenly distributed graphite inclusions. This structure was produced with contents of 1.0-1.5% C, 0.9-1.5% Si, and 0.45-0.65% Mn with a heat-treatment mode consisting of heating to 1000° over two and one-half hours, holding at 1000° for one and one-half hours, cooling to room temperature over one-half hour, annealing at 770°C for three hours, and gradual cooling to 400° followed by quenching to room temperature. Higher contents of silicon do not facilitate the formation of the pearlite structure (the more ferrite was the more compact form of the present). Increasing the carbon content results in a more compact form of the separated graphite. The influence of silicon on the rate of graphite sinter growth results from its action on the energetic position of the conductivity electrons in the lattice of the γ (α)-iron, in which this element is dissolved.

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S. ELYANINA, V. I.

SPRS 57208
6-73

III-9. EFFECT OF GROWTH CONDITIONS ON THE STRUCTURE AND MECHANICAL PROPERTIES OF SINGLE INDIUM ANTIMONIDE CRYSTALS

Article by T. G. Dubets, L. G. Fel'makova, V. S. Ilyeva, V. I. Sel'yankina, H. G. Novosil'skiy, III Sbornik po Protsessam Rosta i Strukt. Toluprovodnikov (Klaster) i Pirok, Russian, 12-17 June, 1972, p 131

A study was made of the effect of the growth parameters (zone melting and the Cochranski method) on the density of the dislocation etching holes. The effect of the concentration on the dislocation distribution in the homally purified indium antimonide is demonstrated.

A study was made of the effect of the growth direction on the nature of the distribution of the etching figures in single indium antimonide crystals obtained by the Cochranski method.

The etching conditions were selected for determining the dislocations in the (211), (311), (100), (110) planes.

An estimate was made of the inclination of the indium antimonide crystals toward brittle rupture or crack formation by the abrasive wear method.

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UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--RECORDING OF ULTRAWEAK LUMINOUS FLUXES IN THE 200-850 MMU REGION

-U-

AUTHOR--(03)-PERTSEV, A.N., PODOLNYI, E.I., SELVANINOV, YU.YE.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(3), 523-7

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LUMINESCENCE SPECTRUM, OPTIC SPECTROMETER, PHOTOMULTIPLIER
TUBE, PULSE ANALYZER, RECEIVER SENSITIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1491

STEP NO--UR/0368/70/012/003/0523/0527

CIRC ACCESSION NO--AP0118478

UNCLASSIFIED

2/2 029

CIRC ACCESSION NO--AP0118478
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT. THE METHODS ARE DISCUSSED OF MEASURING ULTRAWEAK LUMINOUS FLUXES BY USING PHOTOMULTIPLIERS; A MIN. NO. OF PHOTOELECTRONS (N) DETECTABLE BY THE INDIVIDUAL TECHNIQUE ARE QUANT. ESTD. THE METHOD OF DISCRETE RECORDING OF PHOTONS WITH DIFFERENTIAL PULSE HEIGHT DISCRIMINATIONS IS BY FAR THE MOST EFFECTIVE TECHNIQUE TO MEASURE ULTRAWEAK LUMINOUS FLUXES, N BEING GIVEN BY THE RELATION $N \text{ EQUALS } (2N \text{ SUBST-T}) \text{ PRIME ONE HALF}$ WHEN N SUBST DENOTES AV. NO. OF THERMOELECTRONS FROM PHOTOCATHODE-SEC AND T TIME OR RECORDING. A MODERNIZED VARIANT OF THE TECHNIQUE IS DESCRIBED AND ITS FUNDAMENTAL OPERATING CHARACTERISTICS ARE PRESENTED. THE ELECTRONIC DEVICE TOGETHER WITH AN OPTICAL SPECTROMETER PROVED TO BE EFFICIENT FOR STUDYING BIO, PHOTO, AND RADIOLUMINESCENCE IN THE 200-850 M MU SPECTRAL REGION.

UNCLASSIFIED

USSR

SELYANSKAYA, N. P., GULYAYEV, A. P.

UDC 669.294.5.018.45

"Laws of Hardening of Binary Alloys Based on Tantalum"

Dokl. XXX Nauchno-tekhn. konferentsii. Mosk. in-t khim. mashinostr. T. 2. vyp. 1
(Reports of the Thirtieth Scientific and Technical Conference of Moscow
Institute of Chemical Machine-Building. Vol 2. No 1), Moscow, 1970, pp 112-
114 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 41785).

Translation: Nb, V, Ti, Zr, Mo, and W, which were added in the amount of 5, 10, 20, 30, 40, and 50 atomic % were used as the alloying elements. The greatest hardening is caused in Ta by Mo, W, and V, and then by Zr and Ti. Nb does not harden Ta in practice. The alloys containing Ti and Nb have good workability in the entire concentration range. The limiting Mo content (the strongest hardener) is less than 30 atomic %. Alloys containing 30 and 40 atomic % Mo were ruptured on deformation. The limit of satisfactory deformability of alloys with W lies at the content of 20 atomic % W.

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USSR

UDC: 621.375:621.317

PONOMAREV, A. N., SELYATITSKIY, V. G.

"A Voltage Amplifier Which is Adaptive to a Range of Variation in the Input Signal"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 3 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 3), Novosibirsk, 1970, pp 122-123 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A410)

Translation: In devices for registrations of signals which vary in amplitude over a wide dynamic range, the use of logarithmic amplifiers is limited by the high error in gain on the lower section of the dynamic characteristic of the amplifier. An automatic device is proposed for stepped control of amplification by changing the depth of the negative feedback which encompasses the amplifier. A block diagram of the device is given and its operation is explained. One illustration. E. L.

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USSR

UDC 621.357:621.79.027

SELYKIN, F. V., IVANOV, N. I.

"Intensification of the Process of Electrochemical Machining by Introducing Ultrasonic Vibrations"

V sb. Novoye v elektrofiz. i elektrokhim. obrabotke materialov (What's New in Electrophysical and Electrochemical Treatment of Materials -- collection of works), Leningrad, Mashinostroyeniye Press, 1972, pp 23-25 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L301)

Translation: It was demonstrated that the communication of ultrasonic vibrations to the anode significantly increases the efficiency of the process of electrochemical dimensional machining and lowers the power consumption.

1/1

- 24 -

USSR

UDC 621.165.251:534.1.001.5 **1**

RUNOV, B. T., DON, E. A., MEYEROVICH, L. B., SELYUGIN, B. S.,
and KOVAL', G. S.

"Vibration Condition of Bloc-Type Turbo-Units"

"Kotel'n. i turbin. ustancyki energ. blokov" (Boiler and Turbine
Installations of Power Units) Moscow "Energiya", 1971, pp 192-201
(from Referativnyy Zhurnal-Turbostroyeniye, No 10, Oct 71,
Abstract 10.49.46)

Abstract: It is suggested, on the basis of data from vibration
studies carried out by the All-Union Institute of Heat Engineering
im. F. E. Dzerzhinskiy, on more than 120 turbo-units with evaluation
of vibration parameters, to use the effective value of vibration
speed as a criterion for evaluating the state of vibration of a
turbo-unit. In accordance with developed GOST project, evaluation
of vibration should be made by the largest measured value of the
effective vibration speed of a bearing in, accordance with the fol-
lowing scale: excellent - not higher than 1.8 mm/sec, good - not
higher than 2.8 mm/sec, satisfactory - not higher than 4.5 mm/sec.
14 figures, 1 table.

1/1

USSR

SELYUTIN, G. YA., Kazakh State Pedagogical Institute ineni Abay, Alma-Ata

"On Light Absorption in Paramagnetic Crystals"

Leningrad, Fizika Tverdogo Tela, Vol 15, Vyp 1, Jan 73, pp 22-28

Abstract: The article considers the effect of ion-phonon interaction in the presence of low-lying paramagnetic ion energy levels on light absorption by the impurity paramagnetic center in a crystal. It is shown that in the case of a single-phonon light absorption spectrum resonance peaks appear at the edges of the phonon spectrum with a width equal to the width of the ion electron transition, the distance between the peaks and the principal light absorption line being equal to the magnitude of the ion-level splitting.

1/1

- 30 -

USSR

UDC: 53.07/.08+53.001.5

SELYUTIN, R. P.

"Preliminary Processing of Spectra"

Tr. Soyuzn. NII priborostr. (Works of the Union Scientific Research Institute of Instrument Building), 1971, vyp. 16, pp 3-8 (from RZh-Fizika, No 4, Apr 72, Abstract No 4A574)

Translation: The author considers various methods of preliminary processing of spectra obtained on multichannel analyzers: smoothing, determining the position of peaks, their energies, correction of spectra, and approximate evaluation of impurity concentrations in a mixture. The results of such processing using the Minsk-22 computer are presented. Resumé.

1/1

USSR

UDC: 681.32.001

SELYUTIN, V. A., ULYBIN, B. N.

"Approximation Methods of Solving the Arrangement Problem"

Skaisiavimo technika. Vychisl. tehnika. T. 1 (Computer Engineering, Vol 1),
Kaunas, 1970, pp 269-274 (from Rzh-Avtomatika, Telemekhanika i vychislitel'-
naya technika, No 9, Sep 70, Abstract No 9BI99)

Translation: The efficiency of various algorithms for solving arrangement
problems is evaluated. A special algorithm of the sequential type is proposed
which leads, on the average, to smaller values of the criterial function by
comparison with known sequential algorithms. The bibliography has five
entries.

1/1

USSR

SELYUTIN, V. P.

UDC 621.317.726;621.384.2

"Mean Pulse Amplitude Meter"

Moscow, Pribory i Tekhnika Eksperimenta, No 6, 1971, pp 96-98

Abstract: A simple meter which operates by the direct rectification method [M. I. Gryaznov, Izmereniye impul'snykh napryazheniy, Soviet Radio Press, 1969] is proposed for monitoring the parameters of semiconductor detectors of nuclear particles. The meter permits measurement of the mean pulse amplitude with an accuracy of ± 0.5 percent by including a controllable switch in the discharge circuit of the integrating capacitance. The operation of the meter is discussed, and an error analysis is presented for it. Sources of error include 1) statistical voltage fluctuations; 2) instability of the clock circuit; 3) the return currents of the rectifier diodes lead to loss of charge by the reservoir capacitance in the intervals between pulses. In measuring the efficiency of charge accumulation in semiconductor detectors, the optimal frequency load with a time constant of 1 microsecond was $n \sim 100$ pulses/second.

1/1

- 83 -

Acc. Nr:

AP0040005

Abstracting Service:
CHEMICAL ABST.

S

4-70

Ref. Code:

UR0191

79966n Studying the life of a metal-polymer pair in sliding friction bearings. Krichevskii, M. E.; Lel'chuk, L. M.; Selvatina, D. S. (USSR). *Plast. Massy* 1970, (1), 68-70 (Russ.). The working parameters were studied of steel shaft-bearing systems. Bearings were made of solid cast nylon 6 (I) or steel coated with I by spraying or by dipping into hot fluidized I. The changes of bearing temp. (t) and frictional moment with time, the loss of I by attrition, and the changes of the friction coeff. with the workability criterium $\eta(t)vS/H(t)Rl$. [$\eta(t)$ is the dynamic viscosity, v is the linear shaft velocity, S is the sepn. between the shaft and the bearing, $H(t)$ is the hardness-temp. function of the bearing's surface, R is the shaft radius, and l is the bearing length (L. M. Lel'chuk, et al., 1968)] are shown in graphs. The loss of I by attrition occurs rapidly when the workability criterium $< 5 \times 10^{-11}$.

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REEL/FRAME

19741412

Masers

USSR

UDC 621.373:530.145.6

SEM, M. F., KEYDAN, V. F., MIKHAYLEVSKIY, V. S.

"Continuous Generation of Coherent Radiation in Ion Transitions of Substances Introduced into the Discharge Volume by Cataphoresis"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Engineering Scientific and Technical Collection. Microwave Electronics), 1971, vyp. 1, pp 69-76 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4D166)

Translation: The possibility of using cataphoresis to introduce the vapors of a number of substances into the discharge volume of a laser operating in the continuous mode is discussed. The experimental results of obtaining continuous generation on 37 wavelengths in the 0.81-0.4 micron range in iodine, phosphorus, selenium, cadmium, arsenic, zinc and tellurium vapors show that zinc, tellurium and, in particular, selenium are prospective for use in practical laser designs as a result of their high amplification coefficients.

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USSR

UDC: 621.375.82

KEYDAN, V. F., MIKHALEVSRIY, V. S., SEM, M. F., and SHELEPO, A. P.
"Oscillations in Ionized Selenium"

Moscow, V sb. Kvant. elektronika (Quantum Electronics--collection of works) "Sov. radio," No 1(13), 1973, pp 75-78 (from RZh--Fizika, No 7, 1973, Abstract No 7D1015)

Translation: The characteristics of oscillations in selenium ion transitions are investigated in pulsed continuous operation. It is established that in a pulsed discharge, the upper energy level population may originate in electronic excitation from the base state of the atom as well as the recharge of the helium ions with neutral selenium atoms. In continuous operation, the dependence of the generated power on the discharge conditions is determined, the plasma parameters are measured, and the pumping velocity of the upper levels of the laser transitions by the recharging and electronic excitation processes is calculated. Comparison of the computed pumping velocity with the measured velocity showed that in continuous operation the principal contribution to the creation of the population inversion at the energy levels of the selenium ion is made by the recharging. Authors' abstract

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UNCLASSIFIED

PROCESSING DATE--13NOV70
LASERS -U-

TITLE--USE OF ISOTOPES IN CADMIUM AND ZINC VAPOR
AUTHOR--(02)--PAPAKIN, V.F., SEM, M.F.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED. FIZ. 1970, 13(2), 117-118
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LASER, CADMIUM, ZINC, METAL VAPOR, ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1588/0945

STEP NO--UR/0139/70/013/002/0117/0118

CIRC ACCESSION NO--AT0105814

UNCLASSIFIED

2/2 037 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AT0105814
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTENSITY OF VAPOR LASER BEAMS
IS RAISED 3.5 TIMES BY USING PRIME112 CD INSTEAD OF ISOTOPE MIXTS.
PRIME64 ZN IS ALSO ADVANTAGEOUSLY EMPLOYED.

UNCLASSIFIED

UNCLASSIFIED
 TITLE--STATISTICAL STUDY OF RADIATION INJURIES AND COMPENSATION OF A
 POLYSYNAPTIC SPINO BULBAR SPINAL REFLEX ARC IN NONANESTHETIZED RATS -U-
 AUTHOR--SEMAGIN, V.N. PROCESSING DATE--04DEC70

COUNTRY OF INFO--USSR

SOURCE--RADIOBIOLOGIYA 1970, 10(2), 310-11

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--REFLEX, RAT, SPINAL CORD, RADIATION BIOLOGIC EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605004/009 STEP NO--UR/0205/70/010/002/0310/0311

CIRC ACCESSION NO--AP0139602

UNCLASSIFIED

2/2 032

CIRC ACCESSION NO--AP0139602
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT. ON THE DAY OF IRRADN. OF THE SPINAL REGION OF RATS WITH 1000 R-100 G, THE PRESENCE OF THE SPINO BULBAR SPINAL REFLEX SHARPLY DECREASED, IN SOME RATS TO 0. THE LATENT PERIOD INCREASED, BUT THE DURATION AND MAX. AMPLITUDE DECREASED SIGNIFICANTLY. BY 4 MONTHS AFTER IRRADN., THE LATENT PERIOD, DURATION, AND MAX. AMPLITUDE HAD INCREASED, WITHOUT ATTAINING THE CONTROL LEVEL. ON SINGLE 1000 R ODSE EVIDENTLY DAMAGES THE SPINAL CORD.
FACILITY: INST. VYSSH. NERVNOI DEYATEL. NEIROFIZIOL., MOSCOW, USSR.

UNCLASSIFIED

039
 TITLE--STATISTICAL STUDIES OF RADIATION INJURIES AND COMPENSATION OF A
 MONOSYNAPTIC REFLEX ARC IN NONANESTHETIZED RATS -U-
 AUTHOR--SEMAGIN, V.N.
 COUNTRY OF INFO--USSR
 SOURCE--RADIOBIOLOGIYA 1970, 10(2), 311
 DATE PUBLISHED-----70
 SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
 TOPIC TAGS--RADIATION SICKNESS, RAT, REFLEX, SPINAL CORD,
 ELECTROPHYSIOLOGY, COMPUTER APPLICATION, X RAY RADIATION BIOLOGIC EFFECT
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY FICHE NO-----FD70/605004/808 STEP NO--UR/0205/70/010/002/0311/0311
 CIRC ACCESSION NO--AP0139600
 UNCLASSIFIED

2/2 039

CIRC ACCESSION NO--AP0139600
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT. THE SACRAL REGION OF UNANESTHETIZED RAT SPINAL CORD WAS IRRADIATED WITH 100 R AND THE ELEC. PHYSIOL. DATA CHARACTERIZING THE SPINO BULBAR SPINAL RESPONSE WERE PROCESSED BY ELECTRONIC COMPUTER. WITH THE CONTROL RATS, THE SPINO BULBAR SPINAL REFLEX WAS DETECTED IN 85-100PERCENT OF THE RESPONSES: LATENCY 12-21 MSEC, DURATION 3-12 MSEC, MAX. AMPLITUDE 15-2220 MU V, VARIABILITY OF THESE PARAMETERS: 7-14, 15-55, 15-65PERCENT, RESP. ON THE DAY OF IRRADN. THE PRESENCE OF THE NAMED COMPONENT DECREASED SHARPLY IN SOME RATS TO 0; LATENCY INCREASED, DURATION AND MAX. AMPLITUDE DECREASED, VARIABILITY DECREASED, INCREASED, DID NOT CHANGE UNAMBIGUOUSLY, ACCORDINGLY. FOUR MONTS AFTER IRRADN., THE PRESENCE OF THE SPINO BULBAR SPINAL REFLEX INCREASED, BUT DID NOT REACH THE CONTROL VALUES. VARIABILITY OF 2 INDEXES WAS NOT REDUCED IN ANY EXTENT. THE DURATION AND MAX. AMPLITUDE INCREASED, BUT DID NOT REACH THE CONTROL VALUES. VARIABILITY OF 2 INDEXES WAS NOT REDUCED IN ANY EXTENT. DIFFERENT FUNCTION OF THE POLYSYNAPTIC SYSTEM OF THE SPINAL CORD IS DAMAGED BY 1000 R IRRADN. TO A GREATER DEGREE THAN THE MONOSYNAPTIC ONE. DIFFERENT INDEXES OF THE FUNCTION OF THE UNCONDITIONAL REFLEX SYSTEM SUFFER DIFFERENT CHANGES DUE TO X IRRADN. FACILITY: INST. VYSSH. NERV. DEYATEL'NOSTI NEIROFIZIOL., MOSCOW, USSR.

UNCLASSIFIED

USSR

SEMAGIN, V. N.

UDC 612.821

"Experience in Quantitative Description of Types of Higher Nervous Activity in Rats"

Leningrad, Metodiki Otsenki Svoystv Vysshey Nervnoy Deyatel'nosti, "Nauka," 1971, pp 111-123

Abstract: A description is given of the process of developing a stereotype of digestive conditioned reflexes and different tests on the state of nerve processes in rats of three groups: control, subjected to a dose of one r/day, and subjected to a dose of 10 r/day. As a result of using empirically deduced formulas, quantitative evaluations were obtained for each animal for the intensity of stimulation and inhibitory processes, mobility and equilibrium, and also type of nervous system. These quantitative evaluations of nervous activity of rats were compared with a qualitative description, and it developed that the two methods of evaluation differ substantially. The author feels that preference should be given to quantitative determination of the primary features of nervous activity. Four tables and 31 bibliographic entries.

1/1

USSR

SEMAGIN, V. N.

UDC 612.821

"The Use of the Quantitative Description of Types of Higher Nervous Activity"
Leningrad, Metodiki Otsenki Svoystv Vysshey Nervnoy Deyatel'nosti, "Nauka,"
1971, pp 131-152

Abstract; Analyzing material obtained in experiments on intact rats and rats subjected to dosages of one and 10 roentgens a day before birth using statistical methods showed that radiation leads to the appearance of animals in which quantitative evaluation of main typological features goes beyond the limits of random fluctuations; that is, radiation causes qualitative changes in the state of nerve processes and thus changes the typological features of the animals in one direction or another. Six illustrations, five tables, and 24 bibliographic entries.

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USSR

SEMAGIN, V. N.

UDC 612.821

"Correlation Analysis of the Significance of Some Conditioned Reflex Indicators for Describing Types of Nervous Systems"

Leningrad, Metodiki Otsenki Svoystv Vysshey Nervnoy Deyatel'nosti, "Nauka," 1971, pp 123-131

Abstract: The article demonstrates the advantages of using correlation analysis to elucidate the relationship between individual conditioned reflex indicators. The rate of formation and strengthening of various positive and negative conditioned reflexes and the strength of processes of stimulation and inhibition by amounts of conditioned reflexes in the norm and in experiments with different subjects are used to evaluate the function of closing the conditioned link. On the basis of correlations obtained, the conclusion is drawn that the rate of formation of reflexes and the values of reflexes reflect different features of nervous system activity. Three tables and 15 bibliographic entries.

1/1

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1/2 023

TITLE—HYSTERESIS PROPERTIES OF HIGHLY ELASTIC MATERIALS STUDIED BY
THERMAL MEASUREMENTS —U—
AUTHOR—(03)—INDEYKIN, B.A., NIKITINA, L.B., SEMAK, B.D.

UNCLASSIFIED

PROCESSING DATE--30OCT70

COUNTRY OF INFO—USSR

SOURCE—KAUCH. REZINA 1970, 29(13), 32-5

DATE PUBLISHED—70

SUBJECT AREAS—MATERIALS, PHYSICS

TOPIC TAGS—THERMAL CONDUCTIVITY, ELASTIC HYSTERESIS, ELASTICITY

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—2000/0654

STEP NO—UR/0138/70/029/003/0032/0035

CIRC ACCESSION NO—AP0124326

UNCLASSIFIED

2/2 023

CIRC ACCESSION NO--A0124326

UNCLASSIFIED

PROCESSING DATE--30OCT7

ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. THE THERMAL COND. OF A HIGHLY ELASTIC CYLINDER WAS STUDIED ANAL. THE HEAT EVOLUTION WAS DETD. BY MEASURING THE TEMP. INCREMENTS AT SEVERAL POINTS OF THE STRAINED CYLINDER. METHODS WERE PROPOSED FOR THE DETN. OF TIME DURING WHICH THE TEMP. INCREMENTS SERVED AS AN ADEQUATE CRITERION OF HYSTERESIS PROPERTIES AND STRAIN. FACILITY: DNEPROPETROVSK. FILIAL NAUCH. ISSLED. INST. SHINNOI PROM., DNEPROPETROVSK, USSR.

UNCLASSIFIED

UNCLASSIFIED

TITLE--EFFECTS OF FIBER COMPOSITION, STRUCTURE, AND FINISH ON CAPILLARY PROPERTIES OF OVERCOATINGS -U-
AUTHOR--(03)-GALYK, I.S., SEMAK, B.D., KHARKHAROV, A.A.

PROCESSING DATE--04DEC70

COUNTRY OF INFO--USSR

SOURCE--PRZEGL. WLOK. 1970, 24(2), 92-8

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CLOTHING, POLYESTER RESIN, FABRIC, NATURAL FIBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0750

STEP NO--PD/0134/70/024/002/0092/0098

CIRC ACCESSION NO--AP0136187

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136187

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

ABSTRACT. THE CAPILLARITY WAS DETD. OF 100PERCENT POLYESTER FABRICS AND FABRICS OF VARIOUS BLENDS OF POLYESTERS AND COTTON. ALL FABRICS WERE BLEACHED, DYED, AND THERMALLY STABILIZED UNDER THE SAME CONDITIONS. THE MAX. CAPILLARITY, I.E. THE MAX. HEIGHT OF WATER RISE IN THE FABIRCS WAS OBTAINED WITH 6T:33 POLYESTER-COTTON BLENDS. THIS BLEND ALSO HAD THE FASTEST WATER ABSORPTION RATE. THE SLOWEST ABSORPTION RATE AND LOWEST CAPILLARY WERE OBTAINED WITH 100PERCENT POLYESTER FABRICS. FABRICS WITH CLOSE WEAVE STRUCTURE ABSORBED LESS WATER. FACILITY: INST. EKON.-HANDLOWY, LVOV, USSR.

UNCLASSIFIED

USSR

UDC 621.396.6.013.3-50

AVRAAMOV, I.S., and SEMAKIN, YE. V.

"Detection of Local Overheating In Automatic System Units by the Shadow Method"

V sb. Materialy k 3-v Nauch.-tekh. konf. po avtomatizir. elektroprivodu, nadezhnosti elektr. ustroystv i avtomatizatsii proiz-va (Materials on the Third Scientific and Technical Conference on Automated Electric Drive, the Reliability of Electrical Devices and the Automation of Production -- Collection of Works), Novokuznetsk, 1970, pp 159-163 (From RZh-Avtomatika, Tekhnika i Vychislitel'naya Tekhnika, No 1, Jan 72, Abstract No 1A472 by B. U.)

Translation: The reliability of automatic equipment elements and devices depends largely on the ambient temperature and the degree of overheating through dissipated power. In this connection there is practical interest in methods permitting the detection of overheated elements in units and devices and an estimate of the amount of overheating. The shadow method, used in optical, gas-dynamic, and hydrodynamic research, consists in the following: The convective heat fluxes rising over the overheated elements are regions of optical inhomogeneity in the surrounding air. By placing the part under study in a bundle of parallel light beams and recording distortions of the beam parallelism resulting from the optical inhomogeneities, we make it possible to determine the location of the overheated regions and, from the intensity of the distortions, the excess

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USSR

AVRAAMOV, I.S., et al., Materialy k 3-y Nauch.-tekhn. konf. po avtomatizir. elektroprivodu, nadezhnosti elektr. ustroystv i avtomatizatsii proiz-va, Novokuznetsk, 1970, pp 159-163

of the flux temperatures over the ambient temperature. The use of the method for the study of various automatic equipment elements (electron tubes, resistors, low-powered electric motors) is considered. 5 illustration. Bibliography with 3 titles.

2/2

- 29 -

USSR

S

UDC 538.27 : 547.341

TIMOPEYEVA, T. N., SEMAKOV, B. V., and IONIN, B. I., Leningrad Technological Institute imeni Lensovet, Leningrad, Ministry of Higher and Secondary Specialized Education RSPSR, and All-Union Scientific Research Institute of Metrology imeni D. I. Mendeleev, Leningrad, State Committee of Standards, Measures, and Measuring Instruments USSR

"Analysis of PMR Spectra of Ethylenephosphonic Acid Derivatives"
Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 5, May 70, pp 1169-1170

Abstract: The authors analyzed the proton spectra of ethylenephosphonic acid derivatives, viz. the acid dichloride, dimethyl ester, bis-dimethylamide and diethylvinylphosphine oxide. The trial-and-error method, employing a "Razdan-2" computer, was used to correlate lines and for preliminary calculations. The final calculations were performed by means of a "Minsk-2" computer according to an iterative program of the LAOCN type. The chemical shifts of the two terminal protons (A and B) are practically the same in the spectra of all the

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USSR

TIMOFEYEVA, T. N., et al, Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 5, May 70, pp 1169-1170

studied compounds, indicating the insignificant contribution of the magnetic anisotropy of $P=O$ to chemical proton shifts. The authors thank A. U. STEPANYANTS, YU. L. KLEYMAN and N. V. MORKOVIN for taking the spectra.

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- 52 -

USSR

UDC 621.371.332.4

SEMAKOV, V. L., KREPAK, V. N., and YAKIMENKO, I. P.

"Scattering of Electromagnetic Waves by Cylindrical Systems With Heterogeneous Gyrotropic Plasmas"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 5 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 5--collection of works) "Nauka," 1972, pp 22-26 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A377)

Translation: A solution is found for the problem of the scattering of a plane wave by cylindrical objects with radially heterogeneous gyrotropic plasmas. The effect of an external magnetic field, the frequency, and the nature of the radial variation in the electron density of the plasma, is investigated. Six illustrations, bibliography of four. N. S.

1/1

USSR

UDC 632.951

SEMAKOV, V. V., Candidate of Biological Sciences, Kamchatka Experimental Station

"The Effectiveness of Insecticides Against *Sminthurus* Sp."

Moscow, *Khimiya v Sel'skom Khozyaystve*, Vol 10, No 9(107), 1972, pp 31-32

Abstract: The insecticide basudin (0,0-diethyl 0-2-isopropyl-4-methylpyridyl thiophosphate) was used in three different forms to control *Sminthurus* sp. in turnips of the variety Osterzundomskaya: as a 60% concentrate emulsion in a dosage of 1 liter/ha, as a 50% wetting agent in a dosage of 1.2 kg/ha., and as a 10% granulated preparation in a 1 kg/ha. dosage. An 80% dispersing chlorophos powder was used as the standard. It was found that the use of insecticides in 1970, a favorable year for crops, was of little benefit, but in the following year, when conditions in the area were unfavorable and the pest multiplied greatly, the best yields came from the treated plots. Basudin was found to be almost as effective as the standard chlorophos, and its toxicity to the pest depended on the agroclimactic conditions of the year.

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USSR

UDC: 8.74

SEMAKOV, V. V.

"Concerning the Problem of Evaluating Error Probability in the Data Issued by a Computing Center"

V sb. Tsifr. vychisl. tekhnika i programmir. (Digital Computer Technology and Programming--collection of works), vyp. 7, Moscow, "Sov. radio", 1972, pp 30-37 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V594)

Translation: The paper presents an approach to the problem of determining the probability of appearance of a random error in data issued by a computing center when economic problems are solved on computers. Formulas are presented for estimating this probability. The article is of interest for an extensive class of specialists dealing with the organization of computer centers. Author's abstract.

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USSR

UDC: 8.74

SEMAKOV V. V.

"The Problem of Evaluating the Error Probability in Data Issued by a Computing Center"

Moscow, V sb. Tsifr. vychisl. tekhnika i programmir. (Digital Computer Engineering and Programming--collection of works) "Sov. Radio" 1972, pp 30-37 (from RZh--Matematika, No 8, 1972, Abstract No. 8V594)

Translation: An approach is suggested to the problem of determining the probability of the appearance of random error in the data issued by a computing center in the solution of economic problems on an electronic computer. Formulas are given for evaluating this probability. The article is interesting for a wide circle of specialists in the organization of computer centers. Author's abstract

1/1

Construction

USSR

UDC 69.024.:616.973.2

MBSKRAMSKAS, Yu. I., Candidate in Technological Sciences, SEMASHINA, A. B.,
Engineer

"Prestressed Keramzite-concrete Roof Slabs With Dimensions of 3 x 12 Meters"

Moscow, Beton i Zhelezobeton, No 5, May 70, pp 31-33

Abstract: This report covers the results of testing these panels. The subject panels were of two types, PMS20 and PMS22, with FNKS1a reinforcement in the latter. The panels were made using keramzite gravel with a particle size of 5-20 millimeters (45% under 10 millimeters and 55% over 10 millimeters). The strength of the keramzite-concrete in a cylinder is 25-30 kilograms per square centimeter, and its bulk weight is 550-600 kilograms per cubic meter. The formula for 1 cubic meter of keramzite-concrete is keramzite 0.8-0.85 cubic meters, type 400 cement -- 500 kilograms, quartz sand 0.35-0.4 cubic meters. The water to cement ratio varied from 0.55 to 0.60. The reinforcements were class A-IIIb steel rods of varying cross section, stressed to 4200-5000 kilograms per square centimeter.

The panels were tested under different loads for short and long periods (30 and 200 days). The following conclusions were drawn: The panels are 30-35%
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USSR

MESHKAUSKAS, Yu, I., et al, Beton i Zhelezobeton, No 5, May 70, pp 31-35

lighter than similar panels of heavy concrete, which reduces the standard load requirement by 10-13%; under standard loading, the panels are in an elastic state and show sufficient rigidity under both brief and prolonged loads; the displacement after 200 days under load is 1.5 times that for brief loads, and after 1000 days it is 1.75-1.8 times that under brief loads; due to the great deformation (settling and creep) of keramzite-concrete from the shrinking of prestressed reinforcements, the panels shrink even under standard load, which must be taken into account in the design of supporting members and attachments; since the panels have not been tested under repeated horizontal loads, they should be used for the roofs of buildings without an overhead crane installation or with a light load crane whose capacity does not exceed 10 tons.

The results of the tests are given in detail, including two tables and five graphs.

2/2

USSR

UDC 911.3:616.936

SERGIYEV, P. G., LYSENKO, A. Ya., NEMIROVSKAYA, A. I., and SEMASHKO, I. N.

V sb. Materialy Nauchn. konferentsii, posvyashch. 50-letiyu In-ta med. parazitol. i tropich. med., 1970 (Proceedings of the Scientific Conference Devoted to the 50th Anniversary of the Institute of Medical Parasitology and Tropical Medicine 1970 -- collection of works), Moscow, 1970, pp 12-14 (from RZh-Meditsinskaya Geografiya, No 2, Feb 71, Abstract No 2.36.81)

Translation: The contemporary area of Plasmodium vivax was reduced to almost half its size in connection with advances made in the eradication of malaria. P. vivax in multiple foci of malaria disappears later than P. falciparum. Strains with a prolonged incubation (primarily a long latent period) were found to be more adaptable to sanitary measures than were strains with a short incubation period and a secondarily long latent period. In practically malaria-free territories, when malaria outbreaks occurred because of previous cessation of sanitary measures, these outbreaks started with 3-day malaria.

1/1

USSR

UDC 576.858(Kemerovo).097.2

KARMYSHEVA, V. YA., SEMASHKO, I. V., and CHUMAKOV, M. P., Institute of Poliomyelitis and Viral Encephalitis, Academy of Medical Sciences USSR, Moscow

"A Quantitative Study of Antigen Accumulation and the Interaction of Kemerovo Group Viruses by Cytofluorimetry"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 72, pp 397-401

Abstract: Accumulation of Kemerovo, Tribech, Chenuda, and EgAn 1169-61 virus antigens in Syrian hamster kidney cells and the reactions of these viruses to homologous and heterologous antisera were studied by cytofluorimetry. The dynamics of antigen accumulation detected through fluorescein isothiocyanate staining were similar for all viruses. Cellular fluorescence was detected after 6 hours, peaked at 30 hours, and then decreased by 48 hours. Extracellular virus was detected after 18 hours and peaked at 48 hours. Reactions of these viruses to antisera were quantified by the degree of fading of fluorescence in response to the antisera. Assuming fading to be 100% in the reaction of Tribech virus to Tribech antiserum, responses to this antiserum were 83.4-84% for Kemerovo and EgAn 1169-61 viruses and 78% for Chenuda virus. Response of the latter was probably weaker due to ineffectiveness of the antiserum against cells with maximum antigen concentration. These results indicate that

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USSR

KARMYSHEVA, V. YA., et al., Voprosy Virusologii, No 4, Jul/Aug 72, pp 397-401

Kemerovo and EgAn viruses are closely allied antigenically to each other and to Tribech virus. Various virological tests confirmed the findings of cyto-fluorimetry. Thus the methods described are useful in identifying Kemerovo group viruses and quantifying their accumulation and interaction with antisera.

2/2

SEMASHKO, L. L.

JPRS 56030

18 May 72

JDC 612.111.2.014.482

ERYTHROCYTE RESERVE IN HEALTHY AND CHRONICALLY IRRADIATED DOGS

[Article by A. V. Lyubkin, L. I. Semashko, A. G. Izergina, and B. A. Maskelev; Moscow, Rossiiskaya Biologicheskaya i Meditsinskaya Akademiya, Vol. 6, No. 2, March-April 1972, pp. 21-24, submitted for publication 10 June 1971]

Abstract: This paper gives experimental data which help to quantify the level at which the erythrocyte level of healthy and irradiated dogs is mobilized after a physical load. After running for 15 minutes on a treadmill at a speed of 5.2 km/hour the healthy dogs released into the bloodstream 2.5-0.7% of the red blood cells of the total number of cells circulating in the blood. The most distinct index showing the state of the erythrocyte reserve is the reticulocytosis which develops in response to a given physical load. On the basis of data in the literature and their own findings the authors suggest that the erythrocyte reserve originates in the bone marrow. No significant differences in the quantitative reserve of erythrocytes in healthy and irradiated dogs was found. The animals were irradiated in total doses of 370, 565, 670, and 770 rad for 24, 35, 42 and 51 months respectively.

Computations of the bone-marrow production of erythrocytes and the intensity of their breakdown in the human body in different laboratory animals revealed a correspondence of these parameters (Gronkite, et al.). Some authors assume that the erythroid elements, in contrast to granulocytes, do not form at all or form an insignificant cell reserve (Bond, et al.). At the same time, O. R. Kozlovich-Panchenko and L. Ya. Yevgenyeva point out that during light and brief work there is an increase in the hemocritin content and the number of erythrocytes due to emergence of the hemocritin content and there are changes in the erythrograms in the direction of an increase in the content of erythrocytes. Henyier work is characterized by an increase in the number of reticulocytes in the peripheral blood. However, we found no direct investigations in the literature indicating the magnitude

SEMASHKO, L. L.

Radiation Medicine

STATUS OF ERYTHROPOIESIS IN DOGS EXPOSED TO GAMMA RADIATION IN DOSES SIMULATING CONDITIONS ACCOMPANYING PROLONGED SPACE FLIGHTS

Article by L. L. Semashko, A. V. Il'yushin and E. A. Markelov; Moscow, Kozlovskaya Biologicheskaya Institut, Moscow, Vol. 9, No. 2, 1971, pp. 22-28, submitted for publication 10 June 1970.

SO: JPRS 53442
24 June 71

UDC 612.111.3.04.482.4

Abstract: This paper gives the results of studies of different aspects of erythropoiesis (lifetime of red blood cells, bone marrow production) of dogs exposed to Cobalt gamma irradiation for 2.5 years. Two-year chronic irradiations with a dose of 62.5 rad/year, followed by exposures of 42 rad three times a year, shortened the half-life of erythrocytes. However, the damage processes were repaired, as could be judged from the absence of anemia, increase in bone marrow erythroid elements, and acceleration of bone marrow red blood cell production. Repair can be attributed to activated erythroid hemopoiesis. The changes produced by chronic irradiation alone were of a similar nature, but less distinct.

This paper gives the results of a study of the lifetime of erythrocytes, the bone marrow production of erythrocytes, and some other characteristics of erythropoiesis in dogs subjected for 2.5 years to γ -irradiation from a Cobalt source. This work was part of complex investigations of the biological effects of prolonged irradiation, in dose intensity and duration simulating the radiation conditions in a ship cabin during prolonged space flight (Yu. G. Gribor'ev, et al.).

Material and Research Methods

In the experiments we used 30 common male dogs ages two or three years. The animals were broken down into three groups: the 12 dogs in the first group, against a background of persistent (22 hours a day) chronic irradiation with a dose intensity of 62.5 rad/year, were subjected each four months to repeated radiation in a dose of 42 rad. The total mean absorbed tissue dose

Acc. Nr: AP0036976 5

Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i
Immunobiologii, 1970, Nr 1, pp 98-102

LABORATORY STUDIES OF STRESSOR AND SENSITIZING
ACTION OF HUMAN GAMMA-GLOBULIN

Leytes, F. L.; Spotarenko, S. S.; Avaliani, Z. S.;
Semashko, M. I.; Karon, B. I.

The authors applied determination of biochemical urinary excretion of 17-ketosteroids to the study of stressor effect of homologous gamma-globulin in man. The possible sensitizing action of this preparation was investigated by testing degranulation of mast cells of mouse subcutaneous connective tissue in their contact with the serum mixture of immunized children and gamma-globulin. It was found that gamma-globulin (10%) possessed a weak stressor effect, not manifested clinically. Gamma-globulin produced a desensitizing effect, which was evidently associated with the competition of gamma-globulin with allergic antibodies at the territory of connective tissue cells.

REEL/FRAME
19721904

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Acc. Nr: AP0037020

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Ref. Code: UR 0239

PRIMARY SOURCE: Fiziologicheskii Zhurnal SSSR, 1970, Vol 56,
Nr 2, pp 204 - 210

STUDIES ON INITIAL PERIODS OF MUSCULAR ACTIVITY IN TRAINED SUBJECTS

Mikhaylov, V. V.; Abrosimov, V. V.; Voznyak, S. V.;
Semashko, S. S.; Sergiyenko, V. B.

Dept. of Physiology, State Central Institute of Physical Culture, and the Lab.
of Biomechanics, the National Res. Institute of Physical Culture, Moscow

Increased energy cost of initial stage and during submaximal work performed by sportsmen on a bicycle ergometer right after less intensive work, is discovered as compared with energy expenditures under a steady state condition.

Values of the electric activity of 12 muscles of legs, arms and body, of the efforts applied to turn the pedals and shown by dynamogram, and of oxygen demand during various periods of work, are compared.

Increased energy expenditures during initial work periods are regarded from the viewpoint of a possible role of anaerobic reactions prevailing over aerobic those, spreading of excitation over the C. N. S. and energy expenditure overcoming inertia of the mechanical system.

D. H.

2

4

REEL/FRA
19721356

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 $r(\text{C-C}) = 1.547 \pm 0.020$, $r(\text{C-O}) = 1.488 \pm 0.020$, $r(\text{P=O}) = 1.438 \pm 0.015$, $r(\text{P-O}) = 1.616 \pm 0.010$, $r(\text{P-Cl}) = 2.057 \pm 0.010 \text{ \AA}$; $\angle \text{O-P-O} = 104.7 \pm 1.5^\circ$, $\angle \text{O-P-Cl} = 113.9 \pm 2.0^\circ$, $\angle \text{O-P-Cl} = 101.3 \pm 1.0^\circ$, $\angle \text{C-C-O} = 108.2 \pm 1.0^\circ$; those for II $r(\text{C-C}) = 1.525$ (assumed), $r(\text{C-S}) = 1.879 \pm 0.010$, $r(\text{P-S}) = 1.885 \pm 0.020$, $r(\text{P-S}) = 2.123 \pm 0.010$, $r(\text{P-Cl}) = 2.006 \pm 0.015 \text{ \AA}$; $\angle \text{S-P-S} = 98.4 \pm 1.5^\circ$, $\angle \text{S-P-C} = 113.2 \pm 2.0^\circ$, $\angle \text{S-P-C} = 104.2 \pm 1.0^\circ$, $\angle \text{C-C-S} = 112.9 \pm 2.5^\circ$.

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USSR

UDC 539.27

NAUMOV, V. A., SEMASHKO, V. N., and SHATRUKOV, L. F., Institute of Organic and physical Chemistry imeni A. Ye. Arbutov, Academy of Sciences USSR, Kazan', and Kazan', Physico-Technical Institute, Academy of Sciences USSR, Kazan'

"AN Electron Diffraction Study of the Molecular Structure of the Dichloride of Isocyanatephosphonic Acid"

Moscow, Doklady Akademii Nauk SSSR, Vol 209, No 1, 1973, pp 118-121

Abstract: An electron diffraction study of the dichloride of isocyanatephosphonic acid $P(O)Cl_2N=C=O$ in the vapor state showed that the molecules of this compound have a trans-structure with respect to $P=O$ and NCO . The valency angle at N in the $P-N=C$ group had a value of $120 \pm 1.5^\circ$, which did not agree with the estimated value of 150° given by Yu. P. Yegorov et al., (Teor. i Eksper. Khim., Vol 5, 607, 1969). The length of the P-Cl bond was only by 0.013 \AA greater than that in $POCl_3$, which is equal to $1.993 \pm 0.003 \text{ \AA}$. The fact that the difference was small can be ascribed to the close values of the electronegativities of the NCO group and Cl (2.8 and 3.0, respectively). The length of the P-N bond was $1.684 \pm 0.010 \text{ \AA}$, which is close to that in $Me_2NP(O)Ph_2$, $P(O)(NH_2)_3$, Me_2NPOCl_2 , and other similar compounds. The authors thank

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NAUMOV, V. A., et al., Doklady Akademii Nauk SSSR, Vol. 209, No 1, 1973,
pp 118-121

Yu. P. Yegorov for a discussion of the results of the work. (Submitted by
Academician B. A. Arbuzov, 8 Jul 72).

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- 14 -

USSR

UDC 539.27

NAUMOV, V. A., and SEMASHKO, V. N., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR, Kazan'

"Electron-Diffraction Study of Structure of 3-Oxo-3-chloro-1,3-thiaphosphethane Molecule"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 4, 1971, pp 882-885

Abstract: The authors made an electron-diffraction study of 3-oxo-3-chloro-1,3-thiaphosphethane, first synthesized by N. V. IVASYUK and I. M. SHERMERGORN, for purposes of determining the shape of a four-membered ring containing both sulfur and phosphorus atoms in the 1,3-position. Two possible nonplanar molecular models were used to interpret the experimental data, viz. model I with the phosphoryl group in a pseudoaxial position, model II with a pseudoequatorial P=O bond. Theoretical intensity curves were calculated with the aid of a "Minsk-22" computer. It was found that the pairs of 3-oxo-3-chloro-1,3-thiaphosphethane consist of different kinds of molecules with a nonplanar ring. The phosphoryl group may take an axial or an equatorial orientation. A calculation of theoretical intensity curves for mixtures indicates that the proportion of molecules with an axial phosphoryl group is ~ 80 percent and with an equatorial phosphoryl group ~ 20 percent.

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USSR

NAUMOV, V. A., and SEMASHKO, V. N., Doklady Akademii Nauk SSSR, Vol 200, No 4, 1971, pp 882-885

The article lists the definitive geometric parameters of 3-oxo-3-chloro-1,3-thiaphosphethane and compares them with the principal structural parameters of different phosphethane derivatives.

The investigated compound was synthesized by M. M. GILYAZOV under the direction of I. M. SHERMERGORN.

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USSR

UDC 539.27

NAUMOV, V. A., and SEMASHKO, V. N., Institute of Organic and Physical Chemistry
imeni A. Ye. Arbuzov, Academy of Science USSR, Kazan'

"Electronographic Study of the Molecular Structure of 1-keto-1-chlorophosphacyclopentene-3"

Moscow, Zhurnal Strukturnoy Khimii, Vol 11, No 6, Dec 70, pp 979-982

Abstract: Experimental data are reported on the molecular structure of 1-keto-1-chlorophosphacyclopentene-3. The five-membered heterocyclic molecule has the shape of an envelope; the carbon atoms are all located in one plane. The P=O bond is cis with respect to the C=C bond, while the P-Cl bond is trans. Following molecular parameters have been obtained: C=C bond length = 1.340 ± 0.020 Å, C-C bond length = 1.510 ± 0.015 Å, P=O bond length = 1.440 ± 0.010 Å, P-C bond length = 1.835 ± 0.008 Å, and the P-Cl bond length = 2.040 ± 0.008 Å; the CPC angle = $98.5 \pm 1.5^\circ$, the ClPC angle = $101.3 \pm 1.0^\circ$, the ClPO angle = $115.3 \pm 2.0^\circ$, and the PCl angle = $101.3 \pm 1.5^\circ$.

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USSR

UDC: 669.822.053.2

VLASOV, V. G., ZHUKOVSKIY, V. M., SEMAVIN, Yu. N., REVEBTSOV, V. V.

"Some Singularities in the Reduction of Uranium Oxides"

V sb. Mekhanizm i kinetika vosstanovl. met. (Mechanism and Kinetics of Metal Reduction--collection of works), Moscow, "Nauka", 1970, pp 126-131 (from RZh-Metallurgiya, No 10, Oct 70, Abstract No 10 G187)

Translation: An investigation is made into the kinetic singularities of reduction of uranium oxides (UO_3 in various modifications, U_3O_8 , U_4O_9 , and UO_2) by the gases CO , H_2 , NH_3 , H_2+H_2 , CH_4 , and also by C . The adsorption-catalytic theory is taken as a basis for a detailed examination of the mechanism of interaction of oxides with gaseous reducing agents. The mechanism of high-temperature interaction of UO with C is discussed. One illustration, bibliography of nine titles. Authors' abstract.

1/1

1/3 013 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--EFFECT OF AMMONIA ON THE DETERMINATION OF SOME PYRIDINE DERIVATIVES
BY GAS LIQUID CHROMATOGRAPHY --U--
AUTHOR--(03)--KAN, I.I., SEMBAYEV, D.KH., SUVDROV, B.V.
COUNTRY OF INFO--USSR
SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 374-7
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY, METHODS AND EQUIPMENT
TOPIC TAGS--AMMONIA, PYRIDINE, GAS CHROMATOGRAPHY, AQUEOUS SOLUTION,
LIQUID CHROMATOGRAPHY, CHROMATOGRAPHIC ANALYSIS, ALDEHYDE, ORGANIC
NITRILE COMPOUND
CONTRL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2168 STEP NO--UR/0075/70/025/002/0374/0377
CIRC ACCESSION NO--AP0125749
UNCLASSIFIED

2/3 013

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125749

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MORE COMPLETE ELUTION OF SUBSTANCES FROM THE COLUMN DURING GAS LIQ. CHROMATOG. OF AQ. SOLNS. OF PYRIDINE BASES AND THEIR O CONTG. AND N CONTG. DERIVS. WITH GLYCEROL AND POLYETHERS USED AS LIQ. PHASES CAN BE ACHIEVED BY ADDING 1.01-0.05 VOL. PERCENT NH SUB3 TO THE CARRIER GAS. A METHOD IS SUGGESTED FOR THE ANAL. OF A MIXT. OF PYRIDINE, ME AND ET DERIVS. OF PYRIDINE, CERTAIN PYRIDINECARBOXALDEHYDES, AND PYRIDINEMONOCARBONITRILES. PYRIDINE MIXTS. ARE ANALYZED ON A CHROMATOGRAPH WITH A 150 CM LONG AND 0.4 CM INTERNAL DIAM. COLUMN, THE STATIONARY PHASE 30PERCENT GLYCEROL ON CELITE, COLUMN TEMP. 80DEGREES, RATE OF HE CARRIER GAS 1.5 ML-MIN, OF H 50 ML-MIN, OF AIR 75 ML-MIN. THE EMERGENCE, TIME UNDER THESE CONDITIONS IS 16.2, 14, 22.1, 26.3, AND 9.8 MIN FOR PYRIDINE, 2-PICOLINE, 3-PICOLINE, 4-PICOLINE, AND 2,6,LUTIDINE, RESP. PYRIDINE BASES IN A MIXT. WITH PYRIDINECARBOXALDEHYDES AND PYRIDINEMONOCARBONITRILES ARE ANALYZED ON A CHROMATOGRAPH WITH A 200 CM LONG COLUMN OF 0.4 CM DIAM., STATIONARY PHASES 25PERCENT TWEEN 20 ON INZ-600, PRETREATED WITH HCL AND 5PERCENT ALC, ALKALI. THE COLUMN TEMP. IS 140DEGREES, RATE OF N 58.6 ML-MIN, H 50 ML-MIN, AND AIR 250 ML-MIN. THE ELUTION TIME IS 3.0, 6.3, 26.9, AND 33.0 MIN FOR PYRIDINE, 3-PICOLINE, 3-PYRIDINECARBOXALDEHYDE, AND NICOTINCNITRILE, RESP. A MIXT. OF 2-PICOLINE, 3-ETHYLPYRIDINE, 2,METHYL,5,ETHYLPYRIDINE, PICOLINONITRILE, NICUTINONITRILE, 2,METHYL,5,CYANO AND 2,CYANO,5,ETHYLPYRIDINE IS ANALYZED ON A COLUMN, 200 CM LONG, 0.4 CM DIAM., COLUMN TEMP. 170DEGREES, RATE OF N 33.5 ML-MIN. THE ELUTION TIME IS 2.2, 4.7, 6.0, 18.4, 11.8, 15.5 AND 41.9, RESP.

UNCLASSIFIED

3/3 013
CIRC ACCESSION NO—A0125749
ABSTRACT/EXTRACT—FACILITY:


UNCLASSIFIED

PROCESSING DATE—30OCT70

INST. CHEM. SCI., ALMA-ATA, USSR.

UNCLASSIFIED

USSR

5 
RUTYS, V. S., ASKOL'DOV, V. I., LIBERMAN, A. B., SAMOYLOV, I., OSOLODOV, N. A.,
Central Scientific Research Institute for Ferrous Metallurgy, "Amurstal" Plant

"Economic Effectiveness in the Casting of Ship Steels Beneath a Level in a
Continuous Steel Casting Unit"

Moscow, Metallurg, No 10, Oct 70, pp 20-21

Abstract: Methods of protecting metal in a crystallizer from secondary oxidation during casting of type 10KSNB, 09G2S, 09G2, and other ship steels were studied. The investigations showed that when casting was performed beneath a level of a graphite-based mixture so that the surface of the metal was protected by the heat-insulating mixture, the volume of cleaning of cast billets and of sheets after rolling was reduced, and the rate of final rejection of sheets was decreased. The economic effectiveness of this method is 4.7 rubles per ton of steel.

1/1

1/2 008 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--FURFURYL ALCOHOLS FROM THE CORRESPONDING ALDEHYDES -U-
AUTHOR--(04)-SMIRNOV, V.A., KULNEVICH, V.G., SOLTOVETS, G.N., SEMCHENKO,
D.P.
COUNTRY OF INFO--USSR S
SOURCE--GER. OFFEN. 1,803,373
DATE PUBLISHED--14MAY70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL PATENT, FURFURYL ALCOHOL, ALDEHYDE, ORGANIC
SYNTHESIS, PENTOSE, HEXOSE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1422 STEP NO--GY/0000/70/000/000/0000/0000
CIRC ACCESSION NO--AA0120210
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AA0120210
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. FURFURYL ALCS. (I, R EQUALS H, CH SUB2 OH, ME, BR, OR CL) WERE PREPD. IN 90-98PERCENT YIELD BY TREATING THE CORRESPONDING ALDEHYDES (II) WITH NA AMALGAM AND PASSING CO SUB2. AQ. SOLNS., AQ. ALC. SOLNS., OR SOLNS. OBTAINED FROM THE HYDROLYSIS OF PENTOSANS OR DEHYDRATED HEXOSE WERE USED AS SOLNS. OF II. THUS, A 3.34PERCENT AQ. SOLN. OF 6.98 G I (R EQUALS CHO) WAS ADDED TO 0.3 L. 2.35N NA AMALGAM AT A RATE OF 16 ML-MIN AT 18DEGREES AND CO SUB2 WAS BLOWN THROUGH AT 45 L.-HR TO GIVEN 6.3 G I (R EQUALS CH SUB2 OH).

FACILITY: ORDZHONIKIDZE, S., POLYTECHNIC INSTITUTE NOVOCHERKASSK AND KRASNODAR POLYTECHNIC INSTITUTE.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--CORRELATION BETWEEN THE THERMAL STABILITY OF A VINYL IDENE CHLORIDE
ACRYLONITRILE COPOLYMER WITH ITS INTRAMOLECULAR STRUCTURE -U-
AUTHOR--(04)-SEMCHIKOV, YU.D., SLAVNITSKAYA, N.N., RYABOV, A.V., DOLOSKOVA,
L.M.
COUNTRY OF INFO--USSR S
SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(5), 328-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--THERMAL STABILITY, ACRYLONITRILE, COPOLYMERIZATION, MOLECULAR
STRUCTURE, CHLORINATION, VINYLIDENE RESIN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1235 STEP NO--UR/0460/70/012/005/0328/0329
CIRC ACCESSION NO--AP0134909
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134909

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERMAL DECOMP. OF RADICAL, BULK POLYMD. VINYLIDENE CHLORIDE (I) ACRYLONITRILE (II) COPOLYMERS (III) AT 170DEGREES IN VACUO GAVE A MAX. OF THE DEHYDROCHLORINATION RATE FOR III CONTG. SIMILAR TO 33PERCENT II (OVERLAPPING WITH THE MAX. NO OF I I II TRIADS IN III) AND A MIN. AT 50-60PERCENT II FOR III PROBABLY CONTG. II I II TRIADS; WHEREAS SIMILAR DECOMP. OF A MIXT. OF I AND II HOMOPOLYMERS SHOWED INCREASING DEHYDROCHLORINATION RATES APPROACHING THOSE OF III AT II CONCNS. GREATER THAN 60PERCENT. THUS, AT LESS THAN OR EQUAL TO 60PERCENT II CONTENT THERE WAS AN INTRAMOL. INFLUENCE BY II ON DEHYDROCHLORINATION OF I IN III; BUT AT GREATER THAN 60PERCENT II CONTENT, THE EFFECT WAS INTERMOL.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--COPOLYMERIZATION OF N VINYLPIRROLIDONE IN A CARBOXYLIC ACID MEDIUM
-U-
AUTHOR--(03)-SEMCHIKOV, YU.D., RYABOV, A.V., KASHAYEVA, V.N.
COUNTRY OF INFO--USSR
SOURCE--VYSOKO MOL. SOEDIN., SER. B 1970, 12(5), 381-4
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--COPOLYMERIZATION, STYRENE, HYDROGEN BONDING, CHEMICAL REACTION
RATE, CARBOXYLIC ACID, CHLORINATED ORGANIC COMPOUND, PYRROLIDONE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/1231 STEP NO--UR/0450/70/012/005/0331/0384
CIRC ACCESSION NO--AP0134905
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134905

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COPOLYMER, OF
 N-VINYL,2-PYRROLIDONE (I) WITH H SUB2 C:CHCL, H SUB2 C:CHOAC, OR STYRENE
 IN HOAC OR CHCH SUB2 CO SUB2 H SOLNS. WAS CARRIED OUT. THE REACTIVITY
 RATIOS, POLARITY FACTORS, AND SP. ACTIVITY FACTORS WERE DETD. THE
 CHANGES OF THESE PARAMETERS ARE DUE TO H-BONDING BETWEEN I AND THE
 ACIDS. IR SPECTROSCOPY SHOWS THAT THE H BONDS INVOLVE THE CO GROUP OF
 I. HOAC CONSIDERABLY INCREASES THE POLYMER. RATE OF I. FACILITY:
 NAUCH.-ISSLED. INST. KHIM., GORKI, USSR.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--IR SPECTRA OF VINYL DERIVATIVES AND CONJUGATION EFFECTS WITH THE
PARTICIPATION OF PI ELECTRONS OF THE VINYL GROUP -U-
AUTHOR--YEGOROVCHIN, A.N., SEMCHIKOV, YU.D., VYAZANKIN, N.S.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (1), 152-4

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IR SPECTRUM, CONJUGATE BOND SYSTEM, SPECTROSCOPIC ANALYSIS,
SILANE, ALCOHOL, ORGANOTIN COMPOUND, ORGANODGERMANIUM COMPOUND,
CHLORINATED ORGANIC COMPOUND, BROMINATED ORGANIC COMPOUND, IODINATED
ORGANIC COMPOUND, FLUORINATED ORGANIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR SPECTRAL FREQUENCIES OF THE ME DEFORMATIONS IN 41 COMPS. INCLUDING HYDROCARBONS, ALCS., ETHERS, HALIDES, SILANES, GERMANES AND STANNANES CONTG. THE VINYL GROUP WERE TABULATED. THE FANNING MOTION OF THE VINYL GROUP IN SUCH COMPS. IS REFLECTED IN RESULTS OF THE INDUCTIVE EFFECT OF SUBSTITUENTS AS WELL AS RESULTS OF INTERACTION OR CONJUGATION OF PI, PI PRIME NEGATIVE, PI, P PRIME NEGATIVE, AND (D-PI) PI-TYPES.

UNCLASSIFIED

Superalloys

USSR

UDC 669.24*28

SEMCHISHEN, M.

"Molybdenum in Heat-Resistant Nickel-Base Alloys"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 7, 1973, pp 20-22

Abstract: The influence of molybdenum on properties of nickel-base alloys containing various amounts of titanium and aluminum was experimentally investigated. The introduction of molybdenum into heat-resistant nickel-base alloys increases the dissolution temperature of the γ' -phase and its quantity as a result of decreasing the aluminum solubility in the γ' -matrix. By replacing chromium, molybdenum dissolves in large quantity in the γ' -phase, increases the lattice parameters of γ' -phase, and decreases the enlargement rate of γ' -phase particles. The introduction of molybdenum into alloys with nickel, chromium, and aluminum considerably decreases destruction caused by corrosion at 870°C. After testing up to 980°C, molybdenum lowers the desintegration caused by oxidation. Four figures,

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1/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--INVESTIGATING THE DISTRIBUTION OF VELOCITIES IN PIPES WITH INTERNAL
LONGITUDINAL RIBBING -U-
AUTHOR--(03)-ORNATSKIY, A.P., SHCHERBAKOV, V.K., SEMENA, M.G.
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CIRC ACCESSION NO--AP0117591
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RATIOS ARE OBTAINED FOR THE VALUE
OF THE VELOCITY ON THE BOUNDARY BETWEEN THE JOINING OF THE CHANNEL
BETWEEN THE RIBS AND THE BASIC FLOW AND FOR THE VALUE OF THE AVERAGE
VELOCITY ALONG THE AXIS OF THE CHANNEL, TO THE AVERAGE DISCHARGE
VELOCITY AND THE GEOMETRIC DIMENSIONS OF THE PIPE. FACILITY:
KIEV POLYTECHNIC INSTITUTE.

UNCLASSIFIED

UDC 669.71:620.178.38

USSR

SEMENCHENKO, I. V., and GRINCHENKO, I. G.

"Fatigue of Surface-Workhardened AK-4 Alloy at Elevated Temperatures"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 11, Nov 70, pp 62-63

Abstract: Surface work hardening of AK-4 alloy increases its fatigue strength at room and elevated temperatures (up to 200° C). As a result of work hardening of the surface layer during fatigue bending tests with rotation on the basis of 10^7 cycles. The fatigue limit of specimens increased from 11 to 16 kg/mm². The fatigue limit of the work hardened layer of AK-4 alloy is reduced by 15% at a temperature of 200° C. The use of vibration treatment as a work-hardening-finishing operation for parts made of heat-resistant aluminum alloys which undergo cyclical loading at elevated temperatures, increases the fatigue strength of the parts and reduces the requirements for mechanical treatment.

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USSR

SEMENCHENKO, N. A.

Veterinarnaya sanitariya na zhivotnovodcheskikh fermakh (Veterinary Sanitation on Livestock Farms). Petrozavodsk, Kareliya, 1973, 36 pp, 1,000 copies printed

Annotation

The brochure discusses the basic requirements of veterinary sanitation for livestock farms. They not only serve to increase the productivity of livestock-breeding but also improve the quality of livestock products with respect to sanitation. A high level of sanitation on the part of milkmaids, herders, and other livestock workers prevents diseases of animals and also protects the health of the population against diseases that are common to humans and animals, which are also discussed in the brochure.

The brochure is intended for veterinary specialists, zootechnicians and other livestock workers.

Foreword

The Directives of the 24th Congress of the CPSU on the Five-Year Plan for the Development of the USSR National Economy in 1971-1975 call for the further development of animal husbandry. They pose the task not only of increasing the growth of livestock products but also of improving their quality in a sanitary sense.

In the resolution of these problems paramount importance must be assigned to improving the veterinary-sanitary state of livestock farms, to improving

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SEMENCHENKO, N. A., Veterinarnaya sanitariya na zhitovnovodcheskikh fermakh, Kareliya, 1973, 36 pp

the level of animal husbandry, and to the incorporation of the most progressive methods of managing this most important branch of agricultural production in practice.

While as we know milk is one of the most important foods, this product can be spoiled rapidly from the multiplication of microbes in it. When sanitary rules on dairy farms are not observed, milk obtained from totally healthy animals is subjected to bacterial contamination and can cause food poisoning in humans. For this reason the questions of veterinary sanitation on livestock farms must be given the most careful attention.

In the last few years, sovkhoses in the Karelian ASSR have done a certain amount of work to improve the veterinary-sanitary state of livestock farms. There has been a significant increase in the number of farms with good sanitary conditions. Among them mention should be made of the Borovskiy farm of the Tolvuyskiy Sovkhoz, of central farms of the Vedlozerskiy and Salmi sovkhoses, of the Kosmozerskiy farm of the Progress Sovkhoz, of the Ukhtinskiy farm of the Ukhtinskiy Sovkhoz, and many others.

Improved management of animal husbandry has made it possible to increase the productivity of the herd and to improve the quality of livestock products.

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SEMENCHENKO, N. A., Veterinarnaya sanitariya na zhitovnovodcheskikh fermakh, Kareliya, 1973, 36 pp

At the present time more than 97% of the milk is delivered with lower acidity and virtually no category-three milk is delivered due to mechanical contamination.

Many farm collectives have achieved positive results in improving the quality of livestock products by observing the necessary veterinary-sanitary requirements. These requirements are within the reach of all farms of sovkhoses in the republic and must be adhered to unswervingly by all livestock workers.

In the brochure offered to the reader, much attention is devoted to sanitary-hygienic demands on the maintenance of livestock buildings, to caring for the animals, for milking equipment and milk utensils, and to the observance of hygienic demands by livestock workers.

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SEMENCHENKO, N. A., Veterinarnaya sanitariya na zhiivotnovodcheskikh fermakh,
Kareliya, 1973, 36 pp

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USSR

UDC 536.421.4+536.421.1

SEMENCHENKO, V. K., and PETROVSKIY, V. A.

"Kinetics of Crystallization Center Generation"

V sb. Kristallizatsiya i faz. prevrashcheniya (Crystallization and Phase Transformations -- collection of works), Minsk, "Nauka i tekhn." 1971, pp 54-61 (from RZh-Fizika, No 9, 1971, Abstract No 9E373)

Translation: The authors present a microscopic theory of the kinetics of the homogeneous generation of crystallization centers, in which the form and anisotropy of the crystalline seed are taken into account. A kinetic equation for the nonstationary formation of crystalline seeds is derived. The equilibrium concentration is found for crystalline critical seeds formed in a real solution, melt, or vapor. A formula is obtained for the rate of stationary generation of crystallization centers. It is shown that the anisotropy of the surface tension in the crystalline phase has no effect on the kinetics of this process. Author's abstract.

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USSR

UDC 612.26

SEMENCHEVA, YE. A., All-Union Institute of Hygiene, and Toxicology of Pesticides, Polymers, and Plastics, Kiev

"Intensification of Hemoglobin A₂ Production in Human Adaptation to High Altitudes"

Kiev, Fiziologichnyy Zhurnal, Vol 17, No 6, Nov/Dec 71, pp 828-831

Abstract: Results of investigations conducted to determine the character of modifications taking place in the production of hemoglobin (Hb) -- adult type A₁, slowly migrating Hb A₂, and fetal Hb -- in the course of 2-6 hours' adaptation to high altitudes are presented in the article. For the purposes of the study an expedition of 36 people, 22 of them residents of Kiev in different age groups, and 14 natives of Terskol located at an elevation of 2,200 on Mount El'brus, was organized. The readings by means of electrophoresis on paper were obtained before departure from Kiev, during the ascent on El'brus at altitudes of 2,200, 3,700, and 4,200 m, and on return to Kiev. Erythrocyte homolysates extracted by chloroform and freed from protein sera and other admixtures were used as substrates for the study of Hb. Used also was a veronal-medinal buffer pH 8.6 with an ionic force of 0.05. It was found that at an altitude of 2,200 m Hb A₁ anode mobility in the Kiev participants of the expedition lagged somewhat from that of the Terskol natives. An analogous picture with relation to Hb A₁ was obtained in the

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SEMENCHEVA, YE. A., Fiziologichnyy Zhurnal, Vol 17, No 6, Nov/Dec 71,
pp 828-831

analysis of erythrocyte homolysates after a 3 hour process of adaptation to an altitude of 3,700 m. At an altitude of 4,200 m, however, a distinct increase in Hb A₂ production was noted. Simultaneously, a increase in the blood content of total hemoglobin also occurred. On return to Kiev the total blood content of Hb in the Kiev residents reverted to the normal level of 86.3 ± 3.40 , although the content of Hb A₂ remained at a high level of $9.6 \pm 0.68\%$ with relation to the total Hb. It was thus established that in the process of human gradual adaptation to high altitudes, a compensatory reaction in the organism takes place, manifested by intensification of the production of Hb A₂ and fetal Hb, both with a higher affinity for oxygen than Hb A₁ -- the basic respiratory pigment in the blood of adult healthy humans.

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UDC 539.173.3

USSR

KOMAR, A. P., Academician of the Academy of Sciences Ukrainian SSR,
BOCHAGOV, B. A., KOTOV, A. A., SEMENCHUK, G. G., and SOLYAKIN, G. YE.,
Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences
USSR, Leningrad

"Nucleonic Composition and Excitation Energies of Fissioning Nuclei
in Irradiation of Bi-209, Pb-208, and Au-197 Targets With Photons With
Energy $E_{\gamma max} = 1 \text{ GeV}$ "

Moscow, Doklady Akademii Nauk SSSR, Vol 190, No 6, 1970, pp 1308-1311

Abstract: The authors determine the nucleonic composition A,Z and
excitation energy E_{exc} of fissioning nuclei by using data on fission
product characteristics, particularly the effect of a decrease in
the kinetic energy of fragments with the escape of neutrons from
them and the calculation of the mass and energy distributions of frag-
ments at a given nucleus temperature. The article uses results relat-
ing only to light Bi-209 and Au-197 target nuclei, cited in an earlier

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