

1/2 022

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--GAS PHASE REACTIONS FOR THE PREPARATION AND TRANSFORMATIONS OF  
CHLORINATED ETHANES. CHLORINE INITIATED DEHYDROCHLORINATION OF  
AUTHOR--(05)-KRISHTAL, N.F., FLID, R.M., PIMENOV, I.F., SONIN, E.V.,  
TREGER, YU.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 248-9

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHLORINATION, CHLOROETHANE, CHEMICAL KINETICS, CHEMICAL  
REACTION RATE, CALCULATION, ACTIVATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1995/1405

STEP NO--UR/0076/70/044/001/0248/0249

CIRC ACCESSION NO--AP0116852

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116852

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE REACTION IS A HALF ORDER REACTION WITH RESPECT TO CL AND C SUB2 H SUB2 CL SUB4. TO DET. THE KINETIC PARAMETERS, A SERIES OF EXPTS. WERE CARRIED OUT AT 350-425DEGREES BY CHANGING (FOR EACH INVESTIGATED TEMP.) CL AND C SUB2 H SUB2 CL SUB4 AMTS. THE REACTION RATE CONSTS. WERE CALCD., AND A DIAGRAM WAS PRESENTED OF THE DEPENDENCE LOG K EQUALS F(1-T). THE ACTIVATION ENERGY WAS 23.8 KCAL-MOLE, AND THE COEFF. 6.67 TIMES 10 PRIME7 SEC PRIME NEGATIVE1. FACILITY: INST. TONKOI KHIM. TEKHNOL. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

PIMENOV, M.K.

Collection of papers sponsored by the State Committee for the Use of Atomic Energy of the USSR, 1972, Moscow

DISPOSAL OF RADIOACTIVE WASTES

JPRS 58764  
17 April 1973

23

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- a -  
(I - USSR - K)

SCIENTIFIC PREREQUISITES FOR BURYING HIGHLY ACTIVE LIQUID WASTES IN DEEP GEOLOGICAL FORMATIONS

Paper by V. I. Spitsyn, V. D. Belukova, F. E. Yudin, and M. K. Pimenov  
State Committee for the Use of Atomic Energy of the USSR; IAEA publication  
SM-163/49, Moscow, 1972

In the USSR storage spaces have been created for liquid wastes of intermediate and low radioactivity in deep aquifers of the Earth, composed of jointed and porous rock, reliably isolated by water-tight clay layers (1, 2, 3).

The storage areas in operation are engineering structures, the basins of which are found in definite hydrodynamic schemes, constructively outfitted wells and apparatus making it possible to regulate the filling of the storage space and to monitor the state of the wastes taken into it.

A complex of scientific research work performed and the results of

the operation of such storage spaces at the present time make it possible to make a definite evaluation of the possibility of such burial for highly active liquid. It is necessary to comment that with the removal of highly active waste into a geological medium it is not their simple discharge into some formation or other that is considered, but the creation of a storage area of definite dimensions and operating regime with a series of devices controlling its operations: wells, special plants, and instruments.

The introduction of highly active liquid wastes, which are, as a rule, nitric acid solutions in which corrosion products and a considerable quantity of soluble salts (such as nitric-acid salt, for example) are contained, into underground strata is accompanied by a number of physico-chemical processes, which may cause undesirable consequences.

This communication is devoted to the basic physico-chemical factors determining the operation of underground storage areas for the type of wastes under consideration.

4. Chemical Effect

The collector strata, with respect to their characteristics, differ basically from the physico-chemical system of the highly active discharges and all chemical reactions in the reaction of such systems are directed toward geochemical equilibria of the strata. However, in this case essential changes occur both in the composition of the wastes and in the system of strata.

The basic changes in the solid phase of the strata are associated with the effects of hydrogen ions and with the salinization of the surfacelayers of the rock particles. The effects of the acid, in the final analysis, turn out to be most effective and leads to the formation of a mechanical composition of the rocks. A decrease in the dimensions of the coarse particles and solution of the fine particles occurs, which for aluminosilicate rocks with an effective porosity of the strata of 8-12%, may cause destruction of 10-35% of the solid phase.

In a moderate effect of acid no failure of the skeleton of the rocks occurs, but the ion-exchange capability of the rocks for radionuclides decreases sharply.

For carbonate rocks failure occurs, practically completely, with possible gas formation.

The reaction of the liquid phases is also associated mainly with the change in the acidity and as a function of the composition of the ground waters it is accompanied by: for carbonate and bicarbonate waters, their decomposition; for chloride waters, a sharp increase of their chemical activity.

The decrease in the acidity of the water occurring causes hydrolysis sediment formation due to the dissolved components of the rocks, i.e., the stability of the liquid phase is disrupted, and a deposition of sediments in the threshold space occurs. In this case, the distribution of radionuclides between the phases varies sharply and the processes of heat and gas liberation become uncontrolled factors, which in the burial of highly active wastes is intolerable.

Thus, the first requirement for the accomplishment of the burial of highly active liquids is the provision of their compatibility with the stratum material and the preservation of homogeneity of the liquid phase. The solution of such a problem may be performed by two methods: special preparation of the wastes or preliminary preparation of the stratum.

PIMENOV, T. G.

Neurophysiology

DOES CESSATION OF A NEGATIVE STIMULUS CAUSE ACTIVATION OF THE BRAIN'S EMOTIONALLY POSITIVE ZONE

UDC 612.822.3

JPNS 57717

8 December 1972

[Article by T. G. Pimenov, N. G. Mikhaylov, and P. V. Stomov, Institute of Higher Nervous Activity and Neurophysiology, USSR Academy of Sciences, Moscow; Moscow, Volodya Aradchik Nev. SSSR, Russian, Vol 204, No 4, 1972, pp 1017-1020]

By I. P. Pavlov's definition reinforcement of a conditioning stimulus is an event that imparts a new significance to the stimulus that it had not possessed previously. According to such a definition both factors indispensable to the body (food) and a harmful, disturbing effect (pain) could act as reinforcement in the development of a conditioned reflex in equal measure. Research on instrumental conditioned reflexes has proposed separation of two types of reinforcement -- biologically negative "punishment" that the animal tries to minimize, and biologically positive "reward" that the animal tries to maximize. Many authors treat brain structures, the stimulation of which an animal tries to avoid or, on the other hand, prolongs by means of self-stimulation, as the dominant centers of these two afferent effects. There is a great deal of interest in the question of the degree to which cessation of a biologically negative stimulus could be regarded as a "reward." They is no single opinion on this matter in the literature. From the point of view of a number of authors, reinforcement of instrumental protective reflexes is positive inasmuch as it involves the avoidance of pain. In other words cessation of pain in such cases leads to activation of the nervous machinery producing positive emotions. One of the ways to test this hypothesis experimentally is to study the functional states of structures that are stimulated by the animal itself during a negative stimulus and after it is turned off. There are some data in the literature on the effect of a negative stimulus on the functional state of positive centers right during stimulation. The contradictory nature of these data can apparently be explained by differences in stimulus intensity, different localizations of the positive

Thermomechanical Treatment

USSR

UDC 621.789-977:669.15'26-194

PIMENOV, V. M., Central Scientific Research Institute of Technology and  
Machine Building

"High-Temperature Thermomechanical Treatment of Steel 9Kh"

Moscow, Metallovedeniye i Termicheskaya Lbrabotka Metallov, No 8, Aug 73,  
pp 24-25

Abstract: The investigated steel, containing (in %): 0.85 C, 0.30 Si, 0.30 Mn, 1.46 Cr, 0.012 S, 0.015 P, 0.08 Cu, was cast into eightsided ingots weighing two tons from which two forgings measuring 245 mm in diameter and 1660 mm in length were made from each ingot and cylindrical blanks made from the forgings which were quenched from 880 and tempered at 720°C. Shafts measuring 215 mm in diameter and 1500 mm in length were produced from the blanks and subjected to high-temperature thermomechanical treatment (HTTT). After HTTT the shafts were tempered at 150-160°C for 4-6 hours. Three sections are formed during burnishing of a shaft: the unsteady-state section, the stable process section, and the unstable process section of burnishing. Difference in the macro- and microstructure of the hardened metal and after HTTT at corresponding temperatures are not observed. Hardness distribution is the same after hardening  
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USSR

PIMENOV. V. M., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, Aug 73, pp 24-25

and after HTTT. The optimum temperature of hardening and HTTT of the shafts with a diameter of 200 mm of steel 0Kh was 920°C. The mechanical properties of steel 9Kh after HTTT at 800 and 920°C were higher than for the hardened steel. Use of HTTT in the manufacture of cold-rolling working shafts with a diameter of 210 mm increased the working capacity of hardened shafts by 20-32%. Two figures.

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PIMENOV, V. N.

JPRS 60612  
26 November 1973

(2)

INVESTIGATION OF MUTUAL DIFFUSION IN  
NICKEL-TUNGSTEN AND PALLADIUM-TUNGSTEN SYSTEMS

Article by V. N. Pimenov and Yu. S. Uras'ko; Sverdlovsk, Plazhka Metallurgicheskiy Institut, Russian Fed. No 3, 1973, signed to the press 17 February 1972, pp 550-556

Mutual diffusion was investigated in nickel- and palladium-base solid solutions in Ni-W and Pd-W systems. The correlation of the concentration relationship of the mutual diffusion parameters with the solute line path is shown on phase diagrams of the investigated systems.

In works /1-3/ the mutual diffusion was studied in nickel- and palladium solid solutions in systems Ni-Cr /1/, Pd-Cr /2/, and Ni-Mo and Pd-Mo /3/ for the purpose of revealing certain principles of diffusion processes in limited solid solutions. This work is a continuation of these studies for the Ni-W and Pd-W systems.

Experiments for the Ni-W system were conducted in the 1100-1300°C interval and for the Pd-W system--in the 1250-1450°C interval. According to the phase diagrams of these systems /4, 5/, the region of solubility in the indicated temperature interval is analogous to works /1-3/. The method of experimental diffusion pairs were electrolytic nickel, some-purified tungsten, and metallic palladium (99.8% pure), as well as a Ni-W alloy containing (in at. %): 87.5 Ni and 12.5 W. The following diffusion pairs were used here: for the Ni-W system--pure nickel and tungsten as well as the alloy and nickel; for the Pd-W system--pure palladium and tungsten. Concentration curves of component distribution in the diffusion zone, obtained by local X-ray-spectral analysis on an XG-40 unit, were determined on the basis of calibration curves as calculated in accordance with /6/ with considerations of corrections for the difference in

USSR

P  
UDC 535.33/.34:539.196

VINOGRADOV, I. P., PIMENOV, YU. D.

"Luminescence of Donor-Acceptor Interaction of Aromatic Molecules With  $AlCl_3$  and Aluminosilica Gel"

Leningrad, Vestnik leningradskogo universiteta, No 10, Part 2, May 1970, pp 32-37

Abstract: The partners in the molecular associations resulting from these interactions undergo marked structural changes which may lead to the formation of intermolecular compounds. In this paper the interactions of benzene, naphthalene, anthracene, and 3,6-diaminoacridine with strong acceptor molecules of  $AlCl_3$  and aluminosilica gel are studied. Such an analysis permits the determination of the ArH-acceptor type of molecular compound, often an intermediate product of various catalytic reactions. The article investigates systems obtained by alternating sublimation of aromatic molecules and  $AlCl_3$  on a liquid air-cooled substrate, systems obtained as the result of aromatic molecular vapors in contact with  $AlCl_3$  at room temperature, and systems formed by adsorption of reagents on aluminosilica gel. The spectral method was used, with the spectra measured by an excitation  
1/2

USSR

VINOGRADOV, I. P., et al, Vestnik leningradskogo universiteta,  
No 10, Part 2, May 1970, pp 32-37

lamp of the DRSh-500 type through a Hilger monochromator with a KCl prism and a standard light filter. The modulation frequency of the excitation lamp was 200 Hz. Other details of the experimental methods and equipment are given. The authors conclude that one can assume the formation of carbonate ions of the aromatic molecules and positive molecular ions in the ArH-acceptor binary system.

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USSR

UDC 669.71.41

PIMENOV, Yu. P., DANILKIN, V. A., DEMENKOV, A. I.

"Sampler for Taking of Sample From Aluminum Melts for Determination of Hydrogen Content by Vacuum Extraction Methods"

Tekhnol. Legkikh Splavov. Nauchno-Tekhn. Byul. VILSa [The Technology of Light Alloys, Scientific and Technical Bulletin of the All-Union Institute of Light Alloys], 1970, No. 6, pp. 94-97. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G168 by S. Krivosova).

Translation: It is recommended that the copper mold be replaced by a sampler, allowing samples to be taken directly from the melt bath without significant disruption of the oxide cover, with high accuracy of sampling point ( $\approx 15$  mm), production of a specimen ready for lathe processing, and more complete fixation of  $H_2$  in the specimen. A rubber bulb is used to create rarefaction in the sampler. A quartz tube is then placed in the melt and the metal is drawn up into the cylindrical channel of a copper body, in which it crystallizes rapidly. The sampler has been used to produce specimens, the gas content of which corresponded to the solubility of  $H_2$  in liquid Al at the sampling temperature with a partial pressure  $P_{H_2}=1$  atm. The theoretically limiting concentration of  $H_2$  was determined in the Al. 2 figs; 2 tables.

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USSR

UDC 669.71.018.9.4

SHAROV, M. V., PIMENOV, YU. P.

"Processes of Absorption and Separation of Hydrogen by Aluminum and Alloys"

Metallved. splavov legkikh met. -- V sb. (Physical Metallurgy of Alloys of Light Metals -- collection of works), Moscow, Nauka Press, 1970, pp 80-87 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 46207)

Translation: The laws of the processes of absorption and separation of hydrogen by melts based on aluminum are investigated. The  $Al_2O_3$  distributed in the alloy and found on its surface noticeably reduces the rate of achievement of physical and chemical equilibrium in the gas-metal system. There are 5 illustrations and an 8-entry bibliography.

1/1

USSR

UDC 621.762:669.018.29

SHAROV, M. V., and PIMENOV, YU. P.

"Study of Structure of Aluminum Oxide Enclosed in Aluminum"

Tr. Mosk. aviats. tekhnol. in-ta (Works of Moscow Aviation Technological Institute), No 71, 1970, pp 32-40, (from Referativnyy Zhurnal-Metallurgiya, No 1, 1971, Abstract No 1 G476 by the authors).

Translation: A method is described for x-ray structural analysis of Al oxides present in Al. It is demonstrated that three types of Al oxide may be present in the liquid metal. The structure of Al oxides on the surface of the metal is also studied. 3 figures; 3 tables; 6 biblio. refs.

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USSR

UDC 669.71.017:669.788

SHAROV, M. V., and PIMENOV, Yu. P.

"Processes of Absorption and Hydrogen Separation by Aluminum and Alloys"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970,  
pp 80-87, resume

Translation: Regularities of absorption and hydrogen separation processes by aluminum melts are discussed. It is demonstrated that aluminum oxide distributed in the metal and on its surface, considerably decreases the rate at which the physico-chemical equilibrium in the gas-metal system is achieved. Five figures, eight bibliographic references.

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USSR

ZAKHAROV, YE. V., PIMENOV, YU. V., SHALKINA, L. A.

"Algorithm for Numerical Solution of the Axisymmetric Problem of Electromagnetic Wave Diffraction by an Ideally Conducting Surface of Rotation"

Moscow, Vychislitel'nyye Metody i Programirovaniye XVI, 1971, pp 147-159

Abstract: A study was made of the axisymmetric problem of electromagnetic wave diffraction by ideally conducting, infinitely thin surfaces of rotation. The integral equations in this case are uniform, and the logarithmic singularity of the kernel for coincidence of the arguments permits application of the self-regularization method [V. I. Dmitriyev, et al., Vychisl. metody i programirovaniye, No X, Moscow State University Press, 1968]. On the basis of the method of self-regularization, an algorithm for numerical solution of the corresponding equations is proposed which considers the nature of the behavior of the solution at the ends of the interval. The algorithm is analyzed as a function of the shape of the surface and frequency.

The algorithm described can be used to find the current density on the surface, after which the radiation pattern of the radiator in the presence of an ideally conducting surface of rotation can be calculated. This offers the possibility of determining the effect of a shield on the nature of the radiation. Sample normalized radiation patterns are presented for the case of a disc excited by magnetic and electric dipoles.

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USSR

UDC: 621.396.677.71

PIMENOV, YU. V. and SNEG, L. N.

"Studying an Annular Slit Cut in an Ideally Conducting Disc With a Large Radius"

Moscow, Radiotekhnika, No 7, 1970, pp 32-38

Abstract: The authors derive formulas for calculating the directivity diagrams of a disc excited by a unilateral, annular slit. Normalized directivity diagrams are given for  $ka=10$  at various  $kl$  values along with normalized directivity diagrams for a disc excited by two unilateral, annular slits. Calculations show that two of the derived formulas interlock in the  $25^\circ < \theta < 35^\circ$  region at  $ka=10$  while two others interlock in the  $145^\circ < \theta < 155^\circ$  region. The interlocking regions of the formulas shift toward the  $z$  axis as the  $r$  parameter is increased. The precision of the solution increases with the magnitude of  $ka$  and  $kl$ . The original article has six figures and 16 formulas.

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USSR

UDC:538.566+621.371

PIMENOV, Yu. V.

"Diffraction of Electromagnetic Waves by Ideally Conducting, Open Cylindrical Screen"

Tr. Mosk. Elektrotekhn. in-ta Svyazi [Works of Moscow Electrical Engineering and Communications Institute], No 1, 1970, pp 125-129 (Translated from Referativnyy Zhurnal Fizika, No 11, 1970, Abstract No 11Zh138 by V. A. Andrianov)

Abstract: The two-dimensional problem of diffraction of electromagnetic waves of H polarization by an ideally conducting, open cylindrical surface is studied. A method is suggested for derivation of the integral equation of the diffraction problem for the case in which the surface in question is a part of a coordinate surface, while the corresponding coordinate system allows separation of variables. A surface which is a part of the surface of a circular cylinder is analyzed concretely.

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1/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--ASYMPTOTIC SOLUTION TO THE TWO DIMENSIONAL PROBLEM OF THE  
DIFFRACTION OF ELECTROMAGNETIC WAVES ON AN IDEALLY CONDUCTING PLANE WITH  
AUTHOR--(02)--PIMENOV, YU.V., PRESS, A.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL TEKHNIKESKOI FIZIKI, VOL. 40, MAY 1970, P. 889-894

DATE PUBLISHED----MAY70

SUBJECT AREAS--PHYSICS, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--ASYMPTOTIC SOLUTION, ELECTROMAGNETIC WAVE DIFFRACTION,  
RECTANGULAR WAVEGUIDE, VECTOR ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

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PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139889

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. APPLICATION OF A 'SHADOW CURRENT' METHOD PROPOSED BY GRINBERG (1957) TO THE DERIVATION OF CONVENIENT ASYMPTOTIC FORMULAS FOR CALCULATING THE FAR DIFFRACTION FIELD OF AN ELECTROMAGNETIC WAVE INCIDENT ON AN IDEALLY CONDUCTING PLANE WITH AN INFINITE RECTILINEAR SLOT. THE FORMULAS ASSUME THAT THE VECTOR OF THE WAVE FIELD IS PARALLEL TO THE EDGE OF THE SLIT. THEY ARE VALID FOR ANY ARBITRARY ANGLES OF INCIDENCE AND OBSERVATION. GOOD AGREEMENT IS OBTAINED BETWEEN THE RESULTS OF THIS METHOD AND EXACT RESULTS. FACILITY: MOSKOVSKII ELEKTROTEKHNICHESKII INSTITUT SVIAZI, MOSCOW, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--EMISSION FROM AN INFINITE LINEAR SLOT MADE IN AN IDEALLY CONDUCTING  
STRIP -U-  
AUTHOR--1021-PIMENOV, YU.V., PRESS, A.A.  
COUNTRY OF INFO--USSR  
SOURCE--RADIOTEKHNKA, VOL. 25, APR. 1970, P. 57-61  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--ASYMPTOTIC SOLUTION, ANTENNA RADIATION PATTERN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3007/1023 STEP NO--UR/0108/70/025/000/0057/0061  
CIRC ACCESSION NO--AP0136450

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UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136450

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DERIVATION OF AN ASYMPTOTIC SOLUTION TO THE PROBLEM OF THE EXCITATION OF AN IDEALLY CONDUCTING INFINITE STRIP BY A LINEAR SLOT PARALLEL TO THE EDGES OF STRIP. THE SOLUTION IS OBTAINED FOR THE CASE WHERE  $ka$  ( $k$  IS THE WAVE NUMBER AND  $a$  THE STRIP HALF WIDTH) IS MUCH LARGER THAN UNITY (IN WHICH THE CONVENTIONAL FOURIER METHOD IS NO LONGER VALID). THE FORMULAS OBTAINED ARE USED TO CALCULATE THE RADIATION PATTERN OF A STRIP WITH A CENTRAL SLOT FOR  $ka$  EQUALS  $\pi$ .

UNCLASSIFIED

USSR

UDC: 621.45.004:620.181:669.017

Pimenova, G. P.

"Operating Life of Aviation Engines and Reliability of Turbine Blades"

Kazan', Izvestiya Vysshikh Uchebykh Zavedeniy, Aviatsionnaya Tekhnika, No 1, 1972, pp 109-114.

Abstract: As aviation gas turbine engines are developed and improved, their parameters rise. The working blades of turbines operate under the most unfavorable conditions. As practice has shown, their efficiency in many cases determines the operating life of the engine. Studies were made of the working blades of the first stage of a turbine, made of type ZhS6KP alloy. The results produced characterize the kinetics of change of the state of the blade material during operation on two types of engines.

1/1

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USSR

UDC 621.45.004:620.181:669.017

PIMENOVA, G. P., Kazan'

"Study of the Structure of Gas Turbine Blade Materials of ZhS6KP Alloy"

Problemy Prochnosti, No 11, 1971, pp 69-74.

ABSTRACT: Studies are presented of the working blades of a turbine of Type ZhS6KP alloy following running in of from 300 to 9,000 hours. Results are presented characterizing the kinetics of the change in state of blade material during operation on Type T and T-2 engines.

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USSR

UDC 576.8.06:678.026.3

PIMENOVA, M. N., PAVLOVA, V. G., and POZDNEVA, N. I., Moscow State University

"Effect of Microorganisms on Polyethylene Insulating Coatings"

Moscow, Biologicheskkiye Nauki, No 6, 1973, pp 97-100

Abstract: Spray coatings made of polyethylene, stabilizers, and fillers were tested for their ability to resist fungal and microbial corrosion when used on pipelines. No fungous growth was observed on a mineral medium in the presence of samples of the material. On wort-agar, the mycelia of certain fungi, especially *Spicaria*, *Fusarium*, and *Aspergillus* completely covered some of the samples. But the size of the contact angle of wetting did not change, suggesting that the properties of the coating surface were not affected. The samples were also resistant to desulfating, denitrifying and hydrocarbon-oxidizing bacteria, except the coatings containing such fillers as  $Cr_2O_3$  and silica flour. It is suggested that the contact angle of wetting be determined when evaluating changes in the properties of the surface of polyethylene coatings before and after exposure to microorganisms.

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USSR

UDC 582.263.095.3

PISKUNKOVA, N. F., PIMENOVA, M. N., and BAKLASHOVA, T. G., Biology Faculty,  
Moscow State University

"Some Data on the Role of Photosynthesis in the Utilization of Acetate and  
Pyruvate by *Scenedesmus quadricauda*"

Moscow, Mikrobiologiya, Vol 40, No 3, May/Jun 71, pp 386-388

Abstract: Diuron added to algae cultures exposed to light reduces the incorporation of  $C^{14}$  from bicarbonate by 90% and that from acetate and pyruvate by 80%, thus bringing it down to the level observed in darkness without diuron. This indicates that when the second photosystem is inhibited, algae cells are unable to assimilate  $CO_2$  formed through oxidation of acetate and pyruvate. The presence of acetate and pyruvate in the culture medium increases the concentration of chlorophyll in the algae by 40%, but does not increase the concentration of proteins and carbohydrates. It is concluded that *Scenedesmus quadricauda* develops mainly on the basis of photoautotrophic growth.

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172 022

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--THE DYNAMICS OF QUANTITATIVE CHANGES IN INTRACELLULAR ORGANIC SUBSTANCES DURING LONG TERM GROWTH OF CHLORELLA SP. K. -G-

AUTHOR--(04)-PIMENOVA, M.N., MAKSIMOVA, I.V., MELESHKO, G.I., LEBEDEVA, YE.K.

COUNTRY OF INFO--USSR

SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 2, PP 274-279

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHLORELLA, CULTURE MEDIUM, SACCHARIDE, NITROGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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2/2 022

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--A00054273

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LONG TERM CULTIVATION OF CHLORELLA SP. K IN THE FERMENTER OF A ROTATION TYPE WITH A DIRECT RETURN OF THE MEDIUM WAS ACCOMPANIED BY THE ACCUMULATION OF INTRACELLULAR ORGANIC SUBSTANCES. ENRICHMENT OF THE MEDIUM WITH METABOLIC PRODUCTS OF THE ALGAE WAS THE MOST INTENSIVE DURING THE FIRST TWO WEEKS OF THE EXPERIMENT. POLYSACCHARIDES AND NITROGEN COMPOUNDS PREVAILED AMONG SUBSTANCES ACCUMULATED IN THE MEDIUM. ORGANIC ACIDS WERE NOT ACCUMULATED IN THE MEDIUM UNDER THESE CONDITIONS OF GROWTH, SINCE THEY WERE THE SUBSTRATE FOR GROWTH OF THE ACCOMPANYING MICROFLORA.

UNCLASSIFIED

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USSR

UDC 582.263.095.4

PIMENOVA, M. N., MAKSIMOVA, I. V., MELESHKO, G. I., and LEBEDEVA, Ye. K., Chair of Microbiology, Soil Biology Faculty, Moscow State University imeni M. V. Lomonosov

"Dynamics of Quantitative Changes in Extracellular Organic Substances During Prolonged Cultivation of *Chlorella* sp. K"

Moscow, Mikrobiologiya, Vol 39, No 2, Mar/Apr 70, pp 274-279

Abstract: Cultivation of *Chlorella* sp. K in a rotary fermentation apparatus with direct return of the medium was accompanied by accumulation in the medium of organic substances constituting extracellular products of algae metabolism. During 38 days of cultivation, the content of organic substances in the medium increased from 333.3 to 1465.3 mg/l. The substances consisted of polysaccharides, N-containing compounds, keto acids, and volatile organic acids. During the 38 days of cultivation, the content of carbohydrates in the medium was approximately 30% organic substances, varying from 26 to 42% with approximately 50% N-containing compounds, varying between 21.9 and 63.4% and passing through a major maximum (63.4%) on the 30th day; about the same amount of keto acids (1.3%); and 0.3-7.1% of volatile acids. Maxima in the content of N-containing substances and of

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USSR

PIMENOVA, M. N., et al, Mikrobiologiya, Vol 38, No 2, Mar/Apr 70, pp 274-279

volatile acids coincided with maxima in Chlorella reproduction, while decreases in the content of these substances were accompanied by intensive propagation of bacteria. An equilibrium was established between the vital processes of Chlorella and those of the accompanying microflora, which utilized products of Chlorella metabolism (amino acids and volatile organic acids), thus preventing an increase in the amount of these products to a level at which they would have interfered with the propagation of Chlorella.

2/2

USSR

UDC 582.264.43.095.4

MAKSIMOVA, I. V., GORSKAYA, N. V., and PIMENOVA, M. N., Chair of Microbiology,  
Faculty of Soil Biology, Moscow State University imeni M. V. Lomonosov, Moscow

"Liberation of Organic Substances by *Chlorella pyrenoidosa* During Its Growth  
and Cell Division"

Moscow, Mikrobiologiya, Vol 14, No 1, Jan/Feb 72, pp 59-63

Abstract: The study was undertaken to clarify if *Chlorella pyrenoidosa* liberates organic substances into the medium during the rupture of cell membranes or during its growth, and to compare the composition of extracellular products at these stages of cell development. A pure strain S-39 of *Chl. pyrenoidosa* was studied. The aplanospores were inoculated into "Tamiya" medium diluted 1:4. The content of carbohydrates in the medium was calculated from changes in carbohydrate concentration during the transformation of aplanospores into the mature parent cells ready for division (i.e., during 9 hours of illumination and during the period of two divisions in light (i.e., 11 hours of illumination). The concentration of various organic compounds was calculated also after a complete division of cells in darkness (i.e., 9 hours of illumination and 15 hours of darkness). The amount of organic substances was estimated by wet combustion with potassium persulfate at 120°C for 30 min in sealed ampules.

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USSR

MAKSIMOVA, I. V., et al., Mikrobiologiya, Vol 41, No 1, Jan/Feb 72, pp 59-63

The CO<sub>2</sub> produced was estimated using gas analyzer type OA 5501. The total amount of keto acids was estimated using calorimetric measurement in the form of 2,4-dinitrophenylhydrazine. The total amount of free amino acids in the medium was tested using colorimetric estimation of alpha-amino nitrogen. The accumulation of various groups of organic compounds was associated with various stages in the life cycle of the Chlorella cells. The concentration of polysaccharides increased sharply only during reproduction of the algae. The concentration of free amino acids in the medium increased during the growth and transformation of the cells up to the beginning of the appearance of aplanospores. The concentration decreased during the transition of the algae to reproduction and during dark incubation. The concentration of keto acids in the medium increased both during growth and transformation and during the production of aplanospores from the parent cells in light. The keto acids are consumed in darkness.

2/2



USSR

UDC: 573.953+547.917+547.593.261

KLYASHCHITSKIY, B. A., PIMENOVA, V. V., BASHKATOVA, A. I., ZHELVAKOVA, E. G.,  
SOKOLOV, S. D., SHVETS, V. I., YEVSTIGNEYEVA, R. I., PREOBRAZHENSKIY, N. A.,  
Deceased, Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov

"Research in the Area of Derivatives of Asymmetrically Substituted Myoinositol.  
V. Complete Synthesis of sn-Myoinositol 1-Phosphate"

Leningrad, Zhurnal Obshchey Khimii, Vol 40 (102), No 11, Nov 70, pp 2482-2489

Abstract: A new method is used for synthesizing 1,2,4,5,6-penta-O-benzylmy-  
oinositol. The compound is separated into antipodes through diastereomeric  
orthoesters with D-mannose. Complete synthesis of the 1-phosphate of sn-myoin-  
ositol identical to the natural compound is carried out on the basis of 2,3,4-  
5,6-penta-O-benzyl-sn-myoinositol.

1/1

USSR

UDC 550.831

PIMSHTEYN, I. G., KONTSENEBIN, Yu. P.

"Use of the Method of Electrostatic Induction for Transformation of Gravitational Fields"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Geologiya i Razvedka, No 9, 1972, pp 102-106.

Abstract: This article demonstrates the possibilities of the method of modeling of gravitational fields by electrostatic induction for the solution of practical problems, using the solution of a specific problem as an example. Results produced are compared with results of transformation of fields on a type S-1 special device, as well as by the manual method. The results of preliminary experiments on the resolution of gravitational fields by electrostatic induction indicate that a compact and simple modeling device should be created on the basis of such an installation, allowing rapid production of a three-dimensional apparatus for conversion and resolution of gravitational fields with accuracies sufficient for practice.

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USSR

UDC: 624.012:539.4

PINADZHIAN, V.V., EPOYAN, A.O. and EPOYAN, R.O.

"Investigation of Anchor Length of Seven-Wire Strands in Light Concrete"

Yerevan, Nauch. Soobshch. Arm. NII Stroit. Materialov i Sooruzh.  
(Scientific Reports of Armenian Research Institute on Construction Materials  
and Structures), 1972, pp 111-118 (from Referativnyy Zhurnal-Mekhanika, 1973,  
Abstract No 2V967 by the authors)

Translation: Results are presented of an experimental investigation of anchor length of a seven-wire class P-7 strand of 15 mm diameter in light, lithoidal pumice concrete, prestressed to 10,000-11,250 kg/cm<sup>2</sup>, strength of squeezed concrete 220-320 kg/cm<sup>2</sup>, specific weight of concrete in air, dry about 1800 kg/cm<sup>3</sup>. Investigation was conducted on four series of beams, six in each series, and on five floor slabs for industrial buildings sized 1.5, 5.55 m. In accordance with test results it is recommended to determine the anchor length of wire strands in squeezed concrete of 300 kg/cm<sup>2</sup> strength by the SN and P standards; with the concrete strength of 250 kg/cm<sup>2</sup> a correction coefficient of 1.1 should be used.  
1/1

USSR

UDC: 624.012:539.4

PINADZHYAN, V.V. and KARAPETYAN, V.A.

"Elastic and Ultimate Deformations of Light Concretes With Natural Aggregate at Short Duration Compression and Bending"

Yerevan, Nauch. Svobsheh. Arm. NII Stroit. Materialov i Sooruzh. (Scientific Reports of Armenian Research Institute on Construction Materials and Structures), 1972, vyp 29, pp 14-26 (from Referativnyy Zhurnal-Mekhanika, 1973, Abstract No 2V937 by the authors)

Translation: Results are presented of determination of ultimate deformations of light concretes, aged three to six months, containing lithoidal pumice, subject to compression and bending. Direct measurements established that relative ultimate deformations of centrally compressed prisms and of compressed zone of concrete in transversally reinforced beams are  $160 \times 10^{-5}$  with concrete mark 150 and  $250 \times 10^{-5}$  with mark 350-400. Stress-strain relations for compressed concretes are presented. Ductile failure of medium mark (M-150)

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USSR

PINADZHYAN, V. V. and KARAPETYAN, V. A., Nauch. Svobshch. Arm. NII Stroit.  
Materialov i Sooruzh., 1972, vyp 29, pp 14-26

concrete and brittle failure of relatively high mark (M-350) concrete are pointed out. Poisson ratio of light concrete underbending with stresses not exceeding one half of the ultimate is 0.5 for marks 150-400; in the state close to failure it is 0.25 for mark 150 concrete, 0.4 for mark 350 to 400. 5 references.

2/2

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USSR

UDC 624.07

PINADZHIAN, V. V., KARAPETYAN, V. A., Armenian Scientific Research Institute of Building Materials and Structures

"On the Magnitude of the Initial Elasticity Modulus of Light Concretes"

Yerevan, Izvestiya Akademii nauk Armyanskoy SSR, Seriya tekhnicheskikh nauk, No. 4, 1971, pp 23-26

Abstract: Formulas used for obtaining the initial elasticity modulus for heavy and light concretes that are used in current standards for the design of concrete and reinforced concrete structures are discussed. The Graffe-Roche formula

$$E = 550,000 K_1/l + 270 K_2/R$$

is recommended for both heavy and light concretes. In the above formula R is the block strength of the concrete and  $K_1$  and  $K_2$  are correction coefficients. Tables are given for the values of the coefficients  $K_1$  and  $K_2$  of the basic types of light concrete with natural and artificial fillers. The initial

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USSR

PINADZHYAN, V. V., KARAPETYAN, V. A., Izvestiya Akademii nauk Armyanskoy SSR, Seriya tekhnicheskikh nauk, No. 4, 1971, pp 23-26

elastic modulus is also given as a function of the ground strength of the concrete in the form

$$E = 550,000 \cdot K_1 / l + 270 K_2' / R_{gr}$$

where  $R_{gr}$  is the ground strength of the concrete and  $K_2' = K_2 \cdot R_{gr} / R$ .

USSR

UDC: 632.95

PINAMONTA, FRANCO and MACCONE, SERGIO, Montecatini, Joint Stock Company of the ~~Mineral and Chemical~~ Industry (Italy)

"A Method for Preparing Liquid Insecticides"

USSR Author's Certificate No 248575, filed 23 Jul 62, published 8 Jan 70 (from RZh-Khimiya, No 22, 25 Nov 70, Abstract No 22 N659 P by P. V. Popov)

Translation: To prepare liquid concentrated preparations containing as an active insecticidal substance O,O-dimethyldithiophosphotylacetic acid monomethylamide and a surfactant, phenol, Cellosolve acetate, Carbitol acetate, and o-cresol are added to stabilize the active substance.

1/1

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1/2 010  
TITLE--CADMIUM SELENIDE -U- UNCLASSIFIED PROCESSING DATE--27NOV70  
AUTHOR--(03)-PECHKOVSKIY, V.V., PINAYEV, G.F., GORYAYEV, V.M.  
COUNTRY OF INFO--USSR  
SOURCE--U.S.S.R. 265,092. P  
REFERENCE--OTKRTIYA, IZOBRET., PROM., OBRAZTSY, TOVANYE ZNAKI, 47(10)20.  
DATE PUBLISHED--09MAR70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CADMIUM SULFIDE, CHEMICAL PATENT, SELENIUM COMPOUND, INERT  
GAS, SELENIDE, METAL OXIDE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/1442 STEP NO--UR/0482/70/000/000/0000/0000  
CIRC ACCESSION NO--AA0126973  
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AA0126973

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CD SELENIDE IS PREPD. FROM CDS AND  
SEO SUB2 AT INCREASED TEMP. IN AN INERT GAS CURRENT CONTG. 0.02-0.7 G  
SEO SUB2-1. GAS. FACILITY: BELORUSSKIY TEKHNOLOGICHESKIY  
INSTITUT IM. S. M. KIROVA.

UNCLASSIFIED

1/2 011

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--RECRYSTALLIZATION OF MAGNESIUM SULFITE CRYSTAL HYDRATES -U-

AUTHOR--PINAYEV, V.A.

P

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 871-2

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--RECRYSTALLIZATION, MAGNESIUM COMPOUND, HYDRATE, SULFITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1999/1063

STEP NO--UR/0080/79/043/004/0871/0872

CIRC ACCESSION NO--AP0123056

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123056

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHASE DIAGRAMS WERE DETD. FOR THE SOLY. OF MGSO SUB3 IN H SUB2 O. BOTH AS THE HEXAHYDRATE AND THE TRIHYDRATE. THE EFFECT OF IMPURITIES SUCH AS MGSO SUB4 AND MG(HSO SUB3) SUB2 ON THE TIME FOR RECRYSTN. OF THE HEXAHYDRATE WAS STUDIED. THE AMT. OF TIME NECESSARY TO CONVERT THE HEXAHYDRATE TO THE TRIHYDRATE DEPENDS ON TEMP. AND VISCOSITY.

UNCLASSIFIED

USSR

Glass and Ceramics

UDC 666.1:535.37

FUKO, R. A., PINAYEVA, M. M., KUZNETSOVA, V. V., KOZHAN, T. M., DEMIDOVICH, B. K., and KHOMENKO, V. S., Institute of Physics, Academy of Sciences, Belorussian SSR

"Luminescence of Terbium-Activated Glass"

Moscow, Neorganicheskiye Materialy, Vol 9, No 10, Oct 73, pp 1805-1808

Abstract: Results are presented from a study of the adsorption spectra and luminescence as well as the kinetics of luminescence of sodium-silicate glass with additions of  $Al_2O_3$ , CaO and MgO and activated with  $Tb^{+3}$  ions. Glass compositions were selected close to industrial glasses used in the technology of structural materials. The spectra in kinetics of silicate glass luminescence containing 15 wt %  $Na_2O$  and varying concentrations of  $Al_2O_3$ , CaO, and MgO with  $Tb^{+3}$  ions revealed differences associated with glass composition. The spectra of glasses containing  $Al_2O_3$  have additional lines at 526 and 535 microns which are absent in the other glass spectra. There was observed a tendency of diminished luminescence damping time from the  $5D_4$  level according to the degree of increased CaO and MgO content.

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USSR

PUKO, R. A., et al., Neorganicheskiye Materialy, Vol 9, No 10, Oct 73,  
pp 1805-1808

The relaxation times were determined for luminescence levels  $5D_3$  and  $5D_4$  of the  $Tb^{+3}$  ion in the glasses and it was shown that the kinetics of  $5D_4$  level colonization in the case of nonresonant excitation determines the transitions from the  $5D_3$  level. Two figures, two tables, seven bibliographic references.

2/2

- 17 -

Acc. Nr:

AP0046178

Abstracting Service:  
GEOPHYSICAL ABST.

5/70

Ref. Code:

UR0068

91747z Improvement in the process for drying ammonium sulfate. Kagasov, V. M.; Khlebnikov, O. P.; ~~Danilov, V. N.~~  
 (Karagand. Met. Zavod, Karaganda, USSR); *Koks Khim.*  
 1970, (2), 29 (Russ). To diminish the crystal size in by-product  
 (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> from coking ovens it is recommended to increase the  
 vacuum above the fluidized layer in the dryer, to increase the  
 discharge frequency to 58-60 times/hr, to abolish the chain  
 spreader, and to adjust the thickness of the fluidized layer to  
 45-55 cm. The investigation of the drying process revealed  
 that the melting of the salt in the dryer can be avoided to a great  
 extent without impairing the drying.  
 A. P. Mueller

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J.

V

18

REEL/FAME  
19781255

AA0043359

UR 0482

Soviet Inventions Illustrated, Section II, Electrical, Derwent,

243698 FREQUENCY MULTIPLIER containing transformer with a laminated core of high magnetic permeability in which the cross-section is restricted along a length of the magnetic circuit not exceeding 5% of the total length. The construction provides a local magnetic saturation and gives economy in material.

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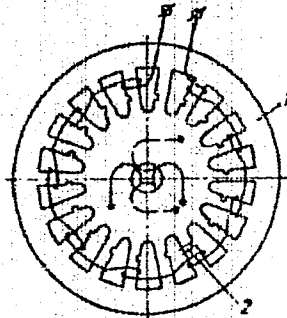


Fig. 2

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18.9.64 as 921248/24-7. A. G. PINCHUK (8.10.69) Bul 17/14.5.69. Class 21a<sup>2</sup>. Int. Cl. H 02 m.

4

x

19761610



AA0046400

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

242986 SCANNING SYSTEM FOR CIRCULAR SURVEY

2/70

Synchronizing pulses are applied to two multivibrators (1) and (2). Multivibrator (1) controls sawtooth generator (3) and multivibrator (2) is controlling electronic commutator (4). The saw-tooth voltage through the cathode follower is applied to the stator winding (6) of the sin-cos transformer (7). Initially valve (5) is shut through the switch (8). Pulses from the commutator (4) are applied to the phase inverter (9). Its positive output is controlled by switch (8), while negative pulses are controlled opening switch (10) to the rotary winding of the transformer (7). Sin-Cos output voltages through the cathode followers (12) & (13) are applied to the output system of the scanning.

15.6.64 as 906093/26-9. IV. M. GLOBIN & A. G. PINCHUK.  
 (25.9.69.) Bul 16/5.5.69. Class 21a<sup>4</sup>. Int. Cl. G 015.

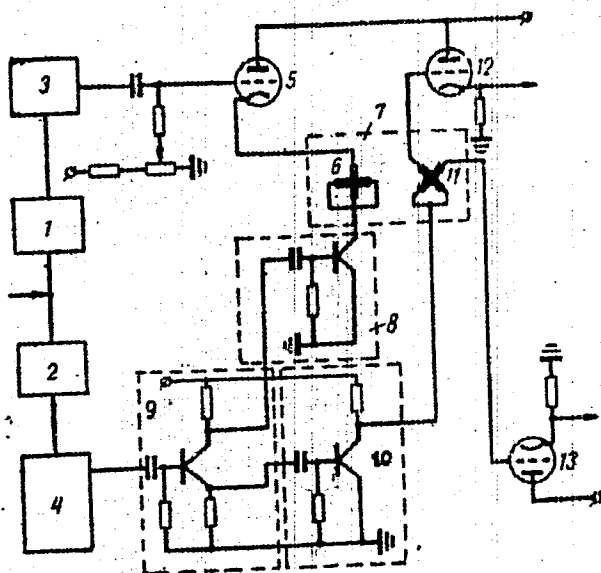
1/2

AUTHORS; Globin, N. M.; Pinchuk, A. G.

if

19781592

AA0046400



19781593

1/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--COLD DISEASES, TEMPORARY INCAPACITY FOR WORK AND SANITARY HYGIENIC  
CONDITIONS AT SOME ENTERPRISES OF LIGHT INDUSTRY IN VITEBSK -U-  
AUTHOR--PINCHUK, A.L. P  
COUNTRY OF INFO--USSR  
SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 5, PP 48-50  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--COMMON COLD, RHEUMATIC DISEASE, ANTIBIOTIC, INDUSTRIAL  
MEDICINE, INDUSTRIAL HYGIENE/(U)BICILLIN ANTIBIOTIC  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/0697 STEP NO--UR/0504/70/042/005/0048/0050  
CIRC ACCESSION NO--AP0126409  
UNCLASSIFIED

2/2 021

CIRC ACCESSION NO--AP0126409

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PERCENTAGE OF COLDS DISEASES OF THE TOTAL FIGURE OF MOBILITY COVERING THREE LARGE ENTERPRISES OF LIGHT INDUSTRY IN VITEBSK DURING THE PERIOD OF 1953-1964 CONSTITUTES 36PERCENT AS AN AVERAGE. STUDIES OF COLD DISEASES AND RHEUMATISM INCIDENCE REVEALED A CORRELATION BETWEEN THE NUMBER OF CASES AND THE SANITARY HYGIENIC CONDITIONS OF THE ENTERPRISES. MEASURES TAKEN TO IMPROVE THE CONDITIONS OF WORK IN COMBINATION WITH HEALTH PROTECTION MEANS AND, IN PARTICULAR, BICILLIN MEDICINAL PROPHYLAXIS BROUGHT ABOUT A DROP BOTH IN THE NUMBER OF CASES WITH THE MENTIONED NOSOLOGICAL FORMS AND IN THE NUMBER OF DAYS OF INCAPACITY FOR WORK. FACILITY:  
VITEBSKAYA OBLASTNAYA VTEK.

UNCLASSIFIED

USSR

UDC 546.185

KOSINSKAYA, I. M., PINCHUK, A. M., SHEVCHENKO, V. I., and BESPAL'KO, G. K.

"Phenyldichloro- and Diphenylchlorophosphazocyanoalkanes"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 1903-1906

Abstract: Replacement of one chlorine atom by a phenyl radical in tri-chlorophosphazocyanoalkanes does not prevent their conversion to tricyclic compounds in a reaction with hydrogen chloride, but lowers drastically the thermal stability of the products. The presence of two phenyl radicals in the phosphazo group stops completely the conversion of the phosphazocyanoalkanes into tricyclic compounds.

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USSR

UDC 546.185

KUKHAR', V. P., SHEVCHENKO, M. V., and PINCHUK, A. M., Institute of Organic Chemistry, Academy of Sciences, Ukrainian SSR

"Reaction of N,N-Dichloroamides of Arenesulfonic Acids With Trichlorophosphazo-1,1-dichloroalkanes"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 7, Jul 73, pp 1649-1650

Abstract: A mixture of 0.02 g-mole of trichlorophosphazoperchloroethane, 0.02 g-mole of the dichloroamide of Benzenesulfonic acid and 5% aluminum trichloride is heated for 1-2 hrs at 80-90°, until chlorine stops evolving. The mixture is then kept for 0.5 hr at 120°, cooled to 20-25° to yield 95% of trichlorophosphazocarbacyl  $Cl_3C-C(:NSO_3C_6H_5)N:PCl_3$ .

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- 41 -

USSR

UDC 547.26'11

MARCHENKO, A. P., PINCHUK, A. M., and FESHCHENKO, N. G., Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR

"Tris(N-alkyl-N-phenyl)amides of Phosphoric Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 1900-1903

Abstract: Tris(N-methyl-N-phenyl)- and tris(N-ethyl-N-phenyl)amides of phosphoric acid (I) and (II) were synthesized by reacting a mixture of 50 ml ether, 0.105 g-mole of phosphorus trichloride and 0.4 g-mole of triethylamine at 0° stirred in a stream of argon with a solution of 0.35 g-mole of methyl-aniline in 150 ml ether. The mixture is refluxed for 3-4 hrs, cooled to 10°, the precipitate is separated, mixed with 300 ml chloroform, cooled to 10° and the product is crystallized from chloroform. It was shown that the (I) and (II) described in previous literature are actually N,N'-dimethyl-N,N',N''-triphenyltriamide of phosphoric acid, its N,N'-diethyl homologue and N-ethyl-N,N',N''-triphenyltriamide of phosphoric acid.

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- 28 -

USSR

UDC 547.26'118

PINCHUK, A. M., and KHMARUK, A. M., Institute of Organic Chemistry, Acad.  
Sc. Ukrainian SSR

"Reaction of N,N-Dichlorodialkylphosphamides With Chlorosilanes"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 8, Aug 73, p 1861

Abstract: It was established that the N,N-dichloroamines and amides do not react with silicon, germanium and tin tetrachlorides and alkyltrichlorides. The only exception is the group of N,N-dichlorodialkylphosphamides which react with silicon tetrachloride and alkyltrichlorosilanes. The reaction occurs smoothly in the solution of the respective chlorosilane at 15-20°, two moles of chlorine being liberated. The reaction evidently begins at the phosphoryl group rather than at the N,N-dichloroamido group. The products are colorless liquids, extremely easily hydrolyzed.

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- 10 -



USSR

UDC 547.245

PINCHUK, A. M., GORBATENKO, Zh. K., and FESHCHENKO, N. G., Institute of Organic Chemistry, Acad. Sc. Ukrainian SSR

"Reaction of Phosphorus Triiodide With Morpholytrimethylsilane"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 8, Aug 73, p 1855

Abstract: To a suspension of 0.02 g-mole of  $PI_3$  in 50 ml benzene, 0.02 g-mole of morpholytrimethylsilane in 10 ml benzene was added with stirring. The reaction mixture was then refluxed for 1 hr, filtered, and after evaporation of solvents the morpholydiiodophosphine was obtained in quantitative yield, m.p.  $-43$  to  $-40^\circ$ . When the reagent ratio was 1:2 of  $PI_3$  to morpholytrimethylsilane, the product was the dimorpholyliodophosphine, m.p.  $102-104^\circ$ .

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USSR

UDC 547.26\*118

PINCHUK, A. M., and ZHILA, S. I., Institute of Organic Chemistry, Academy of Science, UkrSSR

"The Reaction of the N-chloro-N-methylamines of Dialkylphosphoric Acids with Compounds of Trivalent Phosphorus"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, p 2582

Abstract: The title reaction occurs easily for phosphorus compounds such as trichlorophosphorus, triarylphosphines, aryldichlorophosphines, and other compounds not containing the alkoxy group. For dialkoxy chlorophosphines, however, a reaction occurs not only with the nitrogen-chlorine bond but also with the dialkoxyphosphonyl group. Thus, the title reaction using triphenylphosphine occurs in a solution of boiling benzene or carbon tetrachloride with the formation of alkyl chlorides and the formation of phosphonidophosphates. However, if trichlorophosphine and phenyldichlorophosphine are used as a solvent, the alkylchloride separates as before but bisphosphorated alkylamines are formed. This reaction may be used to synthesize new phosphorus compounds and also those whose synthesis is difficult by current methods.

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USSR

UDC 547.298.3

PINCHUK, A. M., SULEYMANOVA, M. G., and FILONENKO, L. P., Institute of Organic Chemistry, Academy of Sciences UkrSSR

"Reaction of N-Chlorohexamethyldisilazane With Trivalent Phosphorus Compounds"  
Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 2115-2116

Abstract: N-chlorohexamethyldisilazane reacts with triaryl- and trialkyl-phosphines, trialkyl phosphites and chlorodialkylphosphites at 0-10° in ether, forming trimethylchlorosilanes and phosphazotrimethylsilanes. Following compounds have been synthesized: triphenylphosphazotrimethylsilane, m.p. 74-76°; tributylphosphazotrimethylsilane, b.p. 90-92°/0.04 mm,  $n_D^{25}$  1.4665; triethoxyphosphazotrimethylsilane, b.p. 86-87°/15 mm,  $n_D^{25}$  1.4180; tripropoxyphosphazotrimethylsilane, b.p. 62-63°/0.05 mm,  $n_D^{25}$  1.4210; tributoxyphosphazotrimethylsilane, b.p. 77-78°/1 mm,  $n_D^{25}$  1.4285; diethoxychlorophosphazotrimethylsilane, b. p. 83-85°/25 mm,  $n_D^{25}$  1.4275.

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USSR

UDC 546.185

KOSINSKAYA, I. M., PINCHUK, A. M., and SHEVCHENKO, V. I., Institute of Organic Chemistry, Ukrainian Academy of Sciences

"Phosphorylation of Cyanamides"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 11, Nov 1971, pp 2,396-2,398

Abstract: High reactivity of the triple bond of the nitrile group has been found characteristic of compounds of type R--X-CN (X = O, S, NR), and it is also known that the cyanates and thiocyanates readily add phosphorus pentachloride at the nitrile group. The authors demonstrate experimentally that the dialkylcyanamides and aroylcyanamides also readily add phosphorus pentachloride in the same way. The dialkylcyanamides, depending on the reagents used, are transformed into the acid chlorides, of N,N-dialkyl-N-tetrachlorophosphoiminocarbaminic acids; the aroylcyanamides, from hexachlorophosphate, yield the acid chlorides of (N-aroylimino)trichlorophosphazocarbonic acids.

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USSR

UDC 546.185

PINCHUK, A. M., KOSINSKAYA, I. M., and SHEVCHENKO, V. I., Institute of Organic Chemistry, Academy of Sciences of the Ukrainian SSR

"Dimerization of Trichlorophosphazocycloalkanes"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 3, Mar 72, pp 522-526

Abstract: Trichlorophosphazocycloalkanes undergo an addition reaction with a mole of hydrogen chloride to form 2,2,5-trichloro-4,4-dialkyl-2-phosphai-midazolium oxides which, when heated and treated with triethylamine or phosphorus pentachloride, eliminate a mole of hydrogen chloride, forming a mixture of trichlorophosphazocycloalkanes and 2,2,4,7,7,9-hexachloro-5,5,10,10-tetraalkyl-1,3,6,8-tetraaza-2,7-diphosphatricyclo[5,3,0,0<sup>2</sup>,6]-decadienes-3,8. The yield and thermal stability of the latter decreases with an increase in the volume of the alkyl substituents associated with the nitrogen atom.

1/1

USSR

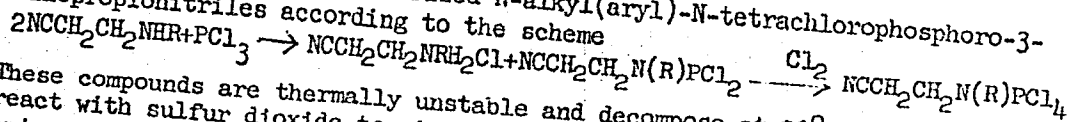
UDC 546.185

KOSINSKAYA, I. M., PINCHUK, A. M., and SHEVCHENKO, V. I., Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR

"Phosphorylation of N-Alkyl(aryl)-3-aminopropionitriles"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 1, Jan 71, pp 105-109

Abstract: The authors synthesized N-alkyl(aryl)-N-tetrachlorophosphoro-3-aminopropionitriles according to the scheme



These compounds are thermally unstable and decompose at 20°. They readily react with sulfur dioxide to give N-alkyl-(aryl)-N-dichlorophosphonyl-3-aminopropionitriles. The latter are very stable, showing no change at 130°. They are phosphorylated by phosphorus pentachloride at the nitrile group to give 2, 2,3,3-tetrachloro-3-tetrachlorophosphazo-N-alkyl(aryl)-N-dichlorophosphonylamino-3-propanes. The latter decompose on heating into phosphorus pentachloride and 2,2-dichloro-3-N-alkyl(aryl)-N-dichlorophosphonylamino-3-propanes.

1/1

USSR

UDC 546.185

SHEVCHENKO, V. I., MOKHAMED EL DIK, PINCHUK, A. M., Institute of Organic Chemistry, Kiev, Academy of Sciences Ukrainian SSR

"Phosphorylation of Benzylidenecyanoacetamides"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70, pp 1949-1954

**Abstract:** Benzylidenecyanoacetamides  $\text{ArCH:C(CN)CONHX}$  react with phosphorus pentachloride at the amide and carbonyl groups as well as at the ethylene bond. The unsubstituted amides ( $X=H$ ) yield compounds of the type  $\text{ArCH:C(CN)CON:PCl}_3$  and  $\text{ArCH:C(CN)CCl}_2\text{N:PCl}_3$ . When exposed to air humidity or to a calculated amount of acetic acid,  $\text{ArCH:C(CN)CON:PCl}_3$  yields N-dichlorophosphonylbenzylidene-cyanoacetamide, which can be reacted with  $\text{PCl}_5$  to give, most probably, 1,3-diaza-2-phosphacyclohexadienes-3,6. When  $\text{ArCH:C(CN)CONHCH}_3$  is reacted with  $\text{PCl}_5$  the reaction occurs initially at the double bond followed by the amide and carbonyl groups yielding the compounds  $\text{ArCHClCCl(CN)CONHCH}_3$ ,  $\text{ArCHClCCl(CN)CCl:NCH}_3$ , and probably  $\text{ArCHClCCl(CN)CONH(CH}_3\text{)PCl}_4$ . The latter is converted to  $\text{ArCHClCCl}$   
1/2

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SHEVCHENKO, V. I., et al, Zhurnal Obshchey Khimii, Vol 40, No 9,  
Sep 70, pp 1949-1954

(CN)CON(CH<sub>3</sub>)POCl<sub>2</sub> by reacting it with sulfur dioxide. The authors  
thank A. V. KIRSANOV for his advice and help in the work.

2/2



172 016  
TITLE—N,CHLOROPHOSPHAMIDES —U— UNCLASSIFIED PROCESSING DATE—30OCT70  
AUTHOR—(03)—MARKOVSKIY, L.N., PINCHUK, A.M., KOVALEVSKAYA, T.V.  
COUNTRY OF INFO—USSR  
SOURCE—ZH. OBSHCH. KHIM. 1970, 40(3), 543-5  
DATE PUBLISHED—70  
SUBJECT AREAS—CHEMISTRY  
TOPIC TAGS—CHLORINATED ORGANIC COMPOUND, ORGANIC SYNTHESIS, ORGANIC PHOSPHORUS COMPOUND, AMIDE, CHEMICAL STABILITY  
CONTROL MARKING—NO RESTRICTIONS  
DOCUMENT CLASS—UNCLASSIFIED  
PROXY REEL/FRAME—2000/0876  
CIRC ACCESSION NO—AP0124539  
STEP NO—UR/0079/70/040/003/0543/0545  
UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70  
CIRC ACCESSION NO--A0124539  
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. CHLORINATION OF (SHOWN ON  
MICROFICHE). THE N-ME MEMBERS COULD BE STORED INDEFINITELY AT  
20DEGREES; N-BU MEMBERS DECOMP. IN PART DURING DISTN. AND DECOMP. TO A  
CONSIDERABLE EXTENT WITHIN 5-6 DAYS. FACILITY: INST. ORG. KHIM.  
KIEV, USSR.

UNCLASSIFIED

I/3 015  
UNCLASSIFIED  
TITLE--PHOSPHORYLATION OF NITRILES OF 3,AMINO AND 3,N ARYLAMINOPROPANOIC ACID -U-  
AUTHOR--(02)--PINCHUK, A.M., KOSINSKAYA, I.M. PROCESSING DATE--27NOV70  
COUNTRY OF INFO--USSR  
SOURCE--ZH. OBSHCH. KHIM. 1970, 40 (3), 546-51  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ORGANIC NITRILE COMPOUND, AMINE, PROPIONIC ACID, HETEROCYCLIC NITROGEN COMPOUND, PHOSPHORUS CHLORIDE, ORGANIC PHOSPHORUS COMPOUND, CHLORINATED ORGANIC COMPOUND, ORGANIC SYNTHESIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3006/1470  
STEP NO--UR/0079/70/040/003/0546/0551  
CIRC ACCESSION NO--AP0135141  
UNCLASSIFIED

2/3 015 UNCLASSIFIED PROCESSING DATE--27NOV70  
CIRC ACCESSION NO--AP0135141  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REFLUXING 0.05 MOLE H SUB2 N(CH  
SUB2) SUB2 CN.HCL AND 0.2 MOLE PCL SUB5 IN C SUB6 H SUB6 2-2.5 HR GAVE A  
MIXT. WHICH, TREATED WITH DRY SO SUB2 AT 0-50DEGREES THEN HELD IN VACUO  
AT 30-50DEGREES, GAVE 75PERCENT CL SUB3 P:NCCCL SUB2 CCL SUB2 CH SUB2  
N:PCL SUB3, D PRIME20 1.8164, N PRIME20 SUBD 1.5827, WHICH HEATED IN  
VACUO AT 150-80DEGREES GAVE 60PERCENT NCCCL SUB2 CH SUB2 N:PCL SUB3 (I),  
B SUB0.06 64-5DEGREES, 1.5955, 1.5242. I IN C SUB6 H SUB6 WAS TREATED  
WITH 1 EQUIV. ACOH, HEATED 0.5 HR, AND KEPT OVERNIGHT TO YIELD 67PERCENT  
NCCCL SUB2, CH SUB2 NHPOCL SUB2, M. 84-5DEGREES, ALSO PREPD. BY EXPOSURE  
OF THE TRICHLORIDE TO MOIST AIR. I CHLORINATED 6 HR IN PHCL AT  
130DEGREES GAVE 60PERCENT NCCCL SUB2 CCL SUB2N:PCL SUB3, B SUB0.07  
77-9DEGREES, M. 36-8DEGREES. HEATING 0.05 MOLE PHNH(CH SUB2) SUB2  
CN.HCL WITH 0.2 MOLE PCL SUB5 IN C SUB2 H SUB4 CL SUB2 1 HR GAVE  
71PERCENT II, M. 137-8DEGREES, WHICH, WITH SO SUB2, GAVE 50PERCENT III,  
M. 103.5-5DEGREES, WHICH WITH CL AT 80DEGREES IN C SUB2 H SUB4 CL SUB2 7  
HR GAVE 60PERCENT IV, M. 137-8DEGREES. REFLUXING 0.05 MOLE ARNH(CH  
SUB2) SUB2 CN.HCL WITH 0.2 MOLE PCL SUB5 IN PHCL 1-1.5 HR SIMILARLY GAVE  
ARN:CCLCCL:CCLN:, PCL SUB3; AR EQUALS PH (V), B SUB0.03 119-22DEGREES, D  
PRIME20 1.5404, N PRIME20 SUBD 1.5942; AR EQUALS P CLC SUB6 H SUB4,  
30PERCENT B SUB0.03 133-6DEGREES, 1.5907, 1.6028 (ACCOMPANIED BY (P,CLC  
SUB6 H SUB4 N:PCL SUB3) SUB2, M. 180-2DEGREES. HEATING III IN PHCL 1.5  
HR GAVE HCL AND PCL SUB3 AND 76PERCENT V. IV SIMILARLY TREATED WITH PCL  
SUB5 IN C SUB6 H SUB4 CL SUB2 8 HR AT 170DEGREES GAVE 50PERCENT V.

UNCLASSIFIED

3/3 015

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135141  
ABSTRACT/EXTRACT--CHLORINATION OF V 1 HR AT 20DEGREES IN C SUB2 H SUB4 CL  
SUB2 GAVE 95PERCENT CL SUB3 P:NCCL SUB2 CCL SUB2 CCL:NPH, B SUB0.03  
158-60DEGREES, 1.6217, 1.6032; 82PERCENT P CHLOROPHENYL ANALOG, PREPD.  
SIMILARLY, B SUB0.03 159-61DEGREES, 1.6547, 1.6052. REFLUXING V WITH 1  
MOLE ACOH IN C SUB6 H SUB6 0.5 HR GAVE, AFTER 12 HR AT ROOM TEMP.,  
75PERCENT CL SUB2 P(O), NHCL TRIPLE BOND CCLCCL:NPH, M. 118-20DEGREES.  
P CHLOROPHENYL ANALOG, M. 141-3DEGREES, WAS PREPD. SIMILARLY.  
FACILITY: INST. ORG. KHIM., KIEV, USSR.

UNCLASSIFIED

USSR

P UDC 547.26'118

MARKOVSKIY, L. N., PINCHUK, A. M., and KOVALEVSKAYA, T. V., Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR

"Addition of N,N-Dichlorophosphamides to Styrene"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 5, May 70, pp 1011-1014

Abstract: N,N-Dichloramides of dialkylphosphoric acids readily add to styrene contrary to Markovnikov's rule to form N-chloro-N-2-chlorophenylethylamides of dialkylphosphoric acids (I). Reduction of the latter with an aqueous solution of sodium bisulfite or gaseous hydrogen chloride at 2-5° gives N-2-chloro-2-phenylethylamides of dialkylphosphoric acids. The latter and I split on the N-P bond under the action of gaseous hydrogen chloride at 50-60° to give 2-chloro-2-phenylethylamine chloride. N-2-Chloro-2-phenylethylamides of dialkylphosphoric acids react with an alcoholic solution of alkali to give 1-dialkoxyposphonyl-2-phenylethylenimines. The latter react with hydrogen chloride or chlorine to open the ethylenimine ring on the nitrogen-secondary carbon atom bond. The authors thank A. V. KIRSANOV for his advice and assistance.

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USSR

UDC 621.039.56(088.8)

KOROLEV, Ye. V., KOSTYLEV, D. V., ANDREYCHIKOV, B. I., PINCHUK, D. Ya.,  
BARANOV, Ya. I.

"Overload Machine"

Peregruzochnaya mashina (cf. English above), Authors Certificate USSR,  
Class G 21 d 1/00, No. 325635, Announced 30 October 1966, Published  
14 March 1972 (from RZh-50. Yadernyye reaktory, No 11, Nov 72, Abstract  
No 11.50.110 P)

Translation: An overload machine is patented that contains a shell, a plat-  
form, mechanisms for coordinate displacement, and a system for television  
observation. It has two manipulators to increase the reliability for  
acquiring and displacing nonequilibrium objects and a synchronization mecha-  
nism, a manipulator equipped with a device for the smooth increase and  
limitation of forces and an auxiliary manipulator equipped with a hand screw.  
The inner tube of the working manipulator was installed on a compression  
spring which was balanced by a second spring in order to increase the smooth-  
ness of shockless installation of the overload object and between the springs  
there was installed a transducer to control the magnitude of the force.  
1 ill.

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USSR

UDC 669.14.018.291:669.781(02)

MEDOVAR, B. I., PINCHUK, N. I., CHEKOTILO, L. V.

Austenitno-boridnyye stali i splavy dlya svarnykh konstruktsiy (Austenitic Boride Steels and Alloys for Welded Structural Elements), Kiev, Naukova Dumka Press, 1970, 147 pp, ill., 1 r. 8 k. (from RZh-Metallurgiya, No 4, Apr 71, Abstract 4I604K)

Translation: Data are presented on alloying austenitic steels and alloys based on Fe-Cr-Ni, Fe-Cr-Mn, and Cr-Ni with boron. The effect of boron on the structure and properties of the indicated materials is investigated. The effect of boron on weldability, inclination toward local rupture, stress corrosion cracking, high temperature strength, and resistance to scaling of steel and alloys was studied. The structure and properties of new types of austenitic-boron steels and alloys designed for parts of welded structural elements of the power, chemical, and other branches of machine building and the characteristic features of welding austenitic-boride steels and alloys are described.

1/1



USSR

UDC 669.15-194.2.56.621.791

MEDOVAR, B. I., PINCHUK, N. I., and CHEKOTILO, L. V.

"Austenitic-Boride Steels and Alloys for Welded Structures"

Austenitno-Boridnyye Stali i Splavy dlya Svarnykh Konstruktsiy [English Version Above], Kiev, Naukova Dumka Press, 1970, 147 pages.

Translation of Annotation: This book presents data on alloying of austenitic steels and iron-chrome-nickel, iron-chrome-manganese, and chrome-nickel-based alloys with boron. The influence of boron on the structure and properties of these materials is studied. Considerable attention is given to investigation of the influence of boron on the weldability, tendency to local rupture, corrosion cracking, heat resistance, and scale resistance of the steels and alloys.

The structures and properties of new types of austenitic-boride steels and alloys designed for welded structures in the power engineering, chemical, and other branches of machine building and the specifics of welding of austenitic-boride steels and alloys are described.

The book is designed for scientific and engineering-technical workers involved in metal science, metallurgy, and the welding of metals.

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USSR

MEDOVAR, B. I., et al., Austenitno-Boridnyye Stali i Splavy dlya Svarnykh Konstruktsiy, Kiev, Naukova Dumka Press, 1970, 147 pages

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2. Elimination of Hot Cracks in the Seam and Near-Seam Zone of Austenitic Steels	23
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USSR

MEDOVAR, B. I., et al., Austenitno-Boridnyye Stali i Spalvy dlya Svarnykh Konstruktsiy, Kiev, Naukova Dumka Press, 1970, 147 pages

Chapter III. Influence of Boron on Tendency of Austenitic Steels to Corrosion Cracking. Cavitation Resistance of Austenitic Boride Steels

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- 2. Mechanical Properties . . . . . 69

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Chapter V. Austenitic Boride Steels and Alloys for Welded Structures

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- 2. EP381 Heat-Resistant Steel, Corrosion-Resistant in Chloride Solutions . . . . . 93

104

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USSR

MEDOVAR, B. I., et al., Austenitno-Boridnyye Stali i Splavy dlya Svarnykh Konstruktsiy, Kiev, Naukova Dumka Press, 1970, 147 pages

3. EP537 Chrome-Manganese Steel, Corrosion-Resistant in Chloride Solutions . . . . .	110
4. EP532 Scale-Resistant Casting Steel . . . . .	113
5. Heat Resistant Nickel-based Casting Alloys . . . . .	118
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Chapter VI. Problems of the Technology of Welding Austenitic Boride Steels and Alloys . . . . .	125
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1/2 021

UNCLASSIFIED

PROCESSING DATE--27NOV70  
CATIONIC MECHANISM -U-

TITLE--POLYMERIZATION OF VINYLIDENE CHLORIDE BY A  
AUTHOR--(04)-KULIKOVA, A.YE., ZILGERMAN, YE.N., PINCHUK, N.M., OKLADNOV,  
N.A.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(4), 298-301 *P*

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYMERIZATION, VINYLIDENE RESIN, CHLORIDE, CHEMICAL REACTION  
MECHANISM, CATALYST, ZINC CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3006/1248

STEP NO--UR/0460/70/012/004/0298/0301

CIRC ACCESSION NO--AP0134922

UNCLASSIFIED

2/2 021  
CIRC ACCESSION NO--AP0134922  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT. THE CATIONIC POLYMER OF CH  
SUB2: CCL SUB2 WAS STUDIED IN THE PRESENCE OF ZNCL SUB2. UNLIKE THE  
POLYMER IN THE PRESENCE OF ALCL SUB3, ZNCL SUB2 INITIATED POLYMER GAVE  
MECCCL SUB2 CH: CCL SUB2 AND POLY(VINYLDENE CHLORIDE). A REACTION  
MECHANISM WAS PROPOSED.

UNCLASSIFIED

USSR

UDC: 669.35'11'71:620.18

IVANOVA, S. I., MYULLER, N. N., PINCHUK, P. A.

"Distribution of Chromium, Manganese and Zirconium in Copper-Iron-Aluminum Alloys"

Moscow, Tsvetnyye Metally, No 12, Dec 73, pp 53-54.

Abstract: X-ray spectral microanalysis is used to establish that the copper matrix in cast Cu-Fe-Al alloys contains 7 to 12% Al, 1.6-3.0% Fe and approximately 1/2 of the manganese introduced to the alloy. In alloys with chromium, the copper matrix includes sections rich in chromium, but almost all the chromium is located in the iron phase, containing from 1.5 to 14.4% Cu and 10.3 to 13.0% Al.

1/1

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USSR

UDC 669.15-194:669.295:621.785.6:  
:539.389.3:620.183.6

GRINBERG, B. G., PASHKOV, P. P., PINCHUK, P. A., KNYSHEV, Yu. V.,  
and SHTEYN, L. M., All-Union Correspondence Construction Engineer-  
ing Institute

"X-Ray Microanalysis of the Diffusion Layer in Titanium-Steel  
Bimetal"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallur-  
giya, No 7, 1973, pp 133-135

Abstract: Investigation results are presented of diffusion proces-  
ses in the bimetal VT1-1 titanium + EI702(N36TYu) alloy. The bime-  
tal was produced by means of joint rolling of EI702 alloy, heated  
in argon, with cold VT1-1 titanium. The thickness of the bimetal  
was 0.12-1.2 mm, that of the covering was 10% of this. Parts  
from the bimetal were hardened from 950-1000°C and subjected to  
hardening temper (aging) at 650-700°C for 2-6 hrs. The redis-  
tribution of iron, nickel, and chromium from EI702 alloy into  
VT1-1 titanium was determined. By comparison of the microhardness,

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USSR

GRINBERG, B. G., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 7, 1973, pp 133-135

the electron-topography, and the characteristic X-ray radiation with concentration redistribution curves of iron, nickel, and chromium, the character and regularities of the formation of diffusion zones in the process of production and of heat treatment of the bimetal were exposed. One figure, three bibliographic references.

2/2

USSR

UDC 621.357.3.035.2

PINCHUK, R. I., and KONDRIKOV, N. B.

"The Electrochemical Behavior and Adsorption of Aryl-Substituted Carbonic Acids in Aqueous Solutions on Platinum"

Nekotoryye problemy knietiki elektrodovostok (English Version Above)  
Topic Books from the Dal'nevost University, Vladivostok, 1972, pp 60-67  
(from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L271  
by L. S. Kanevskiy)

Translation: The electrochemical behavior and adsorption of phenyl substituted acids (phenylacetic, diphenylacetic, triphenylacetic) in aqueous solutions on platinated platinum was studied by methods of line loading and differential capacity. The character of the shift in potential during the introduction of these compounds onto the degassed surface of the platinum was specified, apparently, by the combination of the orientation of adsorption and the change in capacity factors for the acids studied. It was shown that the presence of specificity of the adsorbed compounds was not destroyed during the process of washing but was completely removed during anode polarization, and partly removed for cathode polarization. On the basis that the electrochemical behaviors of the different phenol-substituted acetic acids are similar to each other in their basic properties, the assumption was made

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USSR

PINCHUK, R. I., and KONDRIKOV, N. B., Nekotoryye problemy kinetiki elektrodivostok, 1972, pp 60-67

that the orientation of the phenol-substituted acids on the surface of the platinum during adsorption was the same. Most probable orientation is that of the carbonyl group towards the surface. During the study of the behavior of platinum electrodes having acids adsorbed on their surface ( $E = 1.2$  volts) in different phenol substituted acids, it was established that the latter have a low reactivity strength relative to adsorbed oxygen.

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USSR

UDC 612.465.014.45

PINCHUK, V. G., GEKHMAN, B. S., and LAZARETNIK, A. Sh., Kiev  
Institute of Experimental and Clinical Oncology; Kiev District  
Army Hospital

"Renal Ultrastructural Shifts Under the Influence of Ultrasound"

Kiev, Fiziologicheskii Zhurnal, Vol 17, No 1, Jan/Feb 71, pp 109-  
113

Abstract: Shifts in the ultrastructure of the renal organs induced by ultrasound with a frequency of 880 kc and an intensity of  $2 \text{ w/cm}^2$  for a period of 20 minutes were studied. Three dogs -- two experimental and one control -- were used in the experiments with the left kidney subcutaneously exposed. A single continuous acoustic stimulus was applied to the experimental dogs through the undamaged skin. The third dog was not subjected to the action of ultrasound. An examination of kidney sections excised from the animals established functional shifts in the glomeruli and tubules of the organs, indicating disturbed membrane permeability. Neither radical changes pointing to dystrophy,  
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USSR

PINCHUK, V. G., GEKHMEN, B. S., and LAZARETNIK, A. Sh.,  
Fiziologicheskii Zhurnal, Vol 17, No 1, Jan/Feb 71, pp 109-113

nor the presence of necrobiotic cells was discovered.

2/2

- 26 -

Acc. Nr: AP0047315

P

Ref. Code: UR 0300

PRIMARY SOURCE: Ukrayns'kiy Biokhimichnyi Zhurnal, 1970,  
Vol 42, Nr 1, pp 16-19

TRANSPORT INTO CYTOPLASM OF NUCLEAR DNA SIMILAR TO RNA  
IN THE PROCESS OF LIVER REGENERATION  
AND CHEMICAL HEPATOCANCEROGENESIS

O. M. Platonov V. P. Korotkoruchko, A. S. Polishchuk, V. G. Pinchuk

Institute of Biochemistry, Academy of Sciences, Ukrainian SSR, Kiev,  
Institute of Experimental and Clinical Oncology, Ministry of Public Health,  
Ukrainian SSR, Kiev

Summary

The transfer of nuclear RNA into the liver cytoplasm in normal rats was studied 24 hrs after partial hepatectomy and in the process of chemical hepatocarcinogenesis by the method of hybridization of nuclear RNA (D-RNA-1 and D-RNA-2) with DNA at the presence of non-labelled RNA.

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AP0047315

It is shown that in all the cases D-RNA-1 is presented in cytoplasm by a considerable amount of the hybridizable kinds of RNA.  
The cytoplasmic RNA of the rat normal liver is a weak competitor for D-RNA-2 for corresponding cytrones of DNA.  
In ithe process of regeneration and hepatocancerogenesis there observed a considerable amount of RNA capable of competing with D-RNA-2 for places on DNA.

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USSR

UDC 591.436.2.086.3

NIKITCHENKO, V. V., and PINCHUK, V. G., Laboratory of Electron Microscopy of Tumors and Laboratory of the Biophysics of Tumors, Kiev Institute of Experimental and Clinical Oncology, Academy of Sciences Ukrainian SSR

"Early Ultrastructural Changes in Hepatocytes Caused by Low Energy Laser Radiation"

Leningrad, Tsitologiya, Vol 14, No 1, 1972, pp 20-24

Abstract: Irradiation of surgically exposed rat liver with a single neodymium laser pulse (3 j) immediately causes formation of multiple vacuoles in hepatocytes and condensation of the cytoplasm around the vacuoles. One to 10 hrs later, blood sinusoids are enlarged. In some cells, mitochondria are swollen and their membranes ruptured, the granulated endoplasmic reticulum is fragmented, and the membranes of some nuclei are ruptured, resulting in leakage of chromatin. After irradiation with 10 pulses (30 j), the disorganization of the organelles is faster and more pronounced, lipid inclusions appear in the cytoplasm, coagulation necrosis develops in 10 hrs, and collagen fibrils are formed in the injured area. It is believed that the vacuoles are droplets of interstitial fluid which enters the cells through the laser-damaged cell membrane. Compared with hepatocytes, endothelial cells in the liver are much more resistant to laser rays.

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USSR

GIL'MAN, G. B., PINCHUK, V. K.

"Solution of Problem of Optimal Standardization of Reinforced Concrete Products and Structures using the Criterion of Minimum Total Cost"

EVM v Issled. i Proyektirovanii Ob'yektov Str-va [Computers in Research and Planning of Construction Objects -- Collection of Works], Kiev, Budibel'nik Press, 1972, pp 71-75 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V607, by the authors).

Translation: The optimal standardization of reinforced concrete products and structures is studied as a problem in nonlinear discrete programming. The expenditures for manufacture of products are represented as a nonlinear function of cost. The method of branches and bounds is used, an algorithm is developed for the problem and a working program is written in Minsk-22 code.

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USSR

UDC 621.385.632.01

ARISTARKHOVA, O.N., BORODENKO, V.G., MAL'KOVA, N.YA., PINCHUR, L.A.,  
POBEDONOSTSEV, A.S.

"Optimization On Digital Computer Of Efficiency Of Multisection TWT"

Elektron.tekhnika. Nauch.-tekhn.sb.Elektron. SVCh (Electronics Technology.  
Scientific-Technical Collection. Microwave Electronics), 1971, Issue 7, pp 111-  
114 (from RZh--Elektronika i yeye primeneniye, No 11, Nov 1971, abstract No  
11A181)

Translation: The results are presented of an automatic optimization on a digital computer of the efficiency of a traveling-wave tube with a gap [razryv], three-phase discontinuities, and a phase discontinuity of the wave velocity. With values of the amplification parameter  $C = 0.1$ , micropervence  $P_{11} = 0.8$ , and loss parameter  $d = 0.01$ , the electron efficiency of the optimum version of the TWT which is found amounts to 63 percent. With respect to the characteristics of the interaction mechanism, the version of the TWT considered is close to hybrid devices. Summary.

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UDC 612.017.1.014.2

USSR

PERSHIN, S. B., KHALATYAN, N. A., PINEGIN, B. V., and UTESHEV, B. S., Second Moscow Medical Institute imeni Pirogov

"Kinetics of Rosette-Forming Cells in Primary and Secondary Immunological Responses"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1971, pp 83-88

Abstract: The kinetics of rosette-forming spleen cells was studied in mice inoculated and 5 weeks later reinoculated with sheep erythrocytes. The number of these cells increased slightly during the first two days and exponentially during the next four days, after which they decreased slowly only to increase again on day 11. In the secondary immunological response, the rosette-forming cells increased more rapidly than in the primary response, the peak occurring on day 4 after the second injection of the antigen. A statistically significant relationship was noted between the number of rosette-forming cells and the size of the primary sensitizing dose of antigen in the secondary immunological response. These findings are discussed in the light of Sercarz and Coons' hypothesis on the development of immunocompetent cells.

1/1

PINEGIN, B. V.

MEDICINE

SO: SPRS 55038  
27 JAN 72  
LITERATURE SURVEY

THE ROLE OF MACROPHAGES IN INDUCTION OF ANTIBODY SYNTHESIS

Article by N. V. Pinesgin, B. B. Uteva, Second Moscow Medical Institute, 1971, pp 73-83  
N. I. Pirogov, Yermak Academic Medical Institute, Moscow, USSR, Nussbaum, No. 12, 1971, pp 73-83

Many investigators believe that interaction between different types of cells is a mandatory prerequisite for induction of antibody synthesis. It was found that formation of populations of antibody-producing cells following immunization of mice with sheep erythrocytes is related to interaction between antigen-reactive cells of the thymus and precursor cells originating from bone marrow (Mitchell and Miller, 1968; Miller, 1968; Miller, 1968; Bossal et al., 1968). Several intercellular contacts are needed for the precursor cells to begin the complex cycle of morphological and biochemical changes leading to production of antibodies (Miller and Cudkovic, 1970). A number of researchers believe that in addition to the above two types of cells, to induce an antibody response it is necessary for another group of cells, to induce an immunologic response. Perhaps they are macrophages (Jostler and Coppleton, 1968; Hunter et al., 1970; Leerman et al., 1970; Yoshida, 1970; Dupiton et al., 1970). In the opinion of these authors, a three-component system is involved in initiating antibody synthesis, and probably each participant performs specific functions.

The present survey deals with analysis of the literature which shows the role of macrophages in induction of antibody synthesis following immunization with both corpuscular and soluble antigens. However, in view of the very large quantity of information on this subject, we shall briefly submit only a few of the main issues which, in our opinion, illustrate the most graphically the significance of these cells in formation of the immunological response.

The Role of Macrophages in Absorbing Antigenic Material

Corpuscular and soluble antigens reach the cell through phagocytosis, pinocytosis, and macrophagocytosis -- raphocytosis. Reticular cells, histiocytes, macrophages, and leukocytes have the greatest capacity for these processes (Bessal, 1961). Neutrophils and macrophages play an important part in respect to removing foreign agents from the body. Cain (1964) found that R. cells are split at about the same rate in macrophages and in granulocytes. However, in the former case, the splitting of antigenic material is not associated with decrease in its immunogenicity. Macrophages are among the first cellular elements to capture antigen (Roberts, 1964).

USSR

UDC 615.272-7.015.46

PERSHIN, S. B., ~~PINEGIN, B. V.~~, UTESHEV, B. S., and KHALATYAN, N. A., Chairs of Microbiology and Pharmacology, Second Moscow Medical Institute imeni N. I. Pirogov

"The Effect of Nucleic Acid Metabolism Inhibitors on the Population of Antibody-Forming Cells in Secondary Immunological Response"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 15, No 4, Jul/Aug 71, pp 46-52

Abstract: Experiments with mice have revealed that during the secondary immunological response, nucleic acid inhibitors (aurantin and mitomycin C) depress the growth of antibody-forming cells, especially in the early stages of immunogenesis. Populations of indirect plaque-forming cells are depressed to a greater degree than populations of direct plaque-forming and rosette-forming cells. This is a specific characteristic of the secondary immunological response, which is absent in the primary response. 5-Fluorouracil depresses populations of both direct and indirect plaque-forming cells. However, direct plaque-forming cells are more sensitive to this immunodepressant than indirect plaque-forming and rosette-forming cells. The rosette-forming cells are most sensitive to aurantine and least sensitive to 5-fluorouracil and mitomycin C.

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1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--EFFECT OF INHIBITORS OF NUCLEIC ACID AND PROTEIN SYNTHESIS AND CELL  
DIVISION OF THE PRIMARY IMMUNOLOGICAL RESPONSE -U-  
AUTHOR-(04)-UTESHEV, B.S., PINEGIN, B.V., BABICHEV, V.A., LEVASHEV, V.S.  
COUNTRY OF INFO--USSR  
SOURCE--VESTN. AKAD. MED. NAUK SSSR 1970, 25(1), 62-70  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--NUCLEIC ACID, PROTEIN, CELL PHYSIOLOGY, IMMUNOLOGY,  
BIOSYNTHESIS, CHLORAMPHENICOL, ANTIBODY, SPLEEN, MITOSIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3002/0362 STEP NO--UR/0248/70/025/001/0062/0070  
CIRC ACCESSION NO--AP0127943

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127943

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EFFECT OF INHIBITORS OF DNA BIOSYNTHESIS, E.G., 5,FLUOROURACIL (I); AMETHOPTERIN (II) OR 9,AZAGUANINE, OF RNA BIOSYNTHESIS, E.G., AURANTHIN OR ETHIONINE, OF PROTEIN BIOSYNTHESIS, E.G., CHLORAMPHENICOL (III), AND OF CELL DIVISION, E.G., COLCHICINE (IV) ON THE PRIMARY IMMUNE RESPONSE WAS DETD. ALL INHIBITORS OF DNA OR RNA BIOSYNTHESIS WERE STRONG IMMUNODEPRESSANTS; THE MAX. EFFECT OCCURRED AFTER TREATMENT DURING EARLY STAGES OF IMMUNOGENESIS. ANTIBODY FORMING CELLS WERE RELATIVELY STABLE TOWARD III. IV CAUSED A MARKED DROP IN ANTIBODY PRODUCING CELLS IN THE SPLEEN; HOWEVER, WITH COMPLETE INHIBITION OF MITOSIS, ANTIBODY BIOSYNTHESIS STILL OCCURRED. THUS, ANTIBODY PRODUCING CELLS CAN EVIDENTLY FORM BY TRANSFORMATION OF NONPRODUCING CELLS AS WELL AS BY MITOSIS.  
FACILITY: II MOSK. MED. INST. IM. PIROGOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--IMMUNODEPRESSIVE PROPERTIES OF 5-FLUOROURACIL IN A LYMPHOID CELL  
CULTURE -U-  
AUTHOR--(04)--UTESHEV, B.S., PINEGIN, B.V., BABICHEV, V.A., TORCHENSKIY,  
G.A.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(4), 969-71  
DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--RNA, PROTEIN SYNTHESIS, LYMPHATIC SYSTEM, ENZYME ACTIVITY,  
GLOBULIN, ANTIBODY, URACIL

CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1004/1100 STEP NO--UR/0020/70/190/004/0969/0971  
CIRC ACCESSION NO--AT0115119

UNCLASSIFIED



UNCLASSIFIED

PROCESSING DATE--13NOV70

2/2 022

CIRC ACCESSION NO--AT0115119

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. 5,FLUOROURACIL (5,FU) INDUCED DEFECTS IN RNA MOLS. AND DISREPTED PROTEIN SYNTHESIS AT THE TRANSLATION LEVEL IN LYMPHOID CELLS, INDICATING INHIBITION OF ADAPTIVE ENZYME SYNTHESIS. PROTEINS WITH ANTIGEN STRUCTURES LACKING ENZYMIC ACTIVITY WER FORMED. THE GLOBULINE SHOWED DECREASED AFFINITY. THE NO. OF ANTIBODY FORMING CELLS DID NOT DECREASE AFTER 24 HR INCUBATION WITH 5 FU, INDICATING THAT THE HALF LIFE FOR INFORMATIONAL RNA IN THESE CELLS IS SEVERAL DAYS. THREE DAYS INCUBATION WITH 500 MG 5 FU-ML DID NOT SIGNIFICANTLY AFFECT THE NO. OF THESE CELLS, BUT AT 1000 AND 500 MG-ML, 5,FU DECREASED THE NO. OF ANTIBODY FORMING CELLS BY 35.0 AND 57.2PERCENT, RESP., DURING PROLONGED INCUBATION. FACILITY: II. MOSK. MED. INST. IM. PIROGOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 033 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--KINETICS OF ANTIBODY FORMING CELLS IN THE CULTURE OF LYMPHOID CELLS  
OF THE SPLEEN -U-  
AUTHOR-(04)-PINEGIN, B.V., UTESHEV, B.S., BABICHEV, V.A., KORSHUNOV, V.M.  
COUNTRY OF INFO--USSR P  
SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 4,  
PP 68-72  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANTIBODY, CELL CULTURE, LYMPHATIC SYSTEM, SPLEEN, CULTURE  
MEDIUM, HEMOLYSIS, AGAR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/1673

STEP NO--UR/0016/70/000/004/0068/0072

CIRC ACCESSION NO--AP0106419

UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0106419

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS DESCRIBE THE KINETICS OF ANTIBODY FORMING CELLS IN CULTURING LYMPHOID CELLS IN VITRO. SUSPENSION OF LYMPHOID CELLS OF THE SPLEEN WAS GROWN IN GLASSES ON 1PERCENT AGAR WITH THE USE OF HOTTINGER BROTH AS A NUTRIENT MEDIUM. THE NUMBER OF ANTIBODY FORMING CELLS WAS DETERMINED BY THE METHOD OF LOCAL HEMOLYSIS IN AGAR BY JERNE AND NORDIN'S METHOD. IN CULTURING UNDER THE MENTIONED CONDITIONS OF THE CELLULAR SUSPENSION OF THE SPLEEN OBTAINED FROM MICE ON THE 4TH DAY AFTER THE IMMUNIZATION, ANTIBODY FORMATION WAS OBSERVED FOR AT LEAST 16 DAYS. DURING THE FIRST DAY OF CULTURING THERE WAS A MARKED REDUCTION OF THE NUMBER OF ANTIBODY FORMING CALLS HOWEVER, THEIR NUMBER INCREASED AGAIN ON THE 7TH DAY, AND REMAINED CONSIDERABLE UP TO THE 16TH DAY, EXCEEDING THEIR NUMBER IN THE SPLEEN OF IMMUNIZED ANIMALS MANY TIMES.

UNCLASSIFIED

USSR

UDC 615.37.015.45:612.112.94

YARVELOV, B. N., PINEGIN, B. V., and UTESHEV, B. S., Chair of Microbiology and Pharmacology, Second Moscow Medical Institute imeni N. I. Pirogov

"Capacity of Antibody-Forming Cells Cultured in vitro to React With a Specific Antigen"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 10, 1971, pp 68-69

Abstract: The capacity of mouse immune lymphoid cells cultured in Hottinger's broth or Eagle's medium to produce rosettes was studied. Despite the preservation of a substantial number of direct and indirect plaque-forming cells in the culture, the lymphoid cells completely lost their capacity to form rosettes when incubated with sheep erythrocytes. After cultured cells were transplanted to normal syngenic recipients (intravenous injection), the number of rosette-forming cells in the spleens of the recipients failed to exceed the background level. Thus, antibody-forming cells grown on Eagle's medium or Hottinger's broth proved to be incapable of reacting with a specific antigen and producing rosettes. The phenomenon is thought to be related to some changes in the surface membranes of antibody-forming cells cultured in vitro.

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