

USSR

UDC 576.851.555.083.3.07

ZEMLYANITSKAYA, YE. P., SHAMRAYEVA, S. A., and MATVEYEV, K. I., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR

"Identification of Clostridium perfringens Types B, C, and F in Tissue Culture"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 3, 1971, pp 89-93

Abstract: To test the possibility of identifying the B, C, and F types of *C. perfringens* in tissue cultures, experiments were performed with five strains of each type and six kinds of tissue cultures - 5 heteroploid cell lines (KB, Rh, L, HeLa, HK) and primary trypsinized cultures of chick embryo cells. Study of the spectrum of action of soluble antigens of the three types of *C. perfringens* in tissue culture and examination of the antigens in the neutralization reaction with antitoxic sera of the corresponding three types revealed that the cytotoxic effect of the soluble antigens was caused not by the activity of the main lethal and necrotic beta toxin alone, but by a complex of toxins. The B and C strains elaborated soluble antigens that induced cytotoxic changes in primary trypsinized embryonic cells and were toxic to some of the heteroploid lines. In tissue cultures the soluble antigens exhibited cross neutralization with the antitoxic sera of *C. perfringens*

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ZEMLYANITSKAYA, YE. P., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 3; 1971, pp 89-93

types B, C, and F. However, neutralization of the toxins required the less active sera of the B and C types and the more active type F serum. The type F strains synthesized soluble antigens which had a cytotoxic effect on the heteroploid cell lines and did not induce cytotoxic changes in the primary trypsinized chick embryo cells. The soluble type F antigens were neutralized in the tissue cultures only by homologous serum.

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USSR

UDC 576.851.555.097.29.083.35

SHAMRAYEVA, S. A. and VLASOVA, YE. V., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR

"Use of Tissue Culture to Detect Specific Toxins of Clostridium perfringens"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 12, 1971, pp 83-87

Abstract: A method is proposed for identifying the agents of gas gangrene (*Cl. perfringens* type A, *Cl. oedematiens*, *Cl. histolyticum*, *Cl. sordelli*, and *V. septicum*) from the cytotoxic effect of the toxins in tissue cultures of 11-day-old chick embryos. It appears to be more sensitive than the usual method of neutralization of the toxins with specific antitoxic sera in mice. The results are comparable because there are no fluctuations due to individual mouse sensitivity. Dry toxins and standard sera are used to ensure standard conditions.

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Acc. Nr: **AP0049927**

Abstracting Service  
CHEMICAL ABST.

5/70  
Ref. Code: **UR0181**

92964e Nature of the surrounding medium and the destruction of high-strength glass. Bershtein, V. A.; Shamsa, I. M. (Fiz.-Tekh. Inst. im. Ioffe, Leningrad, USSR). Izv. Vuzov. Tela 1970, 12(1), 196-203 (Russ). Exptl. investigation was carried out of the role of medium in the decompn. of high-strength glass. The glass strength was studied in vapors of various substances which differ by their structures and mol. properties (in the absence of the effect of humidity). Time dependences were obtained of the strength of quartz and alkali-contg. glasses in water and aq. solns. with increased surface activity or chem. aggressiveness. A strong decomp. action of moisture on stressed glass cannot be explained only by a decrease in its surface energy. Phys. absorption of various substances on the glass surface including those with a higher polarity of their mol. and forming with glasses a stronger H-bonding than water, has no effect on its strength. The detg. role is played by the chem. reaction of humidity with glasses accelerated by stretching tension. The effect of humidity is essentially the same for glasses with different amts. of defects.

A. Libackyj

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REEL/FAME  
**19801863**

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USSR

UDC:

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BERSHTEYN, V. A. and SHALREY, L. M., Physico-Technical Institute imeni A. F. Ioffe, USSR Academy of Sciences, Leningrad (Fiziko-technicheskiy institut imeni A. F. Ioffe AN SSSR, Leningrad)

"Nature of an Ambient Medium and Destruction of High-Strength Glass"

Leningrad, Fizika Tverdogo Tela, Vol 12, No 1, January 1970, pp 196-202

Abstract: The authors experimentally study the role of a medium in the destruction of high-strength glass. Glass strength is studied in vapors of various materials with differing structures and molecular properties (the effect of moisture was excluded). Strength-time relationships are determined for quartz and alkali containing types of glass in water and in aqueous solutions with increased surface activity or chemical aggressiveness. The results show that the strong weakening effect which moisture has on stressed glass cannot be explained solely on the basis of its decreased surface energy. Physical adsorption of various substances on the surface of glass does not significantly affect its strength, including those substances with higher molecular polarity and which form a stronger hydrogen bond with glass than does water. A conclusion is made about the determining role played by the chemical reaction of water (or aqueous solution) with glass. This reaction is accelerated by tensile stress. The effect of moisture is practically the same for the types of glass tested irrespective of the degree of imperfection.

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Aeronautical & Space

USSR

UDC 629.78.062:681.14

TERYAYEV, Ye. D., ~~Shamrikov, B. M.~~ and Sergeev, E. A.

"Prospects for the Use of Aircraft-Borne Digital Computers in Complexly Automated Adaptive Systems of Aircraft Control"

Inform. Materialy. Nauch. Sovet po Kompleks. Probl. (Information Materials of the Scientific Council on Complex Problems). "Kibernetika." AN SSSR. No 6 (53), 1972, pp 19-29 (from Referativnyy Zhurnal, Raketostroyeniye, No 5, 1972, Abstract No 5.41.211, by T. A. Ye.)

Translation: In complex automated control systems, aircraft-borne digital computers control the flight (control by means of the trajectory and the angular position), control the engines, perform the processing of information and deliver the flight data, control the parametric functions, and monitor the operation of individual subsystems. Ways of constructing a complex system on the basis of an aircraft-borne digital computer are shown, an approach to the selection of an aircraft-borne digital computer in complex systems of aircraft control is presented, predictions are made concerning the characteristics of aircraft-borne digital computers of the future, which will have the following features: 1) standard microcomponents; 2) functionally programmed networks of microcomponents; 3) a continuously changing microstructure; 4) self-diagnosis and self-repair; 5) self-organizing complex subsystems; 6) 1/2

USSR

TERYAYEV, Ye. D., et al., Inform. Materialy. Nauch. Sovet po Kompleks. Probl. "Kibernetika." AN SSSR. No 6 (53), 1972, pp 19-29 (from Referativnyy Zhurnal, Raketostroyeniye, No 5, 1972, Abstract No 5.41.211, by T. A. Ye.)

indication of circuit component faults; 7) structural and functional flight stability. 7 references.

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- 1 -

Nickel

USSR

UDC: 669.243.45

SHAMRO, E. A., VYAZ'MIN, O. A., YEVLANOV, S. F., GOLGER, S. P., BONDARENKO, B. I., and PEKACH, V. F.

"Reduction Kinetics of Commercial Nickel Oxide in a Fluidized Bed Using Gas Mixtures as Reducing Agents"

Moscow, Tsvetnyye Metally, No. 12, Dec 70, pp 10-13

Abstract: Results of laboratory studies are presented on the reduction of sintered nickel oxide in a fluidized bed. The experiments were conducted in quartz reactors, 35-38 mm in diameter, with external electric heating. The degree of reduction of the material was measured by weight differences between the initial and reduced samples. Allowances were made for weight losses related to natural analysis of visual observations of the quality of fluidization and data on the beginning of conglomeration of the material, providing an optimum value of fluidization of  $w_{fl} = 2$ . The experimental.

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USSR

SHAMRO, E. A., et al, Tsvetnyye Metally, No. 12, Dec 70, pp 10-13

results on reducing nickel oxide with hydrogen-carbon monoxide ( $H_2:CO=1:1$ ) and hydrogen-methane ( $H_2:CH_4=2:1$ ) mixtures have shown that the reduction capacity of hydrogen-carbon monoxide mixtures depends largely on hydrogen content since hydrogen is chemically more active. In the hydrogen-methane mixture both are fairly active reducing agents. Figures in the original article demonstrate the dependence of the degree of reduction on reduction duration with converted gas at various temperatures and the dependence of the degree of gas utilization on the duration of reduction with hydrogen at various temperatures. The gas utilization efficiency is a linear function of the height of the layer of material being reduced. It was found that the gas utilization efficiency in reduction with converted gas is higher than that with hydrogen.

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1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--MECHANICAL PROPERTIES OF AQUEOUS SAPONIN SOLUTIONS AT THE INTERFACE  
WITH TOLUENE -U-  
AUTHOR--(03)--ZOTOVA, K.V., SHAMROVA, N.V., TRAPEZNIKOV, A.A.  
COUNTRY OF INFO--USSR  
SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 3, PP 369-372  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--GLUCOSIDE, TOLUENE, FLUID VISCOSITY, ADSORPTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/1601 STEP NO--UR/0069/70/032/003/0369/0372  
CIRC ACCESSICA NO--AP0125223  
UNCLASSIFIED

2/2 017

CIRC ACCESSION NO--AP0125223

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SURFACE VISCOSITY (ETA SUBS) OF INTERPHASE LAYERS: AQUEOUS SAPONIN SOLUTION TOLUENE HAS BEEN MEASURED FOR TWO DIFFERENT SAPONINS IN THE CONCENTRATION RANGE 0.05-1.0PERCENT. WHEN A LAYER OF TOLUENE IS SUPERPOSED ON A SAMPLE OF LONDON SAPONIN ETA SUBS IS MUCH LOWER THAN AT THE SAPONIN AIR INTERFACE, WHICH IS ACCOUNTED FOR BY SOLVATION. IN THE CASE OF CZECHOSLOVAK SAPONIN ETA SUBS IS MUCH HIGHER AT THE INTERFACE WITH TOLUENE. THIS IS ACCOUNTED FOR BY PREFERRED ADSORPTION OF THE COMPONENTS FORMING HIGHLY VISCOUS LAYERS AND BY DESORPTION INTO TOLUENE OF THE COMPONENTS REDUCING THE VISCOSITY.

FACILITY: VYSSHEYE MOREKHODNOYE UCHILISHCHE, MURMANSK INST. FIZICHESKOY KHIMII AN SSSR, MOSCOW.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--MECHANICAL PROPERTIES OF SURFACE LAYERS AND THE SURFACE TENSION OF  
SAPONIN SOLUTIONS -U-  
AUTHOR--(03)--TRAPEZNIKOV, A.A., ZOTOVA, K.V., SHAMROVA, N.V. S  
COUNTRY OF INFO--USSR, CZECHOSLOVAKIA, UNITED KINGDOM  
SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 3, PP 437-443  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--SURFACE TENSION, CHEMICAL REACTION KINETICS, MECHANICAL  
PROPERTY, SHEAR STRENGTH, SURFACE ACTIVE AGENT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/2148 STEP NO--UR/0069/70/032/003/0437/0443  
CIRC ACCESSION NO--AP0125731  
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125731

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MECHANICAL PROPERTIES OF THE SURFACE LAYERS AND KINETICS OF THEIR FORMATION HAVE BEEN STUDIED FROM THEIR SURFACE TENSION VALUES FOR SAPONINS OF TWO TYPES (LONDON AND CZECH-SLOVAK) IN THE CONCENTRATION RANGE 0.05-1.0PERCENT. THE CURVES FOR THE CONCENTRATION DEPENDENCE OF SURFACE VISCOSITY AND SHEAR STRENGTH PASS THROUGH A MAXIMUM AND A MINIMUM. THE CURVES FOR THE CONCENTRATION DEPENDENCE OF SURFACE TENSION BOTH FOR INITIAL AND EQUILIBRIUM VALUES EXHIBIT MINIMA, WHICH PROVES THAT SAPONIN SOLUTIONS CONSIST OF SEVERAL COMPONENTS AND SHOW A TENDENCY TO MICELLE FORMATION AND SOLUBILIZATION OF MORE SURFACE ACTIVE COMPONENTS. THIS ACCOUNTS FOR THE COMPLEX CONCENTRATION DEPENDENCE OF THE MECHANICAL PROPERTIES OF SURFACE LAYERS.  
FACILITY: INSTITUT FIZICHESKOY KHIMII AN SSSR, MOSCOW  
MURMANSKOYE VYSSHEYE MOREKHODNOYE UCHILISHCHE.

UNCLASSIFIED

USSR

UDC: 621.382.3

ZOLOTAREV, V. F., ~~SHAMSHEV, E. B.~~

"Formation of a Neuristor Pulse in a Two-Transistor Model of a PNPN Structure"

Kiev, IVUZ Radioelektronika, Vol 15, No 5, May 72, pp 571-575

Abstract: The process of actuation of a two-transistor model of a PNPN structure across a capacitive energy accumulator is considered. The parameters of the transient process are analyzed to give expressions which define the principal parameters of the resultant neuristor pulse: rise time, decay time, amplitude and duration. It is shown that the parameters of the neuristor pulse are determined to a great extent by processes of charge alternation across the capacitance of the central junction of the thyristor. Experimental data are presented which confirm the principal conclusions of the work.

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USSR

UDC: 621.396.67

AYZENBERG, G. Z., BELOUSOV, S. P., SHAMSHIN, V. A., and SHKUD, M. A.

"Transmitting Antennas for Short-Wave Broadcasting"

Moscow, Elektrosvyaz', No 5, 1970, pp 4-13

Abstract: This article is devoted to recommendations concerning the application, correction, and precisioning of new types of antennas recently developed, tested, and distributed. These include synphase antennas with an active-range reflector and log-periodic antennas. The article discusses the basic requirements of such transmitting antennas in short-wave broadcasting, the parameters of the new antennas, and recommendations on the choice of particular types for network broadcasting depending on the distance covered. This last is given in the form of a table, which lists such types as the SGD 4/8 RA for an optimal wave of 12 meters in a range of 10.7 to 20.0 meters, complex arrangements consisting of three SGD 4/8 RN or SGD 4/8 RAD for optimal waves of 12, 26, and 40 meters, and the RGD 70/6. Physical and electrical characteristics, including schematics showing the arrangements of radiators, of these antennas are given.

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USSR

UDC 547.751'241.07

~~SHAMSHIN, V. P.~~, SHNER, V. F., and SUVOROV, N. N., Moscow Chemical-Technological Institute Imeni D. I. Mendel'ev

"Indole Derivatives. LXXVI. Synthesis of Tris(1-benzylindolinyl-5)-phosphine oxide and Derivatives of Indolyl-5-phosphonic Acid"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 4, Apr 72, pp 498-501

Abstract: In a reaction of 1-benzyl-5-lithiumindole with dimethylchlorophosphate, tris(1-benzylindolinyl-5)phosphine oxide (I), m.p. 204-215° was isolated as a byproduct, in addition to the normally obtained dimethylester of 1-benzylindolinyl-5-phosphonic acid (II). The structure of (I) was proven by an independent synthesis and comparative analysis. Dehydration of (II) with chloranil yields dimethylester of 1-benzylindolyl-5-phosphonic acid, m.p. 89-90°. Catalytic dehydrogenation of this indoline is accompanied by debenzoylation, leading to the formation of a dimethyl ester of indolyl-5-phosphonic acid, m.p. 141.5-143°, through a break in the P-C bond.

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USSR

UDC 547.754+547.241

SHAMSHIN, V. P., SHNER, V. F., and SUVOROV, N. N., All Union Scientific  
Chemical-Pharmaceutical Research Institute imeni S. Ordzhonikidze and Moscow  
Chemical-Technological Institute imeni D. I. Mendeleev

"Organophosphorus Derivatives of Indoline and Indole. I. Synthesis of  
Indolinyl-5-phosphonic Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 3, Mar 71, pp 537-540

Abstract: A suitable synthesis for 1-benzyl-5-bromoindoline (I) was developed. A mixture of 5-bromoindoline,  $\text{CaCO}_3$  and chlorobenzene in acetonitrile was stirred for 4 hrs at  $60^\circ$ , poured into excess water, extracted with ether, dried, and evaporated. Succinic anhydride was added to the residue, followed by ether and 5% sodium carbonate solution. The mixture was stirred, extracted with ether, evaporated, dissolved in hexane, treated with charcoal and left standing, to yield 78.2% of (I), m.p.  $40.5-42.5^\circ$ . (I) converted to 1-benzyl-5-lithiumindoline and condensed with dimethylchlorophosphate yielded the dimethyl ether of 1-benzylindolinyl-5-phosphonic acid. Hydrogenation in acetic anhydride over palladium gave dimethyl ester of 1-acetylinolinyl-5-phosphonic acid, which hydrolyzed to indolinyl-5-phosphonic acid, m.p.  $242-244^\circ$ .  
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USSR

UDC 612.014.44:612.825.251

BOGOSLOVSKIY, A. I., ZHDANOV, V. K., KOVAL'CHUK, A. G., SEMENOVSKAYA, Ye. N.  
and SHAKSHTEVA, A. M., Moscow Scientific Research Institute of Eye Diseases  
imeni Helmholtz

"Light-Induced Visual Cortical Potentials in Man"

Moscow, Doklady Akademii Nauk SSSR, Vol 201, No 3, 1971, pp 721-723

Abstract: In an investigation performed on 49 healthy men and women, evoked potentials were recorded from the visual cortex (one electrode over the area representing the macula lutea and the other electrode 3 cm higher along the median line) while the subjects looked at intermittent flashes of photopic and scotopic light. Averaged EEG records revealed the presence of evoked potentials in response to not only photopic but also scotopic stimuli, although in the latter case the evoked potentials were less numerous and had a different pattern and a longer latent period. Simultaneous auditory stimulation (800 cyc/sec, 85 db) reduced the amplitude of the potentials evoked by scotopic stimuli but did not change the potentials evoked by photopic stimuli. The exact mechanism of action and the significance of the findings remain to be elucidated.

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USSR

UDC: 621.371.332.3:621.391.883.6

SOKOLOV, O. L., SHAMSHUR, V. B.

"On a Method of Increasing Interference Suppression in Reception of Doppler Radio Signals"

Tr. Sev.-Zap. zauch. politekhn. in-t (Works of the Northwest Polytechnical Correspondence Institute), 1972, No 20, pp 8-11 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12G6 [résumé])

Translation: A method based on counting the number of fluctuation spikes and comparing with a threshold  $N_0$  is used for detecting Doppler radio signals. Expressions are presented for calculating the probabilities of false alarms  $P_{f.a}$  and signal detection  $P_{det}$ , and also the results of calculations of interference suppression.

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USSR

UDC 621.396.96

SOKOLOV, O.L., ~~SHAMSHUR, V.B.~~

"Detection Of Doppler Radio Signals By Receiver With A Counter Of The Number Of Overshoots Of Additive Noise"

Radiotekhnika, Vol 27, No 6, June 1972, pp 1-5

Abstract: The analytical dependences are considered of a method of detection of doppler radio signals based on counting of the number of overshoots of the fluctuations at two polar levels. An engineering method of calculating the noise immunity of the receiver is developed. Graphs are presented of: (1) The characteristics of noise immunity calculated by formulas developed in the work; and (2) The experimental and calculated values for the mean values and dispersion of the number of overshoots of fluctuations used during calculation of the noise immunity of the detector. 4 fig. 7 ref. Received, 5 July 1970; after further improvement, 2 March 1971.

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USSR

KRIMER, M. Z., SHAMSHURIN, A. A., and LAVRINENKO, YE. S.

"Synthetic Method for Geranylacetone"

USSR Author's Certificate No 352876, filed 30 Nov 70, published 30 Oct 72  
(from RZh-Khimiya, No 19, Oct 73, Abstract No 19N514P)

Translation: A synthetic method has been proposed for geranylacetone (6,7-trans isomer of 2,6-dimethyl- $\Delta$  2,6-undecadienone-10) (I), used in the synthesis of terpenoids and biologically active compounds such as juvenile hormones. Example. To 50 g linalool 195 g of 40% HBr is added at a temperature ranging from -5 to 10° at a rate keeping the temperature at the specified range. The mixture is kept for 1 hr at the temperature ranging from -5 to 10°, CHCl<sub>3</sub> is removed, the extract is rapidly washed with a saturated solution of NaHCO<sub>3</sub> and water, dried yielding 62 g of the crude product which is then added at 2-5° to a solution of sodium acetoacetate (from 4.7 g Na and 30 g acetoacetate in 70 ml MeOH). The mixture is stirred for 2 hrs at 2-5° and 2 hrs at 60-65° with concurrent evaporation of the solvent under a weak vacuum. 110 ml of a 10% NaOH solution is added to the residue, stirred for 2 hrs at 60-65°, cooled, acidified with conc. HCl, C<sub>6</sub>H<sub>6</sub> is evaporated, the extract is washed with saturate solution of NaHCO<sub>3</sub>, water, dried and evaporated yielding 19.5 g I, b. p. 102-4/5°, n<sub>D</sub><sup>20</sup> 1.4670,, containing 8-10% of the nerylacetone (cis isomer). 1/1

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1/2 014 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--DEHYDROCHLORINATION OF ALPHA PARACHLORAL --U-  
AUTHOR--(02)-SHAMSHURIN, A.A., KRIMER, M.Z.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(2), 237  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--HETEROCYCLIC OXYGEN COMPOUND, TRIOXANE, CHLORINATED ORGANIC  
COMPOUND, CHEMICAL SYNTHESIS, MOLECULAR STRUCTURE, INSECTICIDE, NMR  
SPECTRUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3002/1577 STEP NO--UR/0063/70/015/002/0237/0237  
CIRC ACCESSION NO--AP0128967  
UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--27NOV70  
CIRC ACCESSION NO--AP0128967  
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. HEATING PARACHLORAL WITH PYRIDINE UNTIL DISSOLVED RESULTED IN A CLEAR SOLN., WHICH BECAME TURBID IN A FEW MINUTES, THEN RAPIDLY UNDERWENT AN EXOTHERM, AFTER WHICH IT WAS RAPIDLY Poured ON ICE TO YIELD 69PERCENT 2,4,BIS(TRICHLORONETHYL),6,DICHLOROMETHYLTROXANE (I), M. 80-10DEGREES, SUBLIMABLE IN VACUO. ITS NMR SPECTRUM WAS SHOWN. BASES SUCH AS KOH OR K SUB2 CO SUB3 OR ETONA WERE NOT EFFECTIVE IN THIS REACTION. THE PRODUCT WAS A FEEBLE INSECTICIDE AGAINST WEEVILS AND FLIES. FACILITY: INST. KHIM., KISHINEV, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--NEW SYNTHESIS OF TRANS,1,ACETOXY,10,PROPYL,5,9,TRIDECADIENE,  
PROPYLURE, SEX ATTRACTANT OF PECTINOPHORA GOSSYPIELLA -U-  
AUTHOR-(03)-SHAMSHURIN, A.A., KOVALEV, B.G., DONYA, A.P.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(6), 1362-4, CHEM  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--PHEROMONE, UNSATURATED HYDROCARBON, INSECTA, CHEMICAL  
SYNTHESIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1998/1015 STEP NO--UR/0020/70/190/006/1362/1364  
CIRC ACCESSION NO--AT0121611  
UNCLASSIFIED



2/2 011

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0121611

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REFLUXING PR SUB2 C IS TO CH(CH  
 SUB2) SUB3 BR (I) WITH PH SUB3 P IN C SUB6 H SUB5 20 HR GAVE 62PERCENT  
 QUATERNARY PHOSPHONIUM BROMIDE, AN OIL, WHICH WITH ME SUB3 COK IN THE  
 HEATED 15 HR WITH ACO(CH SUB2) SUB4 CHO AT 60-2DEGREES GAVE PR SUB2 C IS  
 TO CH(CH SUB2) SUB2 CH IS TO CH (CH SUB2) SUB4 DAC, N 20 OVER D 1.4630,  
 B SUB0.5 100-100DEGREES, WHICH WAS PURIFIED ON AL SUB2 D SUB3. THIS WAS  
 CHARACTERIZED BY MASS AND IR SPECTRA AND SHOWN TO BE IDENTICAL WITH THE  
 SEX ATTRACTANT OF THE COTTON MOTH (P. GOSSYPIELLA). THE REQUISITE  
 ALDEHYDE ABOVE, B SUB2 63-5DEGREES, N 18 OVER D 1.4319, WAS PREPD. FROM  
 ACCH(CO SUB2 ET)(CH SUB2) SUB2 CH (OET) SUB2 BY HEATING WITH ETONA-ETOH  
 AT 120-30DEGREES TO YIELD 38PERCENT ETO SUB2 C(CH SUB2)SUB3 CH(OET)SUB2,  
 B SUB2 79-83DEGREES, N 20 OVER D 1.4288, CONVERTING THIS INTO ACO(CH  
 SUB2) SUB4 CH(OET)SUB2, B SUB2 77-8DEGREES, 1.4256  
 (2,4,DINITROPHENYLHYDRAZONE N. 99-100DEGREES) BY REDN. WITH LIALH SUB4,  
 AND KEEPING THE ACETAL IN AQ. ALC. H SUB2 SO SUB4 3.5 HR. PR SUB2 CO  
 WAS CONDENSED WITH (ETO) SUB2 P(OICH SUB2 CO SUB2 ET TO FORM 83PERCENT  
 PR SUB2 C IS TO CHCO SUB2 ET; REDN. WITH LIALH SUB4 TO PR SUB2 C IS TO  
 CHCH SUB2 OH, TREATMENT WITH PBR SUB3, THEN WITH CH SUB2(CO SUB2 ET)  
 SUB2 ANION, SAPON. AND DECARBOXYLATION GAVE PR SUB2 C IS TO CH(CH SUB2)  
 SUB2 CO SUB2 H; ESTERIFICATION WITH ETOH, REDN. WITH LIALH SUB4, AND  
 REACTION WITH PBR SUB3 GAVE I, B SUB2 80-5DEGREES, N 20 OVER D 1.4736.  
 FACILITY: INST. KHIM., KISHINEV, USSR.

UNCLASSIFIED

Acc. Nr:

AP0036441

Abstracting Service:

CHEMICAL ABST.

Ref. Code:

4R0366

\* 78324q Keto aldehydes. VIII. Acetylenic hydroxy acetals.  
 Kovalev, B. G.; Vlad, L. A.; Shamshurin, A. A. *Dokl. Khim. Kishinev, USSR*. *Zh. Org. Khim.* 1970, 6(1), 27-31 (Russ).  
 Condensation of  $\text{Ac}(\text{CH}_2)_n\text{CH}(\text{OEt})_2$  with  $\text{RC}\equiv\text{CNa}$  in liq.  $\text{NH}_3$  gave 34-51%  $\text{RC}\equiv\text{CCMe}(\text{OH})(\text{CH}_2)_n\text{CH}(\text{OEt})_2$  (I) ( $n$  is 3 or 4, R is H, amyl, or hexyl). At room temp. in the presence of dil.  $\text{H}_2\text{SO}_4$ , I ( $n = 3$ , R = H) underwent intermol. transesterification to give 80% 2-methyl-2-ethynyl-6-ethoxytetrahydropyran. At 70-80° in 15%  $\text{H}_2\text{SO}_4$ , I ( $n = 3$ , R is H, amyl, or hexyl) gave the corresponding 2-(R<sup>1</sup>-substituted)-2-methyl-6-hydroxytetrahydropyrans (II) [R<sup>1</sup> is  $\text{HC}\equiv\text{C}$ ,  $\text{Me}(\text{CH}_2)_4\text{C}\equiv\text{C}$ , or  $\text{Me}(\text{CH}_2)_5\text{C}\equiv\text{C}$ ] and only small amts. of 6-ethoxy analogs (III) of II, which are very readily hydrolyzed to II. The hydrolysis of I ( $n = 4$ , R =  $\text{Me}(\text{CH}_2)_4$ ) gave  $\text{Me}(\text{CH}_2)_4\text{C}\equiv\text{CCMe}(\text{OH})(\text{CH}_2)_4\text{CHO}$ , which was condensed with  $\text{Ph}_3\text{P}\cdot\text{CHCO}_2\text{Et}$  to give  $\text{Me}(\text{CH}_2)_4\text{C}\equiv\text{CCMe}(\text{OH})(\text{CH}_2)_4\text{CH}\cdot\text{CHCO}_2\text{Et}$  (IV). Alk. hydrolysis of IV gave  $\text{Me}(\text{CH}_2)_4\text{C}\equiv\text{CCMe}(\text{OH})(\text{CH}_2)_4\text{CH}\cdot\text{CHCO}_2\text{H}$ . CPJR

1/1

ALS

REEL/FRAME

19721287

7

Entomology

USSR

UDC 591.147;577.17

SHAMSHURIN, A. A., Candidate of Chemical Sciences

"Insect Hormones"

Moscow, Priroda, No 4, 1972, pp 53-63

Abstract: A study was made of insect hormones -- their chemistry, functions and prospects for application in controlling insect pests. The hormonal nature of metamorphosis of insects, the three hormonal organs which control and regulate metamorphosis and the three best known hormones -- the brain hormone or activation hormone, ekdizone or moult hormone secreted by the protoracal paired gland and the juvenile hormone -- are discussed. The interaction of the hormones, the isolation of the juvenile hormone the structure and analogs of the juvenile hormone, the "paper factor," Bowers substance, third generation insecticides, the problem of selectivity, the properties, structure and synthesis of ekdizone and ekdisterone, the moult hormones in plants and ekdizone as a hormonal insecticide are analyzed. The prospects for using ekdizone as a hormonal insecticide are less apparent than for the analogs of juvenile hormone. The growth acceleration effect caused by ekdizone in large amounts seems to have a strongly limited application perhaps arising from immunity developed from eating a variety of plants containing the hormone. Ekdisterone and ponasterone A are prospective for use as chemosterilizers.

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UNCLASSIFIED

PROCESSING DATE--20NOV70  
DURING CHRONIC GASTRITIS

TITLE--DISORDERS IN THE ACTIVITY OF THE PANCREAS  
IN CHILDREN -U-  
AUTHOR--(02)-SHAMSIYEV, S. SH., KLIMENSKAYA, L.V.

COUNTRY OF INFO--USSR

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CIRC ACCESSION NO--AP0135832

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF CLINICAL LABORATORY DATA AND FUNCTIONAL STUDY OF THE PANCREAS ALLOW A CONCLUSION TO BE MADE THAT IN CHRONIC GASTRITIS (DURING DECOMPENSATION) ALMOST IN ONE HALF OF THE CHILDREN THERE OCCURRED DISORDERS OF THE EXCRETORY FUNCTION OF THE PANCREAS. IN MOST OF THE CASES DISSOCIATION IN THE SECRETION OF ENZYMES OF THE DUODENAL CONTENT WAS OBSERVED, THIS TESTIFYING TO A FUNCTIONAL DISORDER IN THE EXCRETORY FUNCTION OF THE PANCREAS. THE NATURE OF THE MENTIONED CHANGES DIRECTLY DEPENDS UPON THE DURATION, SEVERITY OF THE DISEASE AND EXTENT OF DISORDERS OF THE ACID FORMATION FUNCTION OF THE STOMACH.

FACILITY: DEP. CHILD. DIS., TASHKENT MED. INST., TASHKENT, USSR.

UNCLASSIFIED

USSR

UDC: 681.3.06:51

AKHMETOV, K. A., BEKMURATOV, T. F., KAMILLOV, M. M., SHAMSIYEV, T. G.

"On Optimizing a Technological Process on an Analog-Digital Computer System Using Search Methods"

V sb. Vopr. kibernet. i vychisl. mat. (Problems of Cybernetics and Computer Mathematics--collection of works), vyp. 40, Tashkent, 1970, pp 66-69 (from RZh-Kibernetika, No 7, Jul 71, Abstract No TV725)

Translation: The authors investigate an algorithm for optimizing the process of hydrolysis with the aid of an analog-digital computer system. The problem of optimization consists in maximizing the quantity Q of reducing agents throughout the final product (hydrolysate). The algorithm is based on using the method of alternately changing the parameters on which Q depends:  $x_2$  -- vapor flow-rate;  $x_3$  -- water flow-rate;  $x_4$  -- acid flow-rate. Tables are presented for the optimum values in the corresponding units of measurement. It is proposed that the method of statistical (random) search be used to optimize the process on an analog-digital computer system with regard to the real interference acting on the object. V. Mikheyev.

1/1

USSR

UDC: 681.3

BEKMURATOV, T. F., MUSAYEV, M. M., NASYROV, M. Sh., SHAMSIYEV, T. G.

"An Analog-Digital Computer System Based on the 'Dnepr' Computer and the MN-7"

V sb. Analogovaya i analogo-tsifr. vychisl. tekhn. (Analog and Analog-Digital Computer Technology--collection of works), vyp. 4, Moscow, "Sov. radio", 1971, pp 45-49 (from RZh-Kibernetika, No 9, Sep 71, Abstract no 9V552)

Translation: The paper describes an analog-digital computer system based on the "Dnepr" digital computer and two MN-7 analog computers. The structure used in the hybrid system enables automation of the processes of control and setting up structural schemes on the analog computers. Authors' abstract.

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USSR

UDC 546.02:66.091

OGANESYAN, Yu. Ts., PENIONZHKEVICH, Yu. E., SHAMSUTDINOV, A. O., and MAL'TSEVA, N. S.

"Possibilities of Obtaining Isotopes in Fission Reactions"

Moscow, Atomnaya energiya, Vol 29, No 4, Oct 70, pp 264-271

Abstract: This paper investigates the principles of the formation of various isotopes in nuclear fission by heavy ions. The following reactions are studied:  $U^{238}(Cl^{12}, f)$ ;  $U^{238}(Ne^{20}, f)$ ;  $U^{238}(Ne^{22}, f)$ ;  $U^{238}(Ar^{40}, f)$ . They were compared, in the experimental work, with nuclear fission reactions by high-energy protons and spallation reactions. The experiments were conducted with the internal beam of a 310-cm heavy ion cyclotron in the Nuclear Reactions Laboratory and with the extracted proton beam in the synchrocyclotron of the Joint Institute of Nuclear Research Laboratory for Nuclear Problems. Uranium and bismuth targets were irradiated with  $Cl^{12}$ ,  $Ne^{20}$ ,  $Ne^{22}$ , and  $Ar^{40}$  ions in a beam of 80-100  $\mu A$  for  $Cl^{12}$ , 30  $\mu A$  for  $Ne^{22}$ , and 8  $\mu A$  for  $Ar^{40}$ . Gamma radiation spectra were also measured using two Ge(Li) spectrometers. An extensive table of the isotopes obtained and the cross section of their formation in heavy-ion reactions is given. The authors thank G. N. FLEROV as well as lesser assistants for their participation.

1/1



USSR

UDC 537.591.15

VERKOV, S. N., Y'EGOROV, T. A., Y'EFIMOV, N. N., KOLOSOV, V. A., KORYAKIN, V. D., KRASIL'NIKOV, D. D., KUZ'MIN, A. I., KULAKOVSKAYA, V. P., MAKSIMOV, S. V., HESTEROVA, N. M., NIKOL'SKIY, S. I., ORLOV, V. A., SLEPTSOV, I.YE., SIZOV, V. V., KHRISTIANSEN, G. B., and SHAMSUTDINOVA, E. K.

"Preliminary Results of Recording Extensive Showers on a Recording Array in Yakutsk"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10, Oct 71, pp 2093-2101

Abstract: Experiments are described in which attempts were made at determining the energy spectrum, composition, and anisotropy of cosmic rays within the range of energy  $10^{17}$  to  $10^{18}$  ev. It is desired to extend the range to cover  $10^{19}$  ev and above. Of a particular interest are the following problems: do the rays originate within the Galaxy or in metagalactic regions, what is the direction from which they arrive, and how Cerenkov radiation produced by them is distributed within the atmosphere. The test equipment consists of 13 recording points distributed over an area of  $3 \text{ km}^2$ , with a central time-control point. The output spectrum was measured over a period of 29.5 hours. 82 showers were noted during that period, with the axes falling within the

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USSR

VERNOV, S. N., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10, Oct 71, pp 2098-2101

array area. The orientation of the axis was found by the "triangulation" method, comparing the time of arrival of the showers at different recording points. An analytic expression is given in the paper for the integral output spectrum of extensive showers at sea level for the interval of  $N$  between  $2 \times 10^7$  and  $2 \times 10^8$ . The intensity, determined with this formula, appears to be 2 to 3 times as great as recorded elsewhere. Distribution of Cerenkov light with respect to the shower axis was determined by observations conducted on clear, moonless nights. It was found to be similar to that of the primary gamma quanta, but it decayed with the distance from the axis more slowly than the amount of charged particles ( $R^{-2.5}$  as against  $R^{-3.3}$  for charged particles). Examination of the energy spectrum of primary particles lead to the conclusion that the electromagnetic component is responsible for 80% of it. Dependence of primary energy on the output  $N$  was established, and on the basis of this relation the integral spectrum was computed. The coefficient connecting these two magnitudes was found to be twice as high as the one previously accepted elsewhere.

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USSR

VERNOV, S. N., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10, Oct 71, pp 2098-2101

In the final analysis, variation of Čerenkov light at the primary particle energy of  $3.6 \times 10^{10}$  ev and the output (intensity) of  $1.5 \times 10^7$  particles at sea level is given, as well as the expected distribution of the nuclear components of primary rays.

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USSR

GOLENISHCHEV-KUTUZOV, V. A.; SABUROVA, R. V.; SHAMUKOV, N. A. (Kazan' Physics-Engineering Institute, USSR Academy of Sciences)

"Double Acoustical-Magnetic Nuclear-Nuclear Resonance in Crystals with Paramagnetic Impurities"

Leningrad, Solid State Physics; November, 1970; pp 3100-4

ABSTRACT: A description of a method of double acoustical nuclear-nuclear resonance is given. The acoustical nuclear magnetic resonance from the nuclei of paramagnetic ions ( $Al_2O_3: 0.07 \text{ at. } \% Cr^{3+}$ ) was detected by this method.

The use of such a method, as shown by the experimental results, raised the sensitivity two orders as compared with a method of single acoustical nuclear magnetic resonance. It is shown that with the method of double resonances it is possible to study more closely the interaction between the crystal lattice and nuclear spins as well as between electron and nuclear spins.

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USSR

UDC 681.327.11

VOROB'YEV, A. D., KUDRYAVTSEVA, A. A., PRYADKIN, A. M., PATS, V. B.,  
SHAMURINA, R. Z.

"Mosaic Printer"

Moscow, Otkrytiya izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No. 17, May 72, p 159

Translation: Patent No. 339925, class G 06k 15/02 was granted for a mosaic printer containing a mechanism for feeding paper and ribbon, a carriage, and a unit of metal tapes insulated from one another and placed in a magnetic field. The ends of the tape are connected to an excitation unit. The printer is distinguished by the fact that a fulcrum is fastened to it on the carriage at an angle to the metal tape unit located on the opposite side of the paper in order to increase the speed of the device.

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USSR

SHAMYRKANOV, S.

"Solution of a Problem in Fractional-Quadratic Programming"

Vekotoryye Mat. Metody Optimiz. i Ikh Primeneniye v Nar. Kh-ve Kirgizii  
[Some Mathematical Methods of Optimization and Their Application in the  
Economy of Kirgizia -- Collection of Works], Frunze, Ilim Press, 1973, pp  
55-65 (Translated from Referativnyy Zhurnal Kibernetika, No 2, 1973,  
Abstract No 9V538).

Translation: A problem is studied when a functional is a fractional-  
quadratic form, while the system of limitations is linear. A method is  
suggested for solution of such problems, based on linear conversion of  
variables. Fractional quadratic forms are simultaneously reduced to  
canonical form and the solution is sought by the known  $\lambda$  method.

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DSSR

UDC 51

SHAMYRKANOV, S.

"Approximate Solution of the Problems of Quadratic Programming with Two Quadratic Forms Using the Methods of Separable Programming on the Minsk-22 Computer"

Priblizhennoye resheniye zadach kvadratičnogo programirovaniya s dvumya kvadratičnymi formami pri pomoshchi metodov separabel'nogo programirovaniya na EVM "Minsk-22" (Approximate Solution of the Problems of Quadratic Programming with Two Quadratic Forms Using the Methods of Separable Programming on the Minsk-22 Computer), Editorial Board of the Journal Izv. AN KirgSSR, Frunze, 1972, 8 pp, 3 entry bibliography, No 4156-72 Dep. (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V483 DEP)

Translation: The problem was investigated where the functional is a quadratic form and one of the restrictions is described by an inequality in quadratic form. In solving these problems by means of linear transformation of variables, both quadratic forms are reduced simultaneously to canonical form. After this, the problem is solved by the known  $\lambda$ -method. The solution was found on the Minsk-22 computer.

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USSR

SHANDITSEV, V. A., VERESHCHAGIN, L. F., YAKOVLEV, YE. N., GRAZHDANKINA, N. P.,  
and ALAYEVA, T. I., Institute of High-Pressure Physics, Academy of Sciences  
USSR, Akadengorodok, Moscow Oblast

"Electron Magnetic Resonance Study of Chromium Telluride at Pressures up to  
50 Kbar"

Leningrad, Fizika Tverdogo Tela, Vol 15, Vyp 1, Jan 73, pp 212-215

Abstract: The electron magnetic resonance method ( $\lambda \approx 3.2$  cm) was used to study the magnetic transition in chromium telluride at pressures up to 50 kbar and temperatures of 100-360° K. It was found that the linear variation of the Curie point with pressure continues up to 25 kbar. At pressures from 30+4 and up to 50 kbar, the resonance line characteristic of the ferromagnetic phase of CrTe is not observed in the 100-300° K temperature range. The disappearance of the resonance line of the ferromagnetic phase may be due to the appearance of antiferromagnetic ordering at pressures above 30 kbar in chromium telluride, although the antiferromagnetic resonance line cannot be observed in this frequency region.

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USSR

UDC 547.234.1 + 547.241 + 541.127

SHANDRUK, M. I., YANCHUK, N. I., and GREKOV, A. P., Institute of the  
Chemistry of High Molecular Compounds, Academy of Sciences, Ukrainian SSR

"The Structure and Reactivity of Hydrazine Derivatives. XXXII. Reaction  
Kinetics of Diarylphosphinic Acid Hydrazides With Picryl Chlorides in  
Benzene"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 10, Oct 73, pp 2198-2202

Abstract: The reaction kinetics of diarylphosphinic acid hydrazides with  
picryl chloride in benzene has been investigated at various temperatures.  
The reactions are quantitative and are described by a second order equation;  
energy parameters for these reactions have been calculated. The effect of  
the substituents in a molecule of diphenylphosphinic acid hydrazide on its  
reactivity can be described by Hammett's equation using the  $\sigma_{\phi}$  constants.  
The constants of the acid ( $pK_{a2}$ ) and base ( $pK_{a1}$ ) ionizations have been  
determined. Band vibration frequencies for NH and P=O groups have been  
determined.

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USSR

UDC 547.234.1 + 547.241

SHANDRUK, M. I., YANCHUK, N. I., and GREKOV, A. P., Institute of the  
Chemistry of High Molecular Compounds, Academy of Sciences, Ukrainian SSR

"Hydrazides of the Phosphinic and Phosphoric Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 10, Oct 73, pp 2194-2198

Abstract: New phosphoric acid hydrazides have been obtained by the reaction of hydrazine hydrate and ethylhydrazine with diarylphosphinic, 0,0-diarylphosphoric and 0,0-diarylthiophosphoric acid chlorides. The reaction of phosphoric acid chlorides with ethylhydrazine, the reagents taken at a 1:2 molar ratio, occurs in benzene attacking the  $\alpha$ -nitrogen atom, with the formation of  $\alpha$ -ethyl substituted hydrazides.

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Acc. Nr:

AP0053452

Abstracting Service:

CHEMICAL ABST.

Ref. Code:

UR 0366

110521q Structure and reactivity of hydrazine derivatives. XXIII. Amide catalysis in reactions of benzohydrazide with 2,4-dinitrophenyl acetate in benzene solution. Gorskov, A. P.; Shandrik, M. I. (Inst. Khim. Vysokomol. Soedin., Kiev, USSR). *Zh. Org. Khim.* 1970, 6(2), 208-9 (Russ). The kinetics were studied of the reaction of  $\text{AcO}_2\text{C}_6\text{H}_3(\text{NO}_2)_2$  with  $\text{BzNHNH}_2$  in benzene soln. or in benzene soln. contg.  $\text{BzNH}_2$ ,  $\text{AcNH}_2$ ,  $\text{PO}(\text{NMe}_2)_3$ , 4-MeOC<sub>6</sub>H<sub>4</sub>CONH<sub>2</sub>,  $\text{BzNHPh}$ ,  $\text{BzNHC}_6\text{H}_4\text{NO}_2$ ,  $\text{PhSO}_2\text{NH}_2$ , caproactam, 2-MeOC<sub>6</sub>H<sub>4</sub>SO<sub>2</sub>NMe<sub>2</sub>, 2,5-diethyl-1,3,4-oxadiazole, 2-MeOC<sub>6</sub>H<sub>4</sub>CONMe<sub>2</sub>,  $\text{AcNMe}_2$ ,  $\text{AcNEt}_3$ ,  $\text{PhCS-NH}_2$ , pyridine *N*-oxide, or pyridine as catalysts. These amides accelerate the above reaction by forming complexes such as  $\text{BzN}[\text{H} \cdots \text{O} \cdots \text{C}^+\text{Ph}(\text{NH}_2)]\text{NH}_2 \cdots \text{AcOC}_6\text{H}_3(\text{NO}_2)_2$ , which then break up to give  $\text{BzNHNHAc}$ , 2,4-(O<sub>2</sub>N)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>OH, and the amide. CPJR

REEL/FRAME  
19830477

USSR

BUDAGOV, YU. A., VINOGRADOV, V. B., VOLOD'KO, A. G., DZHELEPOV, V. P.,  
 KLADNITSKIY, V. S., KUTSIDI, N. K., Tbilisi State University, LOMAKIN, YU. F.,  
 MAKSIMENKO, V. A., MARTINSKA, G., FLYAGIN, V. B., KHARZHEYEV, YU. N., and  
SHANDOR, L.

"Possible Existence of  $\pi^- \delta^-$ -Resonance With a Mass of 270 MeV"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 13,  
 No 12, 20 Jun 71, pp 665-668

Abstract: The preliminary results of this experiment were presented in 1970 at the Fifteenth International Conference on High-Energy Physics in Kiev. The authors find experimental signs of the possible existence of a new meson resonance. They observe a narrow peak when  $M = 270$  MeV in the spectrum of effective masses of the system  $\pi^- \delta^-$ , which forms in the reaction  $\pi^- p \rightarrow \pi^- p + (2,3)\delta^-$  at 5 GeV/c. The authors study events of the type  $\pi^- p \rightarrow \pi^- p + (2,3)\delta^-$  which satisfy the following conditions: (1) the protons are identified by ionization and stopping in the camera, and the impulses of the protons do not exceed 900 MeV/c; (2) the length of the tracks of secondary charged particles from the star is no less than 2 cm, and the impulses of these particles are measured with an

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USSR

BUDAGOV, YU. A., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 13, No 12, 20 Jun 71, pp 665-668

accuracy no worse than 30%; (3) the  $\mathcal{J}$ -quanta have impulses greater than 30 MeV/c, measured with an accuracy no worse than 25%; (4) the scattering angles between the two  $\mathcal{J}$ -quanta do not exceed  $2^\circ$ . As a result of the experiment, the authors find that the effect which they observed is caused by the existence of a new meson resonance. The figures depict the distribution by effective mass of quanta. The article contains 2 figures and a bibliography of 7 entries.

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Transportation and Conveying

USSR

UDC 621.643.002.2:001.12

SHANENKO, P. F.

"Pipe System for Hydraulic Transport of Sand"

Moscow, Stroitel'stvo Truboprovodov, No 2, Feb. 1973, pp 9-10.

Abstract: One of the largest construction materials enterprises in Volgograd Oblast, the silicate products combine, delivers 1,750,000 cubic meters of sand per year from a quarry to a point 12 km distant by truck transport. The cost of transportation of the sand is 2,036,700 rubles. Over 50 KRAZ-256 heavy trucks are used.

The Institute for Planning of Hydraulic Mecahnization has developed a plan for a pipeline system for delivery of this material to the Volgograd Combine.

Creation of the project was preceded by detailed technical and economic studies, confirming the expediency of construction of the system, and experimental work which established the possibility of maintaining the quality characteristics of the raw material following transportation and storage. The planned throughput of the pipeline complex is 1,750,000 cubic meters of sand per year; transportation distance is approximately 13.6 km. Hydraulic transport systems of this productivity and length have never before been manufactured for the transportation of construction materials in the USSR.

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USSR

SHANENKO, P. F., Moscow, Stroitel'stvo Truboprovodov, No 2, Feb. 1973,  
pp 9-10.

The raw material will pass through 6 stages of lift between the quarry and the combine. Series-produced pump equipment is to be used. Sand with a density of  $2.7 \text{ t/m}^3$ , grain size modulus 1.2-1.48, consisting 99% of grains of crystalline quartz, is to be pumped through the pipes as a mixture with water. Heavier minerals are present in the sand in very small quantities; there are no organic impurities.

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USSR

ORAV, T., SHANGIN-BEREZOVSKIY, ORAV, I.

Radiatsionnyy mutagenez i modifitsiruyushchiye yego usloviya (Radiation Mitagenesis and Conditions Modifying It). Tallin, Valgus, 1972, 215 pp, 800 copies printed

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USSR

ORAV, T., et al., Valgus, 1972, 215 pp

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USSR

KARYUKHINA, T. A., et al., Khimiko-Farmatsevticheskiy Zhurnal, No 11, 1971, pp 30-35

floating matter and deposits are collected, burned, and used as fertilizers or admixture to feeds. This treatment removes up to 95% of suspensoids. The filtrate may be drained into rivers and lakes, or it may be stored in reservoirs and be utilized during summer. Theoretical data indicate that practically any sewage can be purified adequately at reasonable cost.

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UDC 628.35

USSR

KARYUKHINA, T. A., KLEYN, S. A., SHANGINA, G. A., YANGOLENKO, L. V., and KRZHAPOL'SKAYA, L. Z., Moscow Construction Engineering Institute imeni V. V. Kuybyshev

"Biological Methods of Purifying Sewage From Chemical and Pharmaceutical Plants"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, No 11, 1971, pp 30-35

Abstract: The 1960-1969 literature on the subject is reviewed and the most effective methods discussed. In some instances, when the sewage contains no toxic compounds, it may be used directly for irrigation of fields. In most cases, a combined method yields the best results. Sewage containing large amounts of hormones must first be treated anaerobically. It is then aerated (waterfalls, air turbines, or other systems) for several hours up to 2 weeks, depending on what substances it contains. This aeration reduces the biological oxygen requirement by 90-98%. Neutralizers are added and the sewage is stirred until its pH becomes close to 7 (initial pH ranges from 2 to 10). Next, the sewage is kept standing in reservoirs. Harmless bacteria may be grown in it and later precipitated with chlorine. After adequate sedimentation of suspensoids, the sewage is run through sand and gravel filters,

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USSR

UDC 699.184.244.66

KUZNETSOV, A. F., Candidate of Technical Sciences, TERESHCHENKO, N. I.,  
Engineer, and SHANIN, N. I., Engineer, Zhdanov Metallurgical Institute  
and Zhdanov Heavy Machine Building Plant

"Effect of Smelting Method and Deoxidation System on the Quality of Con-  
verter and Open-Hearth Steel"

Moscow, Stal', No 9, Sep 70, pp 784-786

Abstract: A study was made of the effects of the smelting method, the  
deoxidation system, and the consumption of deoxidizing agents on the  
quality of St.3sp sheet steel, produced at the Novolipetsk Metallurgical  
Plant and the Zhdanov Plant imeni Il'ich. The experimental steel from the  
Novolipetsk Plant showed the highest impact toughness at temperatures of  
-40°C and +70°C, but also showed the highest relative sensitivity to  
mechanical aging at -40°C. The impact toughness, after artificial aging  
of the investigated steel groups at negative temperature, was practically  
independent of the smelting method and the deoxidation system.

1/1

USSR

UDC 539.376+532.135

VESHCHEV, A. A., SHANIN, N. P.

"Extrusion-Rheological Properties of Commercial Asbestos Materials"

Sb. nauch. tr. Yaroslav. tekhnol. in-t (Collection of Scientific Works of Yaroslav Technological Institute), 1972, Vol. 31, pp 27-32 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V550)

Translation: The rheological curves for asbestos materials with various contents of rubber are presented that were obtained with the aid of a plunger extruder at a temperature of 70°. Consecutive decreases in the length of the mouthpiece of the extruder were used to determine losses at the input to the channel as a function of the diameter of the channel of the mouthpiece, the diameter of the plunger, the properties of the asbestos material, and the rate of extrusion. These losses amount to a considerable portion of the total pressure in the head of the extruder. A curve of the flow was obtained for each diameter of the mouthpiece which is explained by the plug-like motion of the asbestos material with slippage at the walls. It is noted that the effect of slippage is a function both of the transverse dimensions and of the cleanness of the working of the channel surface. The dependence of the shear stress on

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USSR

VESHCHEV, A. A., SHANIN, N. P., Sb. nauch. tr. Yaroslav. tekhnol. in-t,  
1972, Vol. 31, pp 27-32

the rate of displacement for the materials studied is invariant relative to  
the transverse dimensions and the cleanness of the surface of the profiling  
channels. 11 ref. I. G. Bulina.

2/2

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USSR

UDC 539.376+532.135

SHANIN, N. P.

"Pressability and Deformability of Highly Filled Systems of the Asbestos Type as Connected With the Microrheological Properties of the Polymer Binder"

Sb. nauch. tr. Yarosl'v. tekhnol. in-t (Collection of Scientific Works of Yarosl'v Technological Institute), 1972, Vol. 31, pp 54-60 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V552)

Translation: A qualitative discussion is presented on the effect of the content and properties of the polymer binder in an asbestos material on its pressability (ability to change its density under the action of uniform compression). The pressing process is represented as consisting of two stages: (1) conversion of friable material into porous material and (2) conversion of the porous body into a monolith. The irreversible deformation of the initial particles of the mixture has the dominating effect in the first stage and irreversible deformations cease in the second stage at a certain stage in the compaction. An increase in pressability as the temperature rises is characteristic in the pressing of asbestos materials, as is the existence of suitable specific pressures relative to a narrow range, which if exceeded will not lead to a considerable increase in density. This range drops with a rise in temperature. 13 ref. A. Ye. Malkin  
1/1

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USSR

UDC 539.376+532.135

VESHCHEV, A. A., SHANIN, N. P.

"Effect of Formula Composition on the Extrusion-Rheological Properties of Asbestos Materials"

Sb. nauch. tr. Yaroslav. tekhnol. in-t (Collection of Scientific Works of Yaroslav Technological Institute), 1972, Vol. 31, pp 33-37 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V551)

Translation: The rheological properties of commercial asbestos materials based on butadiene rubber (content in composition 15% by weight) and asbestos (45%) and also several model mixtures differing in the rubber and asbestos content in the composition were investigated by the method of capillary viscosimetry. The experimental setup consisted of a plunger extruder and the mouthpiece in the head consisted of a cylindrical capillary and provision was made for shortening the mouthpiece. The volumetric flow  $Q$  and the pressure  $P$  ahead of the input to the capillary were measured. The magnitude of input pressure losses  $P_{in}$  depends on the ratio of the rubber and asbestos constant and the power index indicating the nature of the effect of the composition on  $P_{in}$  is also determined by the

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USSR

VESHCHEV, A. A., SHANIN, N. P., Sb. nauch. tr. Yaroslav. tekhnol. in-t, 1972, Vol. 31, pp 33-37

composition and additionally by processing conditions. The dependence of tangential stress on the shift rate is not single valued since it does not effect the diameter of the channel. It is assumed that averaged values of the stresses under the selected shift rates can be used; the maximum deviations did not exceed  $\pm 27\%$ . This effect is associated with the slippage at the wall and can be taken into account in calculating  $P$  by the introduction of a correction factor. A. Ya. Malkin.

2/2

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USSR

UDC 532.5:532.135

KOLBOVSKIY, YU. YA., SHANIN, N. P.

"Concerning the Problem of the Flow of a Newtonian Liquid in Circular and Slit Channels"

Uch. zap. Yaroslav. tekhnol. in-ta (Scientific Notes of Yaroslavskiy Technological Institute), 1971, Vol. 23, No. 2, pp 5-13 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3B972)

Translation: V. G. Litvinov solved the problem of Poiseuille flow of a Newtonian liquid in a circular infinite tube with an effective viscosity

$$\eta = a_0 + \mu \left( \frac{dv_z}{dr} \right)^2 \quad (1)$$

where  $\eta$  is the effective viscosity,  $dv_z/dr$  is the velocity gradient, and  $a_0$ ,  $\mu$  are rheological constants (Mekhan. polimerov, 1966, No. 4, pp 603-610; RZhMekh, 1967, 6B823). It is assumed that  $\mu$  is small and a solution was obtained by the small-parameter method discarding second and higher order terms. This paper analyzes the solution of V. G. Litvinov by reducing it to dimensionless form.

1/2

USSR

KOLBOVSKIY, YU. YA., SHANIN, N. P., Uch. zap. Yaroslav. tekhnol. in-ta, 1971, Vol. 23, No. 2, pp 5-13

Two more problems are solved for a liquid with the rheological equation (1) by the same method: the flow of a liquid in a plane infinite tube and motion between two infinite rotating cylinders. The latter problem is discussed as applied to a rotation viscosimeter when the value of the rotational moment is given. S. A. Bostandzhiyan.

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USSR

UDC 621.391.2

MIROVITSKIY, D.I., SAMSONOV, G.A., SHANIN, V.I.

"Interference-Shadow Marking Of Volume Models"

Radiotekhnika i elektronika, Vol XVII, No 6, June 1972, pp 1280-1285

Abstract: The effectiveness is shown of a new method of marking in the problem of identification of volume models or groups of models in coherent light. The marking signals substantially increase the informativeness of their images, decreasing the probability of reductions by the introduction of additional criteria [priznak], which assure a sharper appearance of the boundaries of the multi-dimensional regions of the distinguishable specimens. Experimental results are obtained with respect to the identification of volume models during their observation in near and far zones by methods of optical matched filtration. 6 fig. 16 ref. Received by editors, 6 May 1971.

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Thermodynamics

USSR

UDC 536.42

DEYCH, M. Ye., TSIKLARI, G. V., SHANIN, V. K., and DANILIN, V. S., Moscow  
Power Engineering Institute

"Studying Wet Vapor Flows in Nozzles"

Moscow, Teplofizika Vysokikh Temperatur, Vol 10, No 1, Jan-Feb 1972, pp 122-129

Abstract: The authors present the results from the experimental and theoretical study of the flow of a wet vapor in nozzles within a broad range of initial moisture content and initial pressure. Specific methods are developed and used for studying two-phase flows. Experimental data obtained in studying nozzles operating on wet water vapor within a broad range of initial pressure and degrees of dryness are analyzed. The following types of experimental units were used in the study: stand for optical investigation, weighing unit, and a high-pressure water vapor stand. An optical method is used for determining the dimensions and the spectrum of the particles of the liquid phase, the phase being dispersed by the vapor in a flat, narrowing nozzle. The optical method is based on the scattering of light during its passage through a turbid medium: small-angle method by K. S. Shifrin and V. N. Golikov. A schematic is given of the unit for determining the degree of

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USSR

DEYCH, M. Ye., et al., *Teplofizika Vysokikh Temperatur*, Vol 10, No 1, Jan-Feb 1972, pp 122-129

dispersion of particles by the "small angles" method. The results show that initial pressure within the range studied affects significantly the thrust, power, and consumption characteristics of a two-phase nozzle. It also has a significant effect on the liquid phase dispersion process. Original article: eight formulas, eight figures, and 12 bibliographic entries.

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USSR

UDC 621.385.18.019.3

LOVPACHE, K.YU., VARTANOVA, G.A., SHANIN, YU.N., SARULIN, G.P.

"Study Of The Effect Of Prolonged Storage Under Conditions Of Higher Than Usual Humidity On The Vacuum In A M-Type Electron Device"

Elektron.tekhnika. Nauch.-tekhn.sb. Tekhnol. i organiz. proiz-va (Electronics Technology. Scientific-Technical Collection. Technology And Organization Of Production), 1971, Issue 3(43), pp 47-51 (from RZh--Elektronika i yeye primeneniye, No 11, Nov 1971, Abstract No 11A173)

Translation: Information is presented on the change of the overall pressure in M-Type metal-glass devices during storage under conditions of higher than usual humidity. The data were obtained by measurement of the current of the electron gas discharge in devices with an axial magnetic field. It is shown that a change of the vacuum takes place primarily because of an increase of the partial pressure of hydrogen, methane, and a mixture of carbon monoxide with nitrogen.  
Summary.

1/1

023 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--HEMODYNAMIC SHIFTS IN THIOPENTAL SODIUM INFUSION ANESTHESIA -U-  
AUTHOR--(02)-KHNYKINA, V.I., SHANIN, YU.N. S  
COUNTRY OF INFO--USSR  
SOURCE--EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTEZIOLOGIYA, 1970, NR 3, PP  
69-74  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ANALGESIC DRUG, ANESTHESIA, BARBITURATE, ORGANIC SULFUR  
COMPOUND, HEMODYNAMICS, SURGERY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/1014 STEP NO--UR/0481/70/000/003/0069/0074  
CIRC ACCESSION NO--AP0126652  
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0126652

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEMODYNAMIC SHIFTS CAUSED BY THIOPENTAL SODIUM WERE STUDIED BY MEANS OF MECHANOCARDIOGRAPHY IN 60 PATIENTS. UNDER INVESTIGATION WERE THE FEATURES SPECIFIC TO HEMODYNAMIC SHIFTS IN EMERGENCY OPERATIONS IN PATIENTS OVER 40 YEARS, DEPENDING UPON THE PRINCIPAL DISEASE. PRIOR TO ANESTHESIA THE CIRCULATORY FUNCTION WAS STRAINED IN ALL THE PATIENTS, AND WAS PRESERVED IN EMERGENCY INTERVENTIONS AFTER THE INTRODUCTION OF THIOPENTAL SODIUM. IN PATIENTS OVER 40 YEARS BOTH BEFORE ANESTHESIA AND DURING THIOPENTAL SODIUM ANESTHESIA THERE ARE SEEN CHARACTERISTIC HEMODYNAMIC FEATURES, "INERTENS" OF THE PULSE, HIGH TENSION OF ARTERIES. IN PATIENTS WITH INJURIES AT THIS PERIOD HYPOTENSION IS POSSIBLE, CAUSED BY REDUCTION OF THE VASCULAR TENSION. THE MOST MARKED CHANGES OF THE CARDIAC OUTPUT AND PERIPHERAL RESISTANCE ARE IN PATIENTS WITH VOLVULUS. FACILITY: KAFEDRA GOSPITAL'NOY KHIRURGII PETROZAVODSKOGO UNIVERSITETA IM. KUUSINENA, PETROZAVODSKAYA GOROSKAYA BOL'NITSA I. FACILITY: OTDELENIYE REANIMATOLOGII KAFEDRY GOSPITAL'NOY KHIRURGII VOYENNO-MEDITSINSKOY AKADEMII IM. S. M. KIROVA.

UNCLASSIFIED



1/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--A STERILE ROOM FOR REANIMATION OF PATIENTS AFTER  
HOMOTRANSPLANTATION OF THE HEART -U-  
AUTHOR--(05)-BALLYUZEK, F.V., SHANIN, YU.N., KOSTYUCHENKO, A.L.,  
SHCHELKUNOV, V.S., VOLKOV, YU.N.  
COUNTRY OF INFO--USSR  
SOURCE--EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTESIOLOGIYA, 1970, NR 2, PP  
84-87  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ORGAN TRANSPLANT, HEART SURGERY, HOSPITAL EQUIPMENT, ISOLATION  
CHAMBER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1990/0622 STEP NO--UR/0481/70/000/002/0084/0087  
CIRC ACCESSION NO--AP0108837  
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0108837

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS COMMIT TO PAPER A DESCRIPTION OF THE DESIGN AND RESULTS OF HYGIENIC AND BACTERIOLOGICAL EVALUATION OF A STERILE ISOLATION ROOM FOR PATIENTS AFTER HONOTRANSPLANTATION OF THE HEART. THE ORGANIZATION OF WORK OF THE PERSONNEL IN THE STERILE ISOLATION ROOM IS DEPICTED. FACILITY: KLINIKA GOSPITAL'NOY KHIRURGII VOYENNO MEDITSINSKOY AKADEMII IM. S. M. KIROVA, LENINGRAD.

UNCLASSIFIED

S Organ and Tissue Transplantation

USSR

UDC 616.12-039.843-0.6:616.12-008.315-0.3:725.51

BALLYUZEK, F. V., SHAMIN, Yu. N., KOSTYUCHENKO, A. L., SACHELKUNOV, V. S.,  
VOLKOV, Yu. N., FEDOROV, G. Z., and SUPRUNENKO, Yu. F., Clinic of Hospital  
Surgery, Military Medical Academy imeni S. M. Kirov, Leningrad

"A Sterile Room for the Reanimation of Patients After Homotransplantation of the  
Heart"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, No 2, Mar/Apr 70, pp 84-87

Abstract: After transplantation of the heart, respiratory infections constitute one of the principal dangers to the patients because of their lowered resistance and immunity. J. Phillips and G. Spencer estimated that respiratory infections caused the death of 1/4 of patients dying after surgery involving extracorporeal, blood circulation. A sterile chamber (3.7 X 3 X 2.5 m) has been designed for the reanimation and intensive care of patients after surgery involving extensive trauma and requiring rigorous antibacterial protection. The chamber is constructed of plastic sheets welded together and has an entrance lock consisting of two overlapping, suspended plastic sheets. The chamber has connections for O<sub>2</sub>, N<sub>2</sub>O, and vacuum, a telephone line, and electric connections for a defibrillator and an automatic system which records and transmits outside data on the condition of the patient. Equipment for the intubation of the trachea, healing of the tracheo-  
1/2

USSR

BALLYUZEK, F. V., et al, Eksperimental'naya Khirurgiya i Anesteziologiya, No 2, Mar/Apr 70, pp 84-87

bronchial passages, and for producing artificial coughs is located in it. Air that has been sterilized by irradiation is pumped into the chamber, in which the air pressure is higher by 7-10 mm than that outside. After 2-3 hrs. of operation of the chamber, the air in it contains no more than 0-2 possibly pathogenic bacteria per cubic meter and no pathogenic bacteria. The chamber is equipped with windows of transparent plastic, has translucent walls, and is lit from the outside. After adequate sterilization measures, a nurse who takes care of the patient may stay in the chamber and other medical personnel may enter it. The chamber ought to be adequate for the care of patients who have undergone heart transplants.

2/2

Hematology

USSR

UDC 615-391

KOLESNIKOV, I. S., BALLYUZEK, F. V., SHANIN, YU. N., KOSTYUCHENKO, A. L.,  
and MALAKHOV, S. F., Hospital Surgical Clinic, Military Medical Academy  
imeni S. M. Kirov, Leningrad

"Experience in the Use of the Hemoglobin-Containing Preparation Erigem as a  
Blood Substitute"

Leningrad, Bestnik Khirurgii imeni I. I. Grekova, Vol 108, No 5, May 72,  
pp 95-98

Abstract: As distinguished from blood extenders that merely bring the plasma volume to normal, the blood substitute Erigem, which contains hemoglobin that has been freed of stroma, transports  $O_2$  and maintains the respiratory function of the blood. Maintenance of this function until it can be restored by a blood transfusion would be one of the characteristics of an ideal blood substitute. Erigem was developed in 1962-64 at the Scientific Research Institute of Hematology and Blood transfusion in Leningrad. The clinical application of small doses of Erigem had been investigated thoroughly, but data on the effects of large doses were lacking. In the work described in this instance, Erigem was administered in large doses to 18 patients with pulmonary disturbances on the first day after surgery of the lungs. In cases of this type, an insufficient respiratory function of the blood is often

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USSR

KOLESNIKOV, I. S., et al., Vestnik Khirurgii imeni I. I. Grekova, Vol 108, No 5, May 72, pp 95-98

encountered in connection with a large blood loss, insufficient respiratory function of the erythrocytes of transfused blood, and a pronounced oligocythememic hypovolemia. Lyophilized Erigem was diluted with Ringer's solution and infused into the bloodstream in single doses of 14 ml per kg body weight (700-1,100 ml) corresponding to approximately 30 g hemoglobin. The preparation exerted a marked hemodynamic effect, increasing the arterial pressure to normal and reducing the tachycardia. It had an apyrogenic effect and exerted a distinct volemic action that continued for the 6-7 hrs during which the hemoglobin that had been introduced circulated in the body. The oxygen capacity of the blood increased. The arterio-venous difference of the plasma with respect to  $O_2$  was 50% on the average after the administration of Erigem. These and other data indicated that Erigem had a satisfactory effect in transporting  $O_2$  in the organism. No adverse reactions to the injections of Erigem were observed. The kidney function was normal after the injections, but caution is indicated in administering large doses of Erigem to patients with kidney disturbances. Erigem can be kept in storage for approximately 2 yrs.

2/2

UNCLASSIFIED

PROCESSING DATE--27NOV70

1/2 023

TITLE--VULCANIZATION OF LOW MOLECULAR WEIGHT CARBOXYL CONTAINING RUBBER

SKD-1 -U-

AUTHOR--(05)-EBICH, YU.R., BLOKH, G.A., MELAMED, CH.I., GRIGORYANTS, I.K.,  
SHANINA, L.P.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(2), 263-6

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--VULCANIZATION, CARBOXYLATE RUBBER, ORGANIC SULFUR COMPOUND,  
ZINC OXIDE, TENSILE STRENGTH/(U)SKD1 SYNTHETIC RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3005/0183

STEP NO--UR/0153/70/013/002/0263/0266

CIRC ACCESSION NO--AT0132460

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--27NOV70

2/2 023

CIRC ACCESSION NO--AT0132460

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

ABSTRACT. THE VULCANIZATION RATES, SWELLING, CO SUB2 H GROUP CONTENTS, AND UNSATN. WERE DETD. FOR SKD-1 RUBBER DURING AND AFTER ITS VULCANIZATION WITH 5, IMINO, 1, 2, 4, DITHIAZOLIDINE, 3, THIONE (I), ZNO MIXT. OR WITH PIPERIDINO TRISULFIDE (II); ZNO MIXT. ZNO; I, OR II ALONE WERE NOT SATISFACTORY. THE BEST RESULTS WERE OBTAINED WITH 7 PARTS I AND 5 PARTS ZNO IN 100 PARTS SKD-1 AT 80DEGREES. THE VULCANIZATES OBTAINED WITH I AND ZNO HAD 2-3 TIMES LARGER TENSILE STRENGTH AT BREAK THAN THE VULCANIZATES OBTAINED WITH ZNO ALONE. FACILITY: DNEPROPETROVSK. KHIM.-TEKHNOL. INST. IM. DZERZHINSKOGO, ONEPROPETROVSK, USSR.

UNCLASSIFIED



1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--A STUDY ON NUCLEAR MATERIAL FROM THE CELLS OF AZOTOBACTER

VINELANDII -U-  
AUTHOR-(03)-SHANINA, N.A., KOLESNIKOV, A.A., GNZAYSEVA, G.N.

COUNTRY OF INFO--USSR

SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 1, PP 60-66

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RNA, DNA, PROTEIN, LIPID, RIBOSOME, FUNGUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1411

STEP NO--UR/0220/70/039/001/0060/0066

CIRC ACCESSION NO--AP0109473

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0109473

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NUCLEAR SUBSTANCE WAS ISOLATED FROM THE CELLS OF A. VINELANDII BY FRACTIONATION AND SOME BIOCHEMICAL PROPERTIES OF ITS COMPONENTS WERE STUDIED. AFTER REMOVAL OF FREE RIBOSOMES NUCLEAR MATERIAL CONTAINED RNA AND DNA (2.2 IS TO 1). FURTHER REMOVAL OF BOUND RIBOSOMES FROM NUCLEAR MATERIAL BY ISOCTANE RESULTED IN A DECREASE OF THE RNA IS TO DNA RATIO (0.8 IS TO 1). THE CONTENT OF LIPIDS AND PROTEIN WAS HIGH IN NUCLEAR MATERIAL OF A. VINELANDII. A STUDY OF NUCLEAR MATERIAL BY A TECHNIQUE OF DENSITY GRADIENT EQUILIBRIUM SEDIMENTATION ESTABLISHED IN A SUCROSE SOLUTION REVEALED FOLLOWING COMPONENTS: DNA, RNA, 74S NUCLEAR RIBOSOMES AND THEIR SUBUNITS AS WELL AS A COMPLEX, CONTAINING DNA, RNA, PROTEIN AND, PROBABLY, LIPIDS. NUCLEOTIDE COMPOSITION OF THE RNA FRACTION WAS STUDIED AFTER COMPLETE REMOVAL OF RIBOSOMES (BOTH FREE AND BOUND) FROM NUCLEAR MATERIAL. NUCLEOTIDE COMPOSITION OF THIS RNA FRACTION CONSIDERABLY DIFFERED FROM THAT OF DNA, RIBOSOMAL RNA AND TRANSFER RNA OF THE CULTURE.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--QUANTITATIVE ANALYSIS OF ORGANOMETALLIC COMPOUNDS.  
MICRODETERMINATION OF ARSENIC BY COMBUSTION IN AN OXYGEN FILLED FLASK  
AUTHOR--(03)-SHANINA, T.M., GELMAN, N.F., MIKHAYLOVSKAYA, V.S.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 358-61  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--QUANTITATIVE ANALYSIS, ARSENIC, ORGANOMETALLIC COMPOUND,  
SPECTROPHOTOMETRIC ANALYSIS, ORGANIC ARSENIC COMPOUND, COMBUSTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1993/0675 STEP NO--UR/0075/70/025/002/0358/0361  
CIRC ACCESSION NO--AP0113546  
UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--30OCT70  
CIRC ACCESSION NO--APC113546  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MICROMETHOD WAS DEVELOPED FOR AS  
DETN. IN ORG. AS COMPS. BY COMBUSTION OF THE SAMPLE IN A FLASK FILLED  
WITH O AND SPECTROPHOTOMETRIC DETN. OF AS AS ITS BLUE MOLYBDOARSENATE  
COMPLEX. HYDRAZINE SULFATE IS USED AS THE REDUCING AGENT. THE  
ABSORBANCE OF THE COMPLEXES IS STABLE IN 0.33-0.56N ACID SOLNS. AND DOES  
NOT DEPEND ON REAGENT CONCNS. THE COLOR IS DEVELOPED 5-10 MIN AFTER  
BOILING ON A WATER BATH. ITS. MAX. ABSORBANCE OCCURS IN THE 850 NM  
RANGE. BEER'S LAW IS OBEYED UP TO 4 MUG AS PER ML. SI AND GE DO NOT  
INTERFERE. COMBUST 3-8 MG OF THE SAMPLE IN A FLASK FILLED WITH O,  
ABSORB THE PRODUCTS IN A MIXT. OF 10 ML N H SUB2 SO SUB4 AND 1.5-2 ML  
0.05N KMNO SUB4. REDUCE THE KMNO SUB4 EXCESS WITH 1PERCENT HYDRAZINE  
SULFATE AND DIL. TO 100 ML WITH H SUB2 O. NEUTRALIZE AN ALIQUOT CONTG.  
5-20 MUG AS WITH A SATD. NA SUB2 CO SUB3 SOLN. BY USING PHENOLPHTHALEIN  
AS INDICATOR, ADD 6 ML 2N H SUB2 SO SUB4, 4 ML 1PERCENT AMMONIUM  
MOLYBDATE IN 2N H SUB2 SO SUB4, AND 2 ML 0.15PERCENT HYDRAZINE SULFATE,  
AND DIL. TO 50 ML WITH H SUB2 O. HEAT FOR 5 MIN, COOL, AND DIL. TO VOL.  
WITH H SUB2 O. DET. THE ABSORBANCE AT 850 NM. THE STD. DEVIATION IS  
0.12PERCENT ABS. FACILITY: INST. HETEROORG. COMPD., MOSCOW,  
USSR.

UNCLASSIFIED

USSR

UDC 51

SHANKIBAYEV, B. N.

"Integral Distribution Algorithm"

V sb. Matematika i mekhanika. Vyp. 6 (Mathematics and Mechanics. Vyp. 6--collection of works), Alma-Ata, 1972, pp 175-188 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V336)

No. abstract

1/1

1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--ANOMALY OF THE VISCOSITY OF VISCOSE IN A STUDY OF ITS FILTRATION  
-U-  
AUTHOR--(02)--SHANKIN, P.A., GLICHEV, G.T.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. VOLKNA 1970, (2), 40-2  
DATE PUBLISHED--70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--FILTRATION, NONNEWTONIAN FLOW, CELLULOSE RESIN, RAYON  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/0822 STEP NO--UR/0183/70/000/002/0040/0042  
CIRC ACCESSION NO--AP0124489  
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE---30OCT70

CIRC ACCESSION NO--AP0124489

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FILTRATION OF A NON NEWTONIAN FLUID, IN WHICH A SMALL AMT. OF SOLID IS SUSPENDED, THROUGH A POROUS BARRIER IS DISCUSSED MATH. THE RESULTS ARE APPLICABLE TO THE FILTRATION OF VISCOSE CONTG. SUSPENDED IMPURITIES WHEN THERE IS PARTIAL CLOGGING OF THE FILTER AND THE FORMATION OF A FILTER CAKE. FACILITY: MTI, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.396.6-181.5

4  
NAZAROV, G. V., SOKOLOV, A. V., KOZHEVNIKOV, A. P., SHANOV, A. M., NIKITIN,  
V. G., SAFONOV, V. A., SEREGIN, V. P., BASHARIN, V. I.

"Development of Equipment for Assembling Integrated Circuits by Welding with Pulsed Indirect Heating and Ultrasound"

Elektron. tekhnika. Nauchno-tekhn. sb. Mikroelektronika (Electronic Engineering. Scientific and Technical Collection. Microelectronics), 1970, vyp. 3 (24), pp 70-76 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4V287)

Translation: A study was made of the advantages of welding by pulsed indirect heating and ultrasonic welding when assembling microcircuits. The technical characteristics of the developed equipment and the structural design of the operating tool are presented. The results of experimental operation of the devices are discussed.

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USSR

UDC 621.762.01:669.2

VORONTSOV, V. K., SHANKOV, G. S., and BYAKOV, L. I.

"Use of Methods of Powder Metallurgy for Production of Fine-Grained Silver Chloride"

Plast. deformatsiya met. i splavov [Plastic Deformation of Metals and Alloys -- Collection of works] (Moscow Institute of Steels and Alloys, 64), Moscow, 1970, pp. 246-249, (Translated from Referativnyy Zhurnal--Metallurgiya, No. 1, 1971, Abstract No.1 G455 by the authors).

Translation: The possibility is studied of using methods of powder metallurgy to produce finely dispersed specimens of AgCl, suitable for polarization optical studies. Hydrostatic compression in a container is used to produce a material which approaches the density of the compact material. Optimal modes are found for heat and mechanical working in order to give the material the necessary combination of optical and mechanical properties. 4 figures.

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Powder Metallurgy

USSR

UDC 620.171.5

VORONTSOV, V. K., SHANKOV, G. S., and BYAKOV, L. I.

"Using Powder Metallurgy Methods to Obtain Fine-Grain Silver Chloride"

Plasticheskaya Deformatsiya Metallov i Splavov, Moscow, No 64, "Metallurgiya,"  
1970, pp 246-249

Translation: The possibility of using powder metallurgy methods to obtain fine-grained specimens of silver chloride suitable for polarization-optical research is investigated. During hydrostatic compression in a container, a material is obtained which approximates a compact material in density. Optimal conditions of thermomechanical treatment are found in order to give the material the necessary set of optical-mechanical properties. Four figures and two bibliographic entries.

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USSR

UDC: 621.396.69.602.2

SHANNIKOV, V. M., KUZ'MIN, V. P.

"A Method of Calculating Residual Stresses in Cast Epoxy Insulation for Electrical Elements"

Tr. Leningr. in-t aviats. priborostr. (Works of the Leningrad Institute of Aviation Instrument Building), 1971, vyp. 69, pp 208-217 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V455)

Translation: A method is proposed for determining residual stresses and determining the grade of material for cast insulation from hard epoxy compound products. The results of a study of the physical and mechanical properties of EZL-120 compound product are presented. Resumé.

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# SHANOVICH, O.P.

JPRS 50046  
23 January 1973

DOC: 613.014.2:66.637.5

PERCEPTIVE OF A CONTINUOUS FLOW DEVELOPED BY THE ITMO,  
ACADEMY OF SCIENCES BELORUSSIAN SSR

Articles by E. V. Fedorovich, S. V. Pogorzelskaya, V. G. Gilyukh, P. N. Kuznetsov, and O. P. Shanovich of the Institute of Heat and Mass Transfer (ITMO) at Belorussian SSR, Minsk, the Prib'kov Chemical and Pharmaceutical Scientific Research Institute, and the Kharkov Chemical and Pharmaceutical Plant "Zdorov'ye kryvukhchimsya"; Moscow; Kharko-farmatsvtilicheskii Zhurnal, Russian, No 11, 1972, pp 53-55]

The Institute of Heat and Mass Transfer of the Academy of Sciences Belorussian SSR has investigated a continuous method of drying pharmaceutical, chemical preparations. The method consists in having the moist granulation and drying in a falling and fluidized bed be accomplished in a single apparatus. This makes the process continuous and also permits curtailing losses of material to a minimum, improving the quality of output, accelerating the process of granulation and drying by some of times, reducing production areas and creating normal conditions for the work. On the basis of that method, optimum drying conditions have been worked out and a prototype of the equipment has been made which has undergone industrial tests at the Cherkasskiy Pharmaceutical Plant "Zdorov'ye Tрудyachchimsya" in Kharkov.

The figure presents a schematic diagram of the drying apparatus. It consists of a granulator (2), drying chamber (1), air heater (5), blower (4), cyclone (3), bucket chain and a control panel. The drying chamber is a vertical pipe 400 mm in diameter with an expanded separator section. The vertical part of the dryer is 1500 mm high. In the lower part is a perforated grid on which the material being dried is fluidized. In the separator part of the dryer is a granulator, which is a cylinder with a perforated bottom. The diameter of the opening can be adapted, depending of the required granulometric composition of the material being dried. In the given case the opening diameter is 2 mm. Screw blades serve as a trisurator. On the lower side

immunology

USSR

UDC 576.858.25.097.2.077.3

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GAYDAMOVICH, S. Ya., OBUKHOVA, V. R., MEL'NIKOVA, Ye. E., VOLOKHOVA, N. A., KIRYUSHCHENKO, T. V., KLISENKO, G. A., KRASNOBAYEVA, Z. N., LAVROVA, N. A., SHARIPOVA, Sh. A., and SHANOYAN, N. K., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Use of Ultrasound to Increase Arbovirus Antigen Activity in Serological Tests in Vitro"

Moscow, Voprosy Virusologii, No 3, May/Jun 1973, pp 356-360

Abstract: An ultrasonic technique to increase antigen activity was tested on five groups of arbovirus antigens. Antigens prepared from suckling mouse brain by the sucrose-acetone and freon methods, or in chick fibroblasts without preliminary processing, were subjected to 30-40 sec of 20,000-25,000 Hz ultrasonic treatment. Titers determined before and after treatment by hemagglutination inhibition (HAI), complement fixation (CF), and agar gel diffuse precipitation (AGDP) were compared. For group A and B arboviruses CF and HAI titers increase 4-8 times after treatment, while AGDP titers remained unchanged. In the Kemerovo-Bunyamvera-California group, the CF titers increased by 2-4 times, and no change was observed in HAI titers. CF titers increased 2-8 times for all but Neapolitan arbovirus of the Phlebotomus group.

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USSR

GAYDAMOVICH, S. Ya., et al., Voprosy Virusologii, No 3, May/Jun 1973, pp 356-360

The only HAI response in this group was by Bujaru arbovirus, and only after treatment the AGDP titers increased in a few cases. Ultrasonic treatment had an especially favorable effect on CF and AGDP titers in the Ukuniemi group, while changes in HAI titers were less pronounced. Thus ultrasonic treatment normally facilitates antigen activity in CF and HAI reactions and has a variable effect on the AGDP reaction. Treated antigens did not lose specificity. It is concluded that ultrasonic treatment can be used not only to increase titers but also to reveal titers of relatively inactive antigens.

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1/2 018 UNCLASSIFIED PROCESSING DATE --27NOV70  
TITLE--INVESTIGATION OF HIGH FREQUENCY STABILIZATION OF THE KADOMTSEV,  
NEDOSPASOV INSTABILITY IN AN ELECTRON HOLE PLASMA --U--  
AUTHOR--(03)-VLADIMIROV, V.V., DUBOVOY, L.V., SHANSKIY, V.F.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,  
NR 5, PP 1580-1585  
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON HOLE, PLASMA INSTABILITY, GERMANIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3002/0012

STEP NO--UR/0056/70/058/005/1580/1585

CIRC ACCESSION NO--AP0127662

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127662

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONDITIONS ARE DERIVED FOR HIGH FREQUENCY STABILIZATION OF HELICAL INSTABILITY OF A CURRENT IN A SEMICONDUCTOR ELECTRON HOLE PLASMA. THE RESULTS OF THE CALCULATIONS ARE COMPARED WITH THE RESULTS OF EXPERIMENTS ON GERMANIUM. IT IS SHOWN THAT THE CALCULATION PROCEDURE PROPOSED PERMITS ONE TO EXPLAIN THE MAIN REGULARITIES OBSERVED IN THE EXPERIMENTS. FACILITY: INSTITUT ELEKTROFIZICHESKOY APPARATURY IM. D. V. YEFREMOVA.

UNCLASSIFIED



USSR

UDC 621.357.12:661.418(088.8)

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EBERIL', V. I., YELINA, L. M., SHKRED, V. V., TSEYTLIN, R. I., YURKOV, L. I.,  
GURVANOV, L. S., KORYAGIN, V. I., PANCHENKO, M. B., and SHANTALIN, A. M.

"Process of the Decomposition of Active Chlorine in Solution"

USSR Authors' Certificate No 335211, filed 20 Jun 60, published 15 May 72  
(from Referativnyy Zhurnal -- Khimiya, No 8, (II), 1973, Abstract No 81254P)

Translation: A process is patented for the dissociation of active chlorine in solutions by means of heating, which is distinguished in that, in order to increase the velocity of dissociation, a process occurs in order to maintain a stable pH value for the solution equal to 5.5 to 6.5. It is proposed to carry out the process by bubbling gases which have been pre-heated and humidified to 60-100% (relative to the temperature of the solution). The value of the pH of the solution during the process stays in the region 5.5 to 6.5 by the addition of alkaline or alkali salts to the solution. The temperature of the solution is confined to the region 60-100°C. The process is carried out either as a batch or as a continuous system, for example, for the flow of the pre-heated solution across a step-wise capacity pattern. The solution is made alkaline at the beginning of the process; that is, the most rapid reduction in the pH of the solution occurs during the first stage of the pro-

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USSR

EBERIL', V. I., et al., USSR Authors' Certificate No 335211, filed 20 Jun 60,  
published 15 May 72

cess when velocity of dissociation of the active chlorine is highest. From  
50-100% of the alkali reagents supplied in the solution are introduced during  
the first 60 minutes of the process.

2/2

USSR

S UDC 621:371.552

TOVBINA, A. I., SHANTAR', A. K.

"Results of Determination of the Time of Propagation of Precision Time Short-Wave Radio Signals on the Moscow-Novosibirsk Route (1965-1966)"

Tr. Metrol. in-tov SSSR (Works of Metrological Institutes of the USSR), 1970, vyp. 103 (163), pp 12-15 (from RZh-Radiotekhnika, No 10, Oct 70; Abstract No 10A164)

Translation: Seasonal and diurnal variations are given for the time of propagation of short-wave radio time signals on the Moscow-Novosibirsk route. Daily measurements were made of the time of propagation of radio time signals transmitted on frequencies of 10 and 15 MHz. The regularities found in the seasonal and diurnal changes in time of propagation can be used to predict this quantity. Six illustrations. Resumé.

1/1

1/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--KINETICS OF THE REDUCTION OF IRON AND VANADIUM OXIDES FROM OXIDE  
SYSTEMS BY IRON, CARBON MELTS -U-  
AUTHOR--(02)-SHANTARIN, V.D., SMIRNOV, L.A.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 344-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--METAL REDUCTION, VANADIUM OXIDE, IRON ALLOY, FERROUS LIQUID  
METAL, ACTIVATION ENERGY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1999/1105 STEP NO--UR/0076/70/044/002/0344/0349  
CIRC ACCESSION NO--AP0123097

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--13NOV70

2/2 020

CIRC ACCESSION NO--AP0123097

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NORMALLY, RATES OF INTERACTION OF SLAG WITH FE-C MELTS ARE MEASURED BY PERIODIC WITHDRAWAL OF SAMPLES AND THEIR CHEM. ANAL.; THIS PROCEDURE HAS SEVERAL DISADVANTAGES. IN THIS WORK, THE KINETICS OF REDN. OF V SLAGS WITH C IN FE-C MELTS WAS STUDIED BY CONTINUOUS, AUTOMATIC ELECTROCHEMICAL MEASUREMENTS OF EMF. EXPTL. VALUES OF POTENTIALS AND OF CONCNS. OF (FeO PLUS Fe SUB2 O SUB3) AND V SUB2 O SUB5 ARE TABULATED AND ANALYZED. DETN. OF V SUB2 O SUB5 CONC. WAS COMPLICATED BY 2 PROCESSES: REDN. OF FE OXIDES AND CATHODIC DEPOSITION OF V FROM SLAG; SOME OXIDN. OF V ELECTRODE BY FE OXIDES WAS POSSIBLE AS TWO FIFTHS V PLUS FeO EQUALS FE PLUS ONE FIFTH V SUB2 O SUB5. THE ORDER OF THE REACTION OF FE REDN. WAS EXAMD. BY GRAPHICAL INTEGRATION; IT VARIED FROM 1.0 AT THE START TO 2.6 AT THE END OF EXPTL., THIS BEHAVIOR AGREEING WITH OTHER LITERATURE REPORTS. TEMP. DEPENDENCE OF THE REDN. OF FE AND V OXIDES WAS EXAMD. IN THE 1350-1450DEGREES RANGE. THE APPARENT ACTIVATION ENERGIES FROM ARRHENIUS CURVES WERE 60 KCAL-MOLE FOR REDN. OF FE OXIDES, AND SIMILAR TO 90 KCAL-MOLE FOR V OXIDES. DUE TO THIS LARGE DIFFERENCE, THE SELECTIVITY OF REDN. OF METAL OXIDES INCREASES WITH TEMP. LOWERING. THUS, AT LOWER TEMPS., THE SLAG WILL BE RICHER IN V. ANOTHER CONCLUSION FROM THE LARGE DIFFERENCE IN ACTIVATION ENERGIES IS THAT THE MECHANISMS OF REDN. OF FE AND V OXIDES ARE, PROBABLY, DIFFERENT. FACILITY: URAL.

POLITEKH. INST. IM. KIROVA, SVERDLOVSK, USSR.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--COPOLYMERIZATION OF MALEIC ANHYDRIDE WITH VINYL COMPOUNDS -U-  
AUTHOR--(03)--SHANTAROVICH, P.S., SOSNOVSKAYA, L.N., POTAPOVA, T.P.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(1), 100-2 (CHEM) S  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--COPOLYMERIZATION, MALEIC ANHYDRIDE, VINYL COMPOUND, STYRENE,  
ORGANIC COMPLEX COMPOUND, HETEROCYCLIC OXYGEN COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/0713 STEP NO--UR/0020/70/191/001/0100/0102  
CIRC ACCESSION NO--AT0124383  
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0124383

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE ACCEPTED THEORY (T. ALFREY ET AL., 1945) OF PHCH:CH SUB2 (I) COPOLYMN. WITH MALEIC ANHYDRIDE (II) THE CONST. COPOLYMER COMPN. (SIMILAR TO 1:1 I-II) AND THE SEQUENTIAL ORDERING OF ALTERNATIVE I-II UNITS OBTAINED WITH DIFFERENT STARTING MONOMER MIXTS. IS EXPLAINED BY THE INABILITY OF I TO REACT WITH THE COPOLYMER CNTG. I END GROUP. THIS IS CONTRARY TO THE EXPTL. EVIDENCE OBTAINED IN I HOMOPOLYMNS. ON THE BASIS OF THE EXPTL. AND LITERATURE DATA A NEW COPOLYMN. MODEL IS PROPOSED FOR THE I-II AND I-II-H SUB2 C:CHOAC (III) SYSTEMS: THE COPOLYMER CAN REACT ONLY WITH THE POLAR FREE RADICAL COMPLEXES, SUCH AS IV OR V, AND NOT WITH THE MONOMERS. THE CALORIMETRY SHOWED THAT IV OR V ARE FORMED IMMEDIATELY WHEN II IS DISSOLVED IN I OR III. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--WATERPROOFING OF MATERIALS -U-

AUTHOR--(05)-SHANTAROVICH, P.S., LARIONOVA, V.D., POTAPOVA, T.P., ZURABYAN,  
K.M., MATETSKENE, N.I.  
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,063  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--09MAR70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--WATERPROOFING, CHEMICAL PATENT, LEATHER, ALKALI METAL, GLYCOL,  
COPOLYMER, STYRENE, MALEIC ANHYDRIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1753

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136993

UNCLASSIFIED



272 022

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0136993

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MATERIALS SUCH AS LEATHER ARE WATERPROOFED BY TREATING THEM WITH THE REACTION PRODUCT OF AN ALKALI METAL GLYCOLATE AND A COPOLYMER OF STYRENE WITH MALEIC ANHYDRIDE OR POLY(ACRYLIC ACID). FACILITY: INSTITUT KHIMICHESKOY FIZIKI AN SSSR I TSENTRAL'NIY NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT KOZHEVENNOY PROMYSH LENNOSTI.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--COPOLYMERIZATION OF MALEIC ANHYDRIDE WITH SOME VINYL COMPOUNDS -U-  
AUTHOR-(02)-SHANTAROVICH, P.S., SOSNOVSKAYA, L.N.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 358-62  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--COPOLYMERIZATION, MALEIC ANHYDRIDE, VINYL COMPOUND, CONJUGATED  
POLYMER, COMPLEX COMPOUND  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1999/1978 STEP NO--UR/0062/70/000/002/0358/0362  
CIRC ACCESSION NO--AP0123759  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123759

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC DATA WERE OBTAINED FOR BZ  
SUB2 O SUB2 CATALYZED POLYMN. OF MALEIC ANHYDRIDE (I), AND ITS COPOLYMN.  
WITH CH SUB2:CHOAC, CH SUB2:CHCO SUB2 H AND PHCH:CH SUB2 IN VARIOUS ORG.  
SOLVENTS AT 55DEGREES. THE REACTION INVOLVED CHAIN TRANSFER AND  
REQUIRED MUCH INITIATOR IN CASE OF THE BLOCK POLYMN. THE CHAIN TRANSFER  
CONST. TO THE MONOMER WAS HIGH AND THE D.P. WAS LOW. I COMONOMER  
COMPLEXES WERE FORMED AND PARTICIPATED IN THE COPOLYMN. THIS RESULTED  
IN A 1:1 COMPN. OF THE COPOLYMER CHAIN, REFLECTING THE IONIC NATURE OF  
THE INTERMEDIATE COMPLEX. FACILITY: INST. KHIM. FIZ., MOSCOW,  
USSR.

UNCLASSIFIED

USSR

UDC: 621.376.23

SHANTSEV, I. P., and SHAPIRO, V. Ye.

"Three Forms of Low-Frequency Unstable Resonance Circuits Using Semiconductor Diodes"

V sb. Tonkiye magnitn. plenki, vychisl. tekhn. i radiotekhn., T. 1  
(Thin Magnetic Films, Computer Techniques, and Electronic Engineering, Vol. 1--collection of works) Krasnoyarsk, 1970, pp 19-25  
(from RZh-Radiotekhnika, No. 3, March 21, Abstract No. 3D37)

Translation: An examination is made of the mechanism causing instabilities connected with a nonlinear capacitance in a semiconductor diode amplitude detector containing a resonant circuit. The threshold of their occurrence is determined. Bibliography of four. N. S.

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