

2/2 035

CIRC ACCESSION NO--AP0105613
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT. PUBLISHED EXPTL. DATA ARE ANALYZED TO DEDUCE THE PROBABLE BASIS FOR THE EFFECT OF THE SPECIFIC BEHAVIOR OF THE SURFACE LAYER ON THE PROCESSES OF THE MACROSCOPIC FLOW OF METALS WHICH POSSESS A CLEARLY EXPRESSED PHYS. YIELD POINT. THE JOG PLATEAU SHAPE OF THE YIELD CURVE, THE PORTEVIN LE CHATELIER EFFECT, THE PHYS. FATIGUE LIMIT, AND THE SHARP TRANSITION TO COLD BRITTLENESS MAY BE EXPLAINED BY THE ANOMALOUS BEHAVIOR OF THE STRONGER SURFACE LAYER DURING DEFORMATION. SUCH STRENGTHENED SURFACE LAYERS, WITH THICKNESS OF THE ORDER OF THE GRAIN SIZE, CAN BE PRODUCED BY DYNAMIC STRAIN-AGING AS A RESULT OF LOADING IN THE PSEUDO ELASTIC REGION OR BY PRELIMINARY MECH., CHEM., AND HEAT TREATMENT.

UNCLASSIFIED

1/2 025

UNCLASSIFIED

PROCESSING DATE--11SEP70

TITLE--EFFECT OF AGING AND COLD WORKING ON THE RESISTANCE OF STRUCTURAL
STEELS TO PLASTIC DEFORMATION DURING LOW CYCLE LOAD -U-

AUTHOR--MAKHUTOV, N.A., SHCHERBAK, A.M., POYDA, V.G., TERENTYEV, V.F.

COUNTRY OF INFO--USSR

T

SOURCE--PROBL. PROCH. 1970, (1), 42-5

DATE PUBLISHED-----70

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

TOPIC TAGS--METAL AGING, COLD WORKING, LOW ALLOY STEEL, STRUCTURAL STEEL,
METAL DEFORMATION/(U)22K LOW ALLOY STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/1408

STEP NO--UR/3663/70/000/001/0042/0045

CIRC ACCESSION NO--AT0100068

UNCLASSIFIED

025

CIRC ACCESSION NO--AT0100068
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT. WITH MOST METALS THE BAUSCHINGER EFFECT IS SHOWN IN A RADICALLY DECREASING PLASTICITY IN THE 1ST CYCLE UPON REVERSAL FROM TENSION TO COMPRESSION. THE KNOWN REDN. OF THIS EFFECT BY DEFORMATION AND AGING WAS REEXPLORED WITH BOILER STEEL 22K (C 0.3, SI 0.26, MN 0.80, NI 0.20, CR 0.12, CU 0.015PERCENT) AND LOW C STEEL DEFORMED AT 0.5-10.0PERCENT THEN AGED FOR 2 HR-270DEGREES. THE ELASTIC LIMIT, IN APPLIED FORCE, SIGMA SUBA LARGER THAN SIGMA SUBT, THE ELASTIC LIMIT, IN THE RELATION FOR THE MEAN YIELD STRENGTH, BAR SIGMA, HAD THE USUAL SHARP LINEAR DROP TO ZERO TENSION ELASTICITY, FOLLOWED DURING THE COMPRESSION BY A PARABOLIC DECLINE TO A LOWER ELASTICITY VALUE THAN INITIALLY, IN ITS SIGMA SUBT PRIME CURVE. INITIALLY THE METAL HAD A SIGMA SUBT PRIME VALUE OF 30.8 KG-MM PRIME2, BUT AFTER DEFORMATION BY 0.5, 2.0, 5.0, AND 10.0PERCENT AND AGING 31.8, 37.2, 46.0, AND 52.0 KG-MM PRIME2. WITH BAR SIGMA EQUALS 1.17, 1.32, 1.46, 1.61, AND 1.71, SIGMA SUBT PRIME RANGED DOWN 7.1-3.55, 26.0-3.55, 26.9-7.8, AND 28.3-21., KG-MM PRIME2, RESP., FOR EACH DEFORMED TYPE. THE PHENOMENA WAS ATTRIBUTED TO THE EASE OF BLOCKING OF DISLOCATIONS: AND AS WITH 22K STEEL SIGMA SUBT PRIME BECAME STABILIZED AFTER 5-7 TOTAL CYCLES OR LESS FOR BAR SIGMA EQUALS 1.61. SIMILARLY, THE REMOVAL OF DISLOCATIONS (AND PLASTICITY) AFTER AGING AT 400DEGREES CAUSED REMOVAL OF THE BAUSCHINGER EFFECT; OR SOME REDN. IF AFTER DEFORMATION, A SURFACE LAYER WAS REMOVED ELECTROLYTICALLY.

UNCLASSIFIED

1/2 040

UNCLASSIFIED

PROCESSING DATE--11SEP70

TITLE--NATURE OF THE EEG FOR FLIERS (COMMUNICATION I) -U-

AUTHOR--LITSOV, A.N., NISTRATOV, V.V., TERENTYEV, V.G.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, KOSMICHESKAYA BIOLOGIYA I MEDITSINA, RUSSIAN, VOL 4, NO 1,
JANUARY-FEBRUARY 1970, PP 73-74

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ELECTROENCEPHALOGRAPHY, AERONAUTIC PERSONNEL, PERSONNEL
SELECTION, MEDICAL EXAMINATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1986/1617

STEP NO--UR/0453/70/004/001/0073/0074

CIRC ACCESSION NO--AP0103383

UNCLASSIFIED

2/2 040

CIRC ACCESSION NO--AP0103383
ABSTRACT/EXTRACT--(U) GP-C-

UNCLASSIFIED

PROCESSING DATE--11SEP70

IMPORTANCE OF AN ANALYSIS OF THE EEG FOR FLIGHT PERSONNEL AND CANDIDATES FOR SELECTION AS STUDENTS AT AVIATION SCHOOLS, WE MADE INVESTIGATIONS OF CEREBRAL BIELECTRIC ACTIVITY IN MORE THAN 100 SUBJECTS. WE ANALYZED MORE THAN 1,200 ELECTROENCEPHALOGRAMS REGISTERED AT REST WITH THE SUBJECTS IN A SEMIRECLINING POSITION WITH THE EYES CLOSED. WE REGISTERED THE EEG IN FRONTAL SINCIPITAL, SINCIPITAL OCCIPITAL AND FRONTAL OCCIPITAL LEADS FROM THE RIGHT AND LEFT SIDES.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--EEG CHARACTERISTICS IN PILOTS -U-
AUTHOR--(03)--LITSOV, A.N., NISTRATOV, V.V., TERENTYEV, V.G.

COUNTRY OF INFO--USSR

SOURCE--KOSMICHESKAIA BIOLOGIJA I MEDITSINA, VOL. 4, JAN.--FEB. 1970, P
73-74

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ELECTROENCEPHALOGRAPHY, AIRCRAFT PILOT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1975

STEP NO--UR/0453/70/004/000/0073/0074

CIRC ACCESSION NO--AP0120618

UNCLASSIFIED

272 020

CIRC ACCESSION NO--A0120618

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF AN ANALYSIS OF A TOTAL OF MORE THAN 1200 EEGS OF PILOTS RECORDED IN A QUIET RECLINED POSITION WITH CLOSED EYES. HIGH AND MEDIUM ALPHA RHYTHM ACTIVITIES ARE ESTABLISHED IN 77.7PERCENT OF TESTS. THE DISTRIBUTION OF THE SUBJECTS ACCORDING TO ALPHA WAVE AMPLITUDE IS MODERATELY ASYMMETRICAL WITH A MAXIMUM AMPLITUDE BETWEEN 70 AND 90 MICROVOLT. IT IS CONCLUDED THAT THE ALPHA AND BETA RHYTHMS PREVAIL IN MOST HEALTHY PILOTS.

UNCLASSIFIED

UDC 621.039.574.5

USSR

TERENT'YEV, V. P., ZHARKOV, V. A., FRADKIN, G. M., and CHAVY-
CHALOVA, T. P.

"Optimal Irradiation Modes in Isotope Production"

Moscow, Atomnaya energiya, Vol 29, No 4, Oct 70, pp 260-264

Abstract: In response to the need for developing economically favorable modes for obtaining radioisotope energy through irradiation, the authors use as the criterion for such modes minimum expense for obtaining the required isotope and the maximum value of energy output. In this process, a fairly stable initial isotope is bombarded by neutrons to form an intermediate isotope, which quickly decays to form the energy-producing result. The authors write an equation for the expense incurred in obtaining one gram-atom of the fuel isotope, and three equations for the irradiation expense which apply in most practically important cases. They also find an equation for determining the required irradiation duration. Curves are plotted for the optimal output of the original and fuel isotopes under neutron irradiation, and a table of various isotopes and corresponding parameters for optimal irradiation modes is reproduced.

U20

TITLE--DIFFRACTION OF 10.6 MU RADIATION STUDIED ON AN ULTRASONIC STANDING WAVE IN A SOLID -U-
AUTHOR--(02)-KRUGLIKOVA, L.P., TERENTYEV, V.YE.

UNCLASSIFIED
PROCESSING DATE--16OCT70

7

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(1), 199-201

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ULTRASONIC WAVE, LIGHT DIFFRACTION, LIGHT MODULATION, GERMANIUM, SODIUM CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/0369

STEP NO--UR/0051/70/028/001/0199/0201

CIRC ACCESSION NO--AP0055154

UNCLASSIFIED

U20

CIRC ACCESSION NO--AP0055154
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT. A METHOD WAS DEVELOPED FOR LOWERING THE LEVEL OF THE EXCITING VOLTAGE BY INCREASING THE LENGTH OF THE RADIATION PATH IN AN ULTRASOUND FIELD. THE PATH WAS EXTENDED BY THE INTRODUCTION OF MIRRORS AT THE END FACES OF A SOLID ACOUSTIC MEDIUM. THE RESULTS INDICATE POSSIBILITIES OF OBTAINING DIFFRACTION MODULATORS OF RADIATION FOR A WIDE SPECTRAL REGION DEPENDING ON TRANSMITTANCE OF THE MODULATING MEDIUM. FOR ROCK SALT THIS REGION IS 0.4-15 MU FOR GE 2-15 MU.

UNCLASSIFIED

USSR

UDC 533.601.34

YERMAKOV, A. L., YEROSHENKO, V. M., KLIMOV, A. A., MOTULEVICH, V. P., and
TERENT'YEV, Yu. N.

"Experimental Investigation of Flow Stability During Intensive Injection"
Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 6,
Nov-Dec 72, pp 114-123

Abstract: Results are presented of an experimental investigation of the loss of flow stability in boundary layers forced aside by injection. The experiments did not confirm the widely held opinion concerning the strong destabilizing influence of injection. Moreover, a flow-stabilization effect is noted when injection intensity is increased; this effect originates due to a decrease in the value of velocity shear in the zone of intensive viscous interaction. A semiempirical formula is obtained for determining the critical Reynolds number at the point of loss of stability. Consideration is given to the development of disturbances, and a correspondence is shown between the experimental data and calculations by the method of small vibrations for an ideal fluid. An analysis is made of the transition to turbulence through stability loss due to the selective intensification of small vibrations and, simultaneously, to the penetration of turbulent

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USSR

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YERMAKOV, A. L., et al., Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 6, Nov-Dec 72, pp 114-123

disturbances of the external stream into the shear zone. The high flow stability in shear layers forced aside by injection is explained by the stabilizing influence of the elastic gaseous medium over which they develop. Nine figures, eight references.

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USSR

UDC: 532.526

YEROSHENKO, V. M., YERMAKOV, A. L., KLIMOV, A. A., MOTULEVICH, V. P.,
TERENT'YEV, Yu. N.

"Influence of Strong Injection on Stability of Flow and Transition to
Turbulent Flow"

Teplofiz. Svoystva i Gazodinamika Vysokotemperatur. Sred. [Heat Physical
Properties and Gas Dynamics of High Temperature Media -- Collection of Works],
Moscow, Nauka Press, 1972, pp 56-64 (Translated from Referativnyy Zhurnal
Mekhanika, No 12, 1972, Abstract No 12B782, by the authors)

Translation: Some general conclusions from the theory of stability using the
method of small oscillations are studied. The use of the interferometric
method for visualization of the area of loss of stability and the transition
to the turbulent mode is analyzed. The data of interference measurements are
used to determine such parameters as wavelength, frequency of development and
phase velocity of a periodically excited motion. Quantitative data are pre-
sented on the dependence of the point of loss of stability and critical
Reynolds number on injection parameter. It is established that with a given
range of injection parameter, the flow is stabilized. The dependence of the
wave number of an unstable periodic excited motion on critical Reynolds
number and injection parameter is analyzed. The flow mode when the transition
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Yeroshenko, V. M., Yermakov, A. L., Klimov, A. A., Motulevich, V. P.,
Terent'yev, Yu. N., *Teplofiz. Svoystva i Gazodinamika Vy sokotemperatur. Sred.*,
Moscow, Nauka Press, 1972; pp 56-64.

to the turbulent mode is realized through a loss of stability due to reinforcement of small oscillations and the Taylor mechanism related to penetration of the turbulence of the external flow into the mixing zone is studied.

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SSR

YERMAKOV, A. L., et al., Izvestiya Akademii Nauk, SSSR, Mekhanika Zhidkosti i Gaza, No 3, 1972, pp 60-67

The present work represents a continuation of experimental research on the structure of a turbulent boundary layer during injection through a porous plate. The results of an experimental investigation of the structure of a turbulent boundary layer on a porous plate during the injection of helium are presented. The influence of the injection parameter upon the averaged and pulsation distribution of velocities and concentrations in the layer is analyzed. The sequence of the process of forcing the mainstream away is described, and the displacement parameter is given. 7 figures. 9 references.

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USSR

YEROSHENKO, V. M., YERMAKOV, A. L., KLIMOV, A. A., MOTULEVICH, V. P., TERENT'YEV, YU. N., Moscow

"Experimental Study of the Effect of Intense Blowing of Various Gases on a Turbulent Boundary Layer"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 1, January-February 1971, pp 162-167

Abstract: This article contains the results of an experimental study of the effect of blowing of various gases (air, CO₂) on the turbulent boundary layer of a flat plate. The deformation sequence of the average velocity and concentration distributions of the turbulent boundary layer which occurs on variation of the blowing parameter in a broad range is investigated. The increase in thickness of the laminar sublayer during blowing without turbulization and an increase in the physical thickness of the boundary layer are detected. The experiments were performed on a gas dynamic unit with a Mach-Zender interferometer type IT-14. For the study the blowing parameter $F = (\rho v)_w / (\rho v)_e$ where w refers to the conditions at the wall and e , to conditions at the edge of the boundary layer. All the experiments were performed under isothermal conditions

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USSR

YEROSHENKO, V. M., et al., Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 1, January-February 1971, pp 162-167

with uniform blowing but in the presence of heat exchange). It is also interesting to note that the concentration profiles in the presence of weak blowing of carbon dioxide gas are also deformed by power laws.

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USSR

UDC 621.52:539.23

TERENT'YEV, YU. P., ISHIMBAYEV, R.V., LIKHTMAN, A.YE., NEMIROVSKIY, L.N.,
SEIDMAN, L.A., SUVOROV, V.N., MOROZOV, G.A.

"Vacuum Deposition Unit With Electron Beam Evaporator [DE-394, 11 pp, 2 fig]

Elektron. prom-st'. Nauch.-tekhn.sb (Electronics Industry. Scientific-Technical
Collection), 1971, No 3, p 62 (from RZ--Elektronika i yeye primeneniye, No 3,
March 1971, Abstract No 3A45)

Translation: A vacuum deposition device was developed with an electron beam evaporator for deposition of layers of metals and semiconductors during their evaporation by the non-crucible method. The evaporator consists of an electron gun, a focusing and defocusing system and a magnetic prism. Use of the magnetic prism, which turns the electron beam by 90°, makes it possible to eliminate completely covering up [zapyleniye] of the electron gun by the material being evaporated. The gun is removed from the evaporation zone and consequently heating of the substance being evaporated and the gas precipitated on it does not affect it. This assures great reliability of evaporation, the period of continuous operation of which ≥ 50 hours and is determined only by the lifetime of the cathode of the electron gun. The diameter of the evaporation zone with an accelerating voltage of 20 kv and a beam current up to 25 mA is not more than 1 mm. The distance from the evaporation zone to the substrate is 60 mm. A.F.

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USSR

UDC 615.385.1

VINOGRAD-FINKEL', F. R., Prof, TERENT'YEVA, E. I., Prof, SUKHOVA, A. G.,
VOROB'YEVA, G. S., TAL'SKAYA, I. N., LIFLYANDSKIY, D. B., DOROFEYEVA,
T. N., and SAMSONOVA, N. N., Central Institute of Hematology and Blood
Transfusion (Prof A. Ye. Kiselev, Director), Ministry of Health USSR
and Institute of Cardiovascular Surgery (Prof V. I. Burakovskiy, Director),
Academy of Medical Sciences USSR (Moscow)

"Morphological and Biochemical Characteristics and Viability of Washed
Erythrocytes Intended for Surgical Procedures With Extracorporeal Circu-
lation"

Moscow, Problemy Gematologii i Perelivaniya Krovi, Vol 16, No 8, 1971,
pp 3-7

Abstract: Erythrocytes were obtained after separation of plasma from donor
blood which had been kept in storage for 24 hours, washed with physiological
solution, and examined by the electron microscope method; unwashed erythro-
cytes from the same blood served as controls. After two washings the
submicroscopic organization of cells in the washed erythrocytes did not
differ essentially from that in the unwashed erythrocytes. The conclusion
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VINOGRAD-FINKEL', F. R., et al., Problemy Gematologii i Perelivaniya Krovi, Vol 16, No 8, 1971, pp 3-7

was that washing the erythrocytes from blood prepared with a glucose-citrate preservative and stored for one day has no significant effect on the ultrastructure of almost the entire mass. Investigation of phosphorus fractions demonstrated the metabolic integrity of the washed erythrocytes through one or two washings. Thus, washing with physiological saline solution does not alter the structural completeness, metabolic activity, or biological value of erythrocytes. None of their indexes differ from those of erythrocytes of whole blood stored for 1 day and used for extracorporeal circulation in cardiac surgery; they should therefore be recommended as the basic component in perfusates for extracorporeal circulation.

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Cytology

USSR

UDC 615.361.018.46:612.419-085.23

KORENEVSKAYA, M. I., RAPOPORT, R. I., (Deceased) and TERENT'YEVA, E. I.,
Cytology Laboratory, Central Institute of Hematology and Blood Transfusion,
Ministry of Health USSR, and Diploid Cell Laboratory, Institute of Virus
Preparations, Ministry of Health USSR, Moscow

"Culturing Monkey Bone Marrow in Synthetic Media With Organic Supplements
(Deep Cultures)"

Moscow, Laboratornoye Delo, No 8, 1970, pp 466-469

Abstract: Bone marrow scraped from the epiphyses of the femoral and humeral bones of monkeys was cultured in Eagle's medium or medium 199 with various concentrations of bovine serum and lactalbumin hydrolysate added. Fresh medium, serum, and lactalbumin hydrolysate were replaced every 2 to 5 days. Macrophages, polyblasts, and fibroblast-like cells appeared on the glass within 24 hours and constituted 29.2% of all cells in the culture after 72 hours. Of the phagocytizing cells observed on the 3rd day after explantation, 49% were polyblast-macrophages, 1% myelocytes, 2% metamyelocytes, 19% stab neutrophils, and 29% segmentonuclear neutrophils. Enrichment of the synthetic medium with organic supplements (bovine serum and lactalbumin hydrolysate) promoted cell growth and adherence without affecting differentiation.

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Hematology

USSR

UDC 615.387.012:663.63.065/.07:612.111-086.3

TERENT'YEVA, E. I., VINOGRAD-FINKEL', F. R., TALELENOVA, N. N., and KRUTIKOV, V. A.,
Cytology Laboratory and Laboratory of Blood Preservation, Central Institute of
Hematology and Blood Transfusion, Ministry of Health USSR, Moscow

"Electron-Microscope Study of Erythrocytes of Whole Blood Rapidly Frozen in
Liquid Nitrogen with Polyvinylpyrrolidone"

Moscow, Problemy Gematologii i Perelivaniya Krovi, Vol 15, No 4, 1970, pp 20-25

Abstract: It had been established that in freezing whole blood it is best to use concentrated solutions (50%) of polyvinylpyrrolidone (PVP) (1 part solution per five parts blood), because the amount of ice that is formed decreases and the damage to erythrocytes is reduced. It is advisable to retain the initial hematocrit value of the blood as far as possible. Use of a 50 percent solution of PVP in an 0.7 percent NaCl solution containing small amounts of glucose and Na citrate was recommended. Whole blood containing a protective solution of PVP was frozen rapidly at the temperature of liquid N₂ (-196°C) and stored at that temperature for 1 hr - 12 mos. Erythrocytes of the stored blood were examined under an electron microscope after 1 hr, 1 month, and 3, 6, and 12 months of storage. After 1 hr of storage, the ultrastructure of 84-85 percent of
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USSR

TERENT'YEVA, E. I., et al, Problemy Gematologii i Perelivaniya Krovi, Vol 15,
No 4, 1970, pp 20-25

erythrocytes did not differ from that of erythrocytes in donor blood not treated with PVP or preserved by freezing. The ratio of erythrocytes with unchanged structure remained at the same level of approximately 85 percent until the end of the 12-month period of storage at -196°C .

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ACC. NO.

AP0055594

Abstracting service:
CHEMICAL ABST.

Ref. Code

5-70

UR 0411

107140j Effect of lipids on the content of sulfhydryl groups and disulfide bonds in gluten. Baikov, V. G.; Nechaev, A. P.; Puchkova, L. I.; Terent'eva, G. N. (Moscow Technol. Inst. Food Ind., Moscow, USSR). *Prikl. Biokhim. Mikrobiol.* 1970, 6(1), 32-8 (Russ). The addn. to gluten of capronic, caprinic, myristic, stearic, oleic, linoleic, and linolenic acids and of their esters resulted in a decrease of the amt. of SH groups and SS bonds, as detd. by amperometric titrn. in the presence or absence of TM urea. Possible mechanisms of changes in the rheological properties of gluten treated with fatty acids are discussed.

Lola Brodfeld

EB

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REEL/FRAME

19840896

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USSR

UDC 547.759.3'821'743.1

SHIRSHOVA, T. I., and TERENT'YEVA, I. V., Institute of Chemistry, Moldavian SSR Academy of Sciences, Kishinev

"Certain Reactions of Carex parvae alkaloids. 6-Aminobrevicollin and 6-Bromobrevicollin"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 7, 1973, pp 952-953

Abstract: $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$ was used to reduce nitro derivatives of brevicollin, brevicarine, and methyl and acetylcarine to form the amino derivatives. Since the amino derivatives are highly unstable, only 6-aminobrevicollin could be isolated; it was converted to 6-bromobrevicollin by the Sandmeyer reaction,

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1/3 018 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--CARBOLINES. I. 1,4,DISUBSTITUTED BETA,CARBOLINES -U-
AUTHOR--KUCHKOVA, K.I., SEMENOV, A.A., TERENTYEVA, I.V.
COUNTRY OF INFO--USSR
SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (2), 197-201
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--OXIME, CHEMICAL SUBSTITUENT, INTRAMOLECULAR MECHANICS, NERVOUS
SYSTEM DRUG EFFECT, HETEROCYCLIC NITROGEN COMPOUND, CHEMICAL SYNTHESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1987/1711 STEP NO--UR/0409/70/000/002/0197/0201
CIRC ACCESSION NO--AP0104914
UNCLASSIFIED

2/3 018

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104914

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BECKMANN REARRANGEMENT OF OXIMES (I) INTO 3,4,DIHYDROCARBOLINES (II) PROCEEDS WITH MODERATE YIELDS IS LESS THAN 50PERCENT WITH A THREEFOLD AMT. OF PCL SUB5 AT 60-100DEGREES, VIA AN ANOMALOUS CATION III, FAIRLY STABLE FOR ALIPHATIC SUBSTITUENTS R PRIME1, UNSTABLE FOR ELECTRON ACCEPTOR PHENYL SUBSTITUENTS, ESP. R PRIME3, WHEN III DOES NOT APPEAR. WITH R PRIME2 EQUALS PH, THE REARRANGEMENT INTO II SUCCEEDS IN 1:1 PHNO SUB2, DIOXANE IN POOR YIELD. I WITH ARYL R PRIME3 SUBSTITUENTS UNDERGO A BECKMANN REARRANGEMENT TO ANILIDES (IV). IN PYRIDINE UNDER ACTION OF P MEC SUB6 H SUB4 SO SUB2 CL, WITH YIELDS GREATER THAN 70PERCENT. III WERE ISOLATED EITHER AS HYDROCHLORIDES OR AS PICRATES AND WERE CATALYTICALLY DEHYDROGENATED TO CARBOLINES BY HEATING TO 140-160DEGREES IN AQ. (CH SUB2 OH) SUB2 IN THE PRESENCE OF ACTIVE PD, PREPD. FROM PDCL SUB2 AND MALEIC ANHYDRIDE. IV WERE CONVERTED TO THEIR ACIDS BY ALK. HYDROLYSIS. THUS, A MIXT. OF 5.5 G INDOLE AND 10 G BZCH:CHME WAS TREATED UNDER STIRRING AT 0DEGREES WITH 0.55 G 70PERCENT HClO SUB4 AND AFTER HOMOGENIZATION KEPT 7 HR AT ROOM TEMP. TO YIELD 56PERCENT 1,PHENYL,3,(3,INDOLYL),1,OXOBUTANE. A SOLN. OF 5.3 OF THE OXIME OF 4,PHENYL,4,(3,INDOLYL),2,OXOBUTANE IN 53 ML DIOXANE WAS RAPIDLY STIRRED INTO 11.75 G PCL SUB5 IN 53 ML PHNO SUB2 AT 50DEGREES (TEMP. ROSE TO 70DEGREES). TREATMENT WITH CHL IN ET SUB2 O YIELDED 1.15 G 1,METHYL,4,PHENYL,3,4,DIHYDRO,BETA,CARBOLINE. THIS COMPD. WAS ADDED TO A SOLN. OF 1.96 G PDCL SUB2 TIMES 2H SUB2 O AND 4.5 G MALEIC ANHYDRIDE IN 80 ML (CH SUB2 OH) SUB2 AND WARMED 3 HR UNDER STIRRING IN N AT 160DEGREES YIELDING 13PERCENT 1,METHYL,4,PHENYL,BETA,CARBOLINE.

UNCLASSIFIED

3/3 018

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104914

ABSTRACT/EXTRACT--INTO A SOLN. OF 0.275 G OF THE OXIME OF
 1,3-DIPHENYL,3,(3,INDOLYL),1,OXOPROPANE IN 2.75 ML DRY PYRIDINE COOLED
 BY ICE, WAS STIRRED 0.185 G P MEC SUB6 H SUB4 SO SUB2 CL AND KEPT 6 HR
 AT 20DEGREES GIVING 75PERCENT ANILIOE OF
 3,PHENYL,3,(3,INDOLYL),PROPIONIC ACID. THIS WAS HEATED WITH KOH IN (CH
 SUB2 OH) SUB2 1 HR AT 190DEGREES TO YIELD 86PERCENT FREE ACID. THE
 FOLLOWING ARE REPORTED (R PRIME1, R PRIME2, R PRIME3, M.P. II (SALT),
 M.P. CARBOLINE, AND M.P. CARBOLINE HCL SALT GIVEN): PR, H, ME,
 203-4DEGREES (HCL), 197.5-8.5DEGREES, 223-4DEGREES (ETOH); ISO-BU, H,
 ME, 178-9DEGREES (HCL), 198-200DEGREES, 235-6DEGREES (ISO-PROH); ME, ME,
 ME, 217-19DEGREES (HCL) (247DEGREES (PICRATE)), MINUS, MINUS; H, H, ME,
 236DEGREES (PICRATE), MINUS, MINUS; PH, H, ME, MINUS, 226DEGREES,
 271-3DEGREES (ISO-PROH). THE BETA CARBOLINES SUPPRESS THE CENTRAL
 NERVOUS SYSTEM.

UNCLASSIFIED

USSR

UDC 661.718.1 + 542.955

PUDOVIK, M. A., TERENT'YEVA, S. A., and PUDOVIK, A. N., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reactions of 2-Alkoxy(Alkyl)-4,5-benzo-1,3,2-oxazaphospholanes With Nitriles and Esters of α,β -Unsaturated Carboxylic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 12, Dec 73, pp 2619-2621

Abstract: 2-Alkoxy(alkyl)-4,5-benzo-1,3,2-oxazaphospholanes react with nitriles and esters of α,β -unsaturated carboxylic acids in absence of catalysts. The reactions occur with a migration of hydrogen atom yielding 2-alkyl-2-alkoxy(alkyl)-4,5-benzo-1,3,2-oxazaphospholenes-2.

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- 44 -

USSR

UDC 661.718.1 + 547.879

PUDOVIK, M. A., TERENT'YEVA, S. A., and PUDOVIK, A. N., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Acad. Sc. USSR

"Reaction of 2-Alkoxy-4,5-benzo-1,3,2-oxazaphospholanes With Hexaalkyl-triaminophosphines"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 8, Aug 73, p 1860

Abstract: Heating 2-alkoxy-4,5-benzo-1,3,2-oxazaphospholanes with hexaalkyltriaminophosphines at 120-140° leads to the formation of oxazaphospholanes with a geminal system P-N-P. A mixture of 10 g of 2-methoxy-4,5-benzo-1,3,2-oxazaphospholane and 9.7 g hexamethyltriaminophosphine was heated to 110-130° for 1 hr yielding 47% of 2-methoxy-3-bis(dimethylamino)-phosphino-4,5-benzo-1,3,2-oxazaphospholane, b.p. 111°/0.007 mm, d_4^{20} 1.1577, n_D^{20} 1.5610. In a similar fashion, starting from 2-isopropoxy-4,5-benzo-1,3,2-oxazaphospholane and hexaethyltriaminophosphine, 2-isopropoxy-3-bis-(diethylamino)phosphino-4,5-benzo-1,3,2-oxazaphospholane was obtained, b.p. 130°/0.025 mm, d_4^{20} 1.0744, n_D^{20} 1.5338.

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USSR

UDC 547.26'118

PUDOVIK, A. N., PUDOVIK, M. A., TERENT'YEVA, S. A., and GOL'DFARB, E. I.,
Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuзов, Acad. Sc.
USSR

"Reactions of the Derivatives of Trivalent Phosphorus With Orthoaminophenol"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 1901-1906

Abstract: A mixture of isopropylphosphorous acid tetraethylamide and o-aminophenol was heated for 1-2 hrs at 130-140° to yield 2-isopropoxy-4,5-benzo-1,3,2-oxaazaphospholane (I), b.p. 95-97°/0.03 mm, m.p. 58-60°, and 1,6-dioxo-4,9-diaza-2,3,7,8-dibenzo-5-phosphaspiro[4,4]nonane, m.p. 161-162°. 2-Ethoxy-4,5-benzo-1,3,2-oxaazaphospholane, b.p. 77-78°/0.03 mm, d_4^{20} 1.1948, n_D^{20} 1.5553 was obtained in an analogous manner. Sulfur added to molten (I) followed by heating for one hour at 100° gave 2-isopropoxy-2-thia-4,5-benzo-1,3,2-oxaazaphospholane b.p. 120-130°/0.03 mm, m.p. 92-94°. It has been shown that 2-ethyl-4,5-benzo-1,3,2-oxaazaphospholane undergoes protropic isomerization on storage, converting to 2-ethyl-4,5-benzo-1,3,2-oxaazaphospholene-2.

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- 44 -

USSR

UDC 547.26'118

PUDOVIK, A. N., PUDOVIK, M. A., TERENT'YEVA, S. A., and BEL'SKIY, V. Ye.,
Kazan' Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov,
USSR Academy of Sciences

"Reaction of 1,3,2-Oxaazaphospholanes With Alcohols and Mercaptans"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 11, Nov 1971, pp 2,407-2,413

Abstract: This is a continuation of an earlier study in which the authors demonstrated that 1,3,2-oxaazaphospholanes with a dialkylamino group at the phosphorus atom are readily subject to alcoholysis, with formation of the corresponding alkoxy derivatives; here the reaction of certain derivatives of the 1,3,2-oxaazaphospholanes with alcohols and mercaptans is studied. Derivatives tested were 2-ethoxy-4-methyl-N-methyl-1,3,2-oxaazaphospholane, 2-ethoxy-N-phenyl-1,3,2-oxaazaphospholane, 2-propoxy-1,3,2-oxaazaphospholanes, 2-chloro-N-phenyl-1,3,2-oxaazaphospholane, and 2-diethylamino-N-phenyl-1,3,2-oxaazaphospholane; reactants were ethyl and propyl alcohols, phenylaminoethanol, aliphatic mercaptans, propyl mercaptan and thiophenol. It was found that replacement of the alkyl group at the nitrogen atom of the phospholane ring with a phenyl group leads to definite stabilization of the

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USSR

PUDOVIK, A. N., et al., Zhurnal Obshchey Khimii, Vol 41, No 11, Nov 1971, pp 2,407-2,413

ring; further, the above-indicated reactions with aliphatic mercaptans proceed with elimination of sulfur from the mercaptans and formation of the corresponding thion derivatives. The reaction with thiophenol produces thiophosphite; that with benzylmercaptan, both thiophosphite and dithiophosphate.

2/2

USSR

UDC 547.26.118

PUDOVIK, A. N., PUDOVIK, M. A., ~~TERENT'YEVA, S. A.~~, Institute
of Organic and Physical Chemistry imeni A. YE. Arbuzov, Academy
of Sciences USSR

"Reaction of 1,3,2,-Oxazaphospholanes With Glycols"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 10, 1971,
pp 2177-2180

Abstract: In a continuing study of the five-membered phosphorus heterocycles, the reactions of 2-diethylamino-N-phenyl-1,3,2-oxazaphospholane (I) have been investigated with glycol, 1,2- and 1,3-propanediols. The product of the reaction with glycol was identified as 2- β -(phenylamino)ethoxy-1,3,2-dioxaphospholane (II) on the basis of NMR and IR spectra and the elemental analysis data. The structure of (II) was confirmed by identity of its NMR and IR spectra with those of the reaction product of 2-diethylamino-1,3,2-dioxaphospholane with phenylaminoethanol and by the IR spectrum of the acetylation product of (II). The mechanism of (I) reaction with glycol may involve formation of an

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USSR

PUDOVIK, A. N., et al, Zhurnal Obshchey Khimii, Vol 41, No 10, 1971, pp 2177-2180

intermediate 2- β -(hydroxyethoxy)-N-phenyl-1,3,2-oxazaphospholane which then rearranges to a spiran derivative which in turn changes to (II). The spiran derivative was detected in the reaction product of 2-chloro-N-phenyl-1,3,2-oxazaphospholane with glycol in solution at a low temperature and in the presence of triethylamine and also in (II) after one month's storage. The final products of the (I) reactions with 1,2- and 1,3-propanediol were 2-(β -(phenylamino)ethoxy-4-methyl-1,3,2-dioxaphospholane and 2-(β -(phenylamino)ethoxy-1,3,2-dioxaphosphorinane, respectively. The experimental procedures are described and IR spectra of (II) are shown.

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USSR

UDC 543.422.4:547.79'546.183

SHAGDULLIN, R. R., SHALIROV, I. KH., PUDOVIK, M. A., and TERENT'YEVA, S. A.,
Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of
Sciences USSR, Kazan'

"Vibrational Spectra and Structure of Some Oxaazaphospholanes"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 12, Dec 71, pp 1612-1615

Abstract: A series of 2-chloro-2-oxo-1,3,2-oxaazaphospholanes was synthesized and their spectra were studied. To 15.3 g phosphorus oxychloride in 150 ml benzene kept at 15-20°, a mixture of 20.2 g triethylamine and 8.9 g 1-methyl-aminopropanol-2 was added dropwise with stirring. The reaction mixture was stirred for 2 hrs, the triethylamine hydrochloride was separated, benzene was evaporated, and the residue was vacuum-distilled, yielding 2-chloro-2-oxo-3,5-dimethyl-1,3,2-oxaazaphospholane, b.p. 90°/0.1 mm, d_4^{20} 1.2853, n_D^{20} 1.4602.

Analogously the 2-chloro-2-oxo-3-phenyl-1,3,2-oxaazaphospholane, m.p. 96-97° and 2-chloro-2-oxo-5-methyl-3-phenyl-1,3,2-oxaazaphospholane, m.p. 114-115° were obtained. IR spectra for model compounds have been reproduced, and band assignments have been made. On the basis of the changes observed in characteristic frequencies, going from trivalent phosphorus compounds to tetracoordinated ones,

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USSR

SHAGIDULLIN, R. R., et al., Khimiya Geterotsiklicheskikh Soyedineniy, No 12,
Dec 71, pp 1612-1615

a conclusion was reached that changes in the ring conformation must have taken place: in the trivalent phosphorus compounds the ring is in form of an envelope with a pseudoaxial chlorine atom, while in the tetracoordinated phosphorus compounds an envelope is formed with a axial phosphoryl oxygen atom and an equatorial chlorine atom.

2/2

USSR

UDC: 547.391+547.398.1'118

PUDOVIK, A. N., PUDOVIK, M. A., and TERENT'YEVA, S. A.

"Reaction of Amides of Dialkylphosphorous and Alkylarylphosphinous Acids with alpha, beta-Unsaturated Carboxylic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 1, Jan 70, pp 33-36

Abstract: The mixture of acrylic or methacrylic acid and N,N-diethylethyl-phenylphosphonous amide kept below 90° for one day gave 35 or 38% yields, respectively, of beta-(N,N-diethylcarbamyl)ethyl(isopropyl)-ethylphenylphosphine oxides, liquids identified by their physical constants and IR spectra. Diethylamides of P,P-dialkyl phosphonylpropionic(isobutyric) acids (I) were the main products of the reaction of N,N-diethylamidodialkylphosphite with acrylic or methacrylic acids, respectively. The reaction products contained also a maximum 5% admixture of ethyl P,P-dialkylamidophosphonylpropionate (isobutyrate) (II) which were detected by IR spectra and gas-liquid chromatography. Pure I, where alkyl = ethyl, was obtained in 60% yield by heating at 150° triethyl phosphite with N,N-diethyl-beta-bromopropionamide. Pure II, where alkyl=ethyl, was prepared in 71% yield from N,N-diethylamidodiethylphosphite and ethyl beta-bromopropionate. Physical constants and IR spectrum of pure II differed from those of the amide I, prepared by the reaction of N,N-diethylamidodiethylphosphite with acrylic acid.

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USSR

UDC 547.398+661.718.1

PUDOVIK, A. N., TERENT'YEVA, S. A., PUDOVIK, M. A., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reaction of Complete Phosphites With Amides of α , β -Unsaturated Carboxylic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 8, Aug 70, pp 1707-1711

Abstract: The reaction of tertiary phosphorites with unsubstituted amides of α , β -unsaturated carboxylic acids occurs with participation of the amide group, yielding dialkyl esters of N-alkylcarbamoylalkylphosphonates and carbamoylalkylphosphonates. A mixture of 8.5gm methacrylamide and 16.6gm triethyl phosphite was refluxed for 3 hrs at 140°, yielding 2,3 diethyl-N-ethylcarbamoylisopropylphosphonate, b.p. 143-145/0.05 mm, d_4^{20} 1.0954, n_D^{20} 1.4600. When 14.2gm acrylamide was reacted with 33.2gm triethylphosphite for 2 hrs at 130°, followed by another hour at 150°, a complex mixture of products was obtained, which beside some unreacted material and 1/2

USSR

PUDOVIK, A. N., et al, Zhurnal Obshchey Khimii, Vol 40, No 8,
Aug 70, pp 1707-1711

alcohol contained a mixture of diethyl- β -cyanoethylphosphonate
and diethyl- β -carbethoxyethylphosphonate, diethyl-N-ethylcar-
bamoylethylphosphonate, b.p. 135-136°/0.02 mm, d_4^{20} 1.1205, n_D^{20}
1.4590 and solid diethylcarbamoylethylphosphonate, m.p. 76.5-78°.
Reacting a mixture of acrylamide, diethylphosphite and triethyl-
phosphite yielded diethyl- β -cyanoethylphosphonate, d_4^{20} 1.1081, n_D^{20}
1.4381 and diethylcarbamoylethylphosphonate m.p. 74-75°.

2/2

Organophosphorous Compounds

USSR

ISHMAEVA, Z. A., PUDOVIK, M. A., TERENTEVA, S. A., and Associate Member of the USSR Academy of Sciences PUDOVIK, A. N., Kazan State University imeni V. I. Ulyanov-Lenin

"Determination of the P-N Bond Dipole Moment"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 3, 21 Jan 71, pp 630-632

Abstract: The dipole moments of 1,3,2-oxaazaphospholanes with a tricoordinated phosphorus atom were determined experimentally and compared to calculated values, assuming valence angles of O-P-N 95° , O-C-C and N-C-C 108° . A value of 0.26D for the dipole moment of the P-N bond in the direction from the phosphorus to the nitrogen atom gave best agreement between experimental results and calculations made for a model for N-phenyl-2-methyl-1,3,2-oxaazaphospholane and for N-phenyl-2-ethyl-5-methyl-1,3,2-oxaazaphospholane. The polarity of the molecule was in agreement with the coplanar nature of the 5-membered ring. The dipole moments of 1,3,2-oxaazaphospholanes with a tetra-coordinated phosphorus atom were determined. Assuming that the heterocycle is also planar in this case, the dipole moment of the P-N bond was calculated. It was found that the change in hybridization of the phosphorus atom has a $1/2$

USSR

ISHMAEVA, Z. A., et al, Doklady Akademii Nauk SSSR, Vol 196, No 3, 21 Jan 71,
pp 630-632

profound effect on the dipole moment of the P-N bond, which was found to be
equal to 0.99-1.13D. Also, insertion of a methyl group into the 5-membered
ring changes the conformation of the ring.

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- 43 -

AW49135

Abstracting Service:

CHEMICAL ABST. 5 - 2

Ref. Code:

UR 0039

100829g Reaction of amides of dialkyl phosphorous and allyl-
 arylphosphinous acids with α,β -unsaturated carboxylic acids.
 Pudovik, A. N.; Pudovik, M. A.; Terent'eva, S. A. (USSR).
 Zh. Obshch. Khim. 1970, 40(1), 33-6 (Russ); ~~Chem. Abstr.~~ Mixing $\text{CH}_2=\text{CH}-$
 CO_2H with Et_2NPEtPh at below 90° and holding 1 day gave
 35% $\text{EtPhP}(\text{O})\text{CH}_2\text{CH}_2\text{CONEt}_2$, b_p 174-7°, d_4^{20} 1.0937, n_D^{20}
 1.5357. Similarly was prepd. 38% $\text{EtPhP}(\text{O})\text{CH}_2\text{CHMeCON}-$
 Et_2 , b_p 160-1°, —, 1.5317. Treating 19.3 g $(\text{EtO})_2\text{PNEt}_2$
 with 7.2 g $\text{CH}_2=\text{CHCO}_2\text{H}$, maintaining the temp. below 80° gave
 $(\text{EtO})_2\text{P}(\text{O})\text{CH}_2\text{CH}_2\text{CONEt}_2$ contg. some 5% mixed $\text{EtOP}(\text{O})-$
 $(\text{NEt}_2)\text{CH}_2\text{CH}_2\text{CO}_2\text{Et}$, the mixed product, b_p 191°, 1.0706,
 1.4587; the pure diethylamide, b_p 188-90°, 1.0720, 1.4571, was
 prepd. in 68% yield from $(\text{EtO})_2\text{P}$ and $\text{Et}_2\text{NCOCH}_2\text{CH}_2\text{Br}$ at
 150° in 2 hr $(\text{PrO})_2\text{PNEt}_2$ (22.1 g) treated with 7.2 g $\text{CH}_2=\text{CH}-$
 CO_2H below 80° gave 29% $(\text{PrO})_2\text{P}(\text{O})\text{CH}_2\text{CH}_2\text{CONEt}_2$, b_p 187-
 9° , 1.0372, 1.4555. Similarly was prepd. 25% $(\text{PrO})_2\text{P}(\text{O})\text{CH}_2-$
 CHMeCONEt_2 , b_p 186-7.5°, 1.0231, 1.4545. Also reported:
 $\text{EtOP}(\text{O})(\text{NEt}_2)\text{CH}_2\text{CH}_2\text{CO}_2\text{Et}$, b_p 105-7°, 1.0538, 1.4473;
 $(\text{EtO})_2\text{P}(\text{O})\text{CH}_2\text{CHMeCONEt}_2$, b_p 120-1°, 1.0503, 1.4560.
 Ir spectra are shown.

G. M. Kosolapoff

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19800941

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USSR

UDC 542.91+661.718.1

PUDOVIK, A. N., TERENT'YEVA, S. A., and PUDOVIK, M. A., Institute of Organic and Physical Chemistry imeni A. Ya. Arbuzov, Academy of Sciences USSR

"The Reaction of Amidophosphites with the N-Phenylamide of Acrylic Acid"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 3, Mar 71, pp 645-646

Abstract: The reaction of the diethylamide of diethylphosphorous acid (I) with the phenylamide of acrylic acid (II) at 125-30° resulted in the formation of N,N-diethylamidoethyl-N,N-ethylphenylcarbamoylethylphosphonate (III):

$$(EtO)_2PNEt_2 (I) + CH_2=CHCONHPh (II) \rightarrow Et_2NP(O)CH_2CH_2CON(Ph)Et (III)$$

III (b p 159-60° at 3×10^{-3} mm) was obtained with a yield of 64%. Similarly, the tetraethyldiamide of ethylphosphorous acid reacted with II with the formation of the tetraethyldiamide of N,N-ethylphenylcarbamoylethylphosphonic acid $(Et_2N)_2P(O)CH_2CH_2CON(Et)Ph$ (IV). Compound IV (b p 165-70° at 2×10^{-3} mm) was isolated in 24% yield. Compound II did not react with hexaethyltriaminophosphine or 2-ethoxy-N-methyl-1,3,2-oxazaphospholane. Under the action of II, the latter compound underwent ring opening and homopolymerization. Alkyl halides have a similar effect on oxazaphospholanes. 1/1

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USSR

UDC 547.26'118

PUDOVIK, M. A., TERENT'YEVA, S. A., MEDVEDEVA, M. D., and PUDOVIK, A. N.,
Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Academy
of Sciences, USSR

"N-Acetylated Oxazaphospholanes and Phosphorinanes"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 3, Mar 73, p 679

Abstract: Heating equimolar quantities of N-acylated aminoalcohols or N-acetyl-o-aminophenol with complete amides of phosphorous acid or with the diamides of alkylphosphorous acids yielded a series of 2-substituted 3-acetyl-1,3,2-oxazaphospholanes and phosphorinanes: 2-diethylamino-3-acetyl-4,5-benzo-1,3,2-oxazaphospholane, b.p. 114-115°/0.04 mm; 2-ethoxy homologue, b.p. 95-96°/0.08 mm; 3-isopropoxy homologue, b.p. 109-111/0.05 mm; 2-diethylamino homologue, b.p. 92-93° (0.1 mm), and 2-diethylamino-3-acetyl-1,3,2-oxazaphosphorinane, b.p. 100-102°/0.025 mm.

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- 22 -

UNCLASSIFIED

PROCESSING DATE--09OCT70

TITLE--EXPERIMENTAL STUDIES ON ANTITUMOR ACTIVITY OF POLYMYCIN -U-

AUTHOR--(03)--TERENTYEVA, T.G., FOMINA, I.P., NAVASHIN, S.M.

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CIRC ACCESSION NO--AP0115150

UNCLASSIFIED

PROCESSING DATE--09OCT70

ABSTRACT. DATA ON THE EXPERIMENTAL STUDY OF ANTITUMOR ACTIVITY OF POLYMYCIN, AN ANTIBIOTIC FROM THE STREPTOTHRICIN GROUP ARE PRESENTED. PRELIMINARY STUDIES ON TOXICITY OF POLYMYCIN AND REVERSIBILITY OF ITS TOXIC EFFECT FOR 24 HOURS WERE CARRIED OUT. IN EXPERIMENTS ON ANIMALS THE HIGHEST ACTIVITY LEVELS OF POLYMYCIN WERE SHOWN WITH RESPECT TO WALKER CARCINOMA AND SARCOMA 45 OR RATS. THE ANTIBIOTIC HAD A MODERATE INHIBITORY EFFECT ON SOLID FORMS OF SARCOMA 180. ASCITIC FORMS OF SARCOMA 180 AND LYMPHADENOSIS NK-LY WERE MOST SENSITIVE TO POLYMYCIN (INHIBITION OF THE ASCITE DEVELOPMENT WITHIN 50 TO 60 PER CENT) AMONG THE MOUSE TUMOURS.

FACILITY: NATIONAL INSTITUTE FOR ANTIBIOTICS, MOSCOW.

UNCLASSIFIED

+ 2

USSR

UDC 547.295.94:665.4

MASKAYEV, A. K., MAN'KOVSKAYA, N. K., LEND'YEL, I. V., FEDOROVSKIY, V. T.,
SIMUROVA, Ye. I., and THERENT'YEVA, N., VNIIPKneftexhim [All-Union Scien-
tific Research, Planning and Design Institute of Petrochemical Processes]

"Production of 12-Hydroxystearic Acid -- Raw Material for Plastic Lubricants"

Moscow, Khimiya i Tekhnologiya Topliv i Masel, No 2, 1971, pp 21-24

Abstract: It has been established that commercial grades of Soviet castor oil contain 4-6 percent fewer glycerides of ricinoleic acid than foreign specimens. Therefore, the production of a high yield of 12-hydroxystearic acid (12-HSA) requires that the hydrogenation process take place under conditions which assure the maximum conversion of ricinoleic acid into 12-HSA. The purpose of the article was to study the effect of castor oil hydrogenation conditions on the process rate, the composition of the hydrogenate and the selection of optimal conditions assuring hydroxy acid conservation. Experiments were conducted in an autoclave with a 5 l. load of castor oil with mechanical stirring (1500 rpm) in the presence of a powdered skeleton metallic catalyst containing 68.8 percent (by weight) nickel. The raw material used was grade I refined castor oil and commercial hydrogen with

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USSR

MASKAYEV, A. K., et al, *Khimiya i Tekhnologiya Topliv i Masel*, No 2, 1971, pp 21-24.

a purity of 99.5 percent by volume. After the catalyst was filtered out, the iodine numbers and fatty acid composition of the samples were determined.

It was found that the conditions assuring maximum (98.5 percent) conversion of ricinoleic acid into 12-HSA are: temperature 130°C, quantity of catalyst at least 2 percent by weight, hydrogen pressure 10-15 atm. In order to conserve hydroxy acids, the castor oil hydrogenation process should not be permitted to go to an iodine number below 5. The Soviet oil and fats industry produces various grades of castor oil differing in purification efficiency. A study of the hydrogenation rate showed that the higher the purification efficiency, the higher the process rate. However, medicinal castor oil cannot be recommended because of its short supply and high cost. The isolation of fatty acids from hydrogenated castor oil presents no difficulties. Using the described technique, VNIIPKneftekhim has for the first time in the USSR organized the pilot production of 12-HSA and new types of 12-HSA-based plastic lubricants possessing high operating properties.

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USSR

UDC 621.385.623.5

GREBENYUK, A.F., TERESHCHENKO, A.I.

"Some Problems Of An Electronic Radial Reflex Klystron"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific-Technical Collection), 1970, Issue 14, pp 159-166 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4A160)

Translation: Formulas are obtained for the electronic efficiency of the output power and the range of electronic tuning of a radial reflex klystron, with the effect of the space charge taken into account. On the basis of numerical computations made with the aid of a continuous action computer, a comparison is made of the parameters of radial and linear designs of a reflex klystron. 4 ref. Summary.

1/1

USSR

UDC 541.128+662.222

KORBEYNICHEV, O. P., VIKTORENKO, A. M., TERESHCHENKO, A. G., KOLOMEYCHUK, N. N.,
Novosibirsk

"Mechanism of the Effect of a Catalyst on Condensed Combustion Systems"

Novosibirsk, Fizika gorenija i vzryva, Vol 8, No 4, 1972, pp 511-517

Abstract: A study was made of the mechanism of the effect of a catalyst on the combustion of condensed systems based on ammonium perchlorate. Results are presented from studying the catalysis of the combustion of ammonium perchlorate and mixtures based on it using an optical microscope and a scanning electron microscope. Data are also presented from the studies of the effect of the disperseness of the catalyst on the combustion rate of ammonium perchlorate and the model system of ammonium perchlorate and polymethylmethacrylate. The data confirm that the catalyst operates very efficiently in the c-phase (the presence of sinks around the catalyst particles in the case of copper oxide). The formation of a skeleton of catalyst particles (in the case of Fe_2O_3) protruding 10-20 microns above the burning surface must also lead to an increase in the efficiency of its effect near the c-phase surface (as a result of an increase in the effective concentration of the catalyst in the vicinity of the gas phase by comparison with that which exists at distances greater than 10-20 microns from the c-phase surface). If the distance from the c-phase surface to the flame

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USSR

KOROBAYNICHIV, O. P., et al., Fizika goreniya i vzryva, Vol 8, No 4, 1972, pp 511-517

area is 50-100 microns, it can be considered that the catalyst operates efficiently near the c-phase. If the flame area is 10-20 microns from the fuel surface, the c-phase (which can include the skeleton of catalyst particles) is in the flame area.

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- 66 -

USSR

UDC: 621.317.337

BURTCVOY, D. P., MIRONENKO, V. L., and TERESHCHENKO, A. I.

"Using Open Cylindrical Limited Resonators for Investigating the Dielectric Characteristics of a Material"

Kiev, Izvestiya VUZ -- Radioelektronika, Vol. 13, No. 10, 1970, pp 1085-1091

Abstract: Interest has been aroused by the ability of resonators of this type to find the dielectric capabilities of moving gaseous media as well as solid, liquid, or powdered substances partially or completely filling the resonator space. In the case considered by this article, the dielectric is in the shape of a cylindrical rod placed coaxially with the resonator and partially filling it. The measurement and its method are analyzed only for the case of type H₀₁₁ oscillations. In the theoretical analysis, the walls of the circular cross-sectioned resonator are considered to be infinitely long. After the theoretical portion of the article, in which formulas are obtained for determining the parameters of solid, liquid, and powdered substances, there is an experimental

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BURTOVOY, D.P., et al, Izvestiya VUZ - Radioelektronika, Vol 13, No 10, 1970,
pp 1085-1091

section giving details of the equipment and results of such measurements made with a resonator of finite length, 20 mm, and cut in the form of a cylindrical waveguide of 20 mm in diameter. A diagram of the resonator and a block diagram of the associated equipment are given. Also presented is a table of the results of the experimental work performed on a number of materials including ebonite, textolite, granulated table salt, and the like. The authors note that they also obtained formulas for determining the concentration of the plasma partially filling the resonator, and the effective collision frequency between the electrons and heavy particles. These formulas and the results of corresponding experiments are being separately published.

2/2

- 107 -

USSR

TERESHCHENKO, A. I. and PASHCHENKO, ZH. F.

UDC 621.372.413

"Natural Frequencies and Fields of Cavity Resonators of Trapezoidal Form"

Radiotekhnika. Resp. mezhved. temat. nauch.-tekhn. sb. (Radio Engineering. Republic Interagency Thematic Scientific-Technical Collection of Articles), 1972, vyp.21, pp 135-141 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 B124)

Translation: The resonator under study is a cavity which is bounded by flat metal surfaces with two out of these being trapezoids and the rest rectangles. The boundary value problem for this type of resonator was solved by using an approximate method (method of oblique-angled coordinates). In verifying the calculations, several trapezoidal resonators were produced with varying dimensions, but having the same resonance wave length for H_{10} type oscillations. Experimental measurements of frequency did not deviate by more than 1 percent from the theoretical expectation. Original article: three illustrations, one table, and two bibliographic entries. Resume.

1/1

USSR

UDC 621.372.413

PASHCHENKO, ZH. F., TERESHCHENKO, A. I., ZAYTSEV, A. YE.

"Use of the Matrix Method for Calculating Complex Resonator Systems"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic-Wide Scientific-Engineering Symposium), 1969, vyp. 9, pp 69-73 (from RZh-Radiotekhnika, No 2, Feb 70, Abstract No 2B126)

Translation: An analysis is made of a system of N coupled cavity resonators by using the Fourier method and matrix calculus. The technique for calculating such systems involves expanding the fields within the coupled regions in eigenfunctions of the coupling ports to reduce the solution of the integral equation for the tangential field at the coupling port to an infinite system of linear algebraic equations for the amplitude of this field. The calculation is made for the enclosed anode block of a magnetron which is coupled with a cylindrical resonator (load) through ports in one of the end walls. For the case when n -mode signals are
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USSR

PASHCHENKO, ZH. F., et al, Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb., 1969, vyp 9, pp 69-73 (from RZh-Radiotekhnika, No 2, Feb 70, Abstract No 2B126)

excited in the magnetron anode block and the H_{01n} mode is excited in the coupled resonator, comparison of the results of the calculation with experimental data showed a discrepancy of no more than 5%. Two illustrations. Eight references. G.B.

2/2

- 116 -

Acc. Nr:
AP0045009

Abstracting Service: **5/70**
INTERNAT. AEROSPACE ABST.

Ref. Code:
UR0109

A70-23165 # Calculation of the frequencies of an open cutoff resonator of rectangular cross section (Raschet chastot otkrytogo predel'nogo rezonatora priamougol'nogo poperechnogo secheniia). P. Burtovoi, V. L. Mironenko, and A. I. Tereshchenko. *Radiotekhnika i Elektronika*, vol. 15, Feb. 1970, p. 389-391. In Russian.

Study of an open cutoff resonator in the form of an infinite rectangular waveguide with a semiinfinite metal partition located at a certain distance from one of the narrow walls of the waveguide. The results of a calculation of the frequency dependence of the phase of the reflection coefficient and the relative length of the resonator are presented in the form of graphs.
A.B.K.

A-5

1/1

REEL/FRA
19771905

4

USSR

DMITRUK, N.L., ZUYEV, V.A., LYASHENKO, V.I., and TERESHCHENKO, A.K.

"Photoelectric Phenomena in the Near-Surface Region of GaAs"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 654-662

Abstract: Although the situation usually assumed in investigating photoelectric phenomena in semiconductors that the photocurrent carriers are always concentrated in a quasi-neutral region while the effect of the surface can be described by the rate of surface recombination is typical for Ge, it is extremely rare in GaAs. The existence of highly developed depletion layers close to the GaAs surface must lead to the localization of photocarriers in the near-surface charge region. Hence there is a need for a detailed investigation of this charge region, a task which this article undertakes. It investigates experimentally and computes theoretically the photoconductivity of semiconductors of the GaAs type, taking into account the minority carrier lifetime as a function of the coordinate in the charge region. In doing so, the authors did not assume a quasi-equilibrium situation in this region since it ordinarily does not occur in GaAs. They also consider quasi-monopolar photoconductivity. The experimental method consisted in measuring the steady-state photoconductivity and capacitive photo-emf in the characteristic absorption region of weakly compensated n-type GaAs. The authors express their gratitude to D.I. Zlobin for his assistance in computing the GaAs photoconductivity, and to V.K. Malyutenko and R.O. Litvinov for their comments.

1/1

- 44 -

TERESHCHENKO, A. P.

DETERMINING VOLATILE WATER-SOLUBLE ORGANIC COMPOUNDS IN PRESSURIZED CHAMBERS
Article by L. N. Stepanov and A. P. Tereshchenko; Moscow, *Kosmicheskaya Biologiya i Meditsina*, Vol 6, No 1, pp 88-91, 1972, submitted for publication 3 April 1970

SPRS 53687
ENC 613 156-0741547

In a number of cases it is desirable to determine the composition of volatile water-soluble organic substances in the vapor-gas phase by analyzing the corresponding substances in the fluid in equilibrium with steam. Thus, an analysis of the composition of the condensate of atmospheric moisture in an enclosed pressurized chamber can be used for determining the concentration of these substances in the gas phase. On the other hand, by knowing the concentration of the phase distribution of substances in the fluid -- vapor system it is possible to determine their concentration in the liquid phase using, for example, in monitoring of the gas medium. This is particularly important, for water, cultivating unicellular algae, etc.

A study of dilute aqueous solutions for mixtures of substances, such as acetone, acetaldehyde, methanol, ethanol, isopropanol and propanol in concentrations of 10⁻⁶-10⁻⁴ mol (Yu. V. Pepelyayev, et al.) is of practical interest. Data on the phase equilibrium of these substances are available in the literature only for a concentration 10⁻² M (V. B. Kogan, et al.). Since the coefficient of liquid -- vapor distribution may differ for different concentrations of organic substances in an aqueous solution (V. B. Kogan, et al.; Groszkopf), it was desirable to determine these parameters applicable to highly dilute solutions.

Existing classical methods for investigating phase equilibrium -- single evaporation, circulation and dynamic methods (V. B. Kogan, et al.) -- single evaporation, circulation and dynamic methods (V. B. Kogan, et al.) -- are ill-suited for this purpose. Apparatus with a gas chromatography and of the analysis are also inapplicable. Some of them are complex, time consuming in use and require the availability of additional apparatus (vacuum equipment) and coolants (L. S. Korman, et al.). Others provide for a large volume of the sample and a long time for the setting-in of equilibrium (Wichterle and Hala; Ye. G. Komarova and V. B. Kogan).

1/2 023

UNCLASSIFIED

PROCESSING DATE—30OCT70

TITLE--DETERMINATION OF MAGNESIUM AND CALCIUM IN URINE, FECES, AND FOOD OF
MAN USING ATOMIC ABSORPTION DEVICES SPEKTRA-1 AND SFPA -U-

AUTHOR--(02)--ZHURENKO, V.N., TERESHCHENKO, A.P.

COUNTRY OF INFO--USSR

SOURCE--LAB. DELO 1970, (2), 97-101

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MAGNESIUM, CALCIUM, URINE, EXCRETION, FOOD, MAN, ATOM, ATOMIC
ABSORPTION DEVICE/(U)SFPA ATOMIC ABSORPTION DEVICE, (U)SPEKTRA I
ABSORPTION DEVICE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3001/1796

STEP NO--UR/9099/70/000/002/0097/0101

CIRC ACCESSION NO--AP0127210

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127210

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

ABSTRACT. THE CONTENTS OF MG AND CA IN URINE, FECES, AND FOOD WAS DETD. NACL AND KCL UP TO CONCN. OF 1 MG-ML DO NOT INFLUENCE THE RESULTS. CA INCREASES THE ATOMIC ABSORPTION OF MG. HNO SUB2 (SMALLER THAN OR EQUAL TO 3N), HCL (SMALLER THAN OR EQUAL TO 2.5N), AND PHOSPHORIC ACID (SMALLER THAN OR EQUAL TO 1N) INFLUENCED THE DETN. OF CA WHILE THEY HAD NO EFFECT ON THE DETN. OF MG.

FACILITY: INST. MED.-BIOL. PROBL., MOSCOW, USSR.

UNCLASSIFIED

1/2 009

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--APPARATUS FOR ADMITTING A SAMPLE INTO A CHROMATOGRAPH -U-

AUTHOR--(02)-STEPANOV, L.N., TERESHCHENKO, A.P.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(3), 371-2

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AQUEOUS SOLUTION, CHEMICAL ANALYSIS, GAS CHROMATOGRAPHY,
CHEMICAL LABORATORY APPARATUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1388

STEP NO--UR/0032/70/036/003/0371/0372

CIRC ACCESSION NO--APG133340

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0133340

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. AQ. SOLNS. OF VOLATILE COMPS.
(MECHG, ME SUB2 CO, MEDH, ISO PROH, ETOH, AND PROH) WERE ANALYZED BY
DETN. OF THE COMPN. OF THE VAPOR PHASE ABOVE THE LIQ. THE APP. AND THE
WORKING CONDITIONS OF GAS CHROMATOG. WERE DESCRIBED BY YU. V. PEPELYAEV,
L. N. STEPANOV, AND A. P. TERESHCHENK (1969). THE SAMPLING OF THE VAPOR
PHASE AND ITS INJECTION ON COLUMNS WAS CARRIED OUT BY CIRCULATION
EQUIPMENT WITH A PARALLELY CONNECTED PUMP. THE ANAL. TAKES 30 MIN; THE
ERROR IS LOWER THAN TY THE INTRODUCTION OF SAMPLES WITH AN INJECTOR.
FACILITY: INST. MED.-BIOL. PROBL., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 547.341:541.454 + 541.67

SKVORTSOV, H. K., TERESHCHENKO, G. F., IONIN, B. I., and PETROV, A. A., Leningrad
Technological Institute Imeni Lensovet

"Investigation of the Protonation of Tertiary Phosphine Oxides by the Nuclear
Magnetic Resonance Method"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 5, May 73, pp 981-987

Abstract: Protonation of phosphine oxides and related compounds was studied by
the NMR method using the chemical shifts of ^1H and ^{31}P . It was shown that pro-
tonshift data can be described by the amide function of acidity H_A . To describe
results obtained from the chemical shifts of phosphorus, a new acidity function
for phosphoryl compounds H_PO was developed. It shows a slow growth with in-
creased concentration of sulfuric acid than the known functions H_O and H_A .

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USSR

UDC 533.9

VISHNEVETSKIY, V.N., VOYTENKO, D. A., VOLKOV, YE. D., DIKIY, A. G., ZALKIND, V. M., KONOTON, P. I., MOISEYEV, S. S., PAVLICHENKO, O. S., PASHNEV, V. K., SUPRUNENKO, V. A., TOLOK, V. T., TERESHCHENKO, E. E., TONKOPRYAD, V. M., and TARASENKO, V. P., Physico-Technical Institute of Academy of Sciences Ukrainian SSR, Kharkov

"Energy Losses of Plasma in a 'Uragan' Stellarator With Large Shear"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 16, No 8, Aug 71, pp 1320-1323

Abstract: Investigations of the rate of energy losses in plasma have shown that the holding time of particles significantly exceeds the energy life time when the plasma is of collision type. This article discusses the results of investigations on the rate of energy losses of collision-type plasma for the "Uragan" stellarator. The authors study the dependence of energy life time of the plasma on the amount of shear and the angle of conversion. They make extensive use of graphs to illustrate their findings and find that the experimental points lie on a straight line. The authors conclude that the results may be explained on the basis that a temperature-drift instability develops in the plasma. The article contains 5 figures and 8 bibliographic entries.

1/1

USSR

UDC 621.791.048.045:771.8

TSYGAN, B. G., YEMELIN, V. F., and DEMCHENKO, V. G., "Kaimash" Plant, Pavlograd;
and TERESHCHENKO, M. P., Dnepropetrovsk

"Automatic Two-Layered Steel Welding with Metallic Powder"

Kiev, Avtomaticheskaya Svarka, No 6, Jun 70, pp 43-45

Abstract: A welding procedure has been developed which results in welding seams with high mechanical and anti-corrosive properties. PZh-1M and PZh-2M metallic powders are used as the auxiliary material. Essentially, the method involves making a Y-shaped division of the seam edges and filling the division with metal powder before the usual automatic welding process is done. The metallic powder is obtained by the method of reducing iron from slag. To prevent the formation of pores, it is best to use a wire of the Sv-08G2S type. Before the welding, the metallic powder must be cleansed of its impurities and dried at 350-400°C for 1.5-2.0 hours. Microphotographs of welding seams made by this method are shown, and a table gives various data relating to the method.

1/1

- 100 -

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.

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USSR

UDC 617-01.28-008.939.6

FEDOROVA, T. A., TERESHCHENKO, O. Ye., and MAZURIK, V. K.

Nukleinovyye Kisloty i Belki v Organizme pri Luchevom Porazhenii (Nucleic Acid and Protein in the Organism With Radiation Injury), Moscow, Meditsina, 1972, 408 pp

Translation: Annotation: The book systematizes and generalizes vast experimental materials concerning the investigation of impairments of the metabolism of the key substrata of life -- nucleic acids and proteins, during radiation sickness in animals and humans.

The analysis of the mechanism of postradiation impairments of DNA and protein metabolism presented in the book is important for understanding the pathogenesis of radiation injury and, therefore, for developing rational therapy and prophylaxis for this illness, and it is also of general biological significance as a result of the connection between exposure of the organism and cancerogenesis, aging, and genetic impairment.

The book is intended for scientific workers -- radiobiologists, biochemists, roentgenologists, and radiotherapists, as well as for other specialists who are interested in current problems of biology.

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FEDOROVA, T. A., et al., Nukleinovyye Kisloty i Belki v Organizme pri Luchevom Porazhenii, 1972, 408 pp

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FEDOROVA, T. A., et al., Nukleinovyye Kisloty i Belki v Organizme pri Luchevom Porazhenii, 1972, 408 pp

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FEDOROVA, T. A., et al., Nukleinovyye Kisloty i Belki v Organizme pri Luchevom Porazhenii, 1972, 408 pp

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FEDOROVA, T. A., et al., Nukleinovyye Kisloty i Belki v Organizme pri Luchevom Porazhenii, 1972, 408 pp

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USSR

UDC: 62-531.6

TERESHCHENKO, P. G., CHUBENKO, Ye. I., Ukrainian Scientific Research
Institute of Natural Gases

"A Pneumatic Tracking Device"

USSR Author's Certificate No 318035, filed 13 Feb 70, published 12 Jan 72
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 7,
Jul 72, Abstract No 7A179)

Translation: Pneumatic trackers are known which contain a comparison element connected to a repeater. The rate of change in the output signal of such devices is approximately equal to the rate of change in the input signal. However, in many instances it is required that the output signal vary at a predetermined constant rate. As a distinguishing feature of the proposed device, the functional possibilities are increased by adding constant flowrate shapers whose outputs are connected to the nozzles of the comparison element.

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USSR

Computers: Digital

SYCHEV, V. V., TERESHCHENKO, S. S., DENISENKO, E. A.

"Resolution of Scanning Cathode Ray Tubes in Input Devices"

Kazan', Vvod i Vyvod Graficheskoy Informatsii v Tsyfrovykh Vychislitel'-nykh Mashinakh, Kazan' University, 1972, pp 19-21

Abstract: The paper describes the results of investigation of the feasibility of using scanning readers based on the "Ofort" CRT for processing information from both 35 mm and 70 mm microfilm during computer input. The "Ofort" CRT has the advantages of high speed and resolution of 30-40 lines/mm at 80% modulation in the center of the image for a raster of 70 x 70 mm. The authors studied the possibility of increasing the working field of the raster to 90 x 90 mm with a 25-30 μ m scanning spot. The experimental results show that the "Ofort" CRT can be used with a raster field of 90 x 90 mm for a resolution of 30 lines/mm. Thus it should be possible to use this cathode ray tube in processing textual and graphic data stored on microfilm.

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Acc. Nr.: AP 0046779

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Ref. Code: UBO125

USSR

NAZARENKO, I. I., TERESHCHENKO, V. I.

UDC 791.763.I.019

"Effect of Shrinkage Defects in a Weld Nugget on the Static Strength of Metal Joints of Great Thickness"

Kiev, Avtomaticheskaya Svarka (Automatic Welding), No 1, 1970, pp 59-62
(from Avtomaticheskaya Svarka, No 1, 1970, p 80)

Translation: This article contains a study of the effect of shrinkage defects in a weld nugget and plastic flows at increased temperatures on the static strength of spot-welded joints at low temperatures. There are 5 illustrations and a 4-entry bibliography.

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Reel/Frame
19790083

USSR

UDC 539.287

AKANAYEV, B.A., ZEMSKOV, YE. M., TERESHCHENKO, V.N., MOSHKAREVA, N.A.

"On Stimulated Combination Scattering In SF₆"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11), 1972, pp 88-90

Abstract: The preliminary results are presented of experimental studies of the processes of stimulated combination (Raman) scattering in liquid SF₆ at room temperature and a saturating vapor pressure of 23 kg/cm². It is noted that SF₆ was selected as an object of study because this substance has a number of properties which are advantageous during experimentation: increased chemical stability and inertia, high elastic strength, optical transparency and sufficient uniformity in the visible and infrared regions of the spectrum. A ruby laser with a modulated figure of merit and one stage of amplification was used as a pumping source. The system made it possible to obtain a radiation pulse of 50 nanosec duration, with an energy up to 4,5 joule, a wide spectrum to 0.02 μ , and a divergence with respect to a level of half the energy equal to 4.10⁻³ rad. The excitation threshold of the first and second Stokes components were found to be 18 and 30 W/cm², respectively. Curves are presented which show the conversion

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USSR

AKHAYEV, B. A., et al., Kvantovaya elektronika, No 5(11), 1972, pp 88-90
of pumping radiation into the Stokes components of stimulated combination
scattering. The author thanks A.Z.Grasyluk for critical observations and attention
to the work. 2 fig. 3 ref. Received by editors, 15 Feb 1972; after revision, 6 July
1972.

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USSR

USSR 421 771.08

T
TERESHCHENKO, V. I., YAVOYSKIY, V. I., TIN'KOVA, Ye. V., and KONDRATZEV, A. M.,
Moscow Institute of Steels and Alloys; Donetsk Metallurgical Plant

"Surface Quality of Rolled Products in Out-of-Furnace Deoxidation"

Moscow, Metallurg, No 8, Aug 70, pp 42-44

Abstract: The object of this study was to examine the effect of the method of deoxidation on the quality of rolled products. The experimental metals involved are the following four groups of steels: I--low-and medium-carbon (St.5, St.5, St.45, and St.20); II--low-carbon (St.3sp, St.4sp); III--medium-carbon manganese (4532); and IV--low-carbon manganese (09G2). Both furnace and ladle deoxidation methods were used. With respect to surface quality the rolled products were divided into the following groups: 1) billets with a perfectly clear surface sometimes requiring chisel sampling; 2) billets with surface defects (small cracks, hairline cracks, fissures, etc.); 3) billets in which the external defects did not require chiseling an arbitrary double length of the billets; 4) billets with large surface defects requiring flame cleaning. Analysis of the test data suggests that the quality of the surface of the rolled products is basically determined by conditions of rolling and cooling.

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USSR

TERESHCHENKO, V. T., et al, Metallurg, No 8, Aug 70, pp 42-44

and depends little on the method of deoxidation. Since the method of deoxidation affects the fluidity of the metal, the tendency to form films and crust on the meniscus, and the viscosity and composition of the floating scum, it can be responsible for the appearance of sand particles in the surface layer of the plates.

USSR

TERESHCHENKO, V. YA.

UDC 539.3

"Investigation of Boundary-Contact Problems of Elasticity Theory by a Variational-Difference Method"

Soprotivl. materialov i teoriya sooruzh. Resp. mezhved. nauch. sb. (Resistance of Materials and the Theory of Structures. Republic Interdepartmental Scientific Collection), 1971, No. 4, pp 110-115 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V19)

Translation: A variational formulation of the boundary value-contact problem of elasticity theory for a two-component elastic body with boundary conditions of the first boundary value problem at the surface of the entire body is discussed. A finite difference solution of the problem is considered and a theorem on the convergence of the grid solution to an exact solution is proved. The technique can be extended to problems with other boundary conditions on the surface of the entire body. 8 ref. Author's abstract.

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UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--MEASUREMENT OF AN ELECTRICAL CONDUCTIVITY TENSOR FOR SINGLE
CRYSTALLINE FILMS -U-

AUTHOR--(04)--AMATYCHUK, L.I., DIMITRASHCHUK, V.T., LUSTIE, O.YA.,
TERESHCHENKO, YE.B.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13 (2), 146-8

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MEASUREMENT, ELECTRIC CONDUCTIVITY, TENSOR, ELECTRODE, SINGLE
CRYSTAL FILM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1997/1038

STEP NO--UR/0139/70/013/002/0146/0148

CIRC ACCESSION NO--AT0119905

UNCLASSIFIED

CIRC ACCESSION NO--ATC119905
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--20NOV70

COND. TENSOR COMPONENTS BY USING A SYSTEM OF 2 PAIRS OF ELECTRODES
PLACED IN FRONT OF ONE ANOTHER ON BOTH SIDES OF THE FILMS.
MEASUREMENTS ARE OBTAINED BY ROTATING THE ELECTRODE SYSTEM AROUND THE
CRYSTAL AXIS.
USSR.

ABSTRACT. A METHOD IS DEVISED FOR DETG. THE
FACILITY: CHERNOVITS. GOSUNIV., CHERNOVTSY,

UNCLASSIFIED

USSR

UDC 612.791-7

KALINA, V. K., TERESHCHENKO, Yu. I., and TISHCHENKO, F. M., Chair of
Medical Radiology, Kiev Institute of Advanced Training for Physicians,
Kiev

"A Device for Measuring the Amount of Oxygen Absorbed by Different Parts
of the Human Skin"

Kiev, Vrachebnoye Delo, No 6, Jun 71, pp 119-122

Abstract: An apparatus for determining the amount of O₂ that is absorbed
by different areas of the human skin has been developed, which comprises
1) an electrolytic O₂ compensator consisting of a vessel filled with a
CuSO₄ solution and equipped with two electrodes, 2) a gas-exchange vessel
with an absorber for CO₂ and H₂O, 3) a liquid-filled U-shaped manometer
with a floating contact, and 4) an electronic recorder, a power source,
integrating unit, and monitoring indicators.

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KALINA, V. K., et al., *Vrachebnoye Delo*, No 6, Jun 71, pp 119-122

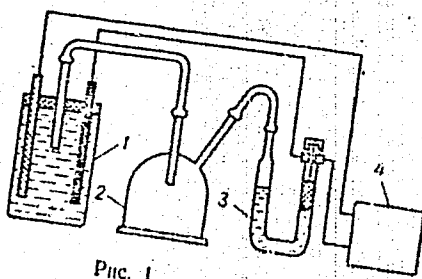


Fig. 1.

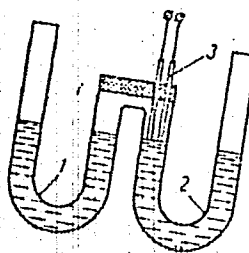


Fig. 3.

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KALINA, V. K., et al., Vrachebnoye Delo, No 6, Jun 71, pp 119-122

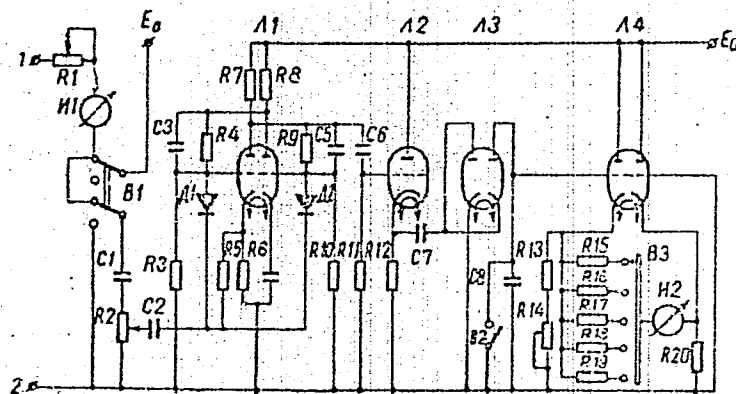


Fig. 2

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KALINA, V. K., et al., Vrachebnoye Delo, No 6, Jun 71, pp 119-122

After a certain volume of O_2 has been absorbed by the skin, the pressure in (2), which has been initially equal to that in (1), decreases, activating (3) with the result that the floating contact in one of the legs of (3) is lowered and current passes through (1), developing O_2 that flows into (2). Current passes through (1) until an equal pressure in (2) and (1) is restored. When more O_2 has been absorbed from (2) by the skin, the cycle is repeated. The amount of current that passes through (1), which is equivalent to the amount of O_2 absorbed by the skin, is measured and recorded. At a consumption of O_2 less than 5-10 cm^3 , a more precise electrolytic contact is used that consists of a 2d U-tube filled with a liquid in (2) drops, unbalancing the liquid levels in the first U-tube. The rising liquid in the 2d tube establishes a contact between two electrodes that are located in the leg of the U-tube. Application of the apparatus on 20 healthy persons yielded satisfactory results.

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1/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--DEHYDRATION AND DRYING OF WASTE WATER RESIDUES FROM PLANTS FOR THE
PRIMARY TREATMENT OF WOOL -U-
AUTHOR--(03)-YAKOVLEV, S.V., KALITSUN, V.I., TERESHCHUK, A.I.
COUNTRY OF INFO--USSR
SOURCE--VODOSNABZH. SANIT. TEKH. 1970, (2), 13-16
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--NATURAL FIBER, WASTE WATER CONVERSION, INDUSTRIAL WASTE
TREATMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/1334 STEP NO--UR/0327/70/000/002/0013/0016
CIRC ACCESSION NO--AP0138344
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--A0138344

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. 1ST AND 2ND SETTLINGS OBTAINED FROM WATER USED FOR SCOURING WOOL COMPRISE 8-12PERCENT BY VOL. OF THE TOTAL VOL. OF H SUB2 O USED AND 88-92PERCENT OF THE SLURRY IS H SUB2 O. SINCE A CONSIDERABLE AMT. OF WOOL FAT SETTLES WITH THE SLURRY, A PROCESS BASED ON COAGULATION AND FILTRATION AND FINALLY "SPRAY" DRYING WAS WORKED OUT TO PREP. THE MATERIAL FOR EXTN. THE AIR TEMP. FOR DRYING SHOULD BE LESS THAN OR EQUAL TO 400DEGREES AND THE EXHAUST GAS TEMP. SIMILAR TO 140DEGREES.

UNCLASSIFIED

Books

USSR

UDC: 621.37/39(038)

TERESHCHUK, R. M., DOMBRUGOV, R. M., BCSYY, N. D. et al.

"The Radio Amateur's Handbook. In Two Parts. Part 1. Sixth Edition, Revised and Enlarged"

Spravochnik radiolyubitelya. V dvukh chastyakh. Ch. 1. Izd. 6-ye, ispr. i dop.
(cf. English above), Kiev, "Tekhnika", 1970, 694 pp, ill. 1 r. 97 k. (from
RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A13 K)

Translation: The sixth edition of the handbook consists of two parts. The first part includes information on electrical and radio technology, electrical and radio materials, various radio components, acoustics and electroacoustics, electronic, ionic and semiconductor devices, low-frequency amplifiers, and radio transmission and reception equipment. A. K.

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USSR

UDC: 621.37/39(038)

TERESHCHUK, R. M., DOMBRUGOV, R. M., BOSYY, N. D. et al.

"The Radio Amateur's Handbook. Part 2. In Two Parts. Sixth Edition, Revised and Enlarged"

Spravochnik radiolyubitelya. Ch. 2. V dvukh chastyakh. Izd. 6-ye, ispr. i dop. (cf. English above), Kiev, "Tekhnika", 1970, 678 pp, ill. 2 r. 7 k. (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A14 K)

Translation: The second part of the handbook (for part 1 see Abstract 12A13) deals with elements and devices of pulse technology, TV receivers, magnetic recording equipment, measurements and measuring equipment, elements of automation and remote control, and also power supply for radio equipment. A. K.

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Acc. Nr: AP0051956

Ref. Code: UR0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 3, pp 224-228

EFFECT OF MINERAL PHOSPHORUS ON PRODUCTION OF LEVORIN AND FATTY ACIDS BY ACTINOMYCES LEVORIS KRASS

I. I. Belousova, Ye. B. Lishnevskaya, R. Ye. Elgart, I. M. Tereshin

Leningrad Institute for Antibiotics

Addition of inorganic phosphorus to corn steep liquor media and 24- or 48-hour fermentation broths, in which mycelium of *Act. levoris* Krass, 26/1 was grown decreased the synthesis of levorin, the decrease being more pronounced on addition of phosphorus to fermentation broths than to the initial medium. Glycerophosphate also inhibited the antibiotic production by the mycelium grown in fermentation broths of various age, while to a lesser extent than an equivalent amount of mineral phosphorus. A decrease in the synthesis of levorin by the mycelium under the effect of phosphorus added to the fermentation broth was accompanied by an increase in production of fatty acids and incorporation of radioactive acetate to them.

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Acc. Nr.: **AP0029497**

Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 1, pp 31-34

EFFECT OF POLYENIC ANTIBIOTICS ON INCORPORATION OF AMINO ACIDS
TO PROTEINS OF CANDIDA ALBICANS

Nikiforova, A.A.; Matveyeva, I.M.; Tereshin, I.M.

Leningrad Institute for Antibiotics

The effect of levorin and nistatin on incorporation of amino acids to proteins of *Candida albicans* was studied. It was found that the above antibiotics suppressed incorporation of alanin and valin to the protein fraction of intact cells of *Candida albicans*. No effect of levorin and nistatin on protein synthesis was observed in acellular protein-synthesizing systems of *Candida albicans*. ¹⁴C-Levorin was detected mainly (up to 84 per cent) in the fraction of cell walls of *Candida albicans*.

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Acc. Nr: **AP0101133**

Ref. Code: **U90297**

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 3, pp 212-215

STUDIES ON CERTAIN SIDES OF MECHANISM OF ACTION OF
CHLORAMPHENICOL ON GENETIC TRANSFORMATION IN STREPTOCOCCI

A. N. Klimov, M. M. Krasilnikova, I. M. Terashin

Leningrad Institute for Antibiotics

The mechanism of action of chloramphenicol (in subbacteriostatic concentrations) on genetic transformation of streptomycin resistance in hemolytic streptococci of group H, strain Challis was studied. It was found with P³²-labeled DNA that chloramphenicol had no effect on incorporation of the radioactive marker to the competent cells of streptococci. A study of the effect of chloramphenicol on various stages of transformation showed that it produced suppression of the activity of intracellular DNA-se and RNA-se. The amount of RNA in the recipient cells increased under the action of chloramphenicol.

REEL/F.RAME
19850758

Acc. Nr: **AP0034397**

Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, No 2, pp 151-154

TRANSFERABLE DRUG RESISTANCE IN ENTEROBACTERIA ISOLATED IN LENINGRAD

Shal'man, S. L.; Tereshin, L. M.

Sanitary and Epidemiological Station, Leningrad Institute for Antibiotics

Experiments on conjugation showed transference of drug resistance in 210 strains of enterobacteria isolated in 1967-1968. A strain of citrobacter was used as a recipient. Simmons citrate agar with antibiotics was used as a selective medium. Transferable resistance was found in 177 strains of enterobacteria (84.29 per cent), including 85.88 per cent of strains with multiple resistance and 77.5 per cent with resistance to one of the antibiotics (mainly tetracycline). Capacity for resistance transference was shown in 76 out of 87 strains of Shigella, 74 out of 88 strains of enteropathogenic Coli bacteria and 27 out of 35 strains of saprophytic Coli bacteria. Resistance of Shigella Sonne to neomycin, noted for the first time in 1967 was also transferable.

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REEL/FRAME

19711057

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Antennas

USSR

UDC: 621.396.677.75

TERESHIN, O. N. and SEDOV, V. M.

"Surface-Wave Antenna Combined With an Excitation Device"

Moscow, Radiotekhnika, No 10, 1972, pp 45-49

Abstract: The basic defect of a surface-wave antenna in which the impedance structure forming the directional diagram is excited by an incident surface wave formed in an excitation device is the increase in the longitudinal dimension of the antenna because of the added excitation device. The authors show that this may be avoided by solving the problem of synthesizing the antenna as a whole, when the impedance structure transforms the structure of the feed line field into the structure of the surface wave field, with the required directional diagram formed in the same length of the structure. Thus, the longitudinal dimension of the antenna is diminished. The authors begin their analysis by assuming the primary source of surface-wave excitation to be a filament of magnetic flux in a two-dimensional plane of reference, and derive a system of equations for computing the structural parameters of the antennas from their required characteristics. Antennas so designed were
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USSR

TERESHIN, O. N., et al, Radiotekhnika, No 10, 1972, pp 45-49

tested, and their directional diagrams found to agree closely with the computed values. The authors conclude that these antennas have the advantage of two-mirror antennas -- the feed line is brought up to the base of the reflecting surface.

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USSR

UDO 621.395.677.75

TEREKHIN, O.N., SEDOV, V.M. [Members Scientific-Technical Society Of Radio Engineering, Electronics, And Communications imeni A.S. Popov]

"Directional Antenna In The Form Of A System Of Two Conductors Located On The Generatrix Of A Relief Impedance Cylinder"

Radiotekhnika, Vol 27, No 5, May 1972, pp 47-51

Abstract: The paper discusses an impedance antenna with axial radiation in which the directional diagram forms the weakly-retarded surface of a wave. The method of assigning fields in the antenna and a calculation of the parameters of the skin impedance of the antenna are presented, and the results are shown of an experimental study of a model of the antenna. It is concluded that the antenna considered has a number of significant advantages over known antennas: small transverse dimensions, a decrease in the longitudinal size, a simple feed circuit, and a constant directive gain in the frequency band. The antenna can find an application in various radiorcommunication systems as a low-projection antenna which possesses high electrical characteristics. 5 ill. 3 ref. Received 6 Oct 1969.

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USSR

UDC 621.396.677.495

TERESHIN, O. N., KUZNETSOV, I. N., LOSEV, M. L., Active Members of the Scientific and Technical Society of Radio Engineering, Electronics and Communications
imeni A. S. Popov

"Wave Channel Type Antenna with Modulated Phase Velocity and Multiple Use of the Array"

Moscow, Radiotekhnika, Vol 27, No 1, 1972, pp 31-35

Abstract: A study was made of the possibility of constructing antennas of the "wave channel" type with modulated phase velocity and multiple utilization of the antenna array. The procedure by which an array is used a multiple number of times to decrease the antenna length previously described by O. N. Tereshin, et al. [Radiotekhnika, Vol 25, No 12, 1970] for double use of the array is extended to the case of quadruple use of the array. Graphs are presented for the relief and impedance functions for two antenna arrays of length 1.28λ . The figure shows that the relief line of both arrays of the antenna differ little from a straight line. Therefore, when constructing the mockup of the antenna the relief was neglected. This greatly simplified the design of the antenna. The schematic of the experimental mockup of the antenna constructed by the calculated data is presented excited by the procedure commonly used for director $1/2$