

USSR

UDC 612.13

BARAZ, L. A., VESELOVA, YE. S., MESHCHERSKIY, YE. L., and KHAYUTIN, V. M.,
Laboratory of Circulatory Control and Biophysics, Institute of Normal and
Pathological Physiology, Academy of Medical Sciences USSR, Moscow

"Blood Flow Through Forearm Muscles in Man After Static Exercises of
Increasing Load"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 2,
1973, pp 307-314

Abstract: Plethysmographic investigations revealed that during performance of work on a wrist ergometer, changes in the blood flow through the forearm muscles proceed in two stages. With work load increasing up to 20% of the maximum possible voluntary effort, the peak blood flow during the contraction increases considerably, the reactive hyperemia following relaxation is of brief duration, and thus the total additional blood flow during recovery is very small. With work load increasing up to 50% of the maximum possible, the peak blood flow increases at a considerably reduced rate, the reactive hyperemia becomes protracted, and the additional blood flow during recovery reaches high proportions of the total. Thus, the work load of 20% of the maximum possible appears to mark the critical point below which blood flow is adequate and above which blood

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BARAZ, L. A., et al., Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov,
Vol 59, No 2, 1973, pp 307-314

supply becomes inadequate, and the accumulating metabolites (representing a "blood debt") significantly reduce the vasotonus and thus increase the diameter of the blood vessels and the total capacity of the vascular bed in the working area.

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VESELOVSKAYA, I. YE., and SHERSTYUK, N. I.

"Internal Stresses of a Platinum Coating on Titanium"

Moscow, Zashchita Metallov, Vol 6, No 3, May-Jun 70, pp 302-305

UDC 621.357.7

Abstract: A study was made of internal stresses occurring during electrodeposition of platinum on a titanium surface. The optimal conditions for obtaining coatings with minimum internal stresses were found. The platinum plating was carried out at $70 \pm 1^\circ\text{C}$. The anode made of platinum-plated titanium was placed parallel to the cathode with a spacing of 6-7 cm. In order to avoid the boundary effect, the anode surface was one-fourth the size of the cathode surface. The electrolyte compositions were (in g/liter): Pt (in the form of $\text{H}_2\text{PtCl}_6 \cdot 6\text{H}_2\text{O}$) 10; NaNO_2 280; NH_4NO_3 1-2; NH_4OH 50 (electrolyte I) or 1-1.5 (electrolyte II). It was found that the internal stresses of the coatings exhibit little dependence on the platinum concentrations within a broad range of 8.0-4.5 g/z. Only during deposition from new electrolyte I during the initial period and from old electrolyte I with a platinum concentration less than 7 g/z were coatings with increased internal stresses obtained. In comparison with electrolyte I, coatings from electrolyte II were more matte. The internal stresses in electrolyte II were very small: 0.5 kg/mm² in the new electrolyte and 0.7-1.0 kg/mm² in the old electrolyte. In the

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VESELOVSKAYA, I. YE., and SHERSTYUK, N. I., *Zashchita Metallov*, Vol 6, No 3, May-Jun 70, pp 302-305

experiments the deviation γ was at the limit of accuracy of the measurements, and no dependence of the internal stresses on the thickness of the coating was detected. A reverser did not improve the external form and yield with respect to current in electrolyte II.

The experiment demonstrated that a platinum coating on titanium from electrolyte II has an advantage over the coating from electrolyte I from the point of view of danger of cracking as the result of internal stresses. However, an experiment in long-term operation of a platinum-plated titanium anode showed that coating from electrolyte I with a current reverser is characterized by less wear and a longer service life in comparison with a coating of equal thickness from electrolyte II.

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1/2 819
 TITLE--CORROSION RESISTANCE OF A TITANIUM BASE UNDER A PLATINUM COATING IN
 RELATION TO ANOLYTE PH -U-
 AUTHOR--KHODEKEVICH, S.D., VESELOVSKAYA, I.YE., YAKIMENKO, L.M., GUSKOVA,
 L.A.
 COUNTRY OF INFO--USSR
 SOURCE--ELEKTROKIMIYA 1970, 6(1), 135-8
 DATE PUBLISHED-----70

PROCESSING DATE--11SEP70



SUBJECT AREAS--MATERIALS
 TOPIC TAGS--TITANIUM CORROSION, PLATINUM COATING, ELECTROLYTIC OXIDATION,
 CORROSION TEST, SOLUTION ACIDITY, ANODE POLARIZATION

CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1987/0757

STEP NO--UR/0364/70/006/001/0135/0138

CIRC ACCESSION NO--AP0104206
 UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--APG104206

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELECTRO CHEM. AND CORROSION BEHAVIOR OF A TI BASE COVERED BY PT WAS STUDIED AT PH 0-14 AND 80DEGREES. TWO KINDS OF TI ELECTRODES WERE USED, ONE OF WHICH WAS EMERY CLEANED, DEGREASED, TREATED FOR 20 MIN IN H SUB2 SO SUB4 AT 90DEGREES, RINSED IN WATER, DRIED ON FILTER PAPER, AND KEPT IN THE AIR FOR 24 HR BEFORE USE. THIS ELECTRODE WAS CALLED AIR OXIDIZED. THE OTHER ELECTRODES WERE NOT REMOVED FROM THE SOLN. FOLLOWING ANODIC POLARIZATION AND THESE WERE REFERRED TO AS ANODICALLY OXIDIZED. A STUDY OF THE STATIONARY POTENTIAL SHOWED THAT AN INCREASE IN THE PH OF THE ANOLYTE LOWERED THE PASSIVITY OF TI WHICH WAS AT ITS STRONGEST AT PH 13-14. THE STATIONARY POTENTIAL OF PT COATED TI ANODES AT PH 0-13 WERE VERY MUCH ALIKE AND INDEPENDENT OF THE THICKNESS OF THE PT COATING. THE EFFECT OF THE TI BASE OF TH PT COATED ELECTRODE APPEARED ONLY AT PH 14 AND THIN PT COATINGS, 0.1-1.0 MU. IN A STUDY OF ANODIC POLARIZATION OF TI AND PT COATED TI, THE TI IN ALK. AND CARBONATE SOLNS. PARTICIPATED IN THE ANODIC PROCESS THROUGH PORES IN THE PT COATING. AT THE SAME C.D. THE CURRENT DRAIN THROUGH THE TI OF PT COATED ANODES WAS APPRECIABLY HIGHTER AT PH 13 THAN AT PH 9.5 OR 14. UNLIKE AT PH 9.5 AND 14, THE POLARIZATION CURVES AT PH 13 AND 11.6 ON TI AND PT COATED TI WERE ANALOGOUS, BUT THE CURRENT DRAIN THROUGH TI ROSE. THE EXPTL. RESULTS LEAD TO THE CONCLUSION THAT OXIDN. OF TI IS THP MAIN REASON FOR THE DESTRUCTION OF THE PT COATING IN ALK. AND CARBONATE SOLNS.

UNCLASSIFIED

USSR

UDC 616.988.25-036.12-092.4

VESELOVSKAYA, O. V., Institute of Virology imeni D. I. Ivanovskiy, USSR
Academy of Medical Sciences, Moscow

"Chronic Infection of Diploid Human Embryo Cells With Japanese Encephalitis
Virus"

Moscow, Voprosy Virusologii, No 3, May/Jun 71, pp 353-358

Abstract: The object of this study was to investigate the interaction of Japanese encephalitis virus with human diploid cells, since diploid cells appear to be most suitable for obtaining prophylactic preparations. Three of the diploid cells lines were from lung tissue and four from skin and muscle tissue. Two stages could be distinguished in the dynamic study of infected cultures: proliferation and degeneration. Proliferation was characterized by the maintenance of vital cellular functions. Chronically infected cells exhibited normal growth after 2-3 days and the formation of a uniform monolayer was observed in both control and infected cultures. The cells released small quantities of virus into the medium. Infectious virus was produced by only a fraction of the cell population. The virus was "latent" with respect to the host cells, but its presence was established by inoculation of mice or by interference with Western equine encephalomyelitis virus (WEE) in chick

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VESELOVSKAYA, O. V., *Voprosy Virusologii*, No 3, May/Jun 71, pp 353-358

embryo fibroblast cells. Latent infection of diploid cells with Japanese encephalitis virus was characterized by interferon production and complete resistance to the cytotoxic effects of WEE virus. The second stage (degeneration) in the dynamics cell cultures was characterized by progressive cytopathic changes in chronically infected cells. The degeneration stage occurred in three of the seven strains studied. In this stage, spread of the infection to most cells was noted and resulted either in destruction of the culture or in repopulation and development of a resistant strain. The transition from one stage to the other (proliferation to degeneration) was always accompanied by an increase in the production of infectious virus. It was concluded that the appearance of the cytopathic effect must be due to a mutation of the virus in the culture during the passage process.

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UDC: 621.3.049.75

TURUKIN, G. M., GRITSKOVA, V. V., SHUMILOV, A. S., OSTROZHINSKIY, A. V.,
VESELOVSKAYA, V. A.

"A Method of Metallizing Multilayered Printed-Circuit Boards"

Moscow, Otkrytiya, izobreneniya, promyshlennyye obraztsy, tovarnyye znaki,
No 5, Feb 71, Author's Certificate No 293311, Division H, filed 4 Aug 69,
published 15 Jan 71, p 182

Translation: This Author's Certificate introduces a method of metallizing
printed-circuit boards consisting of several layers. The procedure is based
on sequential chemical and galvanic copper-coating of holes. As a distinguish-
ing feature of the patent, reliable interlayer connections are provided by
galvanic build-up of copper on the end faces of the contact platforms in
the holes of the inner layers before electrochemical metallizing of the holes.
Priority dates from 13 July 1967.

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UDC 669.168:621.746

SHARANOV, M. A., SILUKOV, G. A., KROLEV, A. A., KRYLOV, I. A., and VESELOVSKIY, A. Ya. (All-Union Scientific Research Institute of Heat Engineering in Metallurgy /VNIIMT/; Serov Plant of Ferroalloys)

"Study of the Granulation Process of Silicochrome"

Moscow, Stal', No 4, Apr 72, pp 321-323

Abstract: Described is a joint study by the All-Union Scientific Research Institute of Heat Engineering in Metallurgy and the Serov Plant of Ferroalloys involving plant-scale experiments on silicochrome granulation. The objective of the study was to determine the causes of explosions (during the process) and to develop preventive safety measures. The potential causes of explosions are theorized to include the clogging of nozzles and obstructing the metal stream, disintegration of the refraction control mesh constraining the feed of the liquid alloy to the granulation tank, fracture of the lining of the overflow trough snout, excessive distance between the trough snout and the nozzles, etc. The relationship between the granulometric composition of the granulated material and the water supply parameters has been established. Recommendations are made to exclude the limitation on water temperature in the granulation tank to 40°C from the standard technical

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SHARANOV, M. A., et al, Stal', No 4, Apr 72, pp 321-323

specifications as well as to introduce other relevant technological refinements. The study proposes a new explosion-free granulation technology. (3 illustrations).

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1/2 050 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--STRUCTURE OF THE ELECTRIC FIELD IN A SHOCK WAVE PROPAGATING IN A
WEAKLY IONIZED GAS -U-
AUTHOR--VESELOVSKIY, I.S.
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL TEKHNICHESKOI FIZIKI, VOL 40, FEB. 1970, P. 387-389
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ELECTRIC FIELD, SHOCK WAVE PROPAGATION, DEBYE LENGTH, ELECTRON
DENSITY, IONIZED GAS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1979/1541 STEP NO--UR/0057/70/040/000/0387/0389
CIRC ACCESSION NO--AP0047869
UNCLASSIFIED

2/2 050

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0047869

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYTICAL INVESTIGATION OF THE STRUCTURE OF THE ELECTRIC FIELD WHICH FORMS AT THE FRONT OF A SHOCK WAVE PROPAGATING IN A WEAKLY IONIZED GAS IN THE PRESENCE OF THE RAMSAUER EFFECT. IT IS SHOWN THAT THE ELECTRIC FIELD IS CREATED DUE TO CHARGE SEPARATION BY A MOVING DISCONTINUITY, AND THAT THE FIELD STRENGTH TENDS EXPONENTIALLY TO ZERO ON EITHER SIDE OF THE DISCONTINUITY. THE DEBYE RADIUS IS SHOWN TO BE THE CHARACTERISTIC THREE DIMENSIONAL MEASURE FOR THE VARIATIONS OF THE ELECTRIC FIELD AND ELECTRON DENSITY IN THE REGION IN FRONT OF THE SHOCK WAVE FRONT.

UNCLASSIFIED

172 011 UNCLASSIFIED
TITLE--LINURON FOR WEED CONTROL IN CORN FIELDS -U- PROCESSING DATE--27NOV70
AUTHOR--(02)--VESELOVSKIY, I.V., MANKO, YU.P.
COUNTRY OF INFO--USSR
SOURCE--VISN. SIL'S'KOGOSPOD. NAUKI 1970, 13(1), 58-63
DATE PUBLISHED-----70
SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CEREAL CROP, HERBICIDE, WEED KILLER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1974 STEP NO--UR/0534/70/013/001/0058/0063
CIRC ACCESSION NO--AP0137153
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137153

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LINURON PROVED EFFECTIVE IN FIELD
EXPTS. AGAINST WEEDS CONTAMINATING CORN, WHEN APPLIED AT 3-4 KG-HA, AND
DID NOT AFFECT YIELD OR GROWTH. FACILITY: UKR. SIL'S'KOGOSPOD.
AKAD., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 632.954

SAMOSVAT, L. S., AVDYUSHKINA, S. I., VESSELOVSKIY, I. V., and MAN'KO, YU. P.,
All-Union Scientific Research Institute of the Hygiene and Toxicology of
Pesticides, Polymers and Plastics and Ukrainian Agricultural Academy

"Aftereffect of Linuron and Its Residues in Soil and Plants"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 3, Mar 70, pp 55-56

Abstract: The authors in 1966-1967 studied under field conditions the effectiveness of linuron on corn plantings and its aftereffect on other agricultural crops, and also determined residues of the chemical in the soil and plants. The experiments were conducted at the Mytnitskaja Agronomical Station of the Ukrainian Agricultural Academy. The soil is deep low-humic medium-loamy chernozem. The linuron was applied during preplant cultivation or preemergence harrowing in doses of 2, 4 and 8 kg/ha. The linuron residues in the soil were determined by two methods, viz. biologically with white mustard as the indicator plant and by thin-layer chromatography. It was found that linuron in a dose of 3-4 kg/ha never penetrated deeper than 10 cm from the soil surface during the corn vegetation period, with 5-7 percent of the initial quantity found in this layer four months after application. The

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SAMOSVAT, L. S., et al., *Khimiya v Sel'skom Khozyaystve*, Vol 8, No 3, Mar 70, pp 55-56

greater part of the herbicide (76.8-81.3 percent) decomposed the first two months following application. No linuron was found in the kernel of fully ripe corn grown with an application of 4 kg/ha of the herbicide. The green mass of corn in the flowering phase contained an insignificant quantity of the herbicide (0.13-0.14 mg per kg of plants with natural moisture content). A 3-4 kg/ha dose of linuron applied to corn had no adverse effect on the yield of oats, vetch-oat mixture, sunflowers, sugar beets or winter wheat.

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1/2 012 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--AFTEREFFECT OF LINURON AND ITS RESIDUES IN SOIL AND PLANTS -U-
AUTHOR--(04)-SAMOSVAT, L.S., AVDYUSHKINA, S.I., VESELOVSKIY, I.V., MANKO,
YU.P.
COUNTRY OF INFO--USSR
SOURCE--KHIM. SEL. KHOZ. 1970, 8(3), 215-16
DATE PUBLISHED-----70
SUBJECT AREAS--AERONAUTICS, BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CHEMICAL DECOMPOSITION, SOIL CHEMISTRY, HERBICIDE, SOIL
STRUCTURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/0184 STEP NO--UR/0394/70/008/003/0215/0216
GIRC ACCESSION NO--AP0130943
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0130943

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BIOASSAY BY SINAPIS ALBA AND CHROMATOG. ANAL. OF RESIDUAL LINURON FROM FIELD EXPTS. INDICATED THAT THIS HERBICIDE APPLIED AT PRESEWING CULTIVATION PENETRATED TO 10 CM OF STRONG LOW HUMUS, LOAMY CHERNOZEM SOIL. THE HERBICIDE WAS MOSTLY DEGRADED AFTER 2 MONTHS. NO RESIDUES WERE FOUND IN THE SEEDS. CROPS GROWN ON THE TREATED AREAS IN THE FOLLOWING YEARS WERE NOT AFFECTED.

FACILITY: VSES. NAUCH.-ISSLED. INST. GIG. TOKSIKOL. PESTITS., POLIM. PLAST. MASS, KIEV, USSR.

UNCLASSIFIED

USSR

UDC 632.4.01/.09

RUBIN, B. A., MARKAROVA, Ye. N., and VESELOVSKIY, V. A., Moscow State University

"Effect of Different Strains of the Fungus *Fusarium oxysporum vasinfectum* on the Ultraweak Luminescence of Cotton Roots"

Moscow, Sel'skokhozyaystvennaya Biologiya, No 5, 1971, pp 719-723

Abstract: The avirulent strain (No 61) of a monosporous culture of *Fusarium oxysporum vasinfectum* possesses more noticeable ultraweak luminescence than do virulent strains (Nos 15 and 54) of the same fungus. The intensity of luminescence of an aqueous extract from the mycelium of No 61 is five times greater than that of mycelium from either of the pathogenic strains. However, the normal ultraweak luminescence of cotton roots is stimulated only by treating them with aqueous extracts from the pathogenic strains. The degree of stimulation of luminescence generally varies with the concentration of the extract. This effect of the virulent strains is regarded as a manifestation of the influence of the pathogens on the host plant's metabolism.

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1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ELECTROCHEMICAL OXIDATION OF CARBON MONOXIDE IN AQUEOUS SOLUTION.
II. OXIDATION OF CARBON MONOXIDE IN ACID, SOLUTIONS ON A PLATINUM
AUTHOR-(03)-MILLER, N.B., TYURIKOVA, O.G., VESELOVSKIY, V.I.
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKIMIYA 1970, 6(4), 468-72
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--AQUEOUS SOLUTION, CHEMICAL REACTION RATE, PLATINUM ELECTRODE,
CARBON MONOXIDE, ELECTROCHEMISTRY, OXIDATION, CHEMICAL BONDING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/1159 STEP NO--UR/0364/70/006/004/0468/0472
CIRC ACCESSION NO--AP0121718
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121718

ABSTRACT/EXTRACT--(U) GP-G- ABSTRACT. THE OXIDN. OF CO ON A PT ELECTRODE WAS STUDIED BY ANODIC POLARIZATION IN 0.1 N H₂SO₄ AT 25 DEGREES. AT AND AROUND THE EQUIL. POTENTIAL (0.05 V), THE CO OXIDN. IS SLOW AND PROCEEDS AT THE EXPENSE OF THE CATALYTIC CONVERSION OF WATER. THE ELECTROCHEM. OXIDN. PROPER BEGINS AT 0.85 V AND IS CONTINGENT UPON THE FORMATION OF O AND ITS ADSORPTION ON THE ELECTRODE SURFACE. IN THIS REGION THE REACTION RATE IS GOVERNED BY THE DIFFUSION OF CO. A FURTHER INCREASE IN THE POTENTIAL ABOVE 1.1 V LEADS TO A PRONOUNCED DECREASE IN THE REACTION RATE, DUE TO THE FORMATION OF AN OXIDE BOND BETWEEN THE O AND THE ELECTRODE SURFACE. FACILITY: NAUCH. ISSLED. FIZ. KHIM. INST. IM. KARPOVA, MOSCOW, USSR.

UNCLASSIFIED

1/3 010 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--PHOTOELECTROCHEMICAL PROCESSES ON A ZINC OXIDE ELECTRODE -U-
AUTHOR-(02)-SHUB, D.M., VESELOVSKIY, V.I. ✓
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKHIMIYA 1970, 6(1), 97-100
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ELECTROLYTE OXIDATION, BENZENE, ZINC OXIDE, ELECTRODE, PHENOL,
PYROCATECHOL, HYDROQUINONE, PHOTO EFFECT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1429 STEP NO--UR/0364/70/006/001/0097/0100
CIRC ACCESSION NO--AP0135102
UNCLASSIFIED

2/3 010

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135102

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHOTOELECTROCHEM. OXIDN. OF C SUB6 H SUB6 IN DIL. ALK. SOLN. ON A ZNO ELECTRODE WAS STUDIED BY PREVIOUSLY DESCRIBED METHOD (1969). THE ELECTRODES WERE POLYCRYST. ZNO WITH ADDN. OF 0.5 ATOM PERCENT GA AND A REVERSIBLE H REFERENCE ELECTRODE IN N KOH WAS USED. ELECTROLYTE WAS 0.5N K SUB2 SO SUB4 SATD. WITH C SUB6 H SUB6 WITH ADDED KOH TO MAINTAIN A CONST. PH OF 11.0. THE MAJOR PRIMARY OXIDN. PRODUCT WAS PHOH, THE YIELD OF WHICH DEPENDED ON THE ELECTRODE POTENTIAL (30 PERCENT AT 1.6 V). ADDNL. HIGHER PHENOLS SUCH AS PYROCATECHOL AND HYDROQUINONE WERE ALSO FORMED BESIDES H SUB2 O SUB2 OCCURRING IN THE SOLN. DURING IRRADN. IF THE POLARIZATION OF THE ELECTRODES WAS PROLONGED, AN AMORPHOUS DARK BROWN FILM WAS FORMED ON THE ANODE, PROBABLY DUE TO THE FURTHER OXIDN. PRODUCTS OF C SUB6 H SUB6 AND PHOH. THE PHOH IN THE SOLN. WAS DETD. BY GAS CHROMATOG. USING A FLAME IONIZATION DETECTOR AND A 1 M TIMES 3 MM STEEL COLUMN PACKED WITH GRAPHITIZED CARBON BLACK AT 170 DEGREES AND WITH N CARRIER GAS AT 1.5 L. PER HR. THE HIGHER PHENOLS WERE DETD. SPECTROPHOTOMETRICALLY; H SUB2 O SUB2 WAS DETD. BY IODOMETRICALLY AND THE ZN IONS COMPLEXOMETRICALLY. THE OXIDN. OF C SUB6 H SUB6 TO PHOH IS DESCRIBED BY: (SHOWN ON MICROFICHE) THE DISPROPORTIONATION OF RADICAL C SUB6 H SUB6 OH WAS ALSO PROBABLY: $2C \text{ SUB6 H SUB6 OH} \text{ YIELDS PHOH PLUS H SUB2 O PLUS C SUB6 H SUB6}$. THE INCREASE OF H SUB2 O SUB2 DURING THE IRRADN. WAS EXPLAINED BY THE REACTION: $HO \text{ SUB2 PLUS H SUB2 O FORMS AND IS FORMED FROM H SUB2 O SUB2 PLUS OH}$. THE PRIMARY ANODIC REACTION ON THE ZNO ELECTRODE IN ALKALI SOLN. WAS THE DISCHARGE OF OH ION TO OH RADICAL.

UNCLASSIFIED

3/3 010
CIRC ACCESSION NO--AP0135102
ABSTRACT/EXTRACT--FACILITY:

UNCLASSIFIED

PROCESSING DATE--27NOV70

FIZ.-KHIM. INST. IM. KARPOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--EFFECT OF VARIOUS ELECTROCHEMICAL FACTORS ON PERCHLORIC ACID
SYNTHESIS -U-
AUTHOR-(03)-SHIMONIS, I.V., RAKOV, A.A., VESELOVSKIY, V.I.
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKHIMIYA 1970, 6(2), 169-74
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ELECTROCHEMISTRY, CHEMICAL SYNTHESIS, PERCHLORIC ACID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/1147 STEP NO--UR/0364/70/006/002/0169/0174
CIRC ACCESSION NO--AP0121706
UNCLASSIFIED

2/2 013

CIRC ACCESSION NO--AP0121706
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. THE SYNTHESIS OF HClO SUB4 WAS STUDIED BY DETG. THE EFFECTS OF TEMP., ANODIC POTENTIAL, CONCNS. OF CL PRIME NEGATIVE AND ClO SUB4 IN THE FORMATION OF HClO SUB4 WHICH BEGINS AT OCCURRING IN HClO SUB4. IN THE FORMATION OF HClO SUB4 WHICH BEGINS AT 2.4 V AND REACHES A MAX. VALUE AT 2.8-2.9 V LOWERING THE TEMP. TO MINUS 20 DEGREES SIGNIFICANTLY ACCELERATES THE PROCESS; CONCNS. CHANGES OF CL PRIME NEGATIVE FROM 0.5 TO 1.8 N AND OF ClO SUB4 PRIME NEGATIVE FROM 3 TO 8 N HAVE NO EFFECT EXCEPT THAT ON OXIDN. AT THE HIGHEST CONCNS. OF HCl AND HClO SUB4, THE CURRENT EFFICIENCY DECREASES. FACILITY:
FIZ.-KHIM. INST. IM. KARPOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 018

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--PRINCIPLES OF ANODIC PROCESSES IN PERCHLORIC ACID AND IN A MIXTURE OF PERCHLORIC AND HYDROCHLORIC ACIDS ON A PLATINUM ELECTRODE -U-

AUTHOR--(03)-SHIMONIS, I.V., RAKOV, A.A., VESELOVSKIY, V.I.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKIMIYA 1970, 6(2), 163-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PERCHLORIC ACID, HYDROCHLORIC ACID, OXIDATION, CHEMICAL REACTION KINETICS, PLATINUM ELECTRODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/1148

STEP NO--UK/0364/70/006/002/0163/0168

CIRC ACCESSION NO--AP0121707

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121707

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETIC PROCESSES OCCURRING IN THE OXIDN. OF CL IONS WERE STUDIED BY RECORDING POTENTIOSTATIC POLARIZATION CURVES IN SOLNS. OF 0.5-11.5 N HClO SUB4 AND IN 4 N HClO SUB4 PLUS (10 NEGATIVE PRIME3 MINUS1) N HCL AT 20-34DEGREES WITH Pt ELECTRODES. A DISTINCT RELATION WAS FOUND BETWEEN THE POSITION AND BOUNDARIES OF THE POTENTIALS OF SEP. PARTS OF THE POLARIZATION CURVES, RECORDED BOTH IN THE PURE ACID AND THE ACID MIXT. IT IS PROPOSED THAT EACH PART OF THE CURVE CORRESPONDS TO A UNIQUE STATE OF THE ELECTRODE SURFACE. EXPTS. SHOWED THAT THE SEP. PARTS OF THE POLARIZATION CURVE CORRESPOND TO DEFINITE COMPS. OF ANODE PRODUCTS AND CHANGE IN THE SELECTIVITY OF THE OXIDN. OF CL IONS. FACILITY: FIZ.-KHM. INST. IM. KARPOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 620.184.6:539.562

VESELYANSKIY, YU. S., GORUSHKINA, L. P., ZAKHAROV, V. I., JURILO, YU. P.,
and SOMOV, A. I., Ukrainian Correspondence Polytechnic Institute

"Impact Ductility of a Composite Material"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 7, 1973,
pp 36-37

Abstract: The impact ductility of an Al-Al₃Ni composite was investigated on specimens of the Al-Ni eutectic alloy grown in vacuum, depending on the cross section of Al₃Ni fiber. The impact ductility was found to be independent of the testing temperature and to depend on the crystallization rate. According to fractographic data, in impact bending of specimens of an Al-Al₃Ni composite with great interfiber distances, the crack propagates more slowly than on specimens with small interfiber distances. This results in increased fracture of an Al-Al₃Ni composite obtained at low crystallization rates. The Al-Al₃Ni material possesses a low notch sensitivity; on the macrorelief of fractures of notchless specimens, local zones of brittle failure are absent. One figure, ten bibliographic references.

1/1

USSR

VESELYANSKIY, YU. S., GORUSHKINA, L. P., ZAKHAROV, V. I., KURILO, YU. P., and SOSOV, A. I., Ukrainian Correspondence Polytechnic Institute.

"Method of Studying the Microrelief of Fractures in an Al-Al₃Ni Composite"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 6, Jun 73, pp 720-721

Abstract: The fractures of samples of an Al-Al₃Ni composite material produced by directed crystallization of an Al-Ni eutectic alloy were studied. The samples, 5-6 mm in diameter and 60-70 mm long, were grown in vacuum by the Chokhral'skiy method at crystallization rates of 30-500 mm/hr. The samples had a unidirectional fibrous structure consisting of an aluminum matrix reinforced with Al₃Ni fibers with a diameter of 1 to 0.2 microns. Microsections of fractures revealed tiny rods of the reinforcing phase, free from the matrix material. This proved that cracks are propagated not only across the fibers, breaking them, but along the fibers into the fiber-matrix interface. 1 figure, 1 bibliographical reference.

1/1

USSR

UDC 669.29:539.376

PROKOSHKIN, D. A., VASIL'YEVA, YE. V., and TRET'YAKOV, V. I., Moscow Higher Technical School imeni N. E. Bauman

"Effect of Zirconium Concentration on Creep of Niobium-Zirconium Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 5, 1973, pp 1045-1051

Abstract: The creep of Nb-Zr alloys containing 1, 5, 10, and 20 weight percent Zr was studied on 15-mm rods at 1040-1200°C. Samples were prepared from an ingot annealed at 1400°C for 5 hours. The alloy containing 1% Zr showed the highest resistance to creep. This is attributed to the nature of the physico-chemical interaction of Nb and Zr and to the ability of zirconium in this concentration to saturate by almost 100% the lattice defects (grain boundaries, subgrains, and individual dislocations). An increase in the zirconium concentration above 1% lowered the heat-resistant properties of alloys because the melting temperature of Zr is lower compared with Nb and its higher diffusion mobility.

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USSR



UDC 621.791.947.55.015.620.187:669.715

~~VESELYA-SKIDY~~ V. S., Candidate of Technical Sciences, KULAKOVA, G. N., Candidate of Technical Sciences and PYATAKOV, L. N., Engineer (Ukrainian Correspondence Polytechnical Institute)

"State of Flashing Surfaces of the AMr-3 Aluminum Alloy After Plasma Cutting"
Moscow, Svarochnoye Proizvodstvo, No 7, Jul 70, pp 7-9

Abstract: A study of the thin flashing surface structure of aluminum alloys subjected to plasma arc cutting makes it possible to determine the crystallization pattern of metal cut edges from which data may be obtained for the control of cutting process conditions. This is particularly important when items obtained by plasma cutting are welded together without subsequent edge trimming. Plasma cutting was conducted manually and by using a plasmatron. The experimental procedure is described. Electron fractograms of the flashing surface microrelief after manual and mechanical plasma cutting are presented and analyzed in relation to the degree of their defectiveness and influence on surface quality. The results show that: 1) structures of flash cut edges after mechanical cutting are more favorable than those after manual cutting; 2) mechanical cutting ensures a finer cut surface than manual cutting; 3) a statistical evaluation of microrelief varieties is necessary for a more objective and reliable determination of flashing edge quality. 3 figures, 10 references.

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USSR

UDC 539.376+532.135

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

"Extrusion-Rheological Properties of Commercial Asbestos Materials"

Sb. nauch. tr. Yaroslavl. tekhnol. in-t (Collection of Scientific Works of Yaroslavl 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.

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USSR

VESECHEV, A. A., SHANIN, N. P.

UDC 539.376+532.135

"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.

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1/2 024

UNCLASSIFIED

PROCESSING DATE--090C170

TITLE--CHEMILUMINESCENCE IN HYDROCARBON OXIDATION IN SOLUTION.
QUANTITATIVE STUDY OF THE EXCITATION AND EMISSION STEPS -U-

AUTHOR--(02)-GELYAKOV, V.A., VESILEV, R.F.

COUNTRY OF INFO--USSR

SOURCE--PHOTOCHEM. PHOTOBIOLOG. 1970, 11(3), 179-92

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CHEMILUMINESCENCE, HYDROCARBON OXIDATION, CARBONYL COMPOUND,
ACETOPHENONE, CYCLOHEXANONE, EXCITED STATE, VIBRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1992/1819

STEP NO--UK/0000/70/011/003/0179/0192

CIRC ACCESSION NO--AP0112803

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0112803

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHEMILUMINESCENCE OBSD. IN THE
VISIBLE REGION DURING THE OXIDN. OF HYDROCARBONS IN LIQ. PHASE RESULTS
FROM PEROXY RADICAL DISPROPORTIONATION, THE EMITTER BEING A CARBONYL
COMPD. IN THE TRIPLET STATE. A NO. OF EXAMPLES OF ENERGY TRANSFER FROM
CARBONYL COMPD. (SUCH AS ACETOPHENONE AND CYCLOHEXANONE) TO
HYDROCARBONS WERE EXAMD. EXCITATION YIELDS WERE CALCD. FROM THE RATE
CONSTS., EMISSION YIELDS, INTENSITIES, AND REACTION RATES. COMPETING
PROCESSES DEPENDENT ON TRANSFORMATION OF CHEM. ENERGY INTO VIBRATIONS
ARE ELECTRONIC EXCITATION OF THE CARBONYL COMPD., VIBRATIONAL EXCITATION
OF THE CARBONYL COMPD. IN THE GROUND STATE, AND REVERSE DECOMP. OF AN
INTERMEDIATE COMPLEX INTO PEROXY RADICALS. FACILITY: INST.
PHOTOSYN., PUSHCHINO ON OKA, USSR.

UNCLASSIFIED

1/2 015

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--TUMORS AND CYSTS IN REPTILES DUE TO FOWL SARCOMA VIRUS -U-

AUTHOR--(03)-VESKOVA, T.K., TRUBCHENINOVA, L.P., DUK, I.L.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 2, PP 217-220

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TUMOR, REPTILE, VIRUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1990/0737

STEP NO--UR/0402/70/000/002/0217/0220

CIRC ACCESSION NO--AP0108943

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0108943

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT WAS PREVIOUSLY SHOWN IN OUR LABORATORY THAT SOME REPTILES (ERIX TATARICUS AND ESTUDO HORSFIELDI) WERE SUSCEPTIBLE TO FOWL SARCOMA VIRUS, THE SCHMILT-RUPPIN STRAIN. IN THIS STUDY, PATHOGENICITY OF FOWL SARCOMA VIRUS FOR REPTILES (NATRIX NATRIX, NATRIX TESSELLATA, AGAMA SANGUINOLENTA, AGAMA ERYTHROGASTRA, VARANUS GRISEUS, EUMECES SCUTATUS, EREMIAS PERSICA, EREMIAS VELOX, GYMNOCHYTILUS FEDTSCHENKOVII) AND AXOLOTLAS WAS INVESTIGATED. THE VIRUS WAS SHOWN TO BE ONCOGENIC NOT ONLY FOR TORTOISES AND SNAKES BUT ALSO FOR LIZARDS. INOCULATION WITH THE VIRUS OF YOUNG BOAS RESULTED IN DEVELOPMENT OF CYSTS IN THE SUBMAXILLARY AREA. SARCOMA PRODUCED BY THIS VIRUS IN AN ADULT BOA APPEARED TO CONTAIN INCOMPLETE FORM OF THE ONCOGENIC VIRUS.

UNCLASSIFIED

USSR

VEGNITSKIY, B., STUPAK, D.

"New Pulse Diodes"

Radio, No 6, June 1972, pp 57-58

Abstract: The diodes KD503V and D219S are described. The KD503V is a diffusion silicon pulse diode intended for use in electronic computers as a switching unit for pulse device with a short duration of pulses (tens of nanoseconds). It can also be used for detection, rectification, damping, voltage stabilization, and other purposes. As contrasted with the KD503A and KD503B diodes, the KD503V has better characteristics with respect to capacitance and reverse current. The basic electrical parameters of the KD503A, KD503B, and KD503V are discussed, curves of the distribution of the actual values of the KD503V parameters are presented, and the construction of the KD503V is described. The D219S is a silicon alloy-type pulse diode which can be used as a switching unit for pulse devices with a short duration of pulses (microseconds and fractions of microseconds) -- e.g., in logical circuits of electrical computers. Curves of the actual values of the diode's parameters are presented. 8 fig.

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1/2 038 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--SOYUZ 9 LAUNCHED AT NIGHT TO FACILITATE GEOGRAPHICAL, GEOLOGICAL
STUDIES -U-
AUTHOR--VESNYANKINA, L.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, SOTSIALISTICHESKAYA INDUSTRIYA, 11 JUNE 1970, P 3.
DATE PUBLISHED--11JUN70
SUBJECT AREAS--SPACE TECHNOLOGY
TOPIC TAGS--MANNED SPACECRAFT, SPACECRAFT LAUNCHING, TIME/(U)SOYUZ 9
MANNED SPACECRAFT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/1629 STEP NO--UR/0533/70/000/000/0003/0003
CIRC ACCESSION NO--AN0135258
UNCLASSIFIED

2/2 038

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AN0135258

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONTRARY TO CUSTOM, THE "SOYUZ 9" WAS LAUNCHED LATE IN THE EVENING. WHY WAS SUCH AN UNUSUAL TIME CHOSEN? THE FACT IS THAT THE FLIGHT PROGRAM OF "SOYUZ 9" IS FILLED WITH COMPLICATED SCIENTIFIC AND TECHNICAL EXPERIMENTS. THE SCHEDULE CALLS FOR A SERIES OF GEOLOGICAL GEOGRAPHICAL INVESTIGATIONS. IT IS NECESSARY THAT THE AREAS SUBJECT TO INVESTIGATIONS BE ILLUMINATED BY DAYLIGHT OR AT LEAST THE LIGHT OF EARLY EVENING. THEREFORE, THE LAUNCH TIME WAS COMPUTED "FROM THE END," SO TO SPEAK, AND THE ANSWER WAS 2200 HOURS. THE INTERESTS OF TELEVISION VIEWERS SUFFERED SOMEWHAT, BUT THE SPACECRAFT IS AFTER ALL A SCIENTIFIC RESEARCH LABORATORY.

UNCLASSIFIED

USSR

VESTVUD, A.

UDC 539.374

"Effect of Adsorption on Hardness and the Mobility of Dislocations Close to the Surface of Nonmetals"

V sb. Mikroplastichnost' (Microplasticity -- Collection of Works), Moscow, "Metallurgiya", 1972, pp 301-315 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V523)

Translation: The change in microhardness caused by adsorption is described and the effect of adsorption of water, complex ions and organic molecules on the behavior of dislocations in the near-surface layer in metals and in ionic and covalent solids is discussed. It is shown that the hardness and mobility of dislocations as a function of the specific solid-surrounding medium system can be decreased or increased. An explanation of these effects is given. 52 ref. Author's abstract.

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UDC 621.375.82

USSR

VETKIN, V. A., KHROMYKH, A. M.

"Longitudinal Mode Competition in a Ring Laser with an Isotropic Resonator"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 3, Moscow, Soviet Radio, 1972, pp 59-68 (from RZh-Fizika, No 12, Dec 72, Abstract No 12D900)

Translation: A theoretical study was made of a ring laser in a longitudinal magnetic field when the anisotropy of the resonator is purely circular. A study was also made of the four-wave mode of generation. Two cases are possible here: the first, in which two pairs of counter, identically polarized circular waves are generated, and a second case, in which two orthogonal pairs of waves are generated. The nonlinear interaction of the traveling wave and the stability of both modes were investigated. Consideration of the structure of the operating levels leads to the fact that in the investigated model the nature of the interaction of the counter waves of different modes differs qualitatively from that obtained by means of the scalar Lamb model for analogous, linearly polarized waves. The interaction of the traveling waves turns out to be such that independently of the structure of the operating levels the condition of stability of the four-wave

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USSR

VETKIN, V. A., KHROMYKH, A. M., V sb. Kvantovaya elektronika (Quantum Electronics-- collection of works), No 3, Moscow, Soviet Radio, 1972, pp 59-68

mode is violated only for an intermode spacing of the same order as the magnitude of the uniform width of the operating transition line. Here, depending on the type of transition, the four-wave mode converts to single mode or the generation conditions of one wave in each mode. The bibliography has 10 entries.

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1/2 043 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--INFRARED EQUIPMENT OF METEOR SYSTEM SATELLITES -U-
AUTHOR--VETLOV, I.P., YEREMIN, V.P., LISTRATOV, A.V., RODIONOV, V.T.
COUNTRY OF INFO--USSR
SOURCE--METEOROLOGIYA I GIDROLOGIYA, 1970, NR 4, PP 80-91
DATE PUBLISHED-----70
SUBJECT AREAS--SPACE TECHNOLOGY, NAVIGATION
TOPIC TAGS--IR SENSOR, ATMOSPHERIC CLOUD, SPACECRAFT CARRIED EQUIPMENT,
METEOROLOGIC SATELLITE/(U)METEOR METEOROLOGIC SATELLITE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1041 STEP NO--UR/0050/70/000/004/0030/0001
CIRC ACCESSION NO--AP0104439
UNCLASSIFIED

2/2 043

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104439

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INFRARED EQUIPMENT OF METEOR SYSTEM SATELLITES DESTINED FOR TRACING THE CLOUD DISTRIBUTION OVER THE HIGH AND DAY SIDES OF THE EARTH IS BEING DESCRIBED. PRINCIPLES OF OPERATION OF THE EQUIPMENT, AN OPTICAL SCHEME OF THE ON BOARD RECEIVING DEVICE, A BLOCK SCHEME OF THE GROUND PHOTO RECORDING DEVICE, THE BASIC PARAMETERS AND CHARACTERISTICS OF THESE DEVICES ARE CONSIDERED. THE RESULTS OF INTERPRETATION OF THE INFORMATION OBTAINED ARE DISCUSSED.

UNCLASSIFIED

USSR

VETLUTSKIY, V. N., GOMON, N. V.

"Calculation of the Boundary Layer on a Triangular Wing Washed by a Supersonic Air Stream at an Angle of Attack"

Teplo. i Massoperenos. T. 1. [Heat and Mass Transfer, Vol 1 -- Collection of Works], Minsk, 1972, pp 165-174, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 B721, by A. V. Bashkin).

Translation: A theoretical study is presented of the development of a three-dimensional laminar boundary layer on a sharp cone, washed by a supersonic stream of gas at an angle of attack. Due to the conical nature of the external flow, integration of the Prandtl equations is reduced to the two-dimensional problem, which is solved numerically by the method of finite differences using an implicit system based on a 6-point model. As an example, a cone is studied with ellipticity factor $\delta = 3$ and peak angle $\chi = 75^\circ$, washed by a flow of an ideal gas at Mach number $M_\infty = 7$ and angle of attack $\alpha = 30^\circ$.

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USSR

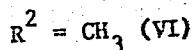
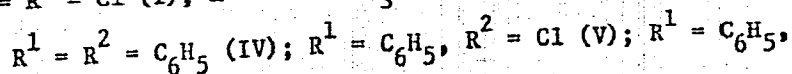
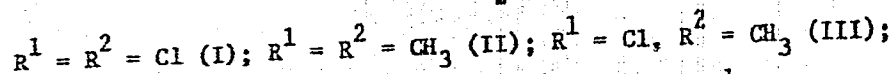
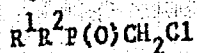
UDC 541.5:547.1'118

RAYEVSKIY, O. A., KHALITOV, F. G., VERSCHCHAGIN, A. N., VEPLUNZHSKIKH, I. M.,
 Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov of the USSR
 Academy of Sciences

"Conformational Analysis of Some Compounds Containing the P(O)CH₂Cl Group"

Moscow, Izvestiya Akademii Nauk SSR -- Seriya Khimicheskaya, No 11, 1972,
 pp 2446-2450

Abstract: A study was made of six compounds containing the PCH₂Cl groups: the dichloroanhydride of chloromethylphosphonic acid (I), dimethyl (chloromethyl) phosphine oxide (II), the methyl(chloromethyl)phosphonic acid chloride (III), diphenyl(chloromethyl)phosphine oxide (IV), phenyl(chloromethyl)phosphonic acid chloride (V) and phenylmethyl(chloromethyl)phosphine oxide (VI)



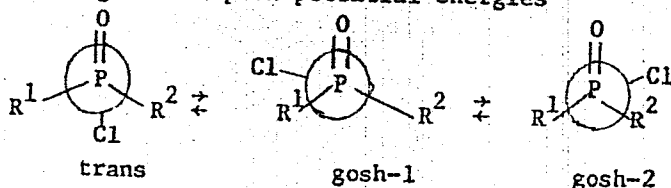
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USSR

RAYEVSKIY, O. A., et al., *Izvestiya Akademii Nauk SSR -- Seriya Khimicheskaya*, No 11, 1972, pp 2446-2450

On rotation around the P-C bond three positions of the C-Cl bond are possible corresponding to the peak potential energies



The infrared spectral data, the dipole moments and the Kerr constant were used to investigate the spatial structure of the compounds containing the $P(O)CH_2Cl$ group. Equilibrium of the gosh and trans-conformers the position of which depends on the nature of the substitutions on the phosphorus atom is characteristic of all the investigated compounds in solution. The factors causing the energy stability of the conformers were evaluated quantitatively. In the absence of bulky substitutions the electrostatic interactions play the defining role. The frequency of the valence oscillations of the phosphoryl group depends on the spatial orientation of the irregular group.

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USSR

KAFAROV, V. V., VETOKHIN, V. N., BOYARINOV, A. I.

"Programming and Computer Methods in Chemistry and Chemical Technology"

Programmirovaniye i Vychislitel'nyye Metody v Khimii i Khimicheskoy Tekhnologii [English Version Above], Moscow, Nauka Press, 1972, 487 pages (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V709K).

Translation: This book studies problems of the application of computer equipment for the solution of problems in chemistry and chemical technology. The principles of programming and elements of computer mathematics are presented in readable form, as well as certain general problems of the preparation of chemical and technological problems for computer solution.

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- 107 -

Acc. Nr:

AP0052447

Abstracting Service;
CHEMICAL ABST. 5/70

Ref. Code:

U R O 455

104477p Calculating the vapor-liquid equilibrium for multi-component systems. Kafarov, V. V.; Boyarnov, A. I.; Litsenko, V. A.; Vetokhin, V. N. (Mosk. Khim.-Technol. Inst. im. Mendeleeva, Moscow, USSR). *Teor. Usn. Khim. Tekhnol.* 1970, 4(1), 63-72 (Russ). A program for computing the vapor-liq. equil. in multicomponent systems is described. The 1st part of the algorithm is aimed at establishing the parameters A of the Wilson equations. Expressions are given for the activity coeff. of an arbitrary component of a multicomponent system and for detg. the parameters A from exptl. binary equil. data of all pairs of components participating in the vapor phase of the multicomponent system. The soln. is obtained by the method of successive approxs. and checked by the sum of the squares of deviations of the equil. systems from the data obtained exptl. for several control points. The functional dependence of the vapor pressure of the pure components on the temp. is approxed. either by using $P_i^0(t) = a_0 + a_1t + a_2t^2 + a_3t^3 + \dots$, or by the Antoine equation. The trend of calcd. unknown parameters is checked by use of a minimizing function. The systems studied were: Me₂CO-CHCl₃-EtOH; EtOH-methylcyclopentane (I)-benzene, and hexane-I-EtOH-benzene. Complete ALGOL programs are given for calcg. the parameters A and the compns. of the vapor phase of a binary system at const. pressure and of the vapor phase of a multicomponent mixt. at a given temp. Exptl. and calcd. data are tabulated.

M. Selucky

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USSR

UDC 535.343.31

STYRIKOVICH, M. A., Academician, YUKHNEVICH, G. V., VETROV, A. A., and VIGASIN, A. A., High-Temperature Institute, Academy of Sciences USSR, Moscow

"Molecular Composition of High-Density Water Vapor and Some of Its Thermodynamic Properties"

Moscow, Doklady Akademii Nauk SSSR, Vol 210, No 2, 1973, pp 321-323

Abstract: Measurements previously performed by the authors on the fraction of monomeric molecules in superheated vapor showed that the degree of dissociation sharply changes as the vapor density increases and therefore it has to be considered in an analysis of the vapor properties. The present article continues the study of the formation of associates in high-density water vapor and analyzes the effect of such complexing on the enthalpy and entropy of water vapor. For this purpose a series of measurements were taken of the fraction of monomeric molecules in vapor at pressures from 27 to 180 ata and a temperature of 360° C. The size of the associate was found, and a comparison was made of tabular water-vapor enthalpy and entropy data with calculated data for a mixture of ideal monomeric and dimeric gases. The results

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USSR

STYRIKOVICH, M. A., et al., Doklady Akademii Nauk SSSR, Vol 210, No 2, 1973, pp321-323

indicate that the degree of association of water molecules in superheated vapor found by spectral measurements plays a very important role in explaining not only its thermodynamic potentials, but also a whole series of other thermophysical properties.

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USSR

UDC 539.395

LOZITSKIY, L. P., VETROV, A. N.

"Certain Problems in Studying the Longevity of High-Temperature Alloys Under the Interaction of Mechanical and Thermal Fatigue Processes"

Sb. nauch. tr. Kiyev. in-t inzh. grazhd. aviatsii (Collection of Scientific Works of the Kiev Institute of Civil Aviation Engineers), 1971, No. 1, pp 91-97 (from RZh-Mekhanika, No 12, Dec. 71, Abstract No 12V1529)

Translation: A technique is presented for studying the longevity of structural heat resistant sheet materials under the simultaneous occurrence of mechanical and thermal fatigue processes. The construction of the test stand on which the sample is subjected to cyclic bending deformations is described in detail. The sample is heated by the transmission of electric current then cooled by an air blast. It is shown that this complex loading regime can be reduced to a certain simple equivalent regime consisting of a regime of loading with a constant normalized static stress with an additional vibration load at constant temperature. The order of calculating the values of the static stress and temperature is presented, assuming the principle of linear summation of the $1/2$

1/2 010 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--THE IVAN KOTLYAREVSKIY IS READY TO TAKE OFF -U-
AUTHOR--~~VIETROV, D.~~ ✓
COUNTRY OF INFO--YUGOSLAVIA, USSR
SOURCE--LITERATURNAYA GAZETA, JULY 29, 1970, NR 31, P 1, COLS 6-7
DATE PUBLISHED--29JUL70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--SHIPYARD, SHIPBUILDING ENGINEERING, CARGO SHIP
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/0914 STEP NO--UR/9036/70/000/031/0001/0001
CIRC ACCESSION NO--AN0122958
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

272 010

CIRC ACCESSION NO--AN0122958

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACCORDING TO THE ARTICLE, A YUGOSLAV SHIPYARD, THE "ULYANIK", BUILT FOR THE SOVIET UNION A MERCHANT MARINE FLEET WHOSE SHIPS ARE NAMED FOR SOVIET WRITERS. THESE SHIPS ARE, THE "ARKADIY GARDAR", THE "DMITRIY GULIYA", THE "NAZYM KHIKMET", THE "ALEKSANDR GRIN". THE LAST SHIP CONSTRUCTED IN THIS SERIES WAS THE 14,000 TON CARGO CAPACITY "IVAN KOTLYAREVSKIY". THE CONSTRUCTION OF THE "KONSTANTIN PAUSTOVSKIY" AND THE "GAMZAT TSADASA" IS TO BE COMPLETED IN THE FALL AND ENXT SPRING, RESPECTIVELY.

UNCLASSIFIED

Acc. Nr.: AM0104087

Ref. Code: 4R0000

Kuznetsov, A. A.; Alifanov, O. M.; Vetrov, V. I.; Zolotov, A. A.; Titov, M. I.
Probability Characteristics of Strength of Aircraft Materials and Dimensions of
an Assortment (Veroyatnostymye kharakteristiki prochnosti aviatsionnykh mate-
rialov i razmerov sortamenta) Manual, Moscow, Mashinostroyeniye, 1970, 565 pp
(SL:2007)

TABLE OF CONTENTS:

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II	Probability Characteristics of the Strength of Materials	3
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	...The manual contains tables of mathematical expectations, mean square	6
	deviations of the tensile strength and yield point, relative elongation and	9
	probability characteristics of sheet thickness, cross-section areas of shapes	417
	and thickness of tubes from nonferrous alloys and steels.	566
	The book was written for designers and calculators employed by the	
	aircraft industry and other machine-constructing branches.	

Reel/Frame
19870480

18KZ

USSR

UDC 632.4:633.1(47+57)

VETROV, YU. F., KORSHUNOVA, A. F., MORSHCHATSKIY, A. A., KHOZHRYAKOV, M. K., and CHULKINA, V. A., All-Union Institute of Plant Protection, Leningrad, Irkutsk Agricultural Institute, All-Union Scientific Research Institute of Corn, Dnepropetrovsk, Altai Mountain Agricultural Experimental Station

"Root Rot of Grain in the USSR"

Leningrad, Mikologiya i Fitopatologiya, Vol 5, No 2, 1971, pp 148-155

Abstract: This is a comprehensive literature review of Soviet work in the field of grain root rot. During the last ten years, knowledge about root rot in wheat and other cereals has gradually increased. More than 55 works on this subject were published or submitted for publication in the USSR. Root rot occurs in zones of insufficient or unstable humidity. In the Irkutsk region 12.2-42.3%, and in some cases as much as 61.3-67.3% of the spring wheat is annually infected with root rot, whereas in the Saratov region, the losses are 0.5-4.0% and, in extreme cases, 7.0-10.0%. Losses in other areas of the Soviet Union are enumerated, together with the appropriate references. *Helminthosporium sativum* and *Fusarium avenaceum* were isolated in Eastern

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VETROV, YU. F., et al., Mikologiya i Fitopatologiya, Vol 5, No 2, 1971,
pp 148-155

Siberia, as well as in the central steppes of the Ukraine, on many wild and cultivated grains, and *Ophiobolus graminis*, which attacks many grain cereals and is found also on corn root. *O. graminis* can survive in the soil for more than 10 years.

2/2

USSR

UDC 632.938 (477.73)

VOLODIN, N., Chief of Nikolayevskaya Oblast Plant Protection Station and
VETROVA, O., Station Agronomist

"Biolaboratory Operating Experience"

Moscow, Zemledeliye, No 6, 1970, pp 52-53

Translation: For the first time in 1969, kolkhozes of our oblast treated 21,500 hectares of seeded and fallow land with Trichogramma against the turnip moth and other plant-chewing cutworms.

Of course, this figure is still very inconsequential, but in the next two or three years the farms of the oblast plan to treat hundreds of thousands of hectares with entomophages.

It is hardly necessary to prove the necessity of extensively using this method of fighting agricultural pests, and further developing and improving it.

In the southern, steppe rayons where many species of chewing cutworms, cornborers, and Eurygaster are widespread, a chemical attack on them is not always effective. The use of entomophages there is very promising.

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VOLODIN, N., et al, Zemledeliye, No 6, 1970, pp 52-53

Taking this into consideration, in November 1968 the executive committee of the Nikolayevskaya Oblast Soviet of Workers' Deputies adopted a resolution establishing 16 interkolkhoz and six intersovkhoz biolaboratories, one for each administrative rayon, during 1969-1970. Fourteen interkolkhoz biolaboratories are already in operation.

Expertise in organizing them was borrowed from Kirovogradskaya Oblast, where such laboratories existed already in the prewar period.

Biolaboratories are cost accounting organizations. They are directed by a rayon Soviet which is selected by a meeting of authorized kolkhozes. As a rule, the chairman of the Soviet is the chief agronomist of the rayon agricultural production administration, or the head of the biolab.

The interkolkhoz biolaboratory services the kolkhozes of the rayon. State farms may also enter into it.

The fixed capital of the biolaboratory in the first stage is from fees paid by the kolkhozes, collected at an average rate of 30 kopecks per hectare of tillable land.

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VOLODIN, N., et al, Zemledeliya, No 6, 1970, pp 52-53

At the beginning of 1969, the Kirovogradskaya Oblast biolaboratory produced base material for Sitotroga, which was transmitted for further reproduction. Parallel with producing Sitotroga, the lab proceeded with reproduction of Trichogramma. In 1969, the biolaboratories gathered 17.1 kilograms of eggs of the grain moth Sitotroga, of which 1.8 kilograms was used for further contamination of grain, and 13.2 kilograms for reproduction of Trichogramma. The remaining biomaterial was sold to other laboratories. During the entire technological process the laboratories raised 525.4 million units of Trichogramma, of which 368 million were used for treating planted fields and 137.5 million for contaminating Sitotroga.

Fields were treated on 95 farms in nine rayons. Trichogramma entomophages were released on bare fallow land for use against the turnip moths and also against stalk corn borers, cabbage cutworms and moths, at an average rate of 17,000 (from 10,000 to 25,000) individuals per hectare. The number depended on the crop which was being seeded and the degree of contamination of the field.

In the course of the summer, 19,400 hectares of fields designated for winter crop seeding (including 18,200 hectares of bare fallow and 1,200 hectares

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USSR

VOLODIN, N., et al., *Zemledeliye*, No 6, 1970, pp 52-53

of stubble, 1,600 hectares of corn, 400 hectares of sugar beets, and about 200 hectares of vegetable crops and fruit plantings were treated. Of this, 19,800 hectares were treated against the turnip moths, 1,600 hectares against stalk corn borers, and 100 hectares against the cabbage cutworm and moth.

In working with *Trichogramma*, the conditions recommended in the directions of the Ukrainian Scientific Research Institute for Plant Protection were followed.

Preliminary data allow us to draw the conclusion that a considerable number of pests have perished due to *Trichogramma*. For example, 42% of the pests perished at the Rodyan'ska Ukraina Kolkhoz, Veselinovskiy Rayon, in stubble treated with *Trichogramma*, 38.5% on fallow land at the Druzhba Kolkhoz, and 58.3% at the Pobeda Kolkhoz. At the Zavet Il'icha Kolkhoz, Kanankovskiy Rayon, on bare fallow land treated with *Trichogramma*, 69.2% of turnip moths perished, while none of the pests perished on fallow land not treated with *Trichogramma*. The corresponding figures were 65.4% and 3.6% for the Kolkhoz imeni Petrovskiy, and 71.2% and 1.9% at the Kolkhoz imeni Lenin.

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VOLODIN, N., et al, *Zemledeliye*, No 6, 1970, pp 52-53

The effectiveness of *Trichogramma* in kolkhozes of Vradiyevskiy, Domanevskiy, Voznesenskiy, and Pervomayskiy rayons was also calculated, where approximately the same results were achieved.

From three to 13 men were occupied in releasing *Trichogramma* at the farms. The average output norm was 30 hectares per day. *Trichogramma* was sold to kolkhozes at 50 kopecks per 10,000 units. Treating one hectare of bare fallow land cost an average of 57 kopecks, while for corn it was one ruble 32 kopeks (releasing 25,000 units per hectare). This is considerably cheaper than chemical treatment. Corn was treated in June and August, and bare fallow land from the second week in August. All work in applying *Trichogramma* was completed by August 25.

The operating experience of the biolabs in 1969 demonstrated that, even with insufficient equipment and apparatus, they are still able to raise and apply *Trichogramma* and *Telenomus*.

We are now taking measures to increase the productive capacities of the biolabs. On order from the rayons, the Nikolayevskaya Oblast Kolkhoz Designing Institute developed plans for construction of biolaboratories. Four of them,

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VOLODIN, N., et al., *Zemledeliye*, No 6, 1970, pp 52-53

Vradiyevskaya, Novoodesskaya, Voznesenskaya, and Pervomayskaya, will be built during the current year.

Next season, the laboratories will be able to treat about 100,000 hectares of plantings against chewing cutworms, cornborers, and codling moths, and a considerable area of plantings of grain crops against chinch bugs.

The expenses now being incurred by biolaboratories for obtaining equipment and staff are high for the time being. However, they will be paid back rapidly. Calculations show that in just three years each biolaboratory will be able to have an annual income that covers expenses for raising and applying entomophages, and part of their capital can be allotted to replenishing fixed assets and expanding production capacities. Every year the cost of treatment will go down.

However, despite the broad scope which the biological method of plant protection is beginning to receive in production, there is still not sufficient attention to it on the part of specialized institutes. During one year of operation, our biolaboratories did not receive a single request, advice, or recommendation from any Ukrainian institute.

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VOLODIN, N., et al, Zemledeliye, No 6, 1970, pp 52-53

At the present time we have an approximate method for breeding Trichogramma, and an imperfect, complicated method for breeding Telenomus. This is, of course, very little.

It is stated in the press that biolaboratories in our country are working on the cultivation and application of other entomophagases. The All Union Scientific Research Institute of Phytopathology worked out recommendations for breeding and application of the predatory Phytoseyulius mite for the struggle with spider mites in the protected soil for cucumbers, and the Samarkand State University has a way of using Phytomyza in the campaign against Egyptian broom rape. But these methods have been poorly publicized.

It seems to us that it has become necessary to organize active seminars or courses for training biolab workers, and also to publish an information bulletin where laboratories could share operating know-how and receive advice on breeding and applying entomophages.

7/7

USSR



UDC 621.371.1:550.388.2

VETSHEV, Zh. N.

"Frequency and Distance Dependence of Transmission Losses in the Case of Propagation by Ionospheric Scattering"

Tr. Sib. fiz.-tekhn. in-ta pri Tomskom un-te (Works of the Siberian Physicotechnical Institute Associated With Tomsk University), 1970, vyp. 53, pp 148-156 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10A159)

Translation: Experimental data are cited and used as a basis for selection of a spectral function which describes the nonhomogeneous properties of the lower ionosphere (the D region). The spectral function is used to establish relationships between the parameters of the nonhomogeneous ionosphere and a function which characterizes transmission losses during propagation as a function of the working frequency and radio wavelength. Calculation by the resultant formulas gives satisfactory agreement with experiment. Resumé.

VETTEGREN, V. I.

physics mech / metallurgy

VETTEGREN, V. I.

physics/mechanics / metallurgy

THE MECHANICS AND PHYSICS OF DESTRUCTION
(All-Union Conference in Moscow)

(Article by Candidate of Technical Sciences, N. V. Kolkunov, Moscow, Vestnik Akademii Nauk SSSR, Russian, Vol 40, No 11, November 1970, pp 155-156)

The regular Fifth All-Union Conference on Strength and Mechanics, held in Moscow on 22-25 June, was devoted to the over 700 scientific workers of destruction. Participating in it were and also specialists from Hungary, East Germany, Poland and Czechoslovakia.

Twenty-four scientific reports were presented. Attention was drawn to the mechanics of brittle destruction which aroused great interest by the breadth of analytical mathematical questions of strength. V. V. Bolotin, by him as a random Markovian process. Destruction of form-states and continuous time. The process of destruction of scope fissure was modeled. The process of spread of discrete tests of a number of different conditions of loading, with various prescribed initial damages.

V. V. Moskvitin analyzed qualitative features of a criterion of long-term strength of the type of Ilyushin's non-linear criterion, which is a generalization of Bailey's condition of accumulation of damages. The report of I. I. Gol'denshteyn and V. A. Kopnov was devoted to a general theory of the concept of strength of isotropic and anisotropic materials. Side by side with the main conditions and anisotropic materials. Side by side with the limiting surface, reality of the limiting state (con- etc), various geometric interpretations of them were examined.

SPS 52277
Abstract of the USSR Academy of Sciences, Vol. 40, No. 11, 1970

In the report of Yu. N. Esbortov the process of creep was described up to the moment of destruction. The process itself was treated as viscous flow accompanied by structural changes. The reporter proposed establishing kinetic equations of the development of damageability through macroexperiment.

Recently, scientists have been giving more and more attention to the problem of brittle and quasibrittle destruction. P. Gherpanov presented a report on the linear mechanics of growth of fissures (he dealt with certain questions connected with mechanism, chemico-mechanical effects, etc.). G. showed that the values characterizing the electrochemical a material, when the time effects are substantial, the electrochemical deformation, the phenomenon of pre-destruction, do not remain constant. He described a model for which the time effects during observations of the destruction of fibrous materials, etc. have been taken into account. S. T. Kizlyo told about experimental data on the destruction of fibrous materials. He characterized distinctive features of the destruction of those materials under conditions of high temperatures, cyclical loads, etc.

A number of reports dealt with various aspects of fatigue destruction during cyclical loading. S. V. Sorenson regarded the cyclical loading of metal as the deformation of a heterogeneous polycrystalline conglomerate which is described by a plastic and viscous properties. V. P. Kogayev developed a character. Attempts to link those two approaches and a kinetic character. Attempts to link those two approaches and a kinetic character. Attempts to link those two approaches and a kinetic character. Attempts to link those two approaches and a kinetic character.

The report of G. S. Pisarenko was devoted to distinctive features of the work of materials in the presence of thermal fatigue and thermal fatigue. As the basic criterion of thermal fatigue and thermal fatigue. As the basic criterion of thermal fatigue and thermal fatigue. As the basic criterion of thermal fatigue and thermal fatigue.

thermostructural theory of destruction. In the report of N. Zhurkov and P. Z. Etkhin, the destruction of solids was treated as a kinetic process. The dependence of strength on the atomic bonds. As a result of experimental study of the dependence of strength during uniaxial stretching study of polymers, the presence of a single time and temperature dependence was established, and it has been verified not only for metallic but also for nonmetallic materials. The report of S. M. Zhurkov, S. Aleksenko and A. I. Slutsker. The report of S. M. Zhurkov, V. Ye. Korshak, where the kinetics of polymer destruction was macrofissures of separate macromolecules before the appearance of the molecular level of the destruction. The report of S. M. Zhurkov, V. Ye. Korshak and V. I. Vetterli, attempted to study on the fissures. On the basis of the spectrum of frequencies of the atoms entering the process accompanying the growth of the macrofissures, the spectrum of frequencies of the growth of the macrofissures at the apex of the polymer molecules of vibrations which consist of the kinetics of growth of the main fissures. The report of I. V. Adil'man and A. N. Orlov showed that the local stresses at finite temperatures occur through the generation of several types of local stresses and several times less than the critical temperature. Attention was attracted by the survey report of V. L. Gerasimov and A. N. Orlov on the problem of destruction in the physics of temperature fluctuations. In the statements, note was made of the role of the importance of dislocation accumulations of destruction in the generation of microfissures.

At the conference, reports of an engineering nature were heard, reports connected with the solution of certain problems of strength and the optimal reinforcement of shells of rotation of oriented plastic glasses. A. A. Il'inskiy examined problems of carbon fibers and composition of the mechanism of destruction. The report of G. P. Gerasimov, A. B. Kaplan and L. P. Kiselev, the dimension and form of the influence of such residual stresses on the brittle strength of welded bodies.

The reports and the discussion of them showed that investigations on the physics and mechanism of destruction have been considerably expanded. As a result our concepts of the nature of destruction and spread of fissures, etc., have been made much deeper. Successes have been achieved in the area of the phenomenological theories of accumulation of damages and destruction under loads.

USSR:

UDC 678:539.26

KORSUKOV, V.YE., VETTERGREN', V.I. (Leningrad), Physicotechnical Institute
imeni A.F. Ioffe, Academy of Sciences, USSR

"The Measurement of Stresses at the Apex of Main Cracks in Polymers by the
Spectroscopic Method"

Kiev, Problemy Prochnosti, No 2, 1971, pp 51-54

Abstract: An attempt was made to determine the stresses on the interatomic
bindings at the apex of a main crack for loaded polymers. The stress was
evaluated on the basis of the shift of the natural-oscillation frequency of
the skeleton of polymer chains under a load. It turned out that the external
load is distributed nonuniformly along the chemical bindings. The majority
of the bindings is equally loaded, the value of the stresses upon them is
6-10 times greater than the external stress. At the same time, there is a
small number of bindings, the load upon which is several hundred times
greater than the external stress. 4 figures, 2 tables, 12 bibliographic
entries..

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1/2 042

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--LOWER ATMOSPHERE OF VENUS FROM RADIO ASTRONOMICAL AND SPACE MEASUREMENTS -U-
AUTHOR--(04)-KUZMIN, A.D., NAUMOV, A.P., SMIRNOVA, T.V., VETUKHNOVSKAIA, YU.N.
COUNTRY OF INFO--USSR

SOURCE--PLENARY MEETING. 13TH LENINGRAD, USSR, MAY 20-29, 1970, PAPER. 11P.
DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS, ATMOSPHERIC SCIENCES

TOPIC TAGS--VENUS PLANET, PLANETARY ATMOSPHERE, ATMOSPHERIC MODEL, RADIO ASTRONOMY, RADAR OBSERVATION, LOWER ATMOSPHERE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0548

STEP NO--UR/0000/70/000/000/0011/0011

CIRC ACCESSION NO--AT0126295

UNCLASSIFIED

2/2 042

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0126295

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

ABSTRACT. DISCUSSION OF TWO MODELS FOR THE LOWER ATMOSPHERE OF VENUS TAKING INTO ACCOUNT AN ANALYSIS OF RADIO ASTRONOMY AND RADAR MEASUREMENTS BASED ON DATA OF THE SOVIET SPACECRAFT VENERA 5 AND 6. THREE INDEPENDENT EVALUATIONS OF THE PRESSURE AND THE TEMPERATURE OF THE VENUS ATMOSPHERE ARE MADE. AN ADIABATIC MODEL WITH RELATIVE ABUNDANCE OF WATER VAPOR OF 0.5PERCENT AND A MODEL WITH AN ISOTHERMAL NEAR SURFACE REGION AT A TEMPERATURE OF 650DEGREEK ARE DESCRIBED.

FACILITY: AKADEMIIA NAUK SSSR, FIZICHESKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

1/2 049

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--THE PLANET VENUS UPDATED REVIEW OF INFORMATION ON VENUS -U-

AUTHOR--(02)-VETUKHNOVSKAYA, YU.N., KUZMIN, A.D.

COUNTRY OF INFO--USSR



SOURCE--MOSCOW, ASTRONOMICHESKIY VESTNIK, VOL. IV, NO. 1, 1970, PP. 8-23

DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS, SPACE TECHNOLOGY

TOPIC TAGS--PLANET VENUS, PLANETARY ATMOSPHERE, RADIO BRIGHTNESS
TEMPERATURE, RADAR REFLECTION, ELECTRON DENSITY, IONOSPHERE/(U)VENUS 4
VENUS PROBE, (U)VENUS 5 VENUS PROBE, (U)VENUS6 VENUS PROBE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/1298

STEP NO--UR/0454/70/004/001/0008/0023

CIRC ACCESSION NO--AP0110891

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2/2 049

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0110891

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ASTRONOMICAL OBSERVATIONS, THEORETICAL RESEARCH AND SPACE EXPLORATION OF RECENT YEARS HAVE MADE OBSOLETE BOOKS AND REVIEWS ON VENUS WHICH WERE PUBLISHED QUITE RECENTLY. THE AUTHORS HAVE DRAWN ON 95 RECENT SOURCES IN COMPILING THIS COMPENDIUM OF UP TO DATE INFORMATION ON THAT PLANET. PART I GIVES THE MOST RELIABLE DATA ON THE MOTION, MASS, SIZE, FIGURE AND TOPOGRAPHY OF VENUS. PART II IS CONCERNED WITH THE PLANETARY ATMOSPHERE (CHEMICAL COMPOSITION, TEMPERATURE AND PRESSURE, TEMPERATURE DIFFERENCE ON THE DAYTIME AND NIGHTTIME SIDES OF THE PLANET, CLOUDS, UPPER ATMOSPHERE). TABLE 1 GIVES VARIOUS DETERMINATIONS OF THE RADIUS OF THE VENUSIAN SURFACE; TABLE 2, CHEMICAL COMPOSITION OF THE VENUSIAN ATMOSPHERE AS MEASURED BY VENERA-4,5,6; TABLE 3, MEASUREMENTS OF THE DIFFERENCE IN BRIGHTNESS TEMPERATURES OF THE ILLUMINATED AND UNILLUMINATED SIDES OF VENUS AVERAGED OVER THE VISIBLE DISK. FIG. 1 SHOWS THE PROFILE OF THE SURFACE ELEVATION OF THE EQUATORIAL REGION OF VENUS; FIG. 1, MAP OF THE REFLECTIVITIES OF THE VENUSIAN SURFACE; FIG. 3, EXPERIMENTAL AND COMPUTED DEPENDENCE OF BRIGHTNESS TEMPERATURE OF VENUS ON WAVELENGTH; FIG. 4, EXPERIMENTAL AND COMPUTED DEPENDENCE OF EFFECTIVE CROSS SECTION OF RADAR REFLECTION ON WAVELENGTH FOR AN ATMOSPHERE CONTAINING 95PERCENT CO SUB2 AND 0.4PERCENT H SUB2O; FIG. 5, ELECTRON DENSITY DISTRIBUTION IN VERTICAL CROSS SECTION OF THE VENUSIAN ATMOSPHERE, DAYTIME AND NIGHTTIME SIDES. FACILITY: PHYSICS INSTITUTE ACADEMY OF SCIENCES USSR.

UNCLASSIFIED

USSR

UDC: 621.373.531

VETYUGOV, A. I., PLOTNIKOV, A. F.

"A Transistorized Shaper of Nanosecond Video Pulses From a Harmonic Oscillation"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi "Semiconductor Devices in Technical Electrical Communications--collection of works), Moscow, "Svyaz'", 1970, pp 195-197 (from EZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G204)

Translation: The authors consider the circuit of a shaper of nanosecond video pulses from a harmonic oscillation in the frequency range of 10-150 MHz. The results of an experimental study of a practical shaper circuit based on GT313A transistors are presented. Bibliography of four titles. Resumé.

1/1

Acc. Nr.: AP0040410

Ref. Code: TLR 0108

USSR

UDC 621.374.38
TPRS 50248

VETYUGOV A. I. and GUREVICH, V. E.

"Error Probability at the Detection of Fluctuating Pulses by Strobing Method"

Moscow, Radiotekhnika, Vol 25, No 1, Jan 1970, pp 40-43

Abstract: The error probability in the detection of fluctuating, in phase and duration, rectangular pulses in digital communication systems, by strobing method is considered. The relation between the error probability and statistical parameters of fluctuations and additive noises is investigated, with phase fluctuations of strobing pulses taken into account. A formula is derived which makes it possible to determine the probability of signal omission at arbitrary characteristics of the instant value distribution of additive noises, phase fluctuations of strobing and input pulses,

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AP0040410

as well as their durations. The dependence of the error total probability in the detection of the rectangular pulse on signal - noise ratio at the computer input is presented in a graph and a table. Original article has two figures and one table and five formulas.

19741871

USSR

✓ Communications

UDC 621.374.38

VETYUGOV, A. I., and GUREVICH, V. E.

"Error Probability at the Detection of Fluctuating Pulses by Strob-
ing Method"

Moscow, Radiotekhnika, Vol 25, No 1, Jan 1970, pp 40-43

Abstract: The error probability in the detection of fluctuating, in phase and duration, rectangular pulses in digital communication systems, by strobing method is considered. The relation between the error probability and statistical parameters of fluctuations of additive noises is investigated, with phase fluctuations of strobing pulses taken into account. A formula is derived which makes it possible to determine the probability of signal omission at arbitrary characteristics of the instant value distribution of additive noises, phase fluctuations of strobing and input pulses, as well as their durations. The dependence of the error total probability in the detection of the rectangular pulse on signal - noise ratio at the computer input is presented in a graph and a table. Original article has two figures and one table and five formulas.

1/1

USSR

UDC: 621.039.564.2

YEMEL'YANOV, I. Ya., VETYUKOV, V. N., KONSTANTINOV, L. V.,
NAZARYAN, V. G., PAVLOV, I. K., POSTNIKOV, V. V.

"Discrete Testing of Distributions of Power Output in Nuclear Reactor
Cores"

Moscow, Atomnaya Energiya, Vol 34, No 2, Feb 73, pp 75-79.

Abstract: This work presents a study of two methods of discrete testing of the distribution of power output: empirical and calculation-experimental. The first method, the engineering solution of the problem, is based on the use of simple empirical relationships produced in experiments involved in startup and initial operation of the first reactor of a given type; the second method is based on simultaneous use of the results of physical calculation and discrete measurements of the distribution of power output. The application of both methods is illustrated using data from the Beloyarsk Nuclear Power Plant. The methods for discrete testing of multi-dimensional distributions studied in this work are intended for use in the algorithms of the computers at nuclear power plants for testing of the distribution of power output. However, with slight changes, they can be used for other discrete measurement tasks as well.

1/1

1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--ALUMINUM OXYGEN BOND ENERGIES IN SOME CHELATE COMPOUNDS OF ALUMINUM
-U-
AUTHOR--(03)--MAY, L., VEVERE, I., STRAUSS, I.
COUNTRY OF INFO--USSR
SOURCE--LATV. PSR ZINAT. AKAD. VESTIS, KIM. SEV. 1970, (1), 118-19
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ALUMINUM COMPLEX, BOND ENERGY, MASS SPECTROMETRY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0670 STEP NO--UR/0464/70/000/001/0118/0119
CIRC ACCESSION NO--AP0119578
UNCLASSIFIED

2/2 013

CIRC ACCESSION NO--AP0119578
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT. THE ENERGIES OF THE AL-O BOND IN BETA OXOENOLATES AND BETA OXOENOLATOALKOXIDES ARE DETD. BY UTILIZING THE EMPIRICAL RELATION OF THE ENERGY OF THE IONIC RUPTURE OF THE AL-G BOND TO THE POLARIZABILITY OF THE BOND AND THE ELECTRONEGATIVITY OF THE AL ATOM. THE CALCD. ENERGIES AGREE WITH THE VALUES DETD. BY USING THE MASS SPECTROMETRIC METHOD.

FACILITY: INST. NEORG. KHIM., RIGA, USSR.

UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0113596

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWO NEW COMPOUNDS ARE OBTAINED AND IDENTIFIED FROM THE CONDENSATION OF MONOCHELATES (2,4-PENTADIONATO DIISOPROPOXIDE AND ETHYLACETOACETATO DIISOPROPOXIDE) OF AL WITH TRIETHANOLAMINE. THEY FORM PICRATES AS EASILY AS TRIETHANOLAMINE AND THEIR IR SPECTRA ARE REPORTED. FACILITY: INST. NEORG. KHIM., RIGA, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--CHELATE ALLYLATES OF ALUMINUM -U-
AUTHOR--(02)-MAY, L., VEVERE, I. ✓
COUNTRY OF INFO--USSR
SOURCE--LATV. PSR ZINAT. AKAD. VESTIS, KIN. SER. 1970, (1) 110-11
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--IR SPECTRUM, PROTON, MAGNETIC RESONANCE, ALUMINUM COMPLEX,
ACETOACETATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0429 STEP NO--UR/0464/70/000/001/0110/0111
CIRC ACCESSION NO--AP0107045
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107045

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPLEXES OF ALLYL ALC. (R₃H) WITH AL, HAVING THE GENERAL FORMULA L(R₂)AL(OR)SUB2 AL-(OR)L, WHERE L IS THE ANION OF THE ENOL FORM OF ACETYLACETONE OR ETHYL ACETOACETATE, WITH 1 BRIDGING OR GROUPS, ARE FORMED BY THE ACTION OF ALLYL ALC. ON METALLIC AL IN THE PRESENCE OF ACETYLACETONE OR ETHYL ACETOACETATE. FRESHLY PREPD., THESE COMPS. HAVE MOL. WTS. CORRESPONDING TO DIMERS, BUT UPON STORAGE THE MOL. WTS. INCREASE, CORRESPONDING POSSIBLY TO TRIMERIC STRUCTURES CONTG. 6 MEMBERED RINGS. THE IR AND PMR SPECTRA OF THESE COMPS. WERE STUDIED.

UNCLASSIFIED

1/2 008

UNCLASSIFIED

PROCESSING DATE--11SEP70
HYDROXYQUINOLINATES -U-

TITLE--PMR SPECTRUM OF BETA OXOENOLATO ALUMINUM, 8

AUTHOR--VEVERE, I.

COUNTRY OF INFO--USSR

SOURCE--LATV. PSR ZINAT. AKAD. VESTIS, KIM. SER. 1970, (1), 118

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MOLECULAR STRUCTURE, ALUMINUM COMPLEX, ORGANIC COMPLEX
COMPOUND, NUCLEAR MAGNETIC RESONANCE, QUINOLINE, PROTON RESONANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1989/0536

STEP NO--UR/0464/70/000/001/0118/0118

CIRC ACCESSION NO--AP0107141

UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107141

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONDENSATION OF MONO AND
DICHELATO(ACETYLACETON, AT(ETHYL ACETOACETATO)ISOPROPOXIDES OF AL WITH
8,QUINOLINOL (I) IN M XYLENE GAVE A SERIES OF MIXED BETA
OXDENOLATO,8,HYDROXYQUINOLINATO COMPLEXES OF AL. THE PROTON NMR SPECTRA
OF THESE COMPLEXES AS WELL AS OF AL 8,HYDROXYQUINOLINATE AND OF I WERE
MEASURED AT 60 MHZ IN CHCL SUB3 AND, IN ONE CASE, ALSO IN CCL SUB4, WITH
HEXAMETHYLDISILOXANE AS THE REF. COMPD. THE NMR SPECTRA OF THE
COMPLEXES WERE VERY COMPLEX AND THE RESOLN. WAS QUITE POOR IN MANY
CASES. HOWEVER, THE SPECTRA OF THE COMPLEXES WERE IN AGREEMENT WITH
THEIR PROPOSED STRUCTURES.

UNCLASSIFIED

1/2 006 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--CONDENSATION OF ALUMINUM ACETYLACETONATOBIS (ETHYL ACETOACETATE)
WITH PENTAERYTHRITOL TETAACETATE -U-
AUTHOR--(02)-VEVERE, I., MAYS, L. ✓
COUNTRY OF INFO--USSR
SOURCE--LATV. PSR ZINAT. AKAD. VESTIS, KIM. SER. 1970, (1), 120-1
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ORGANIC COMPLEX COMPOUND, ORGANORALUMINUM COMPOUND,
CRYSTALLIZATION, CONDENSATION REACTION, ACETATE, PENTAERYTHRITOL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1987/1082 STEP NO--UR/0464/70/000/001/0120/0121
CIRC ACCESSION NO--AP0104480
UNCLASSIFIED

2/2 006

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104480

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY CONDENSATION OF XX SUB2 PRIME AL (I) (WHERE X IS THE ENOLATE ANION OF ACETYLACETONE AND X PRIME THAT OF ET ACETOACETATE) WITH PENTAERYTHRITOL TETRAACETATE (II) IN M-XYLENE, XAL(OCH SUB2 C(CH SUB2 OAC) SUB3) SUB2 AND XX PRIME AL(OCH SUB2 C(CH SUB2 OAC) SUB2 CH SUB2 OALXX' WERE OBTAINED WITH 1:2 AND 2:1 MOLAR RATIOS I-II, RESP. THE PRODUCTS WERE RESINOUS, BUT CRYSTD. ON STANDING, AND HAD MOL. WTS. SIMILAR TO 0.5 OF THEORETICAL VALUES, (DETD. CRYOSCOPICALLY IN BENZENE). THE PRODUCTS ARE CYCLIC CHELATES OF THE TYPE DISCUSSED BY VEVERE AND MAIJS (CA 69: 18553S.).

UNCLASSIFIED

1/2 014
UNCLASSIFIED
TITLE--CONDENSATION PRODUCTS OF ALUMINUM CHELATES WITH MANNITOL AND
SORBITOL HEXAACETATES -U- PROCESSING DATE--11SEP70
AUTHOR--VEVERE, I., RIYEKSTINA, D., MAY, L.
COUNTRY OF INFO--USSR
SOURCE--LATV. PSR ZINAT. AKAD. VESTIS, KIM. SER. 1970, (1), 3-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ALUMINUM COMPLEX, ORGANOALUMINUM COMPOUND, CONDENSATION
REACTION, ORGANIC COMPLEX COMPOUND, NEUTRON ACTIVATION ANALYSIS,
ACETATE, ALCOHOL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1065 STEP NO--UR/0464/70/000/001/0003/0009
CIRC ACCESSION NO--AP0104463
UNCLASSIFIED

2/2 014

CIRC ACCESSION NO--AP0104463

UNCLASSIFIED

PROCESSING DATE--11SEP70

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

ABSTRACT. CONDENSATION PRODUCTS OF AL
CHELATES (ACETYLACETONATES, ETHYL ACETOACETATES) WITH MANNITOL AND
SORBITOL HEXAACETATES CONTG. 1, 2, AND 3 CHELATE GROUPINGS HAVE BEEN
OBTAINED AND IDENTIFIED. THE DETN. OF AL IN THESE COMPS. BY MEANS OF
NEUTRON ACTIVATION ANAL. IS REPORTED.

UNCLASSIFIED

VEVERE, I.I.

501 JPRS 59279
14 JUNE 73

Obtaining Epitaxial Layers of Germanium and Silicon by the Chloride Method at Reduced Temperatures

Article by E. O. Tshenberga, A. Ya. Odalova, I. I. Vovera, Ya. A. Nagliga, Novosibirsk, Institute of Solid State Chemistry, Siberian Division, USSR Academy of Sciences, Novosibirsk, Russian, Part 2, 1969, pp 52-56

At the present time, this weakly alloyed epitaxial layers of n and p-type conductivity on strongly alloyed substrates of the same type and also epitaxial structures given in advance are widely used in the production of semiconductor devices.

These epitaxial structures usually are obtained by reducing the germanium tetrachloride and silicon by hydrogen. For a long time it was considered that the epitaxial layers of high purity for a long time it was considered that such high temperatures above 1200°C for silicon and 850°C for germanium redistribution of the admixtures in the epitaxial layers as a result of this increase in the diffusion with an increase in temperature. The reduction in growth temperature would significantly expand the region of application of the chloride method.

Comparatively recently in reference [2, 3] there was a report on the growth of the epitaxial layers of germanium, silicon and other semiconducting materials at reduced temperatures. Good quality epitaxial layers were obtained at temperatures of several hundreds of degrees below the ordinary temperatures. The growth process was carried out in two steps:

- 1) Growth of the thin layer several tenths of a micron thick at the ordinary high temperature.
- 2) Growth of the rest of the layer at a reduced temperature.

It was of interest to investigate the conditions of reproducibly obtaining high-quality epitaxial layers of germanium and silicon by this method and their properties.

1/3 013

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--PREPARATION OF SOME AROMATIC GUANIDINE ALDEHYDES -U-

AUTHOR--(02)-VEVERIS, A., GRINSTEYNS, V.

COUNTRY OF INFO--USSR

SOURCE--LATV. PSR ZINAT, AKAD. VESTIS, KIM. SER. 1970, (1), 103-9

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--GUANIDINE, ALDEHYDE, HYDROGENATION, CHEMICAL SYNTHESIS, ACETATE, ORGANIC AZOLE COMPOUND, THIOL, AROMATIC NITRO COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1993/0691

STEP NO--UR/0464/70/000/001/0103/0109

CIRC ACCESSION NO--AP0113561

UNCLASSIFIED

2/3 013

CIRC ACCESSION NO--AP0113561

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT. A MIXT. OF 10 G
 M,NITROBENZALDEHYDE (I), 100 ML MEQH, AND 1.5 ML 14PERCENT HCL IN MEQH
 KEPT 5 DAYS AT ROOM TEMP., NEUTRALIZED WITH 10PERCENT KOH IN MEQH,
 TREATED WITH 1.4 G NH SUB2 OH,HCL AND 1.2 G KOH IN 5 ML H SUB2 O, AND
 KEPT 15 MIN AT ROOM TEMP. GAVE 7.5 G I DI-ME ACETAL, WHICH, HYDROGENATED
 IN 16 ML ETOH OVER 0.2 G PTO SUB2 AT ROOM TEMP. AT 1 ATM. H, GAVE
 M,AMINOBENZALDEHYDE DI-ME ACETAL (III). A SOLN. OF
 I,GUANYL,3,5,DIMETHYLPYRAZOLE (III) ACETATE (PREPD. BY DISSOLVING 8.4 G
 III.HNO SUB3 IN 65 ML REFLUXING ETOH, ADDING 4.2 G ACOK, AND FILTERING)
 ADDED TO II, AND THE MIXT. HEATED 3.5 HR AT 100DEGREES GAVE 4.8 G
 M,GUANIDINOBENZALDEHYDE,HNO SUB3, M. 198-9DEGREES (DECOMP.) (H SUB2 O).
 A REFLUXING SOLN. OF 9.0 G AMINOGUANIDINE-HCL IN 20 ML H SUB2 O
 TREATED WITH 5.4 G P,AMINOBENZALDEHYDE, AND THE WHOLE REFLUXED 30 MIN
 GAVE 7.2 G P,AMINOBENZALDEHYDE GUANYLHYDRAZONE (IV).2HCL, M. 270DEGREES
 (DECOMP.). A SOLN. OF 7.2 G IV.2HCL IN 20 ML H SUB2 O TREATED WITH 5 G
 ACNA, SATD. WITH NACL, AND COOLED TO ODEGREE GAVE 5.7 G IV.HCL. A
 MIXT. OF 5.6 G IV.HCL AND 2.1 G H SUB2 NCN TREATED AT 100DEGREES WITH
 2.5 ML CONCD. HCL, HEATED AT 100DEGREES 5 MIN, COOLED, TREATED WITH 7 ML
 CONCD. HCL, DILD. WITH 10 ML H SUB2 O, AND FILTERED GAVE 6.2 G
 P-GUANIDINOBENZALDEHYDE GUANYLHYDRAZONE-HCL (V), M. 270DEGREES
 (DECOMP.) (DIL. HCL). A MIXT. OF 7.2 G V, 18 G BZH, 25 ML ETOH, 15 ML
 H SUB2 O, AND 15 ML CONCD. HCL REFLUXED 3.5 HR GAVE 2.2 G
 P,GUANIDINOBENZALDEHYDE (VI). HNO SUB3, M. 200-2DEGREES (DECOMP.) (H
 SUB2 O); VI, M. 170-2DEGREES (DECOMP.); VI.HCL M. 228-90DEGREES
 (DECOMP.); VI SEMICARBAZONE, M. 221-2DEGREES (DECOMP.) (H SUB2 O).

UNCLASSIFIED

3/3 013

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0113561

ABSTRACT/EXTRACT--A MIXT. OF 10 G P,NITROBENZALDEHYDE (VII), 4.4 G HOCH
SUB2 CH SUB2 OH (VIII), 35 ML C SUB6 H SUB6, 35 ML DIOXANE, AND 0.35 G
P,MEC SUB6 H SUB4 SO SUB3 H REFLUXED 30 MIN GAVE 9.2 G OF THE ACETAL
(IX) OF VII WITH VIII, M. 89-91DEGREES. THE ACETAL (X) OF I WITH VIII,
M. 54-6DEGREES, WAS SIMILARLY PREPD. IN 65PERCENT YIELD. A SOLN. OF
0.01 MOLE IX AND X IN 15 ML ETOH HYDROGENATED OVER PTO SUB2 AT ROOM
TEMP., AND 1 ATM. H, FILTERED, TREATED WITH 0.01 MOLE OF A SUITABLE
ISOTHIOCYANATE, KEPT OVERNIGHT, AND FILTERED GAVE A PPT., WHICH AFTER
CRYSTN. FROM ETOH GAVE X,ZC SUB6 H SUB4 NHCSNHAR (Z EQUALS
1,3,DIOXOLAN,2,YL) (XI). A MIXT. OF 15 ML HCONME SUB2 SATD. WITH NH
SUB3, 0.01 MOLE XI, AND 10 G PBD SHAKEN 4 HR GAVE A SOLID PRODUCT,
WHICH, REFLUXED WITH N HCL 30 MIN, GAVE X,ARNHC(:NHINH C SUB6 H SUB4 CHO
(XII), CRYSTD. FROM DIL. HCL OR FROM 1:4 N HCL-DIOXANE. THE FOLLOWING
XI WERE PREPD. (X, AR, M.P., AND PERCENT YIELD GIVEN): P, PH,
162-5DEGREES, 92; M, PH, 153-5DEGREES, 94; P, 1,NAPHTHYLYL,
169-70DEGREES, 91; M, 1,NAPHTHYL, 154-6DEGREES, 97; P, P,BIPHENYL,
181-2DEGREES, 86; M, P,BIPHENYLYL, 141-3DEGREES, 82; P, BZ,
144-6DEGREES, 50; AND M, BZ, 130-2DEGREES, 61. THE FOLLOWING XII WERE
PREPD. (X, AR, M.P., AND PERCENT YIELD GIVEN): P, PH, 128-30DEGREES
(DECOMPN.) (HYDRATE), 65; M, PH, 105-8DEGREES (HYDRATE), 62; P,
P,BIPHENYLYL, 110-13DEGREES (HYDRATE), 57; M, P,BIPHENYLYL, 93-6DEGREES
(HYDRATE), 53; P, 1,NAPHTHYL, 204-5DEGREES (DECOMPN.), 60; M,
1,NAPHTHYL, 108-11DEGREES (HYDRATE), 56; P, BZ, 236-7DEGREES (DECOMPN.),
56; AND M, BZ, 224-5DEGREES (DECOMPN.), 78.

FACILITY: INST.

UNCLASSIFIED

USSR

UDC 615.216.5:547.484.451].012.1

SOKOLOV, G. P., KIMENIS, A. A., VEVERIS, M. M., and GILLER, S. A., Institute of Organic Synthesis, Academy of Sciences Latvian SSR, Riga

"The Synthesis and Curariform Properties of Quaternary Ammonium Derivatives of Cyclic Acetals of Levulinaldehyde and Levulinic Acid"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, No 3, 1973, pp 8-13

Abstract: Studies were conducted on the curariform properties of quaternary ammonium derivatives synthesized from levulinaldehyde in a manner analogous to that employed for succinaldehyde, except that 2-methyl-2,5-dimethoxytetrahydrofuran was used in the reaction. Quaternary ammonium derivatives of levulinic acid were obtained by reacting 3-(2'-methyl-4'-chloromethyl-1',3'-dioxolanil-2') propionic acid with secondary amines, with the initial formation of the corresponding salt and, on gradual heating from 100 to 150°, the Cl atom on the chloromethyl group was replaced by an amino group. The salt was separated from the concomitantly formed hydrochloride salt of the secondary amine by dissolving it in ethyl acetate, and then reacting it with chloroethylamines. A diiodomethylate derivative of levulinaldehyde showed the greatest curariform activity of the derivatives that were obtained which, in cats, exceeded that of D-tubocurarine 2-fold, but was 11-fold less than that of dioxonium. The duration

1/2