

USSR

UDC 8.74

VARTANYAN, N. V., YEGIAZAKYAN, E. V., URUTYAN, R. L.

"Organization of the Dictionaries of the Garni Computer"

Tr. Vychisl. tsentra AN ArmSSR i Yerevan. un-ta (Works of the Computation Center of the Armenian SSR Academy of Sciences and Yerevan University), 1972, No 7, pp 120-139 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V561)

Translation: The synthesis of an automaton which realizes associative access is presented. It is demonstrated that the given associative access system differs advantageously from the known ones in that the proportion of the dictionary information retrieval time in the total translation time is reduced appreciably.

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VARTANYAN, R. A., BRUTYAN, V. K.

"One Mathematical Model of the Distribution of Production Programs Among Dependent Objects"

Sb. tr. Tsentr. N.-i. lab. Avtomatizir. Sistem upr. nar. Kh-vom [Collected Works of Central Scientific Laboratory for Automation of Systems of Control of the National Economy], No 1, 1971, pp 49-52, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V607 unsigned).

Translation: An analysis in the spirit of the theory of controllable Markov processes.

1/1

1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--GENETIC ANALYSIS OF ULTRAVIOLET LESIONS OF PHAGE TRANSFORMING DNA  
R11 PRIME POSITIVE MARKERS. I. SIZE OF THE REGION FOR THE HOMOLOGOUS  
AUTHOR--(03)-ALEKSANDROVA, N.M., VARTANYAN, R.G., VINETSKIY, YU.P.  
COUNTRY OF INFO--USSR  
SOURCE--GENETIKA 1970, 6(3), 97-109  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--DNA, UV RADIATION BIOLOGIC EFFECT, ESCHERICHIA COLI, CELL  
PHYSIOLOGY, MOLECULAR STRUCTURE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3003/1139 STEP NO--UR/0473/70/005/003/0097/0109  
CIRC ACCESSION NO--AP0130167  
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0130167

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CURVES OF RII PRIME POSITIVE MARKER SURVIVAL (IN PHAGE T4 TRANSFORMED BY UV IRRADIATED DONOR DNA) HAVE BEEN INVESTIGATED IN EXPTS. PERFORMED IN ESCHERICHIA COLI B SPHEROPLASTS. FOR ALL THE DELETIONS STUDIED, THESE CURVES SHOW A RAPID DROP AT LOW UV DOSE FOLLOWED BY A LINEAR REGION. EXTRAPOLATION OF THE STRAIGHT LINE REGION TO ZERO UV DOSE INDICATES THAT ABOUT HALF OF THE R PRIME POSITIVE RECOMBINANTS ARE DESTROYED AT LOW DOSE, WHILE THE OTHER HALF IS MUCH MORE RESISTANT TO UV AND REPRESENTS A DISTINCT CLASS OF R PRIME POSITIVE RECOMBINANTS. THE DONOR MOLES., WHICH FIRST COMBINE WITH THE NONIRRADIATED PHAGE RECIPIENT, ARE LATER INCORPORATED IN THE RAPIDLY DELETED RII PRIME POSITIVE MARKERS (EXPTS. WITH DELETION 164). COMPARISON BETWEEN THE SIZE OF DONOR DNA MOLES. AND THEIR SENSITIVITY TO UV INDICATES THAT THE REGION OF PAIRING OF DONOR AND ACCEPTOR MOLES. IS 800-900 NUCLEOTIDES LONG. FACILITY: INST. GEN. GENET., MOSCOW, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--CHEMISTRY OF UNSATURATED COMPOUNDS, SYNTHESIS AND SOME REACTIONS OF  
TERTIARY(ALLYLETHYNYL)CARBINOLS -U-  
AUTHOR--(03)-PIRENYAN, S.K., KINGYAN, F.S., VARTANYAN, S.A.  
COUNTRY OF INFO--USSR  
SOURCE--ARM. KHIM. ZH. 1970, 23(2), 140-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ACETYLENE, ALCOHOL, ALLYL CHLORIDE, ISOMERIZATION, BUTENE,  
CHEMICAL SYNTHESIS, HETEROCYCLIC NITROGEN COMPOUND, HETEROCYCLIC OXYGEN  
COMPOUND, AMINE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1995/1444 STEP NO--UR/0426/70/023/002/0140/0142  
CIRC ACCESSION NO--AP0116886  
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116886

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TERTIARY ACETYLENIC CARBINOLS RR PRIME C(OH)C TRIPLE BOND CH (I) REACT WITH ALLYL CHLORIDE OR BROMIDE AND 1,3-DICHLORO,2,BUTENE AT 40-50DEGREES UNDER N IN THE PRESENCE OF CU SUB2 CL SUB2 AND AN AQ. SOLN. OF NH SUB4 CL TO GIVE RR PRIME C(OH)C TRIPLE BOND CCH SUB2 CH:CXR DOUBLE PRIME (II), X BEING H OR CL AND R DOUBLE PRIME BEING H OR ME. ISOMERIZATION OF II (X EQUALS H) WITH HGSD SUB4 (III) IN MEOH AT 30-5DEGREES GAVE RR PRIME C:CHCOCH SUB2 CH(OME)ME (IV). SIMILARLY, II (X EQUALS CL) GAVE RR PRIME C:CHCOCH SUB2 CH:CCLME (V). II (X EQUALS H) WERE CYCLIZED TO VI BY TREATMENT WITH 10PERCENT H SUB2 SO SUB4 AND III. (ADDITIONAL SYNTHESIS AND REACTIONS SHOWN ON MICROFICHE). FACILITY: INST. ORG. KHIM., EREVAN, USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--2306170  
TITLE--VINYLACETYLENE CHEMISTRY. LXXXVII. ACETYLENE, ALLENE, CUMULENE  
REARRANGEMENT DURING THE REPLACEMENT OF CHLORINE BY AMINES IN  
AUTHOR--(03)--VARTANYAN, S.A., BARKHUDARYAN, M.R., BADANYAN, SH.O.  
COUNTRY OF INFO--USSR  
SOURCE--ARM. KHIM. ZH. 1970, 23(1), 31-7 ✓  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ACETYLENE, ALLENE, CHLORINE, AMINE, HALOGENATED ORGANIC  
COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1995/1446 STEP NO--UR/0426/70/023/001/0031/0037  
CIRC ACCESSION NO--AP0116887  
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116887

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. (COMP. PREPD. BY VARIOUS  
TREATMENTS SHOWN ON MICROFICHE).

FACILITY: INST. ORG. KHIM.,  
EREVAN, USSR.

UNCLASSIFIED



1/2 008 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--ALKYLATION OF PHENOLS AND THEIR ETHERS BY ISOPROPENYL ACETYLENIC  
ALCOHOLS, CHLORIDES, AND DIVINYL KETONES -U-  
AUTHOR--(03)-VARTANYAN, S.A., VARDAPTEYAN, S.K., BADANYAN, SH.O.  
COUNTRY OF INFO--USSR  
SOURCE--ARM. KHIM. ZH. 1970, 23(1), 85-8  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ALKYLATION, PHENOL, ETHER, ACETYLENE, CHLORIDE, KETONE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1995/1454 STEP NO--UR/0426/70/023/001/0085/0088  
CIRC ACCESSION NO--AP0116891  
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116891

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO A MIXT. OF 0.1 MOLE OF A PHENOL AND 5 ML H SUB3 PO SUB4 WAS ADDED DROPWISE 0.1 MOLE DIALKYLISOPROPENYLETHINYLCARBINDL, AND THE MIXT. HEATED 30 HR AT 60-70DEGREES TO GIVE 2,1,R PRIME1 (RO) C SUB6 H SUB3 CR PRIME2 R PRIME3 C TRIPLE BOND CC ME:CH SUB2,4 (R; R PRIME1, R PRIME2, R PRIME3, PERCENT YIELD, B.P. (MM), N PRIME20 SUBD AND D PRIME20 GIVEN): (SHOWN ON MICROFICHE). FACILITY: INST. ORG. KHIM., EREVAN, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70  
 TITLE--NEUTRON STARS OF SMALL MASS -U-  
 AUTHOR--VARTANYAN, YU.L.  
 COUNTRY OF INFO--USSR  
 SOURCE--ASTROFIZIKA, VOL. 6, FEB. 1970, P. 167-170  
 DATE PUBLISHED-----70  
 SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS  
 TOPIC TAGS--HOT STAR, NEUTRON, DWARF STAR, COOLING  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAME--2000/1603 STEP NO--UR/0388/70/006/000/0167/0170  
 CIRC ACCESSION NO--AP0125225  
 UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125225

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

ABSTRACT. STUDY OF THE COOLING TIME AND INTERNAL CHARACTERISTICS OF HOT NEUTRON STARS OF SMALL MASS. ON THE BASIS OF AN EVALUATION OF THE HERTZSPRUNG RUSSELL DIAGRAM FOR WHITE DWARFS AND NEUTRON STARS OF SMALL MASS IT IS REGARDED AS PHYSICALLY UNLIKELY THAT SUCH NEUTRON STARS ARE FORMED AS A RESULT OF CATASTROPHIC PROCESSES OCCURING DURING THE COLLAPSE OF STARS WITH A MASS GREATER THAN THE MAXIMUM MASS OF STABLE WHITE DWARFS.

FACILITY:

BIURAKANSKAIA ASTROFIZICHESKAIA OBSERVATORIIA; EREVANSKII GOSUDARSTVENNYI UNIVERSITET, YEREVAN, ARMENIAN SSR.

UNCLASSIFIED

USSR

UDC: 577.1:615.7/9

MEZHLUMYAN, L. M. and VARTAZARYAN, N. D.

"Activity of Alkaline Phosphatase of Liver and Blood Serum After Treatment with Dichlorobutene"

Zh. eksperim. i klinich. med. (Journal of Experimental and Clinical Medicine), Vol 11, No 1, 1971, pp 27-33 (from Referativnyy Zhurnal -- Biologicheskaya Khimiya, No 15, 10 Aug 71, Abstract No 15F1710)

Translation: Inhalational intoxication of rats with dichlorobutene in concentrations from 0.1 to 3 mg/l of air (once or daily for 45 days or 5 months) induced increased activity of alkaline phosphatase in the liver and blood serum. The degree and nature of these changes are directly related to concentration of the poison and the exposure time.

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USSR

UDC 617-001.28-092.9-07: [616.155.3:576.858.095.383]-078

KAMALYAN, L. A., YENGOYAN, M. N., and VARTEVANYAN, Zh. Ts.

"Production of Leukocyte Interferon in Irradiated and Intact Dogs"

Moscow, Voprosy Virusologii, No 5, 1971, pp 552-555

Abstract: Leukocytes isolated from the peripheral blood of dogs and treated with Newcastle disease virus strain A produced interferon, whose activity varied with the dose of the interferon inducer, the number of leukocytes, and the time the leukocytes were used (freshly isolated cells were best, while refrigeration of cell suspensions for 24 and especially 48 hours markedly reduced their capacity to produce interferon). Single whole-body X-irradiation (400 r) significantly lowered interferon titers on days 2 and 7 after exposure in most of the dogs. A mild course of radiation sickness occurred in those animals in which irradiation did not impair the synthesis of leukocyte interferon. Analysis of interferon isolated from dogs before and after irradiation showed that it was identical in resistance to heating to 56°C for 30 minutes and sensitivity to trypsin.

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1/2 013 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--APPARATUS FOR DETERMINING VAPOR PRESSURE AND BOILING POINTS OF  
LIQUIDS -U-  
AUTHOR--(03)-VARUSHCHENKO, R.M., GALCHENKO, G.L., SKURATOV, S.M.  
COUNTRY OF INFO--USSR ✓  
SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 283-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS, CHEMISTRY  
TOPIC TAGS--CHEMICAL LABORATORY APPARATUS, VAPOR PRESSURE, CHEMICAL  
PURITY, BOILING  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1994/1004 STEP NO--UR/0076/70/044/001/0233/0285  
CIRC ACCESSION NO--AP0115025  
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0115025

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EBULLIOSCOPIC METHOD WAS USED FOR DETG. THE VAPOR PRESSURE AND B.P.S. OF LIQS, AT 40-200DEGREES AND 30-660 MM HG. THE ADVANTAGE OF THE METHOD IS THE MEASUREMENT OF THE DEGREE OF PURITY OF LIQ. COMPS. ACCORDING TO THEIR B.P.S. THE APP., WHICH INCLUDES A DIFFERENTIAL EBULLIOSCOPE, A HG MANOMETER, AN ELECTROMAGNETIC VALVE, AND A CYLINDER OF N IS DESCRIBED IN DETAIL. THE PRECISION OF THE MEASUREMENT WAS PLUS OR MINUS 0.004DEGREES AND THE MAX. DIFFERENCE FOR THE PRESSURE MEASUREMENT WAS WITHIN 0.02-0.09 MM HG. METHYLCYCLOHEXANE AND N DECANE WERE USED AS TEST COMPS. AND THE RESULTS WERE VERIFIED BY CHROMATOG. FACILITY: MOSK. GDS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED



USSR

VARVAK. L. P.

"One Generalization of the Kernel of a Graph"

Ukr. Mat. Zh. [(Ukrainian Mathematics Journal), 1973, Vol 25, No 1, pp 95-99  
(Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No  
6V383, by the author).

Translation: The concept of the quasi-kernel is introduced, an algorithm  
is indicated for construction of all quasi-kernels and kernels, estimates  
of their number are found and the form of quasi-kernels in the sum of graphs  
is studied (see RZhMat, 1971, 5V390).

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USSR

DEKHTYAR, A. S., VARVAK, M. SH.

"Limiting Equilibrium of Flat Shells under the Effect of a Load Distributed over Part of the Surface"

Issled. po stroit. mekh (Structural Mechanics Research), Tbilisi, Metsniyereba Press, 1970, pp 94-103 (from RZh-Mekhanika, No 11, Nov 70, Abstract No 11V409)

Translation: This article contains a study of the limiting equilibrium of freely supported square and round shells in the plan view made of an ideal rigid-plastic material. It is assumed that exhaustion of the supporting capacity is accompanied by the formation of plastic hinges along certain lines on the surface. The upper bound of the supporting capacity is found by the kinematic method of the theory of limiting equilibrium. Exhaustion of the supporting capacity is also studied in connection with stamping of the shell.

The mid surface of a flat shell which is square in the plan view is assumed in the form of a paraboloid of rotation

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$$z = f(x^2 + y^2)/a^2,$$

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DEKHTYAR, A. S., et al., Issled. po stroit. mekh (Structural Mechanics Research), Tbilisi, Metsniyereba Press, 1970, pp 94-103

where  $2f$  is the rise of the shell at the center;  $2a$  is the length of the side of the shell in the plan view. The shell has a constant thickness  $\delta$ . Its edges can be shifted freely in the horizontal direction. The vertical load is distributed uniformly over part of the surface. The horizontal projection of the loaded area has the shape of a square, and it is arranged symmetrically with respect to the center of the shell. The shell material follows the idealized Mises diagram. In addition, it is assumed that  $\sigma^+ \ll \sigma^-$ . Here  $\sigma^+$  and  $\sigma^-$  are the tensile and compressive yield strengths of the material, respectively.

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I/2 035 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--ESTIMATION OF THE UPPER LIMIT OF THE CARRYING CAPACITY OF SHELLS OF  
REVOLUTION UNDER THE EFFECT OF INTERNAL GAS FLOW -U-  
AUTHOR--VARVAK, M.SH.  
COUNTRY OF INFO--USSR ✓  
SOURCE--PROBLEMY PROCHNOSTI, VOL. 2, MAR. 1970, P. 63-67  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--SHELL OF REVOLUTION, REINFORCED SHELL STRUCTURE, SHELL  
DEFORMATION, ADIABATIC FLOW, IDEAL GAS, FLOW RATE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/1231 STEP NO--UR/3663/70/002/000/0063/0067  
CIRC ACCESSION NO--AP0124885  
UNCLASSIFIED

2/2 035

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124385

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE LIMITING EQUILIBRIUM OF AN AXISYMMETRICAL SHELL OF CONSTANT THICKNESS REINFORCED BY A REGULAR SYSTEM OF RIBS. THE SHELL IS SUBJECTED INTERNALLY TO THE ADIABATIC FLOW OF AN IDEAL GAS. GENERAL FORMULAS ARE OBTAINED WHICH MAKE IT POSSIBLE TO ESTIMATE THE CARRYING CAPACITY OF THE SHELL WITH RESPECT TO GIVEN GAS FLOW PARAMETERS.

UNCLASSIFIED

Acc. Nr:

A70046315

Abstracting Service: 5/70  
INTERNAT. AEROSPACE ABST.

Ref. Code:

LLR0441



A70-23388 # Minimum edge reinforcement of shells with an axial symmetry (Minimal'ne konturne pidkriplennia ośesimetričnikh obolonok). A. S. Dskhtiar and M. Sh. Varvak (Naukovo-Doslidnii Institut Budivelnikh Konstruktiv, ~~Ukrains'ka RSR~~ Akademia Nauk Ukrain's'koj RSR, *Dopovidi, Serija A--Fiziko-Tekhnichni i Matematichni Nauki*, vol. 32, Jan. 1970, p. 48-50. In Ukrainian.

The influence of contour mobility is investigated upon the load-carrying capacity of rigid-plastic thin shells of revolution. If the edges are fixed and cannot move in horizontal direction, the limit load intensity is increased by 2-3 times. A minimum reinforcement value is established which leads to such an immovable contour.

(Author)

ACS

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REEL/FRAME  
19781475

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USSR ✓

UDC 539.3

VARVAK, P. M., KRAVCHUK, V. S., RASSKAZOV, A. O.

"Experimental Study of the Effect of the Rigidity of a Tie-Beam on the Stress-Deformation State of a Shell in the Form of a Hydrobolic Paraboloid"

V sb. Prostranstv. konstruksii v Krasnoyarskom kraye (Three-Dimensional Designs in the Krasnoyarsk Border -- Collection of Works), Krasnoyarsk, 1969, pp 243-252 (from RZh-Mekhanika, No 4, Apr 70, Abstract No 4V114)

Translation: The change in the stress-deformation state of a shell in the form of a parabolic paraboloid with a rectilinear contour is studied as a function of the rigidity of the diagonal bond between the lower angles of the thin-walled structure. Authors abstract.

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1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--RATE OF FORMATION OF CONDENSATION NUCLEI IN SUPERSATURATED VAPOR  
-U-  
AUTHOR--(03)-BLOKH, A.G., BAZAROV, S.M., VARVARIN, S.V. ✓  
COUNTRY OF INFO--USSR  
SOURCE--INZH. FIZ. ZH. 1970, 18(3), 467-73  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--VAPOR CONDENSATION, NUCLEATION, KINETIC EQUATION, MOLECULAR  
INTERACTION, COMPLEX MOLECULE, BOND ENERGY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1996/1437 STEP NO--UR/0170/70/018/003/0467/0473  
CIRC ACCESSION NO--AP0118426  
UNCLASSIFIED



272 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118426

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC EQUATIONS FOR THE PHASE TRANSITIONS IN SUPERSATD. VAPOR WERE DERIVED ON THE BASIS OF THE DYNAMICS OF CONDENSATION PROCESSES. IT IS ASSUMED THAT THE FORMATION OF AN EQUIL. STEADY STATE COMPLEX OF G MOLS. IS PRECEDED BY THE FORMATION OF INTERMEDIATE UNSTABLE ASSOCS. CONSITING OF A SMALLER NO. OF MOLS. COLLISION OF 2 MOLS. IS CONSIDERED THE STARTING POINT. A BOND IS FORMED BETWEEN THEM AND AN UNSTEADY STATE DOUBLE SATD. COMPLEX APPEARS. SUCH A MOL. COMPLEX IS DESIGNATED AS ACTIVATED BECAUSE THE BOND ENERGY IS CONCD. IN IT. THE REMOVAL OF THE BOND ENERGY FROM THE ACTIVATED COMPLEX CAN BE BY COLLISIONLESS WITH A 3RD GAS MOL. OR WITH A SOLID SURFACE. THE RELATIVE LIFE OF THE ACTIVATED COMPLEXES INCREASE WITH THE NO. OF MOLS. IN THE COMPLEX. THIS IS ESP. NOTICEABLE IN COMPLEX CONTG. LESS THAN 10 MOLS. WITH INCREASING NO. OF MOLS. IN THE DEACTIVATED COMPLEX THE FREQUENCY OF COLLISIONS INCREASES NOTICEABLY.

UNCLASSIFIED

USSR

UDC 550.42+546.791

MEL'GUNOV, S. V., and VARVARINA, Ye. K.

"Use of Neutron-Fragment Radiography for the Study of Distribution of Uranium in Certain Metamorphic Formations"

Novosibirsk, Geologiya i Geofizika, No 10, Oct 70, pp 38-44

Abstract: The neutron-fragment radiography method briefly described in this article is used to determine the nature of the distribution and the form of uranium in ore and rock-forming minerals. Most of the uranium in the outer portions of pegmatoid units is concentrated in ilmenites, accessory minerals, and biotite, forming branches and fringes around the units. The track densities in ilmenites of variable composition depend on the content of the ilmenite component in the structures resulting from decomposition of the solid solution, and indicates a direct correlation between the contents of uranium and titanium. The nature of the distribution of the tracks indicates isomorphic inclusion of uranium in the crystalline lattice of the ore

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UDC 550.42+546.791

MEL'GUNOV, S. V., and VARVARINA, Ye. K., *Geologiya i Geofizika*,  
No 10, Oct 70, pp 38-44

and accessory minerals. In case of rutilization, the uranium contained in the ilmenites is redistributed. The method of neutron-fragment radiography in combination with luminescent-pearl analysis indicates the general direction of migration of uranium during formation of pegmatoid units.

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USSR

UDC 539.67

VARYPAYEV, E. S., PANIN, V. E., and SOLOV'YEV, L. A.

"Amplitude Dependence of internal Friction of a Series of Concentrated Copper Solid Solutions"

Sb.. "Vnutrenneye treniye v metallicheskih materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp. 104-110

Abstract: Internal friction of single-phased concentrated Cu - Ga and Cu - Ge solid solutions was investigated in the range of  $10^{-6}$ - $10^{-3}$  relative amplitudes.

An amplitude-independent region and sections described by linear function appeared on characteristics of the decrement dependence on deformation amplitude.

It is shown that critical stress  $\sigma_c$ , determining the onset of micro-deformation, depends on alloy concentration and is determined by the resistance to motion of a free dislocation from solid solution impurities atoms. The second critical stress  $\sigma_c''$  characterizes the appearance of irreversible processes in structure. 5 figures, 13 references.

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Acc. Nr.: AR0113831

Ref. Code: UR0000

USSR

UDC: 669.017:539.67

VARYPAEV, E. S., PANIN, V. Ye.

"Hysteresis of the Amplitude Dependence of Internal Friction of Polycrystalline Solid Solutions"

Tula, Vzaimodeystviye Mezhdur Dislokatsiyami i Atomami Primesey v Metallakh i Splavakh -- Sbornik (Interaction Between Dislocations and Admixture Atoms in Metals and Alloys -- Collection of Works), 1969, pp 98-101 (from Referativnyy Zhurnal, Metallurgiya, No 1, 1970, Abstract No 11264)

Translation: In the article is discussed the nature of the instability of the effects of internal friction brought about by the generation of dislocations and the redistribution of the initial stresses of the sources with loading in excess of the critical amplitude  $\epsilon_{cr}$ ". The concentration dependence of  $\epsilon_{cr}$ " in Cu-Ge alloys has been detected.

Real/Frame  
19930997

18

USSR

UDC 620.197

VARYPAYEV, V. N.

"Corrosion of Metals"

Leningrad, Korroziya metallov (cf. English above), Leningrad University Press, 1972, 87 pp (from Korroziya metallov, 1972, pp 2-4)

Translation: This training aid comprises two chapters. The first chapter contains material on the fundamentals of physical metallurgy. The basic laws of the crystallization of metal, the methods of study and variation of the structure of the metal are presented; the standard phase equilibria in binary alloys are investigated; the relations of the diagrams of state to the properties of the alloys are demonstrated. The second chapter is devoted to the corrosion of metals and methods of protecting metals from corrosion. A classification of types of corrosion is presented, and the methods of studying and estimating corrosion are described. A study is made of the theoretical prerequisites of electrochemical corrosion, the effect of external and internal factors on the process rate, the characteristic features of the most widespread types of electrochemical corrosion. When investigating the types of chemical corrosion, primary attention has been given to gas corrosion. Among the methods of protection from corrosion, versions of electrochemical protection and also the treatment of corrosive media have been isolated.

The text is designed for students of the chemical technological institutes and departments and corresponds to the training program of the course in

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VARYPAYEV, V. N., Korroziya metallov, Leningrad University Press, 1972, 87 pp

"physical metallurgy and the corrosion of metals" approved by the Ministry of Higher and Middle Specialized Education of the USSR for students in the specialty of "electrochemical production technology." The publication can be useful to workers in the chemical industry. There are 38 illustrations and 6 tables; the bibliography has 28 entries.

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VARYPAYEV, V. N., Korroziya metallov, Leningrad University Press, 1972, 87 pp

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3/4

USSR



VARYPAYEV, V. N., Korroziya metallov, Leningrad University Press, 1972, 87 pp

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4/4

USSR

UDC: 621.396.674.3

KOLOMOYTSEV, F. I., VARYVDIN, V. S., OVSYANIKOV, V. V.

"Using Capacitive Elements to Increase the Bandwidth of Folded Dipoles"

Moscow, Radiotekhnika i Elektronika, Vol 27, No 11, Nov 72, pp 2429-2431

Abstract: An analysis is made of folded dipole antennas with discretely connected impedances, and in particular with capacitive elements. Results are given on calculation and experimental analysis of a broadband symmetric V antenna with inserted capacitors. The results show that the capacitors smooth out the current distribution on the dipole and prevent phase inversions at current "nodes". Conditions close to the traveling wave mode are set up in the antenna. Both the input impedances and radiation pattern are stabilized, input reactance is considerably reduced in absolute value and the resistive component of the input impedance is stabilized. The V dipole gives at least 0.5 for the TWR in a frequency band of 50-60% as compared with 20% for a similar antenna without capacitors.

1/1

V  
Entomology

USSR

UDC: 632.934

VASECHKO, G.I., KUZNETSOV, M.V., SMEL'YANETS', V.P., GUZNYENOK, N.KH., Ukrainian Scientific Research Institute of Plant Protection, Institute of Organic Chemistry, Academy of Sciences, Ukrainian SSR

"Insecticidal Properties of Some Components of Essential Oils."

Kiev, Doklady Akademii Nauk Ukrainy SSR, Seriya B, No 3, 1970, pp 275-278

Abstract: Essential oils with insecticidal properties are wide spread in the vegetable kingdom. Insecticidal properties of essential oils in wild, five-leaved grapes (which are almost never attacked by insects), conifers, grains and legumes, mint, etc. were determined. Oils were extracted and their active components isolated by chromatography. The LD 50 of oils with respect to insects was determined. Five insecticides were effective against the Colorado beetle, and many insecticides against larvae of Tribolium destructor, among which colamine (ethanolamine), obtained from germinating seeds, is rather effective. A substance synthesized by germinating rye seeds forms the basis for one of the least harmful and most powerful insecticides, fozalon.

1/1

USSR

UDC 612.822.3

HMYRYA, V. A., and VASECHKO, T. V., Department of Cerebral Cortex Physiology,  
Institute of Physiology imeni O. O. Bogomolets, Academy of Sciences Ukrainian  
SSR

"Analysis of Evoked Potentials With Initial Electronegativity"

Kiev, Fiziologichnyy Zhurnal, Vol. 19, No 2, 1973, pp 171-177

Abstract: Previously, the authors delineated two areas in the auditory cortex -- in the anterior and posterior superior regions of the superior temporal gyrus -- in which the primary evoked potential (PEP) was preceded by a negative wave. Presently, further evaluation of these areas was performed under the influence of cold and mechanical pressure on these "negative" centers, and a layer by layer analysis was made of the focal potentials at different depths in response to stimuli with different frequencies (clicking). PEP were obtained with monopolar electrodes; control data were obtained from dogs under pentobarbital anesthesia (35 mg/kg). Localized cooling was achieved with a narrow ice-filled test tube applied for 1.3 and 5 min (no mechanical effect), and PEP studies were commenced within a few seconds and continued for 30-40 min. Mechanical pressure was applied by means of an electrode tip (0.5 mm

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USSR

HMYRYA, V. A. and VASECHKO, T. V., *Fiziologichnyy Zhurnal*, Vol 19, No 2, 1973, pp 171-177

diameter) covered by filter paper soaked with a physiologic solution. Focal potentials at different depths were obtained with electrodes 20-50  $\mu$  in diameter. The results showed that short-term cooling of the auditory zone A-1 (A-1) prolonged the duration of the positive wave on the PEP, but decreased its amplitude; in some cases the secondary negative wave was eliminated. The latent period of the response was not altered. Long-term cooling of A-1 resulted in the disappearance of PEP for several seconds to minutes, followed by a gradual return: first the positive wave returned and, 15-20 min later, the negative wave reappeared. In addition, while prior to cooling the "+-" complex of the PEP was characterized by a negative wave with a much greater amplitude, after repeated coolings the amplitudes of the positive and negative waves were equal for some time. In the negative centers short-term cooling depressed the amplitude of the negative wave, with its subsequent restoration in 3-5 min. Long-term cooling caused the negative potential to disappear initially, and reappear in 5 to 30 min. In these centers with a "-+" type of PEP complexes, cooling eliminated the negative wave and, on long-term application, depressed the amplitude of the positive wave. Occasionally, classical PEP were seen in these centers on cooling along with the PEP with initial electronegativity;

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USSR

HMYRYA, V. A. and VASECHKO, T. V., *Fiziologichnyy Zhurnal*, Vol 19, No 2, 1973, pp 171-177

the former disappeared 10-30 min after cooling was discontinued. Changes in PEP similar to those elicited by cooling were obtained with the application of mechanical pressure in A-1 and in the negative centers. Both cooling and pressure caused slow rhythms to become dominant on the EEG. In A-1 progressive insertion of electrodes into deeper layers resulted in inversion of PEP polarity at a depth of 0.5-0.8 mm. Prior to inversion, there was a gradual diminution of the positive wave and eventual disappearance. Subsequently, negative polarity appeared with initially increasing and then decreasing amplitude and eventual disappearance at 1.5-2 mm. Superficial electrodes and those at a depth of 0.3 mm picked up PEP in response to stimuli with a frequency of 15 hertz. At 0.5 mm stimuli with a frequency of 5 hertz elicited PEP occasionally. At 0.6 mm polarity reversal occurred with a 5 hertz stimulus, but a 10 hertz stimulus elicited a response only 54% of the time. At 0.9 mm the amplitude of the negative potential increased and responses were obtained to greater frequencies; at greater depths the amplitude diminished and responsiveness dropped sharply. No inversion of potential was observed in the negative centers, but the amplitude of the negative potential decreased as the electrode was inserted deeper, with a concomitant decrease in responsiveness to high

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USSR

HMYRYA, V. A. and VASECHKO, T. V., Fiziologichnyy Zhurnal, Vol 19, No 2, 1973, pp 171-177

frequency stimuli. With the electrode on the cortical surface of the negative centers, responses with initial electronegativity were obtained to stimuli with a frequency of 15 hertz, at 0.9 mm responses were seen only to stimuli with a frequency of 5 hertz, and at 2 mm a response was obtained to only 70% of the hertz stimuli.

4/4

USSR

UDC 669.14.018.85:669-154.9

BOYCHENKO, Yu. A., and VASENEV, R. V.

"The Effect of Vacuum Remelt on Properties of High-Strength Steels for Rotors"

Moscow, Metallovedeniye, No 5, 1971, pp 57-59

Abstract: A study was made of the effect of electric arc vacuum remelt (VR) on properties of the 4Kh3N2MFTs and 42KhSN4MFTs high-strength steels used for rotors of high-speed electromotors. Results show that VR decreases the content of oxides and silicates, results in increased plasticity and ductility, increases the endurance limit of smooth specimens, but does not affect it on notched specimens. The favorable effect of VR decreases by the presence in specimens and parts of rigid stress concentrations in the form of very sharp notches or cracks.

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USSR

UDC 616.988.25:313.13(571.55)

GORIN, O. Z., L'VOV, D. K., VASENIN, A. A., BOL'SHEV, L. N., KRUOPIS, Yu. I., and KORYAKOVITSEVA, K. M., Irkutsk Institute of epidemiology and microbiology, Ministry of Health RSFSR, Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow, Mathematics Institute imeni V. A. Steklov, Academy of Sciences USSR Moscow, and Republic Sanitary Epidemiological Station, Buryatskaya ASSR, Ulan-Ude

"Calculating the Intensity of Infection With Tickborne Encephalitis of the Population of Zabaykal'"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 39, No 3, May/June 70, pp 259-263

Abstract: The intensity of infection of the population with tickborne encephalitis in the Zabaykal' was calculated, and also the rate of infection of ticks with the virus (9-13%). The analysis was based on data of serological examination of 6,420 persons by the hemagglutination test, and on data from questioning of 26,781 subjects about their exposure to tick and attacks by ticks during the epidemic season. Specimens were collected in 1966-1968 in Chitinskaya Oblast and the Buryatskaya ASSR. According to the intensity of infection, it was possible to combine the territories situated in different physical geographical and land-  
1/2

USSR

GORIN, O. Z., et al, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 39, No 3, May/Jun 70, pp 259-263

scape conditions into two main landscape-epidemiological areas. One of these areas, distinguished by an extremely low intensity of infection (0.4-0.9%), includes the Central Asian and Priselenginskaya steppes and the North Zabaykal mountain taiga. The other area, with higher intensity of infection (2-2.1%), includes the territories within the Dauriskaya mountain taiga and subtaiga, as well as the Pribaykal and South Zabaykal taiga and subtaiga.

2/2

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172 016

UNCLASSIFIED

PROCESSING DATE—30OCT70

TITLE—CALCULATION OF THE INTENSITY OF INFECTION WITH TICK BORNE ENCEPHALITIS IN THE POPULATION OF ZABAIKALIE —U—  
AUTHOR—(05)—GORIN, G.Z., LYOV, D.K., VASENIN, A.A., BOLSHEV, L.N., KRUGNIC, YU.I.

COUNTRY OF INFO—USSR

SOURCE—MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI, 1970, VOL 39, NR 3, PP 259-263  
DATE PUBLISHED—70

SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS—ENCEPHALITIS, TICK, SEROLOGIC TEST, HEMAGGLUTINATION INHIBITION TEST

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED  
PROXY REEL/FRAME—2000/0222

STEP NO—UR/0358/70/039/003/0259/0263

CIRC ACCESSION NO—AP0123986

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123986

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE BASIS OF PREVIOUSLY PUBLISHED METHODS BY THE AUTHORS CALCULATION OF THE INTENSITY OF INFECTION RATE OF THE POPULATION WITH TICK BORNE ENCEPHALITIS IN THE ZABAICALIE WAS MADE, AS WELL AS CALCULATION OF THE INFECTION RATE OF TICKS WITH THE VIRUS (9-13PERCENT). THE ANALYSIS WAS BASED ON THE DATA OF SEROLOGICAL EXAMINATION OF 6420 PERSONS BY THE HI TEST, AS WELL AS ON THE DATA OF QUESTIONING OF 26,781 SUBJECTS WITH REGARD TO TICK EXPOSURE AND ATTACK DURING THE EPIDEMIC SEASON. SPECIMENS WERE COLLECTED IN 1966-1968 IN THE CHITA REGION AND THE BURYAT ASSR. ACCORDING TO INTENSITY OF INFECTION, IT WAS FOUND POSSIBLE TO COMBINE TERRITORIES SITUATED IN DIFFERENT PHYSICO GEOGRAPHICAL AND LANDSCAPE CONDITIONS INTO 2 MAIN LANDSCAPE EPIDEMIOLOGICAL AREAS. ONE OF THEM IS DISTINGUISHED BY AN EXTREMELY LOW INTENSITY OF INFECTION (0.4-0.9PERCENT) AND INCLUDES CENTRAL ASIAN AND THE PRISELENGINSKAYA STEPPE AND NORTH ZABAICAL MOUNTAIN TAIGA. THE OTHER AREA HAS HIGHER INTENSITY OF INFECTION (2-2.1PERCENT) AND INCLUDES TERRITORIES WITHIN THE DAURSKAYA MOUNTAIN TAIGA AND SUBTAIGA AS WELL AS THE PRIBAIKAL AND SOUTH ZABAICAL TAIGA AND SUBTAIGA.

FACILITY: IRKUTSKIY INSTITUT EPIDEMIOLOGII I  
 MIKROBIOLOGII, MZ RSFSR. FACILITY: INSTITUT VIRUSOLOGII IM D. I.  
 IVANOVSKOGO, AMN SSSR. FACILITY: MOSKVA MATEMATICHESKIY INSTITUT  
 IM. V. A. STEKLOVA, AN SSSR. FACILITY: MOSKVA REPUBLIKANSKAYA  
 SANEPIDSTANTSIIYA, BURYATSKOY ASSR, ULAN-UDE.

UNCLASSIFIED

USSR

UDC 616.988.25-022.395.42-036.22(571.53+571.54)

VASENIN, A. A., GORIN, O. Z., and BEREZIN, V. G., Irkutsk Institute of  
Epidemiology and Microbiology

"Epidemiological Assessment of the Threat of Tickborne Encephalitis in the  
Cisbaykal Region"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, No 3, 1972,  
pp 269-247

Abstract: New tourist facilities and sanatoria are being built along the shores of Lake Baykal in Eastern Siberia, an area in which an average of 1.6 cases of tickborne encephalitis per 100,000 population is recorded every year. In order to evaluate the danger to the increasing human population presented by the disease, the authors analyzed the incidence of tickborne encephalitis in Irkutskaya Oblast and the Buryat ASSR over the last 15 years, ran serological tests, and interviewed some 2000 persons living in 23 villages. They found that infected ticks are most likely to attack humans and animals in a band 10 to 100 m wide around Lake Baykal due to the mitigating influence of the water on the local climate. The growing season extends for 15 to 25 days into the autumn and the period of activity of the main vector *Ixodes persulcatus* P. sch. is shifted to mid-summer. The disease peaks toward the end of July.

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1/2 026

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--EFFECT OF THE STRUCTURE OF POLY(VINYL CHLORIDE) ON THE RATE OF  
DIFFUSION OF A PLASTICIZER -U-

AUTHOR--(04)-KOROBKO, V.I., CHALYKH, A.YE., VASENIN, R.M., LUKVANDOVICH,  
V.M.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (2), 41-2

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MOLECULAR STRUCTURE, POLYVINYL CHLORIDE, PHYSICAL DIFFUSION,  
PLASTICIZER, ACTIVATION ENERGY, THERMAL EFFECT/(U)S5 POLYVINYL CHLORIDE,  
(U)S60 POLYVINYL CHLORIDE, (U)S75 POLYVINYL CHLORIDE, (U)L7 POLYVINYL  
CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1992/1704

STEP NO--UR/0191/70/000/002/0041/0042

CIRC ACCESSION NO--AP0112698

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--27NOV76

CIRC ACCESSION NO--AP0112698

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DIFFUSION OF DI-BU PHTHALATE (I) INTO SEVERAL BRANDS OF POLY(VINYL CHLORIDE) (II) (THE MOL. WT. AND D. IN G-CM PRIME3 ARE GIVEN) E.G., S-5 (50,000, 1.403), S-60 (50,000, 1.412), S-75 (68,000, 1.415), AND L-7 (47,000, 1.408) WAS STUDIED BY AN OPTICAL METHOD (R. M. VASENIN, ET AL., 1965). THE EFFECTIVE DIFFUSION COEFF. (D) WAS A LINEAR FUNCTION OF 1-T FOR THE ENTIRE TEMP. RANGE. THE APPARENT ACTIVATION ENERGY OF DIFFUSION (E) FOR THE VARIOUS II BRANDS DECREASED IN THE ORDER E SUBS-5 SMALLER THAN E SUBL-7 SMALLER THAN E SUBS-60 SMALLER THAN E SUBS-75, WHEREAS D OBEYED THE ORDER: D SUBS-5 GREATER THAN D SUBL-7 GREATER THAN D SUBS-60 GREATER THAN D SUBS-75. S-75 GLOBULES WERE ELONGATED AND RESEMBLED A FIBRILLAR SUPRAMOL. STRUCTURE, WHICH MADE ITS PACKING D. CONSIDERABLY HIGHER THAN THAT OF OTHER BRANDS, AND CONSEQUENTLY, S-75 EXERTED GREATER RESISTANCE TO THE PENETRATION OF I.

UNCLASSIFIED

VASENIN, R.M.

SOVIETS 57474  
14 June 75

3

OBTAINING SILICON EPITAXIAL FILMS BY THE SILANE METHOD

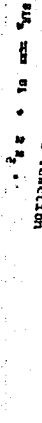
Article by S. A. Katenberg, H. H. Vasenin, N. L. Vashina, Novosibirsk, Inst. of Chemistry, Siberian Division, Novosibirsk, USSR, *Dokl. Akad. Nauk SSSR*, 1969, pp. 110-111.

Epitaxial films of silicon are obtained by three chemical methods: by the base-catalyzed reaction of the haloalkanes and thermal methods. By the base-catalyzed reaction of the haloalkanes and thermal methods, films with a sharp diffusion transition are obtained. The danger of the process with silane is eliminated by using cylinders with a mixture of air and hydrogen. In the case of low silane content in the hydrogen (2-5 percent), the mixture is not pyrophoric [5].

The article contains a discussion of the results of the theoretical and experimental study of the reaction of thermal decomposition of silane in order to obtain high-quality epitaxial films.

Thermodynamics of the Process

The basis for the silane method is the reaction



A detailed thermodynamic investigation of reaction (1) has not as yet been performed. It is known [3] only that in the temperature range of 300-1,600° K the standard free energy of the reaction is negative. The dependence of the equilibrium constant K of the reaction (1) on the temperature T calculated by the thermodynamic data of [6] is expressed by the equation

$$\ln K_p = -\frac{4592}{T} + \frac{1.4}{T^2} - \frac{2.1 \times 10^{-4}}{T^3} + \frac{0.26 \times 10^{-6}}{T^4} + 6.5$$

- 97 -

(2)



1/2 025

UNCLASSIFIED

PROCESSING DATE--23OCT70  
READILY CONDENSED GASES

TITLE--CONCENTRATION FUNCTION OF THE DIFFUSION OF  
THROUGH RUBBERS -U-

AUTHOR--(04)-SHOROKHOVA, N.V., VASENIN, R.M., KOLYADINA, N.G., IOSSEL, G.F.

COUNTRY OF INFO--USSR

SOURCE--KAUCH. REZINA 1970, 29(3), 21-3

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PERMEABILITY MEASUREMENT, GAS ABSORPTION, GAS DIFFUSION,  
AMMONIA, FREON, SYNTHETIC RUBBER/(U)F12 FREON, (U)F22 FREON, (U)SKMS10  
SYNTHETIC RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/0531

STEP NO--UR/0138/70/029/003/0021/0023

CIRC ACCESSION NO--AP0119450

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119450  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE PERMEABILITY COEFF. (P), THE GAS ABSORPTION COEFF. (SIGMA), AND THE GAS DIFFUSION COEFF. (D) OF NH SUB3, FREON F-12, AND FREON F-22 WITH RESPECT TO UNFILLED SKMS-10 SYNTHETIC RUBBER MEMBRANES ARE DEPENDENT ON THE PARTIAL GAS PRESSURE (OR CONC.N.) IN GAS MIXTS. P, SIGMA, AND D INCREASE LINEARLY WITH NH SUB3 PRESSURE AND NONLINEARLY WITH F-12 OR F-22 PRESSURE. THE CALCD. P VALUES FROM THE RELATION P EQUALS DSIGMA AND THE EXPTL. P VALUES COINCIDED.  
FACILITY: LENINGRAD. FILIAL VAUCH.-ISSLED, INST. REZIN. PROM., LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 621.357.1.035.224

VOLOSUYUK, YU. M., CHERNOV, G. K., KUKOZ, L. A., VASENIN, V. N.  
"Granulated and Powdered Anodes"

Tr. Novocherkas. politekhn. in-ta (Works of Novocherkassk Polytechnic Institute),  
1971, 239, pp 93-99 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L342)

Translation: A study was made of the possibility of using ground metal as soluble anodes in electrolytic production or metal refining. The anode chamber of the electrolytic cell made from an insoluble material (vinyl plastic, plexiglass) was filled with granules of the processed metal. During operation, the chamber was filled with granules from a bin located above it. It was demonstrated that better movement of the granules as the solution process takes place is observed when their linear dimensions are less than half the chamber thickness. An increase in the anode surface as a result of using granules leads to a reduction in the overvoltage of solution of the anode metals and improves the conditions of purification of the electrolyte when refining the metals.  $\eta_a \sim 100\%$ .

1/1

VASENINA, M.L.

So: TRES Bpang  
14 June 73

3

Obtaining Silicon Nitride Films by the Silane Method

Article by S. A. Hakenberg, A. M. Sitovskiy, N. N. Vaganov, N. N. Vaganov, S. N. Slonimskiy, P. I. Puzikov, Part 2, 1969, pp 110-121

Optical films of silicon nitride are obtained by thermal decomposition of silane (1-4). The silane method has a number of advantages among which are the absence of chemically active reagents and lower process temperatures which offer the possibility of obtaining thin high-resistance silane mixtures is eliminated by using cylinders with high resistance with silane. In the case of low silane content in the mixture of silane the mixture is not pyrolytic [5].

The article contains a discussion of the results of the theoretical and experimental study of the reaction of thermal decomposition of silane in order to obtain high-quality optical films.

Thermodynamics of the Process

The basis for the silane method is the reaction



A detailed thermodynamic investigation of reaction (1) has not as yet been performed. It is known [3] only that in the temperature range of 300-1,600° K the standard free energy of the reaction is negative. The dependence of the equilibrium constant K of the reaction (1) on the temperature T calculated by the thermodynamic data of [6] is expressed by the equation

$\ln K_p = -\frac{1272}{T} - \frac{R_A}{1.501} \ln T - \frac{R_B}{2.18} T + \frac{R_C}{27.95} T^2$

$\ln K_p = -\frac{1272}{T} - \frac{R_A}{1.501} \ln T - \frac{R_B}{2.18} T + \frac{R_C}{27.95} T^2$

USSR

UDC 669.046.54

VASHCHENKO, A. I., SEN'KOVSKIY, A. G., LIFSHITS, A. Ye., and SHUL'TS, L. A.

Okisleniye i Obezuglerozhivaniye Stali (Oxidation and Decarburization of Steel), Moscow, 1972, Izd-vo Metallurgiya, 336 pp

Translation of Introduction: Steel items are produced mainly from ingots and billets by heating them to high temperature and applying high pressure (rolling, stamping, forging, and others). Thereafter a great number of items are subjected additionally to heat treatment. Both processes require heating of the metal in flame or electric furnaces to high temperatures. After heating, the metal interacts with the furnace atmosphere (with combustion products in the open-flame furnace, and with air in electric furnaces) and the ensuing reaction with gases-oxidizers leads to oxidation and decarburization of steel.

The oxidation of steel increases with the heating temperature, provided other conditions are equal. The pressure treatment of steel requires heating to high temperatures (1100-1300°C). As a result the oxidation is excessive. Under the best conditions about 1% of the metal undergoes oxidation and is lost in the form of scale, and in some cases the percentage reaches 1.5-2% or more during each heating.

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USSR

VASHCHENKO, A. I., et al., Okisleniye i Obezuglerozhivaniye Stali, Moscow, 1972, Izd-vo Metallurgiya, 336 pp

Considering that during the production of steel items it is often necessary to heat the steel several times, the oxidation increases to 5-6% and the metal is lost as scale. However, the harm produced by oxidation does not end here. The scale which is formed on the metal surface damages high-pressure equipment and causes an excessive wear of it.

In cases when scale is rolled (during hot rolling) and stamped (during stamping) into the metal during the high-temperature treatment, the metal becomes unusable and is lost as scrap.

During production, for example, of sheet metal, thin-walled pipes, and other items, the scale is removed by pickling in special solutions. This complicates the production process and raises the price of parts produced by high-temperature treatment.

In addition to oxidation, the furnace gases also cause the decarburization of steel, which results in losses for the national economy. As a result of decarburization the quality of the metal's surface layer is low. In

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USSR

VASHCHENKO, A. I., et al., *Okisleniye i Obezuglerozhivaniye Stali*, Moscow, 1972, Izd-vo Metallurgiya, 336 pp

order to produce items with predetermined qualities, this layer must be removed, and that part of the metal is lost. The production of steel items becomes expensive and complicated.

All these facts indicate that the production of steel without the oxidation and decarburization processes is a very important problem for the national economy. This explains why the problem of the nonoxidative and non-decarburizative heating of steel in furnaces is the focus of a great deal of attention in the Soviet Union and elsewhere. A considerable number of works have been published on this subject. Among such Soviet works are those of V. I. Arkharov, A. V. Smirnov and L. V. Beloruchev, V. F. Kopytov, V. A. Kuroyedov, A. A. Skvortsov, N. Yu. Tayts, A. A. Shmykov, I. N. Frantsevich, R. F. Voytovich, V. A. Lavrenko, L. A. Shvartsman, and others. Among foreign authors the following should be named: H. Tamman, C. Wagner, H. F. Mott, K. Hauffe, O. Kubashevski and B. Hopkins, A. J. Hochkiss, C. M. Webber, G. Benar, D. V. Marphy, V. E. Jomini, P. Cofstadt, and others.

Industrial workers also contribute to the decrease of oxidation and decarburization of steel. The combined efforts of scientists and engineers

3/14

USSR

UDC 621.791:53.087.92

NETSVITAY, A. M., VASIL'CHENKO, A. V., Engineers

"Low-Ampere Arc Welding of Diaphragm-Type Sensors"

Moscow, Pribory i Sistemy Upravleniya, No 11, 1973, pp 56-57

Abstract: The use of low-ampere arc welding with a nonconsumable tungsten electrode and argon gas shielding has led to much more exact manufacture of the cases for diaphragm-type sensors, better indexes, control and regulation of the technological process. Several pressure gauges on which this type of welding is used are described.

The described welding technique excludes electrode manipulation. The torch is inclined at 5-20° opposite to the direction of welding. With great difference in the thicknesses (0.1 to 1.0 mm) the arc is struck on a minimum current of 3-5 amps after which the current is increased.

1/1

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USSR

VASHCHENKO, K. I., FIRSTOV, A. N., ZHIZHCHEKHO, V. V.

UDC 669.71.48

"Improving the Quality of Secondary Aluminum Alloys"

Usadochn. protsessy v splavakh i otlivkakh -- V sb. (Shrinkage Processes and Alloys and Castings -- collection of works), Kiev, Naukova Dumka Press, 1970, pp 274-277 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G196)

Translation: The effect of degassing and refining on the mechanical and casting properties of secondary AL9V and AL10V alloys is investigated. The quality of secondary alloys is improved by effective methods of degassing and refining the alloys, for example, evacuation and blowing of the alloys with Ar as a result of which the gas porosity is decreased sharply and the water tightness and mechanical properties of the alloys are improved. There are 2 tables.

1/1

1/2 027

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--EXPRESS DETERMINATION OF HYDROGEN CONTENT IN ALUMINUM SILICON ALLOYS UNDER PRODUCTION CONDITIONS -U-

AUTHOR--(04)-VASHCHENKO, K.I., CHERNEGA, D.F., BYALIK, O.M., REMIZOV, G.A.

COUNTRY OF INFO--USSR

SOURCE--KIEV, TEKHNLOGIYA I ORGANIZATSIYA PROIZVODSTVA, NO 1, 1970, PP 52-55

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--HYDROGEN, METAL CONTAINING GAS, GAS CONTAINING METAL, ALUMINUM ALLOY, SILICON ALLOY, LIQUID METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/F-RAME--1999/1321

STEP NO--UR/0418/70/000/001/0052/0055

CIRC ACCESSION NO--AP0123280

UNCLASSIFIED

212 027  
CIRC ACCESSION NO--AP0123280 UNCLASSIFIED  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A UNIT WAS DEVELOPED WHICH MAKES  
IT POSSIBLE TO DETERMINE HYDROGEN CONTENT IN LIQUID ALUMINUM ALLOYS IN  
40-50 SECONDS. MEASUREMENT ERROR CONSTITUTES 5-7PERCENT.  
PROCESSING DATE--30OCT70

UNCLASSIFIED

USSR

VASHCHENKO, V. I., and TIMOFEYEV, V. B.

UDC 535.343.2

"Spectra of Free Reflection and Optical Transitions in  $\text{BiI}_3$  and  $\text{SbI}_3$  Monocrystals in the 1-5 eV Energy Area"

Spektroskopiya Atomov i Molekul [Spectroscopy of Atoms and Molecules -- Collection of Works] Kiev, Nauk. Dumka Press, 1969, pp 247-249 (Translated from Referativnyy Zhurnal Fizika, No 6, 1970, Abstract No 6D540 by V. B. B.)

Translation: Optical reflection of  $\text{BiI}_3$  and  $\text{SbI}_3$  monocrystals is studied in the UV and visible areas of the spectrum in the 90-293°K temperature interval. It is shown that the main part of the reflection spectra is located near the long-wave edge of the natural absorption of each compound. It is established that the reflection spectra of  $\text{BiI}_3$  and  $\text{SbI}_3$  have a similar doublet structure, and it is shown that this similarity can be explained by the identical origin of the valence zone of both crystals. It is shown that in the temperature interval 90-293°K the distance between the components of the doublets in the spectra both of the crystals and of  $\text{BiI}_3$ - $\text{SbI}_3$  solutions remains identical ( $\Delta = 0.42 \pm 0.02$  eV), which fact is explained by the primarily ionic nature of the bond in these

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UNCLASSIFIED

PROCESSING DATE--23OCT70

1/2 015

TITLE--METHODS OF PRE ESTIMATION OF OVERHAUL COSTS -U-

AUTHOR--(03)-VASHCHENKO, V.K., DERKACH, G.M., SULPOVAR, L.B.

COUNTRY OF INFO--USSR

SOURCE--STANDARTY I KACHESTVO, 1970, NR 5, PP 76-77

DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, BEHAVIORAL AND SOCIAL SCIENCES  
TOPIC TAGS--ENGINE MAINTENANCE, ECONOMIC INCENTIVE, COST ESTIMATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/1551

STEP NO--UR/0422/70/000/005/0076/0077

CIRC ACCESSION NO--AP0120330

UNCLASSIFIED

USSR

VASHCHENKO, V. I., and TIMOFEYEV, V. B., Spektroskopiya Atomov i Molekul [Spectroscopy of Atoms and Molecules -- Collection of Works] Kiev, Nauk. Dumka Press, 1969, pp 247-249 (translated from Referativnyy Zhurnal Fizika, No 6, 1970, Abstract No 6D540 by V. B. B.)

crystals. At 90°K an additional maximum is discovered in the BiI<sub>3</sub> spectrum, related to the elimination of degeneration in the upper p zone. The spectra of both crystals show a number of maxima in the UV area corresponding to deep interzone transitions. 4 biblio. refs.

UNCLASSIFIED

PROCESSING DATE--23OCT7

2/2 015

CIRC ACCESSION NO--AP0120330

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

ABSTRACT. THE ARTICLE CONSIDERS THE METHODS OF PRELIMINARY ESTIMATION OF EXPENSIS FOR ENGINE OVERHAUL REPAIRS. THE EXPENSES ARE REGARDED AS INFLUENCED BY THREE GROUPS OF FACTORS, VIZ., THOSE DEPENDENT ON THE DESIGN, MANUFACTURING METHODS, AND OPERATIONAL CONDITIONS. THE DIFFERENT LEVELS OF INFLUENCE OF THESE FACTORS UPON THE OVERHAUL COSTS SUBDIVIDE THE EXPENSES INTO CONVENTIONALLY CONSTANT AND CONVENTIONALLY VARIABLE ONES. FORMULAS FOR CALCULATION OF THE EXPENSES ARE GIVEN IN THE ARTICLE.

UNCLASSIFIED

UDC 595.775:591.1

USSR

VASHCHENOK, V. S., and SOLINA, I. T., Leningrad Antiplague Station

"Age-Determined Changes in the Fat Tissue of Female *Xenopsylla cheopis* Fleas"

Moscow, Zoologicheskii Zhurnal, Vol 51, No 1, Jan 72, pp 79-85

Abstract: During the imaginal period of its life, the female *Xenopsylla cheopis* fleas undergoes substantial changes in fat tissue which, under conditions of permanent access to the host, are of an age-determined nature. Large specimens have an abundance of reserve inclusions which, in the form of fat vacuoles, glycogen granules and large spherical protein granules, comprise the principal cellular content. Weakly active cytoplasm is represented in the form of narrow layers between the inclusions. With the onset of feeding, the protein granules are rapidly destroyed. As the ectoparasites remain with the host, the fat vacuoles gradually dwindle in size, and the cell diameters increase due to the increase in volume of cytoplasm; the cytoplasm becomes constantly more basophilic due to increase of the RNA concentration. In fleas living more than 35 days, and in some specimens still earlier, some changes are noted in trophocytes, which are due probably to senile degeneration of fatty tissue.

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USSR

VASHCHILA, V. V. and ONAYTIS, V. A., Leningrad Scientific Research Institute  
of Physical Culture

"Graphic Recording of Motor Reactions and Maximum Frequency of Movements after  
Adequate Stimulation of the Vestibular Analysor"

Moscow, Teoriya i Praktika Fizicheskoy Kul'tury, No 2, 1971, p 62

Abstract: A brief description is given with a diagram of an attachment to an  
electrocardiograph for use in recording the parameters of various bodily move-  
ments before, during, and immediately after rotation on a Barány chair. The  
known speed at which the paper in the electrocardiograph moves (100 mm per  
sec or 0.5 mm per 0.005 sec) makes it possible to calculate the length of the  
latent period of visual-motor reactions, the maximum frequency of movements  
at any time, and the duration of each movement.

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USSR

BAYCHENKO, I. P., and VASHCHILA, V. V., Leningrad Scientific  
Research Institute of Physical Culture, Leningrad

"Changes in the Reproduction of a Movement at a Young Age During  
Adequate Stimulation of the Vestibular Analyzer"

Moscow, Teoriya i Praktika Fizicheskoy Kul'tury, Vol. 34, No 1,  
Jan 71, pp 56-59

Abstract: Measurements of the amplitude of bending of the right  
elbow joint following rotation of the body to the left were  
carried out on children 4-13 yrs old undergoing systematic train-  
ing in athletics (diving and gymnastics) and children not  
engaged in such training. Reproduction of the assigned movement  
(bending of the elbow at an angle of 20°) was significantly  
altered by the preceding rotation in the majority of cases; the  
amplitude was increased in most instances in comparison with  
that which had been assigned. With increasing age and  
increased athletic proficiency of the children, the change in  
amplitude following rotation and also the time required for  
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USSR

BAYCHENKO, I. P. and VASHCHILA, V. V., Teoriya i Praktika Fizicheskoy Kul'tury, Vol 34, No 11, Jan 71, pp 56-59.

reproduction of the movement decreased. Under the effect of rotational loads, the balance between inhibition (reduced amplitude) and stimulation processes (increased amplitude) was changed toward stimulation. With increasing age and advancing athletic proficiency, the magnitude of this change decreased -- i.e., adequate stimulation of the vestibular apparatus produced a lesser shift in the relationship between inhibition and stimulation.

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1/2 026 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--EFFECT OF CHROMIUM, MOLYBDENUM, AND PHOSPHORUS ON THE  
SUSCEPTIBILITY OF LOW CARBON, CHROMIUM STEELS TO REVERSIBLE TEMPER  
AUTHOR--(02)-RIZOL, A.I., VASHCHILLO, T.P.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (1), 246  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--CHROMIUM, MOLYBDENUM, PHOSPHORUS, TEMPER BRITTLINESS, METAL  
CRACKING, CHROMIUM STEEL, LOW CARBON STEEL, METAL TUBE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1984/0162 STEP NO--UR/0370/70/000/001/0246/0246  
CIRC ACCESSION NO--AP0054958  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--18SEP70

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CIRC ACCESSION NO--AP0054958

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REVERSIBLE TEMPER BRITTLENESS OF LOW C, CR STEELS IS INCREASED BY INCREASING CONTENT IN CR AND P. FOR TUBES COLD ROLLED FROM THESE STEELS, THE POSSIBILITY OF CRACKING IS NOT EXCLUDED. CRACKING OF TUBES IS LESS FOR STEELS WITH LOWER CR CONTENTS AS WELL AS FOR CR STEELS CONTG. 0.4-0.6PERCENT MO WITH LOW P CONTENTS.

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UNCLASSIFIED

UDC 632.951/.78

SSR

VASHCHINSKAYA, N. V., Armenian Scientific Research Institute of Viticulture,  
Wine Production, and Fruit Growing

"An Insecticide that is Effective Against the Apple Clearwing"

Moscow, Zashchita Rasteniy, Vol 17, No 6, 1972, p 34

Abstract: The apple clearwing does considerable damage to apple trees in the Ararat trough of Armenia. After tests conducted with 12 pesticides, the preparation PLK which consists of gamma-hexachlorane, kerosene, dichloroethane, and an emulsifier and has been developed by the Chemical Laboratory of the Georgian SSR and the Institute of Physical and Organic Chemistry, Academy of Sciences Georgian SSR, was selected for application against this pest. Two methods of application were developed: 1) treatment with 25% PLK at the time of the swelling of buds, which coincides with the beginning of the feeding of larvae, and with 15% PLK at the beginning of the flight of the moths; 2) two sprayings with 15% PLK, one in the beginning of the flight and the other at the time of the mass flight of the moths. In tests in an apple orchard strongly infested with the apple clearwing, treatment with PLK in the spring by the method (1) reduced the number of the moths by 94.2% and that of larvae by 97.9% vs. 0% and 64.8% of moths and larvae, respectively, on spring treatment with 1% sevin in an 8% emulsion of preparation No 30

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USSR

VASHCHINSKAYA, N. V., Zashchita Rasteniy, Vol 17, No 6, 1972, p 34

used as a standard for comparison. Treatment in the summer by the method (2) reduced the number of moths by 64.4% and that of larvae by 97.7% vs. 0% and 50.7% of moths and larvae, respectively, on summer treatment with 2% sevin in a 2% emulsion of preparation No 30 used as a standard.

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Acc. Nr:

AP0047646

Abstracting Service:  
CHEMICAL ABST. 5-70

Ref. Code:

CR 0080

104350s Interaction of ammonia with nitrogen oxides.  
 Ganz, S. N.; Vashkevich, A. M. (Dnepropetrovsk. Khim.-  
 Tekhnol. Inst., Dnepropetrovsk, USSR). *Zh. Prikl. Khim.*  
 (Leningrad) 1970, 43(1), 13-18 (Russ). The reaction rates of  
 NO and NO<sub>2</sub> with NH<sub>3</sub> were studied as a function of temp. At  
 >120°, the rate of reaction of NH<sub>3</sub> with NO increases with an  
 increase in temp. and the reaction proceeds with a discharge of  
 N<sub>2</sub>. On the other hand, the rate of reaction of NH<sub>3</sub> with NO<sub>2</sub>  
 decreases and the process stops completely at a temp. >230°.  
 The math. model of the process is detd. and equations are found  
 from which the degree of discharge of N<sub>2</sub> as a function of the con-  
 ditions of the process can be detd. C. J. Steinberg

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19791220

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UDC 612.35.014.424.5

VASHKEVICH, D. L., Department of Physiotherapy and Balneology of the Ukrainian Institute for the Advanced Training of Physicians and the Berezovskiye Mineral Waters Health Resort

"Effect of Centimeter Microwaves on the Functional State of the Liver"

Moscow, Voprosy Kurortologii Fizioterapii i Lechebnoy Fizicheskoy Kul'tury, No 6, 1972, pp 532-535

Abstract: A study was made of the role of microwaves in the complex treatment of patients with chronic diseases of the liver and the bile ducts. A total of 194 patients from 30 to 50 years old were examined: 53 of them basically had uncomplicated cholecystitis, 117 had cholecystitis complicated by cholangitis and hepatitis and 24 had chronic hepatitis. The first group of patients were treated with centimeter microwaves combined with mineral baths (36 to 37 degrees every other day) and drinking warm mineral water 200 ml three times a day. The centimeter microwaves were used every other day (alternating with the baths). Microwaves with a power of 20-30 watts were used, and the treatment lasted from 10 to 15-20 minutes, gradually building up over 10 treatments. The patients in the second group were used as controls, and they received treatment without the microwaves. Both groups were on special diets. The liver examination procedures are described and the indexes of the functional state

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USSR

VASHKEVICH, D. L., Voprosy Kurortologii Fizioterapii i Lechebnoy Fizicheskoy Kul'tury, No 6, 1972, pp 532-535

of the liver of the patients in both groups are tabulated. Both the functional state of the liver and the clinical course of the disease were improved in both groups. The treatment with microwaves and mineral waters (internal and external) had a significant effect on the functional state of the liver whereas the application of mineral water only improved certain functions -- pigment, protein metabolism and lecithin metabolism. When the centimeter microwaves were included in the treatment, the normalization of the bilirubin and lecithin metabolism was much more pronounced, and the carbohydrate metabolism, cholesterol and antitoxic functions of the liver were improved.

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Coatings

USSR

UDC 669.14.018.85

DECTEV, G. F., SOLOV'YEV, B. M., VASHKEVICH, F. F., MATVEYEV, O. R.

"Study of Some Oxidation-Resistant Coatings Obtained by the Plasma Deposition Method"

Dnepropetrovsk, Metallurgicheskaya i gornorudnaya promyshlennost', No 2 (74), 1972, p 37

Abstract: A study was made of the possibility of using plentiful and inexpensive materials to protect the steel elements of industrial heat exchangers. Oxidation-resistant coatings of aluminum oxide, magnesium oxide, zirconium dioxide, silicon carbide, and tungsten carbide were applied to specimens made of St. 3 carbon steel and Kh18N9T oxidation-resistant steel. The coatings were tested independently and in combination with each other. Various conditions of plasma deposition of the coatings were tested. The best results were obtained on applying aluminum oxide, aluminum-magnesia spinel, and silicon carbide to carbon steel with a sublayer of iron.

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USSR

UDC 619.616.981.42-036.2:636.294

VASHKEVICH, R. B., director, Yama Agricultural Experimental Station

"The Viability of Reindeer Strains of Brucella Under the Conditions of the Far North"

Moscow, Veterinariya, No 4, 1973, pp 33-36

Abstract: Studies were conducted on the viability of two Brucella strains (No 40 isolated from an aborted reindeer fetus, and No 42 isolated from reindeer milk) on plants, water, soil, and fecal matter under the climatic conditions of the Far North (Salekhard vicinity). The temperature during the Spring-Summer season (June to September) usually ranges from  $-5^{\circ}$  to  $+25^{\circ}$ , and during Fall-Winter (October to May) from  $-6.8^{\circ}$  to  $+4.9^{\circ}$ . During the Spring-Summer season Brucella were found to survive on lichen and moss for up to three days, and for up to 12 days in the tundra swampland and peat bog. In loamy soil the bacteria survived for 44 days at a depth of 5 cm, and cultures were positive at least for 86 days at 10 cm. In addition to the acid soil (pH 4-4.3), soil microorganisms were also a factor in the elimination of Brucella microorganisms since the latter survived for much longer periods of time in autoclaved soil. The bacteria were viable for 21-44 days in fecal matter in water, moss, deposited on corrals, and so on. When tested during the Fall-Winter season, Brucellae retained their

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USSR

VASHKEVICH, R. B., Veterinariya, No 4, 1973, pp 33-36

viability for 151-233 days on different objects. The studies showed that within the polar circle the temperature was a determining factor in Brucella viability, and suggest that long periods of quarantine should be maintained on grazing grounds where outbreaks of brucellosis had occurred among reindeer. For pastures contaminated in March and April the quarantine period should be 4 months, for pasture lands infected in May or June the quarantine period should be 1.5-2 months, for those contaminated during the June to August period a quarantine of 1.5 months is recommended, and for lands contaminated in October, November, or the Winter months a quarantine period of 8-10 months should be instituted.

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172 008 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--BIS PI METHALLYLCOBALT CHLORIDE -U-  
AUTHOR--(02)-POTAPOV, S.S., VASHKEVICH, V.A. ✓  
COUNTRY OF INFO--USSR  
SOURCE--USSR 265,101  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--09MARTO  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CHEMICAL PATENT, COBALT CHLORIDE, ORGANOCOBALT COMPOUND,  
CHEMICAL SYNTHESIS  
CENTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3002/1457 STEP NO--UR/0482/70/000/000/0000/0000  
CIRC ACCESSION NO--AA0128856  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AA0128856

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE TITLE COMPD. IS PREPD. FROM  
METHALLYLMAGNESIUM CHLORIDE AND CO CHLORIDE IN ETHER-TOLUENE AT LESS  
THAN MINUS 20DEGREES AND THEN AT ROOM TEMP. FACILITY: LOMONOSOV,  
H. V., INSTITUTE OF FINE CHEMICAL TECHNOLOGY, MOSCOW.

UNCLASSIFIED

USSR

UDC 620.193.01:669.29

ROZENFEL'D, I. L., VASHKOV, O. I., BALOVNEVA, R. S., USSR Academy of Sciences,  
Institute of Physical Chemistry

"Some Characteristic Features of the Cathode Behavior of Titanium in Neutral  
Environments"

Moscow, Zashchita Metalloy, Vol 8, No 6, 1972, pp 701-703

Abstract: A study was made of the cathode process on a VT-1 titanium electrode in a neutral solution simulating sea water (0.5 normal NaCl). The polarization curves were taken using the P-5827 potentiostat. In the range of potentials more positive than -0.35 volts, a trend is observed toward a noticeable increase in resistance with a decrease in frequency at the same time as the variation in capacitance is insignificant; for potentials more negative than -0.35 volts the resistance exhibits low dependence on the frequency, and the dependence of the capacitance on frequency increases noticeably. In the range of potentials more positive than -0.35 to -0.40 volts, the conductivity of the  $TiO_2$  oxide layer is low and the electrode reveals attributes characteristic of the metal coated with a thin layer of dielectric. For potentials more negative than -0.35 to -0.40 volts titanium behaves as an electrode the electrochemical behavior of which is determined by the potential drop in a double layer (the electrode impedance is close to Faraday). The anomalous behavior of the time dependence of

USSR

ROZENFEL'D, I. L., et al., Zashchita Metallov, Vol 8, No 6, 1972, pp 701-703

the current of the St.3 steel and titanium couple and the couple St.3 and copper couple is compared. The difference in time dependencies of the currents of the couples is explained by the fact that the St.3-copper couple always operates in the diffusion mode while the current of the St.3-titanium couple is determined by the reactivity of the titanium surface which depends on the potential. When the titanium potential in the couple is more positive than  $-0.35$  volts, the cathode process on its surface is inhibited and the couple current is correspondingly low. When the steel potential and, consequently, the titanium potential, is shifted to the negative side (more negative than  $-0.35$  volts) the titanium surface "opens up" to the cathode process, and the couple current increases to a value close to the limiting diffusion current.

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USSR

UDC 632.95

VASHKOV, V. I., SIDOROVA, M. V., KUZNETSOVA, R. A.

"Insecticide Activity of Dicresyl for Certain Types of Domestic Insects and Mosquitoes"

Sb. nauch. tr. Mosk. NII vaktsin i syvorotok (Collection of Scientific Works of Moscow Scientific Research Institute of Vaccines and Serums), No 22, 1972, pp 155-159 (from RZh-Khimiya, No 15, Aug 73, Abstract No 15N502)

Translation: Dicresyl (I) and chlorophos are approximately equivalent with respect to toxicity for bedbugs and roaches. The I is more effective in dust form than in emulsion form. The minimum dosage of I in powdered form causing 100% death of bedbugs is 0.01 and for roaches it is 0.5g/m<sup>2</sup>. In emulsion form the I is effective against bedbugs in a dosage of 0.1 g/m<sup>2</sup> on nonsorbing surfaces and 1-2 grams/m<sup>2</sup> on sorbing surfaces. In laboratory tests the larvae and eggs of the housefly died after spraying a substrate with 0.2-0.3% emulsions of I (1 liter/m<sup>2</sup>). The winged flies were resistant to I. The larvae of mosquitoes ages 1-2 and 3-4 died after 24 hours in bodies of water sprayed with emulsions of I in doses of 0.5-1 and 1-2 kg/hectare respectively. According to laboratory tests with winged mosquitoes *Aedes* spp., I is equivalent to baygon with respect to toxicity, 8 times more toxic than carbophos and twice as toxic as DDT.

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1/2 030 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--EFFECT OF TEMPERATURE AND AEROSOL COMPOSITION ON THE ATOMIZATION  
CHARACTERISTICS -U-  
AUTHOR--(02)--TSETLIN, V.M., VASHKOV, V.I.  
COUNTRY OF INFO--USSR  
SOURCE--PARFUM., COSMET., SAVUNS 1970, 13(3), 189-94  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--AEROSOL, PARTICAL SIZE, LIQUID PROPELLANT, FREON, CHEMICAL  
COMPOSITION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605014/808 STEP NO--FR/0000/70/013/003/0189/0194  
CIRC ACCESSION NO--APO140455

UNCLASSIFIED

272 030

UNCLASSIFIED

PROCESSING DATE--11DEC79

CIRC ACCESSION NO--AP0140455

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RELATIONS ARE GIVEN BETWEEN THE AV. DIAM. OF THE PARTICLES AND THE NO. OF CARBONS OF THE PROPELLANT IN THE MIXT., THE DEGREE OF POLYDISPERSION AND TEMP. OF THE MIXT., THE TEMP. AND THE ANGLE OF PROJECTION IN LEAVING THE BOMB., THE SATD. VAPOR PRESSURE AND THE COMPN. OF THE PRODUCT IN FILLING THE BOMB. A TABLE IS GIVEN OF THE CHARACTERISTICS IN THE EXPANSION OF FREONS 11, 12, 114 AND C138. DELTA V (VOL.) AND WORK IN AN ISOTHERMAL PROCESS CAN BE CALCD. FROM THE EQUATIONS. FACILITY: INST. RECH. DESINFEC., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 632.95

VASHKOV, V. I., VINOGRADSKAYA, O. N., VOLKOV, YU. P., ZUBOVA, G. M., and SHCHUGAL, N. F.

"Study of Synthetic Pyrethroids -- Bartrin and Dimetrin -- As Insecticides"

Tr. Tsent. n.-i. dezinfekts. in-ta (Transactions of the Central Scientific Research Disinfestation Institute), 1969, vyp 20, pp 236-242 (from RZh-Khimiya, No 12, 25 Jun 70, Abstract No 12 N974)

Translation: Toxicity of bartrin (6-chloropiperonyl-dl-cis,trans-chrysanthemate) (I) and dimetrin (1,4-dimethylbenzyl-dl-cis, trans-chrysanthemate) (II) for topical application of LD50 for houseflies is 31 and 114, for bedbugs -- 58 and 23.7, and for golden cockroaches -- 200 and 445 mcg/g of insect weight, respectively. Addition of piperonylbutoxide (PPB) at a 1:10 ratio intensifies insecticidal activity of (I) by 1.6-3 times. (I) and (II) are active for larvae of mosquitoes by 10 - 15 times and action of (II) by 6 times or less. Toxicity of (I) and (II) for winged mosquitoes is low. Bibliography: 14 entries.

S. Roslavtseva

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USSR

UDC: 632.95

✓  
BESSONOVA, I. V., VASHKOV, V. I., VOLKOV, YU. P., VOLKOVA, A. P., ZHUK, YE. B.,  
ZUBOVA, G. M., TSELLIN, V. M., and SHCHUGAL, N. F.

"Neopinamine -- A New and Promising Preparation for Insect Control"

Tr. Tsentr. n.-i. dezinfekts. in-ta (Transactions of the Central Scientific Re-  
search Disinestation Institute), 1969, vyp. 20, pp 269-278 (from RZh-Khimiya,  
No 12, 25 Jun 70, Abstract No 12 N973)

Translation: Neopinamine (I) (esters of dl-cis, trans-chrysanthemic acid and N-oxymethyl-3,4,5,6-tetrahydrophthalimide containing 96% chrysanthemic acid was synthesized. In insecticidal properties (I) is close to a sample of Japanese neopinamine containing 85% active substance. The LD<sub>50</sub> of both (I) samples for houseflies, bedbugs, golden cockroaches, and black cockroaches is, respectively, 8-10.7, 5.6-10, 15-17.3, and 24-27 mcg/g of insect weight. In aerosol form, (I) is 1.4-1.7 times more toxic for houseflies than natural pyrethrins. A mixture of (I) with piperonylbutoxide (1:10) exhibits some synergism. A mixture of (I) with DDVF [expansion unknown] (1:9) is promising for practical use as aerosols. Acute oral LD<sub>50</sub> of (I) samples for white mice is 2500 and 3500 mg/g of insect

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USSR

BESSONOVA, I. V., et al, RZh-Khimiya, No 12, 25 Jun 70, Abstract No 12N973

weight. (I) has no local-irritative action when 10-15% oil solutions are applied on the skin and do not produce toxic effects when aerosols are inhaled.

P. V. Popov

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1/2 025 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--AN EFFECTIVE MIXTURE OF INSECTICIDES ON THE BASIS OF PIRETROIDES  
AND DOVF -U-  
AUTHOR-(05)-BESSONOVA, I.V., VASHKOV, V.I., VOLKOV, YU.P., ZHUK, YA.B.,  
TSETLIN, V.M.  
COUNTRY OF INFO--USSR  
SOURCE--MEDITSKAYA PARAZITOLOGIYA I PARAZITARNYVE BOLEZNI, 1970, VOL  
39, NR 1, PP 78-80  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--INSECTICIDE, AEROSOL, TOXICITY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1987/0082 STEP NO--UR/0358/70/039/001/0078/0080  
CIRC ACCESSION NO--AP0103762  
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0103762

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE ACTIVITY OF INSECTICIDE MIXTURES IN AEROSOL FORM AGAINST HOUSE FLIES EVALUATED BY THE COEFFICIENT OF COMBINED TOXICITY DEMONSTRATED MAXIMUM ACTIVITY IN MIXTURES WITH PIRETRINE TO DDVF RATIO OF 7:3 AND PIRETRINES TO DIMETRINE 3:7. A TRIPLE MIXTURE BASED ON DDVF, PIRETRINES AND DIMETRINE TAKEN IN OPTIMAL PROPORTIONS (3:7:16) SHOWED GREATER EFFECTIVENESS THAN DOUBLE MIXTURES, PERMITTING TO REDUCE THE CONCENTRATION OF DDVF 7.77 FOLD, PIRETRINES 5.58 FOLD AND DIMETRINE 27.4 FOLD AS COMPARED WITH THE SAME DRUGS USED SEPARATELY.

UNCLASSIFIED



USSR

UDC 632.95

ALIMOV, P. I., VASHKOV, V. I., VOLKOVA, A. P., ZAKOLODKINA, V. I., IRANDOVA,  
I. I., KERBAYEV, E. B., NEKLESOVA, I. D., STERL'NIKOVA, G. N., PROLOVA, A. I.

"Insecticidal Properties of Methyl-O-Ethyl (Carbethoxymethyl) Dithiophosphate"

Tr. VNII dezinfektsii i steriliz. (Works of the All-Union Scientific Research  
Institute of Disinfection and Sterilization), 1971, vyp. 21, t. 2, pp 73-76  
(from RZh-Khimiya, No 18, Sep 72, Abstract No 18N427)

Translation: The results of experiments in studying the insecticidal  
activity of  $\text{Me}(\text{EtO})\text{P}(\text{S})\text{SCH}_2\text{COOEt}$  (I) (boiling point  $89-92^\circ\text{C}/0.02$ ,  $n_{\text{D}}^{20}$   
1.5220) show that the compound has a fumigation effect and some contact  
action, but less than chlorophos. When applied to absorptive surfaces, the  
chemical is completely ineffective against household insects. Compound I  
has fumigatory activity against houseflies and is a larvicide against maggots.  
T. A. Belyayeva.

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USSR

UDC 632.95

VASHKOV, V. I., BABENKO, Z. I., and PERMYAKOVA, N. M.

"Insecticidal Properties of Dilor"

Tr. VNII dezinfektsii i steriliz. (Works of the All Union Scientific Research Institute of Disinfection and Sterilization), 1971, vyp. 21, t. 2, pp 77-81 (from RZh-Khimiya, No 18, Sep 72, Abstract No 18V421)

Translation: The results of experiments on studying the insecticidal activity of dilor by the method of enforced contact of insects with the surface of glass treated with a solution of dilor in acetone show that dilor is an insecticide equal in the strength of toxic effect to DDT and hexachlorocyclohexane on red cockroaches and bedbugs, and equivalent to DDT on houseflies. The minimum dose of dilor which ensures 100% destruction of lice with a one-hour exposure is  $0.5 \text{ g/m}^2$ ; for 100% destruction of the tick *Ixodes persulcatus*, the dose is  $1.4 \text{ g/m}^2$ . Heating the precipitated dilor for 2 hours at  $60^\circ\text{C}$  and exposure of the precipitate for 6 hours to ultraviolet rays (9000 luxes) causes almost no reduction in its toxicity for grain weevils. T. A. Belyayeva.

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USSR

UDC 632.95

VASHKOV, V. I., ZAKOLODKINA, V. I., KERBABAYEV, E. B., LARIONOVA, V. D., and STREL'NIKOVA, G. N.

"Insecticidal Properties of Agents Containing Bromophos and Ethyl-Bromophos"

Tr. VNII dezinfektsii i steriliz. (Works of the All-Union Scientific Research Institute of Disinfection and Sterilization), 1971, vyp. 21, t. 2, pp 157-167 (from RZh-Khimiya, No 18, Sep 72, Abstract No 18N425)

Translation: Insecticides SKh-99 (active agent bromophos), neksagan YeS-80, filariol-20 and filariol-60 (active agent ethyl-bromophos) were tested on houseflies, bedbugs, red cockroaches and mosquitoes. The contact action was compared with that of chlorophos. The insecticides have a considerable residual effect, retaining their insecticidal activity up to 1.5 months when applied to glass. When applied directly to the insects, the best of the chemical is filariol-60; its insecticidal properties are 1-8 times higher than those of chlorophos. When insects come into contact with a glass surface treated with the insecticides, the best chemical is neksagan. Filariol-20, Skh-99 and neksagan YeS-80 are also effective larvicides against Aedes mosquitoes. T. A. Belyayeva.

USSR

UDC 632.95

ALIMOV, P. I., VASHKOV, V. I., VOLKOVA, A. P., ZAKOLODKINA, V. I., ZUBOVA, G. M., IRANDOVA, I. I., KERBABYEV, E. B., NEKLESOVA, I. L., STREL'NIKOVA, G. N., and FROLOVA, A. I.

"Insecticidal Properties of O-Methyl-O-Dichlorovinyl-N-Dimethyl Amidophosphate"

Tr. VNII dezinfeksii i steriliz. (Works of the All Union Scientific Research Institute of Disinfection and Sterilization), 1971, vyp. 21, t. 2, pp 68-73 (from RZh-Khimiya, No 18, Sep 72, Abstract No 18N423)

Translation: The substance of formula  $(\text{MeO})\text{Me}_2\text{NP}(\text{O})\text{OCH}=\text{CCl}_2$  (I) has strong contact, fumigation and intestinal action at the instant of application on houseflies, bedbugs and red cockroaches; the agent is not as strong as other organophosphorus insecticides with respect to mosquitoes. The most active form for application to a glass surface is a water emulsion prepared from compound I with OP-7 (1:1) and a solution in acetone. An alcohol solution is considerably less active. An investigation is made of the larvicidal activity of compound I. The insecticide has no residual effect.  
T. A. Belyayeva.

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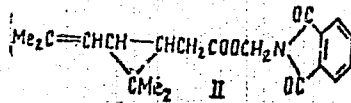
UDC 632.95

BESSONOVA, I. V., VASHKOV, V. I., VOLKOV, Yu. P., VOLKOVA, A. P., ZHUK, Ye. B., TSETLIN, V. M., KLIMENCHUK, V. I., POZHARSKAYA, Ye. B.

"An Insecticide Composition"

USSR Author's Certificate No 288800, filed 13/05/69, published 17/03/72  
(Translated from Referativnyy Zhurnal Khimiya, No 24(II), 1972, Abstract No 24N593 P, by T. A. Balyayeva)

Translation: An insecticide is suggested, containing as its active ingredient a synergistic mixture of O, O-dimethyl O-(2,2-dichlorovinyl) phosphate (I) and an analog of the pyrethrins of the formula



(II). Results are presented from determination of the degree of synergism and the insecticidal activity on houseflies. The composition of an aerosol can include I, II, xylene, kerosene and a mixture of freons. The preparate is nontoxic for warm blooded animals.

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USSR

VASHKOVA, V. V., LOGINOVA, N. V., and L'VOV, D. K., Institute of Virology  
Imeni D. I. Ivanovskiy, Academy of Medical Sciences, USSR

"A Comparative Study of the Effects of Two Varieties of Japanese Encephalitis  
Virus on Chromosomes and Mitotic Activity of Cells"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 71, pp 494

Translation: The effects of two varieties of Japanese encephalitis virus (Nakayama strain and clone No 33), differing from each other in neuropathogenicity with regard to white mice and in certain other genetic properties, on the chromosome apparatus in cells and on the mitotic activity of tissue cultures were studied. The Nakayama strain had no effect on the mitotic activity of tissue cultures. Clone No 33 suppressed mitotic activity, beginning with the 14th hour after inoculation. Forty-three hours after inoculation, cultures infected with the Nakayama strain had 17.2% chromosome rearrangements and those infected with clone No 33 had 11.7% of rearrangements.

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USSR

VASHKOVA, YE. V.,

Dezinseksiya (Insect Extermination), Moscow, Ministerstvo Zdravookhraneniya  
SSSR, 1970, 43 pp

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CSO: 1840-W

- 106 -

1/2 - 021 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--INSTABILITY OF MAGNETOSTATIC WAVES IN FERROMAGNETS -U-  
AUTHOR--(02)-VASHKOVSKIY, A.V., MURMUZHEV, B.A.  
COUNTRY OF INFO--USSR ✓  
SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(4), 215-19  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--MATERIALS, PHYSICS  
TOPIC TAGS--FERROMAGNET, FERRITE, ELECTROMAGNETIC WAVE  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1987/0779 STEP NO--UR/0386/70/011/004/0215/0219  
CIRC ACCESSION NO--AP0104225  
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2/2 021

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104225

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. AN EXPTL. STUDY WAS MADE OF THE EMISSION FROM PARAMETRICALLY EXCITED VOL. AND SURFACE MAGNETOSTATIC WAVES FOR TANGENTIALLY MAGNETIZED SINGLE CRYSTAL DISKS OF FERRITES DURING PARALLEL PUMPING. THE THRESHOLD CURVES AND THE EMISSION ZONES ARE SHOWN GRAPHICALLY. THE SURFACE WAVES ARE UNSTABLE OVER A WIDE RANGE OF MAGNETIZING FIELDS. THE EMISSION OF THE VOL. WAVES TAKES PLACE IN A FIXED MAGNETIZING FIELD (VERY NARROW EMISSION BAND). AN ANAL. OF THE DEPENDENCE OF THE EMISSION POWER ON THE PUMPING POWER INDICATES THAT THE ESTABLISHMENT OF THE AMPLITUDE OF THE MAGNETOSTATIC WAVE IS NOT RELATED TO THE EXCITATION OF AUTOMODULATION VIBRATIONS. THE EMISSION TAKES PLACE "DIRECTLY" AND NOT BECAUSE OF SCATTER EFFECTS.

UNCLASSIFIED

USSR

UDC 546.791:621.175-149.03

VASHEVAK, A. A., VERESHCHAGINA, T. Ya., and PRONIN, I. S.

"Nuclear Magnetic Relaxation of  $^{31}\text{P}$  and Ligand Exchange in Organophosphorus Compound Solutions of Uranyl Nitrate"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 17, No 2, Feb 72, pp 471-476

Abstract: By applying the spin echo method, the temperature relations of the time of nuclear magnetic spin-spin relaxation of  $^{31}\text{P}$  were determined for solutions of uranyl nitrate in tributyl phosphate (I), tributyl phosphinate [sic] (II), and tributylphosphine oxide (III). On the basis of the data obtained, the lifetime of ligands in the solvate shells of the complexes that formed, the solvate shifts, and the parameters of activation in the solutions were calculated. With decreasing electronegativity of substituents at P in the order I, II, III in the organophosphorus compounds, the entropy of activation of the complex formed with uranyl increased from -29.2 to -23.8 cal/mole. degree, the activation energy of molecular motion in the solvent increased from 5.6 to 7.0 kcal/mole, and the extraction capacity of the latter rose.  $\text{H}_2\text{O}$  and  $\text{HNO}_3$  affected the stability of the uranyl organophosphorus complex by reacting with the organophosphorus ligands in exchange reactions.

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1/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--RADICAL FORMATION IN LOW TEMPERATURE RADIOLYSIS OF TRIBUTYL  
PHOSPHATE AND SOME OTHER ORGANOPHOSPHORUS EXTRACTING AGENTS -U-  
AUTHOR-(02)-VASHMAN, A.A., SAVELYEV, YU.I.  
COUNTRY OF INFO--USSR  
SOURCE--LENINGRAD, RADIOKHIMIYA, VOL 12, NO 1, 1970, PP 12-17  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY  
TOPIC TAGS--RADIOLYSIS, ORGANIC PHOSPHATE, FREE RADICAL, EPR, GAMMA  
RADIATION, NITRIC ACID  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605017/C09 STEP NO--UR/0186/70/012/001/0012/0017  
CIRC ACCESSION NO--AP0140730  
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140730

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS USED THE EPR METHOD TO STUDY THE FREE RADICALS FORMED IN THE GAMMA IRRADIATION OF TRIBUTYL PHOSPHATE AND SOME OTHER NEUTRAL ORGANOPHOSPHORUS EXTRACTING AGENTS, AS WELL AS RADICAL FORMATION IN IRRADIATED MIXTURES OF TRIBUTYL PHOSPHATE WITH NITRIC ACID AND WITH INERT DILUENTS. IT WAS FOUND THAT IN EXTRACTING AGENTS IRRADIATED IN AIR O SUB2 RADICALS ARE FORMED IN THE RELEASE OF RADICAL ELECTRON TRAPS. IN FROZEN MIXTURES OF TRIBUTYL PHOSPHATE WITH BENZENE AND DECANE THE FORMATION OF RADICALS OF THE EXTRACTING AGENT AND DILUENT IS GOVERNED BY ADDITIVE LAW WITH VARIATIONS IN THE COMPONENT CONCENTRATION. AN EXCEPTION ARE MIXTURES OF TRIBUTYL PHOSPHATE WITH CARBON TETRACHLORIDE, WHICH DISPLAY STRONG DEVIATION IN ADDITIVITY IN THE FORMATION OF RADICALS OF DILUENT WITH VARIATIONS IN ITS CONCENTRATION. IN IRRADIATED MIXTURES OF TRIBUTYL PHOSPHATE WITH 97PERCENT HNO SUB3 THE EPR SPECTRA BELONG TO NO SUB2 AND NO SUB3 RADICALS FORMED IN THE RADIOLYSIS OF CONCENTRATED NITRIC ACID, AS WELL AS R RADICALS OF THE EXTRACTING AGENT. THE NO SUB2 AND R RADICALS ARE FORMED ADDITIVELY. THE NO SUB3 RADICALS ARE ELECTRON TRAPS, AND THEIR EPR SIGNAL BEGINS TO APPEAR ONLY IN THE REGION OF LOW CONCENTRATIONS OF TRIBUTYL PHOSPHATE. RADIATION CHEMICAL REACTIONS OF THE FORMATION OF FINAL RADIOLYSIS PRODUCTS OF TRIBUTYL PHOSPHATE ARE DISCUSSED.

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