

USSR

Mal'tsev, E. K., Khlestkin, D. A., and Keller, V. D., Moscow, Teploenergetika, No 6, 1972, pp 61-63.

value of  $l/d=9$  is probably the maximum relative channel length at which a critical flow of saturated water is metastable. 2) Increasing the underheating of water to the saturation point increases metastability of the flow, with otherwise equivalent conditions. 3) As the initial water pressure increases, metastability decreases, disappearing at pressures  $p_0 > 200 \cdot 10^5 \text{ N/m}^2$ .

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USSR

K

KELLER V. S. and SAYCHUK, L. V., Honored Trainer

"Control of Mental Stress: a Major Prerequisite for Sound Regulation of the Process of Achieving Athletic Form"

Moscow, Teoriya i Praktika Fizicheskoy Kul'tury, No 5, 1970, pp 7-10

Abstract: The quality of athletic performance is a function both of specific skills and of the emotions. And the emotions, like the specific physical skills, can be brought to the highest level by training. Simulation during the training period of the conditions encountered in competitions sets into motion the body's adaptation mechanisms, which will enable the athlete to perform at his best in actual matches. More research by physiologists on the variety of actors that play upon the emotions of athletes, and on ways of controlling them, is needed.

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UDC 616.993.162-022.39-034.47-036.8

USSR

SERGIYEV, P. G., BEYSLEKHEM, R. I., MOSHKOVSKIY, Sh. D., DEMINA, N. A.,  
KELLINA, O. I., SHUYKINA, E. Ye., SERGIYEV, V. P., DUKHANINA, N. N., TRIYERS,  
I. I., SHERBAKOV, V. A., YARAJKHAMEDOV, M. A., USKOV, N. Ye., LOSIKOV, I. N.,  
and NEDOSPELOVA, Ye. I., Institute of Medical Parasitology and Tropical Medicine  
imeni Ye I. Martsinovskiy, Ministry of Health USSR, Moscow

"Results of Mass Vaccinations against Zoonotic Cutaneous Leishmaniasis"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 39, No 5,  
Sep/Oct 70, pp 511-551

Abstract: Preventive mass vaccinations with a virulent strain of Leishmania tropica major were found to give reliable protection against cutaneous leishmaniasis. Only virulent strains can be used for vaccination. The degree of inoculation with such strains is almost 100%, the inoculative process having, as a rule, a favorable effect. The maximum size of the vaccination lesion does not exceed 2 cm in diameter in 3/4 of the subjects vaccinated. In practically all cases, the process does not last more than 5-6 months. Morbidity occurred in the group vaccinated with the low-virulence strain, among those without lesions, and among those whose lesions were less than 0.5 cm in diameter.

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SERGIYEV, P. G., et al., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 39, No 5, Sep/Oct 70, pp 541-551

Secondary pyococcal infections represented the only complications observed; allergic exanthem was noted occasionally. In order to prevent local and general allergic reactions after vaccination, it is necessary to exclude persons who have had cutaneous leishmaniasis. If past disease cannot be revealed by means of anamnesis or medical examination, the intracutaneous leishmanin test is recommended. The level of the virulence in inoculative strains should be periodically tested, since insignificant initial virulence or its weakening during culturing make a given strain unfit for preparation of inoculum.

2/2

1/2 029 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--EFFECT OF COOLING CONDITIONS ON THE MACROSTRUCTURE OF A BRASS BAR  
DURING HORIZONTAL CONTINUOUS CASTING. -U-  
AUTHOR--SLADOSHTEYEV, V.T., SHATAGIN, O.A., RADZIKHOVSKIY, V.A., BYKOVA,  
D.L., KELMAN, L.D.  
COUNTRY OF INFO--USSR  
SOURCE--TSVET. METAL. 1970, 43(1) 73-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--BRASS, METAL CASTING, CRYSTAL STRUCTURE, CRYSTALLIZATION,  
MECHANICAL PROPERTY, METAL COOLING, COOLING RATE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1986/0602 STEP NO--UR/0136/70/043/001/0073/0075  
CIRC ACCESSION NO--AP0102597

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102597

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

ABSTRACT. THE COOLING CONDITIONS OF A BILLET FORMED IN A CRYSTALLIZER EXERT A DETG. EFFECT ON THE STRUCTURE OF THE CAST METAL. INCREASING THE SOLIDIFICATION RATE RESULTS IN FINER GRAIN SIZE; THIS ENHANCES THE MECH. PROPERTIES. BRASS BILLETS, HORIZONTALLY CONTINUOUSLY CAST, HAVE A DENSE STRUCTURE; NO PORES OR OTHER INTERNAL DEFECTS ARE PRESENT. RESULTS SHOW THAT THE SOLIDIFICATION RATE, WITH OTHER CONDITIONS BEING EQUAL, DEPENDS ON THE SURFACE TEMP. OF THE ROD. THE DEPENDENCE OF THE COOLING (SOLIDIFICATION) RATE ON THE RATE OF WATER FLOW DURING HORIZONTAL CONTINUOUS CASTING OF THE ALLOYS WAS STUDIED. EXPTL. THE COOLING CONDITIONS WERE CHANGED BY CHANGING THE WATER FLOW RATE IN THE CU WATER COOLED JACKET. WITH INCREASING WATER FLOW RATE THE SOLIDIFICATION RATE OF EACH ZONE INCREASES. A SATISFACTORY AGREEMENT WAS OBTAINED BETWEEN EXPTL. AND THEORETICAL DATA.

UNCLASSIFIED

USSR

UDC: 537.533.33

KEL'MAN, V. M., SAPARGALIYEV, A. A., and YAKUSHEV, Ye. M., Institute of Nuclear Physics, Alma-Ata

"Theory of Cathode Lenses"

Leningrad, Zhurnal tekhnicheskoy fiziki, No 1, 1973, pp 52-60

Abstract: Under the general title given above, the present article is the second installment, its title being "Electrostatic Cathode Lenses With Rotational Field Symmetry." The first installment appeared in the journal named above (V. M. Kel'man, et al, No 10, 1972); in it the authors developed a method for classifying various forms of aberration in lenses of rotational field symmetry. In the present installment, the authors demonstrate how the method is used to find all aberrational coefficients in a form characteristic of electronic lenses. Using a cylindrical system of coordinates, the authors obtain a set of equations describing the motion of the charged particles in the field of the electrostatic cathode lens. The equations are solved by the method of successive approximations, and simplified expressions for the aberrational coefficients in the image plane are derived.

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USSR

UDC: 537.533.34

KEL'MAN, V. M., FEDULINA, L. V., YAKUSHEV, Ye. M., Institute of Nuclear Physics of the Academy of Sciences of the Kazakh SSR, Alma-Ata

"Deflection of Parallel Beams of Charged Particles by a Flat Electrostatic Mirror"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 41, No 9, Sep 71, pp 1825-1831

Abstract: The authors discuss the electron-optical properties of a flat electrostatic two-dimensional mirror which is distinguished by the fact that a parallel beam of charged particles incident on its surface remains parallel in the paraxial approximation after reflection as well. It is shown that there are two types of flat electrostatic mirrors which differ with respect to the nature of the trajectories. Cardinal points are defined for each type of mirror. The nature of angular aberrations is investigated, and expressions are found for the aberration coefficients. In the direction parallel to the central plane of the mirror, aberrations vanish to the fourth order, while in the direction perpendicular to this plane, aberrations vanish to order three. The general theory is applied

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KEL'MAN, V. M. et al., Zhurnal Tekhnicheskoy Fiziki, Vol 41, No 9, Sep 71,  
pp 1825-1831

to the case of two-electrode electrostatic mirrors. All necessary parameters are calculated for such mirrors. Two figures, bibliography of three titles.

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USSR

UDO 621.385.032.26.001.5

GAAL', L.N., KEL'MAN, V.M., KNYAZ'KOV, L.G., SHERSHEVSKIY, A.M. [Spets. konstrukt. byuro analit. priborstr. AN SSSR--Special Design Bureau For Analytical Instrument Manufacture, AS, USSR]

"Electron-Optical Prism"

USSR Author's Certificate No 265057, filed 14 Nov 66, published 28 May 70 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1A15P)

Translation: An electron-optical prism is proposed which contains a magnet with a uniform field and parallel boundaries. With the object of increasing the angular dispersion without disturbance of the telescopicity of the prism, cylindrical electron lenses are mounted on the two sides of the magnet, the focuses of which match the focuses of the lenses which are formed by the boundary fringing fields of the magnet. For a decrease of the size and weight of the magnet, the focal length of the electron lenses is larger than the focal lengths of the lenses which are formed by the boundary fringing fields of the magnet. The electron-optical prism can be used as a dispersing element during determination of the energies of electrons, protons, positrons, measurement of ion masses, and also during separation of isotopes.

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USSR

UDC 621.384.6

EASIN, L.A., BOBYKIN, B.V., DAVYDOVSKIY, V.YA., MEL'NIKOV, M.M., FINGENCOV, P.A.,  
YAKUSHEV, YE. M. [In-t yadern. fiz. AN KazSSR--Institute Of Nuclear Physics, AS,  
Kazakh SSR]

"Magnetic Prism"

USSR Author's Certificate No 255429, filed 2 Mar 58, published 31 Mar 70 (from  
RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11A268P)

Translation: The magnetic prism which is patented, consisting of an electromagnetic  
with extended pole shoes of parallelepiped form, differs in the fact that with the  
object of reducing the inhomogeneity of a two-dimensional magnetic field and  
suppressing the dispersal of the fields, the prism contains another such electro-  
magnet located above the first, while the winding of both electromagnets is connect-  
ed in opposition, and a gasket [prokladka] is mounted between the poles of the  
magnet and the yoke.

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USSR

UDC: 519.1

KEL'MANS, A. K.

"On Selecting the Optimum Vertex in a Graph"

Moscow, Issled. po diskretnoy mat.--sbornik (Studies on Discrete Mathematics--collection of works), "Nauka", 1973, pp 151-158 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V394 by I. Sigal)

Translation: The paper deals with the problem of finding the vertex  $x^*$  on a tree which minimizes the function  $F(x) = \sum_{y \in X} l(x, y) \alpha(y) = \sum_{u \in U} l(u) \sum_{y \in X_{u,x}} \alpha(y)$ ,

where  $X = \{x_1, x_2, \dots, x_n\}$  is the set of vertices of the tree,  $U = \{u_1, u_2, \dots, u_{n-1}\}$  is the set of edges,  $\alpha(y) > 0$  is the weight of a vertex  $y \in X$ ,  $l(u) > 0$  is the length of an edge  $u \in U$ ,  $l(x, y)$  is the length of the chain  $\mu(x, y)$  joining the vertices  $x \in X$  and  $y \in X$  of the tree,  $X_{u,x}$  is the set of vertices of the tree which can be reached from vertex  $x$  via edge  $u$ . It is known that the solution of this problem can be found in the following way (Zambitskiy, D. K., Soltan, P. S., "Concerning an Extremum Problem on a Tree", Matematicheskiye metody resheniya ekonomicheskikh zadach [Mathematical Methods of Solving Economics Problems], Moscow, "Nauka" Press, 1969, vol. 1).

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KEL'MANS, A. K., Issled. po diskretnoy mat., "Nauka", 1973, pp 151-158

An  $n \times (n-1)$  matrix  $R$  is constructed,  $r_{ij} = 1$  if the chain leading from  $x_1$  to  $x_j$  contains edge  $u_j$ , and  $r_{ij} = -1$  otherwise. Then if  $a = (a(x_1), a(x_2), \dots, a(x_n))$ ,  $s_j = \begin{cases} 1, & \text{if } (u_j, a) > 0, \\ -1, & \text{if } (u_j, a) < 0, \end{cases}$  is the  $j$ -th column of matrix  $R$ , then the vector  $s$  coincides with one of the rows of  $R$ , the vertex corresponding to this row is optimum, there are no more than two optimum vertices, and they are connected by an edge, the position of the optimum vertices being independent of  $l(u)$ , if  $l(u) > 0$  for all  $u \in U$ . The paper gives a more graphic proof of the results of the cited article; it is shown that the problem of minimizing  $F(x) = \sum_{u \in U} l(u) f_u \left( \sum_{v \in K_{u,x}} a(y) \right)$  is not essentially different from that considered above if  $f_u(t)$  are increasing functions with respect to  $t$ . The author also considers the problem of minimizing  $F(x) = \sum_{y \in X} l(x, y) a(y)$  for a graph which is not a tree. Here  $l(x, y)$  is the length of the shortest chain from  $x$  to  $y$ . An algorithm is proposed for solving this problem.

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E. Mathematical Modeling of Thought Processes

USSR

UDC: 8.74

TSYPKIN, Ya. Z., KEL'MANS, G. K., EPSHTEYN, L. Ye.

"Teachable Automatic Systems"

Moscow, Tr. IV Vses. soveshch. po avtomat. upr. tekhn. kibernet., 1968. Optimal'n. i adaptivn. sistemy (Works of the Fourth All-Union Conference on Automatic Control [Technical Cybernetics], 1968. Optimum and Adaptive Systems), "Nauka", 1972, pp 182-193. Discussion pp 298-302 (from RZh-Kibernetika, No 5, May 73, abstract No 5V827 by the authors)

Translation: Teachable automatic systems are characterized by the capacity to improve their behavior (and properties) in the process of functioning. This paper discusses the principle of optimizing teachable automatic systems and reveals their possibilities and peculiarities.

The functioning of teachable automatic systems is based on algorithms of instruction in classifying observed situations (patterns).

The peculiarities and complexity of classifying situ-

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TSYPKIN, Ya. Z. et al., Tr. IV Vses. soveshch. po avtomat. upr. tekhn. kibernet., 1968. Optimal'n. i adaptivn. sistemy, "Nauka", 1972, pp 182-193, discussion pp 298-302

ations are determined to a considerable extent by the volume of a priori information. Based on minimizing a general functional of the type of average risk of erroneous classification, algorithms are obtained for classifying situations for different a priori and current information (algorithms with and without incentive).

It is shown that with special forms of loss functions both presently known and new algorithms of instruction and self-teaching can be obtained. The algorithms are used for constructing teachable control systems and an adaptive receiver of pulse signals.

The paper presents the results of an experimental study of an adaptive receiver. Bibliography of 20 titles.

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USSR

UDC: 51:155.001.57:681.3.06

VECHKIS, A. S., KEMESHIS, P. P.

"Some Statistical Relations in Recognition of a Limited Set of Words"

V sb. Avtomatika i vychisl. tekhn. (Automation and Computer Technology--  
collection of works), Vil'nyus, "Mintis", 1971, pp 131-137 (from RZh-  
-Kibernetika, No 12, Dec 71, Abstract No 12V1021)

Translation: The experimental results which are presented show that it  
is advisable to use probabilistic methods for recognizing a limited set  
of words (speech signal envelopes) since speech patterns intersect strongly  
in the tag space. Authors' abstract.



1/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--ADSORPTION BEHAVIOR OF A MIXTURE OF BUTYL AND N-CROTYL ALCOHOLS ON  
ZEOLITES -U-  
AUTHOR--(03)-VINOGRADSKAYA, M.V., KELTSSEV, N.V., LVOV, S.V.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 238-40  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ADSORPTION, ZEOLITE, ISOTHERM, BUTANOL, GAS CHROMATOGRAPHY,  
ALCOHOL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1995/1262 STEP NO--UR/0076/70/044/001/0238/0240  
CIRC ACCESSION NO--AP0116724  
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116724

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADSORPTION ISOTHERMS OF MECH:CHCH  
SUB2 OH (I) AND BUOH ON CAA ZEOLITE (II) AND NAX ZEOLITE (III) WERE  
DETD. AT 80-300DEGREES AND 1-10MM HG. ON BOTH ZEOLITES, I WAS MORE  
STRONGLY ADSORBED THAN BUOH, BUT III WAS MORE SELECTIVE THAN II. I  
PRESENT AS AN 8PERCENT IMPURITY IN SAMPLES OF BUOH WAS COMPLETELY  
REMOVED BY PASSING THE SAMPLES THROUGH III AT 130DEGREES, AND CHECKING  
THE ELUATE BY GAS CHROMATOG. IN A 3000 TIMES 6-MM COLUMN FILLED WITH  
CHROMOSORB W IMPREGNATED WITH POLYETHYLENE GLYCOL ADIPATE AND ELUTED  
WITH HE. FACILITY: MOSK. INST. TONKOI KHIM. TEKHNOL. IM.  
LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--APPROXIMATE METHOD FOR EVALUATING THE SELECTIVITY OF GAS AND VAPOR  
ADSORPTION -U-  
AUTHOR--(02)-KELTSEV, N.V., SHUMYATSKIY, YU.I.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. FIZ. KHIM. 1970, 44(5), 1327-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--GAS ADSORPTION, HYDROCARBON, VAPOR STATE, HYDROCARBON  
SEPARATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3007/0757 STEP NO--UR/0076/70/044/005/1327/1328  
CIRC ACCESSION NO--AP0136194

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136194

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE BASIS OF ANAL. OF EXPTL. DATA ON ADSORPTION EQUIL. OF SOME HYDROCARBON VAPOR MIXTS., THE COEFFS. OF SEPN. WERE DETD. FOR 14 BINARY SYSTEMS OF HYDROCARBON VAPORS. USING THE METHOD OF LEAST SQUARES, THE DEPENDENCE OF THE COEFF. OF SEPN. ON THE PROPERTIES OF HYDROCARBON VAPOR MIXT. WAS FOUND AS FOLLOWS:  $\log K_{SUBP}$  EQUALS  $\text{MINUS } 0.23 \text{ PLUS } 4.76 (1 \text{ MINUS } \phi)$ , WHERE  $K_{SUBP}$  IS THE COEFF. OF SEPN. AND  $\phi$  IS THE RATIO OF AFFINITY COEFFS. OF ADSORBATES. THE VALUES OF  $K_{SUBP}$  THUS CALCD. CORRESPOND TO A HIGH DEGREE OF FILLING OF THE ADSORPTION SPACE (GREATER THAN 30PERCENT). THE DIFFERENCES BETWEEN THE EXPTL. AND CALCD. VALUES OF  $K_{SUBP}$  DID NOT EXCEED PLUS OR MINUS 30PERCENT. FACILITY: MOSK. KHIM.-TEKHNOL. INST. IM. MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED

T/2 011 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--REDUCING ORE TO SPONGE IRON WITH A HIGH CARBON IRON ALLOY -U-

AUTHOR--VOSKOBONNIKOV, V.G., BOROK, B.A., TEPLENKO, V.G., SOLOVYEVA, Z.V.,

KELTSEV, V.V.  
COUNTRY OF INFO--USSR

SOURCE--BRIT. 1,181,207

DATE PUBLISHED--11FEB70

SUBJECT AREAS--MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--CHEMICAL PATENT, IRON ORE, HIGH CARBON ALLOY, CHEMICAL  
REDUCTION, CARBON, SPONGE IRON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1985/0197

STEP NO--UK/G000/70/000/000/0000/0000

CIRC ACCESSION NO--AA0100721

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AA0100721

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPONGE IRON THAT IS MORE EASILY PULVERIZED THAN THE NORMAL SWEDISH PRODUCT, AND CAN BE PRODUCED MORE QUICKLY AND AT LOWER TEMP., IS OBTAINED BY HEATING 4.5 HR AT 1000DEGREES IN A 40 MM THICK LAYER OF ORE CONCS. MIXED WITH SIMILAR TO ONE THIRD THEIR WT. OF AN FE-C ALLOY CONTG. 25-50PERCENT C TO PROVIDE SIMILAR TO 9PERCENT C BY WT. IN THE MIXT. THE ALLOY IS PRODUCED BY HEATING SPONGE FE LUMPS 15-25 MM IN SIZE IN NATURAL GAS AT 850-950DEGREES, WHICH IS THUS DECOMP. AND CAN BE USED FOR THE ATM. NOTED ABOVE. THE ORE CONCS. FOR THIS PURPOSE SHOULD CONTAIN 70PERCENT FE AND BE FINER THAN 0.2 MM. THE SPONGE IRON PRODUCT CONTAINS 98PERCENT FE AND 0.05PERCENT C, AND IS EASILY PULVERIZED. THE YIELD-UNIT FURNACE VOL. IS 26PERCENT HIGHER WHEN THIS REDUCING AGENT IS USED INSTEAD OF COKE. NO SPECIAL APP. IS REQUIRED.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--ELECTROPHILIC SUBSTITUTION OF POLYPHOSPHORIC ACID. III. ALKYLATION  
OF TOLUENE BY SECONDARY ALCOHOLS IN THE PRESENCE OF POLYPHOSPHORIC ACID  
AUTHOR--(02)-KOZLOV, N.S., KELYN, A.G. *K*

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. LENINGRAD 1970, 43(4), 943-4

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALKYLATION, TOLUENE, PHOSPHORIC ACID, BUTANOL, ALCOHOL,  
CYCLOHEXANOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1997/0728

STEP NO--UR/0080/70/043/004/0943/0944

CIRC ACCESSION NO--AP0119635

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119635

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ALKYL TOLUENE YIELDS FROM THE ALKYLATION OF PHME BY ISO-PROH (I), SEC-BUOH (II), SEC-C SUB5 H SUB11 OH (III), SEC-C SUB8 H SUB17 OH (IV), CYCLOHEXANOL (V), AND METHYLCYCLOHEXANOL (VI) IN THE PRESENCE OF POLYPHOSPHORIC ACID DECREASED WITH INCREASING MOL. WT. OF THE ALC. AND WERE LOWEST FOR THE CYCLIC ALCs. AS THE REACTION TEMP. WAS INCREASED, YIELDS PASSED THROUGH 2 MAX. AT TEMPS. LOWER THAN THOSE OBSD. WHEN PRIMARY ALCs. WERE USED. AS THE PHME-I RATIO WAS REDUCED FROM 2 TO 0.25, THE PROPORTION OF MONO-:DI-:TRISUBSTITUTED PRODUCTS CHANGED FROM 62.7:34.1:3.2 TO 13.5:61.4:25.1. ALKYLATES FROM II, III, AND V CONTAINED ONLY 10-12PERCENT DISUBSTITUTED PRODUCTS AND THOSE FROM IV AND VI ALMOST NONE. FACILITY: PERM. PEDAGOG. INST., PERM, USSR.

UNCLASSIFIED



USSR

UDC: 621.374.5(088.8)

KEL'ZON, V. S., KARINSKIY, S. S., UL'YANOV, G. K.

"An Ultrasonic Surface-Wave Delay Line"

USSR Author's Certificate No 262951, filed 4 Jan 61, published 3 Jun 70  
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 116236 P)

Translation: This Author's Certificate introduces an ultrasonic surface-wave delay line with an acoustic line made from an X-cut quartz plate with continuous control of delay time. The device is equipped with transducers which convert an electric signal to acoustic and vice versa. To extend the range of the bandwidth and simplify construction of the delay line, the unit makes use of matching transformers, a movable reception transducer and an absorbing substrate made from a material such as pitch which cuts down the level of parasitic signals.

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USSR

UDC: 621.315.592

KEMARSKIY, V. A., KMITA, A. M., and TELEGIN, A. A., Institute of Radio Engineering and Electronics, Moscow

"Acoustic-Electrical Domains in Epitaxial GaAs Films"

Leningrad, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1483-1488

Abstract: This paper, which was presented before the All-Union Conference on semiconductor alloys  $Al^{III}B^V$  and  $Al^{III}B^{IV}C_2^V$ , in Ashkhabad, 1971, undertakes a more detailed investigation than hitherto offered of current oscillations in epitaxial GaAs films. The specimen films were grown by the method of gas-transported reactions on substrates of semi-insulating GaAs oriented along the (110) plane, and were cut into rectangular plates measuring 10X5X 1.8 mm. Detailed accounts of the specimen preparation and the experimental method are given. Current oscillations were observed in the temperature interval of 4.2 to 120° K, although increases in the 4.2 to 60° K range had little effect on the shape of the oscillations or the threshold field of their initiation. Above 60° K, the depth of current modulation gradually dropped until 1/2

\*USSR

KEMARSKIY, V. A., et al, Fizika i tekhnika poluprovodnikova, No 8, 1972, pp 1483-1488

complete disappearance of the oscillations at 120° K. These specimens were used to investigate the acoustic-electrical effect generated by passage of an acoustical current through the region behind the anode. Plots of this effect as well as of the specimen characteristics are reproduced. The authors express their gratitude to Yu. V. Gulyayev for his comments and to V. V. Proklov for a useful discussion.

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USSR

SHIGIN, A. G. and KEMEL'MAKHER, G. L.

"Information-Logic System for Planning of Computer Operational Portions"

Upravlayushchiye Sistemy i Mashiny [Control Systems and Machines], 1973, No 1, pp 52-58 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V693).

Translation: The principles of construction and technical realization of information-logic systems of a special type, designed for use in systems for automation of the planning of digital computers are studied. The method suggested is based on generalization of the experience of preceding projects for development of objects of this class in the form of a certain plan for sequential design. Results of practical utilization of the system are described.

Authors' view

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USSR

UDC: 621.372.54.061

ZAYEZDNYI, A. M., KEMESHIS, P. P., and STASYUNAS, A. S.

"Theoretical Bases of the Design of Parametric Filters Equivalent to Linear Filters"

Kiev, Izvestiya VUZ USSR--Radioelektronika, No 10, 1972, pp 1195-1203

Abstract: The parametric filters under discussion in this article are RC circuits designed to replace filters using inductances. As defined here, the parametric filter is a circuit consisting of resistors and a single capacitor, with one of the resistors varying in accordance with the control circuit signal. The linear filter consists of elements with constant parameters and can be described by the n-th order linear differential equation

$$\sum_{i=0}^n a_i \frac{d^i}{dt^i} x(t) = f(t)$$

with constant coefficients. The problem the authors set themselves is stated in this way: Given the differential equation or transfer  
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USSR

ZAYEZDNYI, A. M., et al, Izvestiya VUZ USSR--Radioelektronika,  
No 10, 1972, pp 1195-1203

function of a physically realizable circuit, and given an external action  $f(t)$  and the circuit reaction  $x(t)$ ; required, to synthesize the circuit realizing the transformation of  $f(t)$  into  $x(t)$  under the condition that the circuit contain parametric filters and summer circuits of the same type connected in parallel. Three possible methods of solving the problem are offered: use of the Lagrange method of variation of constants, transition to the transfer function, and the recurrent method of finding periodic solutions.

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USSR

K  
UDC 621.372.061

STASYUNAS, A. S., KEMESHIS, P. P.

"Properties of Parametric Filters with Switching Multipliers"

Techn. kibernetika, Tekhn. kibernetika (Technical Cybernetics), Kaunas, 1970, pp 282-290 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A139)

Translation: This article contains an investigation of the properties of non-inductive parametric filters simultaneously realizing filtration and transposition of signals where periodic (square) multiplier signals are used instead of harmonic reference multiplier signals.

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USSR

UDC 621.391:519.2

STASYUNAS, A. S., KEMESHIS, P. P.

"Synthesis of Parametric Filters Simultaneously Realizing Signal Filtration and Transposition"

Techn. kibernetika, tekhn. kibernetika (Technical Cybernetics), Kaunas, 1970, pp 275-281 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A109)

Translation: In this article the problem of synthesizing noninductive parametric filters simultaneously realizing signal filtration and transposition to any frequency range is solved.

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USSR

UDC 621.372.061

K  
KEMESHIS, P. P., YANUSHYAVICHYUS, V. I.

"Equations of a Multichannel Band Filter"

Techn. kibernetika, Tekhn. kibernetika (Technical Cybernetics), Kaunas, 1970,  
pp 263-269 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A118)

Translation: This article contains an investigation of a system comprising two modulators, low-frequency filters and a summator. The signal multiplied by the time function of the first modulator goes through the low frequency filters to the second modulator. The signals multiplied by the time function of the latter are summed. It is demonstrated that the given system is a band filter with a central frequency equal to the modulation frequency and not depending on the errors and instability of the low-frequency filter parameters and with strictly symmetrical shape of the pass band with respect to the midband frequency. There are four illustrations and a four-entry bibliography.

1/1

USSR

UDC 621.391.2

KEMESHIS, P. P., YANUSHKEVICHUS, Z. I., YAPERTAS, S. P., YAPERTAS, V. P.

"On an Algorithm for Classifying Electrocardiograms"

Vil'nyus, Nauchnyye trudy vysshikh uchebnykh zavedeniy Lit. SSR. Avtomatika i vychislitel'naya tekhnika (Scientific Works of Institutions of Higher Education of the Lithuanian SSR. Automation and Computer Technology), No 2, 1970, "Mintis", pp 15-18

Abstract: The article deals with algorithmizing the classification of electrocardiograms by the method of statistical verification of hypotheses. Two tables, one illustration, bibliography of four titles.

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USSR

UDC 62.503.53

KEMESHIS, P. P., LAURINAVICHYUS, A. B.

"Investigation of the Stability of a Two-Dimensional Tracking System With Two Degrees of Freedom"

Vil'nyus, Nauchnyye trudy vysshikh uchebnykh zavedeniy Lit. SSR. Avtomatika i vychislitel'naya tekhnika (Scientific Works of Institutions of Higher Education of the Lithuanian SSR. Automation and Computer Technology), No 2, 1970, "Mintis", pp 105-112

Abstract: The authors study the stability of a two-dimensional system with two degrees of freedom. An analysis is given of the effect which cross connections have on the stability of the given system. Two tables, two illustrations, bibliography of five titles.

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Controls

USSR

UDC 62.503.53

LEONAVICHENE, Ya. K., ~~KEMESHIS, P. P.~~

"A Two-Channel Tracking System With Amplidynes"

Vil'nyus, Nauchnyye trudy vysshikh uchebnykh zavedeniy Lit. SSR. Avtomatika i vychislitel'naya tekhnika (Scientific Works of Institutions of Higher Education of the Lithuanian SSR. Automation and Computer Technology), No 2, 1970, "Mintis", pp 25-30

Abstract: In this article, the authors consider a two-dimensional tracking system with amplidynes and modulators in the feedback circuits. Equations are given for the output coordinates, and relationships are defined for the parameters in the static mode of operation of the system. Two illustrations, bibliography of three titles.

1/1

USSR

UDC 62.503.53

GELEZHEVICHYUS, V. I., KEMESHIS, P. P.

"Equations of a Two-Dimensional Tracking System With Asynchronous Actuating Motors"

Vil'nyus, Nauchnyye trudy vysshikh uchbenykh zavedeniy Lit. SSR. Avtomatika i vychislitel'naya tekhnika (Scientific Works of Institutions of Higher Education of the Lithuanian SSR. Automation and Computer Technology), No 2, 1970, "Mintis", pp 19-23

Abstract: The paper presents equations for an investigated two-dimensional tracking system with asynchronous actuating motors. A block diagram of the system is set up on the basis of the resultant equations. Two illustrations, bibliography of two titles.

1/1

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USSR

UDC 616.24-002-059:615.112

KEMEZHUK, P. P., Second Chair of Hospital Therapy, Minsk Medical Institute,  
Minsk

"Effectiveness of Microwave Therapy in the Combined Treatment of Protracted  
Forms of Pneumonia"

Minsk, Zdravookhraneniye Belorussii, Vol 19, No 3, Mar 73, pp 71-73

Abstract: Irradiation with microwaves from a USSR LUCH-58 apparatus (wave-length 12.6 cm, frequency 2375 megacycles, output power 20-40 watt) was applied as a part of the treatment in 58 cases of persistent focal pneumonia. Irradiation was carried out for 10-12 min per day in a course of treatment consisting of 10-15 daily treatments. It was begun after the initial fever had abated. The results were somewhat superior to those obtained in cases in which inductothermy was applied as a component part of the treatment. The effectiveness of the microwave treatment increased with decreasing lengths of time over which pneumonia had persisted.

1/1

1/2 015 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--CRYSTALLOGRAPHIC PARAMETERS OF 1,ORGANYLGERMATRANES -U-  
AUTHOR--(02)-BLEIDELIS, J., KEMME, A.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (3), 332-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--X RAY DIFFRACTION STUDY, PARAMETER, CRYSTAL, ORGANODGERMANIUM  
COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/1681 STEP NO--UR/0409/70/000/003/0332/0334  
CIRC ACCESSION NO--AP0125302  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--13NOV70

2/2 015

CIRC ACCESSION NO--AP0125302

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

ABSTRACT. I WITH R EQUALS NE, ET, PH, AND  
ALPHA-C SUB10 H SUB7 ARE CRYSTALLOGRAPHICALLY DESCRIBED WITH THE AID OF  
X RAY DIFFRACTION. THE MONOCLINIC ANGLE IS BETA EQUALS 122DEGREES FOR I  
(R EQUALS NE); OTHER I ARE ORTHORHOMBIC. OTHER CHARACTERISTIC  
PARAMETERS ARE ALSO GIVEN. FACILITY: INST. ORG. SIN., RIGA,  
USSR.

UNCLASSIFIED



1/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--ELECTROMAGNETIC WAVE ECHO IN A PLASMA -U-  
AUTHOR--(02)-KEMOKLIDZE, M.P., PITAYEVSKIY, L.P. *K*  
COUNTRY OF INFO--USSR  
SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,  
NR 5, PP 1853-1856  
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTROMAGNETIC WAVE REFLECTION, ECHO, PLASMA OSCILLATION,  
PERTURBATION THEORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3002/0014

STEP NO--UR/0056/70/058/005/1853/1856

CIRC ACCESSION NO--AP0127664

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--27NOV70

2/2 017

CIRC ACCESSION NO--AP0127664

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

ABSTRACT. AN EFFECT OF THE SPATIAL PLASMA ECHO TYPE FOR TRANSVERSE ELECTROMAGNETIC WAVES IN THE ABSENCE OF AN EXTERNAL MAGNETIC FIELD IS CONSIDERED IN THE THIRD ORDER OF PERTURBATION THEORY. THE WAVE FREQUENCY IS ASSUMED LOWER THAN THE LANGMUIR PLASMA FREQUENCY AND THE EFFECT LEADS TO NONLINEAR PENETRATION OF THE WAVES INTO THE PLASMA. THE AMPLITUDE INCREASES WITH GROWTH OF THE DISTANCE BETWEEN THE GRIDS PRODUCING THE FIELD.

FACILITY: INSTITUT FIZICHESKIKH

PROBLEM, AN SSSR.

UNCLASSIFIED

Burn Studies

USSR

UDC 616.37-092.4/.9

KEMOKLIDZE, S. A.

"The Exocrine Activity of the Pancreas in Experimental Burns"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 63, No 2, Aug 71,  
pp 489-492

Abstract: Several aspects of the exocrine activity of the pancreas in burns are examined during experiments with twenty-six male dogs weighing 19-20 kg. It was found that when a burn is sustained, the exocrine activity of the pancreas ceases, but is completely restored on the second day. In the septic and toxemia stage of the burn (6 to 11 days after the burn) the amount of juice secreted by the gland decreases 37% and is most depressed during the exhaustion stage of the burn (20 to 30 days later). The amount of pancreatic juice reaches the initial level during the convalescence stage (5 to 7 months after the burn). A similar decrease is observed in the lipolytic and amylolytic activity of pancreatic juice which is gradually restored to normal. Since the pancreas has a very high sensitivity level, evidently the reduction of secretion is due to a reflex inhibition in response to excitation of the receptors in any part of the body. It must be noted that a decrease in the

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USSR

KEMOKLIDZE, S. A., Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 63,  
No 2, Aug 71, pp 489-492

enzymatic activity is irregular, and the lipolytic activity of pancreatic juice decreases more rapidly than the rest. To compensate for the inadequate exocrine activity of the pancreas, it is advisable to use an easily absorbable food diet and to introduce exocrine tissue preparations of the pancreas.

2/2

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USSR

UDC 621.372.061

KEMPE, F., SHMELOVSKIY, K. Kh.

"Threshold Effect of Phase Automatic Frequency Control with Sinusoidal Phase Modulation of the Signal"

Dokl. Nauchno-tekhn. konferentsii, apr. 1970, g. Mosk. energ. in-t (Reports of the Scientific and Technical Conference, April 1970, Moscow Power Engineering Institute), Moscow, 1970, pp 309-319 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A150)

Translation: This article contains an investigation of the specific features of the threshold effect (sharp decrease in signal/noise ratio at the output of the frequency demodulator with smooth decrease in the signal/noise ratio as its input) in phase automatic frequency control systems. The results obtained are confirmed quantitatively by measurements. There are four illustrations and a four-entry bibliography.

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1/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--USE OF A NEW LUBRICATING ADDITIVE FOR DRILLING MUDS DURING DIAMOND  
DRILLING OF GEOLOGICAL BOREHOLES -U-  
AUTHOR-(05)-ZAYONTS, O.L., KOMAR, V.YA., PUKAS, A.I., YAROV, A.N., KENDIS,  
M.SH.  
COUNTRY OF INFO--USSR  
SOURCE--RAZVED. OIKHR. NEDR 1970, 36(3), 37-40  
DATE PUBLISHED-----70

K

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, EARTH SCIENCES AND  
OCEANOGRAPHY, MATERIALS  
TOPIC TAGS--LUBRICANT ADDITIVE, VEGETABLE OIL, LUBRICATING OIL, DRILLING  
MUD, DIAMOND, GEOLOGY, DRILLING MACHINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/2068

STEP NO--UR/9083/70/036/003/0037/0040

CIRC ACCESSION NO--AP0127441

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0127441

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TARS FROM SOAPSTOCKS OF BLACK COTTONSEED OIL AND TECH. FATS (ACID NO. 130-200 MG KOH, MOL. WT. 475-522, D. 0.872) WERE USED IN AMTS. OF 2PERCENT AS LUBRICATING ADDITIVES TO MUDS DURING DIAMOND DRILLING. THE RESULT WAS SIMILIAR TO 50PERCENT DECREASE IN SURFACE TENSION OF MUDS, SIMILIAR TO 100-200PERCENT INCREASE IN DRILLING RATE, AND SIMILIAR TO 35PERCENT REDN. OF WEAR OF DIAMOND CROWNS. FACILITY: TREST, KIEVGEOLOGIYA, KIEV, USSR.

UNCLASSIFIED

I/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--LUBRICATING ADDITIVE FOR WASHING LIQUIDS -U-  
AUTHOR--(05)-YAROV, A.N., KHARCHENKO, L.S., KENDIS, M.SH., GORDASH, YU.T.,  
ZHIDOVITSEV, N.A.  
COUNTRY OF INFO--USSR  
SOURCE--U.S.S.R. 266,988  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--01APR70

K

SUBJECT AREAS--MATERIALS

TOPIC TAGS--LUBRICATING OIL, CHEMICAL PATENT, LUBRICANT ADDITIVE,  
INDUSTRIAL WASTE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3003/1804

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

CIRC ACCESSION NO--AA0130637

UNCLASSIFIED



2/2 017

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AA0130637

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A LUBRICATING ADDITIVE FOR WASHING LIQS. IS BASED ON OIL AND FAT INDUSTRY BY PRODUCTS, SUCH AS TAR OILS FROM BLACK COTTONSEED OIL SOAPSTOCK, TECH. FAT, OR THEIR MIXTS. TO IMPROVE THE LUBRICATING PROPERTIES OF THE ADDITIVE IN AN ALK. MEDIUM, THE OIL AND FAT WASTE PRODUCTS ARE TREATED WITH C SUB1-20 ALCS. IN THE PRESENCE OF H SUB2 SO SUB4 AT 65-120DEGREES.

UNCLASSIFIED

USSR

UDC 577.391:547.476

GROZDOV, S. P., BEZIN, G. I., KENDYSH, I. N., KIR'YANOV, I. Yu., and VASIL'YEVSKAYA, V. V., Institute of Biophysics, Ministry of Health USSR, Moscow

"Mechanism of the Physiological Action and of the Radiation-Protective Effect of Dimethylsulfoxide"

Moscow, Radiobiologiya, Vol 11, No 4, Jul/Aug 71, pp 522-527

Abstract: Dimethylsulfoxide (DMSO), on being administered intraperitoneally to rats in the form of a 50% aqueous solution in a dose of 5.4 g/kg before irradiation of the animals with gamma-rays in a dose of 900 r, exerted a pronounced radiation-protective effect, which was considerably enhanced by the administration of ATP. DMSO reduced the action of corticosteroids on tissues, although it increased their secretion in the organism. Reduction of the utilization of  $O_2$ , inhibition of glycolysis, and other effects indicated inhibition of metabolic processes in lymphoid tissues (the spleen and thymus) under the action of DMSO. As distinguished from other radiation protectors, DMSO did not produce hypoxia, increase the content of SH groups, or lower the redox potential in tissues. Differences between the mechanism of action of DMSO and that of aminothiols explain the enhancement of the

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USSR

GROZDOV, S. P., et al., Radiobiologiya, Vol 11, No 4, Jul/Aug 71, pp 522-527

radiation-protective effect upon their joint application. As indicated by the results of the experiments with ATP, this enhancement will presumably also be observed on joint administration of DMSO with other substances which, similarly to aminothiols, displace the redox balance of the organism towards reduction.

2/2

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1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--ROLE OF LYMPHOID TISSUE IN THE MECHANISM OF HYDROCORTISONE  
INDUCTION OF GLYCOGEN AND PROTEIN SYNTHESIS IN RAT LIVER -U-  
AUTHOR-(02)-KENDYSH, I.N., MORDZ, B.B.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(5), 1254-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--GLYCINE, CARBON ISOTOPE, CHEMICAL LABELLING, LYMPHOID TISSUE,  
HYDROCORTISONE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3003/0890 STEP NO--UR/0020/70/190/005/1254/1256  
CIRC ACCESSION NO--AT0129959  
UNCLASSIFIED

2/2 019  
CIRC ACCESSION NO--AF0129959 UNCLASSIFIED  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RATS WERE GIVEN GLYCINE PRIMEL4 C  
AND 18 HR LATER HYDROCORTISONE (10 MG, I.P.). TOTAL GLYCOGEN,  
RADIOACTIVE GLYCOGEN, AND RADIOACTIVE PROTEIN INCREASED IN THE LIVER  
DURING THE FOLLOWING 24 HR. APPARENTLY, HYDROCORTISONE CAUSES  
CLASMATOSIS OF LYMPH CELLS, AND THE DEBRIS ENTERS THE LIVER AND  
STIMULATES SYNTHETIC ACTIVITY. FACILITY: INST. BIOFIZ., MOSCOW,  
USSR.

PROCESSING DATE--13NOV70

UNCLASSIFIED

Differential & Integral Equations

USSR

UDC: 517.512.2

KENDZHAYEV, I., Tadjik State University imeni V. I. Lenin  
"Concerning the Second Boundary Value Problem for Hyperbolic  
Equations"

Dushanbe, Doklady Akademii Nauk Tadjikskoy SSR, Vol 15, No 5,  
1972, pp 9-12

Abstract: The author points out classes of functions  $W_2^\alpha$  such  
that if the solution  $U(t, x_1, \dots, x_N)$  of the second boundary  
value problem as a function of  $x_1, \dots, x_N$  satisfies the rela-  
tions  $U \in W_2^\alpha, U_t \in W_2^{\alpha-1}$  at any  $t$ , then it satisfies them at all  
 $t$ . The set of all functions having continuous derivatives with  
respect to  $x_1, \dots, x_N$  up to order  $[\alpha]$  inclusive in the region  $g$   
of Euclidean space  $E_N$  is considered, and the norm

$$\| \cdot \|_{W_2^{[\alpha]}} = \begin{cases} \int_g \left( \Delta^{\frac{[\alpha]}{2}} f(x) \right)^2 dx & \text{when } [\alpha] = 2k, k=0,1,\dots, \\ \int_g \left( \nabla \left( \Delta^{\frac{[\alpha]-1}{2}} f(x) \right) \right)^2 dx & \text{when } [\alpha] = 2k+1, k=0,1,\dots \end{cases}$$

USSR

KENDZHAYEV, I., DAN TadzSSR, Vol 15, No 5, 1972, pp 9-12

is introduced in this set. The space  $W_2^{[\alpha]}$  is called the closure of this set with respect to the given norm, and the function  $f(x)$  belongs to class  $W_2^\alpha$  if  $f \in W_2^{[\alpha]}$  and the integrals are bounded:

$$I(f) = \begin{cases} \iint_g \frac{\left| \Delta^{\frac{[\alpha]}{2}} f(x) - \Delta^{\frac{[\alpha]}{2}} f(y) \right|^2}{|x-y|^{N+2(\alpha-[\alpha])}} dx dy & \text{when } |\alpha| = 2k \\ \iint_g \frac{\left| \nabla \left( \Delta^{\frac{[\alpha]-1}{2}} f(x) \right) - \nabla \left( \Delta^{\frac{[\alpha]-1}{2}} f(y) \right) \right|^2}{|x-y|^{N+2(\alpha-[\alpha])}} dx dy & \text{when } |\alpha| = 2k+1. \end{cases}$$

The function  $f$  is said to belong to class  $\overset{\circ}{W}_2^\alpha$  if 1)  $f \in W_2^\alpha(g)$ ,  
 2) the functions  $Df, \dots, D\Delta^{\frac{[\alpha]-2}{2}} f$  for even  $[\alpha]$  and  $Df, \dots, D\Delta^{\frac{[\alpha]-3}{2}} f(x),$   
 $\Delta^{\frac{[\alpha]-1}{2}} f(x)$  for odd  $[\alpha]$  vanish on the boundary  $\Gamma$  of region  $g$ . The

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USSR

KENDZHAYEV, I.; DAN TadzSSR, Vol 15, No 5, 1972, pp 9-12

function  $f(x)$  defined in cylinder  $Q = \{x \mid 0 < t < l\}$  is said to belong to class  $\tilde{W}_2^\alpha$ , if 1)  $f \in \tilde{W}_2^\alpha(Q)$ , 2) the functions  $Df, \dots, D\Delta^{\lfloor \frac{\alpha-2}{2} \rfloor} f(x)$  for even  $[\alpha]$  and  $Df, \dots, D\Delta^{\lfloor \frac{\alpha-3}{2} \rfloor} f, \Delta^{\lfloor \frac{\alpha-1}{2} \rfloor} f(x)$  for odd  $[\alpha]$  vanish on the lateral surface of cylinder  $Q$ . The boundary value problem

$$U_{tt} - \Delta U = f(x, t) \text{ в } Q,$$

$$\frac{\partial U}{\partial n} \Big|_{\Gamma} = 0, U|_{t=0} = \varphi, U_t|_{t=0} = \psi$$

is considered. The author thanks professors V. A. Il'in and A. A. Arsen'yev for helpful discussion of the results.



USSR

UDC 62i.398.08-519

KENGERLINSKIY, G. A.

"Optimum Relation Between Precision and Speed for Digital Telemetry and Remote Control Systems"

V sb. Vopr. tekhn. kibernetiki (Problems of Technical Cybernetics--collection of works), Baku, "Elm," 1971, pp 56-65 (from RZh-Avtomatika, Tele-mekhanika i Vychislitel'naya Tekhnika, No 7, Jul 72, Abstract No 7A208)

Translation: Control computers combined with large-scale remote control systems are extensively used for controlling the operating conditions of intricate production complexes (amalgamated power systems, petroleum and gas line networks, irrigation systems, etc.). These systems may include digital devices for telemetering and remote regulation of the parameters of the operating cycle of the production complex. In organizing control systems of this type, the problem of selecting the proper relation between accuracy and speed of the devices for transmitting and processing information may arise. These indices depend primarily on the step for time quantization and level quantization of the initial continuous signal characterizing the change in some parameter of the working cycle, or the setting of the local regulator which stabilizes this parameter. The  
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USSR

KENGERLINSKIY, G. A., Vopr. tekhn. kibernetiki (Problems of Technical Cybernetics--collection of works), Baku, "Elm," 1971, pp 56-65

proper selection of these characteristics also helps to eliminate statistical and structural redundancy of information in the telemetering and remote regulation systems. Using the example of a system for remote control of the frequency of a power system, the author discusses the procedure for selecting the optimum relation between the accuracy and speed of a pulse-code remote regulation device, based on the criterion of minimum rms error in regulation. The procedure optimizes the step for time quantization and level quantization of the initial continuous remote regulation signal, or defines the advisable values of these parameters in accordance with a given permissible control error. In this connection, the overall error in regulation of the frequency of the power system remains within permissible limits and does not exceed 0.011 Hz. V. F.

2/2

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USSR

UDC: 621.396.945

RZAYEV, G. I., ~~KENGERLINSKIY, Yu. S.~~, KULESHOV, V. N.

"On Some Characteristics of an Interference-Free Receiver for a Wireless Electrical Communications Channel with Erasure"

Za tekhn. progress (Toward Technical Progress), 1970, No 5, pp 1-3 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11A251)

Translation: The paper gives a report on a theoretical study of an optimum receiver designed for isolating a signal from noises in the case of transmission over a wireless communications channel with erasure. Use of optimum phase AFC synthesized on the criterion of minimum mean square measurement error makes it possible to improve interference killing for reception of a signal which contains information on the rotational speed of a turbodrill. A receiver based on this principle is optimum only at the rated signal-to-noise ratio. The optimum receiver is a narrow-band high-speed unit with transient processes lasting no more than 2.5 seconds. Expressions are given for the variances of the phase and frequency errors of the receiver as a function of its parameters. The requirements for precision in realizing the optimum parameters are determined. Four illustrations, one table, bibliography of four titles. A. I.

1/1

Antibiotics

USSR

UDC 576.851.45.094.18:615.332(Streptomycinum)

KENIG, E. E., ZHUKOV, V. G., MALININA, Z. Ye., and SAGEYEVA, O. F., Institute of Human Morphology, Academy of Medical Sciences USSR, Moscow

"Changes in the Ultrastructure of the P. pestis in Guinea Pig Organisms Under the Effect of Streptomycin"

Moscow, Antibiotiki, Vol 18, No 6, Jun 73, pp 546-549

Abstract: The purpose of the study was to investigate changes in the ultrastructure of P. pestis in animal organisms treated with streptomycin. Guinea pigs were injected with a virulent culture (strain 363/4) and treatment with streptomycin was begun on the second day after infection. Treated animals were killed 2-10 days after treatment was begun and were studied bacteriologically and with an electron microscope. It was found that plague bacilli in this case may be subject to intracellular bacteriolysis, with preservation of the cytoplasmic membrane. Involution was manifested. Polymorphism of the plague microbe was more marked in animals treated with streptomycin than in the control animals, with bacterial cells 0.5-1.0 microns in size predominating. Under the influence of streptomycin, plague microorganisms lose their shells and cytoplasmic membranes and granulative degradation and lysis occur.

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USSR

KENIG, E. E., et al., Antibiotiki, Vol 18, No 6, Jun 73, pp 546-549

One of the early ultrastructural manifestations of therapeutically caused pathomorphism of experimental plague in guinea pigs treated with streptomycin is an increase in the number of lysosomes in the cytoplasm of the macrophages and neutrophils.

2/2

- 6 -

USSR

UDC 616.832.9-002.931.611.3-092.9

AVTSYN, A. P., BEREZINA, Ye. K., ~~KENIG, E. E.~~, DURSUNOVA, S. M., BELOVA, Ye. M., SHTEGEL'MAN, and ZHUKOV, V. G., Scientific Research Institute of Human Morphology, Academy of Medical Sciences USSR, and All-Union Scientific Research Institute of Antibiotics

"An Experimental Model of Leishmanial Meningoencephalitis"

Moscow, Antibiotiki, No 10, 1971, pp 885-888

Abstract: Intercerebral inoculation of mice with *Leishmania donovani*, strain T-1, obtained from dogs, and other strains obtained from reptiles resulted in the typical clinical picture of meningoencephalitis. The reaction to *Leishmania* and to the trauma was evident at the injection site in 14 days and 40 days later there were signs of inflammation of the meninges. The process became generalized in the central nervous system after 160 days. Lymphoid infiltrates appeared in the pia mater and small granulomas in the brain tissue proper. Within the lymphoid infiltrates and granulomas, *Leishmania* were observed. The granulomas consisted mainly of epithelioid cells. Actual penetration of *Leishmania* into nerve cells could not be conclusively demonstrated. The ease with which meningoencephalitis can be induced in mice with *Leishmania* makes these animals suitable for use in experimental chemotherapy.

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- 41 -

KENIG, E. E.

SO:OPRS 54539  
23 NOV 71

UDC: 616.13-036.12:036.21(472.1)

CHRONIC PROGRESSIVE LUNG DISEASE AS A REGIONAL PATHOLOGY IN SOME NORTH-EASTERN PARTS OF THE USSR

Article by A.P. AVRAM, R.I. BAYROV, L.K. BOYVINNIK, A.A. ZHAYGONKOV, E.F. KENIG, A.G. MARGOLIS, V.S. OSMILOVA, Institute of Human Pathology of the USSR Academy of Medical Sciences, Moscow, Magadan'skaya Oblast Hospital, Khabarovsk, Vostok Akademii Meditsinskikh Nauk SSSR, Khabarovsk, No 10, 1971, pp 3-14

At the present time, the attention of pathologists and clinicians is being drawn more and more to chronic progressive diseases of the lungs resulting in fibrosis and emphysema. For many years, chiefly in England, they were called chronic bronchitis, which, since the times of Rothman (1933), has been considered practically a traditional English disease. It is not by chance that Stokes (1897) in his classical textbook on thoracic pathology devoted much more attention to it than to tuberculosis. English researchers have authored many works dealing with the symptomatology, x-ray diagnostics and possible etiology of chronic bronchitis. Its traditional link with the humid climate of the British Isles, exacerbation of the disease during the cold season have become firmly fixed in the consciousness of many physicians.

A comprehensive monograph dealing with chronic bronchitis has been published by a team of English physicians and edited by Oswald (1959). This author demonstrated, in particular, that in England and Wales, 36,000 people died of bronchitis in 1957, which constituted 7 percent of all causes of death. To this we should add 21,000 deaths due to pneumonia, 2,000 deaths due to bronchiectasis, and 1,000 deaths because of asthma. It is not by chance that we compare these indices, since bronchitis, asthma, bronchiectasis, as well as emphysema are often combined, and it is only the chief clinical syndrome that makes it possible to assign them to different categories.

The incidence of chronic bronchitis is described in contradictory ways. However, there is no doubt that under specific climate conditions this disease could be one of the chief causes of disability. Evidently, the sickness begins at an early age (20-30 years), but most deaths are referable to the elderly and aged (Oswald). Among its victims there is prevalence of individuals in specific professions, but metallurgical, transportation, and communications workers are striking particularly often. In England, bronchitis does not spare agricultural workers, unskilled laborers, and representatives of other occupational groups.

Thin Films

USSR

UDC 546.47:537.311.31

KENIGSBERG, N. L., and CHERNETS, A. N.

"Conductivity of Zinc Oxide Thin Films"

Moscow, Neorganicheskiye Materialy, Vol 10, No 1, Jan 74, pp 167-170

Abstract: A study was made of the effect of annealing and alloying on the conductivity of ZnO thin films produced by vacuum sublimation of zinc oxide and deposition on unheated dielectric amorphous (glass) and single-crystal (mica, and polished surfaces of ruby and sapphire) substrates. These thin films possessed high conductivity, and tests were conducted to lower it by annealing at different temperatures in air and different gases (helium, nitrogen) and by alloying with copper. Conductivity was most effectively lowered by heating in air, with the lowest values achieved after annealing at 700° C which was not much lower than after annealing at 450° C (the next lower temperature used). The investigated films were used as hypersonic transformers. Measurements of loss in conversion  $\eta$  were conducted at 2.3 Ghz. In films with a conductivity greater than  $10^{-2} \text{ ohm}^{-1}\text{cm}^{-1}$   $\eta$  is greater than 60 db. A lowering of conductivity by an order of one to two magnitudes decreases  $\eta$  to 15-20 db and alloying with copper lowers the loss to 6-10 db. V. M. KOSHKIN reviewed the results. Three figures, ten bibliographic references.

1/1



1/2 019 UNCLASSIFIED PROCESSING DATE--11SEP70 .  
TITLE--EXPERIMENTAL YAWS AND ELECTRON MICROSCOPY OF TREPONEMA PERTENUE -U-  
AUTHOR--OVCHINNIKOV, N.M., DELEKTORSKIY, V.V., KENIGSBERG, T.L.  
COUNTRY OF INFO--USSR  
SOURCE--VESTNIK DERMATOLOGII I VENEROLOGII, 1970, NR 4, PP 42-49  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ELECTRON MICROSCOPY, RABBIT, TUBERCULOSIS, INOCULATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1990/1733 STEP NO--UR/0206/70/000/004/0042/0049  
CIPC ACCESSION NO--AP0109694  
ZZZZZZZZZZZZ UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--11SEPT0

CIRC ACCESSION NO--AP0109694

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RABBITS WERE INOCULATED INTRACUTANEOUSLY IN THE SCROTUM AND INTRATESTICULARLY AND GOLDEN HAMSTERS INTRACUTANEOUSLY IN THE INGUINAL AREA WITH A SUSPENSION OF TREPONEMA PERTENUE. HAMSTERS FAILED TO SHOW ANY CLINICAL MANIFESTATIONS WHEREAS RABBITS, REGARDLESS OF THE WAY OF INOCULATION, DEVELOPED ON SCROTUM DENSE TUBERCULOUS NODES MOST FREQUENT ON TUNICA DARTOS VARYING IN SIZE FROM A MILLET GRAIN TO A CHERRY OR EVEN A PLUM. WASSERMANN, KAHN, CYTOCHOLIN TESTS, AS WELL AS IMMOBILIZATION AND IMMUNOFLOURESCENCE TESTS BECAME POSITIVE. EXAMINATION OF TREPONEMA PERTENUE IN THE DARK FIELD AND IN ELECTRON MICROSCOPE USING NEGATIVE STAINING AND ULTRATHIN SECTION METHODS REVEALED GREAT SIMILARITY TO T. PALLIDUM, T. PERTENUE WAS FOUND TO HAVE CYSTS, BUT THEY HAD A ONE OR TWO LAYER COMMON MEMBRANE AND NOT A THREE LAYER MEMBRANE LIKE THE FORMER. THE COVER OF T. PALLIDUM IS MORE MANIFEST, THE ENDS OF T. PALLIDUM ARE MORE EXTENDED AND THE DISTANCE TO BLEFAROPLASTS IS LONGER, BUT THESE DISTINCTIVE SIGNS ARE UNRELIABLES. FACILITY: MIKROBIOLOGICHESKIY OTDEL TSENTRAL'NOGO N, I KOZHNO, VENEROLOG INSTITUTA MINISTERSTVA ZDRAVOOKHRANENIYA SSSR, MOSCOW.

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UNCLASSIFIED

USSR

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UDC 518:512.86

KENIGSON, V. N.

"A Process of Successive Approximations to Eigenvectors and Eigenvalues of a Linear Operator, Using Differential Equations"

Tr. Kazakhsk. S.-Kh. In-ta (Transactions of the Kazakh Agricultural Institute), 1968, No 12, pp 5-10 (from RZh-Matematika, No 9, Sep 1970, Abstract No 9B564, by I. Shelikova)

Translation: N. V. Azbelev and R. E. Vinograd proposed a process of successive approximations for finding eigenvalues and eigenvectors of a linear finite-dimensional operator. They advanced a hypothesis that a set of vectors which, taken at zero approximations, do not lead to eigenvalues and eigenvectors is nowhere compact, at least for operators of simple structure. The validity of this hypothesis is shown for normal operators in complex unitary space and for operators "close" to normal (whose eigenvectors form pairwise angles close to straight lines). The proof is based on construction of a continuous analogy of the process -- a vector differential equation -- and on investigation of the behavior of integral curves in the  
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USSR

KENIGSON, V. N., Tr. Kazaknsk. S.-Kh. In-ta, 1968, No 12, pp 5-10

neighborhoods of stationary points by establishment of asymptotic stability of "eigen-points" or "eigen-circles," instability of "special circles" and "special spheres" for a normal operator with different or multiple eigenvalues. Operators "close" to normal are studied by the "small parameter" method. Bibliography: 2 entries.

2/2

- 50 -

USSR

UDC: 582.288.32:576.8.097.29

KENINA, Sh. M., OLIFSON, L. Ye., and ZHILIN, A. N., Orenburg State Medical Institute

"Fat-Splitting Capacity and Toxicity of *Fusarium sporotrichiella* Bilal"

Leningrad, Mikologiya i Fitopatologiya, No 3, 1970, pp 247-250

Abstract: Five strains of *F. sporotrichiella* var. *sporotrichioides* and four strains of *F. sporotrichiella* var. *poae* were cultured on a mineral medium containing sunflower oil in order to determine whether there is a relationship between the lipolytic ability of the fungi and their toxicity. All strains grew well, but the acid numbers of the sunflower oil (indicating the lipolytic activity of the fungi) differed. Wheat kernels were then infected with the various fungal strains and either fed to pigeons or applied to the skin of rabbits. A comparison of the acid numbers of the infected sunflower oil with the toxicity of the fungi on wheat kernels failed to show any correlation. For example, strains 319 and 2,009, found to be nontoxic according to both bioassays, have higher acid numbers than the toxic strains 2,005 and 5,253.

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USSR

UDC 541.12.013

KENTINA, YE. M., KORNILOV, I. I. and VAVILOVA, V. V., Institute of Metallurgy  
imeni A. A. Baykov, Academy of Sciences USSR

"The Ti-Sn-O Ternary System"

Moscow, Izvestiya Akademiyi Nauk SSSR, Neorganicheskiye Materialy, Vol 8, No 9,  
Sep 72, pp 1595-1599

Abstract: A study was made of the Ti-Sn-O ternary system for the purpose of developing new titanium alloys based on the use of waste products from titanium production. Initial materials for alloy preparation were titanium iodide, chemically pure tin, and chemically pure grade A2 titanium dioxide. The alloys were produced by induction crucibleless suspension melting. With the use of high-temperature thermal, microstructural, x-ray-phase, and local x-ray spectral analyses as well as electrical resistance and microhardness measurements, isothermal and polythermal sections of the Ti-Sn-O ternary system were constructed. An isothermal section was constructed for Ti-Ti<sub>3</sub>O-Ti<sub>3</sub>Sn at 1600°C. Polythermal sections were constructed for Ti+1 at.% O-Sn (800-1700°C), Ti+5 at.% O-Sn (900-1800°C), and Ti+ 5 at.% Sn-O (800-1800°C). Analysis of phase diagrams for the polythermal sections showed the differences in the solidus and liquidus structures which were caused by the varying position of these sections with respect to the peritectic rectangle and to the surface of primary crystallization of the solid solution. 2 figures, 10 bibliographic references.

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USSR

UDC 669.295'782'787:539.434:54.165

K  
KENINA, YE. M., KORNILOV, I. I., VAVILOVA, V. V., and LYASHCHENKO, A. B.  
(Institute of Metallurgy imeni A. A. Baykov AN SSSR)

"Heat Resistance and Strength of the Interatomic Bond of Solid Solutions of the Ti-Sn-O System"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 3, 1970, pp 54-56.

Abstract: The strength of the interatomic bond of solid solutions of Ti-Sn-O alloys is investigated. Tests were conducted on alloy samples whose characteristic points were located on cuts parallel to the Ti-Sn side with constant oxygen content (1, 2 and 5%). Iodide titanium (99.9%), ChDA tin, and a titanium-oxygen alloy with 20.5% oxygen content served as the original materials. The preparation of alloys and the experimental technique are described. The mean square displacements of atoms from the equilibrium position in nodes of the crystal lattice were calculated. Results are presented in graphs in the form of the dependence of elasticity modulus, characteristic temperature, and mean square atom displacement on Sn concentration for Ti-Sn-O system alloys. Their analysis shows that in solid solutions of Ti-Sn-O systems the modulus of elasticity and the characteristic temperature increase with increasing oxygen content, while the mean square atom displacement decreases. A link exists between the characteristics of the

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KENINA, YE. M., et al., Metallovedeniye i termicheskaya obrabotka metallov, No 3, 1970, pp 54-56

atomic bond strength and the creep resistance of the alloys. The strengthening effect of oxygen at high temperatures may be explained by the increase in atomic bond strength in alloying binary alloys of Ti-Sn by oxygen. 2 figures, 1 table, 10 references.

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- 5 -



1/2 056 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--HEAT RESISTANCE AND STRENGTH OF THE INTERATOMIC BOND IN SOLID  
SOLUTIONS OF THE TI-SN-O SYSTEM -U-  
AUTHOR-(04)-KENINA, YE.M., KORNILOV, I.I., VAVILOVA, V.V., LYASHCHENKO,  
A.B.  
COUNTRY OF INFO--USSR  
SOURCE--METALLOVEDENIE I TERMICHESKAIA OBRABOTKA METALLOV, NO. 3, 1970, P.  
54-56  
DATE PUBLISHED-----70

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

TOPIC TAGS--SOLID SOLUTION, TITANIUM ALLOY, TIN ALLOY, OXYGEN, ELASTIC  
MODULUS, HEAT RESISTANCE, MECHANICAL STRENGTH, METAL CREEP, METAL  
BONDING, BIBLIOGRAPHY, CHARACTERISTIC FUNCTION, COVALENT BONDING,  
TEMPERATURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1997/0013

STEP NO--UR/0129/70/000/003/0054/0056

CIRC ACCESSION NO--AP0119009

UNCLASSIFIED

2/2 056

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0119009

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE STRENGTH OF THE INTERATOMIC BOND IN SOLID SOLUTIONS OF THE TI-SN-O SYSTEM WITH RESPECT TO THEIR HEAT RESISTANCE AT ELEVATED TEMPERATURES. THE INTERATOMIC BONDING FORCE WAS ESTIMATED ON THE BASIS OF THE ELASTICITY MODULUS. IT IS FOUND THAT AN INCREASE IN THE OXYGEN CONTENT RESULTS IN AN INCREASE OF THE ELASTICITY MODULUS, WHILE THE CHARACTERISTIC TEMPERATURE AND THE MEAN SQUARE SHIFT OF ATOMS ARE DECREASED. A RELATIONSHIP WAS FOUND BETWEEN THE STRENGTH CHARACTERISTICS OF THE INTERATOMIC BOND AND THE CREEP RESISTANCE OF ALLOYS. THE STRENGTHENING EFFECT OF OXYGEN AT ELEVATED TEMPERATURES IS SUGGESTED TO BE DUE TO THE INCREASE IN THE INTERATOMIC BONDING FORCES. FACILITY: AKADEMIIA NAUK SSSR, INSTITUT METALLURGI, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 536.421.1

BEREZIN, E. YA., KENISARIN, M. M., and CHEKHOVSKOY, V. YA., Institute of High Temperatures, Acad. Sc. USSR

"Melting Point of Niobium"

Moscow, Teplofizika Vysokikh Temperatur, Vol 10, No 6, Nov-Dec 72, pp 1214-1217

Abstract: 21 determinations of the melting point of niobium were carried out on a material containing 99.7% niobium, 0.18% Ta, 0.005% W, 0.01% Ti, 0.04% Si, 0.005% Fe, 0.005% O<sub>2</sub>, 0.001% H<sub>2</sub>, 0.01% C, and 0.001% N<sub>2</sub>. The temperature was determined by means of two optical monochromatic pyrometers of the EOP type and a model of absolute black body. The average melting point is  $2469 \pm 1.3^{\circ} \text{C}$ .

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USSR

UDC 619.616.988.43-022.3

KENYA, T. Sh.

"Sources and Means of Spread of Foot-and-Mouth Disease"

Moscow, Veterinariya, No 9, Sep 70, pp 53-54

Abstract: The incidence of foot-and-mouth disease in the Georgian SSR has been considerably reduced in recent years as a result of the control measures taken. To further reduce the incidence of this disease in Georgia, a study was made of the sources of infection and the ways in which the disease was spread. In a study of 750 outbreaks, the manner in which the infection was brought in could be reliably established in only 130 instances. In 88 cases the infection originated with diseased animals, in 6 cases with animals which had recovered from the disease, and in 13 cases with animals in which the disease was in the incubation period. In 5 cases the infection was caused by virus present in the pasture, in 2 cases by infected water, in 2 cases by infected manure, and in 6 cases by infected feed. At only one farm was the disease caused by milk that had not been disinfected. In one other instance, the disease was caused by infected meat. The cause of occurrence of the disease was contamination of a cattle barn in 1 case and proximity to a meat combine in 2 cases. In 40 cases the disease was due to contact of healthy with sick

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USSR

KENIYA, T. Sh., Veterinariya, No 9, Sep 70, pp 53-54

animals, in 26 cases to contact of healthy animals with sick animals in pastures, and in 6 cases to transmission by human beings that had been in contact with infected animals. In 20 out of 40 cases, infection occurred because of contact with diseased animals being driven on foot to meat combines. To reduce infection by this route, it is advisable to transport animals to be slaughtered by rail or truck, particularly when the animals come from localities in which an epizootic of foot-and-mouth disease has occurred in the current or preceding year.

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KEN'KO, V.M.

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Sci JPRS 59610  
25 JULY 1973

UDC 678.01:539.61

MICROTRIBOMETRIC STUDY OF SELF-LUBRICATING COMPOSITE MATERIALS BASED ON POLYUREAS  
Article by A. I. Solov'nikov, V. H. Ken'ko, V. A. Zelyu, Institute of Mechanics of Metal-Polymer Systems, Academy of Sciences of the Belorussian SSR, Gomel'; Riga, Mekhanika Polimerov, Russian, No 1, 1973, unabstracted 3 December 1971, pp 102-104]

The microtribometric method is described, and results are presented from studying the frictional properties of polymers and composite materials based on them. There are five illustrations and a 4-entry bibliography.

The actual solid-state contact is discrete as a result of roughness of the interacting surfaces. When selecting the calculation scheme for the frictional interaction, the unevenness of the real surfaces are usually simulated by a set of bodies of regular shape, for example, spherical [1]. Accordingly, the investigation of the interaction of the unevenness of one body with the surface of another is of definite theoretical and practical interest. The method of studying the friction of a microindenter commensurate with the dimensions of a unit unevenness and the structural elements is called the microtribometric method [2]. By means of this method it appears possible to investigate the frictional properties in connection with the structure of the material [3, 4]. It is of special interest to use microtribometry to study self-lubricating composite materials based on polymers and dry lubricants having a clearly expressed discrete structure. As a result of such studies it appears possible from the point of view of achieving the required frictional properties to obtain information about the selection of the binder, fillers, their disperseness and optimal distribution, and so on and to anticipate the friction mechanisms of the composite self-lubricating materials. In connection with the discussion in this report a study has been made of certain results of estimating the frictional properties of composite materials based on polymers and dry lubricants.

The study was made by the method of microtribometry on the DS-type device [3] using electron and optical microscopy. A cerium needle with a radius of curvature of the operating section of 15 microns was used as the indenter. This corresponds to dimensions of the unevenness of the point seal surface of approximately finish class 6. The experiments were performed with a sliding

rate of 0.005-0.01 m/sec and an indenter load of 1-8 gram force. The choice of speed was determined by trying to reduce the effect of the frictional heating. The load range was determined by calculations using the procedure [1] bearing with the actual operating conditions and the following characteristics of the material: the outline pressure on the contact — up to 100 Kilogram-force/cm<sup>2</sup> — the Young's modulus of the material  $E = 3 \cdot 10^4$  Kilogram-force/cm<sup>2</sup>; the Poisson coefficient  $\nu = 0.4$ .

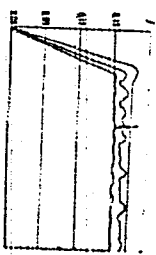


Figure 1. Tribograms of the following binders: 1 — PPF; 2 — EPF; 3 — SBS-1.

When taking the tribograms, the structure and the trail were photographed simultaneously using an optical microscope with 200 x magnification. After this, replicas were taken from the track, and they were photographed on the UDM-100 electron microscope with up to 6000 x magnification. The specimens were prepared in the form of films from 100 to 200 microns thick (from the pure binder and the binder with filler) and in the form of blocks of the finished composite material. The results of the microtribometric studies were compared with the experimental data using a pin friction machine.

A study was made of the frictional behavior of three types of binders — epoxyphenol resin (EPF), phenol formaldehyde resin (SBS-1) and polyvinyl furfural (PPF).

During movement of a single-spherical indenter over the plastic half-space, the magnitude of the friction coefficient is defined both by the molecular interaction of the contact surfaces depending on the nature of the contact bodies and by the volumetric deformation of the material which can be characterized by the magnitude of the ratio of the depth of introduction of the indenter to its radius  $(h/R)$  [1]. Accordingly, when estimating the effect of the nature of the polymer material on the friction coefficient and the effect of the frictional contact tests were made for a constant magnitude of the ratio  $h/R = 0.2$ . As a result of the difference in mechanical properties of the selected binders, the identical value of  $h/R = 0.2$  is achieved correspondingly for different loads by the magnitude of which it is possible to judge the carrying capacity of the binder.

Computers: Equipment

USSR

UDC 681.327.64

KENSTAVICHYUS, A-B. B. and RAGUL'SKIS, K. M.

"Device for Determining the Pattern of Longitudinal Deformations from the Width of Magnetic Tapes"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No. 33, 1971, p 165

Abstract: This device, used in film-stretching machines, consists of counting amplifiers connected to a multichannel magnetic head, a recording device, differential circuits, delay lines, pulse oscillator, with starting inputs and logic circuits. It determines the deformation pattern by using the amplifiers to count pulses previously recorded on test magnetic tape by the static method. A short description of the logic circuit operation is given.

I/I



Surgery

USSR

KENTS, IVAR; PURINYA, BIRUTA; AND YANSON, KHARAL'D

"Bone and Blood Vessel Prosthesis"

Riga, Nauka i Tekhnika, No 8, 1971, pp 25-29

Abstract: Scientists in the field of biomechanics are directing research toward determining the elasticity, deformative properties, and strength of blood vessel walls and bone tissue, and how they change with age and under stress. The possibilities of producing synthetic materials as effective as natural tissue are being investigated, as well as the improvement of prostheses. Blood vessel prostheses are emphasized because of the high incidence of atherosclerosis. Corrugated lavsan prostheses are most widely used in the USSR. Special stretching machines are used to test the ability of reconstructed arteries to withstand arterial pressure; the results are implemented in practice. Experiments are being made to overcome hardening and stoppage in long, narrow prostheses by combined prostheses which reinforce part of the reconstructed artery or vein. A new method of cultivating prostheses in living tissue has been tested on animals, but the practical value of this process is unknown. Experiments are in progress to define the disintegration process of arterial walls in cases of closed trauma. Research on bones is chiefly directed toward studying deformative properties and stability. No adequate substance has yet been found for bone prostheses. Metal or alloys

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USSR

KENTS, IVAR, et al., Nauka i Tekhnika, No 8, 1971, pp 25-29

are unsatisfactory because they do not adapt to the cyclical stress which seems to play a crucial role in bone nourishment.

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1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70 /  
TITLE--REMOVAL OF UNPOLYMERIZED MONOMERS FROM LATEXES -U-

AUTHOR--(05)-KIL, T.A., ZADORSKIY, V.M., LUKYANOVA, I.P., VOLKOVA, N.I.,  
KENZHETAYEVA, V.D.  
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265, 430  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--09MAR70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--MONOMER,--LATEX, DISTILLATION, FREON, CHEMICAL PATENT, CHEMICAL  
SEPARATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAHE--3002/1424

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

CIRC ACCESSION NO--AA0128823

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0128823

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNPOLYMD. MONOMERS ARE REMOVED  
FROM LATEXES BY DISTG. THEM WITH H SUB2 O VAPOR MIXED WITH FREON 12.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70  
1/3 013  
TITLE--REMOVAL OF UNPOLYMERIZED MONOMERS FROM LATEXES -U-  
AUTHOR--(05)-KIL, T.A., ZADORSKIY, V.M., LUKYANOVA, I.P., VOLKOVA, N.I.,  
KENZHETAYEVA, V.O.  
COUNTRY OF INFO--USSR K  
SOURCE--U.S.S.R. 265,431  
REFERENCE--DTKRYTIYA, IZOBRET., PROM. OBRATSY, TOVARNYE ZNAKI 1970;  
DATE PUBLISHED--09MAR70  
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--MONOMER, LATEX, CHEMICAL PATENT, BUTADIENE, INDUSTRIAL  
BYPRODUCT, UNSATURATED HYDROCARBON  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3002/1425 STEP NO--UR/0482/70/000/0000/0000  
CIRC ACCESSION NO--AA0128824  
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0128824

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT, UNPOLYMD. MONOMERS ARE REMOVED FROM LATEXES BY DISTG. THEM WITH STEAM MIXED WITH THE ETHER PART OF A PIPERYLENE FRACTION (BY PRODUCT OF 1,3,BUTADIENE PRODUCTION AS DESCRIBED BY S. V. LEBEDEV).

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--CONDENSATION LEVEL AND ALTITUDE OF CONVECTIVE CLOUDS OVER THE  
LOWLAND AREAS OF KAZAKHSTAN -U-  
AUTHOR--KENZHIBAYEV, A.T. K  
COUNTRY OF INFO--USSR  
SOURCE--TRUDY KAZAKHSKOGO NAUCHNO ISSLEDOVATEL'SKOGO  
REFERENCE--MOSCOW, REFERATIVNYY ZHURNAL, GEOFIZIKA, SVOODNYI TOM, NO 4,  
DATE PUBLISHED-----70  
SUBJECT AREAS--ATMOSPHERIC SCIENCES  
TOPIC TAGS--ATMOSPHERIC CONDENSATION, ATMOSPHERIC CLOUD, TEMPERATURE,  
CUMULUS CLOUD, THERMAL CONVECTION, CLOUD PHYSICS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/0173 STEP NO--UR/0000/69/000/037/0086/0096  
CIRC ACCESSION NO--AR0125975  
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--ARO125975

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ALTITUDES OF THE CONDENSATION LEVEL, DETERMINED FROM SOUNDING (PARTICLE METHOD), WERE COMPARED WITH THE ACTUAL ALTITUDES OF THE BASES OF CONVECTIVE CLOUDS. IT WAS FOUND THAT THE ACTUAL ALTITUDES ON THE AVERAGE ARE 300-400 M (UP TO 1,000-1,500 M) ABOVE THE THEORETICAL CONDENSATION LEVEL. THIS EXCESS CAN BE ATTRIBUTED TO THE HIGHER INITIAL TEMPERATURE OF THE ASCENDING MASS AND TO THE MOISTURE LOSS DURING THE PROCESS OF RISING OF THE MASS. THE ACTUAL ALTITUDES CAN BE DETERMINED BY USING AN INITIAL TEMPERATURE 2-5 DEGREES ABOVE THE ORDINARY GROUND TEMPERATURE. IN INDIVIDUAL CASES THE DIFFERENCE ATTAINED 14-16 DEGREES; IN CONSTRUCTING THE LINE OF STATE IT IS DESIRABLE TO BEGIN IT FROM A TEMPERATURE AVERAGING 4 PERCENT GREATER THAN THE GROUND TEMPERATURE. SPECIFIC HUMIDITY AT THE LOWER CLOUD BOUNDARY IS USUALLY LESS THAN THE GROUND VALUE BY 1-2 G-KG; THE DIFFERENCES ATTAIN 5-6 G-KG. IT IS DESIRABLE THAT THIS DIFFERENCE BE TAKEN INTO ACCOUNT WHEN CONSTRUCTING AN EMAGRAM. THE CONCLUSIONS ARE DIFFERENTIATED FOR CONVECTIVE CLOUDS OF DIFFERENT DEGREES OF DEVELOPMENT FROM CU HUM TO CB. A STUDY IS ALSO MADE OF A NUMBER OF EMPIRICAL FORMULAS FOR COMPUTING THE CONDENSATION LEVEL IN CONVECTION PROCESSES ON THE BASIS OF GROUND DATA.

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USSR  
CHESHNIK, S. G., RODOV, M. N., IVANOVA, L. A., ZAYTSEVA, N. D., and KEONDZHAN  
S. YE., Clinical Department, Institute of Virology imeni D. I. Ivanovskiy,  
USSR Academy of Medical Sciences, and City Clinical Hospital of Infectious  
Diseases No 82, Moscow

"Clinical Picture and Diagnosis of Hong-Kong A2 Influenza in Children";

Moscow, Peditriya, No 5, May 71, pp 92-93

Abstract: During the peak of the Hong-Kong A2 influenza epidemic in 1969, the frequency of acute respiratory diseases increased 8.4 times among adults, 7.9 times among children aged 7-14, and only 2.4 times among children aged up to 2 years. Nevertheless, in absolute figures, the frequency was highest in the last group, because the pre-epidemic morbidity among small children was very great. Serological and fluorescent antibody tests performed on hospitalized patients in December 1968 through March 1969 revealed that all respiratory diseases identified in the pre-epidemic period were also diagnosed during the epidemic, though their relative proportions were somewhat smaller: 28.3% in December, 25.4% in January, and 10.4% in February. This makes it necessary to perform differential diagnoses of viral respiratory diseases in hospitals in order to distribute the patient in proper wards. Of the 122 children hospitalized with diagnosed influenza, 74 developed complications;  
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CHESHIK, S. G., et al., *Pediatrics*, No 5, May 71, pp 92-93

45 developed pneumonia, 9 developed bronchitis, and 20 developed other diseases. Among infants, toxicosis was less pronounced which developed in 47% of infants up to the age of 1 year and in 73% of infants aged 1-3 months. Among the youngest infants, pneumonia often developed and progressed with a fatal speed. Therefore, it is necessary to hospitalize these children regardless of the severity of the influenza.

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USSR

UDC 632.95

ALIMOV, P. I., WASHKOV, V. I., VOLKOVA, A. P., ZAKOLODKINA, V. I., IRANOVA,  
I. I., KERBAYEV, E. B., NEKLESOVA, I. D., STEL'NIKOVA, G. N., FROLOVA, A. I.

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

Tr. VNI 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  $89-92^\circ\text{C}/0.02$ ,  $n_{20}^D$ )

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

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ALIMOV, P. I., VASHKOV, V. I., VOLKOVA, A. P., ZAKOLODKINA, V. I., ZUBOVA, G. N., IRANOVA, 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 dezinfektsii 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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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), neksagen 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 678.652'41'21-9

SHARKOVSKIY, V. A., AKUTIN, M. S., KERBER, M. L. SHCHEGLOV, L. L.,  
MATVELASHVILI, G. A., PUKHOVITSKAYA, A. N., MILL', L. I., GREBENNIKOV,  
A. V., OSTROVSKAYA, A. YE., and DYMARSKAYA, YE. L.

"New Types of Aminoplastics"

Moscow, Plasticheskiye Massy, No 12, Dec 70, pp 53-54

Abstract: The article describes synthesis of fiberglass plastics based on carbamide binders. These binders include a carbamide oligomer modified by polyvinylacetate emulsion during synthesis, and urea-benzoguanamine-formaldehyde oligomer. Fiberglass textolites based on these oligomers and TS-8/3-250 glass treated with lubricant 752 are mechanically strong. In addition to its excellent strength properties, the plastic based on urea-benzoguanamine-formaldehyde oligomer is also water-resistant.

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UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--EFFECT OF MODIFYING UREA OLIGOMERS ON THE PROPERTIES OF GLASS FIBER REINFORCED PLASTICS -U-

AUTHOR--(05)--KRIVONOSOV, A.I., AKUTIN, M.S., KERBER, M.L., MESHCHERYAKOV, YU.YA., PUKHOVITSKAYA, A.N.

COUNTRY OF INFO--USSR

*K*

SOURCE--PLAST. MASSY 1970, (3), 46-7

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--UREA, OLIGOMER, GLASS FIBER, REINFORCED PLASTIC, POLYVINYL ACETATE/(U)UKS UREA OLIGOMER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1997/0578

STEP NO--UR/0191/70/000/003/0046/0047

CIRC ACCESSION NO--AP0119496

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UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119496

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MODIFICATION OF A UREA OLIGOMER  
UKS (I) WITH 3-5PERCENT AGM-9, ES, AND POLY(VINYL ACETATE) EMULSION  
INCREASED THE WETTABILITY OF GLASS FIBERS WITH I AND IMPROVED  
PHYSICOMECH. PROPERTIES OF GLASS FIBER REINFORCED PLASTICS.

UNCLASSIFIED



1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--SYNTHESIS AND STUDY OF AROMATIC POLYAMIDES --U--  
AUTHOR--(04)--KOZYREVA, N.M., FEDOTOVA, O.YA., KERBER, M.L., KOLESNIKOV,  
G.S.  
COUNTRY OF INFO--USSR  
SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(3), 230-4  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY, MATERIALS  
TOPIC TAGS--ORGANIC SYNTHESIS, POLYAMIDE RESIN, INTERFACIAL  
POLYCONDENSATION, CHLORINATED ORGANIC COMPOUND, PHTHALIC ACID  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/0685 STEP NO--UR/0460/70/012/003/0230/0234  
CIRC ACCESSION NG--AP0124357  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124357

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

ABSTRACT. SEVERAL AROMATIC POLYAMIDES (I) WERE PREPD. FROM 4,4 PRIME DIAMINODIPHENYLMETHANE, 4,4 PRIME DIAMINO 3,3 PRIME DIMETHYLDIPHENYLMETHANE, 2,2 BIS(4 AMINOPHENYL)PROPANE AND ISOPHTHALOYL AND TEREPHTHALOYL CHLORIDES BY INTERFACIAL POLYCONDENSATION AND FOR LOW TEMP. POLYCONDENSATION IN ACNME SUB2. THE LATTER METHOD GAVE I HAVING A SP. VISCOSITY 10 TIMES AS GREAT AS THAT OF POLYMERS OBTAINED BY THE INERFACIAL POLYCONDENSATION (AT THE SAME MONOMER CONCNS.). THE SOFTENING POINT OF I RANGED FROM 200 TO 300DEGREES. FACILITY: MOSK. KHIM. TEKHNOL. INST. IM. MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

BIRGER, YE. S., KERBIKOV, B. O., KONYUKHOVA, N. B., and SHAPIRO, I. S., Institute of Theoretical and Experimental Physics of the State Committee on the Use of Atomic Energy (BIRGER, YE. S., now at Institute of Control Problems, and KONYUKHOVA, N. B., at Computer Center of the Academy of Sciences USSR)

"Bound Quasinuclear States of  $2N2\bar{N}$  System"

Moscow, Yadernaya Fizika, Vol 17, No 1, 1973, pp 178-185

Abstract: The article shows that in the X-region there can be quasinuclear mesons which represent bound states of two nucleons and two antinucleons ( $2N2\bar{N}$ ). The characteristic qualitative peculiarities of the bound states in the  $2N2\bar{N}$  system are as follows:

1) The isospins of the four-particle mesons may reach values of  $I=2$ . Experimental data fail to contradict the presence of doubly charged mesons in the X-region;

2) The partial widths  $\Gamma_{N\bar{N}}$  for four-particle meson decay over the  $N\bar{N}$  channel should be much less than the corresponding widths of the

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BIRGER, YE. S., et al., Yadernaya Fizika, Vol 17, No 1, 1973, pp 178-185

quasinuclear two-particle resonances  $N\bar{N}$ . Therefore, the  $2N2\bar{N}$  mesons can hardly appear as resonances in the antinucleon-nucleon scattering cross-section;

3) The cross-section for the generation of  $2N2\bar{N}$  mesons in processes of the type  $\bar{N}+N \rightarrow X+N$  should, beginning with certain values, undergo a sharp exponential drop due to the reduced probability of the production of a correlated group from four particles with nonrelativistic relative velocities.

The mass and annihilation width spectrum is obtained for states with the quantum numbers  $1^G(J^P)=2^+(4^+)$ . One of the levels found has a width of 34 Mev and hence should be observed experimentally as a doubly charged meson in the X-region.

The authors thank O. D. DAL'KAROV and V. D. EFROS for useful comments.

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