1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CANAMYCIN TREATMENT OF PERITONITIS -U-

AUTHOR-(02)-FEDOROV, V.D., MAKSIMOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 6, PP 94-100

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PERITONEUM, ANTIBIOTIC, DRUG TREATMENT/(U)CANAMYCIN ANTIBIOTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1775 STEP NO--UR/0531/70/000/006/0094/0100

CIRC ACCESSION NO--AP0129143

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129143

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXCRETORY AND ABSORPTIVE CAPACITY OF THE PERITONEUM IN RESPECT WITH CANAMYCIN WAS INVESTIGATED IN OVER 100 PATIENTS WITH DIFFERENT FORMS OF PERITONITIS. THE DATA DERIVED TESTIFY TO THE INADEQUATE EFFECTIVENESS OF THE INTRAMUSCULAR ROUTE OF ANTIBIOTIC ADMINISTRATION, IN VIEW OF THE IMPOSSIBILITY TO CREATE IN THE PERITONEAL EXUDATE BACTERICIDAL CONCENTRATIONS. THE LEVEL OF CANAMYCIN CONTENT IN THE ABDOMINAL CAVITY IN LOCAL PERITONITIS ACHIEVED 2, IN DIFFUSE, 4, IN GENERALIZED, 11 MU G-ML. STUDIES OF THE PERITONEAL ABSORPTIVE CAPACTIY ENABLED TO SUBSTANTIATE DIFFERENT METHOD OF INTRAPERITONEAL INTRODUCTION OF CANAMYCIN AND TO CONSIDER THEM PREFERABLE IN COMPARISON WITH INTRAMUSCULAR. INTRAPERITONEAL ADMINISTRATION OF 1-1.5 GM OF CANCMYCIN IS SUFFICIENT FOR THE TREATMENT OF LOCAL PERITONITIS. IN DIFFUSE PERITONITIS CONSTANT DRIP TRANSFUSION OF 2 GM OF CANAMYCIN IN 500 ML OF RINGER'S SOLUTION PROVED TO BE EFFECTIVE. THE BEST RESULTS IN THE TREATMENT OF DIFFUSE AND GENERALIZED SUPPURATIVE PERITONITIS WERE ACHIEVED WITH MASSIVE IRRIGATION OF THE ABDOMINAL CAVITY WITH 5-6 LITERS OF FINGER'S SOLUTION WITH 5-6 GM OF CANAMYCIN WITHIN A PERIOD OF 24 HOURS. IN THIS METHOD THE ANTIBIOTIC WIDELY CONTACTS THE INFLAMED PERITONEUM, THE PREPARATION IS CONSTANTLY PRESENT IN THE BLOOD SERUM AT A HIGH LEVEL (OVER 15-20 MU G ML); IN THE FLUID OF THE ABDOMINAL CAVITY CANAMYCIN WAS PRESENT IN BACTERIAL CONCENTRATIONS (200-500 MU G-ML). FACILITY: GOSPITAL'NAYA KHIRURGICHESKAYA KLINIKA II MMI IMENI N. I. PRIOGOVA.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CATALYTIC REDUCTION OF 8,METHYL,5,6,7,8,TETRAHYDRO, 1,5,INDANDICN,4,YLACETIC ACID AND ITS DERIVATIVES -U-
AUTHOR-(04)-GRINENKO, G.S., POPOVA, YE.V., MAKSIMOV, V.I., ALEKSEYEVA, L.M.
CCUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(4), 732-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHEMICAL SYNTHESIS, STERDID, ACETIC ACID, CHEMICAL REDUCTION, AROMATIC KETONE, HYDROGENATION, ISOMER, CATALYST, PALLADIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0459 STEP NO--UR/0366/70/006/004/0732/0736

CIRC ACCESSION NO--AP0128029
UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201910014-1"

2/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0128029

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REDN. OF 8,METHYL,5,6,7,8,TETRAHYDRO,1,5,INDANDION,4,YLACETIC ACID (I) IN MEOH OVER PD-CACO SUB3 CATALYST GAVE ISOMERIC MIXTS. CONTG. 1:1 MIST. OF ANTI,CIS,8,METHYLHEXAHYDRO,1,5,INDANDION,4,YLACETIC ACID (II) AND ITS SYN,CIS,ANALOG (IIA). WHEN THE REDN. WAS CARRIED OUT IN ACOH CONTG. PD,BASO SUB4 BESIDES II AND IIA ALSO ABOUT THE SAME AMT. OF ANTI,TRANS,II ISOMER IIB) WAS FORMED. THE REDN. OF ET I ESTER WITH NABH SUB4 GAVE 1,HYDROXY DERIV. (III) OF I. THE HYDROGENATION OF III IN MEOH CONTG. PD,C CATALYST GAVE 1:1:2.5 MIST. OF 1,HYDROXY ANALOG OF IIB, 1,HYDROXY ANALOG OF II, AND 1,HYDROXY ANALOG OF IIA. THE OXIDN. OF 1,HYDROXY ANALOG OF IIB GAVE IIB. THE SYNTHESIS OF ANTI,TRANS,BICYCLIC SYSTEMS (SUCH AS IIB) IS OF INTEREST IN THE TOTAL SYNTHESIS OF STEROIDS.

FACILITY: VSES. NAUCH.,ISSLED. KHIM.-FARM INST. IM. ORDZHONIKIDZE, MOSCOW, USSR.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--19,NORSTEROIDS. PREPARATION OF 5 ALPHA,HALO,6 BETA,19, OXIDOANDROSTAN,3 BETA,OL,17,ONE ACETATES -U-

AUTHOR-(04)-SAMSONOVA, N.V., MOROZOVA, L.S., LURI, F.A., MAKSIMOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--KHIM.-FARM. ZH. 1970, 4(2), 5-10

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, ACETATE, CATALYST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0490 STEP NO--UR/0450/70/004/002/0005/0010

CIRC ACCESSION NO--AP0121164

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121164

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. I WERE CONVERTED INTO II. THUS, I G I, 1.6 G PB(OAC) SUB4, AND 0.23-0.26 G IODINE WAS REFLUXED IN 30 ML C SUB6 H SUB6 WITH IRRADN. (100-500 W LAMP) 45-60 MIN TO GIVE A PRODUCT 188-190DEGREES IN IS LARGER THAN 80PERCENT YIELD. BEST YIELDS (90PERCENT) WERE OBTAINED WHEN CCL SUB4 WAS USED INSTEAD OF C SUB6 H SUB6. THE REACTION COULD BE DONE WITHOUT ANY IRRADIATION IN CCL SUB4 (RATIO I-CCL SUB4 EQUALS 1:100) THE YIELDS BEING 70PERCENT. WHEN ALPHA,ALPHA PRIME, AZOBISISOBUTYRONITRILE WAS USED AS A CATALYST, YIELDS OF II WERE 70PERCENT. FACILITY: VSES. NAUCH.-ISSLED. KHIM.-FARM. INST. IM. ORDZHONIKIDZE, MOSCOW, USSR.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SYNTHESIS OF 19 NORSTEROIDS. IV. SYNTHESIS OF PLUS OR MINUS,18,ETHYL,DE,A,GON,9,10,ENE,5,17,DIONE -U-
AUTHOR-(03)-FEDOROVA, O.I., GRINENKO, G.S., MAKSIMOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 690-3

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--STEROL, ORGANIC SYNTHESIS, KETONE, POLYNUCLEAR HYDROCARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0930 STEP NO--UR/0079/70/040/003/0690/0691

CIRC ACCESSION NO--AP0124591

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201910014-1"

2/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0124591
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. 2,ETHYL,1,3,CYCLOPENTANEDIONE AND ACCH:CH SUB2 IN MEOH,DOH REFLUXED 5 HR GAVE 2,ETHYL,2,OXOBUTYLCYCLOPENTANE,1,3,DIONE, B SUB0 TIMES 5 126-30DEGREES, WHICH WITH P,MEC SUB6 H SUB4 SO SUB3 H IN REFLUXING C SUB6 H SUB6 4 HR WITH REMOVAL OF H SUB2 O GAVE 8,ETHYL,5,6,7,8,TETRAHYDROINDAN,1,5,DIONE (I), M. 87-8.5DEGREES, WHICH WITH PYRROLIDINE IN MEOH UNDER N IN 45 MIN GAVE 5,PYRROLIDYL,8,ETHYL,2,6,7,8,TETRAHYDRO,1,INDANONE (II), DECOMPD. 57-8DEGREES. I IN MEPH HEATED 0.5 HR AT 70DEGREES WITH ME SUB2 ETCOK, COOLED, TREATED WITH 1,3,DICHLORO,2,BUTENE, HEATED 1 HR, AND TREATED WITH H SUB2 O GAVE 60PERCENT 8,ETHYL,4,(3,CHLORO,2,BUTENYL),5,6,7,8,TETRAHYDROINDAN,1,5,DIONE, AN OIL, PURIFIED ON SILICA GEL; SIMILAR REACTION WITH II GAVE A 75PERCENT YIELD. THE CRUDE ALKYLATE IN ACOH WAS TREATED AT NEGATIVE30DEGREES WITH CONCD. H SUB2 SO SUB4 AND KEPT 20 MIN, FINALLY AT ROOM TEMP., TO YIELD OILY 8,ETHYL,4,(3,OXOBUTYL),5,6,7,8TETRAHYDROINDAN,1,5, DIONE, WHICH WAS HYDROGENATED OVER PD,C IN MEOH 12 HR TO SOME 8,ETHYL,4,(3,OXOBUTYL)HYDRINDAN,1,5,DIONE AND III, SEPD. CHROMATOGRAPHICALLY. THE CRUDE HYDROGENATION PRODUCT HEATED WITH P,MEC SUB6 H SUB4 SO SUB3 H IN ACOH 2 HR GAVE SIMILAR TO 30PERCENT IV, M. 113-14DEGREES: HYDROGENATION OF 8,METHYL,4,(3,OXOBUTYL),5,6,7,8,TETRAHYDROINDAN,1,5,DIONE AS ABOVE GAVE A 3:7 MIXT. OF 9ALPHA, AND 9BETA ISOMERS OF HEXADYDRO DERIV.
FACILITY: VSES. NAUCH. ISSLED. KHIM. FARM. INST. IM. ORDZHONIKIDZE, MOSCOW, USSR.

UNCLASSIFIED

MAKSIMOV, V. I.

JPRS 59068
6-73

II-10. THERMODYNAMIC ANALYSIS OF EQUILIBRIUM IN THE Ge-H-Cl SYSTEM

[Article by G. G. Aklanov, V. I. Maksimov, V. G. Konakhin, E. S. Strel'chenko, Kaluga; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June, 1972 p 20]

On the basis of the thermodynamic calculation, the composition of the gas phase was determined for various temperature and Cl/H ratios in the input flux for the equilibrium two-phase system comprising solid germanium and the gas phase.

It was demonstrated that in the temperature range of 700-850°C most frequently used to grow epitaxial layers of germanium from the gas phase, the basic equilibrium particles are $H_2$; HCl; $GeH_3Cl$; $GeCl_2$.

The germanium yield was defined as a function of the temperature of the process and the composition of the input vapor-gas mixture. The conditions of introduction of the growth process of the epitaxial Ge layers were recommended.

USSR

UDC 612.273

MAKSIMOVA, I. A, MAKSIMOV, V. M., and PIRUZYAN, L. A., Department of Medical Biophysics, Institute of Chemical Physics, Academy of Sciences USSR, Moscow

"Quantitative Assessment of the Kinetics of Free Radicals in Organs of Animals Exposed to Hypoxia"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 58, No 5, 1972, pp 773-778

Abstract: Data available on the concentration of free radicals in the organs of animals exposed to hypoxia (equivalent to an altitude of 6,000 m) for various periods were used to establish an empirical equation representing the concentration of any radical in any organ as a function of time. Curves plotted on the basis of values calculated by that equation satisfactorily coincide with curves plotted on the basis of the original experimental data, including a good agreement of point of interception with the coordinates as well as of maxima and minima. The error of calculation is about 2%. The equation has coefficients which are identical for all organs for the given degree of hypoxia, as well as coefficients which assume a different value for each particular organ. It is concluded that since the value of those coefficients significantly depends on the method of processing the

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USSR

MAKSIMOVA, I. A., et al., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 58, No 5, 1972, pp 773-778

experimental data, this method should be standardized and then, after further investigations, the equation may be expanded to be applicable to any degree of hypoxia or hyperoxia.

2/2

USSR

UDC 620.179.16

MAKSIMOV, V.N.

"Flaw Detector With Random Principle Of Change Of Time Response".

Tr. Taganrog. radiotekhn. in-ta (Works Of Taganrog Radio Engineering Institute), 1971, No 25, pp 141-145 (from RZh:Elektronika i yeye primeneniye, No 1, Jan 72, Abstract No 1A630)

Translation: The principles of construction are considered of an improved system of time response control (TRC) for automatic checking of large-scale products. A block diagram is given of a flaw detector with a TRC system which makes it possible to establish any principle of change of the time response of a flaw detector, among which are those where the amplitude of the pulses on the screen of the cathode-ray tube of the flaw detector depends only on the magnitude of the defects exposed, but not on the depth of their occurence. 3 ill. L.K.

1/1

Life Support Systems

So: JPRS 53801

COLLEEN

MAKSIMOV, V. N.

OPTIMIZATION OF THE MINERAL COMPOSITION OF A NUTRIENT MEDIUM FOR HYDROGENOMONAS

[Article by V. K. Kovalenkova, L. A. Saltykova and V. N. Maksimov; Moscow, Kosmicheskaya biologiya i meditsina, Russian, Vol 3, No 3, 1969, pp 84-85, submitted 1 October 1968]

UDC 576.852.29 (Hydrogenomonas).083.3

The prospects for the future use of Hydrogenomonas for atmospheric bioregeneration in closed life support systems and as a protein source in man's diet necessitates a thorough study of bacteria of this genus (Jenkins; Matson; Dreik).

In developing a method for the continuous cultivation of bacteria for long-functioning systems it is important to clarify the consumption of nutrients in the culture and to determine the conditions for recirculation of the nutrient medium. The growth and development of Hydrogenomonas, as is well known, are dependent on the cultivation conditions, availability of gas components, and composition of minerals in the nutrient solution. The Schlegel medium recommended by I. Ya. Vedenina can scarcely be considered optimum for the autotrophic cultivation of bacteria, if for no other reason than that it is overloaded with phosphates.

The limited possibilities of autotrophic cultivation of Hydrogenomonas make it difficult to optimize the medium composition by the method of alternate changing of each component in the medium while maintaining the other factors constant, such as is a common practice in microbiology. In seeking the optimum relationships of the most important mineral ingredients in a nutrient medium for the cultivation of Hydrogenomonas Z-1 we used the method of mathematical planning of experiment: the steep ascent method (V. V. Nalimov and N. A. Chernova).

In optimizing the mineral composition of the nutrient medium for Hydrogenomonas we pursued three objectives: clarification of the possibility of increasing culture density by a precise balancing of the mineral components of the medium, obtaining approximate computations of the quantity of minerals whose reserves must be assured, and checking the efficiency

1/2 029 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--UTILIZATION OF BIOGENIC ELEMENTS BY A PHYTOPLANCTON COMMUNITY DEPENDING ON THEIR CONCENTRATION IN THE AQUATIC ENVIRONMENT AND
AUTHOR-(03)-FEDOROV, V.D., BELAYA, T.I., MAKSIMOV, V.N.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAYA, 1970, NR 3, PP 398-414
DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PHYTOPLANKTON, METABOLISM, BIOECOLOGY, PHOSPHORUS, IRON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1379 STEP NO--UR/0216/70/000/003/0398/0414

CIRC ACCESSION NO--AP0126922

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0126922

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SEASONAL CHANGES OF THE CHARACTER OF CORRELATION BETWEEN THE PRODUCTION OF PHYTOPLANCTON AND UTILIZATION OF BIOGENIC ELEMENTS UNDER VARYING ILLUMINATION CONDITIONS WERE STUDIED WITH THE APPLICATION OF THE METHOD OF PLANNED ADDITION. THE ANALYSIS OF THE OBTAINED REGRESSIONS SHOWED THAT UTILIZATION OF BIOGENIC ELEMENTS BY A BIOMASS UNIT OF A PHYTOPLANCTON COMMUNITY INCREASED DEPENDING ON THE INCREMENT OF THE CONCENTRATION OF THESE ELEMENTS IN THE SURROUNDING MEDIA. AN INCREASE OF PHOSPHORUS CONCENTRATION CAUSES A DECREASE OF NITROGEN CONSUMPTION, WHEREAS NO REVERSE ACTION IS OBSERVED. AN INCREASE OF A CONCENTRATION OF PHOSPHORUS AND IRON CAUSE A RESPECTIVE RECIPROCAL CONSUMPTION OF EACH ELEMENT. A DOUBLE ILLUMINATION INCREASE LEADS TO A DECREASED CONSUMPTION OF ALL THE THREE ELEMENTS. THE LATTER EFFECT REGARDING NITROGEN AND PHOSPHORUS CONSUMPTION BECOMES STRONGER WHEN THE CONCENTRATIONS OF PHOSPHORUS AND IRON ARE INCREASED RESPECTIVELY. FACILITY: M. V. LOMONOSOV STATE UNIVERSITY, MOSCOW.

USSR UDC: 581.1

FEDOROV, V.D., BELAYA, T.I., MAKSIMOV, V.N., State University im. M.V. Lomonosov

"Utilization of Biogenic Elements by Phytoplankton Community Depending on Their Concentration in W ter and Illumination Conditions."

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 3, May/Jun 70, pp 398-414

Abstract: Seasonal changes suggesting a correlation between the production of phytoplankton and the utilization of biogenic elements under varying illumination conditions were studied using the method of planned additions. Analysis of the obtained regression equations showed that utilization of biogenic elements by biomass units of a phytoplankton community increases with increase in the concentration of these elements in the medium. An increase in phosphorus concentration causes a decrease in nitrogen consumption, while the reverse does not occur. Increases in the concentration of phosphorus and iron cause a mutual increase in consumption of both element. Two-fold increase in illumination leads to decreased consumption of all three elements. This effect is intensified with respect to nitrogen and phosphorus consumption when the concentrations of phosphorus and iron are increased respectively.

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USSR UDC 576.8

MAKSIMOVA, E. A. and MAKSIMOV, V. N., Biological and Geographic Scientific Research Institute of Irkutsk State University

"Vertical Distribution of Microbial Plankton in Southern Baikal in 1969"

Moscow, Mikrobiologiya, No 5, 1972, pp 896-902

Abstract: The microbial abundance varies with the seasons and is largely the same as that found in the open waters of Baikal. Changes are due to the presence or phytoplankton, water temperature, currents, and quantitative development and species composition of the zooplankton that feeds on bacteria. The first of two peaks occurs in April (768,000 cells/ml in the 0 to 50 ml layer), the second in August or September (2,219,000/ml). The biomass is also highest in September (2.43 mg/liter). The lowest abundance is found in the winter (160,000/ml in the 0 to 75 m layer and 77,000/ml in the layers below). The biomass is generally proportional to the abundance. The microbial plankton was dominated throughout 1969 by coccoid forms 1.2 to 1.2 $\mu$ in diameter.

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USSR

UDC 539.67

ZUBEKHIN, V. P., NOVOKRESHCHENOV, P. D., POPOV, V. I., and MAKSIMOV, V. P.

"On the Problem of Metal Internal Friction Mechanism in the Process of Plastic Deformation"

Sb. "Vnutrenneye treniye v metallicheskikh materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 73-76

Abstract: Results are presented of a study of the nature of internal friction in nickel and NTsm-2.5 alloy, measured in the process of their plastic deformation at various temperatures.

It is shown that a certain relationship is observed between changes in $Q^{-1}$ and creeping stages.

Problems related to the onset and propagation of cracks are discussed on the basis of general dislocations. 3 figures, 8 references.

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USSR UDC: 621.396.69:621.319.4(088.8)

BELYAKHIN, I. K., MAKSIMOV, V. P.

"A Device for Installing the Leads in a Capacitor Section During Winding"

USSR Author's Certificate No 268549, filed 15 Nov 68, published 4 Aug 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1V298 P)

Translation: As a distinguishing feature of the device covered by this patent, the design provides for asynchronous placing of the leads in the section with any controlled spacing between leads. The device is equipped with two pairs of tongs. A lever of the first pair of tongs is connected directly to the drive mechanism and also has a specially shaped groove cut into it which accommodates a roller on a spring-return rod which couples this lever to a lever on the second pair of tongs connected to the rod by an adjustable hinge joint.

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USSR

UDC V 253.333

MAKSIMOV, V. S., Kiev Institute of Civil Aviation Engineers

"To the Problem of Friction Drag of Bodies of Revolution of Cylindrical Shape"

Kiev, Gidromekhanika, No 19, 1971, pp 71—76

Abstract : A parametric solution of the problem of flowing around of bodies of revolution of cylindrical shape by laminar and turbulent flows of an incompressible liquid is presented. The solution is used for the calculation of the frictional resistance coefficient with reference to the effect of cross curvature and for plotting graphs from which the frictional resistance coefficient can be determined for laminar, turbulent, and mixed flow conditions. Two illustr., 26 formulas, two biblio. refs.

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USSR UDC 532.522:629.015

MAKSIMOV, V. S., STEPANENKO, YE. YU.

"Calculating the Hydrodynamics of a Radial-Slot Semibounded Jet"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy -- Aviatsionnaya Tekhnika, No 1, 1971, pp 113-120

Abstract: An approximate method of calculating the initial and basic sections of a turbulent radial-slot semibounded jet is discussed. The calculation technique is based on using the integral boundary layer relations. A study is made of the turbulent isothermal jet of constant density emitted from an annular source of finite dimensions and spreading over the surface of a flat shield. As a result of the calculations relations are obtained which define the basic parameters of the jet in the initial and basic sections as a function of the initial conditions. The calculated and experimental data are compared. The comparison is satisfactory.

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USSR UDC 51:155.001.57:681.3.06

MAKSIMOV, V. V., BONGARD, M. M.

"A Program Teaching Classification of Geometric Objects"

Tr. Mezhdunar. Simpoziyuma po Tekhn. i Biol. Probl. upr., 1968. Raspoznavaniye Obrazov. Adaptivn. Sistemy [Works of International Symposium on Technical and Biological Control Problems, 1968. Pattern Recognition. Adaptive Systems], Moscow, Nauka Press, 1971, pp 128-135, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V832 by V. Mikheyev).

Translation: The ability of man to find a classification principle (division rule) for certain geometric objects on the basis of extremely sparse learning material is modeled. The language of the program describing the division rule consists of terms similar to the language used by man in solving the same problems. The sequence of selection of division rules in the program is also similar to the "human." The program is designed for the solution of problems in which man uses only "geometric" terms for the description of the division rules, such as figure, line, contour, area, length, slope, angle, subset, etc. The input objects for the program are flat black and white pictures fixed in a 45-64 matrix. For teaching, a set of pictures is input to the machine, divided into two classes. The maximum size of a set is 8 + 8 pictures. The teaching program uses processing of the pictures to formulate

USSR UDC 51:155.001.57:681.3.06

MAKSIMOV, V. V., BONGARD, M. M., Tr. Mezhdunar. Simpoziyuma po Tekhn. i Biol. Probl. upr., 1968. Raspoznavaniye Obrazov. Adaptivn. Sistemy, Moscow, Nauka Press, 1971, pp 128-135.

rules dividing pictures of one class from pictures of the other. The sequence of operation of the program is illustrated using a specific example.

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MAKSIMOV, YE. A.

Thermophysics

MAKSIMOV, Ye. A.

JPRS 54515

18 November 1971

UDC 536.24:532.546

SOME FEATURES OF HEAT TRANSFER IN POROUS MEDIA

[Article by Ye. A. Maksimov and M. V. Stradomskiy (Institute of Engineering Thermophysics, Academy of Sciences Ukrainian SSR, Kiev), Minsk, Inzhenerno-fizicheskiy Zhurnal, Russian, Vol 20, No 4, signed to press 14 April 1970, pp 588-591]

The analysis of differential equations for the temperature of a coolant flowing in a heated wall and the wall temperature shows that the dependence of heat transfer inside the pores with constant wall geometry may be described by the relationship Nu = f(Pe). The experimental study carried out when porous material was cooled with air, nitrogen, liquid ethyl alcohol and transformer oil with no phase transitions confirms satisfactorily the results obtained from the analysis of differential equations.

For calculation of heat transfer between a porous wall and a coolant inside the pores, it is necessary to know the magnitudes of the heat-transfer coefficients inside the pores and their dependence on the conditions under which the process occurs.

In the literature there are a number of works (references 1-5 and others) in which the processes of heat transfer between a porous material and the air flowing through it are investigated. Together with this, in cooling systems other coolants with Prandtl numbers different from one are used. There are no works in the literature on the experimental investigation of the quantitative relationships of internal heat transfer in porous metals during their cooling by fluids having Prandtl numbers differing from one.

In reference [5], on the basis of an analysis of the solution of a differential equation of the temperature state of a porous wall and a coolant it was demonstrated that the intensity of heat transfer must be determined, other things being equal, by the Peclet number. No experimental confirmation of this conclusion was made.

USSR

UDC 616.61-002.151

GRINSHPUN, O. Ya., Col Med Serv, Candidate of Medical Sciences; VAS'KOV, V. G., Lt Col Med Serv; MAKSIMOV, Ye. V., Lt Col Med Serv; ANDRONOV, A. S., Capt Med Serv; MARAKUSHEV, M. I.; KHOMENKO, L. M.; TSEY, A. L.

"Some Clinical Data on Hemorrhagic Nephrosonephritis"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 8, Sep 71, pp 50-51

Abstract: Observation of 17 cases of hemorrhagic nephrosonephritis (HNN) sporadically occurring in the Transcarpathian Region revealed a typical progress of this disease through three stages. In the first stage, lasting 2-4 days, body temperature rapidly rose to 38-40°C, the patients complained about headache, pain in muscles and joints, and general weakness: they were photophobic, had cutaneous hyperemia in the face and upper trunk, and some developed dry noises in their lungs. An incorrect diagnosis was made in all cases, partly because this disease is very rare in Transcarpathia. In the second stage, lasting 4-8 days, clinical signs characteristic of HNN developed

USSR

GRINSHPUN, O. Ya., et al, Voyenno-Meditsinskiy Zhurnal, No 8, Sep 71, pp 50-51

in all patients, and the proper diagnosis was established in all. Only four patients had hemorrhagic conjuctiva or nosebleed. All suffered from gastrointestinal disorders and from oliguria (down to 200 ml per day) with hematuria and proteinuria. The third stage -- convalescence -- began on the 9th - 11th day with the onset of diuresis, which soon reached 6-8 liters per day. Hemorrhages, vomiting, fever, and other discomfort subsided, and the patients regained appetite and thirst. In the initial days of polyuria, concentration of gamma globulins in the protein fraction increased to 27.9%, while plasma potassium decreased to 9.3 mg% and plasma calcium to 6.8 mg%. The patients lost 5-8 kg body weight. The stage of convalescence lasted 2-3 weeks. The treatment was symptomatic, and all patients recovered without complications.

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USSR

UDC 621.791.05:620.193.013

MAKSIMOV, YU. A., Candidate of Technical Sciences, Institute of Metallurgy imeni A. A. Baykov, and ONOPRIYENKO, L. M., Engineer, LANGER, N. A., Candidate of Technical Sciences, and BLASHCHUK, V. YE., and GORBAN', V. A., Engineers, Institute of Electric Welding imeni Ye. O. Paton, Academy of Sciences Ukrainian SSR

"Corrosion Resistance of AK1 and AK2 Alloys Weld Joints in Hydrochloric Acid"

Kiev, Avtomaticheskaya Svarka, No 2, Feb 74,. pp 23-24

Abstract: Compositions of alloys, possessing satisfactory properties with an oxygen content of 0.25-0.35 wt%, were selected on the basis of complex studies of the corrosion resistance of titanium-base alloys and their weld joints in hydrochloric acid. Specifically, alloys of the system Ti-2.5% V (AK1), and Ti-2.5% V-3% Al (AK2), alloy AK1 having the higher oxygen content, were tested in 5, 10, 20, and 30% HCl at 50° C where it was found that the corrosion rate of AK2 is higher than AK1 due to the presence of aluminum, but in comparison with titanium alloy VT6, AK2 has better corrosion resistance. Weld joints of the alloys studied had corrosion properties identical to the base metal. Two figures, two tables, four bibliographic references.

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USSR

UDC 612:159.9:355/.359(049.3)

MAKSIMOV, YU. A.

"Military Psychology"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 8, 1973, pp 91-93

Abstract: The article reviews a collective work (textbook) Voyennaya Psikologiya (Military Psychology), edited by V. V. Shelyag, A. D. Glotochkin, and K. K. Platonov. Though written primarily for studnets in military-political schools, it contains material of specific interest to medical students and military physicians. The first of five sections outlines the history of Soviet military psychology. The second and largest section describes the psychological processes, states, and traits of the individual with particular reference to army life. The third section deals with the general traits, temperament, character, and capabilities of the individual Soviet soldier. Group psychology, psychology of military discipline, and psychological structure of behavioral acts are discussed in the fourth section. The fifth section presents a psychological analysis of routine and combat activities of individual soldiers and groups, with emphasis on the impact of such modern battle afactors as shock wave, penetrating radiation, and radioactive contamination. The major shortcomings of the book under review are unevenness and

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USSR

MAKSIMOV, YU. A., Voyenno-Meditsinskiy Zhurnal, No 8, 1973, pp 91-93

repetitiousness (due to the many authors of the various chapters) and failure to take cognizance of recent advances in neurophysiology.

2/2

USSR

UDC 620.194'196

ZOTOVA, L. M., BLASHCHUK, V. YE., MAKSIMOV, YU. A., and VAVILOVA, V. V., Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences USSR

"Stress Corrosion of Titanium Alloy AK-1 and AK-2 Weld Joints"

Moscow, Zashchita Metallov, Vol 9, No 6, 1973, pp 707-709

Abstract: The tendency of titanium alloys AK-1 and AK-2 to suffer stress corrosion cracking was investigated along with the same study into the stress corrosion cracking of weld joints made from these alloys. Alloys AK-1 and AK-2 and their weld joints possess good stability in chloride salts. No cracks or surface cracking were observed in visual inspection. Metallographic studies revealed no cracks in the samples for saturated $CaCl_2$ and $MgCl_2$, but in saturated $NH_4Cl$ the samples suffered corrosion failures in the heat-affected zone of the welded alloys. Thus, the investigated alloys and weld joints do not undergo surface cracking in 10% HCl, but alloy AK-2 and its weld joints do suffer stress corrosion after 600 hours in the gaseous phase of 99% $HNO_3$. Consequently, alloying titanium with vanadium significantly improves its resistance to corrosion cracking. 2 tables, 3 bibliographic references.

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USRR UDC 669.29.669.017

KORNILOV, I. I., VAVILOVA, V. V., MAKSIMOV, YU. A., and LYASHCHENKO, A. B., Institute of Metallurgy imeni A. A. Baykov

"On the Nature of Solid Solutions of Titanium-Vanadium-Oxygen and Titanium-Vanadium-Aluminum-Oxygen Systems"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 4, Apr 72, pp 881-884

Abstract: Investigation was made of the oxygen effect on the change in strength of the interatomic bond in the lattice of $\alpha$-solid solutions of titanium-vanadium and titanium-vanadium-aluminum systems in the region of existing binary and ternary solid solutions based on $\alpha$-titanium. Titanium alloys with 2.5% V and up to 0.5% varying oxygen content and titanium alloys with 2.5% V, 3% Al, and up to 0.5% wt % varying oxygen content were investigated. Values of the Debue temperature and of the mean square atomic shift were calculated from measured data of the modulus of elasticity. Functions of the oxygen-dependence of the modulus of elasticity and the shear modulus show that the introduction of oxygen into the titanium alloys guarantees increased moduli of elasticity and shear, increased Debue temperature, and decreased mean square atomic shift from the equilibrium condition in

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USSR

KORNILOV, I. I., et al., Fizika Metallov i Metallovedeniye, Vol 33, No 4, Apr 72, pp 881-884

lattice points of $\alpha$-titanium. The introduction of up to 0.5 wt% oxygen into titanium alloys with vanadium and aluminum results in increased bonding forces of ternary and tetrad $\alpha$-solid solutions. The rate of the drop of the modulus of elasticity decreases with rising temperature in alloys with high oxygen content. Three illustrations, two tables, four bibliographic references.

USSR UDC 539.4

MAKSIMOV, Yu. A., KORNILOV, I. I., VOYNITSKIY, A. G., BLASHCHUK, V. Ye., ZAGREBENYUK, S. D., Moscow, Kiev

"Mechanical Properties of Alloys of Titanium with Vanadium and Aluminum as Functions of Oxygen Content"

Problemy Prochnosti, No 11, 1971, pp 54-55.

ABSTRACT: The possibilities are studied for production of alloys of titanium with high contents of oxygen, but retaining high mechanical properties. It is shown that the addition of vanadium and aluminum produces oxygen-containing alloy with the required mechanical properties.

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USSR

UDC 620.17:669.295:621.791.052

GUREVICH, S. M., KORNILOV, I. I., BLASHCHUK, V. YE., VAVILOVA, V. V., and MAKSIMOV, YU. A., Institute of Metallurgy imeni A. A. Baykov

"Mechanical Properties of Welded Joints of Titanium Alloys With an Increased Oxygen Content"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 3, 1971, pp 39-41

Abstract: A study was made of the effect of oxygen on the weldability of Ti-V-O and Ti-V-Al-O alloys. Results are presented from estimating the mechanical properties of the welded joints at room temperature. Alloys of 8 compositions were manufactured for the investigation. Data from the chemical and gas analysis of the initial alloys, the results of the effect of oxygen on the mechanical properties of titanium alloys with 2.5% V and 2.5% V + 2% Al at room temperature, and the results of gas analysis of the weld metal were tabulated. From the data it is concluded that the mechanical properties, including impact toughness of the

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USSR

GUREVICH, S. M., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 3, 1971, pp 39-41

base metal and the welds of alloys with an oxygen content up to 0.3%, remain high. With 0.5% O in alloys od rhw Ti-V-O system the impact toughness of the weld is the same as that of the base metal. In alloys of the Ti-V-Al-O system with 0.5% O, the plasticity drops sharply as a result of the occurrence of a second phase in the structure. Some microstructural characteristics of one of the alloys are presented. Preliminary conclusions are drawn that alloys of the Ti-V-O system with 2.5% V, and the Ti-V-Al-O system with a.5% V, and the 3-3.5% Al system are less sensitive to oxygen and be welded with an oxygen content up to 0.3% in the base metal.

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USSR

UDC 621.791.856.3.011:546.821

GUREVICH, S. M., Doctor of Technical Sciences, BLASHCHUK, V. Ye., Engineer, ZAGREBENYUK, S. D., Engineer, KORNILOV, I. I., Doctor of Technical Sciences, GLAZOVA, V. V., Candidate of Chemical Sciences, and MAKSIMOV, Yu. A., Engineer

"Weldability of Titanate Alloys with Increased Content of Oxygen"

Kiev, Avtomaticheskaya Svarka, No 5, May 71, pp 72-73

Abstract: The weldability of alloys of the systems titanium-vanadium and titanium-vanadium-aluminum with 0.25-0.35% of O parts by weight was investigated at the Electric Welding Institute imeni Ye. O. Paton and the Institute of Metallurgy imeni A. A. Baykov, in order to determine the possibility of increasing the oxygen concentration in weldable titanium alloys and the conditions under which welded joints with satisfactory properties, even with an increased O content, can be produced. A demonstrated comparison of mechanical properties of welded joints of the investigated alloys and alloys of the system titanium-molybdenum-zirconium shows that only the alloys with vanadium possess high endurance and plasticity at increased O concentration. Preliminary experiments proved the possibility of using titanium with a raised O concentration for producing satisfactorily weldable titanium alloys. One figure, one table.

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UDC [illegible]

MAKSIMOV, Yu. A., KORNILOV, I. I., and VAVELOVA, V. V., [illegible] Imeni A. A. Baykov

"Properties of Alloys of the System Zr-V and Ti-V-Zr [illegible]

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 11, [illegible], pp 28-30

Abstract: [illegible] is shown that alloying of titanium alloys containing [illegible] and aluminum with oxygen up to 0.2 — 0.3% [illegible] these alloys. The strengthening effect is preserved [illegible] (400° C). [illegible] alloys possessed adequate ductility, [illegible] the case of low-temperature impact tests. Alloys with 2.5% V, [illegible] 0 of the system Ti-V-O and with 2.5% V, 2% Zr, and 0.2-0.3% [illegible] tem Ti-V-Zr-O possess the highest mechanical properties at room, elevated, and low temperatures.

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USSR UDC: 621.396.6.017.7

OKSMAN, A. L., MAKSIMOV, Yu. B., CHERNYSHENKO, A. A.

"An Algorithm for Correcting the Arrangement of Radio Electronic Elements in a Device to Optimize Thermal Conditions"

Pribory i sistemy avtomatiki. Resp. mezhved. nauchn.-tekhn. sb. (Devices and Systems for Automation. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 14, pp 133-137 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V228)

Translation: The authors discuss construction of a purpose function for finding the optimum arrangement of the elements in electronic radio equipment on an instrument panel based on heat conditions. The gradient method is used to minimize the resultant purpose function (overall estimate of overheating of the circuit.) A computer check of the proposed algorithm showed satisfactory results. The algorithm for correcting the arrangement of the elements in the device may be one of the elements in the solution of the complex problem of constructing electronic modules. Three illustrations, bibliography of five titles. Resumé.

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USSR

UDC 536.46

MAKSIMOV, YU. M., MAKSIMOV, E. I., Moscow

"Combustion Laws for Condensed Systems in a Mass Force Field at Moderate Pressures"

Novosibirsk, Fizika goreniya i vzryva, Vol 8, No 4, 1972, pp 517-523

Abstract: A study was made of the combustion of some substances with different combustion mechanisms: pyroxyline, polyvinyl nitrate, hexogene, octogene and ammonium perchlorate under G-loads to 900 g and pressures to 70 technical atmospheres at a temperature of the material of 20° C. Provision was made for holding the investigated specimens in two positions: where the mass force acted from the direction of the reaction products toward the combustion front ($a_+$) and in the opposite direction ($a_-$). The combustion rate was determined by photographing the process on a moving streak camera film. The setup was described in detail previously [E. I. Maksimov, et al., FGV, Vol 7, No 2, 197, 1971].

With an increase in the G-load the combustion rate can increase (polyvinyl nitrate, pyroxyline at pressures above 10 technical atmospheres), decrease (hexogene below 25 technical atmospheres) and not depend on the G-load (ammonium perchlorate, octogene, hexogene at 50 technical atmospheres and pyroxyline up to 10 technical atmospheres). For hexogene, octogene and ammonium perchlorate



APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201910014-1"

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MAKSIMOV, YU. M., et al., Fizika goreniya i vzryva, Vol 8, No 4, 1972, pp 517-523

there is a combustion limit with respect to G-load depending on the pressure. Some of the obtained laws can be explained on the basis of the existing concepts of the combustion mechanism. For example, the increase in the combustion rate of polyvinyl nitrate and pyroxyline above 10 technical atmospheres can be explained by the compression of the disperse zone which is the lead zone. The invariability of the combustion rate of octogene and hexogene at 50 technical atmospheres and pyroxiline is explained by the fact that the lead stage is in the gas phase. In explaining the combustion limits with respect to G-loads conclusions presented by E. I. Maksimov, et al. [Dokl. AN SSSR, Vol 157, No 12, 412, 1964] can be used which are based on the fact that with an increase in the G-load the variables entering into the stability criteria according to Zel'-dovich vary.

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USSR UDC:621.9.025174:669.018.95

MIRONOV, V. A. and MAKSIMOV, YU. M.

"Manufacture of Complex-Shaped Metal-Ceramic Parts by Magnetic Impulse Pressing"

Moscow, Stanki i Instrument, No 9, Sep 73, pp 34-35

Abstract: The method of magnetic impulse pressing allows a significant expansion of the variety of parts made of metal powders. Pressing is performed on magnetic impulse devices. By changing the capacitance of the battery of condensers and the voltage applied, the magnetic field pulse pressure in such a device can be varied. The working tool is a multiple-turn solenoid. Shape formation is achieved by means of a thin-wall electrically conductive envelope die which is deformed by the forces arising upon interaction of the magnetic fields of the inductor and the vortex currents induced in the envelope. Copper and aluminum are the best materials for these envelopes, due to their high conductivity. Further work is continuing, designed to increase the life of inductors, improve devices and mechanize pouring of the powder into the molds.



APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201910014-1"

USSR UDC 669.046.5

MAKSIMOV, Yu. M., AKINFIYEV, V. I., DUNETS, A. M., and PROGONOV, V. V.

"Intensification of Metal Desulfuration by Blowing With Dust-Like Lime in an Oxygen Stream"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS) (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys) Izd-vo "Metallurgiya," No 61, 1970, pp 130-132

Translation of Abstract: Data on test heats with separation of limestone from the charge are given, during which the metal desulfuration process ran successfully in the case of a high rate of lime feeding into the bath. Data are presented on determining the relation between the rates of metal desulfuration and CaO feeding by the method of correlation analysis. Test results on the possibility of controlling the correlation of desulfuration and decarburization rates by varying the CaO concentration in the oxygen stream are presented. 1 figure, 2 references.

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USSR

UDC 658.5.681.14-523.8

MAKSIMOV, YU. P., Candidate of Economic Sciences, and KVARTAL'NOVA, V. V., Engineer

"Computer-Aided Mechanization of Technical and Economic Planning"

Moscow, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 10, 1970, pp 42-44

Abstract: The article describes the experience of the Frezer Plant in introducing a computer into production control. An analysis from the standpoint of computer storage, speed of response of its arithmetic unit, and its logical capabilities indicated that a computer could be used to help mechanize technical and economic calculations for the following sections of the technical, industrial, and financial plan: the production plan, labor and wage plan, and production cost plan. Mechanization of the individual technical and economic calculations entailed certain difficulties in the algorithmization of existing manual methods for calculating technical and economic indices, as well as adapting the standard business of the plant to the conditions of computer utilization and creating an efficient technical and economic data-processing system. It was

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MAKSIMOV, YU. P., and KVARTAL'NOVA, V. V., Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 10, 1970, pp 42-44

found that the solution of these questions took over 80 percent of the time to create and introduce the mechanized system. The complexity of solving these questions lies in the need to program a large number of so-called auxiliary support calculations, as well as organizing support services for calculations and coordinating the programming of calculations. The Frezer Plant has a network schedule to coordinate the programming and introduction of computer-aided technical and economic calculations. Programming costs are minimized by standardizing algorithms for the solution of a certain range of problems; standardizing program blocks; organizing an efficient data-recording, reading, and storage system (using magnetic tape); and developing a system for efficiently organizing the solution of a complex of technical and economic calculations, with allowance made for the optimum workload of computer units and the minimum total solution time. A detailed description is included of the data-recording, reading, and storage system.

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USSR

UDC: 629.7.018.1

KOPTEV, V. I., ALEKSASHIN, L. V., MAKSIMOV, Yu. S., PROKOP'YEVA, V. Ye., STEKENIUS, K. A.

"A Device for Determining the Angle of Attack of a Model in a Wind Tunnel"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 2, Jan 72, Author's Certificate No 324536, Division G, filed 1 Jun 66, published 23 Dec 72, p 133

Translation: This Author's Certificate introduces a device for determining the angle of attack of a model in a wind tunnel. The device contains a mechanism for setting angles of attack, a model holder, and recording equipment. The angle-setting mechanism is mounted in the working section of the wind tunnel. As a distinguishing feature of the patent, the unit is designed for improved precision in determining the angle of attack in any plane. Fastened to the walls of the working section of the wind tunnel are the poles of a permanent electromagnet, and a pickup which responds to a change in the axial position of the constant magnetic field is installed in the model or in the holder close to the model.

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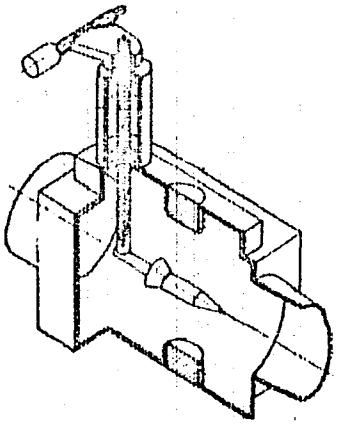
USSR

KOPTEV, V. I. et al., Soviet Patent No 324536



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USSR

UDC: 681.332.65

CHERNIKOV, V. I., MAKSIMOV, Yu. V.

"Matrix Potential Decoder"

USSR Authors' Certificate No 250996, Filed 16 January 1967, Published 30 January 1970 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 10B117P, by N. V.)

Translation: The decoder suggested differs from known decoders in that key and parallel circuits consisting of series-connected resistors and diodes are included between the power supply and the points of connection of the resistors and output buses of the decoder. This increases the speed of operation of the decoder. One illustration.

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Acc. Nr: AP0102300 Abstracting Service: CHEMICAL ABST. 1970 Ref. Code: UR0441

111987h Spatial structure formation and thermomechanical characteristics of polymer homologs. Nizhnik, A. S.; Mukimova, Ch. A.; Uskov, I. A.; Pochinok, V. Ya.; Borodkina, M. S. Kiev. Derzh. Univ., Kiev, USSR). *Dopov. Akad. Nauk Ukr. RSR, Ser. A* 1970, 32(1), 54-6 (Ukrain). Thermomech. and rheol. properties of typical amorphous polymer homologs of Bu methacrylate were investigated. A forced flow point (a conditional characteristic of the polymer) and a true flow point (a phys. const. of the polymer) were distinguished. O. Elsner

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REEL/FRAME
19860250

USSR UDC 576.8

MAKSIMOVA, E. A. and MAKSIMOV, V. N., Biological and Geographic Scientific Research Institute of Irkutsk State University

"Vertical Distribution of Microbial Plankton in Southern Baikal in 1969"

Moscow, Mikrobiologiya, No 5, 1972, pp 896-902

Abstract: The microbial abundance varies with the seasons and is largely the same as that found in the open waters of Baikal. Changes are due to the presence or phytoplankton, water temperature, currents, and quantitative development and species composition of the zooplankton that feeds on bacteria. The first of two peaks occurs in April (768,000 cells/ml in the 0 to 50 ml layer), the second in August or September (2,219,000/ml). The biomass is also highest in September (2.43 mg/liter). The lowest abundance is found in the winter (160,000/ml in the 0 to 75 m layer and 77,000/ml in the layers below). The biomass is generally proportional to the abundance. The microbial plankton was dominated throughout 1969 by coccoid forms 1.2 to 1.2 $\mu$ in diameter.

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1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CULTIVATION OF PLANTS IN CLOSED BIOLOGICAL CYCLES WITH THE USE OF KERAMSIT -U-
AUTHOR-(03)-TSVETKOVA, I.V., ZAMOTA, V.P., MAKSIMOVA, E.V.

COUNTRY OF INFO--USSR

SOURCE--KOSMICHESKAIA BIOLOGIIA I MEDITSINA, VOL 4, JAN. FEB. 1970, P. 11-15
DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CLOSED ECOLOGY SYSTEM, HYDROPONICS, PLANT CHEMISTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
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CIRC ACCESSION NO--AP0119062
UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119062

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF EXPERIMENTS IN PLANT GROWING BY THE HYDROPONIC METHOD USING A POROUS ALUMOFERRISILICATE AS THE SOLID SUBSTRATE. IT IS FOUND THAT SUBSTANTIAL CHANGES OCCUR IN THE CHEMICAL COMPOSITION OF THIS MATERIAL AFTER IT HAS BEEN USED FOUR TIMES REPEATEDLY IN BIOLOGICAL CYCLES. IT IS FURTHER FOUND THAT IT UNDERGOES A DECOMPOSITION INVOLVING THE SEPARATION OF ELEMENTS INCLUDING ALUMINUM INTO THE NUTRIENT SOLUTION WHEN IT IS USED REPEATEDLY FOR A LONG PERIOD OF TIME. THIS REDUCES THE YIELD OF THE PLANTS AND CHANGES ADVERSELY THE CHEMICAL COMPOSITION OF THEIR GREEN MASS.

UNCLASSIFIED

USSR

UDC 576.311.1

MAKSIMOVA, G. A., and RUNOVA, V. F., Biochemistry Laboratory, State Control Institutes of Medical Biological Preparations imeni L. A. Tarasevich, Ministry of Health USSR

"Kinetics of the Reaction of Anthrax Allergen and Nitrous Acid"

Moscow, Biokhimiya, No 5, 1971, pp 965-169

Abstract: Treatment of anthrax allergen with nitrous acid resulted in the diazotization of tyrosine and tryptophan and deamination of free $NH_2$ groups. The rate of both reactions varied with the concentration of $HNO_2$. 0.56 M nitrous acid quickly inactivated (within 5 min) the allergen (by 40%) while sharply decreasing the concentration of the phenol, indole, and $NH_2$ groups. Treatment of the allergen with 0.11 M $HNO_2$ inactivated the allergen more slowly (40% within 48 hours) and gradually decreased the concentration of the above-mentioned groups. The rate of the deamination reaction was higher than the rate of diazotization of tyrosine. Since the rate of inactivation of the allergen was equal to that of the diazotization of tyrosine, there would appear to be a relationship between the specific activity of the anthrax allergen and the phenol groups. The phenol groups may be the

USSR

MAKSIMOVA, G. A., and RUNOVA, V. F., Biokhimiya, No 5, 1971, pp 965-969

determinant of the allergen or may perform a structural function by creating a definite conformation in the region of the determinant. The amino and indole groups are an insignificant factor in the allergen's activity.

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USSR UDC 576.311.1

MAKSIMOVA, G. A., and RUNOVA, V. F., Laboratory of Biochemistry, State Control Institute of Medical Biological Preparations imeni L. A. Tarasevich, Ministry of Health USSR, Moscow

"Investigation of the Kinetics of Reaction Between Anthrax Allergen and Nitrous Acid"

Moscow, Biokhimiya, Vol 36, No 5, 1971, pp 965-969

Abstract: When nitrous acid is added to a solution of anthrax allergen and the mixture is kept in an ice bath under constant stirring, two reactions take place: diazotization of tyrosine and tryptophan and deamination of free $NH_2$ groups. The rate of both reactions depends on the concentration of nitrous acid. With a final 0.56 M nitrous acid in the mixture, the allergen is inactivated 40% during the first 5 minutes and, at the same time, the concentration of phenol, indole, and amino groups markedly decreases. With a final 0.11 M nitrous acid in the mixture, it takes 48 hours for the allergen to be 40% inactivated, and the concentration of the above-mentioned groups decreases less rapidly. Since the rate of allergen inactivation is the same as the rate of tyrosine diazotization, it was concluded that the toxicity of anthrax allergen is determined by phenol groups, while indole and amino groups are of no significance.

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USSR

UDC 576.851.511.097.207

MAKSIMOVA, G. A. and RUNOVA, V. F., Control Institute for Biomedical Preparations imeni Tarasevich

"N-Acetylation of Anthrax Allergen"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 8, 1971, p 144

Abstract: The $NH_2$ groups of anthrax allergen were blocked and the relationship of these groups to the biological activity of the preparation was studied. N-acetylation was carried out with acetic anhydride. The activity of the modified allergen was found in bioassays on guinea pigs to be virtually the same as that of crude and control allergens. Since the specific activity of anthrax vaccine did not change after acetylation, although about 70% of the $NH_2$ groups were blocked and about 40% of the indole groups were modified, it was concluded that the activity of the allergen was not attributable to the amino or indole groups.

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USSR UDC 576.851.511.097.2.095.18:547.281.1

MAKSIMOVA, G. A., and RUNOVA, V. F., State Control Institute of Medical Biological Preparations imeni Tarasevich

"Effect of Formaldehyde on the Activity of Anthrax Allergen"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 10, Oct 70, pp 59-62

Abstract: The anthrax allergen is a protein-polysaccharide-nuclein complex containing 80-86 percent protein. The protein fraction represents the active component. Formaldehyde, which reduces the activity of the allergen, interacts with amino, phenol, and indole groups of the allergen protein, forming methyl bridges between them. The present study was conducted to establish which of these groups represent the active component of the anthrax allergen. The method described previously by Takeya and Mifuchi was used, in which the anthrax allergen was allowed to interact with 1.5 percent and 20 percent formaldehyde solutions at pH 9.1. The activity of all samples decreased about 50 percent, regardless of the formaldehyde concentration. Tyrosine and tryptophan concentrations were reduced 30 percent and 70 percent, respectively; the concentration of free amino groups decreased with increasing formaldehyde concentration. After the samples were heated to 100°C for 30



APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201910014-1"

USSR

MAKSIMOVA, G. A., and RUNOVA, V. F., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 10, Oct 70, pp 59-62

minutes, the biological activity of the allergen was completely restored. At the same time, the concentration of phenol groups returned to normal while that of amino groups and tryptophan remained 50-60 percent below the initial level. On the basis of these results, it was concluded that the activity of the anthrax allergen was associated with the phenol groups, while the amino and indole groups were apparently of no significance in this activity.

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MAKSIMOVA, G. F.

UDC: 616-092.612.017-11:[

ACTIVATION OF DNA SYNTHESIS IN LYMPHOID CELLS OF THE SPLEEN IN THE INDUCTIVE PHASE OF THE PRIMARY IMMUNOLOGICAL RESPONSE

[Article by G.F. Maksimova, V.A. Babichev, B.S. Ursheev, Second Moscow Medical Institute [MOSKOVSKIY MEDITSINSKIY INSTITUT], Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Ruseian, No 11, 1971, pp 67-71]

It is a known fact that splenic cells are subject to transformation and proliferation under the influence of antigenic stimulation (Marshall and White). However, until recently the kinetics of this process had not been sufficiently investigated.

Most autoradiographic works dealing with the role of cell division in immunity have been performed on models using isolated cell systems, in vitro cultures of lymphoid cells (Dutton and Mishell) or lymphocyte cultures in vitro (Capalbo et al.). The cellular "events" that unfold in response to an antigen in the "closed system" of diffusion chambers have been investigated in detail by Capalbo and Makinodan. It was shown in these works that cultivated lymphoid cells respond to antigen by a rise in the tag index and mitotic coefficient. The authors assume that the time of generation of immunocompetent cells is shortened under the influence of antigenic stimulation. But caution is needed in interpreting the data mentioned above in view of the artificial nature of the immunological systems chosen by the researchers.

When investigating cell division in the terminal centers of lymphatic tissue in the course of in vivo immunogenesis, Shooley, Nossal, and Makela, as well as Hanna demonstrated proliferation of large pyroninophilic cells which incorporated $H^3$-thymidine intensively under the influence of antigen.

On the other hand, V.P. Gusev, who used a tritium label in vitro, discovered that in the spleen of immunized mice DNA synthesis is activated first in the small lymphocytes which the authors distinguished in a special group of pyroninophilic lymphocytoid cells.

In this connection it seemed interesting to investigate the kinetics of proliferative processes in a heterogeneous population of lymphoid cells of the spleen throughout the inductive phase of the primary immunological response.

USSR UDC 539.89

ALEKSANDROV, V. I., KAMINSKIY, A. A., MAKSIMOVA, G. V., PROKHOROV, A. M. (Academician), SARKISOV, S. E., SOBOL', A. A., TATARINTsEV, V. M., Physical Institute imeni P. N. Lebedev, and Institute of Crystallography imeni A. V. ShUBNIKOV, Academy of Sciences of the USSR, Moscow

"A Study of Stimulated Emission by $Nd^{3+}$ Ions in Crystals at the $^4F_{3/2} \rightarrow {}^4I_{13/2}$ Transition"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 3, 21 Jul 73, pp 567 - 570

Abstract: The prevailing transition for neodymium is $^4F_{3/2} \rightarrow {}^4I_{11/2}$ (about 60%), but the transition to $^4I_{13/2}$ is of both practical and theoretical interest. The authors studied doped crystals of $CaF_2$-$YF_3$, $Ca_2Y_5F_{19}$, $Ca_5(PO_4)_3F$, $ZrO_2$-$Y_2O_3$, and $HfO_2$-$Y_2O_3$. Samples were tested at 77°K and 300°K. Laser action was observed at three frequencies near 1.35 microns in yttrofluorite, at two points in tysonite, and at several locations in fluorapatite with a 90° angle between the optical and geometric axes. Analysis of the low-temperature spectra showed that in all observations their lines were insensitive to concentration.

The cubic crystals of $ZrO_2$-$Y_2O_3$ and $HfO_2$-$Y_2O_3$ with $Nd^{3+}$ ions showed very

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ALEKSANDROV, V. I., et al., Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 3, 21 Jul 73, pp 567 - 570

similar properties, and a spectrum is given for only the first of these. It shows lasing at both the transitions.

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1/2 023 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--OPTICAL ND PRIME3 POSITIVE CENTERS IN CALCIUM TUNGSTATE -U-

AUTHOR-(02)-MAKSIMOVA, G.V., SOBOL, A.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(2), 307-13

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--OPTIC PROPERTY, NEODYMINUM COMPOUND, LUMINESCENCE, ABSORPTION, CRYSTAL STRUCTURE, CALCIUM COMPOUND, TUNGSTEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0544 STEP NO--UR/0363/70/006/002/0307/0313

CIRC ACCESSION NO--AP0105529
UNCLASSIFIED

CIRC ACCESSION NO--AP0105529

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CAWO SUB4 MINUS ND PRIME3 POSITIVE CRYSTALS TO BE STUDIED WERE GROWN BY THE CZOCHRALSKI METHOD. THE ND PRIME3 POSITIVE IONS FORM IN CAWO SUB4 SEVERAL TYPES OF OPTICAL CENTERS. SEPD. OUT WERE THE SPECTRA FOR THE R-CENTER OF ND PRIME3 POSITIVE, WHICH IS ASSOCD. WITH THE FORMATION OF ND PRIME3 POSITIVE MINUS ND PRIME3 POSITIVE PAIRS. THE POSITION OF THE COMPONENTS OF THE PRIME4 F SUBTHREEHALVES, PRIME4 I SUBELEVEN-HALVES LEVELS FOR THIS CENTER WAS DETD. THE R-LINES ARE OBSD. IN SAMPLES WITH ANY GIVEN TYPE OF COMPENSATION OF THE EXCESS CHARGE OF THE ND PRIME3 POSITIVE ION. TWO ND PRIME3 POSITIVE MINUS V SUBCA (M-CENTERS) CENTERS WERE FOUND, WHICH ARE MOST NOTICEABLE IN SAMPLES WITHOUT COMPENSATION BY ADDNL. IMPURITIES. THE OPTICAL ND PRIME3 POSITIVE MINUS V SUBCA CENTERS ARE PRESENT ALSO IN THE CAWO SUB4 MINUS ND PRIME3 POSITIVE MINUS NA PRIMEPOSITIVE CRYSTALS; HOWEVER, AT A LARGE CONCN. OF ND PRIME 3POSITIVE AND NA PRIMEPOSITIVE THERE IS OBSD. A BROADENING OF THE ABSORPTION AND THE LUMINESCENCE SPECTRA IN CAWO SUB4 MINUS ND PRIME3 POSITIVE MINUS NA PRIMEPOSITIVE CRYSTALS. THE TWO SIMPLEST ND PRIME3 POSITIVE MINUS NB PRIME5 POSITIVE CENTERS (THE N-CENTERS) WERE DETD. IN THE CAWO SUB4 MINUS ND PRIME3P OSITIVE MINUS NB PRIME5 POSITIVE SAMPLES. AN AVERAGED SCHEMATIC FOR THE SPLITTING OF THE LEVELS PRIME4 F SUBTHREE-HALVES, PRIME4 I SUBNINE-HALVES, PRIME4 I SUBELEVEN-HALVES WAS CONSTRUCTED FOR THE N-CENTERS.



APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201910014-1"

1/2 023 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--OPTICAL ND PRIME3 POSITIVE CENTERS IN CALCIUM TUNGSTATE -U-

AUTHOR-(02)-HAKSIMOVA, G.V., SOBOL, A.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(2), 307-13

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--OPTIC PROPERTY, NEODYMINUM COMPOUND, LUMINESCENCE, ABSORPTION, CRYSTAL STRUCTURE, CALCIUM COMPOUND, TUNGSTEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0544 STEP NO--UR/0363/70/006/002/0307/0313

CIRC ACCESSION NO--AP0105529
UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105529

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CAWO SUB4 MINUS ND PRIME3 POSITIVE CRYSTALS TO BE STUDIED WERE GROWN BY THE CZOCHRALSKI METHOD. THE ND PRIME3 POSITIVE IONS FORM IN CAWO SUB4 SEVERAL TYPES OF OPTICAL CENTERS. SEPD. OUT WERE THE SPECTRA FOR THE R-CENTER OF ND PRIME3 POSITIVE, WHICH IS ASSOCD. WITH THE FORMATION OF ND PRIME3 POSITIVE MINUS ND PRIME3 POSITIVE PAIRS. THE POSITION OF THE COMPONENTS OF THE PRIME4 F SUBTHREEHALVES, PRIME4 I SUBELEVEN-HALVES LEVELS FOR THIS CENTER WAS DETD. THE R-LINES ARE OBSD. IN SAMPLES WITH ANY GIVEN TYPE OF COMPENSATION OF THE EXCESS CHARGE OF THE ND PRIME3 POSITIVE ION. TWO ND PRIME3 POSITIVE MINUS V SUBCA (M-CENTERS) CENTERS WERE FOUND, WHICH ARE MOST NOTICEABLE IN SAMPLES WITHOUT COMPENSATION BY ADDNL. IMPURITIES. THE OPTICAL ND PRIME3 POSITIVE MINUS V SUBCA CENTERS ARE PRESENT ALSO IN THE CAWO SUB4 MINUS ND PRIME3 POSITIVE MINUS NA PRIMEPOSITIVE CRYSTALS; HOWEVER, AT A LARGE CONCN. OF ND PRIME 3POSITIVE AND NA PRIMEPOSITIVE THERE IS OBSD. A BROADENING OF THE ABSORPTION AND THE LUMINESCENCE SPECTRA IN CAWO SUB4 MINUS ND PRIME3 POSITIVE MINUS NA PRIMEPOSITIVE CRYSTALS. THE TWO SIMPLEST ND PRIME3 POSITIVE MINUS NB PRIME5 POSITIVE CENTERS (THE N-CENTERS) WERE DETD. IN THE CAWO SUB4 MINUS ND PRIME3P OSITIVE MINUS NB PRIME5 POSITIVE SAMPLES. AN AVERAGED SCHEMATIC FOR THE SPLITTING OF THE LEVELS PRIME4 F SUBTHREE-HALVES, PRIME4 I SUBNINE-HALVES, PRIME4 I SUBELEVEN-HALVES WAS CONSTRUCTED FOR THE N-CENTERS.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201910014-1"

UDC 612.273

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MAKSIMOVA, I. A., MAKSIMOV, V. M., and PIRUZYAN, L. A., Department of Medical Biophysics, Institute of Chemical Physics, Academy of Sciences USSR, Moscow

"Quantitative Assessment of the Kinetics of Free Radicals in Organs of Animals Exposed to Hypoxia"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 58, No 5, 1972, PP 773-778

Abstract: Data available on the concentration of free radicals in the organs of animals exposed to hypoxia (equivalent to an altitude of 6,000 m) for various periods were used to establish an empirical equation representing the concentration of any radical in any organ as a function of time. Curves plotted on the basis of values calculated by that equation satisfactorily coincide with curves plotted on the basis of the original experimental data, including a good agreement of point of interception with the coordinates as well as of maxima and minima. The error of calculation is about 2%. The equation has coefficients which are identical for all organs for the given degree of hypoxia, as well as coefficients which assume a different value for each particular organ. It is concluded that since the value of these coefficients significantly depends on the method of processing the

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MAKSIMOVA, I. A., et al., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 58, No 5, 1972, pp 773-778

experimental data, this method should be standardized and then, after further investigations, the equation may be expanded to be applicable to any degree of hypoxia or hyperoxia.

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Acc. Nr: AP0047228 Ref. Code: UR 0216

PRIMARY SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, 1970, Nr 1, pp 93-97

Piruzyan, L. A.; Kaplan, Ye. Ya.;
Maksimova, I. A.; Rozenfel'd, M. A.

# CHANGES IN THE CONTENTS OF FREE RADICALS (FR) IN THE ORGANS OF MICE UNDER CONDITIONS OF HYPO- AND HYPEROXY

*Institute of Chemical Physics Academy of Sciences USSR*

Experimental data are discussed bearing on the kinetics of changes in the contents of free radicals in mice organs under conditions of hyperoxy and hypoxy. In the case of hyperoxy the character of changes are similar in the liver, the heart, the brain, the lungs and the muscles. A tendency towards an increase of the free radicals contents in observed after 48 hours which is thereafter followed by a decrease after 72 hours. A fairly well expressed increase of free radical activity is observed in all the organs examined after 96 hours.

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REEL/FRAME
19790730

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AP0047228

An increase of the exposure time of hypoxy is followed by a monotonous character of changes of free radicals concentration in the liver, the brain and the lungs of the experimental animals.

During the first 25 hours an increase of free radicals activity is noted which is later followed by a decrease going below control figures.

However free radicals concentration changes rates are unequal in different organs.

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19790731

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UDC 591.1:616-006

PIRUZYAN, L. A,, KAPLAN, Ye. Ya., MAKSIMOVA, I. A., and ROZENFEL'D, M. A., Institute of Chemical Physics

"Changes in the Content of Free Radicals in Mouse Organs During Hypoxia and Hyperoxia"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 1, 1970, pp 93-99

Abstract: Experiments on mice showed that during hyperoxia changes in free radical activity are the same in the liver, heart, brain, lungs, and muscles. The content of free radicals increases on the 2nd day, decreases on the 3rd day, and increases markedly on the 4th day in all the organs. During hypoxia, changes in the concentration of free radicals are also the same in liver, spleen, brain, and lungs. Free radical concentration increases on the first day and after that decreases below control values. However, the rate of change varies from organ to organ. For example, in the lungs and spleen the free radical level falls below controls on the 3rd day and continues to fall thereafter, whereas in the brain and liver this pattern is not observed until the 4th day. It was suggested that changes occurring in free radical activity as a result of hypoxia and hyperoxia may be one of the factors responsible for the impairment of certain physiological systems and metabolic processes associated with these states.

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Acc. Nr: AP0044597 Ref. Code: UR0497

PRIMARY SOURCE: Klinicheskaya Meditsina, 1970, Vol 48, Nr 1, pp 45-49

# RADIOISOTOPE RENOGRAPHY IN PATIENTS SUFFERING FROM ATHEROSCLEROSIS

I. L. Maksimova, V. Kh. Frenkel'

Summary

The authors employed radioisotope renography for the study of the functional state of the kidneys in patients with general atherosclerosis. These investigations enabled to establish different disturbances, mostly of the secretory function of renal tubules, the markedness of which depended upon the severity of the disease. Radioisotope renography is conducive to the recognition of clinically undetectable functional disturbances of the kidneys in patients affected with general atherosclerosis.

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REEL/FRAME
19771273

USSR

UDC 615.012.6:616.932

MAKSIMOVA, I. V., and AGAPOVA, N. S., Mosoce State University

"Effect of Cultivation Conditions on the Accumulation of Organic Matter in a Medium Used to Grow Chlorella vulgaris Strain LARG-1"

Moscow, Biologicheskiye Nauki, No 8, 1971, pp 98-104

Abstract: The various factors that slow algal development in a nutrient medium - low intensity of light, high pH, nitrate nitrogen, and increasing concentration of salts, - increased the amount of extracellular compounds in Tamiya's medium on which the LARG-1 strain of Chlorella vulgaris B was grown. A high osmotic pressure is known to inhibit algal development and photosynthesis. The experiments with C. vulgaris showed that the higher the osmotic pressure of the medium, the more intensively organic matter is released into the medium. A change in osmotic pressure gradually reduced the amount of extracellular substances released in the course of cultivation. An osmotic pressure of C. vulgaris B, strain LARG-1, cells of 4.75 atm, as in other freshwater algae, does not change with the concentration of the medium.

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USSR UDC 582.263.095.4

PIMENOVA, M. N., MAKSIMOVA, I. V., MELESHKO, G. I., and LEBEDEVA, Ye. K., Chair of Microbiology, Soil Biology Faculty, Moscow State University imeni M. V. Lomonosov

"Dynamics of Quantitative Changes in Extracellular Organic Substances During Prolonged Cultivation of Chlorella sp. K"

Moscow, Mikrobiologiya, Vol 39, No 2, Mar/Apr 70, pp 274-279

Abstract: Cultivation of Chlorella sp. K in a rotary fermentation apparatus with direct return of the medium was accompanied by accumulation in the medium of organic substances constituting extracellular products of algae metabolism. During 38 days of cultivation, the content of organic substances in the medium increased from 333.3 to 1465.3 mg/l. The substances consisted of polysaccharides, N-containing compounds, keto acids, and volatile organic acids. During the 38 days of cultivation, the content of carbohydrates in the medium was approximately 30% organic substances, varying from 26 to 42% with approximately 50% N-containing compounds, varying between 21.9 and 63.4% and passing through a major maximum (63.4%) on the 30th day; about the same amount of keto acids (1.3%); and 0.3-7.1% of volatile acids. Maxima in the content of N-containing substances and of

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PIMENOVA, M. N., et al, Mikrobiologiya, Vol 38, No 2, Mar/Apr 70, pp 274-279

volatile acids coincided with maxima in Chlorella reproduction, while decreases in the content of these substances were accompanied by intensive propagation of bacteria. An equilibrium was established between the vital processes of Chlorella and those of the accompanying microflora, which utilized products of Chlorella metabolism (amino acids and volatile organic acids), thus preventing an increase in the amount of these products to a level at which they would have interfered with the propagation of Chlorella.

172 022 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--THE DYNAMICS OF QUANTITATIVE CHANGES IN INTRACELLULAR ORGANIC SUBSTANCES DURING LONG TERM GROWTH OF CHLORELLA SP. K. -U-

AUTHOR-(04)-PIMENOVA, M.N., MAKSIMOVA, I.V., MELESHKO, G.I., LEBEDEVA, YE.K.

COUNTRY OF INFO--USSR

SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 2, PP 274-279

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHLORELLA, CULTURE MEDIUM, SACCHARIDE, NITROGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1410 STEP NO--UR/0220/70/039/002/0274/0279

CIRC ACCESSION NO--AP0054273

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054273

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LONG TERM CULTIVATION OF CHLORELLA SP. K IN THE FERMENTER OF A ROTATION TYPE WITH A DIRECT RETURN OF THE MEDIUM WAS ACCOMPANIED BY THE ACCUMULATION OF INTRACELLULAR ORGANIC SUBSTANCES. ENRICHMENT OF THE MEDIUM WITH METABOLIC PRODUCTS OF THE ALGAE WAS THE MOST INTENSIVE DURING THE FIRST TWO WEEKS OF THE EXPERIMENT. POLYSACCHARIDES AND NITROGEN COMPOUNDS PREVAILED AMONG SUBSTANCES ACCUMULATED IN THE MEDIUM. ORGANIC ACIDS WERE NOT ACCUMULATED IN THE MEDIUM UNDER THESE CONDITIONS OF GROWTH, SINCE THEY WERE THE SUBSTRATE FOR GROWTH OF THE ACCOMPANYING MICROFLORA.

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MAKSIMOVA, I. V., et al., Mikrobiologiya, Vol 41, No 1, Jan/Feb 72, pp 59-63

The $CO_2$ produced was estimated using gas analyzer type OA 5501. The total amount of keto acids was estimated using calorimetric measurement in the form of 2,4-dinitrophenylhydrazine. The total amount of free amino acids in the medium was tested using colorimetric estimation of alpha-amino nitrogen. The accumulation of various groups of organic compounds was associated with various stages in the life cycle of the Chlorella cells. The concentration of polysaccharides increased sharply only during reproduction of the algae. The concentration of free amino acids in the medium increased during the growth and transformation of the cells up to the beginning of the appearance of aplanospores. The concentration decreased during the transition of the algae to reproduction and during dark incubation. The concentration of keto acids in the medium increased both during growth and transformation and during the production of aplanospores from the parent cells in light. The keto acids are consumed in darkness.

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USSR

UDC 621.315.55:537.312.62

MAKSIMOVA, K.P.

"Analytical Relationships For Determining The Optimum Dimensions Of A Superconducting Solenoid"

V sb. Vopr. primeneniya sverkhnizk. temperatur v elektrotekhn. (Problems Of The Use Of Ultralow Temperatures In Electrical Engineering--Collection Of Works), Leningrad, "Nauka," 1971, pp 90-94 (from RZh: Elektrotekhnika i energetika, No 6, June 1972, Abstract No 6B70)

Translation: Analytical relationships are derived for determining the dimensions of an optimum solenoid, i.e., a solenoid with geometrical dimensions by which a specified magnetic field is assured with a minimum expenditure of superconducting material. With the aid of an electronic digital computer, the dependences of the extent of the superconducting winding of an optimum solenoid on the length, internal radius, magnetic field intensity at the gometrical center, current density, and the space factor of the winding are calculated and graphically presented. 3 ill. 2 ref. Ye.B. Granovskiy.

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MAKSIMOVA, L. A.

Radiation Biology

SO: JPRS 55100
4 FEB 72
UDC 582.282.232+576.852.29 (Hydrogenomonas):629.78

STUDY OF THE EFFECT OF FLIGHT FACTORS ON THE ZOND-8 AUTOMATIC STATION ON A CULTURE OF YEASTS AND ALGAL BACTERIA

/Article by E. A. Romanova, L. A. Maksimova, L. A. Siletskaya, A. L. Mashinskiy, Ye. A. Krasavin and V. P. Korneyeva, Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 5, No 6, 1971, submitted for publication 14 June 1971, pp 41-47/

Abstract: This paper gives the results of studying the yeast Candida tropicalis SK-4 and the bacterium Hydrogenomonas eutropha 2-1 which were aboard the automatic station Zond-8 during its lunar flight. The survival of yeast cells during flight and the physiological and biochemical properties of their subsequent generations remained unchanged. The survival of bacteria decreased by 5 percent in comparison with the control. Subsequent generations of bacteria tended to decrease their productivity during autotrophic cultivation, the level remaining within the limits of productivity variations under laboratory conditions. Bacterial radiosensitivity did not change after the flight.

In the biological experiments carried out earlier aboard Soviet and American spaceships and artificial earth satellites microorganisms were used for the most part as indicators for the biological dosimetry of cosmic radiation and commonly employed genetic objects (Jenkins, M. B. Zhukov-Verezhnikov, et al., 1962; N. V. Kovyazin, et al.; G. P. Parfenov and A. A. Lubin; N. N. Zhukov-Verezhnikov, et al., 1968).

During the period 20-27 October the Zond-8 automatic station, which flew around the moon on 24 October, carried a culture of the yeast Candida tropicalis SK-4 and a culture of Hydrogenomonas eutropha 2-1.

The selection of yeasts and Hydrogenomonas as objects for investigations aboard the Zond-8 was dictated by the need for studying the tolerance to spaceflight factors of microorganisms promising as biological objects for

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UDC: 8.74

ZOZULEVICH, D. M. and MAKSIMOVA, L. G.

"Performing Operations With Three-Dimensional, Piecewise-Specified Objects on An Electronic Computer"

Vychisl. tekhn. v mashinostr. Nauch.-tekhn. sb. (Computer Techniques in Machine Design, Scientific-Technical Collection) Dec. 1970, pp 75-84 (from RZh--Matematika, No 8, 1972, Abstract No 8V652)

Translation: Methods are considered for analyzing the incidence of a point on the surface or in the interior of a geometric object specified by the totality of the oriented facets and edges. With the help of incidence procedures, the metric problem of computing the dimensions of the object in a specified direction is solved. All the procedures are programmed in the FORTRAN language. Authors' abstract

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USSR

UDC: 8.74

ZOZULEVICH, D. M., MAKSIMOVA, L. G.

"Computer Execution of Certain Operations With Three-Dimensional Piecewise-Specified Objects"

Vychisl. tekhn. v mashinostr. Nauch.-tekhn. sb. (Computer Technology in Machine Building. Scientific and Technical Collection), 1970, Dec, pp 75-84 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V652)

Translation: Methods are considered for analyzing the incidence of a point of the surface or interior of a geometric object specified by a set of oriented faces and edges. Incidence procedures are also used for solving the metric problem -- computing the overall dimensions of the object in a given direction. Programming of all procedures is done in the FORTRAN language. Authors' abstract.

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USSR

UDC 615.849.1.015.25

ALEKSEYEVA, G. N., YEL'TSOV, A. V., KOLESOVA, M. B., MAKSIMOVA, L. I., RUSANOV, A. M., Leningrad Chemical-Pharmaceutical Institute

"Radioprotective Properties of 1,2-Dithiolium Derivatives"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, No 7, 1972, pp 23-27

Abstract: Study of 6 1,2-dithiolium salts and products of their reduction with dithiomalonylamides, which release sulfur an hydrolysis, showed that only those containing amino groups in positions 3 and 5 have significant radioprotective action in mice irradiated with 700 r. Methylation of the amino group decreased toxicity while slightly intensifying the protective effect. However, the compounds were all less efficacious than aminiethyl-thiuronium (AET) which served as the control. The minimum effective dose was 300 mg/kg. Boosting the dose enhanced the radioprotective effect but increased the toxicity at the same time, causing convulsions and some deaths.

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1/2 015 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--3,5 DIAMINO,1,2,DITHIOLIUM SALTS -U-

AUTHOR-(03)-KOLESOVA, N.D., MAKSIMOVA, L.I., YELTSOV, A.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(3) 610-14

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AMINE DERIVATIVE, THIOL, PERCHLORATE, MORPHOLINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1326 STEP NO--UR/0366/70/006/003/0610/0614

CIRC ACCESSION NO--AP0112420

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0112420

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF 3,5,DIAMINO,1,2,DITHIOLIUM PERCHLORATE (I) WITH 1,3,DIMETHYLBENZIMIDAZOLINE (II) GAVE H SUB2 NC(:S)CH SUB2 C(:S)NH SUB2 AND 1,3,DIMETHYLBENZIMIDAZOLINIUM PERCHLORATE (III). SIMILARLY, THE REACTIONS OF I DERIVS. WITH II GAVE III AND RC(:S) CH SUB2 C(:S)R PRIME (VI) (R, R PRIME GIVEN): NH SUB2, NHME, NHME; MORPHOLINO, MORPHOLINO; MORPHOLINO, NME SUB2. THE ELECTROPHILIC PROPERTIES OF I ARE CLOSE TO THOSE OF TROPYLIUM; E.G. THE REACTION OF IV (R EQUALS R PRIME EQUALS MORPHOLINO) WITH TROPYLIUM PERCHLORATE GAVE THE 3,5,DIMORPHOLINO ANALOG OF I.

UNCLASSIFIED

USSR

UDC 612.89

YAKOVLEV, N. N., KRASNOVA, A. F., LENKOVA, R. I., and MAKSIMOVA, L. V.,
Leningrad Institute of Physical Culture

"Effect of Sympatholytin on Metabolism in Resting and Working Muscles in Relation to the Degree of Their Adaptation to Increased Activity"

Leningrad, Fiziologicheskiy Zhurnal SSSR, No 4, 1973, pp 584-589

Abstract: In rats systematic exercise (swimming) increased muscle glycogen, creatine phosphate, cytochrome oxidase activity and intensity of respiration and phosphorylation in muscle cell mitochondria, especially in the first month of training. Injection of 10 mg/kg of sympatholytin [N-(-2-chloroethyl) dibenzylamine hydrochloride] had no effect of glycogen, creatine phosphate, and creatine kinase activity in resting muscles, but reduced the intensity of cytochrome oxidase and mitochondrial respiration and phosphorylation. During the first month of adaptation to increased activity, sympatholytin caused greater disruption of the oxidative processes in trained animals than in the controls. However, the disturbances diminished considerably by the end of the third month of adaptation. The experimental results show that energy metabolism in muscles (both working and resting) is controlled by the sympathetic nervous system and that the degree of control steadily diminishes in the course of adaptation to increased activity.

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USSR

UDC 577.15:612.744

CHAGOVETS, N. R. and MAKSIMOVA, L. V., Leningrad Institute of Physical Culture

"The ATP-Phosphocreatine-transferase System of the Skeletal Muscles During Work and Rest"

Kiev, Ukrains'kiy Biokhimichniy Zhurnal, No 6, 1972, pp 744-748

Abstract: Brief intense muscular activity of rats produces marked changes in the content of the substrates of the creatinekinase system. Besides a considerable consumption of phosphocreatine, there is a sharp decrease in the phosphocreatine/creatine ratio greater than the decrease in the ATP/ADP ratio. However, no significant changes take place in ATP-phosphocreatine-transferase activity. After 30 minutes' rest, the phosphocreatine content in the muscle is restored or rises slightly above the original level. The phosphocreatine/creatine ratio is almost 50% above the preactivity value while the ATP/ADP ratio is close to the baseline. After 60 minutes' rest the phosphocreatine content is 40% above the original level, thus contributing to the supercompensation phase after exertion. At this time the direct creatinekinase reaction remains intense, whereas the indirect reaction tends to become inhibited.

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USSR

UDC 612.744

KRASNOVA, A. F., LENKOVA, R. I., LESHKEVICH, L. G., MAKSIMOVA, L. V., CHAGOVETS, N. R., and YAKOVLEV, N. N., Sector of Biochemistry, Leningrad Institute of Physical Training, Leningrad

"Characteristics of Energy Metabolism in Muscular Activity in Relation to the Degree of Adaptation of the Organism to This Activity"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 58, No 1, Jan 72, pp 114-121

Abstract: A study conducted on more than 250 athletes of various degree of experience and training indicated that with increasing adaptation of the organism to intensive muscular activity there was an increase in the level of sugar and lactate in the blood at which reinforced mobilization and utilization of fatty acids in connection with muscular effort could take place. As a result a more effective supply of the working muscles with energy sources was ensured and the ATP balance was disturbed to a lesser extent. This constituted a factor that increased the working capacity.

1/1

USSR

UDC 621.396.69:621.319.4

MAKSIMOVA, M. F., TKACHENKO, L. N., SHIPUNOVA, N. V.

"Accelerated Method of Selecting Paper Capacitors with Improved Reliability"

Elektron. tekhnika. Nauchno-tekhn. sb. Upr. kachestvom i standardiz. (Electronic Engineering. Scientific and Technical Collection. Quality Control and Standardization), 1970, vyp. 3, pp 78-79 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4V422)

Translation: The expediency of single checking of paper capacitors at increased DC voltage is demonstrated in an experiment at the Epsilon Plant.

1/1

Semiconductors and Transistors

USSR

UDC 621.382.2

VYATKIN, A. P., MAKSIMOVA, N. K., PEKARSKIY, YE. N.

"Gallium Arsenide Schottky Barrier Pulse Diodes"

Kiev, Izvestiya Vysshikh Uchebnykh Zavedeniy, Radioelektronika, Vol XIV, No 6, 1971, pp 703-705

Abstract: Results are presented from a study of Schottky barrier diodes. The diodes were manufactured by electrochemical deposition of nickle on monocrystalline gallium arsenide with a charge carrier concentration of $n_0 = (3\text{-}5) \times 10^{16}$ $cm^{-3}$. Diodes with a diameter of the rectifying contacts of 10 microns were obtained by means of photolithography. The diodes were assembled in cermet cases with a capacitance of 0.12-0.18 picofarads. The volt-ampere characteristics and volt-capacitance characteristics of the diodes are plotted. The frequency dependence of the barrier capacitance is plotted for different junction biases. The differential resistance of the pulse diode and the parameters $\tau_b$ and $Q_n$ are plotted as functions of the forward current. The studies demonstrated that the capacitance of the diodes does not depend on frequency in the frequency range from 465 kilohertz to 45 megahertz, the differential resistance of the diodes decreases with an increase in the forward current and reaches saturation at I/I

VYATKIN, A. P., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Radioelektronika, Vol XIV, No 6, 1971, pp 703-705

currents of 5-10 milliamps. The speed of the diodes was estimated by measuring the recovery time of the inverse resistance $\tau_b$ and the switching charge Q. The recovery time of the developed gallium arsenide Schottky barrier pulse diodes does not exceed 0.3-0.5 nanoseconds. The data again confirm the conclusion that the current is carried by the basic charge carriers in diodes of the investigated type and the speed of the diodes is determined by their structural parameters.

2/2

USSR

UDC: 621.376.234

VILISOV, A. A., VYATKIN, A. P., MAKSIMOVA, N. K., MILOSERDOVA, L. I., and PEKARSKIY, Ye. N.

"Sensitivity of Gallium Arsenide Detector Diodes"

Kiev, Izvestiya VUZ - Radioelektronika, vol. 14, No. 5, 1971, pp 585-587

Abstract: This brief communication offers the results of research of the behavior of point contact and Schottky barrier diodes of electronic GaAs. In their experiments, the authors measured the sensitivity of the diodes in the three-centimeter wavelength range at a power level of 10 $\mu$W under short-circuit conditions. The tuning of the detector section or a matched transformer produced a standing wave ratio less than or equal to 2 to 2.5. The diodes tested had an electron concentration of from $1 \cdot 10^{16}$ cm$^{-3}$ to $1 \cdot 10^{19}$ cm$^{-3}$ for the point-contact, and a material of $n = 1 \cdot 10^{16}$ to $1.2 \cdot 10^{17}$ cm$^{-3}$ for the Schottky barrier devices. The two types of diodes are compared with regard to their detector characteristics. Curves are given for the sensitivity of both types as functions of the bias current and the frequency. The experiments showed that the sensitivity of the diodes could be significantly increased by applying pulses of the proper shape.

1/1

USSR

UDC 613.6:612.766.1

NAVAKATIKYAN, A. O., KUNDIYEV, Yu. I., AKHRIMENKO, A. P., MAKSIMOVA, O. F., VASILENKO, Yu. I., SAVENKO, N. P., BUZUNOV, V. A., TOMASHEVSKAYA, L. I., and DERKACH, V. S., Institute of Industrial Hygiene and Occupational Diseases, Kiev

"Principles for Quantitative Evaluation of the Difficulty and Strenuousness of Work on the Basis of Physiological Data"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, 1971, pp 3-9

Abstract: A four-level classification of jobs by difficulty and stress is proposed on the basis of research conducted by the Institute and the literature data. The criteria used to measure the amount of effort involved as well as the changes therein during the course of the workday include energy consumption (ranging from under 150 kcal/hour for class 1 work, e.g., computer programming, to 351 kcal/hour or more for class 4 work, e.g., steel casting), muscular, cardiovascular, central nervous, and endocrine functions. A table lists average values of several physiological functions in different kinds of work while another evaluates the difficulty and strenuousness of different kinds of jobs (e.g., operation of office machines is classified as class 1 in difficulty and class 2 in strenuousness, lathework 2 and 2, steel casting 4 1/2

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NAVAKATIKYAN, A. O., et al., Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, 1971, pp 3-9

and 3). The article also discusses some of the theoretical and practical problems in establishing adequate criteria and in applying them to specific jobs, work conditions, and various groups of people (e.g., adolescents, females, elderly workers).

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MAKSIMOVA, O. P.

Russian Metallurgy

UDC 669.15.018.295

DEVELOPMENT OF MARTENSITIC CONVERSION DURING DEFORMATION AND THE MECHANICAL PROPERTIES OF TRIP STEEL

[Article by O. P. Maksimova, L. M. Utevskiy, V. N. Zamyatinskiy, M. A. Shorshorov, and V. V. Rybin; Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin; Moscow; Fizika metallov i metallovedeniye, Vol 34, No 5, 1972, submitted 19 October 1971, pp 1075-1087]

A study was made of the interrelation of martensitic conversion during deformation and the structure and mechanical properties of trip steel having different inclination toward the formation of deformation martensite. The effect of the warm work hardening and the test temperature on the capacity for conversion, the structure and mechanical characteristics of trip steel were investigated. The characteristic features of the fine structure of this steel explaining the causes of severe hardening during warm work hardening of austenite and the increase in the strain hardening coefficient during subsequent tensile testing are described.

A great deal of experimental material accumulated in the Soviet Union and abroad on the laws of martensitic conversions in various alloys and under various conditions have provided a scientific basis for creating a new class of structural steel -- metastable austenitic complexly alloyed steel (trip steel in the English terminology) hardened by warm work hardening and having high strength with very high plasticity. The latter is insured by the martensitic conversion during plastic flow (testing): the shear mechanism of the conversion causes relaxation of the peak stresses, and the formation of the carbide martensite in the work hardened austenite -- severe local hardening preventing premature necking and rupture. The extraordinary combination of strength and plasticity which cannot be obtained by other known methods of thermal and thermomechanical treatment has in recent years attracted the attention of many researchers to this new class of steel [1-5].

The most complete and efficient utilization of trip steel as a structural material is possible only under the condition of sufficiently comprehensive study of the phase transformations, the structural changes and mechanical behavior of the steel -- in connection with the role of such most important factors as the peculiarities of the composition (the position of the

$M_d$ point, the inclination toward carbide formation, the capacity for [illegible] the martensitic conversion, and so on), the conditions of initial hardening thermomechanical treatment (temperature, degree of work hardening, temperature-time conditions (the temperature and rate conditions primarily).

This article contains a discussion of the results of some studies performed on trip steel of compositions close to those proposed in [1]. Studies were made of the peculiarities of the structural state of the initial work-hardened austenite, the interrelation between the kinetic picture of the martensite conversion and the formation of the properties during mechanical testing and the peculiarities of the structure of the final conversion products arising as a result of these tests.

Experimental Procedure and Material

A study was made of two groups of steel -- with 0.3 and 0.5 percent C -- in which the resistance of the austenite to martensitic conversion varied by variation of the manganese content known for its very sharp effect on the position of the $M_s$ and $M_d$ points. With sufficiently strict retention of the composition with respect to the other alloying elements (Cr, Ni, Mo, Si) the manganese content varied in the steel with 0.3 percent C from 1.4 to 2.3 percent, and in the steel with 0.5 percent C, from 1.4 to 5.4 percent (Table 1). In order to compensate for the effect of the carbon on the position of the $M_d$ point, the nickel content in the group of steels with 0.5 percent C was reduced.

Table 1

Chemical composition of the investigated steel, percent by weight

| № | C | Mn | Cr | Ni | Mo | Si |
|---|---|---|---|---|---|---|
| 1 | 0.32 | 1.40 | 9.30 | 7.70 | 4.0 | 2.0 |
| 2 | 0.32 | 1.83 | 9.10 | 7.70 | 4.1 | 1.9 |
| 3 | 0.33 | 2.35 | 9.10 | 7.80 | 4.1 | 2.0 |
| 4 | 0.33 | 2.70 | 8.90 | 7.90 | 4.0 | 2.0 |
| 5 | 0.53 | 1.25 | 9.00 | 5.90 | 4.15 | 1.9 |
| 6 | 0.54 | 1.93 | 9.05 | 6.05 | 4.05 | 2.0 |
| 7 | 0.55 | 2.52 | 8.90 | 5.90 | 4.00 | 1.9 |
| 8 | 0.57 | 2.85 | 9.45 | 5.80 | 4.05 | 2.0 |
| 9 | 0.56 | 3.73 | 9.25 | 5.75 | 4.05 | 2.0 |
| 10 | 0.55 | 4.21 | 9.15 | 5.75 | 4.05 | 2.0 |
| 11 | 0.57 | 5.43 | 9.53 | 5.60 | 4.24 | 2.0 |

The steel was made in a vacuum induction furnace. The ingots (10 kg) were forged into 20 x 20 mm bars -- billets under warm work hardening; the billets were subjected to water quenching from 1,150° C and work hardening by rolling at temperatures of $T_v$ from + 20° to 650° with a different degree of reduction for partial reduction of about 10 percent. Samples were cut from

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UDC 669.14:620.181

KIDIN, I. N., LIZUNOV, V. I., MAKSIMOVA, O. V., and BORODINA, YE. K., Moscow Institute of Steel and Alloys

"Production of a Composite Material Based on the Ferrite-Martensitic Structure of Steel 20"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 1, 1973, pp 134-137

Abstract: The possibility of producing natural composite materials based on the layered ferrite-martensitic structure of steel 20 is analyzed. The method consists in heating steel by direct current transmission (v=100 deg/sec) up to 750-780°C (two-phase region), rolling, and hardening in rollers. After such processing, a low-temperature anneal is carried out. At optimum processing conditions ( $\epsilon$ =40-50%, $t_{anneal}$=250°C), the tensil strength $\sigma_b$ =155-160 kg/mm$^2$ and the elongation $\delta$ =2-4% at 100% viscous fracture. In this case, the structure consists of a ferritic matrix and sections of annealed martensite (H = 530-550), oriented along the axis of rolling. The dimensions and the form of martensitic section are determined, as is the volume part of the martensite, which equals ~58%. Critical values of $\sigma_r$ , v, and 1/h were 1/2

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KIDIN, I. N., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 1, 1973, pp 134-137

calculated; it is demonstrated that the produced material conforms to the requirements of composite materials. Four figures, one formula, seven bibliographic references.

2/2

1/2 025 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--EFFECT OF CARBOHYDRATES ON THE GROWTH, DEVELOPMENT, AND SPOROGENESIS OF VARIOUS STRAINS OF TRICHOTHECIUM ROSEUM -U-

AUTHOR-(02)-PALMOVA, N.P., MAKSIMOVA, R.A.

COUNTRY OF INFO--USSR

SOURCE--BIOL. NAUKI 1970, (2), 82-7

DATE PUBLISHED--------70

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CONTROL MARKING--NO RESTRICTIONS

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2/2 025 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0117846
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF VARIOUS CARBOHYDRATES WERE STUDIED ON SPORE FORMATION AND THE LIFE CYCLE OF 16 T. ROSEUM STRAINS DIVIDED INTO 4 MORPHOL. GROUPS ACCORDING TO THE GROWTH CHARACTERISTICS ON AGAR NUTRIENT MEDIUM AND THE LEVEL OF ANTIBIOTIC FORMATION. STRAINS WERE ISOLATED FROM NATURAL SUBSTRATES AND OBTAINED DURING NITROSOMETHYLUREA AND TRICHOTECHIN INDUCED MUTATIONS. GLUCOSE WAS THE MOST FAVORABLE STIMULATOR OF GROWTH, DEVELOPMENT, AND SPOROGENESIS FOR STRAINS IN ALL MORPHOL. GROUPS, AND FACILITATED INTENSIVE GROWTH OF CONIDIUM AND MYCELIUM, EARLY AND ABUNDANT FORMATION OF MACROCONIDIUM, AND ANTIBIOTIC ACTIVITY. SUCROSE, GLYCEROL, MANNITOL, AND STARCH PROLONGED THE VEGETATIVE GROWTH PHASE. RHAMNOSE STIMULATED DEVELOPMENT OF VEGETATIVE MYCELIA AND INHIBITED SPOROGENESIS, WHILE LACTOSE INHIBITED MYCELIAL GROWTH, MACROSPOROGENESIS, AND ANTIBIOTIC FORMATION. FACILITY: LAB. ANTIBIOT., MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr: AP0051957 M Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 3, pp 229-232

# EFFECT OF VITAMINS ON GROWTH AND DEVELOPMENT OF VARIOUS STRAINS OF TRICHOTHECIUM ROSEUM LINK PRODUCING TRICHOTHECIN

R. A. Maksimova, N. P. Palmova, A. A. Alekseeva

Antibiotic Laboratory of Soil Biology Faculty of Moscow State University

The effect of vitamins on growth and development of various strains of Trichothecium roseum Link differing in their morphology and antibiotic production levels was studied. The strains were obtained by induction with certain chemical mutagens and trichothecin. On Chapek media with ammonium sources of nitrogen the fungal growth was shown to depend on the presence of water soluble vitamins in the medium. Slight vitamin dependance was observed in strains typical for that species. Increased vitamin deficiency was observed in variants obtained after repeated treatment of the fungal conidia with nitrosemethyl urea or ethylenimine and passages to media containing high concentrations of trichothecin. Addition of vitamins of usage of vitamin rich natural media provided sufficient growth and increased the viability of strains, possessing a higher capacity for the antibiotic production. Addition of vitamins had no effect on variation usually observed in Trichothecium roseum Link.

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1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PRODUCTION OF A NEW ANTIBIOTIC, CHALCIDIN BY MICROMONOSPORA CHALCEA -U-

AUTHOR-(05)-GAUZE, G.F., BRAZHNIKOVA, M.G., SHORIN, V.A., MAKSIMOVA, T.S., OLKHOVATOVA, O.L.

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