"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

VIDENSKIY, V. S., Izvestiya Vysshikh Uchebnykh Zavedeniy -- Matematika, No 3, Mar 71, pp 18-22

$$\psi_n(x, \alpha, \beta) = (\alpha x + i\sqrt{1-x^2})(\beta x + i\sqrt{1-x^2})(x + i\sqrt{1-x^2})^{n-2},$$
$$\mu_n(x) = \operatorname{Re}\psi_n(x, \alpha, \beta), \quad \lambda_n(x) = \operatorname{Im}\psi_n(x, \alpha, \beta),$$
$$M_n(x) = \operatorname{Re}\psi_n(x, \alpha, 1), \quad L_n(x) = \operatorname{Im}\psi_n(x, \alpha, 1).$$

The following theorem is stated and proved: If the polynomial $P_n(x)$ satisfies inequality (1), then, given $n \geq \alpha + 2$,

$$|P_n^{(k)}(x)| \leq \mu_n^{(k)}(1) \quad (-1 \leq x \leq 1, \quad k = 1, \ldots, n),$$

the equality being attained here only for the polynomials $P_n(x) = e^{i\gamma}\mu_n(x)$ at the points $x = \pm 1$.

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Coatings

USSR

LUK'YANOV, V. M., ZEMSKOV, G. V., KOGAN, R. L., and VIDERMAN, V. S.

"Oxidation of Diffusion Coatings on a Niobium Alloy"

Kiev, Metallofizika, No 32, 1970, pp 127-130

Translation: This study presents the results of electron, X-ray diffraction, and microstructural analysis of multicomponent coatings on the VN-2A niobium alloy after their oxidation at the temperature 700-1200°C for 0.5-100 hours. The sequence of the formation of oxides on the surface of the (Cr + Ti) - Si coating was studied. Niobium oxide NbO appears at the first stage, followed by the oxides TiO_2, SiO_2, and Cr_2O_3. Further oxidation results in an increased concentration of Cr_2O_3 in the oxide film. In case of a prolonged oxidation of a coating at 1100°C for 100 hours the oxide film contains SiO_2 with an inclusion of oxides with a structure and parameters of TiO_2.

Bibliography: 5 entries. Illustrations: 2. Tables: 1.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

UDC 577.4

IGOLINSKIY, V. G., VIDIN, B. V.

"Analytical Methods of Monitoring Logical Circuits"

V sb. Tekhn. diagnostika (Technical Diagnostics -- collection of works), Moscow, Nauka Press, 1972, pp 211-213 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V410)

No abstract

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

1/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--TEMPERATURE REGIME FOR A MASSIVE MULTILAYER PLATE SIMULTANEOUSLY HEATED BY CONVECTION AND RADIATION -U-

AUTHOR--VIDIN, YU.V.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK SSSR: ENERGETIKA I TRANSPORT, NO 1, 1970, PP 181-184

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--APPROXIMATION METHOD, CONVECTION HEAT TRANSFER, ITERATION, SANDWICH PLATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1324 STEP NO--UR/0281/70/000/001/0181/0184

CIRC ACCESSION NO--AP0123282

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

2/2 011 UNCLASSIFIED

CIRC ACCESSION NO--AP0123282 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ANALYTIC APPROXIMATION METHOD IS PROPOSED FOR CALCULATING THE CONVECTION RADIATION HEATING OF A MASSIVE (IN TERMS OF HEAT) MULTILAYER PLATE. A SOLUTION IS OBTAINED FOR A TEMPERATURE FIELD USING THE ITERATION METHOD. IN ADDITION TO THIS, KNOWN ABSOLUTE RELATIONSHIPS WERE USED AT EACH STAGE OF APPROXIMATION. IN THE CASE OF A THERAICALLY MASSIVE COMPOSITE BODY, (A SUBO SK (L PLUS P) LARGER THAN OR EQUAL TO 2.0; P EQUALS BI-SK LARGER THAN OR EQUAL TO 0 AND O SUBO LARGER THAN 0.2) MAXIMUM DIVERGENCE DOES NOT EXCEED 6 PERCENT.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

UDC 595.754:616-091.8:632.937.14

ROMASHEVA, L. F., SHCHERBAK, V. P., and VIDOMSKIY, E. V., Institute of Biology, Academy of Sciences Kirgiz SSR

"The Action of the Bacterial Preparations Entomobacterin-3 and Dendrobacillin and of the Boverine Fungus on Bedbugs"

Frunze, Izvestiya Akademii Nauk Kirgizskoy SSR, No 3, May-Jun 72, pp 63-67

Abstract: The toxicity of the standard bacterial preparations entomobacterin-3 and dendrobacillin to bedbugs was studied. The bedbugs were sprayed under laboratory conditions with aqueous suspensions of the preparations at concentrations of 0.5-2.0%, whereupon the length of time within which 90% of the insects perished was determined. The effect produced increased with increasing concentrations of the suspensions; it was generally the same for a 1.% as a 2.0% suspension. The effect varied with the season, it was least pronounced in August, when the bedbugs were well-fed on blood, and more pronounced in March, when the bedbugs were underfed, and September, when their vitality was lower than in the summer. The action of the two bacterial preparations was similar, because both belonged to the same group of sporiferous and crystal-forming microorganisms, i.e., Bac. thuringiensis. The effective concentrations of boverine were in the 1-2% range and the optimum

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USSR

ROMASHEVA, L. F., et al., Izvestiya Akademii Nauk Kirgizskoy SSR, No 3, May-Jun 72, pp 63-67

months for its application Jan and Sep, in which the humidity is highest and the physiological activity of the bedbugs is at the lowest level. A higtological study was carried out on bedbugs that had been treated with 1-2% suspensions of dendrobacillin. Within 21-24 hrs after the treatment, sporiferous and crystal-forming bacteria were present in the insect bodies. Their greatest accumulation was in the outer fatty tissue, in the region of tracheae, between the malpighian bodies, and within and around the intestine. Gradually necrosis of the tissues in which the bacteria concentrated and destruction of the organs took place. The death of the insects after penetration of the crystal-forming bacteria into their body was apparently due to the action of bacterial toxins. On application of low doses of the bacterial preparations, septicemia predomoniated, while after application of high doses septicemia almost did not have time to develop. Entomobacterin-3 was obtained from the Agricultural Technology/Administration/ of the Kirgiz SSR, dendrobacillin from the Problem Laboratory of Irkutsk State University (Prof. Ye. V. Talalayev), and boverine from the Biological Method Laboratory at Minsk (T. T. Bezdenko, I. T. Korol), where it was prepared.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

UDC: 621.314.26

VIDOVSKIY, A. L., Krasnodar Affiliate of the All-Union Scientific Research Institute for Design and Planning of Large-Scale Automation in the Petroleum and Gas Industry

"A Pulse Frequency Divider"

USSR Author's Certificate No 250999, filed 18 Apr 66, published 30 Jan 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 70, Abstract No 11A188 P)

Translation: This Author's Certificate introduces a pulse frequency divider which contains flip-flop counters and a digital comparison device. To provide for changing the whole-number division coefficient without additional switching operations, the digital comparison device, which shapes a signal for equality of two numbers given in binary code, is made in the form of logic cells of the OR type. The two inputs of the comparison device are connected to like outputs of flip-flops with identical count numbers. The output of the comparison device is connected to the reset line of the input counter. One illustration. V. M.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

Glass and Ceramics

USSR

UDC 666.11.01:620.171.5

VIDRO, I. I., MAKHNAVETSKIY, A. S., ZATSMAN, I. R., TROSHIN, N. N., KHAYKINA, M. A., MIKHAYLOVA, Z. G.

"Installation for Measurement of Stresses in Sheet Glass in Reflected Light"

Moscow, Steklo i Keramika, No 11, 1972, pp 19-20.

Abstract: The Saratov Affiliate of the State Glass Institute has developed a laser installation for measurement of stresses in sheet glass. A helium-neon laser is used as a light source, the beam of light of which is polarized, then transmitted through the glass, reflected on the second surface of the glass, focussed, compensated and converted to an electric current, measured by an ammeter. The use of the reflection of the light from the second surface of the glass allows all parts of the installation to be located on the same side of the sheet of glass, in many cases the only possible arrangement. The use of the laser allows the light beams reflected from the first and second surfaces of the glass to be fully separated.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

VIDUGIRITE, V. P., PASHKEVICHUTE, N. V., YARASHYUNAYTE, B. Yu.

UDC: 8.74

"Using the Razdan-3 Digital Computer for Programming Analog Procedures"

V sb. Vychisl. tekhn. T. 2 (Computer Technology--collection of works. Vol 2), Kaunas, 1971, pp 584-590 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1060)

Translation: The paper describes the basic principles of using the "Razdan 3" digital computer to compile block diagrams of systems of linear algebraic equations solved on the MN-14 analog computer at the Computing Center of Kaunas Polytechnical Institute. Authors' abstract.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

VIDZHYUNAS, A. M., VOSILYUS, S. K. UDC 621.375.4

"Estimating the Effect of Scattering of the Transistor Temperature Parameters on the Drift of Amplifying Cascades"

Techn. kibernetika, Tekh. kibernetika (Technical Cybernetics), Kaunas, 1970, pp 245-252 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8D79)

Translation: This article contains an investigation of a procedure for estimating the effect of scattering of the transistor temperature parameters on the drift of amplifying cascades. Here, the transistor is depicted as an active three-terminal circuit, and the drift is estimated by three equivalent sources of drift currents. Histograms of the equivalent sources of the drift currents are presented for the P40A transistor, and the statistical drift parameters in standard cascades are analyzed.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

VIDZHYUNAS, A. M., VOSILYUS, S. K.

UDC 621.375.024

"Frequency Characteristics of DC Transistor Amplifying Cascades"

Techn. kibernetika, Tekh. kibernetika (Technical Cybernetics), Kaunas, 1970, pp 238-244 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8 D80)

Translation: This article contains an investigation of an analysis of the frequency characteristics of amplifying cascades based on replacement of transistors by an active three-terminal network. The complex values of the conductivity matrix elements of the transistor based on a T-type equivalent circuit for drift-free transistors are presented. The frequency characteristics of the standard cascades are analyzed, and it is demonstrated that they have nonminimal phase properties. The calculation results are verified experimentally.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

1/3 034 UNCLASSIFIED

TITLE--DETERMINING THE CONTRAST TRANSFER FUNCTION OF OPTICAL FIBERS -U-

PROCESSING DATE--04DEC70

AUTHOR--VIFANSKIY, YU.K.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, OPTIKO MEKHANICHESKAYA PROMYSHLENNOST' NO 1, JAN 70, PP 18-20

DATE PUBLISHED----JAN70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--OPTIC FIBER, FIBER OPTICS, LIGHT TRANSMISSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0913

STEP NO--UR/0237/70/000/001/0018/0020

CIRC ACCESSION NO--AP0119805

UNCLASSIFIED

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UNCLASSIFIED

CIRC ACCESSION NO--AP0119805

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS SHOWN THAT BECAUSE OF THE STRUCTURE AND THE PRESENCE OF MICRO AND MACROINHOMOGENEITIES OF OPTICAL FIBERS THE FORM OF THE SPREAD FUNCTION OF THE SYSTEM DEPENDS ON THE FIELD POINT. THIS APPEARS IN THE FLUCTURATIONS OF THE TRANSMISSION FACTOR OF THE OPTICAL FIBER ALONG ITS SURFACE AND ALSO IN THE DEPENDENCE OF THESE FLUCTUATIONS UPON THE SURFACE AREA OF THE OPTICAL FIBER ON WHICH THEY ARE MEASURED. FLUCTUATIONS OF THE TRANSMISSION FACTOR LEAD TO THE FACT THAT VALUES OF LIGHT FLUXES E PRIME1 SUBMAX AND E PRIME1 SUBMIN ARE MEASURED WITH RANDOM DEVATIONS DELTA E PRIME1 SUBMAX AND DELTA E PRIME1 SUBMIN. IT IS SHOWN THAT THE RELATIVE DEVIATION OF CONTRAST TRANSFER FACTOR DELTA T-T FROM THE AVERAGE VALUES OF T FOR ANY FREQUENCY WILL DEPEND ON THE RELATIVE VALUES OF FLUCTUATIONS OF THE TRANSMISSION FACTOR OF THE OPTICAL FIBER DELTA T-T, ON THE AVERAGE VALUE OF THE CONTRAST TRANSFER FACTOR FOR A GIVEN LINE DENSITY T SUBF AND LINE CONTRAST AND LINE CONTRAST K SUBF IN THE AREAL GRID. AN ANALYSIS OF THE DEPENDENCE OF THE OPTICAL FIBER TRANSMISSION FACTOR FLUCTUATIONS ON SURFACE AND CONFIGURATION OF THE SCANNED SECTION SHOWS THAT THEIR MAGNITUDE DOES NOT DEPEND ON THE CONFIGURATION OF THE SECTION BUT INCREASES WITH DECREASING SURFACE. THE CAUSES OF THE REDUCTION OF MEASURED VALUE OF LATTICE CONTRAST ARE CONSIDERED, SUCH AS THE NONPARALLELISM OF THE SCANNING SLIT OF A MICROPHOTOMETER AND LINES OF PERIODIC LATTICE, INACCURACY IN FOCUSING ETC.

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3/3 034

UNCLASSIFIED

CIRC ACCESSION NO--AP0119805

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--THE RESULTS OF AN EXPERIMENTAL EVALUATION OF THE REDUCTION IN MEASURED CONTRAST VALUE RESULTING FROM THE WIDTH FINITENESS OF THE SCANNED SECTION PERFORMED ON A HIGHLY SENSITIVE MICROPHOTOMETRIC APPARATUS ARE PRESENTED IN A GRAPH, AND ARE ANALYZED.

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1/2 016 UNCLASSIFIED

TITLE--SYNTHESIZING DIALKYL FLUOROPHOSPHATES -U- PROCESSING DATE--04DEC70

AUTHOR-(03)-VIGALOK, I.V., MOISAK, I.E., SVETLAKOV, N.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 936

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC PHOSPHATE, FLUORINATED ORGANIC COMPOUND, ORGANIC SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1517

CIRC ACCESSION NO--AP0135178 STEP NO--UR/0079/70/040/004/0936/0936

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

2/2 016

UNCLASSIFIED

CIRC ACCESSION NO--AP0135178 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO A SOLN. OF 0.064 MOLE (RO) SUB2 PHO AND 0.064 G ATOM NA IN C SUB6 H SUB6 WAS ADDED FCLO SUB3 AT LESS THAN 10DEGREES TO YIELD (RO) SUB2 POF (AND EFIDENTLY NACLO SUB3 IN SOLN.): R EQUALS BU, 50PERCENT ISO,C SUB5 H SUB11, 52.5PERCENT; AND C SUB6 H SUB13, 53PERCENT.

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USSR

UDC: 547.26.118'221.07

VIGALOK, I.V., MOYSAK, I.YE., and SVETLAKOV, N.V., Kazan' Chemical Technological Institute imeni S.M. Kirov, Kazan, Ministry of Higher and Secondary Specialized Education RSFSR

"A New Method for the Synthesis of Dialkyl Fluorophosphates"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, p 936

Abstract: Perchloryl fluoride fluorinates on the phosphorus atom, interact with salts of dialkylphosphorous acid after the pattern of the Michaelis-Becker reaction to give dialkyl fluorophosphates.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

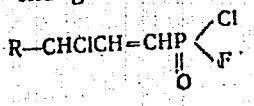
USSR

VIGALOK, I. V., FRIDLAND, S. V., DMITRIYEVA, N. V., LINKEVICH, N. S.

"Method of Production of Mixed Alkeno Phosphoric Acid Chlorides and Fluorides"

Otkrytiya Izobreteniya Promyshlennye Obraztsy Tovarnyye Znaki, No 5, 1972, Patent No 355182.

Translation: 1. Method of production of mixed alkeno phosphoric acid chlorides and fluorides with the general formula



where R is alkyl, differing in that the corresponding olefin is interacted with phosphorus trichloride and perchloryl fluoride with subsequent separation of the end product by known methods.

2. Method according to Claim 1, differing in that the process is conducted at a temperature of not over 20°C.

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UDC 547.341.07

USSR

FRIDLAND, S. V., DMITRIYEVA, N. V., VIGALOK, I. V., ZYKOVA, T. V., and SALAKHUTDINOV, R. A.

"Phosphorylation of Olefines With Phosphorus Trichloride in Presence of Perchloryl Fluoride. I. Phosphorylation of Cyclohexene"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 3, Mar 73, pp 572-577

Abstract: It has been shown that the reaction of phosphorus trichloride with cyclohexene in presence of perchloryl fluoride yields the fluorochloro- and dichloroanhydrides of 2-chlorocyclohexylphosphonic acid (I). The fluorochloro anhydride is a new compound with following properties: b.p. 72°/0.1 mm, d_4^{20} 1.3693, n_D^{20} 1.5050. By means of alcohol esterification a series of esterfluoroanhydrides of (I) has been obtained. Dehydrochlorination of fluorochloro and of the dichloro anhydrides of (I) yields fluorochloro and dichloro anhydrides of cyclohexen-1-yl phosphonic acid which can be then converted to a series of esters. It has been shown that bromination of the chloro anhydride of 2-chlorocyclohexylfluorophosphonic acid occurs with a substitution of the hydrogen.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

UDC 547.341.07

USSR

FRIDLAND, S. V., DMITRIYEVA, N. V., VIGALYUK, I. V., ZYKOVA, T. V., and SALAKHUTDINOV, R. A.

"Phosphorylation of Olefins With Phosphorus Trichloride in Presence of Perchloryl Fluoride"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 7, Jul 73, pp 1494-1497

Abstract: The reaction of phosphorus trichloride with phenylacetylene, styrene, vinyl ethers, vinyl formate, and hexene-1 was studied in presence of perchloryl fluoride. Only hexene-1 yielded identifiable products: 2-chlorohexylphosphonic acid fluoridechloride and 2-chlorohexylphosphonic acid dichloride.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR UDC 535.343.31

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

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

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

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

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USSR

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

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

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

UDC 621.7.022.6

USSR

VIGDERMAN, V. SH., ZAYTSEV, V. B., POGER, M. A., and SHKLYAREVICH, G. M.

"Ultrasonic Equipment for Automating Production Processes"

Moscow, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No2, 1970, pp 13-16

Abstract: A description of a machine, the AGB-1, using ultrasonics for obtaining stable, highly dispersed waterfat emulsions in the food produce industry is given. The machine is now in assembly-line production. It operates on the principle of the passage under pressure of the mixture through an acoustic, multi-rod hydrodynamic converter. As a result of the turbulence induced by the acoustic oscillations and the hydrodynamic shocks, the stable and finely dispersed: the first showing the various components and their interconnection; the second, a schematic of the electrical connections; and a third, a line drawing of the external view of the machine for preparing the emulsion. The latter has been used for several years in confectioner plants in various cities. Another device using the ultrasonic principle is discussed in this article. This is the AKSh mechine for cleaning jars

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

VIGDERMAN, V. SH., et al., Moscow, Nekhanizatsiya i Avtomatizatsiya Proizvodstva, No 2, 1970, pp 13-16

and glasses. A third machine, for cleaning filters, is known as the AMSh. This ultrasonic equipment is also described in the text and is shown in diagrammatic form. All these devices are manufactured by the VNIEKIProdmash, of which the authors are evidently members. This organization has been collaborating with the Acoustical Institute of the USSR Academy of Sciences in the design and manufacture of ultrasonic equipment for welding polymer strips used in food packing. Other machines in the process of development are ultrasonic welding machines for vacuum-packing fish products and dried milk, as well as other food materials.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

1/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ULTRASONIC EQUIPMENT FOR AUTOMATING PRODUCTION PROCESSES -U-

AUTHOR-(04)-VIGDERMAN, V.SH., ZAYTSEV, V.B., PUGER, M.A., SHKLYAREVICH, G.M.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, MEKHANIZATSIYA I AVTOMATIZATSIYA PROIZVODSTVA, NO 2, 1970, PP 13-16

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--EMULSION, FOOD TECHNOLOGY, FOOD PROCESSING EQUIPMENT, ULTRASONIC EFFECT/(U)AGB1 MACHINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/1300 STEP NO--UR/0118/70/000/002/0013/0016

CIRC ACCESSION NO--AP0121804

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

2/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121804

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DESCRIPTION OF A MACHINE, THE AGB-1, USING ULTRASONICS FOR OBTAINING STABLE, HIGHLY DISPERSED WATERFAT EMULSIONS IN THE FOOD PRODUCE INDUSTRY IS GIVEN. THE MACHINE IS NOW IN ASSEMBLY LINE PRODUCTION. IT OPERATES ON THE PRINCIPLE OF THE PASSAGE UNDER PRESSURE OF THE MIXTURE THROUGH AN ACOUSTIC, MULTI ROD HYDRODYNAMIC CONVERTER. AS A RESULT OF THE TURBULENCE INDUCED BY THE ACOUSTIC OSCILLATIONS AND THE HYDRODYNAMIC SHOCKS, THE STABLE AND FINELY DISPERSED. THE FIRST SHOWING THE VARIOUS COMPONENTS AND THEIR INTERCONNECTION; THE SECOND, A SCHEMATIC OF THE ELECTRICAL CONNECTIONS; AND A THIRD, A LINE DRAWING OF THE EXTERNAL VIEW OF THE MACHINE FOR PREPARING THE EMULSION. THE LATTER HAS BEEN USED FOR SEVERAL YEARS IN CONFECTIONER PLANTS IN VARIOUS CITIES. ANOTHER DEVICE USING THE ULTRASONIC PRINCIPLE IS DISCUSSED IN THIS ARTICLE. THIS IS THE AKSH MACHINE FOR CLEANING JARS AND GLASSES. A THIRD MACHINE, FOR CLEANING FILTERS, IS KNOWN AS THE AMSH. THIS ULTRASONIC EQUIPMENT IS ALSO DESCRIBED IN THE TEXT AND IS SHOWN IN DIAGRAMMATIC FORM. ALL THESE DEVICES ARE MANUFACTURED BY THE VNIEKIPRODMASH, OF WHICH THE AUTHORS ARE EVIDENTLY MEMBERS. THIS ORGANIZATION HAS BEEN COLLABORATING WITH THE ACOUSTICAL INSTITUTE OF THE USSR ACADEMY OF SCIENCES IN THE DESIGN AND MANUFACTURE OF ULTRASONIC EQUIPMENT FOR WELDING POLYMER STRIPS USED IN FOOD PACKING. OTHER MACHINES IN THE PROCESS OF DEVELOPMENT ARE ULTRASONIC WELDING MACHINES FOR VACUUM PACKING FISH PRODUCTS AND DRIED MILK, AS WELL AS OTHER FOOD MATERIALS.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

Organ and Tissue Transplantation

UDC 612.17+612.215.7-089.843

USSR

PRIYMAK, A. A., GERASIMENKO, N. I., ANICHKOV, M. N., VIGDORCHIK, I. V., AVERBAKH, M. M., DOBKIN, V. G., DEMIDOV, B. S., VIGDORCHIK, S. I., PAKHOMOVA, Z. I., PETUKHOVA, I. V., VAKSMAN, B. M., GALAYEVA, V. N., and KOZLOV, P. D.

"Use of an Isolated Heart-Lung Preparation in Experimental Transplant Surgery"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 2, 1971, pp 22-23

Abstract: Brief preliminary report on the use of an isolated heart-lung preparation with a working heart in more than 200 experiments on dogs, swine, calves, and sheep. The isolated heart-lung preparation is connected by special cannulas to the peripheral vessels of the recipient's systemic circulation. The isolated lungs inspire an air mixture under hyperventilation conditions. The parameters of electrical activity of the donor's and recipient's hearts, recipient's brain, hemodynamics, biochemical changes in blood, external respiratory function, blood gases, morphology of the tissues of the isolated heart-lung preparation (in various stages of survival) and of the recipient (following biological oxygenation) are investigated. The experiments showed that the physically stabilized heart-lung preparation when used as a biological oxygenator remains viable and ensures good lung and heart function for 10 to 15 hours. It is capable of adjusting automatically to the recipient's circulation and without traumatizing the formed elements

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

PRIYMAK, A. A., et al., Voyenno-Meditsinskiy Zhurnal, No 2, 1971, pp 22-23

of the blood maintains the necessary blood flow rate.

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Organ and Tissue Transplantation

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UDC 612.17+612.215.7-089.843

USSR

PRIYMAK, A. A., GERASIMENKO, N. I., ANICHKOV, M. N., VIGDORCHIK, I. V., AVERBAKH, M. M., DOBKIN, V. G., DENIDOV, B. S., VIGDORCHIK, S. I., PAKHOMOVA, Z. I., PETUKHOVA, I. V., VAKSMAN, B. M., GALAYEVA, V. N., and KOZLOV, P. D.

"Use of an Isolated Heart-Lung Preparation in Experimental Transplant Surgery"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 2, 1971, pp 22-23

Abstract: Brief preliminary report on the use of an isolated heart-lung preparation with a working heart in more than 200 experiments on dogs, swine, calves, and sheep. The isolated heart-lung preparation is connected by special cannulas to the peripheral vessels of the recipient's systemic circulation. The isolated lungs inspire an air mixture under hyperventilation conditions. The parameters of electrical activity of the donor's and recipient's hearts, recipient's brain, hemodynamics, biochemical changes in blood, external respiratory function, blood gases, morphology of the tissues of the isolated heart-lung preparation (in various stages of survival) and of the recipient (following biological oxygenation) are investigated. The experiments showed that the physically stabilized heart-lung preparation when used as a biological oxygenator remains viable and ensures good lung and heart function for 10 to 15 hours. It is capable of adjusting automatically to the recipient's circulation and without traumatizing the formed elements

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USSR

PRIYMAK, A. A., et al., Voyenno-Meditsinskiy Zhurnal, No 2, 1971, pp 22-23

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

UDC 621.374.33

VIGDORCHIK, V. G., DARKOV, S. K., KORTEVA, T. V., MEYERSON, S. I., POPOV, V. A., SITNIKOV, O. P., TRYKOV, Yu. V., OSTRYY, Kh. Ya.

"A Magnetic Digital Element"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 21, Jul 71, Author's Certificate No 308518, Division H, filed 16 Feb 70, published 1 Jul 71, pp 207-208

Translation: This Author's Certificate introduces a magnetic digital element which contains information, compensation and two switching cores. The device has a recording circuit, a coupling loop with flux quenching on resistors, and a ready circuit for the switching cores. As a distinguishing feature of the patent, in order to increase speed, improve stability, extend the range of ambient temperature variation and simplify the power supply system, the element is equipped with resistors in the coupling loop, dynamic excitation and dynamic magnetizing cores, one additional winding on each of the switching and compensation cores, and also two additional windings on the information core. The primary windings of the dynamic excitation and dynamic magnetizing cores are connected in series in the circuit of one of the cadence currents. The series-connected auxiliary windings of the switching cores and

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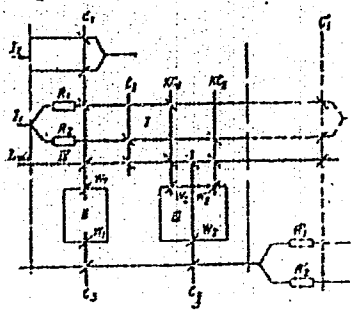
"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

VIGDORCHIK, V. G., et al., Otkrytiya, izobreteniye, promyshlennyye obraztsy, tovarnyye znaki, No 21, Jul 71, Author's Certificate No 308518, Division H, filed 16 Feb 70, published 1 Jul 71, pp 207-208

the secondary winding of the dynamic excitation core form a loop for dynamic excitation of the switching cores. The series circuit comprised of the secondary winding of the dynamic magnetizing core and one of the auxiliary windings of the information core forms a loop for dynamic excitation of the information core, and the auxiliary winding of the information core and the third winding of the dynamic excitation core are connected in series to the ready winding of the switching core.



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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

UDC: 621.385.64.001.5

LEVIN, G. Ya. and VIGDORCHUK, V. I.

"Effect of Emission on the Characteristics of a Plane Magnetron Diode"

Moscow, Radiotekhnika i elektronika, No 8, 1972, pp 1762-1766

Abstract: This theoretical paper offers a solution to the problem of computing the energy and frequency characteristics of a magnetron if the dependence of these characteristics on the emission from the cathode is known. For obtaining the solution, the authors used methods applied to finding how the electric field at the cathode, the rotating currents, and the dimension of the electron cloud depend on the emission from the cathode in a short emission current interval. The transient process is investigated by a combined solution of the Poisson equation and the equations of electron motion. These are numerically solved by replacing the continuous charge distribution with a combination of discrete charged layers emitted from the cathode. Characteristics of the transient process and of the steady state are also examined. It is noted that a number of practical problems of surface wave magnetrons can be resolved through the use of equations here derived.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR Vacuum Tubes UDC: 621.385.6

VIGDORCHIK, V. I., Institute of Radiophysics and Electronics of the Academy of Sciences of the Ukrainian SSR

"Kinetic Theory for the Static Regime of a Planar Magnetron. Part II: State With a Retarding Field at the Cathode"

Gor'kiy, Izvestiya Vysshikh Uchebnykh Zavedeniy: Radiofizika, Vol 13, No 6, 1970, pp 941-951

Abstract: This article is a continuation of work done by the author and V. M. Kontorovich in which they investigated a kinetic, collisionless model for the motion of an electron gas in lattice-type electric and magnetic fields in a planar magnetron. In this article the author studies the case of a retarding electric field at the cathode. Potential and density of charge distribution data show that the electron cloud is localized near the cathode in the $\sim\sqrt{\frac{2kT}{m\omega_c^2}}$, while included particle density decreases with distance from the cathode. A similar electron density distribution was discovered by P. A. Lindsay using a numerical solution to a Poisson equation. V. I. Vigdorchik also determines the relationship between the internal characteristics of the electron cloud (field at the cathode, the characteristic

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

VIGDORCHIK, V. I., Izvestiya Vysshikh Uchebnykh Zavedeniy: Radiofizika, Vol 13, No 6, 1970, pp 941-951

cloud dimensions, and field at the anode) and the external parameters (magnetic field, voltage, emission current density, and cathode temperature). It is shown that the studied state, with a retarding electric field at the cathode, is realized in a planar magnetron diode in the presence of a magnetic field which greatly exceeds critical, H H_{cr}, and at quite high emission current density $|j_e| \simeq j_k = \frac{m\omega_c}{8\pi|e|}\sqrt{\frac{2kT}{\pi m}}$.

The author thanks V. M. Kontorovich for his interest and useful comments. Original article: two figures, 41 formulas, and four bibliographic entries.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

1/2 008 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--BUTYL SALICYLATE -U-

AUTHOR-(04)-YERIKHOV, V.I., VIGDOROV, A.S., TOROCHESHNIKOVA, L.V., GORBACHEVA, S.N.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 266,765
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, CHEMICAL SYNTHESIS, ESTERIFICATION, AZETROPE, SALICYLATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1738 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AAC132004

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

2/2 008 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AA0132004

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BU SALICYLATE (I) WAS PREPD. BY THE ESTERIFICATION OF SALICYCLIC ACID WITH EXCESS BUOH IN THE PRESENCE OF ACID CATALYSTS AT THE B.P. OF THE REACTION MIXT. AND BY THE SIMULTANEOUS DISTN. OF AN H SUB2 O BUOH AZEOTROPE. THE SEPN. OF I WAS SIMPLIFIED BY VACUUM DISTG. AN AZEOTROPE OF I AND UNREACTED SALICYCLIC ACID WHICH WAS SEPD. BY CRYSTN. AND FILTRATION.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR UDC 620.193.47

TSYGANKOVA, L. YE., VIGDOROVICH, V. I., and PCHEL'NIKOV, I. T., Tambor State Pedagogical Institute

"Corrosion and Electrochemical Behavior of Certain Metals in Water-Ethyleneglycol Solutions of Sodium Chloride"

Moscow, Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 648-652

Abstract: This article contains a study of the behavior of St.3 steel and M-1 copper in water-ethylene-glycol solutions as a function of the concentration of ethyleneglycol (20-99.6%) and fluoride ions (up to 2 normal).

It was found that the corrosion rate of steel in water-ethylene-glycol solutions drops systematically with an increase in the ethylene-glycol content. For copper this relation is more complex with a general trend toward a decrease. Under conditions of periodic heating the corrosion of St.3 steel and copper in the liquid phase decreases with an increase in the chloride ion concentration. Corrosive deterioration of the investigated materials takes place with oxygen depolarization under cathode control conditions. The proposition has been stated that at room temperature and a chloride ion concentration of more than 0.1 gram-

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

TSYGANKOVA, L. YE., et al, Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 648-652

ion/liter, ionization of copper to Cu^{+} takes place, and at 80°, to Cu^{2+}. It is pointed out that the calculated corrosion rate of the metals found by the polarization curves obtained during the experiment agree well with the results of gravimetric measurements. This is a proof of the electrochemical mechanism of corrosion of the investigated materials in the investigated solutions.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

UDC: 669.765'75:548.5

VIGDOROVICH, V. N., UKHLINOV, G. A., DOLINSKAYA, N. Yu., MARYCHEV, V. V.,
Moscow

"Study of Conditions of Production of Single Crystals of bismuth and bismuth-antimony alloys"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 6, 1973, pp 57-63.

Abstract: The process of growth of single crystals of bismuth and bismuth-antimony alloys has a number of peculiarities which make it difficult to produce them reliably and to achieve structural perfection. It is particularly difficult to prevent curvature of the crystal relative to the growth direction, the appearance of parasitic blocks on one side of the single crystal and the formation of structural defects such as twins, dislocations, etc. Changing of external conditions does not eliminate these difficulties, indicating that they result from the crystallochemical nature of bismuth and antimony. The authors recommend use of the most favorable orientations of seeds to assure reproducible growth of single crystals. Optimal growth directions are recommended to provide the best structure during growth of single crystals. The optimal directions are those for which the shear planes (111) and (11$\bar{1}$)

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

Vigdorovich, V. N., Ukhlinov, G. A., Dolinskaya, N. Yu., Marychev, V. V., Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 6, 1973, pp 57-63.

are perpendicular to the crystallization front, while the directions [101] and [101] coincide with the direction of growth.

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JPRS 59208

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XI-6. CHARACTERISTIC FEATURES OF THE BEHAVIOR OF TELLURIUM ON CRYSTALLIZATION OF GALLIUM ARSENIDE IN CONNECTION WITH THE DIAGRAM OF STATE OF THE GALLIUM-ARSENIC-TELLURIUM SYSTEM

[Article by V. N. Vigdorovich, M. G. Mil'vidskiy, O. V. Pelevin, E. V. Ufintsova, Moscow; Novosibirsk, III Simpozium po Protsessam Rosta i Sintesa Polupro-vodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 151]

Triangulation of the diagram of state of Ga-As-Te led to the following partial ternary systems: Ga-GaTe-GaAs, GaTe-Ga_2Te_3-GaAs, Ga_2Te_3-Te-As_2Te_3, GaAs-Ga_2Te_3-As_2Te_3 and As_2Te_3-GaAs-As. Thus, the phases of gallium arsenide and tellurium do not coexist and on crystallization of the gallium arsenide from the melts the compositions of which lie on the selected isotherm of the liquidus, the crystal is a solid solution of the components Ga, GaTe, Ga_2Te_3, As_2Te_3 and As on the basis of gallium arsenide as a function of what partial triangle the melt composition belongs to. This permits expectation of variation of the nature of the behavior of the alloying admixture (Te) in the gallium arsenide crystal during crystallization in various partial triangles.

The gallium arsenide crystals were grown by the Czochralski method from melts containing an identical quantity of tellurium and the compositions of which corresponded to figurative points lying on the GaAs-Te, GaAs-Ga_2Te_3 and GaAs-GaTe sections.

Studies by means of the radioactive indicator method of Te^{127} and Hall measurements with respect to length of the grown crystals and also after heat treatment of these specimens demonstrated that the distribution coefficient of the tellurium and the effect of the tellurium content on the electrical properties of gallium arsenide crystals vary in different partial triangles.

- 135 -

VIGDOROVICH, V.N.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--DISSOCIATION PRESSURE FOR INDIUM PHOSPHIDE AND BALLIUM PHOSPHIDE -U-

AUTHOR-(04)-UFIMTSEV, V.B., SHUMILIN, V.P., KRESTOVNIKOV, A.N., VIGDOROVICH, V.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(4), 1120-2

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--INDIUM COMPOUND, PHOSPHIDE, DISSOCIATION, PRESSURE, GALLIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1171 STEP NO--UR/0076/70/044/004/1120/1122

CIRC ACCESSION NO--AP0123148

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

2/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123148

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DISSOCN. PRESSURES OF INP AND GAP WERE STUDIED BY THE KNUDSEN EFFUSION METHOD AT T 979-1011DEGREES K FOR INP AND 1030-1223DEGREESK FOR GAP. THE RESULTS ARE TABULATED. APPLICATION OF THE LEAST SQUARE METHOD TO THE EXPTL. DATA PRODUCED THE FOLLOWING EQUATIONS THAT DESCRIBE THE TEMP. DEPENDENCE OF P VAPOR PRESSURE OVER SOLID INP AND GAP: LOG P (MM HG) EQUALS (MINUS10,859 PLUS OR MINUS 366-T) PLUS (9.9241 PLUS OR MINUS 0.0699) FOR INP; LOG P (MM HG) EQUALS (MINUS 14,150 PLUS OR MINUS 179-T) PLUS (11.0000 PLUS OR MINUS 0.0722) FOR GAP. THE HEAT OF SUBLIMATION DERIVED FROM THESE EQUATIONS IS DELTAH SUB945DEGREES EQUALS 49.691 PLUS OR MINUS 1.675 FOR INP AND DELTAH SUB1126DEGREES EQUALS 65.750 PLUS OR MINUS 0.819 KCAL-MOLE FOR GAP. FACILITY: MOSK. INST. STALI SPLAVOV, MOSCOW, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

1/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--TOPOLOGY AND THERMODYNAMICS OF THE P,T,X DIAGRAMS OF SEMICONDUCTING SYSTEMS -U-

AUTHOR-(03)-VIGDOROVICH, V.N., KRESTOVNIKOV, A.N., UFIMTSEV, V.B.

COUNTRY OF INFO--USSR

SOURCE--IZVEST. AKAD. NAUK SSSR, NEORG. MATERIALY, APR. 1970, 6, (4), 708-13

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--THEORETIC PHYSICS, THERMODYNAMIC ANALYSIS, GALLIUM ARSENIDE SEMICONDUCTOR, INDIUM ARSENIDE SEMICONDUCTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0913 STEP NO--UR/0363/70/006/004/0708/0713

CIRC ACCESSION NO--AP0131459

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

2/2 029 UNCLASSIFIED

CIRC ACCESSION NO--AP0131499 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A GENERAL THEORETICAL ANALYSIS OF THE TEMP., PRESSURE, COMPOSITION DIAGRAMS OF SEMICONDUCTING SYSTEMS OF THE A PRIMEIV A PRIMEIV AND A PRIMEIII B PRIMEV-A PRIMEIII B PRIMEV TYPES SUCH AS GAAS-INAS AND ITS ANALOGUES IS PRESENTED. THE THEORY OF REGULAR SOLUTIONS MAY BE VALIDLY APPLIED TO THE ANALYSIS OF THE THREE PHASE EQUILIBRIUM CURVES OF THESE SYSTEMS. PHASE EQUILIBRIA IN SYSTEMS HAVING A CONTINUOUS SERIES OF SOLID AND LIQUID SOLUTIONS ARE DISCUSSED FROM THE THERMODYNAMIC POINT OF VIEW.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--ON PURIFYING COPPER BY ZONE RECRYSTALLIZATION -U-

AUTHOR-(03)-VIGDOROVICH, V.N., MARYCHEV, V.V., SHIROBOKOVA, T.G.

COUNTRY OF INFO--USSR

SOURCE--IZVEST. AKAD. NAUK SSSR, METALLY, MAR.-APR. 1970, (2), 129-134.

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CRYSTALLIZATION, COPPER, METAL ZONE REFINING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1443 STEP NO--UR/0370/70/000/002/0129/0134

CIRC ACCESSION NO--AP0130376

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

2/2 016 UNCLASSIFIED

CIRC ACCESSION NO--AP0130376 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY ANALYSING THE PHASE DIAGRAMS REPRESENTING THE INTERACTION OF CU WITH VARIOUS IMPURITIES, A GENERAL CLASSIFICATION OF THE IMPURITIES COMMONLY ENCOUNTERED IN CU IS DERIVED WITH A VIEW TO OPTIMIZING THE REFINEMENT OF CU BY THE ZONE RECRYSTALLIZATION METHOD. IN GENERAL, THE EFFICIENCY OF CU REFINEMENT BY THIS METHOD IS INCREASED BY REDUCING THE VELOCITY OF CRYSTALLIZATION (SOLIDIFICATION). THE BEHAVIOUR OF A WIDE RANGE OF IMPURITIES IN CU CORRELATES CLOSELY WITH THEIR POSITIONS IN THE PERIODIC TABLE, WHICH MAY ACCORDINGLY BE USED TO PREDICT THE BEHAVIOUR OF IMPURITIES NOT YET STUDIED. 12 REF.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

Semiconductor Technology

USSR

UDC 537.311.33:536.7

VIGDOROVICH, V. N., KRESTOVNIKOV, A. N., and UFIMTSEV, V. B., Moscow Institute of Electronic Engineering, Moscow Institute of Steel and Alloys, Moscow, Ministry of Higher and Secondary Specialized Education RSFSR

"Questions of the Topology and Thermodynamics of p-T-x Constitution Diagrams of Semiconductor Systems"

Moscow, Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 4, Apr 70, pp 708-713

Abstract: The article considers results of a generalized theoretical analysis of heterogeneous equilibria in semiconductor systems. The heterogeneous equilibria of decomposing semiconductor compounds and phase equilibria at the point of congruent crystallization of semiconductor compounds are considered. It is shown that the theory of regular solutions is applicable to an analysis of the curves for the three-phase equilibrium: $AB_{sol.} \rightleftarrows$ (solution A and B)$_{liq.} \rightleftarrows$ component $B_{vap.}$. The thermodynamics of phase equilibria in systems with continuous series of solid and liquid solutions are considered, as well as changes in vapor-phase composition in the replacement of condensate $B_{sol.}$ by condensate $AB_{sol.}$.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

UDC 621.315.592:546.688'.86

VIGDOROVICH, V.N., UFIMTSEV, V.B., SHUMILIN, V.P.

"Isobaric-Isothermic Potential And Width Of Forbidden Zone Of Semiconductor Solid Solutions Of Type $A^{III}BY$--$A^{III}BY$"

Sb. nauch.tr. po probl. mikroelektron. Mosk.in-t elektron.tekhn. (Collection Of Scientific Works On Problems Of Microelectronics. Moscow Institute Of Electronics Technology), 1972, Issue 8, pp 137-143 (from RZh:Elektronika i yeye primeneniye, No 9, Sept 1972, Abstract No 9B98)

Translation: The values are calculated of the isobaric-isothermic potentials of the formation of solid solutions of InSb-GaSb, InAs-GaAs, and InP-GaP at a temperature of 298° K, and of the pressure of the saturated vapors of the corresponding compounds. The values of ΔG^{mix} for solid solutions are determined from the results of a study of the vapor pressure above the solid solutions and from a calculated analysis of phase diagrams. A good fix is shown of the calculated values of the isobaric-isothermic potentials of the formation of compounds and solid solutions at T = 298° K and $P = P_{AB}$ saturated with the values of the width of the forbidden zone. 15 ref.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

JPRS 59208

6-73

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XII-12. EPITAXIAL LAYERS OF GALLIUM PHOSPHIDE-ARSENIDE OBTAINED BY THE GAS TRANSPORT METHODS

[Article by Ye. N. Vigvorovich, L. F. Plavich, V. M. Andreyev, Moscow; Novosibirsk, III Simpozium po Protsessam Rosta i Sintezu Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 176]

In connection with the broad application of solid solutions of gallium arsenide-phosphide to manufacture instruments for coherent and incoherent radiation, the study of the laws affecting the parameters of the epitaxial structures during the growth process has important significance. In this paper a study was made of the problems

In this paper a study was made of the problems of the effect of supersaturation in the investigated systems (AsH_3-PH_3-HCl and AsH_3-PH_3-MOS of gallium) on the morphology, chemical composition and growth rate of the epitaxial layers.

Results are presented from a study of the structure and the electrophysical parameters of epitaxial layers ($0 < x < 1$).

The epitaxial layers of $GaAs_{0.6}GaP_{0.4}$ of n conductivity alloyed with tellurium up to 150 microns thick had a dislocation density in the surface layer of $5 \cdot 10^4$ cm^{-2}, Hall mobility of the electrons of 1,500-2,000 cm^2/volt-seconds with a concentration of the current carriers of $4 \cdot 10^{17}$-$6 \cdot 10^{16}$ cm^{-3}.

VIGVOROVICH, YE N.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

ANISIMOV, V. V., VIGMAN, B. A., RUDOMANOV, V. I.

"Stochastic Models of Research Programs"

Prikl. Matematika. Vyp 3 [Applied Mathematics, No 3 -- Collection of Works], Irkutsk, 1971, pp 50-73, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V470 from the Introduction).

Translation: Certain problems are studied, related to the representation of research programs by models consisting of stochastic graphs, and a method is given for determination of the generalized characteristics of the these models on the basis of the theory of semi-Markov processes. For definition, research programs such as experimental design developments are studied.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

PANCHENKOV, A. N., VIGMAN, B. A.

"Problems of Formation of a Theory of Functioning and Optimal Control of Experimental Design Offices Based on the Theory of Large Systems"

Prikl. Matematika. Vyp 3 [Applied Mathematics, No 3 -- Collection of Works], Irkutsk, 1971, pp 4-49, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V465).

NO ABSTRACT.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR UDC: 62-50

MARESH, R. M., VIGOVSKIY, V. T.

"Invariant System for Automatic Stabilization of a Vertical-Takeoff-and-Landing (VTOL) Aircraft Under Steady-State Flight Conditions"

Tr. 3-go Vses. soveshchaniya po teorii invariantnosti i yeye primeneniyu v sistemakh avtomat. upr. T. 2. Primeneniye invariantn. sistem avtomat. upr. (Works of the Third All-Union Conference on the Theory of Invariance and its Application to Automatic Control Systems. Vol. 2. Use of Invariant Automatic Control Systems), Moscow, "Nauka", 1970, pp 168-176 (from RZh-Mekhanika, No 9, Sep 70, Abstract No 9A154)

Translation: The authors consider the possibility of ensuring invariance of a system for automatic longitudinal stabilization of a VTOL aircraft under steady-state flight conditions with respect to external and parametric perturbations. Reactive (jet) rudders and elevator motors are proposed as the actuating units for parallel channels in the system. An estimate is given of the feasibility of realizing an invariant system with regard to inertness and the energy characteristics of the power-lift plant in the aircraft. Authors' abstract.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR UDC 621.039.532.21

VIGRIL'YEV, Yu. S., and KALYAGINA, I. P.

"On Mechanisms of Radiation Modification of Graphite"

Moscow, Atomnaya Energiya, Vol 31, No 5, Nov 71, pp 497-503

Abstract: The effect of dimensional changes in graphite as a result of exposure to neutron radiation is a complicated function of the accumulated dose, irradiation temperature, and also the structural and physical properties.

This paper deals with methods of quantitative determination of the dimensional variations of graphite by means of mechanisms which treat the material as a single-component crystalline substance: elastic deformation of graphite subcrystals, relaxation of internal stresses localized in the subcrystals, and the formation of accumulation of vacancy porosity occurring at doses of $(2-3)\cdot 10^{22}$ neutrons per sq. cm. Theoretical and experimental data show satisfactory agreement. Seven figures, one table, bibliography of eleven titles. Author's abstract.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

1/2 015 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--LIQUID VAPOR EQUILIBRIUM IN BINARY SYSTEMS CONTAINING OLEFINS. 2. ISOTHERMAL LIQUID VAPOR EQUILIBRIUM IN BINARY SYSTEMS FORMED BY 1

AUTHOR-(03)-KUDRYAVTSEVA, L.S., VIIT, H., EISEN, O.

COUNTRY OF INFO--USSR

SOURCE--EESTI NSV TEAD. AKAD. TION., KEEM., GEOL. 1970, 19(1), 22-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHASE EQUILIBRIUM, HEPTENE, ALKENE, ETHANOL, PROPANOL, AZEOTROPE, GAS CHROMATOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0445 STEP NO--UR/0470/70/019/001/0022/0029

CIRC ACCESSION NO--AP0107051

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

2/2 015 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107051

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LIQ. VAPOR EQUIL. IN ETOH-1-HEPTENE, PROH-1-HEPTENE MECOET-1-HEPTENE AT 75DEGREES C IN ISO-BUOH-1-OCTENE, ISO-BUOAC-1-OCTENE, ISO-BUOAS-2-OCTENE AT 95DEGREES C WAS STUDIED BY GAS CHROMATOG. TO OBTAIN CONSTS. OF REDLICH KISTER EQUATION AND TO CALC. THE ACTIVITY COEFF. RATIO IN THE VAN LAAR-EQUATION. ALL OF THESE SYSTEMS ARE NONIDEAL, HAVE AZEOTROPES, AND ARE CHARACTERIXED BY POSL DEVIATIONS FROM RAOULT'S LAW.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

UDC 577.4

VIKENT'YEV, L. F.

"Some Problems of Logical Monitoring of Multicycle Relay Circuits"

V sb. Tekhn. diagnostika (Technical Diagnostics -- collection of works), Moscow, Nauka Press, 1972, pp 249-252 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V415)

No abstract

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

1/2 011 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--INTERACTION OF LYSOZYME WITH LOW MOLECULAR WEIGHT INHIBITORS AND MODIFIED SUBSTRATES CONTAINING BETA (1 TO 4) AND BETA (1 TO 6)

AUTHOR-(04)-SHASHKOVA, YE.A., VIKHA, I.V., VICHUTINSKIY, A.A., KHORLIN, A.YA.

COUNTRY OF INFO--USSR

SOURCE--BIOKHIMIYA 1970, 35(1), 124-31

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AMINE DERIVATIVE, SACCHARIDE, BACTERIA, CELL PHYSIOLOGY, ENZYME ACTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0850 STEP NO--UR/0218/70/035/001/0124/0131

CIRC ACCESSION NO--AP0055551

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

2/2 011 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0055551

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPECIFICITY OF LYSOZYME WAS STUDIED IN RELATION TO THE POSITION OF THE GLYCOSAMINIDE LINKAGES BETWEEN THE MONOSACCHARIDE BONDS OF THE SUBSTRATE DURING INTERACTION OF THE ENZYME WITH THE FOLLOWING COMPDS.: N ACETYLGLUCOSAMINE, N,N' DIACETYLCHIOBIOSE, N,N',N'' TRIACETYLCHITOTRIOSE, P NITROPHENYL BETA N, ACETYL D GLUOCOSAMINIDE, P NITROPHENYL BETA N,N' DIACETYLCHITOBIOSIDE (I), P NITROPHENYL O (2 ACETAMIDO, 2 DEOXY BETA D GLUCOPYRANOSYL), (1 YIELDS 6) O 2 ACETAMIDO 2 DEOXY, BETA D GLUCOPYRANOSIDE (II), P NITROPHENYL O (2 BENZAMIDO, 2 DEOXY BETA D GLUCOPYRANOSYL), (1 YIELDS 6) O (2 ACETAMINDO, 2 ACETAMINDO 2 DEOXY BETA D GLUCOPYRANOSIDE), AND P NITROPHENYL O (2 ACETAMIDO, 2 DEOXY BETA D GLUCOPYRANOSYL), (1 YIELDS 4) O 2 ACETAMINDO 2 DEOXY BETA D GLUCOPYRANOSYL (1 YIELDS 6) O 2 ACETAMINDO 2 DEOXY, BETA D GLUCOPYRANOSIDE (III). THE CONCNS. OF THESE COMPDS. REQUIRED TO INHIBIT BY 50PERCENT THE LYSIS OF MICROCOCCUS LYSODEIKTICUS BACTERIAL WALLS WAS DETD. THESE DATA PLUS LIT. CONSTS. OF DISSOCN. FOR THE LYSOZYME COMPLEXES OF THE 1ST 2 COMPDS. (REPORTED ELSEWHERE) WERE USED TO CALC. THE K SUB1 VALUES FOR THE COMPDS. STUDIED. THIS PERMITTED QUANT. CALCN. OF THE AFFINITY AT THE ACTIVE SITE OF THE ENZYME. FOR I AND II THE POSITION OF THE GLYCOSIDIC BONDS BETWEEN THE MONOSACCHARIDE UNITS DET. THE COMPLEMENTARITY OF THE SUBSTRATE AT THE ACTIVE SITE. III CONTAINS BOTH THE 1 YIELDS 44 AND 1 YIELDS 6 GLUCOSAMINIDIC BONDS AND SHOWS STRONG AFFINITY TO THE ACTIVE SITE OF LYSOZYME AND CAN BE HYDROLYZED BY THIS COMPD. WITH SUBSEQUENT TRANSGLYCOSYLATION.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

1/2 009 UNCLASSIFIED

TITLE--METHACRYLIC ESTERS OF SULFUR CONTAINING GLYCOLS -U- PROCESSING DATE--02OCT70

AUTHOR-(05)-RODNARYUK, F.N., KORSHUNOV, M.A., VARSHAVSKIY, S.L., VIKHANSKIY, K.N., CHASKINA, L.B.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,392

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, CHEMICAL SYNTHESIS, ORGANIC SULFUR COMPOUND, ESTER, GLYCOL, METHACRYLATE, POLYMERIZATION INHIBITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0022 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0113022

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

2/2 009 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AA0113022

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE COMPDS. ARE PREPD. BY TREATING S CONTG. GLYCOLS. WITH ALKYL METHACRYLATES IN THE PRESENCE OF POLYMN. INHIBITORS AND ALKALI OR ALK. EARTH METAL ALCOHOLATES. -U-

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

1/2 010 UNCLASSIFIED

TITLE--POLYACRYLATES -U- PROCESSING DATE--04DEC70

AUTHOR-(05)-BODNARYUK, F.N., KORSHUNOV, M.A., BRITNEVA, T.P., VARSHAVSKIY, S.L., VIKHANSKIY, K.N.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,441

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--09MAR70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYACRYLATE RESIN, CHEMICAL PATENT, ESTERIFICATION, CARBOXYLIC ACID ESTER, ORGANIC SULFUR COMPOUND, GLYCOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1754 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136994

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

2/2 010 UNCLASSIFIED

CIRC ACCESSION NO--AA0136994 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYACRYLATES ARE PREPD. BY CONVENTIONAL INTERESTERIFICATION OF ALKYL ESTERS OF MONO AND DICARBOXYLIC ACIDS WITH THIOGLYCOLS IN INERT SOLVENTS AND IN THE PRESENCE OF A CATALYST AND AN INHIBITOR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

UDC 669.721.41

VIKHAREV, A. F., RODYAKIN, V. V., and BARANIK, I. A.

"Lower Titanium Cloride Refining of Magnesium"

Sb. tr. Vses. n.-i. i proyektn. in-t titana (Collection of Works of the All-Union Scientific Research and Design Institute of Titanium), 1970, 5, pp 76-81 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G140)

Translation: During this reduction of titanium by magnesium from salt master alloys of the lower Ti chlorides, a high-dispersion Ti is produced which possesses very high refining properties as compared to Fe and Si in Mg. A study is made of the effect of composition of salt master alloys of lower titanium chlorides, their quality and quantity, and also of the method of their preparation with regard to refining properties and as regards the alloys in Mg. The consumption coefficients and the basic parameters of the Mg refining techniques with lower Ti chloride alloys are established. 2 ill., 2 tables, 7 biblio. entries. Author's Abstract.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

Instrumentation and Equipment

USSR UDC 669.721

VIKHAREV, A. F., YEGOROV, A. P., ZHUKOV, V. P., CHUKAL'SKIY, YE. N., and LEBEDEV, A. I.

"Mastering the Continuous Refining of Magnesium in a Mixer for the Titanium Industry"

Moscow, Tsvetnyye Metally, No 6, 1972, pp 44-46

Abstract: The mixer is divided into two sections and filled with electrolyte (chloride salts). The magnesium is purified by passing it through a layer of electrolyte under the vertical divider from one section to the other. The sludge is collected at the bottom of the mixer, which is inclined at 45° in each section. A special automatic grab bucket facilitates sludge removal. The mixer is lined with graphite and magnesite in order to withstand high temperatures. Pipe heaters containing molten salts (K, Na, Mg, Ca chlorides) are used to heat the mixer. The magnesium is transported to and from the mixer by a vacuum ladle equipped with one or two tap holes. The magnesium is protected from oxidation by a flux mixture sprayed into the mixer by compressed argon for 5-10 seconds after each teeming and evacuation of the magnesium. Analysis of the mixer sludge showed that magnesium losses amounted to only 0.22% in 1970; it varied from 0.1 to 0.3%, depending on the frequency

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USSR

VIKHAREV, A. F., et al., Tsvetnyye Metally, No 6, 1972, pp 44-46

of sludge removal. In 1970, average consumption of argon was 0.4 m^3/ton Mg; average consumption of flux was 0.3 kg/ton Mg. The authors recommend much wider use of such mixers in the titanium industry.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PREPARATION AND PROPERTIES OF DISPERSE DYES WITH HYDROXYETHOXYMETHYL GROUPS -U-

AUTHOR-(03)-BORODKIN, V.F., PETROVA, R.A., VIKHAREVA, N.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(1), 100-2

DATE PUBLISHED----------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ANTHRAQUINONE, AMINE, DYE, CAPRONE, HYDROXYL RADICAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0962 STEP NO--UR/0153/70/013/001/0100/0102

CIRC ACCESSION NO--AP0124622

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

2/2 011 UNCLASSIFIED

CIRC ACCESSION NO--AP0124622 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON TREATMENT OF ARYLAMINOANTHRAQUINONES CONTG. A CLCH SUB2 GROUP WITH (CH SUB2 OH) SUB2 (I) AT 120-30DEGREES, HOCH SUB2 CH SUB2 OCH SUB2 GROUPS (Q) ARE FORMED. THE REACTION IS CONDUCTED BY GRINDING 1 G CLCH SUB2 SUBSTITUTED COMPD. WITH 30 ML I, ADDING 20 ML I TO GIVE A SOLN., HEATING WITH AGITATION TO 120DEGREES, AND HOLDING FOR 6 HR (FOR MONOARYL COMPDS.), OR FOR 10 HR (FOR DIARYL COMPDS.). MOST OF THE I IS VACUUM DISTD. AND THE REMAINDER WASHED OUT WITH 75 ML H SUB2 O. THUS WERE PREPD. II (R PRIME1-R PRIME3, PERCENT YIELD, M.P., LAMBDA SUBMAX IN NM, AND COLOR GIVEN): H, H, H 83, 80-3DEGREES, 512, BORDEAUX RED; H, OH, H, 68, 70-2DEGREES, 588, GREY VIOLET; H, 3,4,QMEC SUB6 H SUB3 NH, H, 69, 103-5DEGREES, 654, GREEN; ME, 2,4,6,3,ME SUB3 QC SUB6 HNH, H, 58, 148-50DEGREES, 534, BLUE; H, H, 3,4,QMEC SUB6 H SUB3 NH, 68, 114-111DEGREES (SIC), 532, LILAC. II ARE READILY APPLIED TO KAPRON FIBERS TO YIELD BRIGHT DYEINGS FAST TO H SUB2 O, WARM SOAPY H SUB2 O, AND OTHER REAGENTS. FACILITY: IVANONV. KHIM. TEKHNOL. INST., IVANONO, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

UDC: 621.315.592

VITOVSKIY, N. A., VIKHLIY, G. A., and MASHOVETS, T. V.

"Radiation-Stimulated Complex Formations in p-Type Indium Antimonide"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1995-2002

Abstract: Earlier papers have noted changes in the parameters of indium antimonide under x-rays or light at 78° K that remained for quite a long time after irradiation had ceased. The purpose of the present paper and the experimental work it describes is to investigate further the mechanism of this process and to clarify the nature of the defects formed by the irradiation. The experimental conditions were chosen such that the change in parameters of the specimens and the process of surface overcharging are practically eliminated. The experiments show that the volume effect does not increase the hole concentration, and that the irradiation results in very radical changes in the concentration of the impurities, in the mobility, and other factors. It is also found that clarification of the observed phenomena is possible without resorting to concepts of shockless generation of internodal atoms and vacancies.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR UDC: 621.315.592

VITOVSKIY, N. A., et al, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1995-2002

The authors thank B. I. Shklovskiy for participating in a discussion of the work.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

UDC 537.311.33:546.682'86

VITOVSKIY, N.A., VIKHLIY, G.A., GALAVANOV, V.V., MASHOVETS, T.V., KHANSEVAROV, R.YU.

"Radiation Defects In Inium Antimonide"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Nonmetal Crystals--Collection Of Works), Minsk, Nauka i tekhn., 1970, pp 124-130 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B41)

Translation: It is shown that defects originating in InSb during irradiation of it by electrons and γ rays are also formed in p-type InSb and under the effect of soft radiation -- x-rays with maximum energies to 55 kev and visible light. It is obvious that the process of formation of these defects is connected with the effect of some nonimpact mechanism of radiation defect formation. 6 ill. 12 ref. Summary.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

VIKHLYANTSEV, A. V.

DETERMINING ETHYL ALCOHOL IN WATER CONDENSATES BY THE GAS CHROMATOGRAPHY METHOD

/Article by Yu. A. Novikov and A. V. Vikhlyantsev; Moscow, Aktual'nyye Voprosy Kosmicheskoy Biologii i Meditsiny (Current Problems in Space Biology and Medicine), Russian, 1971, pp 319-320/

A determination of the concentration of compounds with a low boiling point in water condensates is of great interest for medicine and toxicology.

The analysis of water condensates is complex due to the following factors:

1. The water peak strongly blurred in most of the liquid phases overlaps many components.

2. When water samples are introduced there is a change in the time of retention of the dissolved components due to the formation of a mixed liquid phase (liquid phase + water) in the initial part of the column.

3. In a number of cases there is a decrease in response of the detector to the dissolved compounds, emitting simultaneously with the water peak. The latter is particularly conspicuous in work with argon detectors.

In analyzing ethyl alcohol in water condensates we used a "Tsvet" gas chromatograph, model 1-64, with a flame-ionization detector.

As the working conditions we selected the following:
column: length 1 m, diameter 4 mm.
packing: five parts by weight of KhhP ether (triether monochlorohydrin, pentaerythrite and caprylic acid) with an INZ-600 carrier (fraction 0.25-0.5 mm), sintered at a temperature of 300° for three hours.

JPRS 56,499
14 JULY 72

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

UDC 669.71.472(088.8)

BELYAYEV, A. S., BICH, I. I., VIKHLYAYEV, A. A., NOSIKOV, G. M., and FEDULOV, A. I., Novokuznetsk Aluminum Plant and Mining Institute of Siberian Department of Academy of Sciences USSR

"Device for Disassembly of Lining of Aluminum Electrolyzers"

USSR Authors' Certificate No 290949, Cl. C 22d 3/02, C 22 d 3/12, filed 18 Nov 69, published 11 May 71 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1G125P)

Translation of Abstract: This device for the disassembly of the lining of aluminum electrolyzers in accordance with author's certificate (RZh-Metallurgiya, 1967, Abstract No 7G131) is unique in that, in order to raise operating reliability, the rotating column consists of a pi-shaped pillar, to which a crane arm is hinged, and a rotating platform, on which are mounted the mechanism for rotating the column, the control panel, and hydraulic lifting jacks for hoisting the crane arm. The mechanism for rotating the column is made in the form of two hydraulic cylinders with two-way pistons, rigidly connected by racks meshing with an immobile pinion shaft. Two illustrations.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

Physiology

UDC 612.27+612.821.6

MEYERSON, F. Z., SOLOMATINA, Ye. S., VIKHLYAYEV, Yu. I. and KLYGUL', T. A., Laboratory of Experimental Cardiology, Institute of Normal and Pathological Physiology and Laboratory of Psychopharmacology, Institute of Pharmacology, Academy of Medical Sciences USSR, Moscow

"The Influence of Adaptation to Altitude Hypoxia on the Behavior of Animals in a Stress Situation"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov, Vol 23, Vyp 4, Jul/Aug 73, pp 751-756

Abstract: The influence of adaptation to hypoxia on the behavior of 40 rats in situations creating a conflict between the drinking and the defensive reflexes was studied. It was found that adapted animals made three times as many attempts to drink as controls, despite a painful electric shock. The experimental subjects showed a lower threshold of pain sensitivity, the same strength for the drinking reflex, the same motor activity in nonconflict situations and lower motor activity in conflict situations than controls. Therefore these factors are not considered possible causes for the change observed.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

MEYERSON, F. Z., et al., Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov, Vol 23, Vyp 4, Jul/Aug 73, pp 751-756

Earlier findings also eliminate disturbance in the elaboration of defensive conditioned reflexes. It was further found that interrupting the drinking reflex required a shock of twice the voltage in experimental rats as in controls. The greater stability of the drinking reflex to pain is said to be caused by a greater force and concentration of excitation in the neuron system responsible for the drinking reflex, and a deeper inhibition of the neuron system responsible for the motor pain reaction. This may be caused by some general change in the functioning and metabolism of the brain.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

UDC 615.31:547.869.2].012.1

GRITSENKO, A. N., YERMAKOVA, Z. I., ZHURAVLEV, S. V., VIKHLYAYEV, Yu. I., and KLYGUL', T. A., Institute of Pharmacology of the USSR Academy of Medical Sciences Moscow

"Synthesis in the Phenthiazine Series. XXXI. 10-γ-Alkylaminopropyl and 10-β-Alkylaminopropionyl Derivatives of Substituted Phenthiazines"

Moscow, Khimiko Farmatsevticheskiy Zhurnal, No 7, Vol 5, July 1971, pp 10-14

Abstract: A study was made of the synthesis of a series of 10-γ-alkylaminopropyl and 10-β-alkylaminopropionyl derivatives of 1-nitro, 4-nitro, 1-bromo and 1,3-dibromophenthiazines, and their pharmacological characteristics were compared. In order to obtain the aminoalkyl chain in position 10 of the phenthiazine, γ-dimethylaminopropylchloride and N-methyl-N'-(γ-chloropropyl)piperazine were used. The 10-(β-chloropropionyl) derivatives were obtained by interaction of the phenthiazine with β-chloropropionylchloride. All the investigated compounds had a clear sedative effect and were active with respect to all tests. The piperazinyl derivatives were, as a rule, more active than the compounds with dialkylaminoalkyl substitutions in position 10. Halogenation of the phenthiazine ring with respect to positions 1, 3 and 4 leads to weakening of the activity of the compounds by comparison with the unsubstituted analogs and with compounds having similar substitutions in position 2. Halogenation with

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USSR

GRITSENKO, A. N., et al., Khimiko Farmatsevticheskiy Zhurnal, Vol 5, No 7, July 1971, pp 10-14

respect to position 2 is the optimal version for activity of the compounds. Formation of the ethers with respect to position 2 leads to lowered activity. The mechanisms of these effects are discussed.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--1,4,BENZODIAZEPINES AND THEIR DERIVATIVES. III. SYNTHESIS AND CORRELATION BETWEEN THE STRUCTURE AND PHARMACOLOGICAL ACTIVITY OF

AUTHOR-(05)-BOGATSKIY, A.V., VIKHLYAYEV, YU.I., ANDRONATI, S.A., KLYGUL, T.A., CHUMACHENKO, T.K.

COUNTRY OF INFO--USSR

SOURCE--KHIM.-FARM. ZH. 1970, 4(1), 5-9

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TRANQUILIZER, ANTICONVULSANT DRUG, MUSCLE RELAXANT, HYPNOSIS, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0540 STEP NO--UR/0450/70/004/001/0005/0009

CIRC ACCESSION NO--AP0137629

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

2/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137629

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF PHARMACOL. TESTS WERE GIVEN FOR 14 DERIVS. OF 1,3,DIHYDRO,(2H),1,4,BENZODIAZEPIN,2,ONE SYNTHESIZED EARLIER (ANDRONATI AND BOGATSKII, 1969). DETAILS OF IR SPECTRA WERE ALSO REPORTED. ALL THE COMPDS. COMBINED TRANQUILIZING, ANTICONVULSANT, MUSCLE RELAXING, AND HYPNOTIC ACTIVITIES; SOME OF THEM REVEALED ALSO SEDATIVE ACTIVITY. DISORDERS OF THE MOTOR ACTIVITY WERE OBSD. IN CERTAIN CASES. FACILITY: ODESS. UNIV. IM. MECHNIKOVA, ODESSA, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

1/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PSYCHOTROPIC 10-2- DIETHYLAMINO
- PROPIONYL-2-TRIFLUOROMETHYLPHENOTHIAZINE HYDROCHLORIDE -U-

AUTHOR-(05)-ZHURAVLEV, S.V., GRITSENKO, A.N., VIKHLYAEV, YU.I., KLYGUL, T.A., ULYANOVA, O.V.

COUNTRY OF INFO--USSR

SOURCE--BRIT. 1,191,800

DATE PUBLISHED--13MAY70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PATENT, TRANQUILIZER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0073 STEP NO--UR/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AA0127700

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

2/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AA0127700

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE COMPD. (I), HAVING PSYCHOTROPIC PROPERTIES, WAS PREPD. BY TREATMENT OF 2 TRIFLUOROMETHYLPHENOTHIAZINE WITH CLCH SUB2 CH SUB2 COCL, AND CONVERTING THE RESULTING 10 (BETA CHLOROPROPIONYL) 2 TRIFLUOROMETHYLPHENOTHIAZINE WITH NHET SUB2 INTO I. FACILITY: INSTITUTE OF PHARMACOLOGY AND CHEMOTHERAPY, ACADEMY OF MEDICAL SCIENCES, U.S.S.R.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

UDC 615.365.018.53.015.45:612.112.94

VIKHMAN, A. A., KARASIK, O. A., and SOFRONOV, B. N., Institute of Experimental Medicine, Academy of Medical Sciences USSR

"Sensitivity of Lymphoid Cells to Antilymphocytic Serum in Different Stages of Immunogenesis"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 5, 1971, pp 77-80

Abstract: Experiments on mice immunized with sheep erythrocytes showed that antibody-forming spleen cells are more sensitive to antilymphocytic serum (ALS) soon after immunization than they are in the later stages. The overall number of viable spleen cells decreased shortly after injection of ALS and then was restored. ALS affects both the viability and immunological function of lymphoid cells. It has a brief cytotoxic effect on the total population. Injected a day before antigenic stimulation, it sharply lowers the function of the immunocompetent cells. This shows that the lymphoid cells participating in the initial stages of immunogenesis are highly sensitive to ALS. Cells producing antibodies after antigenic stimulation or producing "normal" antibodies are more resistant to ALS than the total lymphoid cell population. Injection of ALS clearly increases the number of antibody-producing cells,

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

VIKHMAN, A. A., et al., Byulleten' Eksperimental'noy Biologii i Meditsiny, No 5, 1971, pp 77-80

indicating that ALS has a stimulating effect on the cell population producing antibodies. The in vitro effect of ALS is different in that the antibody-producing cells are more sensitive to the serum than the overall mass of lymphoid cells. The reason may be that the same high concentration of anti-serum is not achieved in vivo or the injurious effect of the serum is quickly compensated.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR UDC 517.523

VIKHMAN, F. A.

"Convergence of Infinite Products"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedenii, Matematika, No 1(104), Jan 71, pp 21-25

Abstract: An infinite product is termed convergent if, when $n \to \infty$, the sequence $\prod_{k=0}^{n} (1+U_k)$ has a finite, nonzero limit. This article finds the necessary and sufficient conditions for convergence of the product

$$\prod (1+ {}_kU_k) \qquad (2)$$

for all $\{U_k\}$ and $\sum U_k$, integrable, absolutely integrable, or bounded by the Cesaro method of C^{α} integrable, non-negative order.

Lemma. If for the convergent infinite product $\prod (1+U_k)$ the infinite product $\prod (1+U_k x)$ converges for all real x, then the series $\sum U_k$ and $\sum U_k^2$ converge.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

VIKHMANN, F. A., Izvestiya Vysshikh Uchebnykh Zavedenii, Matematika, No 1(104), Jan 71, pp 21-25

Five theorems are given in this article and proven.

Theorem 1. The infinite product (2) converges for all C^{α}-integrable (or C^{α}-bounded) sequences $\{U_k\}$ if and only if

$$1^{\circ}\ \sum k^{\alpha}|\Delta^{\alpha}\varepsilon_k| < \infty\ ;\ 2^{\circ}\ \sum k^{2\alpha}\varepsilon_k^2 < \infty,\ \Delta^{\alpha}\varepsilon_k = \sum_{i=0}^{\alpha}(-1)^i\binom{\alpha}{i}\varepsilon_{k+i}\ .$$

Theorem 2. The infinite product (2) converges for all C^{α}-integrable (or C^{α}-bounded) series $\sum U_k$ if and only if

$$1^{\circ}\ \sum k^{\alpha}|\Delta^{\alpha+1}\varepsilon_k| < \infty\ ;\ 2^{\circ}\ \sum k^{2\alpha}\varepsilon_k^2 < \infty.$$

Theorem 3. The infinite product (2) converges for all absolutely C^{α}-integrable sequences $\{U_k\}$ if and only if

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

VIKHMANN, F. A., Izvestiya Vysshikh Uchebnykh Zavedenii, Matematika, No 1(104), Jan 71, pp 21-25

1° $\sum_{k=0}^{n} A_k^{\alpha} \Delta \varepsilon_k^{\alpha} = O(1)$; 2° $k^{\alpha} \varepsilon_k = O(1)$; 3° the series $\sum \varepsilon_k$ converges; 4° $\sum \varepsilon_k^2 < \infty$.

Theorem 4. The infinite product (2) converges for all absolutely C^{α}-integrable series $\sum U_k$ if and only if $k^{\alpha} \varepsilon_k = O(1)$.

Theorem 5. If the normal method (R, p_k) converges, then the infinite product (2) converges for all (R, p_k)-integrable (or (R, p_k)-bounded) series $\sum U_k$ if and only if

1° $\sum \left| P_k \Delta \frac{\Delta \varepsilon_k}{p_k} \right| < \infty$; 2° $\sum \left(P_k \frac{\varepsilon_k}{p_k} \right)^2 < \infty$; 3° $\sum \left(P_k \frac{\varepsilon_{k+1}}{p_k} \right)^2 < \infty$;

4° $\sum |P_k P_{k+1}| \frac{\varepsilon_{k+1}^2}{|p_k p_{k+1}|} < \infty$, where $P_k = \sum_{i=0}^{k} p_i$.

Nine bibliographic references are cited.

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alloys

JPRS 55393

9 March 1972

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Cut

UDC 539.4:669.295

EFFECT OF CARBON ON THE MECHANICAL PROPERTIES OF TITANIUM BETA-ALLOY WELD JOINTS

[Article by V. B. Vikhman and A. S. Mikheylov (Leningrad); Moscow, Fizika i Khimiya Obrabotki Materialov, Russian, No 6, November-December 1971, submitted 29 May 1970, signed to press 12 November 1971, pp 48-54]

VIKHMAN, V.B.

The limiting permissible carbon content has been established for beta-titanium alloys to be used for weldments. An increase in the crystallization rate of the weld bath due to intensive cooling of the opposite side of the joint by a water shower leads to a significant increase in ductility and impact strength of the seam metal and makes it possible to increase the permissible carbon content in the welded metal.

Titanium-base alloys with a metastable beta-solid solution were developed in the USSR and abroad in the past decade. The best known alloys of this group are domestic alloys VT15 (Ti-3Al-7Mo-11Cr), TS6 (Ti-3Al-4Mo-7V-11Cr) and the American alloy B-120 VCA (Ti-3Al-13V-11 Cr).

All three alloys have similar structure and properties. In the as-supplied condition the sheet material of these alloys has a strength of 80-100 kG/mm^2 and high indices of ductility and impact strength, and after aging at 430-550 C they have the following properties: TS = 120-150 kG/mm^2; elongation = 5-10%, and impact strength = 2-3 kGm/cm^2.

In view of the lower ductility and impact strength of weld joints after aging, in comparison with the base material, the generally accepted technology at the present for making weldments consists of the following operations: 1) shaping the parts which provides thickened edges in the weld zone; 2) heat treatment (aging of the base material); 3) argon-arc welding of the parts along the thickened edges. However, even this technology does not always ensure good workability of the part. The mechanical

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properties of the weldments, primarily ductility and impact strength, depend to a significant degree on the concentration of interstitial impurities (oxygen, nitrogen and carbon) in the base material whereupon the beta-alloys differ from titanium alloys with an alpha- and alpha+beta structure by being more sensitive to the content of these impurities.

The effect of oxygen and nitrogen on the mechanical properties of alloys with a beta-structure was investigated by many authors. On the basis of these works specific concepts about the embrittling action of oxygen and nitrogen on the metal of beta-alloy weld joints was fully compiled /1/. At the same time the behavior of carbon in the beta-solid solution of titanium and the effect of this element on the mechanical properties of welds of the investigated alloys has not been really studied and adequately founded recommendations on the limiting content of this harmful impurity in the base metal is lacking.

Technical specifications for alloys VT15 and TS6 permit a carbon content up to 0.1%, i. e., the same amount as for alloys with an alpha- and alpha-beta structure which contradicts concepts about the structure of the beta-alloy crystal lattice.

The atomic radius of carbon is 1.107 A while the atomic radius of titanium is 1.614 A. Therefore carbon forms interstitial solid solutions with titanium of limited concentration. From the Ti-C phase diagram it follows /2/ that the solubility of carbon in the beta-phase at the solidus temperature (1750 C) amounts to 0.8% and decreases to 0.10-0.15% at 920 C while in the alpha-phase, at the same temperature, 0.48% carbon is dissolved. Titanium carbide (sigma-phase) is formed at equilibrium conditions for large carbon concentrations at the same temperature.

The decrease in carbon solubility in the b.c.c.-lattice of the beta-phase in comparison with the hexagonal lattice of the alpha-phase (at 920 C) can be explained by the difference in the dimensions of the crystal pores in which interstitial atoms can be arranged. The crystal lattice of alpha-titanium has two types of pores whereupon the maximum radius of 0.62 A are octahedral pores. The b.c.c. lattice of beta-titanium also has two types of pores (the tetrahedral pores possess a maximum radius of 0.44 A).

The solubility of carbon in beta-alloys is apparently even less than the phase diagram /2/ indicates because the beta-

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USSR

UDC 539.4:669.295

VIKHMAN, V. B., and MIKHAYLOV, A. S., Leningrad

"The Effect of Carbon on the Mechanical Properties of Welded Joints of Veta-Alloys of Titanium"

Moscow, Fizika i Khimiya · Obrabotki Materialov, No 6, Nov/Dec 71, pp 48-54

Abstract: The carbon content in beta-alloys of titanium for welded constructions was investigated and its maximum permissible content was experimentally determined by a method using a group TS6 alloy (Ti - 3Al - 4Mo - 7V - 11Cr). In order to define more accurately the effect of C on properties of weld seams, V-strips, 2 x 1 mm, containing a specified quantity of C, were placed in the butt joint between the weldable edges of the plates containing 0.03% of C. The chemical composition of the seam metal and mechanical properties of joints welded with interlay vanadium strips are shown. The use of high cooling rates during the welding process by intensive cooling of the reverse of the joint by water spraying, increases plasticity and resilience of the weld seam and makes it possible to increase the allowable C-content in the material to be welded up to 0.05%. Three illustrations, four tables, seven bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

1/2 014 UNCLASSIFIED

TITLE--SHEAR VISCOSITY OF A BINARY MIXTURE OF SIMPLE LIQUIDS -U-

PROCESSING DATE--30OCT70

AUTHOR-(04)-BRUKLEVINSON, E.T., VIKHRENKO, V.S., NEMTSOV, V.B., ROTT, L.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(2), 70-5

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FLUID VISCOSITY, BINARY FLUID SYSTEM, TENSOR ANALYSIS, SHEAR MODULUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0196

STEP NO--UR/0139/70/013/002/0070/0075

CIRC ACCESSION NO--AT0105272

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9"

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2/2 014 UNCLASSIFIED

CIRC ACCESSION NO--AT0105272 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOR THE BINARY MIXT. OF THE SIMPLE LIQS. THE TENSOR OF THE VISCOSITY FACTORS IS GIVEN AND THE RELATION BETWEEN THE SHEAR VISCOSITY FACTOR AND THE LIMITING VALUE OF THE SHEAR MODULUS FOR THE SIMPLE LIQ. MIXT. IS DERIVED. FACILITY: BELGRUSS. TEKHNOL. INST. IM. KIROVA, MINSK, USSR.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

5

UDC 621.181.001.5

GRISHIN, A. D., GUTSALO, G. I., SHTAL'MAN, S. G., ABRYUTIN, A. A., DRONOV, L. A., SOLOMONOV, V. M., KROL', A. Ya. and BRITVIN, O. V., (all engineers); and Candidate of Technical Sciences VIKHREV, Yu. V., ORGRES-VTI-Kostromskaya GRES

"Results of a Study of the Combustion and Temperature Regime of the Lower Radiation Section of the TGMP-114 Boiler"

Moscow, Teploenergetika, No 3, 1973, pp 43-46

Abstract: Earlier gas-mazut boilers of this general type were not completely satisfactory on account of the low reliability of the heating surfaces (mainly the lower radiation section) and the great heat flow in the combustion chamber.

This difficulty has been corrected in the new main-series supercritical pressure TGMP-114 boiler by reducing the number of boilers (from 8 to 6), securing maximal removal of the extreme burners from the side walls, and use of recirculation of cold smoke gases into the lower part of the furnace chamber.

The direct-flow TGMP-114 boiler has an output of 950 t/hr, with steam parameters of 255 kg/cm^2 and 565/570°C. Analysis of operational data on chemical control

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR

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GRISHIN, A. D., et al., Teploenergetika, No 3, 1973, pp 43-46

shows that in 1971 iron content of feed water was 10-15 μg/kg, 15-20 μg/kg the previous year, and 20-50 μg/kg during the start-up period in 1969, with high content of 100-150 μg/kg in individual cases. These facts point up the formation of iron oxide deposits as a basic cause of the external corrosion of the screening pipes of the lower radiation section, and emphasize the necessity of water control and chemical cleansing.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

USSR UDC: 536.24:532.54

BARULIN, Yu. D., VIKHREV, Yu. V., DYADYAKIN, B. V., KOBLYAKOV, A. N., KON'KOV, A., LOKSHIN, V. A., SINITSYN, I. T., Editorial Staff of Inzh. fiz. zh., Academy of Sciences of the Belorussian SSR

"Heat Exchange During Turbulent Flow of Water With Supercritical Parameters of State in Vertical and Horizontal Pipes"

Teplootdacha pri turbulentnom techenii v vertikal'nykh i gorizontal'nykh trubakh vody sverkhkriticheskikh parametrov sostoyaniya (cf. English above), Minsk, 1970, 16 pp, ill. (No 2315-70 Dep.) (from RZh-Mekhanika, No 4, Apr 71, Abstract No 4B739 DEP)

Translation: The paper presents the results of an experimental study of heat transfer during rising, descending and horizontal flow of water with supercritical parameters of state in circular tubes. The experimental values of the coefficients of heat transfer were found in the following ranges of working parameters: pressure 225-265 bars; mass flowrates 480--5000 kg/cm^2·s; Reynolds number (12.5-450)·10^3; specific thermal load 0.2--6.5 MW/m^2; flow temperature +50-500°C; wall temperature +60-750°C; inside

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203510018-9

BARULIN, Yu. D. et al., Teplootdacha pri turbulentnom techenii v vertikal'nykh i gorizontal'nykh trubakh vody sverkhkritichskikh parametrov sostoyaniya, Minsk, 1970 (No 2315-70 Dep.)

diameter of the tubes (3, 8, 20)$\cdot 10^{-3}$ m; relative length up to 300. Experimental data are obtained on the effect which the direction of motion of the liquid flow has on heat exchange in the supercritical region. A study is made of the nature of the change in the coefficient of heat exchange on the initial section and around the perimeter of horizontal tubes. Bibliography of twelve titles. Authors' abstract.

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USSR

UDC 621.313.12:538.4

APUKHTINA, YE. G., BORDACHEVA, V. V., VAL'DBERG, A. YU., VIKHROV, YE. A., KURKIN, V. P., MOSTINSKIY, I. L., NEKHOROSHEV, R. S., SOROKIN, G. S., FEDOROVA, ZH. S.

"Study of Various Methods of Trapping an Ionizing Additive in the U-02 Experimental Magnetohydrodynamic Generator"

V sb. Magnitogidrodinam. metod polucheniya elektroenergii (Magnetohydrodynamic Method of Obtaining Electric Power--collection of works), vyp. 3, Moscow, Energiya, 1972, pp 202-219 (from RZh-Aviatsionnyye i raketnyy dvigateli, otdel'nyy vypusk, No 11, Nov 72, Abstract No 11.34.137)

Translation: The requirements on additive injection systems are formulated. Methods of trapping an ionizing additive and the structural execution are described. The operating experience using additive injection systems in experimental magnetohydrodynamic generators is described, and results are presented from studies of the efficiency of trapping them with submicron K_2CO_3 dust from a flow of combustion products are presented. A study was made of the advantages and disadvantages of each of the systems. There are 7 illustrations and a 13-entry bibliography.

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1/2 026 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--INTERACTION OF HIGH ENERGY ALPHA PARTICLES WITH NUCLEI -U-

AUTHOR-(04)-DUDKIN, V.E., PVANOV, I.I., SYSOYEVA, O.V., VIKHROV, A.I.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTERACTION OF 105-MEV ALPHA PARTICLES WITH PRIME17 AL AND PRIME108 AG, AND 380-MEV ALPHA PARTICLES WITH PRIME14 N, PRIME27 AL, AND PRIME93 MB WAS CALCD., BY USING THE MONTE CARLO METHOD ON THE BASIS OF CASCADE EVAPN. MODEL. COMPARISON OF THE CALCD. RESULTS WITH THE EXPTL. DATA SHOWS THAT THE MODEL USED PERMITS A REASONABLE DESCRIPTION OF THE GENERAL CHARACTERISTICS OF THE INTERACTION.

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

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