

1/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--SODIUM POTASSIUM ACTIVATED ATPASE OF THE BRAIN AND ITS EXTRACTION
AIDED BY DETERGENTS -U-
AUTHOR--(03)-PALLADIN, A.V., KIRSENKO, O.V., VAVILOVA, G.L.
COUNTRY OF INFO--USSR
SOURCE--BIOKHIMIYA 1970, 35(2), 404-11
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BRAIN, DETERGENT, RABBIT, DAIRY CATTLE, ADENOSINE
TRIPHOSPHATE, ENZYME ACTIVITY/(U)TRITON X100 DETERGENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3009/0193 STEP NO--UR/0218/70/035/002/0404/0411
CIRC ACCESSION NO--AP0139056
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139056

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TRANSFER ATPASE ACTIVITY HAS BEEN STUDIED IN SUBCELLULAR FRACTIONS OF BRAIN ON SUCROSE D₅ GRADIENTS. CELLULAR FRACTIONS WERE OBTAINED FROM RABBIT AND CATTLE BRAIN BY THE WHITTAKER METHOD. ATPASE ACTIVITY WAS DETD. AS SIMPLE INORG. PHOSPHATE PER MG OF PROTEIN AFTER INCUBATION OF PREPNS. AT 37DEGREES FOR 15 MIN IN MEDIUM CONTG. 0.028M TRIS-HCL, PH 7.4, 0.001M TRIS-ATP, 0.001M MGCL SUB2, 0.150M NACL PLUS 0.015M KCL, AND 100-200 MUG PROTEIN IN 1.8 ML. TRANSFER ATPASE OF APPROX. EQUAL ACTIVITY WAS DETECTED IN FRACTIONS OF MICROSOMES, NERVE ENDINGS, AND MYELIN. IN THE MYELIN FRACTION, THE ATPASE WAS APPARENTLY BOUND TO THE OUTER CELL MEMBRANE. THE NONIONIC DETERGENT TRITON X-100 EXTD. ACTIVE ATPASE FROM THE MYELIN AND MICROSOMAL FRACTIONS, BUT NOT FROM THE NERVE ENDING AND MITOCHONDRIAL FRACTIONS. DEOXYCHOLATE DID NOT EXT. ACTIVE TRANSFER ATPASE FROM THESE FRACTIONS. IT IS SUGGESTED THAT THE LOW LEVELS OF PHOSPHOLIPIDS IN DEOXYCHOLATE EXTS. MAY ACCOUNT FOR THE ABSENCE OF ATPASE ACTIVITY. TRITON X-100 IS RECOMMENDED FOR EXTN. OF HIGH;Y ACTIVE ATPASE. FACILITY: DEP. BIOCHEM. NERV. SYST., INST. BIOCHEM., KIEV, USSR,

UNCLASSIFIED

USSR

UDC: 577.153.35

PALLADIN, A. V., KIRSENKO, O. V., and VAVILOVA, G. L., Division of the Biochemistry of the Nervous System, Institute of Biochemistry, Academy of Sciences UkrSSR, Kiev

"Na + K - Activated ATP-ase of the Brain and Its Extraction by Means of Detergents"

Moscow, Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp 404-411

Abstract: The activity of Na + K - activated transfer ATP-ase in subcellular fractions from the brain of rabbits and cattle was studied. The fractions were separated from brain homogenates in a sucrose density gradient by applying a method described earlier (Ya. V. Belik, et al, Ukr. Biokhim, Zhur. 41, 3, 1969; V. P. Whittaker, Biochem. J., 72, 694, 1959). Approximately the same transfer ATP-ase activity was exhibited by the fractions corresponding to microsomes, nerve endings, and myelin. The activity of the myelin fraction was apparently associated with the external cell membrane, not the membrane-free myelin. The non-ionic detergent Triton X-100 extracted active ATP-ase from this fraction and from microsomes, but not from the fractions corresponding to nerve endings and to mitochondria. Deoxycholate did not extract active transfer ATP-ase from any of the fractions mentioned. The protein extracted with deoxycholate from microsomes had

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PALLADIN, A. V., et al, Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp 404-411

a much lower phospholipid content than that extracted with Triton X-100 from the same fraction - i. e., the two detergents extracted different parts of the lipo-protein membrane.

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USSR

UDC 542.938:661.718.1

ANDREYEVA, L. S., ANDRIANOV, A. A., BEL'SKIY, V. YE., ~~VAVILOVA, M. F.~~
GURYLEV, E. A., and NIKONOROV, K. V., Institute of Organic and Physical
Chemistry imeni A Ye. Arbuzov, Academy of Sciences. U SSR

"Hydrolysis of Dimethyl-(1-acetoxy-2,2,2-trichloroethyl)phosphonate"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71,
pp 2336-2338

Abstract: Chloracetophos -- dimethyl-(1-acetoxy-2,2,2-trichloroethyl)
phosphonate -- is a fungistatic agent. It undergoes hydrolysis easily losing
its physiological activity. There are three possible routes for its hydro-
lysis, and it was established that all three occur simultaneously, the acetic
acid, hydrochloric acid, and methanol being formed in the process. The
hydrolysis is dependent on the temperature and pH -- it accelerates rapidly
with the increase of pH. The overall rate constants for the initial reaction
period were calculated to be 1.2×10^{-3} , 9.8×10^{-3} , and $4.9 \times 10^{-2} \text{ min}^{-1}$ at
50, 70 and 90° respectively.

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USSR

UDC 622.011.43

VAVILOVA, T. I."Computation of the Intensities of Multiple Waves by the Graphoanalytic Method"

Leningrad, Vopr. Dinamich. Teorii Rasprostr. Seysmich. Voln -- Sbornik
(Questions of the Dynamic Theory of the Propagation of the Seismic Waves --
Collection of Works), Nauka, No 11, 1971, pp 90-123 (from Referativnyy Zhurnal,
Mekhanika, No 2, Feb 72, Abstract No 2V870 by L. A. Polikarpova)

Translation: The article deals with a simple variant of calculation, within the framework of the radial method, of the intensity of multiple nonexchange waves in vertical-gradient media with plane-parallel boundaries at angles of ray incidence upon the boundaries not in excess of $10^\circ - 15^\circ$. The source and the receiver can be at arbitrary points of the medium at small distances from the vertical profile.

The intensity of the cumulative multiple wave of a series of kinematic analogues with the set of multiplicity factors (n_1, n_2, \dots, n_p) in p layers is defined by the expression:

$$I = \frac{B}{L} \times \prod_{i=1}^{p-1} I_i$$

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USSR

UDC: 621.396.67:624.97(088.8)

KERPELEV, S. M., VAVILOVA, V. K., FRIDMAN, P. M.

"An Antenna Tower"

USSR Author's Certificate No 273304, filed 3 Mar 69, published 14 Sep 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6B115 P)

Translation: The proposed antenna tower contains a mast made in the form of a tubular frame, a base, and a hoisting mechanism equipped with a speed reducer. To simplify the design of the hoisting mechanism and improve its operational reliability, the housing of the speed reducer is fastened by means of a bearing to a lug on the base. The housing is rigidly connected to the output shaft of the speed reducer and is equipped with a flange to which the end face of the tower mast is fastened.

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USSR

UDC 620.194.196

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

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

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

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

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USSR

UDC 546.882-31

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

"Effect of Titanium on Stabilization of Niobium Suboxides"

Moscow, Neorganicheskiye Materialy, Vol 9, No 11, 1973, pp 1964-1968

Abstract: The effect of titanium on the oxidizability of niobium was previously studied and a concept put forth that the increased heat resistance occurs due to stabilization of the suboxides at temperature above 700°C. In this work, alloys of niobium with oxygen (from 1 to 42 at% oxygen) were studied in which 2 at% titanium had been added. Alloying of niobium with titanium leads to an increase in the maximum content in the solid solution from 6 to 8 at% after quenching. Oxygen content in solid solutions after annealing at 500 and 700°C was 7 and 6 at%, respectively. At 500°C, Nb₂O decomposes from the solid solution as an excess phase during annealing and, at 700°C and above, NbO is the decomposed excess phase. After annealing at 300°C there was noted a significant widening of niobium lines on neutrograms which may be the result of decomposition of a supersaturated solid solution with the formation of the suboxide of the type Nb₆O. This unordinary behavior of oxygen in niobium with 2 at% Ti should render an effect on the mechanical properties of alloys of

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USSR

KORNILOV, I. I., et al., Neorganicheskiye Materialy, Vol 9, No 11, 1973,
pp 1964-1968

niobium with titanium and an increased oxygen content. 3 figures, 8 biblio-
graphic references.

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USSR

UDC: 669.29.295:669.787

VAVILOVA, V. V., Institute of Metallurgy imeni A. A. Baykov

"Influence of Oxygen on the Properties of Titanium and its Alloys"

Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1973, pp 10-12.

Abstract: The author studied the influence of oxygen as an alloying element on the mechanical properties of type TG-110 titanium. A sharp drop in the impact toughness occurs when the oxygen content is over 0.5 wt. %. At 0.3-0.35% O, the alloy has $\sigma_b = 80 \text{ kg/mm}^2$, $\delta = 22\%$, $\psi = 44\%$ and $a_{11} = 4 \text{ kg/cm}^2$. Slight additions of oxygen increase the heat resistance and corrosion resistance. Thus, oxygen (at 0.3-0.35 wt. %) is firmly chemically bonded to the titanium and significantly increases the strength, as well as heat resistance and corrosion resistance, while retaining satisfactory ductility. The primary reason for embrittlement of titanium alloys is separation of the ordered α_2 phase in a matrix of Ti_3Al .

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Mechanical Properties

USSR

UDC: 620.17:669.295'74'71

VAVILOVA, V. V., Institute of Metallurgy imeni A. A. Baykov

"Alloys in the Ti-Mn-Al System with High Oxygen Content"

Metallovedeniye i Termicheskaya Obrabotka Metallov, No 9, 1973, pp 60-63.

Abstract: The combined influence of manganese and aluminum on the properties of metal ceramic titanium containing significant quantities of oxygen (about 0.3 wt. %) was studied. The initial material used was type IMP-1A titanium (0.05% C, 0.01% H, 0.08% N, 0.250% O, 0.08% Si, 0.35% Fe + Ni), electrolytic manganese and a Ti-Al master alloy. It was found that the method of introduction of the alloying elements has a great influence on the properties of the alloys. Best results were produced by introduction of the manganese in powder form, produced by reducing crushed electrolytic manganese in a current of pure hydrogen at 1000° C for 10 to 12 hours, and aluminum as a result of reduction of titanium dioxide and aluminum oxide with calcium hydride. The initial materials were pressed at 800 atm and sintered in a vacuum. After sintering, the material was forged and annealed at 700° C. The mechanical properties of alloys in the system Ti-Mn-0.3% O change as follows: as the manganese content increase, the strength increases almost linearly. Relative

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Vavilova, V. V., *Metallovedeniye i Termicheskaya Obrabotka Metallov*, No 9, 1973, pp 60-63.

elongation and reduction in area remain almost unchanged up to 4% Mn, after which these characteristics drop sharply. The alloy with 3% Mn has a tensile strength of 92 kg/mm², relative elongation 23%, reduction in area 52%. Study of the mechanical properties of the alloys Ti-3%Mn-0.3%O as a function of aluminum content showed that the content of aluminum in the ternary alloy should be limited to 1.5-2 wt. %. The alloy of titanium with 3% Mn and 1.5% Al has a tensile strength of 102 kg/mm², relative elongation 22%, relative reduction in area 48%. This alloy was selected as the best of those tested. The optimal hardening temperature is 900° C, after which the alloy can be additionally strengthened by aging.

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Mechanical Properties

USSR

UDC 620.17:669.295:621.791.052

GUREVICH, S. M., BLASHCHUK, V. Ye., PERADZE, T. A., and VAVILOVA, V. V.,
Institute of Metallurgy imeni A. A. Baykov

"Mechanical Properties of Weld Joints Made From Titanium Alloy AK-3 With
an Increased Oxygen Content"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 1, Jan 73,
pp 72-73

Abstract: The mechanical properties of AK-3 titanium alloy weld joints was studied for which the oxygen content was increased in the initial alloy by adding a titanium-oxygen alloy containing 23.63% oxygen during the remelting process, which yielded an oxygen content of 0.31% in the final alloy. After argon-arc welding with a nonconsumable tungsten electrode the oxygen content in the seam metal was 0.384%. Strength properties were slightly lower after annealing than after welding, but ductility and reduction in area were increased after annealing while impact strength also improved after annealing. The conclusion was made that weld joints of AK-3 titanium alloy (Ti-Al-Zr system) with an increased oxygen content (0.35%) possess satisfactory mechanical properties. 2 tables, 8 bibliographic references.

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USSR

UDC 669.295⁷¹295⁷⁸⁷620.17

KORNILOV, I. I., PERADZE, T. A., VAVILOVA, V. V., FATKULKINA, L. P., and
KOROBOV, G. S., Institute of Metallurgy imeni A. A. Baykov

"Oxygen in Alloys of Titanium with Aluminum and Zirconium"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 4, Apr 73,
pp 36-39

Abstract: The effect of zirconium in alloys of titanium with aluminum and oxygen as well as oxygen in alloys with aluminum and zirconium was investigated with respect to the modulus of elasticity, electrical resistance, hardness, and mechanical properties. For alloys of the system Ti-2Al-0.350, the addition of 2% Zr leads to increased tensile strength with almost unchanged ductility. The addition of 5% Zr leads to an insignificant increase in tensile strength and an insignificant lowering of ductility. Alloying the Ti-5Zr-0.350 system with up to 3% Al causes a significant increase in tensile strength and insignificant lowering of ductility. When more than 3% Al is added the proportional limit for the modulus of elasticity is exceeded, thus indicating that 3% Al is the solubility limit. Analysis of the system Ti-2Al-5Zr alloyed with oxygen showed that addition of 0.5% O does not lead to alloy embrittlement as long as the Al content is within the solubility limits. Ductility of the alloy remains at 12-16% elongation and 30-35% reduction in area. On the basis of the investigations a secondary titanium

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KORMILOV, I. I., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov,
No 4, Apr 73, pp 36-39

alloy (Author's certificate 298677) was proposed containing 2% Al, 2-5% Zr,
and 0.3-0.35% O. Five figures, one table, six bibliographic references.

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USSR

UDC: 669.295'6'787:620.191.32

KENINA, Ye. M., KORNILOV, I. I., VAVILOVA, V. V., Institute of Metallurgy
Imeni A. A. Baykov

"Influence of Oxygen on Scale Resistance of Titanium-Tin Alloys"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 5, 1972,
pp 23-26.

Abstract: The influence of 1 at. % (0.35 wt. %) oxygen on the heat resistance of binary alloys of titanium with tin at 700-1000°C is studied. The studies show that the oxygen increases the oxidation rate of these alloys at all temperatures studied, less with increasing tin content. The mechanism of oxidation remains the same.

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USSR

UDC 669.295.5'71'296'787.018.29(083.8)

KORNILOV, I. I., VAVILOVA, V. V., ANOSHKIN, N. F., FATKULLINA, L. P., and PERADZE, T. A.

"Titanium-Base Alloy"

USSR Authors' Certificate No 298677, Cl. C 22c 15/00, filed 29 Dec 69, published 12 May 71 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 11755P by S. Kalabukhova)

Translation: A new Ti alloy with elevated strength properties is suggested. The Ti-base alloy containing Al and Zr as alloying additions is strengthened by the introduction of small quantities of O. The alloy contains (in %) Al 2-3, Zr 4-5, O 0.3-0.5, Ti the remainder. Mechanical properties of the alloy:

σ_B (20°) 90-120 kg/mm², σ_T 85-115 kg/mm², δ 10-25%, ψ 30-52%;
 σ_B (500°) 40-45 kg/mm², σ_T 30-35 kg/mm², δ 17-20%, ψ 46-48%.

The alloy can be employed as a construction material. Semifinished products such as bars, sheets, and forgings can be made from it.

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USSR

UDC 669.018.8

GUREVICH, S. M., KORNILOV, I. I., VAVILOVA, V. V., ZOTOVA, YE. M.,
BLASHCHUK, V. YE., and MAKSIMOV, A. M., Academy of Sciences
USSR, Institute of Metallurgy imeni A. A. Baykov

"Study of Corrosion Resistance of Titanium Alloys in the Titanium-
Vanadium-Oxygen and Titanium-Aluminum-Oxygen Systems"

Moscow, Zashchita Metallov, Vol 7, No 2, Mar-Apr 71, pp 159-160

Abstract: The authors studied the resistance of alloys in the systems mentioned in the title with oxygen contents from 0.1 to 0.5 wt %, vanadium and aluminum contents constant at 2.5 and 3 wt. % respectively, and of their welded joints, to corrosion cracking under stress in fused $MgCl_2$. No intercrystalline cracks were observed visually or with a microscope. Photographs of the microstructure of welded joints of the metal are presented.

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USSR

UDC 620.17:669.295:621.791.052

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

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

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

Abstract: A study was made of the effect of oxygen on the weld-
ability of Ti-V-O and Ti-V-Al-O alloys. Results are presented
from estimating the mechanical properties of the welded joints
at room temperature. Alloys of 8 compositions were manufactured
for the investigation. Data from the chemical and gas analysis
of the initial alloys, the results of the effect of oxygen on
the mechanical properties of titanium alloys with 2.5% V and 2.5%
V + 2% Al at room temperature, and the results of gas analysis
of the weld metal were tabulated. From the data it is concluded
that the mechanical properties, including impact toughness of the
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GUREVICH, S. M., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 3, 1971, pp 39-41

base metal and the welds of alloys with an oxygen content up to 0.3%, remain high. With 0.5% O in alloys of the Ti-V-O system the impact toughness of the weld is the same as that of the base metal. In alloys of the Ti-V-Al-O system with 0.58% O, the plasticity drops sharply as a result of the occurrence of a second phase in the structure. Some microstructural characteristics of one of the alloys are presented. Preliminary conclusions are drawn that alloys of the Ti-V-O system with 2.5% V, and the Ti-V-Al-O system with 8.5% V, and the 3-3.5% Al system are less sensitive to oxygen and be welded with an oxygen content up to 0.3% in the base metal.

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USSR

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UDC 620.17:669.419.01:671.787

MAKSIMOV, Yu. A., KORNILOV, I. I., and VAILOVA, V. V., Institute of Metallurgy
imani A. A. Izyllov

"Properties of Alloys of the System Ti-V and Ti-V-Al Which Contain Oxygen"

Moscow, *Metallovedeniye i Termicheskaya Obrabotka Metallov*, No 11, Nov 79, pp
28-30

Abstract: It is shown that alloying of titanium alloys, containing vanadium and aluminum, with oxygen up to 0.2 — 0.35 wt.% increases the strength of these alloys. The strengthening effect is preserved at increased temperatures (400° C). The alloys possess adequate ductility, which changes very little in the case of low-temperature impact tests. Alloys with 2.5% V and 0.3-0.35 wt.% O of the system Ti-V-O and with 2.5% V, 5% Al, and 0.3-0.35 wt.% O of the system Ti-V-Al-O possess the highest mechanical properties at room, elevated, and low temperatures.

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

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

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

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/0013 STEP NO--UR/0129/70/000/003/0054/0056
CIRC ACCESSION NO--AP0119009
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0119009

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

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--16DCT70
 TITLE--NEUTRON DIFFRACTION STUDY OF ORDERED PHASES IN A TITANIUM,OXYGEN
 SYSTEM -U-
 AUTHOR--(05)-EYKIN, L.YE., VAVILOVA, V.V., KORNELOV, I.I., OZEROV, R.P.,
 SOLOVIEV, S.P.
 COUNTRY OF INFO--USSR
 SOURCE--DOKL. AKAD NAUK SSSR 1970, 191(1), 96-9
 DATE PUBLISHED-----70
 SUBJECT AREAS--MATERIALS, PHYSICS, CHEMISTRY
 TOPIC TAGS--NEUTRON DIFFRACTION, TITANIUM ALLOY, OXYGEN, TITANIUM OXIDE,
 PHYSICAL PROPERTY, CRYSTAL LATTICE
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--1995/1113 STEP NO--UR/0020/70/191/001/0096/0099
 CIRC ACCESSION NO--AT0116579
 UNCLASSIFIED

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PROCESSING DATE--16OCT70

212 030

CIRC ACCESSION NO--AT0116579
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE ORDERING OF O ATOMS IN TI-O ALLOYS WAS STUDIED BY NEUTRON DIFFRACTION. THE ALLOYS WERE PREPD. BY A PREVIOUS METHOD (I. KORNILOV AND GLAZOVA, 1963). AN ORDERED PLACEMENT WAS OBSD. FOR THE ATOMS IN ALL OF THE ALLOYS THAT CORRESPOND TO THE STOICHIOMETRIC COMPNS. TI SUB6 O, TI SUB3 O, AND TI SUB2 O. IN ALL OF THESE THE O ATOMS ARE IN ORDERED POSITIONS IN THE OCTAHEDRAL VACANCIES IN LAYERS PERPENDICULAR TO THE O AXIS, EVERY 2ND LAYER BEING UNOCCUPIED. IN THE UNIT CELL FOR TI SUB6 O, 1 VACANCY IN 3 IS OCCUPIED IN ORDER IN THE LAYER; FOR TI SUB3 O, 2 OF 3; AND FOR TI SUB2 O, ALL VACANCIES ARE OCCUPIED. THE DIFFERENCE IS DUE TO THE DIFFERENCE IN THE TI-O BOND STRENGTH, WHICH IS REFLECTED IN THE DIFFERENCE IN THE RIGIDITY OF THE CRYSTAL LATTICE AND IN THE PHYS. PROPERTIES OF EACH ALLOY.
FACILITY: FIZ.-KHM. INST. IM. KARPOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 669.295'782'787:539.434:54.165

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

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

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

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

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

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

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USSR

UDC 669.29.669.017

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

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

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

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

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USSR

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

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

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USSR

UDC 541.12.013

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

"The Ti-Sn-O Ternary System"

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

Abstract: A study was made of the Ti-Sn-O ternary system for the purpose of developing new titanium alloys based on the use of waste products from titanium production. Initial materials for alloy preparation were titanium iodide, chemically pure tin, and chemically pure grade A2 titanium dioxide. The alloys were produced by induction crucibleless suspension melting. With the use of high-temperature thermal, microstructural, x-ray-phase, and local x-ray spectral analyses as well as electrical resistance and microhardness measurements, isothermal and polythermal sections of the Ti-Sn-O ternary system were constructed. An isothermal section was constructed for Ti-Ti₂O-Ti₃Sn at 1600°C. Polythermal sections were constructed for Ti+1 at.% O-Sn (800-1700°C), Ti+5 at.% O-Sn (900-1800°C), and Ti+ 5 at.% Sn-O (800-1800°C). Analysis of phase diagrams for the polythermal sections showed the differences in the solidus and liquidus structures which were caused by the varying position of these sections with respect to the peritectic rectangle and to the surface of primary crystallization of the solid solution. 2 figures, 10 bibliographic references.

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USSR

UDC 576.858.5.07

VAVILOVA, YU. G., GOREV, N. YE., and SMORODINTSEV, A. A., All-Union Scientific Research Institute of Influenza, Leningrad

"The Use of a Two-Phase Water-Polymer System for Concentrating Some Respiratory Viruses in Human Nasopharyngeal Swabs"

Moscow, Voprosy Virusologii, No 5, Sep/Oct 72, pp 623-625

Abstract: The reagents used were a 30% aqueous solution of polyethylene glycol (M.W. 6000) and a 6% aqueous solution of dextran (M. W. 20,000). Ten-ml samples containing a known quantity of virus in a phosphate buffer of pH 7-7.5 were mixed with 8 ml of the first reagent and 2 ml of the second. The mixtures were repeatedly shaken for 1 hr and then centrifuged for 10-15 min at 1000-1500 rpm. The virus was recovered almost 100% from the bottom stratum of dextran. A 10-100-fold concentration was obtained on all virus strains used. A similar treatment of human nasopharyngeal swabs taken 3-4 days after administration of live anti-influenza vaccine increased the frequency of virus isolation of 75.4% for A2 Hong Kong-68, 61.5% for B-USSR, and 44.4% for B-Dushanbe; the corresponding control figures were 52.5%, 38.4% and 25%. The two-phase water-polymer system is recommended for routine laboratory procedures of isolating influenza virus, parainfluenza virus, and adenovirus from the respiratory pathways of patients.

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USSR

UDC 621.396.67

VAVRA, SH., Engineer of the Slovak Polytechnic Institute in Bratislava, Czechoslovakia

"Some Notes on Analysis of the Wave Channel Communications System"

Kiev, Izvestiya vysshikh uchebnykh zavedeniy--Radioelektronika, Vol XIV, No 8, 1971, pp 906-909

Abstract: A comparison is made between the measured and calculated parameters of a single wave channel antenna and a wave channel antenna system designed by the classical dipole theory. For simplification of the calculations it is considered that the current distribution along each dipole is harmonic; consequently, in determining the current through the antenna it was sufficient to determine the current at the antinode of each of the dipoles. It was also considered that all the passive dipoles were of the same length, $\lambda/2$. In order to obtain the phase shift at the antinode of the passive dipoles, the corresponding reactances were included. The calculation results with the given assumptions corresponded sufficiently precisely to the experimental results in the case of determining the intensity of the electric component of the electromagnetic field at a large distance from the emission source (the directivity diagram), mainly, in the primary emission direction. Less

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USSR

VAVRA, SH., Izvestiya vysshikh uchebnykh zavedeniy--Radioelektronika, Vol XIV,
No 8, 1971, pp 906-909

precise results were obtained when determining the input impedance of the antenna. The measured and calculated directivity diagrams of two 10-element wave channel antennas are presented as a function of the distance between them.

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USSR

KHALUPA, B., MIKHALETS, R., and VAVRA, YA.

V UDC: 539.125.5.172

"Study of Diffraction of Neutrons at the Institute for Nuclear Studies, Academy of Sciences CSSR"

Moscow, Atomnaya Energiya, Vol 28, No 5, May 70, pp 413-417

Abstract: The laboratory of the INS has performed studies of the diffraction of polarized and nonpolarized neutrons on singlecrystals in various external fields. The crystalline slow neutron spectrometer used for this work is installed in a 4-Mw reactor producing a $4 \cdot 10^{13} \text{n/cm}^2 \cdot \text{sec}$ thermal neutron flux at the center of the active zone. The equipment is described in some detail. Studies performed include the diffraction of polarized neutrons on ferromagnetic singlecrystals, including measurement of the so-called polarization ratio, and the study of diffraction phenomena during radiation capture of polarized neutrons. The interaction of neutrons with oscillating singlecrystals has also been studied, as well as the diffraction of neutrons on piezoelectrically excited singlecrystals. The diffraction of neutrons on singlecrystals excited by magnetostriction effects has also been studied.

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VAVULINA, N. N.

PUBLIC HEALTH

JPRS 60330
31 October 1973

Article by N. N. Vavulina (Moscow); Moscow, Sovetskaya Meditsina, Russian,
No 6, 1973, pp 129-132. UDC 614.08(470)

PUBLIC HEALTH

Decree No 517 of the CC CPSU and the USSR Council of Ministers "On Measures for the Further Improvement of Health Care and the Development of Medical Science in the Country" marks an important stage in the development of Soviet health care. It points out ways for improving medical aid to the population and attaches special importance to emergency medical aid.

In accordance with the above Decree, orders of the USSR and RSFSR ministers of health, orders of the USSR personnel of Penza, a firm course has been taken to create emergency aid hospitals and amalgamate them with emergency emergency clinics. This has made it possible to provide truly complete continuity in the administration of specialized aid services under the conditions of specialized brigades and clinics.

In recent years, the use of emergency medical aid institutions by the population has increased considerably. In the RSFSR, for example, the use rate per 1,000 persons in the total number of completed calls for emergency aid service in the town and country in 1972 was 7.8 million more than in 1965.

At the present time, the republic has 1,916 emergency medical aid stations and departments. Of these, 1,495 are in cities and 421 are in rural areas. The number of stations is 67 percent greater than in 1965.

Emergency aid stations and substations have been amalgamated with hospitals in 29 autonomous republics, krais, and oblasts. Emergency aid hospitals have been created in Leningrad, Barnaul, Moscow/Don, Khabarovsk, Ordzhonikidze, Kuznetsk, Yashkar-Ola, Novosibirsk, and Kirgiz. Steps are being taken to organize them in other cities. Steps are being

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USSR

VAYCHYULIS, B. K., MATULIS, V. A.

UDC: 681.3.06:51

"On Coding and Machine Calculation of the Time Characteristics of Large Networks"

V sb. Avtomatika i vychisl. tekhn. (Automation and Computer Technology-- collection of works), No 3, Vil'nyus, "Mint's", 1971, pp 249-258 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V955)

Translation: The paper describes computer algorithms for calculating the time characteristics of large networks and gives the operating time of some modules as a function of network parameters. In contrast to some algorithms known from the literature, this relation is expressed by a linear function of the number of jobs and events in the network. A brief description is given of the program for the BESM-4 computer compiled on the basis of the given algorithms with the following restrictions for network parameters: number of jobs -- less than 32 600, number of events -- less than 16 300. Author's abstract.

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USSR

UDC 621.375.826 2

PFAYFFER, M., VERNKE, V., LAU, A., VAYGMAN, KIL, I., LENTS, K., CADOV, P.
"Procedure for Separating the Weak Lines of Forced Combination Scattering by
Means of Selective Absorption on the Frequency of the Strongest Stokes Component"

V sb. Kvant. elektronika (Quantum Electronics—collection of works), Moscow,
No 5, 1971, pp 129-131 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1D342)

Translation: In the presence of forced combination scattering, usually only the combination scattering component with the largest amplification coefficient appears in the spectrum. Its appearance causes such strong depletion of the intensity of the exciting laser that the other combination scattering signals cannot grow to the sensitivity threshold of the receiver. By selective absorption for the predominant Stokes component it is possible to facilitate the appearance of other combination scattering frequencies. It was theoretically demonstrated that when using an absorbing liquid for which the ratio of the absorption coefficient on the frequency of the first Stokes component and on the laser frequency of 100:1 is obtained, the detection threshold of the weak component can be reduced by 7 times. The bibliography has 5 entries.

USSR

UDC 537.311.33:546.28/.289

VAYKHBROT, E.I., GRIZHKO, V.M., GRISHAYEV, I.A., NOSOV, V.M.

"Transients In Germanium And Silicon During Irradiation By The Momentum Of Electrons Of Linear Accelerator With 35 Mev Energy"

V sb. Radiatsion. fiz. nemets. kristallov (Radiation Physics Of Nonmetal Crystals--Collection Of Works), Minsk, Nauka i tekhn., 1970, pp 57-66 (From RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B24)

Translation: The paper investigates transients in Ge and Si, originating under the influence of the momentum of electrons with 35 Mev energy. The specimens were prepared from plates of Ge and Si and during the investigation were placed in a uniform field of electrons. The thickness of the specimens was selected so that generation of charge carriers might take place uniformly with respect to all the space. It is shown that dependence of the amplitude of additional conduction on the flux density is nonlinear. During analysis of transients it is necessary to take into account the time change of the mobility because of the additional mechanism for scattering by the ionized atoms of the semiconductor and the decrease of the life time of the nonequilibrium charge carriers. 7 ill. 8 ref. Summary.

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USSR

UDC: 681.2.087.92-932

VAYKSHIN, L. A., ANTONOV, I. I., SYCHUK, V. M.

"A Pneumoelectric Converter"

USSR Author's Certificate No 253436, filed 22 May 67, published 25 Feb 70
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11,
Nov 70, Abstract No 11A139 F)

Translation: This Author's Certificate introduces a pneumoelectric converter which contains a device for pneumatic signal input and a piezoelectric element. To improve sensitivity and increase the repetition frequency, the device includes a pneumatic pulse generator (fluid relay). For purposes of inverse conversion, the controlling channel of the generator is connected to an intermediate nozzle-tube element. Supply air is continually fed to the fluid relay. When the signal being monitored arrives at the input as $P_{in}=1$, the air jet in the relay is deflected to channel b, where it acts continuously on the piezoelectric element. In this case there is practically no signal across the output of the piezoelectric element. When the input signal disappears, the jet is deflected to channel c where it enters a pneumatic capacitor. There is an abrupt change in the load on the piezoelectric element, which generates the first electric signal. As soon as the pneumatic capacitor is filled with air to a given pressure, the jet in the relay is

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USSR

VAYKSHIN, L. A. et al. USSR Author's Certificate No 253436

deflected once more to channel b, and the piezoelectric element generates a second signal. The capacitor is dumped and the jet is automatically deflected to channel c. In this way, pneumatic and electric pulses are generated at the output. Generation is interrupted when the input signal arrives as $P_{in}=0$. Two illustrations. N. S.

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USSR

UDC 621.791.052.001.5:669-419.4:669.295+669.14

TRUBILKO, V. I., Engineer, SAVCHENKOV, V. A., Candidate of Technical Sciences, SOTNIK, I. S., Engineer, GROMOV, Ye. I., Candidate of Chemical Sciences, and VAYL, YE. I., Engineer

"Electrochemical Study of Welded Joints in Titanium-Steel Bimetal"

Moscow, Svarochnoye Proizvodstvo, No 2, Feb 71, pp 13-15

Abstract: A study is presented of the electrochemical behavior of individual sectors in the welded joint -- the seam metal, near-seam zone, and base bimetal. Comparison of the maximum values of anode current of polarization curves made in 37% hydrochloric and 77% sulfuric acid and in an aqueous solution of ammonium chloride indicates that the process of corrosion occurs more rapidly in hydrochloric acid, somewhat more slowly in 77% sulfuric acid. The corrosion resistance of the specimens studied (titanium-steel produced by rolling in a vacuum of $5 \cdot 10^{-5}$ mm Hg at 1000°C with 20% compression) in ammonium chloride was high. The same types of polarization curves were produced in all the corrosive media studied. The metal of the seam and the zone near the seam have more positive electrode potential than the bimetal in the initial state in the acids.

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UNCLASSIFIED
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PROCESSING DATE--04DEC70

TITLE--DETERMINATION OF PYROMELLITIC ACID
AUTHOR--(03)-VAYL, YE.I., BORISENKO, L.A., LEYBA, V.S.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,758

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

DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PYROMELLITIC ACID, CHEMICAL PATENT, POTENTIOMETRIC TITRATION,
MERCURY COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3007/0852

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

CIRC ACCESSION NO--AA0136286

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AA0136286
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PYROMELLITIC ACID IS DETD. BY
POTENTIOMETRIC TITRN. WITH A SOLN. OF HGNO SUB3 OR HY(NO SUB3) SUB2.
FACILITY: UKRAINSKIY NAUCHNO, ISSLEDOVATEL'SKIY UGLEKHIMICHESKIY
INSTITUT.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--SEPARATION OF MIXTURES OF C SUB6 HYDROCARBONS OF GASOLINE
FRACTIONS. IV. PHASE EQUILIBRIUM IN SYSTEMS FORMED BY C SUB6
AUTHOR--MAKAROVSKIY, YA.I., KOGAN, V.B., KONONOV, N.F., VAYNBERG, A.M.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(2), 289-95
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PROPULSION AND FUELS
TOPIC TAGS--CHEMICAL SEPERATION, MULTICOMPONENT CHEMICAL MIXTURE,
CYCLOHEXANE, BENZENE, CYCLOPENTANE, AROMATIC ALCOHOL, PHASE EQUILIBRIUM,
GASOLINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/2041 STEP NO--UR/0080/70/043/002/0289/0295
CIRC ACCESSION NO--AP0109973
ZZZZZZZZZZ UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0109973

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MUTUAL SOLY. OF BINARY SYSTEMS CONSISTING OF HYDROCARBONS (N-C SUB6 H SUB14 (I), METHYLCYCLOPENTANE (II), CYCLOHEXANE (III), C SUB6 H SUB6 (IV), OR N-C SUB7 H SUB16 (V)) AND TETRAHYDROFURFURYL ALC. (VI) (B. 175-6DEGREES, D PRIME20 1.0501, AND N PRIME2 SUBD PRIME0 1.4520), THE MUTUAL SOLY. OF THE TERNARY SYSTEM I II VI, THE INFLUENCE OF VI ON THE FUGACITY OF THE COMPONENTS OF THE SYSTEMS I II AND III C SUB6 H SUB6, PHASE EQUIL. AT ATM. IN THE BINARY SYSTEMS CONSISTING OF HYDROCARBONS (I, III, OR C SUB6 H SUB6) AND VI, AND THE PHASE EQUIL. IN THE TERNARY SYSTEM I II VI WERE STUDIED. AROMATIC AND NAPHTHENIC HYDROCARBONS DISSOLVE COMPLETELY AT ROOM TEMP. IN VI; THE CRIT. SOLN. TEMPS. IN VI ARE 36DEGREES AND 42DEGREES FOR I AND V, RESP. THE PARTITION COEFF. OF II BETWEEN I AND VI IS 1.4-1.5. THE SELECTIVITY OF VI IS SO LOW THAT VI IS NOT A SELECTIVE SOLVENT FOR THE EXTN. OF THE PARAFFINIC AND NAPHTHENIC HYDROCARBONS. HIGHER SELECTIVITY IS OBTAINED IN EXTRACTIVE DISTN. THE DEPENDENCE OF THE FUGACITY COEFFS. OF THE CONSTITUENTS OF A BINARY MIXT. CONTG. PARAFFINIC AND NAPHTHENIC OR AROMATIC HYDROCARBONS ON THE CONCN. OF VI IS CLEAR. THE SELECTIVITY OF VI IS 2.0-2.5 AND 1.55-1.6 FOR MIXTS. CONTG. III-IV AND I-II, RESP. VI IS EFFECTIVE FOR THE SEPN. OF PARAFFINIC, NAPHTHENIC, AND AROMATIC HYDROCARBONS BY EXTRACTIVE DISTN.

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UNCLASSIFIED

USSR

UDC 539.3

VAYNBERG, D. V., GULYAYEV, V. I., CHIBIRYAKOV, V. K.

"Projection Method in the Theory of Shells and Its Computer Solution"

Soprotivl. materialov i teoriya sooruzh. Resp. mezhved. nauch.-tekhn. sb.
(Resistance of Materials and the Theory of Structures. Republic Inter-
departmental Scientific-Technical Collection), 1972, No. 18, pp 19-31 (from
RZh-Mekhanika, No 3, Mar 73, Abstract No 3V131)

Translation: A method is given for reducing three-dimensional equations of
elasticity theory to two-dimensional equations of the theory of shells. The
resulting equations are free from simplifying static and geometric hypotheses
of the classical theory of shells. 9 ref. Authors' abstract.

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USSR

UDC 539.3

VAYNBERG, D. V., SAKHAROV, A. S., KIRICHEVSKIY, V. V.

"Derivation of the Matrix for the Rigidity Characteristics of a Discrete Element of Arbitrary Shape"

Soprotivl. materialov i teoriya sostruzh. Resp. mezhved. nauch. sb. (Resistance of Materials in the Theory of Structures. Republic Interdepartmental Scientific Collection), 1971, No. 14, pp 37-44 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V166)

Translation: The solution of the three-dimensional problem of elasticity theory and the problem of the bending of plates and shells is solved using the method of a discrete element of arbitrary shape referred to a system of curvilinear (not orthogonal in the general case) coordinates $(x^i, i = 1, 2, 3)$ characterized by a metric covariant tensor $g_{ik}(x^i)$. The resolvents are obtained and used to study the stress-deformation state of plates and shells without the use of the Kirchoff-Love hypothesis. The derivation is presented in tensor form for linearly elastic working of the material. 7 ref. Authors' abstract.

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USSR

UDC 533.6.013.42

VAYNBERG, D. V., GULYAYEV, V. I.

"Numerical Solution of Problems of Flow Over Bodies of Complex and Varying Form"

Tr. Koordinats. sovesch. po gidrotekhn. (Works of the Coordination Conference on Hydraulic Engineering), 1972, No. 64, pp 254-258 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V388)

Translation: The problem of the interaction of a thin-walled shell with a liquid flowing around it is solved. Simultaneous solution of the equations of motion of the shell and the liquid is obtained by the finite difference method with the application of the methods of tensor analysis, making it possible to describe the geometry of the deformed medium in general form. The process of the formation of difference equations for plane and axisymmetric cases is programmed for the BESM-6 computer. Authors' abstract.

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USSR

UDC 539.3

VAYNBERG, D. V., SAKHAROV, A. S., SINYAVSKIY, A. L.

"Investigation of Flexible Plates and Shells"

V sb. Raschet prostranstv. konstruktsii. Vyp. 14 (Calculation of Three-Dimensional Structures. No. 14 -- Collection of Works), Moscow, Stroyizdat, 1971, pp 35-51 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9V102)

Translation: The deformation of flexible shells and plates with eccentric ribs is discussed. Restrictions are not imposed on the shape of the middle surface of the shell, the nature of the load distribution and support conditions. The discrete positioning of the ribs is taken into account. The problem is solved by numerical methods. A variational method is proposed for constructing the difference equations which consists of minimizing the elastic potential of the deformed system represented in discrete form. Iteration algorithms are developed for solving the linear and nonlinear equations of higher order. A set of programs was developed for fully automating the calculating process including the computer formation of grid equations. Several numerical examples are included for calculating ribbed shells and plates for various parameters, boundary conditions, and load characteristics. Authors abstract.

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USSR

UDC 621.317.34:621.372.413(088.8)

VAYNBERG, I. A., VAYNBERG, E. I., PAVEL'YEV, V. A.

"A Device for Visualizing the Field in a Microwave Resonator"

USSR Author's Certificate No 275182, filed 17 Jun 67, published 4 Nov 70,
(from RZh-Radiotekhnika, No 7, Jul 71, Abstract No 7B202 P)

Translation: The proposed device contains a microwave resonator with probe to which an oscillator and a receiver with oscillographic display are connected. To increase the speed of obtaining an image of the intensity of the electromagnetic field in the resonator, the probe is made in the form of a photoconductive plate which is introduced into the cross section of the resonator cavity to be studied and which is scanned by a light beam in sync with scanning of the oscillographic display. Resumé.

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USSR

UDC 621.317.34:621.372.413(088.8)

VAYNBERG, I. A., VAYNBERG, E. I., PAVEL'YEV, V. A.

"A Device for Visualizing the Field in a Microwave Resonator"

USSR Author's Certificate No 275182, filed 17 Jun 67, published 4 Nov 70,
(from RZh-Radiotekhnika, No 7, Jul 71, Abstract No 7B202 P)

Translation: The proposed device contains a microwave resonator with probe to which an oscillator and a receiver with oscillographic display are connected. To increase the speed of obtaining an image of the intensity of the electromagnetic field in the resonator, the probe is made in the form of a photoconductive plate which is introduced into the cross section of the resonator cavity to be studied and which is scanned by a light beam in sync with scanning of the oscillographic display. Resumé.

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USSR

UDC: 621.396.67.095.001.5

VAINBERG, I. A., PAVEL'YEV, V. A.

"Using Light-Controlled Semiconductor Panels to Study the Amplitude-Phase Structure of the Short-Range Field of Microwave Antennas"

Moscow, Radiotekhnika i Elektronika, Vol 26, No 9, Sep 71, pp 1685-1690

Abstract: The paper describes a device for visualizing the structure of the short-range field of microwave antennas and for precision measurement of the amplitude and phase of the field. A stationary semiconductor plate with low background field perturbation is placed in the short-range field of the receiving or transmitting antenna to be studied. The surface of the plate is scanned in sequence by an intense light spot of the proper size and shape. The type of antenna determines the scanning trajectory. The incident light causes a sharp change in the conductivity of the material by generation of nonequilibrium current carriers with a resultant change in coefficients of absorption, reflection and refraction. The resultant signal is fed to a CRT display. The device can also be used for polarization measurements by proper shaping

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USSR

VAYNBERG, I. A., PAVEL'YEV, V. A., Radiotekhnika i Elektronika, No 9, 1971, pp 1685-1690

and orientation of the light spot. A simple alteration of the instrument enables analysis of electromagnetic fields from submillimeter to centimeter wavelengths. In addition to antenna measurements, the unit can also be used for quality control in adjusting complex antenna systems, field analysis in quasioptical transmission lines in the millimeter and submillimeter bands, in multiple-mode waveguides, and in complex waveguide junctions. The authors thank E. I. Vaynberg, N. P. Rachkova, V. N. Shuyukova and G. V. Bondareva for assistance in debugging the device and making measurements.

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USSR

UDC: 621.317.799

VAYNBERG, I. A., VAYNBERG, E. I., PAVEL'YEV, V. A.

"A Device for Visualizing the Field in an SHF Resonator"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 22, 1970, Soviet Patent No 275182, Class 21, filed 17 Jun 67, p 44

Abstract: This Author's Certificate introduces a device for visualizing the field in an SHF resonator. The unit contains an SHF resonator with test body, and a generator and receiver with oscillographic display connected to the resonator. As a distinguishing feature of the patent, the speed with which the image of the intensity of the electromagnetic field in the resonator is produced is increased by making the above-mentioned test body in the form of a photoconductive plate which is introduced into the cross section of the resonator to be investigated. This plate is scanned by a light beam synchronized with the scanning of the oscillographic display.

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1/2 017 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--CLINIKO DOSIMETRIC PREPARATION TO THE RADIATION OF THE PATIENT -U-
AUTHOR--(03)-RUDERMAN, A.I., VAYNBERG, M.SH., BALTER, S.A.
COUNTRY OF INFO--USSR
SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 5, PP 40-43
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--RADIUM, RADIOTHERAPY, IRRADIATION DOSIMETRY, DIAGNOSTIC
MEDICINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1998/0274 STEP NO--UR/0241/70/015/005/0040/0043
CIRC ACCESSION NO--AP0120963
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120963

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INCREASE OF THE EFFECTIVENESS OF RADIUM THERAPY ESSENTIALLY DEPENDS UPON THE METHOD OF CLINICO DOSIMETRIC PREPARATION TO THE RADIATION OF THE PATIENT TO IRRADIATION. A NUMBER OF TASKS ARE SET FORTH WHICH SHOULD BE SOLVED DURING THE PREPARATORY STAGE TO IRRADIATION WITH DUE CONSIDERATION OF INDIVIDUAL PECULIARITIES OF THE PATIENT. THE AUTHORS ENUMERATE THE REQUIRED AUXILIARY EQUIPMENT AND DESCRIBE THEIR EXPERIENCE ON THE PREPARATION TO THE RADIATION OF THE PATIENT BY SPECIALISTS ON RADIUM THERAPY, X RAY DIAGNOSIS AND CLINICAL DOSIMETRY. FACILITY: INSTITUT EKSPERIMENTAL'NOY I KLINICHESKOY ONKOLOGII AMN SSSR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--DOSE FIELD CREATED BY PROTON BEAM IN THE IRRADIATED BODY -U-
AUTHOR--(05)-VAYNBERG, M.SH., DMITRIYEVSKIY, I.M., SEMENOV, YU.V., TELKOV,
YU.M., FROLOV, V.V.
COUNTRY OF INFO--USSR
SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 5, PP 69-73
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--MEDICAL APPARATUS, PROTON RADIATION BIOLOGIC EFFECT, RADIATION
DOSAGE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/1959 STEP NO--UR/0241/70/015/005/0069/0073
CIRC ACCESSION NO--AP0120602
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120602

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD OF CALCULATION OF DOSE FIELDS CREATED IN THE IRRADIATED BODY BY A MEDICAL PROTON BEAM OF THE LABORATORY OF NUCLEAR PROBLEMS OF THE JOINT INSTITUTE FOR NUCLEAR RESEARCH IS DISCUSSED. THE RESULTS OF THE EXPERIMENT CONCERNED WITH THE DETERMINATION OF THE INFLUENCE ON THE DOSE FIELD OF HETEROGENEITIES AND CURVATURE OF THE BODY SURFACE ARE GIVEN. FACILITY: OTOEL RADIOLOGII INSTITUTA EKSPERIMENTAL'NOY I KLINICHESKOY ONKOLOGII AMN SSSR. FACILITY: MOSKOVSKIY INZHENERNO-FIZICHESKIY INSTITUT.

UNCLASSIFIED

USSR

UDC 620.179

AVERBUKH, I. I., ~~VAYNBERG, V. YE.~~ CHEGORINSKAYA, O. N.,
GRADINAR, V. V., All-Union Scientific Research Institute of
Nondestructive Control, Kishinev

"The Use of Ultrasonic Emission in Nondestructive Control"

Sverdlovsk, Defektoskopiya, No 1, 1972, pp 26-32

Abstract: An experimental investigation was made of the possibility of using ultrasonic emission for the detection of defective parts of welded constructions and determining the bonding strength of bimetallic sheets and strips. The frequency spectrum and the character of the increase in the emission intensity make it possible to evaluate the characteristics of the material. In supersonic emission investigations, difficulties arise which are connected with the reception and separation of signals of supersonic emission on the noise background. Tuning out from acoustic low-frequency noises is done by appropriate selection of transducers and electronic equipment. 9 illustrations, 7 bibliographic references

1/1

USSR

UDC 62-52:003.13

KUZNETSOV, G. G., PEREVERZEV, YU. V., KONSTANTINOVSKIY, L. B., and VAYNBLAT,
B. I., Engineers

"Calculation of Efficiency of Using Automatic Data Transmission Networks"

Moscow, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 9, 1971, pp 36-37

Abstract: The article considers the efficiency of replacing ordinary data transmission methods (for example, by telephone) with automatic transmission in fixed- and variable-routing networks. The savings achieved by automatic data transmission are calculated as a function of the cost of transmitting the equivalent amount of information by telephone between the same subscribers.

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USSR

UDC 669.017:539.26:620.187

KLIMOVICH, L. G., VAYNBLAT, YU. M., OVECHKIN, B. I., and BER, L. B., All-Union Institute of Light Alloys

"Determination of the Grades of Separations in the Breakdown of the Solid Solution in the Al+0.4%Zr Alloy by Means of Small-Angle X-Ray Dispersion and Electron Microscopy"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 6, 1973, pp 135-137

Abstract: The breakdown of the solid solution was investigated on specimens cut out from pressed bars of the Al+0.4%Zr alloy by the methods of small-angle γ -ray dispersion (SXD) and electron microscopy. The specimens were aged at 400° and 500° for 10 to 500 hr after water-hardening and heating at 640° for 10 min. It is shown that the particles separating on aging are spherical. Their average sizes satisfactorily coincide with dimensions calculated by the SXD method of oxide replica. The analysis of volumes of different fractions seems to indicate that the quantity of the larger fraction increases with the duration of aging. The joint application of SXD and electron microscopy methods provides reliable information on aging processes of alloys. Two figures, two tables, five bibliographic references.

1/1

Transformation and Structure

USSR

UDC 669.71'55'721

BER, L. B., VAYNBLAT, YU. M., DAVYDOV, V. G., KHAYUROV, S. S., and SHCHEGLOVA, N. M., All-Union Institute of Light Alloys

"Substructure Changes and Decomposition Processes in the Double Aging of Alloy AD-31 Under the Effect of Plastic Deformation"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 3, 1973, pp 583-590

Abstract: Electron microscopy and mechanical property measurements were employed to study substructure changes and decomposition processes in alloy AD-31 in sheet form with a composition of (in %): 0.73 Mg, 0.57 Si, 0.12 Fe, 0.03 Zn, 0.01 Mn, balance -- Al. The sheets were water quenched from 525°C and rolled in the cold state (30 and 90% reduction) either after quenching or after natural aging for one day. Samples were studied after deformation without subsequent aging and after aging at 155°C for five hours. Out of 13 different combinations of quenching, aging and rolling reduction, it was found that the best combination of tensile strength and ductility is achieved by quenching, natural aging for one day, reduction of 90%, and aging at 155°C for 0.5 hours. This treatment yielded a TS of 38.3 kg/mm²,
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USSR

BER, L. B., et al., Fizika Metallov i Metallovedeniye, Vol 36, No 3, 1973,
pp 583-590

and elongation of 14.5%. Increasing the aging time from 0.5 hours to 48
hours only reduces strength and ductility. Four figures, two tables,
seven bibliographic references.

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- 49 -

USSR

Aluminum and Its Alloys

USSR

UDC 669.71.620.18

VAYNBLAT, YU. M., and RODINA, I. B., All-Union Institute of Light Alloys

"Structure of D16 Aluminum Alloy at the Steady-State Stage of Hot Deformation"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 4, 1973, pp 838-840

Abstract: Hot deformation of D16 aluminum alloy (4.35% Cu, 1.3% Mg, and 0.63% Mn) was conducted with an average strain rate of 0.02 sec^{-1} for two types of initial structures -- recrystallized (25-micron grain size) and polygonized as a result of previous hot pressing (3-micron grain size). At room temperature there is a continuous increase of flow stresses, while for the recrystallized sample the stress is lower than for the polygonized sample. At 300-400°C, flow stress starts at a higher temperature for the recrystallized sample, and the steady-state stage the initial structure has no effect. It was noted that the flow stresses during hot deformation were equal and constant regardless of initial structure. The possible reason for this equality is an independence from structural dispersion characteristics. Apparently, samples deformed to the steady-state stage are less different in structure than they were initially and can have the same yield strength over a wide temperature interval. 3 figures, 5 bibliographical references.

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Aluminum and Its Alloys

USSR

UDC 669.71:539.370

VAYNBLAT, Yu. M., and SAGALOVA, T. B.

"Grain Boundary Migration in the High-Temperature Deformation of Aluminum"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 6, Dec 70, pp 1322-1323

Abstract: In this study migration of grain boundaries was observed from the high-temperature rolling of aluminum. Aluminum grade A7, having an equiaxial structure and average grain sizes of 50, 200, and 1000 micron, was rolled at temperatures of -50, 20, and 200°C with reductions of 0.5 and 0.7 (true degrees of deformation were 0.8 and 1.2). After hot rolling the samples had a non-recrystallized structure consisting of sub-grains with an average size of 1.3 micron.

Polarized light in an optical microscope was used where the fibrous structure was visible: deformed grains were stretched in the direction of rolling. If the time of finding the metal in a deformation site is taken as 1 second, then the rate of migration amounts to 10^{-3} cm/sec. The rate of migration of boundaries was also measured for recrystallization at the time of the last 1/2

USSR

VAYNBLAT, Yu. M., and SAGALOVA, T. V., Fizika Metallov i Metallovedeniye, Vol 30, No 6, Dec 70, pp 1322-1323

anneal. At 300°C the rate of migration amounts to 10^{-6} cm/sec, which is three orders of magnitude lower than for hot rolling. A sharp acceleration of migration was caused by the high concentration of vacancies formed as a result of dislocation intersecting. Migration of boundaries, going in the direction of the accumulated energy gradient, is one of the processes leading to weakening of aluminum in hot deformation. According to the measure of increased degree of deformation, dislocation density and vacancy concentration increase. Both of these factors contribute to acceleration of both dynamic growth and migration of high-angle boundaries as a result of which at some stage of deformation an equilibrium will be established between processes of strengthening and weakening.

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USSR

UDC 669.715'3'721:620.186:539.4

GALATSKIY, B. D., VAYNBLAT, Yu. M., PESHUKOV, K. G., KLEPACHEVSKAYA, S. Yu., SAGALOVA, T. B., and FEDOROVA, K. A.

"Dependence of Texture and Mechanical Properties on Shape Factor and Degree of Deformation of Extruded Aluminum-Alloy Products"

Tekhnol. legkikh splavov. Nauchno-tekhn. byul. VILSa (Technology of Light Alloys. Scientific and Technical Bulletin of the All-Union Institute of Light Alloys), 1970, No 3, pp 28-35 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1757 by E. KADANER)

Translation: An investigation was conducted on alloy D16 produced under industrial conditions by the semicontinuous casting method with subsequent extrusion under various regimes. With an increase in the shape factor of extruded products, uniform variation of deformation texture from biaxial $\langle 111 \rangle$, $\langle 100 \rangle$ orientation to rolling texture takes place with predominant $\{110\}$ $\langle 112 \rangle$ orientation. With an increase in shape factor, strength anisotropy decreases. With the same degree of deformation and shape factor, ultimate strength and its anisotropy are independent of the size of the section of the product. Five illustrations. Three tables. Bibliography of seven titles.

1/1

USSR

UDC: 551.46.086

PARITSKIY, A. S., VAYNDRUK, E. S.

"A Method of Determining the Inclination of the Surface of a Wave of the Sea"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 8, Mar 72, Author's Certificate No 330341, Division G, filed 17 Aug 70, published 24 Feb 72, p 126

Translation: This Author's Certificate introduces a method of determining the inclination of the surface of a wave of the sea by exposing it to ultrasonic oscillations, receiving the signals from the surface being studied at three or more points of reflection, comparing them with a reference signal, determining the time of propagation of the ultrasonic oscillations and the distances they travel to three or more points, and using these data to determine the unknown slope. As a distinguishing feature of the patent, the frequency range of the registered processes is increased by using a single vertically directed beam for exposure, the regulation of the reference signal level being dependent on the received signal level.

1/1

USSR

UDC 615.332 (Cycloserinum). 014.453

SAZYKIN, Yu. O., CHAYKOVSKAYA, S. M., KORCHAGIN, V. B., PANINA, M. A.,
IVANOVA, V. N., BALITSKIY, V. A., and VAYNER, Ye. A., All-Union Scientific
Research Institute of Antibiotics and Institute of Biophysics, Ministry of
Health USSR

"Sterilization of Oxacillin Preparations With Fast Electrons"

Moscow, Antibiotiki, No 10, 1971, pp 933-936

Abstract: Exposure of preparations of the sodium salt of oxacillin in 0.5 g vials to fast electrons (10 Mev) in a linear accelerator at a dose of 2.5 Mrad resulted in complete sterility of the antibiotic, whereas, tests of control (nonirradiated) vials revealed contamination in every second or third vial. The induced radioactivity of the samples did not exceed $3.7 \cdot 10^{-10}$ curie even with minimum length of exposure. The procedure had no effect on the antibiotic activity, pharmacological activity (no evidence of toxicity or pyrogenicity) or physicochemical properties of the preparations.

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USSR

UDC: 621.396.67.012.12.095.111

VAYNER, Yu. A., VAYSBERG, A. I., LEONT'YEV, V. A., PODLIPALIN, V. I.

"On Changing the Radiation Pattern in the Horizontal Plane for Overhead Antennas"

Tr. Novosib. elektrotekhn. in-ta (Works of the Novosibirsk Electrical Engineering Institute), 1970, vyp. 2, kn. 1, pp 18-22 (from RZh-Radiotekhnika, No 6, Jun 70, Abstract No 6B5)

Translation: The authors consider the effect of the mirror image of an antenna on its radiation pattern above the plane of the uniform earth, and the errors introduced by this image in measurements of the radiation pattern. It is shown that distortions in the principal maximum may be slight; however, the side lobes may be subjected to considerable interference distortions since the amplitudes of the side lobes in the directional patterns of the forward and reflected beams are approximately identical. Therefore antennas should be raised to a sufficient height in measuring the level of the side lobes under free-space conditions, and the antenna and observation point should be separated by a known distance when measuring this level where the ground is present. Two illustrations, bibliography of one title. N. S.

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1/2 020

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--WELDING WIRE FOR WELDING BRONZE -U-



AUTHOR--(05)--MINCHINA, A.N., VAYNERMAN, A.YE., ZOLOTOREVSKIY, YU.S.,
MAKAROV, A.G., MALMSTREM, A.T.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 262,604

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--26JAN70

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

TOPIC TAGS--BRONZE, WELDING ELECTRODE, COPPER ALLOY, ALUMINUM CONTAINING
ALLOY, TITANIUM CONTAINING ALLOY, NICKEL CONTAINING ALLOY, IRON
CONTAINING ALLOY, MANGANESE CONTAINING ALLOY, ALLOY COMPOSITION,
METALLURGIC PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1786

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

CIRC ACCESSION NO--AA0109747

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--02OCT70
CIRC ACCESSION NO--AA0109747
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A WELDING WIRE HAS THE FOLLOWING
PERCENT COMPN.: TI 0.2-0.4, NI 5-6.5, AL 1.5-2.5, FE 0.8-1.3, MN
2.5-3.5, AND CU THE REMAINDER.

UNCLASSIFIED

USSR

KARASHEV, T.B., ARANOVICH, R.M., VAYNO, A.A., TALY, A.A.

UDC 621.382.2

"Effect Of Annealing Of Radiation Defects On The Electrical Properties Of P-N Junctions, Produced On High-Resistance P-Type Silicon By Bombardment Of Nitrogen Ions"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Non-Metallic Crystals--Collection Of Works), Minsk, "Nauka i tekhn.," 1970, pp 174-180 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2B134)

Translation: Injection of nitrogen ions with an energy of 34 kev with a current density of 10 microamp/cm² was performed in p-type Si with a resistivity of 1500--2000 ohm. cm. and an orientation of the surface in the (111) plane; the duration of irradiation was one minute and the residual pressure in the chamber 10⁻⁵ mm. Annealing of radiation defects was conducted for 30 minutes at temperatures of 20--900° C. Thickness of the n-type layer amounts to 0.4 micrometer; the resistance of the layer decreases with an increase of the annealing temperature to 600° C and remains unchanged with a further increase of the temperature. The ratio of the average concentration of electrons to the concentration of injected ions $\leq 5 \cdot 10^{-3}$. The breakdown voltage of n-p junctions of annealed and non-annealed specimens amounts to 1500--1700 v. 6 ill. 6 ref. V.M.

1/1

USSR

UDC: 621.385.832.012.001.24

VAYNORIS, Z. A., SHTARAS, S. S., OLISHAUSKAS, V. K.

"Calculating the Frequency Responses and Transfer Characteristics of Traveling Wave Tubes"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1990-1993

Abstract: In order to determine the relation between the parameters of the deflecting system and the characteristics of a traveling wave tube (TWT), and also to establish the influence of various factors on the frequency and time properties of TWT's, the authors calculate the frequency responses and transfer characteristics of a TWT with regard to the transit time of a helix turn, mismatch between the velocities of the electromagnetic wave and of the electrons themselves, dispersion and attenuation in the deflecting system, the frequency dependence of the wave impedance of the system, reflections from its input and output, and the dependence of the transverse component of the electric field on frequency when constant power is transmitted through the system.

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USSR

Titanium

UDC: 620.172.2

VEKSLER, Yu. G., VAYNSHTEYN, A. A., SOROKIN, V. G., Ural Polytechnic Institute, Sverdlovsk

"Concerning Dynamic Creep of OT-4 Alloy"

Kiev, Problemy Prochnosti, No 9, Sep 72, pp 76-78

Abstract: The authors study the influence of random stresses on the short-term creep properties of OT-4 titanium alloy in high-velocity airflows. Creep curves are approximated by using the hypothesis of aging with inclusion of the statistical characteristics of random stresses. The accuracy of the approximation is evaluated.

1/1

USSR

UDC 513.83

VAYNSHTEYN, A. G., Department of Differential Geometry, Moscow University

"Uniform Homology Groups and Uniform Retracts"

Moscow, Vestnik Moskovskogo Universiteta, Matematika, Mekhanika, No 4, Jul/
Aug 71, pp 59-62

Abstract: The author is concerned with homomorphisms of uniform homology groups induced by certain classes of uniformly continuous maps. The concept of a uniform retract in geodesic space is introduced and several theorems are proved on the non-existence of uniform retracts. In the context of the article the author defines space as geodesic space and map as a uniformly continuous map and the mapping as consistent. He formulates several theorems which he proves through the mathematical apparatus and cites several works of previous research on related subjects as a basis for the present treatment. The article contains 7 bibliographic entries.

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1/2 018

TITLE--UNIFORM HOMOTOPY AND PROXIMITY INVARIANTS --U- PROCESSING DATE--30OCT70

AUTHOR--VAYNSHTEYN, A.G. UNCLASSIFIED

COUNTRY OF INFO--USSR ✓

SOURCE--VESTNIK MOSKOVSKOGO UNIVERSITETA, MATEMATIKA, MEKHANIKA, 1970, NR 1, PP 17-20

DATE PUBLISHED-----70

SUBJECT AREAS--MATHEMATICAL SCIENCES, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--MATHEMATIC SPACE, GEODESY, MAPPING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1996/0567

CIRC ACCESSION NO--AP0117797

STEP NO--UR/0055/70/000/001/0017/0020

UNCLASSIFIED

2/2 018

CIRC ACCESSION NO--AP0117797

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THIS PAPER THE CONCEPT OF UNIFORM HOMOTOPY OF UNIFORMLY CONTINUOUS MAPS OF GEODETIC SPACES IS INTRODUCED. THE RELATION IS ESTABLISHED BETWEEN THIS CONCEPT AND THE PROXIMITY INVARIANTS, VIZ. THE UNIFORM HOMOLOGY GROUPS AND THE VOLUME INVARIANT.

UNCLASSIFIED

USSR

UDC: 616.22-008.4-789.28-78

PUPKO, I. D., ULASHKEVICH, Yu. V., MAGRACHEV, A. Z., BORONETS, V. P., DOLGOV, V. K.,
LAPSHIN, V. A., DEKHTYAR, B. S., VAYNSHTEYN, A. M.

"A Voice-Forming Device"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 28,
1970, Soviet Patent No 280548, Class 21, filed 9 Jun 69, p 42

Abstract: This Author's Certificate introduces a voice-forming device which contains a main current generator, projector and self-contained power supply. As a distinguishing feature of the patent, the sound spectrum of the projected oscillations is approximated to that of natural speech by adding a noise generator, a noise amplifier, and an operating mode commutator.

1/1

1/2 011 UNCLASSIFIED PROCESSING DATE--020CT70
 TITLE--AUTOMATED CONTROL SYSTEMS IN CONSTRUCTION -U-
 AUTHOR--(02)-VAYNSHTEYN, B., RYBALSKIY, V. ✓
 COUNTRY OF INFO--USSR
 SOURCE--MOSCOW, VOPROSY EKONOMIKI, NO 2, FEB 70, PP 85-93
 DATE PUBLISHED----FEB70
 SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, MECH., IND., CIVIL AND
 MARINE ENGR
 TOPIC TAGS--GENERAL CONSTRUCTION, AUTOMATIC CONTROL SYSTEM
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--1988/0837
 CIRC ACCESSION NO--AP0105742
 STEP NO--UR/9109/70/000/002/0085/0093
 UNCLASSIFIED

2/2 011

CIRC ACCESSION NO--AP0105742

UNCLASSIFIED

PROCESSING DATE--02OCT70

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

ABSTRACT. IN THIS ARTICLE THE AUTHORS ATTEMPT TO SHOW SOME OF THE REASONS WHY THE INTRODUCTION OF SUCH SCIENTIFIC METHODS AS AUTOMATED CONTROL SYSTEMS INTO THE CONSTRUCTION INDUSTRY HAS BEEN SO SLOW AND SO OFTEN UNSUCCESSFUL AND TO MAKE SOME POSITIVE PROPOSALS ON THE PROBLEM.

UNCLASSIFIED

USSR

UDC 541.15 : 546.267 : 547.539.162

ZIMIN, A. V., VAYNSHTEYN, B. I., SIL'CHENKO, YU. I., Physicochemical Institute imeni L. Ya. Karpov, Moscow, State Committee for Chemistry

"Radiation-Induced Synthesis of Perfluorophenylchlorosilanes"

Moscow, Khimiya Vysokikh Energiy, Vol 4, No 5, Sep-Oct 70, pp 419-424

Abstract: The article describes results of a study of the radiation-induced synthesis of previously undescribed methylpentafluorophenyl-dichlorosilane $(CH_3C_6F_5SiCl_2)$ and pentafluorophenyltrichlorosilane $C_6F_5SiCl_3$ -- compounds which are perfluorophenyl analogs of methylphenyldichlorosilane and phenyltrichlorosilane, synthesized by A. V. ZIMIN, et al. The radiation-induced synthesis is based on the method previously suggested by ZIMIN, et al. for the condensation reaction of hydriochlorosilanes with halogenated benzenes under the action of ionizing radiation by a chain mechanism. The optimal physicochemical conditions for the radiation-induced synthesis of these compounds are determined, including the use of a

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USSR

ZIMIN, A. V., et al, Khimiya Vysokikh Energiy, Vol 4, No 5, Sep-Oct 70, pp 419-424

reactor employing steel 1Kh18N9T. An advantage of the method is that, unlike ordinary chemical methods for the synthesis of organo-silicon monomers, there is no need for costly catalysts or high temperatures or many synthesis steps. The most important physico-chemical constants of the resultant compounds are determined.

2/2

USSR

UDC 548.0:576.858

VAYNSHTEYN, B. K., MIKHAYLOV, A. M.

"Some Properties of Synthesis of Projecting Functions"

Moscow, Kristallografiya, Vol 17, No 2, 1972, pp 258-263

Abstract: A study was made of some of the properties of synthesis of projecting functions. A method is proposed for photosummation of the synthesis of three-dimensional structure of biological subjects. The method of synthesizing projecting functions for reproduction of $\rho(r)$ [B. K. Vaynshteyn, Kristallografiya, Vol 15, No 5, 894, 1970; Dokl. AN SSSR, Vol 196, 1972, 1971] is analyzed. Summation algebraically on a discrete net is considered, and symmetry of the projection $L^\alpha(x_\alpha, y_\alpha)$ and the function $\Sigma(r)$ for reproduction of $\rho(r)$ is discussed. The double Fourier transformation method and the "algebraic reconstruction technique" are compared. A synthesis based on operations in real space with which the method of synthesizing the projecting functions is valid can be performed in such a way that the desired function $\rho(r)$ is reproduced exactly without background [B. K. Vaynshteyn, et al., Kristallografiya, Vol 17, No 2, 253, 1972].

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USSR

UDC 548.1

VAYNSHTEYN, B. K., ORLOV, S. S.

"Theory of Reproduction of Functions by their Projections"

Moscow, Kristallografiya, Vol 17, No 2, 1972, pp 253-257

Abstract: A study was made of the reproduction of two-dimensional functions $\rho(r)$ by synthesis of the projecting functions $\Sigma(r)$ and directly by the projections L of the function ρ . The transition to the Radon formulas and averaging the projections are discussed. Fourier transforms are used in deriving the formulas and representing the functions. Diagrams are presented for the reciprocal space $Z(S)$ and its cross section $\phi_1(X_{\alpha_1})$, the function $K(x, R_{\max})$, and "smearing" of $\phi_1(X_i)$ at the bisector. The image of the function $h^2(xy)$ obtained on an optical diffractometer ($k = 0.1$) is also illustrated.

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1/2 023

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--X RAY METHOD FOR DETERMINING THE GAPS BETWEEN HEAVY ATOMS IN
MACROMOLECULES IN SOLUTION AND ITS USE FOR STUDYING GRAMICIDIN S

AUTHOR--(03)--YAYNSHTEYN, B.K., SUSFENOV, N.I., FEYGIN, L.A.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(3) 574-7

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MACROMOLECULE, X RAY STUDY, MOLECULAR STRUCTURE, IODINATED
ORGANIC COMPOUND, ORGANOMERCURY COMPOUND, ANTIBIOTIC,
CRYSTALLOGRAPHY/(U)GRAMICIDIN S ANTIBIOTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0179

STEP NO--UR/0020/70/190/003/0574/0577

CIRC ACCESSION NO--AT0103858

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--ATOIC3658

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

ABSTRACT. IT IS POSSIBLE TO DET. THE MUTUAL POSITION OF HEAVY ATOMS FOR LIMITING DISORDERED SYSTEMS SUCH AS SOLNS. OF MACROMOLS. WHEN THE DIFFRACTION PICTURE IS POOR AND CENTERED IN THE REGION OF SMALL ANGLES. THE METHOD WAS CHECKED EXPTL. FOR SOLNS. OF DIIODANTHRAQUINONE IN H SUB2 SO SUB4, AND THE DISTANCE BETWEEN THE HEAVY MOLS., CALCD. FROM THE POSITION OF THE MAX., IS 9.4 ANGSTROM WHICH AGREES WITH CRYSTALLOGRAPHIC DATA. FURTHER, THE METHOD WAS USED FOR GRAMICIDIN S DERIVS.: IODOGRAMICIDIN HYDROCHLORIDE AND MERCURIOGRAMICIDIN HYDROCHLORIDE. THE DISTANCES OBTAINED FROM THE MAX. ARE 9.7 AND 10.4 ANGSTROM, RESP.

UNCLASSIFIED

USSR

V
VAYNSHTEYN, B. K., Corresponding Member of the Academy of Sciences
USSR, DYAKON, I. A., and ABLOV, A. V., Academician of the Academy of
Sciences Moldavian SSR, Institute of Crystallography of the Academy of
Sciences USSR, Moscow, Institute of Applied Physics of the Academy of
Sciences Moldavian SSR, Kishinev

"Electron-Diffraction Determination of Structure of DL- α -Cupric
Alaninate"

Moscow, Doklady Akademii Nauk SSSR, Vol 193, No 2, 1970, pp 330-332

Abstract: Continuing their study of copper salts of α -amino acids,
the authors describe the results of an electron-diffraction study of
the anhydrous copper salt of DL- α -alanine $\text{Cu}(\text{H}_2\text{NCH}(\text{CH}_3)\text{COO})_2$, which
is isolated in the form of very thin brittle plates closely abutting
one another. Electron-diffraction patterns from textured polycrystal
and point diffraction patterns were obtained on the EG electron-dif-
fraction camera of the Institute of Crystallography, Academy of Sci-
ences USSR.

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1/2 026 UNCLASSIFIED PROCESSING DATE--36OCT70
 TITLE--X RAY DIFFRACTION STUDY OF DERIVATIVES OF TRYPSIN INHIBITED BY
 DIISOPROPYL FLUOROPHOSPHATE -U-
 AUTHOR--(05)-VAYNSHTEYN, B.K., ARUTYUNYAN, E.G., ZAYTSEV, V.N., KURANOVA,
 I.P., GREBENKO, A.I.
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PREPD. BY THE DIFFUSION METHOD, AND THE COORDINATES OF THE PT AND HG ATOMS IN THE CRYSTALS WERE DETD. BY X RAY DIFFRACTION. THE UNIT CELL PARAMETERS ARE A 58.65 PLUS OR MINUS 0.01, B 67.05 PLUS OR MINUS 0.01, AND C EQUALS 54.75 PLUS OR MINUS 0.02 ANGSTROM FOR THE PT DERIV. AND A 58.58 PLUS OR MINUS 0.02, B 67.42 PLUS OR MINUS 0.02, AND C 54.75 PLUS OR MINUS 0.02 ANGSTROM FOR THE HG DERIV. THE MAX. DEVIATIONS FROM THE PARAMETERS OF THE INITIAL TRYPSIN UNIT ALL WERE 0.34 AND 0.06 ANGSTROM FOR THE PT AND HG DERIVS., RESP. THE COORDINATES OF THE HG ATOM WERE DETD. TO BE X EQUALS 0.962, Y EQUALS 0.035, AND Z EQUALS 0.195. FOR PT, HOWEVER, CALCNS. YIELDED 2 VARIATIONS OF THE COORDINATES. FACILITY: INST. KRISTALLOGR., MOSCOW, USSR.

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ORIGIN OF THE INTRACRANIAL CSF PRESSURE PULSE WAVES THE METHOD OF
 MATHEMATICAL SIMULATION OF THE CEREBRAL CIRCULATION WAS USED: THE PULSE
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 SPINAL CAVITY AND CEREBRAL VESSELS WERE CONSIDERED AS WELL AS THE
 CEREBRO VASCULAR RESISTANCE. THE MATHEMATICAL ANALYSIS OF PHASE AND
 AMPLITUDE CORRELATIONS BETWEEN ALL THE REGISTERED PULSE WAVES SHOWED
 THAT UNDER NORMAL CONDITIONS THE CSF PRESSURE PULSE WAVES WERE MAINLY
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 PRESSURE THE VENOUS PULSATIIONS BECAME PREDOMINANT FACTOR.
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