

013

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0048637  
ABSTRACT/EXTRACT--(U) GP-D-

ABSTRACT. PHOTO N FROM BI, WHEN EMITTED BY THE GAMMA RAY BREMSSTRAHLUNG SPECTRUM (E GAMMA SUBMAX. EQUALS 28.5 MEV), WERE MEASURED BY USING THE PHOTOEMULSION METHOD AT 30, 45, 60, 75, 90, 105, 120, 135, AND 150 DEGREES. THE N SPECTRA AT 90 DEGREES TO THE GAMMA BEAM SHOW A SHARP INCREASE IN ASYMMETRY WHEN E GAMMA SUBMAX. IS VARIED 20-8.5 MEV OWING TO THE ABSORPTION OF GAMMA QUANTA WITH ENERGIES 18-27 MEV. A COMPARISON OF N SPECTRA AT E GAMMA SUBMAX. EQUALS 28.5 MEV FOR 30-150 AND 45-135 DEGREES SHOWS THAT THE OBSERVED ASYMMETRY RESULTS FROM THE DIFFERENCE IN YIELD OF N WITH ENERGIES 6-7 TO 12-13 MEV, WHICH INDICATES THAT SIMILAR TO ONE THIRD OF THE ENERGY MUST REMAIN AFTER EMISSION OF N FROM THE NUCLEUS.

FACILITY: SARATOV, GOS. UNIV., SARATOV, USSR.

UNCLASSIFIED

USSR

UDC: 621.396.69:621.316.B(088.8)

BABANOVA, O. R., KLIMENSKAYA, D. N., LEPIK, I. P.

"A Method of Making Wirewound Resistors"

USSR Author's Certificate No 262226, filed 20 Sep 68, published 20 May 70  
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V342 P)

Translation: This method of making wirewound resistors up to 1 mm in diameter involves applying resistive material to the base of the resistor. As a distinguishing feature of the patent, resistors with a given rating and low scatter of parameters are produced by using a twisted glass thread made up of thin fibers and impregnated with resistive material as the vaporizer and batcher. This thread is placed immediately beneath the resistor base and transported together with the base through a heated oven.

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USSR

LEPIK, YU. R. (Tartu)

"Concerning the Propagation of Two-Dimensional Plastic Waves in a Thick Plate"

Moscow, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 1, 1971,  
pp 100-106

Abstract: The propagation and interaction of high-amplitude two-dimensional waves in a thick plate is investigated. A monotonously decreasing pressure is applied to the surface of the plate. The deformations are considered to be large; the problem is formulated and solved in terms of Lagrange variables. An approximate method of constructing the shock-wave fronts is proposed. The pressure and the particle velocity for any point and for any moment of time are determined by the method of characteristics. A numerical example is presented. 5 figures, 3 tables, 2 bibliographic entries.

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1/2 013 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--LIMITING EQUILIBRIUM OF ANNULAR PLATES THE MATERIAL OF WHICH HAS  
DIFFERENT YIELD POINTS IN TENSION AND COMPRESSION -U-  
AUTHOR--LEPIK, YU.R.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA TVERDOGO TELA JAN-FEB  
1970, P 65-68  
DATE PUBLISHED-----70

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

TOPIC TAGS--COMPRESSIVE STRESS, SANDWICH PLATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1984/0179

STEP NO--UR/0484/70/000/000/0065/0068

CIRC ACCESSION NO--AP0054975

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--19SEP70

CIRC ACCESSION NO--AP0054975

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DERIVATION OF A CLASS OF EXACT SOLUTIONS TO PROBLEMS OF LIMITING EQUILIBRIUM OF ANNULAR PLATES MADE OF A MATERIAL WHICH HAS DIFFERENT YIELD POINTS IN TENSION AND COMPRESSION. A SQUARE LAW CONDITION IS TAKEN AS THE YIELD CONDITION OF THE MATERIAL. FOR PLATES OF SANDWICH TYPED IT IS FOUND THAT THE LIMITING LOAD DEPENDS TO A CONSIDERABLE EXTENT ON THE TANGENTIAL BOUNDARY CONDITIONS AND THAT THE STRESS DISTRIBUTION IN A PLATE AND THE COORDINATES OF A RIGID REGION ARE NOT DETERMINED UNIQUELY.

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UNCLASSIFIED

USSR

UDC: 537.31

OKUN', L. S., KAGANOVSKIY, I. P., ~~LEPIKHOVA, Ye. Ya.~~, ZAMOLOVSKIY, L. M.,  
CHAYKIN, P. M., LEVINSON, D. I., All-Union Scientific Research Institute  
of Electrothermal Equipment

"Investigation of Resistivity Distribution in a Single Crystal Germanium  
Strip by the Single-Probe Method"

Moscow, Izv. AN SSSR: Ser. Fizicheskaya, Vol 36, No 3, Mar 72, pp 614-618

Abstract: The distribution of resistivity is studied by single-probe mea-  
surements on a single crystal germanium strip with spacing down to 10  $\mu$ .  
The strips were grown by the Stepanov method in directions  $\langle 110 \rangle$  and  $\langle 11\bar{2} \rangle$ ,  
the plane of the strip being (111). The specimens were doped with Ga and  
Sb for p- and n-conductivity respectively. It was found that the longi-  
tudinal nonhomogeneity is greater than the transverse nonhomogeneity, and  
that both types of nonhomogeneity increase with a reduction in the dis-  
crete measurement step. The distribution of nonhomogeneity in the resis-  
tivity of longitudinal specimens is basically periodic with a periodicity  
of 150-400  $\mu$ , depending on the conditions of growth. In transverse speci-  
mens the distribution was found to be more random with a periodicity of  
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USSR

OKUN\*, L. S. et al., IAN SSSR: Ser. Fiz., V 36, 1972, pp 614-618

100-125  $\mu$ . Fine impurity bands of about 10  $\mu$  were observed which are apparently due to the periodicity of the crystallization process occasioned by liberation of the latent heat of fusion. The higher homogeneity observed in p-germanium is attributed to the weaker relation between the effective coefficient of distribution of Ga and periodic fluctuations in growth rate.

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USSR

UDC 53.077.08+53.001.5

SOLTAMOV, U. B., ALEKSANDROV, I. R., DUNAYEVSKAYA, N. V., KLIMIN, A. I.,  
LEPILIN, V. A., SMIRNOV, V. I.

"The Use of Silicon Multiplying Elements in Photoelectron Devices. (Brief Note)"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektronoluch. i fotoelektr. pribory  
(Electronic Engineering. Scientific-Technical Collection. Electron Ray and  
Photoelectric Devices), 1970, No 1(15), pp 58-61 (from RZh-Fizika, No 1, Jan 71,  
Abstract No 1A260)

Translation: The phenomenon of cathode amplification in silicon pn-structures is investigated. The use of this phenomenon in photoelectron devices was shown in mockups of photomultipliers with silicon multiplying elements. Authors abstract.

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USSR

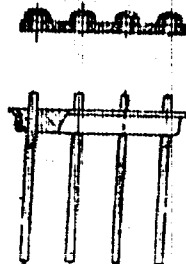
UDC: 621.3.049.75

LEPILIN, V. A., CHERNYAK, V. S.

"A Method of Mounting an Integrated Circuit in a Chassis Base"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obratzyy, tovarnyye znaki, No 4, Feb 71, Author's Certificate No 292256, Division H, filed 17 Jun 68, published 6 Jan 71, p 153

Translation: This Author's Certificate introduces a method of mounting an integrated circuit in a chassis base having holes with contact platforms for passage of leads. Installation is done by dipping in molten solder. As a distinguishing feature of the patent, the productivity of the proposed method is increased and the reliability of electrical contact is improved by tinning the above mentioned contact platforms with molten solder and bringing the heated leads through the molten solder film.



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USSR

UDC 621.385.892/52

SOLTANOV, U.B., ALEKSANDROV, I.R., DUNAYEVSKAYA, N.Y., ALIMIN, A.I., LEFILIN, V.A.,  
SMIRNOV, V.I.

"Use Of Silicon Multiplier Elements In Photoelectron Devices"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektronoluch. i Fotoelektr. pribory  
(Electronics Technology. Scientific-Technical Collections. Electron Beam And Photo-  
electric Devices), 1970, Issue 1(15), pp 58-61 (from RZh--Elektronika i yeye  
primeneniye, No 2, February 1971, Abstract No 2A243)

Translation: The phenomenon is investigated of cathode amplification in silicon p-n structures developed for hybrid photomultipliers. The phenomenon consists of the fact that during bombardment of a crystal with a shallow lying p-n junction by an electron stream with a power  $U_a \cdot I_a$  in the circuit of a backward-biased junction, the current  $I = a I_a$  ( $a \gg 1$ ) appears. The diffusion p-n structures with the depth of occurrence  $< 1$  micrometer is investigated, as well as junctions obtained by the method of ion implantation which are characterized by better reproducibility

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USSR

SOLTAMOV, U. B., et al, Elektron. tekhnika, Nauchno-tekhn. sb. Elektronoluch. i fotoelektr. pribory, 1970, Issue 1(15), pp 58-61

of results. The dependences obtained for  $a(U_{\text{is}})$  are presented. At a number of diffusion junctions the anomalous effect is detected of cathode amplification with the coefficient "a" considerably exceeding the limit which is determined by the theory of impact ionization. Using as an example models of a photomultiplier with silicon photomultiplier elements, the use of this phenomenon in photoelectron devices is shown. 6 ill. 8 ref. N.8.

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LEPILOV

N.S.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent

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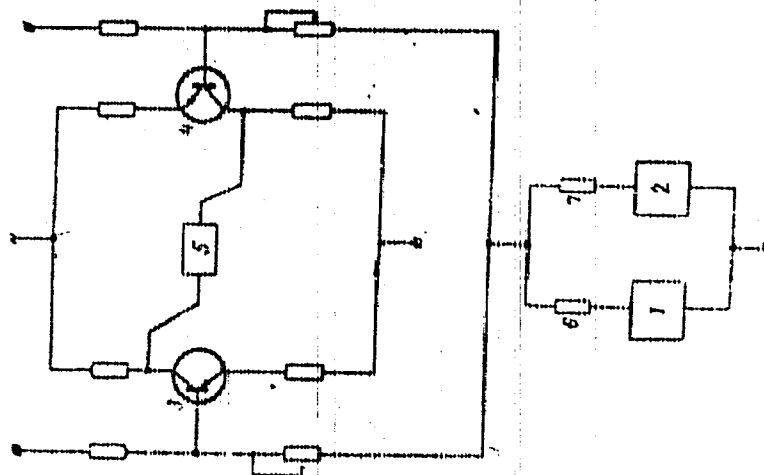
242509 VOLTAGE COMPARATOR suitable for use in the  
 computer and measuring fields and self-  
 adjusting and optimum systems of automatic control  
 has the transistor bases with different contacting  
 characteristics are connected through resistors to  
 the sources of the tensions and the collectors are  
 connected to an element with relay characteristics.  
 16.2.68. as 1219007/18-24.S.K.VASILEV et al.P.E.  
 DZERZHINSKII MILITARY ENG.ACAD.(14.9.69)Bul 15/25.  
 4.69. Class 42m5. Int.Cl.G 06j.

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7mT

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AUTHORS: Vasil'nev, S. K.; Lepilov, N. S.; Migulev, Yu. A.

Voyennaya Inzhenernaya Akademiya im. F. E. Dzerzhinskogo

19781554

*2/3*

Vacuum Tubes

USSR

UDC: 621.385.632/33

NEGANOV, V. A., LEPILOV, V. A.

"A Decelerating System Unit for Type 'M' Traveling-Wave (Backward-Wave) Tubes With Ribbon Beam"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 10, Apr 71, Author's Certificate No 293525, Division H, filed 28 Apr 69, published 11 Mar 71, p 237

Translation: This Author's Certificate introduces: 1. A deceleration system unit for type "M" traveling-wave (backward-wave) tubes with ribbon beam. The device consists of a rectangular helix fastened through dielectric rods in a metal spring bracket of II-shaped cross section. As a distinguishing feature of the patent, heat transfer conditions are improved under the dynamic working conditions of the device by fastening bimetal strips on the side walls of the bracket, the width of these strips along the decelerating unit being less than their height. 2. A modification of this unit distinguished by the fact that the bracket is made from a bimetal, one of the metals having spring properties.

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Vacuum Tubes

USSR

UDC: 621.385.6

LEPILOV, ~~V. A.~~ and NEGANOV, V. A.

"Possibility of Designing a Convection Current Oscillation Suppressor in K-Type Beam Instruments with a Negatively Charged Delay System"

Kiev, Izvestiya VUZ--Radioelektronika, Vol 14, No 1, 1971, pp 27-33

Abstract: This paper formulates mathematically the behavior and characteristics of a system proposed in an earlier paper (Dunsmuir, R. and Whistleton, J., Improvements Relating to Magnetrons, Eng. Pat. 875,263, Appl. Late Aug. 15, 1958, Complete Specification Published, Aug. 16, 1961) for eliminating the convection current oscillation limiting the amplification factor of magnetron traveling wave and backward wave tubes. A schematic of the system and a short description of it are given. The authors of the present paper assert that a quantitative analysis of the efficiency of the convection current suppression this system offers has not previously appeared. They derive design formulas for the system and analyze its operation for backward and forward waves. The conditions for most effective suppression of the convection current oscillations are found. It is also shown that combinations of the two older types and the new type of tube are effective.

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USSR

UDC: 621.385.632.2.(633.24)

LAGRANSKIY, L. M., LEPILOV, V. A., NEGANOV, V. A.

"An Electronic SHF Device With Crossed Fields ('Phasmatron')"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratztsy, Tovarnyye Znaki, No 24, 1970, Soviet Patent No 277115, Class 21, filed 2 Feb 68, p. 63

Abstract: This Author's Certificate introduces: 1. An electronic SHF device with crossed fields which contains an electron gun and a space where the electron stream interacts with the field of a delayed electromagnetic wave. This interaction space is formed by the opposing surfaces of the decelerating system and the negative electrode. The surface of the negative electrode which faces the interaction space has grooves or projections arranged parallel to the magnetic lines of force. As a distinguishing feature of the patent, efficiency is improved and the length of the device is reduced by installing a phasing electrode between the end of the electron gun and the region of intense collection of electrons by the decelerating system in the area where the grooves or projections are located. This electrode is made in the form of a conducting plate parallel to the surface of the decelerating system. The geometric dimensions of the regions of the interaction space between the phasing electrode and the decelerating system and the negative electrode respectively are selected from conditions of a change

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LAGRANSKIY, L. M. ~~et al.~~ Soviet Patent No 277115

by  $180^\circ$  in the phase of improperly phased electrons passing between the opposing surfaces of the phasing and negative electrodes with respect to the phase of the properly phased electrons. 2. A modification of this device distinguished by the fact that its dynamic working range is extended by installing several phasing electrodes in the interaction space in series with the gap. 3. A modification of the SHF device under No 1 distinguished by the fact that an electrically insulated correcting electrode is installed between the phasing and negative electrodes and in parallel with them.

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UDC 621.318.134.029.64:621.385.632.2

USSR

AVERBUKH, M.E., LEPILOV, V.A., NEGANOV, V.A.

"Use Of Ferrite Rectifier In Decimeter Band M-Type TWT With Spiral Delay System"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue No 10, pp 140-143 (from RZh--Elektronika i yeye primeneniya, No 2, February 1971, Abstract No 2A182)

Translation: The paper presents the experimental dependence of the properties of a spiral delay line of rectangular cross section with a ferrite plate, on the temperature, the composition of the ferrite, and the magnitudes of the magnetizing fields. 3 ref. Summary.

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USSR

UDC 621.385.62.2

LEPILOV, V.A., NEGANOV, V.A.

"On The Effect Of Amplification In An M-Type TWT With A Negatively Charged Decelerating System"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 8, pp 61-64 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8A145)

Translation: An analysis of the dispersion equation for a Type M TWT with a negatively charged decelerating system shows that amplification of the input signal is possible in this device. It is established that with an increase of the length of the device the amplitude of the high-frequency field is decreased to zero at first and subsequently either increases exponentially with larger values of the space charge parameter or periodically changes with small values of the space charge parameter. Summary.

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1/2 023 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--TO AN ANALYSIS OF A TWO STAGE M TYPE TWT WITH A NEGATIVELY CHARGED  
RETARDING SYSTEM -U-  
AUTHOR-(C2)-SHARAYEVSKIY, YU.F., LEPILOV, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--V SB. VOPR. ELEKTRON, TEKHNIKI (PROBLEMS OF ELECTRONICS  
REFERENCE--RZH-ELEKTRONIKA I YEYE PRIKLENENIYE, NO 6, JUNE 1970, ABSTRACT  
DATE PUBLISHED-----70  
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.  
TOPIC TAGS--TRAVELING WAVE TUBE, ELECTRONIC AMPLIFIER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605023/803 STEP NO--UR/0000/70/000/000/0062/0069  
CIRC ACCESSION NO--AR0141240

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AR0141240

ABSTRACT/EXTRACT--(U) CP-0- ABSTRACT. A VARIATION OF A M TYPE TRAVELING WAVE TUBE AMPLIFIER WHICH CONSISTS OF A UNIT WITH A NEGATIVELY CHARGED RETARDING SYSTEM IS ANALYZED, AND LATER A POSITIVELY CHARGED RETARDING SYSTEM. A QUANTITATIVE EVALUATION IS GIVEN OF THE POSSIBILITY OF A SIGNIFICANT INCREASE OF THE AMPLIFICATION IN THE VARIANT OF THE DEVICE MENTIONED, AS COMPARED WITH AN ORDINARY M TYPE TWT AMPLIFIER.

UNCLASSIFIED

USSR

000 621.889.632

SHARAYEVSKIY, YU. P., LEPILOV, V.A.

"To An Analysis Of A Two-Stage M-Type TWT With A Negatively-Charged Retarding System"

V sb. Vopr. elektron. tekhniki (Problems Of Electronics Technology--Collection Of Works), Saratov, 1970, pp 62-69 (from Rad--Elektronika i yeye primeneniye, No 6, June 1970, Abstract 6A140)

Translation: A variation of a M-Type traveling-wave tube amplifier which consists of a unit with a negatively-charged retarding system is analyzed, and later a positively-charged retarding system. A quantitative evaluation is given of the possibility of a significant increase of the amplification in the variant of the device mentioned, as compared with an ordinary M-Type TWT amplifier. Summary.

USSR

UDC 539.389

LEPIN, G. F., TIKHONOV, A. P., and AGULOV, V. T.

"Optimal Deformational Strengthening of Metals and Alloys in the Presence of Creep"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan/Feb '73, pp 76-79

Abstract: A theoretical method is suggested for a solution to the question of the behavior of metals under high temperatures and loadings after preliminary deformation at certain temperature and stresses. From the interrelation between the value of optimal preliminary deformation and stresses, the following equation of minimal creep deformation is derived:

$$\beta = m \left( \beta / 1 - \exp \frac{\alpha k \beta}{1 - k} \right)^{1-n} \exp \left( \alpha k \beta / 1 - \exp \frac{\alpha k \beta}{1 - k} \right)$$

where  $a$ ,  $n$ ,  $k$  are the heat-resistant characteristics of a metal at a given temperature;  $\beta = \sigma_0 \epsilon$  ( $\sigma_0$  is the initial stress in a sample subjected to loading,  $\epsilon$  is the relative plastic deformation). This equation makes it possible to solve a great number of problems encountered in design work. As an example, the creep curves of the EI437B alloy at 650°C calculated from the above equation are presented.

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1/2 047 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--ELECTRICAL CONDUCTIVITY AND RADIATION OF A HIGH TEMPERATURE  
NITROGEN FLOW CONTAINING POLYDISPERSE MAGNESIUM AND ALUMINUM PARTICLES  
AUTHOR--(05)-ZAKE, M., LEPIN, V., MELNIKOV, V.K., MILLERS, T., CIELENS, U.

COUNTRY OF INFO--USSR

SOURCE--LATV. PSR ZINAT. AKAD. VESTIS, FIZ. TEH. ZINAT. SER. 1970, (2),

73-9  
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--ELECTRIC CONDUCTIVITY, NITROGEN, MAGNESIUM, ALUMINUM, GAS  
FLOW, METAL POWDER, NITRIDE, OXIDE, HIGH TEMPERATURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1998/1339

STEP NO--UR70371/70/000/002/0073/0079

CIRC ACCESSION NO--AP0121832

UNCLASSIFIED

2/2 047

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121832

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELEC. COND., RADIATION, AND CHEM. COMPN. OF THE PRODUCTS FORMED FROM THE REACTION OF A HIGH TEMP. N FLOW WITH POLYDISPERSE PARTICLES OF MG AND AL AT 1200-1300DEGREEEK WERE STUDIED. THE COND. OF THE N FLOW WITH MG AND AL PARTICLES STARTS INCREASING AT GAS TEMPS. OF 1600-1800 AND 2000DEGREEEK, RESP. MG PARTICLES CHANGE THE ELEC. COND. OF THE FLOW WITH A DEPENDENCE SIMILAR TO THE EXPONENTIAL TYPE, WHEREAS AL PARTICLES SHOW A DEPENDENCE WITH A MAX. AT 2100 PLUS OR MINUS 100DEGREEEK. THE CHARACTER OF THE CHANGE IN THE ELEC. COND. IS EXPLAINED ON THE BASIS OF EXISTING IDEAS ABOUT THE MECHANISM OF THE CHEM. REACTIONS OF MG AND AL WITH O. THE INTEGRAL RADIATION OF THE FLOW IS DETD. MAINLY BY THE CONC. OF THE PARTICLES. THE PRINCIPAL PRODUCTS OF THE REACTION OF MG AND AL PARTICLES IN INDUSTRIAL N ARE OXIDES AND NITRIDES, AND THE AMTS. OF THESE COMPOS. ARE DETD. BY THE TEMP. OF THE FLOW. FACILITY: FIZ. ENER. INST., RIGA, USSR.

UNCLASSIFIED

USSR

UDC 620.193.43

BULER, P. I., TOFORISHCHEV, G. A., YESIN, O. A., KOPYSOV, V. A.,  
and LEPINSKIKH, V. B., Ural Polytechnic Institute named  
S. M. Kirov

"Anodic Behavior of Nickel in Melted Sodium Tetraborate"

Moscow, Zashchita Metallov, Vol 19, No 2, Mar-Apr 73, pp 196-198

Abstract: The anodic oxidation of nickel in melted sodium tetraborate was investigated in air at 800-900 °. The anodic polarization of Ni (curves  $\Delta j - i$ ) was determined under galvanostatic and potentiostatic conditions. The current efficiency of Ni was defined from the anodic mass decrease and the current efficiency of O from the volume of separated gas. The anodic dissolution of Ni in bivalent form ( $Ni_{(metal)} = Ni^{2+} + 2e$ ) with 80-85% current efficiency is characterized principally by the initial part of the polarization curves. Followed by concentrating polarization, the anodic dissolution of Ni leads to the development of a passivating film. The latter, gaining a hole conductivity, becomes the outer surface of the electrode on which the discharge of oxygen ions is realized. Together with this process, a partial oxidation proceeds of bivalent to trivalent Ni on the oxide-electrolyte boundary. Three films: rus. eight bibliographic references. 1/1

1/2 012

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--POLYMERIZATION OF METHYL METHACRYLATE IN THE PRESENCE OF BUTYL NITRITES DURING PHOTO AND REAGENT INITIATION -U-

AUTHOR--(03)-SECHKOVSKAYA, V.A., LEPLYANIN, G.V., GLADYSHEV, G.P.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK KAZ. SSR, SER. KHIM. 1970, 20(1), 59-64

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYMETHYLMETHACRYLATE, POLYMERIZATION INHIBITION, ORGANIC PEROXIDE, PHOTOPOLYMERIZATION, NITRITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1937/0323

STEP NO--UR/0360/10/020/001/0099/0064

CIRC ACCESSION NO--AP0103978

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--18SEP70

2/2 012

CIRC ACCESSION NO--AP0103978  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. BU NITRITES, WHICH CAUSE WEAK INHIBITION OF ME METHACRYLATE POLYMN. IN THE DARK WITH INITIATION BY 82 SUB2 O SUB2 OR DICYCLOHEXYL PEROXYDICARBONATE, STRONGLY INHIBIT LIGHT INITIATED POLYMN. N, ISO, SEC, AND TERT BUONO SCARCELY AFFECT POLYMN. SPEED IN THE INITIAL STAGES BUT THEY SLOW DOWN THE PROCESS AT THE GELATION STAGE AT HIGH DEGREES OF CONVERSION. RATIOS OF INHIBITION CONSTS. TO GROWTH CONSTS. AT 40DEGREES FOR THE 4 ISOMERS WERE 8.5-12.5 TIMES 10 PRIME NEGATIVE2. THE PROPOSED MECHANISM OF INHIBITION WITHOUT IRRADN. INVOLVES REACTION BETWEEN FREE RADICALS R TIMES AND BUONO TO GIVE BUOR AND NO, WHICH MAY REACT WITH FREE RADICALS AT LOW TEMPS. OR ADD TO THE MONOMER AT HIGHER TEMPS. (90DEGREES) WHERE THE INHIBITING EFFECTS ARE ALMOST NIL. DURING PHOTOPOLYMN., THE BUONO GIVES NO AND BUO RADICALS, WHICH MAY ADD TO THE MONOMER TO GIVE CHAIN GROWTH VIA R TIMES, BUT R TIMES CHAINS MAY BE TERMINATED BY 3 REACTIONS: R TIMES PLUS NO YIELDS RND; R TIMES PLUS RNO YIELDS RNR; OR R TIMES PLUS RNR YIELDS RONR SUB2. TEMP. INCREASES FOR PHOTOPOLYMN. ALSO WEAKEN THE INHIBITING INFLUENCE OF NITRITES.

UNCLASSIFIED

USSR

UDC: 621.394.44:621.372.542.29(088.8)

LEPORINSKIY, L. Ye.

"A Multichannel Discrete Low-Frequency Band Filter"

USSR Author's Certificate No 250225, filed 18 Apr 68, published 21 Jan 70 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7D59 P)

Translation: This patented device is designed for separating frequency channels in radiotelegraph receivers. The unit contains a standard frequency pulse generator. To ensure a predetermined stability and precision in limiting the passband of the filter without the need for tuning, the generator output is connected to a standard frequency pulse counter, which is connected by digital places to a matrix unit which fixes the states of the counter for the duration of the frequency period at the filter input. The filter outputs are connected through coincidence circuits and pulse accumulators to memory output elements. The source of pulses on the frequency to be measured is connected directly to the second inputs of the coincidence circuits, and through a network consisting of a flip-flop and a coincidence circuit to the set input of the counter. The set inputs of the memory output elements are connected through the corresponding OR circuits to the outputs of all pulse accumulators and to an additional OR circuit whose inputs are connected to the outputs of all pulse accumulators and to the counter outputs. The counter is also connected to the set inputs of all memory output elements. Resumé.

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AN 026084

UR 9017

FROM: FBIS, Foreign Press Digest, Cybernetics in the USSR, 28 Jan 70, FPD 0006  
2. USSR

PETERSEN, I., Deputy Director of the Cybernetics Institute of the Estonian SSR Academy  
of Sciences; LEPPIK, K., Head of the Operations Research Sector

"The EVM and Production"

Tallin, Sovetskaya Estoniya, 22 Nov 69, p 2

Translation: At one time the question of the ways of introducing the so-called  
methods of optimal control into practice was discussed rather widely in the republic  
press. To create specialized groups of economists, engineers, and mathematicians  
under associations or even individual enterprises? Or to concentrate scientific  
resources in large centers fitted out with the appropriate equipment and to  
"distribute output" in the form of standard solutions which could then be adapted  
to the needs of the consumers to the extent necessary?

At the present stage at any rate, the adherents of the second way have gained  
the preponderance. A number of collectives have now been put together in the  
republic, such as the Estonian section (otdeleniye) of the Central Mathematical

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Economics Institute of the USSR [Academy of Sciences], the Tallin Technical Planning - Technological and Scientific Research Institute, the Scientific Research Institute of the Estonian SSR State Committee for Construction Affairs, and the Tartu [State University] Computer Center, where they are systematically devoting themselves to operations research, the introduction of systems for the optimization of control, machine technical planning, etc. In the Cybernetics Institute of the Estonian SSR Academy of Sciences problems of the mathematization of the solution of various national economic questions have now taken a leading place.

A mathematical model of a specific production unit, as the first step towards the creation of an optimal control system, is based on specific information, for the utilization of which one has, each time, to develop specific statistical methods all over again.

In a number of cases these elaborations are theoretical in character. However, often there is an opportunity to experiment with the object, for example, in the semi-industrial analysis of technological processes. But how to plan such experiments? The institute has proposed a method, which has already found wide use, to solve the problem. How the indicators of a paper's quality and of the length of the cellulose fibers are correlated was finally ascertained for the Feldora Cellulose and Paper Combine, for example. This increased the effectiveness of the technology. A new system for distributing semiconductor devices by types was proposed to the Electrical Engineering Plant Imeni Kh. Pegelman. The result was a significant saving.

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The next step in constructing a control system, in short, boils down to choosing one of many possible variants. The criterion here is the extreme value of the chosen indicator. For real systems such variants are literally innumerable. Comparison of all the possible ones is difficult even with the help of computers. Therefore special attention is given in the institute to the creation of appropriate mathematical methods which aid the read-in (vved) of problems into the computer. Linear programming methods have been improved and adapted to our conditions and a group (kompleks) of programs for the solution of almost all the basic types of linear programming problems has been developed as a result. As an example: transportation processes have been optimized since 1965 in collaboration with the freight transportation administration of the city of Tallin.

Many operations of the Cybernetics Institute are devoted to the development of computer software. Here one has to do with the development of special simplified languages which permit one to conveniently describe all the required computations and to translate them, so to speak, into the machine's own language -- into a machine program. These are MALGOL and VELGOL, which have been used for several years already in the country's computer centers. A series of standard programs for the solution of standard problems have also been created. The experience accumulated is now being utilized in the development of the software for a new series of domestic computers in conjunction with the Institute for Electronic Control Machinery.

Specialized systems for automating the programming for technological processes occupy an important place in the subject plan of the institute. The SAP and APR0K3

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systems have been developed for the automatic preparation of information for program controlled machine-tools. These systems are in use. The annual saving from them is reckoned in the millions of rubles. A republic prize was awarded to the authors, B. Tamm and Yu. Prudden.

Optimal control of the production of formaldehyde at the "Kiviysi" Shale-Chemical Combine should be mentioned among the works of an applied nature. The first year of operation has already yielded a savings of a quarter of a million rubles. After improvement, the system is to be used by a number of the country's chemical combines. Its authors (led by R. Tavast) have been awarded republic prizes.

The most economic way for the building-up (zastroyka) of Tallin is also being determined by mathematical-economic methods developed in the institute: the sequence of the erection of new residential blocks and of providing them with utilities and main transportation lines. Besides economic factors, certain social aspects are taken into account in the models which have been developed, for example, the inhabitants' expenditures of time for movement, changes in the demographic structure of the population, and others.

A unique and difficult object of investigation for the Cybernetics Institute is the process of the planning and control of the republic's national economy. The institute has begun a study of the flows of the movement of information at the various

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stages of the formulation of the national economic plan in the republic Gosplan with the object of modeling this process and automating the most important calculations. Standard, constantly repeating groups of arithmetic and logical operations in the planning calculations, which are the basis of the system of standard subprograms now being created, were brought to light as a result. These subprograms are applicable also in various spheres of accounting and reporting and they will appreciably expedite and facilitate the writing of programs for the solution of specific problems. In particular, a series of programs have been written for calculating specific forms of the draft state plan and the appropriate computations performed.

It should be noted that further progress is possible only in collaboration with practicing economists. The creation of an automated planning system requires the coordination of many scientific, technical planning, economic and administrative institutions. This question needs to be resolved on a republic scale.

The Cybernetics Institute of the Estonian SSR Academy of Sciences intends, in [its] future research, to combine the development of new cybernetic methods with the solution of practical problems.

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Soviet Inventions Illustrated, Section I Chemical, Derwent,

233024 ELECTRICAL CONTACTS have their transient resistance reduced by heating them after degreasing, under a high vacuum at 400-1000°C for 1-2 hrs, after which the temp. is lowered to 50-100°C and maintained for not more than 8 hrs. at a pressure of not less than 0.5 atm. in the same gas medium in which the contacts are intended to operate. 23.1.67. as 1128391/24-7. A.M. LEPSKIY et al. Leningrad Industrial Union "Krasnaya Zarya". (11.7.69.) Bul.9/20.2 69. Class 21g, 21c. Int.Cl. H02c. H01h.

LD 4

AUTHORS: Lepskiy, A. M.; Karandina, V. A.; Vasil'yav. A. M.; and Aleksandrova, G. F.

Leningradskoye Proizvodstvennoye Ob'edineniye "Krasnaya Zarya"

19740021

USSR

UDC: 519.2:54

OVSEPYAN, F. A., LEPSKIY, D. A.

"On an Algorithm of Identification"

Tr. Spets. konstrukt. byuro po avtomatike v neftepererabotke i nefte-  
khimii (Works of the Special Design Office on Automation in Petroleum  
Refining and Petrochemistry), 1971, vyp. 3, pp 141-144 (from RZh-Kiber-  
netika, No 9, Sep 71, Abstract No 9V268)

Translation: Selection of the most informative group of variables plays an important part in problems of identification and control. A group of this type is the set of variables of a preassigned volume on which the multi-variate coefficient of correlation between the output variable and the group of input variables reaches a maximum. It is known that the method of sampling by trial and error does not always yield the most informative group of variables. Two numerical examples are presented which illustrate this fact: an example with artificially selected data and the results of processing of actual statistical data on identification of the process of condensation of isobutylene with formaldehyde. The authors conclude that a complete sorting method must be used in constructing models. A. Zaslavskiy.

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USSR

UMC: 621.372.85

GAL'CHENKO, N. A., LEBER, A. M., MIKHALEVSKIY, V. S.

"A Thin Inductive Line Stretcher in  $\Pi$ - and H-Waveguides"

Kiev, IVUZ: Radioelektronika, Vol 15, No 3, Mar 72, pp 302-307

Abstract: A modified Schwarz method is used as a basis for a theoretical analysis of a nonhomogeneity in the form of a thin inductive rod in  $\Pi$ - and H-waveguides. The resultant formulas are sufficiently accurate for practical purposes in calculating shunting impedance.

1/1

USSR

UDC 669.295:539.2:539.214

TRENOGINA, T. L., MURZAYEVA, G. V., LERINMAN, R. N., POTAPENKO, YU. I., and KAGANOVICH, I. N., Institute of Physics of Metals, Academy of Sciences USSR

"Electron-Microscope Study of Structural Changes Occurring Upon High Temperature Thermomechanical Treatment of Titanium Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 6, Dec 73, pp 1242-1252.

Abstract: The microstructural changes occurring in VT15 (beta alloy) and VT9 (alpha plus beta alloy) upon high temperature thermomechanical treatment were studied using the method of transmission electron microscopy. Particular attention was given to the influence of the duration of the pause between the end of deformation and hardening on the microstructure of the alloys. It was established that it is the creation of a polygonized structure which is responsible for the favorable combination of strength and plastic characteristics of these alloys. It is shown that as the duration of the pause between the end of deformation and hardening is increased, the increase in plasticity and decrease in strength observed results primarily from a change in the phase ratio and the dispersion of the phases.

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USSR

UDC 548.535

LERINMAN, R. M., MURSAYEVA, G. V., NIKANOROV, M. A., and  
KHOVOSTYNTSEV, K. I., Institute of Physics of Metals, Academy of  
Sciences USSR

"Influence of Plastic Deformation and Alloying With Slight  
Amounts of Interstitial Elements on Decomposition of the Meta-  
stable  $\beta$  Phase in TC6 Alloy"

Sverdlovsk, Fizika Metalloy i Metallovedeniya, Vol. 31, No 3,  
Mar, 71, pp 626-633

Abstract: Electron microscopy and determination of the mechanical  
properties are used to study TS6 alloy with various contents of  
interstitial impurities in various initial states. It is de-  
monstrated that after rolling and aging, the alloy reaches its  
maximum strength properties with briefer aging and considerably  
smaller dimensions of  $\alpha$  phase segregations than after ordinary  
aging. The density of residual dislocations in the alloy follow-  
ing rolling and aging is still near the density of dislocations  
in the deformed state with these types of treatment. With low  
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USSR

LERINMAN, R. M., et al., Fizika Metallov i Metallovedeniye,  
Vol 31, No 3, Mar 71, pp 626-633

degrees of deformation, a high combination of mechanical properties can be achieved only in the case of the initial polygonized state. The influence of an increased content of interstitial impurities with rolling and aging on the kinetics of decomposition of the  $\beta$  phase is significantly weaker than in the case of ordinary aging.

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57

USSR

UDC 669.295:620.193.91:548.4

LERINMAN, R.M., MURZAYEVA, G.V., NIKAJOROV, M.A., and KHVOSEMYITSEV, K.I.,  
Institute of Metal Physics, Academy of Sciences USSR

"Effect of Initial Dislocation Structure and Interstitial Impurity Content  
on the Microstructure and Properties of Beta-Titanium Alloy TS6 After Aging"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 31, No 2, Feb 71, pp 352-357

Abstract: This article is a continuation of works devoted to a study of changes in structure and mechanical properties of TS6 beta-titanium alloy after aging in relation to initial structure and interstitial impurity content. Sheet samples of TS6 alloy of two heats with a differing impurity content were studied. One heat (971) was melted in VLEK electrolytic vanadium the other (603) -- in aluminothermic vanadium by electron-beam remelting. Heat 603, in contrast to heat 971, contained 1% Zr. The fine structure and mechanical properties were investigated after heat treating by the following modes: a) quench from 850°C, deformed 40% by rolling and given repeated quenches from 700, 800, and 900°C (hardened state); b) aging of samples quenched from the above-stated temperatures. Aging was accomplished at 400°C for 2, 10, and 30 hours. In the initial polygonized state particles of the liberated phase, upon aging, were highly dispersed and distributed uniformly, which is the result of alpha-phase particle nucleation into dislocations. In the initial  
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LERINMAN, R.M., et al, Sverdlovsk, Fizika Metallov i Metallovedeniye. Vol 31, No 2, Feb 71, pp 352-357

recrystallized state for pure melting, the low mechanical properties are dependent on the vast nonuniformity of beta-phase decomposition which leads to the formation of local stresses near the particles at the time of deformation. The measured content of interstitial impurities facilitates obtaining a uniform and more dispersed structure after aging and decreases bordering layers made up of the un-decomposed beta-phase. The best properties of alloy TS6 can be obtained in combination with the initial polygonized state and an optimum content of impurities of interstitial atoms (Tensile Strength = 140 kg/mm<sup>2</sup>, reduction in area = 6%). 3 figures, 1 table, 9 bibliographical references.

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USSR

UDC 548.535

LERINMAN, R. M., MURSAYEVA, G. V., NIKANOROV, M. A., and  
KHOVOSTYNTSEV, K. I., Institute of Physics of Metals, Academy of  
Sciences USSR

"Influence of Plastic Deformation and Alloying With Slight  
Amounts of Interstitial Elements on Decomposition of the Meta-  
stable  $\beta$  Phase in TC6 Alloy"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 31, No 3,  
Mar, 71, pp 626-633

Abstract: Electron microscopy and determination of the mechanical  
properties are used to study TS6 alloy with various contents of  
interstitial impurities in various initial states. It is de-  
monstrated that after rolling and aging, the alloy reaches its  
maximum strength properties with briefer aging and considerably  
smaller dimensions of  $\alpha$  phase segregations than after ordinary  
aging. The density of residual dislocations in the alloy follow-  
ing rolling and aging is still near the density of dislocations  
in the deformed state with these types of treatment. With low  
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USSR

LERINMAN, R. M., et al., Fizika Metallov i Metallovedeniye,  
Vol 31, No 3, Mar 71, pp 626-633

degrees of deformation, a high combination of mechanical properties can be achieved only in the case of the initial polygonized state. The influence of an increased content of interstitial impurities with rolling and aging on the kinetics of decomposition of the  $\beta$  phase is significantly weaker than in the case of ordinary aging.

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USSR

VDC 669.29.620.187

MURZAYEVA, G. V., and LERINMAN, R. M., Institute of Metal Physics, Academy of Sciences USSR

"Electron Microscope Study of Metastable Beta-Phase Dissociation in Titanium Alloy TS6"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 813-823

Abstract: An investigation was made of the decomposition of the metastable beta-phase in TS6 titanium using transmission electron microscopy and electron diffraction techniques. The effect of plastic deformation on the process of beta-phase aging was also examined.

Sheets of alloy TS6 were alloyed with electrolytic vanadium (VEL-3) giving the following chemical composition (in %): 2.9 Ti, 3.8 Al, 6.6 Mo, 10.0 V, 0.1 Cr, 0.01 Fe, 0.02 Si, 0.008 C, 0.03 N, 0.006 H<sub>2</sub>, and O<sub>2</sub> [% of O<sub>2</sub> unknown due to typographical error]. The structure of the aged alloy was investigated after the following modes of heat treatment: a) 40% deformation followed by quenching from 800 and 900°C (recrystallized state) + aging (480°C -- 2, 10, and 30 hours); b) 40% deformation + quenching from 700°C (polygonized state) + aging (480°C -- 2, 10, and 30 hours); c) 40% deformation + quenching from 700, 800, and 900°C + deformation (10, 20, and 40%) + aging (480°C -- 2, 10, and 30 hours) -- mechanical-  
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USSR

MURZAYEVA, G. V., and LERINMAN, R. M., Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 813-823

thermal treatment (MTT). Strips of the sheets, the cladings layer having been previously polished to a depth of 0.25 mm, were rolled to a thickness of 0.1 mm. Heat treatment of the resulting foil was done in a vacuum furnace ( $10^{-5}$  mm Hg) and quenched in water. For inspection in the electron microscope the foils were thinned electrolytically in a mixture of acetic anhydride and perchloric acid with continuous cooling of the bath walls with circulated water. A goniometric table was used in conjunction with the electron microscope to determine Burger's vectors of dislocations.

It was found that particles of the alpha-phase are precipitated in the process of beta-phase decomposition at 480°C. They are lenticular plates elongated along the  $\langle 110 \rangle$  direction. In most cases the plane of appearance is the  $\{112\}$  plane. Orientation correspondence follows that of Burger's principle. All this holds true for precipitation of the alpha-phase independent of whatever strain preceded their formation. In the alpha-phase particles, a banding contrast of two types was noted. The first type was caused by formation of a band of displacement. The second type was bound to the formation of discontinuity dislocations equalizing the discontinuity of the beta- and alpha-phase crystal lattices. They were absolute screw dislocations.

The surface of the alpha-phase particles had a staggered nature which can be

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MURZAYEVA, G. V., and LERINMAN, R. M., Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 813-823

explained by splitting the alpha-phase into translation domains during its formation. Alpha-phase particle size, after MTT, is much less than after ordinary aging. This is caused by nucleation of precipitated particles into numerous dislocations, introduced by deformation. However, the surface structure of alpha-phase particles in samples deformed prior to aging, even after a short heating interval, was similar to that in nondeformed samples after lengthy aging and had a cellular character.

The authors thank N. N. Buynov, L. M. Utevskiy, and T. V. Shegolevaya for discussion and useful suggestions, and M. A. Nikanorov and K. E. Khrvostyutsev for the material used in the research and for constant interest in the work.

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1/2 040 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--ELECTRON MICROSCOPE STUDY OF THE DECOMPOSITION OF A METASTABLE BETA  
PHASE IN TS6 TITANIUM ALLOY -U-  
AUTHOR-(02)-LERINMAN, R.H., MURZAYEVA, G.V.  
COUNTRY OF INFO--USSR  
SOURCE--FIZIKA METALLOV I METALLOVEDENIE, VOL. 29, APR. 1970, P. B13-823  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, PHYSICS  
TOPIC TAGS--ELECTRON MICROSCOPY, ALLOY DESIGNATION, TITANIUM ALLOY,  
BIBLIOGRAPHY, ELECTRON DIFFRACTION, METALLURGIC RESEARCH FACILITY, METAL  
AGING, THERMOMECHANICAL TREATMENT, CRYSTAL DISLOCATION, ALLOY PHASE  
TRANSFORMATION, BETA PHASE/(U)TS6 TITANIUM ALLOY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3001/0391 STEP NO--DR/0126/70/019/000/0813/0823  
CIRC ACCESSION NO--AP0126146  
UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126146

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE DECOMPOSITION OF A METASTABLE PHASE DURING MECHANICOTHERMAL TREATMENT AND ORDINARY AGING OF TS6 ALLOY AT 480 C, USING TRANSMISSION ELECTRON MICROSCOPY AND ELECTRON DIFFRACTION. THE SHAPE, HABITUS PLANE, GROWTH DIRECTION, AND ORIENTED CORRESPONDENCE TO THE MATRIX OF ALPHA BASE SEGREGATIONS ARE DETERMINED.

IT IS ESTABLISHED THAT INCONGRUITY DISLOCATIONS FORM ON THE SURFACES OF THE ALPHA PARTICLES, WHICH COMPENSATE FOR THE INCONGRUITY BETWEEN THE BETA AND ALPHA PHASES. IT IS NOTED THAT THE STRUCTURE OF THE SURFACES OF ALPHA PARTICLES IN SPECIMENS DEFORMED BEFORE AGING DIFFERS FROM THEIR STRUCTURE IN UNDEFORMED SPECIMENS SUBJECTED TO THE SAME AGING CONDITIONS.

FACILITY: AKADEMIJA NAUK SSSR, INSTITUT FIZIKI METALLOV, SVERDLOVSK, USSR.

UNCLASSIFIED

Acc. No: **A.P. LERMAN**  
**AAO108686** Abstracting Service: -

Ref. Code:  
UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,  
Derwent, 3/10 243046

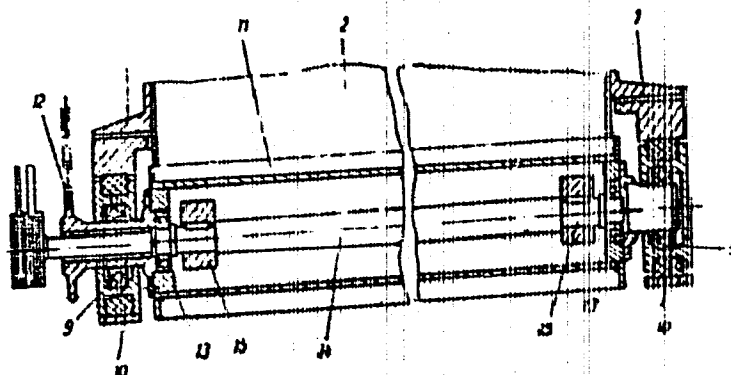
**ROAD SPREADER VEHICLE** has its one bin wall hinged to the lifter linkage and fitted with a bladed spreader screw. The metering rotor (11) is fitted with an inside shaft (14) carrying disbalancers (15). To spread coverings on road surfaces etc., the vehicle is placed on the road and a gate opened enough to allow the requisite amount of gravel or rubble out. The vehicle is started and with it the rotor and its disbalancer shaft, and finally the spreader screw. To fill the bin, the wall is simply lowered horizontal, turning round the hinge. The screw evenly spreads the gravel along the shaft. In work, the rotor turns so that its speed vector coincides at its zenith with the direction the vehicle is moving. The gravel is sprinkled out between the gate and rotor blading. The shaft and disbalancers vibrates the rotor to ease friction loading and ensure that the gravel does not stick. Bearings (9) are connected to the frame through shock absorbers (10) to prevent vibrations reaching the vehicle body. Jacks raise or lower the wheels, rotation being passed from the track rollers through connecting shafts to the extensible wheels.

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CX

REEL/FRAME  
19900402

AA0108686



22.3.68 as 1228371/29-14 LERMAN, A.P. et al. Ministry  
of Transport Construction Design Office USSR (29.9.69)  
Bul. 17/14.5.69. Class 19c, Int. Cl. E 01d.

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CK

19900403

AA0108686

AUTHORS: Lerman, A. P.; Syrkin, Yu. N.; Gol'dshcheyn, A. Yu.;  
Veytsman, M. I.

Proyektno-Konstruktorskoye Byuro Glavstroyemkhanizatsii  
Ministerstva Transportnogo Stroitel'stva SSSR

3/3

19900404

1/2 019 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--CHOICE OF THE INITIAL THRESHOLD FOR REGISTRATION OF IMPULSES AND  
OPTIMAL CONDITIONS OF GAMMA LOGGING BY RADIOMETERS ON SCINTILLOMETERS  
AUTHOR--LERMAN, G.I.

COUNTRY OF INFO--USSR

SOURCE--GEOFIZICHESKIY SBORNIK, KIEV, 1970, NR 33, PP 84-94

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--GAMMA LOGGING, RADIOMETER, SCINTILLATION COUNTER, PULSE  
AMPLITUDE, GAMMA SCATTERING, MINERAL FORMATION ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1977/0406

STEP NO--UR/0000710/000/033/0084/0094

CIRC ACCESSION NO--AT0043973

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--09DCT70

CIRC ACCESSION NO--AT0043973

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE CONTAINS THE RESULTS OF EXPERIMENTAL AND METHODOLOGICAL RESEARCHES WITH APPARATUS DPCT-1 AND DPCT-2 THAT WERE CARRIED OUT BY THE AUTHOR IN 1966-1967. POINTING TO THE IMPORTANCE OF THE INITIAL THRESHOLD FOR REGISTRATING THE IMPULSES LESS THAN 50 KEV TO ENSURE THE MAXIMUM SENSITIVITY AND STABILITY OF INTEGRAL READINGS OF THE APPARATUS, THE AUTHOR ANALYSES THE EFFECT OF ELECTRIC PARAMETERS OF PHOTOELECTRONIC MULTIPLIERS, QUALITY OF DETECTORS AND WEAR LEVEL OF THE AMPLITUDE DISCRIMINATOR OF THE HOLE SHELL ON THE ABOVE MENTIONED THRESHOLD. AT THE SAME TIME THE COMBINED METHOD IS SUGGESTED OF TUNING THE THRESHOLD BY SELECTION OF FEEDING TENSION OF FE0-35 AND WEAR LEVEL OF THE AMPLITUDE DISCRIMINATOR. THE CONCRETE CONDITIONS ARE ANALYSED UNDER WHICH ONE OF THESE METHODS IS DOMINATING. CHOICE OF THE OPTIMAL CONDITIONS FOR GAMMA LOGGING IS SUGGESTED TO BE CARRIED OUT TAKING INTO ACCOUNT THE VARIABILITY AND STATISTICAL FLUCTUATIONS OF THE NORMAL FIELD OF ENCLOSING ROCKS, MEASUREMENT ERRORS AND DECREASE OF THE REAL INTENSITY OF THE RADIOACTIVE BEES. THE CONDITIONS OF LOGGING FOR LITHOLOGIC SEPARATION OF THE SECTION AND THAT FOR THE SEARCH OF RADIOACTIVE ELEMENTS ARE CLEARLY DIFFERENTIATED. THE METHOD FOR COMBINATION OF THESE TWO PROBLEMS IS SUGGESTED.  
FACILITY: MINISTRY OF GEOLOGY OF THE UKRAINIAN SSR, GLAVGEOLRAZVEDKA.

UNCLASSIFIED

LERNER, A. YA.

Human engr

CO 59352  
5 Mar 1972

OPEN CONTROL PRINCIPLE OF MULTILEVEL SYSTEMS

Human engr

Article by A. Ya. Lerner, Moscow, U.S.S.R. (Submitted to the Journal of Systems Management, Vol. 23, No. 3, 1972, pp. 20-24)

1. Active systems

The basic feature of complex multilevel management systems is the property of activity which consists in the following:

- a) The system acts in its own interest, that is, it strives to achieve defined goals (both present and future);
- b) The system has the capacity to predict;
- c) The system shows its internal capabilities more profoundly than the control systems of the upper levels (from within, in particular, comes the necessity for the upper level systems to collect data on the capabilities of subordinate lower level systems);
- d) The system is informed about the decelerating processes at the upper levels and uses this information, in all operations, such as goal determination, planning, etc., to the plan execution step;
- e) Open control principle.

The open control principle was proposed to control active systems in the form of the flow of information. It consists in the following: the lower level reports a set of possible plans and the performance function of plans to the corresponding upper level controlling system. When selecting the planning method, each subsystem has the authority to assign only restricted plans to the lower level. A subordinate subsystem, that is, a lower level, the failure of the performance criterion for the established control. In this basis is provided for the open control principle for two-level systems.



USSR

UDC: 51:155.001.57:681.1.06

VAPNIK, V. N., LERNER, A. Ya., CHERVONETSKIS, A. Ya.

"Methods of Instruction in Problems of Diagnosis"

Tr. Mezhdunar. simpoziuma po tekhn. i biol. probl. uprav., 1968. Raspoznavaniye obrazov. Adaptivn. sistem (Works of the International Symposium on Technical and Biological Problems of Control, 1968. Pattern Recognition. Adaptive Systems), Moscow, "Nauka", 1971, pp 31-40 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V618)

Translation: The authors consider relations between theory and heuristics in problems of teaching pattern recognition. A study is made of the fundamental relationship between the job of teaching pattern recognition and the problem of uniform convergence of frequencies to probabilities with respect to a class of events. The use of methods of instruction in problems of diagnosis is considered. Authors' abstract.

1/1

UDC: 550.834

USSR

SHEKHTER, Z. Kh., OOKOLOV, G. S., PETROV, B. I., LERNER, B. Ia., DADERKO, Yu. R., BARYSHNIKOV, G. P., Special Design Office of Seismic Instrument Building

"A Device for Registration of Seismic Information in Digital Form"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obrabotki, Tovarnyye Znaki, No 23, Aug 72, Author's Certificate No 346694, Division G, filed 20 Aug 71, published 28 Jul 72, p 188

Translation: This Author's Certificate introduces a device for registration of seismic information in digital form. The device contains amplifiers in accordance with the number of channels, a multiplexer, an analog code converter, a single-channel digital plotter, and a single-channel playback circuit. As a distinguishing feature of the patent, in order to simplify computer input of recorded seismic information, and to visualize recorded data by means of a single-channel playback device through sequential path-by-path representation of multichannel seismic data in serial digital code on a single track of the magnetic tape, a code converter and an intermediate memory module are added. The code converter

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USSR

SHEKHTER, Z. Kh. et al., USSR Author's Certificate No 316694

has a single input connected to the output of the analog code converter, and several outputs of demultiplexed signals in serial code to equal the number of seismic channels. In the registration mode, each of the converter outputs is connected through a commutator to its own section of the intermediate memory. In the mode of path-by-path transcription of signals from the intermediate memory to a single track of the magnetic tape and to the visible information medium, the sections of the intermediate memory which each have their own corresponding seismic recording path are connected to the main head of the digital plotter and to the input of the single-channel playback circuit through the same commutator used for sequential switching of these signal sections.

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Environmental & Ecological Problems

USSR

BLEEYEV, V. I., D'YACHKOV, V. I., LEINER, I. B., MISENIN, V. K., NEMIAN-KINA, G.S.  
NERKITINA, Ye. I., DIANOVA, YE. F., and PAVLOVNOVA, R. Ye.

"Joint Hygienic Study of Atmospheric Pollution in Certain Industrial Centers of  
the Central Volga Region"

Sb. nauch. tr. Kuybyshev, NII gigiyeny (Collection of Scientific Works of the  
Kuybyshev Scientific Research Institute of Hygiene), No 7, 1972, pp 92-93  
(from RZh-Geofizika, Svochny tom, No 5, 1973, Abstract No 50504 by L.S.G.)

Translation: A study was made of the contamination of the atmosphere by chemi-  
cal and oil-refining complexes and of the impact of pollutants on the health  
and sickness rate of children and on immunohematological indexes of animals.  
Measures have been elaborated for the elimination and reduction of specific  
discharges into the atmosphere, for the organization of sanitary shielding of  
industrial sites, and for improving the health of the child population.

1/1

USSR

UDC: 658.562.012.7

BARYAKH, B. M., GRANBERG, G. Ya., LERNER, I. U., SLOTSNIK, Ya. Yu., TSIV'YAN, B. Kh.,  
CHERNKOV, V. V.

"Device for Centralized Testing of Parameters of an Object"

USSR Author's Certificate Number 308433, filed 16/05/70, published 12/08/71 (trans-  
lated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya  
Tekhnika, No 3, 1972, Abstract No 3 A371 P)

Translation: A device is suggested for centralized testing of the parameters of  
an object, containing a unit for selection of parameters, an autocompensator with  
a servo system, a rotation-digital converter, a unit for checking the accuracy  
of the servo system of the autocompensator, a defect indicator, a counter unit,  
and a recorder. In order to increase the speed and reliability of testing, the  
device contains a threshold unit connected to the input of the rotation-digital  
converter and a self-testing unit in the servo system, and the output of the  
threshold unit is connected to one input of the self-testing unit of the servo  
system, the second input of which is connected to an additional output of the  
unit for selection of parameters; the output of the counting control is connected

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USSR

BARYAKH, B. M., GRANBERG, G. Ya., LERNER, I. U., SLOTSNIK, Ya. Yu., TSIV'YAN, B. Kh.,  
CIERNKOV, V. V., USSR Author's Certificate Number 308429, filed 16/03/70,  
published 12/08/71 (translated from Referativnyy Zhurnal Avtomatika, Telemekhanika  
i Vychislitel'naya Tekhnika, No 3, 1972, Abstract No 5 A371 P)

to the input of the counting unit, the output of the false balance checking unit is  
connected to the controlling input of the servo system balancing element, while  
the output of the signalling unit is connected to the additional inputs of the  
defect indicator and recorder. 2 figures.

2/2

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USSR

UDC 621.318.576

LERNER, M. I., PANTELEYEV, V. N., RYZHEVSKIY, A. G., SHLYANDIN, V. M.

"Digital Display Device"

USSR Author's Certificate No 307401, filed 27 Nov 69, published 29 Jul 71 (from RZh--Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 4, Apr 72, Abstract No 4A474P)

Translation: A digital display device is proposed which contains a counting decade, a decoder, switches, a display tube, and switch transistors, the base outputs of which are connected via resistors to the outputs of the low-order flip-flop of the counting decade. In order to use low-voltage elements requiring a feed voltage which is positive with respect to the common point to control the indicator tube, the anodes of the indicator tube are connected via series-connected resistors and diodes to the power supply and via capacitors to the collectors of the switch transistors connected via resistors to the power supply, and the bases of the transistors are connected via resistors to the control pulse source. There is 1 illustration.

1/1

1/2 023 UNCLASSIFIED PROCESSING DATE--20NOV70  
 TITLE--MECHANISM OF SECONDARY RECRYSTALLIZATION --U--  
 AUTHOR--(03)--DAVYDOV, YU.I., KRISHTAL, M.A., LERNER, N.I.  
 COUNTRY OF INFO--USSR  
 SOURCE--FIZ. KHIM. OBRAB. MATER. 1970, (1), 114-18  
 DATE PUBLISHED-----70  
 SUBJECT AREAS--MATERIALS, PHYSICS  
 TOPIC TAGS--CHEMICAL REACTION MECHANISM, CRYSTALLIZATION, TUNGSTEN  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAME--1980/0279 STEP NO--UR/0472/70/000/001/0114/0118  
 CIRC ACCESSION NO--AP0043554  
 UNCLASSIFIED



2/2 023

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0049554

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. THE MECHANISM OF SECONDARY RECRYSTN. WAS STUDIED WITH COLD ROLLED W BY HEATING FOR 1 HR AT 100DEGREE INTERVALS BETWEEN 1600 AND 2200DEGREES. AT 1600-1700DEGREES, A STRUCTURE OF NEARLY EQUAL GRAINS, AV. DIAM, 20 MU, FORMED. CRYSTALS BEGAN TO GRW BY THE COALESCENCE OF SMALL GRAINS AT GREATER THAN 1800DEGREES. THE SHAPE OF ETCH PITS ON EACH SIDE OF THE VANISHING GRAIN BOUNDARY WAS DIFFERENT. THE NO. OF DISLOCATIONS,  $\lambda$ , IN A UNIT BOUNDARY LENGTH WAS CALCD. BY  $\lambda B \text{ EQUALS } \sin \theta$ , WHERE B IS THE BURGER'S VECTOR AND  $\theta$  IS THE REORIENTATION ANGLE BETWEEN GRAINS. THE PROBABILITY OF THE BOUNDARY MIGRATION MECHANISM INCREASED WITH  $\theta$ , WHEREAS THE PROBABILITY OF THE SCATTERING MECHANISM DECREASED. COLLECTIVE AND SECONDARY RECRYSTN. OCCUR SIMULTANEOUSLY. IN 1 HR AT 2200DEGREES THE GRAIN DIAM. DUE TO COLLECTIVE RECRYSTN. INCREASED 2 TIMES, WHEREAS THAT DUE TO SECONDARY RECRYSTN. INCREASED 30 TIMES.

UNCLASSIFIED

USSR

UDC: 621.396.69:621.319.4

LERNER, M. M.

"Selection of Capacitors for Electronic Devices"

Vybor kondensatorov dlya elektronnykh ustroystv (cf, English above), Moscow, "Energiya", 1970, 152 pp, ill. 40 k. (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1V279 K)

Translation: The book under review is devoted to construction of a procedure for optimum selection of capacitors. The work consists of five chapters, the first dealing with selection of a capacitor with respect to working conditions, the second dealing with the relationship between the working conditions of a capacitor and circuit parameters, and the third, fourth and fifth dealing with application of the proposed procedure to transformer type and transformerless rectifiers. M. S.

1/1

USSR

UDC 621.385:530.145.6:623

TSIKIN, B. G., KORNOUKHOV, G. M., LEBNER, N. B.

"A Possibility for Reception of Frequency Modulated Light Signals"

Elektron. tekhnika. Nauchno-tekhn. sb. (Electronic Engineering. Scientific and Technical Collection), 1970, ser. 11, vyp. 1(19); pp 69-72 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D376)

Translation: In this article it is proposed that an FM superhigh frequency signal discriminator created on the basis of a two-section traveling wave tube be used for the detection of frequency modulated light signals both with a superhigh frequency subcarrier and without it. The results of experimental investigation of the proposed circuit under conditions of reception of a light signal with an FM subcarrier are presented.

1/1

1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--METHOD OF CHROMATOGRAPHIC DETERMINATION OF BETA MERCAPTOETHYLAMINE  
(MEA) IN BLOOD AND TISSUES -U-  
AUTHOR--(03)-TITOV, A.V., MOROUKHOVICH, V.V., LERNER, O.M.  
COUNTRY OF INFO--USSR  
SOURCE--VOПРОSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 3, PP 329-333  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--MERCAPTAN, AMINE DERIVATIVE, CHROMATOGRAPHIC ANALYSIS, THIOL,  
CYSTAMINE, CHEMICAL LABELLING  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1998/0156 STEP NO--UR/0301/70/016/003/0329/0333  
CIRC ACCESSION NO--AP0120856  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23OCT70

2/2 011

CIRC ACCESSION NO--AP0120856

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT, THE PROPOSED METHOD IS BASED UPON  
BLOCKADE OF SH GROUPS OF MEA AND OTHER THIOL COMPOUNDS BY MEANS OF  
EXCESS OF N-(4,THYDROXY,L,NAPHTYL), ISOMALEIMIDE (NMI). COMPLEXES  
MEA-NMI WERE SEPARATED FROM OTHER THIOL COMPOUNDS AND EXCESS OF REAGENT  
BY MEANS OF PAPER CHROMATOGRAPHY. THE COMPLEXES OF THIOLS AND NMI ON  
THE PAPER WERE LOCATED BY MEANS OF 5,NITRO,O,ANIZIDINE. THE METHOD IS  
SUITABLE FOR MEA IDENTIFICATION IN SOLUTIONS AND PROTEIN FREE EXTRACTS  
OF AMINAL TISSUES AFTER CYSTAMINE ADMINISTRATIONS. THE SENSITIVITY OF  
THE METHOD IS 0.005 MU MOLES OF THIDL. USING THE LABELLED CYSTAMINE IT  
IS POSSIBLE TO CHARACTERIZE QUANTITATIVELY THE CONTENT OF MEA AND ITS  
DECOMPOSITION PRODUCTS IN TISSUES. FACILITY: S. H. KIROV  
MILITARY MEDICAL ACADEMY, LENINGRAD.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--THE PROBLEM OF FORMATION OF PARASITOCENOSIS OF THE HUMAN INTESTINAL  
TRACT IN THE COURSE OF EPIDEMIC PROCESS (COMMUNICATION II) -J-  
AUTHOR--(02)-LERNER, P.M., LEMELEV, V.R.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYIE BOLEZNI, 1970, VOL  
39, NR 2, PP 167-170  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PARASITOLOGY, GASTROINTESTINAL SYSTEM, DYSENTERY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1990/1445

STEP NO--UR/0358/70/039/002/0157/0170

CIRC ACCESSION NO--AP0109505

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--A0109505

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY THE METHOD OF EPIDEMIOLOGICAL SURVEY THE CAUSE EFFECT RELATIONSHIPS OF COMBINED INVASIONS WERE ESTABLISHED IN RURAL COMMUNITIES OF THE PLAIN, FOOTHILL AND MOUNTAIN AREAS IN TWO REGIONS OF THE UZBEK SSR. THE POINT OF VIEW OF THE EXISTENCE OF ANTAGONISTIC RELATIONS IN PARASITOCENOSIS OF THE HUMAN INTESTINE BETWEEN ASCARIOS AND H. NANA, ASCARIOS AND LAMBLIA, H. NANA, LAMBLIA AND SOME SPECIES OF DYSENTERY BACTERIA IS DISPROVED.  
FACILITY: SAMARKANDSKIY MEDITSINSKIY INST. FACILITY: UZBEKSKIY N-I INST. EKSPERIMENTAL'NOY MEDITSINSKOY PARAZITOLOGII I GEL'MINTOLOGII.

UNCLASSIFIED

Conferences

USSR

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DOC ID: A66111

LERNER, P. S., PENCHUKOV, V. M., NOBENOV, Ye. S., and SELENEVA, V. A.

"Scientific and Technical Conference on Some Problems of the Theory and Practice of Metalworking by Pressure"

Moscow, Kuznechno-shtampovochnoye Proizvodstvo, No 7, Jul 70, pp 42-45

Abstract: The Scientific and Technical Conference on Problems of the Theory and Practice of Metalworking by Pressure was sponsored by the Tula Polytechnical Institute jointly with the Tula Chapter of the Scientific and Technical Society of the Machinery Industry. The conference was attended by representatives of 16 institutions of higher learning of Moscow, Leningrad, Leningrad Oblast, Novosibirsk, Tomsk, Chelyabinsk, and other cities, 19 scientific research institutes, and by representatives of plants in Leningrad, Moscow, Nikolayev, Ulyanovsk, Ufa, and elsewhere. The 54 reports presented at the conference highlighted individual problems of the theory of plastic working of metals, research on existing technology and the development and introduction of new technology in production. The conference was conducted in plenary sessions and sections on stamping and closed impression die forging. Among the topics discussed were the following: effect of anisotropy on the process of plastic deformation (S. P. Yakovlev, V. F. Kuzin, V. M. Lyalin); development of rationalizing practice 1/3



USSR

LERNER, P. S., et al, *Kuznedno-shchepovozhnoye Proizvodstvo*, No 7, Jan 75,  
pp 48-49

parameters of tools to ensure uniform deformation (S. A. Filigay, V. M. Lyalin),  
inhomogeneity of the buildup of deformation in nonstationary plastic flow (V. P.  
Renne, N. I. Deylov, E. A. Boyko), plastic flow in axisymmetric deformation  
(S. P. Yakovlev, V. M. Lyalin), rational technology of reverse and rotational  
extrusion (M. N. Tsypina, L. G. Yudin, Yu. M. Filigarev), drawing and reducing  
the wall thickness (I. P. Renne, V. F. Zimin, P. S. Lerner); test data on draw-  
ing box-type parts of great width (V. Z. Romanovskiy); problems of ductility and  
reserve of plasticity of materials (V. I. Kholmogorov, V. L. Ural'skiy, L. A.  
Sokolov, V. S. Plakhotin); study of deformation inhomogeneity (G. B. Dik',  
V. A. Ogorodnikov, F. Kh. Tomilov); the stress-strain state in deep drawing  
of cylindrical bodies (I. A. Sokolev, S. O. Kukutsa, V. L. Ural'skiy); selection  
diagrams of forming cylindrical hollow billets by rotary rolls on a three-roll  
mill (N. V. Potokushin, L. I. Artmelidze, Yu. M. Ravinskaya, A. B. Zarent'skiy);  
theoretical and experimental study of combined reverse deep drawing of thin-walled  
parts with reducing wall thickness (A. A. Babris, D. N. Gel'dburg); changes  
in power parameters of drawing under liquid friction conditions (A. S. Chudakov,  
V. I. Kazachenok, A. A. Churakova); experimental extrusion of billets and rods  
2/3

USSR

LERNER, P. S., et al, *Kovnochno-shtampovochkiye Proizvodstva*, No. 7, 1977, pp. 48-49

combination with upsetting, sizing, etc. (V. I. Zaydman); and the effect of superplasticity and its potential use in the technology of metalworking by pressure (Ya. M. Okhrimenko, O. M. Smirnov).

3/3

USSR

UDC 621.396.96.001.5

LERNER, V. Ye.

"On the Effect Which Amplitude Quantization in Digital Systems for Selecting Moving Targets Has on the Effectiveness of Suppression of Reflections From Local Objects"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 10, Oct 71, pp 1963-1966

Abstract: The author analyzes the effect which the number of amplitude quantization levels has on the coefficient of passage of correlated interference with normal distribution density function for various types of noise suppressors in digital systems for selection of moving targets. The analysis given in the paper shows quantizing the amplitude slightly reduces the effectiveness of suppression of reflections from local objects. It was found that three levels of quantization results in losses of no more than 3.5 dB as compared with the ideal, with corresponding figures of 1.5 and 0.5 dB for 7 and 15 levels respectively. Five figures, bibliography of four titles.

1/1

- 120 -

USSR

UDC: 621.372.061-538.56

BRAZDZHYUNAS, R. A., LESAUSKIS, V. P.

"Investigation of the Effect of a Periodic Process on a Synchronized Bridge Autodyne"

Lit. fiz. sb. (Lithuanian Physics Collection), 1970, 10, No 1, pp 467-473  
(from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A130)

Translation: An investigation is made of the reaction of a self-oscillating system to various periodic effects. The signal-to-noise ratio is calculated for the case where the useful signal in the system is produced by periodic modulation of attenuation of the high-frequency tank circuit in one of the arms of a high-frequency bridge. One illustration, bibliography of six titles. Authors' abstract.

1/1

56

Pharmacology and Toxicology

USSR

UDC 615.214.31+615.214.22/.015.45:612.821.75

LESENE, V. A., Division of Neurophysiology, Kaunas Medical Institute

"Comparison of Phases of Natural Sleep With the Effects of Phenamine and Chlorpromazine, and Evaluation of the Mean Frequency of Extrema in the Electrocorticogram (ECoG) of Cats"

Moscow, Farmakologiya i Toksikologiya, Vol 33, No 6, Nov/Dec 70, pp 665-669

**Abstract:** Using cats with implanted electrodes, a comparative study was conducted of the mean frequency of extrema (MFE) and the mean amplitude (MA) of the ECoG during phases of natural sleep and upon intramuscular administration of phenamine (5 mg/kg) and chlorpromazine (15 mg/kg). The MFE reflected the average frequency of discharge of cortical neurons. The ECoG in general and its MA upon administration of chlorpromazine corresponded to those observed in the slow-wave phase of natural sleep, but the MFE was below that recorded during this phase of natural sleep. The ECoG and its MA and MFE upon administration of phenamine were the same as those in the fast-wave phase of natural sleep, with the MFE being higher than in the state of wakefulness. There was thus a complete similarity between cortical activity in the fast-wave phase of sleep and in the condition produced by

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USSR

LESENE, V. A., Farmakologiya i Toksikologiya, Vol 33, No 6, Nov/Dec 70, pp  
665-669

phenamine, while the slow-wave phase of sleep and the condition that developed  
on administration of chlorpromazine differed with respect to the average fre-  
quency of discharge of cortical neurons.

1/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--SELECTIVE SEPARATION OF NICKEL AND COBALT FROM AMMONIA SOLUTIONS BY  
FRACTIONAL PRECIPITATION -U-  
AUTHOR--(04)-KRASKOVSKIY, G.I., LESHCH, I.YU., FRUMINA, L.M., SHNEVERSON,  
YA.M.  
COUNTRY OF INFO--USSR  
SOURCE--TSVET. METAL. 1970, 43(3), 32-3  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CHEMICAL SEPERATION, AMMONIA, AQUEOUS SOLUTION, COBALT,  
NICKEL, CHEMICAL PRECIPITATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAML--3004/1900 STEP NO--DR/0136/70/043/003/0032/0053  
CIRC ACCESSION NO--A90132162  
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0132162

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INCONSISTENCY IN THE DATA ON THE PPTN. OF NI AND CO FROM MN SUBS SOLNS. BY DISTN. IS ATTRIBUTED TO THE SIMULTANEOUS PRESENCE OF SOME FORMS OF CO AMMINES: CO PRIME2 POSITIVE HEXAAMINE, PENTAAMINE, AND AMPINE. THE BEHAVIOR DURING REMOVAL OF NI AND CO BY DISTN. OR EVACUATION AT 20, 40, 60, AND 80 DEGREES IS SHOWN. THE MOST EASILY DECOMPO., DURING DISTN., ARE THE CO PRIME2 POSITIVE COMPLEXES, FOLLOWED BY NI COMPLEXES, CO PRIME3 POSITIVE PENTAAMINE, AND FINALLY CO PRIME3 POSITIVE HEXAAMINE. THE LAST IS SUFFICIENTLY STABLE, IN THAT BELOW 40 DEGREES, NO NOTICEABLE PPTN. OF CO DURING DISTN. WAS OBSD. THESE DIFFERENCES IN STABILITY OF THE AMMINES IS THE BASIS FOR EXPTS. ON THE SEPN. OF CO AND NI.

UNCLASSIFIED



1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70  
 TITLE--EXPERIMENTAL DETERMINATION OF THE HEAT OF FORMATION OF IRIIDIUM, IV,  
 HYDROXIDE -U-  
 AUTHOR-(04)-LESHCH, I.YU., SHNEYERSON, YA.M., RUBEL, I.G., PRUMINA, L.M.  
 COUNTRY OF INFO--USSR  
 SOURCE--ZH. NEORG. KHIM. 1970, 15(6), 1695-6  
 DATE PUBLISHED-----70  
 SUBJECT AREAS--CHEMISTRY  
 TOPIC TAGS--HEAT OF FORMATION, CALORIMETRY, IRIIDIUM COMPOUND, HYDROXIDE,  
 CHLORIDE  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAE--3004/1405 STEP NO--UR/0078/70/015/006/1695/1696  
 CIRC ACCESSION NO--AP0135079  
 UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--15NOV70  
CIRC ACCESSION NO--AP0135079  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AT 17-21DEGREES, THE HEAT OF  
FORMATION OF IR(OH) SUB4 FROM (IRCL SUB6) PRIME2NEGATIVE SUB(AQ) AND 4OH  
PRIME2NEGATIVE SUB(AQ) IS MINUS 177.3 KCAL-MOLE.

UNCLASSIFIED

Oscillators & Modulators

USSR

UDC 621.385.633:621.376.5

BALYUK, V.S., BONDARENKO, A.A., KOTENKO, YE.G., LESHCHENKO, A.P.

"Thyristorized Modulator Of Control Electrode Of Type M Backward-Wave Tube"

Elektron.tekhnika. Nauch.-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1972, Issue 4, pp 100-101 (from RZh:Elektronika i yeye primeneniye, No 9, Sept 1972, Abstract No 9A131)

Translation: The paper describes a simple thyristorized modulator of the control electrode of a Type M backward-wave tube, fulfilled on the basis of semiconductor devices. The distinctive feature of the modulator is the use of a thyristorized relaxator for production of a series of pulses. The output parameters of the modulator are: amplitude of voltage pulse, 1.5--20 kV; duration of series, 1--40 microsec. with the frequency of the pulse sequence, 100--2.5 GHz. Summary.

1/1

AA0040657

LESHCHENKO

I.G.

UR 0482

1-70

Soviet Inventions Illustrated, Section I Chemical, Derwent,

741017 THERMAL TREATMENT OF OBJECTS MADE OF REFRACTORY ALLOYS, involving heating, quenching and tempering is characterized in that in order to increase the ultimate strength at bending, by 10-30% the refractory alloys are subjected to ultrasonic treatment during the tempering stage. The proposed method is especially effective in the treatment of objects made of refractory alloys containing 5% and

more by weight of cobalt.

16.9.66 as 1114589/22-1. N.K. ROMANENKO et al.  
(18.8.69) Bul 13/1.4.69. Class 40b, 40d. Int.Cl.  
C 22c, C22 f.

LD 18

AUTHORS: Romanenko, N. K.; Pogodin-Alekseyev, G. I.; Gavrilov, V. M.; Leshchenko, I. G.; Kartashev, Yu. G. and Novgorodov, A. S.

19750246

USSR

UDC 681.034

SEVERDENKO, V. P., Academician, AS BSSR, LABUNOV, V. A., and LESHCHENKO, I. N., Minsk Radio Engineering Institute

"Effect of Ultrasonic Vibrations on the Process of Condensation During Vacuum Vaporization"

Minsk, Doklady AN BSSR, Vol 15, No 8, Aug 71, pp 689-691.

Abstract: The authors investigate the effect of ultrasonic oscillations on the formation of thin metal films made by vapor condensation. Specifically, they study the effect of ultrasonic vibration on the thickness of condensed layers of aluminum and copper made by thermal vaporization in a vacuum (i.e., on the change in the coefficient of accommodation which determines the thickness of the deposit during vaporization of an identical amount of material) and on the rate of formation of the deposit. The weight of the samples was 100 mg for aluminum and 130 mg for copper, and the vaporization times were 70 and 45 sec. for aluminum and copper respectively. Glass substrates were used. The thickness of the films was interferometrically measured with an accuracy of 20 Å. Curves are given for film thickness as a function of the amplitude of ultrasonic oscillations and also for film 1/2

USSR

SEVERDENKO, V. P., et al., Doklady AN BSSR, Vol 15, No 8, Aug 71, pp 689-691

thickness as a function of vaporization time with and without ultrasonic vibration. A considerable increase in film thickness is observed as the amplitude of the ultrasonic vibration of the substrate increases. This shows that ultrasonic oscillation increases the coefficient of accommodation. The basic factor which influences the coefficient of accommodation is the increased energy of the substrate surface. It was found also that the rate of growth of the film is increased by the application of ultrasound. This may be attributed to increased mobility of the precipitating atoms. Two figures, bibliography of nine titles.

2/2

- 40 -

USSR

UDC 669.183.4:621.745.4

LESHCHENKO, I. P., TERESHCHENKO, V. T., MARTYNOV, O. V., TRAKHIMOVICH, V. I., and BORZENKOV, D. V., Tula Branch of Central Scientific Research Institute of Ferrous Metallurgy, Novo-Tula Metallurgical Plant

"Sponge Iron for Steel Melting Production"

Moscow, Metallurg, No 7, Jul 73, pp 20-22

Abstract: Investigations at the Novo-Tula Metallurgical Plant has revealed that iron ore concentrates with a maximum concentration degree must be used for the production of sponge iron suitable for remelting in steel melting aggregates. Factors which must be considered when using sponge iron in the capacity of raw material, burden, and substitute for steel scrap, are discussed. The increase of iron content in the iron ore concentrate at maximum reduction degree of 98% leads to the growth of metallic iron in the sponge according to

$$\Delta Fe_{met} = \frac{16\Delta Fe_{init}}{9.5}, \text{ where } \Delta Fe_{met} = \text{increase}$$

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USSR

LESCHENKO, I. P., et al., Metallurg, No 7, Jul 73, pp 20-22

of concentration of reduced metallic iron in sponge (in %), and  $\Delta Fe_{init}$ =increase of iron content in initial concentrate (in %). The iron sponge oxidation dependence in storage on the metallization degree is characterized by  $\Delta O = 9.93 - 0.094 \rho$ , where  $\Delta O$ =oxidation concentration increase in sponge iron during storage (in %), and  $\rho$ =metallization degree of initial sponge (in %). The  $\Delta \rho$  dependence on the storage time in open air is illustrated. Three figures, two tables.

2/2



LESHCHENKO, L. Ya.

MEDICINE

EXPERIENCE IN SEX EDUCATION AND PREVENTION

Article by S.L. Kolin, L.Ye. Leshchenko, A.A. Nishchik, D.K. Kozlov, L.L. Kozlov, Institute of Dermatology and Venereology (Director: Professor A.A. Zaitsev), Moscow (Chief Physician: A.A. Kikhovlik) and Municipal Chief Physician L.Ye. Leshchenko) Dermatovenerological dispensary, Moscow, Sovetskoye Zdravookhraneniye, Moscow, No. 6, 1972, published in November 1972, pp. 31-33

We use the term sex education to designate the multifaceted and comprehensive work with children, young people, and adults to assure normal physiological development of the organism in accordance with the distinctive functions of sex glands and correct attitude toward sex issues at different stages of life.

All of our work dealing with sex education for children and adolescents is directed toward instilling habits related to the basic laws of general hygiene and care of sex organs, creation and consistent adherence to the proper regimen at home and in school for correct physical development of the child precluding the possibility of early puberty and development of bad habits among young girls and men, this work also pursued the goal of preventing early onset of sex life and of helping avoid venereal disease.

We were governed by the fact that sex education is an inseparable element of general education, and should be pursued daily in the home by parents and other relatives, and in child groups by pedagogues, educators, as well as social workers.

At the first stage of this work, jointly with the department of public education, and health education center, we developed plans for one and two-day seminars for the medical and nursing personnel of schools and child combinars, instructors of biology, class supervisors, as well as activists of women's councils form a number of major enterprises, public inspectors of children in rooms, police, and departments for the control of juvenile delinquency based at the rayon executive committees.

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UDC 613.2:664.8.037.53/.59

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"Changes in the Quality of Food Products Upon Prolonged Storage in a Frozen State"

Kiev, Vrachebnoye Delo, No 6, Jun 71, pp 137-138

Abstract: One can estimate the freshness of meat and meat and fish products on the basis of the amino acid content. Fresh meat contains the following free amino acids: cystine, lysine, histidine, arginine, aspartic acid, serine, glycine, glutamic acid, alanine, proline, tyrosine, valine, phenylalanine, and leucine. In meat that is not fresh after having been kept at 18-20°C, the content of all free amino acids is increased and threonine and methionine appear (A. D. Avshalumova, 1962). The content of free amino acids in a paste from krill (marine invertebrates) after storage for 1 yr. at minus 20°C has been compared with that in the freshly prepared product. The krill paste "Okean" prepared by the All Union Scientific Research Institute of Fishing and Oceanography (VNIRO) - cf. L. L. Lagunov et al, 1967 - that was in the form of frozen briquettes with a weight of 3-3.5 kg and had a temperature of minus 1/4

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20°C, was kept for 1 year in the frozen state at the Kiev Cold Storage Combine. The quantitative and qualitative free amino acid composition of the paste was determined before and after cold storage. The defrosted fresh paste was a dense mass with the consistency of cottage cheese, a color similar to that of carrots, and a pleasant odor and taste that resembled those of canned crab meat. The paste contained all amino acids. On hydrolysis of the protein isolated from the paste, the presence of the following amino acids (in % by wt. of the pure protein) was established: cystine + cysteine 3.2, lysine 5.8, histidine 4.5, arginine 5.4, serine 9.0, glycine 7.6, glutamic acid 12.5, threonine 6.0, alanine 7.1, tyrosine 8.0, tryptophan 3.3, methionine 2.4, valine, 7.4, phenylalanine 3.8, leucine + isoleucine 11.2. Proline was present. Experimental rats receiving for three months a ration that contained the krill paste instead of casein showed an increase in body weight that was 30% higher than that of control rats. The content of free amino acids in the blood and liver tissue and the concentration and activity of some redox enzymes were determined in experimental rats. The level of free amino acids and enzymatic activity in the blood serum and liver were higher for rats on the synthetic feed ration (in which casein had been replaced with an amount 2/4

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of krill paste of the same caloric value) than for rats fed the synthetic ration with casein (Ye. F. Shanray, S. N. /sic: - S. N/Nozdrachev, and M. N. Polonskaya, 1969). The results of these experiments and data obtained earlier on protein metabolism and the activity of redox enzymes indicated that the paste proposed by VNIRO is a valuable food product. After storage of the paste for 1 year in the frozen state, its quality deteriorated in a pronounced manner from the organoleptic standpoint: the color changed from a bright carrot-red to a dull brown resembling that of rust; the odor was no longer agreeable and similar to that of canned crab meat, but resembled that of cod liver oil which had been kept too long; the moisture content decreased; and the taste became generally worse. The content of free amino acids in the paste decreased sharply as compared with that of the fresh products: that of cystine + cysteine, lysine, glutamic acid, threonine, tyrosine, and leucine + isoleucine by a factor of 1.2-1.5; that of histidine, arginine, aspartic acid, and serine by a factor of 1.7-2; and that of methionine, tryptophan, and phenylalanine by a factor of 2.5, 3.7, and 3.8, respectively. The content of valine remained unchanged, while that of alanine and glycine had a tendency to increase. Data on the decrease in content of free amino acids were  
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pp 137-138

statistically reliable ( $P < 0.001$ ). Storage of the krill paste at minus  
20°C for a year in the form of frozen briquettes led to a deterioration of its  
quality accompanied by a considerable decrease in the content of free amino  
acids.

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Food Technology

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UDC 614.31:639.28]-074L[543.86:547.965

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~~Nutritional-Hygiene~~

"Change in the Content of Free Amino Acids in Krill Paste After Long Storage"

Moscow, Voprosy Pitaniya, No 1, 1971, pp 64-65

Abstract: Paste made from krill (a plankton crustacean) contains all the amino acids and is known to have a beneficial effect on the growth and development of experimental rats. Analysis of krill paste by paper chromatography after one year of refrigeration at - 20°C revealed a marked deterioration in taste, odor, etc. and a sharp decrease in the content of free amino acids. The amount of cystine, lysine, glutamic acid, threonine, tyrosine, and leucine with isoleucine decreased after 12 months' storage by a factor of 1.2- to 1.5- that of histidine, arginine, aspartic acid, and serine by a factor of 1.7- to 2, that of methionine by a factor of 2.5- and that of tryptophan and phenylalanine by factors of 3.7- and 3.8-, respectively. Valine remained unchanged. Only alanine and glycine tended to increase. The decrease in the level of the free amino acids was statistically significant.

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Polymers and Polymerization

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TERTERYAN, R. A., LESHCHENKO, S. S., LIVSHITS, S. D., GOLOSOV, A. P.,  
ITSIKSON, L. B., MONASTYRSKIY, V. N., KARPOV, V. L., SOBOLEVA, N. S.,  
MAL'TSEVA, A. P., and ISKHAKOV, L. I.

"Radiation Stability of Ethylene and Styrene Copolymers"

Moscow, Plasticheskiye Massy, 7, 1973, pp 3-5

Abstract: A study was made of the continuous statistical copolymerization of ethylene monomers (E) with styrene (S) under conditions similar to those under which low density polyethylene is produced and also of the behavior of E + S polymers in an ionizing radiation field. The results of copolymerization studied -- grams of copolymer/hr concentration of S in the polymer, density, and others -- are given as a function of styrene concentration and pressure at 200°C. An increase in the concentration of S in the reaction mixture leads to a decrease in the copolymer yield, in its characteristic viscosity, in its melting temperature, and its crystallinity, and to an increase in the density. The presence of S monomers in the polyethylene chains and the chemical bonds between them and the methylene groups significantly increases the resistance of the material to  $\alpha$ -radiation damage. The gases evolved during the radiation of various types of polymers were determined.

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"Radiation Structuralization of Ethylenepropylene Rubber in Presence of  
N-Phenylmaleimide Sensitizer"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 12, No 11, Nov 70, pp 2,401-  
2,407

Abstract: The process of radiation structuralization of ethylenepropylene rubber [SKEP] and its mixtures with N-phenylmaleimide [NPMI] was studied. It was determined that NPMI is a sensitizer for radiation crosslinking of SKEP, the rate of gel-formation being directly proportional to the quantity of NPMI added. The effect is neither ionic nor radical; addition of NPMI does not affect the production of free radicals and the recombination of the radicals is identical with or without NPMI; liberation of charges trapped in the traps shows also no effect on the process. It has been proposed that NPMI acts as an acceptor of hydrogen during the  $\gamma$ -irradiation, being reduced to N-phenylsuccinimide in the process. Thus it aids in production of more vinylidene bonds in SKEP and accelerates the crosslinking of SKEP.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IRRADN. OF ETHYLENE PROPYLENE COPOLYMER (I) IN AIR CAUSES AN INCREASE OF THE GEL FRACTION TO A MAX. OF 54PERCENT AND A SUBSEQUENT DECREASE DUE TO DEGRADATION. IN VACUUM OR IN HE, THE IRRADN. CAUSES THE FORMATION OF VINYLIDENE END GROUPS WHICH REACT TO FORM CROSSLINKS. NEOZONE D PRESENT IN CON. I ALSO REACTS WITH THESE END GROUPS THUS SLOWING THE GEL FORMATION RATE. FACILITY: FIZ. KHIM. INST. IM. KARPOVA, MOSCOW, USSR.