

2/2 016

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0116648

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF LUMINESCENCE AND ABSORPTION OF TITLE DYES ON THEIR STRUCTURE VARIATION WAS INVESTIGATED. THE ABSORPTION MAX. AND LUMINESCENCE SPECTRA, THE INTENSITIES OF LUMINESCENCE, AND THE ABSORPTIVITIES WERE MEASURED FOR ETOH SOLNS. OF PHENOXAZINE, 3H, PHENOXAZIN, 3, ONE (I), AND OF 12 OTHER DYES DERIVED FROM I (SUBSTITUENTS ON I GIVEN): 8,9,CH:CHCH: CH, 7, OET, 7, NH SUB2, 1,2,CH:CHCH:CH, 7, NME SUB2, 1,2,CH:CH CH:CH, 7, NET SUB2, 2, OH, 2, NH SUB2, 7, N POSITIVE H SUB3, 8,9,CH:CHCH:CH, 7, NH SUB2, 8,9,CH:CHCH:CH, 1,7, ME(NME SUB2), 1,7, ME(NH SUB2), 1,7, OH(NH SUB2). FROM THE RESULTS, CONCLUSIONS WERE DRAWN ON THE STRUCTURE OF PHENOXAZINE DYES. ALL THE STUDIED COMPS. EXHIBITED INDICATOR PROPERTIES; DEPENDING ON THE PH OF THE MEDIUM THEY CHANGED NOT ONLY THEIR COLOR BUT ALSO THEIR FLUORESCENCE.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--BIOSYNTHESIS OF PROTEINS WITH DIFFERENT LEVELS OF MANGANESE CONTENT
IN PLANTS -U-
AUTHOR--(02)-VLASYUK, P.A., ZORYA, V.T. 2
COUNTRY OF INFO--USSR
SOURCE--FIZIOL. BIOKHM. KUL'T. RAST. 1970, 2(2), 142-7
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, AGRICULTURE
TOPIC TAGS--BIOSYNTHESIS, PROTEIN, MANGANESE, PLANT PHYSIOLOGY, CYTOPLASM,
CHLOROPLAST
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605004/C08 STEP NO--UR/0654/70/002/002/0142/0147
CIRC ACCESSION NO--AP0139622
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139622

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF MN ON THE PROTEIN
COMP. OF SUBCELLULAR STRUCTURES (CYTOPLASMIC AND CHLOROPLAST FRACTIONS)
OF LEAVES OF PEA PLANTS WAS INVESTIGATED. THE ABSENCE OF MN FROM THE
NUTRITIVE MEDIUM CAUSED A DECREASE OF THE AMT. OF CHLOROPLAST PROTEINS
PER G OF FRESH TISSUE. THE AMT. OF CYTOPLASMIC PROTEINS WAS NOT
INFLUENCED. THE CHLOROPLAST PROTEINS WERE SEPD. ON A DEAE CELLULOSE
COLUMN INTO 10-12 COMPONENTS, THE CYTOPLASMIC PROTEINS INTO 13-14. THE
ABSENCE OF MN FROM THE NUTRITIVE MIXT. CAUSED CHANGES IN THE QUAL.
COMP. OF PROTEINS: A DECREASE OF A NO. OF COMPONENTS IN BOTH
FRACTIONS; AN INCREASE OF AMT. OF PROTEINS ELUTED BY 0.01-0.05M
PHOSPHATE, BUFFER PH 8.0; AND A DECREASE OF AMT. OF COMPONENTS ELUTED BY
0.5M PHOSPHATE BUFFER, PH 8.0. FACILITY: INST. PLANT PHYSIOL.,
KIEV, USSR.

UNCLASSIFIED

USSR

UDC 614.7:615.28:547.1'118

SPYNU, YE, I., Doctor of Medical Sciences, VROCHINSKIY K. K., ZOR'YEVA, T. D., and MAN'KO, H. N., All Union Scientific Research Institute of Hygiene and Toxicology of Insecticides, Polymers, and Plastics, Kiev

"Comprehensive Approach to the Setting of Standards for New Organophosphorus Pesticides in Environmental Objects"

Moscow, Gigiyena i Sanitariya, No 11, 1972, pp 96-99

Abstract: Such organophosphorus compounds as thiophos, methylmercaptophos, carbophos, etc. may enter the human body with food, water, and air. Hence a comprehensive approach to the setting of standards for the pesticides is recommended. It involves establishing the maximum permissible dose for man

and the relative share of each medium in the dose, i.e., $D_M = \sum_{i=1}^3 D_i$,

where D_M is the safe permissible dose for man; D_1 is the amount of pesticide in food; D_2 is the amount of pesticide in water; D_3 is the amount of pesticide in inhaled air; i is the amount in the i th medium. The following steps are taken to set the standard for a given pesticide: (i) toxicological studies and generalization of the results to determine D_M for animals; (ii) determination
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USSR

SPIRU, YE. I., et al., Gigiyena i Sanitariya, No 11, 1972, pp 96-99

of D_m for man based on the comparative sensitivity of man and animals to the compound; (iii) determination of the actual content of the pesticide in various media ($K_1, K_2 \dots K_n$) and relative share of each medium in D_m for man, calculation of the standard in a medium based on D_m for man and on K_1 ; (iv) comparison of D_m for man with the total amount of the pesticide that may penetrate the human body after coming into contact with various media. Earlier studies showed that man and animals are equally sensitive to most organophosphorus pesticides after a single exposure. However, man is considerably more sensitive after chronic or prolonged exposure.

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I/2 026 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--DIFUNCTIONAL DERIVATIVE OF DIBENZOPYRENEQUINONE -U-
AUTHOR--(02)-STEPANOV, F.V., ZOSIM, L.A.
COUNTRY OF INFO--USSR Z
SOURCE--ZH. DRG. KHIM. 1970, 8(3), 592-4
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--BENZENE DERIVATIVE, QUINONE, PHENANTHRENE, AROMATIC POLYCYCLIC
HYDROCARBON, NITRATION, CHEMICAL REDUCTION, POLYMER, DYE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/1408 STEP NO--UR/0366/70/006/003/0592/0594
CIRC ACCESSION NO--AP0112402
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--02OCT70

212 026

CIRC ACCESSION NO--AP0112402

ABSTRACT/EXTRACT--(U) GP-Q- ABSTRACT. NITRATION OF
3,4,5,8-DIBENZOPYRENE, 5,10,QUINONE (I) GAVE ITS DIAMINO DERIV., WHICH
WAS REDUCED WITH NA SUB2 S TO THE DINITRO DERIV. (II) OF I, OF INTEREST
IN THE SYNTHESIS OF COLORED POLYMERS. THE PREPN. OF II COULD ALSO BE
ACHIEVED, BUT IN LOW YIELDS, BY REACTING I WITH H SUB2 NOH IN CONCO. H
SUB2 SO SUB4 SOLN. CONTG. V SUB2 O SUB5.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--COATING SUSPENSIONS FOR CORROSION INHIBITING PAPER -U-
AUTHOR--(03)-RYABOV, A.K., SHIKUN, T.YA., ZOSIN, Z.L.
COUNTRY OF INFO--USSR
SOURCE--BUM. PROM. 1970, (1), 18
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--CORROSION INHIBITOR, PAPER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAKE--1984/1250 STEP NO--UR/0329/70/000/001/0018/0018
CIRC ACCESSION NO--AP0055921
UNCLASSIFIED

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2/2 016

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0055921

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

ABSTRACT. A STUDY OF SUSPENSION STABILITY WAS CARRIED OUT ON SUSPENSIONS CONTG. SLIGHTLY SOL. CORROSION INHIBITORS, DICYCLOHEXYLAMMONIUM NITRATE AND CYCLOHEXYLAMMONIUM CHROMATE, AND CONTG. SYNTHETIC LATEXES AS BINDERS AND EITHER NH SUB4 CASEINATE OR SOL. ME CELLULOSE (I) AS THE PROTECTIVE COLLOID. A RHEOL. STUDY OF THE SUSPENSIONS CONFIRMED THE HIGHER EFFECTIVENESS OF I AS THE PROTECTIVE COLLOID. AT SIMILAR TO 40DEGREES, I. E. THE TEMP. OF PAPER COATING UNDER INDUSTRIAL CONDITIONS, THE VISCOSITY OF SUSPENSIONS CONTG. I WAS ABOUT TWICE THE VISCOSITY OF THOSE CONTG. THE CASEINATE. THE STRENGTH OF STRUCTURES FORMED AT 40DEGREES WAS LOWER THAN THAT OF THOSE FORMED AT 25DEGREES, INDICATING GOOD PROCESSABILITY OF SUSPENSIONS CONTG. I. CURVES OF INHIBITOR PARTICLE SEDIMENTATION RATE AS A FUNCTION OF THEIR SIZE, WITHIN THE 2-100 MU RANGE, FOR SUSPENSIONS HAVING VISCOSITIES RANGING FROM 17.4 TO 107 CP, SHOWED A SIGNIFICANT SEDIMENTATION RATE FOR PARTICLES THE DIAM. OF WHICH EXCEEDED 10 MU. CONSEQUENTLY, IF THE PARTICLE SIZE OF THE INHIBITORS SUPPLIED TO PAPER MILLS EXCEEDS 10 MU, SUCH INHIBITORS SHOULD BE SUBJECTED TO ADDNL. MILLING BEFORE BEING USED IN THE PREPN. OF SUSPENSIONS. WHEN SUSPENSIONS PREPD. FROM CORROSION INHIBITORS WITH THE PROPER PARTICLE SIZE CONTAIN 10-14PERCENT I, THEY REMAIN STABLE FOR 2 HR. AT 5PERCENT I, THEY ARE STABLE FOR AT LEAST 1 HR.

UNCLASSIFIED

1/2 027
UNCLASSIFIED
TITLE--THE ELECTRODEPOSITION OF CHROMIUM FROM CHROMIC ACID SOLUTIONS
CONTAINING ORGANIC ADDITIONS -U- PROCESSING DATE--04DEC70
AUTHOR-(02)-STEPANOVA, I.A., ZOSIMOVICH, D.P.
COUNTRY OF INFO--USSR
SOURCE--ZASHCHITA METALLOV, JAN.-FEB. 1970, 6, (1), 61-62
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, CHEMISTRY
TOPIC TAGS--ELECTRODEPOSITION, CHROMIUM PLATING, STAINLESS STEEL, CHROMIC ACID, ELECTROLYTE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0320 STEP NO--UR/0365/70/006/001/0061/0062
CIRC ACCESSION NO--AP0129552
UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129552

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF THE EFFECT OF CERTAIN AROMATIC SULPHO ACIDS, AND THEIR DERIVATIVES, CONTG. ACTIVE POLAR GROUPS, ON THE ELECTROLYTIC DEPOSITION OF CR ON TO ELECTROPOLISHED STAINLESS STEEL. RESULTS WERE ASSESSED FOR THE CURRENT EFFICIENCY OF CR DEPOSITION AS DETERMINED BY WEIGHT INCREASE OF THE CATHODE. ELECTROLYTES (300 G-L. CR0 SUB3) CONTG. ADDITIONS OF 7-10 G-L. SULPHANILAMIDE OR SULPHATHIAZOLE CAN BE USED FOR DEPOSITION OF METALLIC CR AND ALSO FOR PROVIDING MIRROR REFLECTIVE CR COATINGS. THE CURRENT EFFICIENCY IS HIGHER THAN IN STANDARD ELECTROLYTES, PARTICULARLY AT LOW TEMP., AND REMAINS HIGH DURING USE, E.G. AFTER 420 AH-L. THE CURRENT EFFICIENCY FELL BY ONLY 2-4PERCENT.

UNCLASSIFIED

USSR

KUTUZOV, G. P., ZOSIMOVSKAYA, T. V., KANYGIN, Yu. I.

"Herbicides in Feed Production"

Gerbitsidy v Kormoproizvodstve [English Version Above], Moscow, Rossel'khozizdat Press, 1971, 144 pages (Translated from Referativnyy Zhurnal, Khimiya, No 3, 1972, Abstract No 3 N676 K by T. Belyayeva).

Translation: This book discusses problems related to the use of herbicides for destruction of weeds in hay fields and pastures, and factors influencing the toxicity of herbicides.

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Gyroscopic

USSR

UDC: 62-56

SLIV, E. I., BORISOV, Yu. A., ZOST, Z. G., IL'ICHEVA, A. D., Leningrad Institute of Precision Mechanics and Optics

"Errors of the Extremum Method of Finding the Meridian in Initial Orientation of Inertial Systems"

Leningrad, Izvestiya VUZov: Priborostroyeniye, Vol 16, No 8, 1973, pp 68-71

Abstract: The authors examine the errors involved in determining the position of a gyroplatform in the azimuth from the extremum of the azimuthal characteristic. It is shown that the expected accuracy of determining the gyroplatform position in the first approximation is higher than with gyrocompass determination since the procedural errors of the method are low and in principle can be reduced, accuracy is independent of the drift of the leveling gyros, and at the same time the constructional errors are the same as in the gyrocompass method.

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USSR

UDC: 629.78.017.2

ZOTEYEV, A.I. and ZABIROV, M.G.

"Synthesis of Nonlinear Control Systems with Incomplete Information on Prescribed Distribution of the Roots of Characteristic Equation for a Closed System"

Tr. Kazan. aviats. in-ta (Transactions of Kazan Aviation Institute) 1971, vyp 138, pp 82-88 (from Referativnyy Zhurnal-Raketostroyeniye, No 7, 1972, Abstract No 7.41.163)

Translation: The problem is considered of the synthesis of linear regulator parameters with incomplete information on the control object, the disturbed motion of which is represented by the following system of differential equations with constant coefficients: $\dot{x} = Ax + bu$, where $x-n$ is the unit vector; u is the scalar control function ($u = p \cdot x$). It is shown that if the control object can be fully controlled and the number of dimensional coordinates $k < n$, then there is a vector p , having $(n-k)$ null elements corresponding to k random roots of the

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USSR

* ZOTEYEV, A. I. and ZABIROV, M. G., Tr. Kazan. aviats. in-ta, 1971, vyp 138, pp 82-88

characteristic equation of the closed system; these k random roots not coinciding with k zeros of one of the functions $H_s(\lambda)$ ($s=0,1,\dots,k$) resulting from replacing the S column by b column in the matrix $H_0(\lambda) = /A - \lambda E/$. Particular cases are given of the distribution of roots of characteristic equation of a closed system, where one or several components of vector become zero. The appendix gives the synthesis of the automatic control system with incomplete information on the control object, the disturbed motion of which is represented by a system of differential equations $\dot{x} = Ax + bu$, where the matrix A has a quasitriangular form (9 references, resume).

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USSR

UDC 669.01.621.78

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BOL'SHAKOV, V. I., PIMAKHOV, D. P., ORLOV, L. G., TYLKIN, M. A., ZOTEYEV, V. S., and BORKOVSKIY, YU. Z.

"The Effect of Thermomechanical Treatment on the Impact Ductility, Crack Propagation, and Disintegration Viscosity"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 4(82), Jan-Aug 73, p 32

Abstract: Results are presented of an investigation of the mechanical properties of 14Kh2GMR steel after the usual heat treated and after high-temperature thermomechanical treatment (HTMT). Tabulated repoint, relative elongation, relative contraction, fatigue limit, and impact ductility at various temperatures. HTMT was found to somewhat increase the strength characteristics of the steel. HTMT does not lower the plasticity, it substantially increases the impact strength at the expense of the increasing share of the work of crack propagation. The increase of structural strength of 14Kh2GMR steel by HTMT lasts up to a 650° C temper temperature. The creation of a stable substructure by hardening increases the resistance of the steel to brittle failure and decreases its susceptibility to stress concentrations. Two tables, four bibliographic references, 1/1

USSR

UDC 621.178.372:669.14.018.8

ZOTEYEV, V. S., USTIMENKO, M. YU., GUDKOV, A. A., and BALASHOV, L. V.,
Central Scientific Research Institute of Ferrous Metallurgy

"Static and Fatigue Strength of Alloy KhN40MDTYu (EP543) After Different
Strengthening Modes"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, Aug 73,
pp 68-70

Abstract: The effect of plastic deformation and subsequent aging on the static and fatigue strength of alloy EP543 (author's certificate No 172869) was investigated. The alloy had the following chemical composition (in %): 0.04 C (max), 0.8 Si (max), 0.8 Mn (max), 0.02 S (max), 0.035 P (max), 14-17 Cr, 39-42 Ni, 4.5-6.0 Mo, 2.5-3.2 Ti, 0.7-1.2 Al, and 2.7-3.3 Cu (per ChMTU-1-988-70). After standard heat treatment and aging (quench from 1050-1100°C, aged at 750°C for 5-15 hours the tensile strength was greater than or equal to 110 kgf/mm², and yield strength was greater than or equal to 110 kgf/mm², and yield strength was greater than or equal to 65 kgf/mm². Plastic deformation was done by two methods: rolling with completion at 900-925°C, ensuring absence of recrystallization (mode I) and static tension at room temperature (mode II). It was found that the strength

USSR

ZOTEYEV, V. S., et al., *Metallovedeniye i Termicheskaya Obrabotka Metallov*,
No 8, Aug73, pp 68-70

of alloy EP543 can be substantially increased by high-temperature deformation with completion at those temperatures when the recrystallization process does not occur and aging (mode I), or by plastic deformation at room temperature (10-20%) (mode II). The most effective treatment was mode I, where fatigue strength is increased by approximately 100% in comparison with the initial alloy state. Three figures, two bibliographic references.

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USSR

UDC 621.874:624.023.9337:620.178.3.-974

KOBRIN, M. M., Candidate of Technical Sciences, FEDOROV, YU, K., Engineer,
ZINGERMAN, B. Z., Engineer, ZOTEYEV, V. S., Candidate of Technical Sciences, and
TYLKIN, M. A., Doctor of Technical Sciences

"Fatigue Strength of the Welded Beam Support Subassembly of Overhead Travelling
Cranes at Minus Temperatures"

Moscow, Vestnik Mashinostroyeniya, No 4, Apr 73, pp 16-19

Abstract: The authors determine the effect of low temperatures on the fatigue strength of the support subassemblies of welded metal structures with sharply varying cross sections. The jib of a 20-ton series produced travelling crane is studied. The beam is made from St3 grade steel and welded with the E42A electrodes. The bent sheet of the bottom band is welded to the vertical wall by a bilateral angular seam (10 mm fillet). Tests were conducted at +20 and -40°C on a hydraulic-pulsed testing machine including refrigeration equipment. The fatigue limits for the full scale beams of a travelling crane are determined by the interpolation method and are $\sigma=13.4$ kg/mm² for +20°C and $\sigma=11.3$ kg/mm² for -40°C.

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USSR

UDC:669.18:621.746

LYUDKOVSKIY, V. M., VOINOV, S. G., KOSOY, L. F., ZOTEYEV, V. S., and POTAPOVA, V. P.

"Quality of High-Strength Structural Steel Refined in the Ladle With Liquid Synthetic Slag"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 234-239

Translation: Melting of high-strength steel with treatment by synthetic slag allowed the content of sulfur in the metal to be decreased by almost 2 times: from 0.0057 to 0.0034%.

The contamination of the metal by nonmetallic inclusions was decreased, both when estimated by the method of electrolytic separation (from 0.0079 to 0.0062%) and by the method of counting contaminated fields of vision (from 6.8 to 4.2%). The decrease in contamination of the metal with inclusions evaluated as lime oxides and brittle silicates, was particularly noticeable.

The results of tensile testing of smooth specimens and specimens with sharp notches indicated that the steel refined with synthetic slag has greater ductility and structural strength. 1 figure; 4 tables; 4 biblio. refs.

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USSR

UDC 517.51

ZOTIKOV, S. V.

"On the Convergence Almost Everywhere of Fourier Series in Terms of Haar-Type Systems"

Moscow, Sibirskiy Matematicheskiy Zhurnal, Vol 14, No 4, Jul-Aug 73, pp 760-765

Abstract: The article considers questions of the convergence almost everywhere on $[0,1]$ of Fourier series in terms of orthonormal systems of the class X , first introduced by N. YA. VILENKIN. Each system $X \{p_n\}$ of this class is defined by the sequence $\{p_n\}_{n=0}^{\infty}$ of natural numbers $p_n \geq 2, (n \geq 0)$. The class X includes the classical system of Haar functions, which represents the system $X \{p_n\}$: where $p_n = 2, n=0,1,\dots$. The article considers the question of the existence of sequences of partial sums of the Fourier series for a function in terms of the system $X \{p_n\}$ which converge almost everywhere to the value of the function.

The author thanks Professor N. YA. VILENKIN for formulating the problem and for his interest in the work.

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1/2 038 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--HIGH TEMPERATURE CORROSION OF TUNGSTEN, MOLYBDENUM, AND NIOBIUM IN
HYDROGEN FLUORIDE -U-
AUTHOR--(02)-ZOTIKOV, V.S., SEMENYUK, E.YA.
COUNTRY OF INFO--USSR Z
SOURCE--ZASHCH, METAL. 1970, 6(2), 218-20
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--HIGH TEMPERATURE EFFECT, CORROSION RATE, TUNGSTEN, MOLYBDENUM,
NIOBIUM, HYDROGEN FLUORIDE, NICKEL, PROTECTIVE COATING, COPPER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1805 STEP NO--UR/0365/70/006/002/0218/0220
CIRC ACCESSION NO--AP0112791
UNCLASSIFIED

2/2 038

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0112791

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXPOSURE OF NI TO 40PERCENT HF SOLN. VAPOR, AT TEMPS. OF 300, 500, AND 600DEGREES CAUSED LOSSES OF 0.04, 0.91, AND 0.01 G-M PRIME2 HR. OF THE OTHER METALS, NB WAS MOST SERIOUSLY ATTACKED; AT 300-600DEGREES THE LOSSES WERE 16.4, 48.8, 127.8, AND 120 G-M PRIME2 HR, CAUSING VOLATILIZATION OF NBF SUB5. THE COMPLETE DESTRUCTION, STARTING AT 700DEGREES, WAS ATTRIBUTED TO INTERCRYST. CORROSION AND ALSO TO THE DISRUPTION CAUSED BY RELEASED H. THROUGH THE RANGE OF 300-600DEGREES, W GAVE LOSSES OF 0.007, 0.020, 0.037, AND 0.049; THROUGH 300-700DEGREES, MO GAVE LOSSES OF 0.004, 0.013, 0.017, 0.027, AND 0.170 G-M PRIME2 HR. THE USE OF W OR MO ELECTROLYTIC COATINGS FOR CORROSION PROTECTION IS DISCUSSED. SIMPLER CR LAYERS ON CU LOST 0.72 G-M PRIME2 HR AT 500DEGREES. FACILITY: GDS. INST. PRTKL. KHIM., LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 620.193.5

ZOTIKOV, V. S., and SEMENYUK, E. YA., State Institute of Applied Chemistry

"High-Temperature Corrosion of Tungsten, Molybdenum, and Niobium in Hydrogen Fluoride"

Moscow, Zashchita Metallov, Vol 6, No 2, Mar-Apr 70, pp 218-220

Abstract: In the process of producing and processing fluoride compounds, equipment is frequently exposed to hydrogen fluoride at high temperatures. The maximum temperature limit of nickel applicability in HF is 600--650°C. There is a lack of information on the corrosion resistance (under these conditions) for high-melting metals: tungsten, molybdenum, and niobium, except for data on their stability in liquid hydrogen fluoride. This study concerns the corrosion rate of these metals as a function of temperature. Data on the corrosion of niobium, tungsten, molybdenum, and nickel are given in a table in the original article. In gaseous HF at 300--600°C niobium is chemically unstable. It becomes brittle and readily fails even under a slight effort. This is attributed to intergranular corrosion as well as to hydrogen formation. Unlike niobium, tungsten and molybdenum begin to react with HF at an appreciable rate only above 600°C. The metals form a protective film consisting of nonvolatile fluorides of lower valence. Within 300--600°C, molybdenum and tungsten are somewhat

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USSR

ZOTIKOV, V. S. and SEMENYUK, E. YA., Zashchita Metallov, Vol 6, No 2, Mar-Apr 70, pp 218-220

superior to nickel. Tests on copper chromium specimens with molybdenum and tungsten electrolytic coatings (25--30 microns) have shown that they corrode in HF at about the same rate as compact molybdenum and tungsten specimens. At 600 and 700°C the coatings crack and sometimes peel off. The positive results of the corrosion resistance of these coatings at 500°C indicate their potential application for protecting equipment designed for use in a hydrogen fluoride medium.

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USSR

UDC 669.295.046.43

REYFMAN, E. D., IL'ICHEV, V. A., ZOTIKOVA, A. N., L'VIN, I. B.

"Mathematical Model of the Process of Chlorination of Titanium-Containing Materials in a Fluidized Bed"

Tr. Vses. N-i. i Projektn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 72, pp. 196-200. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G212 by the authors).

Translation: Problems of mathematical modeling of processes of chlorination in a fluidized bed are presented. A mathematical model of the process is suggested for two basic technological modes. The adequacy of this model for processes occurring in actual apparatus in the mode of complete assimilation of Cl is demonstrated. The model developed allows automatic control systems to be developed for the process of chlorination of materials containing Ti in a fluidized bed. 2 figs.

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USSR

UDC 669.295.046.43

IL'ICHEV, V. A., ZOTIKOVA, A. N., DROZHZHEV, V. I.

"Specifics of Behavior of Petroleum Coke in Chlorination of Titanium-Containing Material in a Fluidized Bed"

Tr. Vses. N-i. i Projektn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 72, pp 190-195. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G211 by the authors).

Translation: In order to determine the influence of the reducer grain size on the technological indicators of the process of chlorination in a fluidized bed, laboratory and pilot plant tests were performed with various grain sizes. The tests were performed for two Ti-containing materials: Ti slag and TiO_2-SiO_2 concentrate. The studies made it possible to determine the grain size of petroleum coke necessary to provide a high degree of extraction of Ti from the Ti-containing material with slight coke loss. 1 fig; 4 tables.

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Gerontology

USSR

UDC 577.0,577.3,577.7

Nov pi B

ZOTIN, A. I., Doctor of Biological Sciences, Biophysics Laboratory, Institute of Developmental Biology, Academy of Sciences USSR

"Aging and Rejuvenation from the Standpoint of the Thermodynamics of Irreversible Processes"

Moscow, Priroda, No 9, 1970, pp 49-55

Abstract: According to the thermodynamic theory of Prigogine-Wiame, development and growth of and subsequent changes in an organism are accompanied by a continuous process of aging of the system. This process is manifested by a decrease in entropy and according to the author, also by a continuous decrease in the rate of heat production. The organism exhibits two types of approaches to a steady state: (i) constitutive movement of the system to the final steady state and (ii) inducible return of the system to the current steady state after deviating under the influence of internal or external factors. Oogenesis represents a constitutive deviation from the steady state; entropy reaches a level sufficient for the start of development and passage of the living system into the state of constitutive approach to the final steady state. From the standpoint of the thermodynamic theory of development, oogenesis reflects the process of regeneration of the system. In all other stages of life there is only the aging process accompanied by a decrease in entropy.

1/1

USSR

UDC 669.295.046.43

IL'ICHEV, V. A., ZOTIKOVA, A. N., KLYUCHNIKOVA, Ye. F.

"Chlorination of Flotation and Autoclave Titanium Concentrates in a Fluidized Bed"

Tr. Vses. N-i. i Projektn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 72, pp. 186-189. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G210 by the authors).

Translation: A laboratory study was performed on the chlorination of flotation and autoclave concentrates and they were comparatively analyzed. The dependence of the rate of chlorination of three fractions of flotation and autoclave concentrates with up to 20% TiO_2 content on this content is linear. With identical content of TiO_2 at 800° , the rate of chlorination of flotation concentrate is 1.5 times higher than that of the autoclave concentrate. One reason for the increased chlorination ability of the flotation concentrate is the significant difference in grain size of rutile in the concentrates. 2 figs.

1/1

USSR

UDC 616.832-002-022.7 (B. pertussis)-
092.9-092:616.15-097.5

KANCHURIN, A. Kh., and ZOTINA, M. M., Allergy Laboratory, Institute of Vaccines and Sera imeni I. I. Mechnikov, Moscow

"The Role of Serum Antibodies in the Pathogenesis of Experimental Pertussis Encephalomyelitis"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 14, No 4, Jul/Aug 70, pp 12-16

Abstract: Experimental allergic encephalomyelitis, a good model for demyelinating diseases of the human nervous system (including postvaccinal encephalomyelitis), was induced in guinea pigs by injecting them with homologous nerve tissue containing whooping cough bacteria. Two types of antibodies were found in the sera of sensitized animals: cytotoxic and complement-fixing. The dynamics of the two differed during the development of the disease. Cytotoxic, complement-dependent antibodies appeared with clinical symptoms of the disease and disappeared when the animals recovered. Complement-fixing antibodies were found when the clinical symptoms were pronounced, but did not disappear when the animals recovered. A cytotoxic factor detected in animal sera during the incubation period disappeared with the appearance of clinical symptoms. It is
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USSR

KANCHURIN, A. Kh. and ZOTINA, M. M., Patologicheskaya Fiziologiya. 1
Eksperimental'naya Terapiya, Vol 14, No 4, Jul/Aug 70, pp 12-16

concluded that both cellular reactions and serum factors play a role in the
origin of experimental allergic encephalomyelitis.

2/2

- 28 -

Photographic

USSR

UDC: 771.314

ZOTKIN, I. T., YAKOVLEV, N. I.

"A Camera for Nighttime Photography of Meteor Type Objects"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 23, Aug 72, Author's Certificate No 346701, Division G, filed 26 Nov 70, published 28 Jul 72, p 189

Translation: This Author's Certificate introduces: 1. A camera for nighttime photography of meteor type objects. The camera contains an objective lens with shutter, a modulator with drive, a magazine with light-sensitized material, a rotating drive, and a timer. As a distinguishing feature of the patent, in order to automate the process of photography while simultaneously simplifying design, the camera is fitted with optical elements fastened on the modulator which periodically deflect the light beam, a device for relative rotation of the magazine and modulator, and a reference light which is synchronized with the timer and modulator. 2. A modification of this camera distinguished by the fact that the modulator is made in the form of a rotating disc with sector shaped optical wedges on the edge, and the magazine is placed in a rotator.

1/1

1/2 021

UNCLASSIFIED

PROCESSING DATE--09OCT70

TITLE--SEARCH FOR METEORITE CRATERS ON EARTH -U-

AUTHOR--(02)--ZOTKIN, I.T., TSVETKOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--ASTRONOMICHESKII VESTNIK, VOL. 4, JAN.-MAR. 1970, P. 55-65

DATE PUBLISHED--70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--METEORITE, EARTH PLANET, CRATERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1991/0878

STEP NO--UR/0454/70/004/000/0055/0065

CIRC ACCESSION NU--AP0110599

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0110599

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF THE FEATURES OF METEORITE CRATERS WITH DIFFERENT DIMENSIONS AND VARYING DEGREE OF A SUBSEQUENT EROSION. THREE TYPES OF CRATERS ARE CONSIDERED: (1) IMPACT CRATERS, (2) EXPLOSIVE CRATERS, AND (3) COMPLEX CRATERS WITH DIAMETERS OVER 10 KM. DATA ON 70 CERTAIN AND POSSIBLE METEORITE CRATERS ON THE TERRITORY OF THE USSR ARE TABULATED. FACILITY: AKADEMIIA NAUK SSSR, KOMITET PO METEORITAM, MOSCOW, USSR.

UNCLASSIFIED

1/2 021

UNCLASSIFIED

PROCESSING DATE--09OCT70

TITLE--SEARCH FOR METEORITE CRATERS ON EARTH -U-

AUTHOR--(02)--ZOTKIN, I.T., TSVETKOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--ASTRONOMICHESKII VESTNIK, VOL. 4, JAN.--MAR. 1970, P. 55-65

DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--METEORITE, EARTH PLANET, CRATERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/0878

STEP NO--UR/0454/70/004/000/0055/0065

CIRC ACCESSION NO--AP0110599

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--09DCT70

CIRC ACCESSION NO--AP0110599

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF THE FEATURES OF METEORITE CRATERS WITH DIFFERENT DIMENSIONS AND VARYING DEGREE OF A SUBSEQUENT EROSION. THREE TYPES OF CRATERS ARE CONSIDERED: (1) IMPACT CRATERS, (2) EXPLOSIVE CRATERS, AND (3) COMPLEX CRATERS WITH DIAMETERS OVER 10 KM. DATA ON 70 CERTAIN AND POSSIBLE METEORITE CRATERS ON THE TERRITORY OF THE USSR ARE TABULATED. FACILITY: AKADEMIIA NAUK SSSR, KOMITET PO METEORITAM, MOSCOW, USSR.

UNCLASSIFIED

1/2 023

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--ANOMALOUS TWILIGHTS RELATED TO THE TUNGUSKA METEORITE -U-

AUTHOR--ZOTKIN, I.T.

COUNTRY OF INFO--USSR

SOURCE--METEORITIKA, NO. 29, P 170-176

DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--METEORITE, TWILIGHT, LUMINESCENCE, PHOTOGRAPH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1988/1963

STEP NO--UR/2534/69/000/027/0170/0176

CIRC ACCESSION NO--AT0106621

UNCLASSIFIED

2/2 023

CIRC ACCESSION NO--AT0106621

UNCLASSIFIED

PROCESSING DATE--02OCT70

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

ABSTRACT. EIGHT PHOTOGRAPHS TAKEN IN JUNE AND JULY 1908 ARE PRESENTED AND DISCUSSED, WHICH SHOW ANOMALOUSLY BRIGHT EVENING TWILIGHTS OBSERVED AFTER THE TUNGUSKA METEORITE FALL. THE PICTURES WERE BORROWED FROM RARE OLD PUBLICATIONS, AND SOME OF THEM HAVE NOT BEEN PUBLISHED IN THE RUSSIAN LITERATURE. IT IS CONCLUDED THAT THESE PHOTOGRAPHS CAUGHT SILVERY CLOUDS AGAINST UNPRECEDENTLY BRIGHT EVENING TWILIGHT. THE LUMINESCENCE IS NOT AURORAL IN CHARACTER.

UNCLASSIFIED

USSR

GUDIMA, N. V., et al., Tsvetnyye Metally, No 3, Mar 70, pp 29-33

Within the period of analysis, the production volume at this specific shop was affected by the number of electrolyzers, current density, cathode surface, current yield, and extensive utilization of electrolyzers. Formulas are cited for determining shop expenditures as a function of current density. Calculation shows that an increase in current density from 241.3 amp/m² to 388.9 amp/m² and the resultant higher production volume made it possible to reduce the shop costs of 1 ton of cathodic nickel by 45.4%.

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USSR

UDC 632.954:633.2.032.3

ZOTOV, A. A., All Union Scientific Research Institute of Feed

"The Use of Herbicides for Improvement of Mountain Meadows"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 10, No 3, 1972, pp 48-52

Abstract: Attempts to improve mountain meadows with mixed grasses located in subalpine zone of the northern Caucasus showed that the most effective was the treatment of the sod with paraquat (2 kg/hectare) or with dolapon (20 kg/hectare) in combination with 2,4-D (2 kg/hectare) plus nitrogen and phosphorus fertilizers corresponding to the formula $N_{90}P_{60}$. There was no noticeable advantage when the grass was treated twice with paraquat, or with paraquat followed by 2,4-D over their concurrent application. In case of rainy weather, grasses may be seeded immediately after the application of paraquat; in case of dolapon a rest period of 3 weeks is required.

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Acc. Nr

AA0034551

Abstracting Service:
CHEMICAL ABST. 4-70

Ref. Code

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70060e Rapid-drying foundry-core binders from organic by-products. Borskaya, E. A.; Kobzeva, Z. A.; Zotov, A. B.; Egorycheva, G. V.; Makarova, T. F.; Niseleva, M. S.; Kirilov, M. I.; Andrienko, K. A.; Tsvganov, V. I. (Scientific-Research Institute of the Technology of the Automotive Industry) Brit. 1,177,888 (Cl. B 22c), 14 Jan 1970, Appl. 13 Sep 1968; 2 pp. Binders having several years shelf life, for sand cores hardening in <1.5 min in core boxes heated to 240-60°, are obtained by mixing 60-70 parts sulfite liquor by wt. with 15-30 parts polyat. alc. mother soln. from pentaerythritol production, and adding to the mixt. 8-15 parts of an oxidn. catalyst slowly during 30-60 min with stirring or other means to suppress foam and prevent temps. >60-70°. Suitable sulfite liquor or lye has 1.27 sp. gr. Hydrolysates of corn cobs or sawdust can be substituted for it. Suitable mother soln. contains saccharides 11-13, pentaerythritol 8-12, resins 4-10, acids 2-5, and H₂O 60-75%, and has at least 1.16 sp. gr. The oxidn. catalyst can be H₃PO₄, a persulfate, or H₂O₂, and if the latter, not over 3% of a 30% aq. soln. should be used, with a H₂O-cooling jacket for cooling below 25°. The mixed binder should have 1.25-1.3 sp. gr. and 4-4.8 pH. Cores thus bonded retain useful properties 3-4 days. When they also contain up to 3% clay, hardening is faster than 1.5 min and the core strength is increased 25% or more. The collapsibility of the cores after castings are cooled is not impaired by these binders. George F. Comstock

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REEL/FRAME

19711247

1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--RECRYSTALLIZATION OF THE CALCIUM SULFATE HEMIHYDRATE TO THE
DIHYDRATE -U-
AUTHOR-(04)-ZOTOV, B.G., VOSKRESENSKIY, S.K., ZOTOVA, F.N., GORYUNOV, N.A.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 263,577
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970, 47(8)
DATE PUBLISHED--10FEB70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL PATENT, CRYSTALLIZATION, AQUEOUS SOLUTION, CALCIUM
SULFATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1837 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0132102
UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AA0132102
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RECRYSTN. TAKES PLACE IN AQ.
SOLNS. OF H SUB 3 PD SUB 4, TREATED WITH GASEOUS CO SUB 2 OR AN AQ.
SOLN. CONTG. CO SUB 2.

UNCLASSIFIED

USSR

UDC: 621.396.6.72:621.791

ZOTOV, B. M., KONYUSHKOV, G. V., KAZAKOV, N. F.

"Diffusion Welding of Metal-Ceramic Joints"

Elektron. tekhnika. Nauchno-tekhn. sb. Tekhnol. i organiz. proiz-va (Electronic Technology. Scientific and Technical Collection. Technology and Organization of Production), 1970, vyp. 5 (37), pp 9-14 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1V257)

Translation: The authors investigate the effect which parameters of the diffusion welding process, phase composition and pretreatment of polished high-clay M-7 ceramic have on the quality of welded joints with copper. It is found that preliminary annealing of the ground ceramic improves the quality of the welded joints. The optimum parameters of the diffusion welding process are determined. Resumé.

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1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--BRIDGE AND METALLURGICAL CRANES --U-
AUTHOR--(03)--BOGINDKIY, K.S., ZOTOV, F.S., NIKOLAYEVSKIY, G.M.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, MASHINOSTROYENIYE, 1970, 299 PP
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS
TOPIC TAGS--CRANE, CALCULATION, METAL STRESS, BRIDGE, METALLURGICAL
MACHINERY, STRUCTURAL STEEL, MONOGRAPH, BIBLIOGRAPHY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0314 STEP NO--UR/0000/70/000/000/0001/0299
CIRC ACCESSION NO--AM0116005
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AM0116005

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 3.
CHAPTER I TECHNICAL SPECIFICATIONS FOR CRANES 5. II BASIC DATA ON
CALCULATION OF CRANES 20. III DESIGNS AND CALCULATION
CHARACTERISTICS OF CRANES 60. IV METAL STRUCTURES OF CRANES 199.
V UNIFICATION OF CRANES 251. BIBLIOGRAPHY 298. THE BOOK CONTAINS
DESCRIPTIONS AND CALCULATIONS OF ELECTRICAL ALL PURPOSE BRIDGE CRANES OF
A HIGH LOAD CAPACITY AS WELL AS METALLURGICAL CRANES. THE BOOK IS
BASED MAINLY ON CRANE CONSTRUCTION EXPERIENCE OF THE KRASNOYARSK FACTORY
"SIBTYAZHMASH". IT CONTAINS ALSO DATA ON CRANES MANUFACTURED BY THE
NOVO-KRAMATORSK MACHINE CONSTRUCTING PLANT IM. V. I. LENINA, THE
LENINGRAD PLANT OF HOISTING AND CONVEYING EQUIPMENT IM. S. M. KIROVA,
AND CERTAIN FOREIGN ENTERPRISES. THE BOOK WAS WRITTEN FOR ENGINEERING
TECHNICAL PERSONNEL CONNECTED WITH DESIGN, MANUFACTURE AND OPERATION OF
BRIDGE AND METALLURGICAL CRANES. IT CAN BE USEFUL ALSO TO COLLEGE AND
TECHNICUM STUDENTS.

UNCLASSIFIED

USSR

SOLODOVNIKOV, V. V., ZOTOV, M. G. and BIRYKOV, V. F.

"Estimation of the Parameters of Spectral Density of an Unstable Random Process on the Basis of Its Realizations"

Izv. Vyssh. Ucheb. Zavedeniy. Priborostroyeniye [News of Higher Educational Institutions. Instrument Building], 1973, Vol 16, No 5, pp 9-13 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V191)

Translation: A class of unstable random processes is studied, produced by transmission of stable white noise through an unstable forming device. It is assumed that the structure of the spectral density is fixed, and that only certain parameters must be estimated. A system of equations is produced determining the values of the desired parameters of spectral density. It is shown that the spectral density parameters are defined with probability 1 by a single realization of the random process studied. The system of equations produced unambiguously defines the values of the desired parameters. Author's view

1/1

UDC: 62-501.4

USSR

PUPKOV, K. A., LOMAKIN, I. V., ZOTOV, M. G., Moscow Higher Technical School
Imeni N. E. Bauman

"Synthesis of Nonlinear Systems Under Random Affects Based on an Equivalent
Transfer Function"

Leningrad, Priborostroyeniye, Vol 13, No 6, 1970, pp 27-33

Abstract: The method of equivalent transfer functions is a development of the statistical linearization technique, permitting the output spectrum of the equivalent linear model to be the same as that of the nonlinearity it replaces without placing limitations on the transmission band width of the linear system portion. The equivalent transfer function derived by Pupkov (1965) from the relationships of output and input spectra of the nonlinear element is a steady state linear model of the nonlinear element, capable in principle of yielding an exact solution to the problem of analyzing and synthesizing steady state nonlinear systems within the framework of correlation theory.

Starting from a generalized expression for the equivalent transfer function, the basic problem in synthesizing nonlinear systems consists of finding the optimum parameters for given equivalent circuits in terms of a given criterion

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USSR

PUPKOV, K. A., et al, Priborostroyeniye, Vol 13, No 6, 1970, pp 27-33

of optimality. The optimum correcting unit will be uniquely determined by the chosen equivalent circuit structure and its parameters and by the ordinary relationships between statistical system input and the properties of the system section under consideration. In a real problem there are two stages, development of the ideal equivalent function structure and determination of its parameters. It is claimed that the optimization of parameters for the equivalent transform is sufficient, since the parameters of any nonlinear function can be shown to be analytic functions of the parameters of the equivalent transform. Optimization of the parameters proceeds first by partial differential methods, then by the formation of a Lyapunov V function from the sums of the squares of the errors, and a further search in the form of solutions to a system of nonlinear differential equations. Use of a digital computer on these equations has obvious advantages over a direct attack on a nonlinear algebraic system.

Making some reasonable assumptions, one can apply essentially the same mathematics to a situation in which the signal is subject to statistical noise.

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USSR

PUPKOV, K. A., et al, Priborostroyeniye, Vol 13, No 6, 1970, pp 27-33

The technique is shown as applied to a straight series system with simple feedback and to a system with two branches.

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Z Acoustics

USSR

ALEKSANDROV, L. N.: ZOTOV, M. I.: EDELMAN, F. L., Institute of Semiconductor Physics, Siberian Department, Academy of Sciences, USSR, Novosibirsk

"Some Mechanisms of Sound Wave Attenuation in Plastically Deformed Silicon"

Leningrad, Fizika Tverdogo Tela, Vol 12, No 6, June 1970, pp 1859-1860

Abstract: In an earlier study the authors had investigated the effect of heat treatment and alloying with copper upon the internal friction in silicon containing a relatively small amount of dislocations. In the present work a study is made of the internal friction in plastically deformed silicon, the effect of alloying with copper upon the internal friction in the silicon, and the dependence of attenuation on amplitude. It is found that the experimental data

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USSR

ALEKSANDROV, L. N., et al, Fizika Tverdogo Tela, Vol 12, No 6, June 1970, pp 1859-1860

concerning the relationship of the attenuation of sound waves in plastically deformed silicon are in qualitative agreement with the Keller-Granato-Lücke theory in the area of the dependence of the decrement on amplitude.

2/2

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USSR

UDC: 621.391.19

KATYS, G. P., ZOTOV, V. D., POLIKARPOV, S. P., VINOGRADOVA, Ye. P., "Order of Lenin" Institute of Control Problems (Automation and Remote Control), Academy of Sciences of the USSR

"An Image Converter"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 36, Dec 71, Author's Certificate No 322781, Division G, filed 19 May 71, published 30 Nov 71, p 163

Translation: This Author's Certificate introduces an image converter made in the form of a semiconductor plate to which metal ring electrodes and a central point electrode are applied for a radial field. As a distinguishing feature of the patent, conversion errors which result from rotation and change of image scale are eliminated by using a sawtooth voltage source and by placing an additional electrode on the semiconductor plate inside the ring electrode. This auxiliary electrode is made from a material with conductivity opposite to that of the semiconductor plate and takes the form of one turn of an Archimedes spiral with one end connected to the ring electrode and the other end connected through a load to the source of sawtooth scanning voltage.

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USSR

UDC: 621.383.8

VINOGRADOVA, Ye. P., ZOTOV, V. D., Moscow

"Investigation of a One-Dimensional Solid-State Image Converter"

Moscow, Avtomatika i Telemekhanika, No 1, Jan 72, pp 189-191

Abstract: The article is a description of a solid-state one-dimensional image converter which utilizes the inverse Hall effect (the Suhl effect). The main scanning element is a rectangular semiconductor plate with one light-sensitive face and a point contact or PN-junction for signal takeoff on the opposite face. An attracting electric field is applied lengthwise of the scanning element. The plate is placed in a magnetic field whose strength is a linear function of time. When an image is projected on the light-sensitive surface, nonequilibrium carriers are generated in accordance with the intensity of the emission on the surface. These carriers are subjected to Lorentz force, Hall force, and the force of the

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USSR

VINOGRADOVA, Ye. P., ZOTOV, V. D., Avtomatika i Telemekhanika,
No 1, Jan 72, pp 189-191

electric field. This results in redistribution of the carriers in the bulk of the semiconductor. Current takeoff affects the minority carriers corresponding to sequential sections of the surface as the magnetic field strength increases. If the laws of redistribution of the minority carriers are known, this process can be controlled and optimum parameters of the device can be selected depending on the job to be done. Preliminary calculations show that a resolution of the order of 30 lines/mm and a line conversion time of the order of a few microseconds can be achieved with a main scanning element about 30 microns in width with a light sensing surface approximately 10 mm long when the long dimension of the current takeoff is about 5 microns, and the illumination is approximately 100 lx. Two figures, bibliography of three titles.

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USSR

UDC 621.383.8

ZOTOV, V. D., POLIKARPOV, S. P., Moscow

"Semiconductor Converters Which Analyze Optical Images"

Moscow, Avtomatika i Telemekhanika, No 9, Sep 71, pp 165-169

Abstract: The authors describe a device with a metal-oxide-semiconductor photoconversion matrix which can be used to distinguish zones with a given illumination on an image. A description is also given of a semiconductor photoconversion unit which reacts only to a given level of light intensity. These devices are theoretically analyzed. Formulas are derived which can be used to select the semiconductor materials and the proper geometric dimensions of sensing surfaces in the devices when the requirements for operation are known. Four figures, bibliography of four titles.

1/1

Forming

UDC: 621.771.0

USSR

POLUKHIN, P.I., VORONTSOV, V.K., CHICHENEV, N.A., and ZOTOV, V.F. Moscow
Institute of Steel and Alloys

"Study of Plastic Flow by the Moire Method"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 5,
1970, pp 73-76

Abstract: In a study of plastic flow by the Moire method, the scratches left on the metal after its machining with a planer were used as the initial grid. The selection of the direction and spacing of the initial grid depends on the purpose of the investigation. A lead specimen made of two halves on whose inner surfaces scratches were etched was used in the study. Detailed information was obtained on metal displacements and deformations in the central zone of the specimen and in the region in front of the geometric area of deformation. In the presence of any two Moire patterns, displacements at any point of the factual area of deformation can be determined from a geometric interpretation of the Moire streaks. Equations for the calculation of horizontal and vertical displacements are presented.

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UDC 628.313

USSR

ZOTOV V. M., Engineer

"Rapid Determination of Bactericidal Effect of Industrial Waste Water and Its Constituents"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, No 3, 1972, p 16

Abstract: This method is based on the determination of the fermentation activity of dehydrogenase as related to the potency of the microorganism. The compound 2,4,5-triphenyltetrazolium chloride is used to analyze for the dehydrogenase. This method is simpler and faster than previous methods.

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USSR

UDC 539.219.3

ANAN'IN, V. M., GLADKOV, V. P., ZOTOV, V. S., and SKOROV, D. M.

"Diffusion of Nickel in Beryllium"

Moscow, Atomnaya Energiya, Vol 29, No 3, Sep 70, pp 220-221

Abstract: The authors studied the diffusion of nickel in beryllium and two Be-Ni alloys containing 10 and 36 wt. percent nickel. The study material was distilled beryllium remelted in an arc furnace on a water-cooled copper hearth. The specimens first underwent high-temperature homogenizing annealing, then diffusion annealing following the application of an Ni-63 isotope to one of their surfaces. Radiometric and autoradiographic analyses indicate that the mobility of nickel along the grain boundaries of beryllium is very low and cannot be detected against a background of volume diffusion.

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USSR

UDC 621.396.677:523.164

ZAYTSEV, A. P., ZOTOV, V. V., and SEVRYUKOV, B. N.

"One Extremal Problem of Radiotelescope Control"

Tr. Mosk. energ. in-ta (Works of the Moscow Power Engineering Institute), 1972, vyp.116, pp 148-154 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 B21)

Translation: The authors study the particularities of systems for the control of radio telescopes. Problems are also studied which are related to the development of radio telescopes in conjunction with large antennas with a single, fixed emitter where the antennas form a single-beam radiation pattern. An algorithm is set up for optimizing the system of control. Original article: three illustrations and seven bibliographic entries. N.S.

1/1

USSR

UDC: 621.317.761

ZOTCV, T. V., BOGDANOV, G. B.

"Frequency Meter With Ferrite Resonator"

Avt. sv. SSSR (Author's Certificate USSR) Class 21a⁴, 71, (Gol r 23/10), No. 270841, Application 8.12.68, Publication 20.08.70 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3A375F)

Translation: Existing frequency meters containing a ferrite resonator, a sawtooth current generator, and a converter of the measured frequency into a pulse voltage, have low frequency readout accuracy on the oscillograph screen. To improve the measurement accuracy, the output of the VIF detector in the converter is connected to the pulse generator through an amplifier, a differentiating circuit, and a null circuit. E. I.

1/1

USSR

UDC[537.226+537.311.33]:[537+535]

ZOTOV, V. V., and SERDYUK, V. V.

"Effects Caused by Appearance of Contact Barrier at Cadmium Sulfide-Indium Electrode Interface"

Elektron. tekhnika. Nauch.-tekhn. sb. Upr. kachestvom i standartiz. (Electronic Engineering. Collection of Scientific and Technical Works on Quality Control and Standardization), 1971, vyp. 4(10), pp 31-36 (from RZh-Fizika, No 1, Jan 72, Abstract No 1YE1364 by authors)

Translation: Usually an In electrode makes it possible to obtain ohmic contact with CdS. However, with prolonged propagation of large fluxes such a contact takes on barrier properties. This results in electric polarization of the crystal and the appearance of current instability when voltage is on. The phenomenon can be used to determine the parameters of free current carrier trapping in the volume of a semiconductor.

1/1

1/2 030 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--ANALYSIS OF ANOMALOUS LOW FREQUENCY NOISE OF A MASTER -U-

AUTHOR--(05)-GUDNOV, V.M., ZOTOV, V.V., NAGORNYKH, L.M., SORUCHENKO, R.L.,
SHEYNHLEYGER, V.B.
COUNTRY OF INFO--USSR

SOURCE--MOSCOW, RADIOTEKHNIKA I ELEKTRONIKA, NO 3, MAR 70, PP 632-633

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MASER, TRAVELING WAVE, ELECTROMAGNETIC NOISE, NOISE ANALYZER,
SPECTRUM ANALYZER, RADIOMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1459

STEP NO--UR/0109/70/000/003/0632/0633

CIRC ACCESSION NO--AP0104756

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0104756

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS ARE PRESENTED OF AN EXPERIMENTAL INVESTIGATION OF THE NOISE SPECTRA OF RECEIVING DEVICES WITH A TRAVELING WAVE MASER AT THE INPUT. THE INVESTIGATION WAS CONDUCTED WITH THE AID OF A SPECTRUM ANALYZER WITH A 0.25 HZ BAND AND AN ACCURACY OF THE EQUIPMENT FREQUENCY OF 0.1 HZ IN THE 3 TO 995 HZ RANGE. THE ANALYZER WAS CONNECTED TO THE LOAD OF THE SQUARE LAW DETECTOR OF THE RECEIVING DEVICE INVESTIGATED. THE NOISE OF THE MATCHED LOAD WITH T SUBNOISE EQUALS 290DEGREE SK SERVED AS THE INPUT SIGNAL. TO ELIMINATE THE NECESSITY FOR ADJUSTING THE FREQUENCY CHARACTERISTICS OF THE RECEIVING DEVICE WITH THE MASER AND WITHOUT IT, THE SPECTRAL DENSITY OF THE NOISE WAS NORMALIZED TO UNITY AT THE HORIZONTAL PART OF THE SPECTRUM, AND IRREGULARITY OF THE SPECTRUM WAS MEASURED IN RELATIVE UNITS. MEASUREMENTS OF THE SPECTRUM WERE CONDUCTED AT THE OUTPUT OF A 5 CM BAND RADIOMETER WITH A TRAVELING WAVE MASER AT THE INPUT. IN THE MEASURING PROCESS, THE MASER OPERATED IN A SATURATION REGIME OF THE ILLUMINATION POWER. THE DEPENDENCE OF THE SPECTRAL DENSITY OF THE NOISE ON THE FREQUENCY IS SHOWN. IT IS CONCLUDED THAT BOILING HELIUM IN THE RETARDING SYSTEM OF THE TRAVELING WAVE MASER PRODUCES AN ANOMALOUS LOW FREQUENCY NOISE, THE SPECTRAL DENSITY OF WHICH INCREASES WITH A DECREASE OF THE FREQUENCY, BEGINNING WITH A FREQUENCY ON THE ORDER OF 100 HZ. IN ORDER TO REALIZE SENSITIVITY IN RADIOMETERS WITH A TRAVELING WAVE MASER WHICH HAVE ANOMALOUS LOW FREQUENCY NOISE, IT IS NECESSARY TO SELECT A MODULATION FREQUENCY ABOVE 100 HZ. ANOMALOUS NOISE IS ABSENT IN TRAVELING WAVE MASERS WITH A RETARDING SYSTEM NOT FILLED WITH LIQUID HELIUM.

UNCLASSIFIED

UNCLASSIFIED
 PROCESSING DATE--20NOV70
 TITLE--RECOMBINATION OF CHARGE CARRIERS AT A RECTIFYING CONTACT BETWEEN
 ION EXCHANGE MEMBRANES -U-
 AUTHOR--(03)--LIKHOED, V.N., MASLOV, V.N., ZOTOV, YU.A.
 COUNTRY OF INFO--USSR
 SOURCE--ZH. FIZ. KHIM. 1970, 44(4), 1118-20
 DATE PUBLISHED--70
 SUBJECT AREAS--CHEMISTRY
 TOPIC TAGS--ION EXCHANGE MEMBRANE, ANION, CATION, ION RECOMBINATION
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--3005/0008
 STEP NO--UR/0057/70/044/004/1118/1120
 CIRC ACCESSION NO--AP0132308
 UNCLASSIFIED

2/2 01: UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0132308
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RECOMBINATION PROCESSES OF CHARGE
CARRIERS AT A (H PRIME POSITIVE) MINUS (OH) PRIME NEGATIVE RECTIFYING
CONTACT BETWEEN ION EXCHANGE MEMBRANES ARE INVESTIGATED. THE LIFE TIME
OF THE MINORITY CARRIERS IN PI EQUALS 1.6 TIMES TO PRIMEB NEGATIVE SEC.
WHILE THE EFFECTIVE DIFFUSION LENGTH OF THE CHARGE CARRIERS IS L EQUALS
2.4 TIMES TO PRIMEB NEGATIVE CM. FACILITY: MOSK. INST. TONKOI
HIM. TEKHNL. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 519.2

GALUSEKIN, A. I., ZOTOV, Yu. Ya., and SHIKUNOV, Yu. A.

"On-Line Processing of Experimental Data"

Moscow, "Energiya," 1972, 360 pp, illustrated (from RZh--Matematika, No 6, 1972, Abstract No 6V190K)

Translation: The book considers problems in the on-line processing of experimental data. The coding of samples of stationary and nonstationary random processes is investigated, and methods are given for constructing rapidly coding devices. An examination is made of problems and methods of operative statistical processing of unidimensional and multidimensional samples of random processes on a digital computer and with the use of special apparatus. A detailed investigation is made of methods of accelerating correlational analysis of random processes. Problems of the recognition of forms, based on statistical algorithms, are examined.

The book is designed for specialists in automation, cybernetics, communications, and electronics.

1/1

1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--RECRYSTALLIZATION OF THE CALCIUM SULFATE HEMIHYDRATE TO THE
DIHYDRATE -U-
AUTHOR--(04)-ZOTOV, B.G., VOSKRESENSKIY, S.K., ZOTOVA, F.N., GORYUNOV, N.A.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 263,577
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970, 47(8)
DATE PUBLISHED--10FEB70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL PATENT, CRYSTALLIZATION, AQUEOUS SOLUTION, CALCIUM
SULFATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/1837 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0132102
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--A40132102

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RECRYSTN. TAXES PLACE IN AQ.

SOLNS. OF H SUB 3 PG SUB 4, TREATED WITH GASEOUS CO SUB 2 OR AN AQ.

SOLN. CONTG. CO SUB 2.

UNCLASSIFIED

I/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--MECHANICAL PROPERTIES OF AQUEOUS SAPONIN SOLUTIONS AT THE INTERFACE
WITH TOLUENE --U--
AUTHOR--(03)--ZOTOVA, K.V., SHAMROVA, N.V., TRAPEZNIKOV, A.A.
COUNTRY OF INFO--USSR 2
SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 3, PP 369-372
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--GLUCOSIDE, TOLUENE, FLUID VISCOSITY, ADSORPTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1601 STEP NO--UR/0069/70/032/003/0369/0372
CIRC ACCESSION NO--AP0125223
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

2/2 017

CIRC ACCESSION NO--AP0125223
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE SURFACE VISCOSITY (ETA SUBS) OF INTERPHASE LAYERS: AQUEOUS SAPONIN SOLUTION TOLUENE HAS BEEN MEASURED FOR TWO DIFFERENT SAPONINS IN THE CONCENTRATION RANGE 0.05-1.0PERCENT. WHEN A LAYER OF TOLUENE IS SUPERPOSED ON A SAMPLE OF LONDON SAPONIN ETA SUBS IS MUCH LOWER THAN AT THE SAPONIN AIR INTERFACE, WHICH IS ACCOUNTED FOR BY SOLVATION. IN THE CASE OF CZECHOSLOVAK SAPONIN ETA SUBS IS MUCH HIGHER AT THE INTERFACE WITH TOLUENE. THIS IS ACCOUNTED FOR BY PREFERRED ADSORPTION OF THE COMPONENTS FORMING HIGHLY VISCOUS LAYERS AND BY DESORPTION INTO TOLUENE OF THE COMPONENTS REDUCING THE VISCOSITY. FACILITY: VYSHEYE MOREKHODNOYE UCHILISHCHE, MURMANSK INST. FIZICHESKOY KHIMII AN. SSSR, MOSCOW.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--MECHANICAL PROPERTIES OF SURFACE LAYERS AND THE SURFACE TENSION OF
SAPONIN SOLUTIONS -U-
AUTHOR--(03)--TRAPEZNIKOV, A.A., ZOTOVA, K.V., SHAMROVA, N.V. 2
COUNTRY OF INFO--USSR, CZECHOSLOVAKIA, UNITED KINGDOM
SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 3, PP 437-443
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SURFACE TENSION, CHEMICAL REACTION KINETICS, MECHANICAL
PROPERTY, SHEAR STRENGTH, SURFACE ACTIVE AGENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/2148 STEP NO--UR/0069/70/032/003/0437/0443
CIRC ACCESSION NO--AP0125731
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125731

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MECHANICAL PROPERTIES OF THE SURFACE LAYERS AND KINETICS OF THEIR FORMATION HAVE BEEN STUDIED FROM THEIR SURFACE TENSION VALUES FOR SAPONINS OF TWO TYPES (LONDON AND CZECHO-SLOVAK) IN THE CONCENTRATION RANGE 0.05-1.0PERCENT. THE CURVES FOR THE CONCENTRATION DEPENDENCE OF SURFACE VISCOSITY AND SHEAR STRENGTH PASS THROUGH A MAXIMUM AND A MINIMUM. THE CURVES FOR THE CONCENTRATION DEPENDENCE OF SURFACE TENSION BOTH FOR INITIAL AND EQUILIBRIUM VALUES EXHIBIT MINIMA, WHICH PROVES THAT SAPONIN SOLUTIONS CONSIST OF SEVERAL COMPONENTS AND SHOW A TENDENCY TO MICELLE FORMATION AND SOLUBILIZATION OF MORE SURFACE ACTIVE COMPONENTS. THIS ACCOUNTS FOR THE COMPLEX CONCENTRATION DEPENDENCE OF THE MECHANICAL PROPERTIES OF SURFACE LAYERS.
FACILITY: INSTITUT FIZICHESKOY KHIMII AN SSSR, MOSCOW
MURMANSKOYE VYSSHEYE MOREKHODNOYE UCHILISHCHE.

UNCLASSIFIED

USSR

UDC 621.315.592:546.289

ZOTOVA, L.G., KHIZNICHENKO, L.P.

"Effect Of Reactor Irradiation On Mobility Of Dislocations In Germanium"

Izv. AN UzSSR.ser.fiz.-mat.n. (Bulletin Of The Academy Of Sciences Uzbek SSR. Physico-Mathematical Sciences Series), 1971, No 3, pp 91-94 (from RZh--Elektronika i yeye primeneniye, No 12, Dec 1971, Abstract No 12B107)

Translation: The speed of motion was investigated of individual dislocations in monocrystalline Ge up to and after irradiation by neutrons. The measurements were made by the standard method of a four-point curve in conjunction with the technique of double selective etching. Specimens in the form of 1 x 3 x 30 mm² plates were cut out of ingots of n-type single crystals with a resistivity of 1 ohm.cm and an initial density of dislocations of 10².cm⁻². The speed of the dislocation half-loops [polupetel'] was measured in the temperature range of 350-500° and the range of stresses of 0.5-5 kg/mm². The specimens were irradiated at 40 and 300° O. The power flux amounted to 1.38 . 10¹³ neutron/cm² sec. The dependence of the speed of motion of the screw dislocations for various temperatures, on the applied voltage, is described by the equation

$$v = v_0 (T / T_0)^m$$

1/2

USSR

ZOTOVA, L. G., KHIZNICHENKO, L. P., Izv. AN UzSSR.ser.fiz.-mat.n. (Bulletin Of The Academy Of Sciences Uzbek SSR. Physico-Mathematical Sciences Series), 1971, No 3, pp 91-94 (from RZh--Elektronika i yeye primeneniye, No 12, Dec 1971, Abstract No 12B107)

where τ is the voltage necessary for movement of a dislocation with a speed of 1 cm/sec. It was determined that as a result of irradiation, the mobility of the dislocations was decreased. This effect disappeared at 440° C. For irradiated specimens the activity energy equalled (1.90 ± 0.06) ev and for non-irradiated (1.45 ± 0.03) ev. 9 ref. V.B.

2/2

- 94 -

USSR

UDC 620.194'196

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

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

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

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

1/1

USSR

UDC 621.791.011:546.821:546.833

BLASHCHUK, V. YE., GUREVICH, S.M., ZOTOVA, L.M., LANGER, N.A., GRINEVICH, V.V.,
and STENDER, N. V., Kiev

"Weldability and Corrosion Resistance of an Alloy of Titanium With 5% Ta"

Kiev, Avtomaticheskaya Svarka, No 6, Jun 71, pp 16-18

Abstract: Development of new chemical products, particularly those in which the basic component of the medium is hydrochloric acid, and introduction of rational technological processes requires the use of new corrosion-resistant structural materials. One of these is titanium and its alloys. An alloy of the system titanium - 5% tantalum with a stable alpha-solid solution has been designated for use in hydrochloric acid in the presence of oxidizers at an elevated temperature. Production of this alloy has been mastered and designated alloy grade 4204. The corrosion resistance of alloys 4204, VT1, and OT4 and their weld joints was studied in 18% HCl at 90°C and with a continuous flow of chlorine gas at the rate of 70 ml/min. It was found that alloy 4204 possesses higher corrosion stability than alloys OT4 and VT1. 4 figures, 1 table, 7 bibliographical references.

1/1

- 50 -

USSR

UDC 621.791.856.3:621.9-419:620.193

ZOTOVA, L. M., RYABOV, V. R., and LANGER, N. A., Institute of Electric Welding
Imeni Ye. O. Paton, Academy of Sciences UkrSSR

"Contact Corrosion of Aluminum-Steel Welded Joints"

Kiev, Avtomaticheskaya Svarka, No 9, Sep 70, pp 19-23

Abstract: A review is made of available data from experimental and industrial investigations on the corrosion resistance of aluminum-steel welded joints. Various methods and procedures for the protection of such joints against destruction by corrosion under service conditions are described. Data are given on aluminum-steel pair characteristics in sea and fresh water, polarization of various bimetallic joints, and potential distribution in welded joints of aluminum with steel.

1/1

Coatings

USSR

UDC 621.74.015:621.744.37 2

KUMAININ, I. B., BAUMAN, B. V., OREKHOV, A. I., ISAYEVA, T. A., SMOL'KIN, A. A., and ZOTOVA, N. G., Moscow Institute of Steel and Alloys"

"Ceramic Antiscorching Coatings for Steel Castings"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 7, 1973, pp 53-56

Abstract: Antiscorching coatings with ceramic type bonding agents were developed on the base of metallophosphates. Starting materials for the production were orthophosphoric acid H_3PO_4 , aluminum hydroxide $Al(OH)_3$, and chromium acid Cr_2O_3 . The coatings possess high refractoriness and resistance, high thermal stability, and chemical inertia in the working temperature interval. They also have high technological qualities, as good covering power, and high sedimentation stability. The coatings do not contain scarce materials and are not expensive. Results of industrial tests are presented of antiscorching coatings on carbon steel and alloy steels. Comparative results of petrographic analyses of antiscorching coatings are discussed by reference to microsections of the mold and of metal-mold

1/2

USSR

(2)
KUMANIN, I. B., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya
Metallurgiya, No 7, 1973, pp 53-56

and metal-coating contact zones. Three figures, six bibliographic references.

2/2

- 4 -

ZOTOVA, N. I.

THE EFFECT OF CHEST-BACK C FORCES ON TRANCEPHALIC VESSELS

UDC: 611.81.611.1] 014.477-019

JPRS 55-341
6 MAR 72

[Article by N. I. Zotova, Chair of Normal Anatomy (headed by Professor M. G. Prives, Honored Scientist), First Leningrad Medical Institute Ippol. Academichan I. P. Pavlov, Leningrad, Arkhiv Anatomi, Gistoloid i Embriologii, Russian, No 11, 1971, submitted 24 December 1970, pp 55-60]

Investigation of the vascular bed of the brain under the effect of gravitational stress is important because of the practical significance for space biology and medicine.

There are isolated-morphological studies in this direction (V. G. Petrunin and N. M. Sokolova, 1963; D. I. Radvedev, 1965; B. S. Glushkov, 1965; Beckman and Raschke, 1966). They deal primarily with changes occurring in the brain proper under gravitational stress, and mention only incidentally the vascular disturbances in it. The authors report that transverse accelerations induce erythrocytosis in the small vessels of the brain, capillary hemorrhages and enlargement of perivascular spaces. The work of I. N. Preevbrazhenskaya (1968) published by the laboratory of Professor M. G. Prives, deals specially with the effect of transverse accelerations on the blood vessels of the intracranial and extracranial. This author, who used anatomical investigative methods, found that single exposure to individual intolerable accelerations leads to constriction of arteries and dilatation of veins. Repeated exposure to longer and stronger single accelerations ending in death lead to dilatation of all blood vessels, development of tortuosity, and, in a number of cases, to destruction of their walls.

The shortage of information about changes in vessels of other parts of the brain that occur with transverse accelerations makes it imperative to develop this problem further from the morphological point of view. The present work whose purpose was to investigate the influence of this factor on the balance of vessels constitutes a part of the general problem of investigating the effect of gravitational stress on the vascular system which is being developed in the laboratory of Professor M. G. Prives.

This study was conducted on 23 male rabbits weighing about 2.5 kg. Gravitational stress was created by rotating the animals on a centrifuge with a 1 meter radius. We studied the effect of single

ZOTOVA, N. I.

REPORT ON THE 9TH INTERNATIONAL CONGRESS OF ANATOMISTS

SPAS 95341
UDC: 611.061.3(100)1970"

SYMPOSIUM DEALING WITH THE 'INFLUENCE OF STRESS FACTORS ON STRUCTURE OF ORGANS AND TISSUES,' AT THE 9TH INTERNATIONAL CONGRESS OF ANATOMISTS, LENINGRAD, 20-21 AUGUST, 1970

[Article by N.I. Zotova: Leningrad, Arkhiv Anatomii, Gistologii i Embriologii, Russiam, No 11, 1971, pp 121-125]

The convening of the 9th International Congress of Anatomists in our country was a consequence of the high degree of development of Soviet morphology. It convened in Leningrad from 17 to 22 August 1970. For the first time at this congress, a symposium was organized dealing with investigation of the influence of stress factors on the structure of organs and tissues. Our country was the first to undertake special efforts, so that it is not by chance that such a symposium was organized precisely here. It was organized by the secretary general of the congress, Professor M.G. Privas, Honored Scientist, and head of the chair of normal anatomy, First Leningrad Medical Institute. There were 42 participants in the symposium from different cities of the Soviet Union. There are only isolated studies of this kind abroad, so that there were no foreign speakers at the symposium.

Eighteen papers were delivered at the three sessions of the symposium. At the first session, which convened on 20 August, five papers were delivered and they dealt with the effect of gravitational stress on the vascular system, which was considered on the macro-microscopic level. Professor S.S. Mikhaylov, secretary general of the Congress, was chairman of the first session.

The first paper, by M.G. Privas (Leningrad), entitled "Adaptation of the Vascular System to Stress Factors," discussed the effect of gravitational stress, hydrodynamics, and radiation on the vascular system, and it inspired particular interest.

In it he showed the patterns of changes occurring under hypergravity conditions in different parts of the vascular system -- arterial, venous, lymphatic, as well as different parts of the blood stream: extra- and intra-organic, macro- and microscopic. The speaker observed that changes in intra-organic arteries depend not only on the direction of the force vector but also on the structure and function both of the organ as a whole and of its different

Physiology

USSR

UDC 611.133.33+611.145.11].068:613.73

ZOTOVA, N. I. Chair of Normal Anatomy, First Leningrad Medical Institute imeni
I. P. Pavlov

"Adaptation of End-Brain Vessels to Gravitational Loads in the Head-Pelvis Direc-
tion"

Leningrad, Arkhiv Anatomii Gistologii i Embriologii, Vol 59, No 7, Jul 70, pp 59-68

Abstract: A training schedule was developed for rabbits which was designed to pre-
vent the occurrence of changes in the cerebral vessels caused by intolerable gravi-
tational loads. Dyes were injected into the vascular system and studied in brain
preparations. The results were compared with those of previous studies involving
untrained animals. Training was based on repetition and gradually increased load-
ing. After a given training period, the animals rested for a period varying from
7 days to one year, and various tests were then conducted. It was found that
adaptation in the end-brain vessels can be achieved by proper training and that
the severe lesions of the cerebrovascular system which occur when untrained animals
are subjected to intolerable loading can be avoided. The length of the rest
period and the duration of the loads during training are important factors in the
effectiveness of the training.

1/1

1/2 012 UNCLASSIFIED
TITLE--ETHYL OR ISOPROPYLBENZOIC ACID -U-

PROCESSING DATE--13NOV70

AUTHOR--(02)-KUZMENKOV, A.A., ZOTOVA, N.L.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,587

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--10FEB70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--BENZOIC ACID, CHEMICAL PATENT, ISOPROPYL BENZENE, OXIDATION,
CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0859

STEP NU--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132949

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0132949

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE COMPD. IS PREPD. BY
OXIDIZING METHYLETHYL OR METHYLISOPROPYLBENZENE WITH KMNO₄ IN AQ.
PYRIDINE AT SMALLER THAN OR EQUAL TO 100DEGREES.

UNCLASSIFIED

I/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--MECHANISM OF THE EFFECT OF HEAVY WATER ON THE VISCOSITY OF STARCH
SOLUTIONS -U-
AUTHOR--(03)--KRETOVICH, V.L., ZOTOVA, N.N., BUSAREVA, N.N.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(6), 1480-2
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--HEAVY WATER, STARCH, FLUID VISCOSITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/1100 STEP NO--UR/0020/70/190/006/1480/1482
CIRC ACCESSION NO--AT0119959
UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AT0119959
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VISCOSITY DATA ARE REPORTED FOR
SOLNS. OF STARCH THAT HAD BEEN FORMED INTO PASTE WITH H SUB2 O AND D
SUB2 O WITH AND WITHOUT ADDED UREA AT 100DEGREES. THE FORMATION OF
PASTE WITH D SUB2 O TENDS TO DENSIFY THE MICELLES AND LOWERS THE
VISCOSITY OF THE PASTE. THE RELATIVE VISCOSITY OF PASTE FROM CORNSTARCH
INCREASED GREATLY IN CONTACT WITH UREA IN BOTH H SUB2 O AND D SUB2 O.
UREA HAD LITTLE EFFECT IN THIS RESPECT ON POTATO STARCH PREPD. IN PASTE
FORM IN H SUB2 O, BUT IN D SUB2 O A LARGE INCREASE IN VISCOSITY AFTER
CONTACT WITH UREA WAS AGAIN NOTED. HYDRODYNAMIC VOLS. OF MICELLES OF
THESE STARCHES WERE DETD. AND TABULATED UNDER THE ABOVE CONDITIONS. IT
WAS SHOWN THAT D SUB2 O LOWERS THE SPECIFIC HYDRODYNAMIC VOL. OF THE
STARCH MICELLES. THIS IS CAUSED BY GREATER STABILITY OF BONDS FORMED BY
D, GREATER COMPACTNESS OF THE MICELLES, AND GREATER DIFFICULTY OF
PENETRATION OF H SUB2 O INTO SUCH MICELLES. THE MICELLES OF PASTE FROM
CORNSTARCH ARE THUS MUCH MORE DENSE THAN THOSE FROM POTATO STARCH. THE
LATTER STARCH, HOWEVER, HAS MUCH WEAKER H BONDS AND A LESS TIGHTLY
BONDED MICELLE FORM. FACILITY: MOSK. TEKHNOL. INST. PISHCH.
PROM., MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr.

AP0048448

Abstracting Service:
CHEMICAL ABST. 5/70

Ref. Code

UR0449

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105592j Optical and luminescent properties of single crystals of In₂Ga_{1-x}As solid solutions. Burdakov, Yu. M.; Zolotarev, N. V.; Khalilov, Kh. A. (Fiz.-Tekh. Inst. im. Ioffe, Leningrad, USSR). *Fiz. Tekh. Poluprov.* 1970, 4(1), 174-8 (Russ). The electrophys., optical, and luminescent properties of good-quality single crystals of the solid solns. In₂Ga_{1-x}As, contg. small addns. of the 2nd component and grown by the Czochralski method, were investigated. The width of the energy gaps was detd. from the optical-absorption curves. The intensity of the luminescence of the solid solns., which is as strong as that of the starting InAs and GaAs, reveals the possibility of using the crystals in the prepn. of effective light sources.

Alexandre Fuchs

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REEL/FRAME
19800156

18/14

USSR

ZOTOVA, R. S.

UDC: 911.3.616-021.614.777

"A Description of Vibrios Isolated From Water Supply"

V-sb. Materialy XV Vses. s'ezda epidemiologov, mikrobiologov i infektsionistov, Tezisy dokl. Ch. I (Proceedings of the 15th All Union Conference of Epidemiologists, Microbiologists, and Specialists in Infectious Diseases, Moscow, 1970, pp 194-195 (from RZh-36. Meditsinskaya geografiya, No 1, Jan 71, Abstract No 1.36.58 by V. Maslovskaya)

Translation: Taking into account the water factor in transmission of cholera infection, and the danger in this kind of transmission, bacteriological studies were made of the waters of rivers arising in Iran and Afghanistan. During the years 1965-1968, 126 strains of vibrios agglutinated by cholera O-serum were isolated from various bodies of water. 101 vibrio strains isolated from rivers were studied. These vibrios appear to be closer to the non-pathogenic Zam-zam types. This is borne out by the fact that none of the people living near these bodies of water basins have contracted cholera, and that research on large population masses reveals no cases of vibriion transmission.

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USSR

UDC 615.281.8:547,728.2

GRINEV, A. N., ZOTOVA, S. A., BOGDANOVA, N. S., NIKOLAYEVA, I. S. and
PERSHIN, G. N., All-Union Scientific Research Chemical-Pharmaceutical Insti-
tute imeni S. Orkzhonikidze, Moscow

"The Synthesis and Investigation of the Antiviral Properties of Dibenzofuran Derivatives"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 7, No 12, Dec 73, pp 19-21

Abstract: Seventeen dibenzofuran derivatives were synthesized from 2-oxy-6,7,8,9-tetrahydrodibenzofuran or 2-oxy-dibenzofuran, by bromination, substitution of nitro groups for bromine, aminomethylation and formation of alkylamine ester hydrochlorides. Five of the hydrochlorides were found to have virocidal activity, with one ten times more effective than the others. No therapeutic effect was established.

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USSR

UDC 669.018.8

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

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

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

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

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UDC: 621.791.856.3:546.821

USSR

ZOTOVA, Ye. M., LANGER, N. A., PRILUTSKIY, V. P., and ZAMKOV, V. N.:
Institute of Electric Welding imeni Ye. O. Paton, Academy of Sciences
Ukrainian SSR

"Corrosion Resistance of Titanium Joints Made by Argon Arc Welding Using
AN-T17A Flux"

Kiev, Avtomaticheskaya Svarka, No 11, Nov 70, pp 54-56

Abstract: A study was made of the corrosion resistance of titanium joints produced by argon arc welding using flux. Various methods of removing the slag film were also assessed. Involved were two experimental alloys, one of which was TS5 of the titanium-aluminum-zirconium-tin-vanadium system and the other was OT4. The specimens were welded using AN-T17A flux and titanium powder metal wire. Hydrochloric, sulfuric, and nitric acids served as the corrosive media. Mechanical removal of the slag film was found to insure a corrosion resistance of the joints equal to two-sided plan. Regardless of the method of slag film removal, welds made with the use of AN-T17A flux appear to have a higher corrosion resistance than those made by conventional argon-arc welding.

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1/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--THE GROWTH OF MICROORGANISMS IN THIN CAPILLARIES AND FILMS -U-

AUTHOR--ZDYAGINTSEV, D.G. Z

COUNTRY OF INFO--USSR

SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 1, PP161-165

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PECULIARITIES OF MICROBIAL GROWTH WERE STUDIED IN PERFILIEV GLASS CAPILLARIES OF VARIOUS DIAMETER. THE GROWTH RATE OF AEROBIC AND FACULTATIVE ANAERUBIC BACTERIA AS WELL AS OF FERMENTING AND RESPIRING YEASTS WAS SHOWN TO DECREASE DURING THEIR GROWTH IN THIN CAPILLARIES; CELL SIZE ALSO DIMINISHED BUT REDUCTION PROCESSES WERE MORE INTENSIVE.

UNCLASSIFIED

USSR

UDC 613.165:612.843.36

ZOZ, N. I., and TAUBKINA, A. A., Institute of Labor Hygiene and Occupational Diseases, Academy of Sciences USSR, Moscow

"Effect of a Decrease in Brightness on the Functional State of the Visual Analysor"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 9, Sep 70, pp 19-23

Abstract: On-the-job studies of subway motormen, together with laboratory experiments, showed distinct decreases in visibility, duration of dark adaptation, level of color discrimination, and rate of differentiation, with uneven distribution of brightness in the visual field, at the end of a work shift, even when the motormen were not actually at the controls. Their work involves frequent 20 to 30 sec stops in stations (brightness, 20 to 130 nit) and 2 to 3 min rides in tunnels (brightness, 0.05 to 0.1 nit), with as many as 250 to 300 abrupt changes in brightness during a 6-hour work shift. The rate of discrimination decreased in proportion to the magnitude of the decrease in brightness for objects of all sizes. Discrimination time increased very sharply in response to a 1,000-fold decrease in brightness. Since all of the changes in visual function became more pronounced with time, owing to the development of fatigue, the duration of a shift must be carefully regulated. Levels of brightness should not differ by more than a factor of 500, under which conditions discrimination time does not increase significantly during a shift.

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Genetics

UDC 575.23.633.11:547

USSR

ZOZ, N. N., SEREBRIANNYY, A. M., and ABRAMOV, V. I., Institute of Chemical Physics, Academy of Sciences USSR, Moscow

"Dominant Mutations in Chemical Mutagenesis"

Kiev, Tsitologiya i Genetika, Vol 5, No 6, Nov/Dec 71, pp 497-499

Abstract: The effects of the mutagens N-nitrosoethylurea, N-nitroso-N-ethylurethan, N-nitroso-N-methyl-N'-nitroguanidine, ethyl methanesulfonate, and N-nitrosopiperazine on seeds of the soft winter wheat variety Belotserkovskaya-198 were studied. N-nitropiperazine was investigated for the first time. All the mutagens studied had approximately the same effect as far as the frequency of recessive mutations induced by them was concerned (50-60 percent mutant families in M₂), but their capacity to induce dominant mutations differed widely. The most active substance in inducing dominant mutations was N-nitrosoethylurea, which in its optimum concentration (0.05 percent) produced a ratio of the frequency of dominant to recessive mutations of 1 : 2.5. N-nitrosopiperazine, while inducing a high frequency of recessive mutations manifested in M₂, did not induce any discernible mutations in M₁. The other mutants tested occupied intermediate positions with respect to the ratio of dominant to recessive mutations. The high activity of

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ZOZ, N. N., et al., Tsitologiya i Genetika, Vol 5, No 6, Nov/Dec 71, pp 497-499

N-nitrosoethylurea in inducing dominant mutations may be related to the fact that nitrosoalkylureas, as has been shown in in vitro experiments, introduce a carbamoyl group into DNA besides acting as alkylating agents.

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USSR

ZOZ, N. N., and RAPOPORT, I. A. (Editors)

Teoriya Khimicheskogo mutageneza (Theory of Chemical Mutagenesis), Moscow, "Nauka," 1971

Translation: Preface: Interest in the theoretical problems of chemical mutagenesis has increased significantly in recent years in connection with the intensive use of this method in selection and with the discovery of a number of interesting and new phenomena in experimental mutagenesis.

The collection reflects the present status of the basic problems of chemical mutagenesis: the mechanism of action of mutagens, specificity of mutagenesis, the role of the genotype in experimental mutagenesis, etc.

Among the most effective known mutagens in frequency of hereditary changes and spectrum, the most important is to N-nitrosalkylurea. For this reason a great number of studies are devoted to investigation of the characteristics of this group of mutagens.

In recent years geneticists and selection specialists have been interested in minor mutations of a quantitative character, chlorophyll, physiological,

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